

## ภาคผนวก ค

ใบรับรองผลการตรวจวิเคราะห์

# ภาคผนวก ค.1

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ผลการตรวจสอบความถูกต้องของ CEMS ประจำปี พ.ศ. 2567





## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 2418849  
Date Received : Sep 11, 2024  
Date Reported : Sep 24, 2024  
Report Number : 2914267-1

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Sample Number 2418849-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location ปล่อง HRSG 11  
Parameter NOx

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	11 Sep 24	10:35	10:55	12.70	11.98	26.71	23.61	-3.10
2*	11 Sep 24	10:56	11:16	12.85	12.12	27.05	23.90	-3.15
3	11 Sep 24	11:17	11:37	12.93	12.32	27.23	24.29	-2.94
4	11 Sep 24	11:38	11:58	12.87	12.40	26.92	24.36	-2.55
5*	11 Sep 24	11:59	12:19	17.74	16.40	37.66	32.37	-5.29
6	11 Sep 24	12:20	12:40	17.60	18.19	37.53	36.23	-1.30
7	11 Sep 24	12:41	13:01	17.37	17.64	36.98	35.16	-1.82
8	11 Sep 24	13:02	13:22	12.48	12.46	26.19	24.53	-1.66
9	11 Sep 24	13:23	13:43	12.65	12.27	26.59	24.23	-2.37
10	11 Sep 24	13:44	14:04	12.79	12.53	26.91	24.80	-2.12
11	11 Sep 24	14:05	14:25	12.99	12.78	27.42	25.34	-2.08
12	11 Sep 24	14:26	14:46	13.02	12.82	27.55	25.46	-2.09
Average						29.26	27.15	-2.10
Confidence Coefficient (CC)								0.37
Relative Accuracy (Compared with Emission Standard : 60 ppm) (%)								4.13
Relative Accuracy Criteria <sup>1/</sup> (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 7E

Remark: \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard 60 ppm at 7%O2

RA Result is within Criteria

Technical Management

*Wichan Choonharat*  
Wichan Choonharat  
Manager

ทะเบียนเลขที่ 2-204-ก-0006

Approved by

*Sarayuth Jitranont*  
Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ 2-204-ก-0003

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## Analysis / Test Report

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000  
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Project Location : GNNK

Lot ID: 2418849  
Date Received : Sep 11, 2024  
Date Reported : Sep 24, 2024  
Report Number : 2914267-1

Page 2 of 3

Sample Number 2418849-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location ปล่อง HRSG 11  
Parameter CO

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	11 Sep 24	10:35	10:55	0.03	0.49	0.07	0.96	0.89
2	11 Sep 24	10:56	11:16	0.03	0.52	0.07	1.02	0.95
3	11 Sep 24	11:17	11:37	0.01	0.52	0.03	1.03	1.00
4	11 Sep 24	11:38	11:58	0.04	0.54	0.08	1.05	0.97
5	11 Sep 24	11:59	12:19	0.02	0.50	0.05	0.99	0.94
6	11 Sep 24	12:20	12:40	0.01	0.47	0.02	0.94	0.92
7	11 Sep 24	12:41	13:01	0.01	0.52	0.02	1.04	1.02
8	11 Sep 24	13:02	13:22	0.03	0.65	0.07	1.28	1.21
9	11 Sep 24	13:23	13:43	0.05	0.74	0.10	1.45	1.35
10*	11 Sep 24	13:44	14:04	0.02	0.77	0.05	1.51	1.46
11*	11 Sep 24	14:05	14:25	0.04	0.80	0.09	1.59	1.50
12*	11 Sep 24	14:26	14:46	0.02	0.91	0.05	1.81	1.76
Average						0.06	1.09	1.03
Confidence Coefficient (CC)								0.12
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.17
Relative Accuracy Criteria <sup>1/</sup> (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark: \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard 690 ppm at 7%O2

RA Result is within Criteria

Technical Management

*Wichan Choonharat*  
Wichan Choonharat  
Manager

ทะเบียนเลขที่ 2-204-ก-0006

Approved by

*Sarayuth Jitranont*  
Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ 2-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 2418849

Date Received : Sep 11, 2024

Date Reported : Sep 24, 2024

Report Number : 2914267-1

Sample Number 2418849-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location บ่อก๊าซ HRSG 11  
Parameter O<sub>2</sub>

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### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	11 Sep 24	10:35	10:55	14.29	13.85	-0.45
2	11 Sep 24	10:56	11:16	14.30	13.85	-0.45
3*	11 Sep 24	11:17	11:37	14.30	13.85	-0.45
4	11 Sep 24	11:38	11:58	14.26	13.83	-0.43
5*	11 Sep 24	11:59	12:19	14.35	13.86	-0.50
6*	11 Sep 24	12:20	12:40	14.38	13.92	-0.46
7	11 Sep 24	12:41	13:01	14.37	13.93	-0.44
8	11 Sep 24	13:02	13:22	14.28	13.84	-0.44
9	11 Sep 24	13:23	13:43	14.29	13.86	-0.43
10	11 Sep 24	13:44	14:04	14.30	13.87	-0.42
11	11 Sep 24	14:05	14:25	14.32	13.89	-0.43
12	11 Sep 24	14:26	14:46	14.33	13.90	-0.43
Average				14.30	13.87	-0.43
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.43
Relative Accuracy Criteria <sup>1/</sup> (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark: \* Sample with \* Is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of O<sub>2</sub> Is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result Is within Criteria

Sampled By : Ussaree Namburee

Technical Management

Wichan Choonharat

Manager

ทะเบียนเลขที่ 7-204-ก-0006

Approved by

Sarayuth Jitranont

Assistant General Manager

ทะเบียนเลขที่ 7-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101304

Date Received : Sep 11, 2024

Date Reported : Sep 30, 2024

Report Number : 3111845-1

Sample Number 24101304-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location บ่อก๊าซ HRSG 11  
Parameter Flowrate

Page 1 of 2

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Flowrate Data		Difference
		Start	Stop	CEMs (Nm <sup>3</sup> /Hr)	RM (Nm <sup>3</sup> /Hr)	
1	11 Sep 24	10:35	10:55	413,957	359,740	-54,217
2	11 Sep 24	10:56	11:16	413,919	358,593	-55,326
3*	11 Sep 24	11:17	11:37	413,314	342,916	-70,398
4*	11 Sep 24	11:38	11:58	402,781	334,349	-68,432
5	11 Sep 24	11:59	12:19	312,329	283,016	-29,313
6	11 Sep 24	12:20	12:40	311,567	271,017	-40,550
7*	11 Sep 24	12:41	13:01	313,281	257,792	-55,489
8	11 Sep 24	13:02	13:22	388,657	367,487	-21,170
9	11 Sep 24	13:23	13:43	411,357	364,899	-46,458
10	11 Sep 24	13:44	14:04	412,767	361,720	-51,047
11	11 Sep 24	14:05	14:25	415,038	362,142	-52,896
12	11 Sep 24	14:26	14:46	414,405	363,838	-50,567
Average				388,222	343,606	-44,616
Confidence Coefficient (CC)						9.240
Relative Accuracy <sup>1/</sup> (Compared with RM) (%)						15.67
Relative Accuracy Criteria (Compared with RM)						≤ 20 %

Reference Method : US EPA Method 2

Remark: \* Sample with \* Is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of Flowrate Is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 6 (PS-6)

RA Result is within Criteria

Technical Management

Wichan Choonharat

Manager

ทะเบียนเลขที่ 7-204-ก-0006

Approved by

Sarayuth Jitranont

Assistant General Manager

ทะเบียนเลขที่ 7-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101304  
Date Received : Sep 11, 2024  
Date Reported : Sep 30, 2024  
Report Number : 3111845-1

Page 2 of 2

Sample Number 24101304-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location โรงโผล่ HRSG 11  
Parameter Stack Temperature

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Temperature Data		Difference
		Start	Stop	CEMs (°C)	RM (°C)	
1	11 Sep 24	10:35	10:55	98.3	98.0	-0.3
2	11 Sep 24	10:56	11:16	98.1	97.0	-1.1
3	11 Sep 24	11:17	11:37	98.0	94.0	-4.0
4*	11 Sep 24	11:38	11:58	97.8	92.0	-5.8
5	11 Sep 24	11:59	12:19	93.9	91.0	-2.9
6	11 Sep 24	12:20	12:40	91.7	91.0	-0.7
7	11 Sep 24	12:41	13:01	90.9	90.0	-0.9
8	11 Sep 24	13:02	13:22	92.8	91.0	-1.8
9	11 Sep 24	13:23	13:43	95.6	91.0	-4.6
10	11 Sep 24	13:44	14:04	96.8	93.0	-3.8
11*	11 Sep 24	14:05	14:25	97.6	93.0	-4.6
12*	11 Sep 24	14:26	14:46	98.1	93.0	-5.1
Average				95.1	92.9	-2.2
Confidence Coefficient (CC)						1.3
Relative Accuracy <sup>1/</sup> (Compared with RM) (%)						3.7
Relative Accuracy Criteria (Compared with RM)						≤ 20 %

Reference Method : US EPA Method 2

Remark: \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of Stack Temperature is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 6 (PS-6)

RA Result is within Criteria

Sampled By : Artit Srisen

Technical Management

Wichan Choonharat

Manager

ทะเบียนเลขที่ 2-204-ก-0006

Approved by

Sarayuth Jitranont

Assistant General Manager

ทะเบียนเลขที่ 2-204-ก-0003

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## Analysis / Test Report

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P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 2418850  
Date Received : Sep 11, 2024  
Date Reported : Sep 24, 2024  
Report Number : 2914265-1

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Sample Number 2418850-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location โรงโผล่ HRSG 12  
Parameter NOx

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	11 Sep 24	10:35	10:55	21.44	21.79	43.21	44.12	0.90
2	11 Sep 24	10:56	11:16	22.06	22.02	44.50	44.53	0.04
3	11 Sep 24	11:17	11:37	22.04	22.19	44.42	44.85	0.43
4	11 Sep 24	11:38	11:58	21.91	22.18	43.85	44.68	0.83
5	11 Sep 24	11:59	12:19	24.38	24.16	49.84	49.40	-0.44
6	11 Sep 24	12:20	12:40	24.11	24.05	49.41	49.42	0.01
7	11 Sep 24	12:41	13:01	24.63	24.77	50.64	51.08	0.44
8*	11 Sep 24	13:02	13:22	20.99	21.30	42.20	43.10	0.90
9	11 Sep 24	13:23	13:43	21.68	21.74	43.58	44.01	0.43
10	11 Sep 24	13:44	14:04	21.71	21.97	43.74	44.55	0.81
11	11 Sep 24	14:05	14:25	21.88	15.12	44.21	44.07	-0.14
12*	11 Sep 24	14:26	14:46	22.11	22.52	44.76	45.89	1.13
Average						46.02	46.29	0.27
Confidence Coefficient (CC)								0.33
Relative Accuracy (Compared with RM) (%)								1.29
Relative Accuracy Criteria <sup>1/</sup> (Compared with RM)								≤ 20%

Reference Method : US EPA Method 7E

Remark: \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management

Wichan Choonharat

Manager

ทะเบียนเลขที่ 2-204-ก-0006

Approved by

Sarayuth Jitranont

Assistant General Manager

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P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 2418850

Date Received : Sep 11, 2024

Date Reported : Sep 24, 2024

Report Number : 2914265-1

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Sample Number 2418850-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location ปล่อย HRSG 12  
Parameter CO

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	11 Sep 24	10:35	10:55	0.00	0.40	0.00	0.81	0.81
2	11 Sep 24	10:56	11:16	0.00	0.38	0.00	0.78	0.78
3	11 Sep 24	11:17	11:37	0.00	0.38	0.00	0.76	0.76
4	11 Sep 24	11:38	11:58	0.00	0.34	0.00	0.68	0.68
5	11 Sep 24	11:59	12:19	0.00	0.29	0.00	0.60	0.60
6	11 Sep 24	12:20	12:40	0.00	0.30	0.00	0.61	0.61
7	11 Sep 24	12:41	13:01	0.00	0.33	0.00	0.68	0.68
8*	11 Sep 24	13:02	13:22	0.00	0.44	0.00	0.89	0.89
9*	11 Sep 24	13:23	13:43	0.00	0.48	0.00	0.97	0.97
10*	11 Sep 24	13:44	14:04	0.00	0.46	0.00	0.94	0.94
11	11 Sep 24	14:05	14:25	0.00	0.18	0.00	0.52	0.52
12	11 Sep 24	14:26	14:46	0.00	0.41	0.00	0.84	0.84
Average						0.00	0.70	0.70
Confidence Coefficient (CC)								0.08
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.11
Relative Accuracy Criteria <sup>1/</sup> (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

Remark : \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with

Emission Standard 690 ppm at 7%O2

RA Result is within Criteria

Technical Management

Wichan Choonharat

Wichan Choonharat  
Manager

ทะเบียนเลขที่ 2-204-ก-0006

Approved by

Sarayuth Jittranont

Sarayuth Jittranont  
Assistant General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 2418850

Date Received : Sep 11, 2024

Date Reported : Sep 24, 2024

Report Number : 2914265-1

Page 3 of 3

Sample Number 2418850-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location ปล่อย HRSG 12  
Parameter O2

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	11 Sep 24	10:35	10:55	14.00	14.03	0.03
2	11 Sep 24	10:56	11:16	14.01	14.03	0.02
3	11 Sep 24	11:17	11:37	14.00	14.02	0.02
4*	11 Sep 24	11:38	11:58	13.95	14.00	0.05
5	11 Sep 24	11:59	12:19	14.10	14.10	0.00
6	11 Sep 24	12:20	12:40	14.12	14.14	0.02
7	11 Sep 24	12:41	13:01	14.14	14.16	0.02
8	11 Sep 24	13:02	13:22	13.99	14.03	0.04
9*	11 Sep 24	13:23	13:43	13.99	14.03	0.05
10	11 Sep 24	13:44	14:04	14.00	14.05	0.05
11*	11 Sep 24	14:05	14:25	14.02	16.13	2.11
12	11 Sep 24	14:26	14:46	14.03	14.08	0.05
Average				14.04	14.07	0.03
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.03
Relative Accuracy Criteria <sup>1/</sup> (%)						≤ 1%

Reference Method : US EPA Method 3A

Remark : \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management

Wichan Choonharat

Wichan Choonharat  
Manager

ทะเบียนเลขที่ 2-204-ก-0006

Approved by

Sarayuth Jittranont

Sarayuth Jittranont  
Assistant General Manager

ทะเบียนเลขที่ 2-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101306  
Date Received : Sep 11, 2024  
Date Reported : Sep 30, 2024  
Report Number : 3111844-1

Page 1 of 2

Sample Number 24101306-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location ปล่อย HRSG 12  
Parameter Flowrate

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Flowrate Data		Difference
		Start	Stop	CEMs (Nm <sup>3</sup> /Hr)	RM (Nm <sup>3</sup> /Hr)	
1	11 Sep 24	10:35	10:55	413,295	355,302	-57,993
2	11 Sep 24	10:56	11:16	413,552	356,906	-56,646
3	11 Sep 24	11:17	11:37	413,081	356,485	-56,596
4	11 Sep 24	11:38	11:58	402,838	355,086	-47,752
5	11 Sep 24	11:59	12:19	316,505	352,737	36,232
6	11 Sep 24	12:20	12:40	315,662	315,029	-633
7	11 Sep 24	12:41	13:01	314,310	276,495	-37,815
8*	11 Sep 24	13:02	13:22	387,424	289,345	-98,079
9	11 Sep 24	13:23	13:43	410,795	353,164	-57,631
10	11 Sep 24	13:44	14:04	412,857	351,182	-61,675
11*	11 Sep 24	14:05	14:25	415,533	353,287	-62,246
12*	11 Sep 24	14:26	14:46	414,705	350,898	-63,807
Average				379,211	341,376	-37,834
Confidence Coefficient (CC)						25,840
Relative Accuracy <sup>1/</sup> (Compared with RM) (%)						18.65
Relative Accuracy Criteria (Compared with RM)						≤ 20 %

Reference Method : US EPA Method 2

Remark: \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of Flowrate is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 6 (PS-6)

RA Result is within Criteria

Technical Management   
Wichan Choonharat  
Manager  
ทะเบียนเลขที่ ว-204-ก-0006

Approved by   
Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101306  
Date Received : Sep 11, 2024  
Date Reported : Sep 30, 2024  
Report Number : 3111844-1

Page 2 of 2

Sample Number 24101306-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location ปล่อย HRSG 12  
Parameter Stack Temperature

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Temperature Data		Difference
		Start	Stop	CEMs (°C)	RM (°C)	
1	11 Sep 24	10:35	10:55	98.6	101.0	2.4
2	11 Sep 24	10:56	11:16	98.4	100.0	1.6
3	11 Sep 24	11:17	11:37	98.3	100.0	1.7
4	11 Sep 24	11:38	11:58	98.1	99.8	1.7
5*	11 Sep 24	11:59	12:19	94.4	99.0	4.6
6*	11 Sep 24	12:20	12:40	92.7	99.0	6.3
7*	11 Sep 24	12:41	13:01	92.0	97.0	5.0
8	11 Sep 24	13:02	13:22	93.9	94.0	0.1
9	11 Sep 24	13:23	13:43	96.3	98.0	1.7
10	11 Sep 24	13:44	14:04	97.4	97.2	-0.2
11	11 Sep 24	14:05	14:25	98.0	98.6	0.6
12	11 Sep 24	14:26	14:46	98.5	100.0	1.5
Average				97.5	98.7	1.2
Confidence Coefficient (CC)						0.7
Relative Accuracy <sup>1/</sup> (Compared with RM) (%)						1.9
Relative Accuracy Criteria (Compared with RM)						≤ 20 %

Reference Method : US EPA Method 2


Remark: \* Sample with \* is a rejected data

<sup>1/</sup> Relative Accuracy Criteria of Stack Temperature is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 6 (PS-6)

RA Result is within Criteria

Sampled By : Prasert Surakhan

Technical Management   
Wichan Choonharat  
Manager  
ทะเบียนเลขที่ ว-204-ก-0006

Approved by   
Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101156  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number :3121829-1

Page 1 of 2

Sample Number : 24101156-1 to 7  
Parameter : Wind Speed / Wind Direction  
Location : พื้นที่โครงการ (GPS 47P 1519270, 0718068)  
Sampling Date : Sep 10 - Sep 17, 2024  
Sampling by : Autit Aoonsim

Time	Sep 10 - Sep 11, 2024		Sep 11 - Sep 12, 2024		Sep 12 - Sep 13, 2024		Sep 13 - Sep 14, 2024		Sep 14 - Sep 15, 2024		Sep 15 - Sep 16, 2024		Sep 16 - Sep 17, 2024	
	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	2.2	158.0	SSE	2.7	192.0	SSW	3.1	223.0	SW	2.4	174.0	S	3.3	239.0
10:00 AM - 11:00 AM	2.8	202.0	SSW	3.2	228.0	SW	3.6	256.0	WSW	2.4	174.0	S	3.3	237.0
11:00 AM - 12:00 PM	2.3	164.0	SSE	2.4	173.0	S	2.5	182.0	S	3.0	212.0	SSW	2.6	184.0
12:00 PM - 01:00 PM	2.8	199.0	SSW	2.4	169.0	S	2.3	164.0	SSE	2.7	190.0	S	2.9	211.0
01:00 PM - 02:00 PM	2.1	152.0	SSE	2.4	175.0	S	2.2	156.0	SSE	2.4	169.0	S	2.7	191.0
02:00 PM - 03:00 PM	3.1	224.0	SW	2.5	182.0	S	2.8	200.0	SSW	2.7	194.0	SSW	2.2	155.0
03:00 PM - 04:00 PM	2.4	175.0	S	2.5	177.0	S	2.5	183.0	S	2.1	148.0	SSE	3.1	225.0
04:00 PM - 05:00 PM	3.1	222.0	SW	2.2	156.0	SSE	2.2	157.0	SSE	2.7	192.0	SSW	1.5	106.0
05:00 PM - 06:00 PM	2.0	144.0	SE	2.5	180.0	S	3.3	235.0	SW	2.0	147.0	SSE	4.2	299.0
06:00 PM - 07:00 PM	0.4	31.0	NNE	5.0	359.0	N	3.5	250.0	WSW	2.3	166.0	SSE	2.7	194.0
07:00 PM - 08:00 PM	0.4	31.0	NNE	4.6	333.0	NNW	3.2	230.0	SW	2.9	206.0	SSW	2.5	182.0
08:00 PM - 09:00 PM	0.7	52.0	NE	2.8	202.0	SSW	5.0	359.0	N	2.4	170.0	S	2.0	142.0
09:00 PM - 10:00 PM	0.5	36.0	NE	2.1	151.0	SSE	1.9	133.0	SE	2.8	199.0	SSW	2.0	143.0
10:00 PM - 11:00 PM	1.9	135.0	SE	1.3	95.0	E	0.2	-	-	4.3	311.0	NW	1.9	138.0
11:00 PM - 12:00 AM	1.9	135.0	SE	0.6	43.0	NE	0.2	-	-	4.9	349.0	N	2.8	203.0
12:00 AM - 01:00 AM	1.9	135.0	SE	0.6	43.0	NE	1.4	102.0	ESE	1.0	73.0	ENE	0.1	-
01:00 AM - 02:00 AM	1.9	135.0	SE	0.8	59.0	ENE	0.9	65.0	ENE	0.3	-	-	1.2	88.0
02:00 AM - 03:00 AM	0.8	54.0	NE	1.2	89.0	E	0.3	24.0	NNE	3.2	229.0	SW	1.4	97.0
03:00 AM - 04:00 AM	0.8	59.0	ENE	1.6	116.0	ESE	1.3	91.0	E	3.1	222.0	SW	1.2	87.0
04:00 AM - 05:00 AM	0.8	59.0	ENE	1.9	134.0	SE	1.0	72.0	ENE	3.1	222.0	SW	1.8	126.0
05:00 AM - 06:00 AM	1.1	76.0	ENE	1.2	83.0	E	1.2	84.0	E	2.2	160.0	SSE	2.5	182.0
06:00 AM - 07:00 AM	2.5	180.0	S	1.3	96.0	E	1.3	97.0	E	3.1	221.0	SW	3.3	239.0
07:00 AM - 08:00 AM	2.0	143.0	SE	3.9	279.0	W	2.6	189.0	S	2.3	166.0	SSE	3.2	228.0
08:00 AM - 09:00 AM	1.9	137.0	SE	3.3	234.0	SW	2.6	189.0	S	3.4	247.0	WSW	3.7	265.0

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jitranont  
Assistant General Manager

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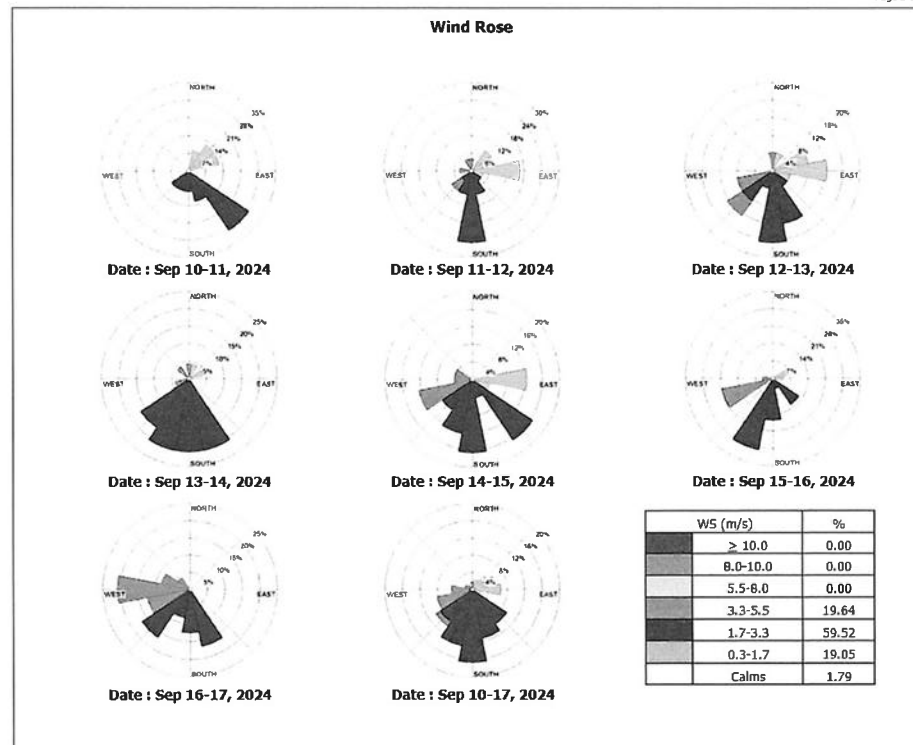
## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101156  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number :3121829-1

Page 2 of 2



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Approved by

Sarayuth Jitranont  
Assistant General Manager

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101153

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3098085-1

Page 1 of 1

**Sample Description** Air Quality  
**Location** บ้านคลองนา GPS 47P (0721913, 1520772)  
**Date Analysis Commenced** Sep 19, 2024  
**Condition of Sample** Drawn into one glass filter paper (8x10 Inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m <sup>3</sup> )	Particulate Matter (PM-10) (mg/m <sup>3</sup> )	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
24101153-1	Sep 10 - Sep 11, 2024	0.035	0.019	754	32
24101153-2	Sep 11 - Sep 12, 2024	0.028	0.023	754	32
24101153-3	Sep 12 - Sep 13, 2024	0.031	0.022	754	34
24101153-4	Sep 13 - Sep 14, 2024	0.028	0.021	754	32
24101153-5	Sep 14 - Sep 15, 2024	0.023	0.018	754	32
24101153-6	Sep 15 - Sep 16, 2024	0.041	0.034	754	34
24101153-7	Sep 16 - Sep 17, 2024	0.052	0.044	754	34
<b>Guideline</b>		0.33	0.12	-	-

### Reference Method

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

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

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

**Sampled By :** Autit Aoonsim

### Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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.

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101153

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121799-1

Page 1 of 1

**Sample Description** Air Quality  
**Location** บ้านนาใหม่ GPS 47P (0721473, 1518740)  
**Date Analysis Commenced** Sep 19, 2024  
**Condition of Sample** Drawn into one glass filter paper (8x10 Inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m <sup>3</sup> )	Particulate Matter (PM-10) (mg/m <sup>3</sup> )	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
24101153-8	Sep 10 - Sep 11, 2024	0.030	0.027	754	32
24101153-9	Sep 11 - Sep 12, 2024	0.027	0.020	754	32
24101153-10	Sep 12 - Sep 13, 2024	0.026	0.019	754	34
24101153-11	Sep 13 - Sep 14, 2024	0.024	0.020	754	32
24101153-12	Sep 14 - Sep 15, 2024	0.019	0.016	754	32
24101153-13	Sep 15 - Sep 16, 2024	0.043	0.029	754	34
24101153-14	Sep 16 - Sep 17, 2024	0.051	0.036	754	32
<b>Guideline</b>		0.33	0.12	-	-

### Reference Method

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

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

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

**Sampled By :** Autit Aoonsim

### Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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.

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101153

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121801-1

Page 1 of 1

Sample Description		Air Quality			
Location		บ้านคลองนาไก่ GPS 47P (0713923, 1517012)			
Date Analysis Commenced		Sep 19, 2024			
Condition of Sample		Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag			
Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
24101153-15	Sep 10 - Sep 11, 2024	0.047	0.030	754	32
24101153-16	Sep 11 - Sep 12, 2024	0.039	0.022	754	32
24101153-17	Sep 12 - Sep 13, 2024	0.041	0.025	754	34
24101153-18	Sep 13 - Sep 14, 2024	0.026	0.021	754	32
24101153-19	Sep 14 - Sep 15, 2024	0.025	0.017	754	32
24101153-20	Sep 15 - Sep 16, 2024	0.056	0.034	754	34
24101153-21	Sep 16 - Sep 17, 2024	0.114	0.054	754	34
Guideline		0.33	0.12	-	-

### Reference Method

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

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

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

Sampled By : Autit Aoonsim

### Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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.

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101153

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121802-1

Page 1 of 1

Sample Description		Air Quality			
Location		บ้านคลองนาไก่ GPS 47P (0714366, 1518888)			
Date Analysis Commenced		Sep 19, 2024			
Condition of Sample		Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag			
Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
24101153-22	Sep 10 - Sep 11, 2024	0.032	0.022	754	32
24101153-23	Sep 11 - Sep 12, 2024	0.024	0.021	754	32
24101153-24	Sep 12 - Sep 13, 2024	0.026	0.024	754	34
24101153-25	Sep 13 - Sep 14, 2024	0.025	0.021	754	32
24101153-26	Sep 14 - Sep 15, 2024	0.020	0.018	754	32
24101153-27	Sep 15 - Sep 16, 2024	0.045	0.037	754	34
24101153-28	Sep 16 - Sep 17, 2024	0.039	0.032	754	34
Guideline		0.33	0.12	-	-

### Reference Method

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

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

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

Sampled By : Autit Aoonsim

### Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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.

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S:\Reports\Air Ambient\7Days.rpt ( 4:15PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101148

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3098078-1

Page 1 of 1

**Sample Description** Air Quality  
**Location** บ้านคลองกลาง GPS 47P (0721913, 1520772)  
**Parameter** Nitrogen dioxide (ppm)  
**Measurement Date** Sep 10, 2024 - Sep 17, 2024  
**Measurement by** Autit Aoonsim

Time	24101148-1 Sep 10, 2024	24101148-2 Sep 11, 2024	24101148-3 Sep 12, 2024	24101148-4 Sep 13, 2024	24101148-5 Sep 14, 2024	24101148-6 Sep 15, 2024	24101148-7 Sep 16, 2024
09:00 AM - 10:00 AM	0.0011	0.0013	0.0013	0.0014	0.0013	0.0014	0.0013
10:00 AM - 11:00 AM	0.0013	0.0012	0.0012	0.0011	0.0013	0.0011	0.0011
11:00 AM - 12:00 PM	0.0012	0.0011	0.0010	0.0010	0.0011	0.0012	0.0010
12:00 PM - 01:00 PM	0.0011	0.0011	0.0010	0.0010	0.0010	0.0017	0.0010
01:00 PM - 02:00 PM	0.0010	0.0011	0.0010	0.0047	0.0010	0.0015	0.0009
02:00 PM - 03:00 PM	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010
03:00 PM - 04:00 PM	0.0012	0.0012	0.0012	0.0012	0.0015	0.0011	0.0012
04:00 PM - 05:00 PM	0.0015	0.0015	0.0014	0.0012	0.0017	0.0012	0.0016
05:00 PM - 06:00 PM	0.0020	0.0025	0.0017	0.0018	0.0024	0.0017	0.0022
06:00 PM - 07:00 PM	0.0031	0.0040	0.0021	0.0030	0.0028	0.0024	0.0027
07:00 PM - 08:00 PM	0.0037	0.0040	0.0031	0.0034	0.0035	0.0026	0.0030
08:00 PM - 09:00 PM	0.0042	0.0049	0.0037	0.0040	0.0042	0.0028	0.0033
09:00 PM - 10:00 PM	0.0035	0.0052	0.0035	0.0034	0.0072	0.0032	0.0031
10:00 PM - 11:00 PM	0.0033	0.0044	0.0037	0.0034	0.0047	0.0034	0.0039
11:00 PM - 12:00 AM	0.0031	0.0037	0.0032	0.0039	0.0044	0.0033	0.0038
12:00 AM - 01:00 AM	0.0029	0.0034	0.0030	0.0042	0.0044	0.0032	0.0035
01:00 AM - 02:00 AM	0.0031	0.0029	0.0030	0.0040	0.0039	0.0034	0.0035
02:00 AM - 03:00 AM	0.0028	0.0035	0.0033	0.0040	0.0040	0.0036	0.0037
03:00 AM - 04:00 AM	0.0029	0.0027	0.0034	0.0054	0.0039	0.0038	0.0041
04:00 AM - 05:00 AM	0.0032	0.0034	0.0046	0.0080	0.0041	0.0041	0.0054
05:00 AM - 06:00 AM	0.0044	0.0037	0.0050	0.0090	0.0050	0.0047	0.0061
06:00 AM - 07:00 AM	0.0041	0.0031	0.0032	0.0045	0.0048	0.0041	0.0044
07:00 AM - 08:00 AM	0.0030	0.0025	0.0022	0.0026	0.0029	0.0028	0.0031
08:00 AM - 09:00 AM	0.0020	0.0020	0.0016	0.0019	0.0018	0.0017	0.0011
Average	0.0025	0.0027	0.0025	0.0033	0.0031	0.0025	0.0028
1hr - Maximum	0.0044	0.0052	0.0050	0.0090	0.0072	0.0047	0.0061
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)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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

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S:\Report\Air SOxNOx.rpt ( 2:59PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101148

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3120209-1

Page 1 of 1

**Sample Description** Air Quality  
**Location** บ้านคลองกลาง GPS 47P (0721473, 1518740)  
**Parameter** Nitrogen dioxide (ppm)  
**Measurement Date** Sep 10, 2024 - Sep 17, 2024  
**Measurement by** Autit Aoonsim

Time	24101148-8 Sep 10, 2024	24101148-9 Sep 11, 2024	24101148-10 Sep 12, 2024	24101148-11 Sep 13, 2024	24101148-12 Sep 14, 2024	24101148-13 Sep 15, 2024	24101148-14 Sep 16, 2024
10:00 AM - 11:00 AM	0.0056	0.0018	0.0016	0.0013	0.0013	0.0012	0.0010
11:00 AM - 12:00 PM	0.0024	0.0019	0.0017	0.0016	0.0014	0.0013	0.0013
12:00 PM - 01:00 PM	0.0023	0.0019	0.0019	0.0018	0.0015	0.0015	0.0016
01:00 PM - 02:00 PM	0.0026	0.0022	0.0021	0.0019	0.0015	0.0015	0.0017
02:00 PM - 03:00 PM	0.0028	0.0022	0.0023	0.0016	0.0016	0.0015	0.0022
03:00 PM - 04:00 PM	0.0028	0.0025	0.0023	0.0015	0.0015	0.0012	0.0017
04:00 PM - 05:00 PM	0.0030	0.0030	0.0023	0.0016	0.0013	0.0014	0.0012
05:00 PM - 06:00 PM	0.0030	0.0033	0.0015	0.0016	0.0014	0.0016	0.0011
06:00 PM - 07:00 PM	0.0033	0.0035	0.0014	0.0016	0.0015	0.0016	0.0012
07:00 PM - 08:00 PM	0.0033	0.0038	0.0017	0.0017	0.0015	0.0018	0.0013
08:00 PM - 09:00 PM	0.0031	0.0040	0.0015	0.0017	0.0014	0.0017	0.0014
09:00 PM - 10:00 PM	0.0035	0.0041	0.0018	0.0018	0.0016	0.0019	0.0018
10:00 PM - 11:00 PM	0.0039	0.0032	0.0017	0.0017	0.0013	0.0019	0.0018
11:00 PM - 12:00 AM	0.0041	0.0035	0.0017	0.0018	0.0016	0.0023	0.0021
12:00 AM - 01:00 AM	0.0039	0.0030	0.0027	0.0018	0.0020	0.0025	0.0021
01:00 AM - 02:00 AM	0.0030	0.0022	0.0019	0.0018	0.0022	0.0026	0.0022
02:00 AM - 03:00 AM	0.0031	0.0019	0.0017	0.0017	0.0017	0.0024	0.0021
03:00 AM - 04:00 AM	0.0024	0.0017	0.0016	0.0023	0.0017	0.0019	0.0017
04:00 AM - 05:00 AM	0.0017	0.0016	0.0015	0.0017	0.0014	0.0015	0.0014
05:00 AM - 06:00 AM	0.0021	0.0014	0.0014	0.0025	0.0013	0.0015	0.0012
06:00 AM - 07:00 AM	0.0023	0.0015	0.0013	0.0017	0.0013	0.0012	0.0014
07:00 AM - 08:00 AM	0.0022	0.0025	0.0014	0.0013	0.0012	0.0011	0.0012
08:00 AM - 09:00 AM	0.0020	0.0014	0.0015	0.0013	0.0011	0.0012	0.0024
09:00 AM - 10:00 AM	0.0017	0.0015	0.0014	0.0013	0.0015	0.0012	0.0037
Average	0.0029	0.0025	0.0017	0.0017	0.0015	0.0016	0.0017
1hr - Maximum	0.0056	0.0041	0.0027	0.0025	0.0022	0.0026	0.0037
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)

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Approved by

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101148

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3120212-1

Page 1 of 1

Sample Description	Air Quality						
Location	บ้านคลองจาว GPS 47P (0713923, 1517012)						
Parameter	Nitrogen dioxide (ppm)						
Measurement Date	Sep 10, 2024 - Sep 17, 2024						
Measurement by	Autit Aoonsim						
Time	24101148-15 Sep 10, 2024	24101148-16 Sep 11, 2024	24101148-17 Sep 12, 2024	24101148-18 Sep 13, 2024	24101148-19 Sep 14, 2024	24101148-20 Sep 15, 2024	24101148-21 Sep 16, 2024
11:00 AM - 12:00 PM	0.0019	0.0015	0.0016	0.0015	0.0016	0.0014	0.0070
12:00 PM - 01:00 PM	0.0017	0.0017	0.0015	0.0016	0.0020	0.0015	0.0042
01:00 PM - 02:00 PM	0.0017	0.0016	0.0014	0.0023	0.0021	0.0016	0.0047
02:00 PM - 03:00 PM	0.0019	0.0021	0.0017	0.0020	0.0033	0.0018	0.0033
03:00 PM - 04:00 PM	0.0022	0.0022	0.0019	0.0022	0.0022	0.0020	0.0027
04:00 PM - 05:00 PM	0.0025	0.0018	0.0019	0.0019	0.0018	0.0016	0.0026
05:00 PM - 06:00 PM	0.0025	0.0017	0.0019	0.0015	0.0019	0.0017	0.0025
06:00 PM - 07:00 PM	0.0021	0.0017	0.0019	0.0015	0.0017	0.0025	0.0027
07:00 PM - 08:00 PM	0.0020	0.0017	0.0019	0.0013	0.0019	0.0018	0.0029
08:00 PM - 09:00 PM	0.0024	0.0026	0.0019	0.0013	0.0020	0.0016	0.0027
09:00 PM - 10:00 PM	0.0019	0.0027	0.0021	0.0014	0.0020	0.0015	0.0039
10:00 PM - 11:00 PM	0.0020	0.0019	0.0022	0.0016	0.0023	0.0017	0.0030
11:00 PM - 12:00 AM	0.0018	0.0017	0.0156	0.0015	0.0027	0.0015	0.0028
12:00 AM - 01:00 AM	0.0018	0.0020	0.0012	0.0017	0.0025	0.0019	0.0038
01:00 AM - 02:00 AM	0.0022	0.0024	0.0014	0.0020	0.0037	0.0033	0.0030
02:00 AM - 03:00 AM	0.0023	0.0032	0.0015	0.0018	0.0022	0.0021	0.0025
03:00 AM - 04:00 AM	0.0024	0.0035	0.0020	0.0027	0.0015	0.0015	0.0022
04:00 AM - 05:00 AM	0.0032	0.0024	0.0180	0.0021	0.0016	0.0016	0.0020
05:00 AM - 06:00 AM	0.0019	0.0018	0.0020	0.0020	0.0015	0.0039	0.0022
06:00 AM - 07:00 AM	0.0017	0.0016	0.0016	0.0029	0.0015	0.0039	0.0027
07:00 AM - 08:00 AM	0.0018	0.0014	0.0017	0.0014	0.0014	0.0034	0.0017
08:00 AM - 09:00 AM	0.0017	0.0015	0.0017	0.0015	0.0014	0.0036	0.0026
09:00 AM - 10:00 AM	0.0017	0.0014	0.0017	0.0014	0.0012	0.0038	0.0025
10:00 AM - 11:00 AM	0.0018	0.0014	0.0016	0.0015	0.0014	0.0063	0.0030
Average	0.0020	0.0020	0.0030	0.0018	0.0020	0.0024	0.0030
1hr - Maximum	0.0032	0.0035	0.0180	0.0029	0.0037	0.0063	0.0070
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 EPAMethod Part 50 App. F (Chemiluminescence)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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.

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S:\Report\Air SOxNOx.rpt ( 2:59PM)



## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101148

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3120214-1

Page 1 of 1

Sample Description	Air Quality						
Location	บ้านนาจอฬารักษ์ GPS 47P (0714336, 1518888)						
Parameter	Nitrogen dioxide (ppm)						
Measurement Date	Sep 10, 2024 - Sep 17, 2024						
Measurement by	Autit Aoonsim						
Time	24101148-22 Sep 10, 2024	24101148-23 Sep 11, 2024	24101148-24 Sep 12, 2024	24101148-25 Sep 13, 2024	24101148-26 Sep 14, 2024	24101148-27 Sep 15, 2024	24101148-28 Sep 16, 2024
12:00 PM - 01:00 PM	0.0039	0.0027	0.0022	0.0020	0.0064	0.0025	0.0024
01:00 PM - 02:00 PM	0.0035	0.0028	0.0029	0.0019	0.0033	0.0033	0.0025
02:00 PM - 03:00 PM	0.0016	0.0026	0.0021	0.0019	0.0026	0.0090	0.0019
03:00 PM - 04:00 PM	0.0027	0.0024	0.0014	0.0027	0.0026	0.0034	0.0021
04:00 PM - 05:00 PM	0.0026	0.0025	0.0013	0.0021	0.0026	0.0024	0.0019
05:00 PM - 06:00 PM	0.0021	0.0020	0.0011	0.0019	0.0023	0.0021	0.0015
06:00 PM - 07:00 PM	0.0021	0.0017	0.0013	0.0018	0.0018	0.0032	0.0013
07:00 PM - 08:00 PM	0.0017	0.0018	0.0014	0.0013	0.0014	0.0022	0.0015
08:00 PM - 09:00 PM	0.0021	0.0038	0.0019	0.0016	0.0017	0.0020	0.0033
09:00 PM - 10:00 PM	0.0035	0.0056	0.0020	0.0018	0.0014	0.0018	0.0030
10:00 PM - 11:00 PM	0.0029	0.0022	0.0016	0.0020	0.0014	0.0025	0.0015
11:00 PM - 12:00 AM	0.0022	0.0017	0.0024	0.0023	0.0013	0.0033	0.0014
12:00 AM - 01:00 AM	0.0020	0.0017	0.0025	0.0015	0.0014	0.0043	0.0015
01:00 AM - 02:00 AM	0.0022	0.0015	0.0021	0.0017	0.0013	0.0055	0.0023
02:00 AM - 03:00 AM	0.0026	0.0022	0.0015	0.0019	0.0013	0.0048	0.0029
03:00 AM - 04:00 AM	0.0037	0.0020	0.0017	0.0023	0.0018	0.0050	0.0045
04:00 AM - 05:00 AM	0.0070	0.0022	0.0019	0.0014	0.0017	0.0142	0.0106
05:00 AM - 06:00 AM	0.0106	0.0037	0.0028	0.0017	0.0016	0.0049	0.0160
06:00 AM - 07:00 AM	0.0152	0.0023	0.0026	0.0041	0.0027	0.0064	0.0056
07:00 AM - 08:00 AM	0.0106	0.0042	0.0031	0.0059	0.0110	0.0047	0.0069
08:00 AM - 09:00 AM	0.0156	0.0056	0.0058	0.0052	0.0133	0.0081	0.0081
09:00 AM - 10:00 AM	0.0096	0.0064	0.0075	0.0098	0.0082	0.0110	0.0151
10:00 AM - 11:00 AM	0.0041	0.0038	0.0051	0.0142	0.0049	0.0065	0.0176
11:00 AM - 12:00 PM	0.0030	0.0031	0.0024	0.0101	0.0035	0.0039	0.0121
Average	0.0049	0.0029	0.0025	0.0034	0.0034	0.0049	0.0053
1hr - Maximum	0.0156	0.0064	0.0075	0.0142	0.0133	0.0142	0.0176
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 EPAMethod Part 50 App. F (Chemiluminescence)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report 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

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S:\Report\Air SOxNOx.rpt ( 3:00PM)





## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101152

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3098083-1

Page 1 of 1

Sample Description Air Quality  
Location บ้านคลองหลวง GPS 47P (0721913, 1520772)  
Parameter Sulfur Dioxide (ppm)  
Measurement Date Sep 10, 2024 - Sep 17, 2024  
Measurement by Audit Aoonsim

Time	24101152-1 Sep 10, 2024	24101152-2 Sep 11, 2024	24101152-3 Sep 12, 2024	24101152-4 Sep 13, 2024	24101152-5 Sep 14, 2024	24101152-6 Sep 15, 2024	24101152-7 Sep 16, 2024
09:00 AM - 10:00 AM	0.0052	0.0030	0.0035	0.0037	0.0033	0.0034	0.0034
10:00 AM - 11:00 AM	0.0042	0.0031	0.0034	0.0035	0.0032	0.0033	0.0034
11:00 AM - 12:00 PM	0.0046	0.0047	0.0039	0.0039	0.0032	0.0036	0.0041
12:00 PM - 01:00 PM	0.0049	0.0056	0.0035	0.0037	0.0035	0.0038	0.0039
01:00 PM - 02:00 PM	0.0046	0.0039	0.0031	0.0036	0.0034	0.0040	0.0036
02:00 PM - 03:00 PM	0.0042	0.0040	0.0029	0.0034	0.0033	0.0041	0.0035
03:00 PM - 04:00 PM	0.0031	0.0055	0.0027	0.0033	0.0032	0.0040	0.0034
04:00 PM - 05:00 PM	0.0030	0.0036	0.0032	0.0032	0.0031	0.0036	0.0037
05:00 PM - 06:00 PM	0.0031	0.0031	0.0033	0.0033	0.0031	0.0036	0.0036
06:00 PM - 07:00 PM	0.0030	0.0030	0.0034	0.0032	0.0035	0.0037	0.0033
07:00 PM - 08:00 PM	0.0032	0.0053	0.0034	0.0031	0.0031	0.0035	0.0033
08:00 PM - 09:00 PM	0.0030	0.0057	0.0032	0.0032	0.0031	0.0031	0.0032
09:00 PM - 10:00 PM	0.0030	0.0032	0.0040	0.0032	0.0033	0.0033	0.0033
10:00 PM - 11:00 PM	0.0028	0.0030	0.0042	0.0035	0.0030	0.0033	0.0030
11:00 PM - 12:00 AM	0.0029	0.0024	0.0038	0.0052	0.0039	0.0033	0.0029
12:00 AM - 01:00 AM	0.0028	0.0044	0.0052	0.0050	0.0036	0.0037	0.0031
01:00 AM - 02:00 AM	0.0028	0.0037	0.0048	0.0033	0.0038	0.0042	0.0033
02:00 AM - 03:00 AM	0.0027	0.0033	0.0048	0.0031	0.0044	0.0031	0.0031
03:00 AM - 04:00 AM	0.0028	0.0030	0.0040	0.0030	0.0038	0.0033	0.0034
04:00 AM - 05:00 AM	0.0029	0.0051	0.0035	0.0030	0.0036	0.0040	0.0038
05:00 AM - 06:00 AM	0.0031	0.0037	0.0038	0.0032	0.0036	0.0037	0.0036
06:00 AM - 07:00 AM	0.0039	0.0053	0.0037	0.0036	0.0031	0.0035	0.0035
07:00 AM - 08:00 AM	0.0034	0.0049	0.0038	0.0034	0.0032	0.0033	0.0031
08:00 AM - 09:00 AM	0.0030	0.0040	0.0037	0.0033	0.0035	0.0034	0.0030
Average	0.0034	0.0040	0.0037	0.0035	0.0034	0.0036	0.0034
1hr - Maximum	0.0052	0.0057	0.0052	0.0052	0.0044	0.0044	0.0041
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

Standard : Notification of the National Environment Board No.10, 1995 (B.E.2538), No. 21, 2001 (B.E.2544) and No.24, 2004 (B.E.2547).  
Reference Method : US EPA Method Part 53 and 58

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report may be reproduced in any form without written consent from the laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report be not reproduced except in full.

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101152

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3120203-1

Page 1 of 1

Sample Description Air Quality  
Location บ้านหลวง GPS 47P (0721473, 1518740)  
Parameter Sulfur Dioxide (ppm)  
Measurement Date Sep 10, 2024 - Sep 17, 2024  
Measurement by Audit Aoonsim

Time	24101152-8 Sep 10, 2024	24101152-9 Sep 11, 2024	24101152-10 Sep 12, 2024	24101152-11 Sep 13, 2024	24101152-12 Sep 14, 2024	24101152-13 Sep 15, 2024	24101152-14 Sep 16, 2024
10:00 AM - 11:00 AM	0.0027	0.0020	0.0028	0.0038	0.0030	0.0031	0.0044
11:00 AM - 12:00 PM	0.0029	0.0020	0.0027	0.0031	0.0028	0.0032	0.0036
12:00 PM - 01:00 PM	0.0030	0.0021	0.0026	0.0031	0.0025	0.0032	0.0034
01:00 PM - 02:00 PM	0.0034	0.0023	0.0027	0.0029	0.0026	0.0034	0.0032
02:00 PM - 03:00 PM	0.0032	0.0023	0.0028	0.0028	0.0027	0.0035	0.0033
03:00 PM - 04:00 PM	0.0031	0.0023	0.0031	0.0030	0.0029	0.0035	0.0033
04:00 PM - 05:00 PM	0.0031	0.0023	0.0029	0.0032	0.0031	0.0035	0.0036
05:00 PM - 06:00 PM	0.0030	0.0024	0.0031	0.0039	0.0039	0.0033	0.0035
06:00 PM - 07:00 PM	0.0031	0.0024	0.0035	0.0042	0.0035	0.0032	0.0030
07:00 PM - 08:00 PM	0.0037	0.0023	0.0037	0.0031	0.0035	0.0031	0.0032
08:00 PM - 09:00 PM	0.0037	0.0024	0.0039	0.0031	0.0034	0.0031	0.0028
09:00 PM - 10:00 PM	0.0032	0.0023	0.0034	0.0032	0.0034	0.0032	0.0028
10:00 PM - 11:00 PM	0.0022	0.0026	0.0035	0.0032	0.0031	0.0033	0.0029
11:00 PM - 12:00 AM	0.0022	0.0025	0.0032	0.0031	0.0035	0.0032	0.0033
12:00 AM - 01:00 AM	0.0021	0.0026	0.0030	0.0028	0.0041	0.0034	0.0033
01:00 AM - 02:00 AM	0.0024	0.0024	0.0031	0.0030	0.0045	0.0037	0.0034
02:00 AM - 03:00 AM	0.0019	0.0026	0.0032	0.0025	0.0047	0.0036	0.0042
03:00 AM - 04:00 AM	0.0018	0.0024	0.0032	0.0027	0.0042	0.0033	0.0037
04:00 AM - 05:00 AM	0.0017	0.0025	0.0029	0.0028	0.0033	0.0037	0.0036
05:00 AM - 06:00 AM	0.0017	0.0024	0.0029	0.0027	0.0053	0.0035	0.0034
06:00 AM - 07:00 AM	0.0017	0.0025	0.0030	0.0027	0.0041	0.0035	0.0032
07:00 AM - 08:00 AM	0.0019	0.0025	0.0031	0.0026	0.0035	0.0034	0.0033
08:00 AM - 09:00 AM	0.0019	0.0026	0.0031	0.0027	0.0033	0.0036	0.0031
09:00 AM - 10:00 AM	0.0019	0.0027	0.0037	0.0030	0.0032	0.0036	0.0030
Average	0.0026	0.0024	0.0031	0.0030	0.0034	0.0034	0.0034
1hr - Maximum	0.0037	0.0027	0.0039	0.0042	0.0053	0.0037	0.0044
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

Standard : Notification of the National Environment Board No.10, 1995 (B.E.2538), No. 21, 2001 (B.E.2544) and No.24, 2004 (B.E.2547).  
Reference Method : US EPA Method Part 53 and 58

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report may be reproduced in any form without written consent from the laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report be not reproduced except in full.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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S:\Reports\Air SOxNOx.rpt ( 3:10PM)



## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101152

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Nub Qer: 312020-nd

Page 1 of 1

Sample Description Air ( quality

Location บ้านคลองจาว GPS 47P 50713923, 1-17012)

Parameter Sulfur Dioxide (ppb )

Measurement Date Sep 10, 2024 to Sep 17, 2024

Measurement by Autit Aoonsinb

Tib e	241011-2nd- Sep 10, 2024	241011-2nd6 Sep 11, 2024	241011-2nd7 Sep 12, 2024	241011-2nd8 Sep 13, 2024	241011-2nd9 Sep 14, 2024	241011-2nd0 Sep 15, 2024	241011-2nd1 Sep 16, 2024
11:00 AM m2:00 PM	0.0032	0.0036	0.0034	0.0033	0.0033	0.0030	0.0027
12:00 PM m1:00 PM	0.0049	0.0036	0.0033	0.0032	0.0024	0.0031	0.0028
01:00 PM m2:00 PM	0.0046	0.0036	0.0034	0.0033	0.0022	0.0028	0.0027
02:00 PM m3:00 PM	0.004-	0.003-	0.0033	0.0033	0.0040	0.0029	0.0027
03:00 PM m4:00 PM	0.0044	0.003-	0.0032	0.0031	0.0029	0.0027	0.0027
04:00 PM m5:00 PM	0.0044	0.0034	0.0032	0.0031	0.0029	0.0027	0.0027
0-:00 PM m6:00 PM	0.0043	0.0034	0.0032	0.0030	0.0028	0.0026	0.0027
06:00 PM m7:00 PM	0.0042	0.0034	0.0032	0.0030	0.0028	0.0027	0.0027
07:00 PM m8:00 PM	0.0042	0.0034	0.0032	0.0031	0.0028	0.0027	0.0027
08:00 PM m9:00 PM	0.0042	0.0034	0.0032	0.0030	0.0028	0.0027	0.0027
09:00 PM m10:00 PM	0.0041	0.0034	0.0032	0.0030	0.0027	0.0027	0.0027
10:00 PM m11:00 PM	0.0040	0.0034	0.0032	0.0030	0.0027	0.0027	0.0027
11:00 PM m12:00 AM	0.0039	0.0034	0.0032	0.0030	0.0028	0.0027	0.0027
12:00 AM m1:00 AM	0.0039	0.0034	0.0032	0.0030	0.0028	0.0027	0.0027
01:00 AM m2:00 AM	0.0039	0.0033	0.0032	0.0030	0.0027	0.0027	0.0027
02:00 AM m3:00 AM	0.0038	0.0033	0.0032	0.0030	0.0027	0.0027	0.0027
03:00 AM m4:00 AM	0.0038	0.0033	0.0032	0.0029	0.0028	0.0027	0.0028
04:00 AM m5:00 AM	0.0038	0.0033	0.0031	0.0030	0.0027	0.0027	0.0028
0-:00 AM m6:00 AM	0.0037	0.0033	0.0031	0.0031	0.0028	0.0029	0.0029
06:00 AM m7:00 AM	0.0037	0.0033	0.0031	0.0030	0.0028	0.0028	0.0028
07:00 AM m8:00 AM	0.0036	0.0032	0.0032	0.0031	0.0028	0.0028	0.0029
08:00 AM m9:00 AM	0.0037	0.0034	0.0032	0.0031	0.0029	0.0029	0.0029
09:00 AM m10:00 AM	0.0038	0.0034	0.0031	0.0032	0.0030	0.0031	0.0031
10:00 AM m11:00 AM	0.0038	0.0034	0.0032	0.0032	0.0029	0.0028	0.0027
Average	0.0040	0.0034	0.0032	0.0031	0.0028	0.0028	0.0028
1hr mMaxib ub	0.0049	0.0036	0.0034	0.0033	0.0040	0.0031	0.0031
Standard 1hr mAverage	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs mAverage	0.12	0.12	0.12	0.12	0.12	0.12	0.12

Standard : Notification of the National Environbent Board No.10, 199- SB.E.2-38), No. 21, 2001 SB.E.2-44) and No.24, 2004 SB.E.2-47).

Reference Method : US EPA Method Part -3 and -8

Approved by

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101152

Date Received : Sep 18, 2024

Date Reported : Sep 24, 2024

Report Number: 3120207-1

Page 1 of 1

Sample Description Air Quality

Location บ้านจาว GPS 47P (0714336, 1518888)

Parameter Sulfur Dioxide (ppm)

Measurement Date Sep 10, 2024 - Sep 17, 2024

Measurement by Autit Aoonsinm

Time	24101152-22 Sep 10, 2024	24101152-23 Sep 11, 2024	24101152-24 Sep 12, 2024	24101152-25 Sep 13, 2024	24101152-26 Sep 14, 2024	24101152-27 Sep 15, 2024	24101152-28 Sep 16, 2024
12:00 PM - 01:00 PM	0.0021	0.0034	0.0033	0.0030	0.0030	0.0032	0.0030
01:00 PM - 02:00 PM	0.0044	0.0034	0.0034	0.0031	0.0030	0.0030	0.0031
02:00 PM - 03:00 PM	0.0042	0.0034	0.0034	0.0030	0.0028	0.0028	0.0032
03:00 PM - 04:00 PM	0.0041	0.0034	0.0034	0.0030	0.0028	0.0027	0.0031
04:00 PM - 05:00 PM	0.0040	0.0034	0.0033	0.0030	0.0028	0.0027	0.0030
05:00 PM - 06:00 PM	0.0040	0.0034	0.0032	0.0031	0.0029	0.0026	0.0028
06:00 PM - 07:00 PM	0.0039	0.0035	0.0032	0.0030	0.0029	0.0027	0.0028
07:00 PM - 08:00 PM	0.0041	0.0035	0.0032	0.0030	0.0028	0.0029	0.0028
08:00 PM - 09:00 PM	0.0042	0.0037	0.0031	0.0029	0.0027	0.0031	0.0027
09:00 PM - 10:00 PM	0.0039	0.0034	0.0031	0.0028	0.0028	0.0032	0.0027
10:00 PM - 11:00 PM	0.0038	0.0034	0.0031	0.0029	0.0028	0.0031	0.0028
11:00 PM - 12:00 AM	0.0037	0.0033	0.0031	0.0029	0.0028	0.0033	0.0028
12:00 AM - 01:00 AM	0.0037	0.0033	0.0031	0.0029	0.0028	0.0033	0.0029
01:00 AM - 02:00 AM	0.0037	0.0032	0.0030	0.0029	0.0028	0.0031	0.0033
02:00 AM - 03:00 AM	0.0036	0.0032	0.0030	0.0029	0.0029	0.0030	0.0032
03:00 AM - 04:00 AM	0.0037	0.0033	0.0031	0.0029	0.0028	0.0028	0.0030
04:00 AM - 05:00 AM	0.0036	0.0033	0.0030	0.0029	0.0028	0.0028	0.0030
05:00 AM - 06:00 AM	0.0036	0.0033	0.0030	0.0029	0.0029	0.0029	0.0031
06:00 AM - 07:00 AM	0.0039	0.0034	0.0031	0.0030	0.0031	0.0032	0.0032
07:00 AM - 08:00 AM	0.0039	0.0034	0.0032	0.0033	0.0030	0.0031	0.0031
08:00 AM - 09:00 AM	0.0037	0.0036	0.0032	0.0031	0.0030	0.0031	0.0031
09:00 AM - 10:00 AM	0.0036	0.0038	0.0034	0.0032	0.0030	0.0031	0.0031
10:00 AM - 11:00 AM	0.0035	0.0037	0.0033	0.0033	0.0029	0.0031	0.0032
11:00 AM - 12:00 PM	0.0034	0.0035	0.0031	0.0032	0.0028	0.0031	0.0026
Average	0.0038	0.0034	0.0032	0.0030	0.0029	0.0030	0.0030
1hr - Maximum	0.0044	0.0038	0.0034	0.0033	0.0031	0.0033	0.0033
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

Standard : Notification of the National Environment Board No.10, 1995 (B.E.2538), No. 21, 2001 (B.E.2544) and No.24, 2004 (B.E.2547).

Reference Method : US EPA Method Part 53 and 58

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24138248  
Date Received :Dec 17, 2024  
Date Reported :Dec 20, 2024  
Report Number :3186254-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample Number : 24138248-1 to 7  
Parameter : Wind Speed / Wind Direction  
Location : พื้นที่โครงการ (GPS 47P 0717879, 1519586)  
Sampling Date : Dec 09 - Dec 16, 2024  
Sampling by : Keerati Taweerat

Page 1 of 2

Time	Dec 09 - Dec 10, 2024		Dec 10 - Dec 11, 2024		Dec 11 - Dec 12, 2024		Dec 12 - Dec 13, 2024		Dec 13 - Dec 14, 2024		Dec 14 - Dec 15, 2024		Dec 15 - Dec 16, 2024								
	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	0.0	-	-	2.3	335.0	NNW	0.0	-	-	1.0	24.0	NNE	2.5	345.0	NNW	0.3	359.0	N	0.0	-	-
10:00 AM - 11:00 AM	0.2	-	-	2.0	356.0	N	0.0	-	-	0.0	-	-	1.7	5.0	N	0.2	-	-	0.7	126.0	SE
11:00 AM - 12:00 PM	0.0	-	-	1.8	0.0	N	0.0	-	-	0.0	-	-	1.7	86.0	E	0.7	5.0	N	0.7	84.0	E
12:00 PM - 01:00 PM	0.0	-	-	2.9	347.0	NNW	1.3	1.0	N	0.0	-	-	2.4	354.0	N	0.0	-	-	1.2	8.0	N
01:00 PM - 02:00 PM	1.2	352.0	N	2.9	0.0	N	0.0	-	-	2.0	22.0	NNE	0.6	359.0	N	0.0	-	-	0.0	-	-
02:00 PM - 03:00 PM	0.0	-	-	1.1	356.0	N	0.0	-	-	1.4	11.0	N	0.9	337.0	NNW	1.3	301.0	WNW	0.0	-	-
03:00 PM - 04:00 PM	3.7	353.0	N	1.5	352.0	N	0.5	304.0	NW	0.5	80.0	E	0.5	336.0	NNW	1.4	350.0	N	0.0	-	-
04:00 PM - 05:00 PM	1.8	95.0	E	0.6	355.0	N	0.7	259.0	W	0.5	301.0	WNW	0.7	302.0	WNW	1.0	359.0	N	0.0	-	-
05:00 PM - 06:00 PM	0.6	354.0	N	0.6	331.0	NNW	0.0	-	0.0	-	-	1.0	313.0	NW	0.0	-	-	0.0	-	-	-
06:00 PM - 07:00 PM	1.7	349.0	N	0.7	338.0	NNW	0.0	-	0.2	-	-	2.8	327.0	NNW	0.0	-	-	1.5	27.0	NNE	-
07:00 PM - 08:00 PM	2.0	337.0	NNW	0.9	345.0	NNW	2.0	291.0	WNW	0.3	312.0	NW	1.0	359.0	N	0.7	1.0	N	0.6	105.0	ESE
08:00 PM - 09:00 PM	2.1	359.0	N	0.4	319.0	NW	1.5	284.0	WNW	0.0	-	-	1.0	347.0	NNW	0.5	80.0	E	0.7	108.0	ESE
09:00 PM - 10:00 PM	1.7	0.0	N	1.0	322.0	NW	2.0	2.0	N	1.8	359.0	N	2.8	80.0	E	0.0	-	-	0.2	-	-
10:00 PM - 11:00 PM	1.8	2.0	N	1.3	1.0	N	0.0	-	-	0.7	34.0	NE	1.9	62.0	ENE	0.0	-	-	0.0	-	-
11:00 PM - 12:00 AM	1.3	1.0	N	1.4	359.0	N	0.0	-	-	2.0	92.0	E	2.3	61.0	ENE	0.0	-	-	0.0	-	-
12:00 AM - 01:00 AM	1.7	100.0	E	0.7	328.0	NNW	2.2	359.0	N	3.2	90.0	E	1.9	72.0	ENE	0.0	-	-	0.0	-	-
01:00 AM - 02:00 AM	1.6	134.0	SE	1.2	313.0	NW	1.4	359.0	N	2.3	103.0	ESE	2.1	114.0	ESE	0.2	-	-	0.0	-	-
02:00 AM - 03:00 AM	1.8	68.0	ENE	0.7	354.0	N	0.0	-	-	2.8	88.0	E	0.0	-	-	0.2	-	-	1.2	356.0	N
03:00 AM - 04:00 AM	1.2	90.0	E	0.5	306.0	NW	0.0	-	-	6.3	213.0	SSW	0.0	-	-	0.5	24.0	NNE	2.3	345.0	NNW
04:00 AM - 05:00 AM	2.2	83.0	E	0.5	328.0	NNW	0.7	53.0	NE	1.3	225.0	SW	0.4	81.0	E	1.3	338.0	NNW	1.0	320.0	NW
05:00 AM - 06:00 AM	1.5	72.0	ENE	1.0	349.0	N	0.7	77.0	ENE	0.7	65.0	ENE	0.5	85.0	E	0.0	-	-	1.0	327.0	NNW
06:00 AM - 07:00 AM	2.4	5.0	N	1.6	69.0	ENE	0.5	75.0	ENE	1.4	359.0	N	0.3	75.0	ENE	0.0	-	-	0.7	309.0	NW
07:00 AM - 08:00 AM	2.8	79.0	E	5.2	73.0	ENE	0.8	56.0	NE	2.0	9.0	N	0.0	-	-	1.0	55.0	NE	0.2	-	-
08:00 AM - 09:00 AM	0.0	-	-	0.7	76.0	ENE	0.0	-	-	2.0	343.0	NNW	0.0	-	-	1.3	38.0	NE	0.8	320.0	NW

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

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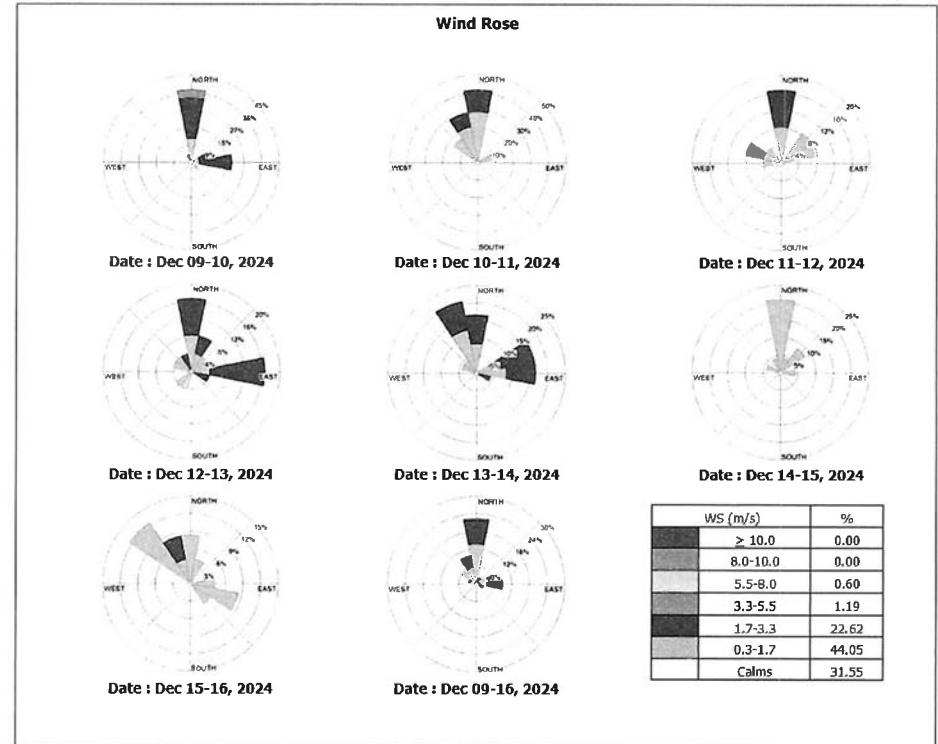
## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24138248  
Date Received :Dec 17, 2024  
Date Reported :Dec 20, 2024  
Report Number :3186254-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 2



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Approved by

Sarayuth Jitranont  
Assistant General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24138248  
Date Received :Dec 17, 2024  
Date Reported :Dec 20, 2024  
Report Number :3186254-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 2

Sample Number : 24138248-8 to 14  
Parameter : Wind Speed / Wind Direction  
Location : บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 0717629, 1521442)  
Sampling Date : Dec 09 - Dec 16, 2024  
Sampling by : Keerati Taweerat

Time	Dec 09 - Dec 10, 2024		Dec 10 - Dec 11, 2024		Dec 11 - Dec 12, 2024		Dec 12 - Dec 13, 2024		Dec 13 - Dec 14, 2024		Dec 14 - Dec 15, 2024		Dec 15 - Dec 16, 2024	
	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)
10:00 AM - 11:00 AM	0.9	351.0	N	1.4	166.0	SSE	1.9	161.0	SSE	0.0	-	-	0.0	-
11:00 AM - 12:00 PM	0.5	329.0	NNW	1.1	210.0	SSW	1.4	206.0	SSW	2.2	193.0	SSW	0.2	-
12:00 PM - 01:00 PM	0.8	322.0	NW	2.8	208.0	SSW	3.4	176.0	S	0.2	-	-	0.0	-
01:00 PM - 02:00 PM	0.3	0.0	N	1.6	252.0	WSW	2.0	200.0	SSW	0.0	-	-	0.0	-
02:00 PM - 03:00 PM	1.9	13.0	NNE	1.2	230.0	SW	1.6	175.0	S	1.8	243.0	WSW	0.2	-
03:00 PM - 04:00 PM	2.8	172.0	S	2.1	140.0	SE	0.8	149.0	SSE	0.6	284.0	WNW	0.0	-
04:00 PM - 05:00 PM	2.4	164.0	SSE	1.6	104.0	ESE	0.9	126.0	SE	0.9	323.0	NW	2.9	342.0
05:00 PM - 06:00 PM	0.2	-	-	3.0	117.0	ESE	2.2	161.0	SSE	1.2	353.0	N	2.9	356.0
06:00 PM - 07:00 PM	0.4	307.0	NW	3.1	85.0	E	2.1	161.0	SSE	1.7	354.0	N	2.1	318.0
07:00 PM - 08:00 PM	0.4	214.0	SW	0.8	85.0	E	2.2	175.0	S	2.1	251.0	WSW	1.4	309.0
08:00 PM - 09:00 PM	0.7	290.0	WNW	1.3	85.0	E	1.0	183.0	S	1.0	197.0	SSW	0.3	262.0
09:00 PM - 10:00 PM	0.4	298.0	WNW	0.3	50.0	NE	2.3	217.0	SW	1.9	233.0	SW	0.1	-
10:00 PM - 11:00 PM	0.3	336.0	NNW	0.3	352.0	N	0.5	246.0	WSW	0.9	197.0	SSW	0.4	338.0
11:00 PM - 12:00 AM	0.1	-	-	0.2	-	-	1.9	217.0	SW	1.1	343.0	NNW	0.7	337.0
12:00 AM - 01:00 AM	1.2	177.0	S	0.1	-	-	0.2	-	-	1.0	286.0	WNW	0.7	348.0
01:00 AM - 02:00 AM	0.4	145.0	SE	1.3	172.0	S	0.1	-	-	0.4	277.0	W	0.9	319.0
02:00 AM - 03:00 AM	1.8	157.0	SSE	1.2	198.0	SSW	0.0	-	-	0.0	-	-	0.7	335.0
03:00 AM - 04:00 AM	2.5	160.0	SSE	1.4	174.0	S	0.8	359.0	N	2.1	116.0	ESE	0.7	323.0
04:00 AM - 05:00 AM	2.4	172.0	S	0.9	232.0	SW	0.4	31.0	NNE	0.7	178.0	S	0.8	345.0
05:00 AM - 06:00 AM	1.6	175.0	S	1.1	188.0	S	0.5	17.0	NNE	1.4	354.0	N	0.5	311.0
06:00 AM - 07:00 AM	2.3	153.0	SSE	1.1	188.0	S	0.0	-	-	0.1	-	-	2.9	139.0
07:00 AM - 08:00 AM	0.3	166.0	SSE	0.3	182.0	S	0.6	28.0	NNE	0.0	-	-	2.1	70.0
08:00 AM - 09:00 AM	1.7	168.0	SSE	1.9	206.0	SSW	0.3	294.0	WNW	0.1	-	-	0.9	104.0
09:00 AM - 10:00 AM	0.6	164.0	SSE	1.0	170.0	S	0.6	349.0	N	0.0	-	-	0.5	98.0

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jitranont  
Assistant General Manager

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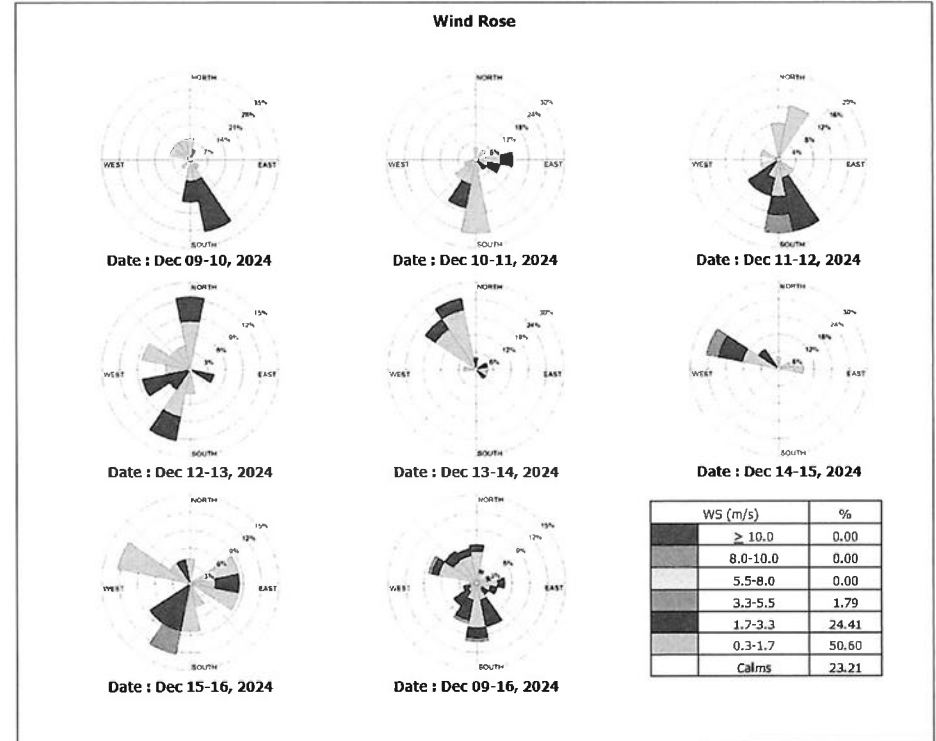
## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24138248  
Date Received :Dec 17, 2024  
Date Reported :Dec 20, 2024  
Report Number :3186254-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 2



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Approved by

Sarayuth Jitranont  
Assistant General Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 24138246

Date Received : Dec 17, 2024

Date Reported : Dec 25, 2024

Report Number: 3186250-1

Page 1 of 1

Sample Description	Air Quality
Location	พื้นที่ตั้งโครงการ (GPS 47P 717879, 1519586)
Date Analysis Commenced	Dec 18, 2024
Condition of Sample	Drawn into one glass filter paper (8x10 Inch) placed in plastic bag and one quartz filter paper (8x10 Inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg) *	Atmospheric Temperature (°C) *
24138246-1	Dec 09 - Dec 10, 2024	0.048	0.042	757*	30*
24138246-2	Dec 10 - Dec 11, 2024	0.081	0.070	757*	30*
24138246-3	Dec 11 - Dec 12, 2024	0.077	0.048	757*	30*
24138246-4	Dec 12 - Dec 13, 2024	0.052	0.030	757*	30*
24138246-5	Dec 13 - Dec 14, 2024	0.037	0.031	757*	30*
24138246-6	Dec 14 - Dec 15, 2024	0.046	0.025	757*	30*
24138246-7	Dec 15 - Dec 16, 2024	0.045	0.026	757*	30*
Guideline		0.33	0.12	-	-

### Reference Method

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

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

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

Sampled By : Keerati Taweerat

### Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.
- Result (s) and Analyte (s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 24138246

Date Received : Dec 17, 2024

Date Reported : Dec 25, 2024

Report Number: 32022286L

Page 1 of 1

Sample Description	Air Quality
Location	บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717529, 1521442)
Date Analysis Commenced	Dec 18, 2024
Condition of Sample	Drawn into one glass filter paper (8x10 Inch) placed in plastic bag and one quartz filter paper (8x10 Inch) placed in plastic bag

Sample Number	Sampled Date	Total (uspended Particulate Q g/- 3)	Particulate Matter (PM10) Q g/- 3)	Baro- etric Pressure Q - Hg) *	At- ospheric Te- perature (°C) *
241382456-1	Dec 09 - Dec 10, 2024	0.045	0.025	757*	30*
241382456-2	Dec 10 - Dec 11, 2024	0.075	0.050	757*	30*
241382456-3	Dec 11 - Dec 12, 2024	0.048	0.032	757*	30*
241382456-4	Dec 12 - Dec 13, 2024	0.037	0.020	757*	30*
241382456-5	Dec 13 - Dec 14, 2024	0.038	0.023	757*	30*
241382456-6	Dec 14 - Dec 15, 2024	0.035	0.017	757*	30*
241382456-7	Dec 15 - Dec 16, 2024	0.037	0.018	757*	30*
Guideline		0.33	0.12	6	6

### Reference Method

Total (uspended Particulate : U( EPA 40 CFR Part 50 Appendix B

Particulate Matter (PM10) : U( EPA 40 CFR Part 50 Appendix J

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

Sampled By : Keerati Taweerat

### Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.
- Result (s) and Analyte (s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Approved by

*Orawan R.*

Orawan Rakyong  
Scientist (3)

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## Analysis / Test Report

TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138246  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Nu6 - er: 320222981

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample Description	Air quality				
Location	บริเวณชุมชน หมู่ 3 บ้านคลองขจรเชิงเขาด BGPO 4/P 719495, 1522337 Dec 15, 2024				
Date Analysis Commenced	Dec 15, 2024				
Condition of Sample	Drawn into one glass filter paper 15x10 inch placed in plastic bag and one quartz filter paper 15x10 inch placed in plastic bag				
Q6 ple Nu6 - er	Q6 pled Date	Total Quspended Particulate 16 g/6 3(	Particulate Matter 1PM10( 16 g/6 3(	zaro6 etric Pressure 16 6 Bg( H	At6 ospheric Te6 perature 16C( H
2413524°815	Dec 09 8 Dec 10, 2024	0.052	0.027	757H	30H
2413524°81°	Dec 10 8 Dec 11, 2024	0.090	0.047	757H	30H
2413524°817	Dec 11 8 Dec 12, 2024	0.055	0.030	757H	30H
2413524°815	Dec 12 8 Dec 13, 2024	0.044	0.022	757H	30H
2413524°819	Dec 13 8 Dec 14, 2024	0.043	0.022	757H	30H
2413524°820	Dec 14 8 Dec 15, 2024	0.039	0.015	757H	30H
2413524°821	Dec 15 8 Dec 1°, 2024	0.047	0.022	757H	30H
Guideline		0.33	0.12	8	8

### Reference Method

Total Quspended Particulate : UQ EPA 40 CFR Part 50 Appendiwz  
Particulate Metter 1PM10( : UQ EPA 40 CFR Part 50 AppendiwJ

Guideline : Notification of the National Environ6 ental zoard, No.24, 2004 bz.E.2547( dated Qepte6 - er 22, 2004

Sampled By : Keerati Ta) eerat

### Remark :

- 8 The la-oratory has -een accepted as an accredited la-oratory co6 plying ) ith the IQQ/IEC 17025.
- 8 Result 16( and Analyte 16( 6arked H 16( are not included in scope of Accreditation IQQ/IEC 17025.

Approved by

*Orawan R.*

Ora) an Rakyong  
Qcientist 16(

Results apply to the 16( 16( 16( as su-6 16(, unless the 16( 16( ) as conducted -y  
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## ภาคผนวก ค.3

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คุณภาพอากาศจากปล่องระบายอากาศ



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101164  
Date Received : Sep 11, 2024  
Date Reported : Sep 19, 2024  
Report Number: 3098106-1

Page 1 of 2

Sample Number 24101164-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location โรงงาน HRSG 11  
Date Analysis Commenced Sep 12, 2024  
Condition of Sample Extracted into one filter paper placed in plastic petri dish

Stack Description									
Ambient Pressure	756	mmHg	Diameter	3.00	m	Oxygen	13.8	%	
Ambient Temperature	32.2	°C	Shape	Circle		Carbon Dioxide	3.8	%	
Type of Process	Combustion		Stack Temperature	98.0	°C	Gas Velocity	19.2	m/s	
Type of Fuel	Natural Gas		Moisture	7.64	%	Flow Rate (Actual O2)	360962	Nm3/hr	

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 % O <sub>2</sub>	Result at 13.8 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
Air Testing										
Total Suspended Particulate	10:35 AM - 11:35 AM	mg/m3	-	0.5	<0.5	<0.5	60	30	United States Environmental Protection Agency, EPA Method 5	Bangkok

### Guideline :

Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Notification of the Ministry of Natural Resources and Environment, 2023 (B.E. 2566) on Emission Standard from Power Plants.  
Guideline (2) Environmental Impact Assessment Report of Gulf JP NNK Co., Ltd.

Technical Management

*Orawan R.*  
Orawan Rak Yong  
Scientist (3)  
ทะเบียนเลขที่ ว-204-ก-0027

Approved by

*Kanokkorn Anek*  
Kanokkorn Anek  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ก-0004

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101164  
Date Received : Sep 11, 2024  
Date Reported : Sep 19, 2024  
Report Number: 3098106-1

Page 2 of 2

Sample Number 24101164-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location โรงงาน HRSG 11  
Date Analysis Commenced Sep 12, 2024  
Condition of Sample Extracted into one filter paper placed in plastic petri dish

Stack Description									
Ambient Pressure	756	mmHg	Diameter	3.00	m	Oxygen	13.8	%	
Ambient Temperature	32.2	°C	Shape	Circle		Carbon Dioxide	3.8	%	
Type of Process	Combustion		Stack Temperature	98.0	°C	Gas Velocity	19.2	m/s	
Type of Fuel	Natural Gas		Moisture	7.64	%	Flow Rate (Actual O2)	360962	Nm3/hr	

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
Air Testing									
Total Suspended Particulate	10:35 AM - 11:35 AM	g/s	-	-	<0.05	-	-	Calculated	Bangkok

Sampling By : Artit Srisen ทะเบียนเลขที่ ว-204-ก-0048

### Remark :

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

Technical Management

*Orawan R.*  
Orawan Rak Yong  
Scientist (3)  
ทะเบียนเลขที่ ว-204-ก-0027

Approved by

*Kanokkorn Anek*  
Kanokkorn Anek  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ก-0004

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101165

Date Received : Sep 11, 2024

Date Reported : Sep 19, 2024

Report Number: 3098108-1

Page 1 of 2

Sample Number 2410116H-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location 1ฝัฒฒ x RSG 12  
Date Analysis Commenced Sep 12, 2024  
Condition of Sample EExtracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	7H6	mmHg	Diameter	3.00	m	Oxygen	14.0	%
Ambient Temperature	32.2	°C	Shape	Circle		Carbon Dioxide	3.9	%
Type of Process	Combustion		Stack Temperature	100	°C	Gas Velocity	18.8	m/s
Type of Fuel	Natural Gas		Moisture	6.9H	%	Flow Rate (Actual O2)	3H887	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub> at 14.0 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
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### Air Testing

Total Suspended Particulate	10:3H AM - 11:3H AM	mg/m3	-	0.H	<0.H	<0.H	60	30	United States Environmental Protection Agency, EPA Method H	Bangkok
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### 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. 2H47), dated September, 2004 (B.E. 2H47).

Notification of the Ministry of Natural Resources and Environment, 2023 (B.E. 2H66) on Emission Standard from Power Plants.

Guideline (2) Environmental Impact Assessment Report of Gulf JP NNK Co., Ltd.

Technical Management

*Orawan R.*

Orawan Rakyong

Scientist (3)

ทะเบียนเลขที่ ๖-204-๖-0027

Approved by

*Kanokkorn Anek*

Kanokkorn Anek

Assistant General Manager

ทะเบียนเลขที่ ๖-204-๖-0004

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101165

Date Received : Sep 11, 2024

Date Reported : Sep 19, 2024

Report Number: 3098108-1

Page 2 of 2

Sample Number 2410116H-1  
Sampled Date Sep 11, 2024  
Sample Description Emission from Stationary Source  
Location 1ฝัฒฒ x RSG 12  
Date Analysis Commenced Sep 12, 2024  
Condition of Sample EExtracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	7H6	mmHg	Diameter	3.00	m	Oxygen	14.0	%
Ambient Temperature	32.2	°C	Shape	Circle		Carbon Dioxide	3.9	%
Type of Process	Combustion		Stack Temperature	100	°C	Gas Velocity	18.8	m/s
Type of Fuel	Natural Gas		Moisture	6.9H	%	Flow Rate (Actual O2)	3H887	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
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### Air Testing

Total Suspended Particulate	10:3H AM - 11:3H AM	g/s	-	-	<0.0H	-	-	Calculated	Bangkok
-----------------------------	---------------------	-----	---	---	-------	---	---	------------	---------

Sampling By : Prasert Surakhan ทะเบียนเลขที่ ๖-204-๖-007H

### Remark :

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

Technical Management

*Orawan R.*

Orawan Rakyong

Scientist (3)

ทะเบียนเลขที่ ๖-204-๖-0027

Approved by

*Kanokkorn Anek*

Kanokkorn Anek

Assistant General Manager

ทะเบียนเลขที่ ๖-204-๖-0004

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11732-22/ EMAIL

S:\Reports\Air Stack\_O2\_2GL.rpt (10:56AM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101159  
Date Received : Sep 11, 2024  
Date Reported : Sep 23, 2024  
Report Number : 3098103-1

Page 1 of 1

Sample Number : 24101159-1  
Sample Description : Emission from Stationary Source  
Location : โรงงาน HRSG 11  
Measurement Date : Sep 11, 2024

Stack Description					
Ambient Temperature	32.2 °C	Diameter	3.00 m	Oxygen	13.85 %
Ambient Pressure	756.5 mmHg	Shape	Circle	Carbon dioxide	3.78 %
Type of Process	Combustion	Stack Temperature	98 °C	Gas Velocity	19.17 m/s
Type of Fuel	Natural Gas	Moisture	7.35 %	Flow Rate	361478 Nm <sup>3</sup> /hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:35 AM - 10:55 AM	13.85	3.78	11.98	23.61	0.10	0.20
2	10:56 AM - 11:16 AM	13.85	3.78	12.12	23.90	0.11	0.22
3	11:17 AM - 11:37 AM	13.85	3.79	12.32	24.29	0.17	0.34
Average (ppm)		13.85	3.78	12.14	23.94	0.13	0.25
Guideline <sup>1/</sup> (ppm)				-	60	-	6
Guideline <sup>2/</sup> (ppm)				-	120	-	20
Guideline <sup>3/</sup> (ppm)				-	120	-	20
Result (mg/Nm <sup>3</sup> )				22.84	45.03	0.33	0.66
Emission Rate at Actual O <sub>2</sub> (g/s)				2.2938		0.0335	
Guideline <sup>1/</sup> (g/s)				6.18		0.86	
Method				US EPA Method 7E		US EPA Method 6C	

Sampled By : Ussaree Namburee

Guideline : <sup>1/</sup> Environmental Impact Assessment Report of Gulf JP NNK Co., Ltd.

<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, 2023 (B.E. 2566) on Emission Standard from Power Plants.

Technical Management

Wichan Choonharat  
Manager  
ทะเบียนเลขที่ ว-204-ก-0006

Approved by

Sarayuth Jittrantont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101159  
Date Received : Sep 11, 2024  
Date Reported : Sep 23, 2024  
Report Number : 3098103-1

Page 1 of 1

Sample Number : 24101159-1  
Sample Description : Emission from Stationary Source  
Location : โรงงาน HRSG 11  
Measurement Date : Sep 11, 2024

Stack Description					
Ambient Temperature	32.2 °C	Diameter	3.00 m	Oxygen	13.85 %
Ambient Pressure	756.5 mmHg	Shape	Circle	Carbon dioxide	3.78 %
Type of Process	Combustion	Stack Temperature	98 °C	Gas Velocity	19.17 m/s
Type of Fuel	Natural Gas	Moisture	7.35 %	Flow Rate	361478 Nm <sup>3</sup> /hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	10:35 AM - 10:55 AM	13.85	3.78	0.49	0.96
2	10:56 AM - 11:16 AM	13.85	3.78	0.52	1.02
3	11:17 AM - 11:37 AM	13.85	3.79	0.52	1.03
Average (ppm)		13.85	3.78	0.51	1.00
Guideline (ppm)				-	690
Result (mg/Nm <sup>3</sup> )				0.58	1.15
Emission Rate at Actual O <sub>2</sub> (g/s)				0.0586	
Method				US EPA Method 10	

Sampled By : Ussaree Namburee

Guideline : Notification of the Ministry of Industry 2006 (B.E. 2549) Published In the Royal Government Gazette, Vol.123 Special Part 125 D, dated December 4, 2006 (B.E. 2549)

Technical Management

Wichan Choonharat  
Manager  
ทะเบียนเลขที่ ว-204-ก-0006

Approved by

Sarayuth Jittrantont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101162

Date Received :Sep 11, 2024

Date Reported :Sep 23, 2024

Report Number :3098105-1

Page 1 of 1

Sample Number 24101162-1  
Sample Description Emission from Stationary Source  
Location ปล่อย HRSG 12  
Measurement Date Sep 11, 2024

Stack Description						
Ambient Temperature	32.2 °C	Diameter	3.00 m	Oxygen	14.03 %	
Ambient Pressure	756.5 mmHg	Shape	Circle	Carbon dioxide	3.87 %	
Type of Process	Combustion	Stack Temperature	100 °C	Gas Velocity	18.78 m/s	
Type of Fuel	Natural Gas	Moisture	6.91 %	Flow Rate	353602 Nm3/hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:35 AM - 10:55 AM	14.03	3.87	21.79	44.12	0.13	0.26
2	10:56 AM - 11:16 AM	14.03	3.87	22.02	44.53	0.13	0.26
3	11:17 AM - 11:37 AM	14.02	3.87	22.19	44.85	0.12	0.24
Average (ppm)		14.03	3.87	22.00	44.50	0.13	0.25
Guideline <sup>1/</sup> (ppm)				-	60	-	6
Guideline <sup>2/</sup> (ppm)				-	120	-	20
Guideline <sup>3/</sup> (ppm)				-	120	-	20
Result (mg/Nm <sup>3</sup> )				41.39	83.72	0.33	0.66
Emission Rate at Actual O <sub>2</sub> (g/s)				4.0653		0.0322	
Guideline <sup>3/</sup> (g/s)				6.18		0.86	
Method				US EPA Method 7E		US EPA Method 6C	

Sampled By : Ussaree Namburee

Guideline : <sup>1/</sup> Environmental Impact Assessment Report of Gulf JP NNK Co., Ltd.

<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, 2023 (B.E. 2566) on Emission Standard from Power Plants.

Technical Management

Wichan Choonharat

Wichan Choonharat  
Manager  
ทะเบียนเลขที่ ๖-204-ก-0006

Approved by

Sarayuth Jitranont

Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ๖-204-ก-0003

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101162

Date Received :Sep 11, 2024

Date Reported :Sep 23, 2024

Report Number :3098105-1

Page 1 of 1

Sample Number 24101162-1  
Sample Description Emission from Stationary Source  
Location ปล่อย HRSG 12  
Measurement Date Sep 11, 2024

Stack Description						
Ambient Temperature	32.2 °C	Diameter	3.00 m	Oxygen	14.03 %	
Ambient Pressure	756.5 mmHg	Shape	Circle	Carbon dioxide	3.87 %	
Type of Process	Combustion	Stack Temperature	100 °C	Gas Velocity	18.78 m/s	
Type of Fuel	Natural Gas	Moisture	6.91 %	Flow Rate	353602 Nm3/hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	10:35 AM - 10:55 AM	14.03	3.87	0.40	0.81
2	10:56 AM - 11:16 AM	14.03	3.87	0.38	0.78
3	11:17 AM - 11:37 AM	14.02	3.87	0.38	0.76
Average (ppm)		14.03	3.87	0.39	0.78
Guideline (ppm)				-	690
Result (mg/Nm <sup>3</sup> )				0.44	0.90
Emission Rate at Actual O <sub>2</sub> (g/s)				0.0435	
Method				US EPA Method 10	

Sampled By : Ussaree Namburee

Guideline : Notification of the Ministry of Industry 2006 (B.E. 2549) Published in the Royal Government Gazette, Vol.123 Special Part 125 D, dated December 4, 2006 (B.E. 2549)

Technical Management

Wichan Choonharat

Wichan Choonharat  
Manager  
ทะเบียนเลขที่ ๖-204-ก-0006

Approved by

Sarayuth Jitranont

Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ๖-204-ก-0003

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# ภาคผนวก ค.4

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ระดับเสียง





## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121844-1

Page 1 of 1

Sample Number 24101158-1  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721889, 1520717)  
Measurement Date Sep 10 - Sep 11, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	51.0	72.4	43.6
11:00 AM - 12:00 PM	49.8	70.0	44.3
12:00 PM - 01:00 PM	49.0	74.2	43.5
01:00 PM - 02:00 PM	50.4	70.6	44.6
02:00 PM - 03:00 PM	50.0	71.1	45.0
03:00 PM - 04:00 PM	58.5	84.9	45.5
04:00 PM - 05:00 PM	54.4	82.0	45.5
05:00 PM - 06:00 PM	56.8	89.9	44.9
06:00 PM - 07:00 PM	64.6	92.1	53.5
07:00 PM - 08:00 PM	54.2	73.5	53.2
08:00 PM - 09:00 PM	53.9	61.5	53.2
09:00 PM - 10:00 PM	54.8	71.9	53.6
10:00 PM - 11:00 PM	55.1	58.2	54.0
11:00 PM - 12:00 AM	54.3	64.3	53.0
12:00 AM - 01:00 AM	56.6	60.8	55.8
01:00 AM - 02:00 AM	58.8	64.3	58.1
02:00 AM - 03:00 AM	58.9	62.3	58.0
03:00 AM - 04:00 AM	56.3	67.6	54.8
04:00 AM - 05:00 AM	51.7	71.3	48.9
05:00 AM - 06:00 AM	55.6	81.2	47.0
06:00 AM - 07:00 AM	54.9	83.0	46.6
07:00 AM - 08:00 AM	51.7	70.4	45.9
08:00 AM - 09:00 AM	56.5	98.4	45.2
09:00 AM - 10:00 AM	62.0	85.8	48.3

Leq Average 24 hrs. (dB(A)) 56.9  
Lmax (dB(A)) 98.4  
L90 (dB(A)) 47.0  
Ldn (dB(A)) 62.8  
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

*Orawan R.*

Orawan Rakyong  
Scientist (3)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

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S:\Reports\_Air Noise.rpt ( 4:30PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121845-1

Page 1 of 1

Sample Number 24101158-2  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721889, 1520717)  
Measurement Date Sep 11 - Sep 12, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.9	85.1	49.3
11:00 AM - 12:00 PM	52.6	74.7	46.2
12:00 PM - 01:00 PM	48.8	65.1	43.8
01:00 PM - 02:00 PM	52.3	83.1	43.5
02:00 PM - 03:00 PM	52.0	73.2	43.9
03:00 PM - 04:00 PM	51.2	77.9	44.1
04:00 PM - 05:00 PM	51.9	74.3	45.4
05:00 PM - 06:00 PM	56.8	78.9	44.2
06:00 PM - 07:00 PM	53.3	71.2	52.3
07:00 PM - 08:00 PM	54.4	70.9	53.6
08:00 PM - 09:00 PM	54.8	81.2	52.7
09:00 PM - 10:00 PM	65.0	85.9	61.2
10:00 PM - 11:00 PM	63.0	81.5	61.2
11:00 PM - 12:00 AM	58.4	72.0	57.5
12:00 AM - 01:00 AM	55.8	66.8	54.7
01:00 AM - 02:00 AM	56.3	70.1	55.2
02:00 AM - 03:00 AM	60.2	67.2	58.4
03:00 AM - 04:00 AM	59.1	65.8	57.1
04:00 AM - 05:00 AM	54.3	70.8	51.7
05:00 AM - 06:00 AM	56.0	84.0	46.6
06:00 AM - 07:00 AM	74.8	106.4	45.3
07:00 AM - 08:00 AM	59.3	84.7	44.9
08:00 AM - 09:00 AM	54.5	78.8	47.3
09:00 AM - 10:00 AM	58.1	97.7	52.8

Leq Average 24 hrs. (dB(A)) 62.6  
Lmax (dB(A)) 106.4  
L90 (dB(A)) 49.3  
Ldn (dB(A)) 71.9  
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

*Orawan R.*

Orawan Rakyong  
Scientist (3)

Approved by

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Supot Salamteh  
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring ETA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121846-1

Page 1 of 1

Sample Number 24101158-3  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721889, 1520717)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	51.0	75.2	45.6
11:00 AM - 12:00 PM	50.6	80.8	45.7
12:00 PM - 01:00 PM	51.6	74.7	44.3
01:00 PM - 02:00 PM	52.5	75.7	44.3
02:00 PM - 03:00 PM	57.4	87.4	45.2
03:00 PM - 04:00 PM	55.2	84.5	43.9
04:00 PM - 05:00 PM	60.8	100.1	42.9
05:00 PM - 06:00 PM	53.2	80.8	45.6
06:00 PM - 07:00 PM	57.6	81.8	54.5
07:00 PM - 08:00 PM	57.2	80.6	54.9
08:00 PM - 09:00 PM	62.0	80.4	56.3
09:00 PM - 10:00 PM	58.5	75.6	57.7
10:00 PM - 11:00 PM	56.8	82.1	55.8
11:00 PM - 12:00 AM	55.0	75.4	54.1
12:00 AM - 01:00 AM	54.0	70.8	52.9
01:00 AM - 02:00 AM	56.4	65.0	55.3
02:00 AM - 03:00 AM	57.2	66.8	56.0
03:00 AM - 04:00 AM	56.0	65.7	54.6
04:00 AM - 05:00 AM	53.8	79.9	52.3
05:00 AM - 06:00 AM	54.5	73.4	48.3
06:00 AM - 07:00 AM	52.4	72.2	45.9
07:00 AM - 08:00 AM	54.7	80.1	46.2
08:00 AM - 09:00 AM	56.3	84.9	45.7
09:00 AM - 10:00 AM	51.4	74.5	44.3
Leq Average 24 hrs. (dB(A))	56.3		
Lmax (dB(A))		100.1	
L90 (dB(A))			46.2
Ldn (dB(A))	62.0		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

*Orawan R.*

Orawan Rak Yong  
Scientist (3)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

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S:\Reports\_Air Noise.rpt ( 4:30PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121847-1

Page 1 of 1

Sample Number 24101158-4  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721889, 1520717)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	55.2	97.2	42.9
11:00 AM - 12:00 PM	51.6	71.4	42.6
12:00 PM - 01:00 PM	54.3	75.2	45.7
01:00 PM - 02:00 PM	52.8	83.3	42.1
02:00 PM - 03:00 PM	53.9	81.8	42.1
03:00 PM - 04:00 PM	51.4	81.5	42.1
04:00 PM - 05:00 PM	55.3	84.3	42.6
05:00 PM - 06:00 PM	48.5	69.8	44.9
06:00 PM - 07:00 PM	53.2	76.8	52.2
07:00 PM - 08:00 PM	53.4	71.2	52.4
08:00 PM - 09:00 PM	51.4	65.8	50.6
09:00 PM - 10:00 PM	62.6	82.4	58.3
10:00 PM - 11:00 PM	51.2	70.2	50.0
11:00 PM - 12:00 AM	48.1	59.1	47.1
12:00 AM - 01:00 AM	49.4	60.0	48.7
01:00 AM - 02:00 AM	55.4	72.7	54.4
02:00 AM - 03:00 AM	54.6	75.4	53.4
03:00 AM - 04:00 AM	51.7	59.3	51.0
04:00 AM - 05:00 AM	50.4	69.3	48.9
05:00 AM - 06:00 AM	59.4	86.5	44.8
06:00 AM - 07:00 AM	53.2	78.4	42.0
07:00 AM - 08:00 AM	52.4	74.0	41.5
08:00 AM - 09:00 AM	50.1	70.5	41.6
09:00 AM - 10:00 AM	60.2	98.6	41.1
Leq Average 24 hrs. (dB(A))	55.1		
Lmax (dB(A))		98.6	
L90 (dB(A))			44.9
Ldn (dB(A))	60.7		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121848-1

Page 1 of 1

Sample Number 24101158-5  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721889, 1520717)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	47.5	64.7	41.0
11:00 AM - 12:00 PM	50.0	69.4	39.4
12:00 PM - 01:00 PM	48.1	71.8	39.9
01:00 PM - 02:00 PM	51.7	75.0	43.1
02:00 PM - 03:00 PM	50.3	73.4	43.4
03:00 PM - 04:00 PM	50.6	75.0	42.5
04:00 PM - 05:00 PM	66.4	99.0	43.4
05:00 PM - 06:00 PM	62.0	81.3	59.0
06:00 PM - 07:00 PM	57.1	74.3	55.2
07:00 PM - 08:00 PM	60.3	74.6	58.3
08:00 PM - 09:00 PM	55.0	70.3	54.1
09:00 PM - 10:00 PM	53.8	75.1	53.0
10:00 PM - 11:00 PM	52.7	69.3	52.0
11:00 PM - 12:00 AM	52.1	61.2	51.3
12:00 AM - 01:00 AM	52.6	64.3	52.0
01:00 AM - 02:00 AM	53.8	70.5	53.2
02:00 AM - 03:00 AM	53.9	66.5	53.3
03:00 AM - 04:00 AM	59.3	64.9	58.8
04:00 AM - 05:00 AM	59.5	75.3	58.7
05:00 AM - 06:00 AM	55.7	86.0	44.0
06:00 AM - 07:00 AM	50.4	79.5	42.6
07:00 AM - 08:00 AM	55.5	98.7	41.1
08:00 AM - 09:00 AM	55.5	71.1	50.6
09:00 AM - 10:00 AM	59.8	76.9	53.3

Leq Average 24 hrs. (dB(A))

57.5

Lmax (dB(A))

99.0

L90 (dB(A))

51.3

Ldn (dB(A))

62.5

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121849-1

Page 1 of 1

Sample Number 24101158-6  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721889, 1520717)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	54.0	68.7	47.4
11:00 AM - 12:00 PM	50.6	66.5	45.4
12:00 PM - 01:00 PM	64.5	94.9	44.5
01:00 PM - 02:00 PM	54.1	85.2	42.3
02:00 PM - 03:00 PM	52.6	80.8	45.0
03:00 PM - 04:00 PM	53.6	78.5	47.5
04:00 PM - 05:00 PM	59.5	77.5	44.4
05:00 PM - 06:00 PM	68.6	90.4	64.9
06:00 PM - 07:00 PM	51.5	71.5	48.8
07:00 PM - 08:00 PM	55.1	84.7	53.5
08:00 PM - 09:00 PM	54.8	63.4	54.3
09:00 PM - 10:00 PM	62.7	82.4	61.3
10:00 PM - 11:00 PM	63.4	75.1	62.9
11:00 PM - 12:00 AM	63.1	79.9	62.6
12:00 AM - 01:00 AM	62.9	65.1	62.5
01:00 AM - 02:00 AM	63.1	69.5	62.6
02:00 AM - 03:00 AM	62.9	71.9	62.4
03:00 AM - 04:00 AM	62.5	68.5	62.0
04:00 AM - 05:00 AM	58.2	70.9	57.0
05:00 AM - 06:00 AM	54.0	75.2	44.1
06:00 AM - 07:00 AM	52.5	75.2	44.5
07:00 AM - 08:00 AM	54.5	92.0	42.3
08:00 AM - 09:00 AM	55.1	97.8	44.6
09:00 AM - 10:00 AM	50.2	71.7	44.7

Leq Average 24 hrs. (dB(A))

60.7

Lmax (dB(A))

97.8

L90 (dB(A))

47.5

Ldn (dB(A))

67.8

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121850-1

Page 1 of 1

Sample Number 24101158-7  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองกลาง (GPS 47P 0721809, 1520717)  
Measurement Date Sep 16 - Sep 17, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	65.8	94.2	43.5
11:00 AM - 12:00 PM	48.9	67.9	43.6
12:00 PM - 01:00 PM	50.8	70.7	45.9
01:00 PM - 02:00 PM	63.4	89.5	49.4
02:00 PM - 03:00 PM	58.5	78.2	46.2
03:00 PM - 04:00 PM	60.4	80.7	49.1
04:00 PM - 05:00 PM	52.4	70.1	47.1
05:00 PM - 06:00 PM	54.2	75.4	45.8
06:00 PM - 07:00 PM	54.1	69.3	53.2
07:00 PM - 08:00 PM	54.3	74.1	52.9
08:00 PM - 09:00 PM	52.8	71.9	51.1
09:00 PM - 10:00 PM	51.6	73.3	50.4
10:00 PM - 11:00 PM	54.1	80.8	49.7
11:00 PM - 12:00 AM	49.8	68.4	48.3
12:00 AM - 01:00 AM	50.0	68.0	48.7
01:00 AM - 02:00 AM	50.3	65.8	49.4
02:00 AM - 03:00 AM	51.5	61.1	50.9
03:00 AM - 04:00 AM	50.7	59.9	50.0
04:00 AM - 05:00 AM	51.3	71.4	47.8
05:00 AM - 06:00 AM	55.2	80.7	43.5
06:00 AM - 07:00 AM	54.1	77.2	44.4
07:00 AM - 08:00 AM	55.4	97.2	40.9
08:00 AM - 09:00 AM	51.2	70.2	43.6
09:00 AM - 10:00 AM	55.5	81.7	44.1

Leq Average 24 hrs. (dB(A))

56.9

Lmax (dB(A))

97.2

L90 (dB(A))

47.8

Ldn (dB(A))

60.3

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป

2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ

โรงงาน พ.ศ. 2548

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121851-1

Page 1 of 1

Sample Number 24101158-8  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าไทร (GPS 47P 0721473, 1518765)  
Measurement Date Sep 10 - Sep 11, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	56.4	95.6	43.4
12:00 PM - 01:00 PM	53.3	77.0	43.3
01:00 PM - 02:00 PM	49.0	76.8	42.6
02:00 PM - 03:00 PM	48.5	65.7	43.5
03:00 PM - 04:00 PM	48.6	66.3	42.9
04:00 PM - 05:00 PM	48.9	75.6	42.3
05:00 PM - 06:00 PM	45.9	73.6	40.6
06:00 PM - 07:00 PM	55.8	77.3	45.7
07:00 PM - 08:00 PM	49.4	76.8	42.6
08:00 PM - 09:00 PM	51.0	79.0	41.3
09:00 PM - 10:00 PM	55.1	82.8	40.4
10:00 PM - 11:00 PM	45.8	65.7	42.3
11:00 PM - 12:00 AM	48.1	79.8	40.0
12:00 AM - 01:00 AM	43.2	61.4	40.2
01:00 AM - 02:00 AM	42.4	60.6	39.6
02:00 AM - 03:00 AM	51.3	77.1	41.5
03:00 AM - 04:00 AM	51.5	77.4	42.7
04:00 AM - 05:00 AM	51.2	71.4	46.3
05:00 AM - 06:00 AM	52.3	70.2	44.8
06:00 AM - 07:00 AM	52.9	70.7	45.7
07:00 AM - 08:00 AM	52.4	67.2	46.2
08:00 AM - 09:00 AM	51.0	71.3	42.4
09:00 AM - 10:00 AM	48.4	75.7	41.5
10:00 AM - 11:00 AM	53.6	79.9	42.0

Leq Average 24 hrs. (dB(A))

51.5

Lmax (dB(A))

95.6

L90 (dB(A))

42.4

Ldn (dB(A))

56.9

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป

2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ

โรงงาน พ.ศ. 2548

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121852-1

Page 1 of 1

Sample Number 24101158-9  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าไผ่ (GPS 47P 0721473, 1518765)  
Measurement Date Sep 11 - Sep 12, 2024  
Measurement by Autt Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	50.5	84.8	42.3
12:00 PM - 01:00 PM	52.6	81.8	41.4
01:00 PM - 02:00 PM	47.7	67.1	41.4
02:00 PM - 03:00 PM	48.4	71.3	43.1
03:00 PM - 04:00 PM	52.8	70.6	45.0
04:00 PM - 05:00 PM	50.7	74.5	43.2
05:00 PM - 06:00 PM	67.0	93.9	41.2
06:00 PM - 07:00 PM	55.9	82.0	44.3
07:00 PM - 08:00 PM	45.4	67.5	41.4
08:00 PM - 09:00 PM	49.2	78.0	41.0
09:00 PM - 10:00 PM	60.6	83.7	54.3
10:00 PM - 11:00 PM	58.5	81.6	55.8
11:00 PM - 12:00 AM	54.4	76.3	51.6
12:00 AM - 01:00 AM	52.5	62.5	51.4
01:00 AM - 02:00 AM	52.3	74.9	49.0
02:00 AM - 03:00 AM	54.2	59.6	52.4
03:00 AM - 04:00 AM	55.2	58.8	53.7
04:00 AM - 05:00 AM	55.7	79.1	52.3
05:00 AM - 06:00 AM	53.7	69.9	48.8
06:00 AM - 07:00 AM	54.0	72.3	48.5
07:00 AM - 08:00 AM	53.3	76.7	46.1
08:00 AM - 09:00 AM	52.6	77.1	41.9
09:00 AM - 10:00 AM	53.9	77.3	46.1
10:00 AM - 11:00 AM	51.4	69.3	42.0

Leq Average 24 hrs. (dB(A)) 56.6  
Lmax (dB(A)) 93.9  
L90 (dB(A)) 45.0  
Ldn (dB(A)) 61.7  
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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121853-1

Page 1 of 1

Sample Number 24101158-10  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าไผ่ (GPS 47P 0721473, 1518765)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Autt Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	48.3	72.5	40.2
12:00 PM - 01:00 PM	47.3	66.5	39.7
01:00 PM - 02:00 PM	49.9	69.0	41.9
02:00 PM - 03:00 PM	49.9	75.4	42.7
03:00 PM - 04:00 PM	50.7	78.2	43.0
04:00 PM - 05:00 PM	50.9	72.2	43.3
05:00 PM - 06:00 PM	49.6	78.5	41.9
06:00 PM - 07:00 PM	55.7	80.6	47.1
07:00 PM - 08:00 PM	51.7	75.3	47.2
08:00 PM - 09:00 PM	51.5	76.5	46.9
09:00 PM - 10:00 PM	52.3	76.4	50.1
10:00 PM - 11:00 PM	53.3	74.1	49.1
11:00 PM - 12:00 AM	52.3	69.8	50.8
12:00 AM - 01:00 AM	48.7	56.3	46.9
01:00 AM - 02:00 AM	47.8	55.2	45.4
02:00 AM - 03:00 AM	50.3	59.2	46.5
03:00 AM - 04:00 AM	54.2	64.5	51.6
04:00 AM - 05:00 AM	51.4	66.5	47.1
05:00 AM - 06:00 AM	52.7	71.2	47.3
06:00 AM - 07:00 AM	52.5	70.5	46.5
07:00 AM - 08:00 AM	54.7	71.1	47.5
08:00 AM - 09:00 AM	50.6	67.2	42.2
09:00 AM - 10:00 AM	49.4	69.3	41.4
10:00 AM - 11:00 AM	48.2	70.3	41.0

Leq Average 24 hrs. (dB(A)) 51.6  
Lmax (dB(A)) 80.6  
L90 (dB(A)) 46.5  
Ldn (dB(A)) 58.2  
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

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121854-1

Page 1 of 1

Sample Number 24101158-11  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าใหม่ (GPS 47P 0721473, 1518765)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	49.4	72.1	40.6
12:00 PM - 01:00 PM	46.4	74.5	39.9
01:00 PM - 02:00 PM	49.3	78.9	42.8
02:00 PM - 03:00 PM	48.0	72.6	43.4
03:00 PM - 04:00 PM	50.1	80.1	43.7
04:00 PM - 05:00 PM	50.5	75.8	42.6
05:00 PM - 06:00 PM	53.2	85.4	41.6
06:00 PM - 07:00 PM	53.3	86.3	47.7
07:00 PM - 08:00 PM	53.9	79.3	46.8
08:00 PM - 09:00 PM	55.8	86.9	45.4
09:00 PM - 10:00 PM	60.3	89.6	49.8
10:00 PM - 11:00 PM	54.4	78.6	47.8
11:00 PM - 12:00 AM	61.8	86.3	47.9
12:00 AM - 01:00 AM	56.8	87.5	45.2
01:00 AM - 02:00 AM	53.0	79.5	44.9
02:00 AM - 03:00 AM	52.3	74.5	46.9
03:00 AM - 04:00 AM	50.6	81.3	43.4
04:00 AM - 05:00 AM	61.6	86.3	52.8
05:00 AM - 06:00 AM	51.9	74.0	49.7
06:00 AM - 07:00 AM	54.4	73.1	52.0
07:00 AM - 08:00 AM	54.0	74.4	52.1
08:00 AM - 09:00 AM	52.8	76.7	48.8
09:00 AM - 10:00 AM	52.4	81.0	49.4
10:00 AM - 11:00 AM	49.9	55.8	47.6

Leq Average 24 hrs. (dB(A))

55.2

Lmax (dB(A))

89.6

L90 (dB(A))

46.8

Ldn (dB(A))

63.2

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

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Scientist (3)

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121855-1

Page 1 of 1

Sample Number 24101158-12  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าใหม่ (GPS 47P 0721473, 1518765)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	49.6	65.1	45.9
12:00 PM - 01:00 PM	48.8	70.6	45.2
01:00 PM - 02:00 PM	50.3	56.4	46.1
02:00 PM - 03:00 PM	52.6	73.1	48.7
03:00 PM - 04:00 PM	50.9	69.8	46.9
04:00 PM - 05:00 PM	54.4	70.0	49.4
05:00 PM - 06:00 PM	57.3	82.8	47.6
06:00 PM - 07:00 PM	54.0	71.8	46.4
07:00 PM - 08:00 PM	51.7	79.8	42.6
08:00 PM - 09:00 PM	52.9	78.7	45.2
09:00 PM - 10:00 PM	50.6	67.3	44.5
10:00 PM - 11:00 PM	49.6	69.2	43.0
11:00 PM - 12:00 AM	50.2	72.2	43.9
12:00 AM - 01:00 AM	57.5	81.5	43.7
01:00 AM - 02:00 AM	71.2	96.8	43.2
02:00 AM - 03:00 AM	73.3	113.4	46.2
03:00 AM - 04:00 AM	62.6	90.3	45.5
04:00 AM - 05:00 AM	62.2	76.4	56.2
05:00 AM - 06:00 AM	66.0	84.8	61.4
06:00 AM - 07:00 AM	56.8	84.0	48.2
07:00 AM - 08:00 AM	48.8	65.8	47.0
08:00 AM - 09:00 AM	48.0	62.3	45.1
09:00 AM - 10:00 AM	50.6	79.1	46.0
10:00 AM - 11:00 AM	48.6	73.1	44.8

Leq Average 24 hrs. (dB(A))

62.8

Lmax (dB(A))

113.4

L90 (dB(A))

45.9

Ldn (dB(A))

72.6

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121856-1

Page 1 of 1

Sample Number 24101158-13  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าไผ่ (GPS 47P 0721473, 1518765)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	46.9	66.6	44.8
12:00 PM - 01:00 PM	54.4	82.4	40.8
01:00 PM - 02:00 PM	45.0	65.9	41.8
02:00 PM - 03:00 PM	46.9	75.4	43.2
03:00 PM - 04:00 PM	46.0	60.0	44.1
04:00 PM - 05:00 PM	51.1	71.4	45.7
05:00 PM - 06:00 PM	52.9	66.3	46.7
06:00 PM - 07:00 PM	54.6	74.6	47.4
07:00 PM - 08:00 PM	50.5	66.4	44.1
08:00 PM - 09:00 PM	49.0	71.6	43.0
09:00 PM - 10:00 PM	52.1	85.5	43.4
10:00 PM - 11:00 PM	55.2	71.8	53.2
11:00 PM - 12:00 AM	56.7	83.1	53.9
12:00 AM - 01:00 AM	55.0	78.1	53.8
01:00 AM - 02:00 AM	55.0	69.8	53.7
02:00 AM - 03:00 AM	57.6	85.7	54.1
03:00 AM - 04:00 AM	60.9	76.8	56.2
04:00 AM - 05:00 AM	69.1	95.1	62.2
05:00 AM - 06:00 AM	60.2	88.1	46.8
06:00 AM - 07:00 AM	54.7	86.3	43.8
07:00 AM - 08:00 AM	46.9	77.4	43.3
08:00 AM - 09:00 AM	45.2	71.2	41.8
09:00 AM - 10:00 AM	48.7	87.0	40.4
10:00 AM - 11:00 AM	55.3	85.5	41.2

Leq Average 24 hrs. (dB(A))

57.8

Lmax (dB(A))

95.1

L90 (dB(A))

44.1

Ldn (dB(A))

67.3

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121857-1

Page 1 of 1

Sample Number 24101158-14  
Parameter Noise (Leq 24 hrs.)  
Location บ้านท่าไผ่ (GPS 47P 0721473, 1518765)  
Measurement Date Sep 16 - Sep 17, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 710640

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	45.6	67.6	41.9
12:00 PM - 01:00 PM	47.1	74.0	45.2
01:00 PM - 02:00 PM	45.2	64.4	42.8
02:00 PM - 03:00 PM	44.4	65.1	42.9
03:00 PM - 04:00 PM	45.0	65.1	43.0
04:00 PM - 05:00 PM	60.8	74.5	56.1
05:00 PM - 06:00 PM	67.3	85.1	61.1
06:00 PM - 07:00 PM	65.2	81.3	57.4
07:00 PM - 08:00 PM	60.4	76.5	49.6
08:00 PM - 09:00 PM	54.9	88.9	44.8
09:00 PM - 10:00 PM	49.0	69.3	43.4
10:00 PM - 11:00 PM	50.1	67.0	43.8
11:00 PM - 12:00 AM	51.2	81.3	44.3
12:00 AM - 01:00 AM	55.1	77.9	46.4
01:00 AM - 02:00 AM	52.7	59.6	51.1
02:00 AM - 03:00 AM	53.1	70.2	47.8
03:00 AM - 04:00 AM	52.3	74.9	48.5
04:00 AM - 05:00 AM	49.1	56.8	47.3
05:00 AM - 06:00 AM	49.9	69.6	46.7
06:00 AM - 07:00 AM	52.0	63.6	48.1
07:00 AM - 08:00 AM	55.6	79.1	52.1
08:00 AM - 09:00 AM	53.5	74.4	50.8
09:00 AM - 10:00 AM	55.0	84.1	50.9
10:00 AM - 11:00 AM	56.2	85.7	51.3

Leq Average 24 hrs. (dB(A))

57.8

Lmax (dB(A))

88.9

L90 (dB(A))

47.3

Ldn (dB(A))

60.6

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121858-1

Page 1 of 1

Sample Number 24101158-15  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองจาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 10 - Sep 11, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	61.3	88.1	54.2
01:00 PM - 02:00 PM	55.8	75.2	50.4
02:00 PM - 03:00 PM	57.7	76.8	52.2
03:00 PM - 04:00 PM	62.8	82.4	56.4
04:00 PM - 05:00 PM	59.2	82.8	49.8
05:00 PM - 06:00 PM	57.2	80.2	47.8
06:00 PM - 07:00 PM	56.5	80.9	47.7
07:00 PM - 08:00 PM	52.1	73.5	46.1
08:00 PM - 09:00 PM	49.4	66.2	45.5
09:00 PM - 10:00 PM	50.4	73.8	44.4
10:00 PM - 11:00 PM	47.9	67.1	44.7
11:00 PM - 12:00 AM	48.2	72.1	44.8
12:00 AM - 01:00 AM	53.2	81.9	45.1
01:00 AM - 02:00 AM	48.7	67.1	45.4
02:00 AM - 03:00 AM	47.7	61.9	45.6
03:00 AM - 04:00 AM	47.4	59.6	45.5
04:00 AM - 05:00 AM	48.6	65.5	45.9
05:00 AM - 06:00 AM	53.8	81.5	47.6
06:00 AM - 07:00 AM	59.2	82.2	50.9
07:00 AM - 08:00 AM	65.3	86.6	57.5
08:00 AM - 09:00 AM	58.3	82.6	51.8
09:00 AM - 10:00 AM	56.9	78.1	50.7
10:00 AM - 11:00 AM	57.6	80.6	51.2
11:00 AM - 12:00 PM	67.7	99.4	57.7
Leq Average 24 hrs. (dB(A))	59.0		
Lmax (dB(A))		99.4	
L90 (dB(A))			47.7
Ldn (dB(A))	61.5		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรทางทะเลและชายฝั่งที่ 15 (พ.ณ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงมหาดไทย เรื่องกำหนดค่าระดับเสียงการรบกวน ว.ละระดับเสียงที่แสดงค่าการประกอบผลรวม  
โรงงาน พ.ณ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121859-1

Page 1 of 1

Sample Number 24101158-16  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองจาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 11 - Sep 12, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	65.8	88.4	54.4
01:00 PM - 02:00 PM	62.4	86.9	52.3
02:00 PM - 03:00 PM	60.7	82.7	54.0
03:00 PM - 04:00 PM	64.0	88.1	54.7
04:00 PM - 05:00 PM	57.4	81.5	48.9
05:00 PM - 06:00 PM	54.8	76.9	47.6
06:00 PM - 07:00 PM	57.4	80.4	47.4
07:00 PM - 08:00 PM	54.7	80.2	46.5
08:00 PM - 09:00 PM	53.1	78.5	46.2
09:00 PM - 10:00 PM	59.5	87.9	51.8
10:00 PM - 11:00 PM	66.1	86.8	62.1
11:00 PM - 12:00 AM	59.4	82.0	54.3
12:00 AM - 01:00 AM	57.1	72.5	51.7
01:00 AM - 02:00 AM	51.2	67.7	49.9
02:00 AM - 03:00 AM	56.8	70.4	50.2
03:00 AM - 04:00 AM	65.1	70.9	61.1
04:00 AM - 05:00 AM	64.3	69.1	62.8
05:00 AM - 06:00 AM	60.2	71.3	58.0
06:00 AM - 07:00 AM	59.5	81.3	52.1
07:00 AM - 08:00 AM	67.3	91.4	57.8
08:00 AM - 09:00 AM	56.6	78.2	51.4
09:00 AM - 10:00 AM	56.8	74.3	50.7
10:00 AM - 11:00 AM	53.9	72.6	49.0
11:00 AM - 12:00 PM	61.4	85.4	54.6
Leq Average 24 hrs. (dB(A))	61.5		
Lmax (dB(A))		91.4	
L90 (dB(A))			51.8
Ldn (dB(A))	68.2		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรทางทะเลและชายฝั่งที่ 15 (พ.ณ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงมหาดไทย เรื่องกำหนดค่าระดับเสียงการรบกวน ว.ละระดับเสียงที่แสดงค่าการประกอบผลรวม  
โรงงาน พ.ณ. 2548

Technical Management

*Orawan R.*  
Orawan Rak Yong  
Scientist (3)

Approved by

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Section Head

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S:\Reports\_Air Noise.rpt ( 4:35PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121860-1

Page 1 of 1

Sample Number 24101158-17  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองตาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Autlt Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	60.2	83.4	53.0
01:00 PM - 02:00 PM	63.7	98.0	52.3
02:00 PM - 03:00 PM	62.3	86.6	55.1
03:00 PM - 04:00 PM	68.3	95.2	57.6
04:00 PM - 05:00 PM	60.4	77.0	51.8
05:00 PM - 06:00 PM	57.5	75.5	47.0
06:00 PM - 07:00 PM	56.6	82.0	46.6
07:00 PM - 08:00 PM	58.7	86.1	47.9
08:00 PM - 09:00 PM	56.3	76.0	50.6
09:00 PM - 10:00 PM	53.4	72.1	50.3
10:00 PM - 11:00 PM	52.6	70.9	49.8
11:00 PM - 12:00 AM	50.9	72.0	48.6
12:00 AM - 01:00 AM	49.3	65.8	47.5
01:00 AM - 02:00 AM	52.9	84.6	47.2
02:00 AM - 03:00 AM	48.8	64.9	47.2
03:00 AM - 04:00 AM	49.6	70.4	47.2
04:00 AM - 05:00 AM	51.1	68.2	47.5
05:00 AM - 06:00 AM	53.4	72.9	47.6
06:00 AM - 07:00 AM	58.5	78.0	50.5
07:00 AM - 08:00 AM	57.6	79.5	49.0
08:00 AM - 09:00 AM	57.5	82.6	49.4
09:00 AM - 10:00 AM	56.2	80.5	49.1
10:00 AM - 11:00 AM	55.8	73.9	48.9
11:00 AM - 12:00 PM	55.8	77.2	47.8

Leq Average 24 hrs. (dB(A))

59.1

Lmax (dB(A))

98.0

L90 (dB(A))

48.9

Ldn (dB(A))

61.7

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรธรรมชาติและสิ่งแวดล้อม พ.ศ. 2540 เรื่องกำหนดมาตรฐานระดับ "ของโดยทั่วไป"  
2. ประกาศกระทรวงมหาดไทย พ.ศ. 2548 เรื่องกำหนดค่าระดับ "ของการคมนาคม" และระดับ "ของที่สาธารณะ" ประกาศ พ.ศ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121861-1

Page 1 of 1

Sample Number 24101158-18  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองตาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Autlt Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	56.8	81.9	48.8
01:00 PM - 02:00 PM	59.5	82.0	50.3
02:00 PM - 03:00 PM	57.0	80.7	48.8
03:00 PM - 04:00 PM	58.7	82.6	47.5
04:00 PM - 05:00 PM	55.9	80.2	47.4
05:00 PM - 06:00 PM	59.1	82.2	47.6
06:00 PM - 07:00 PM	58.3	87.2	46.5
07:00 PM - 08:00 PM	52.4	75.0	45.8
08:00 PM - 09:00 PM	51.6	75.0	45.7
09:00 PM - 10:00 PM	67.7	84.9	63.4
10:00 PM - 11:00 PM	63.0	74.9	60.5
11:00 PM - 12:00 AM	58.4	70.5	54.6
12:00 AM - 01:00 AM	57.9	74.0	53.6
01:00 AM - 02:00 AM	58.0	79.1	54.3
02:00 AM - 03:00 AM	65.0	73.5	61.6
03:00 AM - 04:00 AM	67.3	72.4	64.0
04:00 AM - 05:00 AM	66.5	73.4	62.4
05:00 AM - 06:00 AM	55.6	71.3	51.6
06:00 AM - 07:00 AM	57.6	77.2	49.4
07:00 AM - 08:00 AM	55.6	74.3	48.7
08:00 AM - 09:00 AM	54.4	72.7	47.7
09:00 AM - 10:00 AM	56.8	79.4	49.2
10:00 AM - 11:00 AM	58.3	79.9	50.1
11:00 AM - 12:00 PM	56.8	80.7	47.0

Leq Average 24 hrs. (dB(A))

61.1

Lmax (dB(A))

87.2

L90 (dB(A))

49.2

Ldn (dB(A))

69.0

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรธรรมชาติและสิ่งแวดล้อม พ.ศ. 2540 เรื่องกำหนดมาตรฐานระดับ "ของโดยทั่วไป"  
2. ประกาศกระทรวงมหาดไทย พ.ศ. 2548 เรื่องกำหนดค่าระดับ "ของการคมนาคม" และระดับ "ของที่สาธารณะ" ประกาศ พ.ศ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121862-1

Page 1 of 1

Sample Number 24101158-19  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองจาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Autt Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	52.8	73.3	45.5
01:00 PM - 02:00 PM	56.3	82.1	46.5
02:00 PM - 03:00 PM	60.3	90.8	47.3
03:00 PM - 04:00 PM	59.9	87.6	47.0
04:00 PM - 05:00 PM	55.6	82.2	47.7
05:00 PM - 06:00 PM	61.1	85.8	50.7
06:00 PM - 07:00 PM	56.8	74.5	49.2
07:00 PM - 08:00 PM	58.9	82.5	53.7
08:00 PM - 09:00 PM	58.0	78.7	54.0
09:00 PM - 10:00 PM	56.4	69.6	52.1
10:00 PM - 11:00 PM	57.2	74.7	53.8
11:00 PM - 12:00 AM	57.7	69.8	54.4
12:00 AM - 01:00 AM	55.5	69.4	50.9
01:00 AM - 02:00 AM	52.8	68.7	48.6
02:00 AM - 03:00 AM	53.6	67.3	50.0
03:00 AM - 04:00 AM	57.3	67.1	54.1
04:00 AM - 05:00 AM	53.3	67.5	49.3
05:00 AM - 06:00 AM	53.0	71.2	47.7
06:00 AM - 07:00 AM	66.9	99.5	48.7
07:00 AM - 08:00 AM	58.7	84.8	47.7
08:00 AM - 09:00 AM	54.9	76.1	47.4
09:00 AM - 10:00 AM	57.5	81.8	46.9
10:00 AM - 11:00 AM	56.3	78.0	47.0
11:00 AM - 12:00 PM	54.7	80.5	45.6
Leq Average 24 hrs. (dB(A))	58.4		
Lmax (dB(A))		99.5	
L90 (dB(A))			48.6
Ldn (dB(A))	65.5		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรธรรมชาติและสิ่งแวดล้อม พ.ศ. 2540 เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงมหาดไทย พ.ศ. 2548 เรื่องกำหนดค่าระดับเสียงการรบกวนในชุมชน พ.ศ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121863-1

Page 1 of 1

Sample Number 24101158-20  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองจาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Autt Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	59.7	83.0	49.9
01:00 PM - 02:00 PM	57.4	82.7	49.2
02:00 PM - 03:00 PM	57.8	84.2	48.1
03:00 PM - 04:00 PM	58.8	80.0	47.9
04:00 PM - 05:00 PM	59.5	88.0	48.0
05:00 PM - 06:00 PM	60.3	84.9	48.7
06:00 PM - 07:00 PM	63.6	85.4	59.8
07:00 PM - 08:00 PM	52.5	70.1	46.9
08:00 PM - 09:00 PM	51.4	75.2	48.2
09:00 PM - 10:00 PM	52.8	74.4	48.1
10:00 PM - 11:00 PM	50.3	68.3	47.9
11:00 PM - 12:00 AM	48.0	63.4	46.6
12:00 AM - 01:00 AM	47.4	64.9	45.9
01:00 AM - 02:00 AM	47.2	64.6	45.7
02:00 AM - 03:00 AM	49.3	72.1	46.4
03:00 AM - 04:00 AM	50.1	67.3	46.6
04:00 AM - 05:00 AM	50.6	71.7	45.8
05:00 AM - 06:00 AM	54.6	77.5	47.3
06:00 AM - 07:00 AM	59.5	85.3	50.7
07:00 AM - 08:00 AM	65.7	84.5	57.9
08:00 AM - 09:00 AM	60.4	84.8	52.1
09:00 AM - 10:00 AM	56.9	79.4	49.9
10:00 AM - 11:00 AM	57.3	77.8	50.1
11:00 AM - 12:00 PM	67.6	95.9	54.7
Leq Average 24 hrs. (dB(A))	59.4		
Lmax (dB(A))		95.9	
L90 (dB(A))			48.1
Ldn (dB(A))	61.9		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรธรรมชาติและสิ่งแวดล้อม พ.ศ. 2540 เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงมหาดไทย พ.ศ. 2548 เรื่องกำหนดค่าระดับเสียงการรบกวนในชุมชน พ.ศ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121864-1

Page 1 of 1

Sample Number 24101158-21  
Parameter Noise (Leq 24 hrs.)  
Location บ้านคลองฉาก (GPS 47P 0719792, 1516992)  
Measurement Date Sep 16 - Sep 17, 2024  
Measurement by Audit Aoonsim  
Sound Level meter Serial No. 710644

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	58.7	75.6	52.4
01:00 PM - 02:00 PM	59.1	87.0	51.1
02:00 PM - 03:00 PM	59.3	83.6	53.6
03:00 PM - 04:00 PM	65.2	91.7	55.9
04:00 PM - 05:00 PM	58.2	79.8	49.4
05:00 PM - 06:00 PM	61.3	86.4	48.5
06:00 PM - 07:00 PM	57.7	83.4	47.9
07:00 PM - 08:00 PM	54.0	74.3	46.7
08:00 PM - 09:00 PM	50.4	68.9	46.3
09:00 PM - 10:00 PM	52.4	78.1	45.2
10:00 PM - 11:00 PM	48.4	67.9	44.4
11:00 PM - 12:00 AM	47.0	63.7	44.8
12:00 AM - 01:00 AM	47.4	63.4	44.4
01:00 AM - 02:00 AM	50.9	78.9	47.6
02:00 AM - 03:00 AM	48.8	65.5	45.7
03:00 AM - 04:00 AM	48.0	64.6	46.1
04:00 AM - 05:00 AM	49.4	73.3	46.3
05:00 AM - 06:00 AM	54.7	78.2	47.3
06:00 AM - 07:00 AM	59.7	82.1	51.4
07:00 AM - 08:00 AM	65.9	90.6	57.5
08:00 AM - 09:00 AM	57.5	82.8	50.7
09:00 AM - 10:00 AM	57.4	80.3	51.3
10:00 AM - 11:00 AM	56.7	76.2	52.0
11:00 AM - 12:00 PM	63.4	88.6	54.2

Leq Average 24 hrs. (dB(A)) 58.8  
Lmax (dB(A)) 91.7  
L90 (dB(A)) 47.9  
Ldn (dB(A)) 61.5  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรธรรมชาติและสิ่งแวดล้อม พ.ศ. 2540 เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงมหาดไทย พ.ศ. 2540 เรื่องกำหนดค่าระดับเสียงสำหรับชุมชน และระดับเสียงที่วัดจากอาคารประกอบของชุมชน  
โรงงาน พ.ศ. 2548

Technical Management

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Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121865-1

Page 1 of 1

Sample Number 24101158-22  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาโคกฉาก (GPS 47P 0714361, 1718864)  
Measurement Date Sep 10 - Sep 11, 2024  
Measurement by Audit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	55.3	80.7	45.6
02:00 PM - 03:00 PM	62.6	80.9	53.3
03:00 PM - 04:00 PM	62.1	76.7	51.7
04:00 PM - 05:00 PM	49.3	73.4	42.9
05:00 PM - 06:00 PM	52.1	78.8	46.7
06:00 PM - 07:00 PM	53.3	63.4	50.6
07:00 PM - 08:00 PM	53.5	63.5	50.7
08:00 PM - 09:00 PM	55.2	69.6	50.7
09:00 PM - 10:00 PM	57.9	68.4	54.0
10:00 PM - 11:00 PM	57.5	64.2	54.4
11:00 PM - 12:00 AM	59.1	63.0	57.2
12:00 AM - 01:00 AM	59.4	65.4	58.0
01:00 AM - 02:00 AM	58.4	62.0	56.8
02:00 AM - 03:00 AM	54.1	59.7	53.1
03:00 AM - 04:00 AM	50.7	57.1	49.9
04:00 AM - 05:00 AM	48.2	61.3	45.7
05:00 AM - 06:00 AM	50.5	70.5	45.9
06:00 AM - 07:00 AM	57.6	77.9	50.0
07:00 AM - 08:00 AM	49.1	68.1	46.4
08:00 AM - 09:00 AM	48.3	67.8	42.5
09:00 AM - 10:00 AM	47.7	68.3	41.5
10:00 AM - 11:00 AM	59.3	90.5	47.8
11:00 AM - 12:00 PM	50.5	86.6	44.7
12:00 PM - 01:00 PM	59.1	76.1	51.7

Leq Average 24 hrs. (dB(A)) 56.8  
Lmax (dB(A)) 90.5  
L90 (dB(A)) 50.0  
Ldn (dB(A)) 63.0  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกรมทรัพยากรธรรมชาติและสิ่งแวดล้อม พ.ศ. 2540 เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงมหาดไทย พ.ศ. 2540 เรื่องกำหนดค่าระดับเสียงสำหรับชุมชน และระดับเสียงที่วัดจากอาคารประกอบของชุมชน  
โรงงาน พ.ศ. 2548

Technical Management

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Scientist (3)

Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121866-1

Page 1 of 1

Sample Number 24101158-23  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาคลองนา (GPS 47P 0714361, 1718864)  
Measurement Date Sep 11 - Sep 12, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	56.8	82.2	45.2
02:00 PM - 03:00 PM	48.9	74.5	44.0
03:00 PM - 04:00 PM	69.0	78.7	53.7
04:00 PM - 05:00 PM	65.2	89.3	47.8
05:00 PM - 06:00 PM	57.2	77.5	55.3
06:00 PM - 07:00 PM	61.6	67.1	60.7
07:00 PM - 08:00 PM	61.1	75.4	60.0
08:00 PM - 09:00 PM	60.4	68.5	57.4
09:00 PM - 10:00 PM	65.9	75.2	63.5
10:00 PM - 11:00 PM	67.8	80.1	64.7
11:00 PM - 12:00 AM	67.8	74.7	64.5
12:00 AM - 01:00 AM	69.1	75.2	65.4
01:00 AM - 02:00 AM	65.9	73.1	62.1
02:00 AM - 03:00 AM	61.4	69.4	59.2
03:00 AM - 04:00 AM	57.9	63.7	56.8
04:00 AM - 05:00 AM	51.0	62.5	49.1
05:00 AM - 06:00 AM	52.1	78.6	46.3
06:00 AM - 07:00 AM	57.4	82.2	48.4
07:00 AM - 08:00 AM	49.1	68.0	43.7
08:00 AM - 09:00 AM	48.4	79.1	41.6
09:00 AM - 10:00 AM	50.7	70.2	42.6
10:00 AM - 11:00 AM	66.3	100.3	47.2
11:00 AM - 12:00 PM	61.9	83.7	53.9
12:00 PM - 01:00 PM	52.9	70.8	45.6

Leq Average 24 hrs. (dB(A))

63.5

Lmax (dB(A))

100.3

L90 (dB(A))

53.7

Ldn (dB(A))

70.9

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. สำหรับการประเมินการปนเปื้อนของเสียง "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
2. สำหรับการประเมินผลกระทบจากเสียงรบกวน "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
ทั้งนี้ พ.ร. 2548

Technical Management

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Orawan Rak Yong  
Scientist (3)

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S:\Reports\_Air Noise.rpt ( 4:36PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121867-1

Page 1 of 1

Sample Number 24101158-24  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาคลองนา (GPS 47P 0714361, 1718864)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	58.4	81.1	47.8
02:00 PM - 03:00 PM	48.8	70.7	42.3
03:00 PM - 04:00 PM	46.9	67.6	41.6
04:00 PM - 05:00 PM	47.2	66.0	42.7
05:00 PM - 06:00 PM	54.5	66.8	50.1
06:00 PM - 07:00 PM	61.7	67.1	59.9
07:00 PM - 08:00 PM	65.5	72.3	62.2
08:00 PM - 09:00 PM	66.5	73.6	62.4
09:00 PM - 10:00 PM	68.4	76.1	64.1
10:00 PM - 11:00 PM	66.0	72.7	62.2
11:00 PM - 12:00 AM	61.8	69.4	58.4
12:00 AM - 01:00 AM	58.4	64.8	56.4
01:00 AM - 02:00 AM	57.0	62.6	56.2
02:00 AM - 03:00 AM	54.9	59.7	54.3
03:00 AM - 04:00 AM	52.1	61.2	51.2
04:00 AM - 05:00 AM	49.0	66.7	46.4
05:00 AM - 06:00 AM	48.7	68.0	44.1
06:00 AM - 07:00 AM	59.1	89.4	48.7
07:00 AM - 08:00 AM	51.8	76.1	43.6
08:00 AM - 09:00 AM	48.5	70.2	44.7
09:00 AM - 10:00 AM	60.7	82.2	44.4
10:00 AM - 11:00 AM	66.0	79.6	55.1
11:00 AM - 12:00 PM	66.5	83.1	55.1
12:00 PM - 01:00 PM	61.6	82.1	52.9

Leq Average 24 hrs. (dB(A))

61.9

Lmax (dB(A))

89.4

L90 (dB(A))

51.2

Ldn (dB(A))

66.6

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. สำหรับการประเมินการปนเปื้อนของเสียง "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
2. สำหรับการประเมินผลกระทบจากเสียงรบกวน "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
ทั้งนี้ พ.ร. 2548

Technical Management

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Scientist (3)

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S:\Reports\_Air Noise.rpt ( 4:39PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121868-1

Page 1 of 1

Sample Number 24101158-25  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาคลอง (GPS 47P 0714361, 1718864)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	64.1	80.9	49.4
02:00 PM - 03:00 PM	47.9	63.8	44.3
03:00 PM - 04:00 PM	47.1	66.5	43.7
04:00 PM - 05:00 PM	52.3	86.6	43.7
05:00 PM - 06:00 PM	55.3	74.1	50.0
06:00 PM - 07:00 PM	57.0	67.2	53.4
07:00 PM - 08:00 PM	56.0	67.5	51.9
08:00 PM - 09:00 PM	72.7	112.0	67.2
09:00 PM - 10:00 PM	66.0	86.7	63.0
10:00 PM - 11:00 PM	56.7	77.9	55.7
11:00 PM - 12:00 AM	54.3	76.3	53.1
12:00 AM - 01:00 AM	58.1	83.9	56.8
01:00 AM - 02:00 AM	61.5	85.0	60.4
02:00 AM - 03:00 AM	61.8	80.3	61.0
03:00 AM - 04:00 AM	61.1	81.2	60.2
04:00 AM - 05:00 AM	55.3	77.4	53.4
05:00 AM - 06:00 AM	50.5	77.9	45.1
06:00 AM - 07:00 AM	49.8	76.4	45.5
07:00 AM - 08:00 AM	52.2	74.0	44.1
08:00 AM - 09:00 AM	61.0	79.8	53.0
09:00 AM - 10:00 AM	58.9	74.9	51.1
10:00 AM - 11:00 AM	47.8	66.3	43.1
11:00 AM - 12:00 PM	57.0	72.9	52.0
12:00 PM - 01:00 PM	61.0	77.9	53.9

Leq Average 24 hrs. (dB(A)) 61.9  
Lmax (dB(A)) 112.0  
L90 (dB(A)) 52.0  
Ldn (dB(A)) 65.8  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. สำหรับการตรวจวัดค่าเสียงแวดล้อม "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
2. สำหรับการตรวจวัดค่าเสียงภายในอาคาร "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
ทั้งนี้ พ.ร. 2548

Technical Management

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Orawan Rakhyong  
Scientist (3)

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Supot Salamteh  
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121869-1

Page 1 of 1

Sample Number 24101158-26  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาคลอง (GPS 47P 0714361, 1718864)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	60.9	79.4	52.2
02:00 PM - 03:00 PM	62.3	85.4	53.0
03:00 PM - 04:00 PM	59.8	79.7	52.2
04:00 PM - 05:00 PM	56.9	86.9	50.8
05:00 PM - 06:00 PM	54.4	63.6	52.4
06:00 PM - 07:00 PM	59.1	71.0	56.9
07:00 PM - 08:00 PM	58.3	72.7	56.8
08:00 PM - 09:00 PM	57.4	65.1	55.7
09:00 PM - 10:00 PM	59.1	68.2	57.4
10:00 PM - 11:00 PM	58.3	62.9	56.7
11:00 PM - 12:00 AM	57.3	63.8	56.5
12:00 AM - 01:00 AM	57.9	60.4	57.4
01:00 AM - 02:00 AM	57.4	61.1	56.8
02:00 AM - 03:00 AM	56.4	63.4	55.8
03:00 AM - 04:00 AM	55.0	63.1	54.2
04:00 AM - 05:00 AM	51.2	68.5	48.7
05:00 AM - 06:00 AM	50.9	74.7	45.8
06:00 AM - 07:00 AM	49.3	81.5	44.2
07:00 AM - 08:00 AM	48.6	72.7	44.3
08:00 AM - 09:00 AM	50.2	72.3	45.4
09:00 AM - 10:00 AM	53.1	77.2	44.0
10:00 AM - 11:00 AM	47.9	79.1	43.5
11:00 AM - 12:00 PM	49.1	71.4	45.1
12:00 PM - 01:00 PM	54.8	70.9	47.9

Leq Average 24 hrs. (dB(A)) 56.9  
Lmax (dB(A)) 86.9  
L90 (dB(A)) 52.2  
Ldn (dB(A)) 62.5  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. สำหรับการตรวจวัดค่าเสียงแวดล้อม "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
2. สำหรับการตรวจวัดค่าเสียงภายในอาคาร "ตาม" บทที่ 15 (พ.ร. 2540) เป็นหลัก โดยมีมาตรฐานระดับเสียงโดยทั่วไป  
ทั้งนี้ พ.ร. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121870-1

Page 1 of 1

Sample Number 24101158-27  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาคลองนา (GPS 47P 0714361, 1718864)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	48.6	59.0	45.1
02:00 PM - 03:00 PM	53.0	71.8	48.9
03:00 PM - 04:00 PM	56.0	81.3	47.0
04:00 PM - 05:00 PM	55.1	74.0	48.6
05:00 PM - 06:00 PM	57.5	65.9	54.7
06:00 PM - 07:00 PM	58.3	64.6	57.1
07:00 PM - 08:00 PM	58.2	62.6	57.2
08:00 PM - 09:00 PM	55.9	63.6	54.6
09:00 PM - 10:00 PM	54.0	58.6	53.0
10:00 PM - 11:00 PM	52.9	56.9	52.1
11:00 PM - 12:00 AM	53.5	60.0	52.8
12:00 AM - 01:00 AM	55.5	58.5	55.0
01:00 AM - 02:00 AM	55.8	64.7	55.2
02:00 AM - 03:00 AM	53.1	64.0	52.3
03:00 AM - 04:00 AM	51.5	61.9	50.5
04:00 AM - 05:00 AM	50.1	69.9	47.2
05:00 AM - 06:00 AM	49.2	68.7	45.0
06:00 AM - 07:00 AM	62.8	93.3	49.2
07:00 AM - 08:00 AM	48.8	70.5	42.5
08:00 AM - 09:00 AM	48.3	64.0	42.7
09:00 AM - 10:00 AM	56.3	74.0	44.7
10:00 AM - 11:00 AM	64.6	92.0	49.7
11:00 AM - 12:00 PM	63.8	89.5	47.6
12:00 PM - 01:00 PM	63.8	81.0	55.6

Leq Average 24 hrs. (dB(A))

58.1

Lmax (dB(A))

93.3

L90 (dB(A))

49.7

Ldn (dB(A))

63.0

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. สำหรับการตรวจวัดการปนเปื้อนเสียงตามข้อกำหนดใน พ.ร.บ. 2540 เป็นเหตุให้ บมจ.อ่าวไทย จำกัด โดยนายวิไล  
2. สำหรับการตรวจวัดการปนเปื้อนเสียงตามข้อกำหนดใน พ.ร.บ. 2540 เป็นเหตุให้ บมจ.อ่าวไทย จำกัด โดยนายวิไล  
โดยนายวิไล พ.ร.บ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121871-1

Page 1 of 1

Sample Number 24101158-28  
Parameter Noise (Leq 24 hrs.)  
Location บ้านนาคลองนา (GPS 47P 0714361, 1718864)  
Measurement Date Sep 16 - Sep 17, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	62.8	85.5	51.1
02:00 PM - 03:00 PM	50.4	77.4	43.5
03:00 PM - 04:00 PM	50.7	76.2	45.9
04:00 PM - 05:00 PM	52.1	69.5	47.6
05:00 PM - 06:00 PM	53.7	63.7	50.5
06:00 PM - 07:00 PM	54.0	68.2	51.8
07:00 PM - 08:00 PM	54.4	71.4	51.6
08:00 PM - 09:00 PM	54.5	64.4	51.4
09:00 PM - 10:00 PM	54.7	65.5	52.2
10:00 PM - 11:00 PM	53.4	60.4	51.2
11:00 PM - 12:00 AM	52.1	63.6	50.6
12:00 AM - 01:00 AM	52.6	59.0	51.6
01:00 AM - 02:00 AM	53.7	52.9	52.9
02:00 AM - 03:00 AM	52.4	58.1	51.5
03:00 AM - 04:00 AM	55.4	87.8	49.1
04:00 AM - 05:00 AM	51.3	69.9	49.3
05:00 AM - 06:00 AM	50.1	69.5	44.8
06:00 AM - 07:00 AM	63.3	87.0	49.8
07:00 AM - 08:00 AM	49.8	70.8	43.4
08:00 AM - 09:00 AM	47.3	64.1	43.0
09:00 AM - 10:00 AM	61.6	76.3	58.3
10:00 AM - 11:00 AM	64.3	94.7	53.9
11:00 AM - 12:00 PM	66.0	86.4	54.1
12:00 PM - 01:00 PM	62.8	82.3	54.1

Leq Average 24 hrs. (dB(A))

58.6

Lmax (dB(A))

94.7

L90 (dB(A))

51.1

Ldn (dB(A))

63.2

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. สำหรับการตรวจวัดการปนเปื้อนเสียงตามข้อกำหนดใน พ.ร.บ. 2540 เป็นเหตุให้ บมจ.อ่าวไทย จำกัด โดยนายวิไล  
2. สำหรับการตรวจวัดการปนเปื้อนเสียงตามข้อกำหนดใน พ.ร.บ. 2540 เป็นเหตุให้ บมจ.อ่าวไทย จำกัด โดยนายวิไล  
โดยนายวิไล พ.ร.บ. 2548

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121872-1

Page 1 of 1

Sample Number 24101158-29  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 10 - Sep 11, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.7	72.5	58.1
11:00 AM - 12:00 PM	58.5	70.3	56.2
12:00 PM - 01:00 PM	60.6	72.6	57.4
01:00 PM - 02:00 PM	61.5	70.2	58.3
02:00 PM - 03:00 PM	60.9	69.5	57.9
03:00 PM - 04:00 PM	61.4	70.2	58.1
04:00 PM - 05:00 PM	60.7	70.2	57.9
05:00 PM - 06:00 PM	64.6	72.0	63.3
06:00 PM - 07:00 PM	62.1	86.7	60.1
07:00 PM - 08:00 PM	60.3	66.6	58.4
08:00 PM - 09:00 PM	60.9	67.2	58.6
09:00 PM - 10:00 PM	60.4	67.0	58.2
10:00 PM - 11:00 PM	60.6	66.9	58.4
11:00 PM - 12:00 AM	57.9	65.3	56.7
12:00 AM - 01:00 AM	57.0	60.3	56.6
01:00 AM - 02:00 AM	56.8	64.1	55.9
02:00 AM - 03:00 AM	60.5	70.8	57.7
03:00 AM - 04:00 AM	61.0	69.5	57.8
04:00 AM - 05:00 AM	60.8	69.4	57.8
05:00 AM - 06:00 AM	60.7	79.5	57.8
06:00 AM - 07:00 AM	60.7	69.6	58.0
07:00 AM - 08:00 AM	65.1	74.1	63.8
08:00 AM - 09:00 AM	60.9	67.3	58.7
09:00 AM - 10:00 AM	61.7	68.8	58.9

Leq Average 24 hrs. (dB(A))

61.1

Lmax (dB(A))

86.7

L90 (dB(A))

58.0

Ldn (dB(A))

66.6

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

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S:\Reports\_Air Noise.rpt ( 4:40PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121873-1

Page 1 of 1

Sample Number 24101158-30  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 11 - Sep 12, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.5	68.6	58.8
11:00 AM - 12:00 PM	62.7	82.9	59.8
12:00 PM - 01:00 PM	63.9	97.6	60.2
01:00 PM - 02:00 PM	60.3	78.3	59.5
02:00 PM - 03:00 PM	62.6	67.8	62.0
03:00 PM - 04:00 PM	65.6	67.9	65.0
04:00 PM - 05:00 PM	66.0	67.6	65.5
05:00 PM - 06:00 PM	65.6	67.3	65.1
06:00 PM - 07:00 PM	66.0	74.9	65.2
07:00 PM - 08:00 PM	60.9	71.1	59.5
08:00 PM - 09:00 PM	57.9	68.5	57.1
09:00 PM - 10:00 PM	60.5	68.9	58.0
10:00 PM - 11:00 PM	61.2	68.3	58.3
11:00 PM - 12:00 AM	60.7	68.2	58.0
12:00 AM - 01:00 AM	60.5	69.1	58.0
01:00 AM - 02:00 AM	57.4	68.7	56.2
02:00 AM - 03:00 AM	60.9	70.8	57.8
03:00 AM - 04:00 AM	61.2	70.1	58.1
04:00 AM - 05:00 AM	61.2	74.1	58.0
05:00 AM - 06:00 AM	61.0	68.6	57.8
06:00 AM - 07:00 AM	61.0	69.4	58.1
07:00 AM - 08:00 AM	65.7	75.9	64.1
08:00 AM - 09:00 AM	61.6	69.6	59.2
09:00 AM - 10:00 AM	60.8	68.4	58.7

Leq Average 24 hrs. (dB(A))

62.6

Lmax (dB(A))

97.6

L90 (dB(A))

58.7

Ldn (dB(A))

67.6

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

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121874-1

Page 1 of 1

Sample Number 24101158-31  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณริมรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.2	76.3	58.9
11:00 AM - 12:00 PM	60.7	68.6	58.7
12:00 PM - 01:00 PM	61.0	69.3	58.8
01:00 PM - 02:00 PM	57.9	65.4	57.1
02:00 PM - 03:00 PM	58.2	61.1	57.7
03:00 PM - 04:00 PM	61.1	63.8	60.4
04:00 PM - 05:00 PM	62.1	64.3	61.4
05:00 PM - 06:00 PM	61.4	65.2	60.8
06:00 PM - 07:00 PM	63.1	70.6	62.2
07:00 PM - 08:00 PM	61.4	72.0	59.7
08:00 PM - 09:00 PM	58.3	68.1	57.3
09:00 PM - 10:00 PM	59.7	69.5	57.8
10:00 PM - 11:00 PM	61.3	69.6	58.1
11:00 PM - 12:00 AM	62.3	69.9	58.9
12:00 AM - 01:00 AM	61.6	70.7	58.6
01:00 AM - 02:00 AM	57.1	69.0	55.9
02:00 AM - 03:00 AM	60.5	79.4	57.8
03:00 AM - 04:00 AM	61.6	80.5	58.5
04:00 AM - 05:00 AM	60.8	69.2	58.0
05:00 AM - 06:00 AM	60.6	69.6	57.8
06:00 AM - 07:00 AM	60.7	71.7	58.0
07:00 AM - 08:00 AM	65.8	77.7	64.0
08:00 AM - 09:00 AM	61.0	68.2	58.9
09:00 AM - 10:00 AM	61.2	68.2	58.4

Leq Average 24 hrs. (dB(A))

61.2

Lmax (dB(A))

80.5

L90 (dB(A))

58.5

Ldn (dB(A))

67.4

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

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121875-1

Page 1 of 1

Sample Number 24101158-32  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณริมรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.0	69.8	58.3
11:00 AM - 12:00 PM	65.2	81.6	62.2
12:00 PM - 01:00 PM	60.8	69.1	58.7
01:00 PM - 02:00 PM	59.4	76.2	58.5
02:00 PM - 03:00 PM	61.1	71.3	60.3
03:00 PM - 04:00 PM	64.0	73.7	63.3
04:00 PM - 05:00 PM	64.9	71.8	64.1
05:00 PM - 06:00 PM	62.5	65.5	61.7
06:00 PM - 07:00 PM	63.6	72.7	62.9
07:00 PM - 08:00 PM	61.8	73.4	60.2
08:00 PM - 09:00 PM	57.7	68.6	57.0
09:00 PM - 10:00 PM	61.9	72.4	58.8
10:00 PM - 11:00 PM	61.5	69.5	58.4
11:00 PM - 12:00 AM	60.5	68.6	57.8
12:00 AM - 01:00 AM	60.4	68.1	57.7
01:00 AM - 02:00 AM	56.7	66.7	55.5
02:00 AM - 03:00 AM	60.5	69.7	57.6
03:00 AM - 04:00 AM	61.4	69.7	58.2
04:00 AM - 05:00 AM	61.5	71.4	58.1
05:00 AM - 06:00 AM	60.8	69.9	58.1
06:00 AM - 07:00 AM	60.6	69.0	58.0
07:00 AM - 08:00 AM	66.9	80.5	65.0
08:00 AM - 09:00 AM	62.3	76.8	60.0
09:00 AM - 10:00 AM	62.4	83.2	59.9

Leq Average 24 hrs. (dB(A))

62.2

Lmax (dB(A))

83.2

L90 (dB(A))

58.5

Ldn (dB(A))

67.4

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121876-1

Page 1 of 1

Sample Number 24101158-33  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณริมรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	60.7	70.4	59.0
11:00 AM - 12:00 PM	60.9	68.1	58.9
12:00 PM - 01:00 PM	61.0	67.1	59.1
01:00 PM - 02:00 PM	62.0	76.1	60.5
02:00 PM - 03:00 PM	62.0	66.8	60.9
03:00 PM - 04:00 PM	63.9	68.8	62.7
04:00 PM - 05:00 PM	64.2	67.6	63.3
05:00 PM - 06:00 PM	61.0	66.5	60.4
06:00 PM - 07:00 PM	63.0	71.1	62.2
07:00 PM - 08:00 PM	61.3	71.4	59.4
08:00 PM - 09:00 PM	57.3	69.3	56.5
09:00 PM - 10:00 PM	57.1	65.2	56.5
10:00 PM - 11:00 PM	57.3	67.6	56.4
11:00 PM - 12:00 AM	57.1	61.1	56.3
12:00 AM - 01:00 AM	56.7	64.6	56.0
01:00 AM - 02:00 AM	57.1	63.2	56.2
02:00 AM - 03:00 AM	56.9	71.6	55.9
03:00 AM - 04:00 AM	56.5	61.2	55.6
04:00 AM - 05:00 AM	56.2	64.5	55.4
05:00 AM - 06:00 AM	59.1	78.1	56.8
06:00 AM - 07:00 AM	57.8	77.7	56.7
07:00 AM - 08:00 AM	65.1	85.2	63.4
08:00 AM - 09:00 AM	61.3	67.9	59.6
09:00 AM - 10:00 AM	60.9	67.2	59.0

Leq Average 24 hrs. (dB(A))

60.7

Lmax (dB(A))

85.2

L90 (dB(A))

58.9

Ldn (dB(A))

64.7

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121877-1

Page 1 of 1

Sample Number 24101158-34  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณริมรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	60.6	67.1	58.8
11:00 AM - 12:00 PM	60.6	67.6	58.7
12:00 PM - 01:00 PM	58.1	65.6	57.3
01:00 PM - 02:00 PM	57.9	61.1	57.3
02:00 PM - 03:00 PM	58.9	61.5	58.2
03:00 PM - 04:00 PM	60.4	67.1	59.7
04:00 PM - 05:00 PM	59.9	63.1	59.3
05:00 PM - 06:00 PM	59.0	61.9	58.5
06:00 PM - 07:00 PM	62.5	72.2	61.7
07:00 PM - 08:00 PM	60.3	72.0	59.1
08:00 PM - 09:00 PM	57.5	70.1	57.0
09:00 PM - 10:00 PM	60.7	68.4	58.2
10:00 PM - 11:00 PM	60.6	68.2	58.1
11:00 PM - 12:00 AM	60.2	68.0	57.9
12:00 AM - 01:00 AM	60.6	69.6	58.1
01:00 AM - 02:00 AM	57.2	68.4	56.2
02:00 AM - 03:00 AM	59.5	67.9	57.3
03:00 AM - 04:00 AM	59.9	68.1	57.6
04:00 AM - 05:00 AM	59.6	68.3	57.4
05:00 AM - 06:00 AM	59.2	68.3	56.8
06:00 AM - 07:00 AM	59.2	66.6	56.8
07:00 AM - 08:00 AM	64.5	72.2	63.4
08:00 AM - 09:00 AM	60.7	66.2	59.3
09:00 AM - 10:00 AM	60.6	67.1	58.9

Leq Average 24 hrs. (dB(A))

60.2

Lmax (dB(A))

72.2

L90 (dB(A))

58.1

Ldn (dB(A))

66.2

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101158

Date Received : Sep 18, 2024

Date Reported : Sep 25, 2024

Report Number: 3121878-1

Page 1 of 1

Sample Number 24101158-35  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณรั้วของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date Sep 16 - Sep 17, 2024  
Measurement by Autit Aoonsim  
Sound Level meter Serial No. 858523

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.0	68.6	59.0
11:00 AM - 12:00 PM	60.8	67.4	58.5
12:00 PM - 01:00 PM	60.0	66.5	57.9
01:00 PM - 02:00 PM	59.0	66.9	57.8
02:00 PM - 03:00 PM	59.6	64.9	58.7
03:00 PM - 04:00 PM	59.5	64.1	58.9
04:00 PM - 05:00 PM	59.7	62.3	59.2
05:00 PM - 06:00 PM	59.1	61.6	58.5
06:00 PM - 07:00 PM	62.2	68.6	61.5
07:00 PM - 08:00 PM	59.8	73.8	58.6
08:00 PM - 09:00 PM	57.4	63.1	56.8
09:00 PM - 10:00 PM	60.7	68.7	58.2
10:00 PM - 11:00 PM	61.5	76.6	58.7
11:00 PM - 12:00 AM	60.5	69.1	58.1
12:00 AM - 01:00 AM	59.2	69.1	57.4
01:00 AM - 02:00 AM	60.5	69.6	58.0
02:00 AM - 03:00 AM	60.4	66.9	58.3
03:00 AM - 04:00 AM	61.1	69.4	58.1
04:00 AM - 05:00 AM	60.7	69.6	57.7
05:00 AM - 06:00 AM	60.8	68.2	58.6
06:00 AM - 07:00 AM	61.6	80.5	58.9
07:00 AM - 08:00 AM	62.7	82.9	59.4
08:00 AM - 09:00 AM	60.9	69.1	58.5
09:00 AM - 10:00 AM	61.8	68.4	61.0
Leq Average 24 hrs. (dB(A))	60.6		
Lmax (dB(A))		82.9	
L90 (dB(A))			58.5
Ldn (dB(A))	67.1		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

*Orawan R.*

Orawan Rak Yong  
Scientist (3)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

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11732-22/ EMAIL

S:\Reports\_Air Noise.rpt ( 4:41PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116320-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103109-1  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 4 (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00873053

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นฐาน	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	51.0	48.7	47.1	-	42.4	4.7
11:00 AM - 12:00 PM	49.8	47.2	46.3	-	43.1	3.2
12:00 PM - 01:00 PM	49.0	46.2	45.8	-	41.6	4.2
01:00 PM - 02:00 PM	50.4	46.6	48.1	-	41.4	6.7
02:00 PM - 03:00 PM	50.0	46.9	47.9	-	40.7	-
03:00 PM - 04:00 PM	50.5	47.2	47.3	-	42.1	15.1
04:00 PM - 05:00 PM	54.4	49.2	53.2	-	42.9	10.3
05:00 PM - 06:00 PM	56.8	49.0	56.0	-	42.2	12.8
06:00 PM - 07:00 PM	44.6	55.7	64.0	-	47.2	16.2
07:00 PM - 08:00 PM	54.2	48.4	52.9	-	47.2	5.7
08:00 PM - 09:00 PM	53.9	48.5	52.4	-	47.7	4.7
09:00 PM - 10:00 PM	54.8	48.2	53.7	-	47.3	6.4
10:00 PM - 10:55 PM	55.4	48.7	-	57.4	48.1	9.3
10:55 PM - 10:10 PM	55.8	48.4	-	57.9	47.6	10.3
10:10 PM - 10:15 PM	55.2	49.0	-	57.7	48.1	9.6
10:15 PM - 10:20 PM	55.5	49.5	-	57.2	48.9	8.3
10:20 PM - 10:25 PM	54.7	48.7	-	56.4	47.9	8.5
10:25 PM - 10:30 PM	55.3	48.5	-	57.3	47.2	10.1
10:30 PM - 10:35 PM	55.6	47.8	-	57.8	46.9	10.9
10:35 PM - 10:40 PM	55.0	47.7	-	57.1	46.8	10.3
10:40 PM - 10:45 PM	55.3	47.8	-	57.4	47.0	10.6
10:45 PM - 10:50 PM	55.0	47.5	-	57.2	46.5	10.6
10:50 PM - 10:55 PM	52.7	48.1	-	55.3	47.2	8.1
10:55 PM - 11:00 PM	53.3	47.9	-	54.8	46.8	8.0
11:00 PM - 11:05 PM	52.8	48.8	-	55.1	47.9	7.2
11:05 PM - 11:10 PM	53.6	49.5	-	55.6	48.5	6.0
11:10 PM - 11:15 PM	53.2	49.5	-	53.8	48.9	4.9
11:15 PM - 11:20 PM	54.1	49.5	-	55.3	48.8	6.5
11:20 PM - 11:25 PM	54.5	48.9	-	56.1	48.6	7.7
11:25 PM - 11:30 PM	54.4	48.5	-	56.1	47.9	8.1
11:30 PM - 11:35 PM	55.1	49.1	-	56.8	48.2	8.6
11:35 PM - 11:40 PM	53.9	49.3	-	55.1	48.6	6.7
11:40 PM - 11:45 PM	54.6	49.7	-	55.9	48.0	6.0
11:45 PM - 11:50 PM	54.3	49.0	-	55.8	48.1	7.7
11:50 PM - 11:55 PM	54.5	48.8	-	56.1	47.8	8.3
11:55 PM - 12:00 AM	54.9	49.7	-	56.6	48.3	8.3
12:00 AM - 12:05 AM	54.9	48.7	-	56.7	48.0	8.1
12:05 AM - 12:10 AM	55.1	48.9	-	56.9	48.2	8.7
12:10 AM - 12:15 AM	55.0	48.8	-	57.0	48.3	8.7
12:15 AM - 12:20 AM	55.4	48.9	-	57.3	48.1	9.2

Approved by

Kaokom Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116320-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103109-1  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 4 (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00873053

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นฐาน	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
12:20 AM - 12:25 AM	55.9	48.9	-	52.9	48.0	5.9
12:25 AM - 12:30 AM	56.5	49.4	-	59.6	48.4	10.2
12:30 AM - 12:35 AM	57.1	49.6	-	59.2	48.9	10.3
12:35 AM - 12:40 AM	57.2	49.5	-	59.4	48.6	10.6
12:40 AM - 12:45 AM	57.6	49.9	-	59.5	48.9	10.6
12:45 AM - 12:50 AM	57.3	51.0	-	59.1	49.1	9.8
12:50 AM - 12:55 AM	57.6	50.1	-	59.7	49.3	10.4
12:55 AM - 01:00 AM	58.0	51.0	-	60.0	49.8	10.2
01:00 AM - 01:05 AM	58.3	51.8	-	60.2	50.4	9.8
01:05 AM - 01:10 AM	58.8	51.0	-	61.0	50.1	10.9
01:10 AM - 01:15 AM	58.6	51.4	-	60.7	50.5	10.2
01:15 AM - 01:20 AM	58.9	52.6	-	61.4	51.7	9.0
01:20 AM - 01:25 AM	58.7	52.9	-	60.5	51.8	8.7
01:25 AM - 01:30 AM	59.0	52.5	-	60.8	52.2	8.6
01:30 AM - 01:35 AM	59.2	53.2	-	60.9	52.5	8.4
01:35 AM - 01:40 AM	59.2	54.2	-	60.5	52.7	7.8
01:40 AM - 01:45 AM	58.9	53.5	-	60.4	52.8	7.6
01:45 AM - 01:50 AM	58.5	53.5	-	59.8	52.6	7.2
01:50 AM - 01:55 AM	58.4	53.6	-	59.7	52.9	6.8
01:55 AM - 02:00 AM	59.2	53.5	-	60.8	52.8	8.0
02:00 AM - 02:05 AM	59.0	53.8	-	60.4	53.1	7.3
02:05 AM - 02:10 AM	59.1	54.1	-	60.3	53.4	6.9
02:10 AM - 02:15 AM	59.0	53.7	-	60.5	53.2	7.3
02:15 AM - 02:20 AM	59.1	53.7	-	60.6	53.1	7.5
02:20 AM - 02:25 AM	59.0	53.5	-	60.6	52.9	7.7
02:25 AM - 02:30 AM	59.0	53.6	-	60.5	52.9	7.6
02:30 AM - 02:35 AM	59.1	53.8	-	60.6	53.1	7.5
02:35 AM - 02:40 AM	59.2	53.7	-	60.9	53.0	7.9
02:40 AM - 02:45 AM	59.1	53.4	-	60.7	52.6	8.1
02:45 AM - 02:50 AM	58.4	52.7	-	60.0	51.9	8.1
02:50 AM - 02:55 AM	58.1	52.1	-	59.8	51.3	8.5
02:55 AM - 03:00 AM	57.8	51.8	-	59.7	50.9	8.8
03:00 AM - 03:05 AM	57.5	51.7	-	59.2	50.9	8.8
03:05 AM - 03:10 AM	57.3	51.6	-	58.9	50.7	8.2
03:10 AM - 03:15 AM	57.5	52.1	-	59.0	50.1	8.9
03:15 AM - 03:20 AM	57.6	52.0	-	58.9	50.4	8.4
03:20 AM - 03:25 AM	56.7	50.7	-	58.4	50.0	8.4
03:25 AM - 03:30 AM	55.9	49.5	-	57.3	50.0	9.3
03:30 AM - 03:35 AM	56.9	50.4	-	57.6	49.4	9.2
03:35 AM - 03:40 AM	56.1	49.7	-	58.0	48.8	9.2

Approved by

Kaokom Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116320-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103109-1  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 4 (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00873053

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นฐาน	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
03:40 AM - 03:45 AM	55.2	49.1	-	57.0	48.0	9.0
03:45 AM - 03:50 AM	55.3	48.8	-	57.2	47.7	9.5
03:50 AM - 03:55 AM	54.9	48.5	-	56.8	47.5	9.3
03:55 AM - 04:00 AM	54.3	50.0	-	54.3	47.0	7.3
04:00 AM - 04:05 AM	52.5	47.4	-	53.9	46.1	7.8
04:05 AM - 04:10 AM	53.1	46.4	-	55.1	45.5	9.6
04:10 AM - 04:15 AM	51.7	46.1	-	53.3	45.0	8.3
04:15 AM - 04:20 AM	51.3	46.4	-	52.6	44.9	7.7
04:20 AM - 04:25 AM	50.7	45.2	-	52.3	44.2	8.1
04:25 AM - 04:30 AM	48.7	44.5	-	49.6	43.6	6.0
04:30 AM - 04:35 AM	52.4	44.4	-	54.7	42.2	11.5
04:35 AM - 04:40 AM	49.4	44.7	-	50.6	42.9	7.7
04:40 AM - 04:45 AM	52.4	44.0	-	54.7	42.2	12.5
04:45 AM - 04:50 AM	51.9	43.1	-	56.5	42.2	14.3
04:50 AM - 04:55 AM	51.6	50.4	-	48.4	42.6	5.8
04:55 AM - 05:00 AM	50.2	44.5	-	51.8	41.3	10.5
05:00 AM - 05:05 AM	53.5	50.7	-	53.3	42.1	11.2
05:05 AM - 05:10 AM	53.8	50.9	-	53.7	42.2	11.5
05:10 AM - 05:15 AM	55.7	46.1	-	58.2	43.2	15.0
05:15 AM - 05:20 AM	52.3	49.1	-	59.6	43.0	16.6
05:20 AM - 05:25 AM	60.3	54.5	-	62.0	43.5	18.5
05:25 AM - 05:30 AM	55.4	50.0	-	56.9	43.6	13.3
05:30 AM - 05:35 AM	54.8	54.1	-	47.5	43.9	5.6
05:35 AM - 05:40 AM	56.3	60.9	-	56.1	43.4	-
05:40 AM - 05:45 AM	54.5	51.7	-	54.3	44.2	10.1
05:45 AM - 05:50 AM	52.1	48.8	-	52.6	43.6	9.0
05:50 AM - 05:55 AM	52.8	49.9	-	54.7	44.0	8.7
05:55 AM - 06:00 AM	53.6	51.0	-	53.1	44.2	8.9
06:00 AM - 07:00 AM	54.9	53.5	49.3	-	43.8	5.0
07:00 AM - 08:00 AM	51.7	50.6	46.6	-	43.0	8.8
08:00 AM - 09:00 AM	56.5	52.5	54.3	-	42.6	11.7
09:00 AM - 10:00 AM	62.0	51.6	61.6	-	45.1	16.5

Reference Method : 1. In-house method : STH 06-001 based on ISO 1996-1 : 2016

หมายเหตุ : 2. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

3. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

4. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

5. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

6. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

7. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

8. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

9. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

10. บ้านเลขที่ 4 (GPS 47P 0721889, 1520717) เป็นบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24 และบ้านเลขที่ 4 ที่อยู่ติดกับถนนสาย 24

Approved by

Kaokom Anek  
Asst. General Manager

Address: 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand  
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116320-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103109-2  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 4 (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00873053

เวลา	เสียงจากแหล่งกำเนิด		เสียงรบกวนจากการจราจร		เสียงพื้นฐาน	ค่าเฉลี่ยการจราจร
	แหล่งกำเนิด	ไม่มีการจราจร	กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	56.9	48.8	56.2	-	43.1	13.1
11:00 AM - 12:00 PM	52.6	48.8	56.2	-	43.1	2.1
12:00 PM - 01:00 PM	52.6	48.8	45.4	-	41.7	2.9
01:00 PM - 02:00 PM	51.3	43.6	51.7	-	40.8	10.9
02:00 PM - 03:00 PM	52.0	43.9	50.8	-	41.0	9.8
03:00 PM - 04:00 PM	51.2	46.3	48.3	-	40.2	6.4
04:00 PM - 05:00 PM	51.9	46.2	50.3	-	43.0	7.5
05:00 PM - 06:00 PM	51.8	50.1	55.8	-	43.6	12.2
06:00 PM - 07:00 PM	51.3	48.7	51.5	-	42.3	4.2
07:00 PM - 08:00 PM	54.4	48.5	51.1	-	47.4	5.5
08:00 PM - 09:00 PM	54.8	47.4	53.9	-	45.4	8.5
09:00 PM - 10:00 PM	58.0	58.6	63.9	-	54.0	9.9
10:00 PM - 10:55 PM	66.2	56.0	-	49.8	54.9	13.9
10:55 PM - 11:10 PM	65.6	57.3	-	47.9	55.3	12.6
11:10 PM - 11:15 PM	62.3	61.0	-	59.4	59.2	0.2
11:15 PM - 11:20 PM	65.7	57.9	-	59.9	54.4	13.5
11:20 PM - 11:25 PM	64.4	59.4	-	63.7	54.7	11.0
11:25 PM - 11:30 PM	61.9	59.4	-	61.3	57.9	3.4
11:30 PM - 11:35 PM	59.5	57.5	-	58.2	55.9	2.9
11:35 PM - 11:40 PM	60.1	57.4	-	56.8	51.8	6.3
11:40 PM - 11:45 PM	60.1	53.2	-	58.2	50.6	12.6
11:45 PM - 11:50 PM	61.0	54.6	-	61.9	50.2	12.7
11:50 PM - 11:55 PM	60.2	56.1	-	61.1	50.9	10.2
11:55 PM - 12:00 PM	59.9	54.8	-	61.3	51.5	9.4
12:00 PM - 11:05 PM	59.4	53.4	-	61.1	50.4	10.5
11:05 PM - 11:10 PM	59.5	53.3	-	61.3	50.8	10.5
11:10 PM - 11:15 PM	58.9	53.2	-	60.9	50.2	10.7
11:15 PM - 11:20 PM	58.6	52.9	-	59.8	49.7	10.1
11:20 PM - 11:25 PM	58.5	52.3	-	60.3	49.4	10.9
11:25 PM - 11:30 PM	58.0	50.7	-	60.1	49.4	10.4
11:30 PM - 11:35 PM	58.1	50.7	-	60.1	49.7	11.7
11:35 PM - 11:40 PM	57.7	53.1	-	59.9	49.1	9.4
11:40 PM - 11:45 PM	58.0	50.0	-	60.3	49.7	11.1
11:45 PM - 11:50 PM	58.2	52.4	-	59.9	49.1	10.6
11:50 PM - 11:55 PM	57.9	51.5	-	59.8	49.7	10.1
11:55 PM - 12:00 AM	57.9	54.4	-	58.2	49.5	8.4
12:00 AM - 12:05 AM	57.3	50.8	-	56.4	50.0	10.4
12:05 AM - 12:10 AM	57.7	52.8	-	59.8	51.1	7.9
12:10 AM - 12:15 AM	57.1	51.9	-	59.9	51.9	9.9
12:15 AM - 12:20 AM	56.2	51.6	-	57.4	50.9	6.6



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-2  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 104 หมู่ 17 ตำบลบ้านนา อำเภอบางพลี จังหวัดสมุทรปราการ (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00873053

Page 2 of 3

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	ระดับเสียง (dB(A))		เสียงรบกวน	ค่าเฉลี่ย
			ค่าจริง	ค่าเฉลี่ย		
12:20 AM - 12:25 AM	55.6	51.2	-	56.6	49.9	6.7
12:25 AM - 12:30 AM	54.8	52.1	-	54.5	50.1	4.4
12:30 AM - 12:35 AM	54.1	52.3	-	52.4	50.5	1.9
12:35 AM - 12:40 AM	54.7	51.4	-	55.0	50.6	4.4
12:40 AM - 12:45 AM	53.8	52.8	-	49.9	50.7	-0.8
12:45 AM - 12:50 AM	54.1	51.7	-	51.5	51.1	0.2
12:50 AM - 12:55 AM	55.3	51.6	-	55.9	51.1	4.8
12:55 AM - 01:00 AM	54.2	51.8	-	53.5	50.8	2.7
01:00 AM - 01:05 AM	53.9	51.4	-	53.3	50.8	2.5
01:05 AM - 01:10 AM	53.8	52.0	-	52.1	51.7	0.8
01:10 AM - 01:15 AM	54.1	52.6	-	51.8	52.1	-0.3
01:15 AM - 01:20 AM	55.0	53.4	-	52.4	52.4	0.5
01:20 AM - 01:25 AM	55.5	53.3	-	54.5	52.8	1.7
01:25 AM - 01:30 AM	55.2	53.6	-	53.1	52.8	0.3
01:30 AM - 01:35 AM	56.2	54.6	-	54.1	53.4	0.7
01:35 AM - 01:40 AM	57.4	54.5	-	57.3	54.0	3.3
01:40 AM - 01:45 AM	57.7	54.3	-	58.0	53.7	4.3
01:45 AM - 01:50 AM	57.2	55.5	-	55.3	53.8	1.5
01:50 AM - 01:55 AM	57.9	54.4	-	58.3	53.9	4.4
01:55 AM - 02:00 AM	58.6	55.0	-	59.1	53.9	5.2
02:00 AM - 02:05 AM	59.1	55.5	-	59.6	54.1	5.5
02:05 AM - 02:10 AM	58.4	55.5	-	58.3	54.0	4.3
02:10 AM - 02:15 AM	59.7	56.0	-	61.1	53.8	7.3
02:15 AM - 02:20 AM	58.8	56.0	-	58.4	53.9	9.7
02:20 AM - 02:25 AM	60.3	56.7	-	60.8	54.3	6.5
02:25 AM - 02:30 AM	60.8	56.7	-	61.7	54.4	7.3
02:30 AM - 02:35 AM	60.7	56.7	-	61.6	54.6	7.0
02:35 AM - 02:40 AM	61.8	58.0	-	62.5	55.0	7.5
02:40 AM - 02:45 AM	60.5	58.0	-	59.9	54.5	5.4
02:45 AM - 02:50 AM	60.6	58.1	-	60.8	53.8	6.8
02:50 AM - 02:55 AM	60.7	57.3	-	61.0	54.7	7.3
02:55 AM - 03:00 AM	60.4	58.5	-	58.9	55.9	3.0
03:00 AM - 03:05 AM	60.7	58.0	-	60.4	55.5	4.9
03:05 AM - 03:10 AM	60.1	57.1	-	60.1	53.7	6.4
03:10 AM - 03:15 AM	59.6	58.3	-	56.7	55.4	1.3
03:15 AM - 03:20 AM	60.0	58.1	-	56.5	54.1	4.4
03:20 AM - 03:25 AM	59.3	58.2	-	55.8	53.0	2.8
03:25 AM - 03:30 AM	59.4	59.4	-	60.8	56.1	-
03:30 AM - 03:35 AM	59.1	58.8	-	58.2	52.7	5.5
03:35 AM - 03:40 AM	58.8	58.6	-	48.3	54.0	-5.7

The above results are valid only for the analytical data presented. No inclusion of background noise level is included in this report. The results are valid only for the analytical data presented. No inclusion of background noise level is included in this report.

Approved by

Kanokorn Anek  
Asst. General Manager

ADDRESS: 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-2  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 104 หมู่ 17 ตำบลบ้านนา อำเภอบางพลี จังหวัดสมุทรปราการ (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00873053

Page 3 of 3

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	ระดับเสียง (dB(A))		เสียงรบกวน	ค่าเฉลี่ย
			ค่าจริง	ค่าเฉลี่ย		
03:40 AM - 03:45 AM	58.0	59.4	-	58.0	52.8	-
03:45 AM - 03:50 AM	58.0	59.4	-	58.0	52.8	-
03:50 AM - 03:55 AM	58.1	59.3	-	58.1	55.8	-
03:55 AM - 04:00 AM	57.3	60.0	-	57.3	56.2	-
04:00 AM - 04:05 AM	56.2	60.2	-	56.2	56.7	-
04:05 AM - 04:10 AM	54.8	59.3	-	54.8	54.3	-
04:10 AM - 04:15 AM	55.7	59.1	-	55.7	55.9	-
04:15 AM - 04:20 AM	54.5	59.8	-	54.5	55.4	-
04:20 AM - 04:25 AM	54.4	58.5	-	54.4	57.0	-
04:25 AM - 04:30 AM	53.9	56.4	-	53.9	56.9	-
04:30 AM - 04:35 AM	52.3	56.7	-	52.3	53.2	-
04:35 AM - 04:40 AM	52.1	55.5	-	52.1	48.8	-
04:40 AM - 04:45 AM	55.1	53.1	-	53.8	45.6	8.0
04:45 AM - 04:50 AM	51.1	51.8	-	51.1	46.6	-
04:50 AM - 04:55 AM	53.8	50.7	-	53.8	43.6	10.3
04:55 AM - 05:00 AM	54.5	50.3	-	55.4	43.1	12.3
05:00 AM - 05:05 AM	55.7	46.7	-	56.1	42.0	16.1
05:05 AM - 05:10 AM	53.6	49.8	-	55.8	42.5	13.3
05:10 AM - 05:15 AM	52.2	48.1	-	53.1	42.8	10.3
05:15 AM - 05:20 AM	54.8	48.0	-	56.8	43.2	13.6
05:20 AM - 05:25 AM	55.3	49.5	-	57.6	43.4	13.6
05:25 AM - 05:30 AM	62.0	47.8	-	64.8	43.6	18.2
05:30 AM - 05:35 AM	53.6	50.4	-	53.8	43.5	18.3
05:35 AM - 05:40 AM	58.6	45.3	-	61.4	42.8	18.6
05:40 AM - 05:45 AM	50.6	49.3	-	52.1	50.9	7.2
05:45 AM - 05:50 AM	56.0	45.8	-	58.6	43.3	15.3
05:50 AM - 05:55 AM	53.0	47.0	-	54.7	43.7	11.4
05:55 AM - 06:00 AM	51.2	43.1	-	52.1	42.1	15.5
06:00 AM - 07:00 AM	74.8	51.6	74.8	-	42.4	31.4
07:00 AM - 08:00 AM	59.3	51.5	58.5	-	42.4	18.1
08:00 AM - 09:00 AM	54.5	51.5	51.5	-	40.0	11.5
09:00 AM - 10:00 AM	58.1	51.1	57.1	-	42.3	14.8

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ใช้ค่ามาตรฐานเสียงรบกวน (ค่า) ที่กำหนดไว้ตามมาตรฐานระดับเสียง 24 ชั่วโมง และระดับเสียงเฉลี่ยตามค่าที่กำหนดไว้ตามมาตรฐาน ม.ร.ศ. 2567
- ใช้ค่ามาตรฐานเสียงรบกวน (ค่า) ที่กำหนดไว้ตามมาตรฐานระดับเสียง 24 ชั่วโมง และระดับเสียงเฉลี่ยตามค่าที่กำหนดไว้ตามมาตรฐาน ม.ร.ศ. 2567
- ใช้ค่ามาตรฐานเสียงรบกวน (ค่า) ที่กำหนดไว้ตามมาตรฐานระดับเสียง 24 ชั่วโมง และระดับเสียงเฉลี่ยตามค่าที่กำหนดไว้ตามมาตรฐาน ม.ร.ศ. 2567

Remarks :

- ระดับเสียงรบกวนเฉลี่ย 24 ชั่วโมง วันที่ 11-12 สิงหาคม 2567
- ระดับเสียงรบกวนเฉลี่ย 24 ชั่วโมง วันที่ 11-12 สิงหาคม 2567
- ระดับเสียงรบกวนเฉลี่ย 24 ชั่วโมง วันที่ 11-12 สิงหาคม 2567

The above results are valid only for the analytical data presented. No inclusion of background noise level is included in this report. The results are valid only for the analytical data presented. No inclusion of background noise level is included in this report.

Approved by

Kanokorn Anek  
Asst. General Manager

ADDRESS: 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-3  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 104 หมู่ 17 ตำบลบ้านนา อำเภอบางพลี จังหวัดสมุทรปราการ (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00873053

Page 1 of 3

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	ระดับเสียง (dB(A))		เสียงรบกวน	ค่าเฉลี่ย
			ค่าจริง	ค่าเฉลี่ย		
10:00 AM - 11:00 AM	51.0	52.8	50.8	-	40.1	-
11:00 AM - 12:00 PM	50.6	44.4	49.4	-	38.7	10.7
12:00 PM - 01:00 PM	51.6	47.8	49.3	-	40.4	8.9
01:00 PM - 02:00 PM	52.1	47.9	50.7	-	41.9	9.3
02:00 PM - 03:00 PM	52.4	47.8	56.9	-	41.4	15.5
03:00 PM - 04:00 PM	55.2	46.4	54.6	-	40.2	14.4
04:00 PM - 05:00 PM	60.8	53.2	60.0	-	46.7	16.9
05:00 PM - 06:00 PM	53.2	54.1	50.9	-	45.2	-
06:00 PM - 07:00 PM	57.6	56.8	56.6	-	48.8	7.8
07:00 PM - 08:00 PM	57.2	52.0	55.6	-	49.6	6.0
08:00 PM - 09:00 PM	52.8	52.4	61.0	-	50.5	10.5
09:00 PM - 10:00 PM	58.5	52.4	57.3	-	50.9	6.4
10:00 PM - 10:05 PM	57.4	51.3	-	50.2	48.9	10.3
10:05 PM - 10:10 PM	54.7	50.1	-	58.7	46.7	10.0
10:10 PM - 10:15 PM	57.1	52.2	-	58.4	46.6	9.8
10:15 PM - 10:20 PM	55.9	50.2	-	57.5	46.5	8.9
10:20 PM - 10:25 PM	57.9	52.7	-	55.3	49.3	6.0
10:25 PM - 10:30 PM	54.8	49.6	-	58.3	47.8	8.4
10:30 PM - 10:35 PM	55.3	50.6	-	56.5	48.8	7.7
10:35 PM - 10:40 PM	56.9	49.9	-	58.9	48.3	10.6
10:40 PM - 10:45 PM	57.1	50.2	-	57.2	48.7	11.1
10:45 PM - 10:50 PM	58.4	51.8	-	60.3	50.0	10.3
10:50 PM - 10:55 PM	57.5	52.7	-	58.8	51.1	7.7
10:55 PM - 11:00 PM	57.8	52.9	-	57.8	51.1	6.7
11:00 PM - 11:05 PM	56.7	54.3	-	56.0	50.8	5.9
11:05 PM - 11:10 PM	55.9	52.0	-	56.2	50.2	6.4
11:10 PM - 11:15 PM	55.8	51.8	-	56.6	48.5	8.1
11:15 PM - 11:20 PM	55.4	52.7	-	54.5	48.1	7.7
11:20 PM - 11:25 PM	55.2	50.4	-	55.5	48.5	8.0
11:25 PM - 11:30 PM	55.1	50.4	-	56.3	48.9	7.4
11:30 PM - 11:35 PM	54.7	51.3	-	55.3	48.1	6.0
11:35 PM - 11:40 PM	54.7	50.1	-	55.6	49.0	6.6
11:40 PM - 11:45 PM	54.2	50.3	-	54.9	48.1	6.1
11:45 PM - 11:50 PM	53.8	52.3	-	53.8	47.9	5.9
11:50 PM - 11:55 PM	54.0	50.4	-	54.5	49.3	4.6
11:55 PM - 12:00 AM	54.0	50.2	-	54.7	48.9	5.8
12:00 AM - 12:05 AM	53.9	50.5	-	54.2	49.4	4.8
12:05 AM - 12:10 AM	54.2	50.2	-	54.2	49.2	5.0
12:10 AM - 12:15 AM	54.5	50.4	-	55.4	49.2	6.2
12:15 AM - 12:20 AM	53.1	50.4	-	52.8	49.5	3.3

The above results are valid only for the analytical data presented. No inclusion of background noise level is included in this report. The results are valid only for the analytical data presented. No inclusion of background noise level is included in this report.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-3  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 104 หมู่ 17 ตำบลบ้านนา อำเภอบางพลี จังหวัดสมุทรปราการ (GPS 47P 0721889, 1520717)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00873053

Page 2 of 3

ตามแผน (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวนโดยประมาณ	เสียงรบกวนจากการขนถ่าย		เสียงพื้นรอบ	ค่าเฉลี่ย
			ค่าจริง	ค่าเฉลี่ย		
12:20 AM - 12:25 AM	53.1	56.2	-	53.4	49.2	4.2
12:25 AM - 12:30 AM	54.5	50.6	-	55.2	49.7	5.5
12:30 AM - 12:35 AM	53.7	51.1	-	52.2	50.2	3.0
12:35 AM - 12:40 AM	53.8	51.7	-	52.6	50.4	2.2
12:40 AM - 12:45 AM	53.9	51.9	-	53.0	50.8	2.2
12:45 AM - 12:50 AM	54.1	51.9	-	53.1	50.9	2.2
12:50 AM - 12:55 AM	55.2	52.5	-	54.9	51.6	3.3
12:55 AM - 01:00 AM	55.3	54.2	-	55.2	51.7	3.3
01:00 AM - 01:05 AM	53.9	52.8	-	50.4	52.2	-1.8
01:05 AM - 01:10 AM	55.5	53.4	-	54.3	52.6	1.7
01:10 AM - 01:15 AM	54.8	53.6	-	51.6	52.7	-1.1
01:15 AM - 01:20 AM	55.4	55.4	-	54.5	52.3	2.7
01:20 AM - 01:25 AM	56.3	52.8	-	56.7	52.1	4.6
01:25 AM - 01:30 AM	55.2	53.2	-	55.8	52.5	3.3
01:30 AM - 01:35 AM	56.9	52.1	-	57.3	52.5	4.8
01:35 AM - 01:40 AM	56.7	53.3	-	57.0	52.6	4.4
01:40 AM - 01:45 AM	56.7	53.5	-	56.9	52.9	4.0
01:45 AM - 01:50 AM	57.0	53.6	-	57.3	53.0	4.3
01:50 AM - 01:55 AM	57.4	53.4	-	57.8	52.7	5.5
01:55 AM - 02:00 AM	58.2	52.7	-	59.8	52.7	7.6
02:00 AM - 02:05 AM	57.3	53.0	-	58.3	52.3	6.0
02:05 AM - 02:10 AM	57.1	52.9	-	58.0	52.2	5.8
02:10 AM - 02:15 AM	57.8	52.7	-	59.3	52.2	7.1
02:15 AM - 02:20 AM	56.8	52.9	-	57.5	52.3	5.2
02:20 AM - 02:25 AM	56.8	52.4	-	57.8	51.9	5.9
02:25 AM - 02:30 AM	57.1	56.6	52.1	58.4	51.6	6.0
02:30 AM - 02:35 AM	57.8	52.0	-	59.5	51.4	8.1
02:35 AM - 02:40 AM	56.9	52.2	-	58.1	51.5	6.6
02:40 AM - 02:45 AM	57.5	52.8	-	58.7	51.3	7.4
02:45 AM - 02:50 AM	57.8	51.8	-	58.0	51.3	6.7
02:50 AM - 02:55 AM	56.9	51.6	-	58.4	51.0	7.4
02:55 AM - 03:00 AM	57.8	52.3	-	59.4	50.8	8.6
03:00 AM - 03:05 AM	56.7	51.7	-	58.0	50.3	7.7
03:05 AM - 03:10 AM	56.7	50.9	-	58.4	49.7	7.7
03:10 AM - 03:15 AM	57.6	50.9	-	59.6	49.4	10.2
03:15 AM - 03:20 AM	56.8	50.6	-	59.6	49.1	9.5
03:20 AM - 03:25 AM	56.6	50.5	-	58.5	49.7	9.1
03:25 AM - 03:30 AM	56.7	51.1	-	58.3	49.2	9.1
03:30 AM - 03:35 AM	55.7	50.8	-	57.0	49.2	7.8





## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-5
Parameter	เสียงรบกวน
Location	บ้านคลองนางพาง (GPS 47P 0721809, 1520717)
Measurement Date	Sep 14 - Sep 15, 2024
Measurement by	Autit Aoonsim
Sound Level Meter	00B73053

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116324-1

Page 1 of 3

เวลา	เสียงนก แสงฟ้าาเกิด	เสียงนก ไปออกนกนก	ตามเสียง (dB(A))		เสียงรบกวน	ค่าเสียง การรบกวน
			ภายใน	ภายนอก		
10:00 AM - 11:00 AM	47.5	49.8	n/a	-	42.1	-
11:00 AM - 12:00 PM	50.0	49.4	41.1	-	40.8	3.3
12:00 PM - 01:00 PM	48.1	44.8	45.4	-	41.1	4.3
01:00 PM - 02:00 PM	51.7	49.8	47.2	-	43.8	2.4
02:00 PM - 03:00 PM	50.3	47.0	47.6	-	43.8	3.4
03:00 PM - 04:00 PM	50.4	47.2	47.9	-	43.7	4.7
04:00 PM - 05:00 PM	66.4	54.1	63.8	-	44.3	21.5
05:00 PM - 06:00 PM	62.0	58.4	59.5	-	54.6	4.9
06:00 PM - 07:00 PM	57.1	52.6	55.2	-	49.5	5.7
07:00 PM - 08:00 PM	60.3	52.7	54.8	-	55.5	1.3
08:00 PM - 09:00 PM	55.0	55.3	n/a	-	53.1	-
09:00 PM - 10:00 PM	53.8	54.0	n/a	-	52.5	-
10:00 PM - 10:55 PM	53.2	52.0	-	52.0	50.7	-0.9
10:55 PM - 10:10 PM	53.1	51.4	-	51.2	50.2	1.0
10:10 PM - 10:15 PM	52.9	52.1	-	48.2	50.9	-2.7
10:15 PM - 10:20 PM	52.6	53.0	-	n/a	51.1	-
10:20 PM - 10:25 PM	52.8	52.4	-	46.3	51.2	-4.9
10:25 PM - 10:30 PM	53.1	52.6	-	46.5	51.5	-5.0
10:30 PM - 10:35 PM	52.6	52.4	-	42.1	51.4	-9.3
10:35 PM - 10:40 PM	52.5	52.6	-	n/a	51.5	-
10:40 PM - 10:45 PM	52.3	51.8	-	45.7	50.6	-4.9
10:45 PM - 10:50 PM	52.6	51.7	-	48.3	50.7	-2.4
10:50 PM - 10:55 PM	52.2	52.3	-	n/a	50.7	-
10:55 PM - 11:00 PM	52.8	52.0	-	n/a	50.8	-
11:00 PM - 11:05 PM	52.3	51.1	-	49.1	49.4	-0.5
11:05 PM - 11:10 PM	51.7	51.6	-	38.3	49.9	-11.8
11:10 PM - 11:15 PM	52.4	52.7	-	n/a	49.9	-
11:15 PM - 11:20 PM	51.9	51.8	-	38.5	50.1	-2.8
11:20 PM - 11:25 PM	52.0	51.7	-	43.2	50.3	-2.1
11:25 PM - 11:30 PM	52.2	51.7	-	45.6	49.9	-4.3
11:30 PM - 11:35 PM	52.0	55.0	-	n/a	49.5	-
11:35 PM - 11:40 PM	52.0	51.5	-	43.2	49.7	-1.1
11:40 PM - 11:45 PM	51.9	51.0	-	47.6	48.7	-1.1
11:45 PM - 11:50 PM	51.9	49.9	-	50.6	48.0	-3.6
11:50 PM - 11:55 PM	52.4	50.4	-	46.7	49.3	-3.4
11:55 PM - 12:00 AM	52.8	50.0	-	52.6	49.2	-3.4
12:00 AM - 12:05 AM	52.6	50.5	-	51.4	49.2	2.2
12:05 AM - 12:10 AM	52.6	53.0	-	n/a	49.1	-
12:10 AM - 12:15 AM	52.4	52.4	-	50.9	49.2	-
12:15 AM - 12:20 AM	52.4	50.3	-	51.2	48.9	2.3

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## Analysis / Test Report

**Client :** Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-5
Parameter	เสียงรบกวน
Location	ปากซอยคลอง (GPS 47P 0721889, 1520717)
Measurement Date	Sep 14 - Sep 15, 2024
Measurement by	Audit Aonsim
Sound Level Meter	00873053

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116324-1

Page 2 of 3

เวลา	เปลี่ยนจาก ขนาดลำกบเดิม	เปลี่ยนจาก ใบไม้การกบ	ขนาดเดิม (E8(A))		เปลี่ยนที่ฐาน	ค่าการเดิม การกบ
			เปลี่ยนจากใบไม้การกบ			
			การกบ	การกบ		
12:20 AM - 12:25 AM	52.8	50.9	-	51.3	48.9	2.4
12:25 AM - 12:30 AM	52.5	49.9	-	52.0	49.2	2.8
12:30 AM - 12:35 AM	52.6	52.6	-	52.6	49.2	2.8
12:35 AM - 12:40 AM	52.6	49.9	-	52.3	49.2	3.1
12:40 AM - 12:45 AM	52.4	51.4	-	51.5	49.2	3.0
12:45 AM - 12:50 AM	52.7	51.1	-	50.6	49.2	1.7
12:50 AM - 12:55 AM	51.0	51.0	-	50.7	49.2	1.8
12:55 AM - 01:00 AM	53.0	52.9	-	51.6	49.3	-9.7
01:00 AM - 01:05 AM	53.1	50.0	-	53.2	49.2	4.0
01:05 AM - 01:10 AM	53.7	50.7	-	54.0	49.3	4.6
01:10 AM - 01:15 AM	53.5	53.6	-	n/a	49.3	-
01:15 AM - 01:20 AM	53.6	55.0	-	n/a	50.1	-
01:20 AM - 01:25 AM	53.5	50.9	-	53.0	50.1	2.9
01:25 AM - 01:30 AM	54.8	51.1	-	55.4	50.1	5.3
01:30 AM - 01:35 AM	53.6	54.4	-	n/a	50.2	-
01:35 AM - 01:40 AM	53.8	54.7	-	n/a	50.2	-
01:40 AM - 01:45 AM	53.9	54.8	-	n/a	50.2	-
01:45 AM - 01:50 AM	54.0	54.0	-	52.1	50.2	-
01:50 AM - 01:55 AM	53.9	52.5	-	46.3	50.3	-4.2
01:55 AM - 02:00 AM	54.0	51.4	-	53.5	50.4	3.1
02:00 AM - 02:05 AM	54.3	53.8	-	47.7	50.5	-2.8
02:05 AM - 02:10 AM	54.5	54.5	-	50.5	50.5	-
02:10 AM - 02:15 AM	54.2	52.0	-	53.2	50.4	2.8
02:15 AM - 02:20 AM	54.2	51.4	-	54.0	50.4	3.6
02:20 AM - 02:25 AM	53.9	50.8	-	54.0	50.3	3.8
02:25 AM - 02:30 AM	54.2	53.0	-	51.0	50.3	0.9
02:30 AM - 02:35 AM	55.1	51.6	-	55.5	50.0	3.5
02:35 AM - 02:40 AM	54.0	51.3	-	53.7	50.0	3.7
02:40 AM - 02:45 AM	51.3	51.7	-	51.3	49.3	9.3
02:45 AM - 02:50 AM	53.2	51.4	-	51.5	49.8	1.7
02:50 AM - 02:55 AM	52.6	52.6	-	43.1	50.1	-8.0
02:55 AM - 03:00 AM	52.6	52.6	-	n/a	50.5	-
03:00 AM - 03:05 AM	52.6	52.6	-	n/a	50.2	-
03:05 AM - 03:10 AM	52.5	53.0	-	n/a	50.5	-
03:10 AM - 03:15 AM	52.3	52.7	-	n/a	50.1	-
03:15 AM - 03:20 AM	51.8	58.2	-	n/a	49.8	-
03:20 AM - 03:25 AM	54.0	55.2	-	n/a	49.6	-
03:25 AM - 03:30 AM	60.6	58.2	-	59.9	49.9	10.0
03:30 AM - 03:35 AM	55.5	58.0	-	61.9	49.9	12.0
03:35 AM - 03:40 AM	61.5	58.0	-	53.3	50.5	5.5

The above results are valid only for the indicated (fixed) numbers of nodes per cluster. The reports the part of the report is available only for the indicated number of nodes per cluster without further comment from the Laboratory. A. S. Laboratory Group (Hawthorne) strongly recommends that the report is not published except as full.

Approved by Kanokkarn Anek  
Kanokkarn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4105004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-5
Parameter	เสียงรบกวน
Location	พื้นที่คลองกลาง (GPS 47P 0721889, 1520717)
Measurement Date	Sep 14 - Sep 15, 2024
Measurement by	Audit Aoonsim
Sound Level Meter	00873053

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116324-1

Page 3 of 3

เวลา	เมืองจาก นอกภาคใต้	เมืองจาก ในภาคใต้	ท่าอากาศยาน (BIA)		เมืองที่ตรงข้าม	ค่าโดยสาร จากกรุงเทพฯ
			เมืองท่าอากาศยาน			
			ภาคเหนือ	ภาคใต้		
03:40 AM - 03:45 AM	61.4	56.9	-	62.5	49.5	22.9
03:45 AM - 03:50 AM	61.3	-	-	63.9	49.6	14.3
03:50 AM - 03:55 AM	61.1	53.0	-	63.2	49.5	12.7
03:55 AM - 04:00 AM	61.2	52.9	-	63.3	49.4	14.4
04:00 AM - 04:05 AM	61.0	49.8	-	63.7	49.6	13.3
04:05 AM - 04:10 AM	60.7	54.0	-	62.3	47.9	14.4
04:10 AM - 04:15 AM	60.2	49.6	-	62.8	47.7	15.1
04:15 AM - 04:20 AM	59.6	49.3	-	62.2	47.6	14.6
04:20 AM - 04:25 AM	60.3	49.5	-	62.9	47.5	15.4
04:25 AM - 04:30 AM	60.4	49.9	-	61.1	47.7	15.4
04:30 AM - 04:35 AM	60.5	47.8	-	63.3	46.7	16.6
04:35 AM - 04:40 AM	61.1	51.9	-	63.5	47.1	16.4
04:40 AM - 04:45 AM	60.3	51.5	-	62.7	46.9	16.3
04:45 AM - 04:50 AM	57.2	47.0	-	56.7	46.0	13.7
04:50 AM - 04:55 AM	52.5	47.4	-	57.9	44.0	9.9
04:55 AM - 05:00 AM	52.3	-	-	53.6	43.7	9.9
05:00 AM - 05:05 AM	52.0	47.3	-	52.9	43.0	9.8
05:05 AM - 05:10 AM	49.4	47.0	-	52.9	44.3	4.4
05:10 AM - 05:15 AM	49.5	50.1	-	49.9	44.5	-
05:15 AM - 05:20 AM	50.2	55.3	-	49.9	43.3	-
05:20 AM - 05:25 AM	52.2	44.6	-	55.6	41.9	13.7
05:25 AM - 05:30 AM	46.3	45.7	-	40.4	41.4	-1.0
05:30 AM - 05:35 AM	46.5	46.2	-	47.3	41.7	5.6
05:35 AM - 05:40 AM	54.8	50.6	-	55.4	41.9	13.5
05:40 AM - 05:45 AM	62.6	50.6	-	65.3	42.3	23.0
05:45 AM - 05:50 AM	55.4	47.8	-	57.6	42.8	14.8
05:50 AM - 05:55 AM	53.8	47.2	-	56.4	41.9	14.5
05:55 AM - 06:00 AM	60.4	46.7	-	62.8	42.8	20.0
06:00 AM - 07:00 AM	50.4	49.5	41.1	-	42.5	0.6
07:00 AM - 08:00 AM	54.5	54.3	44.3	49.6	-	20.3
08:00 AM - 09:00 AM	55.5	50.8	53.7	-	42.6	11.1
09:00 AM - 10:00 AM	59.8	51.1	59.2	-	44.1	15.1

## References

- Reference Method :**  
 1. In-house method : STM 06-001, based on ISO 1596-1 : 2016  
 2. วิธีการตรวจวิเคราะห์ตามวิธีมาตรฐาน : วิธีมาตรฐานการวิเคราะห์ไขมันในอาหารตามวิธีมาตรฐานของกรมวิทยาศาสตร์การแพทย์ ฉบับที่ 2561  
**หมายเหตุ**  
 1. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่าเฉลี่ยต่อลิตรการปนเปื้อนของสิ่งเจือปนจากยาฆ่าแมลงที่อนุญาตให้ใช้ภายในบ้าน พ.ศ. 2548  
 2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่าเฉลี่ยต่อลิตรการปนเปื้อนของสิ่งเจือปนจากยาฆ่าแมลงที่อนุญาตให้ใช้ภายในสถานที่สาธารณะ พ.ศ. 2561  
**Remark :**  
 1. ค่าเฉลี่ยตามประกาศฉบับที่ 2561 เรื่อง กำหนดค่าเฉลี่ยต่อลิตรการปนเปื้อนของสิ่งเจือปนจากยาฆ่าแมลงที่อนุญาตให้ใช้ภายในบ้าน พ.ศ. 2548  
 2. ค่าเฉลี่ยตามประกาศฉบับที่ 2561 เรื่อง กำหนดค่าเฉลี่ยต่อลิตรการปนเปื้อนของสิ่งเจือปนจากยาฆ่าแมลงที่อนุญาตให้ใช้ภายในสถานที่สาธารณะ (Sample No.24103113-5 ไม่มีการปน 14-15 ตามประกาศ 2567)  
 3. ก/ล : ไม่สามารถตรวจวิเคราะห์ได้เนื่องจากค่าของสารตกค้างอยู่ในระดับที่ต่ำกว่าค่าที่สามารถตรวจวัดได้ด้วยวิธีการวิเคราะห์ที่ใช้ตามประกาศ

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-6
Parameter	เสียงรบกวน
Location	บริเวณถนนพหลโยธิน (GPS 47P 0721889, 1520717)
Measurement Date	Sep 15 - Sep 16, 2024
Measurement by	Audit Aoonsim
Sound Level Meter	00873053

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116325-1

Page 1 of 3

เวลา	เสียงจาก แหล่งกำเนิด	เสียงจาก โถงใต้ถุนบ้าน	ระดับเสียง (dB(A))		เสียงที่ฐาน	ค่าสัม ประสิทธิ์
			ภายใน	ภายนอก		
10:00 AM - 11:00 AM	54.0	49.0	52.3	-	43.2	9.1
11:00 AM - 12:00 PM	50.6	51.0	n/a	-	44.8	-
12:00 PM - 01:00 PM	44.5	49.7	n/a	-	44.8	19.6
01:00 PM - 02:00 PM	54.1	56.9	n/a	-	43.2	-
02:00 PM - 03:00 PM	52.6	52.3	40.8	-	43.4	2.6
03:00 PM - 04:00 PM	53.6	52.5	47.1	-	46.7	0.4
04:00 PM - 05:00 PM	59.5	59.5	58.8	-	46.2	14.2
05:00 PM - 06:00 PM	64.6	64.1	66.7	-	60.7	6.5
06:00 PM - 07:00 PM	51.5	53.1	n/a	-	50.4	-
07:00 PM - 08:00 PM	55.1	56.2	n/a	-	52.1	-
08:00 PM - 09:00 PM	54.8	54.8	n/a	-	56.6	-
09:00 PM - 10:00 PM	62.7	59.4	60.0	-	57.6	2.4
10:00 PM - 10:05 PM	63.6	57.6	-	65.3	56.2	9.1
10:05 PM - 10:10 PM	63.3	57.5	-	64.9	56.9	9.1
10:10 PM - 10:15 PM	63.3	57.8	-	64.9	56.7	8.7
10:15 PM - 10:20 PM	63.3	57.2	-	64.9	55.9	9.0
10:20 PM - 10:25 PM	63.3	58.3	-	64.6	56.6	8.0
10:25 PM - 10:30 PM	63.3	58.3	-	64.5	57.2	8.1
10:30 PM - 10:35 PM	63.3	58.6	-	64.5	57.0	7.5
10:35 PM - 10:40 PM	63.3	58.8	-	64.4	57.6	6.8
10:40 PM - 10:45 PM	63.2	58.1	-	64.6	55.9	8.7
10:45 PM - 10:50 PM	64.6	58.6	-	64.7	57.3	11.6
10:50 PM - 10:55 PM	63.4	57.2	-	63.2	55.1	10.1
10:55 PM - 11:00 PM	63.3	60.2	-	63.3	55.6	7.7
11:00 PM - 11:05 PM	64.5	57.0	-	66.7	51.7	7.7
11:05 PM - 11:10 PM	63.2	57.0	-	65.0	54.4	10.4
11:10 PM - 11:15 PM	63.1	56.6	-	65.0	54.4	10.5
11:15 PM - 11:20 PM	63.0	56.0	-	65.0	53.5	11.6
11:20 PM - 11:25 PM	63.0	55.0	-	65.1	52.1	12.4
11:25 PM - 11:30 PM	63.0	55.5	-	65.1	52.6	12.5
11:30 PM - 11:35 PM	62.9	56.1	-	64.9	52.4	12.5
11:35 PM - 11:40 PM	62.9	55.4	-	65.0	52.0	13.0
11:40 PM - 11:45 PM	63.0	55.4	-	65.2	51.2	14.1
11:45 PM - 11:50 PM	62.9	54.3	-	65.3	48.2	17.1
11:50 PM - 11:55 PM	62.9	53.3	-	65.4	48.6	18.8
11:55 PM - 12:00 AM	63.0	53.0	-	65.5	46.6	17.0
12:00 AM - 12:05 AM	62.7	55.3	-	64.8	50.5	14.3
12:05 AM - 12:10 AM	62.8	54.6	-	65.1	49.2	15.9
12:10 AM - 12:15 AM	61.4	54.8	-	65.1	49.0	16.1
12:15 AM - 12:20 AM	62.9	54.7	-	65.2	48.7	15.9

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Approved by Kanok Korn Anek  
Kanok Korn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 16, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103109-7  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 40 (GPS 47P 0721865, 1520717)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00873053

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางคืน	กลางวัน		
03:40 AM - 03:45 AM	50.6	57.5	-	n/a	46.7	-
03:45 AM - 03:50 AM	50.1	57.4	-	n/a	46.6	-
03:50 AM - 03:55 AM	50.1	57.3	-	n/a	46.7	-
03:55 AM - 04:00 AM	50.1	56.8	-	n/a	46.6	-
04:00 AM - 04:05 AM	49.7	53.0	-	n/a	46.4	-
04:05 AM - 04:10 AM	49.7	53.1	-	n/a	46.2	-
04:10 AM - 04:15 AM	49.5	49.6	-	n/a	46.1	4.3
04:15 AM - 04:20 AM	49.6	50.7	-	n/a	45.9	-
04:20 AM - 04:25 AM	49.7	51.7	-	n/a	45.9	-
04:25 AM - 04:30 AM	49.2	50.9	-	n/a	45.4	-
04:30 AM - 04:35 AM	48.8	50.0	-	n/a	44.8	-
04:35 AM - 04:40 AM	54.0	51.2	-	53.8	45.1	8.7
04:40 AM - 04:45 AM	51.7	54.5	-	n/a	44.0	-
04:45 AM - 04:50 AM	54.2	56.1	-	n/a	43.6	-
04:50 AM - 04:55 AM	54.0	49.4	-	55.2	42.6	12.6
04:55 AM - 05:00 AM	49.6	48.3	-	46.7	42.3	4.4
05:00 AM - 05:05 AM	50.4	45.9	-	51.5	43.8	7.7
05:05 AM - 05:10 AM	51.2	46.5	-	52.4	44.2	8.2
05:10 AM - 05:15 AM	52.1	51.1	-	48.2	43.1	5.1
05:15 AM - 05:20 AM	51.3	53.6	-	n/a	43.4	-
05:20 AM - 05:25 AM	59.0	53.2	-	61.0	43.7	17.3
05:25 AM - 05:30 AM	56.1	54.2	-	54.6	43.5	11.1
05:30 AM - 05:35 AM	60.2	53.1	-	62.5	43.8	18.7
05:35 AM - 05:40 AM	56.0	53.0	-	56.9	43.0	12.9
05:40 AM - 05:45 AM	51.2	53.5	-	n/a	42.9	-
05:45 AM - 05:50 AM	55.6	52.2	-	55.9	43.5	12.4
05:50 AM - 05:55 AM	49.1	47.2	-	44.4	43.2	3.2
05:55 AM - 06:00 AM	53.5	48.3	-	54.9	44.5	10.4
06:00 AM - 07:00 AM	54.1	52.0	-	44.2	5.7	-
07:00 AM - 08:00 AM	55.4	52.4	-	42.9	6.5	-
08:00 AM - 09:00 AM	51.2	43.0	-	49.1	5.1	-
09:00 AM - 10:00 AM	55.5	54.0	-	43.0	7.2	-

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
  - ไม่พบการรบกวนจากภายนอก (เสียงพื้นฐาน) ระดับเสียง 24 ชั่วโมง และระดับเสียงสูงสุดที่สังเกตได้จากภายในอาคารในเวลากลางคืน น.ค. 2567
  - ไม่พบการรบกวนจากภายนอก (เสียงพื้นฐาน) ระดับเสียง 24 ชั่วโมง และระดับเสียงสูงสุดที่สังเกตได้จากภายในอาคารในเวลากลางวัน น.ค. 2548
  - ไม่พบการรบกวนจากภายนอก (เสียงพื้นฐาน) ระดับเสียง 24 ชั่วโมง และระดับเสียงสูงสุดที่สังเกตได้จากภายในอาคารในเวลากลางวัน น.ค. 2561
- Remark :
- ไม่พบการรบกวนจากภายนอก (เสียงพื้นฐาน) ระดับเสียง 24 ชั่วโมง และระดับเสียงสูงสุดที่สังเกตได้จากภายในอาคารในเวลากลางคืน น.ค. 2567
  - ไม่พบการรบกวนจากภายนอก (เสียงพื้นฐาน) ระดับเสียง 24 ชั่วโมง และระดับเสียงสูงสุดที่สังเกตได้จากภายในอาคารในเวลากลางวัน น.ค. 2548
  - ไม่พบการรบกวนจากภายนอก (เสียงพื้นฐาน) ระดับเสียง 24 ชั่วโมง และระดับเสียงสูงสุดที่สังเกตได้จากภายในอาคารในเวลากลางวัน น.ค. 2561

The above results are valid only for the stated test conditions and are not intended to be used for any other purpose. The results are the property of ALS and shall not be reproduced or used in any manner without written consent from the Laboratory. ALS Laboratory Group (Thailand) Limited is not responsible for the results of the test if the test is not performed in accordance with the test method.

Approved by   
Kanokorn Anek  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 16, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

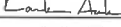
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103109-8  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 40 (GPS 47P 0721473, 1518765)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710690

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางคืน	กลางวัน		
11:00 AM - 12:00 PM	56.4	51.9	54.5	-	45.6	8.9
12:00 PM - 01:00 PM	53.3	51.8	48.0	-	44.6	3.4
01:00 PM - 02:00 PM	49.0	50.2	n/a	-	43.2	-
02:00 PM - 03:00 PM	48.5	49.7	n/a	-	44.7	-
03:00 PM - 04:00 PM	48.6	49.2	n/a	-	43.7	-
04:00 PM - 05:00 PM	48.9	50.5	n/a	-	43.8	-
05:00 PM - 06:00 PM	45.9	52.7	n/a	-	41.8	-
06:00 PM - 07:00 PM	55.8	56.9	n/a	-	49.8	-
07:00 PM - 08:00 PM	49.4	49.4	n/a	-	43.6	-
08:00 PM - 09:00 PM	51.0	51.0	n/a	-	42.6	-
09:00 PM - 10:00 PM	55.1	52.0	n/a	-	42.0	10.2
10:00 PM - 10:05 PM	45.8	44.8	-	41.9	42.5	-1.6
10:05 PM - 10:10 PM	41.8	44.9	-	n/a	43.5	-
10:10 PM - 10:15 PM	41.2	45.1	-	n/a	43.1	-
10:15 PM - 10:20 PM	42.7	52.0	-	n/a	44.7	-
10:20 PM - 10:25 PM	41.6	53.1	-	n/a	50.7	-
10:25 PM - 10:30 PM	49.9	53.5	-	n/a	49.3	-
10:30 PM - 10:35 PM	49.4	49.0	-	41.8	45.9	-4.1
10:35 PM - 10:40 PM	46.7	46.3	-	48.0	43.3	4.7
10:40 PM - 10:45 PM	46.7	45.9	-	42.0	43.1	-1.1
10:45 PM - 10:50 PM	43.8	45.9	-	n/a	42.9	-
10:50 PM - 10:55 PM	42.9	45.3	-	n/a	42.6	-
10:55 PM - 11:00 PM	44.4	44.5	-	n/a	42.4	-
11:00 PM - 11:05 PM	44.4	44.3	-	31.0	41.8	-10.8
11:05 PM - 11:10 PM	42.6	45.1	-	n/a	42.3	-
11:10 PM - 11:15 PM	42.2	44.7	-	n/a	41.6	-
11:15 PM - 11:20 PM	43.7	44.3	-	n/a	41.0	-
11:20 PM - 11:25 PM	43.7	44.4	-	n/a	41.4	-
11:25 PM - 11:30 PM	46.1	49.6	-	n/a	41.5	-
11:30 PM - 11:35 PM	43.3	43.4	-	n/a	41.2	-
11:35 PM - 11:40 PM	52.3	51.3	-	60.1	41.4	18.2
11:40 PM - 11:45 PM	41.4	43.0	-	n/a	41.1	-
11:45 PM - 11:50 PM	41.0	42.7	-	n/a	40.9	-
11:50 PM - 11:55 PM	41.6	42.5	-	n/a	41.0	-
11:55 PM - 12:00 AM	43.8	42.9	-	39.5	41.2	-1.7
12:00 AM - 12:05 AM	44.4	42.8	-	42.3	41.6	0.7
12:05 AM - 12:10 AM	45.0	44.2	-	40.3	41.5	-1.2
12:10 AM - 12:15 AM	43.0	42.5	-	36.4	41.3	-4.9
12:15 AM - 12:20 AM	44.1	42.9	-	40.9	41.3	-0.4
12:20 AM - 12:25 AM	41.0	42.8	-	n/a	41.3	-

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Approved by   
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1


P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103109-8  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 40 (GPS 47P 0721473, 1518765)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710690

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางคืน	กลางวัน		
12:31 AM - 12:36 AM	41.1	43.0	-	n/a	41.4	-
12:36 AM - 12:41 AM	41.1	43.3	-	n/a	41.5	-
12:41 AM - 12:46 AM	40.7	42.8	-	n/a	41.0	-
12:46 AM - 12:51 AM	40.8	43.5	-	n/a	41.0	-
12:51 AM - 12:56 AM	41.0	48.0	-	n/a	42.0	-
12:56 AM - 01:01 AM	41.0	44.5	-	n/a	42.0	-
01:01 AM - 01:06 AM	42.4	46.1	-	42.6	41.5	2.1
01:06 AM - 01:11 AM	45.0	42.0	-	45.9	40.9	5.0
01:11 AM - 01:16 AM	45.3	42.0	-	45.2	41.2	4.0
01:16 AM - 01:21 AM	41.3	42.9	-	n/a	43.1	-
01:21 AM - 01:26 AM	40.5	43.5	-	n/a	42.5	-
01:26 AM - 01:31 AM	41.1	43.3	-	n/a	42.3	-
01:31 AM - 01:36 AM	41.1	44.4	-	n/a	42.5	-
01:36 AM - 01:41 AM	40.9	43.2	-	n/a	42.7	-
01:41 AM - 01:46 AM	41.4	43.1	-	n/a	42.0	-
01:46 AM - 01:51 AM	41.6	42.6	-	n/a	41.3	-
01:51 AM - 01:56 AM	40.8	43.5	-	n/a	41.5	-
01:56 AM - 02:01 AM	40.8	43.1	-	n/a	41.8	-
02:01 AM - 02:06 AM	41.7	51.8	-	n/a	42.5	-
02:06 AM - 02:11 AM	40.7	46.2	-	n/a	41.6	-
02:11 AM - 02:16 AM	61.3	42.9	-	64.2	41.6	22.6
02:16 AM - 02:21 AM	42.4	43.0	-	n/a	42.0	-
02:21 AM - 02:26 AM	41.9	43.4	-	n/a	42.0	-
02:26 AM - 02:31 AM	41.5	42.5	-	n/a	41.4	-
02:31 AM - 02:36 AM	41.2	42.8	-	n/a	41.9	-
02:36 AM - 02:41 AM	43.0	42.8	-	n/a	42.7	-
02:41 AM - 02:46 AM	46.1	41.6	-	49.3	41.5	6.7
02:46 AM - 02:51 AM	45.4	44.9	-	38.8	40.8	-4.0
02:51 AM - 02:56 AM	44.3	44.0	-	35.5	40.8	-7.5
02:56 AM - 03:01 AM	44.4	44.7	-	n/a	42.9	-
03:01 AM - 03:06 AM	43.2	44.0	-	n/a	43.2	-
03:06 AM - 03:11 AM	45.7	44.4	-	42.2	42.9	-0.7
03:11 AM - 03:16 AM	44.1	42.7	-	41.4	43.4	-3.8
03:16 AM - 03:21 AM	44.9	44.2	-	46.7	43.9	2.8
03:21 AM - 03:26 AM	43.9	45.8	-	n/a	43.9	-
03:26 AM - 03:31 AM	45.2	46.3	-	45.2	44.3	-
03:31 AM - 03:36 AM	46.7	47.9	-	n/a	44.2	-
03:36 AM - 03:41 AM	46.3	46.0	-	37.5	44.9	-7.4

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Approved by   
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116322-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103109-8  
Parameter : เสียงรบกวน  
Location : บ้านเลขที่ 40 (GPS 47P 0721473, 1518765)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710690

เวลา		เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
		dB(A)	dB(A)	กลางคืน	กลางวัน	dB(A)	dB(A)
03:45 AM - 03:50 AM		48.6	54.4	-	n/a	45.5	-
03:50 AM - 03:55 AM		44.4	49.3	-	n/a	45.0	-
03:55 AM - 04:00 AM		61.1	49.4	-	63.8	45.9	17.9
04:00 AM - 04:05 AM		51.7	51.5	-	41.2	45.2	-8.0
04:05 AM - 04:10 AM		51.1	52.2	-	n/a	50.4	-
04:10 AM - 04:15 AM		53.3	50.2	-	53.4	44.6	8.8
04:15 AM - 04:20 AM		54.1	49.7	-	55.1	44.4	10.4
04:20 AM - 04:25 AM		51.0	50.8	-	46.5	44.9	-4.4
04:25 AM - 04:30 AM		51.0	49.2	-	49.3	45.5	3.4
04:30 AM - 04:35 AM		51.6	49.9	-	49.7	46.8	2.9
04:35 AM - 04:40 AM		50.9	50.1	-	46.2	47.1	1.5
04:40 AM - 04:45 AM		50.8	50.3	-	44.2	47.0	-0.5
04:45 AM - 04:50 AM		49.2	48.2	-	42.6	44.9	-2.3
04:50 AM - 04:55 AM		47.3	47.9	-	n/a	45.0	-
04:55 AM - 05:00 AM		48.3	46.6	-	n/a	44.7	-
05:00 AM - 05:05 AM		47.4	50.7	-	n/a	45.0	-
05:05 AM - 05:10 AM		48.6	48.6	-	n/a	44.9	-
05:10 AM - 05:15 AM		49.4	51.4	-	n/a	45.8	-
05:15 AM - 05:20 AM		51.2	52.1	-	n/a	47.9	-
05:20 AM - 05:25 AM		51.8	53.8	-	n/a	47.5	-
05:25 AM - 05:30 AM		55.4	50.4	-	56.8	47.6	10.0
05:30 AM - 05:35 AM		52.7	53.3	-	n/a	46.4	-
05:35 AM - 05:40 AM		49.8	53.3	-	n/a	47.4	-
05:40 AM - 05:45 AM		54.3	55.9	-	n/a	47.3	-
05:45 AM - 05:50 AM		52.0	55.0	-	n/a	48.7	-
05:50 AM - 05:55 AM		52.7	50.4	-	51.8	45.5	6.3
05:55 AM - 06:00 AM		51.6	49.8	-	49.9	46.0	3.9
06:00 AM - 07:00 AM		52.9	52.1	45.2	-	46.9	-1.7
07:00 AM - 08:00 AM		59.4	53.3	n/a	-	46.4	-
08:00 AM - 09:00 AM		51.0	50.4	-	47.1	43.5	-1.4
09:00 AM - 10:00 AM		48.4	49.7	n/a	-	57.2	-
10:00 AM - 11:00 AM		53.6	50.2	50.9	-	42.4	-8.5



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116328-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No.	24103109-9
Parameter	เสียงรบกวน
Location	บ้านท่าไกร (GPS 47P 0721473, 1518765)
Measurement Date	Sep 11 - Sep 12, 2024
Measurement by	Audit Aconsim
Sound Level Meter	00710640

Page 1 of 3

เวลา	เสียงจาก บนเวที/ด้าน	เสียงจาก โถงใต้ถุน	เสียงดนตรีการบรรพชา		เสียงทุ้มสูง	คำพูด
			กลาริม	กลาริม		
11:00 AM - 12:00 PM	50.5	48.7	65.8	-	43.7	2.1
12:00 PM - 01:00 PM	52.6	49.9	69.3	-	44.3	5.0
01:00 PM - 02:00 PM	47.7	48.1	67.9	-	42.6	-
02:00 PM - 03:00 PM	48.4	49.9	n/a	-	43.8	-
03:00 PM - 04:00 PM	52.8	53.5	n/a	-	44.4	-
04:00 PM - 05:00 PM	56.7	50.5	37.2	-	43.8	-6.6
05:00 PM - 06:00 PM	67.6	71.6	n/a	-	41.6	-
06:00 PM - 07:00 PM	55.9	45.6	55.5	-	42.0	13.5
07:00 PM - 08:00 PM	45.4	44.6	37.7	-	42.4	-
08:00 PM - 09:00 PM	49.2	45.1	47.1	-	43.0	6.1
09:00 PM - 10:00 PM	66.6	60.7	n/a	-	34.1	-
10:00 PM - 10:05 PM	62.3	61.6	-	n/a	60.0	-
10:05 PM - 10:10 PM	66.7	65.3	-	n/a	61.1	-
10:10 PM - 10:15 PM	57.9	61.0	-	n/a	58.4	-
10:15 PM - 10:20 PM	62.3	61.6	-	57.0	59.9	-2.9
10:20 PM - 10:25 PM	57.1	64.3	-	n/a	63.1	-
10:25 PM - 10:30 PM	58.5	61.9	-	n/a	66.8	-
10:30 PM - 10:35 PM	61.2	60.1	-	57.7	58.6	-0.9
10:35 PM - 10:40 PM	56.4	61.8	-	n/a	56.8	-
10:40 PM - 10:45 PM	56.9	58.9	-	n/a	55.7	-
10:45 PM - 10:50 PM	60.1	48.7	63.8	-	42.3	20.5
10:50 PM - 10:55 PM	55.1	52.0	-	57.1	43.8	12.3
10:55 PM - 11:00 PM	56.7	46.7	-	56.1	42.3	15.8
11:00 PM - 11:05 PM	57.7	45.9	-	60.4	41.4	19.0
11:05 PM - 11:10 PM	55.7	54.3	-	53.1	45.1	8.0
11:10 PM - 11:15 PM	55.7	40.6	-	57.8	40.4	17.4
11:15 PM - 11:20 PM	53.7	46.4	-	55.8	40.2	15.6
11:20 PM - 11:25 PM	53.3	50.3	-	53.3	42.3	11.0
11:25 PM - 11:30 PM	56.4	50.3	-	57.7	41.3	16.4
11:30 PM - 11:35 PM	53.9	56.6	-	n/a	44.6	-
11:35 PM - 11:40 PM	52.2	49.5	-	53.9	42.2	9.7
11:40 PM - 11:45 PM	52.8	48.0	-	54.1	42.3	11.6
11:45 PM - 11:50 PM	52.0	45.9	-	52.8	41.7	12.1
11:50 PM - 11:55 PM	52.2	49.1	-	53.3	41.4	10.9
11:55 PM - 12:00 AM	52.5	45.8	-	54.5	40.0	14.5
12:00 AM - 12:05 AM	53.9	46.8	-	56.0	42.0	13.8
12:05 AM - 12:10 AM	52.5	47.3	-	53.9	41.3	12.6
12:10 AM - 12:15 AM	53.0	48.6	-	53.9	39.6	14.3
12:15 AM - 12:20 AM	52.7	44.6	-	53.6	39.5	16.1
12:20 AM - 12:25 AM	52.5	40.3	-	54.9	41.3	12.6

The above results are small and so the analysis before our group is very close to the report. The part of the report is certainly not as good as the report from without our group from the laboratory. It is also very close to the report (This and several other reports) that this report is not reproduced in detail.

Approved by Kanekkorn Anek  
Kanekkorn Anek  
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## Analysis / Test Report

**Client :** Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116328-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-9
Parameter	เสียงรบกวน
Location	พื้นที่วัด (GPS 47P 0721473, 1518765)
Measurement Date	Sep 11 - Sep 12, 2024
Measurement by	Autix Aconsim
Sound Level Meter	00710640

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เวลา	เมืองจาก บมส/ท่าอากาศยาน	เมืองถึง ปฎิบัติการ/ท่าอากาศยาน	เที่ยวบิน (B/E(A))		เมืองขึ้น/เมืองปลายทาง		ค่าโดยสาร บาท/เที่ยว
			เที่ยวบิน	เที่ยวบิน	เมืองขึ้น	เมืองปลายทาง	
12:25 AM - 12:30 AM	53.2	48.7	-	54.3	42.5	11.8	
12:30 AM - 12:35 AM	52.2	50.0	-	51.2	42.9	4.1	
12:35 AM - 12:40 AM	52.0	48.0	-	52.1	42.8	9.1	
12:40 AM - 12:45 AM	51.4	52.0	-	n/a	42.2	-	
12:45 AM - 12:50 AM	51.3	51.9	-	n/a	42.6	-	
12:50 AM - 12:55 AM	51.1	51.4	-	n/a	42.5	-	
12:55 AM - 01:00 AM	50.9	50.9	-	42.0	42.3	-1.9	
01:00 AM - 01:05 AM	51.1	49.2	-	49.6	43.1	6.5	
01:05 AM - 01:10 AM	50.6	-	-	48.7	44.5	4.2	
01:10 AM - 01:15 AM	50.5	48.0	-	49.3	44.9	16.9	
01:15 AM - 01:20 AM	50.4	48.8	-	48.3	41.8	6.5	
01:20 AM - 01:25 AM	50.4	-	-	49.2	40.8	8.9	
01:25 AM - 01:30 AM	50.0	42.2	-	49.8	41.0	8.8	
01:30 AM - 01:35 AM	50.9	49.9	-	49.2	41.3	6.1	
01:35 AM - 01:40 AM	50.2	-	-	47.3	42.3	5.0	
01:40 AM - 01:45 AM	50.6	50.1	-	44.0	41.4	2.6	
01:45 AM - 01:50 AM	51.1	50.1	-	46.4	40.4	5.4	
01:50 AM - 01:55 AM	52.4	50.4	-	51.2	42.1	9.1	
01:55 AM - 02:00 AM	52.8	-	-	53.4	41.6	11.8	
02:00 AM - 02:05 AM	51.2	51.5	-	51.3	42.4	6.9	
02:05 AM - 02:10 AM	51.4	49.1	-	54.2	41.2	11.2	
02:10 AM - 02:15 AM	53.2	49.4	-	53.5	43.3	10.2	
02:15 AM - 02:20 AM	53.3	49.9	-	54.0	43.6	10.4	
02:20 AM - 02:25 AM	54.2	51.4	-	54.0	43.2	18.2	
02:25 AM - 02:30 AM	55.4	50.9	-	56.5	44.6	11.9	
02:30 AM - 02:35 AM	54.3	50.0	-	57.3	43.3	12.0	
02:35 AM - 02:40 AM	54.7	51.2	-	55.1	43.1	13.8	
02:40 AM - 02:45 AM	53.4	48.3	-	57.3	43.3	13.8	
02:45 AM - 02:50 AM	54.6	-	-	56.2	42.2	14.5	
02:50 AM - 02:55 AM	54.6	47.4	-	56.7	42.5	14.2	
02:55 AM - 03:00 AM	51.4	49.9	-	54.5	43.1	12.4	
03:00 AM - 03:05 AM	54.0	50.5	-	55.5	43.5	12.5	
03:05 AM - 03:10 AM	53.8	50.9	-	53.7	43.6	10.1	
03:10 AM - 03:15 AM	55.1	52.6	-	54.5	43.0	11.5	
03:15 AM - 03:20 AM	53.0	49.3	-	54.6	43.3	13.2	
03:20 AM - 03:25 AM	54.9	49.5	-	56.4	43.0	13.4	
03:25 AM - 03:30 AM	55.6	-	-	57.0	43.0	14.7	
03:30 AM - 03:35 AM	55.2	51.1	-	56.1	44.0	13.1	
03:35 AM - 03:40 AM	55.6	50.8	-	56.8	44.5	14.5	
03:40 AM - 03:45 AM	55.2	-	-	56.3	45.7	10.6	

The above results are valid only for the analyzed (fixed) scenarios as indicated in the report. No part of the report or conclusion can be reproduced in any form without written consent from the Laboratory. A 5 Laboratories Group (Beland, Strong's, Inverness, Inc. The report is not reproduced except by fax.

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116328-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-9
Parameter	เสียงรบกวน
Location	บ้านท่าไร่ (GPS 47P 0721473, 1516765)
Measurement Date	เมษายน 11 - Sep 12, 2024
Measurement by	Audit Acoustim
Sound Level Meter	00710640

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เวลา	เสียงจาก บนสถานี	เสียงจาก ใต้ดิน/รถราง	สถานี (dB(A))		เสียงรบกวน จากภายนอก	ค่ารวม
			เสียงจากอาคาร ภายใน	เสียงจากอาคาร ภายนอก		
01:45 AM - 03:50 AM	55.9	48.5	-	57.8	43.4	14.4
03:50 AM - 05:00 AM	56.0	47.6	-	57.2	41.8	16.5
05:00 AM - 06:00 AM	55.3	48.8	-	58.0	42.5	14.7
06:00 AM - 06:55 AM	55.7	47.7	-	58.0	42.7	15.3
06:55 AM - 08:10 AM	55.9	48.3	-	55.5	42.6	12.9
08:10 AM - 08:15 AM	53.1	64.3	-	58.1	42.4	-
08:15 AM - 08:20 AM	55.3	49.5	-	57.2	44.5	12.7
08:20 AM - 08:25 AM	55.7	48.2	-	57.8	41.9	15.9
08:25 AM - 08:30 AM	54.9	49.9	-	56.2	43.7	12.5
08:30 AM - 08:35 AM	55.5	53.0	-	51.9	45.2	10.2
08:35 AM - 08:40 AM	60.9	52.8	-	63.0	43.0	20.0
08:40 AM - 08:45 AM	53.3	48.1	-	54.7	42.5	12.2
08:45 AM - 08:50 AM	55.6	47.3	-	57.9	42.4	15.6
08:50 AM - 08:55 AM	52.9	49.7	-	51.1	42.1	8.7
08:55 AM - 09:00 AM	51.4	51.1	-	42.6	45.7	-3.1
09:00 AM - 09:05 AM	52.2	52.3	-	58.1	45.2	-
09:05 AM - 09:10 AM	50.4	50.4	-	50.9	43.4	-
09:10 AM - 09:15 AM	51.7	49.8	-	50.2	45.5	4.7
09:15 AM - 09:20 AM	50.3	46.6	-	50.9	43.2	7.7
09:20 AM - 09:25 AM	54.0	47.3	-	58.0	42.6	12.6
09:25 AM - 09:30 AM	52.2	49.3	-	52.3	44.0	8.3
09:30 AM - 09:35 AM	53.1	47.6	-	54.7	43.7	11.0
09:35 AM - 09:40 AM	55.2	49.7	-	56.8	43.2	12.7
09:40 AM - 09:45 AM	55.6	51.8	-	56.3	44.8	11.5
09:45 AM - 09:50 AM	56.3	48.3	-	58.6	43.6	15.0
09:50 AM - 09:55 AM	55.5	48.9	-	54.7	45.1	11.6
09:55 AM - 06:00 AM	54.3	55.4	-	56.9	42.3	14.3
06:00 AM - 07:00 AM	54.0	46.0	51.3	-	41.8	13.5
07:00 AM - 08:00 AM	53.3	49.9	50.6	-	45.5	5.1
08:00 AM - 09:00 AM	52.6	53.9	N/A	-	45.6	-
09:00 AM - 10:00 AM	53.9	51.0	50.0	-	44.2	6.6
10:00 AM - 11:00 AM	51.4	54.0	-	-	44.5	-

Reference Method :

- Reference Method :  
 1. In-house method : STM 06-001 based on ISO 1995-1 : 2016  
 2. ส่งมอบผลวิเคราะห์ตามใบแจ้งผลการตรวจวิเคราะห์ตามระบบ ตรวจเป็นระยะ 24 ชั่วโมง ตามเวลาที่มอบตัวอย่างให้ทางสถาบันฯ โดยสถาบันฯ ม.ศ. 2561  
 3. ส่งมอบผลวิเคราะห์ตามใบแจ้งผลการตรวจวิเคราะห์ตามระบบ ตรวจเป็นระยะ 24 ชั่วโมง ตามเวลาที่มอบตัวอย่างให้ทางสถาบันฯ โดยสถาบันฯ ม.ศ. 2561  
 4. รับแจ้งผลการตรวจตามใบแจ้งผลการตรวจวิเคราะห์ตามระบบ ตรวจเป็นระยะ 24 ชั่วโมง ตามเวลาที่มอบตัวอย่างให้ทางสถาบันฯ โดยสถาบันฯ ม.ศ. 2561  
 5. รับแจ้งผลการตรวจตามใบแจ้งผลการตรวจวิเคราะห์ตามระบบ ตรวจเป็นระยะ 24 ชั่วโมง ตามเวลาที่มอบตัวอย่างให้ทางสถาบันฯ โดยสถาบันฯ ม.ศ. 2561  
 Remark :  
 1. ส่งมอบตัวอย่างแก่ฝ่าย วิทยาศาสตร์ วันที่ 11-12 August 2567  
 2. ส่งมอบผลวิเคราะห์ตามใบแจ้งผลการตรวจ (Sample No 2410131-9) วันที่ 11-12 August 2567  
 3. กู้: ใบแจ้งผลการตรวจเป็นระยะมอบตัวอย่างให้ทางสถาบันฯ โดยสถาบันฯ ม.ศ. 2561  
 4. กู้: ใบแจ้งผลการตรวจเป็นระยะมอบตัวอย่างให้ทางสถาบันฯ โดยสถาบันฯ ม.ศ. 2561

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116329-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-10
Parameter	เสียงรบกวน
Location	ท่าอากาศยาน (GPS 47P 0721473, 1518765)
Measurement Date	Sep 12 - Sep 13, 2024
Measurement by	Audit Aoonsim
Sound Level Meter	00710640

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ขบวนสีธง (ธง(A))						
เวลา	เมืองจาก นนทบุรี/อโศก	เมืองจาก บางโพธิ์/นครปฐม	เมืองรถโดยสารธรรมดา		เมืองที่ฐาน	ค่าระับ การรวม
			สถานี	สถานี		
11:00 AM - 12:00 PM	48.3	50.6	n/a	-	45.5	-
12:00 PM - 01:00 PM	47.3	51.8	n/a	-	45.9	-
01:00 PM - 02:00 PM	49.9	51.1	n/a	-	45.5	-
02:00 PM - 03:00 PM	49.9	51.9	n/a	-	44.6	-
03:00 PM - 04:00 PM	50.9	62.1	n/a	-	56.2	-
04:00 PM - 05:00 PM	50.7	49.4	45.6	-	46.3	-0.8
05:00 PM - 06:00 PM	49.6	57.0	n/a	-	54.6	-
06:00 PM - 07:00 PM	55.7	56.0	n/a	-	54.2	-
07:00 PM - 08:00 PM	51.7	51.9	n/a	-	49.5	-
08:00 PM - 09:00 PM	51.5	51.3	38.0	-	48.5	-10.5
09:00 PM - 10:00 PM	52.3	51.0	46.4	-	46.8	-5.4
10:00 PM - 10:05 PM	49.4	50.2	-	n/a	46.3	-
10:05 PM - 10:10 PM	49.2	50.3	-	n/a	45.6	-
10:10 PM - 10:15 PM	50.1	52.8	n/a	-	46.7	-
10:15 PM - 10:20 PM	50.7	-	-	46.5	47.4	1.1
10:20 PM - 10:25 PM	49.9	49.9	-	44.0	45.5	-1.5
10:25 PM - 10:30 PM	50.3	49.8	-	43.7	44.9	-1.2
10:30 PM - 10:35 PM	50.8	47.6	-	51.2	44.2	5.5
10:35 PM - 10:40 PM	50.2	50.5	-	n/a	43.8	-
10:40 PM - 10:45 PM	50.8	46.7	-	51.7	45.6	6.1
10:45 PM - 10:50 PM	50.4	45.8	-	49.9	45.4	-4.4
10:50 PM - 10:55 PM	61.4	51.3	64.0	-	45.5	18.5
10:55 PM - 11:00 PM	51.6	46.5	-	53.0	45.3	7.7
11:00 PM - 11:05 PM	52.3	49.8	-	51.7	46.0	5.7
11:05 PM - 11:10 PM	53.3	46.9	-	55.2	46.2	10.0
11:10 PM - 11:15 PM	53.2	50.4	-	53.0	45.4	7.6
11:15 PM - 11:20 PM	52.6	45.9	-	54.6	45.2	9.4
11:20 PM - 11:25 PM	55.2	46.2	-	57.7	45.1	17.8
11:25 PM - 11:30 PM	52.1	52.3	n/a	-	46.1	-
11:30 PM - 11:35 PM	52.4	50.9	-	50.1	43.7	4.4
11:35 PM - 11:40 PM	51.3	53.6	-	n/a	45.7	-
11:40 PM - 11:45 PM	50.8	54.3	-	n/a	46.5	-
11:45 PM - 11:50 PM	50.4	50.7	n/a	-	46.7	-
11:50 PM - 11:55 PM	50.2	51.5	n/a	-	43.8	-
11:55 PM - 12:00 AM	50.0	35.2	-	n/a	51.9	-
12:00 AM - 12:05 AM	49.7	53.7	n/a	-	46.1	-
12:05 AM - 12:10 AM	49.4	50.8	-	n/a	46.2	-
12:10 AM - 12:15 AM	49.6	52.4	-	n/a	46.5	-
12:15 AM - 12:20 AM	49.0	56.8	-	n/a	46.9	-
12:20 AM - 12:25 AM	49.8	56.8	-	n/a	46.8	-

The above results are valid only for the head/neck/shoulder window(s) as indicated in this report. No part of this report or any data may be relied upon or used for any purpose without written consent from the LORNDOLBY ALS Laboratory Group. (It has been our policy to recommend that this report is not reproduced in any form.)

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116332-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-13
Parameter	เสียงรบกวน
Location	บ้านท่าโพธิ์ (GPS 47P 0721473, 1518765)
Measurement Date	Sep 15 - Sep 16, 2024
Measurement by	Audit Aonsiam
Sound Level Meter	00710640

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เวลา	เมืองจาก บนสุดถึงล่าง	เมืองจาก ใกล้กรุงเทพฯ	เมืองจากเมืองการปกครอง		เมืองท่องเที่ยว	ค่าดัชนี การปกครอง
			การเมือง	การเมือง		
11:00 AM - 12:00 PM	46.9	46.7	33.4	-	42.5	9.1
12:00 PM - 01:00 PM	54.4	49.9	52.5	-	42.8	9.7
01:00 PM - 02:00 PM	45.0	46.7	n/a	-	43.5	-
02:00 PM - 03:00 PM	46.9	54.9	n/a	-	47.0	-
03:00 PM - 04:00 PM	46.0	53.8	n/a	-	37.5	-
04:00 PM - 05:00 PM	51.1	34.8	n/a	-	45.9	-
05:00 PM - 06:00 PM	52.9	52.1	n/a	-	46.1	-
06:00 PM - 07:00 PM	54.6	65.6	n/a	-	62.7	-
07:00 PM - 08:00 PM	50.5	49.9	41.6	-	46.1	-4.5
08:00 PM - 09:00 PM	49.0	47.3	44.1	-	44.8	-0.7
09:00 PM - 10:00 PM	52.1	45.8	50.7	-	44.6	4.3
10:00 PM - 10:05 PM	51.7	46.0	-	53.3	46.5	8.8
10:05 PM - 10:10 PM	54.8	45.7	-	57.2	44.3	12.9
10:10 PM - 10:15 PM	54.1	45.2	-	56.5	44.1	12.4
10:15 PM - 10:20 PM	55.0	45.2	-	57.5	44.2	13.1
10:20 PM - 10:25 PM	55.6	45.6	-	58.1	44.2	13.9
10:25 PM - 10:30 PM	55.2	45.4	-	57.7	44.3	13.4
10:30 PM - 10:35 PM	55.3	45.3	-	57.7	44.1	13.1
10:35 PM - 10:40 PM	54.6	50.0	-	55.8	45.4	10.4
10:40 PM - 10:45 PM	57.1	45.5	-	59.8	43.1	16.7
10:45 PM - 10:50 PM	55.3	45.2	-	57.9	43.8	14.1
10:50 PM - 10:55 PM	55.5	50.8	-	56.7	45.1	11.6
10:55 PM - 11:00 PM	56.5	46.5	-	59.0	44.5	14.5
11:00 PM - 11:05 PM	54.6	49.1	-	56.5	46.4	10.1
11:05 PM - 11:10 PM	55.5	48.1	-	57.4	47.6	9.4
11:10 PM - 11:15 PM	54.8	48.8	-	57.6	47.3	10.3
11:15 PM - 11:20 PM	54.6	46.1	-	56.9	44.2	12.7
11:20 PM - 11:25 PM	55.3	46.6	-	57.7	44.2	13.5
11:25 PM - 11:30 PM	55.4	47.9	-	57.5	43.0	12.5
11:30 PM - 11:35 PM	56.5	46.2	-	59.1	44.4	14.7
11:35 PM - 11:40 PM	54.7	46.1	-	57.2	44.7	12.4
11:40 PM - 11:45 PM	54.3	46.8	-	57.4	45.5	10.9
11:45 PM - 11:50 PM	54.8	45.9	-	57.8	45.1	12.1
11:50 PM - 11:55 PM	62.7	40.2	-	65.5	45.1	20.4
11:55 PM - 12:00 AM	56.0	47.1	-	58.4	44.9	13.5
12:00 AM - 12:05 AM	56.7	46.6	-	59.3	45.1	14.2
12:05 AM - 12:10 AM	55.3	47.1	-	57.3	45.2	12.1
12:10 AM - 12:15 AM	55.3	47.2	-	57.6	45.4	13.2
12:15 AM - 12:20 AM	55.2	46.9	-	57.5	45.8	11.7
12:20 AM - 12:25 AM	54.8	46.9	-	57.5	45.8	11.7

The authors certify that they have no financial or personal relationships with any individual or organization that could inappropriately influence or bias the work reported in this paper. The authors also certify that they have no financial or personal relationships with any individual or organization that could inappropriately influence or bias the work reported in this paper.

Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Naeonket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116332-1

P/O : 4106004856  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-13
Parameter	เสียงรบกวน
Location	หน้าห้อง (GPS 47P 0721473, 15 18765)
Measurement Date	Sep 15 - Sep 16, 2024
Measurement by	Audit Aoonlorn
Sound Level Meter	00710640

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เวลา	เส้นทาง ตามผังเมือง	เส้นทาง ไม่จำกัดขนาด	ขนาดของรถ (BR(A))		เส้นทางพิเศษ	ค่าโดยสาร บาท/ครั้ง
			เส้นทางรถจักรยานยนต์			
			สามล้อ	จักรยานยนต์		
12:25 AM - 12:30 AM	54.0	46.8	-	56.1	45.2	33.9
12:30 AM - 12:35 AM	53.9	47.8	-	55.7	45.4	10.3
12:35 AM - 12:40 AM	54.3	45.9	-	56.6	45.1	11.5
12:40 AM - 12:45 AM	55.3	45.5	-	57.7	44.8	12.9
12:45 AM - 12:50 AM	55.8	46.9	-	58.2	44.8	13.4
12:50 AM - 12:55 AM	55.3	48.1	-	56.4	45.0	11.4
12:55 AM - 01:00 AM	54.5	45.9	-	56.9	44.6	12.3
01:00 AM - 01:05 AM	54.8	45.6	-	57.2	44.7	12.5
01:05 AM - 01:10 AM	54.9	47.2	-	56.1	44.9	12.2
01:10 AM - 01:15 AM	54.8	45.4	-	57.3	44.7	12.6
01:15 AM - 01:20 AM	54.6	45.4	-	57.0	44.8	12.2
01:20 AM - 01:25 AM	55.3	45.3	-	57.7	44.8	12.9
01:25 AM - 01:30 AM	56.7	47.4	-	58.8	44.9	11.9
01:30 AM - 01:35 AM	56.2	45.4	-	58.4	44.8	14.0
01:35 AM - 01:40 AM	54.8	45.5	-	57.3	45.0	12.3
01:40 AM - 01:45 AM	55.3	45.0	-	57.9	44.3	13.6
01:45 AM - 01:50 AM	55.3	54.9	-	57.4	44.0	3.7
01:50 AM - 01:55 AM	54.5	56.6	-	57.6	41.8	-
01:55 AM - 02:00 AM	55.1	45.4	-	57.4	41.8	23.8
02:00 AM - 02:05 AM	56.2	41.8	-	58.9	41.9	14.8
02:05 AM - 02:10 AM	56.6	50.2	-	60.9	44.6	16.3
02:10 AM - 02:15 AM	59.9	46.5	-	62.7	48.9	18.9
02:15 AM - 02:20 AM	56.2	48.2	-	58.5	41.5	14.8
02:20 AM - 02:25 AM	55.8	50.0	-	57.5	44.1	13.4
02:25 AM - 02:30 AM	56.3	49.5	-	58.3	44.0	14.3
02:30 AM - 02:35 AM	58.9	48.5	-	61.5	44.2	12.7
02:35 AM - 02:40 AM	62.0	45.9	-	64.9	44.3	20.6
02:40 AM - 02:45 AM	55.5	52.7	-	57.2	44.6	12.6
02:45 AM - 02:50 AM	54.5	53.9	-	48.6	45.3	2.3
02:50 AM - 02:55 AM	54.3	51.7	-	54.3	46.0	8.3
02:55 AM - 03:00 AM	54.1	50.6	-	54.5	44.9	9.6
03:00 AM - 03:05 AM	54.9	54.2	-	49.6	45.0	4.6
03:05 AM - 03:10 AM	54.9	54.9	-	49.9	45.1	-
03:10 AM - 03:15 AM	54.9	55.0	-	n/a	45.4	-
03:15 AM - 03:20 AM	54.0	57.3	-	n/a	54.0	-
03:20 AM - 03:25 AM	54.5	56.6	-	n/a	53.7	-
03:25 AM - 03:30 AM	54.3	56.6	-	n/a	53.9	10.4
03:30 AM - 03:35 AM	54.5	56.1	-	n/a	53.6	-
03:35 AM - 03:40 AM	54.8	55.8	-	n/a	46.7	-

The above results are valid only for the above stated fixed parameters as indicated in this report. The rest of this report is valid only for the single fixed value as shown without further comment from the Laboratory. A. J. LACROIX & COMPANY (Chicago)

Approved by \_\_\_\_\_

Kanokkorn Anek

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116332-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103109-13
Parameter	เสียงรบกวน
Location	ท่าอากาศยาน (GPS 47P 0721473, 1518765)
Measurement Date	Sep 15 - Sep 16, 2024
Measurement by	Artit Aoonsim
Sound Level Meter	00710640

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เวลา	เส้นทาง สายรถไฟใต้ดิน	สถานี ปลายทาง	จำนวนผู้โดยสาร (คน/ชั่วโมง)		จำนวนผู้โดยสาร	จำนวนผู้โดยสาร
			ขาเข้า	ขาออก	ขาเข้า	ขาออก
03:45 AM - 03:50 AM	60.1	56.8	-	60.4	54.5	5.9
03:50 AM - 03:55 AM	62.2	55.9	-	60.9	51.5	18.4
03:55 AM - 04:00 AM	67.6	57.5	-	62.2	54.9	15.3
04:00 AM - 04:05 AM	67.9	57.8	-	70.5	53.8	14.7
04:05 AM - 04:10 AM	68.4	57.3	-	71.0	46.4	24.6
04:10 AM - 04:15 AM	66.5	58.4	-	68.6	35.1	33.7
04:15 AM - 04:20 AM	71.0	57.5	-	71.8	51.8	22.0
04:20 AM - 04:25 AM	69.4	58.1	-	72.0	37.6	34.4
04:25 AM - 04:30 AM	68.1	57.0	-	70.7	50.1	18.6
04:30 AM - 04:35 AM	68.7	70.5	-	71.3	46.3	24.8
04:35 AM - 04:40 AM	72.4	58.5	-	68.3	56.6	15.7
04:40 AM - 04:45 AM	65.9	58.1	-	64.1	55.3	12.8
04:45 AM - 04:50 AM	71.0	58.1	-	74.5	56.3	18.2
04:50 AM - 04:55 AM	52.8	58.7	-	60.0	57.3	2.3
04:55 AM - 05:00 AM	48.4	57.2	-	n/a	51.1	-
05:00 AM - 05:05 AM	44.2	56.1	-	n/a	45.1	-
05:05 AM - 05:10 AM	44.2	54.2	-	n/a	44.8	-
05:10 AM - 05:15 AM	63.6	54.8	-	66.0	44.3	21.7
05:15 AM - 05:20 AM	47.3	55.2	-	n/a	44.5	-
05:20 AM - 05:25 AM	44.8	54.4	-	n/a	44.5	-
05:25 AM - 05:30 AM	55.9	55.7	-	45.4	49.5	-4.1
05:30 AM - 05:35 AM	56.6	56.0	-	70.3	49.7	20.6
05:35 AM - 05:40 AM	53.1	55.1	-	n/a	46.2	-
05:40 AM - 05:45 AM	64.6	53.9	-	62.2	49.0	15.2
05:45 AM - 05:50 AM	53.1	53.3	-	n/a	46.2	-
05:50 AM - 05:55 AM	50.1	52.6	-	n/a	46.7	-
05:55 AM - 06:00 AM	57.0	51.0	-	57.4	47.2	10.2
06:00 AM - 07:00 AM	54.7	51.8	51.6	-	47.0	4.6
07:00 AM - 08:00 AM	46.9	51.9	n/a	-	47.2	-
08:00 AM - 09:00 AM	48.2	49.2	n/a	-	45.5	-
09:00 AM - 10:00 AM	48.7	50.1	n/a	-	43.6	-
10:00 AM - 11:00 AM	55.3	49.2	54.1	-	42.8	11.3

07/27/2015

- Reference Method :**  
 1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
 2. ประเทศเพื่อนบ้านที่สนใจจะนำวิธีนี้มาใช้พิจารณาว่า มีเพียง 24 ชั่วโมง และระดับความดังของเสียงที่อาจก่อให้เกิดผลกระทบต่อสุขภาพ น.ท. 2567
- หมายเหตุ**  
 1. ประเทศเพื่อนบ้านที่สนใจจะนำวิธีนี้มาใช้พิจารณาว่า มีเพียง 24 ชั่วโมง และระดับความดังของเสียงที่อาจก่อให้เกิดผลกระทบต่อสุขภาพ น.ท. 2548  
 2. ประเทศเพื่อนบ้านที่สนใจจะนำวิธีนี้มาใช้พิจารณาว่า มีเพียง 24 ชั่วโมง และระดับความดังของเสียงที่อาจก่อให้เกิดผลกระทบต่อสุขภาพ น.ท. 2561
- Remark:**  
 1. ระดับเสียงตามค่าเฉลี่ย ค่าทางสถิติ Type 15-16 August 2567  
 2. ระดับเสียงตามค่าเฉลี่ย ค่าทางสถิติ Sample No. 24 (01112-12) ค่าทางสถิติ 15-16 August 2567  
 3. ค่าเฉลี่ยของระดับเสียงตามค่าเฉลี่ย ค่าทางสถิติ Type 15-16 August 2567

Approved by \_\_\_\_\_

Kanok Korn Anek  
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116333-1

P/O : 4106004056  
Project Name : Monitoring EIA  
Project Location : GAMK

Sample No.	24103109-14
Parameter	เสียงรบกวน
Location	บ้านท่าไคร่ (GPS 47P 0721473, 1518765)
Measurement Date	Sep 16 - Sep 17, 2024
Measurement by	Audi: Aaonsim
Sound Level Meter	00710640

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เวลา	เส้นทาง ตามลำดับ	เรือข้าม น้ำจากบ้าน	เรือลำนาน (B&A)		เรือสีฟ้า	สายสี รถโดยสาร
			จากบ้าน	จากบ้าน		
11:00 AM - 12:00 PM	45.4	53.6	n/a	-	40.5	-
12:00 PM - 01:00 PM	47.1	55.9	n/a	-	42.8	-
01:00 PM - 02:00 PM	49.2	58.7	n/a	-	43.9	-
02:00 PM - 03:00 PM	48.4	55.5	n/a	-	42.0	-
03:00 PM - 04:00 PM	45.0	55.9	n/a	-	37.5	-
04:00 PM - 05:00 PM	60.8	55.1	59.4	-	65.9	13.5
05:00 PM - 06:00 PM	67.3	62.8	65.4	-	66.1	19.3
06:00 PM - 07:00 PM	64.2	64.2	64.5	-	67.7	1.8
07:00 PM - 08:00 PM	60.4	49.2	60.1	-	66.1	14.0
08:00 PM - 09:00 PM	54.0	45.9	54.3	-	44.8	9.5
09:00 PM - 10:00 PM	49.0	44.6	47.0	-	44.6	2.4
10:00 PM - 10:05 PM	51.7	43.6	-	54.0	44.5	9.5
10:05 PM - 10:10 PM	48.3	45.1	-	48.5	44.3	4.2
10:10 PM - 10:15 PM	49.2	43.7	-	50.8	44.1	6.7
10:15 PM - 10:20 PM	49.4	43.4	-	51.3	44.2	7.1
10:20 PM - 10:25 PM	49.4	43.4	-	51.3	44.2	6.9
10:25 PM - 10:30 PM	48.7	43.0	-	50.3	44.3	6.0
10:30 PM - 10:35 PM	51.5	43.4	-	53.8	44.3	9.7
10:35 PM - 10:40 PM	51.0	43.3	-	53.2	45.4	7.8
10:40 PM - 10:45 PM	48.0	42.5	-	49.6	43.1	6.5
10:45 PM - 10:50 PM	48.9	44.0	-	50.2	43.8	6.4
10:50 PM - 10:55 PM	51.2	46.0	-	n/a	45.1	-
10:55 PM - 11:00 PM	47.9	43.0	-	49.2	44.5	4.7
11:00 PM - 11:05 PM	49.7	43.1	-	51.6	46.4	5.2
11:05 PM - 11:10 PM	50.6	43.3	-	52.6	47.6	5.0
11:10 PM - 11:15 PM	48.4	44.7	-	49.7	47.3	2.4
11:15 PM - 11:20 PM	48.1	43.2	-	49.5	46.2	5.3
11:20 PM - 11:25 PM	46.1	42.7	-	49.4	44.2	5.2
11:25 PM - 11:30 PM	46.0	43.4	-	45.5	45.0	0.5
11:30 PM - 11:35 PM	49.0	43.0	-	50.7	44.4	6.3
11:35 PM - 11:40 PM	51.6	50.6	-	53.6	44.7	8.9
11:40 PM - 11:45 PM	54.5	44.5	-	57.0	45.5	11.5
11:45 PM - 11:50 PM	52.1	51.0	-	48.9	45.1	3.5
11:50 PM - 11:55 PM	54.0	48.0	-	55.7	45.1	10.6
11:55 PM - 12:00 AM	51.1	46.2	-	52.4	44.9	7.5
12:00 AM - 12:05 AM	54.7	44.7	-	56.5	45.1	11.4
12:05 AM - 12:10 AM	53.9	43.9	-	56.4	45.2	11.2
12:10 AM - 12:15 AM	52.8	44.2	-	55.1	45.4	9.7
12:15 AM - 12:20 AM	54.2	50.5	-	54.7	45.8	8.9
12:20 AM - 12:25 AM	55.0	42.3	-	57.8	44.9	12.9

The above results are valid only for the analysis/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. A/Laboratory Group (if any).

Approved by \_\_\_\_\_

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116336-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. 24103109-17  
Parameter เลื่อนขบวน  
Location บ้านคลองขาม (GPS 47P 0719792, 1516992)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Audit Acoustic 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการจราจร	เสียงขณะมีการจราจร		เสียงที่ฐาน	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
12:00 PM - 01:00 PM	60.2	53.2	59.2	-	45.1	14.1
01:00 PM - 02:00 PM	63.7	52.3	63.4	-	45.5	17.5
02:00 PM - 03:00 PM	63.3	65.2	n/a	-	63.9	-
03:00 PM - 04:00 PM	68.3	68.3	n/a	-	67.4	-
04:00 PM - 05:00 PM	60.4	65.2	n/a	-	66.1	-
05:00 PM - 06:00 PM	57.5	62.1	n/a	-	60.3	-
06:00 PM - 07:00 PM	56.6	62.2	n/a	-	61.3	-
07:00 PM - 08:00 PM	56.7	67.8	n/a	-	67.1	-
08:00 PM - 09:00 PM	56.3	66.3	n/a	-	67.4	-
09:00 PM - 10:00 PM	53.4	69.3	n/a	-	68.8	-
10:00 PM - 10:05 PM	53.6	69.0	-	n/a	68.5	-
10:05 PM - 10:10 PM	52.9	69.2	-	n/a	68.7	-
10:10 PM - 10:15 PM	54.1	69.2	-	n/a	68.7	-
10:15 PM - 10:20 PM	53.3	68.2	-	n/a	68.7	-
10:20 PM - 10:25 PM	52.3	69.2	-	n/a	68.7	-
10:25 PM - 10:30 PM	52.7	69.1	-	n/a	68.7	-
10:30 PM - 10:35 PM	49.5	68.2	-	n/a	68.7	-
10:35 PM - 10:40 PM	54.1	69.0	-	n/a	68.5	-
10:40 PM - 10:45 PM	56.0	69.1	-	n/a	68.7	-
10:45 PM - 10:50 PM	53.0	69.1	-	n/a	68.6	-
10:50 PM - 10:55 PM	51.6	68.9	-	n/a	68.3	-
10:55 PM - 11:00 PM	51.2	69.1	-	n/a	68.6	-
11:00 PM - 11:05 PM	50.1	67.6	-	n/a	66.7	-
11:05 PM - 11:10 PM	54.7	67.1	-	n/a	66.7	-
11:10 PM - 11:15 PM	50.5	67.1	-	n/a	66.7	-
11:15 PM - 11:20 PM	50.4	67.1	-	n/a	66.5	-
11:20 PM - 11:25 PM	51.9	67.0	-	n/a	66.6	-
11:25 PM - 11:30 PM	51.5	67.0	-	n/a	66.5	-
11:30 PM - 11:35 PM	50.7	67.1	-	n/a	66.6	-
11:35 PM - 11:40 PM	49.0	67.0	-	n/a	66.5	-
11:40 PM - 11:45 PM	50.7	67.0	-	n/a	66.5	-
11:45 PM - 11:50 PM	49.7	67.0	-	n/a	66.6	-
11:50 PM - 11:55 PM	47.9	67.0	-	n/a	66.6	-
11:55 PM - 12:00 AM	49.0	67.1	-	n/a	66.6	-
12:00 AM - 12:05 AM	48.3	67.2	-	n/a	66.7	-
12:05 AM - 12:10 AM	47.9	67.3	-	n/a	66.8	-
12:10 AM - 12:15 AM	49.8	66.0	-	n/a	61.7	-
12:15 AM - 12:20 AM	49.0	61.9	-	n/a	61.2	-
12:20 AM - 12:25 AM	47.8	61.6	-	n/a	60.9	-
12:25 AM - 12:30 AM	46.5	56.3	-	n/a	45.3	-

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116336-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. 24103109-17  
Parameter เลื่อนขบวน  
Location บ้านคลองขาม (GPS 47P 0719792, 1516992)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Audit Acoustic 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการจราจร	เสียงขณะมีการจราจร		เสียงที่ฐาน	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
12:30 AM - 12:35 AM	52.1	46.8	-	n/a	53.6	45.5
12:35 AM - 12:40 AM	49.9	46.7	-	n/a	48.1	45.3
12:40 AM - 12:45 AM	50.1	47.2	-	n/a	50.0	44.9
12:45 AM - 12:50 AM	50.0	50.7	-	n/a	44.7	-
12:50 AM - 12:55 AM	48.4	48.6	-	n/a	45.3	-
12:55 AM - 01:00 AM	48.1	51.0	-	n/a	45.6	-
01:00 AM - 01:05 AM	48.9	53.3	-	n/a	47.5	-
01:05 AM - 01:10 AM	49.1	55.7	-	n/a	46.9	-
01:10 AM - 01:15 AM	48.5	51.8	-	n/a	47.1	-
01:15 AM - 01:20 AM	50.5	50.7	-	n/a	46.2	-
01:20 AM - 01:25 AM	48.2	55.0	-	n/a	46.8	-
01:25 AM - 01:30 AM	49.9	52.5	-	n/a	47.4	-
01:30 AM - 01:35 AM	49.3	51.4	-	n/a	45.9	-
01:35 AM - 01:40 AM	47.6	49.7	-	n/a	45.6	-
01:40 AM - 01:45 AM	47.8	49.6	-	n/a	45.5	-
01:45 AM - 01:50 AM	61.4	52.1	-	n/a	61.9	16.8
01:50 AM - 01:55 AM	52.0	51.7	-	n/a	45.8	-2.6
01:55 AM - 02:00 AM	50.6	52.2	-	n/a	46.1	-
02:00 AM - 02:05 AM	49.8	56.4	-	n/a	48.8	-
02:05 AM - 02:10 AM	51.0	54.6	-	n/a	47.0	-
02:10 AM - 02:15 AM	48.6	56.6	-	n/a	47.8	-
02:15 AM - 02:20 AM	48.6	50.0	-	n/a	45.9	-
02:20 AM - 02:25 AM	48.9	56.9	-	n/a	46.5	-
02:25 AM - 02:30 AM	49.7	53.2	-	n/a	48.7	-
02:30 AM - 02:35 AM	47.6	55.1	-	n/a	47.9	-
02:35 AM - 02:40 AM	47.6	56.6	-	n/a	48.5	-
02:40 AM - 02:45 AM	47.8	53.8	-	n/a	48.8	-
02:45 AM - 02:50 AM	49.2	55.3	-	n/a	47.8	-
02:50 AM - 02:55 AM	47.9	53.3	-	n/a	46.3	-
02:55 AM - 03:00 AM	48.1	51.5	-	n/a	47.7	-
03:00 AM - 03:05 AM	49.4	51.9	-	n/a	47.5	-
03:05 AM - 03:10 AM	49.4	54.2	-	n/a	48.1	-
03:10 AM - 03:15 AM	48.2	56.4	-	n/a	47.2	-
03:15 AM - 03:20 AM	49.5	52.7	-	n/a	47.6	-
03:20 AM - 03:25 AM	48.5	52.6	-	n/a	46.9	-
03:25 AM - 03:30 AM	48.1	52.0	-	n/a	47.4	-
03:30 AM - 03:35 AM	48.0	54.6	-	n/a	47.4	-
03:35 AM - 03:40 AM	53.8	52.7	-	n/a	50.3	1.3
03:40 AM - 03:45 AM	47.9	52.4	-	n/a	48.9	-
03:45 AM - 03:50 AM	46.5	53.7	-	n/a	49.0	-

Approved by

Kanokorn Anek  
Asst. General Manager

SHIRAN 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand T+66 0 2760 3000 F+66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116336-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. 24103109-17  
Parameter เลื่อนขบวน  
Location บ้านคลองขาม (GPS 47P 0719792, 1516992)  
Measurement Date Sep 12 - Sep 13, 2024  
Measurement by Audit Acoustic 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการจราจร	เสียงขณะมีการจราจร		เสียงที่ฐาน	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
03:50 AM - 03:55 AM	49.0	57.9	-	n/a	49.9	-
03:55 AM - 04:00 AM	49.5	54.9	-	n/a	47.5	-
04:00 AM - 04:05 AM	56.7	57.5	-	n/a	50.8	-
04:05 AM - 04:10 AM	49.2	56.6	-	n/a	49.6	-
04:10 AM - 04:15 AM	50.3	59.4	-	n/a	50.0	-
04:15 AM - 04:20 AM	48.6	54.8	-	n/a	49.6	-
04:20 AM - 04:25 AM	51.7	57.6	-	n/a	49.6	-
04:25 AM - 04:30 AM	49.4	59.3	-	n/a	49.2	-
04:30 AM - 04:35 AM	50.3	51.3	-	n/a	50.5	-
04:35 AM - 04:40 AM	49.6	56.6	-	n/a	50.0	-
04:40 AM - 04:45 AM	48.7	52.5	-	n/a	50.1	-
04:45 AM - 04:50 AM	51.0	54.7	-	n/a	49.4	-
04:50 AM - 04:55 AM	49.6	54.4	-	n/a	49.9	-
04:55 AM - 05:00 AM	50.2	56.1	-	n/a	50.3	-
05:00 AM - 05:05 AM	48.1	53.1	-	n/a	47.9	-
05:05 AM - 05:10 AM	47.9	51.1	-	n/a	51.5	-
05:10 AM - 05:15 AM	47.1	56.3	-	n/a	52.2	-
05:15 AM - 05:20 AM	47.5	54.0	-	n/a	50.8	-
05:20 AM - 05:25 AM	48.7	55.9	-	n/a	49.0	-
05:25 AM - 05:30 AM	56.1	54.6	-	n/a	49.0	5.8
05:30 AM - 05:35 AM	51.2	54.5	-	n/a	51.0	-
05:35 AM - 05:40 AM	55.6	57.0	-	n/a	50.5	-
05:40 AM - 05:45 AM	55.8	58.4	-	n/a	51.3	-
05:45 AM - 05:50 AM	51.8	57.1	-	n/a	50.7	-
05:50 AM - 05:55 AM	55.8	57.7	-	n/a	49.4	-
05:55 AM - 06:00 AM	55.2	59.5	-	n/a	51.1	-
06:00 AM - 06:05 AM	58.5	60.6	-	n/a	49.6	-
06:05 AM - 06:10 AM	57.6	54.5	-	n/a	45.5	9.6
06:10 AM - 06:15 AM	57.5	57.2	n/a	-	47.5	-
06:15 AM - 06:20 AM	56.2	59.6	-	n/a	50.7	-
10:00 AM - 11:00 AM	51.8	46.2	n/a	-	46.2	-
11:00 AM - 12:00 PM	55.8	54.1	-	n/a	45.3	5.6

### Reference Method

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016

2. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

3. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

4. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

5. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

6. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

7. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

8. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

9. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

10. อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบเคลื่อนที่แบบพกพา รุ่น SLD-024 24 ชั่วโมง และเครื่องวัดเสียงแบบพกพา รุ่น SLD-024 24 ชั่วโมง

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116337-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. 24103109-18  
Parameter เลื่อนขบวน  
Location บ้านคลองขาม (GPS 47P 0719792, 1516992)  
Measurement Date Sep 11 - Sep 14, 2024  
Measurement by Audit Acoustic 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการจราจร	เสียงขณะมีการจราจร		เสียงที่ฐาน	ค่าเฉลี่ยการจราจร
			กลางวัน	กลางคืน		
12:00 PM - 01:00 PM	56.8	55.0	52.1	-	45.1	7.0
01:00 PM - 02:00 PM	59.5	54.2	58.0	-	46.9	11.3
02:00 PM - 03:00 PM	57.0	57.5	n/a	-	52.7	-
03:00 PM - 04:00 PM	58.7	68.3	n/a	-	67.2	-
04:00 PM - 05:00 PM	55.9	64.6	n/a	-	63.0	-
05:00 PM - 06:00 PM	59.1	69.0	n/a	-	66.6	-
06:00 PM - 07:00 PM	58.3	56.4	-	n/a	52.9	0.9
07:00 PM - 08:00 PM	52.4	56.4	n/a	-	54.4	-
08:00 PM - 09:00 PM	51.6	60.0	n/a	-	52.7	-
09:00 PM - 10:00 PM	62.7	60.0	-	n/a	59.1	7.8
10:00 PM - 10:05 PM	67.1	61.1	-	64.8	60.5	8.3
10:05 PM - 10:10 PM	68.2	61.3	-	70.2	56.9	12.3
10:10 PM - 10:15 PM	66.2	60.4	-	67.9	59.7	8.2
10:15 PM - 10:20 PM	61.8	61.4	-	54.2	60.3	4.1
10:20 PM - 10:25 PM	56.9	61.5	-	n/a	60.2	-
10:25 PM - 10:30 PM	57.6	60.1	-	n/a	59.0	-
10:30 PM - 10:35 PM	57.4	61.3	n/a	-	59.8	-
10:35 PM - 10:40 PM	56.9	61.4	-	n/a	60.3	-
10:40 PM - 10:45 PM	59.4	60.8	-	n/a	59.9	-
10:45 PM - 10:50 PM	59.2	59.9	-	n/a	59.2	-
10:50 PM - 10:55 PM	60.2	62.1	n/a	-	60.4	-
10:55 PM - 11:00 PM	61.2	62.3	-	n/a	60.6	-
11:00 PM - 11:05 PM	56.8	62.7	-	n/a	60.5	-
11:05 PM - 11:10 PM	55.8	63.9	-	n/a	60.5	-
11:10 PM - 11:15 PM	55.9	64.4	-	n/a	61.3	-
11:15 PM - 11:20 PM	55.5	64.5	-	n/a	61.3	-
11:20 PM - 11:25 PM	56.6	64.5	-	n/a	61.7	-
11:25 PM - 11:30 PM	57.4	64.4	-	n/a	61.4	-
11:30 PM - 11:35 PM	56.6	64.5	-	n/a	61.4	-
11:35 PM - 11:40 PM	56.9	64.6	-	n/a	61.5	-
11:40 PM - 11:45 PM	58.7	64.1	-	n/a	61.0	-
11:45 PM - 11:50 PM	58.1	64.1	-	n/a	60.9	-
11:50 PM - 11:55 PM	58.4	63.7	-	n/a	60.6	-
11:55 PM - 12:00 AM	60.5	64.1	-	n/a	61.1	-
12:00 AM - 12:05 AM	57.6	63.9	-	n/a	60.6	-
12:05 AM - 12:10 AM	57.4	62.7	-	n/a	60.0	-
12:10 AM - 12:15 AM	59.6	64.5	-	n/a	54.4	-
12:15 AM - 12:20 AM	57.9	65.4	-	n/a	52.3	-
12:20 AM - 12:25 AM	58.0	61.1	-	n/a	52.9	-
12:25 AM - 12:30 AM	57.3	59.8	-	n/a	54.8	-





## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116337-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. 24103109-18  
Parameter เสียงรบกวน  
Location บ้านหนองปรือ (GPS 47P 0719792, 1516992)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aconom  
Sound Level Meter 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าเฉลี่ยการรบกวน
			กลางวัน	กลางคืน		
12:30 AM - 12:35 AM	60.3	65.7	-	n/a	65.0	-
12:35 AM - 12:40 AM	55.6	65.4	-	n/a	65.9	-
12:40 AM - 12:45 AM	57.2	65.3	-	n/a	64.7	-
12:45 AM - 12:50 AM	56.9	64.7	-	n/a	60.7	-
12:50 AM - 12:55 AM	57.0	50.9	-	58.8	46.7	12.1
12:55 AM - 01:00 AM	58.4	50.8	-	60.6	46.0	14.6
01:00 AM - 01:05 AM	55.5	50.6	-	56.9	46.2	10.6
01:05 AM - 01:10 AM	56.2	52.2	-	57.0	47.3	9.7
01:10 AM - 01:15 AM	57.3	51.1	-	59.1	46.6	12.5
01:15 AM - 01:20 AM	54.5	55.4	-	n/a	46.1	-
01:20 AM - 01:25 AM	55.6	58.0	-	n/a	47.6	-
01:25 AM - 01:30 AM	57.3	55.6	-	54.8	46.3	8.5
01:30 AM - 01:35 AM	58.9	56.4	-	58.3	47.2	11.1
01:35 AM - 01:40 AM	60.4	52.4	-	61.7	42.1	15.6
01:40 AM - 01:45 AM	59.0	53.4	-	59.2	47.5	11.7
01:45 AM - 01:50 AM	58.6	51.5	-	60.7	47.4	13.3
01:50 AM - 01:55 AM	58.6	49.8	-	61.0	46.5	14.5
01:55 AM - 02:00 AM	60.4	52.8	-	62.6	45.8	16.8
02:00 AM - 02:05 AM	59.6	52.0	-	61.8	46.4	15.4
02:05 AM - 02:10 AM	59.4	53.8	-	61.0	46.8	14.2
02:10 AM - 02:15 AM	61.2	52.9	-	61.3	47.9	12.4
02:15 AM - 02:20 AM	60.9	51.9	-	61.3	49.1	14.2
02:20 AM - 02:25 AM	60.9	51.4	-	61.4	47.0	16.4
02:25 AM - 02:30 AM	62.8	51.4	-	63.5	46.4	19.1
02:30 AM - 02:35 AM	64.5	51.1	-	62.3	46.2	21.1
02:35 AM - 02:40 AM	64.2	49.0	-	67.1	44.9	22.2
02:40 AM - 02:45 AM	65.7	55.1	-	66.3	46.6	21.7
02:45 AM - 02:50 AM	69.8	50.0	-	67.0	45.6	24.4
02:50 AM - 02:55 AM	68.9	51.3	-	71.8	45.9	25.9
02:55 AM - 03:00 AM	69.2	49.7	-	72.2	44.8	27.4
03:00 AM - 03:05 AM	64.9	53.1	-	71.8	46.2	24.6
03:05 AM - 03:10 AM	66.3	50.1	-	69.2	45.4	23.8
03:10 AM - 03:15 AM	67.1	49.4	-	70.0	44.1	25.9
03:15 AM - 03:20 AM	67.1	50.0	-	70.0	45.7	24.3
03:20 AM - 03:25 AM	68.0	50.4	-	70.9	45.1	25.8
03:25 AM - 03:30 AM	67.4	49.7	-	70.3	46.5	23.8
03:30 AM - 03:35 AM	67.3	50.2	-	70.2	46.1	24.1
03:35 AM - 03:40 AM	67.8	49.8	-	67.8	46.7	24.7
03:40 AM - 03:45 AM	66.2	48.8	-	69.1	45.0	24.1
03:45 AM - 03:50 AM	66.7	50.6	-	69.6	45.8	23.8

The above results are valid only for the analytical method specified in the report. No part of the report or certificate can be reproduced or used for any other purpose without written consent from the laboratory. ALS Laboratory Limited (Thailand) Co., Ltd. is not responsible for the results of any test conducted outside of its scope.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116337-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103109-18  
Parameter เสียงรบกวน  
Location บ้านหนองปรือ (GPS 47P 0719792, 1516992)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aconom  
Sound Level Meter 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าเฉลี่ยการรบกวน
			กลางวัน	กลางคืน		
03:50 AM - 03:55 AM	67.4	51.6	-	50.3	49.8	20.5
03:55 AM - 04:00 AM	66.8	50.7	-	69.7	44.8	24.9
04:00 AM - 04:05 AM	67.5	50.0	-	70.4	43.6	26.8
04:05 AM - 04:10 AM	68.6	49.8	-	71.5	43.5	28.0
04:10 AM - 04:15 AM	68.7	49.8	-	71.7	43.1	28.6
04:15 AM - 04:20 AM	68.9	54.8	-	71.7	43.8	27.9
04:20 AM - 04:25 AM	68.3	49.3	-	71.2	44.2	27.0
04:25 AM - 04:30 AM	68.9	50.1	-	71.8	44.6	27.2
04:30 AM - 04:35 AM	66.1	47.3	-	69.0	43.9	25.1
04:35 AM - 04:40 AM	63.5	49.4	-	66.3	45.0	21.3
04:40 AM - 04:45 AM	63.0	51.3	-	65.5	44.8	20.7
04:45 AM - 04:50 AM	60.5	51.0	-	61.0	45.0	18.0
04:50 AM - 04:55 AM	62.0	49.8	-	64.7	45.5	19.2
04:55 AM - 05:00 AM	58.0	53.7	-	59.0	46.4	12.6
05:00 AM - 05:05 AM	58.5	49.0	-	61.0	44.6	16.4
05:05 AM - 05:10 AM	57.2	51.7	-	58.8	45.7	13.1
05:10 AM - 05:15 AM	56.8	49.5	-	58.9	45.0	13.9
05:15 AM - 05:20 AM	57.0	54.6	-	56.3	44.6	11.7
05:20 AM - 05:25 AM	53.5	51.7	-	51.8	46.0	5.8
05:25 AM - 05:30 AM	53.1	52.4	-	49.8	46.6	1.2
05:30 AM - 05:35 AM	53.2	52.6	-	47.8	45.8	1.5
05:35 AM - 05:40 AM	52.4	55.7	-	n/a	45.1	-
05:40 AM - 05:45 AM	56.3	56.6	-	n/a	50.3	-
05:45 AM - 05:50 AM	55.2	56.2	-	n/a	45.9	-
05:50 AM - 05:55 AM	55.4	59.4	-	n/a	45.8	-
05:55 AM - 06:00 AM	55.8	53.1	-	55.5	45.3	10.2
06:00 AM - 07:00 AM	57.6	54.1	55.0	-	46.6	8.4
07:00 AM - 08:00 AM	55.6	50.0	54.2	-	44.4	5.8
08:00 AM - 09:00 AM	54.4	51.8	54.4	-	44.7	6.2
09:00 AM - 10:00 AM	56.8	55.1	51.9	-	45.7	6.2
10:00 AM - 11:00 AM	58.3	55.0	55.6	-	46.0	9.0
11:00 AM - 12:00 PM	56.8	51.9	55.1	-	46.3	8.10

หมายเหตุ

Reference Method :

- In-house method : STN 06-001 based on ISO 15906-1 : 2016
- ใช้มาตรฐานของกรมส่งเสริมการค้าระหว่างประเทศ (กรมส่งเสริมการค้าระหว่างประเทศ) มาตรฐาน 24 ชั่วโมง สำหรับการวัดระดับเสียงจากแหล่งกำเนิดเสียงรบกวน พ.ศ. 2567
- ใช้มาตรฐานของกรมส่งเสริมการค้าระหว่างประเทศ (กรมส่งเสริมการค้าระหว่างประเทศ) มาตรฐาน 24 ชั่วโมง สำหรับการวัดระดับเสียงจากแหล่งกำเนิดเสียงรบกวน พ.ศ. 2568
- ใช้มาตรฐานของกรมส่งเสริมการค้าระหว่างประเทศ (กรมส่งเสริมการค้าระหว่างประเทศ) มาตรฐาน 24 ชั่วโมง สำหรับการวัดระดับเสียงจากแหล่งกำเนิดเสียงรบกวน พ.ศ. 2561

Remark:

- ใช้เสียงรบกวนจากแหล่งกำเนิดเสียงรบกวน (Sample No. 24103113-18) วันที่ 13-14 เดือน 2567
- ใช้เสียงรบกวนจากแหล่งกำเนิดเสียงรบกวน (Sample No. 24103113-18) วันที่ 13-14 เดือน 2567
- ใช้เสียงรบกวนจากแหล่งกำเนิดเสียงรบกวน (Sample No. 24103113-18) วันที่ 13-14 เดือน 2567

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116338-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103109-19  
Parameter เสียงรบกวน  
Location บ้านหนองปรือ (GPS 47P 0719792, 1516992)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aconom  
Sound Level Meter 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าเฉลี่ยการรบกวน
			กลางวัน	กลางคืน		
17:00 PM - 01:00 PM	52.8	52.8	n/a	-	46.3	-
01:00 PM - 02:00 PM	56.3	62.7	n/a	-	52.7	-
02:00 PM - 03:00 PM	60.3	64.4	n/a	-	63.2	-
03:00 PM - 04:00 PM	59.8	63.0	n/a	-	61.5	-
04:00 PM - 05:00 PM	55.6	56.6	n/a	-	55.3	-
05:00 PM - 06:00 PM	61.1	61.1	n/a	-	60.1	-
06:00 PM - 07:00 PM	56.8	63.3	n/a	-	62.6	-
07:00 PM - 08:00 PM	59.8	63.5	n/a	-	62.5	-
08:00 PM - 09:00 PM	58.0	63.0	n/a	-	62.3	-
09:00 PM - 10:00 PM	56.4	60.9	n/a	-	60.2	-
10:00 PM - 10:05 PM	54.0	49.4	-	55.6	47.6	8.0
10:05 PM - 10:10 PM	55.7	49.7	-	57.7	47.9	10.0
10:10 PM - 10:15 PM	58.4	49.1	-	60.9	47.8	13.1
10:15 PM - 10:20 PM	56.7	49.2	-	62.2	48.1	12.9
10:20 PM - 10:25 PM	55.8	49.5	-	57.4	48.5	8.9
10:25 PM - 10:30 PM	55.1	50.3	-	56.4	49.1	7.3
10:30 PM - 10:35 PM	56.6	50.4	-	58.4	49.3	9.1
10:35 PM - 10:40 PM	54.2	50.4	-	54.9	49.2	5.7
10:40 PM - 10:45 PM	56.7	50.2	-	58.6	48.7	9.9
10:45 PM - 10:50 PM	58.5	51.2	-	60.6	49.8	10.8
10:50 PM - 10:55 PM	58.8	51.1	-	60.7	49.7	11.0
10:55 PM - 11:00 PM	59.5	50.8	-	61.9	49.7	12.7
11:00 PM - 11:05 PM	58.9	50.9	-	61.2	49.8	11.4
11:05 PM - 11:10 PM	56.3	51.4	-	65.5	49.1	12.4
11:10 PM - 11:15 PM	60.2	60.2	-	65.4	48.4	8.1
11:15 PM - 11:20 PM	57.7	57.8	-	57.2	57.2	-
11:20 PM - 11:25 PM	56.8	57.8	-	n/a	57.2	-
11:25 PM - 11:30 PM	57.8	57.8	-	n/a	56.8	-
11:30 PM - 11:35 PM	56.5	57.4	-	n/a	56.8	-
11:35 PM - 11:40 PM	57.4	57.4	-	n/a	56.8	-
11:40 PM - 11:45 PM	56.5	57.5	-	n/a	56.9	-
11:45 PM - 11:50 PM	51.8	57.4	-	n/a	56.4	-
11:50 PM - 11:55 PM	56.7	57.5	-	n/a	56.9	-
11:55 PM - 12:00 AM	56.1	57.4	-	n/a	56.8	-
12:00 AM - 12:05 AM	56.1	56.8	-	n/a	55.8	-
12:05 AM - 12:10 AM	55.6	57.1	-	n/a	56.3	-
12:10 AM - 12:15 AM	55.7	57.1	-	n/a	56.4	-
12:15 AM - 12:20 AM	54.9	57.2	-	n/a	56.7	-
12:20 AM - 12:25 AM	55.1	56.6	-	n/a	51.0	-

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116338-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

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Sample No. 24103109-19  
Parameter เสียงรบกวน  
Location บ้านหนองปรือ (GPS 47P 0719792, 1516992)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aconom  
Sound Level Meter 00710644

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าเฉลี่ยการรบกวน
			กลางวัน	กลางคืน		
12:30 AM - 12:35 AM	56.8	47.1	-	n/a	56.5	-
12:35 AM - 12:40 AM	55.3	55.3	-	n/a	56.5	-
12:40 AM - 12:45 AM	55.0	57.2	-	n/a	45.7	11.5
12:45 AM - 12:50 AM	55.9	47.8	-	58.2	45.9	12.3
12:50 AM - 12:55 AM	54.7	49.6	-	56.1	47.2	8



Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116338-1

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ระดับเสียง (dB(A))		เสียงที่รบกวน		เสียงที่รบกวน	ค่าดัชนี
ภายนอก	ภายใน				การรบกวน
-	60.1		45.2		14.9
-	59.9		45.7		13.3
-	57.3		44.9		10.9
-	56.3		44.7		11.6
-	49.9		49.3		-
-	44.4		44.8		9.6
-	55.4		43.9		11.5
-	42.3		44.9		7.4
-	50.8		44.9		5.9
-	57.8		44.6		3.2
-	49.9		45.4		-
-	49.9		45.5		-
-	45.4		45.1		0.5
-	49.9		44.8		-
-	48.5		44.9		3.7
-	49.9		45.0		-
-	49.9		45.6		-
-	49.9		44.8		-
-	49.9		44.8		-
-	49.9		46.4		-
-	49.9		45.2		-
-	49.9		46.3		-
-	49.4		43.1		6.5
-	61.4		43.9		17.5
-	57.6		44.5		13.1
-	57.7		44.0		10.7
66.8	-		44.0		22.8
56.9	-		46.4		10.5
54.9	-		47.9		-
52.8	-		47.8		5.0
49.9	-		45.7		-
49.9	-		46.2		-

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ค่าเบี่ยงเบน (dB(A))		เมื่อขณะดำเนินการขนาน		เมื่อใช้เครื่อง	ค่าตาม
	กลางคืน	กลางวัน			การขนาน
+	ก/ค		45.8	+	
+	ก/ค		46.2	+	
+	ก/ค		45.0	+	
+	ก/ค		45.6	+	
+	ก/ค		46.5	+	
+	ก/ค		46.8	+	
+	ก/ค		47.8	+	
+	ก/ค		47.2	+	
+	ก/ค		47.6	+	
+	ก/ค		46.5	+	
+	ก/ค		46.4	+	
+	ก/ค		47.5	+	
+	ก/ค		48.3	+	
+	ก/ค		47.6	+	
+	ก/ค		46.9	+	
+	ก/ค		47.6	+	
+	ก/ค		46.9	+	
+	ก/ค		48.0	+	
+	ก/ค		48.2	+	
+	ก/ค		48.9	+	
+	ก/ค		52.1	+	
+	ก/ค		52.0	+	
+	ก/ค		52.1	+	
+	ก/ค		52.4	+	
+	ก/ค		52.7	+	
+	ก/ค		56.3	+	
+	ก/ค		54.4	+	
+	ก/ค		53.8	+	
+	ก/ค		52.7	+	
+	ก/ค		51.1	+	
+	ก/ค		49.2	+	
+	ก/ค		56.9	+	
+	ก/ค		53.3	+	
+	ก/ค		50.8	+	
+	ก/ค		53.1	+	
+	ก/ค		52.7	+	
+	ก/ค		52.1	+	
+	ก/ค		47.3	+	
+	ก/ค		51.7	+	

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การปนเปื้อน (dB(A))			เสียงรบกวนจากยานพาหนะ		เสียงพื้นบ้าน	ค่าเฉลี่ย
น	กลางวัน	กลางคืน				การรบกวน
	57.5	-		55.4	-	12.1
	60.0	-		62.8	-	
	56.3	-		49.9	-	7.6
	57.8	-		52.2	-	2.8
	60.0	-		61.5	-	
	60.0	-		65.0	-	
	59.3	-		66.9	-	-1.6
	60.0	-		68.6	-	
	60.0	-		70.1	-	
	60.0	-		68.5	-	
	-	60.0	60.0	61.8	-	
	-	60.0	60.0	61.3	-	
	-	60.0	60.0	60.8	-	
	-	60.0	60.0	60.8	-	
	-	60.0	60.0	60.8	-	
	-	60.0	60.0	60.9	-	
	-	60.0	60.0	60.7	-	
	-	60.0	60.0	60.7	-	
	-	60.0	60.0	60.9	-	
	-	60.0	60.0	70.0	-	
	-	60.0	60.0	60.9	-	
	-	60.0	60.0	61.3	-	
	-	60.0	60.0	60.9	-	
	-	60.0	60.0	70.0	-	
	-	60.0	60.0	60.9	-	
	-	60.0	60.0	60.9	-	
	-	60.0	60.0	60.8	-	
	-	60.0	60.0	60.8	-	
	-	60.0	60.0	60.4	-	
	-	60.0	60.0	66.4	-	
	-	60.0	60.0	66.3	-	
	-	60.0	60.0	66.4	-	
	-	60.0	60.0	66.5	-	
	-	60.0	60.0	66.1	-	-12.4
	-	60.0	60.0	66.3	-	
	-	60.0	60.0	66.5	-	
	-	60.0	60.0	66.3	-	
	-	60.0	60.0	66.3	-	
	-	60.0	60.0	65.6	-	0.8
	-	60.0	60.0	65.7	-	0.7

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Date Received :Sep 18, 2024  
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ค่าเฉลี่ยเดือน (Std(A))		เมื่อขอยกเลิกการทราบ		เมื่อรู้ทั้งฐาน	ค่าฟรีขึ้น
ปี	การภายใน	การภายนอก	การภายใน	การภายนอก	การภายนอก
-	ก/ด	47.4	-	-	-
-	ก/ด	47.3	-	-	-
-	ก/ด	48.3	-	-	-
-	ก/ด	51.4	-	-	-
-	ก/ด	47.6	-	-	-
-	ก/ด	47.3	-	-	-
-	51.8	49.4	2.2	-	-
-	ก/ด	50.5	-	-	-
-	ก/ด	54.5	-	-	-
-	ก/ด	50.6	-	-	-
-	ก/ด	51.4	-	-	-
-	ก/ด	50.7	-	-	-
-	ก/ด	51.0	-	-	-
-	ก/ด	51.0	-	-	-
-	ก/ด	51.1	-	-	-
-	ก/ด	49.6	-	-	-
-	ก/ด	50.8	-	-	-
-	ก/ด	49.3	-	-	-
-	ก/ด	49.9	-	-	-
-	ก/ด	53.5	-	-	-
-	ก/ด	54.2	-	-	-
-	ก/ด	52.9	-	-	-
-	ก/ด	52.7	-	-	-
-	ก/ด	51.4	-	-	-
-	ก/ด	50.6	-	-	-
-	43.8	50.2	-6.4	-	-
ก/ด	-	49.9	-	-	-
57.4	-	57.3	0.1	-	-
ก/ด	-	51.9	-	-	-
ก/ด	-	51.1	-	-	-
ก/ด	-	55.3	-	-	-
66.1	-	51.4	14.7	-	-

**Reference Method :**

1. In-house method / STM 06-001 based on ISO 1996-1 : 2016
2. มาตรฐานการวัดเสียงตามระบบ (หรือ) วิธีการวัดเสียงโดยวิธีการตามระบบฉบับเดิมเมื่อ 24 ปีที่แล้ว และหนังสือเอกสารของกรมวิทยาศาสตร์บริการฉบับที่ ม. 2567

**หมายเหตุ**

1. หน่วยงานที่ตรวจประเมินค่าเสียง (หรือ) หน่วยงานที่ตรวจประเมินค่าเสียงตามระบบฉบับเดิมเมื่อ 24 ปีที่แล้ว และหนังสือเอกสารของกรมวิทยาศาสตร์บริการฉบับที่ ม. 2567
2. หน่วยงานที่ตรวจประเมินค่าเสียง (หรือ) หน่วยงานที่ตรวจประเมินค่าเสียงตามระบบฉบับเดิมเมื่อ 24 ปีที่แล้ว และหนังสือเอกสารของกรมวิทยาศาสตร์บริการฉบับที่ ม. 2561

**Remark:**

1. หนังสือตรวจประเมินค่าเสียง พิจารณาตรวจวัด วันที่ 15-16 สิงหาคม 2567
2. หนังสือตรวจประเมินค่าเสียงตามระบบฉบับเดิม พิจารณาตรวจวัด (Sample No.24103113-20) วันที่ 15-16 สิงหาคม 2567
3. หนังสือตรวจประเมินค่าเสียงตามระบบฉบับเดิม พิจารณาตรวจวัด (Sample No.24103113-20) วันที่ 15-16 สิงหาคม 2567

Approved by Kanok Korn Anek  
Kanok Korn Anek  
Asst. General Manager

Life Sciences [www.alsglobal.com](http://www.alsglobal.com)  
**RIGHT SOLUTIONS** RIGHT PARTNERS



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report Number: 3116340-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-21  
Parameter : เสียงรบกวน  
Location : บ้านคลองยาว (GPS 47P 0719792, 1516992)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710644

Page 1 of 3

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่ารวม
			กลางวัน	กลางคืน		
12:00 PM - 01:00 PM	58.7	56.0	55.4	-	45.4	10.0
01:00 PM - 02:00 PM	59.1	55.5	56.6	-	62.8	-6.2
02:00 PM - 03:00 PM	59.3	53.3	58.0	-	49.9	8.1
03:00 PM - 04:00 PM	65.2	50.4	65.1	-	50.2	14.9
04:00 PM - 05:00 PM	58.2	50.8	57.3	-	63.5	-6.2
05:00 PM - 06:00 PM	61.3	49.5	61.0	-	65.0	-4.0
06:00 PM - 07:00 PM	52.7	49.7	52.0	-	60.9	-3.9
07:00 PM - 08:00 PM	54.0	49.8	51.9	-	68.6	-16.7
08:00 PM - 09:00 PM	50.4	48.3	54.0	-	70.1	-26.1
09:00 PM - 10:00 PM	52.4	48.5	50.1	-	64.5	-18.6
10:00 PM - 10:05 PM	49.1	46.7	-	48.4	69.8	-21.4
10:05 PM - 10:10 PM	46.5	46.9	-	n/a	69.8	-
10:10 PM - 10:15 PM	46.8	47.2	-	n/a	69.8	-
10:15 PM - 10:20 PM	46.6	46.6	-	n/a	69.8	-
10:20 PM - 10:25 PM	48.8	47.9	-	44.5	69.8	-25.3
10:25 PM - 10:30 PM	48.2	48.0	-	32.7	69.9	-32.2
10:30 PM - 10:35 PM	50.7	47.8	-	50.5	69.7	-19.2
10:35 PM - 10:40 PM	47.0	47.9	-	n/a	69.7	-
10:40 PM - 10:45 PM	46.3	48.4	-	n/a	69.9	-
10:45 PM - 10:50 PM	49.6	47.6	-	48.3	70.0	-21.7
10:50 PM - 10:55 PM	47.9	47.7	-	32.4	69.9	-32.5
10:55 PM - 11:00 PM	50.6	47.1	-	51.0	69.9	-18.9
11:00 PM - 11:05 PM	46.4	46.8	-	n/a	69.9	-
11:05 PM - 11:10 PM	46.4	46.9	-	46.1	70.0	-22.7
11:10 PM - 11:15 PM	46.6	46.7	-	n/a	69.9	-
11:15 PM - 11:20 PM	45.9	47.2	-	n/a	69.8	-
11:20 PM - 11:25 PM	47.1	47.1	-	n/a	69.8	-
11:25 PM - 11:30 PM	46.6	47.4	-	n/a	69.8	-
11:30 PM - 11:35 PM	46.4	46.7	-	n/a	69.8	-
11:35 PM - 11:40 PM	48.6	46.6	-	42.6	66.3	-1.3
11:40 PM - 11:45 PM	46.5	49.5	-	46.5	66.4	-
11:45 PM - 11:50 PM	47.2	46.9	-	38.4	66.5	-8.1
11:50 PM - 11:55 PM	46.4	46.1	-	37.6	66.4	-8.8
11:55 PM - 12:00 AM	47.2	45.9	-	44.3	66.1	-1.8
12:00 AM - 12:05 AM	47.1	47.0	-	33.7	66.3	-12.6
12:05 AM - 12:10 AM	45.8	46.0	-	n/a	66.5	-
12:10 AM - 12:15 AM	46.7	46.4	-	47.8	66.4	-1.5
12:15 AM - 12:20 AM	46.2	47.3	-	n/a	66.3	-
12:20 AM - 12:25 AM	48.3	47.9	-	40.7	65.6	-4.9
12:25 AM - 12:30 AM	48.7	46.5	-	47.7	65.7	-2.0

Approved by   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

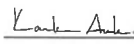
Lot ID: 24103109  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report Number: 3116340-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-21  
Parameter : เสียงรบกวน  
Location : บ้านคลองยาว (GPS 47P 0719792, 1516992)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710644

Page 2 of 3

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่ารวม
			กลางวัน	กลางคืน		
12:30 AM - 12:35 AM	48.1	47.7	-	40.5	45.8	-5.3
12:35 AM - 12:40 AM	46.8	49.1	-	n/a	46.2	-
12:40 AM - 12:45 AM	46.5	47.7	-	43.8	45.0	-1.2
12:45 AM - 12:50 AM	45.9	47.6	-	n/a	45.6	-
12:50 AM - 12:55 AM	47.0	49.3	-	n/a	46.5	-
12:55 AM - 01:00 AM	46.5	51.7	-	n/a	46.8	-
01:00 AM - 01:05 AM	46.4	49.2	-	n/a	47.8	-
01:05 AM - 01:10 AM	53.1	54.9	-	n/a	47.2	-
01:10 AM - 01:15 AM	50.4	51.8	-	n/a	47.6	-
01:15 AM - 01:20 AM	52.5	52.2	-	n/a	46.5	-
01:20 AM - 01:25 AM	53.8	53.4	-	n/a	48.0	-
01:25 AM - 01:30 AM	51.8	52.2	-	n/a	47.5	-
01:30 AM - 01:35 AM	50.9	54.5	-	n/a	48.3	-
01:35 AM - 01:40 AM	51.0	52.8	-	n/a	47.6	-
01:40 AM - 01:45 AM	49.7	54.5	-	n/a	46.9	-
01:45 AM - 01:50 AM	48.2	52.5	-	n/a	47.6	-
01:50 AM - 01:55 AM	48.4	55.1	-	n/a	46.2	-
01:55 AM - 02:00 AM	47.4	56.1	-	n/a	48.0	-
02:00 AM - 02:05 AM	49.0	52.6	-	n/a	48.2	-
02:05 AM - 02:10 AM	47.9	63.7	-	n/a	48.9	-
02:10 AM - 02:15 AM	48.3	59.9	-	n/a	52.1	-
02:15 AM - 02:20 AM	51.0	58.9	-	n/a	52.0	-
02:20 AM - 02:25 AM	48.5	64.6	-	n/a	52.1	-
02:25 AM - 02:30 AM	49.7	62.7	-	n/a	53.4	-
02:30 AM - 02:35 AM	50.1	69.6	-	n/a	52.7	-
02:35 AM - 02:40 AM	46.5	66.3	-	n/a	56.3	-
02:40 AM - 02:45 AM	47.6	63.4	-	n/a	54.4	-
02:45 AM - 02:50 AM	49.2	59.9	-	n/a	51.8	-
02:50 AM - 02:55 AM	47.4	60.9	-	n/a	52.7	-
02:55 AM - 03:00 AM	48.3	65.2	-	n/a	51.1	-
03:00 AM - 03:05 AM	46.4	63.8	-	n/a	50.9	-
03:05 AM - 03:10 AM	48.6	63.6	-	n/a	50.9	-
03:10 AM - 03:15 AM	46.5	63.1	-	n/a	53.3	-
03:15 AM - 03:20 AM	46.7	59.9	-	n/a	50.8	-
03:20 AM - 03:25 AM	49.1	54.1	-	n/a	53.1	-
03:25 AM - 03:30 AM	46.9	53.6	-	n/a	52.7	-
03:30 AM - 03:35 AM	47.0	59.5	-	n/a	52.1	-
03:35 AM - 03:40 AM	47.3	64.3	-	n/a	53.1	-
03:40 AM - 03:45 AM	47.1	55.6	-	n/a	47.3	-
03:45 AM - 03:50 AM	46.4	51.4	-	n/a	51.7	-

Approved by   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report Number: 3116341-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-22  
Parameter : เสียงรบกวน  
Location : บ้านคลองยาว (GPS 47P 0719792, 1516992)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710644

Page 3 of 3

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่ารวม
			กลางวัน	กลางคืน		
03:00 PM - 03:05 AM	48.0	54.3	-	n/a	47.4	-
03:05 AM - 04:00 AM	48.9	52.3	-	n/a	47.3	-
04:00 AM - 04:05 AM	48.5	54.4	-	n/a	48.3	-
04:05 AM - 04:10 AM	49.8	52.6	-	n/a	51.4	-
04:10 AM - 04:15 AM	48.7	53.4	-	n/a	47.4	-
04:15 AM - 04:20 AM	48.6	57.0	-	n/a	47.3	-
04:20 AM - 04:25 AM	53.9	58.5	-	n/a	48.6	-
04:25 AM - 04:30 AM	49.3	56.2	-	n/a	50.5	-
04:30 AM - 04:35 AM	46.7	58.1	-	n/a	54.5	-
04:35 AM - 04:40 AM	48.3	57.1	-	n/a	50.6	-
04:40 AM - 04:45 AM	49.2	55.7	-	n/a	51.4	-
04:45 AM - 04:50 AM	46.9	54.4	-	n/a	50.7	-
04:50 AM - 04:55 AM	46.0	55.7	-	n/a	51.0	-
04:55 AM - 05:00 AM	48.7	56.5	-	n/a	51.0	-
05:00 AM - 05:05 AM	48.1	54.8	-	n/a	51.1	-
05:05 AM - 05:10 AM	48.2	56.7	-	n/a	49.6	-
05:10 AM - 05:15 AM	48.7	57.7	-	n/a	50.8	-
05:15 AM - 05:20 AM	53.4	61.0	-	n/a	49.3	-
05:20 AM - 05:25 AM	50.8	62.0	-	n/a	46.9	-
05:25 AM - 05:30 AM	50.7	60.5	-	n/a	53.5	-
05:30 AM - 05:35 AM	55.5	54.7	-	50.8	54.2	-3.4
05:35 AM - 05:40 AM	53.4	54.2	-	n/a	52.8	-
05:40 AM - 05:45 AM	54.9	56.2	-	n/a	52.7	-
05:45 AM - 05:50 AM	59.1	57.9	-	55.9	51.4	4.5
05:50 AM - 05:55 AM	56.3	56.2	-	n/a	50.0	-1.0
05:55 AM - 06:00 AM	56.4	56.4	-	57.6	50.2	7.4
06:00 AM - 07:00 AM	59.7	60.0	n/a	-	50.2	-
07:00 AM - 08:00 AM	65.9	65.7	52.4	-	57.3	-4.9
08:00 AM - 09:00 AM	57.5	56.8	49.2	-	51.9	-2.7
09:00 AM - 10:00 AM	57.4	53.9	54.8	-	53.1	1.7
10:00 AM - 11:00 AM	56.7	62.2	n/a	-	55.3	-
11:00 AM - 12:00 PM	63.4	59.6	61.1	-	51.4	8.7

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. ข้อมูลเสียงรบกวนจากยานพาหนะ โดยใช้ค่าการวัดเสียงขณะมีการรบกวน ระดับเสียง 24 ชั่วโมง และระดับเสียงขณะมีการรบกวนค่าเฉลี่ยรายชั่วโมง ม. 2567  
หมายเหตุ  
1. ข้อมูลการตรวจวัดเสียงรบกวนครั้งนี้ เป็นการตรวจวัดเสียงรบกวนแบบต่อเนื่องในช่วงเวลาปกติของชุมชนบริเวณ ม. 2567  
2. ข้อมูลเสียงรบกวนจากยานพาหนะ โดยใช้ค่าการวัดเสียงขณะมีการรบกวนแบบต่อเนื่องในช่วงเวลาปกติของชุมชนบริเวณ ม. 2567  
3. ค่า: ค่าการตรวจวัดเสียงรบกวนแบบต่อเนื่องที่มีการรบกวนจากยานพาหนะในช่วงเวลาปกติของชุมชนบริเวณ ม. 2567  
4. ค่า: ค่าการตรวจวัดเสียงรบกวนแบบต่อเนื่องที่มีการรบกวนจากยานพาหนะในช่วงเวลาปกติของชุมชนบริเวณ ม. 2567

Approved by   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report Number: 3116341-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103109-22  
Parameter : เสียงรบกวน  
Location : บ้านคลองยาว (GPS 47P 0719792, 1516992)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00858525

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เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่ารวม
			กลางวัน	กลางคืน		
01:00 PM - 02:00 PM	55.3	44.7	-	44.7	46.1	-1.4
02:00 PM - 03:00 PM	62.6	61.8	n/a	-	45.0	-1.9
03:00 PM - 04:00 PM	62.1	61.8	-	n/a	43.9	-
04:00 PM - 05:00 PM	49.3	52.1	-	n/a	45.2	-
05:00 PM - 06:00 PM	52.1	50.1	-	n/a	47.8	-2.8
06:00 PM - 07:00 PM	53.3	48.5	-	n/a	45.9	-5.7
07:00 PM - 08:00 PM	53.5	46.4	-	n/a	44.5	-8.1
08:00 PM - 09:00 PM	55.2	54.6	-	n/a	45.5	-11.1
09:00 PM - 10:00 PM	57.9	52.5	-	n/a	43.3	-13.1
10:00 PM - 10:05 PM	58.5	49.7	-	60.9	43.5	-17.4
10:05 PM - 10:10 PM	57.2	46.4	-	60.4	43.1	-17.3
10:10 PM - 10:15 PM	57.9	45.5	-	60.9	43.2	-17.4
10:15 PM - 10:20 PM	57.2	51.3	-	60.2	43.2	-17.0
10:20 PM - 10:25 PM	58.6	53.0	-	58.4	43.8	-15.0
10:25 PM - 10:30 PM	52.4	52.4	-	56.7	43.6	-15.1
10:30 PM - 10:35 PM	56.6	52.1	-	57.7	43.3	-14.4
10:35 PM - 10:40 PM	56.5	49.4	-	58.6	42.4	-16.2
10:40 PM - 10:45 PM	56.9	49.9	-	59.6	42.5	-16.4
10:45 PM - 10:50 PM	59.1	45.0	-	61.9	42.3	-19.6
10:50 PM - 10:55 PM	56.5	43.7	-	59.3	42.1	-17.2
10:55 PM - 11:00 PM	56.4	44.1	-	59.1	42.5	-18.6
11:00 PM - 11:05 PM	57.6	44.4	-	60.4	42.5	-17.5
11:05 PM - 11:10 PM	58.4	44.6	-	61.2	42.2	-18.2
11:10 PM - 11:15 PM	58.1	44.6	-	60.9	42.5	-17.4
11:15 PM - 11:20 PM	58.8	44.7	-	61.6	42.6	-18.0
11:20 PM - 11:25 PM	59.1	44.8	-	61.9	42.7	-18.2
11:25 PM - 11:30 PM	59.7	45.1	-	62.6	44.0	-18.6
11:30 PM - 11:35 PM	59.5	44.6	-	62.3	44.2	-18.1
11:35 PM - 11:40 PM	61.3	46.3	-	62.0	44.4	-16.6
11:40 PM - 11:45 PM	59.2	44.9	-	62.0	44.1	-17.9
11:45 PM - 11:50 PM	59.2	45.1	-	62.0	43.8	-18.2
11:50 PM - 11:55 PM	60.7	47.1	-	62.5	44.0	-18.5
12:00 AM - 12:05 AM	51.6	49.5	-	62.3	44.6	-17.7
12:05 AM - 12:10 AM	60.0	47.7	-	62.7	44.8	-17.9
12:10 AM - 12:15 AM	60.2	48.1	-	62.9	45.0	-17.9
12:15 AM - 12:20 AM	60.7	49.7	-	62.3	45.4	-16.9
12:20 AM - 12:25 AM	61.1	49.5	-	62.8	45.3	-17.5
12:25 AM - 12:30 AM	59.9	49.0	-	62.5	45.5	-17.0
12:30 AM - 12:35 AM	59.4	48.5	-	62.0	45.4	-16.6
12:35 AM - 12:40 AM	60.5	49.5	-	62.5	45.6	-17.0



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116341-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103109-22  
Parameter : เสียงตามสาย  
Location : บ้านนาปลาอี (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Acoustic  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	ระดับเสียง (dB(A))		เสียงที่อนุญาต	ค่าระดับ
			กลางวัน	กลางคืน		
12:35 AM - 12:40 AM	58.7	49.2	-	61.2	45.1	16.1
12:40 AM - 12:45 AM	59.0	46.5	-	61.7	45.1	16.6
12:45 AM - 12:50 AM	59.2	46.6	-	62.0	45.3	16.7
12:50 AM - 12:55 AM	59.2	47.9	-	61.9	46.0	15.9
12:55 AM - 01:00 AM	59.1	47.1	-	61.8	45.7	16.1
01:00 AM - 01:05 AM	59.1	47.2	-	61.8	45.5	16.3
01:05 AM - 01:10 AM	58.9	47.1	-	61.6	45.6	16.0
01:10 AM - 01:15 AM	59.0	47.0	-	61.7	45.2	16.5
01:15 AM - 01:20 AM	59.2	46.9	-	62.0	45.7	16.3
01:20 AM - 01:25 AM	58.9	48.5	-	61.5	46.1	15.4
01:25 AM - 01:30 AM	58.6	47.3	-	61.3	45.8	15.5
01:30 AM - 01:35 AM	58.4	51.3	-	60.5	45.6	14.9
01:35 AM - 01:40 AM	58.4	46.0	-	61.1	45.0	16.1
01:40 AM - 01:45 AM	58.2	48.5	-	60.7	45.1	15.6
01:45 AM - 01:50 AM	57.6	46.3	-	60.3	45.1	15.2
01:50 AM - 01:55 AM	57.1	45.6	-	59.8	44.9	14.9
01:55 AM - 02:00 AM	56.5	45.2	-	59.2	44.6	14.6
02:00 AM - 02:05 AM	56.6	45.0	-	59.3	44.3	15.0
02:05 AM - 02:10 AM	56.4	45.8	-	59.0	44.0	15.0
02:10 AM - 02:15 AM	55.6	44.3	-	58.3	43.4	14.9
02:15 AM - 02:20 AM	55.0	45.3	-	57.5	43.8	13.7
02:20 AM - 02:25 AM	54.4	45.3	-	56.8	43.4	13.4
02:25 AM - 02:30 AM	53.9	44.3	-	56.4	43.1	13.3
02:30 AM - 02:35 AM	53.6	44.3	-	56.1	42.8	13.3
02:35 AM - 02:40 AM	53.3	44.0	-	55.8	42.0	13.8
02:40 AM - 02:45 AM	52.9	43.7	-	55.3	41.9	13.4
02:45 AM - 02:50 AM	52.7	43.7	-	55.1	41.6	13.5
02:50 AM - 02:55 AM	50.7	43.8	-	52.7	41.7	11.0
02:55 AM - 03:00 AM	48.2	43.6	-	49.4	40.6	8.8
03:00 AM - 03:05 AM	46.4	43.1	-	46.7	40.4	8.3
03:05 AM - 03:10 AM	46.0	46.1	-	46.5	40.5	6.6
03:10 AM - 03:15 AM	48.5	46.6	-	47.0	41.3	5.7
03:15 AM - 03:20 AM	48.5	46.7	-	47.1	41.9	-
03:20 AM - 03:25 AM	48.7	50.5	-	n/a	41.7	-
03:25 AM - 03:30 AM	51.9	49.1	-	52.6	40.9	11.7
03:30 AM - 03:35 AM	51.7	49.2	-	51.1	41.9	8.2
03:35 AM - 03:40 AM	51.7	46.1	-	51.3	41.1	12.2
03:40 AM - 03:45 AM	51.9	47.0	-	53.2	41.6	11.6
03:45 AM - 03:50 AM	51.9	47.7	-	52.8	42.3	10.5
03:50 AM - 03:55 AM	51.9	48.0	-	52.6	42.8	9.8

Approved by

Kanokorn Anis  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116341-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

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Sample No. : 24103109-22  
Parameter : เสียงตามสาย  
Location : บ้านนาปลาอี (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Acoustic  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	ระดับเสียง (dB(A))		เสียงที่อนุญาต	ค่าระดับ
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	51.5	50.3	-	48.3	43.6	4.7
04:00 AM - 04:05 AM	47.2	47.7	-	n/a	43.2	-
04:05 AM - 04:10 AM	47.3	48.4	-	n/a	42.8	-
04:10 AM - 04:15 AM	48.4	50.1	-	n/a	42.8	-
04:15 AM - 04:20 AM	49.0	58.9	-	n/a	43.8	-
04:20 AM - 04:25 AM	46.4	44.5	-	n/a	44.6	-
04:25 AM - 04:30 AM	48.2	55.5	-	n/a	43.9	-
04:30 AM - 04:35 AM	48.3	63.9	-	n/a	45.1	-
04:35 AM - 04:40 AM	48.3	57.1	-	n/a	45.8	-
04:40 AM - 04:45 AM	49.0	55.2	-	n/a	47.6	-
04:45 AM - 04:50 AM	47.9	55.0	-	n/a	49.4	-
04:50 AM - 04:55 AM	49.0	54.8	-	n/a	48.3	-
04:55 AM - 05:00 AM	48.8	52.8	-	n/a	49.1	-
05:00 AM - 05:05 AM	48.8	52.0	-	n/a	45.9	-
05:05 AM - 05:10 AM	49.6	53.2	-	n/a	46.4	-
05:10 AM - 05:15 AM	49.5	52.6	-	n/a	46.7	-
05:15 AM - 05:20 AM	48.8	52.3	-	n/a	46.1	-
05:20 AM - 05:25 AM	52.5	52.3	-	42.0	45.2	-3.2
05:25 AM - 05:30 AM	50.9	52.9	-	n/a	43.4	-
05:30 AM - 05:35 AM	49.7	51.5	-	n/a	45.7	-
05:35 AM - 05:40 AM	49.0	49.2	-	n/a	42.3	-
05:40 AM - 05:45 AM	49.8	51.4	-	n/a	44.8	-
05:45 AM - 05:50 AM	49.8	59.8	-	n/a	46.5	-
05:50 AM - 05:55 AM	52.5	54.6	-	n/a	46.2	-
05:55 AM - 06:00 AM	52.7	56.4	-	n/a	46.9	-
06:00 AM - 07:00 AM	57.6	71.5	n/a	-	50.9	17.6
07:00 AM - 08:00 AM	49.1	51.9	n/a	-	46.2	-
08:00 AM - 09:00 AM	48.3	50.4	n/a	-	43.4	-
09:00 AM - 10:00 AM	47.7	51.4	n/a	-	43.0	-
10:00 AM - 11:00 AM	59.3	64.5	n/a	-	54.4	-
11:00 AM - 12:00 PM	50.5	62.2	n/a	-	49.7	-
12:00 PM - 01:00 PM	59.1	55.2	56.8	-	47.0	9.8

Reference Method :

- In house method : STH 06-001 based on ISO 1996-1 : 2016
- Method of measurement : (ใช้วิธีการวัดเสียงตามสาย ระดับเสียงตามสาย 24 ชั่วโมง และระดับเสียงขณะไม่มีการรบกวนของเสียงตามสาย น. 2567)
- Method of measurement : (ใช้วิธีการวัดเสียงตามสาย ระดับเสียงตามสาย 24 ชั่วโมง และระดับเสียงขณะไม่มีการรบกวนของเสียงตามสาย น. 2567)

Remark :

- ระดับเสียงตามสายวัดได้ทั้งหมด 24 ชั่วโมง
- ระดับเสียงตามสายวัดได้ทั้งหมด 24 ชั่วโมง
- ระดับเสียงตามสายวัดได้ทั้งหมด 24 ชั่วโมง

Approved by

Kanokorn Anis  
Asst. General Manager

100/115/104 Phatthana Road, Phatthana Road, Khwaeng Phatthana Road, Khet Suan Luang, Bangkok 10250 Thailand Telp: +66 0 2760 3000 Fax: +66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116342-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103109-23  
Parameter : เสียงตามสาย  
Location : บ้านนาปลาอี (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Acoustic  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	ระดับเสียง (dB(A))		เสียงที่อนุญาต	ค่าระดับ
			กลางวัน	กลางคืน		
01:00 PM - 02:00 PM	56.8	54.1	-	46.8	7.3	-
02:00 PM - 03:00 PM	49.9	59.2	n/a	-	47.9	-
03:00 PM - 04:00 PM	61.6	60.9	-	51.1	24.8	-
04:00 PM - 05:00 PM	65.2	53.2	64.9	-	44.3	20.6
05:00 PM - 06:00 PM	57.2	50.1	56.3	-	46.7	9.6
06:00 PM - 07:00 PM	61.6	56.1	60.2	-	46.5	11.7
07:00 PM - 08:00 PM	61.1	52.3	60.5	-	51.3	13.6
08:00 PM - 09:00 PM	60.4	51.9	59.7	-	44.8	19.7
09:00 PM - 10:00 PM	65.9	60.9	64.2	-	57.9	6.3
10:00 PM - 10:05 PM	67.6	64.1	-	67.8	63.5	4.3
10:05 PM - 10:10 PM	67.3	67.8	-	67.3	61.4	6.4
10:10 PM - 10:15 PM	67.0	59.1	-	69.2	56.8	12.3
10:15 PM - 10:20 PM	67.4	62.9	-	69.9	54.2	15.7
10:20 PM - 10:25 PM	67.8	55.5	-	70.5	51.3	19.4
10:25 PM - 10:30 PM	68.3	53.0	-	71.2	49.4	21.8
10:30 PM - 10:35 PM	68.4	52.8	-	71.3	48.6	22.5
10:35 PM - 10:40 PM	68.6	46.6	-	71.5	48.1	22.7
10:40 PM - 10:45 PM	67.8	51.7	-	70.7	48.5	22.2
10:45 PM - 10:50 PM	67.6	53.9	-	70.4	48.2	22.2
10:50 PM - 10:55 PM	68.1	50.9	-	71.0	48.0	23.0
10:55 PM - 11:00 PM	66.7	46.7	-	69.6	42.6	22.0
11:00 PM - 11:05 PM	66.4	49.1	-	69.3	47.4	21.9
11:05 PM - 11:10 PM	66.3	49.2	-	69.2	46.9	22.3
11:10 PM - 11:15 PM	67.4	47.6	-	70.4	46.7	23.7
11:15 PM - 11:20 PM	67.8	48.9	-	70.7	46.7	24.0
11:20 PM - 11:25 PM	67.2	49.7	-	70.1	47.6	22.5
11:25 PM - 11:30 PM	67.6	50.7	-	70.5	48.7	21.7
11:30 PM - 11:35 PM	68.0	51.2	-	70.9	49.7	21.2
11:35 PM - 11:40 PM	67.9	53.8	-	70.7	53.0	21.7
11:40 PM - 11:45 PM	68.2	54.3	-	70.3	53.3	22.7
11:45 PM - 11:50 PM	68.6	54.0	-	69.4	53.2	16.2
11:50 PM - 11:55 PM	68.6	52.9	-	71.5	52.3	19.2
11:55 PM - 12:00 AM	70.1	52.6	-	73.0	51.8	21.2
12:00 AM - 12:05 AM	70.3	52.9	-	73.2	51.2	21.2
12:05 AM - 12:10 AM	70.5	52.5	-	73.4	51.5	21.9
12:10 AM - 12:15 AM	68.9	52.0	-	71.8	51.3	20.5
12:15 AM - 12:20 AM	69.2	51.8	-	71.1	50.9	20.2
12:20 AM - 12:25 AM	70.2	51.3	-	71.1	50.7	22.4
12:25 AM - 12:30 AM	68.5	52.5	-	71.4	50.8	20.6
12:30 AM - 12:35 AM	68.2	51.4	-	71.1	50.6	20.5

Approved by

Kanokorn Anis  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116342-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103109-23  
Parameter : เสียงตามสาย  
Location : บ้านนาปลาอี (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Acoustic  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	ระดับเสียง (dB(A))		เสียงที่อนุญาต	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
12:35 AM - 12:40 AM	69.1	51.2	-	72.0	50.5	21.5
12:40 AM - 12:45 AM	70.2	51.2	-	72.1	50.5	22.6
12:45 AM - 12:50 AM	69.5	51.9	-	72.4	50.5	21.8
12:50 AM - 12:55 AM	66.7	51.2	-	69.6	50.6	19.0
12:55 AM - 01:00 AM	65.8	51.8	-	68.6	50.9	17.7
01:00 AM - 01:05 AM	65.6	51.9	-	68.4	50.8	17.4
01:05 AM - 01:10 AM	64.9	51.3	-	69.8	50.8	19.0
01:10 AM - 01:15 AM	66.7	51.7	-	68.6	51.0	18.6
01:15 AM - 01:20 AM	66.2	51.4	-	69.1	50.8	18.3
01:20 AM - 01:25 AM	65.3	51.5	-	68.1	50.7	17.4
01:25 AM - 01:30 AM	66.6	51.3	-	69.5	50.7	19.8
01:30 AM - 01:35 AM	66.0	51.9	-	68.8	50.7	18.1
01:35 AM - 01:40 AM	66.4	51.5	-	69.3	50.4	18.7
01:40 AM - 01:45 AM	67.3	51.1	-	70.2	50.3	19.9
01:45 AM - 01:50 AM	67.2	52.1	-	69.8	50.4	14.4
01:50 AM - 01:55 AM	63.6	51.1	-	66.3	49.8	16.5
01:55 AM - 02:00 AM	65.3	51.7	-	68.1	50.1	18.0
02:00 AM - 02:05 AM	63.0	52.1	-	63.6	50.4	14.8
02:05 AM - 02:10 AM	62.5	52.9	-	65.0	50.8	14.2
02:10 AM - 02:15 AM	62.4	53.0	-	64.9	51.6	13.3
02:15 AM - 02:20 AM	61.9	54.1	-	64.8	53.0	9.9
02:20 AM - 02:25 AM	61.4	54.8	-	61.2	53.3	8.5
02:25 AM - 02:30 AM	61.5	54.1	-	63.6	51.9	11.7
02:30 AM - 02:35 AM	61.3	55.6	-	60.9	53.1	9.8
02:35 AM - 02:40 AM	60.9	55.9	-	61.2	53.6	8.4
02:40 AM - 02:45 AM	60.3	56.9	-	60.6	55.0	5.6
02:45 AM - 02:50 AM	59.8	57.4	-	59.1	55.4	3.7
02:50 AM - 02:55 AM	60.2	56.8	-	59.5	55.2	5.3
02:55 AM - 03:00 AM	59.7	57.2	-	59.1	54.8	3.1
03:00 AM - 03:05 AM	59.2	57.7	-	56.9	55.7	1.2
03:05 AM - 03:10 AM	59.1	58.2	-	54.8	54.9	-0.1
03:10 AM - 03:15 AM	58.4	57.9	-	51.8	54.2	-2.4
03:15 AM - 03:20 AM	58.6	59.1	-	n/a	56.3	-
03:20 AM - 03:25 AM	58.1	60.0	-	n/a	57.2	-
03:25 AM - 03:30 AM	57.3	59.2	-	n/a	56.9	-
03:30 AM - 03:35 AM	57.9	60.9	-	n/a	59.0	-
03:35 AM - 03:40 AM	58.3	59.7	-	n/a	58.0	-
03:40 AM - 03:45 AM	57.4	59.4	-	n/a	56.6	-
03:45 AM - 03:50 AM	57.0	59.6	-	n/a	57.4	-
03:50 AM - 03:55 AM	56.8	59.8	-	n/a	57.1	-





## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116343-1

Page 3 of 3

Sample No. : 24103109-23  
Parameter : เสียงรบกวน  
Location : บ้านบางปลาหมอ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Auti Aonadim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงที่ถูกรบกวน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	55.7	59.1	n/a	n/a	56.9	-
04:00 AM - 04:05 AM	54.8	59.5	-	n/a	57.6	-
04:05 AM - 04:10 AM	53.8	59.6	-	n/a	58.2	-
04:10 AM - 04:15 AM	52.8	58.8	-	n/a	57.4	-
04:15 AM - 04:20 AM	51.8	57.9	-	n/a	55.6	-
04:20 AM - 04:25 AM	49.3	59.3	-	n/a	54.4	-
04:25 AM - 04:30 AM	48.8	53.1	-	n/a	51.2	-
04:30 AM - 04:35 AM	49.5	52.0	-	n/a	47.8	-
04:35 AM - 04:40 AM	48.2	51.2	-	n/a	47.3	-
04:40 AM - 04:45 AM	48.4	53.9	-	n/a	47.9	-
04:45 AM - 04:50 AM	48.1	54.9	-	n/a	49.3	-
04:50 AM - 04:55 AM	49.8	54.2	-	n/a	49.1	-
04:55 AM - 05:00 AM	49.6	51.8	-	n/a	49.7	-
05:00 AM - 05:05 AM	48.8	50.9	-	n/a	47.3	-
05:05 AM - 05:10 AM	59.9	50.6	-	n/a	47.5	14.9
05:10 AM - 05:15 AM	48.0	52.3	-	n/a	48.4	-
05:15 AM - 05:20 AM	49.1	52.2	-	n/a	49.2	-
05:20 AM - 05:25 AM	48.3	54.5	-	n/a	49.1	-
05:25 AM - 05:30 AM	49.3	55.6	-	n/a	49.1	-
05:30 AM - 05:35 AM	50.5	53.7	-	n/a	48.7	-
05:35 AM - 05:40 AM	50.7	59.3	-	n/a	49.1	-
05:40 AM - 05:45 AM	49.9	57.9	-	n/a	49.9	-
05:45 AM - 05:50 AM	48.8	54.5	-	n/a	48.5	-
05:50 AM - 05:55 AM	48.3	57.3	-	n/a	49.0	-
05:55 AM - 06:00 AM	50.3	58.6	-	n/a	49.3	-
06:00 AM - 06:05 AM	57.4	65.7	n/a	-	50.0	-
06:05 AM - 06:10 AM	49.1	58.6	n/a	-	50.9	-
06:10 AM - 06:15 AM	56.1	56.1	n/a	-	47.4	-
06:15 AM - 06:20 AM	50.7	53.7	n/a	-	48.9	-
06:20 AM - 06:25 AM	66.3	61.9	64.3	-	52.6	11.7
06:25 AM - 06:30 AM	61.9	58.6	59.2	-	51.3	7.9
06:30 PM - 01:00 PM	52.9	58.2	n/a	-	49.6	-

- Reference Method : 1. In-house method : STM 06-01 based on ISO 1996-1 : 2016  
2. มาตรการลดผลกระทบทางเสียง : มาตรการลดผลกระทบทางเสียงระดับเสียง 24 ชั่วโมง และระดับเสียงขณะมีการรบกวนค่าการรบกวน น.ท. 2567
- หมายเหตุ : 1. ข้อมูลการรบกวนทางเสียง (เสียงจากแหล่งกำเนิดและการรบกวน) เป็นการรบกวนทางเสียงที่วัดได้จากการวัดค่าการรบกวน น.ท. 2548  
2. ข้อมูลการรบกวนทางเสียง (เสียงจากแหล่งกำเนิดและการรบกวน) เป็นการรบกวนทางเสียงที่วัดได้จากการวัดค่าการรบกวน น.ท. 2561
- Remark : 1. ข้อมูลการรบกวนทางเสียง (เสียงจากแหล่งกำเนิดและการรบกวน) เป็นการรบกวนทางเสียงที่วัดได้จากการวัดค่าการรบกวน น.ท. 2567  
2. ข้อมูลการรบกวนทางเสียง (เสียงจากแหล่งกำเนิดและการรบกวน) เป็นการรบกวนทางเสียงที่วัดได้จากการวัดค่าการรบกวน น.ท. 2548  
3. n/a : ไม่สามารถทำการวัดค่าการรบกวนทางเสียงได้เนื่องจากเสียงรบกวนจากแหล่งกำเนิดเสียงรบกวนค่าการรบกวน น.ท. 2561

The above results are valid only for the stated conditions and are not to be used for any other purpose without the written consent of the Laboratory. A full copy of the report is available upon request.

Approved by

Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116343-1

Page 1 of 3

Sample No. : 24103109-24  
Parameter : เสียงรบกวน  
Location : บ้านบางปลาหมอ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Auti Aonadim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงที่ถูกรบกวน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
01:00 PM - 02:00 PM	58.4	58.8	n/a	-	50.4	-
02:00 PM - 03:00 PM	48.8	58.0	n/a	-	47.5	-
03:00 PM - 04:00 PM	46.9	49.6	n/a	-	42.0	-
04:00 PM - 05:00 PM	47.2	54.2	n/a	-	41.8	-
05:00 PM - 06:00 PM	54.5	51.0	51.9	-	48.1	3.8
06:00 PM - 07:00 PM	61.7	52.1	61.2	-	49.6	11.6
07:00 PM - 08:00 PM	65.5	56.4	64.9	-	51.5	12.4
08:00 PM - 09:00 PM	66.5	52.2	66.3	-	51.2	15.1
09:00 PM - 10:00 PM	68.4	52.3	68.3	-	51.5	16.8
10:00 PM - 10:05 PM	65.8	51.5	-	68.6	50.1	18.5
10:05 PM - 10:10 PM	65.8	50.8	-	68.7	50.1	18.6
10:10 PM - 10:15 PM	66.2	51.3	-	69.1	49.9	19.2
10:15 PM - 10:20 PM	65.9	51.9	-	68.7	50.1	18.6
10:20 PM - 10:25 PM	64.5	51.2	-	67.3	50.5	16.8
10:25 PM - 10:30 PM	66.8	52.0	-	69.2	51.2	18.5
10:30 PM - 10:35 PM	66.9	52.0	-	69.8	51.3	18.5
10:35 PM - 10:40 PM	67.1	52.1	-	70.0	51.3	18.7
10:40 PM - 10:45 PM	65.7	52.0	-	68.5	51.1	17.4
10:45 PM - 10:50 PM	66.0	51.7	-	68.8	51.0	17.8
10:50 PM - 10:55 PM	64.5	51.7	-	67.3	50.7	16.6
10:55 PM - 11:00 PM	65.4	51.6	-	68.2	50.6	17.6
11:00 PM - 11:05 PM	64.0	51.5	-	66.7	50.6	16.1
11:05 PM - 11:10 PM	62.9	51.0	-	65.6	50.1	15.5
11:10 PM - 11:15 PM	62.0	50.9	-	64.6	49.7	14.9
11:15 PM - 11:20 PM	61.9	50.6	-	64.6	49.7	14.9
11:20 PM - 11:25 PM	62.1	50.5	-	64.8	49.9	15.9
11:25 PM - 11:30 PM	62.2	50.2	-	64.9	49.3	15.6
11:30 PM - 11:35 PM	62.2	49.7	-	64.5	49.1	15.8
11:35 PM - 11:40 PM	61.7	49.7	-	64.4	49.0	15.4
11:40 PM - 11:45 PM	61.0	49.8	-	63.7	49.2	14.5
11:45 PM - 11:50 PM	60.7	51.6	-	63.1	48.9	14.2
11:50 PM - 11:55 PM	60.0	49.5	-	62.4	48.8	14.2
11:55 PM - 12:00 AM	58.9	49.6	-	61.4	48.8	12.6
12:00 AM - 12:05 AM	58.9	49.9	-	61.3	48.9	12.4
12:05 AM - 12:10 AM	58.4	50.0	-	61.2	48.9	12.9
12:10 AM - 12:15 AM	58.8	50.0	-	61.2	48.9	12.3
12:15 AM - 12:20 AM	59.0	50.0	-	61.3	49.4	11.9
12:20 AM - 12:25 AM	59.3	50.1	-	61.5	49.1	12.4
12:25 AM - 12:30 AM	58.0	50.8	-	60.1	49.7	10.4
12:30 AM - 12:35 AM	58.9	50.2	-	61.3	49.5	11.8

The above results are valid only for the stated conditions and are not to be used for any other purpose without the written consent of the Laboratory. A full copy of the report is available upon request.

Approved by

Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116343-1

Page 2 of 3

Sample No. : 24103109-24  
Parameter : เสียงรบกวน  
Location : บ้านบางปลาหมอ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Auti Aonadim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงที่ถูกรบกวน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
12:35 AM - 12:40 AM	58.1	50.2	-	60.3	49.5	10.8
12:40 AM - 12:45 AM	58.1	50.8	-	60.1	50.3	-
12:45 AM - 12:50 AM	57.8	50.8	-	59.8	50.0	9.8
12:50 AM - 12:55 AM	57.1	50.8	-	59.9	49.9	9.0
12:55 AM - 01:00 AM	57.3	51.0	-	59.7	49.8	8.8
01:00 AM - 01:05 AM	57.0	50.8	-	59.8	50.0	8.8
01:05 AM - 01:10 AM	56.7	51.6	-	59.1	50.3	7.8
01:10 AM - 01:15 AM	56.7	51.0	-	58.5	50.0	8.3
01:15 AM - 01:20 AM	57.0	51.6	-	58.5	50.0	8.5
01:20 AM - 01:25 AM	56.9	51.4	-	58.5	50.3	8.2
01:25 AM - 01:30 AM	57.6	51.8	-	58.5	50.6	8.7
01:30 AM - 01:35 AM	57.8	51.9	-	58.5	50.6	8.8
01:35 AM - 01:40 AM	57.6	51.8	-	59.3	50.8	8.5
01:40 AM - 01:45 AM	57.1	52.0	-	59.5	50.6	7.9
01:45 AM - 01:50 AM	57.1	51.7	-	58.6	50.6	8.0
01:50 AM - 01:55 AM	56.7	53.4	-	57.0	51.7	5.3
01:55 AM - 02:00 AM	56.0	53.2	-	55.8	51.6	4.2
02:00 AM - 02:05 AM	55.9	53.7	-	54.9	52.4	2.5
02:05 AM - 02:10 AM	55.9	53.9	-	52.3	52.8	-0.5
02:10 AM - 02:15 AM	55.5	53.9	-	53.4	52.7	0.7
02:15 AM - 02:20 AM	55.7	53.5	-	54.7	52.1	2.6
02:20 AM - 02:25 AM	55.3	53.9	-	52.7	52.3	0.4
02:25 AM - 02:30 AM	55.0	51.7	-	55.3	50.1	5.2
02:30 AM - 02:35 AM	54.6	52.5	-	53.4	50.6	2.8
02:35 AM - 02:40 AM	54.4	54.5	-	50.1	51.6	-1.5
02:40 AM - 02:45 AM	54.9	54.3	-	48.0	52.4	-3.4
02:45 AM - 02:50 AM	54.7	53.8	-	50.4	52.0	-1.6
02:50 AM - 02:55 AM	54.2	53.1	-	50.7	50.4	0.3
02:55 AM - 03:00 AM	54.3	54.3	-	51.3	52.7	-
03:00 AM - 03:05 AM	53.0	54.6	-	n/a	52.6	-
03:05 AM - 03:10 AM	52.6	54.5	-	n/a	51.2	-
03:10 AM - 03:15 AM	52.3	53.2	-	n/a	52.3	-
03:15 AM - 03:20 AM	52.3	56.2	-	n/a	54.0	-
03:20 AM - 03:25 AM	52.4	56.3	-	n/a	54.0	-
03:25 AM - 03:30 AM	52.7	56.9	-	n/a	54.4	-
03:30 AM - 03:35 AM	52.3	54.5	-	n/a	52.1	-
03:35 AM - 03:40 AM	52.0	53.5	-	n/a	50.7	-
03:40 AM - 03:45 AM	51.8	54.3	-	n/a	53.1	-
03:45 AM - 03:50 AM	51.7	54.4	-	n/a	52.4	-
03:50 AM - 03:55 AM	51.2	54.4	-	n/a	52.9	-

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Approved by

Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116343-1

Page 3 of 3

Sample No. : 24103109-24  
Parameter : เสียงรบกวน  
Location : บ้านบางปลาหมอ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Auti Aonadim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงที่ถูกรบกวน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	51.4	54.4	-	n/a	52.6	-
04:00 AM - 04:05 AM	50.1	53.0	-	n/a	51.7	-
04:05 AM - 04:10 AM	49.4	53.5	-	n/a	51.0	-
04:10 AM - 04:15 AM	49.2	52.6	-	n/a	49.7	-
04:15 AM - 04:20 AM	49.5	52.2	-	n/a	49.1	-
04:20 AM - 04:25 AM	48.7	61.0	-	n/a	48.0	-
04:25 AM - 04:30 AM	47.5	60.1	-	n/a	47.0	-
04:30 AM - 04:35 AM	50.4	51.4	-	n/a	47.2	-
04:35 AM - 04:40 AM	47.8	55.7	-	n/a	47.5	-
04:40 AM - 04:45 AM	51.1	55.2	-	n/a	47.4	-
04:45 AM - 04:50 AM	47.8	54.0	-	n/a	49.2	-
04:50 AM - 04:55 AM	47.9	53.0	-	n/a	49.3	-
04:55 AM - 05:00 AM	46.1	53.5	-	n/a	50.3	-
05:00 AM - 05:05 AM	46.5	51.7	-	n/a	46.2	-
05:05 AM - 05:10 AM	46.0	51.4	-	n/a	47.7	-
05:10 AM - 05:15 AM	47.9	50.5	-	n/a	46.9	-
05:15 AM - 05:20 AM	49.1	51.3	-	n/a	47.0	-
05:20 AM - 05:25 AM	52.7	52.0	-	47.4	46.8	0.6
05:25 AM - 05:30 AM	46.5	52.7	-	n/a	47.0	-
05:30 AM - 05:35 AM	47.8	53.8	-	n/a	47.0	-
05:35 AM - 05:40 AM	47.6	51.5	-	n/a	46.6	-
05:40 AM - 05:45 AM	49.4	53.7	-	n/a	47.2	-
05:45 AM - 05:50 AM	47.9	51.8	-	n/a	47.6	-
05:50 AM - 05:55 AM	49.8	56.6	-	n/a	49.1	-
05:55 AM - 06:00 AM	48.6	55.9	-	n/a	48.8	-
06:00 AM - 07:00 AM	59.1	n/a	n/a	n/a	58.1	-
07:00 AM - 08:00 AM	51.8	52.2	n/a	n/a	47.2	-
08:00 AM - 09:00 AM	58.5	50.5	n/a	n/a	45.1	-
09:00 AM - 10:00 AM	60.7	64.1	59.5	-	47.0	-
10:00 AM - 11:00 AM	66.0	64.4	60.9	-	53.0	5.9
11:00 AM - 12:00 PM	65.5	63.5	63.5	-	52.7	10.8
12:00 PM - 01:00 PM	61.6	58.0	59.1	-	50.9	61.2
						≤ 10

Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016

2. In-house method : เสียงจากอาคาร หรือ มีการทำการศึกษาผลกระทบจาก เสียงต่อเนื่อง 24 ชั่วโมง ผลการประเมินเสียงจากอาคารพักอาศัย ผลการประเมินจากเสียงจากอาคารพักอาศัย

หมายเหตุ :

1. ปัจจัยการรบกวนจากภายนอก (คือ ส่วนค่าการรบกวนจากภายนอกที่ประเมินผลโดยการทำการสุ่มการสุ่มจาก พ.ศ. 2568

2. ปัจจัยการรบกวนจากภายใน (คือ ส่วนค่าการรบกวนจากภายในที่ประเมินผลโดยการสุ่มการสุ่มจาก พ.ศ. 256)



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000  
P/O : 410604866  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116344-1

Sample No. 24103109-25  
Parameter เสียงรบกวน  
Location บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Acoustic 00838525  
Sound Level Meter

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นหลัง	ค่ารวม
			กลางวัน	กลางคืน		
01:00 PM - 02:00 PM	64.1	60.4	61.7	-	50.4	11.3
02:00 PM - 03:00 PM	47.9	57.8	n/a	-	49.4	1.5
03:00 PM - 04:00 PM	47.1	53.8	n/a	-	43.2	-
04:00 PM - 05:00 PM	52.3	51.5	44.6	-	44.7	-0.1
05:00 PM - 06:00 PM	55.3	51.2	53.2	-	48.9	-4.3
06:00 PM - 07:00 PM	57.0	51.7	55.5	-	50.2	-5.3
07:00 PM - 08:00 PM	56.0	54.4	50.9	-	49.1	1.8
08:00 PM - 09:00 PM	72.7	66.2	71.6	-	63.2	8.4
09:00 PM - 10:00 PM	46.0	63.7	62.1	-	60.6	1.5
10:00 PM - 10:55 PM	59.1	56.0	-	56.0	55.1	1.8
10:55 PM - 11:00 PM	57.5	55.9	-	55.4	54.7	0.7
11:00 PM - 11:05 PM	57.1	56.7	-	49.5	55.0	-5.3
11:05 PM - 11:10 PM	56.7	56.2	-	52.4	54.8	-2.4
11:10 PM - 11:15 PM	56.7	56.1	-	50.8	50.1	-4.2
11:15 PM - 11:20 PM	56.4	56.6	-	n/a	55.2	-
11:20 PM - 11:25 PM	56.2	55.8	-	48.6	54.7	-6.1
11:25 PM - 11:30 PM	56.5	55.5	-	52.6	54.6	-2.0
11:30 PM - 11:35 PM	56.7	56.2	-	50.1	54.8	-4.7
11:35 PM - 11:40 PM	56.1	56.7	-	n/a	51.5	-
11:40 PM - 11:45 PM	55.7	55.5	-	45.2	54.3	-9.1
11:45 PM - 11:50 PM	55.7	54.7	-	51.8	53.6	-1.8
11:50 PM - 11:55 PM	54.8	55.1	-	n/a	53.8	-
11:55 PM - 12:00 PM	55.2	54.1	-	51.7	50.9	-1.2
12:00 PM - 12:05 PM	54.8	54.2	-	48.9	53.2	-4.3
12:05 PM - 12:10 PM	55.0	54.3	-	49.7	52.6	-2.9
12:10 PM - 12:15 PM	54.1	54.3	-	n/a	51.0	-
12:15 PM - 12:20 PM	54.2	53.0	-	51.0	51.9	-0.9
12:20 PM - 12:25 PM	53.6	54.0	-	n/a	52.2	-
12:25 PM - 12:30 PM	53.0	52.2	-	48.3	50.4	-2.1
12:30 PM - 12:35 PM	53.5	51.6	-	52.0	50.4	1.6
12:35 PM - 12:40 PM	56.1	52.5	-	56.6	50.7	-5.9
12:40 PM - 12:45 PM	53.6	52.4	-	50.4	51.1	-0.7
12:45 PM - 12:50 PM	53.1	53.2	-	n/a	51.6	-
12:50 AM - 12:55 AM	53.3	53.3	-	n/a	50.5	-
12:55 AM - 1:00 AM	54.1	50.8	-	54.4	48.8	5.6
1:00 AM - 1:05 AM	54.9	51.4	-	47.3	50.3	-1.0
1:05 AM - 1:10 AM	54.6	50.4	-	49.9	50.6	-0.7
1:10 AM - 1:15 AM	55.4	53.9	-	53.1	50.6	2.5
1:15 AM - 1:20 AM	56.4	54.1	-	55.5	51.7	3.8
1:20 AM - 1:25 AM	57.1	55.7	-	54.5	53.1	1.4

Approved by   
Kanokkom Anek  
Asst. General Manager

Address: 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | TEL: +66 0 2760 3000 | FAX: +66 0 2760 3197



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000  
P/O : 410604866  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116344-1

Sample No. 24103109-25  
Parameter เสียงรบกวน  
Location บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Acoustic 00838525  
Sound Level Meter

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นหลัง	ค่ารวม
			กลางวัน	กลางคืน		
12:35 AM - 12:40 AM	58.4	56.2	-	57.4	53.8	3.6
12:40 AM - 12:45 AM	60.7	58.2	-	60.1	56.4	3.7
12:45 AM - 12:50 AM	60.2	59.6	-	54.3	58.4	-4.3
12:50 AM - 12:55 AM	60.7	60.4	-	55.9	59.3	-7.4
12:55 AM - 01:00 AM	61.4	61.1	-	53.5	60.2	-7.6
01:00 AM - 01:05 AM	61.4	62.6	-	n/a	61.0	-
01:05 AM - 01:10 AM	61.7	62.2	-	n/a	61.7	-
01:10 AM - 01:15 AM	61.7	62.8	-	n/a	61.8	-
01:15 AM - 01:20 AM	61.5	63.1	-	n/a	62.4	-
01:20 AM - 01:25 AM	61.3	63.3	-	n/a	62.5	-
01:25 AM - 01:30 AM	61.0	63.7	-	n/a	62.8	-
01:30 AM - 01:35 AM	61.4	63.2	-	n/a	63.2	-
01:35 AM - 01:40 AM	61.2	63.9	-	n/a	63.1	-
01:40 AM - 01:45 AM	61.2	64.5	-	n/a	63.4	-
01:45 AM - 01:50 AM	61.9	64.8	-	n/a	63.5	-
01:50 AM - 01:55 AM	61.7	65.6	-	n/a	63.9	-
01:55 AM - 02:00 AM	61.6	65.7	-	n/a	64.4	-
02:00 AM - 02:05 AM	61.5	65.8	-	n/a	64.7	-
02:05 AM - 02:10 AM	61.8	65.6	-	n/a	64.6	-
02:10 AM - 02:15 AM	61.9	65.9	-	n/a	65.0	-
02:15 AM - 02:20 AM	61.8	66.1	-	n/a	65.2	-
02:20 AM - 02:25 AM	61.9	66.2	-	n/a	65.3	-
02:25 AM - 02:30 AM	61.9	66.0	-	n/a	64.8	-
02:30 AM - 02:35 AM	61.9	66.1	-	n/a	65.0	-
02:35 AM - 02:40 AM	61.7	65.9	-	n/a	64.9	-
02:40 AM - 02:45 AM	61.7	65.7	-	n/a	64.8	-
02:45 AM - 02:50 AM	61.5	65.6	-	n/a	64.6	-
02:50 AM - 02:55 AM	61.7	65.7	-	n/a	64.3	-
02:55 AM - 03:00 AM	61.7	64.3	-	n/a	63.2	-
03:00 AM - 03:05 AM	61.7	65.1	-	n/a	63.9	-
03:05 AM - 03:10 AM	61.5	65.0	-	n/a	63.9	-
03:10 AM - 03:15 AM	61.4	64.8	-	n/a	63.7	-
03:15 AM - 03:20 AM	61.5	64.5	-	n/a	63.6	-
03:20 AM - 03:25 AM	61.6	65.0	-	n/a	63.8	-
03:25 AM - 03:30 AM	61.3	65.1	-	n/a	64.0	-
03:30 AM - 03:35 AM	61.2	64.2	-	n/a	63.4	-
03:35 AM - 03:40 AM	60.9	64.2	-	n/a	63.2	-
03:40 AM - 03:45 AM	60.8	63.5	-	n/a	62.5	-
03:45 AM - 03:50 AM	60.5	63.7	-	n/a	62.4	-
03:50 AM - 03:55 AM	60.4	63.5	-	n/a	62.5	-

Approved by   
Kanokkom Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000  
P/O : 410604866  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116344-1

Sample No. 24103109-25  
Parameter เสียงรบกวน  
Location บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Acoustic 00838525  
Sound Level Meter

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นหลัง	ค่ารวม
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	60.1	63.2	-	62.0	60.9	-
04:00 AM - 04:05 AM	59.5	63.0	-	n/a	61.9	-
04:05 AM - 04:10 AM	62.0	62.0	-	n/a	60.9	-
04:10 AM - 04:15 AM	59.1	61.7	-	n/a	60.6	-
04:15 AM - 04:20 AM	57.4	60.8	-	n/a	59.3	-
04:20 AM - 04:25 AM	55.6	59.8	-	n/a	58.5	-
04:25 AM - 04:30 AM	51.4	62.4	-	n/a	57.0	-
04:30 AM - 04:35 AM	51.1	54.3	-	n/a	52.0	-
04:35 AM - 04:40 AM	50.0	53.0	-	n/a	50.8	-
04:40 AM - 04:45 AM	47.9	54.2	-	n/a	51.0	-
04:45 AM - 04:50 AM	49.2	53.2	-	n/a	49.8	-
04:50 AM - 04:55 AM	50.2	54.5	-	n/a	49.7	-
04:55 AM - 05:00 AM	48.8	54.4	-	n/a	50.3	-
05:00 AM - 05:05 AM	54.9	52.8	-	53.7	49.5	4.2
05:05 AM - 05:10 AM	49.8	54.5	-	n/a	48.7	-
05:10 AM - 05:15 AM	53.7	54.0	-	n/a	47.9	-
05:15 AM - 05:20 AM	50.0	55.0	-	n/a	49.0	-
05:20 AM - 05:25 AM	47.3	52.0	-	n/a	47.9	-
05:25 AM - 05:30 AM	46.7	52.0	-	n/a	46.1	-
05:30 AM - 05:35 AM	46.6	54.1	-	n/a	46.2	-
05:35 AM - 05:40 AM	46.5	51.5	-	n/a	44.9	-
05:40 AM - 05:45 AM	48.4	52.8	-	n/a	45.8	-
05:45 AM - 05:50 AM	50.4	53.5	-	n/a	46.5	-
05:50 AM - 05:55 AM	46.9	53.1	-	n/a	46.1	-
05:55 AM - 06:00 AM	51.5	50.5	-	47.6	46.3	1.3
06:00 AM - 07:00 AM	49.8	54.0	n/a	-	45.7	-
07:00 AM - 08:00 AM	52.2	54.6	n/a	-	45.8	-
08:00 AM - 09:00 AM	61.0	55.2	-	44.4	55.2	-
09:00 AM - 10:00 AM	61.0	50.9	-	42.2	56.0	-
10:00 AM - 11:00 AM	46.8	52.3	n/a	-	41.6	-
11:00 AM - 12:00 PM	57.0	50.0	-	43.8	52.1	-
12:00 PM - 01:00 PM	61.0	50.5	-	60.6	55.5	-

Reference Method : 1. In-house method : STM 06-001 based on ISO 1996-1:2016  
2. ประกาศกระทรวงมหาดไทย เรื่อง หลักเกณฑ์และวิธีการประเมินผลกระทบสิ่งแวดล้อม พ.ศ. 2567  
หมายเหตุ : 1. ข้อมูลเสียงรบกวนจากแหล่งกำเนิดเสียงตามใบแจ้งผลกระทบสิ่งแวดล้อมฉบับที่ 13-14 ตามแบบ 2567  
2. ข้อมูลเสียงรบกวนจากแหล่งกำเนิดเสียงตามใบแจ้งผลกระทบสิ่งแวดล้อมฉบับที่ 13-14 ตามแบบ 2567  
3. n/a: ไม่สามารถคำนวณเสียงรบกวนจากการจราจรตามหลักเกณฑ์และวิธีการประเมินผลกระทบสิ่งแวดล้อมฉบับที่ 13-14 ตามแบบ 2567

Approved by   
Kanokkom Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000  
P/O : 410604866  
Project Name : Monitoring EIA  
Project Location : GNKK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116344-1

Sample No. 24103109-25  
Parameter เสียงรบกวน  
Location บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Acoustic 00838525  
Sound Level Meter

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวนในกิจกรรม	เสียงรบกวนจากการจราจร		เสียงพื้นหลัง	ค่ารวมการจราจร
			กลางวัน	กลางคืน		
01:00 PM - 02:00 PM	60.9	50.2	60.5	-	44.6	15.9
02:00 PM - 03:00 PM	62.3	53.4	61.7	-	44.0	17.7
03:00 PM - 04:00 PM	54.8	53.1	54.8	-	43.7	15.1
04:00 PM - 05:00 PM	56.9	53.3	51.8	-	50.5	1.3
05:00 PM - 06:00 PM	54.4	53.1	46.5	-	51.0	-2.5
06:00 PM - 07:00 PM	59.1	55.0	52.0	-	52.3	4.7
07:00 PM - 08:00 PM	58.3	53.8	56.4	-	51.7	4.7
08:00 PM - 09:00 PM	57.4	51.5	56.1	-	50.0	6.1
09:00 PM - 10:00 PM	59.3	54.2	57.4	-	52.9	4.5
10:00 PM - 10:55 PM	59.4	52.9	-	61.3	52.2	9.1
10:55 PM - 11:00 PM	59.2	52.5	-	61.2	51.7	9.5
11:00 PM - 11:05 PM	59.3	52.9	-	61.2	51.6	9.5
11:05 PM - 11:10 PM	59.1	52.4	-	61.1	51.0	10.1
11:10 PM - 11:15 PM	58.8	52.0	-	60.8	51.1	9.7
11:15 PM - 11:20 PM	58.5	51.8	-	60.5	51.0	9.5
11:20 PM - 11:25 PM	58.4	53.1	-	60.2	50.3	9.8
11:25 PM - 11:30 PM	57.2	50.6	-	59.1	49.5	9.6
11:30 PM - 11:35 PM	57.5	50.8	-	59.2	49.5	10.2
11:35 PM - 11:40 PM	57.4	50.6	-	59.4	49.4	10.0
11:40 PM - 11:45 PM	57.0	51.8	-	59.4	49.9	8.5
11:45 PM - 11:50 PM	56.9	50.3	-	59.8	49.3	9.3
11:50 PM - 11:55 PM	57.4	51.2	-	59.2	49.6	9.6
11:55 PM - 11:00 PM	56.8	50.1	-	59.8	49.4	9.4
11:00 PM - 11:05 PM	57.3	51.7	-	59.9	49.4	9.5
11:05 PM - 11:10 PM	56.0	50.0	-	57.7	49.4	8.3
11:10 PM - 11:15 PM	56.7	50.0	-	58.7	49.3	9.4
11:15 PM - 11:20 PM	57.5	49.6	-	59.4	48.7	10.7
11:20 PM - 11:25 PM	57.5	47.5	-	58.8	48.5	11.0
11:25 PM - 11:30 PM	57.2	47.7	-	59.2	48.4	9.8
11:30 PM - 11:40 PM	57.5	51.0	-	59.7	49.5	10.2
11:40 PM - 11:45 PM	57.7	51.3	-	59.6	49.9	9.7
11:45 PM - 11:50 PM	57.7	51.1	-	59.6	49.8	9.8
11:50 PM - 11:55 PM	57.7	51.1	-	59.6	49.9	10.1
11:55 PM - 12:00 AM	58.0	51.3	-	60.0	49.9	9.5
12:00 AM - 12:05 AM	57.9	52.3	-	59.6	50.1	9.3
12:05 AM - 12:10 AM	57.9	51.1	-	59.9	51.1	10.0
12:10 AM - 12:15 AM	57.8	51.8	-	59.7	50.2	9.5
12:15 AM - 12:20 AM	58.0	53.6	-	59.0	50.3	8.7
12:20 AM - 12:25 AM	57.7	51.0	-	59.7	49.6	9.8
12:25 AM - 12:30 AM	57.9	51.5	-	59.4	49.4	10.0
12:30 AM - 12:35 AM	58.5	51.0	-	60.6	49.6	11.0





## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116345-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103109-26  
Parameter : เสียงรบกวน  
Location : บ้านนาปลาดุก (GPS 07°14'36.1, 101°18'46.4)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นฐาน	ค่ารวม
			กลางวัน	กลางคืน		
12:35 AM - 12:40 AM	58.3	54.7	-	58.8	49.8	5.0
12:40 AM - 12:45 AM	57.8	55.5	-	56.9	49.8	5.0
12:45 AM - 12:50 AM	57.8	55.6	-	56.9	49.9	6.9
12:50 AM - 12:55 AM	57.6	55.2	-	55.5	49.6	9.9
12:55 AM - 01:00 AM	57.7	50.3	-	59.8	49.0	10.8
01:00 AM - 01:05 AM	58.2	52.8	-	59.7	49.5	10.2
01:05 AM - 01:10 AM	58.6	51.8	-	60.3	50.3	10.0
01:10 AM - 01:15 AM	58.2	51.8	-	60.1	50.4	9.7
01:15 AM - 01:20 AM	57.5	51.6	-	59.2	50.5	8.7
01:20 AM - 01:25 AM	57.4	51.3	-	59.2	50.3	8.9
01:25 AM - 01:30 AM	57.1	51.0	-	58.0	50.2	7.8
01:30 AM - 01:35 AM	56.9	51.6	-	58.4	50.3	8.1
01:35 AM - 01:40 AM	56.8	51.2	-	57.3	50.3	7.0
01:40 AM - 01:45 AM	56.6	51.1	-	58.2	50.0	8.2
01:45 AM - 01:50 AM	56.6	50.5	-	58.4	49.5	8.9
01:50 AM - 01:55 AM	57.0	52.7	-	58.0	49.4	8.6
01:55 AM - 02:00 AM	57.4	50.8	-	59.3	49.5	8.8
02:00 AM - 02:05 AM	57.5	50.7	-	59.5	48.9	10.6
02:05 AM - 02:10 AM	57.4	53.0	-	58.4	48.8	9.6
02:10 AM - 02:15 AM	56.9	50.5	-	58.8	49.0	9.8
02:15 AM - 02:20 AM	56.3	55.2	-	57.8	49.6	3.2
02:20 AM - 02:25 AM	55.7	52.0	-	56.3	49.6	6.7
02:25 AM - 02:30 AM	55.4	53.7	-	53.5	49.6	3.9
02:30 AM - 02:35 AM	55.0	51.0	-	57.5	48.9	8.6
02:35 AM - 02:40 AM	56.4	51.1	-	57.9	49.2	8.7
02:40 AM - 02:45 AM	56.3	53.2	-	56.4	49.7	6.7
02:45 AM - 02:50 AM	56.7	54.3	-	54.7	49.9	4.8
02:50 AM - 02:55 AM	56.3	55.3	-	51.9	50.0	1.9
02:55 AM - 03:00 AM	56.2	51.9	-	57.2	49.2	8.0
03:00 AM - 03:05 AM	56.1	51.4	-	57.3	48.8	8.7
03:05 AM - 03:10 AM	56.5	52.0	-	56.5	48.9	8.7
03:10 AM - 03:15 AM	56.3	52.3	-	57.1	49.1	8.0
03:15 AM - 03:20 AM	56.2	52.9	-	56.5	49.1	7.4
03:20 AM - 03:25 AM	54.6	54.7	-	51.3	48.9	4.1
03:25 AM - 03:30 AM	54.4	52.5	-	52.9	48.8	4.1
03:30 AM - 03:35 AM	54.1	53.7	-	46.5	48.8	-2.3
03:35 AM - 03:40 AM	52.3	52.3	-	49.9	48.9	-
03:40 AM - 03:45 AM	53.4	52.3	-	50.5	48.9	1.6
03:45 AM - 03:50 AM	54.3	52.0	-	53.4	49.0	4.4
03:50 AM - 03:55 AM	54.1	51.2	-	54.0	48.4	5.6

The above results are used only for the analytical purpose and are not to be used for any other purpose. The results are subject to change without notice. ALS is not responsible for any errors or omissions in this report. The results are subject to change without notice. ALS is not responsible for any errors or omissions in this report.

Approved by

Katn Anuk

Katn Anuk  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116345-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103109-26  
Parameter : เสียงรบกวน  
Location : บ้านนาปลาดุก (GPS 07°14'36.1, 101°18'46.4)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงพื้นฐาน	ค่ารวม
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	54.0	52.6	-	51.4	49.3	2.1
04:00 AM - 04:05 AM	53.2	52.0	-	50.0	48.5	1.5
04:05 AM - 04:10 AM	50.7	52.5	-	n/a	48.6	-
04:10 AM - 04:15 AM	49.1	52.6	-	n/a	49.1	-
04:15 AM - 04:20 AM	50.4	52.9	-	n/a	49.6	-
04:20 AM - 04:25 AM	49.5	65.2	-	n/a	50.0	-
04:25 AM - 04:30 AM	50.7	54.7	-	n/a	51.6	-
04:30 AM - 04:35 AM	51.3	61.2	-	n/a	50.1	-
04:35 AM - 04:40 AM	50.8	54.4	-	n/a	51.5	-
04:40 AM - 04:45 AM	49.4	54.5	-	n/a	51.4	-
04:45 AM - 04:50 AM	51.1	55.5	-	n/a	52.3	-
04:50 AM - 04:55 AM	52.7	55.3	-	n/a	52.5	-
04:55 AM - 05:00 AM	52.3	55.0	-	n/a	51.3	-
05:00 AM - 05:05 AM	49.7	52.9	-	n/a	49.6	-
05:05 AM - 05:10 AM	51.7	53.9	-	n/a	49.7	-
05:10 AM - 05:15 AM	51.2	55.5	-	n/a	48.8	-
05:15 AM - 05:20 AM	51.2	52.5	-	n/a	49.4	-
05:20 AM - 05:25 AM	49.2	53.2	-	n/a	47.7	-
05:25 AM - 05:30 AM	47.4	50.4	-	n/a	46.3	-
05:30 AM - 05:35 AM	48.7	50.9	-	n/a	46.8	-
05:35 AM - 05:40 AM	48.6	52.4	-	n/a	47.1	-
05:40 AM - 05:45 AM	52.3	52.7	-	n/a	45.8	-
05:45 AM - 05:50 AM	54.6	54.2	-	47.0	47.3	-0.3
05:50 AM - 05:55 AM	50.6	51.9	-	n/a	46.8	-
05:55 AM - 06:00 AM	55.0	49.6	-	50.2	46.2	8.1
06:00 AM - 07:00 AM	49.3	50.7	n/a	-	44.6	-
07:00 AM - 08:00 AM	48.6	48.9	n/a	-	43.4	-
08:00 AM - 09:00 AM	50.2	51.0	n/a	-	44.7	-
09:00 AM - 10:00 AM	53.1	50.2	-	-	43.9	5.1
10:00 AM - 11:00 AM	47.9	48.4	n/a	-	46.2	-
11:00 AM - 12:00 PM	49.1	51.0	n/a	-	45.4	-
12:00 PM - 01:00 PM	54.8	48.0	53.8	-	43.6	16.2

หมายเหตุ

Reference Method :

1. In-house method : STH 06-001 based on ISO 1996-1 : 2016

2. วิธีการวัดเสียงรบกวน (ค่า) : ใช้วิธีวัดเสียงรบกวนแบบต่อเนื่อง วัดค่าเฉลี่ย 24 ชั่วโมง และค่าเฉลี่ยของค่าเสียงรบกวนแบบต่อเนื่องในช่วงเวลา 24 ชั่วโมง

หมายเหตุ

1. ค่าเสียงรบกวนที่วัดได้ (ค่า) : ค่าเสียงรบกวนที่วัดได้เป็นค่าเฉลี่ยของค่าเสียงรบกวนแบบต่อเนื่องในช่วงเวลา 24 ชั่วโมง

2. วิธีการวัดเสียงรบกวน (ค่า) : ใช้วิธีวัดเสียงรบกวนแบบต่อเนื่อง วัดค่าเฉลี่ย 24 ชั่วโมง และค่าเฉลี่ยของค่าเสียงรบกวนแบบต่อเนื่องในช่วงเวลา 24 ชั่วโมง

Remark :

1. ค่าเสียงรบกวนที่วัดได้ (ค่า) : ค่าเสียงรบกวนที่วัดได้เป็นค่าเฉลี่ยของค่าเสียงรบกวนแบบต่อเนื่องในช่วงเวลา 24 ชั่วโมง

2. วิธีการวัดเสียงรบกวน (ค่า) : ใช้วิธีวัดเสียงรบกวนแบบต่อเนื่อง วัดค่าเฉลี่ย 24 ชั่วโมง และค่าเฉลี่ยของค่าเสียงรบกวนแบบต่อเนื่องในช่วงเวลา 24 ชั่วโมง

3. ค่าเสียงรบกวนที่วัดได้ (ค่า) : ค่าเสียงรบกวนที่วัดได้เป็นค่าเฉลี่ยของค่าเสียงรบกวนแบบต่อเนื่องในช่วงเวลา 24 ชั่วโมง

The above results are used only for the analytical purpose and are not to be used for any other purpose. The results are subject to change without notice. ALS is not responsible for any errors or omissions in this report. The results are subject to change without notice. ALS is not responsible for any errors or omissions in this report.

Approved by

Katn Anuk

Katn Anuk  
Asst. General Manager

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand TEL: +66 0 2760 3000 FAX: +66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtak, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116346-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103109-27  
Parameter : เสียงรบกวน  
Location : บ้านนาปลาดุก (GPS 07°14'36.1, 101°18'46.4)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวนจากกิจกรรม	ระดับเสียง (dB(A))		เสียงพื้นฐาน	ค่ารวม
			เสียงรบกวนจากกิจกรรม	ค่ารวม		
01:00 PM - 02:00 PM	48.6	49.2	38.0	-	42.5	-4.5
02:00 PM - 03:00 PM	53.0	51.4	47.9	-	46.6	1.3
03:00 PM - 04:00 PM	56.0	52.8	53.2	-	48.4	4.8
04:00 PM - 05:00 PM	55.1	49.8	n/a	-	49.9	-
05:00 PM - 06:00 PM	57.5	53.9	55.0	-	51.2	3.8
06:00 PM - 07:00 PM	58.3	53.0	56.8	-	50.3	6.5
07:00 PM - 08:00 PM	58.2	52.5	56.8	-	50.6	6.2
08:00 PM - 09:00 PM	55.9	51.8	51.8	-	46.5	5.1
09:00 PM - 10:00 PM	54.0	48.7	52.5	-	46.9	5.6
10:00 PM - 10:05 PM	53.2	48.1	-	54.4	45.9	8.5
10:05 PM - 10:10 PM	53.3	48.5	-	54.6	46.2	8.4
10:10 PM - 10:15 PM	52.9	48.5	-	53.9	46.7	7.2
10:15 PM - 10:20 PM	52.4	49.0	-	52.7	46.5	6.2
10:20 PM - 10:25 PM	53.0	49.4	-	53.5	43.0	10.5
10:25 PM - 10:30 PM	53.2	46.5	-	50.2	43.2	12.0
10:30 PM - 10:35 PM	53.2	47.1	-	55.0	43.4	11.6
10:35 PM - 10:40 PM	53.1	46.5	-	55.0	43.6	11.4
10:40 PM - 10:45 PM	52.8	47.8	-	54.3	44.5	9.4
10:45 PM - 10:50 PM	52.8	47.6	-	54.2	46.1	8.1
10:50 PM - 10:55 PM	52.6	46.7	-	54.3	45.9	8.4
10:55 PM - 11:00 PM	52.0	46.7	-	53.5	45.6	7.9
11:00 PM - 11:05 PM	52.0	48.7	-	50.2	46.1	6.2
11:05 PM - 11:10 PM	52.1	47.6	-	53.2	45.5	7.7
11:10 PM - 11:15 PM	52.2	47.5	-	53.4	45.6	7.8
11:15 PM - 11:20 PM	52.3	47.3	-	54.5	45.5	8.9
11:20 PM - 11:25 PM	53.4	47.9	-	55.0	45.7	9.3
11:25 PM - 11:30 PM	53.3	48.5	-	54.6	46.3	8.3
11:30 PM - 11:35 PM	53.4	49.0	-	54.4	46.6	8.9
11:35 PM - 11:40 PM	53.9	49.1	-	55.3	46.6	8.9
11:40 PM - 11:45 PM	54.0	49.1	-	55.3	47.6	7.7
11:45 PM - 11:50 PM	54.2	49.2	-	55.5	48.0	7.5
11:50 PM - 11:55 PM	54.5	48.6	-	56.2	47.6	8.6
11:55 PM - 12:00 AM	54.8	48.9	-	56.5	47.8	8.7
12:00 AM - 12:05 AM	55.1	49.1	-	56.8	48.4	8.4
12:05 AM - 12:10 AM	55.1	49.0	-	56.9	48.7	8.9
12:10 AM - 12:15 AM	55.2	48.9	-	57.0	48.1	8.9
12:15 AM - 12:20 AM	55.3	48.6	-	57.2	47.7	8.6
12:20 AM - 12:25 AM	55.2	48.4	-	57.3	47.4	8.8
12:25 AM - 12:30 AM	55.5	48.0	-	57.6	47.3	10.3
12:30 AM - 12:35 AM	55.7	48.0	-	57.6	47.3	10.3



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116346-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-27  
Parameter : เสียงรบกวน  
Location : บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงที่ตรวจ	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	53.8	54.9	-	n/a	49.3	-
04:00 AM - 04:05 AM	51.4	51.9	-	n/a	48.6	-
04:05 AM - 04:10 AM	51.4	51.8	-	n/a	48.4	-
04:10 AM - 04:15 AM	49.2	52.8	-	n/a	48.2	-
04:15 AM - 04:20 AM	49.2	51.7	-	n/a	45.8	-
04:20 AM - 04:25 AM	50.3	54.7	-	n/a	46.0	-
04:25 AM - 04:30 AM	49.7	56.5	-	n/a	46.7	-
04:30 AM - 04:35 AM	51.5	58.9	-	n/a	48.7	-
04:35 AM - 04:40 AM	49.0	61.7	-	n/a	49.5	-
04:40 AM - 04:45 AM	49.9	54.1	-	n/a	51.4	-
04:45 AM - 04:50 AM	51.1	54.9	-	n/a	52.3	-
04:50 AM - 04:55 AM	49.4	54.6	-	n/a	51.1	-
04:55 AM - 05:00 AM	49.9	54.6	-	n/a	51.5	-
05:00 AM - 05:05 AM	49.9	53.5	-	n/a	49.5	-
05:05 AM - 05:10 AM	50.6	51.7	-	n/a	47.9	-
05:10 AM - 05:15 AM	49.8	52.5	-	n/a	48.5	-
05:15 AM - 05:20 AM	49.4	52.4	-	n/a	48.7	-
05:20 AM - 05:25 AM	51.6	52.1	-	n/a	47.5	-
05:25 AM - 05:30 AM	49.5	51.3	-	n/a	47.1	-
05:30 AM - 05:35 AM	49.1	52.0	-	n/a	47.3	-
05:35 AM - 05:40 AM	49.3	51.0	-	n/a	46.7	-
05:40 AM - 05:45 AM	49.2	52.3	-	n/a	47.2	-
05:45 AM - 05:50 AM	49.4	51.3	-	n/a	47.9	-
05:50 AM - 05:55 AM	49.1	54.0	-	n/a	49.0	-
05:55 AM - 06:00 AM	48.9	56.2	-	n/a	50.4	-
06:00 AM - 07:00 AM	62.8	67.7	n/a	-	57.6	-
07:00 AM - 08:00 AM	49.8	54.0	n/a	-	56.0	-
08:00 AM - 09:00 AM	48.3	49.1	n/a	-	43.8	-
09:00 AM - 10:00 AM	56.3	51.3	54.6	-	44.9	9.7
10:00 AM - 11:00 AM	54.0	45.1	n/a	-	45.4	-
11:00 AM - 12:00 PM	63.8	66.5	n/a	-	53.8	-
12:00 PM - 01:00 PM	63.8	54.0	63.3	-	45.4	17.9

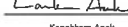
### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- การตรวจวัดเสียงรบกวนตามวิธีที่ใช้การตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง และระดับเสียงสูงสุดที่ได้จากการตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง
- การตรวจวัดเสียงรบกวนตามวิธีที่ใช้การตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง และระดับเสียงสูงสุดที่ได้จากการตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง
- การตรวจวัดเสียงรบกวนตามวิธีที่ใช้การตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง และระดับเสียงสูงสุดที่ได้จากการตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง

### Remark :

- ระดับเสียงรบกวนสูงสุดที่ตรวจวัดได้ทั้งหมด 63.3 เดซิเบล (Sample No.24103113-27 วันที่ตรวจวัด 15-16 กันยายน 2567)
- ระดับเสียงรบกวนสูงสุดที่ตรวจวัดได้ทั้งหมด 63.3 เดซิเบล (Sample No.24103113-27 วันที่ตรวจวัด 15-16 กันยายน 2567)
- การตรวจวัดเสียงรบกวนตามวิธีที่ใช้การตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง และระดับเสียงสูงสุดที่ได้จากการตรวจวัดเสียงรบกวนตามวิธีแบบต่อเนื่อง 24 ชั่วโมง

The above report is valid only for the analysis/monitoring purpose and not to be used for any other purpose. It is not a legal document and cannot be used as evidence in any court of law. The client is responsible for the accuracy of the data provided and the results of the analysis/monitoring.

Approved by   
Kanokrom Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

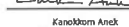
Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116347-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-28  
Parameter : เสียงรบกวน  
Location : บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงที่ตรวจ	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
01:00 PM - 02:00 PM	62.8	54.0	62.2	-	42.5	19.7
02:00 PM - 03:00 PM	62.4	60.4	n/a	-	44.6	-
03:00 PM - 04:00 PM	50.7	62.4	n/a	-	48.4	-
04:00 PM - 05:00 PM	52.1	63.9	n/a	-	49.9	-
05:00 PM - 06:00 PM	53.7	61.0	n/a	-	51.2	-
06:00 PM - 07:00 PM	54.0	50.2	51.7	-	50.3	1.4
07:00 PM - 08:00 PM	54.4	49.3	52.8	-	50.6	2.2
08:00 PM - 09:00 PM	54.5	46.0	53.8	-	49.8	4.0
09:00 PM - 10:00 PM	54.7	49.2	51.3	-	51.3	-
10:00 PM - 10:05 PM	53.9	49.9	-	54.7	45.9	8.8
10:05 PM - 10:10 PM	54.1	49.4	-	55.3	46.2	9.1
10:10 PM - 10:15 PM	53.7	49.6	-	54.6	46.7	7.9
10:15 PM - 10:20 PM	54.1	49.6	-	55.2	46.5	8.7
10:20 PM - 10:25 PM	53.1	50.2	-	53.0	43.0	10.0
10:25 PM - 10:30 PM	53.2	49.6	-	53.7	43.2	10.5
10:30 PM - 10:35 PM	53.5	51.7	-	51.8	43.4	8.4
10:35 PM - 10:40 PM	53.4	49.8	-	53.9	43.6	10.3
10:40 PM - 10:45 PM	53.5	49.1	-	54.5	44.9	9.6
10:45 PM - 10:50 PM	52.6	49.1	-	53.0	46.1	6.9
10:50 PM - 10:55 PM	52.1	48.4	-	52.7	45.9	6.8
10:55 PM - 11:00 PM	52.9	48.5	-	53.9	45.6	8.1
11:00 PM - 11:05 PM	52.4	48.2	-	53.2	46.1	7.1
11:05 PM - 11:10 PM	52.4	47.8	-	53.6	45.5	8.3
11:10 PM - 11:15 PM	51.9	52.8	-	n/a	45.6	-
11:15 PM - 11:20 PM	52.7	52.1	-	n/a	45.6	-
11:20 PM - 11:25 PM	52.3	56.9	-	n/a	45.7	-
11:25 PM - 11:30 PM	52.0	47.9	-	52.9	46.3	6.6
11:30 PM - 11:35 PM	52.4	47.5	-	53.7	45.6	8.1
11:35 PM - 11:40 PM	52.3	48.1	-	53.2	46.2	6.6
11:40 PM - 11:45 PM	52.2	48.8	-	52.5	47.6	4.9
11:45 PM - 11:50 PM	52.1	47.9	-	53.0	48.0	5.0
11:50 PM - 11:55 PM	51.4	47.4	-	52.5	47.6	4.6
11:55 PM - 12:00 AM	51.3	46.6	-	52.5	47.8	4.7
12:00 AM - 12:05 AM	51.1	46.3	-	52.4	48.4	4.0
12:05 AM - 12:10 AM	52.0	45.9	-	53.8	48.2	5.6
12:10 AM - 12:15 AM	52.8	47.1	-	54.4	48.1	6.3
12:15 AM - 12:20 AM	52.7	47.7	-	54.0	47.7	6.3
12:20 AM - 12:25 AM	53.6	43.7	-	55.0	47.4	7.6
12:25 AM - 12:30 AM	52.7	44.1	-	54.3	47.1	7.0
12:30 AM - 12:35 AM	52.8	44.3	-	55.1	46.6	8.5

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Approved by   
Kanokrom Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000


Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116347-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-28  
Parameter : เสียงรบกวน  
Location : บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากการจราจร		เสียงที่ตรวจ	ค่าเฉลี่ย
			กลางวัน	กลางคืน		
12:35 AM - 12:40 AM	52.3	44.0	-	54.6	46.5	8.1
12:40 AM - 12:45 AM	52.0	44.3	-	54.8	46.9	7.9
12:45 AM - 12:50 AM	52.5	44.5	-	51.3	47.2	8.1
12:50 AM - 12:55 AM	53.2	45.4	-	55.4	47.5	7.9
12:55 AM - 01:00 AM	53.3	46.3	-	55.3	48.2	7.1
01:00 AM - 01:05 AM	53.2	45.9	-	55.3	47.9	7.4
01:05 AM - 01:10 AM	52.8	47.1	-	54.4	47.9	6.5
01:10 AM - 01:15 AM	53.0	45.5	-	55.1	47.5	7.6
01:15 AM - 01:20 AM	53.4	45.7	-	55.6	47.5	8.1
01:20 AM - 01:25 AM	54.0	45.1	-	56.3	48.3	6.6
01:25 AM - 01:30 AM	54.1	47.0	-	56.2	49.4	6.8
01:30 AM - 01:35 AM	54.0	46.7	-	56.1	49.8	6.3
01:35 AM - 01:40 AM	54.3	47.4	-	56.2	49.7	6.6
01:40 AM - 01:45 AM	54.2	46.5	-	56.2	49.3	6.9
01:45 AM - 01:50 AM	53.7	48.6	-	55.1	49.5	5.6
01:50 AM - 01:55 AM	54.1	47.8	-	55.9	49.6	6.3
01:55 AM - 02:00 AM	53.1	45.7	-	55.2	49.3	5.9
02:00 AM - 02:05 AM	53.2	47.5	-	54.8	48.7	6.1
02:05 AM - 02:10 AM	52.5	46.2	-	54.3	48.9	5.4
02:10 AM - 02:15 AM	52.7	48.6	-	53.6	48.6	5.0
02:15 AM - 02:20 AM	52.9	49.1	-	54.6	48.5	6.1
02:20 AM - 02:25 AM	52.5	48.5	-	53.3	48.4	5.9
02:25 AM - 02:30 AM	52.2	45.8	-	54.1	48.5	5.8
02:30 AM - 02:35 AM	51.8	45.1	-	53.7	48.3	5.4
02:35 AM - 02:40 AM	51.5	47.3	-	52.4	48.4	4.0
02:40 AM - 02:45 AM	51.7	47.3	-	52.7	48.4	4.3
02:45 AM - 02:50 AM	52.2	47.5	-	53.5	48.2	5.0
02:50 AM - 02:55 AM	52.4	47.7	-	53.6	48.3	5.3
02:55 AM - 03:00 AM	52.3	47.5	-	53.6	48.1	5.5
03:00 AM - 03:05 AM	52.3	47.6	-	53.3	47.8	5.3
03:05 AM - 03:10 AM	51.2	49.6	-	49.1	48.1	3.0
03:10 AM - 03:15 AM	51.3	50.6	-	46.0	48.4	-2.4
03:15 AM - 03:20 AM	51.0	51.7	-	n/a	48.2	-
03:20 AM - 03:25 AM	51.1	51.1	-	n/a	48.4	-
03:25 AM - 03:30 AM	50.3	52.5	-	n/a	48.3	-
03:30 AM - 03:35 AM	50.2	53.4	-	n/a	48.2	-
03:35 AM - 03:40 AM	49.1	51.8	-	n/a	48.5	-
03:40 AM - 03:45 AM	50.0	51.5	-	n/a	48.5	-
03:45 AM - 03:50 AM	50.3	55.0	-	n/a	48.7	-
03:50 AM - 03:55 AM	64.6	54.5	-	87.2	48.8	18.4

The above report is valid only for the analysis/monitoring purpose and not to be used for any other purpose. It is not a legal document and cannot be used as evidence in any court of law. The client is responsible for the accuracy of the data provided and the results of the analysis/monitoring.

Approved by   
Kanokrom Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116347-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-28  
Parameter : เสียงรบกวน  
Location : บ้านนาเกลือ (GPS 47P 0714361, 1718864)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aoonim  
Sound Level Meter : 00858525

ตารางเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวนไม่มีการควบคุม	เสียงรบกวนจากการจราจร		เสียงที่ตรวจ	ค่าเฉลี่ยการจราจร
			กลางวัน	กลางคืน		
03:55 AM - 04:00 AM	48.4	55.1	-	n/a	49.3	-
04:00 AM - 04:05 AM	48.2	52.7	-	n/a	48.6	-
04:05 AM - 04:10 AM	47.9	52.9	-	n/a	48.4	-
04:10 AM - 04:15 AM	48.2	52.5	-	n/a	48.2	-
04:15 AM - 04:20 AM	53.5	53.1	-	45.9	43.8	0.1
04:20 AM - 04:25 AM	53.1	67.9	-	n/a	46.0	-
04:25 AM - 04:30 AM	53.4	55.8	-	n/a	45.8	-
04:30 AM - 04:35 AM	53.8	61.7	-	n/a	48.7	-
04:35 AM - 04:40 AM	53.3	54.3	-	n/a	49.5	-
04:40 AM - 04:45 AM	49.2	54.8	-	n/a	51.6	-
04:45 AM - 04:50 AM	47.6	54.3	-	n/a	52.3	-
04:50 AM - 04:55 AM	49.9	54.4	-	n/a	51.1	-
04:55 AM - 05:00 AM	47.5	54.1	-	n/a	51.5	-
05:00 AM - 05:05 AM	51.3	54.5	-	n/a	49.5	-
05:05 AM - 05:10 AM	48.7	53.0	-	n/a	48.2	-
05:10 AM - 05:15 AM	48.0	52.8	-	n/a	48.6	-
05:15 AM - 05:20 AM	48.0	52.7	-	n/a	48.2	-
05:20 AM - 05:25 AM	47.6	53.2	-	n/a	47.8	-
05:25 AM - 05:30 AM	50.9	62.0	-	n/a	47.1	-
05:30 AM - 05:35 AM	51.6	65.5	-	n/a	47.3	-
05:35 AM - 05:40 AM	48.0	61.9	-	n/a	46.7	-
05:40 AM - 05:45 AM	51.8	65.1	-	n/a	47.2	-
05:45 AM - 05:50 AM	50.1	65.5	-	n/a	47.4	-
05:50 AM - 05:55 AM	48.4	61.2	-	n/a	49.4	-
05:55 AM - 06:00 AM	56.7	58.1	-	n/a	50.4	-
06:00 AM - 07:00 AM	51.3	70.1	n/a	-	57.6	-
07:00 AM - 08:00 AM	47.2	61.2	n/a	-	47.0	-
08:00 AM - 09:00 AM	49.3	56.1	n/a	-	43.8	-
09:00 AM - 10:00 AM	51.8	58.9	-	-	45.3	14.0
10:00 AM - 11:00 AM	64.3	63.4	57.0	-	55.6	1.4
11:00 AM - 12:00 PM	66.0	61.1	63.7	-	53.8	9.9
12:00 PM - 01:00 PM	62.8	53.7	62.2	-	45.4	16.8
หมายเหตุ						± 0.8
Reference Method :						
1. In-house method : STM 00-001 based on ISO 1996 : 2016						
2. อุปกรณ์การวัดตามมาตรฐาน ได้แก่ มิเตอร์การวัดเสียงการจราจร ประมวลผลด้วย 24 ชั่วโมง และแอปพลิเคชันชุดซอฟต์แวร์การประมวลผลการจราจรตาม พ.ร.บ. 2567						
ทางด่วน						
1. อุปกรณ์การตรวจวัดเสียงการจราจร ได้แก่ อุปกรณ์การตรวจวัดเสียงการจราจรแบบต่อเนื่องที่ติดตั้งการประมวลผลเสียงการจราจรตาม พ.ร.บ. 2548						
2. อุปกรณ์การตรวจวัดเสียงการจราจร ได้แก่ อุปกรณ์การตรวจวัดเสียงการจราจรแบบต่อเนื่องที่ติดตั้งการประมวลผลเสียงการจราจรตาม พ.ร.บ. 2561						



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116349-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-29  
Parameter : เสียงรบกวน  
Location : บ้านนาบัวของสหพันธ์ไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 10 - Sep 11, 2024  
Audit Account : 0058523

Page 1 of 3

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากชุมชน		เสียงพื้นฐาน	ค่าระดับ
			กลางวัน	กลางคืน		การรบกวน
10:00 AM - 11:00 AM	61.7	50.5	61.4	-	46.0	15.4
11:00 AM - 12:00 PM	58.5	50.9	57.7	-	45.7	12.8
12:00 PM - 01:00 PM	60.6	50.9	60.1	-	46.3	13.8
01:00 PM - 02:00 PM	61.5	50.2	61.2	-	44.8	16.4
02:00 PM - 03:00 PM	60.9	48.5	60.6	-	45.0	15.6
03:00 PM - 04:00 PM	61.4	54.7	60.4	-	47.6	12.8
04:00 PM - 05:00 PM	60.7	48.9	60.4	-	45.1	15.3
05:00 PM - 06:00 PM	64.6	55.8	64.0	-	48.3	15.7
06:00 PM - 07:00 PM	62.1	61.5	57.2	-	54.0	-3.2
07:00 PM - 08:00 PM	60.3	61.8	n/a	-	53.7	-
08:00 PM - 09:00 PM	60.9	61.5	n/a	-	56.4	-
09:00 PM - 10:00 PM	60.4	58.7	55.5	-	52.0	3.5
10:00 PM - 11:00 PM	61.3	53.0	-	63.6	51.8	11.8
10:00 PM - 10:05 PM	59.7	52.6	-	61.8	51.4	10.4
10:05 PM - 10:10 PM	60.4	53.1	-	62.5	51.3	11.2
10:10 PM - 10:15 PM	60.9	52.1	-	63.3	50.7	12.6
10:15 PM - 10:20 PM	59.8	52.1	-	62.0	51.0	11.0
10:20 PM - 10:25 PM	60.4	51.6	-	62.8	50.2	12.6
10:25 PM - 10:30 PM	61.7	51.8	-	64.2	50.1	14.1
10:30 PM - 10:35 PM	59.7	50.9	-	62.1	49.7	14.4
10:35 PM - 10:40 PM	61.3	51.0	-	63.9	49.1	14.8
10:40 PM - 10:45 PM	61.0	54.1	-	63.0	50.1	12.9
10:45 PM - 10:50 PM	60.3	54.4	-	62.0	50.1	11.9
10:50 PM - 11:00 PM	59.8	52.2	-	62.0	49.9	12.1
11:00 PM - 11:05 PM	60.0	53.1	-	62.0	49.7	12.3
11:05 PM - 11:10 PM	60.1	56.2	-	60.8	49.9	10.9
11:10 PM - 11:15 PM	59.2	57.2	-	57.9	50.6	5.9
11:15 PM - 11:20 PM	57.6	59.8	-	n/a	53.4	-
11:20 PM - 11:25 PM	57.2	60.0	-	n/a	53.6	-
11:25 PM - 11:30 PM	56.6	60.3	-	n/a	53.2	-
11:30 PM - 11:35 PM	56.6	60.3	-	n/a	53.1	-
11:35 PM - 11:40 PM	56.9	60.2	-	n/a	53.1	-
11:40 PM - 11:45 PM	56.9	59.9	-	n/a	52.4	-
11:45 PM - 11:50 PM	57.1	61.4	-	n/a	50.9	-
11:50 PM - 11:55 PM	56.9	57.6	-	n/a	53.2	-
11:55 PM - 12:00 AM	57.0	59.5	-	n/a	52.6	-
12:00 AM - 12:05 AM	56.8	48.9	-	n/a	52.8	-
12:05 AM - 12:10 AM	56.9	59.1	-	n/a	54.0	-
12:10 AM - 12:15 AM	57.1	59.3	-	n/a	53.9	-
12:15 AM - 12:20 AM	57.1	59.1	-	n/a	53.6	-

Approved by   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116349-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-29  
Parameter : เสียงรบกวน  
Location : บ้านนาบัวของสหพันธ์ไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 10 - Sep 11, 2024  
Audit Account : 0058523

Page 2 of 3

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากชุมชน		เสียงพื้นฐาน	ค่าระดับ
			กลางวัน	กลางคืน		การรบกวน
12:20 AM - 12:25 AM	56.7	58.3	-	n/a	54.2	-
12:25 AM - 12:30 AM	57.1	57.1	-	n/a	54.1	-
12:30 AM - 12:35 AM	56.7	56.5	-	n/a	54.0	-7.8
12:35 AM - 12:40 AM	57.0	56.1	-	n/a	52.7	-1.3
12:40 AM - 12:45 AM	57.0	55.9	-	n/a	53.4	0.1
12:45 AM - 12:50 AM	56.9	56.0	-	n/a	52.6	-0.3
12:50 AM - 12:55 AM	57.1	55.9	-	n/a	53.9	0.6
12:55 AM - 01:00 AM	57.5	57.9	-	n/a	53.8	-
01:00 AM - 01:05 AM	57.3	56.8	-	n/a	50.3	0.4
01:05 AM - 01:10 AM	57.0	59.7	-	n/a	51.7	-
01:10 AM - 01:15 AM	56.5	56.5	-	n/a	50.9	-
01:15 AM - 01:20 AM	56.4	56.9	-	n/a	50.6	-
01:20 AM - 01:25 AM	56.5	56.6	-	n/a	50.5	-
01:25 AM - 01:30 AM	56.6	61.0	-	n/a	51.8	-
01:30 AM - 01:35 AM	56.9	58.3	-	n/a	50.7	-
01:35 AM - 01:40 AM	57.5	57.7	-	n/a	50.9	-
01:40 AM - 01:45 AM	56.5	58.4	-	n/a	51.7	-
01:45 AM - 01:50 AM	56.2	62.7	-	n/a	53.8	-
01:50 AM - 01:55 AM	56.6	63.5	-	n/a	60.3	-
01:55 AM - 02:00 AM	56.8	61.7	-	n/a	56.1	-
02:00 AM - 02:05 AM	56.6	60.5	-	n/a	55.9	-
02:05 AM - 02:10 AM	56.7	60.4	-	n/a	56.3	-
02:10 AM - 02:15 AM	57.1	59.8	-	n/a	54.7	-
02:15 AM - 02:20 AM	60.3	59.2	-	n/a	51.9	4.9
02:20 AM - 02:25 AM	61.0	57.2	-	n/a	50.9	10.8
02:25 AM - 02:30 AM	61.4	57.9	-	n/a	52.7	9.1
02:30 AM - 02:35 AM	61.5	58.1	-	n/a	52.8	9.0
02:35 AM - 02:40 AM	61.4	61.4	-	n/a	49.7	13.4
02:40 AM - 02:45 AM	61.5	52.6	-	n/a	50.6	13.3
02:45 AM - 02:50 AM	61.8	53.1	-	n/a	48.5	15.7
02:50 AM - 02:55 AM	61.2	52.4	-	n/a	48.4	15.1
02:55 AM - 03:00 AM	61.2	51.9	-	n/a	48.4	15.1
03:00 AM - 03:05 AM	60.9	52.4	-	n/a	48.4	14.8
03:05 AM - 03:10 AM	61.2	52.6	-	n/a	49.0	14.6
03:10 AM - 03:15 AM	60.8	52.5	-	n/a	54.0	8.6
03:15 AM - 03:20 AM	61.2	52.5	-	n/a	49.3	13.8
03:20 AM - 03:25 AM	61.2	52.5	-	n/a	49.1	14.5
03:25 AM - 03:30 AM	61.8	51.6	-	n/a	51.6	8.2
03:30 AM - 03:35 AM	60.7	56.5	-	n/a	53.4	8.2
03:35 AM - 03:40 AM	60.5	58.0	-	n/a	55.6	4.3

Approved by   
Kanokorn Anek  
Asst. General Manager

ALSCON-104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand. P: +66 0 2760 3000 F: +66 0 2760 3197

Life Sciences [www.alsglobal.com](http://www.alsglobal.com)  
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ALSCON-104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand. P: +66 0 2760 3000 F: +66 0 2760 3197

Life Sciences [www.alsglobal.com](http://www.alsglobal.com)  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116349-2

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-29  
Parameter : เสียงรบกวน  
Location : บ้านนาบัวของสหพันธ์ไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 10 - Sep 11, 2024  
Audit Account : 0058523

Page 3 of 3

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงรบกวนจากชุมชน		เสียงพื้นฐาน	ค่าระดับ
			กลางวัน	กลางคืน		การรบกวน
03:40 AM - 03:45 AM	60.8	58.1	-	60.5	57.0	3.5
03:45 AM - 03:50 AM	61.0	58.3	-	60.7	57.5	3.2
03:50 AM - 03:55 AM	61.4	58.3	-	61.5	57.1	4.4
03:55 AM - 04:00 AM	61.2	58.1	-	61.3	57.1	4.2
04:00 AM - 04:05 AM	60.6	58.1	-	60.4	56.8	3.6
04:05 AM - 04:10 AM	60.9	59.0	-	60.8	57.0	3.8
04:10 AM - 04:15 AM	61.6	58.8	-	61.4	57.4	3.6
04:15 AM - 04:20 AM	61.5	59.3	-	60.5	58.6	1.9
04:20 AM - 04:25 AM	60.9	59.0	-	59.4	58.7	1.2
04:25 AM - 04:30 AM	60.4	59.2	-	57.2	58.5	-1.3
04:30 AM - 04:35 AM	60.8	59.2	-	58.7	58.5	0.2
04:35 AM - 04:40 AM	60.3	59.6	-	58.4	57.6	0.8
04:40 AM - 04:45 AM	60.4	59.2	-	57.2	57.9	-0.7
04:45 AM - 04:50 AM	60.6	59.2	-	58.0	58.5	-0.5
04:50 AM - 04:55 AM	61.7	59.2	-	62.3	53.6	9.7
04:55 AM - 05:00 AM	60.3	58.1	-	59.3	57.1	-2.1
05:00 AM - 05:05 AM	60.6	59.1	-	58.3	58.0	-0.3
05:05 AM - 05:10 AM	60.4	59.2	-	57.2	55.3	1.9
05:10 AM - 05:15 AM	60.7	59.3	-	58.1	55.8	2.3
05:15 AM - 05:20 AM	60.2	58.1	-	59.0	55.0	4.0
05:20 AM - 05:25 AM	61.3	57.1	-	62.3	54.8	7.4
05:25 AM - 05:30 AM	61.7	56.0	-	63.3	51.6	10.1
05:30 AM - 05:35 AM	60.2	56.3	-	60.9	53.3	7.6
05:35 AM - 05:40 AM	60.3	55.9	-	61.3	52.7	8.6
05:40 AM - 05:45 AM	60.5	56.3	-	61.5	53.6	7.9
05:45 AM - 05:50 AM	60.8	56.5	-	61.8	52.8	9.0
05:50 AM - 05:55 AM	60.3	56.8	-	60.7	52.9	7.8
05:55 AM - 06:00 AM	61.1	57.2	-	61.8	52.5	9.3
06:00 AM - 07:00 AM	60.7	59.4	54.8	61.4	52.9	11.1
07:00 AM - 08:00 AM	63.1	55.6	64.6	-	50.3	14.3
08:00 AM - 09:00 AM	60.9	50.6	60.5	-	46.9	13.6
09:00 AM - 10:00 AM	61.7	50.8	61.3	-	46.2	15.1
10:00 AM - 10:05 AM	61.7	50.8	61.3	-	46.2	15.1

Reference Method :  
1. In Noise method / STN 05-901 based on ISO 1996-1:2016  
2. ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง

หมายเหตุ :  
1. ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง  
2. ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง  
3. ค่า : ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง ค่าระดับเสียงจากชุมชน (ระดับเสียงรบกวนจากชุมชน) ระดับเสียง 24 ชั่วโมง

Approved by   
Kanokorn Anek  
Asst. General Manager

ALSCON-104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand. P: +66 0 2760 3000 F: +66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116349-2

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103109-30  
Parameter : เสียงรบกวน  
Location : บ้านนาบัวของสหพันธ์ไฟฟ้า (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 11 - Sep 12, 2024  
Audit Account : 0058523

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ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวนจากโรงงาน	เสียงรบกวนจากชุมชน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	61.5	51.7	61.0	-	46.1	14.9
11:00 AM - 12:00 PM	62.7	52.2	62.3	-	46.0	16.3
12:00 PM - 01:00 PM	63.9	49.9	63.7	-	44.7	19.0
01:00 PM - 02:00 PM	60.3	50.6	59.8	-	46.1	13.7
02:00 PM - 03:00 PM	62.6	49.2	62.4	-	44.6	17.8
03:00 PM - 04:00 PM	65.6	51.7	65.4	-	46.0	19.4
04:00 PM - 05:00 PM	66.0	50.3	65.9	-	45.8	20.1
05:00 PM - 06:00 PM	65.6	54.2	65.3	-	47.2	18.6
06:00 PM - 07:00 PM	66.0	55.5	65.8	-	51.0	16.6
07:00 PM - 08:00 PM	60.9	55.6	59.4	-	52.8	6.6
08:00 PM - 09:00 PM	57.9	51.0	56.9	-	49.2	2.6
09:00 PM - 10:00 PM	60.5	56.7	58.2	-	54.9	3.3
10:00 PM - 10:05 PM	61.9	53.5	-	64.2	49.8	15.4
10:05 PM - 10:10 PM	61.3	58.4	-	61.2	56.7	4.5
10:10 PM - 10:15 PM	60.7	63.4	-	61.6	62.6	-
10:15 PM - 10:20 PM	61.5	59.1	-	60.8	51.1	9.7
10:20 PM - 10:25 PM	62.4	54.0	-	64.7	49.6	15.1
10:25 PM - 10:30 PM	61.2	53.1	-	64.6	49.8	15.6
10:30 PM - 10:35 PM	61.1	56.3	-	63.3	52.0	5.3
10:35 PM - 10:40 PM	60.9	57.2	-	61.5	51.7	7.8
10:40 PM - 10:45 PM	60.5	56.6	-	61.2	51.3	6.9
10:45 PM - 10:50 PM	58.3	56.9	-	60.4	53.6	6.8
10:50 PM - 10:55 PM	60.8	60.8	-	59.9	57.7	-
10:55 PM - 11:00 PM	60.1	60.4	-	58.9	56.6	-
11:00 PM - 11:05 PM	61.1	58.8	-	58.2	57.2	1.0
11:05 PM - 11:10 PM	61.2	61.5	-	59.8	59.4	-
11:10 PM - 11:15 PM	60.8	61.4	-	59.8	-	-
11:15 PM - 11:20 PM	60.2	59.6	-	54.3	57.2	-2.9
11:20 PM - 11:25 PM	60.8	60.8	-	59.8	58.2	-
11:25 PM - 11:30 PM	59.9	59.9	-	58.9	57.6	-
11:30 PM - 11:35 PM	60.9	59.6	-	58.0	57.1	0.9
11:35 PM - 11:40 PM	60.8	59.5	-	57.9	56.6	1.3
11:40 PM - 11:45 PM	60.9	59.8	-	57.4	56.6	-
11:45 PM - 11:50 PM	61.0	58.4	-	60.5	55.9	4.6
11:50 PM - 11:55 PM	60.4	58.2	-	59.4	55.5	2.9
11:55 PM - 12:00 AM	60.7	58.7	-	60.7	55.8	5.7
12:00 AM - 12:05 AM	60.4	57.9	-	59.8	55.1	6.8
12:05 AM - 12:10 AM	60.4	57.2	-	58.9	54.8	4.1
12:10 AM - 12:15 AM	60.4	58.2	-	56.6	54.8	5.8
12:15 AM - 12:20 AM	61.2	58.8	-	62.4	54.8	6.8







## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116352-1

Page 1 of 3

Sample No.	24103109-33
Parameter	เสียงรบกวน
Location	บริเวณรั้วโรงเรียนพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)
Measurement Date	Sep 14 - Sep 15, 2024
Measurement by	Audit Aoonsim
Sound Level Meter	00858523

เวลา	ตารางเดินรถ (DB(A))						หมายเหตุ	ค่าโดยสาร การโดยสาร
	เส้นทาง แยกต่างหาก	เส้นทาง ปกติ	เส้นทางรถโดยสารพิเศษ		เส้นทางรถ พิเศษ			
10:00 AM - 11:00 AM	60.7	49.6	60.3	-	-	44.6	15.7	
11:00 AM - 12:00 PM	60.9	50.2	60.5	-	-	45.7	14.8	
12:00 PM - 01:00 PM	61.0	48.1	60.8	-	-	44.0	10.6	
01:00 PM - 02:00 PM	62.0	49.3	61.8	-	-	44.3	12.5	
02:00 PM - 03:00 PM	62.0	48.8	61.8	-	-	44.9	16.9	
03:00 PM - 04:00 PM	63.9	50.6	62.7	-	-	45.4	18.3	
04:00 PM - 05:00 PM	64.2	51.5	64.0	-	-	46.1	17.9	
05:00 PM - 06:00 PM	63.0	53.7	-	-	-	47.2	12.9	
06:00 PM - 07:00 PM	63.0	61.7	57.1	-	-	55.0	2.1	
07:00 PM - 08:00 PM	61.3	62.2	n/a	-	-	56.2	-	
08:00 PM - 09:00 PM	57.3	61.8	n/a	-	-	54.7	-	
09:00 PM - 10:00 PM	57.1	60.7	n/a	-	-	53.2	-	
10:00 PM - 10:05 PM	59.7	59.7	-	n/a	-	54.2	-	
10:05 PM - 10:10 PM	57.4	60.5	-	n/a	-	53.9	-	
10:10 PM - 10:15 PM	57.8	60.4	-	n/a	-	53.8	-	
10:15 PM - 10:20 PM	57.4	60.9	-	n/a	-	53.5	-	
10:20 PM - 10:25 PM	57.1	61.0	-	n/a	-	53.8	-	
10:25 PM - 10:30 PM	56.9	60.6	-	n/a	-	53.7	-	
10:30 PM - 10:35 PM	57.0	60.9	-	n/a	-	53.6	-	
10:35 PM - 10:40 PM	57.7	61.8	-	n/a	-	54.4	-	
10:40 PM - 10:45 PM	57.3	61.8	-	n/a	-	54.3	-	
10:45 PM - 10:50 PM	57.2	61.6	-	n/a	-	54.4	-	
10:50 PM - 10:55 PM	57.2	62.0	-	n/a	-	54.5	-	
10:55 PM - 11:00 PM	57.2	61.9	-	n/a	-	54.5	-	
11:00 PM - 11:05 PM	57.2	61.2	-	n/a	-	53.8	-	
11:05 PM - 11:10 PM	56.9	60.9	-	n/a	-	53.3	-	
11:10 PM - 11:15 PM	56.9	60.1	-	n/a	-	52.0	-	
11:15 PM - 11:20 PM	56.9	60.0	-	n/a	-	51.6	-	
11:20 PM - 11:25 PM	56.9	59.9	-	n/a	-	51.4	-	
11:25 PM - 11:30 PM	56.9	59.7	-	n/a	-	50.9	-	
11:30 PM - 11:35 PM	56.9	59.9	-	n/a	-	51.2	-	
11:35 PM - 11:40 PM	57.3	59.7	-	n/a	-	51.9	-	
11:40 PM - 11:45 PM	57.0	59.7	-	n/a	-	51.5	-	
11:45 PM - 11:50 PM	57.4	59.2	-	n/a	-	51.2	-	
11:50 PM - 11:55 PM	57.5	58.5	-	n/a	-	50.8	-	
11:55 PM - 12:00 AM	56.9	56.4	-	n/a	-	49.3	4.8	
12:00 AM - 12:05 AM	56.7	56.8	-	46.3	-	50.3	2.0	
12:05 AM - 12:10 AM	56.5	55.8	-	51.2	-	50.4	0.8	
12:10 AM - 12:15 AM	56.7	55.9	-	52.0	-	49.9	2.1	
12:15 AM - 12:20 AM	56.7	55.9	-	51.8	-	49.8	-	

Approved by Kanok Korn Anek  
Kanok Korn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NIK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116352-1

Page 2 of 3

Sample No.	24103109-33
Parameter	เสียงรบกวน
Location	บริเวณพื้นที่ของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)
Measurement Date	Sep 14 - Sep 15, 2024
Measurement by	Audit Aoonsim
Sound Level Meter	00858523

เวลา	ขบวนพิเศษ (DB(A))					ค่าพิเศษ
	เปลี่ยนจาก แผนผังเดิม	เปลี่ยนจาก ไม่มีการเปลี่ยน	เปลี่ยนจากมีการเปลี่ยน		เปลี่ยนโครง	
			กลางคืน	กลางวัน		การเปลี่ยน
12:20 AM - 12:25 AM	56.9	57.3	-	กษ	49.5	-
12:25 AM - 1:10 AM	56.6	57.2	-	กษ	50.0	-
1:20 AM - 1:25 AM	56.6	57.4	-	กษ	49.4	-
1:25 AM - 12:40 AM	56.7	55.3	-	54.1	48.8	5.3
12:40 AM - 12:45 AM	56.7	53.0	-	57.3	48.6	8.7
12:45 AM - 12:50 AM	56.6	55.8	-	51.9	48.5	2.4
12:50 AM - 12:55 AM	56.7	54.5	-	53.7	48.3	2.4
12:55 AM - 01:00 AM	56.9	51.2	-	58.5	48.2	10.3
01:00 AM - 01:05 AM	56.6	50.6	-	58.3	47.9	10.4
01:05 AM - 01:10 AM	56.6	50.1	-	58.5	48.1	10.4
01:10 AM - 01:15 AM	56.5	50.8	-	58.1	47.7	10.4
01:15 AM - 01:20 AM	56.3	50.7	-	57.9	47.9	10.0
01:20 AM - 01:25 AM	56.2	48.9	-	59.5	47.8	11.1
01:25 AM - 01:30 AM	56.9	49.8	-	59.0	47.9	11.2
01:30 AM - 01:35 AM	57.2	50.2	-	59.0	48.2	11.2
01:35 AM - 01:40 AM	57.1	50.7	-	59.0	48.2	10.8
01:40 AM - 01:45 AM	57.1	49.9	-	59.2	47.9	11.3
01:45 AM - 01:50 AM	57.2	51.8	-	59.0	48.4	10.6
01:50 AM - 01:55 AM	58.1	48.9	-	60.5	47.9	12.6
01:55 AM - 02:00 AM	57.0	48.0	-	60.5	47.3	13.2
02:00 AM - 02:05 AM	57.9	49.1	-	60.2	47.7	12.5
02:05 AM - 02:10 AM	56.9	51.8	-	58.7	47.7	11.0
02:10 AM - 02:15 AM	57.0	51.1	-	58.7	47.5	11.2
02:15 AM - 02:20 AM	56.5	48.0	-	58.8	47.2	11.6
02:20 AM - 02:25 AM	56.9	51.2	-	59.1	47.2	11.3
02:25 AM - 02:30 AM	57.6	50.0	-	58.8	47.2	12.6
02:30 AM - 02:35 AM	56.8	49.3	-	58.9	47.6	11.3
02:35 AM - 02:40 AM	56.6	52.4	-	57.5	47.5	18.0
02:40 AM - 02:45 AM	56.3	50.1	-	58.1	47.8	18.3
02:45 AM - 02:50 AM	56.8	50.1	-	58.8	48.0	10.8
02:50 AM - 02:55 AM	56.7	52.0	-	57.9	50.5	2.4
02:55 AM - 03:00 AM	57.1	51.1	-	57.9	50.3	8.4
03:00 AM - 03:05 AM	57.0	51.5	-	58.6	49.1	9.5
03:05 AM - 03:10 AM	57.3	52.5	-	57.0	50.4	6.6
03:10 AM - 03:15 AM	56.4	53.0	-	56.7	50.0	6.7
03:15 AM - 03:20 AM	56.1	53.4	-	56.7	49.5	2.3
03:20 AM - 03:25 AM	56.5	51.9	-	57.7	49.8	2.9
03:25 AM - 03:30 AM	56.6	53.3	-	56.9	49.8	2.1
03:30 AM - 03:35 AM	56.4	54.6	-	54.7	50.0	2.2
03:35 AM - 03:40 AM	56.1	54.5	-	56.1	50.3	5.8

Approved by Kanoktorn Anek  
Kanoktorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24103109  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report Number : 3116352-1

Page 3 of 3

Sample No.	24103109-33
Parameter	เบี่ยงเบนค่า
Location	บริเวณพื้นที่ของพื้นที่โรงไฟฟ้า (GPS 47P 0718071, 1519314)
Measurement Date	Sep 14 - Sep 15, 2024
Measurement by	Audit Aonsim
Sound Level Meter	NR50 S73

เวลา	เส้นทาง บนฝั่งทะเล	เส้นทาง ในฝั่งภูเขา	ขบวนเดิน (DB(A))		เส้นทางภูเขา	ค่าเงิน
			สถานี	สถานี		
03:40 AM - 03:45 AM	56.7	53.2	-	57.1	50.4	6.7
03:45 AM - 03:50 AM	56.7	53.3	-	57.0	50.8	6.2
03:50 AM - 03:55 AM	56.5	52.9	-	57.0	50.9	6.1
03:55 AM - 04:00 AM	56.3	52.4	-	56.9	50.6	4.9
04:00 AM - 04:05 AM	56.5	53.9	-	56.0	50.7	5.3
04:05 AM - 04:10 AM	56.2	52.8	-	56.5	51.0	5.5
04:10 AM - 04:15 AM	56.2	53.3	-	56.1	51.3	4.8
04:15 AM - 04:20 AM	56.0	54.4	-	53.9	51.5	2.4
04:20 AM - 04:25 AM	56.3	53.5	-	53.6	54.3	-2.9
04:25 AM - 04:30 AM	56.1	55.1	-	47.2	54.3	-2.0
04:30 AM - 04:35 AM	56.1	56.1	-	47.9	-	54.7
04:35 AM - 04:40 AM	56.1	55.8	-	47.3	54.4	-2.1
04:40 AM - 04:45 AM	53.9	56.7	-	44.9	54.5	-
04:45 AM - 04:50 AM	56.3	55.0	-	50.4	53.3	-2.9
04:50 AM - 04:55 AM	56.3	55.1	-	53.1	52.0	1.1
04:55 AM - 05:00 AM	56.2	55.2	-	52.3	52.7	-0.4
05:00 AM - 05:05 AM	56.6	-	-	54.3	52.4	3.3
05:05 AM - 05:10 AM	56.5	54.4	-	55.3	52.0	3.3
05:10 AM - 05:15 AM	57.6	54.0	-	56.1	51.9	6.2
05:15 AM - 05:20 AM	57.5	54.4	-	57.6	52.1	5.5
05:20 AM - 05:25 AM	57.1	54.7	-	58.4	52.1	4.3
05:25 AM - 05:30 AM	58.0	54.0	-	58.6	52.1	6.7
05:30 AM - 05:35 AM	63.0	54.2	-	62.6	52.0	15.6
05:35 AM - 05:40 AM	59.5	54.8	-	60.7	51.9	8.1
05:40 AM - 05:45 AM	58.4	54.2	-	59.3	52.2	7.1
05:45 AM - 05:50 AM	58.3	54.6	-	59.0	52.7	6.2
05:50 AM - 05:55 AM	58.1	54.7	-	58.4	52.7	5.7
05:55 AM - 06:00 AM	58.8	55.3	-	57.2	53.1	4.1
06:00 AM - 07:00 AM	57.8	53.8	55.6	-	51.0	4.6
07:00 AM - 08:00 AM	65.1	61.1	61.8	-	47.2	17.2
08:00 AM - 09:00 AM	63.3	50.7	60.9	-	45.9	15.0
09:00 AM - 10:00 AM	61.9	50.0	60.5	-	44.8	15.7

### Reference Method

- Reference Method :  
 1. In-house method : STM 66-001 based on ISO 1996-1 : 2016  
 2. อ้างอิงมาตรฐานของกรมส่งเสริมการค้าระหว่างประเทศว่าด้วยวิธีการปฏิบัติราชการ กรมส่งเสริมการค้าระหว่างประเทศ พ.ศ. 2567  
 หมายเหตุ :  
 1. ระยะเวลาการปฏิบัติงานของกรมส่งเสริมการค้าระหว่างประเทศในการดำเนินการทดสอบการปฏิบัติตามข้อกำหนดกรม พ.ศ. 2568  
 2. อ้างอิงบทเฉพาะการของกรมส่งเสริมการค้าระหว่างประเทศว่าด้วยวิธีการปฏิบัติราชการที่เปลี่ยนแปลงตาม พ.ศ. 2561  
 Remark :  
 1. กรณีผลการตรวจไม่ผ่าน การทำการทวน 14-15 ตุลาคม 2567  
 2. กรณีผลการตรวจไม่ผ่าน การดำเนินการตาม (Sample No.24101111-3) วันที่ตรวจ 14-15 ตุลาคม 2567  
 3. กรณีการตรวจไม่ผ่าน การดำเนินการตามข้อกำหนดการปฏิบัติราชการของกรมส่งเสริมการค้าระหว่างประเทศว่าด้วยวิธีการปฏิบัติราชการ พ.ศ. 2567

Approved by Kanok Korn Anek  
Kanok Korn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116353-1

Page 1 of 3

Sample No.	24103109-34
Parameter	เสียงรบกวน
Location	บริเวณใกล้บริเวณที่โรงไฟฟ้า (GPS 47° 07'18071, 1519314)
Measurement Date	Sep 15 - Sep 16, 2024
Measurement by	Audit Aonnsim
Sound Level Meter	00B58523

เวลา	เสียงจาก แหล่งกำเนิด	เสียงตาม โถงทางเดิน	ระดับเสียง (dB(A))		เสียงรบกวน	ค่าตาม กฎหมาย
			ภายใน	ภายนอก		
10:00 AM - 11:00 AM	60.6	47.9	60.4	-	48.0	16.4
11:00 AM - 12:00 PM	60.6	47.0	60.4	-	42.4	17.0
12:00 PM - 01:00 PM	58.1	48.8	57.4	-	44.4	13.0
01:00 PM - 02:00 PM	58.1	49.8	57.2	-	44.8	12.4
02:00 PM - 03:00 PM	58.9	49.4	58.4	-	43.7	14.7
03:00 PM - 04:00 PM	60.4	48.6	60.1	-	43.9	16.2
04:00 PM - 05:00 PM	59.9	51.1	59.3	-	46.4	12.7
05:00 PM - 06:00 PM	59.0	55.1	56.7	-	47.7	9.0
06:00 PM - 07:00 PM	62.5	60.6	58.0	-	55.6	2.4
07:00 PM - 08:00 PM	60.3	59.4	57.0	-	51.2	1.7
08:00 PM - 09:00 PM	57.5	59.6	57.1	-	51.4	-
09:00 PM - 10:00 PM	60.7	58.2	60.4	-	51.7	5.4
10:00 PM - 10:05 PM	61.0	58.1	-	60.9	51.5	9.4
10:05 PM - 10:10 PM	61.1	58.8	-	60.2	51.9	8.3
10:10 PM - 10:15 PM	61.1	56.9	-	60.8	51.9	10.1
10:15 PM - 10:20 PM	61.0	55.9	-	62.4	51.4	11.0
10:20 PM - 10:25 PM	61.2	56.0	-	62.6	51.7	10.9
10:25 PM - 10:30 PM	60.3	57.0	-	60.6	52.0	8.4
10:30 PM - 10:35 PM	60.2	57.0	-	60.4	52.0	8.4
10:35 PM - 10:40 PM	60.2	56.4	-	60.9	51.7	9.2
10:40 PM - 10:45 PM	59.7	56.3	-	60.0	51.6	8.4
10:45 PM - 10:50 PM	59.9	55.7	-	60.8	51.5	9.3
10:50 PM - 10:55 PM	60.4	54.7	-	62.0	51.7	9.4
10:55 PM - 11:00 PM	60.4	55.6	-	61.7	51.9	9.3
11:00 PM - 11:05 PM	60.4	55.2	-	61.8	51.5	10.3
11:05 PM - 11:10 PM	59.9	53.9	-	61.6	50.9	10.7
11:10 PM - 11:15 PM	59.9	54.3	-	61.5	50.8	10.7
11:15 PM - 11:20 PM	60.1	55.4	-	61.3	51.3	10.0
11:20 PM - 11:25 PM	60.1	55.4	-	61.2	51.2	10.0
11:25 PM - 11:30 PM	60.0	55.4	-	61.2	51.5	9.7
11:30 PM - 11:35 PM	60.2	55.2	-	61.5	52.0	9.5
11:35 PM - 11:40 PM	60.3	54.1	-	62.1	51.6	10.5
11:40 PM - 11:45 PM	59.9	53.4	-	61.8	51.2	10.6
11:45 PM - 11:50 PM	60.1	54.1	-	61.8	51.6	11.3
11:50 PM - 11:55 PM	60.3	54.4	-	62.0	50.7	10.3
11:55 PM - 12:00 AM	60.7	53.7	-	62.0	51.0	11.0
12:00 AM - 12:05 AM	61.0	56.4	-	64.2	52.5	9.7
12:05 AM - 12:10 AM	60.6	55.9	-	61.8	52.5	9.7
12:10 AM - 12:15 AM	60.8	55.1	-	62.4	52.4	10.0
12:15 AM - 12:20 AM	60.7	54.3	-	62.6	52.1	10.5

Approved by Kanokorn Anek  
Kanokorn Anek  
Asst. General Manager





## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116353-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103109-34  
Parameter : เสียงรบกวน  
Location : บ้านพักของพนักงานในไซต์ (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00858523

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
12:20 AM - 12:25 AM	60.7	53.7	-	62.7	51.7	11.0
12:25 AM - 12:30 AM	60.4	54.3	-	62.2	52.1	10.1
12:30 AM - 12:35 AM	60.9	55.1	-	63.1	51.8	11.3
12:35 AM - 12:40 AM	60.7	53.3	-	62.8	52.0	10.8
12:40 AM - 12:45 AM	60.6	53.3	-	62.7	51.7	11.0
12:45 AM - 12:50 AM	60.4	53.4	-	62.4	51.5	10.9
12:50 AM - 12:55 AM	60.3	52.8	-	62.4	51.4	11.0
12:55 AM - 01:00 AM	60.1	53.4	-	62.1	51.6	10.5
01:00 AM - 01:05 AM	59.9	52.4	-	62.0	51.1	10.9
01:05 AM - 01:10 AM	58.5	51.8	-	60.5	50.7	9.8
01:10 AM - 01:15 AM	56.8	50.6	-	57.2	50.6	7.1
01:15 AM - 01:20 AM	57.1	53.1	-	57.9	48.5	9.4
01:20 AM - 01:25 AM	56.6	52.4	-	57.5	48.5	9.0
01:25 AM - 01:30 AM	56.8	51.9	-	58.1	48.4	9.7
01:30 AM - 01:35 AM	56.6	52.4	-	57.5	48.4	9.1
01:35 AM - 01:40 AM	56.7	52.6	-	57.6	49.0	8.6
01:40 AM - 01:45 AM	56.4	52.5	-	57.1	49.7	7.4
01:45 AM - 01:50 AM	56.6	52.6	-	57.4	49.3	8.1
01:50 AM - 01:55 AM	56.6	52.5	-	57.5	49.1	8.4
01:55 AM - 02:00 AM	56.5	52.1	-	57.5	48.6	8.9
02:00 AM - 02:05 AM	56.7	51.4	-	58.1	48.4	9.7
02:05 AM - 02:10 AM	57.5	51.1	-	59.4	48.1	11.3
02:10 AM - 02:15 AM	59.2	51.4	-	61.4	48.0	13.4
02:15 AM - 02:20 AM	60.0	51.3	-	62.4	47.9	14.5
02:20 AM - 02:25 AM	60.2	49.9	-	62.8	47.1	15.7
02:25 AM - 02:30 AM	60.0	50.7	-	62.5	47.8	14.7
02:30 AM - 02:35 AM	60.3	50.0	-	62.9	47.7	15.2
02:35 AM - 02:40 AM	59.8	51.0	-	62.2	46.9	15.5
02:40 AM - 02:45 AM	59.6	49.1	-	62.2	46.8	14.5
02:45 AM - 02:50 AM	60.0	50.0	-	62.5	47.6	14.9
02:50 AM - 02:55 AM	59.8	49.8	-	62.6	47.6	14.7
02:55 AM - 03:00 AM	59.9	50.3	-	62.4	48.0	14.4
03:00 AM - 03:05 AM	60.2	50.7	-	62.7	48.3	14.4
03:05 AM - 03:10 AM	59.8	51.2	-	62.2	48.2	13.6
03:10 AM - 03:15 AM	59.5	51.2	-	61.8	48.9	12.9
03:15 AM - 03:20 AM	59.6	52.2	-	61.7	49.1	12.6
03:20 AM - 03:25 AM	60.3	54.0	-	62.1	49.7	12.4
03:25 AM - 03:30 AM	60.1	52.2	-	62.1	49.7	12.6
03:30 AM - 03:35 AM	60.5	51.5	-	62.9	49.8	13.1
03:35 AM - 03:40 AM	59.6	51.6	-	61.9	49.5	12.4

The above results are valid only for the analyzed test scenario(s) as indicated in the Report. Report of the results can be used as a reference only and should not be used without written consent from the Laboratory. ALS is not responsible for any errors or omissions that may appear in this report. All test results are subject to audit.

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116353-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103109-34  
Parameter : เสียงรบกวน  
Location : บ้านพักของพนักงานในไซต์ (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00858523

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
03:40 AM - 03:45 AM	59.6	51.2	-	61.9	49.6	12.3
03:45 AM - 03:50 AM	59.5	51.4	-	61.8	49.9	11.9
03:50 AM - 03:55 AM	59.8	54.3	-	61.4	50.2	11.2
03:55 AM - 04:00 AM	59.6	55.6	-	60.4	48.7	11.7
04:00 AM - 04:05 AM	60.3	50.6	-	62.8	48.7	14.1
04:05 AM - 04:10 AM	59.6	49.3	-	62.2	48.0	14.2
04:10 AM - 04:15 AM	60.6	50.1	-	62.2	48.3	14.9
04:15 AM - 04:20 AM	59.7	51.3	-	62.0	48.6	12.4
04:20 AM - 04:25 AM	59.6	51.5	-	61.9	48.8	13.1
04:25 AM - 04:30 AM	59.4	51.6	-	61.6	48.9	12.7
04:30 AM - 04:35 AM	59.2	51.6	-	61.1	49.2	11.9
04:35 AM - 04:40 AM	59.5	51.6	-	61.7	49.2	12.5
04:40 AM - 04:45 AM	59.4	53.4	-	61.0	50.1	10.9
04:45 AM - 04:50 AM	59.3	52.5	-	61.3	50.1	11.2
04:50 AM - 04:55 AM	59.2	52.9	-	61.0	50.4	10.6
04:55 AM - 05:00 AM	59.0	53.0	-	60.7	50.1	10.6
05:00 AM - 05:05 AM	59.2	53.6	-	60.8	50.8	10.6
05:05 AM - 05:10 AM	59.4	53.8	-	61.0	51.2	9.8
05:10 AM - 05:15 AM	59.5	53.7	-	61.2	51.6	9.6
05:15 AM - 05:20 AM	59.7	53.3	-	61.6	51.1	10.5
05:20 AM - 05:25 AM	59.4	54.0	-	60.9	51.5	9.4
05:25 AM - 05:30 AM	59.3	53.4	-	61.0	51.1	9.9
05:30 AM - 05:35 AM	58.9	53.4	-	60.5	51.1	9.4
05:35 AM - 05:40 AM	59.1	52.9	-	60.9	49.8	11.1
05:40 AM - 05:45 AM	58.7	52.8	-	60.4	50.4	9.5
05:45 AM - 05:50 AM	58.8	53.1	-	60.4	51.4	9.0
05:50 AM - 05:55 AM	59.3	56.2	-	59.4	52.3	7.1
05:55 AM - 06:00 AM	59.2	56.0	-	59.4	52.5	6.9
06:00 AM - 06:05 AM	59.2	56.2	56.2	59.4	52.3	1.9
07:00 AM - 08:00 AM	64.5	53.4	63.9	-	51.3	12.6
08:00 AM - 09:00 AM	60.7	51.5	60.1	-	47.2	12.9
09:00 AM - 10:00 AM	60.6	49.6	60.2	-	45.9	6.10

Reference Method

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- สถานที่ทำการทดสอบ (ห้องปฏิบัติการ) : บริษัท ออสิม จำกัด (มหาชน) 24 ชั้น และห้องปฏิบัติการทดสอบเสียงรบกวนภายในอาคารของ บริษัท ออสิม จำกัด (มหาชน) ม. 2567
- สถานที่ทำการทดสอบ (ห้องปฏิบัติการ) : บริษัท ออสิม จำกัด (มหาชน) 24 ชั้น และห้องปฏิบัติการทดสอบเสียงรบกวนภายในอาคารของ บริษัท ออสิม จำกัด (มหาชน) ม. 2567

Remark:

1. ผลการทดสอบเสียงรบกวน (ค่าเฉลี่ย) : วันที่ 15-16 กันยายน 2567

2. ผลการทดสอบเสียงรบกวน (ค่าเฉลี่ย) : วันที่ 15-16 กันยายน 2567 (Sample No. 24103113-34 ค่าเฉลี่ย วันที่ 15-16 กันยายน 2567)

3. ค่าเฉลี่ยเสียงรบกวน (ค่าเฉลี่ย) : วันที่ 15-16 กันยายน 2567

The above results are valid only for the analyzed test scenario(s) as indicated in the Report. Report of the results can be used as a reference only and should not be used without written consent from the Laboratory. ALS is not responsible for any errors or omissions that may appear in this report. All test results are subject to audit.

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116353-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103109-35  
Parameter : เสียงรบกวน  
Location : บ้านพักของพนักงานในไซต์ (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 15 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00858523

เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	61.0	49.4	60.7	-	44.0	16.7
11:00 AM - 12:00 PM	60.8	49.5	-	-	43.4	17.1
12:00 PM - 01:00 PM	60.0	49.9	59.6	-	44.6	15.0
01:00 PM - 02:00 PM	59.0	-	-	-	44.8	13.9
02:00 PM - 03:00 PM	59.6	49.5	59.2	-	43.7	15.5
03:00 PM - 04:00 PM	59.5	54.8	57.7	-	43.9	13.8
04:00 PM - 05:00 PM	59.7	51.1	59.1	-	46.6	12.5
05:00 PM - 06:00 PM	59.1	51.7	57.6	-	47.7	11.7
06:00 PM - 07:00 PM	62.2	56.6	60.8	-	55.6	5.2
07:00 PM - 08:00 PM	59.8	56.2	57.3	-	51.3	6.0
08:00 PM - 09:00 PM	57.4	54.3	54.5	-	51.4	2.1
09:00 PM - 10:00 PM	60.7	53.4	59.8	-	51.7	8.1
10:00 PM - 10:05 PM	61.0	51.7	-	63.5	51.5	12.0
10:05 PM - 10:10 PM	61.4	51.8	-	63.9	51.9	12.0
10:10 PM - 10:15 PM	61.3	51.6	-	61.8	51.9	11.9
10:15 PM - 10:20 PM	61.9	51.3	-	64.5	51.4	13.1
10:20 PM - 10:25 PM	61.2	50.2	-	63.8	51.7	12.1
10:25 PM - 10:30 PM	61.0	49.2	-	63.7	52.6	11.7
10:30 PM - 10:35 PM	61.5	50.2	-	64.2	52.0	12.2
10:35 PM - 10:40 PM	62.7	49.8	-	65.5	51.7	13.8
10:40 PM - 10:45 PM	62.5	53.5	-	64.9	51.6	13.3
10:45 PM - 10:50 PM	61.3	53.3	-	63.6	51.5	12.1
10:50 PM - 10:55 PM	60.6	52.0	-	63.0	51.7	11.3
10:55 PM - 11:00 PM	60.6	50.0	-	62.2	51.9	11.3
11:00 PM - 11:05 PM	60.1	49.2	-	62.7	51.2	11.2
11:05 PM - 11:10 PM	63.5	49.1	-	63.2	50.9	12.3
11:10 PM - 11:15 PM	60.8	49.6	-	63.5	50.8	11.7
11:15 PM - 11:20 PM	60.3	49.3	-	63.2	51.3	11.9
11:20 PM - 11:25 PM	60.4	51.0	-	60.9	51.2	11.7
11:25 PM - 11:30 PM	60.7	49.5	-	63.4	51.5	11.9
11:30 PM - 11:35 PM	60.4	50.1	-	63.0	52.0	11.0
11:35 PM - 11:40 PM	60.5	51.3	-	63.6	51.6	11.3
11:40 PM - 11:45 PM	60.5	51.2	-	63.0	51.2	11.8
11:45 PM - 11:50 PM	60.4	50.9	-	62.9	51.6	11.3
11:50 PM - 11:55 PM	60.2	51.4	-	62.6	50.7	11.9
11:55 PM - 12:00 AM	60.4	51.1	-	60.9	51.0	11.9
12:00 AM - 12:05 AM	59.9	50.9	-	62.3	52.5	9.8
12:05 AM - 12:10 AM	59.3	49.3	-	62.3	52.5	9.8
12:10 AM - 12:15 AM	59.1	49.3	-	61.6	52.4	9.2
12:15 AM - 12:20 AM	59.2	51.8	-	61.3	52.1	9.2

The above results are valid only for the analyzed test scenario(s) as indicated in the Report. Report of the results can be used as a reference only and should not be used without written consent from the Laboratory. ALS is not responsible for any errors or omissions that may appear in this report. All test results are subject to audit.

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116353-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103109-35  
Parameter : เสียงรบกวน  
Location : บ้านพักของพนักงานในไซต์ (GPS 47P 0718071, 1519314)  
Measurement Date : Sep 15 - Sep 17, 2024  
Measurement by : Audit



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103109  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report Number : 3116354-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103109-35  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aorasm  
Sound Level Meter : 00159523

เวลา	เสียงจากแหล่งกำเนิด	เสียงรบกวน	เสียงจากกิจกรรมภายในอาคาร		เสียงพื้นฐาน	ค่ารวม
			ภายในอาคาร	ภายนอกอาคาร		
03:40 AM - 03:45 AM	60.8	49.4	-	63.5	49.6	13.9
03:45 AM - 03:50 AM	61.2	49.6	-	63.9	49.9	14.0
03:50 AM - 03:55 AM	61.8	50.5	-	64.5	50.2	14.3
03:55 AM - 04:00 AM	60.7	51.4	-	63.2	49.7	14.5
04:00 AM - 04:05 AM	60.5	49.9	-	63.1	48.7	14.4
04:05 AM - 04:10 AM	60.8	49.1	-	63.5	48.0	15.5
04:10 AM - 04:15 AM	61.0	49.6	-	63.7	48.3	15.4
04:15 AM - 04:20 AM	61.4	50.6	-	64.0	48.5	15.4
04:20 AM - 04:25 AM	60.6	50.0	-	63.2	48.8	14.4
04:25 AM - 04:30 AM	60.9	50.6	-	63.5	48.5	14.6
04:30 AM - 04:35 AM	60.9	51.0	-	63.4	49.2	14.2
04:35 AM - 04:40 AM	60.5	50.9	-	63.0	49.2	13.9
04:40 AM - 04:45 AM	60.5	51.2	-	63.0	50.1	12.9
04:45 AM - 04:50 AM	60.5	52.4	-	62.8	50.1	12.7
04:50 AM - 04:55 AM	60.5	51.1	-	63.0	50.4	12.6
04:55 AM - 05:00 AM	60.4	51.5	-	62.8	50.1	12.7
05:00 AM - 05:05 AM	60.4	53.3	-	62.5	50.8	11.7
05:05 AM - 05:10 AM	60.3	51.4	-	62.7	51.2	11.5
05:10 AM - 05:15 AM	61.2	51.7	-	62.7	51.6	12.1
05:15 AM - 05:20 AM	60.6	51.7	-	63.0	51.1	11.9
05:20 AM - 05:25 AM	60.5	52.4	-	62.8	51.5	11.3
05:25 AM - 05:30 AM	60.9	52.0	-	63.3	51.1	12.2
05:30 AM - 05:35 AM	61.7	52.8	-	64.2	51.1	13.1
05:35 AM - 05:40 AM	61.0	53.7	-	63.1	49.8	13.3
05:40 AM - 05:45 AM	60.8	52.6	-	63.1	50.9	12.2
05:45 AM - 05:50 AM	60.6	53.8	-	62.6	51.4	11.2
05:50 AM - 05:55 AM	60.8	55.7	-	62.4	52.3	10.1
05:55 AM - 06:00 AM	61.1	57.8	-	61.4	52.5	8.9
06:00 AM - 07:00 AM	61.6	55.4	60.4	-	52.3	8.1
07:00 AM - 08:00 AM	62.7	55.1	61.9	-	51.3	10.6
08:00 AM - 09:00 AM	60.9	51.6	60.4	-	42.2	13.2
09:00 AM - 10:00 AM	61.8	51.6	61.4	-	44.9	16.5

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบพกพา รุ่น 024-10 และ เครื่องวัดเสียงแบบติดตั้งภายในอาคารรุ่น 024-10
- ผลการทดสอบ : ผลการทดสอบแสดงให้เห็นว่าระดับเสียงรบกวนจากกิจกรรมภายในอาคารและเสียงพื้นฐานอยู่ในระดับที่ต่ำกว่าค่ามาตรฐานที่กำหนดไว้

### Remarks :

- ผลการทดสอบแสดงให้เห็นว่าระดับเสียงรบกวนจากกิจกรรมภายในอาคารและเสียงพื้นฐานอยู่ในระดับที่ต่ำกว่าค่ามาตรฐานที่กำหนดไว้
- ผลการทดสอบแสดงให้เห็นว่าระดับเสียงรบกวนจากกิจกรรมภายในอาคารและเสียงพื้นฐานอยู่ในระดับที่ต่ำกว่าค่ามาตรฐานที่กำหนดไว้
- ผลการทดสอบแสดงให้เห็นว่าระดับเสียงรบกวนจากกิจกรรมภายในอาคารและเสียงพื้นฐานอยู่ในระดับที่ต่ำกว่าค่ามาตรฐานที่กำหนดไว้

Approved by :   
Kanokkam Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116366-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-1  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aorasm  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	48.7	62.9	42.4
11:00 AM - 12:00 PM	47.2	62.5	41.1
12:00 PM - 01:00 PM	55.7	79.9	41.6
01:00 PM - 02:00 PM	46.6	71.5	41.4
02:00 PM - 03:00 PM	50.8	74.2	40.7
03:00 PM - 04:00 PM	53.7	76.0	42.1
04:00 PM - 05:00 PM	48.2	75.0	42.9
05:00 PM - 06:00 PM	49.0	73.2	42.2
06:00 PM - 07:00 PM	55.7	79.9	42.8
07:00 PM - 08:00 PM	48.4	71.6	42.2
08:00 PM - 09:00 PM	48.3	64.8	42.7
09:00 PM - 10:00 PM	48.2	57.6	42.3
10:00 PM - 10:05 PM	48.7	58.9	48.1
10:05 PM - 10:10 PM	48.4	53.0	47.6
10:10 PM - 10:15 PM	49.0	52.9	48.1
10:15 PM - 10:20 PM	49.5	51.7	47.9
10:20 PM - 10:25 PM	48.7	51.4	47.9
10:25 PM - 10:30 PM	48.5	51.8	47.2
10:30 PM - 10:35 PM	47.8	50.4	46.0
10:35 PM - 10:40 PM	47.9	50.4	46.8
10:40 PM - 10:45 PM	47.8	50.3	47.0
10:45 PM - 10:50 PM	47.5	50.3	46.5
10:50 PM - 10:55 PM	48.4	51.4	47.5
10:55 PM - 11:00 PM	47.9	51.0	46.8
11:00 PM - 11:05 PM	48.8	64.7	47.9
11:05 PM - 11:10 PM	49.5	54.6	48.5
11:10 PM - 11:15 PM	49.5	51.6	48.9
11:15 PM - 11:20 PM	49.5	52.9	48.8
11:20 PM - 11:25 PM	48.9	51.2	46.3
11:25 PM - 11:30 PM	49.5	51.7	47.9
11:30 PM - 11:35 PM	49.1	53.6	48.2
11:35 PM - 11:40 PM	49.3	51.6	48.4
11:40 PM - 11:45 PM	49.7	52.1	48.9
11:45 PM - 11:50 PM	49.0	51.4	48.1
11:50 PM - 11:55 PM	48.8	56.8	47.7
11:55 PM - 12:00 AM	49.1	52.3	48.3
12:00 AM - 12:05 AM	48.7	50.8	48.0
12:05 AM - 12:10 AM	48.9	59.5	48.2
12:10 AM - 12:15 AM	48.0	54.2	48.3
12:15 AM - 12:20 AM	48.9	51.8	48.1

Approved by :   
Kanokkam Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116366-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103113-1  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aorasm  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	48.9	53.5	48.0
12:25 AM - 12:30 AM	49.4	53.8	48.4
12:30 AM - 12:35 AM	49.6	52.4	48.9
12:35 AM - 12:40 AM	49.5	52.3	48.8
12:40 AM - 12:45 AM	49.9	54.8	49.9
12:45 AM - 12:50 AM	51.0	56.9	49.3
12:50 AM - 12:55 AM	50.1	57.7	49.3
12:55 AM - 01:00 AM	51.0	56.2	49.8
01:00 AM - 01:05 AM	51.8	58.0	50.4
01:05 AM - 01:10 AM	51.8	58.1	50.1
01:10 AM - 01:15 AM	51.4	53.8	50.5
01:15 AM - 01:20 AM	52.6	54.7	51.7
01:20 AM - 01:25 AM	52.5	55.6	51.8
01:25 AM - 01:30 AM	52.9	56.3	52.2
01:30 AM - 01:35 AM	53.2	55.3	52.5
01:35 AM - 01:40 AM	54.2	64.5	52.7
01:40 AM - 01:45 AM	53.5	57.2	52.8
01:45 AM - 01:50 AM	53.5	56.4	52.6
01:50 AM - 01:55 AM	53.6	56.5	52.9
01:55 AM - 02:00 AM	53.5	56.0	52.8
02:00 AM - 02:05 AM	53.8	55.1	53.1
02:05 AM - 02:10 AM	54.1	56.5	53.4
02:10 AM - 02:15 AM	53.7	55.1	53.2
02:15 AM - 02:20 AM	53.7	54.7	53.1
02:20 AM - 02:25 AM	53.5	55.2	52.9
02:25 AM - 02:30 AM	53.6	55.7	52.9
02:30 AM - 02:35 AM	53.4	54.6	53.1
02:35 AM - 02:40 AM	53.7	55.9	53.0
02:40 AM - 02:45 AM	53.4	55.9	52.6
02:45 AM - 02:50 AM	52.7	55.0	51.9
02:50 AM - 02:55 AM	52.1	55.5	51.3
02:55 AM - 03:00 AM	51.8	55.0	50.9
03:00 AM - 03:05 AM	51.7	54.5	50.9
03:05 AM - 03:10 AM	51.6	53.1	50.7
03:10 AM - 03:15 AM	52.1	67.1	50.1
03:15 AM - 03:20 AM	52.0	69.8	49.8
03:20 AM - 03:25 AM	52.7	54.5	50.0
03:25 AM - 03:30 AM	54.5	73.8	50.0
03:30 AM - 03:35 AM	50.4	52.5	49.4
03:35 AM - 03:40 AM	49.7	52.6	48.8

Approved by :   
Kanokkam Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116366-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-1  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aorasm  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	49.1	51.3	48.0
03:45 AM - 03:50 AM	48.8	51.0	47.7
03:50 AM - 03:55 AM	48.4	54.0	47.5
03:55 AM - 04:00 AM	50.0	57.4	47.0
04:00 AM - 04:05 AM	47.4	51.4	46.1
04:05 AM - 04:10 AM	48.1	52.3	46.1
04:10 AM - 04:15 AM	46.4	46.4	45.0
04:15 AM - 04:20 AM	46.4	62.9	44.9
04:20 AM - 04:25 AM	45.2	56.2	44.2
04:25 AM - 04:30 AM	49.5	53.0	41.6
04:30 AM - 04:35 AM	44.4	51.5	43.2
04:35 AM - 04:40 AM	44.7	57.4	42.9
04:40 AM - 04:45 AM	44.8	53.9	42.2
04:45 AM - 04:50 AM	43.3	50.5	42.2
04:50 AM - 04:55 AM	50.4	65.1	42.6
04:55 AM - 05:00 AM	44.5	61.2	41.3
05:00 AM - 05:05 AM	50.7	71.5	42.1
05:05 AM - 05:10 AM	50.9	68.9	42.2
05:10 AM - 05:15 AM	46.1	67.1	43.2
05:15 AM - 05:20 AM	49.1	65.9	43.0
05:20 AM - 05:25 AM	54.5	74.0	43.5
05:25 AM - 05:30 AM	50.0	66.2	43.6
05:30 AM - 05:35 AM	54.1	67.5	43.9
05:35 AM - 05:40 AM	60.9	82.5	43.4
05:40 AM - 05:45 AM	51.7	68.6	44.2
05:45 AM - 05:50 AM	48.5	61.7	43.6
05:50 AM - 05:55 AM	49.9	67.6	43.6
05:55 AM - 06:00 AM	51.0	65.6	44.2
06:00 AM - 07:00 AM	52.0	82.0	44.3
07:00 AM - 08:00 AM	50.0	70.2	43.0
08:00 AM - 09:00 AM	52.5	73.8	42.6
09:00 AM - 10:00 AM	51.6	72.6	45.1

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- อุปกรณ์ที่ใช้ในการทดสอบ : เครื่องวัดเสียงแบบพกพา รุ่น 024-10 และ เครื่องวัดเสียงแบบติดตั้งภายในอาคารรุ่น 024-10

Approved by :   
Kanokkam Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116367-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103113-2  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	48.8	70.4	43.1
11:00 AM - 12:00 PM	46.9	77.1	42.9
12:00 PM - 01:00 PM	46.0	66.0	41.7
01:00 PM - 02:00 PM	43.6	57.9	40.8
02:00 PM - 03:00 PM	45.9	76.9	41.0
03:00 PM - 04:00 PM	46.3	64.2	40.7
04:00 PM - 05:00 PM	46.2	62.5	40.0
05:00 PM - 06:00 PM	50.1	67.8	43.6
06:00 PM - 07:00 PM	46.7	80.1	47.3
07:00 PM - 08:00 PM	46.5	66.1	47.6
08:00 PM - 09:00 PM	47.4	76.4	45.4
09:00 PM - 10:00 PM	58.6	83.0	54.0
10:00 PM - 10:55 PM	56.0	73.8	54.9
10:55 PM - 11:00 PM	57.3	78.4	55.3
10:10 PM - 10:15 PM	61.0	75.9	59.2
10:15 PM - 10:20 PM	57.8	77.2	54.4
10:20 PM - 10:25 PM	59.4	72.3	54.7
10:25 PM - 10:30 PM	59.4	73.9	57.9
10:30 PM - 10:35 PM	57.5	67.5	55.9
10:35 PM - 10:40 PM	57.4	78.9	51.8
10:40 PM - 10:45 PM	53.2	67.8	50.8
10:45 PM - 10:50 PM	54.6	69.1	50.2
10:50 PM - 10:55 PM	56.1	74.7	50.9
10:55 PM - 11:00 PM	54.9	64.0	51.5
11:00 PM - 11:05 PM	53.4	66.5	50.6
11:05 PM - 11:10 PM	53.3	73.0	50.8
11:10 PM - 11:15 PM	50.2	64.2	50.2
11:15 PM - 11:20 PM	53.9	53.9	49.3
11:20 PM - 11:25 PM	52.3	66.0	49.4
11:25 PM - 11:30 PM	50.7	59.0	49.4
11:30 PM - 11:35 PM	50.7	64.8	48.7
11:35 PM - 11:40 PM	53.1	83.6	49.3
11:40 PM - 11:45 PM	50.0	58.8	49.2
11:45 PM - 11:50 PM	50.4	66.7	49.3
11:50 PM - 11:55 PM	51.5	59.9	49.7
11:55 PM - 12:00 AM	54.4	84.7	49.5
12:00 AM - 12:05 AM	50.8	58.6	50.0
12:05 AM - 12:10 AM	52.8	64.8	51.1
12:10 AM - 12:15 AM	57.9	84.4	51.3
12:15 AM - 12:20 AM	51.6	69.4	50.8

The above results are valid only for the analyzed tested scenario as indicated in this report. No part of the report or information may be reproduced or used in any form without the written consent of the laboratory. ALS Laboratory Group (Thailand) Limited is not responsible for the use of the results in any other context.

Approved by

Kanokkom Anek  
Asst. General Manager

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ALS LABORATORY GROUP (THAILAND) CO., LTD. (AUS) LIMITED COMPANY



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116367-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103113-2  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	51.2	76.2	49.9
12:30 AM - 12:35 AM	52.1	78.3	50.1
12:35 AM - 12:40 AM	52.3	61.6	50.5
12:40 AM - 12:45 AM	51.4	67.1	50.6
12:45 AM - 12:50 AM	52.8	80.0	50.7
12:50 AM - 12:55 AM	52.7	60.7	51.3
12:55 AM - 12:59 AM	51.6	58.6	51.4
12:59 AM - 01:00 AM	51.4	58.3	50.8
01:00 AM - 01:05 AM	51.4	60.6	50.8
01:05 AM - 01:10 AM	52.0	56.3	51.3
01:10 AM - 01:15 AM	52.6	56.6	52.1
01:15 AM - 01:20 AM	53.4	65.1	55.1
01:20 AM - 01:25 AM	53.3	62.6	52.8
01:25 AM - 01:30 AM	53.6	69.6	52.8
01:30 AM - 01:35 AM	54.6	66.4	53.4
01:35 AM - 01:40 AM	54.5	59.5	54.0
01:40 AM - 01:45 AM	54.3	56.9	53.7
01:45 AM - 01:50 AM	55.5	70.7	53.8
01:50 AM - 01:55 AM	54.4	56.3	53.9
01:55 AM - 02:00 AM	55.0	60.4	53.9
02:00 AM - 02:05 AM	55.5	60.6	54.1
02:05 AM - 02:10 AM	55.9	73.7	54.2
02:10 AM - 02:15 AM	54.6	58.5	53.8
02:15 AM - 02:20 AM	56.0	66.6	53.9
02:20 AM - 02:25 AM	56.7	60.8	54.2
02:25 AM - 02:30 AM	56.7	63.4	54.6
02:30 AM - 02:35 AM	56.6	63.8	54.6
02:35 AM - 02:40 AM	58.0	63.2	55.0
02:40 AM - 02:45 AM	54.0	62.3	54.1
02:45 AM - 02:50 AM	58.1	63.0	53.8
02:50 AM - 02:55 AM	57.3	63.0	53.7
02:55 AM - 03:00 AM	54.1	62.6	55.9
03:00 AM - 03:05 AM	52.2	55.5	54.1
03:05 AM - 03:10 AM	57.1	63.0	53.7
03:10 AM - 03:15 AM	58.3	63.2	55.4
03:15 AM - 03:20 AM	58.1	63.4	54.1
03:20 AM - 03:25 AM	58.2	62.9	53.0
03:25 AM - 03:30 AM	59.4	63.6	56.1
03:30 AM - 03:35 AM	54.8	63.0	52.7
03:35 AM - 03:40 AM	58.6	63.4	54.0

The above results are valid only for the analyzed tested scenario as indicated in this report. No part of the report or information may be reproduced or used in any form without the written consent of the laboratory. ALS Laboratory Group (Thailand) Limited is not responsible for the use of the results in any other context.

Approved by

Kanokkom Anek  
Asst. General Manager

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ALS LABORATORY GROUP (THAILAND) CO., LTD. (AUS) LIMITED COMPANY



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116367-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-2  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	58.4	67.9	52.8
03:45 AM - 03:50 AM	56.4	69.1	52.0
03:50 AM - 03:55 AM	59.3	66.9	53.0
03:55 AM - 04:00 AM	60.0	64.8	56.2
04:00 AM - 04:05 AM	60.2	64.4	56.7
04:05 AM - 04:10 AM	59.3	64.5	54.3
04:10 AM - 04:15 AM	60.1	67.9	56.9
04:15 AM - 04:20 AM	59.8	65.5	55.4
04:20 AM - 04:25 AM	58.5	61.8	52.9
04:25 AM - 04:30 AM	56.4	66.1	50.0
04:30 AM - 04:35 AM	56.7	60.8	53.2
04:35 AM - 04:40 AM	51.5	61.0	46.8
04:40 AM - 04:45 AM	53.1	60.8	45.8
04:45 AM - 04:50 AM	51.8	59.8	44.4
04:50 AM - 04:55 AM	50.7	64.4	43.6
04:55 AM - 05:00 AM	50.3	58.8	42.3
05:00 AM - 05:05 AM	46.7	57.2	42.0
05:05 AM - 05:10 AM	45.8	58.3	40.5
05:10 AM - 05:15 AM	48.1	65.7	42.8
05:15 AM - 05:20 AM	48.0	58.9	43.2
05:20 AM - 05:25 AM	49.5	70.9	43.4
05:25 AM - 05:30 AM	47.8	64.7	43.6
05:30 AM - 05:35 AM	50.4	71.3	43.5
05:35 AM - 05:40 AM	45.3	55.6	42.8
05:40 AM - 05:45 AM	45.3	55.4	43.3
05:45 AM - 05:50 AM	45.8	60.9	43.9
05:50 AM - 05:55 AM	47.0	60.1	43.3
05:55 AM - 06:00 AM	47.1	63.7	43.6
06:00 AM - 07:00 AM	51.6	74.2	43.4
07:00 AM - 08:00 AM	51.5	76.7	42.4
08:00 AM - 09:00 AM	51.5	76.3	40.3
09:00 AM - 10:00 AM	51.1	73.1	40.7

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ข้อมูลที่ได้จากการตรวจวัด ค่ามาตรฐานค่าระดับความดังเสียงตามมาตรฐาน 24 ชั่วโมง ตามข้อกำหนดของกรมควบคุมมลพิษ พ.ศ. 2567

The above results are valid only for the analyzed tested scenario as indicated in this report. No part of the report or information may be reproduced or used in any form without the written consent of the laboratory. ALS Laboratory Group (Thailand) Limited is not responsible for the use of the results in any other context.

Approved by

Kanokkom Anek  
Asst. General Manager

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ALS LABORATORY GROUP (THAILAND) CO., LTD. (AUS) LIMITED COMPANY



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116368-1

P/O : 4106004666  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103113-3  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	52.8	81.4	40.1
11:00 AM - 12:00 PM	47.8	73.7	39.3
12:00 PM - 01:00 PM	47.8	74.9	40.4
01:00 PM - 02:00 PM	47.9	69.5	41.4
02:00 PM - 03:00 PM	47.8	79.6	41.4
03:00 PM - 04:00 PM	46.4	67.9	40.2
04:00 PM - 05:00 PM	53.2	83.2	43.1
05:00 PM - 06:00 PM	54.1	78.3	45.2
06:00 PM - 07:00 PM	50.8	66.1	44.1
07:00 PM - 08:00 PM	53.0	76.3	49.6
08:00 PM - 09:00 PM	55.2	80.6	50.5
09:00 PM - 10:00 PM	52.4	74.0	50.9
10:00 PM - 10:05 PM	53.3	78.4	48.9
10:05 PM - 10:10 PM	50.3	58.9	48.7
10:10 PM - 10:15 PM	52.2	64.9	48.6
10:15 PM - 10:20 PM	50.2	56.0	46.6
10:20 PM - 10:25 PM	50.9	76.7	49.3
10:25 PM - 10:30 PM	49.6	60.6	47.8
10:30 PM - 10:35 PM	50.6	55.5	48.4
10:35 PM - 10:40 PM	49.9	59.1	48.1
10:40 PM - 10:45 PM	50.2	56.1	48.7
10:45 PM - 10:50 PM	51.8	64.2	50.0
10:50 PM - 10:55 PM	52.7	63.0	51.1
10:55 PM - 11:00 PM	52.7	76.7	51.1
11:00 PM - 11:05 PM	54.3	77.8	50.8
11:05 PM - 11:10 PM	52.0	61.7	50.2
11:10 PM - 11:15 PM	51.8	76.8	48.5
11:15 PM - 11:20 PM	52.7	74.6	48.4
11:20 PM - 11:25 PM	50.4	64.4	49.0
11:25 PM - 11:30 PM	50.4	56.1	46.9
11:30 PM - 11:35 PM	51.3	74.5	48.8
11:35 PM - 11:40 PM	50.5	64.4	49.0
11:40 PM - 11:45 PM	50.3	72.7	46.6
11:45 PM - 11:50 PM	52.3	64.3	48.9
11:50 PM - 11:55 PM	50.4	56.1	49.2
11:55 PM - 12:00 AM	50.2	51.6	48.9
12:00 AM - 12:05 AM	50.5	58.6	49.4
12:05 AM - 12:10 AM	50.1	66.2	48.9
12:10 AM - 12:15 AM	50.4	55.8	50.2
12:15 AM - 12:20 AM	50.4	55.6	49.5

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Approved by

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Asst. General Manager

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ALS LABORATORY GROUP (THAILAND) CO., LTD. (AUS) LIMITED COMPANY



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtek, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116368-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-3  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Asomdim  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	50.2	53.9	49.2
12:25 AM - 12:30 AM	50.6	60.8	49.7
12:30 AM - 12:35 AM	51.1	56.5	50.2
12:35 AM - 12:40 AM	51.7	61.2	50.4
12:40 AM - 12:45 AM	51.6	64.2	50.8
12:45 AM - 12:50 AM	51.9	64.8	50.9
12:50 AM - 12:55 AM	52.5	56.1	51.6
12:55 AM - 01:00 AM	53.0	59.9	52.1
01:00 AM - 01:05 AM	52.8	58.3	52.2
01:05 AM - 01:10 AM	53.4	68.0	52.6
01:10 AM - 01:15 AM	53.6	61.2	52.7
01:15 AM - 01:20 AM	53.1	60.7	52.3
01:20 AM - 01:25 AM	52.8	56.4	52.1
01:25 AM - 01:30 AM	53.2	55.4	52.5
01:30 AM - 01:35 AM	53.9	67.7	52.5
01:35 AM - 01:40 AM	53.3	56.2	52.6
01:40 AM - 01:45 AM	53.5	56.8	52.9
01:45 AM - 01:50 AM	53.6	56.8	53.0
01:50 AM - 01:55 AM	53.4	55.9	52.7
01:55 AM - 02:00 AM	52.7	55.7	52.2
02:00 AM - 02:05 AM	53.0	57.2	52.3
02:05 AM - 02:10 AM	52.9	56.0	52.2
02:10 AM - 02:15 AM	52.7	55.3	52.2
02:15 AM - 02:20 AM	52.9	54.7	52.3
02:20 AM - 02:25 AM	52.4	54.9	51.9
02:25 AM - 02:30 AM	52.3	54.2	51.6
02:30 AM - 02:35 AM	52.0	56.7	51.4
02:35 AM - 02:40 AM	52.2	55.4	51.5
02:40 AM - 02:45 AM	52.8	61.8	51.3
02:45 AM - 02:50 AM	52.1	55.2	51.3
02:50 AM - 02:55 AM	51.6	66.2	51.0
02:55 AM - 03:00 AM	52.2	69.0	50.8
03:00 AM - 03:05 AM	51.7	70.1	50.3
03:05 AM - 03:10 AM	52.0	69.7	49.7
03:10 AM - 03:15 AM	51.8	65.4	49.4
03:15 AM - 03:20 AM	50.6	58.4	49.1
03:20 AM - 03:25 AM	50.5	58.5	48.7
03:25 AM - 03:30 AM	51.1	66.7	48.7
03:30 AM - 03:35 AM	50.8	58.4	49.2
03:35 AM - 03:40 AM	51.8	66.6	49.2

The above results are valid only for the analyzed test period. No other results are valid for the purpose of this report. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtek, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116368-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-3  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Asomdim  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	51.8	57.9	48.9
03:45 AM - 03:50 AM	51.2	58.3	48.6
03:50 AM - 03:55 AM	51.1	58.9	48.3
03:55 AM - 04:00 AM	50.5	59.2	48.2
04:00 AM - 04:05 AM	50.0	59.9	47.7
04:05 AM - 04:10 AM	48.6	58.1	47.5
04:10 AM - 04:15 AM	50.4	64.4	47.5
04:15 AM - 04:20 AM	48.1	58.2	46.8
04:20 AM - 04:25 AM	49.4	60.4	46.6
04:25 AM - 04:30 AM	48.6	60.2	46.3
04:30 AM - 04:35 AM	48.4	59.8	44.8
04:35 AM - 04:40 AM	45.2	56.8	44.2
04:40 AM - 04:45 AM	44.2	56.4	43.2
04:45 AM - 04:50 AM	45.3	57.7	42.0
04:50 AM - 04:55 AM	50.7	63.4	41.6
04:55 AM - 05:00 AM	49.9	70.2	41.0
05:00 AM - 05:05 AM	53.6	72.2	41.0
05:05 AM - 05:10 AM	50.9	66.9	41.6
05:10 AM - 05:15 AM	55.3	75.1	42.0
05:15 AM - 05:20 AM	56.2	76.8	43.2
05:20 AM - 05:25 AM	55.5	77.3	42.7
05:25 AM - 05:30 AM	52.4	71.0	42.7
05:30 AM - 05:35 AM	49.5	66.8	42.8
05:35 AM - 05:40 AM	51.1	71.1	42.7
05:40 AM - 05:45 AM	49.9	67.1	42.8
05:45 AM - 05:50 AM	51.2	68.6	41.8
05:50 AM - 05:55 AM	50.3	64.3	42.0
05:55 AM - 06:00 AM	49.5	63.7	42.1
06:00 AM - 06:05 AM	53.9	73.7	43.6
06:05 AM - 06:10 AM	51.0	72.4	44.2
06:10 AM - 06:15 AM	53.2	73.2	44.1
06:15 AM - 06:20 AM	54.4	78.1	41.8

Reference Method :

- In-house method : STM 05-001 based on ISO 1996-1 : 2016
- ไม่พบการวัดเสียงรบกวนเกิน 120 เดซิเบลเอ (dBA) ในระยะเวลา 24 ชั่วโมง และระดับเสียงรบกวนที่วัดได้ไม่เกินค่ามาตรฐานที่กำหนดในกฎกระทรวง ก. 2567

The above results are valid only for the analyzed test period. No other results are valid for the purpose of this report. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

Approved by

Kanokorn Anek

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtek, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116368-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-4  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 13 - Sep 14, 2024  
Measurement by : Audit Asomdim  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	51.3	73.5	44.0
11:00 AM - 12:00 PM	52.8	81.5	44.5
12:00 PM - 01:00 PM	49.8	74.0	43.4
01:00 PM - 02:00 PM	48.7	71.6	42.7
02:00 PM - 03:00 PM	51.5	74.2	43.3
03:00 PM - 04:00 PM	48.2	70.4	42.7
04:00 PM - 05:00 PM	49.0	67.4	43.1
05:00 PM - 06:00 PM	48.7	65.2	44.2
06:00 PM - 07:00 PM	52.4	76.0	49.5
07:00 PM - 08:00 PM	52.0	74.5	50.6
08:00 PM - 09:00 PM	52.0	75.6	49.9
09:00 PM - 10:00 PM	59.9	75.5	56.8
10:00 PM - 10:05 PM	57.6	70.7	55.8
10:05 PM - 10:10 PM	56.7	71.6	54.6
10:10 PM - 10:15 PM	55.0	65.4	52.9
10:15 PM - 10:20 PM	53.9	66.1	52.2
10:20 PM - 10:25 PM	53.1	61.7	51.5
10:25 PM - 10:30 PM	53.8	61.5	51.8
10:30 PM - 10:35 PM	54.3	58.3	52.4
10:35 PM - 10:40 PM	53.3	64.2	51.6
10:40 PM - 10:45 PM	53.6	51.8	51.8
10:45 PM - 10:50 PM	55.6	67.4	52.0
10:50 PM - 10:55 PM	54.1	58.5	52.7
10:55 PM - 11:00 PM	53.9	62.4	52.4
11:00 PM - 11:05 PM	54.2	58.5	52.6
11:05 PM - 11:10 PM	54.8	59.3	53.1
11:10 PM - 11:15 PM	54.8	60.4	52.7
11:15 PM - 11:20 PM	53.9	59.6	52.3
11:20 PM - 11:25 PM	54.6	63.8	51.7
11:25 PM - 11:30 PM	53.8	57.0	52.1
11:30 PM - 11:35 PM	54.0	54.5	52.5
11:35 PM - 11:40 PM	53.4	59.3	51.6
11:40 PM - 11:45 PM	52.8	54.4	52.9
11:45 PM - 11:50 PM	52.9	54.9	52.2
11:50 PM - 11:55 PM	51.1	70.8	49.1
11:55 PM - 12:00 AM	50.3	64.1	47.4
12:00 AM - 12:05 AM	49.2	53.7	47.2
12:05 AM - 12:10 AM	49.4	60.4	47.3
12:10 AM - 12:15 AM	48.6	54.2	46.9
12:15 AM - 12:20 AM	49.3	56.4	47.6

The above results are valid only for the analyzed test period. No other results are valid for the purpose of this report. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

Approved by

Kanokorn Anek

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangtek, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116368-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-4  
Parameter : Noise  
Location : บ้านหนองนา (GPS 47P 0721966, 1520776) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 13 - Sep 14, 2024  
Measurement by : Audit Asomdim  
Sound Level Meter : 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	49.8	54.3	47.9
12:25 AM - 12:30 AM	50.5	57.8	48.6
12:30 AM - 12:35 AM	50.9	57.4	48.8
12:35 AM - 12:40 AM	50.2	57.8	48.4
12:40 AM - 12:45 AM	49.8	57.7	48.3
12:45 AM - 12:50 AM	49.5	57.5	48.2
12:50 AM - 12:55 AM	49.8	57.8	48.9
12:55 AM - 01:00 AM	49.8	58.4	49.3
01:00 AM - 01:05 AM	50.4	56.0	49.3
01:05 AM - 01:10 AM	50.8	55.9	49.9
01:10 AM - 01:15 AM	51.1	61.1	50.3
01:15 AM - 01:20 AM	52.5	73.5	51.1
01:20 AM - 01:25 AM	54.9	82.5	52.2
01:25 AM - 01:30 AM	54.8	72.8	52.5
01:30 AM - 01:35 AM	54.3	77.7	52.8
01:35 AM - 01:40 AM	54.0	75.0	52.5
01:40 AM - 01:45 AM	53.6	67.6	52.5
01:45 AM - 01:50 AM	53.5	63.9	52.9
01:50 AM - 01:55 AM	53.2	67.1	52.5
01:55 AM - 02:00 AM	53.6	60.6	52.5
02:00 AM - 02:05 AM	53.4	60.6	52.3
02:05 AM - 02:10 AM	53.0	63.5	52.0
02:10 AM - 02:15 AM	54.6	74.8	52.1
02:15 AM - 02:20 AM	51.6	59.5	51.9
02:20 AM - 02:25 AM	53.6	77.2	51.9
02:25 AM - 02:30 AM	54.1	60.6	52.5
02:30 AM - 02:35 AM	53.7	73.4	51.4
02:35 AM - 02:40 AM	52.2	61.1	51.6
02:40 AM - 02:45 AM	53.5	61.3	51.3
02:45 AM - 02:50 AM	52.1	55.8	51.2
02:50 AM - 02:55 AM	52.7	57.8	51.3
02:55 AM - 03:00 AM	52.8	59.1	50.7
03:00 AM - 03:05 AM	52.9	59.2	50.7
03:05 AM - 03:10 AM	52.4	54.9	51.0
03:10 AM - 03:15 AM	52.6	59.1	51.1
03:15 AM - 03:20 AM	53.0	59.0	50.7
03:20 AM - 03:25 AM	53.5	59.0	50.4
03:25 AM - 03:30 AM	54.0	60.2	50.3
03:30 AM - 03:35 AM	53.9	60.4	49.9
03:35 AM - 03:40 AM	55.1	60.2	50.3

The above results are valid only for the analyzed test period. No other results are valid for the purpose of this report. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116370-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-4  
Parameter : Noise  
Location : บ้านหนองปลา (GPS 47P 0721966, 1520776) (หน้าวัด) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710638

Page 1 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	54.3	60.9	49.7
03:45 AM - 03:50 AM	52.8	60.9	49.6
03:50 AM - 03:55 AM	53.2	72.3	49.5
03:55 AM - 04:00 AM	52.1	73.0	49.4
04:00 AM - 04:05 AM	52.8	59.3	49.3
04:05 AM - 04:10 AM	52.7	60.8	49.2
04:10 AM - 04:15 AM	52.0	65.1	49.5
04:15 AM - 04:20 AM	51.7	71.0	49.4
04:20 AM - 04:25 AM	50.6	57.5	48.3
04:25 AM - 04:30 AM	49.8	54.7	48.1
04:30 AM - 04:35 AM	50.0	56.7	48.1
04:35 AM - 04:40 AM	50.0	57.7	47.3
04:40 AM - 04:45 AM	47.1	56.7	45.5
04:45 AM - 04:50 AM	47.0	56.7	45.1
04:50 AM - 04:55 AM	48.1	58.0	45.7
04:55 AM - 05:00 AM	48.1	58.9	45.5
05:00 AM - 05:05 AM	47.4	62.0	44.9
05:05 AM - 05:10 AM	46.4	60.3	43.9
05:10 AM - 05:15 AM	45.6	57.7	43.4
05:15 AM - 05:20 AM	47.0	56.8	44.2
05:20 AM - 05:25 AM	51.5	67.7	45.1
05:25 AM - 05:30 AM	50.7	70.3	44.8
05:30 AM - 05:35 AM	54.8	64.9	45.0
05:35 AM - 05:40 AM	51.4	62.7	43.7
05:40 AM - 05:45 AM	48.5	59.9	44.8
05:45 AM - 05:50 AM	51.4	65.9	46.7
05:50 AM - 05:55 AM	52.5	66.7	45.9
05:55 AM - 06:00 AM	51.7	76.4	45.4
06:00 AM - 07:00 AM	50.5	71.4	44.2
07:00 AM - 08:00 AM	53.0	77.0	44.1
08:00 AM - 09:00 AM	54.0	80.4	44.2
09:00 AM - 10:00 AM	52.9	78.4	42.8

### Reference Method :

1. In-house method : STH 06-001 based on ISO 1996-1 : 2016
2. ไม่พบข้อมูลมาตรฐานอื่นที่เกี่ยวข้องกับการวัดระดับเสียง 24 ชั่วโมง ตามข้อกำหนดของกรมควบคุมมลพิษว่าด้วยการวัดระดับเสียง พ.ศ. 2567

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Approved by

Kanokkom Anuk  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116370-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-5  
Parameter : Noise  
Location : บ้านหนองปลา (GPS 47P 0721966, 1520776) (หน้าวัด) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710638

Page 1 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	49.8	73.5	42.1
11:00 AM - 12:00 PM	49.4	74.2	40.8
12:00 PM - 01:00 PM	44.8	70.3	41.1
01:00 PM - 02:00 PM	49.8	75.6	43.8
02:00 PM - 03:00 PM	47.0	69.1	43.8
03:00 PM - 04:00 PM	47.2	70.5	43.2
04:00 PM - 05:00 PM	57.4	82.1	44.3
05:00 PM - 06:00 PM	58.4	83.4	54.6
06:00 PM - 07:00 PM	52.6	70.2	49.5
07:00 PM - 08:00 PM	57.7	79.0	55.5
08:00 PM - 09:00 PM	55.3	73.4	53.1
09:00 PM - 10:00 PM	54.0	64.8	52.5
10:00 PM - 10:55 PM	52.0	59.8	50.7
10:55 PM - 11:00 PM	51.4	54.0	50.2
10:10 PM - 10:15 PM	52.1	58.1	50.9
10:15 PM - 10:20 PM	53.0	62.0	51.1
10:20 PM - 10:25 PM	52.4	57.2	51.2
10:25 PM - 10:30 PM	52.6	58.8	51.5
10:30 PM - 10:35 PM	52.4	55.2	51.4
10:35 PM - 10:40 PM	52.6	57.3	51.5
10:40 PM - 10:45 PM	51.9	57.1	50.6
10:45 PM - 10:50 PM	51.7	57.0	50.7
10:50 PM - 10:55 PM	53.7	62.2	50.7
10:55 PM - 11:00 PM	52.8	55.8	50.8
11:00 PM - 11:05 PM	51.1	55.9	49.6
11:05 PM - 11:10 PM	51.6	55.2	49.9
11:10 PM - 11:15 PM	53.7	67.7	49.9
11:15 PM - 11:20 PM	51.8	62.9	50.1
11:20 PM - 11:25 PM	51.7	61.6	50.3
11:25 PM - 11:30 PM	51.7	64.1	49.9
11:30 PM - 11:35 PM	51.9	64.1	49.5
11:35 PM - 11:40 PM	51.7	63.0	49.7
11:40 PM - 11:45 PM	51.4	56.5	48.7
11:45 PM - 11:50 PM	49.9	55.2	49.0
11:50 PM - 11:55 PM	50.6	55.1	49.3
11:55 PM - 12:00 AM	50.0	57.8	49.2
12:00 AM - 12:05 AM	50.5	55.7	49.2
12:05 AM - 12:10 AM	46.9	54.9	49.1
12:10 AM - 12:15 AM	50.5	58.5	49.2
12:15 AM - 12:20 AM	50.3	54.4	48.9

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116370-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-5  
Parameter : Noise  
Location : บ้านหนองปลา (GPS 47P 0721966, 1520776) (หน้าวัด) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710638

Page 2 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	50.9	62.0	48.9
12:35 AM - 12:40 AM	49.9	54.8	49.2
12:40 AM - 12:45 AM	52.8	66.9	49.4
12:45 AM - 12:50 AM	49.9	54.8	49.2
12:50 AM - 12:55 AM	51.4	61.4	49.2
12:55 AM - 01:00 AM	51.1	66.7	49.3
01:00 AM - 01:05 AM	51.5	67.8	49.3
01:05 AM - 01:10 AM	50.4	67.8	48.9
01:10 AM - 01:15 AM	52.9	65.3	49.3
01:15 AM - 01:20 AM	50.0	64.1	49.2
01:20 AM - 01:25 AM	50.4	54.6	49.4
01:25 AM - 01:30 AM	53.6	68.2	49.9
01:30 AM - 01:35 AM	53.0	70.1	50.1
01:35 AM - 01:40 AM	50.9	56.6	50.1
01:40 AM - 01:45 AM	51.1	57.0	50.1
01:45 AM - 01:50 AM	54.4	67.5	50.2
01:50 AM - 01:55 AM	54.7	68.8	50.2
01:55 AM - 02:00 AM	54.8	67.4	50.3
02:00 AM - 02:05 AM	52.3	65.9	50.4
02:05 AM - 02:10 AM	51.5	66.3	50.5
02:10 AM - 02:15 AM	51.4	59.3	50.4
02:15 AM - 02:20 AM	53.8	60.5	50.6
02:20 AM - 02:25 AM	50.8	64.5	50.1
02:25 AM - 02:30 AM	53.0	64.1	50.0
02:30 AM - 02:35 AM	51.6	63.1	50.0
02:35 AM - 02:40 AM	51.3	63.0	50.0
02:40 AM - 02:45 AM	51.7	64.9	49.9
02:45 AM - 02:50 AM	51.4	63.6	49.8
02:50 AM - 02:55 AM	52.4	65.9	50.1
02:55 AM - 03:00 AM	52.9	64.3	50.5
03:00 AM - 03:05 AM	53.0	67.1	50.2
03:05 AM - 03:10 AM	53.0	65.4	50.8
03:10 AM - 03:15 AM	57.7	68.2	50.1
03:15 AM - 03:20 AM	56.2	71.4	49.8
03:20 AM - 03:25 AM	55.2	66.2	49.6
03:25 AM - 03:30 AM	58.2	66.9	49.9
03:30 AM - 03:35 AM	58.0	71.2	49.9
03:35 AM - 03:40 AM	55.4	66.7	49.8

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116370-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-5  
Parameter : Noise  
Location : บ้านหนองปลา (GPS 47P 0721966, 1520776) (หน้าวัด) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710638

Page 3 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	56.9	70.4	49.6
03:45 AM - 03:50 AM	51.0	60.8	49.6
03:50 AM - 03:55 AM	53.8	66.4	49.5
03:55 AM - 04:00 AM	53.9	70.9	48.9
04:00 AM - 04:05 AM	49.8	56.1	48.6
04:05 AM - 04:10 AM	49.7	70.7	47.9
04:10 AM - 04:15 AM	49.6	60.4	47.7
04:15 AM - 04:20 AM	49.3	64.9	47.6
04:20 AM - 04:25 AM	49.3	66.7	47.5
04:25 AM - 04:30 AM	48.9	59.5	47.7
04:30 AM - 04:35 AM	49.8	56.0	46.7
04:35 AM - 04:40 AM	53.9	65.4	47.1
04:40 AM - 04:45 AM	51.5	61.0	46.3
04:45 AM - 04:50 AM	49.8	56.7	46.0
04:50 AM - 04:55 AM	47.4	61.9	44.0
04:55 AM - 05:00 AM	47.3	56.9	43.7
05:00 AM - 05:05 AM	47.9	61.2	43.9
05:05 AM - 05:10 AM	47.0	61.0	44.3
05:10 AM - 05:15 AM	50.1	69.8	44.5
05:15 AM - 05:20 AM	50.3	72.1	43.1
05:20 AM - 05:25 AM	44.6	57.6	41.9
05:25 AM - 05:30 AM	45.7	68.2	41.4
05:30 AM - 05:35 AM	46.4	63.9	41.7
05:35 AM - 05:40 AM	50.6	67.5	41.9
05:40 AM - 05:45 AM	50.6	66.8	42.3
05:45 AM - 05:50 AM	47.8	65.2	42.8
05:50 AM - 05:55 AM	44.2	64.3	41.9
05:55 AM - 06:00 AM	46.7	57.8	42.8
06:00 AM - 07:00 AM	49.5	71.4	42.5
07:00 AM - 08:00 AM	54.2	77.5	42.1
08:00 AM - 09:00 AM	50.8	75.2	42.6
09:00 AM - 10:00 AM	51.1	73.6	44.1

### Reference Method :

1. In-house method : STH 06-001 based on ISO 1996-1 : 2016
2. ไม่พบข้อมูลมาตรฐานอื่นที่เกี่ยวข้องกับการวัดระดับเสียง 24 ชั่วโมง ตามข้อกำหนดของกรมควบคุมมลพิษว่าด้วยการวัดระดับเสียง พ.ศ. 2567

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116372-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103113-6  
Parameter Noise  
Location ชุมชนบ้านนา (GPS 479 0721966, 1520776) (ชุมชนบ้านนา) (Shut down)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Audit Aoonim  
Sound Level Meter 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	49.0	67.2	43.2
11:00 AM - 12:00 PM	51.0	74.2	44.3
12:00 PM - 01:00 PM	48.7	63.6	44.8
01:00 PM - 02:00 PM	56.9	86.1	43.7
02:00 PM - 03:00 PM	52.3	74.3	43.4
03:00 PM - 04:00 PM	52.5	78.7	46.7
04:00 PM - 05:00 PM	50.7	70.6	44.2
05:00 PM - 06:00 PM	64.1	85.0	60.2
06:00 PM - 07:00 PM	53.1	78.5	50.4
07:00 PM - 08:00 PM	56.2	71.7	53.4
08:00 PM - 09:00 PM	58.4	72.3	56.5
09:00 PM - 10:00 PM	59.4	71.6	57.6
10:00 PM - 10:55 PM	57.6	60.9	56.2
10:55 PM - 11:00 PM	57.5	60.8	55.9
11:00 PM - 11:05 PM	57.8	60.9	56.2
11:05 PM - 11:10 PM	52.7	61.4	51.4
11:10 PM - 11:15 PM	58.3	62.3	54.6
11:15 PM - 11:20 PM	59.0	67.1	57.2
11:20 PM - 11:25 PM	58.6	61.7	57.0
11:25 PM - 11:30 PM	58.8	61.9	57.6
11:30 PM - 11:35 PM	58.1	62.1	55.9
11:35 PM - 11:40 PM	57.3	61.3	55.1
11:40 PM - 11:45 PM	57.2	60.8	55.1
11:45 PM - 11:50 PM	60.3	76.9	55.6
11:50 PM - 11:55 PM	56.8	62.9	55.0
11:55 PM - 12:00 AM	57.0	64.5	54.6
12:00 AM - 12:05 AM	56.6	59.7	54.4
12:05 AM - 12:10 AM	56.0	59.7	53.5
12:10 AM - 12:15 AM	55.8	60.1	52.7
12:15 AM - 12:20 AM	55.5	59.2	52.6
12:20 AM - 12:25 AM	56.1	62.2	52.4
12:25 AM - 12:30 AM	55.4	60.3	51.8
12:30 AM - 12:35 AM	55.4	60.7	51.1
12:35 AM - 12:40 AM	54.3	59.8	48.2
12:40 AM - 12:45 AM	53.3	59.1	46.6
12:45 AM - 12:50 AM	53.6	59.8	45.5
12:50 AM - 12:55 AM	55.3	62.2	50.5
12:55 AM - 1:00 AM	54.6	60.4	49.2
1:00 AM - 1:05 AM	54.8	60.4	49.0
1:05 AM - 1:10 AM	54.7	59.2	49.3

The above results are valid only for the analyzed period (sample) as indicated in this report. No other results are valid for any other period or location. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116372-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. 24103113-6  
Parameter Noise  
Location ชุมชนบ้านนา (GPS 479 0721966, 1520776) (ชุมชนบ้านนา) (Shut down)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Audit Aoonim  
Sound Level Meter 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	53.9	58.7	49.3
12:25 AM - 12:30 AM	54.9	58.9	50.0
12:30 AM - 12:35 AM	53.5	58.2	49.0
12:35 AM - 12:40 AM	53.9	59.4	49.2
12:40 AM - 12:45 AM	52.9	58.8	48.8
12:45 AM - 12:50 AM	53.7	63.6	49.7
12:50 AM - 12:55 AM	52.4	57.9	48.8
12:55 AM - 01:00 AM	53.5	72.5	49.4
01:00 AM - 01:05 AM	50.5	57.2	49.1
01:05 AM - 01:10 AM	52.9	59.3	49.4
01:10 AM - 01:15 AM	51.1	57.3	49.6
01:15 AM - 01:20 AM	50.4	55.1	49.5
01:20 AM - 01:25 AM	51.2	73.4	49.9
01:25 AM - 01:30 AM	51.6	55.3	50.4
01:30 AM - 01:35 AM	51.1	57.9	50.1
01:35 AM - 01:40 AM	58.3	52.1	49.7
01:40 AM - 01:45 AM	51.1	55.7	49.9
01:45 AM - 01:50 AM	50.2	53.3	49.5
01:50 AM - 01:55 AM	50.4	50.4	49.7
01:55 AM - 02:00 AM	51.2	56.9	50.1
02:00 AM - 02:05 AM	50.2	54.0	49.6
02:05 AM - 02:10 AM	49.9	56.6	49.3
02:10 AM - 02:15 AM	50.1	51.8	49.7
02:15 AM - 02:20 AM	50.4	56.7	49.4
02:20 AM - 02:25 AM	49.3	51.2	48.7
02:25 AM - 02:30 AM	50.5	73.2	49.8
02:30 AM - 02:35 AM	49.3	51.3	48.8
02:35 AM - 02:40 AM	49.0	52.3	48.5
02:40 AM - 02:45 AM	55.1	71.7	49.3
02:45 AM - 02:50 AM	48.8	51.9	48.3
02:50 AM - 02:55 AM	49.4	54.5	48.8
02:55 AM - 03:00 AM	50.4	61.1	48.8
03:00 AM - 03:05 AM	51.5	67.5	48.6
03:05 AM - 03:10 AM	50.8	62.1	48.4
03:10 AM - 03:15 AM	56.9	48.1	47.8
03:15 AM - 03:20 AM	48.7	51.5	47.8
03:20 AM - 03:25 AM	49.0	56.5	47.6
03:25 AM - 03:30 AM	48.0	54.0	47.5
03:30 AM - 03:35 AM	49.1	59.0	47.4
03:35 AM - 03:40 AM	48.4	56.1	47.2

The above results are valid only for the analyzed period (sample) as indicated in this report. No other results are valid for any other period or location. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116372-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103113-6  
Parameter Noise  
Location ชุมชนบ้านนา (GPS 479 0721966, 1520776) (ชุมชนบ้านนา) (Shut down)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Audit Aoonim  
Sound Level Meter 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	48.2	59.9	46.3
03:45 AM - 03:50 AM	47.2	53.4	46.6
03:50 AM - 03:55 AM	47.1	50.5	46.7
03:55 AM - 04:00 AM	47.3	52.3	46.6
04:00 AM - 04:05 AM	48.1	55.1	46.4
04:05 AM - 04:10 AM	47.6	55.7	46.2
04:10 AM - 04:15 AM	47.0	55.2	46.1
04:15 AM - 04:20 AM	47.4	60.8	45.9
04:20 AM - 04:25 AM	46.5	50.2	45.4
04:25 AM - 04:30 AM	46.2	50.5	45.4
04:30 AM - 04:35 AM	46.0	56.3	44.8
04:35 AM - 04:40 AM	46.1	54.3	45.1
04:40 AM - 04:45 AM	45.1	53.6	44.0
04:45 AM - 04:50 AM	47.5	62.4	43.6
04:50 AM - 04:55 AM	45.1	57.2	42.8
04:55 AM - 05:00 AM	46.4	61.9	42.3
05:00 AM - 05:05 AM	47.6	61.8	42.8
05:05 AM - 05:10 AM	48.7	64.5	44.2
05:10 AM - 05:15 AM	46.7	59.6	43.1
05:15 AM - 05:20 AM	47.8	58.6	43.4
05:20 AM - 05:25 AM	48.7	65.1	43.7
05:25 AM - 05:30 AM	51.1	63.0	43.5
05:30 AM - 05:35 AM	50.1	65.7	43.8
05:35 AM - 05:40 AM	50.1	67.0	43.1
05:40 AM - 05:45 AM	49.0	67.5	43.9
05:45 AM - 05:50 AM	47.5	62.2	43.5
05:50 AM - 05:55 AM	49.4	59.8	44.4
05:55 AM - 06:00 AM	53.6	73.3	44.5
06:00 AM - 07:00 AM	53.2	75.4	44.2
07:00 AM - 08:00 AM	52.0	74.6	42.9
08:00 AM - 09:00 AM	53.0	71.6	44.0
09:00 AM - 10:00 AM	53.1	76.4	43.0

Reference Method :

1. In-house method : STN 06-001 based on ISO 1996-1 : 2016
2. มาตรฐานการวัดและประเมินผลเสียงตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ 24 ธันวาคม 2558

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116372-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103113-7  
Parameter Noise  
Location ชุมชนบ้านนา (GPS 479 0721966, 1520776) (ชุมชนบ้านนา) (Shut down)  
Measurement Date Sep 16 - Sep 17, 2024  
Measurement by Audit Aoonim  
Sound Level Meter 00710638

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	55.0	81.6	42.7
11:00 AM - 12:00 PM	47.4	64.4	41.2
12:00 PM - 01:00 PM	49.3	75.1	40.9
01:00 PM - 02:00 PM	52.1	74.7	40.7
02:00 PM - 03:00 PM	53.3	76.6	44.2
03:00 PM - 04:00 PM	54.6	71.3	50.4
04:00 PM - 05:00 PM	53.5	70.5	48.7
05:00 PM - 06:00 PM	50.2	80.2	44.0
06:00 PM - 07:00 PM	51.6	64.5	48.7
07:00 PM - 08:00 PM	54.5	75.6	51.8
08:00 PM - 09:00 PM	56.0	66.6	53.2
09:00 PM - 10:00 PM	54.8	61.2	55.3
10:00 PM - 10:55 PM	59.3	70.3	56.1
10:55 PM - 11:00 PM	58.5	62.2	56.2
11:00 PM - 11:05 PM	54.4	63.4	55.6
11:05 PM - 11:10 PM	54.4	64.5	55.9
11:10 PM - 11:15 PM	54.4	64.1	56.4
11:15 PM - 11:20 PM	58.2	62.6	56.4
11:20 PM - 11:25 PM	59.3	63.4	56.3
11:25 PM - 11:30 PM	58.0	62.7	55.8
11:30 PM - 11:35 PM	58.3	63.0	55.2
11:35 PM - 11:40 PM	57.9	63.2	55.2
11:40 PM - 11:45 PM	58.1	60.1	55.1
11:45 PM - 11:50 PM	57.6	63.4	54.5
11:50 PM - 11:55 PM	57.6	65.4	54.7
11:55 PM - 12:00 PM	56.8	64.3	53.4
12:00 PM - 12:05 PM	56.1	61.3	52.8
12:05 PM - 12:10 PM	55.8	61.5	51.8
12:10 PM - 12:15 PM	54.1	61.5	51.4
12:15 PM - 12:20 PM	54.8	60.4	51.9
12:20 PM - 12:25 PM	55.2	63.1	51.1
12:25 PM - 12:30 PM	54.4	63.1	51.4
12:30 PM - 12:35 PM	54.2	63.0	48.4
12:35 PM - 12:40 PM	53.4	64.2	50.1
12:40 PM - 12:45 PM	54.8	64.8	50.5
12:45 PM - 12:50 PM	54.4	64.9	50.7
12:50 PM - 12:55 PM	53.8	64.8	46.1
12:55 PM - 1:00 AM	52.9	67.6	46.3
1:00 AM - 1:05 AM	48.4	57.3	45.4
1:05 AM - 1:10 AM	53.0	64.5	46.1

The above results are valid only for the analyzed period (sample) as indicated in this report. No other results are valid for any other period or location. The results are not to be used for any other purpose. The results are not to be used for any other purpose. The results are not to be used for any other purpose.

Approved by

Kanokkorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf PP NKK Co., Ltd.  
99 Moo 17, King Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116372-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103113-7  
Parameter : Noise  
Location : บ้านนาใหม่ (GPS 47P 0721966, 1520776) (พิกัด) (Shut down)  
Measurement Date : Sep 10 - Sep 17, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710638

Page 2 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	49.7	52.6	45.5
12:25 AM - 12:30 AM	48.6	55.8	45.7
12:30 AM - 12:35 AM	51.0	58.9	45.8
12:35 AM - 12:40 AM	51.4	62.8	46.5
12:40 AM - 12:45 AM	52.1	65.6	46.8
12:45 AM - 12:50 AM	49.4	57.6	46.8
12:50 AM - 12:55 AM	48.6	60.9	46.8
12:55 AM - 01:00 AM	50.6	67.8	47.4
01:00 AM - 01:05 AM	50.3	64.2	47.7
01:05 AM - 01:10 AM	50.4	68.1	47.3
01:10 AM - 01:15 AM	49.3	57.4	46.5
01:15 AM - 01:20 AM	49.3	57.8	46.3
01:20 AM - 01:25 AM	47.0	49.6	46.3
01:25 AM - 01:30 AM	50.5	64.1	46.7
01:30 AM - 01:35 AM	50.9	63.3	47.2
01:35 AM - 01:40 AM	50.7	58.1	47.5
01:40 AM - 01:45 AM	48.1	54.6	47.3
01:45 AM - 01:50 AM	52.2	64.6	48.1
01:50 AM - 01:55 AM	51.4	58.8	48.5
01:55 AM - 02:00 AM	50.5	56.1	49.1
02:00 AM - 02:05 AM	51.4	61.4	48.9
02:05 AM - 02:10 AM	52.9	62.2	48.5
02:10 AM - 02:15 AM	54.8	59.5	52.7
02:15 AM - 02:20 AM	53.7	63.9	48.9
02:20 AM - 02:25 AM	53.5	60.4	49.9
02:25 AM - 02:30 AM	52.3	66.2	52.2
02:30 AM - 02:35 AM	51.5	65.8	49.3
02:35 AM - 02:40 AM	51.1	61.8	50.6
02:40 AM - 02:45 AM	54.5	64.4	49.2
02:45 AM - 02:50 AM	53.8	65.7	49.1
02:50 AM - 02:55 AM	54.3	70.3	49.3
02:55 AM - 03:00 AM	53.6	60.4	48.9
03:00 AM - 03:05 AM	53.1	61.2	48.8
03:05 AM - 03:10 AM	52.8	65.5	54.4
03:10 AM - 03:15 AM	52.9	63.9	47.7
03:15 AM - 03:20 AM	53.0	68.5	47.2
03:20 AM - 03:25 AM	54.3	66.4	46.7
03:25 AM - 03:30 AM	57.3	65.7	51.3
03:30 AM - 03:35 AM	57.3	61.4	54.0
03:35 AM - 03:40 AM	56.0	61.9	46.7

The above results are only for the analysis and are not to be used as a basis for any legal action. The results are subject to change without notice. The results are not to be used for any other purpose without the written consent of ALS.

Approved by

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## Analysis / Test Report

Client : Gulf PP NKK Co., Ltd.  
99 Moo 17, King Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116372-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103113-7  
Parameter : Noise  
Location : บ้านนาใหม่ (GPS 47P 0721966, 1520776) (พิกัด) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710638

Page 3 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	57.5	65.3	53.7
03:45 AM - 03:50 AM	57.4	65.7	50.4
03:50 AM - 03:55 AM	51.3	61.0	45.2
03:55 AM - 04:00 AM	50.8	60.4	44.9
04:00 AM - 04:05 AM	53.0	61.4	45.4
04:05 AM - 04:10 AM	53.1	62.2	45.6
04:10 AM - 04:15 AM	45.6	51.2	44.6
04:15 AM - 04:20 AM	50.7	63.2	45.1
04:20 AM - 04:25 AM	51.7	60.9	45.0
04:25 AM - 04:30 AM	50.9	66.0	44.3
04:30 AM - 04:35 AM	56.1	60.4	42.7
04:35 AM - 04:40 AM	51.2	61.0	41.7
04:40 AM - 04:45 AM	54.5	60.5	42.1
04:45 AM - 04:50 AM	56.1	66.6	46.1
04:50 AM - 04:55 AM	49.4	65.1	42.5
04:55 AM - 05:00 AM	48.3	62.2	40.8
05:00 AM - 05:05 AM	45.9	57.3	41.8
05:05 AM - 05:10 AM	48.5	59.1	41.7
05:10 AM - 05:15 AM	51.1	70.9	42.5
05:15 AM - 05:20 AM	53.6	72.0	43.1
05:20 AM - 05:25 AM	53.7	66.7	43.2
05:25 AM - 05:30 AM	54.2	69.3	44.7
05:30 AM - 05:35 AM	52.1	67.7	44.2
05:35 AM - 05:40 AM	53.0	64.9	43.4
05:40 AM - 05:45 AM	53.5	69.3	43.6
05:45 AM - 05:50 AM	52.2	65.6	43.6
05:50 AM - 05:55 AM	47.2	61.2	43.5
05:55 AM - 06:00 AM	50.8	59.5	42.9
06:00 AM - 06:05 AM	52.0	77.4	42.9
06:05 AM - 06:10 AM	52.4	78.7	43.1
06:10 AM - 06:15 AM	47.0	73.2	41.6
06:15 AM - 06:20 AM	54.0	76.8	49.4

Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. มาตรฐานการวัดระดับเสียงรบกวน : ระเบียบกระทรวงมหาดไทยว่าด้วยการควบคุมการวัดระดับเสียงรบกวน พ.ศ. 2567

Approved by

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## Analysis / Test Report

Client : Gulf PP NKK Co., Ltd.  
99 Moo 17, King Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116373-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103113-8  
Parameter : Noise  
Location : บ้านนาใหม่ (GPS 47P 0721480, 1518767) (พิกัด) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710639

Page 1 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:50 AM - 12:00 PM	51.9	74.4	45.6
12:00 PM - 01:00 PM	51.8	71.4	44.6
01:00 PM - 02:00 PM	50.2	77.7	43.2
02:00 PM - 03:00 PM	49.7	74.0	44.7
03:00 PM - 04:00 PM	49.2	69.2	43.7
04:00 PM - 05:00 PM	50.5	80.0	43.8
05:00 PM - 06:00 PM	52.7	86.2	41.8
06:00 PM - 07:00 PM	54.8	72.7	40.6
07:00 PM - 08:00 PM	49.4	72.8	43.6
08:00 PM - 09:00 PM	51.1	76.7	42.6
09:00 PM - 10:00 PM	52.0	75.4	42.0
10:00 PM - 10:05 PM	44.8	50.7	43.5
10:05 PM - 10:10 PM	44.9	57.2	43.5
10:10 PM - 10:15 PM	45.1	57.1	43.1
10:15 PM - 10:20 PM	52.0	60.8	44.7
10:20 PM - 10:25 PM	53.1	62.5	50.7
10:25 PM - 10:30 PM	53.5	64.7	49.3
10:30 PM - 10:35 PM	49.0	59.6	45.9
10:35 PM - 10:40 PM	46.3	59.3	43.3
10:40 PM - 10:45 PM	45.9	59.5	43.1
10:45 PM - 10:50 PM	45.9	60.7	42.9
10:50 PM - 10:55 PM	45.3	57.6	42.6
10:55 PM - 11:00 PM	44.5	55.7	42.4
11:00 PM - 11:05 PM	44.3	60.6	41.8
11:05 PM - 11:10 PM	45.1	56.5	42.3
11:10 PM - 11:15 PM	44.7	55.7	41.6
11:15 PM - 11:20 PM	43.8	54.4	41.0
11:20 PM - 11:25 PM	44.4	56.0	40.6
11:25 PM - 11:30 PM	49.6	70.7	41.5
11:30 PM - 11:35 PM	43.4	59.6	41.2
11:35 PM - 11:40 PM	43.1	55.8	41.4
11:40 PM - 11:45 PM	43.0	60.6	41.1
11:45 PM - 11:50 PM	42.7	56.9	40.9
11:50 PM - 11:55 PM	42.5	52.6	41.0
11:55 PM - 12:00 AM	41.9	41.9	41.2
12:00 AM - 12:05 AM	42.9	49.2	41.6
12:05 AM - 12:10 AM	44.2	54.2	41.5
12:10 AM - 12:15 AM	42.5	49.1	41.3
12:15 AM - 12:20 AM	42.9	63.4	41.3
12:20 AM - 12:25 AM	42.8	59.3	41.3

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Approved by

Kanokkam Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf PP NKK Co., Ltd.  
99 Moo 17, King Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116373-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24103113-8  
Parameter : Noise  
Location : บ้านนาใหม่ (GPS 47P 0721480, 1518767) (พิกัด) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00710639

Page 2 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	43.0	53.0	41.4
12:30 AM - 12:35 AM	43.3	57.9	41.5
12:35 AM - 12:40 AM	42.8	56.8	41.0
12:40 AM - 12:45 AM	43.5	64.2	42.0
12:45 AM - 12:50 AM	43.5	68.5	42.0
12:50 AM - 12:55 AM	44.5	56.9	42.0
12:55 AM - 01:00 AM	46.5	57.0	41.5
01:00 AM - 01:05 AM	46.1	58.6	40.9
01:05 AM - 01:10 AM	42.0	56.4	41.4
01:10 AM - 01:15 AM	42.4	48.8	41.2
01:15 AM - 01:20 AM	42.9	50.2	42.1
01:20 AM - 01:25 AM	41.5	51.7	42.5
01:25 AM - 01:30 AM	43.3	51.5	42.3
01:30 AM - 01:35 AM	44.4	57.7	42.5
01:35 AM - 01:40 AM	43.2	58.9	42.9
01:40 AM - 01:45 AM	43.1	47.2	42.0
01:45 AM - 01:50 AM	42.6	57.5	41.3
01:50 AM - 01:55 AM	43.5	55.4	41.5
01:55 AM - 02:00 AM	43.1	56.1	41.8
02:00 AM - 02:05 AM	51.8	64.9	42.5
02:05 AM - 02:10 AM	44.2	54.0	41.6
02:10 AM - 02:15 AM	42.9	54.3	41.6
02:15 AM - 02:20 AM	43.0	50.5	42.0
02:20 AM - 02:25 AM	43.4	42.0	42.0
02:25 AM - 02:30 AM	42.5	54.4	41.4
02:30 AM - 02:35 AM	45.8	57.2	41.8
02:35 AM - 02:40 AM	44.8	53.9	42.7
02:40 AM - 02:45 AM	43.6	46.7	42.5
02:45 AM - 02:50 AM	44.9	61.0	42.8
02:50 AM - 02:55 AM	44.0	50.0	43.0
02:55 AM - 03:00 AM	44.7	55.3	42.9
03:00 AM - 03:05 AM	49.0	58.0	42.8
03:05 AM - 03:10 AM	44.6	57.3	42.9
03:10 AM - 03:15 AM	45.7	57.9	43.4
03:15 AM - 03:20 AM	44.2	55.4	41.9
03:20 AM - 03:25 AM	45.8	54.4	41.9
03:25 AM - 03:30 AM	46.8	56.5	43.9
03:30 AM - 03:35 AM	46.3	53.0	44.4
03:35 AM - 03:40 AM	47.0	51.8	44.5
03:40 AM - 03:45 AM	46.0	55.2	44.9

The above results are only for the analysis and are not to be used as a basis for any legal action. The results are subject to change without notice. The results are not to be used for any other purpose without the written consent of ALS.

Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116373-1

P/O : 4106000466  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-8  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonandm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	54.4	71.8	45.5
03:50 AM - 03:55 AM	48.3	60.5	45.3
03:55 AM - 04:00 AM	49.4	57.3	45.8
04:00 AM - 04:05 AM	51.5	59.0	49.2
04:05 AM - 04:10 AM	52.2	56.9	50.4
04:10 AM - 04:15 AM	50.2	55.3	44.6
04:15 AM - 04:20 AM	49.7	54.4	44.4
04:20 AM - 04:25 AM	50.8	44.9	45.6
04:25 AM - 04:30 AM	49.2	53.1	45.5
04:30 AM - 04:35 AM	49.9	53.8	46.8
04:35 AM - 04:40 AM	50.1	71.2	44.7
04:40 AM - 04:45 AM	50.3	71.7	44.7
04:45 AM - 04:50 AM	48.7	43.9	44.9
04:50 AM - 04:55 AM	47.9	56.5	45.0
04:55 AM - 05:00 AM	48.6	60.1	44.7
05:00 AM - 05:05 AM	50.7	63.9	45.0
05:05 AM - 05:10 AM	51.8	64.8	45.9
05:10 AM - 05:15 AM	53.4	69.0	45.8
05:15 AM - 05:20 AM	57.1	72.5	47.5
05:20 AM - 05:25 AM	55.6	64.3	47.9
05:25 AM - 05:30 AM	53.8	69.0	46.8
05:30 AM - 05:35 AM	53.3	64.4	46.4
05:35 AM - 05:40 AM	53.3	64.7	47.4
05:40 AM - 05:45 AM	55.9	73.3	48.3
05:45 AM - 05:50 AM	55.0	67.9	48.7
05:50 AM - 05:55 AM	50.4	65.5	45.5
05:55 AM - 06:00 AM	49.8	59.1	46.0
06:00 AM - 07:00 AM	52.1	72.0	46.9
07:00 AM - 08:00 AM	53.3	77.0	46.4
08:00 AM - 09:00 AM	50.4	74.8	45.5
09:00 AM - 10:00 AM	49.7	74.3	42.2
10:00 AM - 11:00 AM	50.2	73.3	42.4

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ไม่มีการคำนวณผลกระทบสิ่งแวดล้อมหรือผลกระทบสิ่งแวดล้อมตามขั้นตอนตาม 24 ชั่วโมง แต่ดำเนินการตรวจสอบผลกระทบสิ่งแวดล้อมตามขั้นตอนตาม ม. 2567

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116373-1

P/O : 4106000466  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-9  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonandm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	48.7	74.6	42.7
12:00 PM - 01:00 PM	49.9	71.9	43.3
01:00 PM - 02:00 PM	46.1	67.9	42.8
02:00 PM - 03:00 PM	49.6	69.8	43.8
03:00 PM - 04:00 PM	53.5	75.0	44.4
04:00 PM - 05:00 PM	50.5	75.3	43.8
05:00 PM - 06:00 PM	71.6	96.9	43.6
06:00 PM - 07:00 PM	45.6	71.1	42.0
07:00 PM - 08:00 PM	44.6	63.2	42.4
08:00 PM - 09:00 PM	45.1	65.8	42.0
09:00 PM - 10:00 PM	60.7	77.9	54.1
10:00 PM - 10:05 PM	61.6	64.1	60.0
10:05 PM - 10:10 PM	65.3	70.2	61.1
10:10 PM - 10:15 PM	65.0	67.9	58.8
10:15 PM - 10:20 PM	61.6	69.8	59.9
10:20 PM - 10:25 PM	64.3	69.4	61.1
10:25 PM - 10:30 PM	63.9	68.7	60.8
10:30 PM - 10:35 PM	60.1	65.7	58.6
10:35 PM - 10:40 PM	61.8	60.9	54.8
10:40 PM - 10:45 PM	58.9	70.6	55.7
10:45 PM - 10:50 PM	46.2	64.5	42.3
10:50 PM - 10:55 PM	52.0	63.2	43.8
10:55 PM - 11:00 PM	46.7	57.7	42.3
11:00 PM - 11:05 PM	45.9	62.5	41.4
11:05 PM - 11:10 PM	54.3	63.4	45.1
11:10 PM - 11:15 PM	48.6	61.2	40.4
11:15 PM - 11:20 PM	46.4	62.3	40.2
11:20 PM - 11:25 PM	50.3	62.6	42.3
11:25 PM - 11:30 PM	50.5	71.2	41.3
11:30 PM - 11:35 PM	56.6	69.4	44.6
11:35 PM - 11:40 PM	49.5	63.0	42.2
11:40 PM - 11:45 PM	48.0	63.3	42.5
11:45 PM - 11:50 PM	45.9	57.8	41.7
11:50 PM - 11:55 PM	49.1	67.3	41.4
11:55 PM - 12:00 AM	46.8	60.0	40.0
12:00 AM - 12:05 AM	46.8	61.7	42.2
12:05 AM - 12:10 AM	47.3	64.8	41.3
12:10 AM - 12:15 AM	48.8	63.9	39.6
12:15 AM - 12:20 AM	44.6	64.0	38.5
12:20 AM - 12:25 AM	46.3	66.8	41.3

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Approved by

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116373-1

P/O : 4106000466  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103113-9  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonandm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	48.7	61.9	42.5
12:30 AM - 12:35 AM	50.0	64.8	42.7
12:35 AM - 12:40 AM	48.9	65.1	42.8
12:40 AM - 12:45 AM	50.0	65.5	42.2
12:45 AM - 12:50 AM	51.9	72.7	42.6
12:50 AM - 12:55 AM	51.4	66.0	40.8
12:55 AM - 01:00 AM	50.7	65.5	40.3
01:00 AM - 01:05 AM	49.2	64.5	41.1
01:05 AM - 01:10 AM	48.9	64.8	44.5
01:10 AM - 01:15 AM	49.5	66.1	43.4
01:15 AM - 01:20 AM	48.8	61.7	41.8
01:20 AM - 01:25 AM	48.0	65.0	40.8
01:25 AM - 01:30 AM	47.2	64.4	41.0
01:30 AM - 01:35 AM	49.1	64.5	43.1
01:35 AM - 01:40 AM	48.9	64.2	40.3
01:40 AM - 01:45 AM	50.1	70.8	41.4
01:45 AM - 01:50 AM	50.3	64.3	41.0
01:50 AM - 01:55 AM	50.3	61.4	42.1
01:55 AM - 02:00 AM	49.1	65.9	41.6
02:00 AM - 02:05 AM	51.5	67.9	42.4
02:05 AM - 02:10 AM	49.4	66.1	42.0
02:10 AM - 02:15 AM	49.8	64.3	42.3
02:15 AM - 02:20 AM	49.4	64.3	40.6
02:20 AM - 02:25 AM	51.4	69.7	43.8
02:25 AM - 02:30 AM	50.9	70.6	44.6
02:30 AM - 02:35 AM	50.0	66.4	40.3
02:35 AM - 02:40 AM	51.2	69.3	41.3
02:40 AM - 02:45 AM	48.9	61.9	41.5
02:45 AM - 02:50 AM	47.3	64.2	42.2
02:50 AM - 02:55 AM	47.4	65.6	42.5
02:55 AM - 03:00 AM	48.9	64.3	42.1
03:00 AM - 03:05 AM	48.7	65.3	40.0
03:05 AM - 03:10 AM	50.9	69.6	40.6
03:10 AM - 03:15 AM	52.6	75.3	43.4
03:15 AM - 03:20 AM	49.3	64.3	40.8
03:20 AM - 03:25 AM	49.5	67.5	41.0
03:25 AM - 03:30 AM	48.2	62.6	41.0
03:30 AM - 03:35 AM	51.1	64.1	40.0
03:35 AM - 03:40 AM	50.8	66.6	44.4
03:40 AM - 03:45 AM	50.7	65.7	45.7

The above report is prepared for the use of the client only. It is not to be used for any other purpose without the written consent of ALS. The client is responsible for the accuracy of the data and the results of the analysis. The client is also responsible for the accuracy of the data and the results of the analysis.

Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116373-1

P/O : 4106000466  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-9  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonandm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	49.5	65.4	43.4
03:50 AM - 03:55 AM	47.6	65.9	41.8
03:55 AM - 04:00 AM	48.8	66.3	42.5
04:00 AM - 04:05 AM	47.7	61.0	42.7
04:05 AM - 04:10 AM	47.2	66.4	42.6
04:10 AM - 04:15 AM	64.3	90.3	42.4
04:15 AM - 04:20 AM	49.5	64.7	44.5
04:20 AM - 04:25 AM	48.2	63.4	41.9
04:25 AM - 04:30 AM	49.0	62.4	40.7
04:30 AM - 04:35 AM	52.0	63.2	45.7
04:35 AM - 04:40 AM	51.8	76.9	43.0
04:40 AM - 04:45 AM	48.1	68.7	42.5
04:45 AM - 04:50 AM	47.3	57.8	42.3
04:50 AM - 04:55 AM	47.7	63.5	42.4
04:55 AM - 05:00 AM	51.1	63.2	45.7
05:00 AM - 05:05 AM	52.3	67.4	45.2
05:05 AM - 05:10 AM	50.4	75.5	43.9
05:10 AM - 05:15 AM	49.8	59.7	45.5
05:15 AM - 05:20 AM	46.6	56.0	42.2
05:20 AM - 05:25 AM	47.3	60.8	42.4
05:25 AM - 05:30 AM	49.3	65.6	40.0
05:30 AM - 05:35 AM	47.6	64.6	43.7
05:35 AM - 05:40 AM	49.7	64.1	44.1
05:40 AM - 05:45 AM	51.8	67.8	44.8
05:45 AM - 05:50 AM	48.3	60.0	42.6
05:50 AM - 05:55 AM	48.9	61.6	43.1
05:55 AM - 06:00 AM	45.4	58.2	42.6
06:00 AM - 06:05 AM	46.0	70.0	41.8
06:05 AM - 06:10 AM	46.9	73.2	45.5
06:10 AM - 06:15 AM	53.9	76.3	45.6
06:15 AM - 06:20 AM	51.0	72.1	44.2
06:20 AM - 06:25 AM	54.0	83.7	44.5

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ไม่มีการคำนวณผลกระทบสิ่งแวดล้อมหรือผลกระทบสิ่งแวดล้อมตามขั้นตอนตาม 24 ชั่วโมง แต่ดำเนินการตรวจสอบผลกระทบสิ่งแวดล้อมตามขั้นตอนตาม ม. 2567

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report No. : 3116375-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	2410311J-10
Parameter	Noise
Location	เขาน้อย (GPS 47P 0721480, 1518767) (จุดวัดน้ำ) (Shut down)
Measurement Date	Sep 12 - Sep 13, 2024
Measurement by	Audit Aonsinim
Sound Level Meter	00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	50.6	80.1	45.5
12:00 PM - 01:00 PM	51.8	81.9	45.9
01:00 PM - 02:00 PM	51.1	71.9	45.5
02:00 PM - 03:00 PM	51.9	71.2	44.6
03:00 PM - 04:00 PM	62.1	75.9	56.2
04:00 PM - 05:00 PM	49.4	66.2	46.4
05:00 PM - 06:00 PM	57.0	66.7	54.6
06:00 PM - 07:00 PM	56.0	69.7	54.2
07:00 PM - 08:00 PM	51.9	71.7	45.9
08:00 PM - 09:00 PM	51.3	65.1	46.5
09:00 PM - 10:00 PM	51.0	72.1	46.8
10:00 PM - 10:05 PM	50.2	56.2	46.3
10:05 PM - 10:10 PM	50.3	63.6	45.5
10:10 PM - 10:15 PM	52.8	61.7	46.7
10:15 PM - 10:20 PM	49.3	58.0	47.4
10:20 PM - 10:25 PM	49.3	57.0	45.5
10:25 PM - 10:30 PM	49.8	58.6	46.9
10:30 PM - 10:35 PM	47.6	54.6	44.4
10:35 PM - 10:40 PM	50.5	58.8	45.8
10:40 PM - 10:45 PM	46.7	56.3	45.6
10:45 PM - 10:50 PM	47.8	56.0	45.5
10:50 PM - 10:55 PM	51.3	60.5	45.5
10:55 PM - 11:00 PM	46.5	56.7	45.3
11:00 PM - 11:05 PM	49.8	59.9	46.0
11:05 PM - 11:10 PM	51.5	55.3	45.2
11:10 PM - 11:15 PM	50.4	57.9	45.4
11:15 PM - 11:20 PM	45.9	58.5	45.2
11:20 PM - 11:25 PM	46.2	54.0	45.1
11:25 PM - 11:30 PM	52.3	60.7	46.9
11:30 PM - 11:35 PM	50.9	60.7	45.7
11:35 PM - 11:40 PM	52.6	61.4	45.7
11:40 PM - 11:45 PM	54.1	65.5	44.8
11:45 PM - 11:50 PM	50.7	59.4	46.2
11:50 PM - 11:55 PM	53.5	61.6	45.8
11:55 PM - 12:00 AM	55.2	59.6	51.9
12:00 AM - 12:05 AM	53.7	61.4	45.4
12:05 AM - 12:10 AM	50.8	60.2	46.2
12:10 AM - 12:15 AM	52.4	60.7	46.5
12:15 AM - 12:20 AM	56.1	62.0	46.9
12:20 AM - 12:25 AM	52.8	61.4	45.8

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

Lot ID: 24103113  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report No. : 3116375-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No.	24103113-10
Parameter	Noise
Location	บริเวณทาง (GPS 47P 0721480, 1518767) (ท่าอากาศยาน) (Shut down)
Measurement Date	Sep 12 - Sep 13, 2024
Measurement by	Audit Aporn/s/m
Sound Level Meter	00710610

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:30 AM	57.1	62.2	46.6
12:30 AM - 12:35 AM	56.2	61.6	46.2
12:35 AM - 12:40 AM	58.4	62.7	55.1
12:40 AM - 12:45 AM	56.4	61.2	52.3
12:45 AM - 12:50 AM	57.0	61.8	53.0
12:50 AM - 12:55 AM	54.4	61.1	54.3
12:55 AM - 01:00 AM	58.2	62.3	52.8
01:00 AM - 01:05 AM	58.7	63.1	47.9
01:05 AM - 01:10 AM	59.9	63.0	47.8
01:10 AM - 01:15 AM	60.1	64.8	58.0
01:15 AM - 01:20 AM	59.4	65.4	52.5
01:20 AM - 01:25 AM	59.1	63.8	54.2
01:25 AM - 01:30 AM	58.3	61.1	55.1
01:30 AM - 01:35 AM	58.3	63.0	51.2
01:35 AM - 01:40 AM	58.8	63.3	54.2
01:40 AM - 01:45 AM	57.8	62.7	52.8
01:45 AM - 01:50 AM	57.0	63.0	53.7
01:50 AM - 01:55 AM	58.0	62.8	53.7
01:55 AM - 02:00 AM	56.7	61.2	52.9
02:00 AM - 02:05 AM	54.4	60.7	47.1
02:05 AM - 02:10 AM	56.1	61.9	51.8
02:10 AM - 02:15 AM	55.8	59.8	49.6
02:15 AM - 02:20 AM	54.6	59.9	49.1
02:20 AM - 02:25 AM	54.2	60.9	49.7
02:25 AM - 02:30 AM	51.3	61.1	45.5
02:30 AM - 02:35 AM	52.1	50.7	46.2
02:35 AM - 02:40 AM	50.3	57.5	44.8
02:40 AM - 02:45 AM	48.3	55.6	44.7
02:45 AM - 02:50 AM	47.7	61.0	44.8
02:50 AM - 02:55 AM	47.4	60.6	44.8
02:55 AM - 03:00 AM	47.0	54.8	44.8
03:00 AM - 03:05 AM	54.1	71.8	45.0
03:05 AM - 03:10 AM	54.8	72.7	45.5
03:10 AM - 03:15 AM	53.6	70.8	46.4
03:15 AM - 03:20 AM	54.6	70.1	47.6
03:20 AM - 03:25 AM	56.6	72.7	47.8
03:25 AM - 03:30 AM	57.9	73.2	47.3
03:30 AM - 03:35 AM	56.8	76.3	48.8
03:35 AM - 03:40 AM	56.4	74.7	49.7
03:40 AM - 03:45 AM	55.4	71.4	47.7

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report No. : 3116375-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : CHINK

Sample No.	24103113-10
Parameter	Noise
Location	แนวท่อไอดี (GPS 47P 0721480, 1518767) (จุดชำรุด) (Shut down)
Measurement Date	Sep 12 - Sep 13, 2024
Measurement by	Auti Aonlaim
Sound Level Meter	00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	58.1	74.6	45.0
03:50 AM - 03:55 AM	50.4	60.3	46.2
03:55 AM - 04:00 AM	50.0	60.4	46.0
04:00 AM - 04:05 AM	51.5	62.8	47.3
04:05 AM - 04:10 AM	50.5	61.7	46.7
04:10 AM - 04:15 AM	50.2	58.0	46.1
04:15 AM - 04:20 AM	51.0	65.5	45.9
04:20 AM - 04:25 AM	52.1	65.0	46.3
04:25 AM - 04:30 AM	51.7	63.5	46.3
04:30 AM - 04:35 AM	51.7	62.4	47.2
04:35 AM - 04:40 AM	50.8	54.4	46.2
04:40 AM - 04:45 AM	50.6	59.3	46.1
04:45 AM - 04:50 AM	50.6	60.7	45.7
04:50 AM - 04:55 AM	51.0	65.2	46.7
04:55 AM - 05:00 AM	54.2	70.1	47.2
05:00 AM - 05:05 AM	53.6	74.0	45.6
05:05 AM - 05:10 AM	52.4	66.9	45.4
05:10 AM - 05:15 AM	51.8	61.9	45.9
05:15 AM - 05:20 AM	50.0	60.1	46.8
05:20 AM - 05:25 AM	51.9	67.9	46.8
05:25 AM - 05:30 AM	48.7	63.8	45.4
05:30 AM - 05:35 AM	48.2	62.7	46.2
05:35 AM - 05:40 AM	47.1	59.7	45.1
05:40 AM - 05:45 AM	48.5	65.5	45.3
05:45 AM - 05:50 AM	47.1	54.7	46.1
05:50 AM - 05:55 AM	46.1	51.9	43.3
05:55 AM - 06:00 AM	53.4	65.6	43.3
06:00 AM - 07:00 AM	49.5	75.3	44.0
07:00 AM - 08:00 AM	52.6	70.7	45.1
08:00 AM - 09:00 AM	51.9	72.5	45.1
09:00 AM - 10:00 AM	55.2	88.5	42.9
10:00 AM - 11:00 AM	54.8	84.8	42.7

Reference Method :

1. In-house method : STM 06-001 based on ISO 9996-1 : 2016
2. องค์การอนามัยโลกกำหนดให้ค่าการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงผลต่อสิ่งแวดล้อมที่วัดจากการประกอบกิจการโรงงาน พ.ศ. 2562

Approved by Kanokkom Anek  
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Asst. General Manager

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ASSOCIATOR: SPOUT-HILARIOUS P.O. BOX 444, San Jose, Costa Rica

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received :Sep 18, 2024  
Date Reported :Sep 26, 2024  
Report No. : 3116376-1

P/O : 4106004866  
Project Name : Monitoring EIA

Sample No.	24103113-11
Parameter	Noise
Location	บ้านท่าไกร (GPS 47P 0721480, 1518767) (หยุดวิ่งรถ) (Shut down)
Measurement Date	Sep 13 - Sep 14, 2024
Measurement by	AuTi Aoonsim
Sound Level Meter	00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	58.6	61.0	56.8
12:00 PM - 01:00 PM	44.1	73.6	37.7
01:00 PM - 02:00 PM	53.2	78.5	36.4
02:00 PM - 03:00 PM	53.9	86.9	36.1
03:00 PM - 04:00 PM	56.8		36.0
04:00 PM - 05:00 PM	53.5	79.3	37.0
05:00 PM - 06:00 PM	51.2	79.0	39.8
06:00 PM - 07:00 PM	51.2	81.4	36.2
07:00 PM - 08:00 PM	51.5	78.7	
08:00 PM - 09:00 PM	60.8	69.8	52.8
09:00 PM - 10:00 PM	56.5	86.9	51.5
10:00 PM - 10:05 PM	54.6	67.0	50.0
10:05 PM - 10:10 PM	54.6	66.7	50.1
10:10 PM - 10:15 PM	55.5	68.7	49.6
10:15 PM - 10:20 PM	59.8	71.0	50.5
10:20 PM - 10:25 PM	59.2	82.4	48.4
10:25 PM - 10:30 PM	61.0	71.2	51.2
10:30 PM - 10:35 PM	54.9	69.4	52.3
10:35 PM - 10:40 PM	58.4	69.6	53.5
10:40 PM - 10:45 PM	58.4	68.4	54.6
10:45 PM - 10:50 PM	61.7	67.2	58.0
10:50 PM - 10:55 PM	62.3	68.2	59.8
10:55 PM - 11:00 PM	64.0	78.4	56.5
11:00 PM - 11:05 PM	66.6	82.3	59.5
11:05 PM - 11:10 PM	63.7	69.0	60.3
11:10 PM - 11:15 PM	65.8	71.3	61.0
11:15 PM - 11:20 PM	65.9	70.8	62.7
11:20 PM - 11:25 PM	66.8	75.8	64.1
11:25 PM - 11:30 PM	67.3	78.2	64.0
11:30 PM - 11:35 PM	68.1	72.8	65.9
11:35 PM - 11:40 PM	67.4	71.1	65.1
11:40 PM - 11:45 PM	68.0	73.5	65.1
11:45 PM - 11:50 PM	65.6	70.8	61.1
11:50 PM - 11:55 PM	65.9	72.3	62.8
11:55 PM - 12:00 AM	65.4	69.5	60.4
12:00 AM - 12:05 AM	65.4	72.8	59.4
12:05 AM - 12:10 AM	61.1	71.5	52.6
12:10 AM - 12:15 AM	62.7	72.2	54.2
12:15 AM - 12:20 AM	64.0	72.4	57.3
12:20 AM - 12:24 AM	61.2	64.2	

Approved by Kanokkarn Anek  
Kanokkarn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangkit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116376-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-11  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 13 - Sep 14, 2024  
Measurement by : Audit Aonimsin  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	59.6	72.1	52.5
12:30 AM - 12:35 AM	67.9	81.8	54.2
12:35 AM - 12:40 AM	62.6	72.0	53.7
12:40 AM - 12:45 AM	62.3	66.7	55.5
12:45 AM - 12:50 AM	55.5	67.4	50.2
12:50 AM - 12:55 AM	65.0	77.6	51.9
12:55 AM - 01:00 AM	59.1	68.0	52.1
01:00 AM - 01:05 AM	58.4	64.1	51.0
01:05 AM - 01:10 AM	56.3	64.8	50.6
01:10 AM - 01:15 AM	56.0	64.3	50.4
01:15 AM - 01:20 AM	56.0	69.8	50.2
01:20 AM - 01:25 AM	54.4	68.0	49.9
01:25 AM - 01:30 AM	55.5	64.9	46.2
01:30 AM - 01:35 AM	51.4	63.3	45.0
01:35 AM - 01:40 AM	49.1	63.4	43.3
01:40 AM - 01:45 AM	52.2	64.3	43.0
01:45 AM - 01:50 AM	43.7	54.5	40.5
01:50 AM - 01:55 AM	47.0	59.4	39.6
01:55 AM - 02:00 AM	64.3	77.0	41.8
02:00 AM - 02:05 AM	54.5	64.4	42.2
02:05 AM - 02:10 AM	46.3	62.4	41.7
02:10 AM - 02:15 AM	43.6	50.9	40.2
02:15 AM - 02:20 AM	57.4	71.4	42.2
02:20 AM - 02:25 AM	57.8	72.5	39.7
02:25 AM - 02:30 AM	49.7	66.6	38.7
02:30 AM - 02:35 AM	57.0	70.8	40.1
02:35 AM - 02:40 AM	52.8	61.1	41.5
02:40 AM - 02:45 AM	45.8	53.3	41.1
02:45 AM - 02:50 AM	45.7	53.8	40.7
02:50 AM - 02:55 AM	46.0	54.5	40.4
02:55 AM - 03:00 AM	45.7	57.5	38.1
03:00 AM - 03:05 AM	47.6	66.8	39.0
03:05 AM - 03:10 AM	43.5	57.7	36.8
03:10 AM - 03:15 AM	42.7	48.0	37.3
03:15 AM - 03:20 AM	46.5	65.5	38.0
03:20 AM - 03:25 AM	44.1	59.8	36.8
03:25 AM - 03:30 AM	44.1	59.8	35.3
03:30 AM - 03:35 AM	53.8	67.4	34.9
03:35 AM - 03:40 AM	44.2	56.2	35.3
03:40 AM - 03:45 AM	67.2	90.3	36.1

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Approved by

Kanokkorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangkit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116376-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-11  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 13 - Sep 14, 2024  
Measurement by : Audit Aonimsin  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	50.7	65.0	35.3
03:50 AM - 03:55 AM	49.3	66.5	35.8
03:55 AM - 04:00 AM	56.0	67.6	36.4
04:00 AM - 04:05 AM	49.3	55.2	34.5
04:05 AM - 04:10 AM	49.2	65.2	35.6
04:10 AM - 04:15 AM	43.8	55.4	35.6
04:15 AM - 04:20 AM	40.5	51.6	35.2
04:20 AM - 04:25 AM	50.4	63.2	35.2
04:25 AM - 04:30 AM	35.8	51.9	34.0
04:30 AM - 04:35 AM	44.1	57.9	34.8
04:35 AM - 04:40 AM	36.7	49.1	34.9
04:40 AM - 04:45 AM	46.5	65.9	34.3
04:45 AM - 04:50 AM	42.7	54.8	34.7
04:50 AM - 04:55 AM	41.7	53.2	35.5
04:55 AM - 05:00 AM	43.3	54.7	35.8
05:00 AM - 05:05 AM	69.8	81.2	33.9
05:05 AM - 05:10 AM	37.7	52.7	33.2
05:10 AM - 05:15 AM	48.4	69.2	34.2
05:15 AM - 05:20 AM	35.9	50.5	33.6
05:20 AM - 05:25 AM	61.4	76.6	34.0
05:25 AM - 05:30 AM	57.3	74.2	35.0
05:30 AM - 05:35 AM	40.2	52.9	35.0
05:35 AM - 05:40 AM	37.4	49.3	34.1
05:40 AM - 05:45 AM	37.1	47.6	33.9
05:45 AM - 05:50 AM	68.3	84.7	34.2
05:50 AM - 05:55 AM	50.9	68.5	33.7
05:55 AM - 06:00 AM	43.9	64.4	35.5
06:00 AM - 07:00 AM	58.9	84.9	36.6
07:00 AM - 08:00 AM	58.1	79.8	43.1
08:00 AM - 09:00 AM	51.8	64.3	43.1
09:00 AM - 10:00 AM	60.1	91.2	40.0
10:00 AM - 11:00 AM	61.1	92.1	40.9

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ตามมาตรฐานกรมส่งเสริมการค้าระหว่างประเทศ (สำหรับวัดระดับเสียงในชุมชน) 24 ชั่วโมง และระดับเสียงสูงสุดเกินกว่า 120 เดซิเบลเอ (dBA) ม.ม. 2567

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangkit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116377-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-12  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonimsin  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	50.7	68.6	43.7
12:00 PM - 01:00 PM	52.3	80.1	43.8
01:00 PM - 02:00 PM	50.3	72.7	40.0
02:00 PM - 03:00 PM	51.1	84.6	44.2
03:00 PM - 04:00 PM	49.8	71.0	45.4
04:00 PM - 05:00 PM	49.1	69.2	44.0
05:00 PM - 06:00 PM	51.8	74.5	44.2
06:00 PM - 07:00 PM	60.6	79.0	51.1
07:00 PM - 08:00 PM	48.9	65.3	45.8
08:00 PM - 09:00 PM	56.8	68.1	50.4
09:00 PM - 10:00 PM	52.1	64.5	50.3
10:00 PM - 10:05 PM	48.9	57.7	47.2
10:05 PM - 10:10 PM	48.8	59.3	47.5
10:10 PM - 10:15 PM	49.7	60.7	47.6
10:15 PM - 10:20 PM	53.7	70.2	47.9
10:20 PM - 10:25 PM	50.3	57.8	46.7
10:25 PM - 10:30 PM	51.1	70.4	47.0
10:30 PM - 10:35 PM	50.9	57.0	47.6
10:35 PM - 10:40 PM	52.2	56.9	48.9
10:40 PM - 10:45 PM	50.8	59.2	47.5
10:45 PM - 10:50 PM	48.4	55.3	47.3
10:50 PM - 10:55 PM	51.0	57.9	46.2
10:55 PM - 11:00 PM	50.1	57.0	48.2
11:00 PM - 11:05 PM	48.1	56.3	46.5
11:05 PM - 11:10 PM	49.8	58.1	46.3
11:10 PM - 11:15 PM	50.2	63.2	46.6
11:15 PM - 11:20 PM	48.3	57.5	46.5
11:20 PM - 11:25 PM	47.7	57.2	45.9
11:25 PM - 11:30 PM	50.0	58.5	45.9
11:30 PM - 11:35 PM	50.0	59.0	47.0
11:35 PM - 11:40 PM	49.6	59.7	47.0
11:40 PM - 11:45 PM	48.1	54.0	45.0
11:45 PM - 11:50 PM	47.1	48.6	45.2
11:50 PM - 11:55 PM	47.6	55.5	46.1
11:55 PM - 12:00 AM	50.1	55.6	45.9
12:00 AM - 12:05 AM	47.6	56.8	45.6
12:05 AM - 12:10 AM	49.7	56.0	46.3
12:10 AM - 12:15 AM	49.1	58.3	45.3
12:15 AM - 12:20 AM	48.2	54.5	44.8
12:20 AM - 12:25 AM	49.3	55.4	44.2

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Approved by

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangkit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116377-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-12  
Parameter : Noise  
Location : บ้านใหม่ (GPS 47P 0721480, 1518767) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonimsin  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	52.5	72.2	45.0
12:30 AM - 12:35 AM	52.0	70.3	46.2
12:35 AM - 12:40 AM	51.5	69.9	45.5
12:40 AM - 12:45 AM	50.1	60.9	43.4
12:45 AM - 12:50 AM	49.4	59.6	42.9
12:50 AM - 12:55 AM	50.8	59.6	44.9
12:55 AM - 01:00 AM	43.2	55.4	45.0
01:00 AM - 01:05 AM	49.4	57.2	44.8
01:05 AM - 01:10 AM	46.5	53.3	43.5
01:10 AM - 01:15 AM	46.1	54.5	43.1
01:15 AM - 01:20 AM	47.9	57.0	44.4
01:20 AM - 01:25 AM	46.6	55.5	44.6
01:25 AM - 01:30 AM	45.5	55.4	44.1
01:30 AM - 01:35 AM	50.1	60.2	44.3
01:35 AM - 01:40 AM	47.1	58.6	44.1
01:40 AM - 01:45 AM	47.7	55.1	44.3
01:45 AM - 01:50 AM	48.0	56.2	43.8
01:50 AM - 01:55 AM	46.7	56.5	40.8
01:55 AM - 02:00 AM	44.6	58.0	43.7
02:00 AM - 02:05 AM	50.5	59.8	43.9
02:05 AM - 02:10 AM	47.4	56.6	44.7
02:10 AM - 02:15 AM	51.2	67.3	44.5
02:15 AM - 02:20 AM	52.5	64.3	44.7
02:20 AM - 02:25 AM	52.1	61.9	45.2
02:25 AM - 02:30 AM	50.7	58.6	44.6
02:30 AM - 02:35 AM	53.7	59.7	45.1
02:35 AM - 02:40 AM	52.5	58.5	45.5
02:40 AM - 02:45 AM	52.2	58.9	45.4
02:45 AM - 02:50 AM	47.5	53.2	44.9
02:50 AM - 02:55 AM	52.5	59.3	45.5
02:55 AM - 03:00 AM	50.1	60.1	47.6
03:00 AM - 03:05 AM	57.3	61.3	51.3
03:05 AM - 03:10 AM	54.8	61.0	45.6
03:10 AM - 03:15 AM	55.1	61.2	46.3
03:15 AM - 03:20 AM	56.0	60.3	51.3
03:20 AM - 03:25 AM	54.9	60.1	51.7
03:25 AM - 03:30 AM	46.0	56.0	51.7
03:30 AM - 03:35 AM	55.8	61.2	51.5
03:35 AM - 03:40 AM	55.3	60.6	51.1
03:40 AM - 03:45 AM	57.4	61.1	50.3

The above results are valid only for the analyzed period (sample) as indicated in this report. No part of this report or data shall be reproduced in any form without written consent from the auditor. ALS and/or GNNK (Thailand) Company Limited shall not be responsible for any misuse of the data.

Approved by

Kanokkorn Anek  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116377-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-12  
Parameter : Noise  
Location : บ้านนาไร่ (GPS 47P 0721480, 1518767) (หน้าผา) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	58.3	62.1	56.1
03:50 AM - 03:55 AM	58.0	62.1	51.3
03:55 AM - 04:00 AM	56.4	64.0	53.9
04:00 AM - 04:05 AM	57.7	62.9	54.2
04:05 AM - 04:10 AM	57.3	61.9	53.9
04:10 AM - 04:15 AM	57.3	61.9	50.1
04:15 AM - 04:20 AM	56.4	61.4	51.5
04:20 AM - 04:25 AM	56.7	61.5	52.8
04:25 AM - 04:30 AM	56.7	61.5	52.2
04:30 AM - 04:35 AM	56.7	61.6	52.8
04:35 AM - 04:40 AM	55.7	60.3	51.1
04:40 AM - 04:45 AM	54.1	60.5	46.5
04:45 AM - 04:50 AM	55.3	59.2	51.1
04:50 AM - 04:55 AM	51.9	59.2	47.2
04:55 AM - 05:00 AM	52.6	59.2	46.7
05:00 AM - 05:05 AM	51.7	60.1	44.7
05:05 AM - 05:10 AM	51.3	61.3	44.7
05:10 AM - 05:15 AM	50.5	56.4	44.8
05:15 AM - 05:20 AM	46.6	55.6	43.4
05:20 AM - 05:25 AM	47.3	56.6	43.8
05:25 AM - 05:30 AM	46.0	54.4	43.6
05:30 AM - 05:35 AM	45.7	52.0	43.4
05:35 AM - 05:40 AM	49.2	61.4	43.5
05:40 AM - 05:45 AM	52.7	64.4	44.2
05:45 AM - 05:50 AM	52.7	71.8	44.6
05:50 AM - 05:55 AM	53.5	68.4	45.7
05:55 AM - 06:00 AM	52.1	66.3	46.3
06:00 AM - 07:00 AM	53.5	74.7	48.5
07:00 AM - 08:00 AM	50.9	72.3	45.1
08:00 AM - 09:00 AM	48.1	67.3	42.6
09:00 AM - 10:00 AM	46.9	62.7	43.5
10:00 AM - 11:00 AM	50.3	74.6	49.2

### Reference Method :

1. In-house method : STN 06-001 based on ISO 1996-1 : 2016
2. มีมาตรฐานการวัดเสียงตามกรม (หรือ) มาตรฐานการวัดเสียงตามกรม ฉบับแก้ไขเพิ่มเติม 24 ธันวาคม 2562 และมาตรฐานการวัดเสียงตามกรมฉบับแก้ไขเพิ่มเติม 24 ธันวาคม 2562

The above results are valid only for the parameters listed and are not valid for any other parameters. The results are valid only for the parameters listed and are not valid for any other parameters. The results are valid only for the parameters listed and are not valid for any other parameters.

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116378-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103113-13  
Parameter : Noise  
Location : บ้านนาไร่ (GPS 47P 0721480, 1518767) (หน้าผา) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	46.7	63.6	42.5
12:00 PM - 01:00 PM	49.9	72.6	42.8
01:00 PM - 02:00 PM	48.7	78.4	43.9
02:00 PM - 03:00 PM	58.1	81.4	42.9
03:00 PM - 04:00 PM	53.8	80.5	37.5
04:00 PM - 05:00 PM	54.8	77.3	45.9
05:00 PM - 06:00 PM	53.1	70.9	46.1
06:00 PM - 07:00 PM	65.6	79.1	62.7
07:00 PM - 08:00 PM	49.9	69.6	46.1
08:00 PM - 09:00 PM	47.2	70.5	44.8
09:00 PM - 10:00 PM	45.8	58.4	44.6
10:00 PM - 10:55 PM	46.0	54.2	44.5
10:55 PM - 11:00 PM	45.7	57.0	44.3
11:00 PM - 11:15 PM	45.2	54.1	44.1
11:15 PM - 11:30 PM	45.2	52.8	44.2
11:30 PM - 11:45 PM	45.6	53.0	44.2
11:45 PM - 12:00 PM	45.4	50.7	44.3
12:00 PM - 12:15 PM	45.3	50.0	44.1
12:15 PM - 12:30 PM	50.0	69.2	45.4
12:30 PM - 12:45 PM	45.5	50.6	43.1
12:45 PM - 12:55 PM	45.2	51.6	43.8
12:55 PM - 1:00 PM	50.8	74.5	45.1
1:00 PM - 1:15 PM	46.5	52.0	44.5
1:15 PM - 1:30 PM	48.1	52.3	46.4
1:30 PM - 1:45 PM	49.1	53.3	47.6
1:45 PM - 1:55 PM	48.8	52.4	47.3
1:55 PM - 2:00 PM	46.1	50.9	44.2
2:00 PM - 2:15 PM	46.6	56.5	44.2
2:15 PM - 2:30 PM	47.9	57.2	45.0
2:30 PM - 2:45 PM	46.0	56.9	44.4
2:45 PM - 2:55 PM	46.1	51.0	44.7
2:55 PM - 3:00 PM	46.8	50.4	45.5
3:00 PM - 3:15 PM	45.9	55.0	45.1
3:15 PM - 3:30 PM	48.7	58.0	45.9
3:30 PM - 3:45 PM	47.1	53.4	44.9
3:45 PM - 3:55 PM	46.6	55.0	45.1
3:55 PM - 4:00 PM	46.3	64.4	45.2
4:00 PM - 4:15 AM	47.2	57.2	45.7
4:15 AM - 4:30 AM	46.9	53.5	45.8
4:30 AM - 4:45 AM	45.8	47.9	44.9

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116378-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103113-13  
Parameter : Noise  
Location : บ้านนาไร่ (GPS 47P 0721480, 1518767) (หน้าผา) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	49.8	57.2	45.2
12:30 AM - 12:35 AM	49.8	55.0	43.4
12:35 AM - 12:40 AM	45.9	50.4	45.1
12:40 AM - 12:45 AM	45.5	54.9	44.8
12:45 AM - 12:50 AM	46.9	55.5	44.8
12:50 AM - 12:55 AM	47.1	55.5	45.0
12:55 AM - 01:00 AM	45.4	53.6	44.6
01:00 AM - 01:05 AM	45.6	56.2	44.7
01:05 AM - 01:10 AM	47.2	56.1	44.9
01:10 AM - 01:15 AM	45.4	51.4	44.7
01:15 AM - 01:20 AM	45.4	50.2	44.8
01:20 AM - 01:25 AM	45.3	52.7	44.8
01:25 AM - 01:30 AM	47.4	55.2	44.9
01:30 AM - 01:35 AM	45.4	49.9	44.8
01:35 AM - 01:40 AM	45.5	49.5	45.0
01:40 AM - 01:45 AM	45.0	52.3	44.3
01:45 AM - 01:50 AM	54.9	81.3	44.0
01:50 AM - 01:55 AM	56.6	75.7	43.8
01:55 AM - 02:00 AM	45.4	55.4	43.8
02:00 AM - 02:05 AM	46.8	60.5	43.9
02:05 AM - 02:10 AM	50.2	58.0	44.6
02:10 AM - 02:15 AM	46.5	55.5	43.8
02:15 AM - 02:20 AM	48.2	58.3	43.7
02:20 AM - 02:25 AM	50.0	60.2	44.1
02:25 AM - 02:30 AM	45.5	54.4	44.0
02:30 AM - 02:35 AM	48.5	56.3	44.2
02:35 AM - 02:40 AM	45.9	57.5	44.3
02:40 AM - 02:45 AM	52.7	59.9	44.6
02:45 AM - 02:50 AM	51.9	57.3	45.3
02:50 AM - 02:55 AM	51.7	58.9	46.0
02:55 AM - 03:00 AM	50.6	59.4	44.9
03:00 AM - 03:05 AM	54.2	59.7	45.0
03:05 AM - 03:10 AM	54.9	60.8	45.1
03:10 AM - 03:15 AM	55.0	60.2	45.4
03:15 AM - 03:20 AM	57.3	65.7	54.0
03:20 AM - 03:25 AM	56.4	60.3	51.7
03:25 AM - 03:30 AM	56.6	61.7	50.4
03:30 AM - 03:35 AM	54.6	60.3	51.6
03:35 AM - 03:40 AM	55.8	60.5	49.7
03:40 AM - 03:45 AM	56.4	63.1	46.7

The above results are valid only for the parameters listed and are not valid for any other parameters. The results are valid only for the parameters listed and are not valid for any other parameters. The results are valid only for the parameters listed and are not valid for any other parameters.

Approved by

Kanokorn Anek

Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungdao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116378-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-13  
Parameter : Noise  
Location : บ้านนาไร่ (GPS 47P 0721480, 1518767) (หน้าผา) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonasm  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	56.8	60.5	54.5
03:50 AM - 03:55 AM	51.9	60.9	55.0
03:55 AM - 04:00 AM	57.5	61.2	54.9
04:00 AM - 04:05 AM	57.8	61.0	55.8
04:05 AM - 04:10 AM	57.3	61.9	56.4
04:10 AM - 04:15 AM	58.4	61.9	55.1
04:15 AM - 04:20 AM	57.5	63.7	51.8
04:20 AM - 04:25 AM	59.1	62.5	57.6
04:25 AM - 04:30 AM	57.8	61.9	52.1
04:30 AM - 04:35 AM	58.0	60.9	56.3
04:35 AM - 04:40 AM	58.5	61.4	56.6
04:40 AM - 04:45 AM	58.1	61.3	55.3
04:45 AM - 04:50 AM	58.1	61.0	56.1
04:50 AM - 04:55 AM	58.6	61.2	57.3
04:55 AM - 05:00 AM	57.7	61.8	55.1
05:00 AM - 05:05 AM	56.1	61.6	45.1
05:05 AM - 05:10 AM	54.9	61.1	44.8
05:10 AM - 05:15 AM	54.8	60.4	44.3
05:15 AM - 05:20 AM	53.2	63.0	44.5
05:20 AM - 05:25 AM	54.4	60.0	44.5
05:25 AM - 05:30 AM	55.7	60.6	49.5
05:30 AM - 05:35 AM	56.0	61.0	49.7
05:35 AM - 05:40 AM	55.3	62.3	50.7
05:40 AM - 05:45 AM	53.9	63.0	48.9
05:45 AM - 05:50 AM	53.3	71.2	46.2
05:50 AM - 05:55 AM	51.6	64.6	46.7
05:55 AM - 06:00 AM	53.5	66.8	47.2
06:00 AM - 07:00 AM	51.8	66.3	47.0
07:00 AM - 08:00 AM	51.9	74.2	47.3
08:00 AM - 09:00 AM	49.6	66.2	44.5
09:00 AM - 10:00 AM	50.1	79.9	43.6
10:00 AM - 11:00 AM	49.2	67.3	42.8

### Reference Method :

1. In-house method : STN 06-001 based on ISO 1996-1 : 2016
2. มีมาตรฐานการวัดเสียงตามกรม (หรือ) มาตรฐานการวัดเสียงตามกรม ฉบับแก้ไขเพิ่มเติม 24 ธันวาคม 2562 และมาตรฐานการวัดเสียงตามกรมฉบับแก้ไขเพิ่มเติม 24 ธันวาคม 2562

The above results are valid only for the parameters listed and are not valid for any other parameters. The results are valid only for the parameters listed and are not valid for any other parameters. The results are valid only for the parameters listed and are not valid for any other parameters.

Approved by

Kanokorn Anek

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116379-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-14  
Parameter : Noise  
Location : ถนนวิภาวดี (GPS 47P 0721480, 1518767) (หน้าวัด) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aoodim  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	53.6	80.9	51.3
12:00 PM - 01:00 PM	55.7	76.3	54.7
01:00 PM - 02:00 PM	56.9	90.6	54.5
02:00 PM - 03:00 PM	55.5	71.1	54.5
03:00 PM - 04:00 PM	55.9	81.5	54.6
04:00 PM - 05:00 PM	55.1	75.4	54.3
05:00 PM - 06:00 PM	62.8	77.4	58.3
06:00 PM - 07:00 PM	56.7	83.2	51.1
07:00 PM - 08:00 PM	49.2	77.0	43.6
08:00 PM - 09:00 PM	45.9	65.4	43.9
09:00 PM - 10:00 PM	44.6	61.5	43.3
10:00 PM - 10:55 PM	43.6	49.6	42.9
10:55 PM - 11:00 PM	45.1	51.5	43.3
10:10 PM - 10:15 PM	43.7	53.9	42.7
10:15 PM - 10:20 PM	43.8	46.0	43.1
10:20 PM - 10:25 PM	43.4	48.0	42.7
10:25 PM - 10:30 PM	43.0	48.4	42.2
10:30 PM - 10:35 PM	43.4	53.6	42.3
10:35 PM - 10:40 PM	43.3	50.3	42.5
10:40 PM - 10:45 PM	42.5	50.4	41.6
10:45 PM - 10:50 PM	44.0	53.4	41.7
10:50 PM - 10:55 PM	40.0	49.1	41.7
10:55 PM - 11:00 PM	43.0	49.1	42.3
11:00 PM - 11:05 PM	43.1	47.1	42.3
11:05 PM - 11:10 PM	43.9	50.1	42.1
11:10 PM - 11:15 PM	44.7	51.9	42.1
11:15 PM - 11:20 PM	42.7	48.2	41.8
11:20 PM - 11:25 PM	43.2	64.2	42.1
11:25 PM - 11:30 PM	43.4	54.2	42.3
11:30 PM - 11:35 PM	43.0	51.8	42.2
11:35 PM - 11:40 PM	50.6	64.8	42.6
11:40 PM - 11:45 PM	44.6	53.7	42.0
11:45 PM - 11:50 PM	51.0	61.5	42.2
11:50 PM - 11:55 PM	48.0	64.0	42.2
11:55 PM - 12:00 AM	46.2	61.9	42.0
12:00 AM - 12:05 AM	48.4	61.1	41.7
12:05 AM - 12:10 AM	43.9	55.5	41.7
12:10 AM - 12:15 AM	44.5	58.1	42.2
12:15 AM - 12:20 AM	50.6	76.9	41.8
12:20 AM - 12:25 AM	42.3	49.3	41.3

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Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116379-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-14  
Parameter : Noise  
Location : ถนนวิภาวดี (GPS 47P 0721480, 1518767) (หน้าวัด) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aoodim  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:25 AM - 12:30 AM	44.1	57.7	41.4
12:30 AM - 12:35 AM	46.9	61.5	41.4
12:35 AM - 12:40 AM	44.6	53.5	41.4
12:40 AM - 12:45 AM	44.0	53.8	41.3
12:45 AM - 12:50 AM	43.5	51.7	42.5
12:50 AM - 12:55 AM	44.4	53.1	43.5
12:55 AM - 01:00 AM	43.9	54.0	41.7
01:00 AM - 01:05 AM	45.1	50.8	43.9
01:05 AM - 01:10 AM	45.2	54.5	44.3
01:10 AM - 01:15 AM	46.0	55.5	44.3
01:15 AM - 01:20 AM	45.0	48.5	44.5
01:20 AM - 01:25 AM	48.1	57.1	45.5
01:25 AM - 01:30 AM	47.3	54.6	46.5
01:30 AM - 01:35 AM	49.6	57.9	48.0
01:35 AM - 01:40 AM	50.0	60.0	48.8
01:40 AM - 01:45 AM	50.8	61.5	48.9
01:45 AM - 01:50 AM	49.3	65.1	47.4
01:50 AM - 01:55 AM	49.2	58.6	46.4
01:55 AM - 02:00 AM	46.6	59.8	46.3
02:00 AM - 02:05 AM	46.7	57.4	43.0
02:05 AM - 02:10 AM	47.2	57.9	43.2
02:10 AM - 02:15 AM	46.6	55.5	44.7
02:15 AM - 02:20 AM	55.5	61.3	44.5
02:20 AM - 02:25 AM	46.3	56.8	44.6
02:25 AM - 02:30 AM	46.8	57.4	44.6
02:30 AM - 02:35 AM	46.8	58.4	44.7
02:35 AM - 02:40 AM	46.8	56.7	44.5
02:40 AM - 02:45 AM	46.5	56.9	43.6
02:45 AM - 02:50 AM	49.1	58.8	43.5
02:50 AM - 02:55 AM	44.3	51.1	43.1
02:55 AM - 03:00 AM	47.9	56.7	44.4
03:00 AM - 03:05 AM	48.9	58.1	44.7
03:05 AM - 03:10 AM	46.3	51.4	44.7
03:10 AM - 03:15 AM	47.8	58.3	44.7
03:15 AM - 03:20 AM	47.6	53.5	44.8
03:20 AM - 03:25 AM	45.7	51.6	44.8
03:25 AM - 03:30 AM	44.6	51.2	43.2
03:30 AM - 03:35 AM	46.5	57.8	43.1
03:35 AM - 03:40 AM	46.3	56.0	43.2
03:40 AM - 03:45 AM	46.8	57.9	43.4

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116379-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-14  
Parameter : Noise  
Location : ถนนวิภาวดี (GPS 47P 0721480, 1518767) (หน้าวัด) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aoodim  
Sound Level Meter : 00710639

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:45 AM - 03:50 AM	48.8	57.8	43.2
03:50 AM - 03:55 AM	50.2	54.6	43.5
03:55 AM - 04:00 AM	48.6	54.3	43.5
04:00 AM - 04:05 AM	52.0	59.4	48.0
04:05 AM - 04:10 AM	49.5	59.5	43.6
04:10 AM - 04:15 AM	49.8	59.0	43.3
04:15 AM - 04:20 AM	47.2	54.8	42.7
04:20 AM - 04:25 AM	51.7	60.3	43.4
04:25 AM - 04:30 AM	51.2	59.3	44.6
04:30 AM - 04:35 AM	48.1	60.0	44.4
04:35 AM - 04:40 AM	51.3	59.8	46.3
04:40 AM - 04:45 AM	46.8	55.4	44.0
04:45 AM - 04:50 AM	48.2	58.6	46.7
04:50 AM - 04:55 AM	47.5	51.8	41.8
04:55 AM - 05:00 AM	46.6	56.6	43.5
05:00 AM - 05:05 AM	47.7	56.5	42.7
05:05 AM - 05:10 AM	47.7	61.0	43.7
05:10 AM - 05:15 AM	47.1	60.1	43.0
05:15 AM - 05:20 AM	49.2	64.5	43.1
05:20 AM - 05:25 AM	47.1	61.0	43.2
05:25 AM - 05:30 AM	44.6	56.4	43.1
05:30 AM - 05:35 AM	48.4	63.2	43.8
05:35 AM - 05:40 AM	49.1	63.8	43.4
05:40 AM - 05:45 AM	50.7	61.9	43.7
05:45 AM - 05:50 AM	50.9	69.0	43.6
05:50 AM - 05:55 AM	53.6	70.3	44.7
05:55 AM - 06:00 AM	56.3	74.3	46.4
06:00 AM - 07:00 AM	61.5	76.4	55.8
07:00 AM - 08:00 AM	62.6	76.2	55.7
08:00 AM - 09:00 AM	56.2	64.0	51.0
09:00 AM - 10:00 AM	55.5	61.4	46.2
10:00 AM - 11:00 AM	50.4	71.1	45.1

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. อุปกรณ์วัดเสียงมาตรฐาน (ใช้) มีมาตรฐานตามมาตรฐานการตรวจวัดเสียงตาม 24 ชั่วโมง และตามมาตรฐานการตรวจวัดเสียงตามการตรวจวัดตาม ม.ร. 2567

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Approved by

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No : 3116380-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-15  
Parameter : Noise  
Location : ถนนวิภาวดี (GPS 47P 0719844, 1516975) (หน้าวัด) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aoodim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	45.3	65.3	51.3
01:00 PM - 02:00 PM	61.6	86.6	53.5
02:00 PM - 03:00 PM	59.8	81.3	52.4
03:00 PM - 04:00 PM	65.8	84.1	57.5
04:00 PM - 05:00 PM	55.6	80.2	47.0
05:00 PM - 06:00 PM	51.8	78.8	46.3
06:00 PM - 07:00 PM	52.7	76.1	47.1
07:00 PM - 08:00 PM	51.0	73.3	48.3
08:00 PM - 09:00 PM	48.1	62.2	47.5
09:00 PM - 10:00 PM	47.7	60.7	45.1
10:00 PM - 10:55 PM	46.7	57.0	45.5
10:55 PM - 11:00 PM	51.9	56.9	49.3
10:10 PM - 10:15 PM	51.9	64.9	47.4
10:15 PM - 10:20 PM	50.0	60.9	49.0
10:20 PM - 10:25 PM	50.2	58.3	49.4
10:25 PM - 10:30 PM	49.3	56.9	46.9
10:30 PM - 10:35 PM	52.2	59.2	49.8
10:35 PM - 10:40 PM	49.0	61.4	46.8
10:40 PM - 10:45 PM	49.2	61.5	47.6
10:45 PM - 10:50 PM	48.1	55.5	47.3
10:50 PM - 10:55 PM	48.3	59.0	47.3
10:55 PM - 11:00 PM	49.6	57.8	47.5
11:00 PM - 11:05 PM	49.3	58.5	47.4
11:05 PM - 11:10 PM	51.2	61.4	47.4
11:10 PM - 11:15 PM	49.1	60.9	47.6
11:15 PM - 11:20 PM	52.6	64.3	48.1
11:20 PM - 11:25 PM	50.1	62.1	46.1
11:25 PM - 11:30 PM	50.0	62.5	46.4
11:30 PM - 11:35 PM	49.3	61.1	47.9
11:35 PM - 11:40 PM	49.4	60.6	48.1
11:40 PM - 11:45 PM	53.0	64.1	47.8
11:45 PM - 11:50 PM	49.9	62.0	47.9
11:50 PM - 11:55 PM	49.3	56.4	48.0
11:55 PM - 12:00 AM	54.7	65.9	47.9
12:00 AM - 12:05 AM	49.4	57.7	47.8
12:05 AM - 12:10 AM	49.8	65.0	48.0
12:10 AM - 12:15 AM	51.4	66.6	47.8
12:15 AM - 12:20 AM	51.7	67.8	47.4
12:20 AM - 12:25 AM	59.1	76.7	45.9
12:25 AM - 12:30 AM	52.7	66.9	46.7

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Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116380-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-15  
Parameter : Noise  
Location : ชุมชนบ้าน (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	54.9	67.3	62.9
12:35 AM - 12:40 AM	48.0	58.1	49.1
12:40 AM - 12:45 AM	48.2	63.4	47.0
12:45 AM - 12:50 AM	56.3	67.9	47.0
12:50 AM - 12:55 AM	49.1	58.6	48.0
12:55 AM - 01:00 AM	48.3	53.0	47.3
01:00 AM - 01:05 AM	49.9	61.1	47.3
01:05 AM - 01:10 AM	56.3	68.1	47.4
01:10 AM - 01:15 AM	54.3	67.7	47.8
01:15 AM - 01:20 AM	50.2	59.5	47.5
01:20 AM - 01:25 AM	51.1	66.3	47.8
01:25 AM - 01:30 AM	59.6	64.4	47.6
01:30 AM - 01:35 AM	62.2	64.5	61.4
01:35 AM - 01:40 AM	63.0	70.4	61.5
01:40 AM - 01:45 AM	62.3	68.2	61.4
01:45 AM - 01:50 AM	62.1	64.0	61.4
01:50 AM - 01:55 AM	62.0	64.0	61.3
01:55 AM - 02:00 AM	61.9	64.3	61.3
02:00 AM - 02:05 AM	62.1	64.4	61.4
02:05 AM - 02:10 AM	61.9	63.8	61.2
02:10 AM - 02:15 AM	62.4	69.6	61.0
02:15 AM - 02:20 AM	62.1	64.8	61.4
02:20 AM - 02:25 AM	62.4	64.7	61.7
02:25 AM - 02:30 AM	62.1	72.3	61.7
02:30 AM - 02:35 AM	62.9	68.6	61.6
02:35 AM - 02:40 AM	62.1	64.5	61.3
02:40 AM - 02:45 AM	62.1	63.8	61.4
02:45 AM - 02:50 AM	62.5	66.5	61.5
02:50 AM - 02:55 AM	62.0	63.5	61.4
02:55 AM - 03:00 AM	62.1	64.4	61.2
03:00 AM - 03:05 AM	62.6	61.5	61.3
03:05 AM - 03:10 AM	62.3	64.4	61.5
03:10 AM - 03:15 AM	62.3	65.3	61.5
03:15 AM - 03:20 AM	62.7	70.3	61.5
03:20 AM - 03:25 AM	62.2	64.8	61.5
03:25 AM - 03:30 AM	62.6	64.6	61.9
03:30 AM - 03:35 AM	62.7	64.4	62.0
03:35 AM - 03:40 AM	62.8	61.6	61.6
03:40 AM - 03:45 AM	62.7	68.0	61.8
03:45 AM - 03:50 AM	62.7	68.6	61.8

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Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116380-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-15  
Parameter : Noise  
Location : ชุมชนบ้าน (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	62.9	64.9	61.6
03:55 AM - 04:00 AM	62.7	68.8	61.5
04:00 AM - 04:05 AM	62.2	64.8	61.5
04:05 AM - 04:10 AM	62.3	64.4	61.4
04:10 AM - 04:15 AM	62.5	67.3	61.6
04:15 AM - 04:20 AM	62.7	65.7	62.0
04:20 AM - 04:25 AM	62.9	67.9	62.0
04:25 AM - 04:30 AM	62.4	65.3	61.6
04:30 AM - 04:35 AM	62.3	65.5	61.4
04:35 AM - 04:40 AM	62.1	64.3	61.4
04:40 AM - 04:45 AM	62.3	64.5	61.5
04:45 AM - 04:50 AM	62.3	65.0	61.5
04:50 AM - 04:55 AM	62.4	64.7	61.6
04:55 AM - 05:00 AM	56.2	65.7	45.1
05:00 AM - 05:05 AM	49.6	56.4	45.4
05:05 AM - 05:10 AM	50.5	65.5	45.0
05:10 AM - 05:15 AM	46.1	55.3	44.4
05:15 AM - 05:20 AM	49.3	62.5	45.3
05:20 AM - 05:25 AM	49.6	70.2	45.4
05:25 AM - 05:30 AM	51.3	63.7	46.0
05:30 AM - 05:35 AM	50.8	66.2	46.5
05:35 AM - 05:40 AM	55.7	72.3	47.7
05:40 AM - 05:45 AM	52.4	67.7	46.1
05:45 AM - 05:50 AM	50.1	68.8	45.7
05:50 AM - 05:55 AM	51.4	64.9	46.1
05:55 AM - 06:00 AM	53.4	66.9	46.4
06:00 AM - 06:05 AM	61.0	82.6	51.8
06:05 AM - 06:10 AM	61.7	86.5	59.9
06:10 AM - 06:15 AM	61.0	83.6	50.7
06:15 AM - 06:20 AM	56.8	80.1	47.6
06:20 AM - 06:25 AM	63.9	81.2	54.1
06:25 AM - 06:30 AM	60.3	81.1	50.9

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ใช้มาตรฐานของกรมควบคุมมลพิษ (ใช้มาตรฐานของกรมควบคุมมลพิษฉบับที่ 24 พ.ศ. 2549) และมาตรฐานของกรมควบคุมมลพิษฉบับที่ 25 พ.ศ. 2557

Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116380-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-16  
Parameter : Noise  
Location : ชุมชนบ้าน (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	52.6	75.1	55.3
01:00 PM - 02:00 PM	52.7	72.8	45.9
02:00 PM - 03:00 PM	53.9	75.1	48.7
03:00 PM - 04:00 PM	62.1	75.3	50.3
04:00 PM - 05:00 PM	52.8	66.3	50.2
05:00 PM - 06:00 PM	66.3	75.3	63.1
06:00 PM - 07:00 PM	68.6	86.6	64.7
07:00 PM - 08:00 PM	58.3	68.0	50.6
08:00 PM - 09:00 PM	52.2	72.2	49.0
09:00 PM - 10:00 PM	57.5	70.1	55.9
10:00 PM - 10:05 PM	63.0	64.8	62.4
10:05 PM - 10:10 PM	64.6	64.7	62.7
10:10 PM - 10:15 PM	68.2	69.9	67.7
10:15 PM - 10:20 PM	64.4	69.5	62.8
10:20 PM - 10:25 PM	63.4	68.8	62.8
10:25 PM - 10:30 PM	63.4	64.8	62.8
10:30 PM - 10:35 PM	62.1	65.8	62.6
10:35 PM - 10:40 PM	63.4	66.4	62.9
10:40 PM - 10:45 PM	63.4	66.1	62.8
10:45 PM - 10:50 PM	63.4	66.3	62.9
10:50 PM - 10:55 PM	63.7	68.8	62.4
10:55 PM - 11:00 PM	62.8	62.2	64.8
11:00 PM - 11:05 PM	63.1	65.9	62.6
11:05 PM - 11:10 PM	63.2	65.1	62.7
11:10 PM - 11:15 PM	63.1	64.6	62.7
11:15 PM - 11:20 PM	63.2	64.7	62.7
11:20 PM - 11:25 PM	63.2	64.7	62.7
11:25 PM - 11:30 PM	63.0	61.4	62.6
11:30 PM - 11:35 PM	62.9	64.4	62.5
11:35 PM - 11:40 PM	62.9	62.4	62.4
11:40 PM - 11:45 PM	63.0	63.0	62.6
11:45 PM - 11:50 PM	63.0	64.3	62.6
11:50 PM - 11:55 PM	63.0	64.3	62.6
11:55 PM - 12:00 AM	63.1	64.5	62.7
12:00 AM - 12:05 AM	62.9	62.0	62.9
12:05 AM - 12:10 AM	62.8	64.1	62.4
12:10 AM - 12:15 AM	62.8	64.0	62.4
12:15 AM - 12:20 AM	62.9	64.5	62.9
12:20 AM - 12:25 AM	62.9	64.4	62.5
12:25 AM - 12:30 AM	62.7	64.6	62.2

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Approved by

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116380-1

P/O : 410600866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-16  
Parameter : Noise  
Location : ชุมชนบ้าน (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	56.7	63.6	55.1
12:35 AM - 12:40 AM	56.5	64.4	55.4
12:40 AM - 12:45 AM	54.9	59.6	53.6
12:45 AM - 12:50 AM	52.7	62.8	46.9
12:50 AM - 12:55 AM	49.1	59.0	47.1
12:55 AM - 01:00 AM	49.8	61.3	46.5
01:00 AM - 01:05 AM	50.6	64.4	46.1
01:05 AM - 01:10 AM	53.9	64.1	46.8
01:10 AM - 01:15 AM	49.7	61.2	45.8
01:15 AM - 01:20 AM	62.3	62.3	47.7
01:20 AM - 01:25 AM	52.7	64.1	47.4
01:25 AM - 01:30 AM	53.4	66.7	47.4
01:30 AM - 01:35 AM	52.7	66.8	46.1
01:35 AM - 01:40 AM	52.7	69.9	46.4
01:40 AM - 01:45 AM	53.4	69.1	46.1
01:45 AM - 01:50 AM	52.5	67.8	46.3
01:50 AM - 01:55 AM	50.1	63.5	45.9
01:55 AM - 02:00 AM	55.3	69.9	46.8
02:00 AM - 02:05 AM	56.2	69.1	46.0
02:05 AM - 02:10 AM	61.7	81.2	49.8
02:10 AM - 02:15 AM	63.3	79.6	51.1
02:15 AM - 02:20 AM	64.7	80.4	51.1
02:20 AM - 02:25 AM	63.0	64.5	50.7
02:25 AM - 02:30 AM	63.9	77.7	53.6
02:30 AM - 02:35 AM	65.7	83.7	54.3
02:35 AM - 02:40 AM	66.5	75.2	52.8
02:40 AM - 02:45 AM	59.2	74.1	52.1
02:45 AM - 02:50 AM	60.8	77.4	52.8
02:50 AM - 02:55 AM	62.3	78.4	53.9
02:55 AM - 03:00 AM	64.2	78.6	53.9
03:00 AM - 03:05 AM	64.5	84.1	55.1
03:05 AM - 03:10 AM	66.8	86.1	49.1
03:10 AM - 03:15 AM	61.6	78.4	50.3
03:15 AM - 03:20 AM	59.4	72.5	52.1
03:20 AM - 03:25 AM	66.6	77.9	53.0
03:25 AM - 03:30 AM	51.3	71.4	51.9
03:30 AM - 03:35 AM	55.4	70.7	48.9
03:35 AM - 03:40 AM	54.2	74.5	46.9
03:40 AM - 03:45 AM	50.8	63.2	46.0
03:45 AM - 03:50 AM	54.0	72.3	47.0

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116382-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. : 24103113-16  
Parameter : Noise  
Location : บ้านหนองทราย (GPS 47P 0719844, 1516975) (จุดวัดค่า) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	55.9	69.8	46.8
03:55 AM - 04:00 AM	57.4	70.2	46.6
04:00 AM - 04:05 AM	52.2	67.3	46.8
04:05 AM - 04:10 AM	52.8	70.7	42.1
04:10 AM - 04:15 AM	55.2	72.2	47.8
04:15 AM - 04:20 AM	56.2	67.1	49.5
04:20 AM - 04:25 AM	56.3	70.9	49.1
04:25 AM - 04:30 AM	55.2	70.5	49.4
04:30 AM - 04:35 AM	53.6	65.8	47.6
04:35 AM - 04:40 AM	54.3	67.8	48.5
04:40 AM - 04:45 AM	59.0	72.1	50.3
04:45 AM - 04:50 AM	57.0	76.0	50.7
04:50 AM - 04:55 AM	56.0	68.4	50.5
04:55 AM - 05:00 AM	57.3	61.9	50.6
05:00 AM - 05:05 AM	59.1	73.1	51.3
05:05 AM - 05:10 AM	58.0	70.7	49.7
05:10 AM - 05:15 AM	55.1	67.7	49.9
05:15 AM - 05:20 AM	54.8	64.6	50.2
05:20 AM - 05:25 AM	55.3	68.4	50.6
05:25 AM - 05:30 AM	56.5	73.2	50.3
05:30 AM - 05:35 AM	61.7	79.3	52.7
05:35 AM - 05:40 AM	62.3	81.5	53.0
05:40 AM - 05:45 AM	59.0	75.1	49.8
05:45 AM - 05:50 AM	53.4	66.4	47.7
05:50 AM - 05:55 AM	54.8	64.6	47.8
05:55 AM - 06:00 AM	57.1	72.5	50.0
06:00 AM - 07:00 AM	60.3	85.2	51.1
07:00 AM - 08:00 AM	61.8	90.5	52.5
08:00 AM - 09:00 AM	58.3	87.2	46.0
09:00 AM - 10:00 AM	63.9	86.0	52.5
10:00 AM - 11:00 AM	67.3	81.8	52.7
11:00 AM - 12:00 PM	67.0	92.7	57.8

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. อุปกรณ์การวัดและวิธีการวัด : ใช้ "เครื่องวัดระดับเสียงแบบพกพา รุ่น 24103113" และ "เครื่องวัดระดับเสียงแบบพกพา รุ่น 24103113" ตามมาตรฐาน ม.ม. 2567

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116382-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. : 24103113-17  
Parameter : Noise  
Location : บ้านหนองทราย (GPS 47P 0719844, 1516975) (จุดวัดค่า) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	53.2	70.8	45.1
01:00 PM - 02:00 PM	52.5	74.0	45.9
02:00 PM - 03:00 PM	63.2	81.5	61.9
03:00 PM - 04:00 PM	68.3	79.5	67.4
04:00 PM - 05:00 PM	65.2	76.7	64.1
05:00 PM - 06:00 PM	62.1	64.9	60.3
06:00 PM - 07:00 PM	62.2	68.7	61.3
07:00 PM - 08:00 PM	67.8	70.8	62.1
08:00 PM - 09:00 PM	68.1	73.0	67.4
09:00 PM - 10:00 PM	61.3	73.6	68.6
10:00 PM - 10:05 PM	69.0	70.6	64.5
10:05 PM - 10:10 PM	69.2	70.8	64.7
10:10 PM - 10:15 PM	69.2	70.7	64.7
10:15 PM - 10:20 PM	69.2	70.7	64.7
10:20 PM - 10:25 PM	69.2	70.8	64.7
10:25 PM - 10:30 PM	69.1	70.7	64.7
10:30 PM - 10:35 PM	69.2	70.7	64.7
10:35 PM - 10:40 PM	69.0	70.7	64.5
10:40 PM - 10:45 PM	69.1	70.5	64.7
10:45 PM - 10:50 PM	69.1	70.5	64.6
10:50 PM - 10:55 PM	68.9	70.6	64.3
10:55 PM - 11:00 PM	69.1	70.4	64.6
11:00 PM - 11:05 PM	67.6	70.5	66.7
11:05 PM - 11:10 PM	67.1	69.7	66.7
11:10 PM - 11:15 PM	67.1	68.6	66.7
11:15 PM - 11:20 PM	67.1	68.6	66.6
11:20 PM - 11:25 PM	67.0	64.5	66.5
11:25 PM - 11:30 PM	67.0	69.0	66.5
11:30 PM - 11:35 PM	67.1	66.5	66.6
11:35 PM - 11:40 PM	67.0	64.3	66.5
11:40 PM - 11:45 PM	67.0	69.6	65.5
11:45 PM - 11:50 PM	67.0	68.8	64.6
11:50 PM - 11:55 PM	67.0	72.2	64.5
11:55 PM - 12:00 AM	67.1	68.1	66.6
12:00 AM - 12:05 AM	67.2	68.6	66.7
12:05 AM - 12:10 AM	67.3	64.9	66.8
12:10 AM - 12:15 AM	66.0	64.6	61.7
12:15 AM - 12:20 AM	61.9	64.1	61.2
12:20 AM - 12:25 AM	61.6	64.0	60.9
12:25 AM - 12:30 AM	56.3	63.5	45.3

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116382-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 1

Sample No. : 24103113-17  
Parameter : Noise  
Location : บ้านหนองทราย (GPS 47P 0719844, 1516975) (จุดวัดค่า) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	46.8	54.4	45.5
12:35 AM - 12:40 AM	46.7	55.4	45.3
12:40 AM - 12:45 AM	47.2	57.8	44.9
12:45 AM - 12:50 AM	50.7	70.3	44.7
12:50 AM - 12:55 AM	46.6	59.0	45.3
12:55 AM - 01:00 AM	51.0	65.8	45.6
01:00 AM - 01:05 AM	53.3	66.4	47.5
01:05 AM - 01:10 AM	55.7	70.1	48.9
01:10 AM - 01:15 AM	51.8	63.8	47.6
01:15 AM - 01:20 AM	50.7	65.0	46.2
01:20 AM - 01:25 AM	55.0	71.7	46.8
01:25 AM - 01:30 AM	52.5	61.8	47.4
01:30 AM - 01:35 AM	51.4	64.0	45.9
01:35 AM - 01:40 AM	49.7	63.2	45.6
01:40 AM - 01:45 AM	49.6	65.9	45.5
01:45 AM - 01:50 AM	52.1	61.9	47.1
01:50 AM - 01:55 AM	51.7	65.5	45.8
01:55 AM - 02:00 AM	52.2	65.3	46.1
02:00 AM - 02:05 AM	56.4	64.4	48.8
02:05 AM - 02:10 AM	54.6	61.6	47.0
02:10 AM - 02:15 AM	56.6	72.3	47.8
02:15 AM - 02:20 AM	50.0	59.6	45.9
02:20 AM - 02:25 AM	56.9	71.7	46.5
02:25 AM - 02:30 AM	53.2	67.9	46.7
02:30 AM - 02:35 AM	55.1	71.7	47.9
02:35 AM - 02:40 AM	58.6	76.3	49.5
02:40 AM - 02:45 AM	53.8	64.9	46.8
02:45 AM - 02:50 AM	55.3	74.2	46.8
02:50 AM - 02:55 AM	51.3	61.8	49.0
02:55 AM - 03:00 AM	51.5	64.1	47.7
03:00 AM - 03:05 AM	51.9	66.5	47.5
03:05 AM - 03:10 AM	54.2	65.2	46.1
03:10 AM - 03:15 AM	56.6	71.5	47.2
03:15 AM - 03:20 AM	52.7	68.6	47.6
03:20 AM - 03:25 AM	52.6	64.9	46.9
03:25 AM - 03:30 AM	52.0	64.2	46.1
03:30 AM - 03:35 AM	54.6	67.1	47.4
03:35 AM - 03:40 AM	52.7	70.6	49.0
03:40 AM - 03:45 AM	52.4	64.0	46.5
03:45 AM - 03:50 AM	53.7	71.5	50.2

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116382-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 1

Sample No. : 24103113-17  
Parameter : Noise  
Location : บ้านหนองทราย (GPS 47P 0719844, 1516975) (จุดวัดค่า) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	57.9	62.9	45.9
03:55 AM - 04:00 AM	54.9	74.8	47.5
04:00 AM - 04:05 AM	57.5	77.4	50.8
04:05 AM - 04:10 AM	56.8	77.9	50.8
04:10 AM - 04:15 AM	57.8	80.8	50.8
04:15 AM - 04:20 AM	54.4	66.3	49.4
04:20 AM - 04:25 AM	57.6	77.1	46.6
04:25 AM - 04:30 AM	59.3	75.2	49.2
04:30 AM - 04:35 AM	59.3	78.1	50.5
04:35 AM - 04:40 AM	56.6	74.2	50.0
04:40 AM - 04:45 AM	57.5	74.3	50.1
04:45 AM - 04:50 AM	54.7	71.7	49.4
04:50 AM - 04:55 AM	54.4	66.6	49.9
04:55 AM - 05:00 AM	56.1	72.1	50.3
05:00 AM - 05:05 AM	53.1	63.6	47.9
05:05 AM - 05:10 AM	59.3	79.6	51.5
05:10 AM - 05:15 AM	56.3	73.6	52.3
05:15 AM - 05:20 AM	54.0	65.2	50.8
05:20 AM - 05:25 AM	55.9	75.4	49.0
05:25 AM - 05:30 AM	54.6	67.6	48.0
05:30 AM - 05:35 AM	54.5	69.9	51.0
05:35 AM - 05:40 AM	57.0	80.5	50.5
05:40 AM - 05:45 AM	58.4	76.2	51.3
05:45 AM - 05:50 AM	57.7	72.8	50.7
05:50 AM - 05:55 AM	57.2	72.8	49.4
05:55 AM - 06:00 AM	59.5	75.8	51.1
06:00 AM - 07:00 AM	60.4	92.3	49.6
07:00 AM - 08:00 AM	54.0	81.0	45.5
08:00 AM - 09:00 AM	57.3	81.4	47.5
09:00 AM - 10:00 AM	59.6	81.8	50.7
10:00 AM - 11:00 AM	57.3	81.8	46.2
11:00 AM - 12:00 PM	54.1	79.7	45.3

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. อุปกรณ์การวัดและวิธีการวัด : ใช้ "เครื่องวัดระดับเสียงแบบพกพา รุ่น 24103113" และ "เครื่องวัดระดับเสียงแบบพกพา รุ่น 24103113" ตามมาตรฐาน ม.ม. 2567

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116383-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103113-18  
Parameter Noise  
Location บ้านหนองทราย (GPS 47P 0719844, 1516975) ( Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aonsim  
Sound Level Meter 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	55.0	75.5	45.8
01:00 PM - 02:00 PM	54.2	80.7	46.9
02:00 PM - 03:00 PM	57.5	74.9	52.7
03:00 PM - 04:00 PM	60.3	72.5	62.7
04:00 PM - 05:00 PM	64.6	70.7	63.0
05:00 PM - 06:00 PM	69.0	82.3	66.6
06:00 PM - 07:00 PM	56.4	68.3	52.9
07:00 PM - 08:00 PM	56.4	72.3	54.4
08:00 PM - 09:00 PM	55.4	65.6	52.7
09:00 PM - 10:00 PM	60.0	66.4	59.1
10:00 PM - 10:55 PM	61.1	64.4	60.5
10:55 PM - 11:00 PM	61.3	66.9	56.9
11:00 PM - 11:05 PM	60.4	62.4	59.7
11:05 PM - 11:10 PM	61.4	66.4	60.3
11:10 PM - 11:15 PM	61.5	67.5	60.3
11:15 PM - 11:20 PM	60.1	62.4	59.0
11:20 PM - 11:25 PM	61.3	67.6	59.8
11:25 PM - 11:30 PM	61.4	66.1	60.3
11:30 PM - 11:35 PM	60.8	65.0	59.9
11:35 PM - 11:40 PM	59.9	62.6	59.2
11:40 PM - 11:45 PM	62.1	66.4	60.4
11:45 PM - 11:50 PM	62.3	66.9	60.4
11:50 PM - 11:55 PM	62.7	66.7	60.5
11:55 PM - 12:00 PM	62.9	67.7	60.5
12:00 PM - 12:05 PM	64.4	67.9	61.3
12:05 PM - 12:10 PM	64.5	67.8	61.3
12:10 PM - 12:15 PM	64.6	67.8	61.7
12:15 PM - 12:20 PM	64.4	67.7	61.5
12:20 PM - 12:25 PM	64.5	67.9	61.4
12:25 PM - 12:30 PM	64.6	67.6	61.5
12:30 PM - 12:35 PM	64.1	67.5	61.0
12:35 PM - 12:40 PM	64.1	67.5	60.9
12:40 PM - 12:45 PM	63.7	67.0	60.6
12:45 PM - 12:50 PM	64.1	67.0	61.1
12:50 PM - 12:55 PM	63.9	67.3	60.8
12:55 PM - 1:00 AM	62.8	66.4	60.0
1:00 AM - 1:05 AM	61.9	66.6	59.4
1:05 AM - 1:10 AM	59.6	65.3	58.7
1:10 AM - 1:15 AM	61.1	66.7	57.9
1:15 AM - 1:20 AM	65.8	68.6	64.8

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116383-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. 24103113-18  
Parameter Noise  
Location บ้านหนองทราย (GPS 47P 0719844, 1516975) ( Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aonsim  
Sound Level Meter 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	65.7	67.8	65.0
12:35 AM - 12:40 AM	65.4	67.9	64.9
12:40 AM - 12:45 AM	65.3	67.7	64.7
12:45 AM - 12:50 AM	64.7	67.8	64.7
12:50 AM - 12:55 AM	50.9	64.9	46.7
12:55 AM - 01:00 AM	50.8	63.5	46.0
01:00 AM - 01:05 AM	50.6	64.0	46.2
01:05 AM - 01:10 AM	52.7	59.6	47.3
01:10 AM - 01:15 AM	51.1	61.1	46.0
01:15 AM - 01:20 AM	55.4	67.3	56.1
01:20 AM - 01:25 AM	58.0	74.2	47.6
01:25 AM - 01:30 AM	55.6	68.0	46.3
01:30 AM - 01:35 AM	56.4	67.4	47.2
01:35 AM - 01:40 AM	52.4	66.7	47.1
01:40 AM - 01:45 AM	53.4	64.1	47.5
01:45 AM - 01:50 AM	51.5	62.0	47.4
01:50 AM - 01:55 AM	49.8	63.7	46.5
01:55 AM - 02:00 AM	52.8	70.3	45.8
02:00 AM - 02:05 AM	52.0	67.6	46.4
02:05 AM - 02:10 AM	53.8	67.4	46.4
02:10 AM - 02:15 AM	53.9	69.0	47.9
02:15 AM - 02:20 AM	51.9	63.5	49.1
02:20 AM - 02:25 AM	51.4	60.8	47.0
02:25 AM - 02:30 AM	51.4	67.6	46.4
02:30 AM - 02:35 AM	51.1	68.0	46.2
02:35 AM - 02:40 AM	49.0	66.7	45.9
02:40 AM - 02:45 AM	55.1	76.5	46.6
02:45 AM - 02:50 AM	50.0	60.9	45.6
02:50 AM - 02:55 AM	51.3	67.5	45.9
02:55 AM - 03:00 AM	49.7	65.1	44.8
03:00 AM - 03:05 AM	51.1	63.0	46.2
03:05 AM - 03:10 AM	50.1	66.0	45.4
03:10 AM - 03:15 AM	49.4	65.3	44.1
03:15 AM - 03:20 AM	50.0	63.6	45.7
03:20 AM - 03:25 AM	50.4	65.6	45.1
03:25 AM - 03:30 AM	50.7	65.0	46.5
03:30 AM - 03:35 AM	50.2	60.8	46.1
03:35 AM - 03:40 AM	49.8	58.8	46.1
03:40 AM - 03:45 AM	49.8	60.3	45.0
03:45 AM - 03:50 AM	50.6	62.3	45.8

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116383-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103113-18  
Parameter Noise  
Location บ้านหนองทราย (GPS 47P 0719844, 1516975) ( Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aonsim  
Sound Level Meter 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	51.6	61.8	49.8
03:55 AM - 04:00 AM	50.7	61.6	49.8
04:00 AM - 04:05 AM	50.0	61.9	49.6
04:05 AM - 04:10 AM	49.8	63.4	49.5
04:10 AM - 04:15 AM	49.8	57.4	49.1
04:15 AM - 04:20 AM	54.8	61.2	49.8
04:20 AM - 04:25 AM	49.3	65.2	49.2
04:25 AM - 04:30 AM	50.1	64.4	49.6
04:30 AM - 04:35 AM	47.3	56.1	49.9
04:35 AM - 04:40 AM	49.4	65.0	49.0
04:40 AM - 04:45 AM	53.3	75.3	49.8
04:45 AM - 04:50 AM	51.0	62.7	45.0
04:50 AM - 04:55 AM	49.8	61.2	45.5
04:55 AM - 05:00 AM	53.7	67.6	46.4
05:00 AM - 05:05 AM	49.0	60.6	44.6
05:05 AM - 05:10 AM	51.7	65.2	45.7
05:10 AM - 05:15 AM	49.5	65.2	45.0
05:15 AM - 05:20 AM	54.6	72.9	44.6
05:20 AM - 05:25 AM	51.7	66.9	46.0
05:25 AM - 05:30 AM	51.4	64.2	46.9
05:30 AM - 05:35 AM	52.6	70.9	45.8
05:35 AM - 05:40 AM	59.2	80.9	45.1
05:40 AM - 05:45 AM	56.6	70.5	46.3
05:45 AM - 05:50 AM	56.2	69.8	45.9
05:50 AM - 05:55 AM	59.4	77.5	45.8
05:55 AM - 06:00 AM	53.1	69.5	45.3
06:00 AM - 07:00 AM	54.1	77.7	46.6
07:00 AM - 08:00 AM	50.0	64.9	44.4
08:00 AM - 09:00 AM	51.8	76.0	44.7
09:00 AM - 10:00 AM	55.1	80.5	45.7
10:00 AM - 11:00 AM	55.0	79.9	46.0
11:00 AM - 12:00 PM	51.9	72.5	46.3

### Reference Method :

1. In-house method : STM 00-001 based on ISO 1996-1 : 2016
2. วิธีการวัดและรายงานผล (ค่า) ที่ยอมรับได้ของหน่วยงานของรัฐ ระดับมัธยมศึกษา 24 ชั่วโมง ตามมติของคณะกรรมการสิ่งแวดล้อมแห่งชาติ พ.ศ. 2567

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116383-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103113-19  
Parameter Noise  
Location บ้านหนองทราย (GPS 47P 0719844, 1516975) ( Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aonsim  
Sound Level Meter 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	52.8	76.5	46.2
01:00 PM - 02:00 PM	62.7	76.9	52.7
02:00 PM - 03:00 PM	64.4	75.8	61.3
03:00 PM - 04:00 PM	63.0	76.3	61.5
04:00 PM - 05:00 PM	56.6	65.2	55.3
05:00 PM - 06:00 PM	61.1	67.9	60.1
06:00 PM - 07:00 PM	63.3	67.8	62.6
07:00 PM - 08:00 PM	67.6	67.6	62.8
08:00 PM - 09:00 PM	60.0	66.0	62.7
09:00 PM - 10:00 PM	60.9	65.4	60.2
10:00 PM - 10:55 PM	46.4	50.5	47.6
10:55 PM - 11:00 PM	49.9	53.1	47.7
11:00 PM - 11:05 PM	41.9	47.3	47.8
11:05 PM - 11:10 PM	49.2	53.1	48.3
11:10 PM - 11:15 PM	49.5	55.1	48.5
11:15 PM - 11:20 PM	50.3	57.1	49.1
11:20 PM - 11:25 PM	50.4	54.3	49.3
11:25 PM - 11:30 PM	50.4	56.6	49.2
11:30 PM - 11:35 PM	50.2	56.9	48.7
11:35 PM - 11:40 PM	52.4	57.2	49.8
11:40 PM - 11:45 PM	51.1	57.6	49.7
11:45 PM - 11:50 PM	50.8	53.7	46.7
11:50 PM - 11:55 PM	50.9	56.3	49.8
11:55 PM - 12:00 PM	51.4	58.9	49.1
12:00 PM - 12:05 PM	60.1	65.9	55.9
12:05 PM - 12:10 PM	57.8	59.9	52.2
12:10 PM - 12:15 PM	57.8	60.0	52.5
12:15 PM - 12:20 PM	57.5	61.5	56.8
12:20 PM - 12:25 PM	57.4	59.3	56.8
12:25 PM - 12:30 PM	57.4	60.0	57.1
12:30 PM - 12:35 PM	57.5	60.1	56.9
12:35 PM - 12:40 PM	57.4	60.3	56.8
12:40 PM - 12:45 PM	57.5	59.7	56.9
12:45 PM - 12:50 PM	57.4	59.9	56.8
12:50 PM - 12:55 PM	56.8	61.4	55.9
12:55 PM - 1:00 AM	57.0	59.4	56.3
1:00 AM - 1:05 AM	57.1	61.7	56.4
1:05 AM - 1:10 AM	57.4	59.7	56.9
1:10 AM - 1:15 AM	57.2	61.6	56.7
1:15 AM - 1:20 AM	56.6	59.8	51.0

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Let ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116384-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-19  
Parameter : Noise  
Location : บ้านนาบารวย (GPS 47P 0719844, 1516975) (หน้าวัด) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonidom  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	57.1	61.1	56.5
12:35 AM - 12:40 AM	55.3	59.4	46.5
12:40 AM - 12:45 AM	42.2	52.9	45.7
12:45 AM - 12:50 AM	47.8	60.1	45.9
12:50 AM - 12:55 AM	51.1	64.8	46.5
12:55 AM - 01:00 AM	49.6	59.1	47.2
01:00 AM - 01:05 AM	50.3	63.7	47.2
01:05 AM - 01:10 AM	51.2	60.9	48.7
01:10 AM - 01:15 AM	54.0	65.2	48.4
01:15 AM - 01:20 AM	53.0	64.5	48.2
01:20 AM - 01:25 AM	53.4	64.9	48.0
01:25 AM - 01:30 AM	52.1	68.0	47.6
01:30 AM - 01:35 AM	52.6	70.8	47.0
01:35 AM - 01:40 AM	51.0	62.8	47.0
01:40 AM - 01:45 AM	51.8	63.2	47.4
01:45 AM - 01:50 AM	49.1	63.4	45.2
01:50 AM - 01:55 AM	48.1	66.4	45.5
01:55 AM - 02:00 AM	51.9	64.0	45.7
02:00 AM - 02:05 AM	53.8	64.3	46.1
02:05 AM - 02:10 AM	55.0	67.3	46.5
02:10 AM - 02:15 AM	70.7	89.6	46.0
02:15 AM - 02:20 AM	48.3	59.6	44.5
02:20 AM - 02:25 AM	52.4	63.2	44.9
02:25 AM - 02:30 AM	53.4	70.3	43.5
02:30 AM - 02:35 AM	52.2	64.8	44.6
02:35 AM - 02:40 AM	52.8	64.7	45.5
02:40 AM - 02:45 AM	53.7	64.6	45.9
02:45 AM - 02:50 AM	54.3	66.5	46.2
02:50 AM - 02:55 AM	54.3	66.7	46.4
02:55 AM - 03:00 AM	51.7	67.2	45.5
03:00 AM - 03:05 AM	53.7	66.1	46.1
03:05 AM - 03:10 AM	59.8	77.7	46.7
03:10 AM - 03:15 AM	52.0	63.1	47.4
03:15 AM - 03:20 AM	61.8	82.3	46.5
03:20 AM - 03:25 AM	52.6	67.2	45.7
03:25 AM - 03:30 AM	54.2	72.1	46.0
03:30 AM - 03:35 AM	52.2	71.5	45.3
03:35 AM - 03:40 AM	54.6	71.2	47.3
03:40 AM - 03:45 AM	52.5	68.6	45.4
03:45 AM - 03:50 AM	51.9	64.5	47.4

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Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Let ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116384-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-19  
Parameter : Noise  
Location : บ้านนาบารวย (GPS 47P 0719844, 1516975) (หน้าวัด) (Shut down)  
Measurement Date : Sep 14 - Sep 15, 2024  
Measurement by : Audit Aonidom  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	50.7	64.2	45.2
03:55 AM - 04:00 AM	51.5	69.3	45.7
04:00 AM - 04:05 AM	51.2	62.6	46.4
04:05 AM - 04:10 AM	48.7	58.4	44.7
04:10 AM - 04:15 AM	56.3	74.9	49.3
04:15 AM - 04:20 AM	50.5	64.6	45.8
04:20 AM - 04:25 AM	50.1	65.1	43.9
04:25 AM - 04:30 AM	50.4	63.6	44.9
04:30 AM - 04:35 AM	51.0	64.8	44.9
04:35 AM - 04:40 AM	51.7	72.3	44.4
04:40 AM - 04:45 AM	54.9	72.0	45.4
04:45 AM - 04:50 AM	58.6	74.5	45.5
04:50 AM - 04:55 AM	50.2	62.5	45.1
04:55 AM - 05:00 AM	51.6	65.7	44.8
05:00 AM - 05:05 AM	49.1	61.2	44.9
05:05 AM - 05:10 AM	53.9	69.7	45.0
05:10 AM - 05:15 AM	51.7	67.3	45.6
05:15 AM - 05:20 AM	52.8	69.4	44.8
05:20 AM - 05:25 AM	52.7	68.6	46.4
05:25 AM - 05:30 AM	52.4	67.3	46.4
05:30 AM - 05:35 AM	53.0	70.7	45.2
05:35 AM - 05:40 AM	53.8	64.1	46.3
05:40 AM - 05:45 AM	52.0	72.4	43.1
05:45 AM - 05:50 AM	50.1	61.8	43.9
05:50 AM - 05:55 AM	49.7	61.6	44.5
05:55 AM - 06:00 AM	46.7	64.8	44.0
06:00 AM - 06:05 AM	52.1	81.3	44.0
06:05 AM - 06:10 AM	54.1	81.0	46.4
06:10 AM - 06:15 AM	56.5	80.6	47.9
06:15 AM - 06:20 AM	51.7	65.9	47.8
06:20 AM - 06:25 AM	57.2	84.5	45.7
06:25 AM - 06:30 AM	57.2	92.4	46.2

Reference Method :

- In-house method : STN 06 001 based on ISO 1996-1 : 2016
- ใช้วิธีการวัดตามมาตรฐาน (ฉบับ) มีค่าการวัดที่เกินมาตรฐานตาม ระดับมาตรฐาน 24 ชั่วโมง ตามระดับความถี่ของค่าการวัดที่เกินมาตรฐานตาม ม.ท. 2567

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Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Let ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116385-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-20  
Parameter : Noise  
Location : บ้านนาบารวย (GPS 47P 0719844, 1516975) (หน้าวัด) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonidom  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	55.7	65.8	45.4
01:00 PM - 02:00 PM	65.5	76.5	62.8
02:00 PM - 03:00 PM	52.4	63.8	45.9
03:00 PM - 04:00 PM	51.8	72.3	50.2
04:00 PM - 05:00 PM	64.3	88.7	63.5
05:00 PM - 06:00 PM	65.9	72.3	63.0
06:00 PM - 07:00 PM	61.6	67.5	60.9
07:00 PM - 08:00 PM	69.1	72.5	66.6
08:00 PM - 09:00 PM	70.5	72.4	70.1
09:00 PM - 10:00 PM	69.3	71.5	68.5
10:00 PM - 10:05 PM	70.1	71.6	69.8
10:05 PM - 10:10 PM	70.1	71.0	69.8
10:10 PM - 10:15 PM	70.1	71.3	69.8
10:15 PM - 10:20 PM	70.0	71.1	69.8
10:20 PM - 10:25 PM	70.1	71.6	69.8
10:25 PM - 10:30 PM	70.2	71.2	69.9
10:30 PM - 10:35 PM	70.0	71.3	69.7
10:35 PM - 10:40 PM	70.0	71.0	69.7
10:40 PM - 10:45 PM	70.2	71.3	69.9
10:45 PM - 10:50 PM	70.3	71.3	70.0
10:50 PM - 10:55 PM	70.2	71.2	69.9
10:55 PM - 11:00 PM	70.2	71.2	69.9
11:00 PM - 11:05 PM	70.2	71.4	69.9
11:05 PM - 11:10 PM	70.3	71.3	70.0
11:10 PM - 11:15 PM	70.2	71.5	69.9
11:15 PM - 11:20 PM	70.1	71.3	69.8
11:20 PM - 11:25 PM	70.2	71.2	69.8
11:25 PM - 11:30 PM	68.8	71.2	67.4
11:30 PM - 11:35 PM	47.6	52.2	46.4
11:35 PM - 11:40 PM	47.5	49.8	46.3
11:40 PM - 11:45 PM	50.6	64.4	46.4
11:45 PM - 11:50 PM	47.7	56.1	46.5
11:50 PM - 11:55 PM	47.8	54.4	46.4
11:55 PM - 12:00 AM	47.0	49.2	46.4
12:00 AM - 12:05 AM	47.1	49.1	46.3
12:05 AM - 12:10 AM	51.3	71.1	46.5
12:10 AM - 12:15 AM	47.4	52.3	46.3
12:15 AM - 12:20 AM	47.5	54.1	46.3
12:20 AM - 12:25 AM	46.6	48.9	45.6
12:25 AM - 12:30 AM	46.9	50.2	45.7

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Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Let ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116385-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-20  
Parameter : Noise  
Location : บ้านนาบารวย (GPS 47P 0719844, 1516975) (หน้าวัด) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonidom  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	47.4	58.7	45.8
12:35 AM - 12:40 AM	50.9	70.2	46.2
12:40 AM - 12:45 AM	47.9	63.5	45.6
12:45 AM - 12:50 AM	49.1	63.8	45.6
12:50 AM - 12:55 AM	53.5	70.7	46.5
12:55 AM - 01:00 AM	50.6	64.4	46.8
01:00 AM - 01:05 AM	51.7	62.8	47.8
01:05 AM - 01:10 AM	51.2	62.4	47.2
01:10 AM - 01:15 AM	53.8	68.4	47.6
01:15 AM - 01:20 AM	50.2	68.1	46.5
01:20 AM - 01:25 AM	50.8	61.0	46.4
01:25 AM - 01:30 AM	51.6	64.4	47.5
01:30 AM - 01:35 AM	56.3	69.5	48.3
01:35 AM - 01:40 AM	51.8	61.8	47.6
01:40 AM - 01:45 AM	54.1	70.2	46.9
01:45 AM - 01:50 AM	60.8	84.5	47.6
01:50 AM - 01:55 AM	52.4	69.4	46.9
01:55 AM - 02:00 AM	54.4	65.1	48.0
02:00 AM - 02:05 AM	59.2	75.2	48.2
02:05 AM - 02:10 AM	61.7	81.9	48.9
02:10 AM - 02:15 AM	58.6	74.2	52.1
02:15 AM - 02:20 AM	60.3	79.1	52.0
02:20 AM - 02:25 AM	63.7	83.0	52.1
02:25 AM - 02:30 AM	61.1	76.2	51.4
02:30 AM - 02:35 AM	64.2	87.2	52.7
02:35 AM - 02:40 AM	61.8	89.3	56.3
02:40 AM - 02:45 AM	64.3	81.1	54.4
02:45 AM - 02:50 AM	61.0	81.6	51.8
02:50 AM - 02:55 AM	58.7	68.0	52.7
02:55 AM - 03:00 AM	62.8	78.5	51.1
03:00 AM - 03:05 AM	63.1	79.9	49.2
03:05 AM - 03:10 AM	62.4	74.4	50.9
03:10 AM - 03:15 AM	61.8	75.4	53.3
03:15 AM - 03:20 AM	64.6	78.4	50.8
03:20 AM - 03:25 AM	64.1	79.7	53.1
03:25 AM - 03:30 AM	58.4	73.6	52.7
03:30 AM - 03:35 AM	52.3	72.1	50.1
03:35 AM - 03:40 AM	61.7	80.6	53.1
03:40 AM - 03:45 AM	54.7	69.4	47.3
03:45 AM - 03:50 AM	58.9	74.7	51.7

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116385-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-20  
Parameter : Noise  
Location : บ้านนาทราย (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 16 - Sep 16, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	54.6	66.3	47.4
03:55 AM - 04:00 AM	55.4	74.2	47.3
04:00 AM - 04:05 AM	60.6	78.4	48.3
04:05 AM - 04:10 AM	59.1	75.8	51.4
04:10 AM - 04:15 AM	52.9	63.8	47.5
04:15 AM - 04:20 AM	55.1	75.1	47.3
04:20 AM - 04:25 AM	52.2	63.9	48.8
04:25 AM - 04:30 AM	55.6	69.1	50.5
04:30 AM - 04:35 AM	60.8	78.4	54.5
04:35 AM - 04:40 AM	58.3	72.5	50.6
04:40 AM - 04:45 AM	57.9	72.2	51.4
04:45 AM - 04:50 AM	59.8	73.6	50.7
04:50 AM - 04:55 AM	59.2	77.0	51.0
04:55 AM - 05:00 AM	59.9	75.8	51.9
05:00 AM - 05:05 AM	59.7	77.0	51.1
05:05 AM - 05:10 AM	57.0	73.5	49.6
05:10 AM - 05:15 AM	57.6	75.2	50.8
05:15 AM - 05:20 AM	55.4	70.1	49.3
05:20 AM - 05:25 AM	54.8	66.7	49.9
05:25 AM - 05:30 AM	59.5	74.4	53.5
05:30 AM - 05:35 AM	60.9	74.4	54.2
05:35 AM - 05:40 AM	59.2	71.7	52.9
05:40 AM - 05:45 AM	56.6	70.6	52.7
05:45 AM - 05:50 AM	56.6	68.9	51.4
05:50 AM - 05:55 AM	57.8	70.3	50.0
05:55 AM - 06:00 AM	57.1	68.6	50.2
06:00 AM - 07:00 AM	59.8	81.3	50.2
07:00 AM - 08:00 AM	65.0	85.9	57.3
08:00 AM - 09:00 AM	60.7	85.6	51.9
09:00 AM - 10:00 AM	59.9	85.1	53.1
10:00 AM - 11:00 AM	64.0	84.5	55.3
11:00 AM - 12:00 PM	62.3	85.4	51.4

Reference Method :  
1. In-house method : STN 06-001 based on ISO 1996-1 : 2016  
2. ใบอนุญาตประกอบวิชาชีพทางด้านเทคนิค สาขา วิศวกรรมการวัดและทดสอบ 24 ชั่วโมง และหนังสือประกอบหลักฐานการปฏิบัติงานการตรวจวัด ม.ร.ท. 2567

The above results are valid only for the stated conditions and are not to be used for any other purpose. The results are valid only for the stated conditions and are not to be used for any other purpose.

Approved by :   
Kanokkorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116386-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-21  
Parameter : Noise  
Location : บ้านนาทราย (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	56.0	84.3	48.4
01:00 PM - 02:00 PM	55.5	76.9	47.6
02:00 PM - 03:00 PM	53.3	73.4	48.8
03:00 PM - 04:00 PM	50.4	70.9	47.9
04:00 PM - 05:00 PM	50.8	76.9	47.7
05:00 PM - 06:00 PM	48.5	70.3	47.8
06:00 PM - 07:00 PM	49.7	65.7	48.0
07:00 PM - 08:00 PM	49.8	62.1	48.6
08:00 PM - 09:00 PM	50.3	65.4	49.2
09:00 PM - 10:00 PM	48.5	63.7	46.5
10:00 PM - 10:25 PM	46.7	57.1	45.9
10:25 PM - 10:50 PM	46.9	63.2	45.7
10:50 PM - 11:15 PM	47.2	54.8	46.1
11:15 PM - 11:40 PM	46.4	49.3	46.0
11:40 PM - 12:05 PM	47.9	51.8	46.7
12:05 PM - 12:30 PM	48.0	61.5	46.3
12:30 PM - 12:55 PM	47.9	54.1	46.5
12:55 PM - 10:40 PM	47.9	51.5	47.1
10:40 PM - 10:45 PM	48.4	62.1	46.8
10:45 PM - 10:50 PM	47.6	56.1	46.5
10:50 PM - 10:55 PM	47.3	54.2	46.8
10:55 PM - 11:00 PM	47.1	53.7	46.0
11:00 PM - 11:05 PM	46.8	51.0	46.1
11:05 PM - 11:10 PM	46.9	50.4	46.1
11:10 PM - 11:15 PM	46.7	49.7	46.0
11:15 PM - 11:20 PM	47.2	58.3	46.0
11:20 PM - 11:25 PM	47.8	58.9	46.5
11:25 PM - 11:30 PM	47.4	56.9	45.9
11:30 PM - 11:35 PM	46.7	55.2	45.6
11:35 PM - 11:40 PM	46.4	53.8	45.2
11:40 PM - 11:45 PM	49.5	64.8	45.7
11:45 PM - 11:50 PM	46.9	58.3	45.4
11:50 PM - 11:55 PM	46.1	57.9	45.2
11:55 PM - 12:00 AM	45.9	51.7	45.0
12:00 AM - 12:05 AM	47.0	57.4	45.0
12:05 AM - 12:10 AM	46.0	55.2	44.9
12:10 AM - 12:15 AM	46.4	57.8	45.4
12:15 AM - 12:20 AM	47.3	58.5	45.4
12:20 AM - 12:25 AM	47.9	62.1	45.0
12:25 AM - 12:30 AM	46.5	61.0	45.0

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Approved by :   
Kanokkorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116386-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-21  
Parameter : Noise  
Location : บ้านนาทราย (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	47.7	56.7	45.7
12:35 AM - 12:40 AM	49.1	58.6	46.8
12:40 AM - 12:45 AM	47.7	59.2	45.7
12:45 AM - 12:50 AM	47.6	55.7	45.2
12:50 AM - 12:55 AM	49.3	65.4	46.1
12:55 AM - 01:00 AM	51.7	66.1	46.2
01:00 AM - 01:05 AM	49.2	65.6	45.4
01:05 AM - 01:10 AM	50.9	70.2	47.4
01:10 AM - 01:15 AM	51.8	68.3	48.1
01:15 AM - 01:20 AM	57.2	69.0	47.9
01:20 AM - 01:25 AM	55.6	67.5	47.6
01:25 AM - 01:30 AM	51.2	61.2	46.2
01:30 AM - 01:35 AM	54.5	69.2	45.8
01:35 AM - 01:40 AM	57.8	71.0	49.6
01:40 AM - 01:45 AM	54.5	65.6	46.7
01:45 AM - 01:50 AM	52.5	65.6	45.7
01:50 AM - 01:55 AM	55.1	74.3	47.8
01:55 AM - 02:00 AM	58.1	80.3	46.9
02:00 AM - 02:05 AM	57.6	74.5	47.3
02:05 AM - 02:10 AM	63.7	86.1	52.0
02:10 AM - 02:15 AM	59.9	77.3	52.0
02:15 AM - 02:20 AM	58.9	75.5	51.2
02:20 AM - 02:25 AM	64.6	82.6	56.0
02:25 AM - 02:30 AM	67.7	89.0	55.9
02:30 AM - 02:35 AM	69.6	84.6	60.8
02:35 AM - 02:40 AM	66.3	81.7	56.0
02:40 AM - 02:45 AM	63.4	83.3	52.3
02:45 AM - 02:50 AM	59.9	75.4	52.2
02:50 AM - 02:55 AM	60.9	79.7	49.8
02:55 AM - 03:00 AM	65.2	79.4	56.6
03:00 AM - 03:05 AM	65.8	77.4	55.1
03:05 AM - 03:10 AM	61.6	81.4	49.6
03:10 AM - 03:15 AM	60.5	80.5	51.0
03:15 AM - 03:20 AM	58.9	71.3	51.1
03:20 AM - 03:25 AM	54.1	67.7	47.6
03:25 AM - 03:30 AM	53.6	66.0	46.9
03:30 AM - 03:35 AM	59.5	79.8	51.2
03:35 AM - 03:40 AM	56.3	75.2	50.2
03:40 AM - 03:45 AM	51.6	69.6	46.6
03:45 AM - 03:50 AM	51.4	68.9	47.5

The above results are valid only for the stated conditions and are not to be used for any other purpose. The results are valid only for the stated conditions and are not to be used for any other purpose.

Approved by :   
Kanokkorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116386-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-21  
Parameter : Noise  
Location : บ้านนาทราย (GPS 47P 0719844, 1516975) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aconsim  
Sound Level Meter : 00710637

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:50 AM - 03:55 AM	54.3	65.9	46.8
03:55 AM - 04:00 AM	53.3	65.4	45.5
04:00 AM - 04:05 AM	54.4	69.9	49.5
04:05 AM - 04:10 AM	52.6	66.9	47.9
04:10 AM - 04:15 AM	53.4	65.5	48.5
04:15 AM - 04:20 AM	57.0	76.4	51.0
04:20 AM - 04:25 AM	56.5	73.6	51.5
04:25 AM - 04:30 AM	59.0	73.5	51.7
04:30 AM - 04:35 AM	56.1	74.6	51.8
04:35 AM - 04:40 AM	57.1	75.5	51.3
04:40 AM - 04:45 AM	55.7	71.9	50.4
04:45 AM - 04:50 AM	54.4	70.8	49.3
04:50 AM - 04:55 AM	55.7	72.3	49.1
04:55 AM - 05:00 AM	56.5	74.1	50.2
05:00 AM - 05:05 AM	54.8	66.7	50.2
05:05 AM - 05:10 AM	56.7	66.7	51.7
05:10 AM - 05:15 AM	57.7	69.5	52.7
05:15 AM - 05:20 AM	61.0	75.7	53.2
05:20 AM - 05:25 AM	62.0	79.3	51.9
05:25 AM - 05:30 AM	60.5	80.4	50.5
05:30 AM - 05:35 AM	54.7	68.5	50.0
05:35 AM - 05:40 AM	54.2	68.5	49.3
05:40 AM - 05:45 AM	56.2	68.7	50.4
05:45 AM - 05:50 AM	57.9	69.2	50.8
05:50 AM - 05:55 AM	56.2	68.2	49.4
05:55 AM - 06:00 AM	56.4	72.1	49.5
06:00 AM - 07:00 AM	60.0	83.2	50.6
07:00 AM - 08:00 AM	65.7	96.5	55.3
08:00 AM - 09:00 AM	56.8	77.4	49.7
09:00 AM - 10:00 AM	53.9	78.9	46.3
10:00 AM - 11:00 AM	62.2	88.3	52.5
11:00 AM - 12:00 PM	59.6	79.7	48.8

Reference Method :  
1. In-house method : STN 06-001 based on ISO 1996-1 : 2016  
2. ใบอนุญาตประกอบวิชาชีพทางด้านเทคนิค สาขา วิศวกรรมการวัดและทดสอบ 24 ชั่วโมง และหนังสือประกอบหลักฐานการปฏิบัติงานการตรวจวัด ม.ร.ท. 2567

The above results are valid only for the stated conditions and are not to be used for any other purpose. The results are valid only for the stated conditions and are not to be used for any other purpose.

Approved by :   
Kanokkorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116387-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103113-22  
Parameter : Noise  
Location : บ้านนาเกลือ (GPS 477 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonansim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	54.9	62.5	46.1
02:00 PM - 03:00 PM	63.8	101.7	45.0
03:00 PM - 04:00 PM	49.9	69.0	43.9
04:00 PM - 05:00 PM	52.1	77.4	45.2
05:00 PM - 06:00 PM	50.1	71.7	45.0
06:00 PM - 07:00 PM	48.5	62.1	45.9
07:00 PM - 08:00 PM	46.4	63.5	44.5
08:00 PM - 09:00 PM	46.1	67.3	43.5
09:00 PM - 10:00 PM	52.3	64.7	43.3
10:00 PM - 10:55 PM	49.7	63.8	43.5
10:55 PM - 11:00 PM	46.4	58.3	43.1
10:10 PM - 10:15 PM	45.5	57.9	43.2
10:15 PM - 10:20 PM	51.3	61.4	43.2
10:20 PM - 10:25 PM	53.0	61.9	43.8
10:25 PM - 10:30 PM	52.4	62.0	43.6
10:30 PM - 10:35 PM	52.1	62.4	43.3
10:35 PM - 10:40 PM	49.4	61.0	42.4
10:40 PM - 10:45 PM	45.4	58.1	42.1
10:45 PM - 10:50 PM	45.0	60.3	42.3
10:50 PM - 10:55 PM	43.7	59.8	42.1
10:55 PM - 11:00 PM	44.1	57.5	42.5
11:00 PM - 11:05 PM	44.4	57.2	42.9
11:05 PM - 11:10 PM	44.6	54.3	42.2
11:10 PM - 11:15 PM	44.6	49.1	43.5
11:15 PM - 11:20 PM	44.7	49.8	43.6
11:20 PM - 11:25 PM	44.8	49.4	43.7
11:25 PM - 11:30 PM	44.6	46.9	44.0
11:30 PM - 11:35 PM	45.1	44.2	44.2
11:35 PM - 11:40 PM	46.9	52.4	44.4
11:40 PM - 11:45 PM	44.9	50.8	44.1
11:45 PM - 11:50 PM	45.1	53.4	43.8
11:50 PM - 11:55 PM	47.1	62.8	44.0
11:55 PM - 12:00 AM	46.8	57.3	44.6
12:00 AM - 12:05 AM	47.7	56.7	44.8
12:05 AM - 12:10 AM	48.1	66.2	45.0
12:10 AM - 12:15 AM	49.6	59.6	45.4
12:15 AM - 12:20 AM	48.5	54.8	45.3
12:20 AM - 12:25 AM	49.0	59.5	45.5
12:25 AM - 12:30 AM	48.5	57.2	45.4
12:30 AM - 12:35 AM	49.9	57.4	45.4

The above results are valid only for the analyzed period and are not intended to be used for any other purpose. The results are not intended to be used for any other purpose. The results are not intended to be used for any other purpose.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116387-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103113-22  
Parameter : Noise  
Location : บ้านนาเกลือ (GPS 477 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aonansim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:40 AM	49.2	65.7	45.1
12:40 AM - 12:45 AM	46.5	54.7	45.1
12:45 AM - 12:50 AM	46.6	63.7	45.3
12:50 AM - 12:55 AM	43.9	61.9	46.0
12:55 AM - 01:00 AM	47.1	52.3	45.7
01:00 AM - 01:05 AM	47.2	54.5	45.5
01:05 AM - 01:10 AM	47.1	54.1	45.6
01:10 AM - 01:15 AM	47.0	54.6	45.2
01:15 AM - 01:20 AM	46.9	54.2	45.7
01:20 AM - 01:25 AM	48.5	54.3	46.1
01:25 AM - 01:30 AM	47.3	63.7	45.8
01:30 AM - 01:35 AM	51.0	69.0	45.6
01:35 AM - 01:40 AM	46.0	55.6	45.0
01:40 AM - 01:45 AM	48.5	62.2	45.1
01:45 AM - 01:50 AM	46.3	49.7	45.1
01:50 AM - 01:55 AM	45.6	49.5	44.9
01:55 AM - 02:00 AM	45.2	47.0	44.6
02:00 AM - 02:05 AM	45.0	50.5	44.3
02:05 AM - 02:10 AM	45.8	52.9	44.0
02:10 AM - 02:15 AM	44.3	52.9	43.4
02:15 AM - 02:20 AM	45.3	51.8	43.8
02:20 AM - 02:25 AM	45.3	50.4	43.4
02:25 AM - 02:30 AM	44.3	52.4	43.1
02:30 AM - 02:35 AM	44.3	49.4	42.8
02:35 AM - 02:40 AM	44.0	52.3	42.0
02:40 AM - 02:45 AM	43.7	52.6	41.5
02:45 AM - 02:50 AM	43.7	48.2	41.6
02:50 AM - 02:55 AM	43.8	52.0	41.7
02:55 AM - 03:00 AM	43.6	53.0	41.6
03:00 AM - 03:05 AM	45.1	54.4	41.4
03:05 AM - 03:10 AM	46.1	54.9	40.5
03:10 AM - 03:15 AM	46.6	64.0	41.3
03:15 AM - 03:20 AM	46.7	45.8	41.9
03:20 AM - 03:25 AM	50.5	66.2	43.7
03:25 AM - 03:30 AM	48.1	65.9	40.9
03:30 AM - 03:35 AM	45.2	63.9	41.9
03:35 AM - 03:40 AM	46.1	53.5	41.1
03:40 AM - 03:45 AM	54.1	54.6	41.6
03:45 AM - 03:50 AM	47.7	54.8	42.3
03:50 AM - 03:55 AM	48.0	54.2	42.8

The above results are valid only for the analyzed period and are not intended to be used for any other purpose. The results are not intended to be used for any other purpose. The results are not intended to be used for any other purpose.

Approved by

Kanokorn Anek  
Asst. General Manager

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand Tel: +66 0 2760 3000 Fax: +66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116387-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-22  
Parameter : Noise  
Location : บ้านนาเกลือ (GPS 477 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonansim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	50.3	65.0	43.6
04:00 AM - 04:05 AM	47.7	54.9	43.2
04:05 AM - 04:10 AM	50.1	63.5	43.8
04:10 AM - 04:15 AM	58.9	64.8	45.8
04:20 AM - 04:25 AM	64.5	81.0	44.4
04:25 AM - 04:30 AM	55.5	75.4	43.9
04:30 AM - 04:35 AM	63.9	82.2	45.1
04:35 AM - 04:40 AM	57.1	75.8	45.8
04:40 AM - 04:45 AM	53.2	68.1	47.6
04:45 AM - 04:50 AM	55.0	66.8	49.4
04:50 AM - 04:55 AM	54.8	65.9	48.3
04:55 AM - 05:00 AM	52.8	65.4	47.1
05:00 AM - 05:05 AM	52.0	61.8	45.9
05:05 AM - 05:10 AM	53.2	65.4	46.4
05:10 AM - 05:15 AM	52.6	66.9	46.7
05:15 AM - 05:20 AM	52.3	64.1	46.1
05:20 AM - 05:25 AM	52.3	62.7	45.2
05:25 AM - 05:30 AM	52.9	78.8	43.4
05:30 AM - 05:35 AM	51.5	64.5	43.7
05:35 AM - 05:40 AM	49.2	64.7	42.3
05:40 AM - 05:45 AM	51.4	64.6	44.8
05:45 AM - 05:50 AM	59.8	82.9	46.5
05:50 AM - 05:55 AM	54.6	74.1	46.2
05:55 AM - 06:00 AM	56.4	64.9	48.9
06:00 AM - 07:00 AM	71.5	88.9	60.9
07:00 AM - 08:00 AM	51.9	78.9	46.3
08:00 AM - 09:00 AM	50.4	75.0	43.4
09:00 AM - 10:00 AM	51.4	72.2	43.0
10:00 AM - 11:00 AM	65.5	84.1	54.4
11:00 AM - 12:00 PM	62.2	91.4	49.2
12:00 PM - 01:00 PM	55.2	84.0	47.0

Reference Method : 1. In house method : STM 66-001 based on ISO 1996-1 : 2016  
2. ผลการตรวจวัดตามมาตรฐานตามข้อกำหนดของกรมควบคุมมลพิษตามมาตรฐานของประเทศไทย : 2567

The above results are valid only for the analyzed period and are not intended to be used for any other purpose. The results are not intended to be used for any other purpose. The results are not intended to be used for any other purpose.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116387-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 1 of 3

Sample No. : 24103113-23  
Parameter : Noise  
Location : บ้านนาเกลือ (GPS 477 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonansim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	53.5	78.6	46.8
02:00 PM - 03:00 PM	59.2	88.9	46.1
03:00 PM - 04:00 PM	52.2	71.1	44.1
04:00 PM - 05:00 PM	53.2	77.5	44.3
05:00 PM - 06:00 PM	50.1	70.5	46.7
06:00 PM - 07:00 PM	46.1	63.1	46.5
07:00 PM - 08:00 PM	52.3	64.8	46.9
08:00 PM - 09:00 PM	51.9	67.5	44.8
09:00 PM - 10:00 PM	50.9	74.3	47.9
10:00 PM - 10:05 PM	64.4	64.9	63.5
10:05 PM - 10:10 PM	63.8	80.2	61.4
10:10 PM - 10:15 PM	59.1	72.1	54.9
10:15 PM - 10:20 PM	57.8	70.4	54.2
10:20 PM - 10:25 PM	55.5	71.6	51.1
10:25 PM - 10:30 PM	53.0	65.9	49.4
10:30 PM - 10:35 PM	53.8	64.3	46.4
10:35 PM - 10:40 PM	53.1	67.5	46.8
10:40 PM - 10:45 PM	51.7	67.0	46.5
10:45 PM - 10:50 PM	53.9	72.5	46.2
10:50 PM - 10:55 PM	50.9	64.3	48.0
10:55 PM - 11:00 PM	46.9	56.1	47.6
11:00 PM - 11:05 PM	49.1	58.4	47.4
11:05 PM - 11:10 PM	49.2	61.2	46.9
11:10 PM - 11:15 PM	47.9	56.3	46.7
11:15 PM - 11:20 PM	49.9	62.7	46.7
11:20 PM - 11:25 PM	49.2	57.6	47.6
11:25 PM - 11:30 PM	49.7	55.7	48.8
11:30 PM - 11:35 PM	51.2	60.9	49.7
11:35 PM - 11:40 PM	53.8	59.6	53.6
11:40 PM - 11:45 PM	54.2	61.1	53.3
11:45 PM - 11:50 PM	61.2	61.2	53.2
11:50 PM - 11:55 PM	52.9	59.8	51.8
11:55 PM - 12:00 AM	51.4	56.4	52.0
12:00 AM - 12:05 AM	52.9	58.7	52.0
12:05 AM - 12:10 AM	52.5	61.9	51.5
12:10 AM - 12:15 AM	52.0	60.5	51.3
12:15 AM - 12:20 AM	51.8	61.6	50.9
12:20 AM - 12:25 AM	51.3	58.3	50.7
12:25 AM - 12:30 AM	52.5	64.2	50.8
12:30 AM - 12:35 AM	51.4	57.2	50.6

The above results are valid only for the analyzed period and are not intended to be used for any other purpose. The results are not intended to be used for any other purpose. The results are not intended to be used for any other purpose.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116388-1


P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-23  
Parameter : Noise  
Location : บ้านนาปรัง (GPS 47P 0714286, 1518864) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:40 AM	51.2	56.3	50.5
12:40 AM - 12:45 AM	51.2	55.4	50.5
12:45 AM - 12:50 AM	51.3	60.3	50.6
12:50 AM - 12:55 AM	51.2	55.3	50.6
12:55 AM - 01:00 AM	51.8	59.3	50.9
01:00 AM - 01:05 AM	51.9	61.2	50.8
01:05 AM - 01:10 AM	51.3	55.4	50.8
01:10 AM - 01:15 AM	51.7	54.1	51.0
01:15 AM - 01:20 AM	51.4	54.8	50.8
01:20 AM - 01:25 AM	51.5	55.5	50.7
01:25 AM - 01:30 AM	51.3	54.8	50.7
01:30 AM - 01:35 AM	51.9	57.1	50.7
01:35 AM - 01:40 AM	51.5	56.6	50.4
01:40 AM - 01:45 AM	51.1	55.4	50.5
01:45 AM - 01:50 AM	52.1	56.5	50.4
01:50 AM - 01:55 AM	51.1	56.8	49.8
01:55 AM - 02:00 AM	51.7	56.8	50.1
02:00 AM - 02:05 AM	52.1	55.1	50.8
02:05 AM - 02:10 AM	52.9	59.1	50.8
02:10 AM - 02:15 AM	53.0	57.0	51.6
02:15 AM - 02:20 AM	54.8	58.3	52.9
02:20 AM - 02:25 AM	55.1	58.8	53.3
02:25 AM - 02:30 AM	54.1	58.1	51.9
02:30 AM - 02:35 AM	54.2	59.3	53.1
02:35 AM - 02:40 AM	55.9	60.4	53.6
02:40 AM - 02:45 AM	56.9	60.0	55.0
02:45 AM - 02:50 AM	57.4	62.9	55.4
02:50 AM - 02:55 AM	56.8	60.4	55.2
02:55 AM - 03:00 AM	57.2	60.8	55.8
03:00 AM - 03:05 AM	57.7	61.3	55.7
03:05 AM - 03:10 AM	58.3	61.9	54.9
03:10 AM - 03:15 AM	57.9	67.2	54.2
03:15 AM - 03:20 AM	59.1	66.5	56.3
03:20 AM - 03:25 AM	60.0	66.9	57.2
03:25 AM - 03:30 AM	59.2	66.2	56.9
03:30 AM - 03:35 AM	60.9	67.8	59.8
03:35 AM - 03:40 AM	59.9	62.5	58.0
03:40 AM - 03:45 AM	59.4	61.2	56.8
03:45 AM - 03:50 AM	59.6	62.3	57.4
03:50 AM - 03:55 AM	59.5	64.4	57.1

The above results are valid only for the analyzed period and are not intended to be used for any other purpose. The results are subject to the accuracy of the equipment used and the skill of the operator. The results are not intended to be used for any other purpose.

Approved by   
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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116388-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-23  
Parameter : Noise  
Location : บ้านนาปรัง (GPS 47P 0714286, 1518864) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	59.1	59.1	56.5
04:00 AM - 04:05 AM	59.5	59.5	57.6
04:05 AM - 04:10 AM	59.6	61.9	58.2
04:10 AM - 04:15 AM	59.8	61.6	57.4
04:15 AM - 04:20 AM	59.9	61.1	55.8
04:20 AM - 04:25 AM	59.3	60.2	54.4
04:25 AM - 04:30 AM	53.1	58.0	51.2
04:30 AM - 04:35 AM	52.0	53.8	47.8
04:35 AM - 04:40 AM	51.2	64.7	47.3
04:40 AM - 04:45 AM	53.9	65.9	47.9
04:45 AM - 04:50 AM	54.9	64.8	49.2
04:50 AM - 04:55 AM	54.2	66.2	49.1
04:55 AM - 05:00 AM	51.8	61.8	48.7
05:00 AM - 05:05 AM	50.9	64.6	47.3
05:05 AM - 05:10 AM	50.6	63.7	47.5
05:10 AM - 05:15 AM	52.3	62.2	48.4
05:15 AM - 05:20 AM	52.2	60.2	49.2
05:20 AM - 05:25 AM	54.5	65.4	49.1
05:25 AM - 05:30 AM	55.6	67.2	49.1
05:30 AM - 05:35 AM	53.7	64.7	48.7
05:35 AM - 05:40 AM	59.3	72.4	49.1
05:40 AM - 05:45 AM	57.9	72.1	49.7
05:45 AM - 05:50 AM	54.5	66.9	48.5
05:50 AM - 05:55 AM	57.3	76.7	49.0
05:55 AM - 06:00 AM	58.6	84.1	48.7
06:00 AM - 07:00 AM	65.7	84.7	56.0
07:00 AM - 08:00 AM	58.6	80.9	50.9
08:00 AM - 09:00 AM	64.1	82.4	57.4
09:00 AM - 10:00 AM	53.7	71.3	46.8
10:00 AM - 11:00 AM	64.9	89.3	52.6
11:00 AM - 12:00 PM	58.6	77.1	51.3
12:00 PM - 01:00 PM	58.2	60.3	49.6

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. Standard of Noise Measurement (วิธีมาตรฐานการวัดระดับเสียงตามมาตรฐานของกรมควบคุมมลพิษ) 24 วิธีมาตรฐานการวัดระดับเสียงตามมาตรฐานของกรมควบคุมมลพิษ พ.ศ. 2567

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116389-1


P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. : 24103113-24  
Parameter : Noise  
Location : บ้านนาปรัง (GPS 47P 0714286, 1518864) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	58.8	65.2	50.4
02:00 PM - 03:00 PM	58.0	67.9	47.5
03:00 PM - 04:00 PM	49.6	65.4	42.0
04:00 PM - 05:00 PM	54.2	78.9	43.8
05:00 PM - 06:00 PM	51.0	75.2	40.1
06:00 PM - 07:00 PM	52.1	64.0	49.6
07:00 PM - 08:00 PM	56.4	72.6	51.5
08:00 PM - 09:00 PM	52.2	63.6	51.2
09:00 PM - 10:00 PM	52.3	62.6	51.5
10:00 PM - 10:05 PM	51.5	56.5	50.1
10:05 PM - 10:10 PM	50.8	60.3	50.1
10:10 PM - 10:15 PM	51.3	60.1	49.9
10:15 PM - 10:20 PM	51.9	59.3	50.1
10:20 PM - 10:25 PM	51.2	61.7	51.2
10:25 PM - 10:30 PM	52.0	59.4	51.2
10:30 PM - 10:35 PM	52.0	62.0	51.3
10:35 PM - 10:40 PM	52.1	58.3	51.3
10:40 PM - 10:45 PM	52.0	60.9	51.1
10:45 PM - 10:50 PM	51.7	57.3	51.0
10:50 PM - 10:55 PM	51.7	57.6	50.7
10:55 PM - 11:00 PM	51.6	60.9	50.6
11:00 PM - 11:05 PM	51.5	64.3	50.6
11:05 PM - 11:10 PM	51.0	65.4	50.1
11:10 PM - 11:15 PM	50.9	60.1	49.7
11:15 PM - 11:20 PM	50.6	60.6	49.7
11:20 PM - 11:25 PM	50.5	58.4	49.6
11:25 PM - 11:30 PM	50.2	55.3	49.3
11:30 PM - 11:35 PM	49.7	54.5	49.1
11:35 PM - 11:40 PM	49.7	56.4	49.4
11:40 PM - 11:45 PM	49.8	54.5	49.2
11:45 PM - 11:50 PM	51.6	61.1	48.9
11:50 PM - 11:55 PM	49.5	53.2	49.2
11:55 PM - 12:00 AM	49.6	53.1	48.8
12:00 AM - 12:05 AM	49.9	55.0	48.9
12:05 AM - 12:10 AM	50.9	54.2	49.3
12:10 AM - 12:15 AM	50.0	58.3	48.9
12:15 AM - 12:20 AM	50.5	60.7	49.4
12:20 AM - 12:25 AM	50.2	53.1	49.1
12:25 AM - 12:30 AM	50.3	53.1	49.7
12:30 AM - 12:35 AM	50.2	56.8	49.5

The above results are valid only for the analyzed period and are not intended to be used for any other purpose. The results are subject to the accuracy of the equipment used and the skill of the operator. The results are not intended to be used for any other purpose.

Approved by   
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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116389-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-24  
Parameter : Noise  
Location : บ้านนาปรัง (GPS 47P 0714286, 1518864) (หน้าห้อง) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:40 AM	50.2	55.8	49.5
12:40 AM - 12:45 AM	50.8	61.3	49.8
12:45 AM - 12:50 AM	50.8	59.5	50.0
12:50 AM - 12:55 AM	50.8	55.8	49.9
12:55 AM - 01:00 AM	51.0	53.9	49.9
01:00 AM - 01:05 AM	54.1	54.1	50.0
01:05 AM - 01:10 AM	51.6	59.6	50.3
01:10 AM - 01:15 AM	51.0	56.4	50.0
01:15 AM - 01:20 AM	51.6	58.3	50.0
01:20 AM - 01:25 AM	51.4	54.6	50.3
01:25 AM - 01:30 AM	51.8	55.2	50.6
01:30 AM - 01:35 AM	51.9	54.6	50.8
01:35 AM - 01:40 AM	51.8	54.8	50.8
01:40 AM - 01:45 AM	52.0	55.4	50.6
01:45 AM - 01:50 AM	51.7	59.8	50.6
01:50 AM - 01:55 AM	51.4	56.8	51.7
01:55 AM - 02:00 AM	53.2	56.2	51.6
02:00 AM - 02:05 AM	53.7	56.2	52.4
02:05 AM - 02:10 AM	53.9	61.1	52.9
02:10 AM - 02:15 AM	53.9	56.8	52.7
02:15 AM - 02:20 AM	53.5	55.9	52.1
02:20 AM - 02:25 AM	53.6	57.1	52.3
02:25 AM - 02:30 AM	51.7	56.4	50.1
02:30 AM - 02:35 AM	52.5	56.7	50.8
02:35 AM - 02:40 AM	52.5	65.5	51.6
02:40 AM - 02:45 AM	54.3	63.6	52.4
02:45 AM - 02:50 AM	53.8	56.6	52.0
02:50 AM - 02:55 AM	53.1	56.4	50.4
02:55 AM - 03:00 AM	54.0	57.5	52.7
03:00 AM - 03:05 AM	54.6	62.8	52.4
03:05 AM - 03:10 AM	54.5	57.5	53.2
03:10 AM - 03:15 AM	55.2	63.9	53.0
03:15 AM - 03:20 AM	56.2	67.9	54.0
03:20 AM - 03:25 AM	56.3	67.8	54.0
03:25 AM - 03:30 AM	55.9	65.6	54.4
03:30 AM - 03:35 AM	54.5	65.9	50.3
03:35 AM - 03:40 AM	54.3	64.2	50.7
03:40 AM - 03:45 AM	54.3	56.9	51.1
03:45 AM - 03:50 AM	54.4	57.5	52.6
03:50 AM - 03:55 AM	54.4	57.0	52.9

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Approved by   
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116390-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. 24103113-24  
Parameter Noise  
Location ชุมชนบ้านใหม่ (GPS 47P 0714286, 1518864) (หน้าวัด) (Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aconsim  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	54.4	59.9	52.6
04:00 AM - 04:05 AM	53.0	56.8	51.7
04:05 AM - 04:10 AM	53.5	65.2	51.0
04:10 AM - 04:15 AM	52.6	55.8	49.7
04:15 AM - 04:20 AM	52.2	62.1	49.1
04:20 AM - 04:25 AM	61.0	80.6	48.8
04:25 AM - 04:30 AM	60.1	79.6	46.2
04:30 AM - 04:35 AM	51.4	64.8	47.2
04:35 AM - 04:40 AM	55.7	78.5	47.5
04:40 AM - 04:45 AM	55.2	62.1	47.9
04:45 AM - 04:50 AM	54.0	65.4	49.2
04:50 AM - 04:55 AM	53.0	63.5	49.3
04:55 AM - 05:00 AM	53.5	62.6	50.3
05:00 AM - 05:05 AM	51.7	63.8	48.2
05:05 AM - 05:10 AM	53.4	66.8	47.7
05:10 AM - 05:15 AM	56.5	61.9	46.9
05:15 AM - 05:20 AM	51.3	62.7	47.0
05:20 AM - 05:25 AM	52.0	67.0	46.8
05:25 AM - 05:30 AM	52.7	64.0	47.0
05:30 AM - 05:35 AM	53.8	63.8	47.4
05:35 AM - 05:40 AM	51.5	62.9	46.6
05:40 AM - 05:45 AM	53.7	77.8	47.2
05:45 AM - 05:50 AM	51.8	67.2	47.6
05:50 AM - 05:55 AM	56.6	77.0	49.1
05:55 AM - 06:00 AM	55.9	77.0	48.8
06:00 AM - 07:00 AM	66.9	86.8	56.1
07:00 AM - 08:00 AM	52.2	72.7	47.5
08:00 AM - 09:00 AM	50.5	66.2	45.1
09:00 AM - 10:00 AM	54.1	71.0	47.0
10:00 AM - 11:00 AM	64.4	86.5	52.0
11:00 AM - 12:00 PM	63.5	89.1	52.7
12:00 PM - 01:00 PM	58.0	73.9	50.9

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ไม่พบการรบกวนจากภายนอก (ไม่มีเสียงรบกวนจากภายนอก) หรือเสียงรบกวนอื่นใดที่อาจมีผลต่อการวัดค่าเสียงรบกวน

The above results are valid only for the analysis period specified in this report. The results of this report are not valid for any other purpose without written consent from the Laboratory. ALS is not responsible for any errors or omissions in this report. The report is not to be used for any other purpose without written consent from the Laboratory.

Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116390-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. 24103113-25  
Parameter Noise  
Location ชุมชนบ้านใหม่ (GPS 47P 0714286, 1518864) (หน้าวัด) (Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aconsim  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	50.4	57.2	52.3
04:00 AM - 04:05 AM	50.2	57.6	49.4
04:05 AM - 04:10 AM	53.0	66.5	43.2
04:10 AM - 04:15 AM	51.5	72.1	44.7
04:15 AM - 04:20 AM	51.2	70.2	46.9
04:20 AM - 04:25 AM	51.7	59.7	50.2
04:25 AM - 04:30 AM	54.4	68.0	49.1
04:30 AM - 04:35 AM	66.2	85.5	63.2
04:35 AM - 04:40 AM	63.7	74.4	60.6
04:40 AM - 04:45 AM	56.0	61.5	55.1
04:45 AM - 04:50 AM	55.9	63.9	54.7
04:50 AM - 04:55 AM	56.7	61.8	55.0
04:55 AM - 05:00 AM	55.8	59.9	54.8
05:00 AM - 05:05 AM	56.1	60.5	55.0
05:05 AM - 05:10 AM	56.6	67.6	55.2
05:10 AM - 05:15 AM	55.8	59.6	54.7
05:15 AM - 05:20 AM	55.5	59.1	54.6
05:20 AM - 05:25 AM	56.2	63.2	54.8
05:25 AM - 05:30 AM	56.7	66.2	54.6
05:30 AM - 05:35 AM	55.5	59.4	54.3
05:35 AM - 05:40 AM	54.7	59.6	53.6
05:40 AM - 05:45 AM	55.1	59.5	51.8
05:45 AM - 05:50 AM	54.1	58.1	52.9
05:50 AM - 05:55 AM	54.2	58.4	53.2
05:55 AM - 06:00 AM	54.3	56.9	52.6
06:00 AM - 07:00 AM	54.3	57.3	53.0
07:00 AM - 08:00 AM	53.0	56.8	51.9
08:00 AM - 09:00 AM	54.0	59.6	52.2
09:00 AM - 10:00 AM	53.2	59.7	50.4
10:00 AM - 11:00 AM	51.6	54.8	50.4
11:00 AM - 12:00 PM	53.5	55.6	50.7
12:00 PM - 01:00 PM	51.4	58.3	51.1
01:00 PM - 02:00 AM	53.2	57.6	51.6
02:00 AM - 02:05 AM	53.3	62.8	50.5
02:05 AM - 02:10 AM	52.8	55.4	48.8
02:10 AM - 02:15 AM	52.4	58.2	50.3
02:15 AM - 02:20 AM	53.8	61.7	50.6
02:20 AM - 02:25 AM	53.9	62.3	50.6
02:25 AM - 02:30 AM	54.1	58.4	51.7
02:30 AM - 02:35 AM	55.7	63.7	53.1

The above results are valid only for the analysis period specified in this report. The results of this report are not valid for any other purpose without written consent from the Laboratory. ALS is not responsible for any errors or omissions in this report. The report is not to be used for any other purpose without written consent from the Laboratory.

Approved by

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116390-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. 24103113-25  
Parameter Noise  
Location ชุมชนบ้านใหม่ (GPS 47P 0714286, 1518864) (หน้าวัด) (Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aconsim  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:40 AM	58.2	62.3	53.8
12:40 AM - 12:45 AM	56.2	62.6	56.4
12:45 AM - 12:50 AM	59.6	63.5	56.6
12:50 AM - 12:55 AM	60.4	65.2	59.3
12:55 AM - 01:00 AM	61.1	66.4	60.2
01:00 AM - 01:05 AM	62.4	66.0	61.0
01:05 AM - 01:10 AM	62.2	64.0	61.2
01:10 AM - 01:15 AM	62.8	65.7	61.8
01:15 AM - 01:20 AM	63.1	66.1	62.4
01:20 AM - 01:25 AM	64.3	66.0	62.5
01:25 AM - 01:30 AM	66.9	67.8	62.8
01:30 AM - 01:35 AM	63.7	72.8	62.7
01:35 AM - 01:40 AM	63.9	66.9	63.1
01:40 AM - 01:45 AM	64.5	67.8	63.4
01:45 AM - 01:50 AM	64.8	64.1	63.5
01:50 AM - 01:55 AM	65.6	66.4	63.9
01:55 AM - 02:00 AM	65.7	67.8	64.4
02:00 AM - 02:05 AM	65.8	67.8	64.7
02:05 AM - 02:10 AM	65.6	67.7	64.4
02:10 AM - 02:15 AM	65.9	68.1	65.0
02:15 AM - 02:20 AM	66.1	66.6	65.2
02:20 AM - 02:25 AM	66.2	64.6	65.2
02:25 AM - 02:30 AM	66.0	66.3	64.8
02:30 AM - 02:35 AM	66.1	68.1	65.0
02:35 AM - 02:40 AM	65.9	68.1	64.9
02:40 AM - 02:45 AM	65.7	67.7	64.8
02:45 AM - 02:50 AM	64.6	67.7	64.6
02:50 AM - 02:55 AM	65.7	66.5	64.3
02:55 AM - 03:00 AM	65.3	66.3	64.0
03:00 AM - 03:05 AM	65.1	67.8	63.9
03:05 AM - 03:10 AM	65.0	66.3	63.9
03:10 AM - 03:15 AM	64.8	66.8	63.7
03:15 AM - 03:20 AM	64.8	66.9	63.6
03:20 AM - 03:25 AM	65.0	69.2	63.8
03:25 AM - 03:30 AM	65.1	68.5	64.0
03:30 AM - 03:35 AM	64.6	69.2	63.4
03:35 AM - 03:40 AM	64.7	67.2	63.2
03:40 AM - 03:45 AM	63.5	67.0	62.5
03:45 AM - 03:50 AM	63.7	66.9	62.6
03:50 AM - 03:55 AM	63.5	66.5	62.5

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116390-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. 24103113-25  
Parameter Noise  
Location ชุมชนบ้านใหม่ (GPS 47P 0714286, 1518864) (หน้าวัด) (Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aconsim  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	63.2	66.9	62.0
04:00 AM - 04:05 AM	63.0	65.8	61.9
04:05 AM - 04:10 AM	62.0	64.9	60.9
04:10 AM - 04:15 AM	62.7	64.2	60.6
04:15 AM - 04:20 AM	60.8	63.2	59.3
04:20 AM - 04:25 AM	59.8	62.4	58.5
04:25 AM - 04:30 AM	62.4	61.3	55.6
04:30 AM - 04:35 AM	54.3	65.2	52.0
04:35 AM - 04:40 AM	53.0	60.4	50.8
04:40 AM - 04:45 AM	54.2	61.8	51.0
04:45 AM - 04:50 AM	53.3	64.3	49.8
04:50 AM - 04:55 AM	54.5	69.0	49.7
04:55 AM - 05:00 AM	54.4	67.3	50.3
05:00 AM - 05:05 AM	52.8	60.8	49.5
05:05 AM - 05:10 AM	54.5	71.0	48.7
05:10 AM - 05:15 AM	54.0	68.3	47.9
05:15 AM - 05:20 AM	55.0	66.6	49.0
05:20 AM - 05:25 AM	52.9	64.0	47.9
05:25 AM - 05:30 AM	52.0	64.6	46.1
05:30 AM - 05:35 AM	54.1	66.3	46.7
05:35 AM - 05:40 AM	53.5	66.8	44.9
05:40 AM - 05:45 AM	52.8	74.5	45.8
05:45 AM - 05:50 AM	53.1	67.7	46.5
05:50 AM - 05:55 AM	53.1	64.8	46.4
05:55 AM - 06:00 AM	50.5	61.0	46.3
06:00 AM - 07:00 AM	54.0	81.9	45.7
07:00 AM - 08:00 AM	54.6	76.0	44.4
08:00 AM - 09:00 AM	55.2	81.7	44.4
09:00 AM - 10:00 AM	50.9	74.9	42.2
10:00 AM - 11:00 AM	52.3	73.9	41.6
11:00 AM - 12:00 PM	50.0	72.8	41.9
12:00 PM - 01:00 PM	50.5	68.3	45.1

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ไม่พบการรบกวนจากภายนอก (ไม่มีเสียงรบกวนจากภายนอก) หรือเสียงรบกวนอื่นใดที่อาจมีผลต่อการวัดค่าเสียงรบกวน

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116391-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103113-26  
Parameter Noise  
Location บ้านนาไร่ (GPS 47P 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aonsum  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	50.2	71.0	44.6
02:00 PM - 03:00 PM	53.4	79.0	44.0
03:00 PM - 04:00 PM	53.1	74.4	43.7
04:00 PM - 05:00 PM	55.3	75.2	50.5
05:00 PM - 06:00 PM	53.1	74.1	51.0
06:00 PM - 07:00 PM	53.0	68.4	52.3
07:00 PM - 08:00 PM	53.8	72.5	51.7
08:00 PM - 09:00 PM	51.5	64.4	50.0
09:00 PM - 10:00 PM	54.2	78.6	52.9
10:00 PM - 10:55 PM	52.9	59.9	52.2
10:55 PM - 10:10 PM	52.5	57.3	51.7
10:10 PM - 10:15 PM	52.9	62.5	51.6
10:15 PM - 10:20 PM	52.4	57.4	51.0
10:20 PM - 10:25 PM	52.0	61.9	51.1
10:25 PM - 10:30 PM	51.8	57.4	51.0
10:30 PM - 10:35 PM	53.1	63.2	50.3
10:35 PM - 10:40 PM	50.6	57.7	49.5
10:40 PM - 10:45 PM	50.5	57.8	49.5
10:45 PM - 10:50 PM	50.4	60.8	49.4
10:50 PM - 10:55 PM	51.8	62.5	49.9
10:55 PM - 11:00 PM	50.3	61.6	49.5
11:00 PM - 11:05 PM	51.2	62.2	49.6
11:05 PM - 11:10 PM	50.1	56.9	49.4
11:10 PM - 11:15 PM	51.7	60.5	49.4
11:15 PM - 11:20 PM	50.0	58.5	49.4
11:20 PM - 11:25 PM	50.0	62.6	49.3
11:25 PM - 11:30 PM	49.6	56.3	48.7
11:30 PM - 11:35 PM	50.8	63.1	48.5
11:35 PM - 11:40 PM	51.7	58.0	49.4
11:40 PM - 11:45 PM	51.0	57.1	49.5
11:45 PM - 11:50 PM	51.3	57.4	49.9
11:50 PM - 11:55 PM	51.1	57.4	49.8
11:55 PM - 12:00 AM	51.3	57.3	49.9
12:00 AM - 12:05 AM	51.1	60.1	50.1
12:05 AM - 12:10 AM	51.1	57.2	49.9
12:10 AM - 12:15 AM	51.8	57.8	50.2
12:15 AM - 12:20 AM	51.6	61.0	50.3
12:20 AM - 12:25 AM	51.0	57.2	49.9
12:25 AM - 12:30 AM	51.5	60.6	49.8
12:30 AM - 12:35 AM	51.0	62.3	49.6

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116391-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. 24103113-26  
Parameter Noise  
Location บ้านนาไร่ (GPS 47P 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aonsum  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:40 AM	54.7	64.5	49.8
12:40 AM - 12:45 AM	55.5	65.2	49.8
12:45 AM - 12:50 AM	55.6	65.1	49.9
12:50 AM - 12:55 AM	51.2	57.9	49.2
12:55 AM - 01:00 AM	50.3	56.1	49.0
01:00 AM - 01:05 AM	52.8	60.8	49.5
01:05 AM - 01:10 AM	51.8	57.6	50.3
01:10 AM - 01:15 AM	51.8	58.6	50.4
01:15 AM - 01:20 AM	51.6	56.4	50.5
01:20 AM - 01:25 AM	51.3	56.4	50.3
01:25 AM - 01:30 AM	53.0	62.1	50.2
01:30 AM - 01:35 AM	51.6	56.5	50.3
01:35 AM - 01:40 AM	53.2	64.6	50.3
01:40 AM - 01:45 AM	51.1	57.0	50.0
01:45 AM - 01:50 AM	50.5	56.1	49.5
01:50 AM - 01:55 AM	50.7	62.1	49.4
01:55 AM - 02:00 AM	50.8	56.3	49.5
02:00 AM - 02:05 AM	50.7	61.2	49.5
02:05 AM - 02:10 AM	53.0	62.7	49.8
02:10 AM - 02:15 AM	50.5	57.1	49.0
02:15 AM - 02:20 AM	51.2	63.3	49.6
02:20 AM - 02:25 AM	52.0	63.0	49.6
02:25 AM - 02:30 AM	53.7	64.0	49.6
02:30 AM - 02:35 AM	51.0	56.2	49.9
02:35 AM - 02:40 AM	51.1	56.2	49.2
02:40 AM - 02:45 AM	53.2	62.6	49.7
02:45 AM - 02:50 AM	54.3	62.7	49.9
02:50 AM - 02:55 AM	53.3	63.2	50.0
02:55 AM - 03:00 AM	51.9	61.3	49.2
03:00 AM - 03:05 AM	51.4	62.2	48.6
03:05 AM - 03:10 AM	50.0	61.5	48.5
03:10 AM - 03:15 AM	52.3	64.3	49.1
03:15 AM - 03:20 AM	50.9	64.5	49.1
03:20 AM - 03:25 AM	54.7	66.7	49.3
03:25 AM - 03:30 AM	52.5	64.7	49.4
03:30 AM - 03:35 AM	53.7	65.3	49.8
03:35 AM - 03:40 AM	52.3	65.3	48.9
03:40 AM - 03:45 AM	52.0	59.2	50.2
03:45 AM - 03:50 AM	52.0	56.9	49.0
03:50 AM - 03:55 AM	51.2	56.0	48.4

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116391-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103113-26  
Parameter Noise  
Location บ้านนาไร่ (GPS 47P 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aonsum  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	52.6	57.2	49.3
04:00 AM - 04:05 AM	52.0	56.5	48.5
04:05 AM - 04:10 AM	52.5	56.8	48.6
04:10 AM - 04:15 AM	52.6	56.9	49.1
04:15 AM - 04:20 AM	52.9	57.7	49.6
04:20 AM - 04:25 AM	65.2	84.4	50.0
04:25 AM - 04:30 AM	54.7	59.9	51.6
04:30 AM - 04:35 AM	61.2	84.5	51.0
04:35 AM - 04:40 AM	54.4	63.0	51.5
04:40 AM - 04:45 AM	54.5	65.6	51.4
04:45 AM - 04:50 AM	55.5	69.0	52.3
04:50 AM - 04:55 AM	55.3	66.0	52.5
04:55 AM - 05:00 AM	55.0	69.0	51.3
05:00 AM - 05:05 AM	52.9	61.4	49.6
05:05 AM - 05:10 AM	53.9	68.1	49.2
05:10 AM - 05:15 AM	55.5	71.0	48.4
05:15 AM - 05:20 AM	52.5	64.6	48.4
05:20 AM - 05:25 AM	53.2	67.7	47.7
05:25 AM - 05:30 AM	50.4	62.0	46.3
05:30 AM - 05:35 AM	50.9	63.3	46.8
05:35 AM - 05:40 AM	52.4	66.4	47.1
05:40 AM - 05:45 AM	52.7	63.9	45.8
05:45 AM - 05:50 AM	54.2	67.5	47.3
05:50 AM - 05:55 AM	51.9	66.5	46.8
05:55 AM - 06:00 AM	48.6	60.0	44.2
06:00 AM - 07:00 AM	50.7	71.9	44.6
07:00 AM - 08:00 AM	48.9	70.2	43.4
08:00 AM - 09:00 AM	51.0	70.8	44.3
09:00 AM - 10:00 AM	50.2	72.7	43.9
10:00 AM - 11:00 AM	48.4	69.1	42.7
11:00 AM - 12:00 PM	51.0	70.6	45.4
12:00 PM - 01:00 PM	48.0	70.1	43.6

### Reference Method:

1. In-house method : STN 05-001 based on ISO 1996-1 : 2018
2. วิธีการวัดและประเมินค่าเสียง : วิธีการวัดและประเมินค่าเสียงตามมาตรฐาน STN 05-001 ของกรมส่งเสริมการค้าระหว่างประเทศ พ.ศ. 2567

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received: Sep 18, 2024  
Date Reported: Sep 26, 2024  
Report No.: 3116391-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. 24103113-27  
Parameter Noise  
Location บ้านนาไร่ (GPS 47P 0714286, 1518864) (หน้าบ้าน) (Shut down)  
Measurement Date Sep 15 - Sep 16, 2024  
Measurement by Audit Aonsum  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	48.2	67.7	42.5
02:00 PM - 03:00 PM	55.4	75.5	46.4
03:00 PM - 04:00 PM	52.8	68.5	48.4
04:00 PM - 05:00 PM	55.6	72.8	49.9
05:00 PM - 06:00 PM	53.9	65.7	52.2
06:00 PM - 07:00 PM	53.0	70.7	50.3
07:00 PM - 08:00 PM	52.5	70.5	50.6
08:00 PM - 09:00 PM	51.5	64.5	49.8
09:00 PM - 10:00 PM	48.7	61.0	46.9
10:00 PM - 10:05 PM	48.5	55.2	45.9
10:05 PM - 10:10 PM	48.1	55.2	46.2
10:10 PM - 10:15 PM	48.5	55.2	46.7
10:15 PM - 10:20 PM	49.0	55.8	46.5
10:20 PM - 10:25 PM	49.4	64.8	43.0
10:25 PM - 10:30 PM	46.5	52.9	43.2
10:30 PM - 10:35 PM	47.1	60.1	43.4
10:35 PM - 10:40 PM	46.5	53.0	43.6
10:40 PM - 10:45 PM	47.8	57.3	44.9
10:45 PM - 10:50 PM	47.6	53.8	46.1
10:50 PM - 10:55 PM	46.7	53.8	45.9
10:55 PM - 11:00 PM	46.7	54.4	45.6
11:00 PM - 11:05 PM	46.7	61.6	46.1
11:05 PM - 11:10 PM	47.6	54.2	45.5
11:10 PM - 11:15 PM	47.5	54.9	45.6
11:15 PM - 11:20 PM	47.3	54.3	45.6
11:20 PM - 11:25 PM	47.9	54.7	45.7
11:25 PM - 11:30 PM	48.5	54.7	46.3
11:30 PM - 11:35 PM	49.0	60.8	45.6
11:35 PM - 11:40 PM	48.4	54.9	46.6
11:40 PM - 11:45 PM	49.1	55.2	47.6
11:45 PM - 11:50 PM	49.2	55.0	48.0
11:50 PM - 11:55 PM	48.6	53.9	47.6
11:55 PM - 12:00 AM	48.9	54.6	47.8
12:00 AM - 12:05 AM	49.1	50.8	48.4
12:05 AM - 12:10 AM	49.0	50.6	48.2
12:10 AM - 12:15 AM	49.1	50.5	48.1
12:15 AM - 12:20 AM	48.6	50.5	47.7
12:20 AM - 12:25 AM	48.4	50.3	47.4
12:25 AM - 12:30 AM	48.0	56.8	47.3
12:30 AM - 12:35 AM	47.6	50.1	46.6

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116393-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-27  
Parameter : Noise  
Location : บ้านนาไร่ดิน (GPS 47P 0714286, 1518864) (จุดรับวัด) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:35 AM - 12:40 AM	47.4	49.8	46.5
12:40 AM - 12:45 AM	47.9	49.9	46.9
12:45 AM - 12:50 AM	48.1	50.2	47.2
12:50 AM - 12:55 AM	48.5	50.3	47.5
12:55 AM - 01:00 AM	49.0	51.7	48.2
01:00 AM - 01:05 AM	48.7	50.9	47.9
01:05 AM - 01:10 AM	48.7	51.1	47.9
01:10 AM - 01:15 AM	48.2	50.7	47.5
01:15 AM - 01:20 AM	48.2	50.3	47.5
01:20 AM - 01:25 AM	49.4	52.3	48.1
01:25 AM - 01:30 AM	50.2	53.4	49.4
01:30 AM - 01:35 AM	50.8	56.1	49.8
01:35 AM - 01:40 AM	50.4	53.3	49.7
01:40 AM - 01:45 AM	50.7	53.1	49.3
01:45 AM - 01:50 AM	54.0	64.0	49.5
01:50 AM - 01:55 AM	54.1	64.1	49.6
01:55 AM - 02:00 AM	53.8	63.4	49.3
02:00 AM - 02:05 AM	50.8	64.5	48.7
02:05 AM - 02:10 AM	50.6	58.7	48.9
02:10 AM - 02:15 AM	49.9	55.0	48.6
02:15 AM - 02:20 AM	50.1	55.5	48.5
02:20 AM - 02:25 AM	50.5	63.4	48.4
02:25 AM - 02:30 AM	50.1	55.4	48.5
02:30 AM - 02:35 AM	50.0	60.8	48.3
02:35 AM - 02:40 AM	49.7	55.1	48.4
02:40 AM - 02:45 AM	50.1	55.4	48.4
02:45 AM - 02:50 AM	50.4	58.0	48.1
02:50 AM - 02:55 AM	49.6	55.3	48.3
02:55 AM - 03:00 AM	50.1	59.4	48.1
03:00 AM - 03:05 AM	49.3	55.4	47.8
03:05 AM - 03:10 AM	50.0	56.3	48.1
03:10 AM - 03:15 AM	50.7	59.0	48.4
03:15 AM - 03:20 AM	52.8	64.9	48.4
03:20 AM - 03:25 AM	53.6	67.5	48.4
03:25 AM - 03:30 AM	52.8	65.5	48.3
03:30 AM - 03:35 AM	51.2	60.1	48.2
03:35 AM - 03:40 AM	51.4	55.8	48.3
03:40 AM - 03:45 AM	51.5	55.7	48.5
03:45 AM - 03:50 AM	52.1	64.7	48.7
03:50 AM - 03:55 AM	52.2	55.7	48.8

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Approved by

Kanokorn Anok  
Asst. General Manager

ADDRESS: 104 Phatthanakan Rd., Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand TEL: +66 0 2760 3000 FAX: +66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116393-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-27  
Parameter : Noise  
Location : บ้านนาไร่ดิน (GPS 47P 0714286, 1518864) (จุดรับวัด) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	54.9	72.4	49.3
04:00 AM - 04:05 AM	51.9	56.0	48.6
04:05 AM - 04:10 AM	51.8	55.5	48.4
04:10 AM - 04:15 AM	52.8	63.0	48.2
04:15 AM - 04:20 AM	51.7	62.3	45.8
04:20 AM - 04:25 AM	64.7	84.4	46.0
04:25 AM - 04:30 AM	56.5	75.7	46.7
04:30 AM - 04:35 AM	52.9	64.6	46.7
04:35 AM - 04:40 AM	61.7	81.1	49.5
04:40 AM - 04:45 AM	54.1	63.2	51.6
04:45 AM - 04:50 AM	54.9	64.1	52.3
04:50 AM - 04:55 AM	54.6	65.4	51.1
04:55 AM - 05:00 AM	54.6	67.6	51.5
05:00 AM - 05:05 AM	51.5	61.5	49.5
05:05 AM - 05:10 AM	51.7	59.5	47.9
05:10 AM - 05:15 AM	52.5	69.3	48.6
05:15 AM - 05:20 AM	52.4	62.3	48.2
05:20 AM - 05:25 AM	52.1	63.1	47.5
05:25 AM - 05:30 AM	51.3	62.1	47.1
05:30 AM - 05:35 AM	52.0	62.0	47.3
05:35 AM - 05:40 AM	51.0	63.4	46.7
05:40 AM - 05:45 AM	52.3	61.4	47.2
05:45 AM - 05:50 AM	51.3	60.0	47.4
05:50 AM - 05:55 AM	54.0	71.5	49.0
05:55 AM - 06:00 AM	56.2	70.4	50.4
06:00 AM - 07:00 AM	67.7	94.0	57.6
07:00 AM - 08:00 AM	58.0	87.3	47.5
08:00 AM - 09:00 AM	49.1	65.5	43.8
09:00 AM - 10:00 AM	51.3	72.1	44.9
10:00 AM - 11:00 AM	48.1	62.2	53.6
11:00 AM - 12:00 PM	64.5	93.7	53.8
12:00 PM - 01:00 PM	54.0	70.1	45.4

Reference Method :

- In-house method : STM 05-001 based on ISO 1996-1 : 2016
- มาตรฐานวิธีวัดและประเมินค่าเสียงในสิ่งแวดล้อมตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ พ.ศ. 2567

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Approved by

Kanokorn Anok  
Asst. General Manager

ADDRESS: 104 Phatthanakan Rd., Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand TEL: +66 0 2760 3000 FAX: +66 0 2760 3197

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116393-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-28  
Parameter : Noise  
Location : บ้านนาไร่ดิน (GPS 47P 0714286, 1518864) (จุดรับวัด) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	54.0	71.4	45.9
02:00 PM - 03:00 PM	60.4	93.6	46.5
03:00 PM - 04:00 PM	62.4	74.8	56.5
04:00 PM - 05:00 PM	63.9	78.8	58.6
05:00 PM - 06:00 PM	61.0	73.7	55.1
06:00 PM - 07:00 PM	50.2	69.6	48.1
07:00 PM - 08:00 PM	49.3	64.5	47.4
08:00 PM - 09:00 PM	46.0	57.7	44.8
09:00 PM - 10:00 PM	49.2	60.8	47.2
10:00 PM - 11:00 PM	49.0	54.4	47.8
10:05 PM - 10:10 PM	49.4	53.9	47.0
10:10 PM - 10:15 PM	49.6	54.5	47.2
10:15 PM - 10:20 PM	49.6	54.3	47.4
10:20 PM - 10:25 PM	50.2	62.1	47.5
10:25 PM - 10:30 PM	49.6	56.9	47.0
10:30 PM - 10:35 PM	51.7	67.3	46.8
10:35 PM - 10:40 PM	49.8	61.3	46.7
10:40 PM - 10:45 PM	49.1	54.8	46.6
10:45 PM - 10:50 PM	49.1	55.1	46.6
10:50 PM - 10:55 PM	46.4	56.5	46.3
10:55 PM - 11:00 PM	48.5	59.5	46.3
11:00 PM - 11:05 PM	48.2	56.9	45.9
11:05 PM - 11:10 PM	47.8	53.0	45.6
11:10 PM - 11:15 PM	53.8	70.2	45.8
11:15 PM - 11:20 PM	57.1	65.9	46.7
11:20 PM - 11:25 PM	56.9	67.6	46.8
11:25 PM - 11:30 PM	47.9	53.1	45.6
11:30 PM - 11:35 PM	47.5	52.7	45.5
11:35 PM - 11:40 PM	48.1	54.0	45.5
11:40 PM - 11:45 PM	48.8	62.2	45.9
11:45 PM - 11:50 PM	47.9	62.7	46.2
11:50 PM - 11:55 PM	47.4	52.9	45.1
11:55 PM - 12:00 AM	46.6	52.8	42.8
12:00 AM - 12:05 AM	46.3	56.5	41.3
12:05 AM - 12:10 AM	45.9	53.6	40.4
12:10 AM - 12:15 AM	47.1	54.1	41.2
12:15 AM - 12:20 AM	47.7	53.8	41.4
12:20 AM - 12:25 AM	43.7	53.2	41.5
12:25 AM - 12:30 AM	44.5	53.0	41.9
12:30 AM - 12:35 AM	44.3	52.5	42.0

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Approved by

Kanokorn Anok  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116393-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-28  
Parameter : Noise  
Location : บ้านนาไร่ดิน (GPS 47P 0714286, 1518864) (จุดรับวัด) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Anonim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
17:35 AM - 17:40 AM	44.0	52.2	41.9
17:40 AM - 17:45 AM	44.3	52.6	41.6
17:45 AM - 17:50 AM	44.5	53.7	41.3
17:50 AM - 17:55 AM	47.9	61.8	42.7
17:55 AM - 01:00 AM	46.3	54.9	41.3
01:00 AM - 01:05 AM	45.9	56.1	40.9
01:05 AM - 01:10 AM	44.8	54.8	41.8
01:10 AM - 01:15 AM	45.5	54.1	41.3
01:15 AM - 01:20 AM	45.7	54.1	41.4
01:20 AM - 01:25 AM	45.9	53.7	41.3
01:25 AM - 01:30 AM	47.0	55.8	41.4
01:30 AM - 01:35 AM	46.7	54.0	42.6
01:35 AM - 01:40 AM	47.4	54.7	44.1
01:40 AM - 01:45 AM	45.5	55.5	41.4
01:45 AM - 01:50 AM	48.6	66.1	42.7
01:50 AM - 01:55 AM	49.4	57.1	43.3
01:55 AM - 02:00 AM	45.7	55.9	41.8
02:00 AM - 02:05 AM	47.5	58.0	42.4
02:05 AM - 02:10 AM	46.3	53.7	42.9
02:10 AM - 02:15 AM	48.6	76.2	42.4
02:15 AM - 02:20 AM	47.1	60.7	42.9
02:20 AM - 02:25 AM	48.5	63.2	43.8
02:25 AM - 02:30 AM	45.8	53.3	42.5
02:30 AM - 02:35 AM	47.3	55.5	41.5
02:35 AM - 02:40 AM	47.3	54.5	42.3
02:40 AM - 02:45 AM	47.3	54.8	42.4
02:45 AM - 02:50 AM	47.2	54.5	42.0
02:50 AM - 02:55 AM	47.2	57.2	42.5
02:55 AM - 03:00 AM	47.5	58.9	41.9
03:00 AM - 03:05 AM	47.9	54.8	42.6
03:05 AM - 03:10 AM	46.9	52.9	41.3
03:10 AM - 03:15 AM	50.6	63.9	44.2
03:15 AM - 03:20 AM	51.7	68.6	43.7
03:20 AM - 03:25 AM	51.1	67.7	43.7
03:25 AM - 03:30 AM	52.5	67.7	45.1
03:30 AM - 03:35 AM	53.4	66.5	46.8
03:35 AM - 03:40 AM	51.8	65.4	46.5
03:40 AM - 03:45 AM	51.5	60.7	46.4
03:45 AM - 03:50 AM	55.0	72.0	48.2
03:50 AM - 03:55 AM	54.5	72.9	48.9

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116394-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-29  
Parameter : Noise  
Location : บ้านนาโพธิ์ (GPS 47P 0714286, 1510864) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aomsim  
Sound Level Meter : 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:55 AM - 04:00 AM	55.1	73.5	49.5
04:00 AM - 04:05 AM	52.7	57.0	49.8
04:05 AM - 04:10 AM	52.9	59.9	50.1
04:10 AM - 04:15 AM	52.5	58.1	49.3
04:15 AM - 04:20 AM	53.1	57.1	50.4
04:20 AM - 04:25 AM	67.9	83.9	51.3
04:25 AM - 04:30 AM	55.8	72.8	51.3
04:30 AM - 04:35 AM	61.7	83.2	52.2
04:35 AM - 04:40 AM	54.3	63.7	51.7
04:40 AM - 04:45 AM	54.9	65.7	52.2
04:45 AM - 04:50 AM	54.3	65.2	52.4
04:50 AM - 04:55 AM	51.4	70.4	52.4
04:55 AM - 05:00 AM	54.1	64.8	52.4
05:00 AM - 05:05 AM	54.5	67.3	51.9
05:05 AM - 05:10 AM	53.0	64.9	50.1
05:10 AM - 05:15 AM	52.8	64.6	49.7
05:15 AM - 05:20 AM	52.7	65.0	49.8
05:20 AM - 05:25 AM	53.2	67.8	48.4
05:25 AM - 05:30 AM	62.0	71.4	49.8
05:30 AM - 05:35 AM	65.5	71.8	60.3
05:35 AM - 05:40 AM	61.9	72.4	48.7
05:40 AM - 05:45 AM	65.1	75.8	53.4
05:45 AM - 05:50 AM	65.5	75.9	60.0
05:50 AM - 05:55 AM	61.2	74.5	50.7
05:55 AM - 06:00 AM	59.1	75.8	53.8
06:00 AM - 07:00 AM	70.4	90.8	56.2
07:00 AM - 08:00 AM	61.2	77.8	53.1
08:00 AM - 09:00 AM	54.1	75.0	50.0
09:00 AM - 10:00 AM	58.3	79.6	54.0
10:00 AM - 11:00 AM	63.6	90.3	57.4
11:00 AM - 12:00 PM	62.1	90.6	50.9
12:00 PM - 01:00 PM	53.7	70.1	45.9

Reference Method :  
1. In-house method : STN 06-001 based on ISO 1996-1:2016  
2. วิธีการวัดและประเมินค่าเสียง : ใช้วิธีการวัดและประเมินค่าเสียงแบบต่อเนื่อง วัดเป็นหน่วย 24 ชั่วโมง และประเมินค่าเสียงจากผลการวัดและค่าการคำนวณ ม.ม. 2567

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Approved by :   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116394-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 3

Sample No. : 24103113-29  
Parameter : Noise  
Location : บ้านนาโพธิ์ (GPS 47P 0717697, 1519261) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aomsim  
Sound Level Meter : 00858526

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	50.5	70.8	46.0
11:00 AM - 12:00 PM	50.9	73.0	45.7
12:00 PM - 01:00 PM	50.9	66.2	46.3
01:00 PM - 02:00 PM	50.2	68.8	44.8
02:00 PM - 03:00 PM	48.5	63.4	45.0
03:00 PM - 04:00 PM	54.7	88.5	47.6
04:00 PM - 05:00 PM	48.9	66.4	44.1
05:00 PM - 06:00 PM	51.8	63.5	48.1
06:00 PM - 07:00 PM	61.5	72.4	56.4
07:00 PM - 08:00 PM	61.8	73.9	55.7
08:00 PM - 09:00 PM	61.5	72.9	54.0
09:00 PM - 10:00 PM	58.7	74.4	52.0
10:00 PM - 10:05 PM	53.0	58.8	51.8
10:05 PM - 10:10 PM	52.6	55.2	51.4
10:10 PM - 10:15 PM	51.1	63.5	51.1
10:15 PM - 10:20 PM	52.1	55.1	50.7
10:20 PM - 10:25 PM	57.1	59.0	51.0
10:25 PM - 10:30 PM	51.6	54.1	50.2
10:30 PM - 10:35 PM	51.8	58.5	50.1
10:35 PM - 10:40 PM	50.9	57.9	47.7
10:40 PM - 10:45 PM	51.0	58.8	49.1
10:45 PM - 10:50 PM	51.1	47.2	50.1
10:50 PM - 10:55 PM	54.4	70.7	50.1
10:55 PM - 11:00 PM	52.2	58.9	49.9
11:00 PM - 11:05 PM	51.1	63.8	49.7
11:05 PM - 11:10 PM	56.2	64.0	49.9
11:10 PM - 11:15 PM	57.2	68.2	52.0
11:15 PM - 11:20 PM	57.0	70.2	53.4
11:20 PM - 11:25 PM	60.0	70.0	51.4
11:25 PM - 11:30 PM	60.3	71.6	53.2
11:30 PM - 11:35 PM	60.3	70.8	53.1
11:35 PM - 11:40 PM	60.2	70.5	53.1
11:40 PM - 11:45 PM	59.9	70.6	52.4
11:45 PM - 11:50 PM	61.4	84.0	50.9
11:50 PM - 11:55 PM	57.4	60.0	51.2
11:55 PM - 12:00 AM	59.5	70.3	52.4
12:00 AM - 12:05 AM	60.0	70.9	52.8
12:05 AM - 12:10 AM	59.1	70.0	54.0
12:10 AM - 12:15 AM	59.3	70.8	53.9
12:15 AM - 12:20 AM	59.1	70.0	53.6

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Approved by :   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116394-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 3

Sample No. : 24103113-29  
Parameter : Noise  
Location : บ้านนาโพธิ์ (GPS 47P 0717697, 1519261) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aomsim  
Sound Level Meter : 00858526

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	58.3	70.2	54.2
12:25 AM - 12:30 AM	57.1	67.0	54.1
12:30 AM - 12:35 AM	56.5	66.4	54.0
12:35 AM - 12:40 AM	56.1	65.1	53.9
12:40 AM - 12:45 AM	55.9	65.4	53.8
12:45 AM - 12:50 AM	56.0	65.8	53.9
12:50 AM - 12:55 AM	55.9	64.9	53.3
12:55 AM - 01:00 AM	57.9	68.1	53.8
01:00 AM - 01:05 AM	56.8	68.3	50.3
01:05 AM - 01:10 AM	59.7	70.7	51.7
01:10 AM - 01:15 AM	60.2	72.0	50.9
01:15 AM - 01:20 AM	60.9	72.8	50.6
01:20 AM - 01:25 AM	58.6	70.2	50.7
01:25 AM - 01:30 AM	61.0	72.3	52.5
01:30 AM - 01:35 AM	58.3	71.3	51.8
01:35 AM - 01:40 AM	57.7	67.2	50.9
01:40 AM - 01:45 AM	58.4	68.8	51.7
01:45 AM - 01:50 AM	62.7	72.9	50.8
01:50 AM - 01:55 AM	63.5	70.4	60.3
01:55 AM - 02:00 AM	61.7	69.6	56.1
02:00 AM - 02:05 AM	60.5	69.6	55.9
02:05 AM - 02:10 AM	60.4	69.0	56.3
02:10 AM - 02:15 AM	59.8	69.8	54.7
02:15 AM - 02:20 AM	59.2	69.9	51.9
02:20 AM - 02:25 AM	57.2	67.6	50.9
02:25 AM - 02:30 AM	57.9	68.6	52.7
02:30 AM - 02:35 AM	58.1	68.7	52.8
02:35 AM - 02:40 AM	51.8	56.1	50.7
02:40 AM - 02:45 AM	52.6	56.8	50.5
02:45 AM - 02:50 AM	53.1	68.0	49.1
02:50 AM - 02:55 AM	52.4	63.7	48.5
02:55 AM - 03:00 AM	51.9	63.9	48.9
03:00 AM - 03:05 AM	52.4	70.0	48.4
03:05 AM - 03:10 AM	52.6	60.7	49.0
03:10 AM - 03:15 AM	52.5	59.7	49.7
03:15 AM - 03:20 AM	52.6	59.5	49.3
03:20 AM - 03:25 AM	52.5	59.3	49.1
03:25 AM - 03:30 AM	55.6	59.7	54.0
03:30 AM - 03:35 AM	56.5	70.6	51.4
03:35 AM - 03:40 AM	58.0	69.3	55.6

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Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116394-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. : 24103113-29  
Parameter : Noise  
Location : บ้านนาโพธิ์ (GPS 47P 0717697, 1519261) (Shut down)  
Measurement Date : Sep 10 - Sep 11, 2024  
Measurement by : Audit Aomsim  
Sound Level Meter : 00858526

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	58.1	67.7	57.0
03:45 AM - 03:50 AM	58.3	63.2	57.0
03:50 AM - 03:55 AM	58.3	62.6	57.1
03:55 AM - 04:00 AM	58.1	61.7	57.1
04:00 AM - 04:05 AM	58.3	67.0	56.8
04:05 AM - 04:10 AM	58.0	60.8	57.0
04:10 AM - 04:15 AM	58.8	61.8	57.8
04:15 AM - 04:20 AM	59.3	62.2	58.6
04:20 AM - 04:25 AM	59.0	60.9	58.2
04:25 AM - 04:30 AM	59.2	61.5	58.5
04:30 AM - 04:35 AM	59.2	61.6	58.5
04:35 AM - 04:40 AM	58.6	62.3	57.9
04:40 AM - 04:45 AM	59.2	61.4	57.9
04:45 AM - 04:50 AM	59.2	61.2	58.5
04:50 AM - 04:55 AM	59.2	63.7	58.5
04:55 AM - 05:00 AM	58.1	61.5	57.1
05:00 AM - 05:05 AM	59.1	62.7	58.3
05:05 AM - 05:10 AM	59.2	71.9	55.3
05:10 AM - 05:15 AM	59.3	70.9	55.0
05:15 AM - 05:20 AM	58.1	66.5	55.0
05:20 AM - 05:25 AM	57.1	63.4	54.8
05:25 AM - 05:30 AM	56.0	61.2	53.6
05:30 AM - 05:35 AM	56.3	61.4	53.3
05:35 AM - 05:40 AM	55.9	64.2	52.7
05:40 AM - 05:45 AM	56.1	67.2	53.6
05:45 AM - 05:50 AM	56.5	64.3	52.8
05:50 AM - 05:55 AM	56.8	67.4	52.9
05:55 AM - 06:00 AM	57.2	70.5	52.5
06:00 AM - 06:05 AM	56.4	72.4	55.9
06:05 AM - 06:10 AM	55.6	70.7	50.3
06:10 AM - 06:15 AM	50.6	67.0	46.9
06:15 AM - 06:20 AM	50.8	70.5	46.2

Reference Method :  
1. In-house method : STN 06-001 based on ISO 1996-1:2016  
2. วิธีการวัดและประเมินค่าเสียง : ใช้วิธีการวัดและประเมินค่าเสียงแบบต่อเนื่อง วัดเป็นหน่วย 24 ชั่วโมง และประเมินค่าเสียงจากผลการวัดและค่าการคำนวณ ม.ม. 2567

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Approved by :   
Kanokorn Anek  
Asst. General Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116395-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. : 24103113-30  
Parameter : Noise  
Location : บริเวณตู้รพแผลฟรลนฟรล (GPS 47P 0717697, 1519261) (ฟรลนฟรล) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Acoustm  
Sound Level Meter : 0085826

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	51.7	74.5	46.1
11:00 AM - 12:00 PM	52.2	72.3	46.0
12:00 PM - 01:00 PM	49.9	81.1	44.7
01:00 PM - 02:00 PM	50.6	67.0	46.1
02:00 PM - 03:00 PM	49.2	74.9	44.6
03:00 PM - 04:00 PM	51.7	64.8	46.0
04:00 PM - 05:00 PM	50.3	65.2	45.8
05:00 PM - 06:00 PM	54.2	83.5	47.0
06:00 PM - 07:00 PM	55.5	78.1	51.0
07:00 PM - 08:00 PM	55.6	68.8	52.8
08:00 PM - 09:00 PM	51.0	65.1	49.3
09:00 PM - 10:00 PM	56.7	72.4	54.9
10:00 PM - 10:55 PM	53.5	60.7	49.8
10:55 PM - 11:00 PM	58.4	65.0	56.7
10:10 PM - 10:15 PM	65.6	71.3	62.6
10:15 PM - 10:20 PM	59.1	66.1	51.1
10:20 PM - 10:25 PM	54.0	63.4	49.6
10:25 PM - 10:30 PM	53.1	62.4	49.0
10:30 PM - 10:35 PM	56.5	64.9	53.0
10:35 PM - 10:40 PM	57.2	65.5	53.7
10:40 PM - 10:45 PM	56.6	66.5	51.3
10:45 PM - 10:50 PM	58.3	66.1	53.6
10:50 PM - 10:55 PM	60.8	68.4	57.2
10:55 PM - 11:00 PM	60.4	69.5	56.6
11:00 PM - 11:05 PM	59.8	69.0	57.2
11:05 PM - 11:10 PM	61.5	67.7	59.6
11:10 PM - 11:15 PM	61.4	73.0	59.8
11:15 PM - 11:20 PM	59.6	66.3	57.2
11:20 PM - 11:25 PM	59.4	59.9	56.2
11:25 PM - 11:30 PM	59.9	70.5	57.6
11:30 PM - 11:35 PM	59.6	73.9	57.1
11:35 PM - 11:40 PM	59.5	64.4	56.6
11:40 PM - 11:45 PM	59.8	70.5	56.6
11:45 PM - 11:50 PM	58.4	67.0	55.9
11:50 PM - 11:55 PM	58.2	71.2	55.5
11:55 PM - 12:00 AM	57.7	65.3	53.0
12:00 AM - 12:05 AM	57.9	66.5	55.1
12:05 AM - 12:10 AM	58.2	72.5	54.8
12:10 AM - 12:15 AM	57.2	65.1	54.8
12:15 AM - 12:20 AM	56.8	65.2	54.4

The above results are valid only for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116395-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 2 of 1

Sample No. : 24103113-30  
Parameter : Noise  
Location : บริเวณตู้รพแผลฟรลนฟรล (GPS 47P 0717697, 1519261) (ฟรลนฟรล) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Acoustm  
Sound Level Meter : 0085826

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	56.6	63.7	54.2
12:25 AM - 12:30 AM	56.9	65.2	54.2
12:30 AM - 12:35 AM	57.8	67.9	54.2
12:35 AM - 12:40 AM	58.0	68.1	54.3
12:40 AM - 12:45 AM	57.9	66.5	54.2
12:45 AM - 12:50 AM	58.7	68.6	54.2
12:50 AM - 12:55 AM	59.0	69.4	54.7
12:55 AM - 01:00 AM	58.8	70.1	54.3
01:00 AM - 01:05 AM	59.2	70.4	54.2
01:05 AM - 01:10 AM	59.6	70.2	54.3
01:10 AM - 01:15 AM	59.1	70.0	54.0
01:15 AM - 01:20 AM	59.3	70.8	53.9
01:20 AM - 01:25 AM	59.1	70.0	53.6
01:25 AM - 01:30 AM	58.3	70.2	54.2
01:30 AM - 01:35 AM	57.1	67.0	54.1
01:35 AM - 01:40 AM	56.5	64.4	54.0
01:40 AM - 01:45 AM	56.1	65.1	53.9
01:45 AM - 01:50 AM	55.9	65.4	53.4
01:50 AM - 01:55 AM	56.0	65.8	53.9
01:55 AM - 02:00 AM	55.9	64.9	53.1
02:00 AM - 02:05 AM	56.0	69.3	53.5
02:05 AM - 02:10 AM	55.9	65.1	53.7
02:10 AM - 02:15 AM	55.4	65.8	53.4
02:15 AM - 02:20 AM	55.7	72.2	53.2
02:20 AM - 02:25 AM	55.5	64.7	53.2
02:25 AM - 02:30 AM	57.4	64.8	53.8
02:30 AM - 02:35 AM	56.3	66.1	53.8
02:35 AM - 02:40 AM	56.9	69.8	53.8
02:40 AM - 02:45 AM	55.7	62.1	53.7
02:45 AM - 02:50 AM	55.2	60.4	53.2
02:50 AM - 02:55 AM	55.7	58.5	54.6
02:55 AM - 03:00 AM	56.5	63.9	54.9
03:00 AM - 03:05 AM	56.1	65.1	54.1
03:05 AM - 03:10 AM	55.6	59.2	54.0
03:10 AM - 03:15 AM	56.5	70.6	53.4
03:15 AM - 03:20 AM	58.0	69.3	53.6
03:20 AM - 03:25 AM	54.1	63.7	53.0
03:25 AM - 03:30 AM	58.3	61.2	53.5
03:30 AM - 03:35 AM	58.3	62.6	53.1
03:35 AM - 03:40 AM	58.1	61.7	53.1

The above results are valid only for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116395-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. : 24103113-30  
Parameter : Noise  
Location : บริเวณตู้รพแผลฟรลนฟรล (GPS 47P 0717697, 1519261) (ฟรลนฟรล) (Shut down)  
Measurement Date : Sep 11 - Sep 12, 2024  
Measurement by : Audit Acoustm  
Sound Level Meter : 0085826

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	58.3	67.0	56.8
03:45 AM - 03:50 AM	58.0	60.8	57.0
03:50 AM - 03:55 AM	58.6	61.8	57.8
03:55 AM - 04:00 AM	58.9	61.8	58.0
04:00 AM - 04:05 AM	58.8	61.8	58.1
04:05 AM - 04:10 AM	59.3	62.2	58.6
04:10 AM - 04:15 AM	59.0	60.9	59.2
04:15 AM - 04:20 AM	59.2	61.5	58.5
04:20 AM - 04:25 AM	59.4	61.6	58.5
04:25 AM - 04:30 AM	58.6	62.1	57.6
04:30 AM - 04:35 AM	59.2	63.4	57.9
04:35 AM - 04:40 AM	59.2	61.2	58.5
04:40 AM - 04:45 AM	59.2	62.7	58.5
04:45 AM - 04:50 AM	58.1	61.5	57.1
04:50 AM - 04:55 AM	59.1	62.7	58.3
04:55 AM - 05:00 AM	58.9	63.7	58.0
05:00 AM - 05:05 AM	59.0	61.8	58.2
05:05 AM - 05:10 AM	59.2	62.4	58.3
05:10 AM - 05:15 AM	59.1	61.4	58.2
05:15 AM - 05:20 AM	58.6	61.8	57.7
05:20 AM - 05:25 AM	59.0	62.4	58.0
05:25 AM - 05:30 AM	59.4	63.7	58.4
05:30 AM - 05:35 AM	59.2	63.4	58.1
05:35 AM - 05:40 AM	58.4	63.5	57.3
05:40 AM - 05:45 AM	58.6	64.0	58.8
05:45 AM - 05:50 AM	58.6	64.5	58.1
05:50 AM - 05:55 AM	59.0	64.1	58.0
05:55 AM - 06:00 AM	59.5	73.9	55.8
06:00 AM - 07:00 AM	57.6	72.9	54.2
07:00 AM - 08:00 AM	56.1	72.4	51.2
08:00 AM - 09:00 AM	52.5	70.0	47.2
09:00 AM - 10:00 AM	49.2	70.8	45.8

Reference Method :  
1. In house method : STM 66-001 based on ISO 1996-1 : 2016  
2. ตามมาตรฐานของกรมอนามัย กระทรวงสาธารณสุข เรื่อง มาตรฐานการวัดและประเมินค่าการปนเปื้อนเสียงในสิ่งแวดล้อม พ.ศ. 2567

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116395-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. : 24103113-31  
Parameter : Noise  
Location : บริเวณตู้รพแผลฟรลนฟรล (GPS 47P 0717697, 1519261) (ฟรลนฟรล) (Shut down)  
Measurement Date : Sep 12 - Sep 13, 2024  
Measurement by : Audit Acoustm  
Sound Level Meter : 0085826

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	64.7	80.1	57.9
11:00 AM - 12:00 PM	58.3	78.8	49.4
12:00 PM - 01:00 PM	47.0	67.4	43.7
01:00 PM - 02:00 PM	57.2	76.5	50.7
02:00 PM - 03:00 PM	62.4	82.6	54.1
03:00 PM - 04:00 PM	57.1	70.7	45.8
04:00 PM - 05:00 PM	50.1	65.1	45.1
05:00 PM - 06:00 PM	54.0	73.5	47.8
06:00 PM - 07:00 PM	54.8	74.6	50.7
07:00 PM - 08:00 PM	54.6	68.1	50.8
08:00 PM - 09:00 PM	54.6	69.7	50.2
09:00 PM - 10:00 PM	58.0	72.8	51.4
10:00 PM - 10:55 PM	58.4	70.0	51.6
10:55 PM - 11:00 PM	60.0	70.1	52.2
10:10 PM - 10:15 PM	60.3	71.0	52.3
10:15 PM - 10:20 PM	60.3	70.7	51.9
10:20 PM - 10:25 PM	59.5	70.5	51.9
10:25 PM - 10:30 PM	59.7	70.7	52.6
10:30 PM - 10:35 PM	59.1	69.4	52.3
10:35 PM - 10:40 PM	59.5	69.3	52.8
10:40 PM - 10:45 PM	58.3	69.6	52.7
10:45 PM - 10:50 PM	58.6	69.8	51.9
10:50 PM - 10:55 PM	58.8	69.6	52.6
10:55 PM - 11:00 PM	58.9	69.2	52.5
11:00 PM - 11:05 PM	59.7	69.9	53.3
11:05 PM - 11:10 PM	59.8	70.2	53.4
11:10 PM - 11:15 PM	60.0	70.7	53.6
11:15 PM - 11:20 PM	60.3	71.6	53.2
11:20 PM - 11:25 PM	60.3	70.8	53.1
11:25 PM - 11:30 PM	60.2	70.6	53.1
11:30 PM - 11:35 PM	59.9	70.6	52.4
11:35 PM - 11:40 PM	61.4	81.0	50.9
11:40 PM - 11:45 PM	57.6	69.0	51.2
11:45 PM - 11:50 PM	59.5	70.3	52.6
11:50 PM - 11:55 PM	60.0	70.9	52.8
11:55 PM - 12:00 AM	60.3	71.5	52.4
12:00 AM - 12:05 AM	59.8	70.6	52.1
12:05 AM - 12:10 AM	58.3	69.2	51.6
12:10 AM - 12:15 AM	58.2	69.5	51.7
12:15 AM - 12:20 AM	56.9	64.5	51.5

The above results are valid only for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report. No other results are valid for the analyzed period (sample) as indicated in the report.

Approved by

Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangkrit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116397-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103113-32  
Parameter Noise  
Location บ้านนาโพธิ์ทอง หมู่ 10 ตำบลนาโพธิ์ทอง (GPS 47P 0717697, 1519261) (หน้าวัด) (Shut down)  
Measurement Date Sep 13 - Sep 14, 2024  
Measurement by Audit Aasornim  
Sound Level Meter 00858256

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	56.1	64.2	52.6
03:45 AM - 03:50 AM	56.3	64.5	50.9
03:50 AM - 03:55 AM	56.1	64.2	52.3
03:55 AM - 04:00 AM	56.0	64.6	51.4
04:00 AM - 04:05 AM	55.8	65.3	50.0
04:05 AM - 04:10 AM	56.2	63.7	54.0
04:10 AM - 04:15 AM	55.2	62.4	51.9
04:15 AM - 04:20 AM	55.8	62.3	54.0
04:20 AM - 04:25 AM	54.6	61.6	51.5
04:25 AM - 04:30 AM	55.3	59.3	53.2
04:30 AM - 04:35 AM	55.7	60.3	53.7
04:35 AM - 04:40 AM	55.9	70.9	50.6
04:40 AM - 04:45 AM	54.9	59.0	51.6
04:45 AM - 04:50 AM	55.2	64.5	52.2
04:50 AM - 04:55 AM	54.6	59.0	51.9
04:55 AM - 05:00 AM	54.6	61.8	51.6
05:00 AM - 05:05 AM	54.3	62.9	51.8
05:05 AM - 05:10 AM	54.2	59.7	51.7
05:10 AM - 05:15 AM	55.2	63.0	53.7
05:15 AM - 05:20 AM	55.5	60.2	53.6
05:20 AM - 05:25 AM	55.8	60.5	51.8
05:25 AM - 05:30 AM	56.0	60.8	53.5
05:30 AM - 05:35 AM	55.2	62.1	52.7
05:35 AM - 05:40 AM	54.7	59.3	51.9
05:40 AM - 05:45 AM	55.9	61.7	53.9
05:45 AM - 05:50 AM	56.0	71.1	53.9
05:50 AM - 05:55 AM	56.8	74.8	51.6
05:55 AM - 06:00 AM	56.9	71.8	51.8
06:00 AM - 07:00 AM	56.2	71.2	51.6
07:00 AM - 08:00 AM	54.5	72.2	49.2
08:00 AM - 09:00 AM	52.1	74.5	46.8
09:00 AM - 10:00 AM	49.3	65.7	46.3

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. ใช้มาตรฐานวิธีมาตรฐานวิธีวัดค่าการสั่นสะเทือนตามมาตรฐานฉบับที่ 24 ฉบับที่ 2 และวิธีมาตรฐานวิธีวัดค่าการสั่นสะเทือนตามวิธีมาตรฐาน ม.ม. 2567

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Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangkrit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116398-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103113-33  
Parameter Noise  
Location บ้านนาโพธิ์ทอง หมู่ 10 ตำบลนาโพธิ์ทอง (GPS 47P 0717697, 1519261) (หน้าวัด) (Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aasornim  
Sound Level Meter 00858256

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	49.6	68.6	44.6
11:00 AM - 12:00 PM	50.2	72.3	45.7
12:00 PM - 01:00 PM	48.1	63.7	44.0
01:00 PM - 02:00 PM	49.3	71.8	44.3
02:00 PM - 03:00 PM	48.8	64.6	44.9
03:00 PM - 04:00 PM	50.6	72.1	45.4
04:00 PM - 05:00 PM	51.5	71.0	46.1
05:00 PM - 06:00 PM	53.7	74.5	47.2
06:00 PM - 07:00 PM	61.7	74.5	55.0
07:00 PM - 08:00 PM	62.2	73.9	56.2
08:00 PM - 09:00 PM	61.8	74.4	54.7
09:00 PM - 10:00 PM	60.7	74.3	53.2
10:00 PM - 10:05 PM	54.7	69.9	54.2
10:05 PM - 10:10 PM	60.5	71.8	53.9
10:10 PM - 10:15 PM	60.4	71.8	53.8
10:15 PM - 10:20 PM	60.9	72.8	51.5
10:20 PM - 10:25 PM	61.0	72.0	53.8
10:25 PM - 10:30 PM	60.6	71.5	53.7
10:30 PM - 10:35 PM	60.9	71.5	51.6
10:35 PM - 10:40 PM	61.8	72.4	54.4
10:40 PM - 10:45 PM	61.8	72.6	54.3
10:45 PM - 10:50 PM	61.6	72.6	54.6
10:50 PM - 10:55 PM	61.0	71.2	54.5
10:55 PM - 11:00 PM	61.9	72.8	54.5
11:00 PM - 11:05 PM	61.2	72.7	53.8
11:05 PM - 11:10 PM	60.9	72.3	51.3
11:10 PM - 11:15 PM	60.1	72.3	52.0
11:15 PM - 11:20 PM	60.0	71.6	51.6
11:20 PM - 11:25 PM	59.9	72.1	51.4
11:25 PM - 11:30 PM	59.7	72.0	50.9
11:30 PM - 11:35 PM	58.9	70.6	51.2
11:35 PM - 11:40 PM	59.7	72.1	51.9
11:40 PM - 11:45 PM	59.7	71.5	51.5
11:45 PM - 11:50 PM	59.2	70.9	51.2
11:50 PM - 11:55 PM	58.5	70.7	50.8
11:55 PM - 12:00 AM	58.9	70.1	50.1
12:00 AM - 12:05 AM	56.8	69.2	50.3
12:05 AM - 12:10 AM	55.8	67.7	50.4
12:10 AM - 12:15 AM	55.9	69.3	49.9
12:15 AM - 12:20 AM	56.7	69.9	49.8

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangkrit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116398-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

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Sample No. 24103113-33  
Parameter Noise  
Location บ้านนาโพธิ์ทอง หมู่ 10 ตำบลนาโพธิ์ทอง (GPS 47P 0717697, 1519261) (หน้าวัด) (Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aasornim  
Sound Level Meter 00858256

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	57.3	70.4	49.5
12:25 AM - 12:30 AM	57.2	69.7	50.0
12:30 AM - 12:35 AM	57.4	69.6	49.4
12:35 AM - 12:40 AM	55.3	69.6	48.8
12:40 AM - 12:45 AM	53.0	69.3	48.6
12:45 AM - 12:50 AM	55.8	68.7	48.5
12:50 AM - 12:55 AM	54.5	67.7	48.3
12:55 AM - 01:00 AM	51.2	65.4	46.2
01:00 AM - 01:05 AM	50.6	67.2	47.9
01:05 AM - 01:10 AM	50.1	58.1	46.1
01:10 AM - 01:15 AM	52.8	65.9	47.7
01:15 AM - 01:20 AM	50.7	64.1	47.9
01:20 AM - 01:25 AM	48.9	57.3	47.8
01:25 AM - 01:30 AM	49.8	56.8	47.9
01:30 AM - 01:35 AM	49.6	57.4	46.2
01:35 AM - 01:40 AM	50.7	64.0	48.2
01:40 AM - 01:45 AM	49.9	59.4	47.9
01:45 AM - 01:50 AM	52.8	64.3	49.4
01:50 AM - 01:55 AM	48.9	54.3	47.9
01:55 AM - 02:00 AM	48.0	53.6	47.3
02:00 AM - 02:05 AM	49.6	61.0	47.7
02:05 AM - 02:10 AM	50.8	60.7	47.7
02:10 AM - 02:15 AM	51.1	64.7	47.5
02:15 AM - 02:20 AM	48.0	55.7	47.2
02:20 AM - 02:25 AM	49.2	55.6	47.2
02:25 AM - 02:30 AM	50.0	58.4	47.2
02:30 AM - 02:35 AM	49.3	53.5	47.6
02:35 AM - 02:40 AM	52.4	61.5	47.5
02:40 AM - 02:45 AM	50.1	63.7	47.8
02:45 AM - 02:50 AM	50.1	59.4	48.0
02:50 AM - 02:55 AM	52.0	56.5	50.5
02:55 AM - 03:00 AM	53.1	48.3	50.3
03:00 AM - 03:05 AM	51.5	65.6	49.1
03:05 AM - 03:10 AM	52.5	57.0	50.4
03:10 AM - 03:15 AM	51.0	51.4	50.0
03:15 AM - 03:20 AM	52.4	59.6	49.5
03:20 AM - 03:25 AM	51.9	58.5	49.8
03:25 AM - 03:30 AM	53.1	60.7	49.8
03:30 AM - 03:35 AM	54.6	63.3	52.0
03:35 AM - 03:40 AM	53.5	60.9	50.3



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangkrit, Muang Chachoengsao, Chacheungso Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116398-1

P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 3 of 3

Sample No. 24103113-33  
Parameter Noise  
Location บ้านนาโพธิ์ทอง หมู่ 10 ตำบลนาโพธิ์ทอง (GPS 47P 0717697, 1519261) (หน้าวัด) (Shut down)  
Measurement Date Sep 14 - Sep 15, 2024  
Measurement by Audit Aasornim  
Sound Level Meter 00858256

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	53.2	59.2	50.4
03:45 AM - 03:50 AM	53.3	59.3	50.8
03:50 AM - 03:55 AM	52.9	62.8	50.9
03:55 AM - 04:00 AM	52.4	57.9	50.5
04:00 AM - 04:05 AM	53.9	60.2	50.7
04:05 AM - 04:10 AM	52.8	56.2	51.0
04:10 AM - 04:15 AM	53.3	58.2	51.3
04:15 AM - 04:20 AM	54.4	59.2	51.5
04:20 AM - 04:25 AM	55.5	59.1	54.1
04:25 AM - 04:30 AM	55.8	59.6	54.3
04:30 AM - 04:35 AM	54.7	56.8	54.7
04:35 AM - 04:40 AM	55.8	59.2	54.4
04:40 AM - 04:45 AM	56.0	59.3	54.5
04:45 AM - 04:50 AM	56.7	59.2	53.3
04:50 AM - 04:55 AM	55.1	59.1	52.0
04:55 AM - 05:00 AM	55.2	58.9	52.7
05:00 AM - 05:05 AM	55.1	59.3	52.4
05:05 AM - 05:10 AM	54.4	59.6	52.0
05:10 AM - 05:15 AM	54.0	58.1	51.9
05:15 AM - 05:20 AM	54.4	58.6	52.1
05:20 AM - 05:25 AM	54.7	61.6	52.1
05:25 AM - 05:30 AM	54.0	58.0	52.1
05:30 AM - 05:35 AM	54.2	58.3	52.0
05:35 AM - 05:40 AM	54.8	64.5	51.9
05:40 AM - 05:45 AM	54.2	58.6	52.2
05:45 AM - 05:50 AM	54.6	59.7	52.7
05:50 AM - 05:55 AM	54.7	62.1	52.7
05:55 AM - 06:00 AM	55.3	60.7	53.1
06:00 AM - 07:00 AM	53.8	61.4	51.0
07:00 AM - 08:00 AM	52.1	62.0	47.7
08:00 AM - 09:00 AM	50.7	70.5	45.9
09:00 AM - 10:00 AM	50.0	72.4	44.8

Reference Method :  
1. In-house method : STM 06-001 based on ISO 1996-1 : 2016  
2. ใช้มาตรฐานวิธีมาตรฐานวิธีวัดค่าการสั่นสะเทือนตามมาตรฐานฉบับที่ 24 ฉบับที่ 2 และวิธีมาตรฐานวิธีวัดค่าการสั่นสะเทือนตามวิธีมาตรฐาน ม.ม. 2567

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Approved by

Kanokorn Anuk  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 31163599-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-34  
Parameter : Noise  
Location : บริเวณตู้คอนเทนเนอร์ใกล้รั้ว (GPS 47P 0717697, 1519261) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00858526

Page 1 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	47.9	64.9	44.0
11:00 AM - 12:00 PM	47.0	63.4	43.4
12:00 PM - 01:00 PM	46.8	62.5	44.6
01:00 PM - 02:00 PM	49.8	74.4	44.8
02:00 PM - 03:00 PM	49.4	73.0	43.7
03:00 PM - 04:00 PM	48.6	66.0	42.9
04:00 PM - 05:00 PM	51.3	71.0	46.8
05:00 PM - 06:00 PM	55.1	83.9	47.7
06:00 PM - 07:00 PM	60.6	72.3	55.6
07:00 PM - 08:00 PM	59.4	71.2	51.3
08:00 PM - 09:00 PM	59.6	72.3	54.4
09:00 PM - 10:00 PM	58.2	70.4	52.7
10:00 PM - 10:55 PM	56.1	70.3	51.5
10:55 PM - 11:00 PM	54.8	70.0	51.9
11:00 PM - 11:15 PM	56.9	69.2	51.9
11:15 PM - 11:30 PM	55.9	68.6	51.4
11:30 PM - 11:45 PM	56.0	68.3	51.7
11:45 PM - 12:00 AM	57.0	67.3	52.0
12:00 AM - 12:15 AM	57.0	67.6	52.0
12:15 AM - 12:30 AM	56.4	67.5	51.7
12:30 AM - 12:45 AM	56.3	67.0	51.4
12:45 AM - 10:55 PM	55.7	66.1	51.5
10:55 PM - 10:55 PM	54.7	66.0	51.7
10:55 PM - 11:00 PM	53.6	66.7	51.9
11:00 PM - 11:05 PM	55.2	67.0	51.5
11:05 PM - 11:10 PM	53.9	64.8	50.9
11:10 PM - 11:15 PM	54.3	65.2	50.8
11:15 PM - 11:20 PM	55.4	66.1	51.3
11:20 PM - 11:25 PM	55.9	67.4	51.2
11:25 PM - 11:30 PM	55.4	66.8	51.5
11:30 PM - 11:35 PM	55.2	65.5	51.0
11:35 PM - 11:40 PM	54.1	65.2	51.6
11:40 PM - 11:45 PM	53.4	62.2	51.2
11:45 PM - 11:50 PM	54.1	63.5	51.6
11:50 PM - 11:55 PM	54.4	64.8	50.7
11:55 PM - 12:00 AM	55.9	71.2	51.0
12:00 AM - 12:05 AM	56.4	72.5	52.5
12:05 AM - 12:10 AM	55.9	68.6	52.5
12:10 AM - 12:15 AM	55.1	65.7	52.4
12:15 AM - 12:20 AM	54.3	63.5	52.1

The above results are valid only for the analytical period specified in the report. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended.

Approved by :   
Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 31163599-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-34  
Parameter : Noise  
Location : บริเวณตู้คอนเทนเนอร์ใกล้รั้ว (GPS 47P 0717697, 1519261) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00858526

Page 2 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:30 AM - 12:35 AM	53.7	61.7	51.7
12:35 AM - 12:40 AM	54.3	62.1	52.1
12:40 AM - 12:45 AM	53.1	59.9	51.8
12:45 AM - 12:50 AM	53.3	61.0	52.0
12:50 AM - 12:55 AM	53.3	61.1	51.7
12:55 AM - 1:00 AM	53.4	61.0	51.5
1:00 AM - 1:05 AM	52.8	59.3	51.4
1:05 AM - 1:10 AM	52.4	58.5	51.6
1:10 AM - 1:15 AM	52.5	58.5	51.1
1:15 AM - 1:20 AM	51.8	56.1	50.7
1:20 AM - 1:25 AM	52.3	56.6	50.6
1:25 AM - 1:30 AM	52.3	56.0	48.5
1:30 AM - 1:35 AM	52.4	63.7	48.5
1:35 AM - 1:40 AM	51.9	62.9	48.4
1:40 AM - 1:45 AM	52.4	70.0	48.4
1:45 AM - 1:50 AM	52.6	60.7	49.0
1:50 AM - 1:55 AM	52.5	59.7	49.7
1:55 AM - 2:00 AM	52.6	59.5	49.3
2:00 AM - 2:05 AM	52.5	59.3	49.1
2:05 AM - 2:10 AM	52.1	59.2	49.1
2:10 AM - 2:15 AM	51.6	58.5	48.4
2:15 AM - 2:20 AM	51.1	60.4	48.1
2:20 AM - 2:25 AM	51.4	62.5	48.0
2:25 AM - 2:30 AM	51.3	61.7	47.9
2:30 AM - 2:35 AM	49.9	59.3	47.1
2:35 AM - 2:40 AM	50.7	58.4	47.8
2:40 AM - 2:45 AM	50.0	56.0	47.7
2:45 AM - 2:50 AM	51.0	67.0	46.9
2:50 AM - 2:55 AM	49.1	57.9	46.7
2:55 AM - 3:00 AM	50.0	56.2	47.6
3:00 AM - 3:05 AM	49.9	61.0	47.6
3:05 AM - 3:10 AM	50.3	57.4	48.0
3:10 AM - 3:15 AM	50.7	57.8	48.1
3:15 AM - 3:20 AM	51.2	58.8	48.6
3:20 AM - 3:25 AM	51.2	56.6	48.9
3:25 AM - 3:30 AM	51.2	64.6	49.1
3:30 AM - 3:35 AM	54.0	69.2	49.2
3:35 AM - 3:40 AM	52.2	61.9	49.7
3:40 AM - 3:45 AM	51.5	62.4	49.8
3:45 AM - 3:50 AM	51.8	63.1	49.5

The above results are valid only for the analytical period specified in the report. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended.

Approved by :   
Kanokorn Anek  
Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 31163599-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-34  
Parameter : Noise  
Location : บริเวณตู้คอนเทนเนอร์ใกล้รั้ว (GPS 47P 0717697, 1519261) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 15 - Sep 16, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00858526

Page 1 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	51.2	55.9	49.6
03:45 AM - 03:50 AM	51.4	56.2	49.9
03:50 AM - 03:55 AM	54.3	68.5	50.2
03:55 AM - 04:00 AM	55.6	73.0	49.7
04:00 AM - 04:05 AM	50.6	56.0	46.7
04:05 AM - 04:10 AM	49.3	55.2	46.0
04:10 AM - 04:15 AM	50.1	54.8	46.3
04:15 AM - 04:20 AM	51.3	56.7	46.6
04:20 AM - 04:25 AM	51.5	56.9	46.8
04:25 AM - 04:30 AM	51.6	56.3	46.9
04:30 AM - 04:35 AM	52.6	63.8	49.2
04:35 AM - 04:40 AM	51.6	56.5	49.2
04:40 AM - 04:45 AM	51.8	61.7	50.1
04:45 AM - 04:50 AM	52.5	56.2	50.1
04:50 AM - 04:55 AM	52.9	58.2	50.4
04:55 AM - 05:00 AM	53.0	61.8	50.1
05:00 AM - 05:05 AM	53.6	60.2	50.8
05:05 AM - 05:10 AM	53.8	59.0	51.2
05:10 AM - 05:15 AM	53.7	57.3	51.1
05:15 AM - 05:20 AM	53.3	57.4	51.1
05:20 AM - 05:25 AM	54.0	59.2	51.5
05:25 AM - 05:30 AM	53.4	58.4	51.1
05:30 AM - 05:35 AM	53.4	57.4	51.1
05:35 AM - 05:40 AM	52.9	56.9	49.8
05:40 AM - 05:45 AM	52.8	58.1	50.9
05:45 AM - 05:50 AM	53.1	58.6	51.4
05:50 AM - 05:55 AM	56.2	69.8	52.3
05:55 AM - 06:00 AM	56.0	68.8	52.5
06:00 AM - 07:00 AM	56.2	77.4	52.3
07:00 AM - 08:00 AM	55.4	71.1	51.3
08:00 AM - 09:00 AM	51.5	69.8	47.2
09:00 AM - 10:00 AM	49.6	69.3	44.9

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- From the National Bureau of Standards (NBS) for the purpose of the test, the results are valid only for the purpose of the test.

The above results are valid only for the analytical period specified in the report. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended.

Approved by :   
Kanokorn Anek  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungiao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116400-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Sample No. : 24103113-35  
Parameter : Noise  
Location : บริเวณตู้คอนเทนเนอร์ใกล้รั้ว (GPS 47P 0717697, 1519261) (หน้าบ้าน) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Aonsum  
Sound Level Meter : 00858526

Page 1 of 3

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	49.4	68.9	44.5
11:00 AM - 12:00 PM	51.4	64.8	44.8
12:00 PM - 01:00 PM	49.9	73.0	44.0
01:00 PM - 02:00 PM	47.7	66.5	44.1
02:00 PM - 03:00 PM	49.5	65.1	45.5
03:00 PM - 04:00 PM	54.8	88.5	47.8
04:00 PM - 05:00 PM	51.1	73.2	44.9
05:00 PM - 06:00 PM	53.7	74.1	47.4
06:00 PM - 07:00 PM	54.6	74.3	47.9
07:00 PM - 08:00 PM	56.2	70.7	53.7
08:00 PM - 09:00 PM	54.3	62.3	50.4
09:00 PM - 10:00 PM	51.4	56.6	47.7
10:00 PM - 10:05 PM	51.7	61.4	47.1
10:05 PM - 10:10 PM	51.8	62.1	47.4
10:10 PM - 10:15 PM	51.6	61.3	46.7
10:15 PM - 10:20 PM	51.3	62.1	46.6
10:20 PM - 10:25 PM	50.3	61.2	46.9
10:25 PM - 10:30 PM	49.2	55.7	46.8
10:30 PM - 10:35 PM	50.2	57.4	47.7
10:35 PM - 10:40 PM	49.8	54.3	48.0
10:40 PM - 10:45 PM	53.5	70.5	48.0
10:45 PM - 10:50 PM	51.3	71.0	48.3
10:50 PM - 10:55 PM	52.0	67.0	48.4
10:55 PM - 11:00 PM	50.0	55.0	48.5
11:00 PM - 11:05 PM	49.2	53.8	47.5
11:05 PM - 11:10 PM	49.1	60.6	46.9
11:10 PM - 11:15 PM	49.6	58.0	47.6
11:15 PM - 11:20 PM	49.3	54.7	47.1
11:20 PM - 11:25 PM	51.0	64.5	47.9
11:25 PM - 11:30 PM	49.5	56.0	47.2
11:30 PM - 11:35 PM	50.1	63.1	47.7
11:35 PM - 11:40 PM	51.3	70.6	46.9
11:40 PM - 11:45 PM	51.2	62.9	48.2
11:45 PM - 11:50 PM	50.9	56.3	49.2
11:50 PM - 11:55 PM	51.4	55.2	49.5
11:55 PM - 12:00 AM	51.1	57.3	49.5
12:00 AM - 12:05 AM	50.9	62.3	49.1
12:05 AM - 12:10 AM	49.3	55.4	46.5
12:10 AM - 12:15 AM	49.3	58.7	46.8
12:15 AM - 12:20 AM	51.8	61.8	46.7

The above results are valid only for the analytical period specified in the report. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended. The use of the report for any other purpose is not recommended.

Approved by :   
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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116400-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 2 of 3

Sample No. : 24103113-35  
Parameter : Noise  
Location : บริเวณโรงโม่หินในป่า (GPS 47P 0717697, 1519261) (หยุดโม่หิน) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Acoustic  
Sound Level Meter : 00558526

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:20 AM - 12:25 AM	49.6	62.2	46.9
12:25 AM - 12:30 AM	49.1	52.9	47.5
12:30 AM - 12:35 AM	49.6	53.6	47.9
12:35 AM - 12:40 AM	50.5	64.9	47.7
12:40 AM - 12:45 AM	50.9	61.3	47.5
12:45 AM - 12:50 AM	49.7	58.5	46.7
12:50 AM - 12:55 AM	49.1	58.1	46.9
12:55 AM - 01:00 AM	48.6	51.9	46.7
01:00 AM - 01:05 AM	49.1	56.1	47.1
01:05 AM - 01:10 AM	48.6	54.2	46.9
01:10 AM - 01:15 AM	50.8	65.7	47.4
01:15 AM - 01:20 AM	51.1	64.3	47.7
01:20 AM - 01:25 AM	47.3	54.6	45.7
01:25 AM - 01:30 AM	46.7	50.9	45.7
01:30 AM - 01:35 AM	47.8	55.1	46.1
01:35 AM - 01:40 AM	50.1	61.1	46.9
01:40 AM - 01:45 AM	47.8	58.4	46.1
01:45 AM - 01:50 AM	48.0	54.7	46.7
01:50 AM - 01:55 AM	48.5	56.8	46.6
01:55 AM - 02:00 AM	47.8	57.7	46.1
02:00 AM - 02:05 AM	47.1	55.0	46.0
02:05 AM - 02:10 AM	48.5	58.8	47.1
02:10 AM - 02:15 AM	48.6	53.6	47.2
02:15 AM - 02:20 AM	48.8	58.6	47.2
02:20 AM - 02:25 AM	49.1	55.9	47.3
02:25 AM - 02:30 AM	48.7	55.6	47.3
02:30 AM - 02:35 AM	48.7	53.1	47.4
02:35 AM - 02:40 AM	49.5	53.4	47.7
02:40 AM - 02:45 AM	50.1	55.7	48.3
02:45 AM - 02:50 AM	49.9	56.5	47.7
02:50 AM - 02:55 AM	50.8	61.5	47.8
02:55 AM - 03:00 AM	50.7	54.6	47.3
03:00 AM - 03:05 AM	49.0	60.3	47.7
03:05 AM - 03:10 AM	51.6	68.9	48.1
03:10 AM - 03:15 AM	50.2	56.9	48.0
03:15 AM - 03:20 AM	51.7	56.9	48.8
03:20 AM - 03:25 AM	51.2	64.6	47.5
03:25 AM - 03:30 AM	49.2	54.8	47.1
03:30 AM - 03:35 AM	48.2	58.0	46.3
03:35 AM - 03:40 AM	50.0	57.7	46.7

The above results are valid only for the analysis of the test samples as provided. It is not valid for any other purpose. The results are for reference only. The results are not valid for any other purpose. The results are not valid for any other purpose. The results are not valid for any other purpose.

Approved by

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Asst. General Manager

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chachoengsao Thailand 24000

Lot ID: 24103113  
Date Received : Sep 18, 2024  
Date Reported : Sep 26, 2024  
Report No. : 3116400-1

P/O : 410600466  
Project Name : Monitoring EIA  
Project Location : GNKK

Page 3 of 3

Sample No. : 24103113-35  
Parameter : Noise  
Location : บริเวณโรงโม่หินในป่า (GPS 47P 0717697, 1519261) (หยุดโม่หิน) (Shut down)  
Measurement Date : Sep 16 - Sep 17, 2024  
Measurement by : Audit Acoustic  
Sound Level Meter : 00558526

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
03:40 AM - 03:45 AM	49.4	59.8	47.0
03:45 AM - 03:50 AM	49.6	61.5	47.2
03:50 AM - 03:55 AM	50.4	64.8	47.2
03:55 AM - 04:00 AM	51.4	66.6	47.6
04:00 AM - 04:05 AM	49.9	54.1	47.3
04:05 AM - 04:10 AM	49.1	53.7	46.9
04:10 AM - 04:15 AM	49.6	54.2	47.1
04:15 AM - 04:20 AM	50.6	59.4	47.3
04:20 AM - 04:25 AM	50.0	62.2	47.0
04:25 AM - 04:30 AM	50.6	64.5	47.0
04:30 AM - 04:35 AM	51.0	66.9	47.8
04:35 AM - 04:40 AM	50.9	54.8	46.7
04:40 AM - 04:45 AM	51.2	55.8	46.0
04:45 AM - 04:50 AM	52.4	61.6	49.0
04:50 AM - 04:55 AM	51.1	55.3	48.9
04:55 AM - 05:00 AM	51.5	56.9	49.1
05:00 AM - 05:05 AM	53.3	63.1	50.2
05:05 AM - 05:10 AM	51.4	56.0	49.7
05:10 AM - 05:15 AM	51.7	56.3	49.8
05:15 AM - 05:20 AM	51.7	56.2	49.8
05:20 AM - 05:25 AM	52.4	59.1	50.2
05:25 AM - 05:30 AM	52.0	55.9	49.9
05:30 AM - 05:35 AM	52.4	56.0	50.7
05:35 AM - 05:40 AM	53.7	57.3	51.4
05:40 AM - 05:45 AM	52.6	56.0	51.1
05:45 AM - 05:50 AM	53.8	62.7	51.8
05:50 AM - 05:55 AM	55.2	67.9	52.7
05:55 AM - 06:00 AM	57.8	73.0	52.4
06:00 AM - 07:00 AM	55.4	72.3	51.4
07:00 AM - 08:00 AM	55.1	71.5	49.7
08:00 AM - 09:00 AM	51.6	70.1	46.9
09:00 AM - 10:00 AM	51.6	66.0	46.1

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- มาตรฐานวิธีวัดและประเมินค่าเสียงรบกวนตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ พ.ศ. 2567

The above results are valid only for the analysis of the test samples as provided. It is not valid for any other purpose. The results are for reference only. The results are not valid for any other purpose. The results are not valid for any other purpose. The results are not valid for any other purpose.

Approved by

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202245-1 Rev. No.1

Page 1 of 1

Sample Number 24138251-1  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (47P 717738, 1521484)  
Measurement Date Dec 09 - Dec 10, 2024  
Measurement by Keerati Taweerat  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	54.9	70.8	51.0
12:00 PM - 01:00 PM	51.3	75.0	46.8
01:00 PM - 02:00 PM	48.1	72.0	43.6
02:00 PM - 03:00 PM	50.1	68.4	45.8
03:00 PM - 04:00 PM	51.2	70.1	43.3
04:00 PM - 05:00 PM	45.7	72.9	38.5
05:00 PM - 06:00 PM	51.4	65.1	45.6
06:00 PM - 07:00 PM	57.1	75.5	46.7
07:00 PM - 08:00 PM	45.1	64.5	42.5
08:00 PM - 09:00 PM	42.6	58.0	41.1
09:00 PM - 10:00 PM	42.7	59.1	40.1
10:00 PM - 11:00 PM	43.7	59.0	41.5
11:00 PM - 12:00 AM	42.9	66.4	40.5
12:00 AM - 01:00 AM	43.0	63.1	40.6
01:00 AM - 02:00 AM	43.6	64.9	40.4
02:00 AM - 03:00 AM	43.5	55.0	41.8
03:00 AM - 04:00 AM	44.3	57.7	42.6
04:00 AM - 05:00 AM	47.4	64.9	44.9
05:00 AM - 06:00 AM	54.7	74.3	46.6
06:00 AM - 07:00 AM	52.9	82.7	46.4
07:00 AM - 08:00 AM	54.5	71.2	45.7
08:00 AM - 09:00 AM	47.7	72.0	42.9
09:00 AM - 10:00 AM	51.0	72.3	45.1
10:00 AM - 11:00 AM	48.3	73.2	42.3
Leq Average 24 hrs. (dB(A))	50.5		
Lmax (dB(A))		82.7	
L90 (dB(A))			42.9
Ldn (dB(A))	55.7		
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

Note : This Analysis test report is reissued to supersede report No.3202245-1, Date Reported : Dec 25, 2024 due to revise sample information.

Technical Management

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Orawan Rak Yong  
Scientist (3)

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S:\Reports\Air Noise\pt ( 2:54PM)



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202246-1 Rev. No.1

Page 1 of 1

Sample Number 24138251-2  
Parameter Noise (Leq 24 hrs.)  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (47P 717738, 1521484)  
Measurement Date Dec 10 - Dec 11, 2024  
Measurement by Keerati Taweerat  
Sound Level meter Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	47.0	63.3	42.4
12:00 PM - 01:00 PM	46.1	65.3	41.8
01:00 PM - 02:00 PM	51.3	75.1	46.3
02:00 PM - 03:00 PM	49.2	71.8	45.2
03:00 PM - 04:00 PM	49.8	73.9	43.7
04:00 PM - 05:00 PM	46.7	67.4	38.1
05:00 PM - 06:00 PM	47.4	64.8	42.6
06:00 PM - 07:00 PM	46.8	65.8	44.9
07:00 PM - 08:00 PM	46.2	63.2	44.4
08:00 PM - 09:00 PM	47.1	63.8	42.8
09:00 PM - 10:00 PM	44.1	63.0	41.1
10:00 PM - 11:00 PM	42.5	63.8	40.6
11:00 PM - 12:00 AM	46.3	65.4	40.3
12:00 AM - 01:00 AM	43.4	62.3	40.4
01:00 AM - 02:00 AM	41.4	56.8	40.2
02:00 AM - 03:00 AM	42.9	62.9	40.3
03:00 AM - 04:00 AM	49.7	64.9	45.5
04:00 AM - 05:00 AM	54.4	67.8	45.1
05:00 AM - 06:00 AM	49.8	72.0	45.5
06:00 AM - 07:00 AM	52.3	81.6	45.8
07:00 AM - 08:00 AM	51.7	69.9	44.5
08:00 AM - 09:00 AM	46.0	69.2	42.6
09:00 AM - 10:00 AM	48.2	69.7	44.5
10:00 AM - 11:00 AM	45.8	75.1	42.0
Leq Average 24 hrs. (dB(A))	48.5		
Lmax (dB(A))		81.6	
L90 (dB(A))			42.6
Ldn (dB(A))	55.5		
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

Note : This Analysis test report is reissued to supersede report No.3202246-1, Date Reported : Dec 25, 2024 due to revise sample information.

Technical Management

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Orawan Rak Yong  
Scientist (3)

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S:\Reports\Air Noise\pt ( 2:54PM)



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202247-1 Rev. No.1

Page 1 of 1

Sample Number	24138251-3
Parameter	Noise (Leq 24 hrs.)
Location	บริเวณชุมชน หมู่ 2 ตำบลคลองนครเนื่องเขต (47P 717738, 1521484)
Measurement Date	Dec 11 - Dec 12, 2024
Measurement by	Keerati Taweerat
Sound Level meter	Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	51.8	71.1	47.4
12:00 PM - 01:00 PM	51.9	73.3	47.6
01:00 PM - 02:00 PM	45.7	74.0	40.2
02:00 PM - 03:00 PM	49.5	71.8	44.9
03:00 PM - 04:00 PM	52.1	74.3	45.9
04:00 PM - 05:00 PM	48.2	67.9	42.0
05:00 PM - 06:00 PM	51.5	71.9	43.7
06:00 PM - 07:00 PM	56.1	70.9	47.2
07:00 PM - 08:00 PM	44.7	69.7	42.4
08:00 PM - 09:00 PM	47.2	73.1	40.9
09:00 PM - 10:00 PM	46.5	70.3	40.9
10:00 PM - 11:00 PM	43.1	61.7	40.2
11:00 PM - 12:00 AM	44.0	55.5	40.2
12:00 AM - 01:00 AM	44.1	69.4	40.4
01:00 AM - 02:00 AM	41.5	53.8	40.2
02:00 AM - 03:00 AM	43.6	62.9	42.0
03:00 AM - 04:00 AM	44.9	70.0	42.1
04:00 AM - 05:00 AM	46.2	69.3	43.1
05:00 AM - 06:00 AM	50.5	70.8	47.0
06:00 AM - 07:00 AM	48.8	67.6	45.3
07:00 AM - 08:00 AM	48.3	71.9	42.3
08:00 AM - 09:00 AM	47.9	79.1	41.1
09:00 AM - 10:00 AM	46.5	71.1	41.3
10:00 AM - 11:00 AM	46.5	72.0	42.9

Leq Average 24 hrs. (dB(A))	49.0		
Lmax (dB(A))		79.1	
L90 (dB(A))			42.1
Ldn (dB(A))	53.4		
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

Note : This Analysis test report is reissued to supersede report No.3202247-1, Date Reported : Dec 25, 2024 due to revise sample information.

Technical Management

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Orawan Rak Yong  
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Approved by

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S:\Reports\Air Noise.rpt ( 2:54PM)



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202248-1 Rev. No.1

Page 1 of 1

Sample Number	24138251-4
Parameter	Noise (Leq 24 hrs.)
Location	บริเวณชุมชน หมู่ 2 ตำบลคลองนครเนื่องเขต (47P 717738, 1521484)
Measurement Date	Dec 12 - Dec 13, 2024
Measurement by	Keerati Taweerat
Sound Level meter	Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	44.6	71.7	37.6
12:00 PM - 01:00 PM	46.4	73.1	38.0
01:00 PM - 02:00 PM	44.2	71.4	37.0
02:00 PM - 03:00 PM	44.2	68.0	37.0
03:00 PM - 04:00 PM	42.8	71.6	36.0
04:00 PM - 05:00 PM	44.5	71.1	36.8
05:00 PM - 06:00 PM	53.3	72.7	44.0
06:00 PM - 07:00 PM	58.0	73.7	48.9
07:00 PM - 08:00 PM	56.7	74.0	45.3
08:00 PM - 09:00 PM	46.9	64.9	42.6
09:00 PM - 10:00 PM	45.0	66.1	42.0
10:00 PM - 11:00 PM	43.3	64.5	40.0
11:00 PM - 12:00 AM	47.1	75.4	40.6
12:00 AM - 01:00 AM	44.9	69.3	41.2
01:00 AM - 02:00 AM	41.6	61.8	39.7
02:00 AM - 03:00 AM	42.2	57.6	39.6
03:00 AM - 04:00 AM	42.2	60.3	41.0
04:00 AM - 05:00 AM	45.2	69.9	42.6
05:00 AM - 06:00 AM	49.4	68.6	45.3
06:00 AM - 07:00 AM	47.8	75.2	43.0
07:00 AM - 08:00 AM	55.8	75.3	45.5
08:00 AM - 09:00 AM	56.1	78.4	44.5
09:00 AM - 10:00 AM	52.3	73.6	42.6
10:00 AM - 11:00 AM	53.5	74.8	43.9

Leq Average 24 hrs. (dB(A))	51.1		
Lmax (dB(A))		78.4	
L90 (dB(A))			41.2
Ldn (dB(A))	54.0		
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

Note : This Analysis test report is reissued to supersede report No.3202248-1, Date Reported : Dec 25, 2024 due to revise sample information.

Technical Management

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S:\Reports\Air Noise.rpt ( 2:54PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202249-1 Rev. No.1

Page 1 of 1

Sample Number : 24138251-5  
Parameter : Noise (Leq 24 hrs.)  
Location : บริเวณชุมชน หมู่ 2 บ้านคลองนาโพธิ์แดง (47P 717738, 1521484)  
Measurement Date : Dec 13 - Dec 14, 2024  
Measurement by : Keerati Taweerat  
Sound Level meter : Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	57.9	73.0	54.6
12:00 PM - 01:00 PM	48.7	64.9	43.4
01:00 PM - 02:00 PM	52.7	76.9	47.7
02:00 PM - 03:00 PM	55.1	73.3	47.8
03:00 PM - 04:00 PM	46.9	78.2	38.6
04:00 PM - 05:00 PM	48.6	74.4	41.1
05:00 PM - 06:00 PM	55.4	74.7	47.7
06:00 PM - 07:00 PM	55.0	74.0	44.5
07:00 PM - 08:00 PM	43.9	63.1	40.9
08:00 PM - 09:00 PM	40.8	57.6	37.8
09:00 PM - 10:00 PM	42.6	61.7	38.9
10:00 PM - 11:00 PM	41.8	62.2	39.8
11:00 PM - 12:00 AM	43.1	62.7	40.3
12:00 AM - 01:00 AM	44.3	64.9	40.7
01:00 AM - 02:00 AM	42.1	52.6	40.7
02:00 AM - 03:00 AM	43.3	56.7	41.7
03:00 AM - 04:00 AM	48.9	65.2	44.4
04:00 AM - 05:00 AM	52.0	76.5	45.6
05:00 AM - 06:00 AM	55.0	79.4	45.4
06:00 AM - 07:00 AM	58.8	76.0	48.1
07:00 AM - 08:00 AM	54.7	76.6	46.0
08:00 AM - 09:00 AM	51.3	70.8	45.7
09:00 AM - 10:00 AM	54.6	73.8	47.5
10:00 AM - 11:00 AM	48.6	69.6	44.4
Leq Average 24 hrs. (dB(A))	52.5		
Lmax (dB(A))		79.4	
L90 (dB(A))			44.4
Ldn (dB(A))	58.5		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกระทรวงมหาดไทย เรื่อง กำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

Note : This Analysis test report is reissued to supersede report No.3202249-1, Date Reported : Dec 25, 2024 due to revise sample Information.

Technical Management

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S:\Reports\_Air Noise.rpt ( 2:54PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202250-1 Rev. No.1

Page 1 of 1

Sample Number : 24138251-6  
Parameter : Noise (Leq 24 hrs.)  
Location : บริเวณชุมชน หมู่ 2 บ้านคลองนาโพธิ์แดง (47P 717738, 1521484)  
Measurement Date : Dec 14 - Dec 15, 2024  
Measurement by : Keerati Taweerat  
Sound Level meter : Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	56.7	70.7	53.3
12:00 PM - 01:00 PM	49.0	71.9	44.4
01:00 PM - 02:00 PM	44.8	58.8	42.6
02:00 PM - 03:00 PM	51.5	73.3	46.8
03:00 PM - 04:00 PM	50.5	75.3	39.5
04:00 PM - 05:00 PM	47.5	74.9	39.0
05:00 PM - 06:00 PM	50.0	60.5	47.2
06:00 PM - 07:00 PM	46.4	68.1	43.5
07:00 PM - 08:00 PM	44.3	59.8	42.2
08:00 PM - 09:00 PM	45.0	61.6	41.4
09:00 PM - 10:00 PM	42.9	55.3	40.3
10:00 PM - 11:00 PM	41.5	54.5	40.1
11:00 PM - 12:00 AM	42.6	61.0	39.9
12:00 AM - 01:00 AM	41.0	49.5	39.5
01:00 AM - 02:00 AM	41.7	54.5	40.1
02:00 AM - 03:00 AM	43.7	57.8	41.9
03:00 AM - 04:00 AM	51.1	68.9	47.3
04:00 AM - 05:00 AM	50.3	69.1	45.3
05:00 AM - 06:00 AM	47.8	74.8	44.1
06:00 AM - 07:00 AM	54.9	76.2	47.5
07:00 AM - 08:00 AM	51.9	72.3	48.5
08:00 AM - 09:00 AM	55.7	77.4	51.6
09:00 AM - 10:00 AM	49.1	71.1	45.7
10:00 AM - 11:00 AM	53.1	75.2	48.6
Leq Average 24 hrs. (dB(A))	50.4		
Lmax (dB(A))		77.4	
L90 (dB(A))			43.5
Ldn (dB(A))	55.7		
Standard (dB(A))	70	115	

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศกระทรวงมหาดไทย เรื่อง กำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

Note : This Analysis test report is reissued to supersede report No.3202250-1, Date Reported : Dec 25, 2024 due to revise sample Information.

Technical Management

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S:\Reports\_Air Noise.rpt ( 2:55PM)





## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Jan 14, 2025  
Report Number: 3202251-1 Rev. No.1

Page 1 of 1

Sample Number	24138251-7
Parameter	Noise (Leq 24 hrs.)
Location	บริเวณถนนพหลโยธิน 2 ปากคลองนครเนื่องเขต (47P 71773B, 1521484)
Measurement Date	Dec 15 - Dec 16, 2024
Measurement by	Keerat Taweerat
Sound Level meter	Serial No. 873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	49.4	71.7	39.1
12:00 PM - 01:00 PM	44.7	70.2	37.5
01:00 PM - 02:00 PM	43.2	70.1	36.9
02:00 PM - 03:00 PM	45.1	73.7	37.5
03:00 PM - 04:00 PM	45.2	70.6	37.4
04:00 PM - 05:00 PM	48.3	81.3	40.6
05:00 PM - 06:00 PM	48.5	73.2	39.7
06:00 PM - 07:00 PM	46.2	65.8	44.3
07:00 PM - 08:00 PM	48.3	72.4	42.4
08:00 PM - 09:00 PM	42.9	65.0	40.8
09:00 PM - 10:00 PM	43.5	63.5	38.5
10:00 PM - 11:00 PM	41.8	58.3	39.0
11:00 PM - 12:00 AM	40.5	69.6	38.4
12:00 AM - 01:00 AM	42.1	64.0	38.8
01:00 AM - 02:00 AM	41.1	70.3	38.1
02:00 AM - 03:00 AM	43.1	62.6	39.4
03:00 AM - 04:00 AM	41.1	59.4	40.0
04:00 AM - 05:00 AM	48.1	63.1	46.1
05:00 AM - 06:00 AM	47.5	70.1	44.1
06:00 AM - 07:00 AM	48.8	71.0	43.5
07:00 AM - 08:00 AM	54.2	75.0	47.1
08:00 AM - 09:00 AM	54.0	85.1	45.9
09:00 AM - 10:00 AM	50.8	80.8	45.1
10:00 AM - 11:00 AM	48.8	86.3	44.0
Leq Average 24 hrs. (dB(A))	47.9		
Lmax (dB(A))		86.3	
L90 (dB(A))			39.7
Ldn (dB(A))	52.3		
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

Note : This Analysis test report is reissued to supersede report No.3202251-1, Date Reported : Dec 25, 2024 due to revise sample information.

Technical Management

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S:\Reports\_Air Noise.rpt ( 2:55PM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202252-1

Page 1 of 1

Sample Number	24138251-8
Parameter	Noise (Leq 24 hrs.)
Location	บริเวณพื้นที่ของพื้นที่โครงการ (GPS 47P 717936, 1519561)
Measurement Date	Dec 09 - Dec 10, 2024
Measurement by	Keerat Taweerat
Sound Level meter	Serial No. 296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.0	72.8	55.0
11:00 AM - 12:00 PM	56.0	65.5	55.1
12:00 PM - 01:00 PM	56.2	63.2	55.2
01:00 PM - 02:00 PM	56.9	63.0	55.7
02:00 PM - 03:00 PM	55.6	61.5	54.6
03:00 PM - 04:00 PM	55.8	64.2	54.8
04:00 PM - 05:00 PM	58.5	74.5	57.1
05:00 PM - 06:00 PM	63.6	78.2	62.1
06:00 PM - 07:00 PM	57.6	64.6	56.6
07:00 PM - 08:00 PM	57.9	72.8	56.4
08:00 PM - 09:00 PM	58.8	74.4	57.5
09:00 PM - 10:00 PM	58.4	68.4	57.4
10:00 PM - 11:00 PM	57.4	64.4	56.6
11:00 PM - 12:00 AM	56.8	71.5	56.2
12:00 AM - 01:00 AM	56.9	61.4	56.4
01:00 AM - 02:00 AM	56.9	67.9	56.3
02:00 AM - 03:00 AM	56.6	59.4	56.1
03:00 AM - 04:00 AM	56.9	59.1	56.4
04:00 AM - 05:00 AM	57.8	61.0	57.2
05:00 AM - 06:00 AM	59.8	68.7	59.1
06:00 AM - 07:00 AM	57.8	65.6	57.1
07:00 AM - 08:00 AM	56.4	63.9	55.7
08:00 AM - 09:00 AM	56.4	63.7	55.7
09:00 AM - 10:00 AM	55.9	67.3	55.1
Leq Average 24 hrs. (dB(A))	57.8		
Lmax (dB(A))		78.2	
L90 (dB(A))			56.3
Ldn (dB(A))	64.0		
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

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S:\Reports\_Air Noise.rpt (10:05AM)



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202253-1

Page 1 of 1

Sample Number	24138251-9		
Parameter	Noise (Leq 24 hrs.)		
Location	บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)		
Measurement Date	Dec 10 - Dec 11, 2024		
Measurement by	Keerati Taweerat		
Sound Level meter	Serial No. 296511		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	55.4	64.5	54.3
11:00 AM - 12:00 PM	54.6	61.7	53.8
12:00 PM - 01:00 PM	54.5	62.6	53.5
01:00 PM - 02:00 PM	55.1	61.0	54.1
02:00 PM - 03:00 PM	55.8	61.9	54.8
03:00 PM - 04:00 PM	55.3	61.8	54.5
04:00 PM - 05:00 PM	57.7	74.5	56.3
05:00 PM - 06:00 PM	63.1	79.9	61.7
06:00 PM - 07:00 PM	56.5	64.5	55.7
07:00 PM - 08:00 PM	56.7	63.3	55.9
08:00 PM - 09:00 PM	56.2	63.6	55.4
09:00 PM - 10:00 PM	56.1	62.8	55.4
10:00 PM - 11:00 PM	56.8	61.3	56.2
11:00 PM - 12:00 AM	57.0	62.1	56.4
12:00 AM - 01:00 AM	56.4	60.2	55.9
01:00 AM - 02:00 AM	55.8	62.6	55.4
02:00 AM - 03:00 AM	55.6	73.1	55.0
03:00 AM - 04:00 AM	56.3	61.5	55.8
04:00 AM - 05:00 AM	56.0	58.8	55.6
05:00 AM - 06:00 AM	58.0	66.8	58.1
06:00 AM - 07:00 AM	57.8	76.0	56.6
07:00 AM - 08:00 AM	56.5	64.4	55.8
08:00 AM - 09:00 AM	56.5	65.3	55.6
09:00 AM - 10:00 AM	56.0	60.1	55.2

Leq Average 24 hrs. (dB(A)) 57.0  
Lmax (dB(A)) 79.9  
L90 (dB(A)) 55.6  
Ldn (dB(A)) 63.3  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202254-1

Page 1 of 1

Sample Number	24138251-10		
Parameter	Noise (Leq 24 hrs.)		
Location	บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)		
Measurement Date	Dec 11 - Dec 12, 2024		
Measurement by	Keerati Taweerat		
Sound Level meter	Serial No. 296511		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.1	74.0	55.1
11:00 AM - 12:00 PM	55.4	62.3	54.4
12:00 PM - 01:00 PM	55.3	63.7	54.2
01:00 PM - 02:00 PM	55.4	65.1	54.3
02:00 PM - 03:00 PM	55.6	61.7	54.6
03:00 PM - 04:00 PM	56.0	62.1	55.1
04:00 PM - 05:00 PM	56.9	75.1	55.5
05:00 PM - 06:00 PM	63.2	75.3	61.8
06:00 PM - 07:00 PM	57.5	86.7	55.3
07:00 PM - 08:00 PM	55.7	66.3	55.1
08:00 PM - 09:00 PM	56.4	69.4	55.6
09:00 PM - 10:00 PM	56.2	60.9	55.3
10:00 PM - 11:00 PM	56.2	70.7	55.6
11:00 PM - 12:00 AM	56.1	61.7	55.6
12:00 AM - 01:00 AM	56.7	61.0	56.2
01:00 AM - 02:00 AM	57.4	65.0	56.8
02:00 AM - 03:00 AM	56.6	64.3	56.0
03:00 AM - 04:00 AM	56.9	65.8	56.1
04:00 AM - 05:00 AM	57.4	67.2	56.5
05:00 AM - 06:00 AM	58.9	69.6	58.1
06:00 AM - 07:00 AM	58.0	68.4	57.1
07:00 AM - 08:00 AM	57.3	67.5	56.5
08:00 AM - 09:00 AM	57.5	80.7	56.1
09:00 AM - 10:00 AM	56.8	66.8	55.8

Leq Average 24 hrs. (dB(A)) 57.3  
Lmax (dB(A)) 86.7  
L90 (dB(A)) 55.6  
Ldn (dB(A)) 63.6  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

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

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S:\Reports\_Air Noise.rpt (10:05AM)



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202255-1

Page 1 of 1

Sample Number	24138251-11
Parameter	Noise (Leq 24 hrs.)
Location	บริเวณพื้นที่โครงการ (GPS 47P 717936, 1519561) Dec 12 - Dec 13, 2024
Measurement Data	
Measurement by	Keerati Taweerat
Sound Level meter	Serial No. 296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.5	64.0	55.6
11:00 AM - 12:00 PM	56.4	65.7	55.5
12:00 PM - 01:00 PM	56.4	64.9	55.2
01:00 PM - 02:00 PM	56.8	65.1	55.7
02:00 PM - 03:00 PM	57.3	64.9	56.0
03:00 PM - 04:00 PM	57.6	69.3	56.4
04:00 PM - 05:00 PM	60.4	81.3	58.4
05:00 PM - 06:00 PM	64.1	79.2	62.5
06:00 PM - 07:00 PM	56.5	69.2	55.5
07:00 PM - 08:00 PM	56.3	72.0	55.3
08:00 PM - 09:00 PM	57.1	77.8	55.4
09:00 PM - 10:00 PM	55.6	62.4	54.9
10:00 PM - 11:00 PM	55.4	59.2	54.8
11:00 PM - 12:00 AM	56.5	72.3	55.5
12:00 AM - 01:00 AM	56.7	61.1	56.2
01:00 AM - 02:00 AM	56.4	60.8	55.8
02:00 AM - 03:00 AM	56.9	62.2	56.1
03:00 AM - 04:00 AM	57.1	72.9	56.1
04:00 AM - 05:00 AM	57.8	80.1	56.7
05:00 AM - 06:00 AM	59.4	68.6	58.4
06:00 AM - 07:00 AM	62.0	75.3	59.8
07:00 AM - 08:00 AM	56.8	65.7	56.2
08:00 AM - 09:00 AM	56.5	65.9	55.9
09:00 AM - 10:00 AM	56.5	64.5	55.7

Leq Average 24 hrs. (dB(A)) 58.1  
Lmax (dB(A)) 81.3  
L90 (dB(A)) 55.8  
Ldn (dB(A)) 64.5  
Standard (dB(A)) 70  
Reference Method : ISO1996-1 and 1996-2  
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

Technical Management

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S:\Reports\Air Noise rpt (10:06AM)



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202256-1

Page 1 of 1

Sample Number	24138251-12
Parameter	Noise (Leq 24 hrs.)
Location	บริเวณพื้นที่โครงการ (GPS 47P 717936, 1519561) Dec 13 - Dec 14, 2024
Measurement Data	
Measurement by	Keerati Taweerat
Sound Level meter	Serial No. 296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.4	66.3	55.7
11:00 AM - 12:00 PM	56.4	69.9	55.4
12:00 PM - 01:00 PM	56.2	63.2	55.2
01:00 PM - 02:00 PM	56.3	64.2	55.3
02:00 PM - 03:00 PM	56.8	65.2	55.9
03:00 PM - 04:00 PM	56.6	62.4	55.7
04:00 PM - 05:00 PM	60.0	79.8	58.0
05:00 PM - 06:00 PM	63.1	76.9	61.9
06:00 PM - 07:00 PM	55.7	60.9	55.0
07:00 PM - 08:00 PM	55.5	63.0	54.9
08:00 PM - 09:00 PM	55.6	64.4	54.9
09:00 PM - 10:00 PM	55.4	61.5	54.9
10:00 PM - 11:00 PM	56.4	62.8	55.8
11:00 PM - 12:00 AM	56.5	61.5	55.9
12:00 AM - 01:00 AM	56.6	65.7	56.0
01:00 AM - 02:00 AM	56.8	61.7	56.1
02:00 AM - 03:00 AM	56.4	60.3	55.9
03:00 AM - 04:00 AM	56.8	60.0	56.1
04:00 AM - 05:00 AM	56.9	60.0	56.3
05:00 AM - 06:00 AM	58.3	64.0	57.7
06:00 AM - 07:00 AM	57.5	67.3	56.6
07:00 AM - 08:00 AM	56.9	68.2	56.2
08:00 AM - 09:00 AM	57.5	69.3	56.6
09:00 AM - 10:00 AM	57.2	70.7	56.3

Leq Average 24 hrs. (dB(A)) 57.4  
Lmax (dB(A)) 79.8  
L90 (dB(A)) 55.9  
Ldn (dB(A)) 63.5  
Standard (dB(A)) 70  
Reference Method : ISO1996-1 and 1996-2  
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ  
โรงงาน พ.ศ. 2548

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202257-1

Page 1 of 1

Sample Number : 24138251-13  
Parameter : Noise (Leq 24 hrs.)  
Location : บริเวณพื้นที่ก่อสร้างโครงการ (GPS 47P 717936, 1519561)  
Measurement Date : Dec 14 - Dec 15, 2024  
Measurement by : Keerati Taweerat  
Sound Level meter : Serial No. 296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.8	61.6	56.1
11:00 AM - 12:00 PM	56.5	65.8	55.8
12:00 PM - 01:00 PM	56.0	61.4	55.3
01:00 PM - 02:00 PM	56.2	66.2	55.3
02:00 PM - 03:00 PM	56.0	61.0	55.1
03:00 PM - 04:00 PM	55.7	61.7	54.9
04:00 PM - 05:00 PM	59.0	76.5	56.4
05:00 PM - 06:00 PM	62.1	76.8	61.1
06:00 PM - 07:00 PM	59.3	68.8	56.7
07:00 PM - 08:00 PM	59.5	66.9	57.1
08:00 PM - 09:00 PM	58.3	62.7	57.0
09:00 PM - 10:00 PM	57.4	76.3	56.4
10:00 PM - 11:00 PM	57.0	62.8	56.2
11:00 PM - 12:00 AM	57.6	70.9	56.5
12:00 AM - 01:00 AM	56.2	62.6	55.3
01:00 AM - 02:00 AM	56.4	61.4	55.4
02:00 AM - 03:00 AM	56.0	62.9	55.2
03:00 AM - 04:00 AM	56.5	76.0	55.3
04:00 AM - 05:00 AM	56.0	60.5	55.2
05:00 AM - 06:00 AM	58.3	65.8	57.3
06:00 AM - 07:00 AM	57.4	69.1	56.0
07:00 AM - 08:00 AM	56.4	65.9	55.2
08:00 AM - 09:00 AM	56.2	65.3	54.9
09:00 AM - 10:00 AM	56.0	63.8	54.8

Leq Average 24 hrs. (dB(A))

57.5

Lmax (dB(A))

76.8

L90 (dB(A))

55.4

Ldn (dB(A))

63.4

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000  
P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138251  
Date Received : Dec 17, 2024  
Date Reported : Dec 25, 2024  
Report Number: 3202258-1

Page 1 of 1

Sample Number : 24138251-14  
Parameter : Noise (Leq 24 hrs.)  
Location : บริเวณพื้นที่ก่อสร้างโครงการ (GPS 47P 717936, 1519561)  
Measurement Date : Dec 15 - Dec 16, 2024  
Measurement by : Keerati Taweerat  
Sound Level meter : Serial No. 296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	55.0	75.3	53.9
11:00 AM - 12:00 PM	54.9	66.1	53.7
12:00 PM - 01:00 PM	54.9	64.2	53.7
01:00 PM - 02:00 PM	55.1	74.4	53.8
02:00 PM - 03:00 PM	55.3	66.9	53.9
03:00 PM - 04:00 PM	57.2	66.1	56.5
04:00 PM - 05:00 PM	58.3	68.9	57.0
05:00 PM - 06:00 PM	62.8	76.7	61.7
06:00 PM - 07:00 PM	60.5	71.0	58.1
07:00 PM - 08:00 PM	59.7	64.4	57.5
08:00 PM - 09:00 PM	58.3	63.8	56.7
09:00 PM - 10:00 PM	56.9	65.3	56.3
10:00 PM - 11:00 PM	56.6	62.2	56.0
11:00 PM - 12:00 AM	56.8	61.2	56.1
12:00 AM - 01:00 AM	56.7	60.9	56.0
01:00 AM - 02:00 AM	56.1	60.0	55.6
02:00 AM - 03:00 AM	56.5	68.6	55.9
03:00 AM - 04:00 AM	56.9	60.9	56.2
04:00 AM - 05:00 AM	56.9	61.5	56.2
05:00 AM - 06:00 AM	58.9	71.3	58.1
06:00 AM - 07:00 AM	58.0	68.4	56.9
07:00 AM - 08:00 AM	57.4	64.4	56.5
08:00 AM - 09:00 AM	57.1	70.4	56.1
09:00 AM - 10:00 AM	59.7	92.7	55.9

Leq Average 24 hrs. (dB(A))

57.8

Lmax (dB(A))

92.7

L90 (dB(A))

56.1

Ldn (dB(A))

63.7

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

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## Analysis / Test Report



TESTING

No.0009

Client : Gulf JP NNN Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202905-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138253-1  
Parameter เสียงรบกวน  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date Dec 09 - 10, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

ระดับเสียง (dB(A))					
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีกิจกรรม	เสียงขณะมีการรบกวน		ค่าระดับการรบกวน
			กลางวัน	กลางคืน	
11:00 AM - 12:00 PM	54.9	51.4	52.3	-	45.6
12:00 PM - 01:00 PM	51.3	51.4	n/a	-	45.6
01:00 PM - 02:00 PM	48.1	51.4	n/a	-	45.6
02:00 PM - 03:00 PM	50.1	51.4	n/a	-	45.6
03:00 PM - 04:00 PM	51.2	51.4	n/a	-	45.6
04:00 PM - 05:00 PM	45.7	51.4	n/a	-	45.6
08:00 AM - 09:00 AM	47.7	51.4	n/a	-	45.6
09:00 AM - 10:00 AM	51.0	51.4	n/a	-	45.6
10:00 AM - 11:00 AM	48.3	51.4	n/a	-	45.6
ค่ามาตรฐาน					≤ 10

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

Remark:

- ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 09-10 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีกิจกรรม (Sample No.24138256-1 วันที่ตรวจวัด 09-10 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีกิจกรรม

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

*Kanokkorn Anek*

Kanokkorn Anek  
Senior Manager



## Analysis / Test Report



TESTING

No.0009

Client : Gulf JP NNN Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202906-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138253-2  
Parameter เสียงรบกวน  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date Dec 10 - 11, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

ระดับเสียง (dB(A))					
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีกิจกรรม	เสียงขณะมีการรบกวน		ค่าระดับการรบกวน
			กลางวัน	กลางคืน	
11:00 AM - 12:00 PM	47.0	46.2	39.3	-	44.4
12:00 PM - 01:00 PM	46.1	46.2	n/a	-	44.4
01:00 PM - 02:00 PM	51.3	46.2	49.7	-	44.4
02:00 PM - 03:00 PM	49.2	46.2	46.2	-	44.4
03:00 PM - 04:00 PM	49.8	46.2	47.3	-	44.4
04:00 PM - 05:00 PM	46.7	46.2	37.1	-	44.4
08:00 AM - 09:00 AM	46.0	46.2	n/a	-	44.4
09:00 AM - 10:00 AM	48.2	46.2	43.9	-	44.4
10:00 AM - 11:00 AM	45.8	46.2	n/a	-	44.4
ค่ามาตรฐาน					≤ 10

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

Remark:

- ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 10-11 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีกิจกรรม (Sample No.24138256-2 วันที่ตรวจวัด 10-11 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีกิจกรรม

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. 24138253-3  
Parameter เสียงรบกวน  
Location บริเวณชุมชนหมู่ 2 ป่านครทองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date Dec 11 - 12, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
11:00 AM - 12:00 PM	51.8	44.7	50.9	-	42.4	8.5
12:00 PM - 01:00 PM	51.9	44.7	51.0	-	42.4	8.6
01:00 PM - 02:00 PM	45.7	44.7	38.8	-	42.4	-3.6
02:00 PM - 03:00 PM	49.5	44.7	47.8	-	42.4	5.4
03:00 PM - 04:00 PM	52.1	44.7	51.2	-	42.4	8.8
04:00 PM - 05:00 PM	48.2	44.7	45.6	-	42.4	3.2
08:00 AM - 09:00 AM	47.9	44.7	45.1	-	42.4	2.7
09:00 AM - 10:00 AM	46.5	44.7	41.8	-	42.4	-0.6
10:00 AM - 11:00 AM	46.5	44.7	41.8	-	42.4	-0.6
ค่ามาตรฐาน						≤ 10

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

### มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานเสียงทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

### Remark:

- ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 11-12 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-3 วันที่ตรวจวัด 11-12 ธันวาคม 2567)
- n/a : ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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TESTING

No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202907-1

Page 1 of 1



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. 24138253-4  
Parameter เสียงรบกวน  
Location บริเวณชุมชนหมู่ 2 ป่านครทองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date Dec 12 - 13, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
11:00 AM - 12:00 PM	44.6	53.3	n/a	-	44.0	-
12:00 PM - 01:00 PM	46.4	53.3	n/a	-	44.0	-
01:00 PM - 02:00 PM	44.2	53.3	n/a	-	44.0	-
02:00 PM - 03:00 PM	44.2	53.3	n/a	-	44.0	-
03:00 PM - 04:00 PM	42.8	53.3	n/a	-	44.0	-
04:00 PM - 05:00 PM	44.5	53.3	n/a	-	44.0	-
08:00 AM - 09:00 AM	56.1	53.3	52.9	-	44.0	8.9
09:00 AM - 10:00 AM	52.3	53.3	n/a	-	44.0	-
10:00 AM - 11:00 AM	53.5	53.3	40.0	-	44.0	-4.0
ค่ามาตรฐาน						≤ 10

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

### มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานเสียงทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

### Remark:

- ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 12-13 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-4 วันที่ตรวจวัด 12-13 ธันวาคม 2567)
- n/a : ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24138253-5  
Parameter : เสียงรบกวน  
Location : บริเวณชุมชนหมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date : Dec 13 - 14, 2024  
Measurement by : Keerati Taweerat  
Sound Level Meter : 00873053



TESTING  
No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202909-1

Page 1 of 1

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
11:00 AM - 12:00 PM	57.9	55.0	54.8	-	44.5	10.3
12:00 PM - 01:00 PM	48.7	55.0	n/a	-	44.5	-
01:00 PM - 02:00 PM	52.7	55.0	n/a	-	44.5	-
02:00 PM - 03:00 PM	55.1	55.0	38.7	-	44.5	-5.8
03:00 PM - 04:00 PM	46.9	55.0	n/a	-	44.5	-
04:00 PM - 05:00 PM	48.6	55.0	n/a	-	44.5	-
08:00 AM - 09:00 AM	51.3	55.0	n/a	-	44.5	-
09:00 AM - 10:00 AM	54.6	55.0	n/a	-	44.5	-
10:00 AM - 11:00 AM	48.6	55.0	n/a	-	44.5	-
ค่ามาตรฐาน						≤ 10

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

### มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

### Remark:

- ระดับเสียงจากแหล่งกำเนิด จากการตรวจวัด วันที่ 13-14 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-5 วันที่ตรวจวัด 13-14 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. : 24138253-6  
Parameter : เสียงรบกวน  
Location : บริเวณชุมชนหมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date : Dec 14 - 15, 2024  
Measurement by : Keerati Taweerat  
Sound Level Meter : 00873053



TESTING  
No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202910-1

Page 1 of 1

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
11:00 AM - 12:00 PM	56.7	46.4	56.3	-	43.5	12.8
12:00 PM - 01:00 PM	49.0	46.4	45.5	-	43.5	2.0
01:00 PM - 02:00 PM	44.8	46.4	n/a	-	43.5	-
02:00 PM - 03:00 PM	51.5	46.4	49.9	-	43.5	6.4
03:00 PM - 04:00 PM	50.5	46.4	48.4	-	43.5	4.9
04:00 PM - 05:00 PM	47.5	46.4	41.0	-	43.5	-2.5
08:00 AM - 09:00 AM	55.7	46.4	55.2	-	43.5	11.7
09:00 AM - 10:00 AM	49.1	46.4	45.8	-	43.5	2.3
10:00 AM - 11:00 AM	53.1	46.4	52.1	-	43.5	8.6
ค่ามาตรฐาน						≤ 10

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

### มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

### Remark:

- ระดับเสียงจากแหล่งกำเนิด จากการตรวจวัด วันที่ 14-15 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-6 วันที่ตรวจวัด 14-15 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. 24138253-7  
Parameter เสียงรบกวน  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484)  
Measurement Date Dec 15 - 16, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053



TESTING  
No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202911-1

Page 1 of 1

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
11:00 AM - 12:00 PM	49.4	48.3	42.9	-	42.4	0.5
12:00 PM - 01:00 PM	44.7	48.3	n/a	-	42.4	-
01:00 PM - 02:00 PM	43.2	48.3	n/a	-	42.4	-
02:00 PM - 03:00 PM	45.1	48.3	n/a	-	42.4	-
03:00 PM - 04:00 PM	45.2	48.3	n/a	-	42.4	-
04:00 PM - 05:00 PM	48.3	48.3	n/a	-	42.4	-
08:00 AM - 09:00 AM	54.0	48.3	52.6	-	42.4	10.2
09:00 AM - 10:00 AM	50.8	48.3	47.2	-	42.4	4.8
10:00 AM - 11:00 AM	48.8	48.3	39.2	-	42.4	-3.2
ค่ามาตรฐาน						≤ 10

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
  - ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567
- มาตรฐาน
- ประกาศกระทรวงอุตสาหกรรม เรื่อง ค่าเบี่ยงเบนระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
  - ประกาศกระทรวงสาธารณสุข เรื่อง ค่ามาตรฐานระดับเสียงทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
- Remark:
- ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 15-16 ธันวาคม 2567
  - ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-7 วันที่ตรวจวัด 15-16 ธันวาคม 2567)
  - n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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Approved by

*Kanokorn Anek*

Kanokorn Anek  
Senior Manager



## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. 24138253-8  
Parameter เสียงรบกวน  
Location บริเวณบ้านของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 09 - 10, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511



TESTING  
No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202912-1

Page 1 of 1

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	56.0	57.8	n/a	-	57.1	-
11:00 AM - 12:00 PM	56.0	57.8	n/a	-	57.1	-
12:00 PM - 01:00 PM	56.2	57.8	n/a	-	57.1	-
01:00 PM - 02:00 PM	56.9	57.8	n/a	-	57.1	-
02:00 PM - 03:00 PM	55.6	57.8	n/a	-	57.1	-
03:00 PM - 04:00 PM	55.8	57.8	n/a	-	57.1	-
04:00 PM - 05:00 PM	58.5	57.8	50.2	-	57.1	-6.9
08:00 AM - 09:00 AM	56.4	57.8	n/a	-	57.1	-
09:00 AM - 10:00 AM	55.9	57.8	n/a	-	57.1	-
ค่ามาตรฐาน						≤ 10

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
  - ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567
- มาตรฐาน
- ประกาศกระทรวงอุตสาหกรรม เรื่อง ค่าเบี่ยงเบนระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
  - ประกาศกระทรวงสาธารณสุข เรื่อง ค่ามาตรฐานระดับเสียงทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
- Remark:
- ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 09-10 ธันวาคม 2567
  - ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-8 วันที่ตรวจวัด 09-10 ธันวาคม 2567)
  - n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK



TESTING  
No.0009  
Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202913-1

Sample No. 24138253-9  
Parameter เสียงรบกวน  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 10 - 11, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Page 1 of 1

ระดับเสียง (dB(A))					
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		ค่าระดับการรบกวน
			กลางวัน	กลางคืน	
10:00 AM - 11:00 AM	55.4	56.5	n/a	-	55.8
11:00 AM - 12:00 PM	54.6	56.5	n/a	-	55.8
12:00 PM - 01:00 PM	54.5	56.5	n/a	-	55.8
01:00 PM - 02:00 PM	55.1	56.5	n/a	-	55.8
02:00 PM - 03:00 PM	55.8	56.5	n/a	-	55.8
03:00 PM - 04:00 PM	55.3	56.5	n/a	-	55.8
04:00 PM - 05:00 PM	57.7	56.5	51.5	-	-4.3
08:00 AM - 09:00 AM	56.5	56.5	n/a	-	55.8
09:00 AM - 10:00 AM	56.0	56.5	n/a	-	55.8

ค่ามาตรฐาน

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานและขีดจำกัดเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

Remark:

- ระดับเสียงจากแหล่งกำเนิด พิจารณาตรวจวัด วันที่ 10-11 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-9 วันที่ตรวจวัด 10-11 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK



TESTING  
No.0009  
Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202914-1

Sample No. 24138253-10  
Parameter เสียงรบกวน  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 11 - 12, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Page 1 of 1

ระดับเสียง (dB(A))					
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		ค่าระดับการรบกวน
			กลางวัน	กลางคืน	
10:00 AM - 11:00 AM	56.1	56.4	n/a	-	55.6
11:00 AM - 12:00 PM	55.4	56.4	n/a	-	55.6
12:00 PM - 01:00 PM	55.3	56.4	n/a	-	55.6
01:00 PM - 02:00 PM	55.4	56.4	n/a	-	55.6
02:00 PM - 03:00 PM	55.6	56.4	n/a	-	55.6
03:00 PM - 04:00 PM	56.0	56.4	n/a	-	55.6
04:00 PM - 05:00 PM	56.9	56.4	47.3	-	-8.3
08:00 AM - 09:00 AM	57.5	56.4	51.0	-	-4.6
09:00 AM - 10:00 AM	56.8	56.4	46.2	-	-9.4

ค่ามาตรฐาน

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานและขีดจำกัดเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

Remark:

- ระดับเสียงจากแหล่งกำเนิด พิจารณาตรวจวัด วันที่ 11-12 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-10 วันที่ตรวจวัด 11-12 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. 24138253-11  
Parameter เสียงรบกวน  
Location บริเวณรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 12 - 13, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

ระดับเสียง (dB(A))						
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับการรบกวน
			กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	56.5	56.5	n/a	-	55.5	-
11:00 AM - 12:00 PM	56.4	56.5	n/a	-	55.5	-
12:00 PM - 01:00 PM	56.4	56.5	n/a	-	55.5	-
01:00 PM - 02:00 PM	56.8	56.5	45.0	-	55.5	-10.5
02:00 PM - 03:00 PM	57.3	56.5	49.6	-	55.5	-5.9
03:00 PM - 04:00 PM	57.6	56.5	51.1	-	55.5	-4.4
04:00 PM - 05:00 PM	60.4	56.5	58.1	-	55.5	2.6
08:00 AM - 09:00 AM	56.5	56.5	n/a	-	55.5	-
09:00 AM - 10:00 AM	56.5	56.5	n/a	-	55.5	-
ค่ามาตรฐาน						≤ 10

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

### มาตรฐาน

1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

### Remark:

1. ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 12-13 ธันวาคม 2567
2. ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-11 วันที่ตรวจวัด 12-13 ธันวาคม 2567)
3. n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน



TESTING  
No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202915-1

Page 1 of 1



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Sample No. 24138253-12  
Parameter เสียงรบกวน  
Location บริเวณรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 13 - 14, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

ระดับเสียง (dB(A))						
เวลา	เสียงจาก แหล่งกำเนิด	เสียงขณะ ไม่มีการรบกวน	เสียงขณะมีการรบกวน		เสียงพื้นฐาน	ค่าระดับ การรบกวน
			กลางวัน	กลางคืน		
10:00 AM - 11:00 AM	56.4	55.7	48.1	-	55.0	-6.9
11:00 AM - 12:00 PM	56.4	55.7	48.1	-	55.0	-6.9
12:00 PM - 01:00 PM	56.2	55.7	46.6	-	55.0	-8.4
01:00 PM - 02:00 PM	56.3	55.7	47.4	-	55.0	-7.6
02:00 PM - 03:00 PM	56.8	55.7	50.3	-	55.0	-4.7
03:00 PM - 04:00 PM	56.6	55.7	49.3	-	55.0	-5.7
04:00 PM - 05:00 PM	60.0	55.7	58.0	-	55.0	3.0
08:00 AM - 09:00 AM	57.5	55.7	52.8	-	55.0	-2.2
09:00 AM - 10:00 AM	57.2	55.7	51.9	-	55.0	-3.1
ค่ามาตรฐาน						≤ 10

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

### มาตรฐาน

1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

### Remark:

1. ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 13-14 ธันวาคม 2567
2. ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-12 วันที่ตรวจวัด 13-14 ธันวาคม 2567)
3. n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน



TESTING  
No.0009

Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202916-1

Page 1 of 1

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Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Senior Manager

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Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Senior Manager





## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK



TESTING

No.0009  
Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202917-1

Page 1 of 1

Sample No. 24138253-13  
Parameter เสียงรบกวน  
Location บริเวณรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 14 - 15, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

ระดับเสียง (dB(A))					
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		ค่าระดับการรบกวน
			กลางวัน	กลางคืน	
10:00 AM - 11:00 AM	56.8	59.3	n/a	-	56.7
11:00 AM - 12:00 PM	56.5	59.3	n/a	-	56.7
12:00 PM - 01:00 PM	56.0	59.3	n/a	-	56.7
01:00 PM - 02:00 PM	56.2	59.3	n/a	-	56.7
02:00 PM - 03:00 PM	56.0	59.3	n/a	-	56.7
03:00 PM - 04:00 PM	55.7	59.3	n/a	-	56.7
04:00 PM - 05:00 PM	59.0	59.3	n/a	-	56.7
08:00 AM - 09:00 AM	56.2	59.3	n/a	-	56.7
09:00 AM - 10:00 AM	56.0	59.3	n/a	-	56.7
ค่ามาตรฐาน					≤ 10

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

Remark:

- ระดับเสียงจากแหล่งกำเนิด พิจารณารวจัด วันที่ 14-15 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-13 วันที่ตรวจวัด 14-15 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK



TESTING

No.0009  
Lot ID: 24138253  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report Number : 3202918-1

Page 1 of 1

Sample No. 24138253-14  
Parameter เสียงรบกวน  
Location บริเวณรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561)  
Measurement Date Dec 15 - 16, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

ระดับเสียง (dB(A))					
เวลา	เสียงจากแหล่งกำเนิด	เสียงขณะไม่มีการรบกวน	เสียงขณะมีการรบกวน		ค่าระดับการรบกวน
			กลางวัน	กลางคืน	
10:00 AM - 11:00 AM	55.0	58.0	n/a	-	56.9
11:00 AM - 12:00 PM	54.9	58.0	n/a	-	56.9
12:00 PM - 01:00 PM	54.9	58.0	n/a	-	56.9
01:00 PM - 02:00 PM	55.1	58.0	n/a	-	56.9
02:00 PM - 03:00 PM	55.3	58.0	n/a	-	56.9
03:00 PM - 04:00 PM	57.2	58.0	n/a	-	56.9
04:00 PM - 05:00 PM	58.3	58.0	46.5	-	56.9
08:00 AM - 09:00 AM	57.1	58.0	n/a	-	56.9
09:00 AM - 10:00 AM	59.7	58.0	54.8	-	56.9
ค่ามาตรฐาน					≤ 10

Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

มาตรฐาน

- ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
- ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานมลพิษทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

Remark:

- ระดับเสียงจากแหล่งกำเนิด พิจารณารวจัด วันที่ 15-16 ธันวาคม 2567
- ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.24138256-14 วันที่ตรวจวัด 15-16 ธันวาคม 2567)
- n/a: ไม่สามารถคำนวณระดับเสียงขณะมีการรบกวนเนื่องจากระดับเสียงจากแหล่งกำเนิดน้อยกว่าระดับเสียงขณะไม่มีการรบกวน

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202934-1



TESTING  
No.0009

Sample No. 24138256-1  
Parameter Noise  
Location บริเวณชุมชนหมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 09 - 10, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

Page 1 of 1

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	51.4	65.1	45.6
06:00 PM - 07:00 PM	57.1	75.5	46.7
07:00 PM - 08:00 PM	45.1	64.5	42.5
08:00 PM - 09:00 PM	42.6	58.0	41.1
09:00 PM - 10:00 PM	42.7	59.1	40.1
06:00 AM - 07:00 AM	52.9	82.7	46.4
07:00 AM - 08:00 AM	54.5	71.2	45.7

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202935-1



TESTING  
No.0009

Sample No. 24138256-2  
Parameter Noise  
Location บริเวณชุมชนหมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 10 - 11, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

Page 1 of 1

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	47.4	64.8	42.6
06:00 PM - 07:00 PM	46.8	65.8	44.9
07:00 PM - 08:00 PM	46.2	63.2	44.4
08:00 PM - 09:00 PM	47.1	63.8	42.8
09:00 PM - 10:00 PM	44.1	63.0	41.1
06:00 AM - 07:00 AM	52.3	81.6	45.8
07:00 AM - 08:00 AM	51.7	69.9	44.5

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report

TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202936-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-3  
Parameter Noise  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 11 - 12, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	51.5	71.9	43.7
06:00 PM - 07:00 PM	56.1	70.9	47.2
07:00 PM - 08:00 PM	44.7	69.7	42.4
08:00 PM - 09:00 PM	47.2	73.1	40.9
09:00 PM - 10:00 PM	46.5	70.3	40.9
06:00 AM - 07:00 AM	48.8	67.6	45.3
07:00 AM - 08:00 AM	48.3	71.9	42.3

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report

TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
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24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202937-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-4  
Parameter Noise  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 12 - 13, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	53.3	72.7	44.0
06:00 PM - 07:00 PM	58.0	73.7	48.9
07:00 PM - 08:00 PM	56.7	74.0	45.3
08:00 PM - 09:00 PM	46.9	64.9	42.6
09:00 PM - 10:00 PM	45.0	66.1	42.0
06:00 AM - 07:00 AM	47.8	75.2	43.0
07:00 AM - 08:00 AM	55.8	75.3	45.5

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received :Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202938-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-5  
Parameter Noise  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเขื่อนขันธ์ (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 13 - 14, 2024  
Measurement by Keerat Taweerat  
Sound Level Meter 00873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	55.4	74.7	47.7
06:00 PM - 07:00 PM	55.0	74.0	44.5
07:00 PM - 08:00 PM	43.9	63.1	40.9
08:00 PM - 09:00 PM	40.8	57.6	37.8
09:00 PM - 10:00 PM	42.6	61.7	38.9
06:00 AM - 07:00 AM	58.8	76.0	48.1
07:00 AM - 08:00 AM	54.7	76.6	46.0

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received :Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202939-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-6  
Parameter Noise  
Location บริเวณชุมชน หมู่ 2 บ้านคลองนครเขื่อนขันธ์ (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 14 - 15, 2024  
Measurement by Keerat Taweerat  
Sound Level Meter 00873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	50.0	60.5	47.2
06:00 PM - 07:00 PM	46.4	68.1	43.5
07:00 PM - 08:00 PM	44.3	59.8	42.2
08:00 PM - 09:00 PM	45.0	61.6	41.4
09:00 PM - 10:00 PM	42.9	55.3	40.3
06:00 AM - 07:00 AM	54.9	76.2	47.5
07:00 AM - 08:00 AM	51.9	72.3	48.5

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNN Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202940-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-7  
Parameter Noise  
Location บริเวณชุมชนหมู่ 2 บ้านคลองนครเนื่องเขต (GPS 47P 717738, 1521484) (Shut down)  
Measurement Date Dec 15 - 16, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00873053

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	48.5	73.2	39.7
06:00 PM - 07:00 PM	46.2	65.8	44.3
07:00 PM - 08:00 PM	48.3	72.4	42.4
08:00 PM - 09:00 PM	42.9	65.0	40.8
09:00 PM - 10:00 PM	43.5	63.5	38.5
06:00 AM - 07:00 AM	48.8	71.0	43.5
07:00 AM - 08:00 AM	54.2	75.0	47.1

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNN Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202941-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-8  
Parameter Noise  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 09 - 10, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	63.6	78.2	62.1
06:00 PM - 07:00 PM	57.6	64.6	56.6
07:00 PM - 08:00 PM	57.9	72.8	56.4
08:00 PM - 09:00 PM	58.8	74.4	57.5
09:00 PM - 10:00 PM	58.4	68.4	57.4
06:00 AM - 07:00 AM	57.8	65.6	57.1
07:00 AM - 08:00 AM	56.4	63.9	55.7

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202942-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-9  
Parameter Noise  
Location บริเวณรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 10 - 11, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	63.1	79.9	61.7
06:00 PM - 07:00 PM	56.5	64.5	55.7
07:00 PM - 08:00 PM	56.7	63.3	55.9
08:00 PM - 09:00 PM	56.2	63.6	55.4
09:00 PM - 10:00 PM	56.1	62.8	55.4
06:00 AM - 07:00 AM	57.8	76.0	56.6
07:00 AM - 08:00 AM	56.5	64.4	55.8

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202943-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-10  
Parameter Noise  
Location บริเวณรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 11 - 12, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	63.2	75.3	61.8
06:00 PM - 07:00 PM	57.5	86.7	55.3
07:00 PM - 08:00 PM	55.7	66.3	55.1
08:00 PM - 09:00 PM	56.4	69.4	55.6
09:00 PM - 10:00 PM	56.2	60.9	55.3
06:00 AM - 07:00 AM	58.0	68.4	57.1
07:00 AM - 08:00 AM	57.3	67.5	56.5

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202944-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-11  
Parameter Noise  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 12 - 13, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	64.1	79.2	62.5
06:00 PM - 07:00 PM	56.5	69.2	55.5
07:00 PM - 08:00 PM	56.3	72.0	55.3
08:00 PM - 09:00 PM	57.1	77.8	55.4
09:00 PM - 10:00 PM	55.6	62.4	54.9
06:00 AM - 07:00 AM	62.0	75.3	59.8
07:00 AM - 08:00 AM	56.8	65.7	56.2

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202945-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-12  
Parameter Noise  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 13 - 14, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	63.1	76.9	61.9
06:00 PM - 07:00 PM	55.7	60.9	55.0
07:00 PM - 08:00 PM	55.5	63.0	54.9
08:00 PM - 09:00 PM	55.6	64.4	54.9
09:00 PM - 10:00 PM	55.4	61.5	54.9
06:00 AM - 07:00 AM	57.5	67.3	56.6
07:00 AM - 08:00 AM	56.9	68.2	56.2

### Reference Method :

1. In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202946-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-13  
Parameter Noise  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 14 - 15, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	62.1	76.8	61.1
06:00 PM - 07:00 PM	59.3	68.8	56.7
07:00 PM - 08:00 PM	59.5	66.9	57.1
08:00 PM - 09:00 PM	58.3	62.7	57.0
09:00 PM - 10:00 PM	57.4	76.3	56.4
06:00 AM - 07:00 AM	57.4	69.1	56.0
07:00 AM - 08:00 AM	56.4	65.9	55.2

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## Analysis / Test Report



TESTING  
No.0009

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

Lot ID: 24138256  
Date Received : Dec 17, 2024  
Date Reported : Jan 07, 2025  
Report No. : 3202947-1

P/O :  
Project Name : Monitoring EIA  
Project Location : GNNK

Page 1 of 1

Sample No. 24138256-14  
Parameter Noise  
Location บริเวณริมรั้วของพื้นที่โครงการ (GPS 47P 717936, 1519561) (Shut down)  
Measurement Date Dec 15 - 16, 2024  
Measurement by Keerati Taweerat  
Sound Level Meter 00296511

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
05:00 PM - 06:00 PM	62.8	76.7	61.7
06:00 PM - 07:00 PM	60.5	71.0	58.1
07:00 PM - 08:00 PM	59.7	64.4	57.5
08:00 PM - 09:00 PM	58.3	63.8	56.7
09:00 PM - 10:00 PM	56.9	65.3	56.3
06:00 AM - 07:00 AM	58.0	68.4	56.9
07:00 AM - 08:00 AM	57.4	64.4	56.5

### Reference Method :

- In-house method : STM 06-001 based on ISO 1996-1 : 2016, ISO 1996-2 : 2017
- ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงการรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2567

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## ภาคผนวก ค.5

คุณภาพน้ำผิวดินในคลองพระองค์ไชยานุชิต



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 24108556

Date Received : Oct 07, 2024

Date Reported : Oct 15, 2024

Report Number : 3116519-1

Page 1 of 6

Sample Number	24108556-1						
Sampled Date	Oct 07, 2024 10:45 AM						
Sample Description	Surface water						
Location	คลองพระองค์ไชยราษฎร์ 1 กม. เหนือจุดสูบน้ำและกระจายน้ำ ของโครงการฯ						
Date Analysis Commenced	Oct 08, 2024						
Condition of Sample	Contained in one amber glass bottle, two BOD bottles 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	-	2.0	<2.0	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	4.2	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	31.0	n <sup>1</sup>	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Chlorine *	mg/L	-	0.1	0.1	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	158	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	42	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)

n<sup>1</sup>: Change from Natural condition not more than 3 degree C

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Approved by

Siriluk P.

Siriluk Bunnak  
Section Head

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 24108556

Date Received : Oct 07, 2024

Date Reported : Oct 15, 2024

Report Number : 3116519-1

Page 2 of 6

Sampling By : Chayanwut Chailhanit

Remark :

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

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK



TESTING  
No.0009

Lot ID: **24108556**  
Date Received : Oct 07, 2024  
Date Reported : Oct 15, 2024  
Report Number : 3116519-1

Page 3 of 6

**Sample Number** 24108556-2  
**Sampled Date** Oct 07, 2024 11:13 AM  
**Sample Description** Surface water  
**Location** คลองพระองค์ใหญ่ ตำบล บริเวณจุดสูบน้ำและจุดระบายน้ำของโครงการฯ  
**Date Analysis Commenced** Oct 08, 2024  
**Condition of Sample** Contained in one amber glass bottle, two BOD bottles 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	-	2.0	<2.0	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	4.0	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C	-	-	-	7.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	32.4	n <sup>1</sup>	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Chlorine *	mg/L	-	0.1	<0.1	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	212	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	37	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

**Guideline** : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act, B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)  
n<sup>1</sup>: Change from Natural condition not more than 3 degree C

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK



TESTING  
No.0009

Lot ID: **24108556**  
Date Received : Oct 07, 2024  
Date Reported : Oct 15, 2024  
Report Number : 3116519-1

Page 4 of 6

**Sampling By** : Chayanwut Chaihanit

Remark :

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- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location: GNNK



TESTING

No.0009

Lot ID: 24108556

Date Received : Oct 07, 2024

Date Reported : Oct 15, 2024

Report Number : 3116519-1

Page 5 of 6

Sample Number	24108556-3						
Sampled Date	Oct 07, 2024 11:25 AM						
Sample Description	Surface water						
Location	คลองพรหมคงวิทยานุกูล ฟ 1 กม. ห้วยจุดสูบน้ำและจุดระบายน้ำ ของโครงการฯ						
Date Analysis Commenced	Oct 08, 2024						
Condition of Sample	Contained in one amber glass bottle, two BOD bottles and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 degree C) *	mg/L	-	2.0	<2.0	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	4.2	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.2	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	32.5	n <sup>1</sup>	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Chlorine *	mg/L	-	0.1	<0.1	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	242	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	43	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

**Guideline :** Notification of the National Environmental Board, No. 8, B.E.2537 Issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published In the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location: GNNK



TESTING

No.0009

Lot ID: 24108556

Date Received : Oct 07, 2024

Date Reported : Oct 15, 2024

Report Number : 3116519-1

Page 6 of 6

Sampling By : Chayanwut Chaihanit

Remark :

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## ภาคผนวก ค.6

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ทรัพยากรชีวภาพในคลองพระองค์ไชยานุชิต



สถานีวิจัยประมงศรีราชา  
101/12 หมู่ 9 ต. บางพระ  
อ. ศรีราชา จ. ชลบุรี 20110  
โทร./โทรสาร. (038) 311379

Client : Gulf JP NNK Co., Ltd.

Address : 99 Moo 17 Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao, Thailand, 24000

Project Name : Monitoring EIA

Project Location : GNNK

#### รายงานผลการวิเคราะห์แหล่งก่อก่อนพืช

ตาราง ผลการวิเคราะห์แหล่งก่อก่อนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

ชนิดแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
<b>Division Cyanophyta</b>			
<b>Class Cyanophyceae</b>			
<b>Order Chroococcales</b>			
<b>Family Chroococcaceae</b>			
1. <i>Chroococcus minutus</i>	-	6,000	-
2. <i>Merismopedia</i> sp.	50,000	28,000	-
3. <i>Microcystis aeruginosa</i>	8,000	113,000	-
<b>Order Nostocales</b>			
<b>Family Oscillatoriaceae</b>			
4. <i>Lyngbya</i> sp.	-	11,000	-
5. <i>Oscillatoria agardhii</i>	212,000	181,000	12,000
6. <i>Oscillatoria planctonica</i>	58,000	119,000	-
7. <i>Oscillatoria princeps</i>	33,000	102,000	220,000
8. <i>Oscillatoria prolifica</i>	322,000	-	-

ตาราง ผลการวิเคราะห์แหล่งก่อก่อนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
9. <i>Oscillatoria</i> sp.	365,000	266,000	153,000
10. <i>Oscillatoria tenuis</i>	8,000	147,000	18,000
11. <i>Spirulina platensis</i>	278,000	944,000	18,000
<b>Family Nostocaceae</b>			
12. <i>Anabaenopsis</i> sp.	8,000	6,000	-
<b>Division Chlorophyta</b>			
<b>Class Chlorophyceae</b>			
<b>Order Volvocales</b>			
<b>Family Volvocaceae</b>			
13. <i>Eudorina elegans</i>	21,000	28,000	6,000
14. <i>Pandorina morum</i>	8,000	-	-
<b>Order Tetrasporales</b>			
<b>Family Palmellaceae</b>			
15. <i>Asterococcus superbis</i>	-	141,000	-
16. <i>Sphaerocystis Schroeteri</i>	66,000	-	-
<b>Order Chlorococcales</b>			
<b>Family Hydrodictyaceae</b>			
17. <i>Pediastrum duplex</i>	12,000	57,000	24,000
18. <i>Pediastrum simplex</i>	12,000	34,000	12,000
<b>Family Coelastraceae</b>			
19. <i>Coelastrum microporum</i>	-	6,000	6,000
<b>Family Oocystaceae</b>			
20. <i>Ankistrodesmus falcatus</i>	-	17,000	-
21. <i>Dictyosphaerium pulchellum</i>	4,000	90,000	6,000
22. <i>Oocystis elliptica</i>	-	11,000	-
23. <i>Planktosphaeria gelatinosa</i>	-	17,000	-
24. <i>Tetraedron gracile</i>	4,000	11,000	-

ตาราง ผลการวิเคราะห์แมลงก้นทองพิษ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแมลงก้นทองพิษ	ปริมาณแมลงก้นทองพิษ (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
25. <i>Tetraedron trigonum</i>	-	-	6,000
<b>Family Scenedesmaceae</b>			
26. <i>Actinastrum gracillimum</i>	4,000	-	-
27. <i>Crucigenia apiculata</i>	17,000	-	-
28. <i>Scenedesmus acuminatus</i>	-	282,000	-
29. <i>Scenedesmus arcuatus</i>	-	-	6,000
30. <i>Scenedesmus armatus</i>	42,000	6,000	-
31. <i>Scenedesmus bijuga</i>	4,000	-	-
32. <i>Scenedesmus dimorphus</i>	8,000	23,000	-
33. <i>Scenedesmus longus</i>	4,000	-	-
34. <i>Scenedesmus opoliensis</i>	4,000	-	-
35. <i>Scenedesmus quadricauda</i>	42,000	51,000	31,000
36. <i>Scenedesmus</i> sp.	8,000	-	-
<b>Order Zygematales</b>			
<b>Family Desmidiaceae</b>			
37. <i>Closterium acerosum</i>	12,000	-	12,000
38. <i>Closterium ehrenbergii</i>	4,000	-	-
39. <i>Closterium gracile</i>	8,000	-	-
40. <i>Closterium lineatum</i>	29,000	34,000	-
41. <i>Closterium ralfsii</i>	4,000	6,000	6,000
42. <i>Staurastrum</i> sp.	4,000	11,000	-
<b>Class Euglenophyceae</b>			
<b>Order Euglenales</b>			
<b>Family Euglenaceae</b>			
43. <i>Euglena acus</i>	357,000	977,000	6,000
44. <i>Euglena oxyuris</i>	58,000	226,000	12,000
45. <i>Euglena proxima</i>	62,000	339,000	-

ตาราง ผลการวิเคราะห์แมลงก้นทองพิษ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแมลงก้นทองพิษ	ปริมาณแมลงก้นทองพิษ (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
46. <i>Euglena</i> sp.	228,000	6,000	6,000
47. <i>Euglena splendens</i>	4,000	-	-
48. <i>Lepocinclis ovum</i>	199,000	638,000	12,000
49. <i>Phacus angulatus</i>	42,000	107,000	-
50. <i>Phacus hamatus</i>	46,000	113,000	6,000
51. <i>Phacus longicauda</i>	91,000	158,000	6,000
52. <i>Phacus myersi</i>	17,000	34,000	-
53. <i>Phacus platalea</i>	4,000	28,000	12,000
54. <i>Phacus pleuronectes</i>	-	11,000	-
55. <i>Phacus ramula</i>	12,000	-	-
56. <i>Phacus</i> sp.	42,000	23,000	-
57. <i>Phacus tortus</i>	357,000	299,000	-
58. <i>Phacus triqueter</i>	21,000	-	-
59. <i>Strombomonas acuminata</i>	95,000	-	18,000
60. <i>Strombomonas australica</i>	12,000	28,000	-
61. <i>Strombomonas fluviatilis</i>	46,000	11,000	12,000
62. <i>Strombomonas gibberosa</i>	54,000	266,000	24,000
63. <i>Strombomonas girardiana</i>	8,000	6,000	10,000
64. <i>Strombomonas</i> sp.	12,000	17,000	-
65. <i>Trachelomonas crebea</i>	315,000	593,000	6,000
66. <i>Trachelomonas daugerdiana</i>	-	85,000	12,000
67. <i>Trachelomonas hispida</i>	303,000	723,000	122,000
68. <i>Trachelomonas lacustris</i>	-	6,000	18,000
69. <i>Trachelomonas mirabilis</i>	261,000	96,000	18,000
70. <i>Trachelomonas rugulosa</i>	83,000	136,000	12,000
71. <i>Trachelomonas scabra</i>	-	6,000	-
72. <i>Trachelomonas similis</i>	-	11,000	6,000
73. <i>Trachelomonas</i> sp.	8,000	-	-



ตาราง ผลการวิเคราะห์แฟลกก์ตอนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแฟลกก์ตอนพืช	ปริมาณแฟลกก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
74. <i>Trachelomonas superba</i>	315,000	96,000	6,000
75. <i>Trachelomonas volzii</i>	37,000	79,000	24,000
<b>Division Chromophyta</b>			
<b>Class Bacillariophyceae</b>			
<b>Order Biddulphiales</b>			
<b>Suborder Coscinodiscineae</b>			
<b>Family Thalassiosiraceae</b>			
76. <i>Cyclotella meneghiniana</i>	-	68,000	-
77. <i>Cyclotella stelligera</i>	311,000	458,000	146,000
78. <i>Stephanodiscus hantzschii</i>	266,000	198,000	12,000
79. <i>Thalassiosira</i> sp.	108,000	136,000	24,000
<b>Family Melosiraceae</b>			
80. <i>Melosira varians</i>	62,000	-	-
<b>Family Aulacoseiraceae</b>			
81. <i>Aulacoseira granulata</i>	415,000	565,000	586,000
<b>Order Bacillariales</b>			
<b>Suborder Fragilariineae</b>			
<b>Family Fragilariaceae</b>			
82. <i>Fragilaria capucina</i>	-	11,000	-
83. <i>Synedra acus</i>	274,000	130,000	6,000
84. <i>Synedra rumpens</i>	4,000	11,000	18,000
85. <i>Synedra ulna</i>	116,000	153,000	43,000
<b>Family Tabellariaceae</b>			
86. <i>Tabellaria fenestrata</i>	4,000	6,000	12,000
<b>Suborder Bacillariineae</b>			
<b>Family Eunotiaceae</b>			
87. <i>Eunotia formina</i>	-	-	6,000

ตาราง ผลการวิเคราะห์แฟลกก์ตอนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแฟลกก์ตอนพืช	ปริมาณแฟลกก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
88. <i>Eunotia pectinalis</i>	17,000	68,000	43,000
<b>Family Achnantheaceae</b>			
89. <i>Cocconeis</i> sp.	-	-	6,000
<b>Family Cymbellaceae</b>			
90. <i>Cymbella affinis</i>	-	-	6,000
91. <i>Gomphonema parvulum</i>	-	68,000	-
<b>Family Naviculaceae</b>			
92. <i>Amphora</i> sp.	-	6,000	6,000
93. <i>Gyrosigma acuminatum</i>	4,000	-	-
94. <i>Gyrosigma attenuatum</i>	25,000	113,000	24,000
95. <i>Gyrosigma</i> sp.	-	17,000	12,000
96. <i>Navicula cuspidata</i>	12,000	28,000	-
97. <i>Navicula lanceolata</i>	-	-	6,000
98. <i>Pinnularia gibba</i>	4,000	23,000	12,000
99. <i>Pinnularia subanglica</i>	8,000	-	-
100. <i>Stauroneis anceps</i>	4,000	-	-
<b>Family Bacillariaceae</b>			
101. <i>Nitzschia paleacea</i>	4,000	-	-
102. <i>Nitzschia reversa</i>	-	6,000	-
103. <i>Nitzschia</i> sp.	12,000	17,000	-
<b>Family Rhopalodiaceae</b>			
104. <i>Epithemia argus</i>	-	6,000	-
<b>Family Surirellaceae</b>			
105. <i>Campylodiscus noricus</i>	-	-	6,000
106. <i>Surirella elegans</i>	21,000	17,000	12,000
107. <i>Surirella graciis</i>	-	-	6,000
108. <i>Surirella linearis</i>	-	6,000	-

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)


ชนิดแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
109. <i>Surirella ovata</i>	8,000	6,000	-
110. <i>Surirella robusta</i>	8,000	23,000	-
<b>Class Dinophyceae</b>			
<b>Order Gonyaulales</b>			
<b>Family Ceratiaceae</b>			
111. <i>Ceratium hirundinella</i>	-	17,000	-
<b>Order Peridinales</b>			
<b>Family Peridiniaceae</b>			
112. <i>Peridinium gatunense</i>	12,000	28,000	-
113. <i>Peridinium</i> sp.	4,000	62,000	-
<b>ชนิดแพลงก์ตอนพืช</b>	<b>83</b>	<b>83</b>	<b>55</b>
<b>ปริมาณแพลงก์ตอนพืช</b>	<b>6,455,000</b>	<b>10,113,000</b>	<b>1,876,000</b>
<b>ดัชนีความหลากหลายแพลงก์ตอนพืช</b>	<b>3.5724</b>	<b>3.5548</b>	<b>2.8490</b>
<b>ดัชนีความสม่ำเสมอแพลงก์ตอนพืช</b>	<b>0.8084</b>	<b>0.8045</b>	<b>0.7109</b>


**Sample Location :** 1. สถานี 24108652-1 : คลองพระองค์ไชยานุชิต ที่ 1 กม. เหนือจุดสูบน้ำและจุดระบายน้ำของโครงการฯ

2. สถานี 24108652-2 : คลองพระองค์ไชยานุชิต บริเวณจุดสูบน้ำและจุดระบายน้ำของโครงการฯ

3. สถานี 24108652-3 : คลองพระองค์ไชยานุชิต ที่ 1 กม. ท้ายจุดสูบน้ำและจุดระบายน้ำของโครงการฯ

**Condition of Sample :** contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

  
(นางสาวกนกวรรณ ขวาค่อน)  
ผู้วิเคราะห์

  
(นายอลงกต อินทรชาติ)  
หัวหน้าสถานีวิจัยประมงศรีราชา



สถานีวิจัยประมงศรีราชา  
101/12 หมู่ 9 ต. บางพระ  
อ. ศรีราชา จ. ชลบุรี 20110  
โทร./โทรสาร. (038) 311379

Client : Gulf JP NNK Co., Ltd.

Address : 99 Moo 17 Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao, Thailand, 24000

Project Name : Monitoring EIA

Project Location : GNNK

รายงานผลการวิเคราะห์แพลงก์ตอนสัตว์

ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

ชนิดแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
<b>Phylum Protozoa</b>			
<b>Subphylum Plasmodroma</b>			
<b>Class Sarcodina</b>			
<b>Subclass Rhizopoda</b>			
<b>Order Testacida</b>			
<b>Family Arcellidae</b>			
1. <i>Arcella</i> sp.	4,000	11,000	6,000
2. <i>Arcella vulgaris</i>	8,000	17,000	12,000
<b>Family Diffugiidae</b>			
3. <i>Diffugia acuminata</i>	4,000	11,000	12,000
4. <i>Diffugia lobostoma</i>	12,000	17,000	12,000
5. <i>Diffugia oblonga</i>	4,000	-	-
<b>Family Euglyphidae</b>			
6. <i>Euglypha acanthophora</i>	8,000	17,000	24,000

ตาราง ผลการวิเคราะห์แหล่งแพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
<b>Subclass Actinopoda</b>			
<b>Order Heliozoida</b>			
<b>Family Actinophryidae</b>			
7. <i>Actinosphaerium eichhorni</i>	8,000	-	122,000
<b>Subphylum Ciliophora</b>			
<b>Class Ciliata</b>			
<b>Subclass Spirotricha</b>			
<b>Order Oligotrichida</b>			
8. <i>Halteria</i> sp.	-	-	6,000
<b>Order Tintinnida</b>			
<b>Family Tintinnididae</b>			
9. <i>Tintinnidium</i> sp.	12,000	79,000	6,000
<b>Family Codonellidae</b>			
10. <i>Tintinnopsis lacustris</i>	-	6,000	-
11. <i>Tintinnopsis</i> sp.	58,000	96,000	12,000
<b>Subclass Peritricha</b>			
<b>Order Peritrichida</b>			
12. <i>Epistylis</i> sp.	-	6,000	-
13. <i>Pyxicula</i> sp.	4,000	-	-
<b>Phylum Rotifera</b>			
<b>Class Monogononta</b>			
<b>Order Ploima</b>			
<b>Family Brachionidae</b>			
14. <i>Anuraeopsis fissa</i>	12,000	11,000	-
15. <i>Brachionus angularis</i>	4,000	6,000	-
16. <i>Brachionus caudatus</i>	4,000	-	-
17. <i>Cohurella obtusa</i>	-	-	18,000

ตาราง ผลการวิเคราะห์แหล่งแพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

(ต่อ)

ชนิดแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
18. <i>Lepadella acuminata</i>	4,000	-	-
<b>Family Lecanidae</b>			
19. <i>Lecane bulla</i>	-	-	18,000
<b>Family Notommatidae</b>			
20. <i>Cephalodella gibba</i>	-	6,000	-
<b>Family Tricerceridae</b>			
21. <i>Trichocerca pusilla</i>	-	6,000	-
<b>Family Asplanchnidae</b>			
22. <i>Asplanchna priodonta</i>	8,000	-	-
<b>Family Synchaetidae</b>			
23. <i>Polyarthra dolichoptera</i>	12,000	6,000	-
24. <i>Polyarthra vulgaris</i>	8,000	17,000	-
<b>Order Flosculariaceae</b>			
<b>Family Testudinellidae</b>			
25. <i>Filinia longiseta</i>	-	6,000	-
26. <i>Filinia terminalis</i>	4,000	17,000	-
<b>Class Digononta</b>			
<b>Family Philodinidae</b>			
27. <i>Rotaria rotatoria</i>	8,000	-	-
<b>Phylum Arthropoda</b>			
<b>Class Crustacea</b>			
<b>Subclass Branchiopoda</b>			
<b>Order Diplostraca</b>			
<b>Suborder Cladocera</b>			
<b>Family Daphnidae</b>			
28. <i>Ceriodaphnia reticulata</i>	4,000	6,000	-


ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)


(ต่อ)

ชนิดแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)		
	24108652-1	24108652-2	24108652-3
<b>Subclass Copepoda</b>			
29. Copepod nauplius	8,000	11,000	-
<b>Order Cyclopoida</b>			
30. Cyclopoid copepod	-	6,000	-
<b>ชนิดแพลงก์ตอนสัตว์</b>	<b>21</b>	<b>20</b>	<b>11</b>
<b>ปริมาณแพลงก์ตอนสัตว์</b>	<b>198,000</b>	<b>358,000</b>	<b>248,000</b>
<b>ดัชนีความหลากหลายแพลงก์ตอนสัตว์</b>	<b>2.6563</b>	<b>2.4547</b>	<b>1.8120</b>
<b>ดัชนีความสม่ำเสมอแพลงก์ตอนสัตว์</b>	<b>0.8725</b>	<b>0.8194</b>	<b>0.7557</b>

- Sample Location :**
- สถานี 24108652-1 : คลองพระองค์ไชยานุจิต ที่ 1 กม. เหนือจุดสูบน้ำและจุดระบายน้ำ ของโครงการฯ
  - สถานี 24108652-2 : คลองพระองค์ไชยานุจิต บริเวณจุดสูบน้ำและจุดระบายน้ำ ของโครงการฯ
  - สถานี 24108652-3 : คลองพระองค์ไชยานุจิต ที่ 1 กม. ห้ายจุดสูบน้ำและจุดระบายน้ำ ของโครงการฯ

**Condition of Sample :** contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

  
(นางสาวกนกวรรณ ขวาค่อน)  
ผู้วิเคราะห์

  
(นายอลงกต อินทรชาติ)  
หัวหน้าสถานีวิจัยประมงศรีราชา



สถานีวิจัยประมงศรีราชา

101/12 หมู่ 9 ต. บางพระ

อ. ศรีราชา จ. ชลบุรี 20110

โทร./โทรสาร. (038) 311379

Client : Gulf JP NNK Co., Ltd.

Address : 99 Moo 17 Klong Nakorn Neangket, Muang Chacheungsao, Chacheungsao, Thailand, 24000

Project Name : Monitoring EIA

Project Location : GNNK

รายงานผลการวิเคราะห์สัตว์หน้าดิน

ตาราง ผลการวิเคราะห์สัตว์หน้าดิน (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567)

สกุลสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)		
	24108663-1	24108663-2	24108663-3
<b>Phylum Annelida</b>			
<b>Class Clitellata</b>			
<b>Order Lumbriculida</b>			
<b>Family Lumbriculidae</b>			
<i>Lumbriculus</i> sp. (ไส้เดือนน้ำ)	15	-	-
<b>Order Rhynchobdellida</b>			
<b>Family Glossiphoniidae</b>			
<i>Helobdella</i> sp. (ปลิงน้ำจืด)	60	15	-
<b>Phylum Arthropoda</b>			
<b>Class Insecta</b>			
<b>Order Diptera</b>			
<b>Family Chironomidae</b>			
<i>Chironomus</i> sp. (หนอนแดง)	-	-	30

ตาราง ผลการวิเคราะห์สัตว์หน้าดิน (เก็บตัวอย่างวันที่ 7 ตุลาคม 2567) (ต่อ)

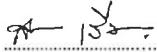
สกุลสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)		
	24108663-1	24108663-2	24108663-3
Phylum Mollusca			
Class Gastropoda			
Order Architaenioglossa			
Family Bithyniidae			
Bithynia sp. (หอยไข่)	-	-	15
Family Thiariidae			
Melanoides sp. (หอยเชอรี่)	-	-	89
Family Viviparidae			
Filopaludina sp. (หอยขม)	-	60	-
Trochotaia sp. (หอยเวียน)	-	30	-
รวมจำนวนสกุลที่พบทั้งหมด	2	3	3
รวมปริมาณที่พบทั้งหมด	75	105	134
ค่าดัชนีความหลากหลาย	0.5004	0.9557	0.8520


Sample Location : 1. สถานี 24108663-1 : คลองพระองค์ไชยานุชิตที่ 1 กม. เหนือจุดสูบน้ำและจุดระบายน้ำของ  
โครงการฯ

2. สถานี 24108663-2 : คลองพระองค์ไชยานุชิต บริเวณจุดสูบน้ำและจุดระบายน้ำของ  
โครงการฯ

3. สถานี 24108663-3 : คลองพระองค์ไชยานุชิตที่ 1 กม. ท้ายจุดสูบน้ำและจุดระบายน้ำของ  
โครงการฯ

Condition of Sample : contained in one plastic zip bag

  
.....  
(นายสาโรจน์ เริ่มคำรห์)  
ผู้วิเคราะห์

  
.....  
(นายอลงกต อินทรชาติ)  
หัวหน้าสถานีวิจัยประมงศรีราชา



## ภาคผนวก ค.7

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คุณภาพน้ำทิ้งจากบ่อกักน้ำทิ้ง



## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 2466345

Date Received : Jul 01, 2024

Date Reported : Jul 08, 2024

Report Number : 3048518-1

Page 1 of 1

Sample Number	2466345-1						
Sampled Date	Jul 01, 2024 10:08 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Jul 02, 2024						
Condition of Sample	Contained In two BOD bottles, one amber glass bottle and three 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	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Bangkok
Oil & Grease *	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C *		-	-	7.6	6.5-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Bangkok
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Cl (F)	Bangkok
Temperature *	Degree C	-	-	30.6	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	996	≤1300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampling By : Chulladet Warin ทะเบียนเลขที่ ๖-204-๖-0029

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

Siriluk P.

Siriluk Bunnak

Section Head

ทะเบียนเลขที่ ๖-204-๖-0013

Approved by

Kanokkorn Anek

Assistant General Manager

ทะเบียนเลขที่ ๖-204-๖-0004

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. No part of this report may be reproduced in any form without written consent from the laboratory.  
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 2466345

Date Received : Jul 01, 2024

Date Reported : Jul 09, 2024

Report Number : 3048518-2 C13-1

Page 1 of 1

Sample Number	2466345-1						
Sampled Date	Jul 01, 2024 10:08 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Jul 02, 2024						
Condition of Sample	Contained In two BOD bottles, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	meq/L	0.003	0.005	4.47	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	meq/L	0.003	0.005	3.56	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR		-	-	4.00	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	meq/L	0.003	0.005	8.01	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Conductivity at 25 degree C	micromhos/cm	-	0.5	1554	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chulladet Warin

Remark :

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

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 2472727

Date Received : Aug 05, 2024

Date Reported : Aug 16, 2024

Report Number : 3035021-1 C13-1

Page 1 of 1

Sample Number	2472727-1						
Sampled Date	Aug 05, 2024 9:31 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Aug 06, 2024						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and three 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	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Bangkok
Oil & Grease *	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C *		-	-	7.5	6.5-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Bangkok
Residual Free Chlorine *	mg/L	-	0.1	0.1	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Cl (F)	Bangkok
Temperature *	Degree C	-	-	29.9	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	832	≤1300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chulladet Warin

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

Siriluk P.

Siriluk Bunnak  
Section Head  
หมายเลขโทรศัพท์ ๖-204-๖-0013

Approved by

Kanokkorn Anek

Kanokkorn Anek  
Assistant General Manager  
หมายเลขโทรศัพท์ ๖-204-๖-0004

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 2472727

Date Received : Aug 05, 2024

Date Reported : Aug 16, 2024

Report Number : 3035021-2 C13-1

Page 1 of 1

Sample Number	2472727-1						
Sampled Date	Aug 05, 2024 9:31 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Aug 06, 2024						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	mg/L	0.003	0.005	3.58	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.003	0.005	2.60	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR		-	-	3.62	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.003	0.005	6.36	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Conductivity at 25 degree C	micromhos/cm	-	0.5	1344	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chulladet Warin

Remark :

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

Approved by

Sawitree N.

Sawitree Noisanglam  
Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location: GNNK



TESTING  
No.0009

Lot ID: 24100661

Date Received : Sep 02, 2024

Date Reported : Sep 11, 2024

Report Number : 3097130-2 C13-1

Page 1 of 1

Sample Number	24100661-1						
Sampled Date	Sep 02, 2024 10:50 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Sep 03, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials, two BOD bottles and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	meq/L	0.003	0.005	3.82	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	meq/L	0.003	0.005	2.53	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *	-	-	0.10	4.21	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	meq/L	0.003	0.005	7.51	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Conductivity at 25 degree C *	micromhos/cm	-	0.5	1503	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chulladet Warin

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Approved by

*Chanatt L.*

Chanattagarn Imchom  
Section Head

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location: GNNK



TESTING  
No.0009

Lot ID: 24100661

Date Received : Sep 02, 2024

Date Reported : Sep 11, 2024

Report Number : 3097130-1 C13-1

Page 1 of 1

Sample Number	24100661-1						
Sampled Date	Sep 02, 2024 10:50 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Sep 03, 2024						
Condition of Sample	Contained in one amber glass bottle, two glass vials, two BOD bottles and five 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	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B, part 4500 - O G	Bangkok
Oil & Grease *	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Bangkok
pH at 25 degree C *	-	-	-	7.8	6.5-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Bangkok
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-Cl (F)	Bangkok
Temperature *	Degree C	-	-	30.9	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	844	≤1300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chulladet Warin

Remark :

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Technical Management

*Chanatt L.*

Chanattagarn Imchom  
Section Head  
ทะเบียนเลขที่ ร-204-จ-0008

Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Assistant General Manager  
ทะเบียนเลขที่ ร-204-ก-0004

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TESTING  
No. 0009

**Lot ID: 24108562**

Date Received : Oct 07, 2024

Date Reported : Oct 16, 2024

Report Number : 3116526-2 C13-1

Report Number : 3116526-2 C13-1

Page 1 of 1

**Sample Number** 24108562m

**Sampled Date** Dct 07, 2024 10:00 AM

<b>Sample Description</b>	wastewater
---------------------------	------------

**Location** บ่อพักน้ำทิ้ง (waste water Retention PondB)

Date Analysis Commenced Oct 08, 2024

<b>Condition of Sample</b>	Contained in one amber glass bottle, 100 CO <sub>2</sub> bottles and three plastic bottles, sample containers comply to pretreatment and preservation standards IAPHA, USEPA
----------------------------	--

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
ODv )5 days at 20 degree C	b g/L	m	2.0	<2.0	≤20	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 5210 Q, part 4500 mD G	Ongkok
DII & Grease	b g/L	m	-	<-	≤5	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 5520 O	Ongkok
pH at 25 degree C		m	m	7.7	6.5-8.5	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 4500 mH )OB	Ongkok
Residual Free Chlorine *	b g/L	m	0.1	<0.1	≤1	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 4500mD )FB	Ongkok
Teb perature *	vegree C	m	m	-1.0	≤40	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 2550 O	Ongkok
Total v lssolved solids v ried at 180 degree C	b g/L	m	5	696	≤1-00	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 2540 C	Ongkok
Total Suspended Solids v ried at 10-nd05 degree C	b g/L	m	5	<5	≤-0	Standard Methods for the Exab ination of w ater and waste( ater. APHA, Aw w A & w EF, 24th ed., 202-, part 2540 v	Ongkok

**Guideline :** water Characteristics v Ischarge Into Irrigation Systeb , Royal Irrigation v epartb ent No.18/2561.

**Sampling By :** Chayan( ut Chaihanlt ๖๓04๗๐118

Reb ark :

- LDv : Lib It of v detection
- "n" : Lo( er than LDQ )Lib It of QuantitationB/ LDR )Lib It of ReportingB
- AnalyteSBbarked \* Is/are not included in scope of Accreditation ISD/IEC 17025.
- The laVratory has Veen accepted as an accredited laVratory cob plying ( ith the ISD/IEC 17025.

**Approved by**

Chanattagarn Imchom  
Section Head

### Technical Management

Sriruk Ounnak  
 Section Head

ทะเบียนเลขที่ วท04กต001-

**Approved by**

Kanokkorn Anek  
Assistant General Manager

ทะเบียนเลขที่ วก๒04กคก๒004

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location: GNNK



TESTING  
No.0009

Lot ID: 24120033

Date Received : Nov 04, 2024

Date Reported : Nov 13, 2024

Report Number : 3142397-1 C13-1

Page 1 of 1

Sample Number	24120033-1						
Sampled Date	Nov 04, 2024 10:24 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Nov 05, 2024						
Condition of Sample	Contained in one amber glass bottle, two BOD bottles and three 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	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Bangkok
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.9	6.5-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	30.3	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	728	≤1300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	5	≤30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chayanwut Chaihanit ทะเบียนเลขที่ ๖-204-๖-0118

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

Siriluk P.

Siriluk Bunnak  
Section Head

ทะเบียนเลขที่ ๖-204-๖-0013

Approved by

Kanokkorn Anek

Kanokkorn Anek  
Assistant General Manager

ทะเบียนเลขที่ ๖-204-๖-0004

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24120033

Date Received : Nov 04, 2024

Date Reported : Nov 13, 2024

Report Number : 3142397-2 C13-1

Page 1 of 1

Sample Number	24120033-1						
Sampled Date	Nov 04, 2024 10:24 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Nov 05, 2024						
Condition of Sample	Contained in one amber glass bottle, two BOD bottles and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	meq/L	0.003	0.005	3.32	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	meq/L	0.003	0.005	2.45	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR		-	0.10	3.75	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	meq/L	0.003	0.005	6.37	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Conductivity at 25 degree C	micromhos/cm	-	0.5	1261	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Residual Free Chlorine	mg/L	-	0.1	<0.1	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chayanwut Chaihanit

Remark :

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 24132050

Date Received : Dec 02, 2024

Date Reported : Dec 11, 2024

Report Number : 3171628-1 C13-1

Page 1 of 1

Sample Number	24132050-1						
Sampled Date	Dec 02, 2024 10:11 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Dec 03, 2024						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle, two glass vials and five 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	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Bangkok
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	8.0	6.5-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Bangkok
Temperature *	Degree C	-	-	28.1	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	664	≤1300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	12	≤30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chayanwut Chalhanit ระเบียบเลขที่ ร-204-ร-0118

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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Technical Management

*Savitree N.*

Savitree Naisanglam  
Manager

ระเบียบเลขที่ ร-204-ร-0007

Approved by

*Kanokorn Anek*

Kanokorn Anek  
Assistant General Manager

ระเบียบเลขที่ ร-204-ร-0004

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand  
24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK



TESTING  
No.0009

Lot ID: 24132050

Date Received : Dec 02, 2024

Date Reported : Dec 11, 2024

Report Number : 3171628-2 C13-1

Page 1 of 1

Sample Number	24132050-1						
Sampled Date	Dec 02, 2024 10:11 AM						
Sample Description	Wastewater						
Location	บ่อกักน้ำทิ้ง (Wastewater Retention Pond)						
Date Analysis Commenced	Dec 03, 2024						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle, two glass vials and five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium *	meq/L	0.003	0.005	3.98	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium *	meq/L	0.003	0.005	1.92	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *		-	-	2.49	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium *	meq/L	0.003	0.005	4.27	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Conductivity at 25 degree C *	micromhos/cm	-	0.5	1121	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok

Guideline : Water Characteristics Discharge Into Irrigation System, Royal Irrigation Department No.18/2561.

Sampled By : Chayanwut Chalhanit

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.

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101292

Date Received : Sep 09, 2024

Date Reported : Sep 13, 2024

Report Number: 3110305-1

Page 1 of 1

Sample Number 24101292-1  
Parameter Noise (Leq 8 hrs.)  
Location บึงฉวน Gas Turbine 1  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:50 AM - 09:50 AM	79.4	84.3	77.4
09:50 AM - 10:50 AM	79.3	83.8	77.4
10:50 AM - 11:50 AM	78.7	83.5	77.0
11:50 AM - 12:50 PM	73.5	82.3	69.9
12:50 PM - 01:50 PM	78.8	83.8	74.6
01:50 PM - 02:50 PM	78.2	83.0	76.8
02:50 PM - 03:50 PM	78.7	83.2	77.1
03:50 PM - 04:50 PM	78.8	83.3	76.9

Leq Average 8 hrs. (dB(A))

78.5

Lmax (dB(A))

84.3

Standard (dB(A))

90

140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย  
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101292

Date Received : Sep 09, 2024

Date Reported : Sep 13, 2024

Report Number: 3110307-1

Page 1 of 1

Sample Number 24101292-2  
Parameter Noise (Leq 8 hrs.)  
Location บึงฉวน Gas Turbine 2  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:03 AM - 10:03 AM	82.2	90.1	80.0
10:03 AM - 11:03 AM	81.9	87.8	80.1
11:03 AM - 12:03 PM	82.7	87.7	80.4
12:03 PM - 01:03 PM	78.8	87.3	74.7
01:03 PM - 02:03 PM	80.8	87.8	75.0
02:03 PM - 03:03 PM	83.2	88.9	80.4
03:03 PM - 04:03 PM	82.2	87.8	80.2
04:03 PM - 05:03 PM	82.2	88.1	80.4

Leq Average 8 hrs. (dB(A))

81.9

Lmax (dB(A))

90.1

Standard (dB(A))

90

140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย  
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P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101292  
Date Received : Sep 09, 2024  
Date Reported : Sep 13, 2024  
Report Number: 3110308-1

Page 1 of 1

Sample Number	24101292-3		
Parameter	Noise (Leq 8 hrs.)		
Location	บริเวณ Steam Turbine		
Measurement Date	Sep 09, 2024		
Measurement by	Phongsiri Somkaew		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:46 AM - 09:46 AM	80.8	81.4	80.6
09:46 AM - 10:46 AM	80.7	81.1	80.6
10:46 AM - 11:46 AM	81.0	81.6	80.9
11:46 AM - 12:46 PM	80.9	81.6	80.6
12:46 PM - 01:46 PM	80.9	81.7	80.7
01:46 PM - 02:46 PM	81.0	81.5	80.9
02:46 PM - 03:46 PM	81.1	81.5	81.0
03:46 PM - 04:46 PM	81.2	81.8	81.1
Leq Average 8 hrs. (dB(A))	81.0		
Lmax (dB(A))		81.8	
Standard (dB(A))	90	140	
Reference Method : Based on ISO1996-1 and 1996-2			
Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการวัดความดังของเสียง ในการประกอบกิจการโรงงานเกี่ยวกับสถานะแวดล้อมในการทำงาน พ.ศ.๒๕๕๖			

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P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101292  
Date Received : Sep 09, 2024  
Date Reported : Sep 13, 2024  
Report Number: 3110309-1

Page 1 of 1

Sample Number	24101292-4		
Parameter	Noise (Leq 8 hrs.)		
Location	บริเวณ HRSG 1		
Measurement Date	Sep 09, 2024		
Measurement by	Phongsiri Somkaew		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:51 AM - 09:51 AM	77.4	79.6	76.7
09:51 AM - 10:51 AM	77.3	79.6	76.6
10:51 AM - 11:51 AM	76.7	79.0	76.1
11:51 AM - 12:51 PM	77.3	78.5	76.1
12:51 PM - 01:51 PM	77.2	79.9	76.5
01:51 PM - 02:51 PM	76.9	79.2	76.3
02:51 PM - 03:51 PM	77.5	79.5	76.9
03:51 PM - 04:51 PM	77.6	78.8	76.4
Leq Average 8 hrs. (dB(A))	77.2		
Lmax (dB(A))		79.9	
Standard (dB(A))	90	140	
Reference Method : Based on ISO1996-1 and 1996-2			
Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการวัดความดังของเสียง ในการประกอบกิจการโรงงานเกี่ยวกับสถานะแวดล้อมในการทำงาน พ.ศ.๒๕๕๖			

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P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101292

Date Received : Sep 09, 2024

Date Reported : Sep 13, 2024

Report Number: 3110310-1

Page 1 of 1

Sample Number 24101292-5  
Parameter Noise (Leq 8 hrs.)  
Location บึงนา HRSG 2  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:38 AM - 09:38 AM	77.6	82.2	76.3
09:38 AM - 10:38 AM	77.4	81.6	76.2
10:38 AM - 11:38 AM	77.2	81.1	76.2
11:38 AM - 12:38 PM	75.6	80.8	74.3
12:38 PM - 01:38 PM	76.5	81.2	75.0
01:38 PM - 02:38 PM	77.3	81.5	76.1
02:38 PM - 03:38 PM	77.4	82.4	76.2
03:38 PM - 04:38 PM	77.4	81.3	76.4

Leq Average 8 hrs. (dB(A)) 77.1

Lmax (dB(A))

82.4

Standard (dB(A))

90

140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการวัดระดับความดังเสียง  
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P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101292

Date Received : Sep 09, 2024

Date Reported : Sep 13, 2024

Report Number: 3110311-1

Page 1 of 1

Sample Number 24101292-6  
Parameter Noise (Leq 8 hrs.)  
Location บึงนา Cooling Tower  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:43 AM - 09:43 AM	76.8	79.8	76.6
09:43 AM - 10:43 AM	76.7	78.7	76.6
10:43 AM - 11:43 AM	76.5	78.7	76.4
11:43 AM - 12:43 PM	76.5	78.9	76.4
12:43 PM - 01:43 PM	76.6	78.8	76.4
01:43 PM - 02:43 PM	76.6	79.0	76.5
02:43 PM - 03:43 PM	76.7	78.9	76.5
03:43 PM - 04:43 PM	76.7	79.1	76.6

Leq Average 8 hrs. (dB(A)) 76.6

Lmax (dB(A))

79.8

Standard (dB(A))

90

140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการวัดระดับความดังเสียง  
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## Analysis / Test Report

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P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24131989  
Date Received : Dec 06, 2024  
Date Reported : Dec 10, 2024  
Report Number: 3188998-1

Page 1 of 1

Sample Number	24131989-1
Parameter	Noise (Leq 8 hrs.)
Location	บริเวณ Gas Turbine 1
Measurement Date	Dec 06, 2024
Measurement by	Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:30 AM - 09:30 AM	71.7	74.5	70.6
09:30 AM - 10:30 AM	71.3	74.9	70.1
10:30 AM - 11:30 AM	72.0	74.8	70.8
11:30 AM - 12:30 PM	72.8	75.3	71.9
12:30 PM - 01:30 PM	79.7	84.5	73.3
01:30 PM - 02:30 PM	81.8	85.1	79.7
02:30 PM - 03:30 PM	81.9	85.2	80.0
03:30 PM - 04:30 PM	82.3	85.2	80.4
Leq Average 8 hrs. (dB(A))	79.0		
Lmax (dB(A))		85.2	
Standard (dB(A))	90	140	
Reference Method : Based on ISO1996-1 and 1996-2			
Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๕๖			

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P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24131989  
Date Received : Dec 06, 2024  
Date Reported : Dec 10, 2024  
Report Number: 3188999-1

Page 1 of 1

Sample Number	24131989-2
Parameter	Noise (Leq 8 hrs.)
Location	บริเวณ Gas Turbine 2
Measurement Date	Dec 06, 2024
Measurement by	Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:30 AM - 09:30 AM	74.5	78.4	73.4
09:30 AM - 10:30 AM	74.5	79.0	73.3
10:30 AM - 11:30 AM	74.9	79.7	73.5
11:30 AM - 12:30 PM	75.1	78.1	73.6
12:30 PM - 01:30 PM	84.1	89.4	77.0
01:30 PM - 02:30 PM	85.6	89.8	83.2
02:30 PM - 03:30 PM	85.2	89.2	82.7
03:30 PM - 04:30 PM	83.9	88.2	80.6
Leq Average 8 hrs. (dB(A))	82.2		
Lmax (dB(A))		89.8	
Standard (dB(A))	90	140	
Reference Method : Based on ISO1996-1 and 1996-2			
Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๕๖			

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## Analysis / Test Report

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P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131989

Date Received : Dec 06, 2024

Date Reported : Dec 10, 2024

Report Number: 3189000-1

Page 1 of 1

Sample Number	24131989-3
Parameter	Noise (Leq 8 hrs.)
Location	บริเวณ Steam Turbine
Measurement Date	Dec 06, 2024
Measurement by	Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:30 AM - 09:30 AM	80.6	81.0	80.4
09:30 AM - 10:30 AM	80.5	81.1	80.4
10:30 AM - 11:30 AM	80.5	81.2	80.4
11:30 AM - 12:30 PM	80.7	81.3	80.6
12:30 PM - 01:30 PM	80.7	81.4	80.5
01:30 PM - 02:30 PM	80.8	81.5	80.7
02:30 PM - 03:30 PM	80.7	81.5	80.5
03:30 PM - 04:30 PM	80.6	81.3	80.4

Leq Average 8 hrs. (dB(A)) 80.6

Lmax (dB(A)) 81.5

Standard (dB(A)) 90 140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย  
ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๔๖

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131989

Date Received : Dec 06, 2024

Date Reported : Dec 10, 2024

Report Number: 3189001-1

Page 1 of 1

Sample Number	24131989-4
Parameter	Noise (Leq 8 hrs.)
Location	บริเวณ HRSG 1
Measurement Date	Dec 06, 2024
Measurement by	Phongsiri Somkaew

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:30 AM - 09:30 AM	75.7	76.4	75.6
09:30 AM - 10:30 AM	75.7	76.5	75.5
10:30 AM - 11:30 AM	75.6	76.5	75.4
11:30 AM - 12:30 PM	75.5	76.3	75.2
12:30 PM - 01:30 PM	75.3	77.1	74.7
01:30 PM - 02:30 PM	75.2	77.8	74.6
02:30 PM - 03:30 PM	75.1	77.0	74.6
03:30 PM - 04:30 PM	75.4	77.7	74.9

Leq Average 8 hrs. (dB(A)) 75.4

Lmax (dB(A)) 77.8

Standard (dB(A)) 90 140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย  
ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๔๖

Technical Management

*Orawan R.*  
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Scientist (3)

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131989

Date Received : Dec 06, 2024

Date Reported : Dec 10, 2024

Report Number: 3189002-1

Page 1 of 1

Sample Number	24131989-5		
Parameter	Noise (Leq 8 hrs.)		
Location	บริเวณ HRSG 2		
Measurement Date	Dec 06, 2024		
Measurement by	Phongsiri Somkaew		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:30 AM - 09:30 AM	78.3	82.5	77.1
09:30 AM - 10:30 AM	78.4	83.4	77.2
10:30 AM - 11:30 AM	78.4	82.3	77.4
11:30 AM - 12:30 PM	78.6	83.2	77.3
12:30 PM - 01:30 PM	78.4	82.6	77.2
01:30 PM - 02:30 PM	78.2	82.1	77.2
02:30 PM - 03:30 PM	76.6	81.8	75.3
03:30 PM - 04:30 PM	77.5	82.2	76.0

Leq Average 8 hrs. (dB(A))

78.1

Lmax (dB(A))

83.4

Standard (dB(A))

140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานคุ้มครองความปลอดภัย

ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๔๖

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131989

Date Received : Dec 06, 2024

Date Reported : Dec 10, 2024

Report Number: 3189003-1

Page 1 of 1

Sample Number	24131989-6		
Parameter	Noise (Leq 8 hrs.)		
Location	บริเวณ Cooling Tower		
Measurement Date	Dec 06, 2024		
Measurement by	Phongsiri Somkaew		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:30 AM - 09:30 AM	79.0	80.9	78.8
09:30 AM - 10:30 AM	78.9	80.6	78.7
10:30 AM - 11:30 AM	78.9	80.7	78.7
11:30 AM - 12:30 PM	78.8	80.7	78.7
12:30 PM - 01:30 PM	79.0	80.9	78.8
01:30 PM - 02:30 PM	79.0	80.9	78.8
02:30 PM - 03:30 PM	79.1	81.3	78.9
03:30 PM - 04:30 PM	79.2	81.2	79.0

Leq Average 8 hrs. (dB(A))

79.0

Lmax (dB(A))

81.3

Standard (dB(A))

140

Reference Method : Based on ISO1996-1 and 1996-2

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานคุ้มครองความปลอดภัย

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao  
Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101293  
Date Received : Sep 09, 2024  
Date Reported : Sep 11, 2024  
Report Number: 3098527-1

Page 1 of 7

Sample Number 24101293-1  
Parameter Heat Stress (Sampling Time : 10:00 AM - 12:00 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ปลูกฝังงาน 1 พื้น (ข้อ-นามสกุล ปลูกฝังงาน : - แทน : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
บริเวณ Condenser Exhaust Unit	120	29.2	27.3	33.7	33.4
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

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Supot Salamteh  
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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao  
Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101293  
Date Received : Sep 09, 2024  
Date Reported : Sep 11, 2024  
Report Number: 3098527-1

Page 2 of 7

Sample Number 24101293-2  
Parameter Heat Stress (Sampling Time : 10:02 AM - 12:02 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ปลูกฝังงาน 1 พื้น (ข้อ-นามสกุล ปลูกฝังงาน : - แทน : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
บริเวณฟอสฟอรัสโรงงาน	120	31.4	27.9	40.9	37.0
Average (WBGT)		31.4			
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

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao

Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101293

Date Received : Sep 09, 2024

Date Reported : Sep 11, 2024

Report Number: 3098527-1

Page 3 of 7

Sample Number 24101293-3  
Parameter Heat Stress (Sampling Time : 10:04 AM - 12:04 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ใกล้เคียงงาน 1 พื้นที่ (ข้อ-นามสกุล ใกล้เคียงงาน : - นาม : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
เครื่อง Generator 1	120	29.3	26.8	35.7	34.0
Average (WBGT)		29.3			
Guideline WBGT (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
- 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

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao

Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101293

Date Received : Sep 09, 2024

Date Reported : Sep 11, 2024

Report Number: 3098527-1

Page 4 of 7

Sample Number 24101293-4  
Parameter Heat Stress (Sampling Time : 10:06 AM - 12:06 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ใกล้เคียงงาน 1 พื้นที่ (ข้อ-นามสกุล ใกล้เคียงงาน : - นาม : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
เครื่อง Generator 2	120	30.1	27.4	36.7	35.5
Average (WBGT)		30.1			
Guideline WBGT (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao  
Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101293  
Date Received : Sep 09, 2024  
Date Reported : Sep 11, 2024  
Report Number: 3098527-1

Page 5 of 7

Sample Number 24101293-5  
Parameter Heat Stress (Sampling Time : 10:08 AM - 12:08 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ปรังคังงาน 1 พื้นที่ (ค่า-นามสกุล ปรังคังงาน : - แทน : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
ปรังคังงาน Combustion Turbine 1	120	29.5	26.7	36.8	34.3
Average (WBGT)		29.5			
Guideline WBGT (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
- 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

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## Analysis / Test Report

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Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24101293  
Date Received : Sep 09, 2024  
Date Reported : Sep 11, 2024  
Report Number: 3098527-1

Page 6 of 7

Sample Number 24101293-6  
Parameter Heat Stress (Sampling Time : 10:10 AM - 12:10 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ปรังคังงาน 1 พื้นที่ (ค่า-นามสกุล ปรังคังงาน : - แทน : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
ปรังคังงาน Combustion Turbine 2	120	29.7	27.1	36.6	34.5
Average (WBGT)		29.7			
Guideline WBGT (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
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Technical Management

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Section Head

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao  
Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101293

Date Received : Sep 09, 2024

Date Reported : Sep 11, 2024

Report Number: 3098527-1

Page 7 of 7

Sample Number 24101293-7  
Parameter Heat Stress (Sampling Time : 10:12 AM - 12:12 PM)  
Measurement Date Sep 09, 2024  
Measurement by Phongsiri Somkaew  
Location ปล่อยควัน 1 พื้นที่ (ชั้น-บนสุด จุดปล่อยควัน : - หน้า : -)

Location	Duration (min)	WBG (°C)	NWB (°C)	GT (°C)	DB (°C)
บริเวณทางแยกอาคาร	120	28.8	26.8	33.8	33.2
Average (WBG)		28.8			
Guideline WBG (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao  
Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131992

Date Received : Dec 06, 2024

Date Reported : Dec 09, 2024

Report Number: 3171505-1

Page 1 of 7

Sample Number 24131992-1  
Parameter Heat Stress (Sampling Time : 10:00 AM - 12:00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปล่อยควัน 1 พื้นที่ (ชั้น-บนสุด จุดปล่อยควัน : - หน้า : -)

Location	Duration (min)	WBG (°C)	NWB (°C)	GT (°C)	DB (°C)
บริเวณ Condenser Exhaust Unit	120	25.5	22.8	31.7	31.7
Average (WBG)		25.5			
Guideline WBG (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
- 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

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao  
Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24131992  
Date Received : Dec 06, 2024  
Date Reported : Dec 09, 2024  
Report Number: 3171505-1

Page 2 of 7

Sample Number 24131992-2  
Parameter Heat Stress (Sampling Time : 10.00 AM - 12.00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปล่องโรงงาน 1 พื้นที่ (สิ่งแวดล้อมสุกๆ ฝุ่นๆ ควันๆ : - แดด : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
ปล่องโรงงาน 1 พื้นที่	120	30.3	25.1	43.7	40.0
Average (WBGT)		30.3			
Guideline WBGT (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
- 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

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Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24131992  
Date Received : Dec 06, 2024  
Date Reported : Dec 09, 2024  
Report Number: 3171505-1

Page 3 of 7

Sample Number 24131992-3  
Parameter Heat Stress (Sampling Time : 10.00 AM - 12.00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปล่องโรงงาน 1 พื้นที่ (สิ่งแวดล้อมสุกๆ ฝุ่นๆ ควันๆ : - แดด : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
Generator 1	120	27.4	23.9	36.1	34.3
Average (WBGT)		27.4			
Guideline WBGT (°C)		34.0			

Reference Method : Wet Bulb Globe Temperature

### Guideline:

- 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)
- 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

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Supot Salamteh  
Section Head

Approved by

*Wichan Choonharat*

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao

Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131992

Date Received : Dec 06, 2024

Date Reported : Dec 09, 2024

Report Number: 3171505-1

Page 4 of 7

Sample Number 24131992-4  
Parameter Heat Stress (Sampling Time : 10.00 AM - 12.00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปล่องกังหัน 1 ซีนท์ (ห้องควบคุม 4 ปล่องกังหัน : - แหวน : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
ปล่องกังหัน Generator 2	120	27.8	24.0	37.4	35.1
Average (WBGT)		27.8			
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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

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Thailand 24000

P/O : 4106004866

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131992

Date Received : Dec 06, 2024

Date Reported : Dec 09, 2024

Report Number: 3171505-1

Page 5 of 7

Sample Number 24131992-5  
Parameter Heat Stress (Sampling Time : 10.00 AM - 12.00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปล่องกังหัน 1 ซีนท์ (ห้องควบคุม 4 ปล่องกังหัน : - แหวน : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
ปล่องกังหัน Combustion Turbine 1	120	29.9	25.5	41.5	37.0
Average (WBGT)		29.9			
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

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Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24131992  
Date Received : Dec 06, 2024  
Date Reported : Dec 09, 2024  
Report Number: 3171505-1

Page 6 of 7

Sample Number 24131992-6  
Parameter Heat Stress (Sampling Time : 10.00 AM - 12.00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปลูกข้าว 1 พื้นที่ (ต่อ-บน-ผด ปลูกข้าว : - แดด : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
บริเวณ Combustion Turbine 2	120	27.5	23.6	37.4	34.6
Average (WBGT)		27.5			
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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
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Thailand 24000  
P/O : 4106004866  
Project Name : Monitoring EIA  
Project Location : GNNK

Lot ID: 24131992  
Date Received : Dec 06, 2024  
Date Reported : Dec 09, 2024  
Report Number: 3171505-1

Page 7 of 7

Sample Number 24131992-7  
Parameter Heat Stress (Sampling Time : 10.00 AM - 12.00 PM)  
Measurement Date Dec 06, 2024  
Measurement by Phongsiri Somkaew  
Location ปลูกข้าว 1 พื้นที่ (ต่อ-บน-ผด ปลูกข้าว : - แดด : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
บริเวณอาคารหอประชุม	120	25.6	23.2	31.1	30.9
Average (WBGT)		25.6			
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

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (1)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (1)-1

Page 1 of 2

GNNK											
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment	
						Spot	Average	Spot/Min	Average		
4	Spot : Administration Building : : EHS	24101294 (1)-1	9-Sep-24	Day time	1	434	-	400-500	-	Pass	
5	Area : Administration Building : : Master Document Room	24101294 (1)-2	9-Sep-24	Day time	1	531	555	150	300	Pass	
		24101294 (1)-3	9-Sep-24	Day time	2	579					
6	Spot : Administration Building : : General Office #1	24101294 (1)-4	9-Sep-24	Day time	1	684	-	400-500	-	Pass	
7	Spot : Administration Building : : General Office #2	24101294 (1)-5	9-Sep-24	Day time	1	652	-	400-500	-	Pass	
8	Spot : Administration Building : : General Office #3	24101294 (1)-6	9-Sep-24	Day time	1	619	-	400-500	-	Pass	
9	Spot : Administration Building : : General Office #4	24101294 (1)-7	9-Sep-24	Day time	1	493	-	400-500	-	Pass	
10	Spot : Administration Building : : General Office #5	24101294 (1)-8	9-Sep-24	Day time	1	483	-	400-500	-	Pass	
12	Area : Administration Building : : First Aid Room	24101294 (1)-9	9-Sep-24	Day time	1	531	572	25	50	Pass	
		24101294 (1)-10	9-Sep-24	Day time	2	612					
14	Area : Administration Building : : Meeting Room 2	24101294 (1)-11	9-Sep-24	Day time	1	597	570	150	300	Pass	
		24101294 (1)-12	9-Sep-24	Day time	2	544					
16	Spot : Administration Building : : Plant Manager	24101294 (1)-13	9-Sep-24	Day time	1	593	-	400-500	-	Pass	
17	Area : Administration Building : : Reception Area	24101294 (1)-14	9-Sep-24	Day time	1	357	384	150	300	Pass	
		24101294 (1)-15	9-Sep-24	Day time	2	412					
20	Spot : Administration Building : : Spare Office	24101294 (1)-16	9-Sep-24	Day time	1	424	-	400-500	-	Pass	
22	Area : Administration Building : : Canteen & Pantry	24101294 (1)-17	9-Sep-24	Day time	1	807	826	150	300	Pass	
		24101294 (1)-18	9-Sep-24	Day time	2	844					
23	Area : Administration Building : : Corridors	24101294 (1)-19	9-Sep-24	Day time	1	403	408	50	100	Pass	
		24101294 (1)-20	9-Sep-24	Day time	2	413					
24	Area : Administration Building : : Meeting Room 1	24101294 (1)-21	9-Sep-24	Day time	1	201	390	150	300	Pass	
		24101294 (1)-22	9-Sep-24	Day time	2	427					
		24101294 (1)-23	9-Sep-24	Day time	3	543					

Technical Management

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Approved by

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Wichan Choonharat  
Assistant Manager

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (1)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (1)-1

Page 2 of 2

GNNK											
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment	
						Spot	Average	Spot/Min	Average		
25	Area : Administration Building : : Office Supply Area	24101294 (1)-24	9-Sep-24	Day time	1	432	430	50	100	Pass	
		24101294 (1)-25	9-Sep-24	Day time	2	429					
26	Area : Administration Building : : Restroom-Gentlemen	24101294 (1)-26	9-Sep-24	Day time	1	546	574	50	100	Pass	
		24101294 (1)-27	9-Sep-24	Day time	2	601					
27	Area : Administration Building : : Restroom-Lady	24101294 (1)-28	9-Sep-24	Day time	1	777	794	50	100	Pass	
		24101294 (1)-29	9-Sep-24	Day time	2	812					
28	Area : Administration Building : : Utility Room	24101294 (1)-30	9-Sep-24	Day time	1	652	600	50	100	Pass	
		24101294 (1)-31	9-Sep-24	Day time	2	549					

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :  
Project Name : Monitoring EIA  
Project Location: GNNK

Lot ID: 24101294 (2)

Date Received : Sep 10, 2024  
Date Reported : Sep 16, 2024  
Report Number: 24101294 (2)-1

Page 1 of 1

Lay out No.	Location	Reference Number	Date	Time	No.	GNNK		Guideline Limit	Comment
						Spot	Average	Spot/Min	
2	Area : Electrical and Control Building : 1st floor : Cable Room ใ้บนบริเวณโรงไฟฟ้า	24101294 (2)-1	9-Sep-24	Day time	1	247	338	100	200
		24101294 (2)-2	9-Sep-24	Day time	2	457			Pass
		24101294 (2)-3	9-Sep-24	Day time	3	372			
		24101294 (2)-4	9-Sep-24	Day time	4	277			

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :  
Project Name : Monitoring EIA  
Project Location: GNNK

Lot ID: 24101294 (3)

Date Received : Sep 10, 2024  
Date Reported : Sep 16, 2024  
Report Number: 24101294 (3)-1

Page 1 of 1

Lay out No.	Location	Reference Number	Date	Time	No.	GNNK		Guideline Limit	Comment
						Spot	Average	Spot/Min	
2	Area : Electrical and Control Building : 2nd floor : Electrical Room ใ้บนบริเวณโรงไฟฟ้า	24101294 (3)-1	9-Sep-24	Day time	1	212	233	100	200
		24101294 (3)-2	9-Sep-24	Day time	2	263			Pass
		24101294 (3)-3	9-Sep-24	Day time	3	229			
		24101294 (3)-4	9-Sep-24	Day time	4	227			

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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## Analysis / Test Report

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (4)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (4)-1

Page 1 of 2

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
2	Area : Electrical and Control Building : 3rd floor : Broom Closet	24101294 (4)-1	9-Sep-24	Day time	1	366	357	50	100	Pass
		24101294 (4)-2	9-Sep-24	Day time	2	348				
4	Spot : Electrical and Control Building : 3rd floor : Control Room #1	24101294 (4)-3	9-Sep-24	Day time	1	412	-	400-500	-	Pass
5	Spot : Electrical and Control Building : 3rd floor : Control Room #2	24101294 (4)-4	9-Sep-24	Day time	1	431	-	400-500	-	Pass
6	Spot : Electrical and Control Building : 3rd floor : Control Room #3	24101294 (4)-5	9-Sep-24	Day time	1	542	-	400-500	-	Pass
7	Spot : Electrical and Control Building : 3rd floor : Control Room #4	24101294 (4)-6	9-Sep-24	Day time	1	528	-	400-500	-	Pass
8	Area : Electrical and Control Building : 3rd floor : Document Room	24101294 (4)-7	9-Sep-24	Day time	1	702	737	150	300	Pass
		24101294 (4)-8	9-Sep-24	Day time	2	772				
10	Area : Electrical and Control Building : 3rd floor : Engineering Work Sation Room	24101294 (4)-9	9-Sep-24	Day time	1	594	570	150	300	Pass
		24101294 (4)-10	9-Sep-24	Day time	2	431				
		24101294 (4)-11	9-Sep-24	Day time	3	686				
11	Spot : Electrical and Control Building : 3rd floor : Operation Manager	24101294 (4)-12	9-Sep-24	Day time	1	895	-	400-500	-	Pass
12	Area : Electrical and Control Building : 3rd floor : Restroom-Lady (T-02)	24101294 (4)-13	9-Sep-24	Day time	1	774	496	50	100	Pass
		24101294 (4)-14	9-Sep-24	Day time	2	218				
14	Area : Electrical and Control Building : 3rd floor : Restroom-Gentlemen (T-01)	24101294 (4)-15	9-Sep-24	Day time	1	990	736	50	100	Pass
		24101294 (4)-16	9-Sep-24	Day time	2	481				
23	Area : Electrical and Control Building : 3rd floor : Bathroom-Lady (T-04) ใช้น้ำบริเวณล้างล้างมือ	24101294 (4)-17	9-Sep-24	Day time	1	561	596	50	100	Pass
		24101294 (4)-18	9-Sep-24	Day time	2	630				
24	Area : Electrical and Control Building : 3rd floor : Canteen ใช้น้ำบริเวณล้างมือ	24101294 (4)-19	9-Sep-24	Day time	1	410	502	150	300	Pass
		24101294 (4)-20	9-Sep-24	Day time	2	594				
25	Area : Electrical and Control Building : 3rd floor : DSC Room ใช้น้ำบริเวณกลางห้องกลาง	24101294 (4)-21	9-Sep-24	Day time	1	420	422	100	200	Pass
		24101294 (4)-22	9-Sep-24	Day time	2	391				
		24101294 (4)-23	9-Sep-24	Day time	3	456				
26	Area : Electrical and Control Building : 3rd floor : Restroom-Gentlemen (T-03) ใช้น้ำบริเวณล้างล้างมือ	24101294 (4)-24	9-Sep-24	Day time	1	381	393	50	100	Pass
		24101294 (4)-25	9-Sep-24	Day time	2	405				

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## Analysis / Test Report

Client : Gulf JP NKK Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (4)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (4)-1

Page 2 of 2

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
27	Area : Electrical and Control Building : 3rd floor : Up-down Main Way (Stair) ใช้น้ำบริเวณ Canteen	24101294 (4)-26	9-Sep-24	Day time	1	483	397	50	100	Pass
		24101294 (4)-27	9-Sep-24	Day time	2	311				
28	Area : Electrical and Control Building : 3rd floor : Up-down Way (Exit Way) ใช้น้ำบริเวณบันไดขึ้น 3 ชั้นบนสุด	24101294 (4)-28	9-Sep-24	Day time	1	933	709	50	100	Pass
		24101294 (4)-29	9-Sep-24	Day time	2	485				
29	Area : Electrical and Control Building : 3rd floor : Utility Room ใช้น้ำบริเวณหน้าตู้ Control	24101294 (4)-30	9-Sep-24	Day time	1	209	214	100	200	Pass
		24101294 (4)-31	9-Sep-24	Day time	2	218				
30	Spot : Electrical and Control Building : 3rd floor : Operation Engineer Room : ตู้ 1	24101294 (4)-32	9-Sep-24	Day time	1	609	-	400-500	-	Pass
31	Spot : Electrical and Control Building : 3rd floor : Operation Engineer Room : ตู้ 2	24101294 (4)-33	9-Sep-24	Day time	1	441	-	400-500	-	Pass
32	Spot : Electrical and Control Building : 3rd floor : Operation Engineer Room : ตู้ 3	24101294 (4)-34	9-Sep-24	Day time	1	421	-	400-500	-	Pass
33	Area : Electrical and Control Building : 3rd floor : ทางเดินหน้าห้อง Control Room	24101294 (4)-35	9-Sep-24	Day time	1	621	572	50	100	Pass
		24101294 (4)-36	9-Sep-24	Day time	2	522				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (5)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (5)-1

Page 1 of 1

Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
1	Area : Guard Room	24101294 (5)-1	9-Sep-24	Day time	1	1,990	2155	-	100	Pass
		24101294 (5)-2	9-Sep-24	Day time	2	2,320				
2	Area : Guard Room : Restroom (Logger Room)	24101294 (5)-3	9-Sep-24	Day time	1	395	332	50	100	Pass
		24101294 (5)-4	9-Sep-24	Day time	2	270				
3	Area : Guard Room : Restroom (T-01)	24101294 (5)-5	9-Sep-24	Day time	1	311	325	50	100	Pass
		24101294 (5)-6	9-Sep-24	Day time	2	339				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 390 dated February 21 B.E.2561 (2018)

Technical Management

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Client : Gulf JP NNK Co., Ltd.  
99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (6)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (6)-1

Page 1 of 1

Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
1	Area : Switchyard Control Building : Battery Room	24101294 (6)-1	9-Sep-24	Day time	1	183	178	50	100	Pass
		24101294 (6)-2	9-Sep-24	Day time	2	172				
5	Area : Switchyard Control Building : Control Room #1 ควบคุมการกระจายไฟฟ้า Distribution Board	24101294 (6)-3	9-Sep-24	Day time	1	538	466	100	200	Pass
		24101294 (6)-4	9-Sep-24	Day time	2	395				
6	Area : Switchyard Control Building : Control Room #2 ควบคุมการกระจายไฟฟ้า	24101294 (6)-5	9-Sep-24	Day time	1	1,542	1746	50	100	Pass
		24101294 (6)-6	9-Sep-24	Day time	2	1,949				
7	Area : Switchyard Control Building : Switchyard Room ควบคุมแรงดันไฟฟ้า 10BBC04	24101294 (6)-7	9-Sep-24	Day time	1	351	282	100	200	Pass
		24101294 (6)-8	9-Sep-24	Day time	2	213				

Measurement by : Phongsiri Somkaew

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Technical Management

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (7)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (7)-1

Page 1 of 1

GNNK											
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment	
						Spot	Average	Spot/Min	Average		
2	Area : Terminal Substation : Battery Room	24101294 (7)-1	9-Sep-24	Day time	1	403	378	50	100	Pass	
		24101294 (7)-2	9-Sep-24	Day time	2	353					
3	Area : Terminal Substation : Control Room โรงควบคุมการจ่าย Distribution Board No.2	24101294 (7)-3	9-Sep-24	Day time	1	1,230	1020	100	200	Pass	
		24101294 (7)-4	9-Sep-24	Day time	2	809					

Measurement by : Phongsiri Somkaew

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Technical Management

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Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (8)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (8)-1

Page 1 of 1

GNNK											
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment	
						Spot	Average	Spot/Min	Average		
1	Spot : Water Laboratory : Balance	24101294 (8)-1	9-Sep-24	Day time	1	818	-	400-500	-	Pass	
2	Spot : Water Laboratory : Computer	24101294 (8)-2	9-Sep-24	Day time	1	834	-	400-500	-	Pass	
3	Area : Water Laboratory : Restroom (T-02)	24101294 (8)-3	9-Sep-24	Day time	1	304	318	50	100	Pass	
		24101294 (8)-4	9-Sep-24	Day time	2	331					
5	Spot : Water Laboratory : Rise Floor#2 (Water Treatment)	24101294 (8)-5	9-Sep-24	Day time	1	976	-	400-500	-	Pass	
6	Area : Water Laboratory : Rise Floor#1 (Water Treatment) โรงบำบัดน้ำเสีย คอมพิวเตอร์	24101294 (8)-6	9-Sep-24	Day time	1	614	484	100	200	Pass	
		24101294 (8)-7	9-Sep-24	Day time	2	353					

Measurement by : Phongsiri Somkaew

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Technical Management

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Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (9)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (9)-1

Page 1 of 1

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
2	Area : Workshop & Warehouse : 1st floor : Control Temp Spare Part	24101294 (9)-1	9-Sep-24	Day time	1	370	324	50	100	Pass
		24101294 (9)-2	9-Sep-24	Day time	2	279				
4	Area : Workshop & Warehouse : 1st floor : MDB Electrical Control Room	24101294 (9)-3	9-Sep-24	Day time	1	317	307	100	200	Pass
		24101294 (9)-4	9-Sep-24	Day time	2	297				
13	Area : Workshop & Warehouse : 1st floor : C & I Lab Room โขนบรโวนพ่นพ้อง	24101294 (9)-5	9-Sep-24	Day time	1	427	404	150	300	Pass
		24101294 (9)-6	9-Sep-24	Day time	2	382				
14	Area : Workshop & Warehouse : 1st floor : Helper Room โขนบรโวนพ่นพ้องพ่นพ้อง	24101294 (9)-7	9-Sep-24	Day time	1	311	365	50	100	Pass
		24101294 (9)-8	9-Sep-24	Day time	2	419				
15	Area : Workshop & Warehouse : 1st floor : Restroom-Gentlemen (T-02) โขนบรโวนพ่นพ้อง	24101294 (9)-9	9-Sep-24	Day time	1	306	304	50	100	Pass
		24101294 (9)-10	9-Sep-24	Day time	2	302				
16	Area : Workshop & Warehouse : 1st floor : Spare Part Mechanical Room โขนบรโวนพ่นพ้อง	24101294 (9)-11	9-Sep-24	Day time	1	206	213	50	100	Pass
		24101294 (9)-12	9-Sep-24	Day time	2	220				
17	Area : Workshop & Warehouse : 1st floor : Storage Room โขนบรโวนพ่นพ้อง	24101294 (9)-13	9-Sep-24	Day time	1	246	206	50	100	Pass
		24101294 (9)-14	9-Sep-24	Day time	2	166				
18	Area : Workshop & Warehouse : 1st floor : Unsecured Heavy/Bulky A,B โขนบรโวนพ่นพ้อง	24101294 (9)-15	9-Sep-24	Day time	1	136	132	50	100	Pass
		24101294 (9)-16	9-Sep-24	Day time	2	127				
19	Area : Workshop & Warehouse : 1st floor : Unsecured Heavy/Bulky C,D โขนบรโวนพ่นพ้อง	24101294 (9)-17	9-Sep-24	Day time	1	139	148	50	100	Pass
		24101294 (9)-18	9-Sep-24	Day time	2	156				
20	Area : Workshop & Warehouse : 1st floor : Unsecured Heavy/Bulky E,F โขนบรโวนพ่นพ้อง	24101294 (9)-19	9-Sep-24	Day time	1	166	140	50	100	Pass
		24101294 (9)-20	9-Sep-24	Day time	2	115				
21	Area : Workshop & Warehouse : 1st floor : Unsecured Warehouse Area โขนบรโวนพ่นพ้อง	24101294 (9)-21	9-Sep-24	Day time	1	246	241	50	100	Pass
		24101294 (9)-22	9-Sep-24	Day time	2	236				
22	Area : Workshop & Warehouse : 1st floor : Warehouse Room โขนบรโวนพ่นพ้อง	24101294 (9)-23	9-Sep-24	Day time	1	571	536	50	100	Pass
		24101294 (9)-24	9-Sep-24	Day time	2	502				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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Section Head

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## Analysis / Test Report

Client : Gulf JP NNN Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24101294 (10)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (10)-1

Page 1 of 2

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
1	Spot : Workshop & Warehouse : 2nd floor : C & I Staff Office #1	24101294 (10)-1	9-Sep-24	Day time	1	418	-	400-500	-	Pass
2	Spot : Workshop & Warehouse : 2nd floor : C & I Staff Office #2	24101294 (10)-2	9-Sep-24	Day time	1	593	-	400-500	-	Pass
3	Spot : Workshop & Warehouse : 2nd floor : C & I Staff Office #3	24101294 (10)-3	9-Sep-24	Day time	1	577	-	400-500	-	Pass
6	Spot : Workshop & Warehouse : 2nd floor : Electronic Staff Office	24101294 (10)-4	9-Sep-24	Day time	1	449	-	400-500	-	Pass
7	Spot : Workshop & Warehouse : 2nd floor : Information Technology (IT)	24101294 (10)-5	9-Sep-24	Day time	1	600	-	400-500	-	Pass
8	Area : Workshop & Warehouse : 2nd floor : Molds Room	24101294 (10)-6 24101294 (10)-7	9-Sep-24 9-Sep-24	Day time Day time	1 2	559 615	587	50	100	Pass
9	Spot : Workshop & Warehouse : 2nd floor : Maintenance Manager	24101294 (10)-8	9-Sep-24	Day time	1	420	-	400-500	-	Pass
10	Spot : Workshop & Warehouse : 2nd floor : Mechanical Staff Office	24101294 (10)-9	9-Sep-24	Day time	1	410	-	400-500	-	Pass
14	Area : Workshop & Warehouse : 2nd floor : Spare Part Electrical Room	24101294 (10)-10 24101294 (10)-11	9-Sep-24 9-Sep-24	Day time Day time	1 2	356 371	364	50	100	Pass
15	Area : Workshop & Warehouse : 2nd floor : Canteen โขนบรโวนพ่นพ้องพ่นพ้อง	24101294 (10)-12 24101294 (10)-13	9-Sep-24 9-Sep-24	Day time Day time	1 2	674 431	552	150	300	Pass
16	Area : Workshop & Warehouse : 2nd floor : Document Center โขนบรโวนพ่นพ้อง	24101294 (10)-14 24101294 (10)-15	9-Sep-24 9-Sep-24	Day time Day time	1 2	590 672	631	150	300	Pass
17	Area : Workshop & Warehouse : 2nd floor : Meeting Room โขนบรโวนพ่นพ้องพ่นพ้อง	24101294 (10)-16 24101294 (10)-17	9-Sep-24 9-Sep-24	Day time Day time	1 2	579 605	592	150	300	Pass
18	Area : Workshop & Warehouse : 2nd floor : Restroom-Lady (T-04) โขนบรโวนพ่นพ้อง	24101294 (10)-18 24101294 (10)-19	9-Sep-24 9-Sep-24	Day time Day time	1 2	199 188	194	50	100	Pass
19	Area : Workshop & Warehouse : 2nd floor : Restroom-Gentlemen (T-03) โขนบรโวนพ่นพ้อง	24101294 (10)-20 24101294 (10)-21	9-Sep-24 9-Sep-24	Day time Day time	1 2	537 590	564	50	100	Pass

Measurement by : Phongsiri Somkaew

Technical Management

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99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24101294 (10)

Date Received : Sep 10, 2024

Date Reported : Sep 16, 2024

Report Number: 24101294 (10)-1

Page 2 of 2

GNKK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
Guideline :	Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published In the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)									

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Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakom Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location : GNNK

Lot ID: 24131996 (1)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (1)-1

Page 1 of 2

Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
4	Spot : Administration Building : EHS	24131996 (1)-1	6-Dec-24	Day time	1	440	-	400-500	-	Pass
5	Area : Administration Building : Master Document Room	24131996 (1)-2	6-Dec-24	Day time	1	571	588	150	300	Pass
		24131996 (1)-3	6-Dec-24	Day time	2	605				
6	Spot : Administration Building : General Office #1	24131996 (1)-4	6-Dec-24	Day time	1	638	-	400-500	-	Pass
7	Spot : Administration Building : General Office #2	24131996 (1)-5	6-Dec-24	Day time	1	627	-	400-500	-	Pass
8	Spot : Administration Building : General Office #3	24131996 (1)-6	6-Dec-24	Day time	1	576	-	400-500	-	Pass
9	Spot : Administration Building : General Office #4	24131996 (1)-7	6-Dec-24	Day time	1	405	-	400-500	-	Pass
10	Spot : Administration Building : General Office #5	24131996 (1)-8	6-Dec-24	Day time	1	426	-	400-500	-	Pass
12	Area : Administration Building : First Aid Room	24131996 (1)-9	6-Dec-24	Day time	1	551	554	25	50	Pass
		24131996 (1)-10	6-Dec-24	Day time	2	556				
14	Area : Administration Building : Meeting Room 2	24131996 (1)-11	6-Dec-24	Day time	1	729	698	150	300	Pass
		24131996 (1)-12	6-Dec-24	Day time	2	668				
16	Spot : Administration Building : Plant Manager	24131996 (1)-13	6-Dec-24	Day time	1	512	-	400-500	-	Pass
17	Area : Administration Building : Reception Area	24131996 (1)-14	6-Dec-24	Day time	1	432	427	150	300	Pass
		24131996 (1)-15	6-Dec-24	Day time	2	422				
20	Spot : Administration Building : Spare Office	24131996 (1)-16	6-Dec-24	Day time	1	450	-	400-500	-	Pass
22	Area : Administration Building : Canteen & Pantry โซนบริเวณครัวและโรงอาหาร	24131996 (1)-17	6-Dec-24	Day time	1	706	806	150	300	Pass
		24131996 (1)-18	6-Dec-24	Day time	2	905				
23	Area : Administration Building : Corridors โซนบริเวณทางเข้าประตูทางออกประตูเข้าลิฟต์	24131996 (1)-19	6-Dec-24	Day time	1	428	529	50	100	Pass
		24131996 (1)-20	6-Dec-24	Day time	2	630				
24	Area : Administration Building : Meeting Room 1 โซนบริเวณพาร์โกลิ่งผู้บริหาร	24131996 (1)-21	6-Dec-24	Day time	1	325	655	150	300	Pass
		24131996 (1)-22	6-Dec-24	Day time	2	487				
		24131996 (1)-23	6-Dec-24	Day time	3	1,154				

Technical Management

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Supot Salamteh  
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Assistant Manager

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## Analysis / Test Report

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (1)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (1)-1

Page 2 of 2

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
25	Area : Administration Building : Office Supply Area โยมนบริเวณห้องเครื่อง Loker	24131996 (1)-24	6-Dec-24	Day time	1	420	430	50	100	Pass
		24131996 (1)-25	6-Dec-24	Day time	2	439				
26	Area : Administration Building : Restroom-Gentlemen โยมนบริเวณอ่างล้างหน้า	24131996 (1)-26	6-Dec-24	Day time	1	732	751	50	100	Pass
		24131996 (1)-27	6-Dec-24	Day time	2	770				
27	Area : Administration Building : Restroom-Lady โยมนบริเวณอ่างล้างหน้า	24131996 (1)-28	6-Dec-24	Day time	1	975	900	50	100	Pass
		24131996 (1)-29	6-Dec-24	Day time	2	825				
28	Area : Administration Building : Utility Room โยมนบริเวณท้ายห้อง	24131996 (1)-30	6-Dec-24	Day time	1	401	456	50	100	Pass
		24131996 (1)-31	6-Dec-24	Day time	2	510				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (2)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (2)-1

Page 1 of 1

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
2	Area : Electrical and Control Building : 1st floor : Cable Room โยมนบริเวณโรงรถทางเข้าหลัก	24131996 (2)-1	6-Dec-24	Day time	1	446	348	100	200	Pass
		24131996 (2)-2	6-Dec-24	Day time	2	283				
		24131996 (2)-3	6-Dec-24	Day time	3	293				
		24131996 (2)-4	6-Dec-24	Day time	4	369				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (3)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (3)-1

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GNNK											
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment	
						Spot	Average	Spot/Min	Average		
2	Area : Electrical and Control Building : 2nd floor : Electrical Room วิทยุวิทยุวิทยุวิทยุ	24131996 (3)-1	6-Dec-24	Day time	1	287	254	100	200	Pass	
		24131996 (3)-2	6-Dec-24	Day time	2	245					
		24131996 (3)-3	6-Dec-24	Day time	3	285					
		24131996 (3)-4	6-Dec-24	Day time	4	201					

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (4)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (4)-1

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GNNK											
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment	
						Spot	Average	Spot/Min	Average		
2	Area : Electrical and Control Building : 3rd floor : Broom Closet	24131996 (4)-1	6-Dec-24	Day time	1	301	312	50	100	Pass	
		24131996 (4)-2	6-Dec-24	Day time	2	323					
4	Spot : Electrical and Control Building : 3rd floor : Control Room #1	24131996 (4)-3	6-Dec-24	Day time	1	488	-	400-500	-	Pass	
5	Spot : Electrical and Control Building : 3rd floor : Control Room #2	24131996 (4)-4	6-Dec-24	Day time	1	514	-	400-500	-	Pass	
6	Spot : Electrical and Control Building : 3rd floor : Control Room #3	24131996 (4)-5	6-Dec-24	Day time	1	459	-	400-500	-	Pass	
7	Spot : Electrical and Control Building : 3rd floor : Control Room #4	24131996 (4)-6	6-Dec-24	Day time	1	500	-	400-500	-	Pass	
8	Area : Electrical and Control Building : 3rd floor : Document Room	24131996 (4)-7	6-Dec-24	Day time	1	540	554	150	300	Pass	
		24131996 (4)-8	6-Dec-24	Day time	2	568					
10	Area : Electrical and Control Building : 3rd floor : Engineering Work Satation Room	24131996 (4)-9	6-Dec-24	Day time	1	492	500	150	300	Pass	
		24131996 (4)-10	6-Dec-24	Day time	2	548					
		24131996 (4)-11	6-Dec-24	Day time	3	460					
11	Spot : Electrical and Control Building : 3rd floor : Operation Manager	24131996 (4)-12	6-Dec-24	Day time	1	859	-	400-500	-	Pass	
12	Area : Electrical and Control Building : 3rd floor : Restroom-Lady (T-02)	24131996 (4)-13	6-Dec-24	Day time	1	756	789	50	100	Pass	
		24131996 (4)-14	6-Dec-24	Day time	2	822					
14	Area : Electrical and Control Building : 3rd floor : Restroom-Gentlemen (T-01)	24131996 (4)-15	6-Dec-24	Day time	1	558	698	50	100	Pass	
		24131996 (4)-16	6-Dec-24	Day time	2	838					
23	Area : Electrical and Control Building : 3rd floor : Bathroom-Lady (T-04) โขนกริวนถางถางถาง	24131996 (4)-17	6-Dec-24	Day time	1	438	446	50	100	Pass	
		24131996 (4)-18	6-Dec-24	Day time	2	455					
24	Area : Electrical and Control Building : 3rd floor : Canteen โขนกริวนถางถางถาง	24131996 (4)-19	6-Dec-24	Day time	1	428	390	150	300	Pass	
		24131996 (4)-20	6-Dec-24	Day time	2	351					
25	Area : Electrical and Control Building : 3rd floor : DSC Room โขนกริวนถางถางถาง โขนกริวนถาง	24131996 (4)-21	6-Dec-24	Day time	1	405	431	100	200	Pass	
		24131996 (4)-22	6-Dec-24	Day time	2	415					
		24131996 (4)-23	6-Dec-24	Day time	3	474					
26	Area : Electrical and Control Building : 3rd floor : Restroom-Gentlemen (T-03) โขนกริวนถางถางถาง	24131996 (4)-24	6-Dec-24	Day time	1	348	330	50	100	Pass	
		24131996 (4)-25	6-Dec-24	Day time	2	312					

Technical Management

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (4)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (4)-1

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Lay out No.	Location	Reference Number	Date	Time	No.	GNNK		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
27	Area : Electrical and Control Building : 3rd floor : Up-down Main Way (Stair) วิทยุห้อง Canteen	24131996 (4)-26	6-Dec-24	Day time	1	551	536	50	100	Pass
		24131996 (4)-27	6-Dec-24	Day time	2	520				
28	Area : Electrical and Control Building : 3rd floor : Up-down Way (Exit Way) วิทยุห้องบันไดขึ้น 3 ชั้นบนสุด	24131996 (4)-28	6-Dec-24	Day time	1	473	452	50	100	Pass
		24131996 (4)-29	6-Dec-24	Day time	2	430				
29	Area : Electrical and Control Building : 3rd floor : Utility Room วิทยุห้องวิทยุ Control	24131996 (4)-30	6-Dec-24	Day time	1	215	210	100	200	Pass
		24131996 (4)-31	6-Dec-24	Day time	2	205				
30	Spot : Electrical and Control Building : 3rd floor : Operation Engineer Room : โต๊ะ 1	24131996 (4)-32	6-Dec-24	Day time	1	513	-	400-500	-	Pass
31	Spot : Electrical and Control Building : 3rd floor : Operation Engineer Room : โต๊ะ 2	24131996 (4)-33	6-Dec-24	Day time	1	529	-	400-500	-	Pass
32	Spot : Electrical and Control Building : 3rd floor : Operation Engineer Room : โต๊ะ 3	24131996 (4)-34	6-Dec-24	Day time	1	422	-	400-500	-	Pass
33	Area : Electrical and Control Building : 3rd floor : ทางเดินวิทยุห้อง Control Room	24131996 (4)-35	6-Dec-24	Day time	1	604	610	50	100	Pass
		24131996 (4)-36	6-Dec-24	Day time	2	616				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

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99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (5)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (5)-1

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Lay out No.	Location	Reference Number	Date	Time	No.	GNNK		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
1	Area : Guard Room :	24131996 (5)-1	6-Dec-24	Day time	1	1,684	1876	-	100	Pass
		24131996 (5)-2	6-Dec-24	Day time	2	2,068				
2	Area : Guard Room : Restroom (Logger Room)	24131996 (5)-3	6-Dec-24	Day time	1	274	325	50	100	Pass
		24131996 (5)-4	6-Dec-24	Day time	2	376				
3	Area : Guard Room : Restroom (T-01)	24131996 (5)-5	6-Dec-24	Day time	1	432	372	50	100	Pass
		24131996 (5)-6	6-Dec-24	Day time	2	313				

Measurement by : Phongsiri Somkaew

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Technical Management

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P/O :

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Project Location: GNNK

Lot ID: 24131996 (6)

Date Received : Dec 08, 2024

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Report Number: 24131996 (6)-1

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Lay out No.	Location	Reference Number	Date	Time	No.	GNNK		Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average			
1	Area : Switchyard Control Building : Battery Room	24131996 (6)-1	6-Dec-24	Day time	1	157	184	50	100		Pass	
		24131996 (6)-2	6-Dec-24	Day time	2	210						
5	Area : Switchyard Control Building : Control Room #1 ควบคุมการกระจายไฟฟ้า Distribution Board	24131996 (6)-3	6-Dec-24	Day time	1	588	494	100	200		Pass	
		24131996 (6)-4	6-Dec-24	Day time	2	400						
6	Area : Switchyard Control Building : Control Room #2 ควบคุมการกระจายไฟฟ้า	24131996 (6)-5	6-Dec-24	Day time	1	1,271	1887	50	100		Pass	
		24131996 (6)-6	6-Dec-24	Day time	2	2,503						
7	Area : Switchyard Control Building : Switchyard Room ควบคุมการกระจายไฟฟ้า 10BBC04	24131996 (6)-7	6-Dec-24	Day time	1	216	271	100	200		Pass	
		24131996 (6)-8	6-Dec-24	Day time	2	326						

Measurement by : Phongsiri Somkaew

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P/O :

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Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

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Lay out No.	Location	Reference Number	Date	Time	No.	GNNK		Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average			
2	Area : Terminal Substation : Battery Room	24131996 (7)-1	6-Dec-24	Day time	1	379	366	50	100		Pass	
		24131996 (7)-2	6-Dec-24	Day time	2	352						
3	Area : Terminal Substation : Control Room ควบคุมการกระจายไฟฟ้า Distribution Board No.2	24131996 (7)-3	6-Dec-24	Day time	1	1,170	856	100	200		Pass	
		24131996 (7)-4	6-Dec-24	Day time	2	542						

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (8)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (8)-1

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GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
1	Spot : Water Laboratory : Balance	24131996 (8)-1	6-Dec-24	Day time	1	860	-	400-500	-	Pass
2	Spot : Water Laboratory : Computer	24131996 (8)-2	6-Dec-24	Day time	1	809	-	400-500	-	Pass
3	Area : Water Laboratory : Restroom (T-02)	24131996 (8)-3	6-Dec-24	Day time	1	330	268	50	100	Pass
		24131996 (8)-4	6-Dec-24	Day time	2	207				
5	Spot : Water Laboratory : Rise Floor#2 (Water Treatment)	24131996 (8)-5	6-Dec-24	Day time	1	867	-	400-500	-	Pass
6	Area : Water Laboratory : Rise Floor#1 (Water Treatment) ใช้น้ำบริเวณโต๊ะคอมพิวเตอร์	24131996 (8)-6	6-Dec-24	Day time	1	436	478	100	200	Pass
		24131996 (8)-7	6-Dec-24	Day time	2	520				

Measurement by : Phongsiri Somkaew

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P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (9)

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Report Number: 24131996 (9)-1

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GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
2	Area : Workshop & Warehouse : 1st floor : Control Temp Spare Part	24131996 (9)-1	6-Dec-24	Day time	1	274	334	50	100	Pass
		24131996 (9)-2	6-Dec-24	Day time	2	394				
4	Area : Workshop & Warehouse : 1st floor : MDB Electrical Control Room	24131996 (9)-3	6-Dec-24	Day time	1	260	259	100	200	Pass
		24131996 (9)-4	6-Dec-24	Day time	2	258				
13	Area : Workshop & Warehouse : 1st floor : C & I Lab Room ใช้น้ำบริเวณพ่นน้ำล้าง	24131996 (9)-5	6-Dec-24	Day time	1	470	565	150	300	Pass
		24131996 (9)-6	6-Dec-24	Day time	2	660				
14	Area : Workshop & Warehouse : 1st floor : Helper Room ใช้น้ำบริเวณประตูทางเข้าฝั่งขวา	24131996 (9)-7	6-Dec-24	Day time	1	250	316	50	100	Pass
		24131996 (9)-8	6-Dec-24	Day time	2	383				
15	Area : Workshop & Warehouse : 1st floor : Restroom-Gentlemen (T-02) ใช้น้ำบริเวณอ่างล้างมือ	24131996 (9)-9	6-Dec-24	Day time	1	268	290	50	100	Pass
		24131996 (9)-10	6-Dec-24	Day time	2	311				
16	Area : Workshop & Warehouse : 1st floor : Spare Part Mechanical Room ใช้น้ำบริเวณประตูทางเข้า	24131996 (9)-11	6-Dec-24	Day time	1	267	266	50	100	Pass
		24131996 (9)-12	6-Dec-24	Day time	2	266				
17	Area : Workshop & Warehouse : 1st floor : Storage Room ใช้น้ำบริเวณประตูทางเข้า	24131996 (9)-13	6-Dec-24	Day time	1	265	258	50	100	Pass
		24131996 (9)-14	6-Dec-24	Day time	2	250				
18	Area : Workshop & Warehouse : 1st floor : Unsecured Heavy/Bulky A;B ใช้น้ำพื้น	24131996 (9)-15	6-Dec-24	Day time	1	273	288	50	100	Pass
		24131996 (9)-16	6-Dec-24	Day time	2	302				
19	Area : Workshop & Warehouse : 1st floor : Unsecured Heavy/Bulky C;D ใช้น้ำพื้น	24131996 (9)-17	6-Dec-24	Day time	1	274	282	50	100	Pass
		24131996 (9)-18	6-Dec-24	Day time	2	289				
20	Area : Workshop & Warehouse : 1st floor : Unsecured Heavy/Bulky E;F ใช้น้ำด้านหน้า	24131996 (9)-19	6-Dec-24	Day time	1	293	295	50	100	Pass
		24131996 (9)-20	6-Dec-24	Day time	2	297				
21	Area : Workshop & Warehouse : 1st floor : Unsecured Warehouse Area ใช้น้ำบริเวณชั้นวางด้านหน้าห้อง	24131996 (9)-21	6-Dec-24	Day time	1	290	384	50	100	Pass
		24131996 (9)-22	6-Dec-24	Day time	2	479				
22	Area : Workshop & Warehouse : 1st floor : Warehouse Room ใช้น้ำบริเวณพ่นน้ำล้าง	24131996 (9)-23	6-Dec-24	Day time	1	663	650	50	100	Pass
		24131996 (9)-24	6-Dec-24	Day time	2	637				

Measurement by : Phongsiri Somkaew

Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)

Technical Management

*Supot S.*  
Supot Salamteh  
Section Head

Approved by

*Wichan Choonharat*  
Wichan Choonharat  
Assistant Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (10)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (10)-1

Page 1 of 2

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
1	Spot : Workshop & Warehouse : 2nd floor : C & I Staff Office #1	24131996 (10)-1	6-Dec-24	Day time	1	794	-	400-500	-	Pass
2	Spot : Workshop & Warehouse : 2nd floor : C & I Staff Office #2	24131996 (10)-2	6-Dec-24	Day time	1	481	-	400-500	-	Pass
3	Spot : Workshop & Warehouse : 2nd floor : C & I Staff Office #3	24131996 (10)-3	6-Dec-24	Day time	1	798	-	400-500	-	Pass
6	Spot : Workshop & Warehouse : 2nd floor : Mechanical Staff Office	24131996 (10)-4	6-Dec-24	Day time	1	476	-	400-500	-	Pass
7	Spot : Workshop & Warehouse : 2nd floor : Information Technology (IT)	24131996 (10)-5	6-Dec-24	Day time	1	420	-	400-500	-	Pass
8	Area : Workshop & Warehouse : 2nd floor : Maids Room	24131996 (10)-6	6-Dec-24	Day time	1	481	600	50	100	Pass
		24131996 (10)-7	6-Dec-24	Day time	2	720				
9	Spot : Workshop & Warehouse : 2nd floor : Maintenance Manager	24131996 (10)-8	6-Dec-24	Day time	1	425	-	400-500	-	Pass
10	Spot : Workshop & Warehouse : 2nd floor : Electronic Staff Office	24131996 (10)-9	6-Dec-24	Day time	1	404	-	400-500	-	Pass
14	Area : Workshop & Warehouse : 2nd floor : Spare Part Electrical Room	24131996 (10)-10	6-Dec-24	Day time	1	407	374	50	100	Pass
		24131996 (10)-11	6-Dec-24	Day time	2	340				
15	Area : Workshop & Warehouse : 2nd floor : Canteen โรงงานอาหารพนักงาน	24131996 (10)-12	6-Dec-24	Day time	1	505	560	150	300	Pass
		24131996 (10)-13	6-Dec-24	Day time	2	614				
16	Area : Workshop & Warehouse : 2nd floor : Document Center โรงงานเอกสาร	24131996 (10)-14	6-Dec-24	Day time	1	682	654	150	300	Pass
		24131996 (10)-15	6-Dec-24	Day time	2	625				
17	Area : Workshop & Warehouse : 2nd floor : Meeting Room โรงงานประชุม	24131996 (10)-16	6-Dec-24	Day time	1	506	530	150	300	Pass
		24131996 (10)-17	6-Dec-24	Day time	2	554				
18	Area : Workshop & Warehouse : 2nd floor : Restroom-Lady (T-04) โรงงานห้องน้ำ	24131996 (10)-18	6-Dec-24	Day time	1	160	198	50	100	Pass
		24131996 (10)-19	6-Dec-24	Day time	2	237				
19	Area : Workshop & Warehouse : 2nd floor : Restroom-Gentlemen (T-03) โรงงานห้องน้ำ	24131996 (10)-20	6-Dec-24	Day time	1	451	447	50	100	Pass
		24131996 (10)-21	6-Dec-24	Day time	2	443				

Measurement by : Phongsiri Somkaew

Technical Management

  
Supot Salamteh  
Section Head

Approved by

  
Wichan Choonharat  
Assistant Manager

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## Analysis / Test Report

Client : Gulf JP NNK Co., Ltd.

99 Moo 17, Klong Nakorn Neangket, Muang Chachoengsao, Chacheungsao Thailand 24000

P/O :

Project Name : Monitoring EIA

Project Location: GNNK

Lot ID: 24131996 (10)

Date Received : Dec 08, 2024

Date Reported : Dec 09, 2024

Report Number: 24131996 (10)-1

Page 2 of 2

GNNK										
Lay out No.	Location	Reference Number	Date	Time	No.	Illuminance (Lux)		Guideline Limit		Comment
						Spot	Average	Spot/Min	Average	
Guideline : Notification of Department of Labour Protection and Welfare, B.E.2560 (2017) dated November 27, B.E.2560 (2017), and published in the Royal Government Gazette, Vol.135, Part 39D dated February 21 B.E.2561 (2018)										

Technical Management

  
Supot Salamteh  
Section Head

Approved by

  
Wichan Choonharat  
Assistant Manager

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# ภาคผนวก ง

เอกสารการสอบเทียบเครื่องมือตรวจวิเคราะห์



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รายการเครื่องมือที่ใช้ในการวิเคราะห์ / ทดสอบ

Sample Name	Parameter	Equipment Name	ID No.	Calibrated Date	Next Cal	Freq. Calibrate (Months)
Ambient	Total Suspended Particulate	High Volume	BKK_FS0360	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS0362	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS0370	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS0371	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS0370	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS1058	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS1376	-	-	On site Calibration
Ambient	Total Suspended Particulate	Digital Balance	BKK_EN0403	3-Jun-24	3-Jun-25	12
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS0376	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS0387	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS0389	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS1060	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS1061	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS1062	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	BKK_FS1378	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	Digital Balance	BKK_EN0403	3-Jun-24	3-Jun-25	12
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	BKK_FS0803	3-Jul-24	3-Jan-25	6
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	BKK_FS1070	3-Jul-24	3-Jan-25	6
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	BKK_FS1090	3-Jul-24	3-Jan-25	6
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	BKK_FS1098	3-Jul-24	3-Jan-25	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	BKK_FS0802	5-Jul-24	5-Jan-25	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	BKK_FS1069	5-Jul-24	5-Jan-25	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	BKK_FS1089	5-Jul-24	5-Jan-25	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	BKK_FS1097	5-Jul-24	5-Jan-25	6
Ambient	Wind Speed / Wind Direction	Wind Speed / Wind Direction	RYG_FS0435	19-Dec-23	18-Dec-24	12
Ambient	Wind Speed / Wind Direction	Wind Speed / Wind Direction	BKK_FS0909	28-Jun-24	28-Dec-25	18
Ambient	Wind Speed / Wind Direction	Wind Speed / Wind Direction	BKK_FS0910	10-Jun-24	10-Dec-25	18
Stack	Total Suspended Particulate	Console Control Unit	BKK_FS0547	6-Jul-24	6-Jan-25	6
Stack	Total Suspended Particulate	Console Control Unit	BKK_FS0496	4-Jun-24	4-Dec-24	6
Stack	Total Suspended Particulate	Pitot Tube	BKK_FS0551	5-Jul-24	3-Jan-25	6
Stack	Total Suspended Particulate	Probe	BKK_FS1117	5-Jul-24	3-Jan-25	6
Stack	Total Suspended Particulate	Digital Balance	BKK_EN0309	30-Nov-23	30-Nov-24	12
Stack (CEMs)	Oxides of Nitrogen	Analyzer , System calibration, Stand	-	-	-	-
Stack (CEMs)	Sulfur Dioxide	Analyzer , System calibration, Stand	-	-	-	-
Noise	Leq 24 hrs	Sound Calibrator	BKK_FS0632	26-Jan-24	25-Jan-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0930	22-Feb-24	21-Feb-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0024	12-Jun-24	12-Jun-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0028	9-Apr-24	8-Apr-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0113	21-Feb-24	20-Feb-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0115	22-Jan-24	21-Jan-25	12
Noise	Leq 24 hrs	Sound Calibrator	BKK_FS0630	27-Jun-24	27-Jun-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0930	22-Feb-24	21-Feb-25	12
Noise	Leq 24 hrs	Sound Level Meter	BKK_FS0968	22-Feb-24	21-Feb-25	12
Noise	Noise Annoyance	Sound Calibrator	BKK_FS0632	26-Jan-24	25-Jan-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0021	12-Jun-24	12-Jun-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0022	12-Jun-24	12-Jun-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0023	3-Jul-24	3-Jul-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0116	22-Jan-24	21-Jan-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0968	22-Feb-24	21-Feb-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0930	22-Feb-24	21-Feb-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0024	12-Jun-24	12-Jun-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0028	9-Apr-24	8-Apr-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0113	21-Feb-24	20-Feb-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0115	22-Jan-24	21-Jan-25	12
Noise	Noise Annoyance	Sound Calibrator	BKK_FS0630	27-Jun-24	27-Jun-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0930	22-Feb-24	21-Feb-25	12
Noise	Noise Annoyance	Sound Level Meter	BKK_FS0968	22-Feb-24	21-Feb-25	12



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รายการเครื่องมือที่ใช้ในการวิเคราะห์ / ทดสอบ

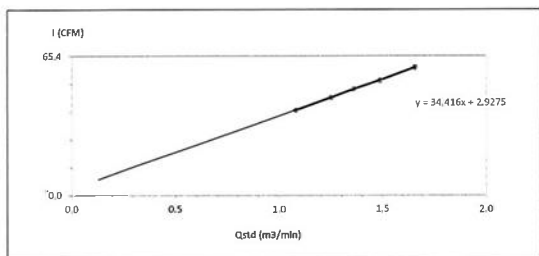
Sample Name	Parameter	Equipment Name	ID No.	Calibrated Date	Next Cal	Freq. Calibrate (Months)
Noise	Leq 8 hrs	Sound Calibrator	BKK_FS0618	19-Dec-23	18-Dec-24	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0876	11-Dec-23	10-Dec-24	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0923	1-Nov-23	1-Nov-24	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0924	1-Nov-23	1-Nov-24	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0969	23-Feb-24	22-Feb-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0971	22-Feb-24	21-Feb-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0994	19-Oct-23	19-Oct-24	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0995	16-Oct-23	16-Oct-24	12
Noise	Leq 8 hrs	Sound Calibrator	BKK_FS0630	27-Jun-24	27-Jun-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0028	9-Apr-24	8-Apr-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0096	29-Jan-24	28-Jan-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0097	29-Jan-24	28-Jan-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0104	29-Jan-24	28-Jan-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0926	12-Nov-24	12-Nov-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0927	5-Jan-24	4-Jan-25	12
Noise	Leq 8 hrs	Sound Level Meter	BKK_FS0997	10-Jan-24	9-Jan-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0669	19-Jul-24	19-Jul-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0670	22-Jul-24	22-Jul-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0671	1-Dec-23	30-Nov-24	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0672	13-Feb-24	12-Feb-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0673	17-May-24	17-May-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0679	27-Oct-23	27-Oct-24	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0680	26-Apr-24	25-Apr-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0650	28-Jun-24	28-Jun-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0655	21-Nov-24	21-Nov-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0658	22-Jul-24	22-Jul-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0663	26-Apr-24	25-Apr-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0673	17-May-24	17-May-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0677	21-Jun-24	21-Jun-25	12
Heat	Heat Stress	Heat Stress Monitor	BKK_FS0678	14-Feb-24	13-Feb-25	12
Illuminance	Illuminance	Lux Meter	BKK_FS1344	09-Jan-24	8-Jan-25	12
Illuminance	Illuminance	Lux Meter	BKK_FS0606	04-Apr-24	3-Apr-25	12
Water Lab	pH at 25 °C	pH meter	BKK_EN0342	17-Oct-24	17-Oct-25	12
Water Lab	Dissolved Oxygen	Burette	BKK_EN0171	27-Feb-24	27-Aug-25	18
Water Lab	Dissolved Oxygen	Chamber. (Cold Room)	BKK_EN0167	6-Dec-26	6-Jun-25	18
Water Lab	Oil & Grease	Electronic Top-Loading Balance	BKK_EN0003	2-Aug-24	2-Aug-25	12
Water Lab	Oil & Grease	Water Bath	BKK_EN0148	4-Jul-23	4-Jan-25	18
Water Lab	Total Suspended Solids	Electronic Top-Loading Balance	BKK_EN0003	2-Aug-24	2-Aug-25	12
Water Lab	Total Suspended Solids	Oven	BKK_EN0273	14-May-24	14-Nov-25	18
Water Lab	Total Dissolved Solids 180°C	Electronic Top-Loading Balance	BKK_EN0003	2-Aug-24	2-Aug-25	12
Water Lab	Total Dissolved Solids 180°C	Oven	BKK_EN0273	14-May-24	14-Nov-25	18
Water Lab	BOD	DO Meter	BKK_EN0205	2-Feb-24	2-Aug-25	18
Water Lab	BOD	Incubator	BKK_EN0305	20-Mar-24	20-Mar-25	12
Water Lab	Temperature	pH Meter with Sensor	BKK_LG0031	26-Feb-24	26-Feb-25	12
Water Lab	Residual Free Chlorine	Chlorine Meter	BKK_LG0047	17-Jun-24	17-Jun-25	12
Water Lab	Conductivity	Conductivity meter	BKK_EN0373	25-Dec-23	25-Dec-24	12
Water Lab	Calcium	ICP-OES	BKK_EL0037	29-Feb-24	28-Feb-25	12
Water Lab	Calcium	Hot Block	BKK_EL0054	22-Sep-23	22-Mar-25	18
Water Lab	Calcium	Chamber. (Cold Room)	BKK_EN0167	6-Dec-26	6-Jun-25	18
Water Lab	Magnesium	ICP-OES	BKK_EL0037	29-Feb-24	28-Feb-25	12
Water Lab	Magnesium	Hot Block	BKK_EL0054	22-Sep-23	22-Mar-25	18
Water Lab	Magnesium	Chamber. (Cold Room)	BKK_EN0167	6-Dec-26	6-Jun-25	18
Water Lab	Sodium	ICP-OES	BKK_EL0037	29-Feb-24	28-Feb-25	12
Water Lab	Sodium	Hot Block	BKK_EL0054	22-Sep-23	22-Mar-25	18
Water Lab	Sodium	Chamber. (Cold Room)	BKK_EN0167	6-Dec-26	6-Jun-25	18
Water Lab	SAR	ICP-OES	BKK_EL0037	29-Feb-24	28-Feb-25	12
Water Lab	SAR	Hot Block	BKK_EL0054	22-Sep-23	22-Mar-25	18
Water Lab	SAR	Chamber. (Cold Room)	BKK_EN0167	6-Dec-26	6-Jun-25	18



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf JP NKK Co., Ltd Barometric Pressure (mm Hg): 754  
 Calibrate Location: บ้านนาบ่อคำ Temperature (°C): 32  
 Calibrate Date: 10-Sep-24 High Volume ID: BKK\_FS0360  
 CalibrationSheet No.: C-100924-BKK\_FS0360 High Volume Model: G1051  
 Calibrator ID: RYG\_FS0415 High Volume S/N: 1331  
 Calibrator Model: TE-5028A Calibrator Slope: 1.64572  
 Calibrator S/N: 3494 Calibrator Intercept: -0.01006

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	1.0802	40	Slope: 34.4156 Intercept: 2.9275 Correlation Coefficient: 0.9998
2	4.3	1.2506	46	
3	5.1	1.3611	50	
4	6.1	1.4876	54	
5	7.6	1.6593	60	



Calibrated by: AUT A.  
 (Mr. Autit Aonsim)  
 Field Scientist(2)

Approved by: N. Pong  
 (Mr. Noppong Juntarupan)  
 Enviro Field Coordinator Scientist (3)

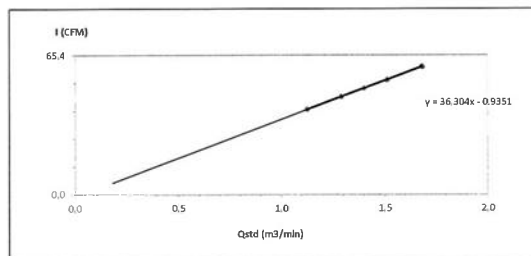
FORM NO: F-06-073 REVISION NO: - ISSUE DATE: 14/03/16



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf JP NKK Co., Ltd Barometric Pressure (mm Hg): 754  
 Calibrate Location: บ้านนาบ่อคำ Temperature (°C): 32  
 Calibrate Date: 10-Sep-24 High Volume ID: BKK\_FS0362  
 CalibrationSheet No.: C-100924-BKK\_FS0362 High Volume Model: G1051  
 Calibrator ID: RYG\_FS0415 High Volume S/N: 1452  
 Calibrator Model: TE-5028A Calibrator Slope: 1.64572  
 Calibrator S/N: 3494 Calibrator Intercept: -0.01006

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	3.5	1.1293	40	Slope: 36.3035 Intercept: -0.9351 Correlation Coefficient: 0.9999
2	4.6	1.2932	46	
3	5.4	1.4003	50	
4	6.3	1.5116	54	
5	7.8	1.6809	60	



Calibrated by: AUT A.  
 (Mr. Autit Aonsim)  
 Field Scientist(2)

Approved by: N. Pong  
 (Mr. Noppong Juntarupan)  
 Enviro Field Coordinator Scientist (3)

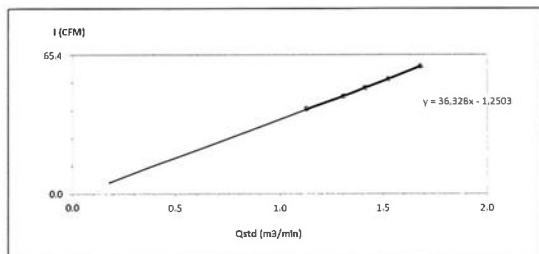
FORM NO: F-06-073 REVISION NO: - ISSUE DATE: 14/03/16



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf JP NKK Co., Ltd Barometric Pressure (mm Hg): 754  
 Calibrate Location: บ้านนาบ่อคำ Temperature (°C): 32  
 Calibrate Date: 10-Sep-24 High Volume ID: BKK\_FS0370  
 CalibrationSheet No.: C-100924-BKK\_FS0370 High Volume Model: TE-5009X  
 Calibrator ID: RYG\_FS0415 High Volume S/N: 4798  
 Calibrator Model: TE-5028A Calibrator Slope: 1.64572  
 Calibrator S/N: 3494 Calibrator Intercept: -0.01006

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	3.5	1.1293	40	Slope: 36.3285 Intercept: -1.2503 Correlation Coefficient: 0.9997
2	4.7	1.3070	46	
3	5.5	1.4131	50	
4	6.4	1.5235	54	
5	7.8	1.6809	60	



Calibrated by: AUT A.  
 (Mr. Autit Aonsim)  
 Field Scientist(2)

Approved by: N. Pong  
 (Mr. Noppong Juntarupan)  
 Enviro Field Coordinator Scientist (3)

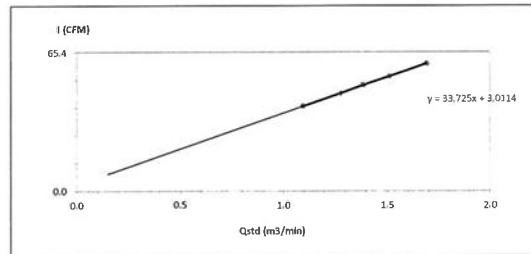
FORM NO: F-06-073 REVISION NO: - ISSUE DATE: 14/03/16



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf JP NKK Co., Ltd Barometric Pressure (mm Hg): 754  
 Calibrate Location: บ้านนาบ่อคำ Temperature (°C): 32  
 Calibrate Date: 10-Sep-24 High Volume ID: BKK\_FS0371  
 CalibrationSheet No.: C-100924-BKK\_FS0371 High Volume Model: G1051  
 Calibrator ID: RYG\_FS0415 High Volume S/N: 1324  
 Calibrator Model: TE-5028A Calibrator Slope: 1.64572  
 Calibrator S/N: 3494 Calibrator Intercept: -0.01006

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	3.3	1.0968	40	Slope: 33.7249 Intercept: 3.0114 Correlation Coefficient: 0.9999
2	4.5	1.2791	46	
3	5.3	1.3873	50	
4	6.3	1.5116	54	
5	7.9	1.6915	60	



Calibrated by: AUT A.  
 (Mr. Autit Aonsim)  
 Field Scientist(2)

Approved by: N. Pong  
 (Mr. Noppong Juntarupan)  
 Enviro Field Coordinator Scientist (3)

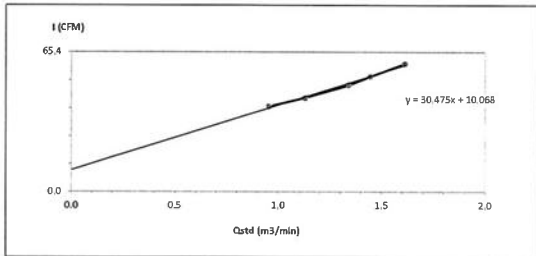
FORM NO: F-06-073 REVISION NO: - ISSUE DATE: 14/03/16



### High Volume Air Sampler Calibration Worksheet

Project Site : Gulf IP NKK Co. Ltd. Barometric Pressure (mm Hg) : 756.8  
Calibrate Location : พื้นที่โล่งในสวน Temperature (°C) : 30.1  
Calibrate Date : 9-Dec-24 High Volume ID : BKK-FS0370  
Calibration Sheet No. : C-091224-BKK-FS0370 High Volume Model : TE-5009X  
Calibrator ID : BKK-FS0624 High Volume S/N : 4798  
Calibrator Model : TE-5028A Calibrator Slope : 1.64931  
Calibrator S/N : 2584 Calibrator Intercept : -0.02579

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.4	0.9552	40	Slope: 30.4755 Intercept: 10.0684 Correlation Coefficient: 0.9951
2	3.4	1.1320	44	
3	4.8	1.3402	50	
4	5.6	1.4455	54	
5	7.0	1.6130	60	



Calibrated by: K. Tameerat  
( Mr. Keerat Taweerat )  
Field Scientist(1)

Approved by: [Signature]  
( Mr. Noppong Juntarup )  
Enviro Field Coordinator Scientist (3)

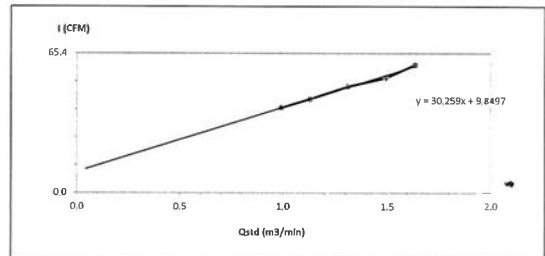
FORM NO: F-06-073 REVISION NO:2 ISSUE DATE: 20/11/23



### High Volume Air Sampler Calibration Worksheet

Project Site : Gulf IP NKK Co. Ltd. Barometric Pressure (mm Hg) : 756.8  
Calibrate Location : พื้นที่โล่งในสวน Temperature (°C) : 30.1  
Calibrate Date : 9-Dec-24 High Volume ID : BKK-FS1058  
Calibration Sheet No. : C-091224-BKK-FS1058 High Volume Model : TE-5009X  
Calibrator ID : BKK-FS0624 High Volume S/N : 5689  
Calibrator Model : TE-5028A Calibrator Slope : 1.64931  
Calibrator S/N : 2584 Calibrator Intercept : -0.02579

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.6	0.9931	40	Slope: 30.2586 Intercept: 9.8497 Correlation Coefficient: 0.9963
2	3.4	1.1320	44	
3	4.6	1.3125	50	
4	6.0	1.4953	54	
5	7.2	1.6355	60	



Calibrated by: K. Tameerat  
( Mr. Keerat Taweerat )  
Field Scientist(1)

Approved by: [Signature]  
( Mr. Noppong Juntarup )  
Enviro Field Coordinator Scientist (3)

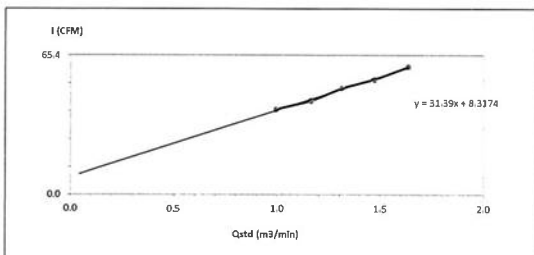
FORM NO: F-06-073 REVISION NO:2 ISSUE DATE: 20/11/23



### High Volume Air Sampler Calibration Worksheet

Project Site : Gulf IP NKK Co. Ltd. Barometric Pressure (mm Hg) : 756.8  
Calibrate Location : พื้นที่โล่งในสวน Temperature (°C) : 30.1  
Calibrate Date : 9-Dec-24 High Volume ID : BKK-FS1376  
Calibration Sheet No. : C-091224-BKK-FS1376 High Volume Model : TE-5009X  
Calibrator ID : BKK-FS0624 High Volume S/N : 6257  
Calibrator Model : TE-5028A Calibrator Slope : 1.64931  
Calibrator S/N : 2584 Calibrator Intercept : -0.02579

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.6	0.9931	40	Slope: 31.3897 Intercept: 8.3174 Correlation Coefficient: 0.9969
2	3.6	1.1641	44	
3	4.6	1.3125	50	
4	5.8	1.4706	54	
5	7.2	1.6355	60	



Calibrated by: K. Tameerat  
( Mr. Keerat Taweerat )  
Field Scientist(1)

Approved by: [Signature]  
( Mr. Noppong Juntarup )  
Enviro Field Coordinator Scientist (3)

FORM NO: F-06-073 REVISION NO:2 ISSUE DATE: 20/11/23



PLAY SOLUTION TECHNOLOGY COMPANY LIMITED  
178/75 Nisawang Pracha Pattana Road, Silan, Duangjai Bangkok 10210  
Tel: +66 2 011 0505, Fax: +66 2 010 7700  
www.playsoltec.com



### CERTIFICATE OF CALIBRATION

Certificate No. : PST-0126-24

W/O No : WO-0051-24

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD. Page no 1 of 3  
Address : 104 Phatthanakun 40, Phatthanakun Road, Khwaeng Phatthanakun,  
City / Province : Khut Suan Luang, Bangkok  
Zip/Postal : 10250

Device : Electronic Balance Capacity : 120 / 220 g  
Manufacturer : OHAUS Readability : 0.0001 / 0.0001 g  
Model : CN225D/AD ID No : BKK-EN0403  
Serial No. : C309774648  
Condition : Normal

#### Environment Conditions

Location of Calibration : Environment Lab  
Ambient Temperature : 20.1 (°C) ± 3 °C  
Relative Humidity : 70.3 (%RH) ± 15 %RH  
Barometric Pressure : 1011.1 (mbar) ± 10 hPa  
Comment :

REVIEW BY: [Signature]  
APPROVED BY: [Signature]  
NEXT CAL DATE: 03/01/25

Date of Receipt : June 3, 2024  
Date of Calibration : June 3, 2024  
Issue Date : June 5, 2024

Calibrated by : Mr. Kittichai Rattanatham Approved by : [Signature]  
Calibrator: ( Mr. Kittichai Rattanatham )  
Approved Signature

The reported measurement result relates only to the measured and applies only at the time of measurement.

This Certificate is issued in accordance with the conditions of accreditation granted by Thai Laboratory Accreditation scheme which has assessed the measurement capability of the laboratory and its traceability to recognize national standards and to the unit of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval prior written approval of the calibration center, Play Solution Technology Co., Ltd.

F-039

REV 01 30/09/06





PLAY SOLUTION TECHNOLOGY COMPANY LIMITED  
179/75 Nawong Pracha Pattana Road, Sikan, Donmuang, Bangkok 10210  
Tel: +66 2 011 0505, Fax: +66 2 010 7700  
www.playsolec.com



## CERTIFICATE OF CALIBRATION

Certificate No. : PST-0126-24

W/O No. : WD-0051-24

Result of Calibration : Without Adjustment

Page no. 2 of 3

### 1. Repeatability

Weighting Range 1	#	Nominal Value	#	Standard Deviation	#
Max capacity	220	50		0.000012	
		200		0.000048	

### 2. Linearity, Departure of Indication from nominal value

Weighting Range 1	Nominal Value	Standard Value	Indication	Error of Indication	Expanded Uncertainty	Factor
#	#	#	#	#	#	#
0.01	0.01000	0.01000	0.01000	-0.000001	0.000083	2.87
0.1	0.10001	0.10001	0.10001	0.000004	0.000042	2.87
0.5	0.50000	0.50000	0.50000	0.000012	0.00006	2.87
1	1.00001	1.00001	1.00001	0.000013	0.00008	2.87
5	5.00002	5.00002	5.00002	0.000009	0.00008	2.52
10	10.00005	10.00005	10.00005	-0.000001	0.00008	2.28
50	50.00001	49.99998	49.99998	-0.0000027	0.00015	2.00
100	100.00002	100.00002	100.00002	0.000004	0.00030	2.00
150	150.00002	150.00001	150.00001	0.0000077	0.00045	2.00
200	200.00003	200.00001	200.00001	0.0000048	0.00060	2.00

F-031

REV.03/30/08/06



PLAY SOLUTION TECHNOLOGY COMPANY LIMITED  
179/75 Nawong Pracha Pattana Road, Sikan, Donmuang, Bangkok 10210  
Tel: +66 2 011 0505, Fax: +66 2 010 7700  
www.playsolec.com



## CERTIFICATE OF CALIBRATION

Certificate No. : PST-0126-24

W/O No. : WD-0051-24

Result of Calibration

Page no. 3 of 3

### 3. Eccentricity

Test load at least 1/3 of the maximum capacity, typically placed between 1/2 and 1/3 of the distance from the centre of the load receptor to the edge



Weighting Range 1  
Test Load: 100 g

Position	Indication	#
1	100.00004	
2	100.00005	
3	100.00002	
4	100.00004	
5	100.00003	
Max Deviation	0.00002	

### Standard Method

The calibration was performed by using calibration laboratory's in-house calibration method CP-M-001 based on "UKAS LAB 14 - Calibration of weighing machine" : edition 5 / October 2019

### Reference standards instrument

Instrument	Class	S/N	Certificate No.	Due Date
Standard Weight Set	E2	4000021952	22-128725	November 30, 2024
Standard Weight Set	-	-	-	-
Standard Weight Set	-	-	-	-
Standard Weight Set	-	-	-	-

### Measurement Uncertainty

The given measurement uncertainty is the standard of the measurement multiplied by an extension factor  $k$  which corresponds to a confidence level of about 95% for a normal distribution. The standard uncertainty was calculated according to UKAS M3001.

Traceability: The measurement is traceable to national standards, which realize the physical unit of measurement (SI).  
Through the reference calibration laboratory of Asia Medical and Agricultural Laboratory and Research Center Co., Ltd

END OF REPORT

F-039

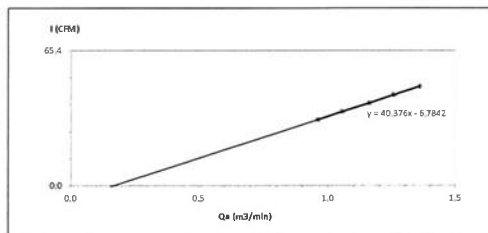
REV.03/30/08/06



## High Volume Air Sampler Calibration Worksheet

Project Site: Gulf JP-NKK Co., Ltd Barometric Pressure (mm Hg): 754  
Calibrate Location: บ้านบางปะอิน Temperature (°C): 32  
Calibrate Date: 10-Sep-24 High Volume ID: BKK-FS0376  
Calibration Sheet No: C-100924-BKK-FS0376 High Volume Model: G1051  
Calibrator ID: RYG-FS0415 High Volume S/N: 1294  
Calibrator Model: TE-5028A Calibrator Slope: 1.03079  
Calibrator S/N: 3494 Calibrator Intercept: -0.00629

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>a</sub> (m <sup>3</sup> /min)	I Chart (CFM)	Linear Regression
1	2.4	0.962	32	Slope: 40.3762
2	2.9	1.057	36	Intercept: -6.7842
3	3.5	1.161	40	Correlation Coefficient: 0.9999
4	4.1	1.256	44	
5	4.8	1.358	48	



Calibrated by: A. A.  
(Mr. Aulit Aonsim)  
Field Scientist(2)

Approved by: [Signature]  
(Mr. Neppong Juntarupan)  
Enviro Field Coordinator Scientist (3)

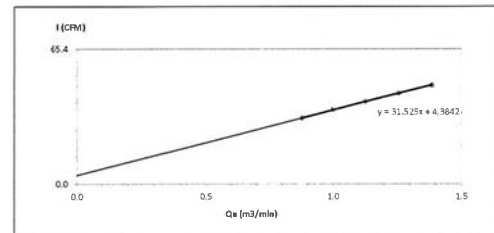
FORM NO. F-06-074 REVISION NO.: ISSUE DATE: 14/03/16



## High Volume Air Sampler Calibration Worksheet

Project Site: Gulf JP-NKK Co., Ltd Barometric Pressure (mm Hg): 754  
Calibrate Location: บ้านบางปะอิน Temperature (°C): 32  
Calibrate Date: 10-Sep-24 High Volume ID: BKK-FS0387  
Calibration Sheet No: C-100924-BKK-FS0387 High Volume Model: G1051  
Calibrator ID: RYG-FS0415 High Volume S/N: 1626  
Calibrator Model: TE-5028A Calibrator Slope: 1.03079  
Calibrator S/N: 3494 Calibrator Intercept: -0.00629

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>a</sub> (m <sup>3</sup> /min)	I Chart (CFM)	Linear Regression
1	2.9	0.979	32	Slope: 31.5249
2	2.6	1.001	36	Intercept: 4.3842
3	3.3	1.127	40	Correlation Coefficient: 0.9999
4	4.1	1.256	44	
5	5.0	1.386	48	



Calibrated by: A. A.  
(Mr. Aulit Aonsim)  
Field Scientist(2)

Approved by: [Signature]  
(Mr. Neppong Juntarupan)  
Enviro Field Coordinator Scientist (3)

FORM NO. F-06-074 REVISION NO.: ISSUE DATE: 14/03/16

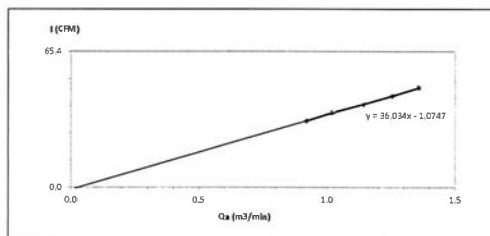




### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf IP NKK Co., Ltd. Barometric Pressure (mm Hg): 754  
Calibrate Location: บ้านนาโพธิ์ Temperature (°C): 32  
Calibrate Date: 10-Sep-24 High Volume ID: BKK FS0389  
Calibration Sheet No.: C-100924-BKK FS0389 High Volume Model: TE-5009X  
Calibrator ID: RYG FS0415 High Volume S/N: 5329  
Calibrator Model: TE-5028A Calibrator Slope: 1.03079  
Calibrator S/N: 3494 Calibrator Intercept: -0.00629

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>a</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.2	0.921	32	Slope: 36.0344 Intercept: -1.0747 Correlation Coefficient: 0.9994
2	2.7	1.020	36	
3	3.4	1.141	40	
4	4.1	1.256	44	
5	4.8	1.358	48	



Calibrated by: Auth A.  
(Mr. Autt Aomsim)  
Field Scientist(2)

Approved by: Mr. Noppong Juntarupan  
(Mr. Noppong Juntarupan)  
Enviro Field Coordinator Scientist (3)

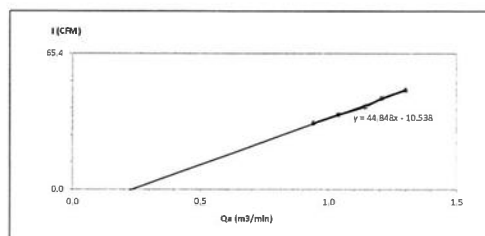
FORM NO: F 06-074 REVISION NO.: ISSUE DATE: 14/03/16



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf IP NKK Co., Ltd. Barometric Pressure (mm Hg): 754  
Calibrate Location: บ้านนาโพธิ์ Temperature (°C): 32  
Calibrate Date: 10-Sep-24 High Volume ID: BKK FS1060  
Calibration Sheet No.: C-100924-BKK FS1060 High Volume Model: TE-5009X  
Calibrator ID: RYG FS0415 High Volume S/N: 5503  
Calibrator Model: TE-5028A Calibrator Slope: 1.03079  
Calibrator S/N: 3494 Calibrator Intercept: -0.00629

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>a</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.3	0.942	32	Slope: 44.8476 Intercept: -10.5388 Correlation Coefficient: 0.9974
2	2.8	1.039	36	
3	3.4	1.144	40	
4	3.8	1.209	44	
5	4.4	1.301	48	



Calibrated by: Auth A.  
(Mr. Autt Aomsim)  
Field Scientist(2)

Approved by: Mr. Noppong Juntarupan  
(Mr. Noppong Juntarupan)  
Enviro Field Coordinator Scientist (3)

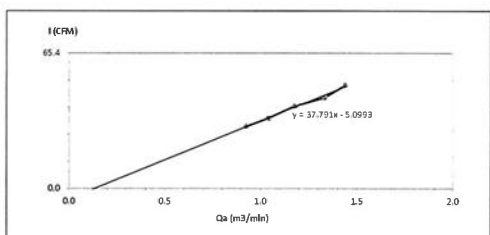
FORM NO: F 06-074 REVISION NO.: ISSUE DATE: 14/03/16



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf IP NKK Co., Ltd. Barometric Pressure (mm Hg): 756.8  
Calibrate Location: บ้านนาโพธิ์ 2 บ้านนาโพธิ์ Temperature (°C): 30.1  
Calibrate Date: 9-Dec-24 High Volume ID: BKK FS1061  
Calibration Sheet No.: C-091224-BKK FS1061 High Volume Model: TE-5009X  
Calibrator ID: BKK FS0624 High Volume S/N: 5584  
Calibrator Model: TE-5028A Calibrator Slope: 1.03303  
Calibrator S/N: 2584 Calibrator Intercept: -0.01606

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>a</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.2	0.925	30	Slope: 37.7915 Intercept: -5.0993 Correlation Coefficient: 0.9955
2	2.8	1.041	34	
3	3.6	1.178	40	
4	4.6	1.330	44	
5	5.4	1.410	50	



Calibrated by: K Taweerat  
(Mr. Keerati Taweerat)  
Field Scientist(1)

Approved by: Mr. Noppong Juntarupan  
(Mr. Noppong Juntarupan)  
Enviro Field Coordinator Scientist (3)

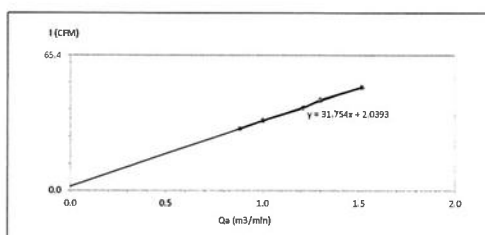
FORM NO: F 06-074 REVISION NO.:2 ISSUE DATE: 20/11/23



### High Volume Air Sampler Calibration Worksheet

Project Site: Gulf IP NKK Co., Ltd. Barometric Pressure (mm Hg): 756.8  
Calibrate Location: บ้านนาโพธิ์ 2 บ้านนาโพธิ์ Temperature (°C): 30.1  
Calibrate Date: 9-Dec-24 High Volume ID: BKK FS1062  
Calibration Sheet No.: C-091224-BKK FS1062 High Volume Model: TE-5009X  
Calibrator ID: BKK FS0624 High Volume S/N: 5486  
Calibrator Model: TE-5028A Calibrator Slope: 1.03303  
Calibrator S/N: 7584 Calibrator Intercept: -0.01606

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>a</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.0	0.082	30	Slope: 31.7539 Intercept: 2.0393 Correlation Coefficient: 0.9986
2	2.6	1.004	34	
3	3.8	1.210	40	
4	4.4	1.301	44	
5	6.0	1.517	50	



Calibrated by: K Taweerat  
(Mr. Keerati Taweerat)  
Field Scientist(1)

Approved by: Mr. Noppong Juntarupan  
(Mr. Noppong Juntarupan)  
Enviro Field Coordinator Scientist (3)

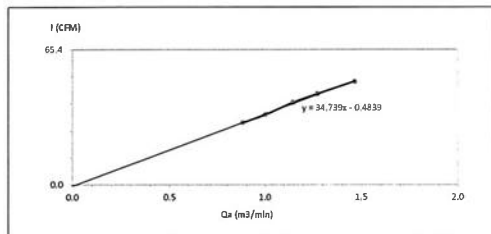
FORM NO: F 06-074 REVISION NO.:2 ISSUE DATE: 20/11/23



### High Volume Air Sampler Calibration Worksheet

Project Site : Gulf P NKK Co., Ltd.  
 Calibrate Location : บริษัทปิโตรเลียม จำกัด (มหาชน) 198  
 Calibrate Date : 9-Dec-24  
 Calibration Sheet No. : C-091224-BKK\_FS1378  
 Calibrator ID : BKK\_FS0624  
 Calibrator Model : TE-5028A  
 Calibrator S/N : 2584  
 Barometric Pressure (mm Hg) : 756.8  
 Temperature (°C) : 30.1  
 High Volume ID : BKK\_FS1378  
 High Volume Model : TE-5009X  
 High Volume S/N : 6263  
 Calibrator Slope : 1.03003  
 Calibrator Intercept : -0.01606

Test No.	Delta H <sub>2</sub> O (Inch)	Qa (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.8	0.802	30	Slope : 34.7389 Intercept : -0.4839 Correlation Coefficient : 0.9901
2	2.6	1.004	34	
3	3.4	1.146	40	
4	4.2	1.272	44	
5	5.6	1.466	50	



Calibrated by : K. Taveerat  
 (Mr. Keerat Taveerat  
 Field Scientist (1))

Approved by :   
 (Mr. Noppang Juntaruban)  
 Enviro Field Coordinator Scientist (3)

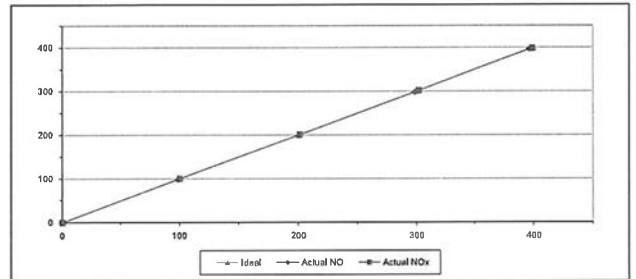
FORM NO. F 06-074 REVISION NO.2 ISSUE DATE: 20/11/23



### MULTIPOINT CALIBRATION REPORT

Calibration Date : 3-Jul-24  
 Manufacturer : HORIBA  
 Serial No. : XGRAXH0D  
 Calibrator Manufacturer : Teledyne API  
 Serial No. : 847  
 Std. Gas Concentration (PPM) : 55.88  
 Cylinder Pressure (psi) : 1800  
 Certified Date : 9-Feb-22  
 Equipment Name : NOx Analyzer  
 Model : APNA-370  
 Equipment ID : BKK\_FS0803  
 Model : 700  
 Cylinder No. : GN0027222  
 Certified By : Airgas Inc.  
 Expired Date : 8-Feb-30

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	98.80	-1.20	-1.20	100.50	0.50	0.50
2	200.00	201.50	1.50	0.75	201.20	1.20	0.60
3	300.00	298.40	-1.60	-0.53	302.10	2.10	0.70
4	400.00	396.50	-3.50	-0.88	398.50	-1.50	-0.38
AVERAGE (%)				-0.35			0.31



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
 Assistant General Manager

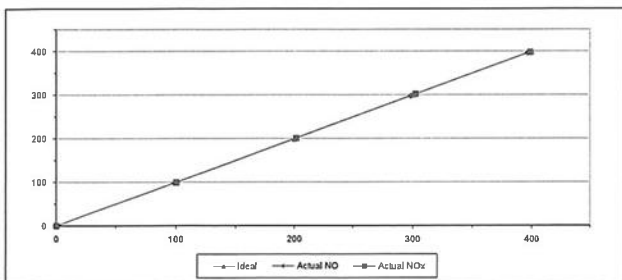
ALS Laboratory Group  
 FORM NO. F 06-056 REVISION NO. - ISSUE DATE: 02/04/12



### MULTIPOINT CALIBRATION REPORT

Calibration Date : 3-Jul-24  
 Manufacturer : HORIBA  
 Serial No. : PPGM9HKH  
 Calibrator Manufacturer : Teledyne API  
 Serial No. : 847  
 Std. Gas Concentration (PPM) : 55.88  
 Cylinder Pressure (psi) : 1800  
 Certified Date : 9-Feb-22  
 Equipment Name : NOx Analyzer  
 Model : APNA-370  
 Equipment ID : BKK\_FS1070  
 Model : 700  
 Cylinder No. : GN0027222  
 Certified By : Airgas Inc.  
 Expired Date : 8-Feb-30

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	98.80	-1.20	-1.20	100.50	0.50	0.50
2	200.00	201.30	1.30	0.65	201.50	1.50	0.75
3	300.00	298.30	-1.70	-0.57	302.30	2.30	0.77
4	400.00	396.80	-3.20	-0.80	398.60	-1.40	-0.35
AVERAGE (%)				-0.36			0.35



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
 Assistant General Manager

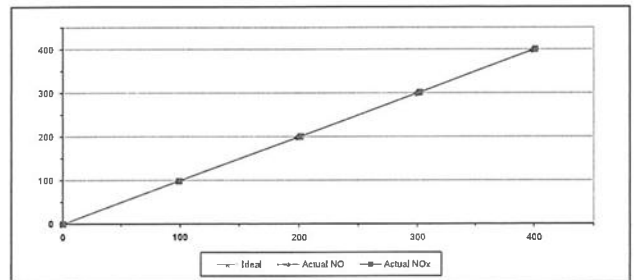
ALS Laboratory Group  
 FORM NO. F 06-056 REVISION NO. - ISSUE DATE: 02/04/12



### MULTIPOINT CALIBRATION REPORT

Calibration Date : 3-Jul-24  
 Manufacturer : HORIBA  
 Serial No. : SUDLS0MU  
 Calibrator Manufacturer : Teledyne API  
 Serial No. : 847  
 Std. Gas Concentration (PPM) : 55.88  
 Cylinder Pressure (psi) : 1800  
 Certified Date : 9-Feb-22  
 Equipment Name : NOx Analyzer  
 Model : APNA-370  
 Equipment ID : BKK\_FS1090  
 Model : 700  
 Cylinder No. : GN0027222  
 Certified By : Airgas Inc.  
 Expired Date : 8-Feb-30

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	99.10	-0.90	-0.90
2	200.00	198.30	-1.70	-0.85	201.50	1.50	0.75
3	300.00	299.30	-0.70	-0.23	302.00	2.00	0.67
4	400.00	398.30	-1.70	-0.42	401.20	1.20	0.30
AVERAGE (%)				-0.54			0.18



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
 Assistant General Manager

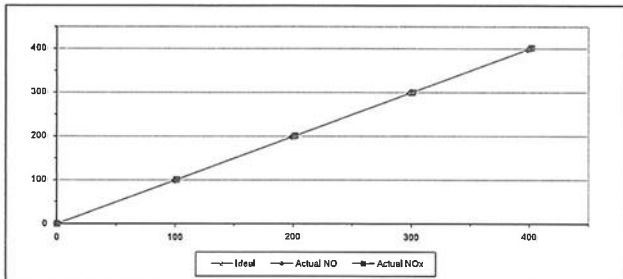
ALS Laboratory Group  
 FORM NO. F 06-056 REVISION NO. - ISSUE DATE: 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date	3-Jul-24	Equipment Name	NOx Analyzer
Manufacturer	Teledyne API	Model	T200
Serial No.	6305	Equipment ID	BKK_FS1098
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	55.88	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Airgas Inc.
Certified Date	8-Feb-22	Expired Date	8-Feb-30

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	99.40	-0.60	-0.60	101.20	1.20	1.20
2	200.00	198.50	-1.50	-0.75	201.40	1.40	0.70
3	300.00	298.50	-1.50	-0.50	301.10	1.10	0.37
4	400.00	398.50	-1.50	-0.38	402.00	2.00	0.50
AVERAGE (%)				-0.42			0.57



Calibrated By

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

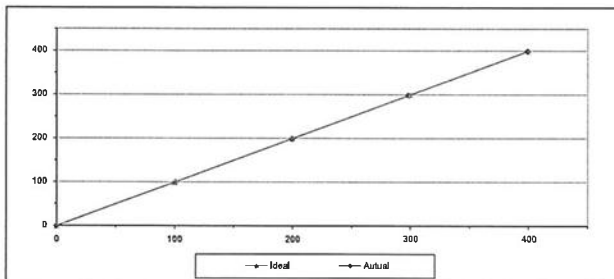
Approved By

(Mr. Sarayuth Jitranont)  
Assistant General ManagerALS Laboratory Group  
FORM NO.: F 05-056 REVISION NO.: - ISSUE DATE 02/04/12

## MULTIPOINT CALIBRATION REPORT

Calibration Date	5-Jul-24	Equipment Name	SO2 Analyzer
Manufacturer	HORIBA	Model	APSA-370
Serial No.	2SSLA8G0	Equipment ID	BKK_FS0802
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	56.3	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Airgas Inc.
Certified Date	8-Feb-22	Expired Date	8-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	101.00	1.00	1.00
2	200.00	199.40	-0.60	-0.30
3	300.00	298.30	-1.70	-0.57
4	400.00	399.20	-0.80	-0.20
AVERAGE (%)				0.01



Calibrated By

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

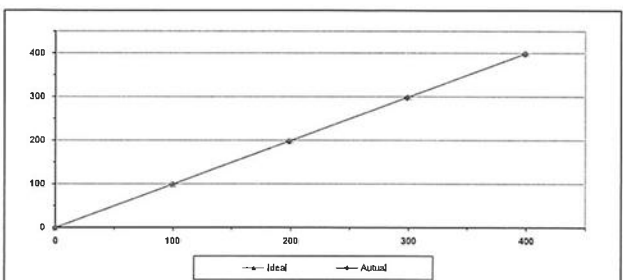
Approved By

(Mr. Sarayuth Jitranont)  
Assistant General ManagerALS Laboratory Group  
FORM NO.: F 05-056 REVISION NO.: - ISSUE DATE 02/04/12

## MULTIPOINT CALIBRATION REPORT

Calibration Date	5-Jul-24	Equipment Name	SO2 Analyzer
Manufacturer	HORIBA	Model	APSA-370
Serial No.	70Y1RBR0	Equipment ID	BKK_FS1088
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	56.3	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Airgas Inc.
Certified Date	8-Feb-22	Expired Date	8-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	99.30	-0.70	-0.70
2	200.00	198.00	-2.00	-1.00
3	300.00	298.70	-1.30	-0.43
4	400.00	398.70	-1.30	-0.33
AVERAGE (%)				-0.47



Calibrated By

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

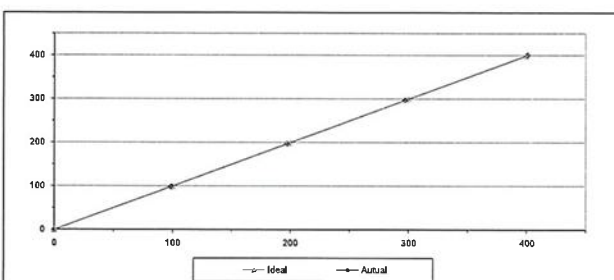
Approved By

(Mr. Sarayuth Jitranont)  
Assistant General ManagerALS Laboratory Group  
FORM NO.: F 05-056 REVISION NO.: - ISSUE DATE 02/04/12

## MULTIPOINT CALIBRATION REPORT

Calibration Date	5-Jul-24	Equipment Name	SO2 Analyzer
Manufacturer	HORIBA	Model	APSA-370
Serial No.	XGYVY1AU	Equipment ID	BKK_FS1088
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	56.3	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Airgas Inc.
Certified Date	8-Feb-22	Expired Date	8-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	98.80	-1.20	-1.20
2	200.00	197.40	-2.60	-1.30
3	300.00	297.50	-2.50	-0.83
4	400.00	401.20	1.20	0.30
AVERAGE (%)				-0.58



Calibrated By

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

Approved By

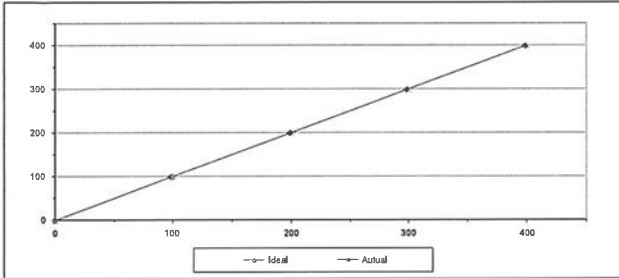
(Mr. Sarayuth Jitranont)  
Assistant General ManagerALS Laboratory Group  
FORM NO.: F 05-056 REVISION NO.: - ISSUE DATE 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date	5-Jul-24	Equipment Name	SO2 Analyzer
Manufacturer	Teledyne API	Model	T100
Serial No.	5345	Equipment ID	BK0_F51087
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	58.3	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Algas Inc.
Certified Date	9-Feb-22	Expired Date	9-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	98.60	-1.40	-1.40
2	200.00	198.80	-1.20	-0.60
3	300.00	298.40	-1.60	-0.53
4	400.00	398.70	-1.30	-0.33
AVERAGE (%)				-0.55



Calibrated By

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

Approved By

(Mr. Sarayuth Jittrantorn)  
Assistant General Manager

ALS Laboratory Group  
FORM NO. F-05-056 REVISION NO.: ISSUE DATE: 02/04/12



Jiraratte Associates Co., Ltd.  
6/234 15, 6/235 16,  
Rachaburi 2, 2/2, 8/8 Wathana, Bangkok,  
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Tel: +662-015-6755  
Mobile: +662-015-6755  
E-mail: jiraratte@jiraratte.com  
Web site: www.jiraratte.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
MSC-TIS-TIS 17025  
CALIBRATION 0367

Air speed measurement laboratory  
Calibration services department



MSC-TIS-TIS 17025  
CALIBRATION 0367

Certificate Number

CWS-015-66

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

### MEASUREMENT ITEM

MANUFACTURER

MODEL/TYPE

SERIAL NUMBER

ID NUMBER

CONDITION AS RECEIVED

CUSTOMER

Cup anemometer

Novamyl

Sensor: WS-02T

Data logger: L10-WS-250D-D

Sensor: WSD-AS444

Data logger: AS444

RYG-F50435

Used item

ALS Laboratory Group (Thailand) Co., Ltd.

104 Phatthanasak 40, Phatthanasak Rd, Khwaeng Suan Luang,

Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE

MEASUREMENT DATE

ISSUE DATE

15 Dec 2023

19 Dec 2023

20 Dec 2023

### ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follows:

Temperature: 23.0 ± 3.0 °C

Relative Humidity: 55.0 ± 15.0 %RH

Atmospheric Pressure: 1010 ± 10 hPa

### PLACE OF CALIBRATION

Effel-type wind tunnel of Jiraratte Associates Co., Ltd.

### CALIBRATION CONDITIONS

Wind tunnel cross-section area<sup>1</sup>

Wind direction frontal area<sup>2</sup>

Diameter of mounting pipe<sup>3</sup>

Blockage ratio of test object<sup>4</sup>

900 cm<sup>2</sup>

100 cm<sup>2</sup>

mm

0.111 [-]

### Preconditioning

Measurement Condition

24 hours at ambient conditions.

The average values during measurement are (23.9) °C, (51.0) %RH and (1010.9) hPa.

### TABULATION OF RESULTS:

The table on next page give the measured values.

Calibrated by:

Mr. Sarawat Thairakul

Mr. Jiraratte Lertchomporn

### Remarks:

1. Verify crispness on faces of the wind tunnel

2. Provided cross-section area of the tested object include mounting pipe

3. Diameter of mounting pipe

4. Ratio: 100

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

Page 2 of 2 Pages

### MEASUREMENT RESULTS<sup>2</sup>

The Cup anemometer, Unit Under Calibration (UUC) was exercise at 30 m/s for 5 minutes prior to calibration being performed. The standard air velocity 0.5 m/s (± 5 m/s) was calculated by a standard air velocity transducer which was installed 50 mm away from wind tunnel nozzle and installed 40 mm away from top of the test section and the standard air velocity 5 m/s to 30 m/s was calculated by a pitot tube with precision differential pressure meter which was installed 50 mm away from wind tunnel nozzle and installed 40 mm away from top of the test section. UUC was mounted on a round vertical tube of the lower plate at center of test section. The calibration was carried out under both rising and falling air velocity in the range of 1 m/s to 16 m/s at calibration interval of 1 m/s. The results of calibration and associated measurement uncertainties are reported in the table below.

UUC (m/s)	Temp. wind tunnel (°C)	Temp. room (°C)	U <sub>ref</sub> (m/s)	Error (m/s)	U (k=2) (m/s)
1.015	23.82	23.90	0.8	-0.2	0.32
2.019	23.94	23.90	1.9	-0.2	0.31
3.059	23.76	23.90	2.9	-0.1	0.31
4.155	23.76	23.90	4.0	-0.2	0.31
5.06	23.70	23.90	5.0	-0.1	0.31
6.02	24.08	23.90	6.0	0.0	0.31
7.01	23.68	23.90	7.1	0.0	0.31
7.97	23.98	23.90	8.0	0.1	0.31
8.96	23.54	23.90	9.1	0.1	0.31
10.03	23.86	23.90	10.2	0.1	0.31
11.02	23.44	23.90	11.1	0.1	0.31
12.04	23.88	23.90	12.2	0.1	0.31
13.02	23.44	23.90	13.2	0.2	0.31
14.03	23.72	23.90	14.2	0.1	0.31
15.03	23.50	23.90	15.2	0.2	0.31
16.03	23.52	23.90	16.2	0.2	0.31

### Remarks:

<sup>1</sup> Calibration results only count for the tested circumstances and environmental conditions during which calibration took place

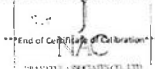
<sup>2</sup> Velocity of standard

<sup>3</sup> Velocity of Unit Under Calibration

### PHOTO OF CALIBRATION SET-UP



Calibration set up of the Cup anemometer calibration in the wind tunnel of Jiraratte Associates Co., Ltd. The Cup anemometer shown may differ from the calibrated one. The proportion of the set-up is not being made due to image property.



Jiraratte Associates Co., Ltd.  
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Rachaburi 2, 2/2, 8/8 Wathana, Bangkok,  
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Mobile: +662-015-6755  
E-mail: jiraratte@jiraratte.com  
Web site: www.jiraratte.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
MSC-TIS-TIS 17025  
CALIBRATION 0367

Wind direction measurement laboratory  
Calibration services department



MSC-TIS-TIS 17025  
CALIBRATION 0367

Certificate Number

CWD-015-66

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

### MEASUREMENT ITEM

MANUFACTURER

MODEL/TYPE

SERIAL NUMBER

ID NUMBER

CONDITION AS RECEIVED

CUSTOMER

Wind Direction Sensor

Novamyl

Sensor: WS-02T

Data logger: L10-WS-250D-D

Sensor: WSD-AS444

Data logger: AS444

RYG-F50435

Used item

ALS Laboratory Group (Thailand) Co., Ltd.

104 Phatthanasak 40, Phatthanasak Rd, Khwaeng Suan Luang,

Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE

MEASUREMENT DATE

ISSUE DATE

15 Dec 2023

19 Dec 2023

20 Dec 2023

### ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follows:

Temperature: 23.0 ± 3.0 °C

Relative Humidity: 55.0 ± 15.0 %RH

Atmospheric Pressure: 1010 ± 10 hPa

### PLACE OF CALIBRATION

Effel-type wind tunnel of Jiraratte Associates Co., Ltd.

### CALIBRATION CONDITION

Wind tunnel cross-section area<sup>1</sup>

Wind direction frontal area<sup>2</sup>

Diameter of mounting pipe<sup>3</sup>

Blockage ratio of test object<sup>4</sup>

900 cm<sup>2</sup>

129 cm<sup>2</sup>

mm

0.143 [-]

### Preconditioning

Measurement Condition

24 hours at ambient conditions.

The average values during measurement are (23.9) °C, (54.9) %RH and (1013.1) hPa.

### TABULATION OF RESULTS:

The table on next page give the measured values.

Calibrated by:

Mr. Sarawat Thairakul

Mr. Jiraratte Lertchomporn

### Remarks:

1. Verify crispness on faces of the wind tunnel

2. Provided cross-section area of the tested object include mounting pipe

3. Diameter of mounting pipe

4. Ratio: 100

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

Certificate Number

CWD-015-66

Page 2 of 2 Pages

MEASUREMENT RESULTS<sup>1</sup>

The wind direction sensor was calibrated against standard rotary encoder by comparison method. During calibration, the measurement was carried out at 45° intervals in clockwise and counterclockwise directions after offset adjustment has been made. The low speed of wind tunnel (usually 5 m/s) is kept constant while the sensor is rotated around its vertical axis. The results of calibration and associated measurement uncertainties are reported in the table below.

Air speed m/s	D <sub>air</sub> Degree (°)	D <sub>air</sub> Degree (°)	Error Degree (°)	U (k=2) Degree (°)
45.000	42	42	-3	0.60
90.000	87	87	-3	0.60
135.000	132	132	-3	0.60
180.000	180	180	0	0.60
225.000	227	227	2	0.60
270.000	274	274	4	0.60
315.000	320	320	5	0.60
360.000	359	359	-1	0.60

## Remark:

<sup>1</sup> Calibration results only count for the tested circumstances and environmental conditions during which calibration took place.

<sup>2</sup> Direction of standard

<sup>3</sup> Direction of Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



JIRANATEE ASSOCIATES CO., LTD.  
62/14 15, 67/75 16  
Petchkasem 7/71, 80 Wattana, Bangkok  
Bangkok 10600, Thailand  
Tel : +66 (0) 2617 1000  
Mobile : +66 (0) 9443 3333  
E-mail : nac.calibration@jiranatee.com  
Web site : www.jiranatee.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TISI-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



## CERTIFICATE OF CALIBRATION

Certificate No. : CDT-063-66

Page 1 of 2 Pages

MEASUREMENT ITEM : Data Logger with Temperature sensor  
MANUFACTURER : Navlynx  
MODEL/TYPE : 110-WS-25DL-D  
SERIAL NUMBER : A5444  
ID NUMBER : RYG\_F50435  
CONDITION AS-RECEIVED : Used Item  
CUSTOMER : ALS laboratory group (thailand) Co., Ltd.,  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE : 15 Dec 2023  
MEASUREMENT DATE : 10 Dec 2023  
ISSUE DATE : 20 Dec 2023

## ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

## TABULATION OF RESULTS:

The table on next page give the measured values.

Calibration procedure:  
The temperature calibration was done by In-House calibration method as WI-CL-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature scale used was based on ITS-90.

## Traceability:

The measurement results are traceable to the International system of units (SI) through National Institute of Metrology (NIMT). Certificate number: TT-0038-23, Certificate number: ER-0101-23

## Reference Used During Calibration:

1. Standard Temperature Probe  
Model: STS-100 A500, Serial No: G67662-05,  
Due date: 28 Mar 2024

2. Digital Temperature Indicator  
Model: DTI-1000-A MKII, Serial No: 671407-00591  
Due date: 14 Sep 2024

## Uncertainty of Measurement:

The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM "Evaluation of measurement data - Guide to the expression of uncertainty in measurement"

Calibrated by:  
☐ Mr. Sorawit Thachai ad  
☐ Miss Jittaporn Lertsomphol  
☒ Miss Ruengrumpal Phoommit



Approved signatory:  
Mr. Parinya Booncharoen  
Calibration Department Manager

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



JIRANATEE ASSOCIATES CO., LTD.

Continuation of Certificate of Calibration Number CDT-063-66

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 – 40 °C

## Function:

Table 3: This equipment was connected with temperature sensor Model: HMP60 S/N: R1131112,  
Dimension: Diameter 12 mm, Length 80 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
70	20.054	19.6	-0.5	0.099
70	25.048	24.5	-0.5	0.099
70	30.039	29.4	-0.6	0.099
70	35.033	34.2	-0.8	0.14
70	40.025	39.2	-0.8	0.14

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.14, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



JIRANATEE ASSOCIATES CO., LTD.  
62/14 15, 67/75 16  
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Web site : www.jiranatee.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TISI-TIS 17025  
CALIBRATION 0367

Relative humidity measurement laboratory  
Calibration services department

## CERTIFICATE OF CALIBRATION

Certificate No. : CRH-033-66

Page 1 of 2 Pages

MEASUREMENT ITEM : Relative humidity with data logger  
MANUFACTURER : Navlynx  
MODEL/TYPE : 110-WS-25DL-D  
SERIAL NUMBER : A5444  
ID NUMBER : RYG\_F50435  
CONDITION AS-RECEIVED : Used item  
CUSTOMER : ALS laboratory group (Thailand) Co., Ltd.,  
104 Phatthanakan 40, Phatthanakan Rd, Khwaeng Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE : 15 Dec 2023  
MEASUREMENT DATE : 19 Dec 2023  
ISSUE DATE : 20 Dec 2023

## ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

## TABULATION OF RESULTS:

The table on next page give the measured values

Calibration procedure:  
The relative humidity calibration was done by In House calibration method as WI-CL-010 according to comparison method with Standard chilled Mirror hygrometer and standard humidity generator chamber.

## Traceability:

This instrument was calibrated using standard equipment whose accuracy is traceability through the NIMT (National Metrology Institute of Thailand) to the international system of units (SI) via Certificate number: TH-0079-23.

## Uncertainty of Measurement:

The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM "Evaluation of measurement data - Guide to the expression of uncertainty in measurement"

Calibrated by:  
☐ Mr. Sorawit Thachai ad  
☐ Miss Jittaporn Lertsomphol  
☐ Miss Ruengrumpal Phoommit



Approved signatory:  
Mr. Parinya Booncharoen  
Calibration Department Manager

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

Continuation of Certificate of Calibration Number: CRH-013-66

Page 2 of 2 Pages

**Measurement Results:**

The equipment was connected with Relative humidity Sensor on display Model: HMP60, Serial number: R131117

**Result of Calibration:** ☒ Without Adjustment ☐ With Adjustment

**Calibration Range:** 20%RH to 80%RH

The results of calibration of relative humidity are reported in table below.

Determined (RH)	Standard Reading (RH)	UUC Reading (RH)	Error (RH)	Uncertainty (RH)
20.0	20.07	18.3	-1.8	0.58
50.0	51.43	48.0	-3.4	0.56
80.0	82.86	77.3	-5.5	0.66

UUC: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



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Accredited calibration laboratory  
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NSC-TISI-TIS 17025  
CALIBRATION 0367

Pressure measurement laboratory  
Calibration services department.



**CERTIFICATE OF CALIBRATION**

Certificate No. : CFR-013-66

Page 1 of 2 Pages

**MEASUREMENT ITEM**

: Digital barometer

**MANUFACTURER**

: Novolynx

**MODEL/TYPE**

: Sensor: 110-WS-25BP

: Data logger: 110-WS-25DL-D

**SERIAL NUMBER**

: Sensor: BP-A5444

: Data logger: A5444

**ID NUMBER**

: RYG\_F50435

**CONDITION AS-RECEIVED**

: Used item

**CUSTOMER**

: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanasak 40, Phatthanasak Rd,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE** : 15 Dec 2023

**MEASUREMENT DATE** : 19 Dec 2023

**ISSUE DATE** : 20 Dec 2023

**Calibration procedure:**

The pressure calibration was done by in-house calibration method as MP-CL-003 according to comparison method with Digital pressure calibrator based on DKD-R 6-1

**Traceability:**

The measurement results are traceable to the international system of units (SI) through the NIMT (National Metrology Institute of Thailand) via Certificate number: MP-0205-22

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

**CONDITION OF THIS RESULT OF CALIBRATION:**

1. Reference Standard Instrument:

Instrument	Model	Serial No.	Certificate No.	Due Date
Absolute Pressure Transducer	CPG2500	4100126P	MP-0205-22	02 Dec 2023

2. Calibration effort for calibration sequence C

3. The UUC\* was installed in vertical orientation above reference standard instrument and center of UUC\* was used as the reference level.

4. Calibration conditions:

4. Condition	<input checked="" type="checkbox"/> Normal <input type="checkbox"/> Abnormal
Pressure transmitting medium	Air
$t_1$ (20°C, 1 bar)	$\pm 19 \text{ kg/m}^2$
$P_{\text{max}}$	(55 $\pm$ 1)%
$t_{\text{amb}}$	(23 $\pm$ 1)°C
$P_{\text{amb}}$	(1010 $\pm$ 10) mbar

5. The certificate is valid only to the item calibrated on date and place of calibration

Calibrated by:  
☒ Mr. Soravit Thirachai  
☐ Miss Jitaporn Lertsomphon



Approved signature:

Mr. Parinya Booncharoen  
Calibration Department Manager

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

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TISI-TIS 17025  
CALIBRATION 0367

Pressure measurement laboratory  
Calibration services department.



**CERTIFICATE OF CALIBRATION**

Certificate No. : CFR-013-66

Page 2 of 2 Pages

**MEASUREMENT RESULTS**

☒ Without adjustment ☐ With adjustment

**CALIBRATION IN THE RANGE OF** : 950 mbar to 1050 mbar

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

STD (mbar)	UUC* (mbar)	Error (mbar)	Uncertainty (k=2) (mbar)
950.00	950.8	0.8	0.37
970.00	970.5	0.5	0.37
990.00	990.2	0.2	0.37
1010.00	1009.9	-0.1	0.37
1030.00	1029.4	-0.6	0.40
1050.00	1049.0	-1.0	0.37

Note: UUC\* Unit Under Calibration

\* To convert the result in report unit to Pa should be multiply by 100

\*End of certificate\*



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**CALIBRATION REPORT**

Calibration Number: RG-04122023

Page 1 of 2 Pages

**Measurement Item** : Rain gauge with data logger

**Manufacturer** : Data logger: Novolynx

: Rain gauge: Novolynx

**Model/Type** : Data logger: 110-WS-25DL-D

: Rain gauge: 110-WS-25RG

**Serial Number** : Data logger: A5444

: Rain gauge: RG-A5444

**ID NO** : RYG\_F50435

**Customer** : ALS laboratory group (Thailand) co., ltd.  
104 Phatthanasak 40, Phatthanasak Rd, Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250, Thailand.

**Environmental Condition**

The measurement was carried out in an ambient temperature of (25 $\pm$ 3)°C, and relative humidity of (50 $\pm$ 15)%

**Measurement Method**

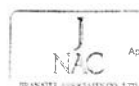
The Rain gauge, Unit Under Calibration (UUC) was calibrated by Precision reference bottle with flow adjuster at low rate 0.6 mm per minute or 1 lipping every 20 seconds. The lipping number was determined by procedures below.

- Obtain rain gauge inlet area:  
Rain gauge precise diameter in cm = Diameter/2 = R (radius)  
Rain gauge area =  $R^2 \times 3.14$  (UUC diameter=20.3 cm, UUC radius=10.15 cm)  
Rain gauge area = 323.6 cm<sup>2</sup>
- Obtain theoretical correct rain gauge answer (number of lippings) using 323.6 cm<sup>2</sup> inlet area and 0.6 L of rain:  
a) 10,000 cm<sup>3</sup> / 323.6 cm<sup>2</sup> inlet area = 30.90 (rain gauge area = 1/30.90 of square meter)  
b) 30.90 \* 0.6 l volume = 18.54 mm (mm of rain over 1 m<sup>2</sup> surface) 500 ml of rain volume on the rain gauge area = 15.45 mm of rain.  
c) Number of lipping = 15.45 / 0.25 mm = 62 lippings.

Note: Rain gauge is fully cleaned and leveling prior the calibration performed.

**Measurement Date** : Dec 19, 2023  
**Issued Date** : Dec 20, 2023

Performed by:  
☐ Mr. Soravit Thirachai  
☒ Miss Jitaporn Lertsomphon



Approved signature:

Mr. Parinya Booncharoen  
Calibration Department Manager

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





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Continuation of Calibration of Calibration Number

Calibration Number: RD-04122023  
Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment  
The results of calibration are reported in table below.

Quantity of H <sub>2</sub> O (mm)	Determined Tipping	Tipping count	Acceptable Tipping count
500	62	64	60 - 64
500	62	63	60 - 64
500	62	63	60 - 64
500	62	64	60 - 64
500	62	63	60 - 64

Remark: The procedure is made to verify the correct reading of the Unit under Calibration rain gauge when a precise volume of water falls into its cone. We suggest that the number of tipping should be within  $\pm 2\%$  different from the 62 tipping (correct range: 60-64) (Hoping) it means that the rain gauge meets the manufacturer acceptable limit.

\*\*\*End of calibration report\*\*\*



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CALIBRATION 0367

Air speed measurement laboratory  
Calibration services department



NAC-TIS-TIS 17025  
CALIBRATION 0367

Certificate Number

CWS-021-67

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM  
MANUFACTURER

Cup anemometer

Novallene

MODEL/TYPE

Sensor: WS-02F

Data logger: 200-WS-25LB

SERIAL NUMBER

Sensor: WSD-AS262

Data logger: AS262

ID NUMBER

BKX\_520909

CONDITION AS RECEIVED

Used item

CUSTOMER

ALS laboratory group (Thailand) Co., Ltd.  
104 Puthachan 40, Puthachan Rd, Khwaeng Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE

10 Jun 2024

MEASUREMENT DATE

28 Jun 2024

ISSUE DATE

28 Jun 2024

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follows:

Temperature:  $23.0 \pm 3.0$  °C

Relative Humidity:  $55.0 \pm 15.0$  %RH

Atmospheric Pressure:  $1010 \pm 10$  hPa

PLACE OF CALIBRATION

Effel-type wind tunnel of Jranalee Associates Co., Ltd.

CALIBRATION CONDITIONS

Wind tunnel cross-section area<sup>1</sup> 900 cm<sup>2</sup>

Wind direction frontal area<sup>2</sup> 100 cm<sup>2</sup>

Diameter of mounting pipe 1 mm

Blockage ratio of test object<sup>3</sup> 0.133 [-]

Preconditioning

24 hours at ambient conditions.

Measurement Condition

The average values during measurement are (24.2) °C, (43.0) %RH and (1007.6) hPa.

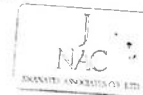
TABULATION OF RESULTS:

The table on next page give the measured values.

Calibrated by:

Mr. Sorawit Thachala

Mr. Jiraporn Thachala



Approved signature

Mr. Parinya Booncharan

Calibration Department Manager

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

Page 2 of 2 Pages

### MEASUREMENT RESULTS<sup>5</sup>

The Cup anemometer Unit Under Calibration (UUC) was exercised at 10 m/s for 5 minutes prior to calibration being performed. The standard air velocity 0.5 m/s to 5 m/s was calculated by a standard air velocity transducer which was installed 50 mm away from wind tunnel nozzle and installed 40 mm away from top of the test section and the standard air velocity 5 m/s to 30 m/s was calculated by a pitot tube with precision differential pressure meter which was installed 50 mm away from wind tunnel nozzle and installed 40 mm away from top of the test section. UUC was mounted on a round vertical tube at the lower plate at center of test section. The calibration was carried out under both rising and falling air velocity in the range of 3 m/s to 15 m/s at calibration interval of 2 m/s. The results of calibration and associated measurement uncertainties are reported in the table below.

UUC (m/s)	Temp. wind tunnel (°C)	Temp. room (°C)	UUC (m/s)	Error (m/s)	U (k=2) (m/s)
3.035	24.10	24.15	0.9	-0.1	0.31
2.038	24.24	24.15	1.8	-0.2	0.31
3.031	24.34	24.15	2.9	-0.1	0.31
4.143	24.28	24.15	3.9	-0.2	0.31
4.08	24.10	24.15	5.0	0.0	0.31
6.04	24.16	24.15	6.1	0.0	0.31
7.05	24.10	24.15	7.1	0.0	0.31
7.98	24.30	24.15	8.1	0.1	0.31
9.05	24.12	24.15	9.1	0.0	0.31
9.48	24.12	24.15	10.2	0.2	0.31
11.01	24.20	24.15	11.1	0.1	0.31
11.99	24.10	24.15	12.2	0.2	0.31
13.01	24.14	24.15	13.2	0.2	0.31
14.06	24.10	24.15	14.2	0.2	0.31
15.05	24.20	24.15	15.2	0.2	0.31
15.95	24.30	24.15	16.3	0.3	0.31

Remark:

<sup>1</sup> Calibration results only count for the tested circumstances and environmental conditions during which calibration took place.

<sup>2</sup> Velocity of standard.

<sup>3</sup> Velocity of Unit Under Calibration.

PHOTO OF CALIBRATION SET-UP



Calibration set-up of the Cup anemometer calibration in the wind tunnel of Jranalee Associates Co., Ltd. The Cup anemometer shown may differ from the calibrated one. Remark: The proportion of the sensor is not true to scale due to imaging geometry.



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Accredited calibration laboratory  
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NAC-TIS-TIS 17025  
CALIBRATION 0367

Wind direction measurement laboratory  
Calibration services department



NAC-TIS-TIS 17025  
CALIBRATION 0367

Certificate Number

CWS-021-67

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM  
MANUFACTURER

Wind Direction Sensor

Novallene

MODEL/TYPE

Sensor: WS-02F

Data logger: 200-WS-25LB

SERIAL NUMBER

Sensor: WSD-AS262

Data logger: AS262

ID NUMBER

BKX\_520909

CONDITION AS RECEIVED

Used item

CUSTOMER

ALS laboratory group (Thailand) Co., Ltd.  
104 Puthachan 40, Puthachan Rd, Khwaeng Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE

10 Jun 2024

MEASUREMENT DATE

28 Jun 2024

ISSUE DATE

28 Jun 2024

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follows:

Temperature:  $23.0 \pm 3.0$  °C

Relative Humidity:  $55.0 \pm 15.0$  %RH

Atmospheric Pressure:  $1010 \pm 10$  hPa

PLACE OF CALIBRATION

Effel-type wind tunnel of Jranalee Associates Co., Ltd.

CALIBRATION CONDITION

Wind tunnel cross-section area<sup>1</sup> 900 cm<sup>2</sup>

Wind direction frontal area<sup>2</sup> 129 cm<sup>2</sup>

Diameter of mounting pipe 1 mm

Blockage ratio of test object<sup>3</sup> 0.143 [-]

Preconditioning

24 hours at ambient conditions.

Measurement Condition

The average values during measurement are (23.0) °C, (53.3) %RH and (1007.1) hPa.

TABULATION OF RESULTS:

The table on next page give the measured values.

Calibrated by:

Mr. Sorawit Thachala

Mr. Jiraporn Thachala



Approved signature

Mr. Parinya Booncharan

Calibration Department Manager

Remark:  
<sup>1</sup> Actual cross-section area of the wind tunnel.  
<sup>2</sup> Projected cross-section area of the tested object include mounting pipe.  
<sup>3</sup> Diameter of mounting pipe.  
<sup>4</sup> Ratio [-].

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IN WRITING FROM THE LABORATORY

Certificate Number
CWD-021-67

Page 2 of 2 Pages

#### MEASUREMENT RESULTS<sup>3</sup>

The wind direction sensor was calibrated against standard rotary encoder by comparison method. During calibration, the measurement was carried out at 45° intervals in clockwise and counterclockwise directions after offset adjustment has been made. The flow speed of wind tunnel (usually 5 m/s) is kept constant while the sensor is rotated around its vertical axis. The results of calibration and associated measurement uncertainties are reported in the table below.

Air speed m/s	D <sub>100</sub> Degree (°)	D <sub>100</sub> Degree (°)	Error Degree (°)	U (k=2) Degree (°)
5.03	45,000	41	-4	0.87
	90,000	87	-3	0.80
	135,000	132	-3	0.80
	180,000	181	1	0.80
	225,000	228	3	0.80
	270,000	275	5	0.80
	315,000	370	5	0.80
	360,000	355	-5	0.80

#### Remarks:

<sup>1</sup> Calibration must only carry out for the tested circumstances and environmental conditions during which calibration took place.

<sup>2</sup> Direction of standard.

<sup>3</sup> Direction of Unit Under Calibration.

\*\*\*End of Certificate of Calibration\*\*\*



Jiranatee Associates Co., Ltd.  
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Email: info@jiranatee.com  
Web site: www.jiranatee.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department.



NSC - TIS - TIS 17025  
CALIBRATION 0367

## CERTIFICATE OF CALIBRATION

Certificate No. : CDT-107-67

Page 1 of 2 Pages

**MEASUREMENT ITEM**  
: Data Logger with Temperature sensor  
**MANUFACTURER**  
: Novaflynx  
**MODEL/TYPE**  
: Z00-W5-25LB  
**SERIAL NUMBER**  
: AS262  
**ID NUMBER**  
: BKK\_F50909  
**CONDITION AS-RECEIVED**  
: Used item  
**CUSTOMER**  
: ALS laboratory group (Thailand) Co., Ltd.,  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE**  
: 10 Jun 2024  
**MEASUREMENT DATE**  
: 28 Jun 2024  
**ISSUE DATE**  
: 28 Jun 2024

#### ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

**NOTED:** The certificate is valid only to the item calibrated on date and place of calibration.

#### TABULATION OF RESULTS:

The table on next page give the measured values.

#### Calibration procedure:

The temperature calibration was done by in-house calibration method in WI-CL-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature scale used was based on ITS-90.

#### Traceability:

The measurement results are traceable to the International System of Units (SI) through National Institute of Metrology (NIMT) Certificate number: TT-0047-24, Certificate number: LR-0101-23.

#### Reference Used During Calibration:

1. Standard Temperature Probe  
Model: STS-100 AS500, Serial No.: 657682-09,  
Due date: 26-Mar-2025  
2. Digital Temperature Indicator  
Model: DTI-1000-A MK II, Serial No.: 671407  
00591 Due date: 14-Sep-2024

#### Uncertainty of Measurement:

The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data Guide to the expression of uncertainty in measurement.

Calibrated by:  
☒ Mr. Sorawit Thachalad  
☒ Miss. Uttaporn Kertsomphol  
☒ Miss. Ruangsri Ploomsit



Approved signatory:   
Mr. Pannya Booncharoen  
Calibration Department Manager

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IN WRITING FROM THE LABORATORY



Continuation of Certificate of Calibration Number CDT-107-67

Page 2 of 2 Pages

**Result of Calibration:** ☒ Without Adjustment ☐ With Adjustment

**Calibration Range:** 20 °C to 40 °C

#### Function:

Table 3: This equipment was connected with temperature sensor Model: HMP60 S/N: N0330785.  
Dimension: Diameter 12 mm, Length 80 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.034	19.6	-0.5	0.789
80	25.031	24.6	-0.5	0.629
80	30.046	29.7	-0.3	0.039
80	35.034	34.5	-0.5	0.039
80	40.042	39.5	-0.5	0.039

UUC: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



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Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS-TIS 17025  
CALIBRATION 0367

Relative humidity and Air Temperature measurement laboratory  
Calibration services department.

## CERTIFICATE OF CALIBRATION

Certificate No. : CRT-019-67

Page 1 of 2 Pages

**MEASUREMENT ITEM**  
: Relative humidity with data logger  
**MANUFACTURER**  
: Novaflynx  
**MODEL/TYPE**  
: Data Logger: Z00-W5-25LB  
Sensor: RH400  
**SERIAL NUMBER**  
: Data Logger: AS262  
Sensor: N0330785  
**ID NUMBER**  
: BKK\_F50909  
**CONDITION AS-RECEIVED**  
: Used item  
**CUSTOMER**  
: ALS laboratory group (Thailand) Co., Ltd.,  
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

**RECEIVED DATE**  
: 10 Jun 2024  
**MEASUREMENT DATE**  
: 28 Jun 2024  
**ISSUE DATE**  
: 28 Jun 2024

#### ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

**NOTED:** The certificate is valid only to the item calibrated on date and place of calibration.

#### TABULATION OF RESULTS:

The table on next page give the measured values.

#### Calibration procedure:

The Relative Humidity and Air Temperature calibration was done by in-house calibration method in WI-CL-001 and WI-CL-020 according to comparison method with Standard Online Air-air Hygrometer with Temperature sensor as standard Humidity generator chamber.

#### Traceability:

The measurement is traceable to the International System of Units (SI) through National Institute of Metrology (NIMT) Certificate number: TT-0047-23 and through Jiranatee Associates Co., Ltd. Certificate number: CDT-001-67.

#### Uncertainty of Measurement:

The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data Guide to the expression of uncertainty in measurement.

Calibrated by:  
☒ Mr. Sorawit Thachalad  
☒ Miss. Uttaporn Kertsomphol  
☒ Miss. Ruangsri Ploomsit



Approved signatory:   
Mr. Pannya Booncharoen  
Calibration Department Manager

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IN WRITING FROM THE LABORATORY

**Measurement Results:**

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

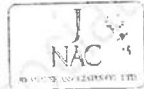
Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Table 1: The results of calibration of relative humidity at 30 °C are reported in table below.  
Calibration Range: 20%RH to 60%RH

Air Temperature (°C)	Standard Reading (NRH)	UUC Reading (NRH)	Error (NRH)	Uncertainty ± (NRH)
29.60	35.63	36.6	-1.0	0.93
29.80	56.49	59.8	-3.6	1.3
29.92	61.68	60.9	0.8	2.3

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-094-67

Page 1 of 2 Pages

**MEASUREMENT ITEM** : Data Logger with Temperature sensor  
**MANUFACTURER** : Novallux  
**MODEL/TYPE** : 200-W5-25LB  
**SERIAL NUMBER** : AS263  
**ID NUMBER** : BKK\_F50910  
**CONDITION AS-RECEIVED** : Used item  
**CUSTOMER** : ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwang Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE** : 29 May 2024  
**MEASUREMENT DATE** : 10 Jun 2024  
**ISSUE DATE** : 10 Jun 2024

**ENVIRONMENTAL CONDITIONS:**  
Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

**NOTED:** The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**  
The table on next page give the measured values.

**Calibration procedure:**  
The temperature calibration was done by In-House calibration method as WA-CL-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature probe was used on ITS-90

**Traceability:**  
The measurement results are traceable to the international system of units (SI) through National Institute of Metrology (NIMT) Certificate number: TT-0047-24, Certificate number: E6-0101-23

**Reference Used During Calibration:**  
1. Standard Temperature Probe  
Model: SP-100 AS500, Serial No. 467682 09,  
Bure date: 26 Mar 2025  
2. Digital Temperature Indicator  
Model: DTI-1000-A Mk II, Serial No. 671407,  
00551 Due date: 14 Sep 2024

**Uncertainty of Measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement

Calibrated by:  
☐ Mr. Sorawit Thachalad  
☐ Miss Jitraporn Leritsamphol  
☒ Miss Ruangrumpai Phoommit



Approved signature:

Mr. Panyia Booncharoen  
Calibration Department Manager

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Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

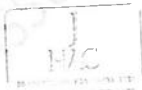
Table 3: This equipment was connected with temperature sensor Model: HMP60 S/N: NQ330786.  
Dimension: Diameter 12 mm, Length 80 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
70	20.060	19.6	-0.5	0.099
70	25.051	24.6	-0.5	0.099
70	30.042	29.5	-0.5	0.099
70	35.033	34.4	-0.6	0.16
70	40.021	39.4	-0.6	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CRT-012-67

Page 1 of 2 Pages

**MEASUREMENT ITEM** : Relative humidity with data logger  
**MANUFACTURER** : Novallux  
**MODEL/TYPE** : Data Logger: 200-W5-25LB  
**SERIAL NUMBER** : Sensor: HMP60  
Data Logger: AS263  
Sensor: NQ330786  
BKK\_F50910  
**ID NUMBER** : Used item  
**CONDITION AS-RECEIVED** : Used item  
**CUSTOMER** : ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd., Khwang Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

**RECEIVED DATE** : 29 May 2024  
**MEASUREMENT DATE** : 10 Jun 2024  
**ISSUE DATE** : 10 Jun 2024

**ENVIRONMENTAL CONDITIONS:**  
Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

**NOTED:** The certificate is valid only to the item calibrated on date and place of calibration

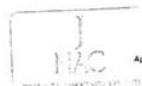
**TABULATION OF RESULTS:**  
The table on next page give the measured values.

**Calibration procedure:**  
The Relative Humidity and Air Temperature calibration was done by In-House calibration method as WA-CL-001 and WA-CL-002 according to comparison method with Standard Calibrated Hygrometer with Temperature sensor and standard humidity generator chamber.

**Traceability:**  
The measurements are traceable to the international system of units (SI) through National Institute of Metrology (NIMT) Certificate number: TT-0047-23 and through Jirante Associate Co., Ltd. Certificate number: CDT-001-67

**Uncertainty of Measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement

Calibrated by:  
☐ Mr. Sorawit Thachalad  
☐ Miss Jitraporn Leritsamphol  
☒ Miss Ruangrumpai Phoommit



Approved signature:

Mr. Panyia Booncharoen  
Calibration Department Manager

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Certificate Number
CWD-015-67

Page 2 of 2 Pages

#### MEASUREMENT RESULTS<sup>1</sup>

The wind direction sensor was calibrated against standard rotary encoder by comparison method. During calibration, the measurement was carried out at 45° intervals in clockwise and counterclockwise directions after offset adjustment has been made. The flow speed of wind tunnel (usually 5 m/s) is kept constant while the sensor is rotated around its vertical axis. The results of calibration and associated measurement uncertainties are reported in the table below.

Air speed m/s	D <sup>1</sup> <sub>me</sub> Degree (°)	D <sup>1</sup> <sub>std</sub> Degree (°)	Error Degree (°)	U <sup>1</sup> (D-2) Degree (°)
	45.000	41	4	0.80
	90.000	87	-3	0.86
	135.000	135	0	0.80
	180.000	184	4	0.80
	225.000	230	5	0.80
	270.000	275	5	0.80
	315.000	320	5	0.80
	360.000	359	-1	0.80

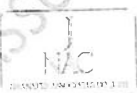
Remark:

<sup>1</sup> Calibration results only given for the tested circumstances and environmental conditions during which calibration took place

<sup>2</sup> Direct on of standard

<sup>3</sup> Direction of Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



#### CONSOLE CONTROL UNIT CALIBRATION TEST REPORT



Calibration of Date : 6 Jul 24  
Next Cal. Date : 6 Jan 25

Barometric Pressure (mmHg) : 760  
Relative Humidity (%) : 64.0  
Temperature (°C) : 33.0

Reference Dry Gas Meter Data  
Calibration No. : C-060724-BKK\_FS0547  
Dry Gas Meter ID : BKK\_FS0547  
Serial No. : 1606040  
Correction Factor (%) : 0.9824  
Next Calibration Date : 7 Nov 24

ΔH (mm H <sub>2</sub> O)	Min/Max	Reference Dry Gas Meter Calibration				Console Control Dry Gas Meter				Dry Gas Meter Correction		Office Calibration Factor ΔH/g	
		Final Weight	Initial Weight	Total	T <sub>1</sub> °C	Final Weight	Initial Weight	Total	T <sub>1</sub> °C	To °C	Avg °C		
15	12.32	160.14	0.05	160.11	33.0	1068729.5	1068950.0	148.90	32.0	32.0	32.0	0.9844	46.5764
25	9.51	160.20	0.00	160.20	33.0	1068979.2	1069170.0	149.20	33.0	33.0	33.0	0.9866	46.4455
50	6.81	160.22	0.00	160.22	33.0	1069304.6	1069495.0	149.80	33.0	33.0	33.0	0.9817	47.6203
100	4.80	160.10	0.00	160.10	33.0	1069469.3	1069660.0	149.30	33.0	33.0	33.0	0.9782	47.2919
150	3.94	160.04	0.00	160.04	33.0	1069549.0	1069750.0	149.80	34.0	34.0	34.0	0.9785	47.7189
											Avg	0.9822	47.2430

<sup>1</sup> Rate of reading of reference to dry gas meter, tolerance for individual values ± 0.02 from average.

ΔH/g : Office pressure differential, initial equates to 21.24 in at 25°C and 760 mm of mercury, unitH<sub>2</sub>O; tolerance for individual values ± 0.06 from average.

Procedure: 40 CFR 80 APP A METH SEC 3.3.6.7

Calibrated by:

(Mr. Boonyarth Iamted)

Field Scientist(2)

Approved by:

(Mr. Samart Roo-ngan)

Field Specialist(1)

(Agency: FWS/CC, MDC/MS/NO 2, ISSUED DATE: 30-Jan-22)



#### Stopwatch Calibration Test Report

Calibration Date : 6 Jul 24  
Next Cal. Date : 6 Jan 25  
Barometric Pressure (mmHg) : 760  
Temperature (°C) : 33.0  
Relative Humidity (%) : 64.0

#### Reference Stopwatch Data

Stopwatch ID No. : RYG\_FS0540  
Model : F808  
Serial No. : E18061  
Calibration Date : 4 Jul 24  
Certificate No. : E-2407022

#### Console Control Meter Data

Dry Gas Meter No. : BKK\_FS0547  
Model : XC-S72-V  
Serial No. : 1606040

Run No.	Time Actual (m:ss.ms)	Time Reading (m:ss)	Diff. (ms)	Diff. (min)
1	5:00:11	5:00	11	0.00016
2	5:00:11	5:00	11	0.00018
3	5:00:09	5:00	9	0.00015
4	5:00:11	5:00	11	0.00018
5	5:00:12	5:00	12	0.00020
6	5:00:12	5:00	12	0.00020
7	5:00:12	5:00	12	0.00020
8	5:00:11	5:00	11	0.00018
9	5:00:10	5:00	10	0.00017
10	5:00:09	5:00	9	0.00015
Average				0.00018
SD				0.00002

Calibrate by:

Mr. Boonyarth Iamted

Field Scientist (2)

Approved by:

Mr. Samart Roo-ngan

Specialist (1)



#### DIGITAL TEMPERATURE CALIBRATION DATA SHEET

Calibration Date :	6 Jul 24	Ambient Temperature (°C)	33		
Calibration sheet No. :	C-060724-BKK_FS0548	Relative Humidity (%) :	64		
Digital Temperature ID :	BKK_FS0548	Reference Temperature ID	BKK_FS1144		
Serial No. :	1606040	Serial No. :	201090006013		
Model :	XC-S72-V	Model :	Digicon-CC-VT-MS		
		Next Calibrate :	16 Jan 25		
Location	Reference Temperature °C	Digital Temperature °C	Error °C	MPE	Pass / Fail
Stack	0	0	0	±3	Pass
	25	25	0	±3	Pass
	50	51	1	±3	Pass
	100	102	2	±3	Pass
	150	152	2	±3	Pass
Probe	200	202	2	±3	Pass
	250	252	2	±3	Pass
	300	302	2	±3	Pass
	500	502	2	±3	Pass
	100	101	1	±3	Pass
Oven	120	121	1	±3	Pass
	140	142	2	±3	Pass
	160	161	1	±3	Pass
	180	181	1	±3	Pass
	200	201	1	±3	Pass
Filter	120	121	1	±3	Pass
	140	142	2	±3	Pass
	160	161	1	±3	Pass
	180	181	1	±3	Pass
	200	201	1	±3	Pass
Exit	0	0	0	±3	Pass
	10	10	0	±3	Pass
	20	21	1	±3	Pass
	30	31	1	±3	Pass
	40	41	1	±3	Pass
Meter	0	0	0	±3	Pass
	25	25	0	±3	Pass
	50	51	1	±3	Pass
	75	76	1	±3	Pass
	100	101	1	±3	Pass
AUX	0	0	0	±3	Pass
	25	25	0	±3	Pass
	50	51	1	±3	Pass
	75	76	1	±3	Pass
	100	101	1	±3	Pass

MPE : (Maximum permissible error of measurement) ค่าความคลาดเคลื่อนสูงสุดของค่าการวัด

Calibrated by:

(Mr. Boonyarth Iamted)

Field Scientist (2)

Approved by:

(Mr. Samart Roo-ngan)

Specialist (1)

FORM NO : F-06-027 REVISION NO : 2 ISSUE DATE : 9 Feb 23



### PROBE NOZZLE DIAMETER CALIBRATION DATA SHEET

Calibration Date :	6 Jul 24	Nozzle Set ID. :	BKK_FS0547
Calibration Sheet No. :	C-060724-BKK_FS0553	Vernier Caliper ID. :	RYG_FS0539

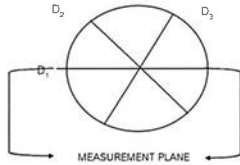
Nozzle ID #	Nozzle Diameter (cm.)			Hi - Lo $\Delta D$	$(D_1 + D_2 + D_3) / 3$ $D_{avg}$
	$D_1$	$D_2$	$D_3$		
1	0.315	0.315	0.315	0.000	0.315
2	0.475	0.475	0.475	0.000	0.475
3	0.635	0.635	0.635	0.000	0.635
4	0.790	0.790	0.790	0.000	0.790
5	0.950	0.950	0.950	0.000	0.950
6	1.110	1.110	1.110	0.000	1.110
7	1.270	1.270	1.270	0.000	1.270
8	1.600	1.600	1.600	0.000	1.600

Where :

$D_1, D_2, D_3$  = Three 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 : Boonyarath I.  
( Mr. Boonyarath Iamti )  
Field Scientist (2)

Approved by : S.P.  
( Mr. Samart Roo-ngan )  
Field Specialist (1)

FORM NO. F-06-027 REVISION NO. 2 ISSUE DATE 9 Jun 22

### CONSOLE CONTROL UNIT CALIBRATION TEST REPORT

Calibration of Date : 4 Jun 24  
Next Cal. Date : 4 Dec 24

#### Console Control Meter Data

Calibration No. : C-040624-BKK\_FS0496  
Dry Gas Meter ID : BKK\_FS0496  
Serial No. : 1412087  
Model No. : XC-572-V

Barometric Pressure (mmHg) : 758  
Relative Humidity (%) : 67.0  
Temperature (°C) : 33.0

#### Reference Dry Gas Meter Data

Reference Dry Gas Meter ID : BKK\_FS0629  
Serial No. : 1607009  
Correction Factor (V) : 1.0000  
Next Calibration Date : 9 Jun 24

Alt (mm H <sub>2</sub> O)	Meter	Reference Dry Gas Meter Calibration (mm H <sub>2</sub> O)			Console Control Dry Gas Meter (mm H <sub>2</sub> O)			Dry Gas Meter Correction Factor			Calibration Factor
		Final	Initial	Total	Final	Initial	Total	(V)	$\Delta$ V	Factor	
15	11.88	150.00	0.00	150.00	35.0	1073920.0	147.00	35.0	35.0	1.0169	41.0289
25	9.15	150.00	0.00	150.00	35.0	1074092.0	147.00	35.0	35.0	1.0111	43.0067
50	6.42	150.00	0.00	150.00	35.0	1074244.0	147.00	35.0	35.0	1.0155	42.7985
100	4.50	150.00	0.00	150.00	35.0	1074413.0	146.00	35.0	35.0	1.0175	42.0920
150	3.67	150.00	0.00	150.00	35.0	1074577.0	146.00	35.0	35.0	1.0169	41.6931
											42.9562

Ratio of reading of reference to dry gas meter; tolerance for individual values  $\pm 0.02$  from average.

Altitude: 40 CFR 80 APP A.M.E.H. SEC 5.3 & 7  
Procedure: 40 CFR 80 APP A.M.E.H. SEC 5.3 & 7

Calibrated by : S.Thong-on  
( Mr. Suwicha Thong-on )  
Field Scientist(2)

Approved by : S.P.  
( Mr. Samart Roo-ngan )  
Field Specialist(1)

FORM NO. F-06-027 REVISION NO. 2 ISSUE DATE 9 Jun 22



### Stopwatch Calibration Test Report

Calibration Date : 4 Jun 24  
Barometric Pressure (mmHg) : 760  
Relative Humidity (%) : 67.0

Next Cal. Date : 4 Dec 24  
Temperature (°C) : 31.0

#### Reference Stopwatch Data

Stopwatch ID No. : RYG\_FS0540  
Model : F808  
Serial No. : E18061  
Calibration Date : 9 Dec 22  
Certificate No. : E-2212032-1/51

#### Console Control Meter Data

Dry Gas Meter No. : BKK\_FS0496  
Model : XC-572-V  
Serial No. : 1452087

Run No.	Time Actual (m:ss.ms)	Time Reading (m:ss)	Diff. (ms)	Diff. (min)
1	5:00:09	5:00	9	0.00015
2	5:00:10	5:00	10	0.00017
3	5:00:11	5:00	11	0.00018
4	5:00:10	5:00	10	0.00017
5	5:00:09	5:00	9	0.00015
6	5:00:09	5:00	9	0.00015
7	5:00:08	5:00	8	0.00013
8	5:00:10	5:00	10	0.00017
9	5:00:09	5:00	9	0.00015
10	5:00:10	5:00	10	0.00017
Average				0.00016
SD				0.00001

Calibrate by : S.Thong-on  
( Mr. Suwicha Thong-on )  
Field Scientist (2)

Approved by : S.P.  
Mr. Samart Roo-ngan  
Specialist (1)



### DIGITAL TEMPERATURE CALIBRATION DATA SHEET

Calibration Date :	4 Jun 24	Ambient Temperature (°C)	31		
Calibration sheet No. :	C-040624-BKK_FS0497	Relative Humidity (%) :	67		
Digital Temperature ID :	BKK_FS0497	Reference Temperature ID	BKK_FS1144		
Serial No. :	1412087	Serial No. :	201090006013		
Model :	XC-572-V	Model :	Digicon-CC-VT-MS		
		Next Calibrate :	14 Aug 24		
Location	Reference Temperature °C	Digital Temperature °C	Error °C	MPE	Pass / Fail
Stack	0	1	1	±3	Pass
	25	25	0	±3	Pass
	50	50	0	±3	Pass
	100	101	1	±3	Pass
	150	151	1	±3	Pass
	200	199	-1	±3	Pass
Probe	250	249	-1	±3	Pass
	300	300	0	±3	Pass
	500	499	-1	±3	Pass
	100	101	1	±3	Pass
	120	120	0	±3	Pass
	140	140	0	±3	Pass
Oven	100	101	1	±3	Pass
	120	121	1	±3	Pass
	140	141	1	±3	Pass
Filter	100	101	1	±3	Pass
	120	120	0	±3	Pass
	140	140	0	±3	Pass
Exit	0	0	0	±3	Pass
	10	10	0	±3	Pass
	20	20	0	±3	Pass
Isolator	0	0	0	±3	Pass
	25	25	0	±3	Pass
	50	50	0	±3	Pass
AUX	0	1	1	±3	Pass
	25	26	1	±3	Pass
	50	50	0	±3	Pass

MPE : (Maximum permissible error of measurement) ค่าความคลาดเคลื่อนสูงสุดที่อนุญาต

Calibrated by : S.Thong-on  
( Mr. Suwicha Thong-on )  
Field Scientist (2)

Approved by : S.P.  
( Mr. Samart Roo-ngan )  
Specialist (1)

FORM NO : F-06-027 REVISION NO : 2 ISSUE DATE 9 Feb 23





PROBE NOZZLE DIAMETER  
CALIBRATION DATA SHEET

Calibration Date : 4 Jun 24 Nozzle Set ID : BKK\_FS0502  
Calibration Sheet No. : C-040624-BKK\_FS0502 Vernier Caliper ID : RYG\_FS0539

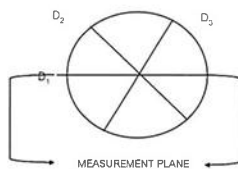
Nozzle ID #	Nozzle Diameter (cm.)			HI - Lo $\Delta D$	$(D_1 + D_2 + D_3) / 3$ $D_{avg}$
	$D_1$	$D_2$	$D_3$		
1	0.315	0.315	0.315	0.000	0.315
2	0.475	0.475	0.475	0.000	0.475
3	0.530	0.530	0.530	0.000	0.530
4	0.635	0.635	0.635	0.000	0.635
5	0.790	0.790	0.790	0.000	0.790
6	0.950	0.950	0.950	0.000	0.950
7	1.110	1.110	1.110	0.000	1.110
8	1.270	1.270	1.270	0.000	1.270
9	1.600	1.600	1.600	0.000	1.600

Where :

$D_1, D_2, D_3$  = Three 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 : S.Thong-on  
(Mr.Suwicha Thong-On)  
Field Scientist (2)

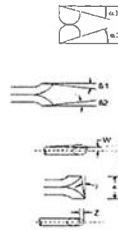
Approved by : S.P.  
(Mr.Samart Roo-ngan)  
Field Specialist (1)

FORM NO. F 06-124 REVISION NO. : 0 ISSUE DATE: 25/12/23



Type S Pitot Tube Calibration

Date Calibration 5-Jul-24 Due Date 3-Jan-25  
Pitot ID BKK\_FS0551 Inclinator ID BKK\_FS1131  
Pitot SN - Vernier ID BKK\_FS1405



Parameter	Value	Allowable Range	Check
$\alpha 1$	2.4	$-10^\circ < \alpha 1 < +10^\circ$	OK
$\alpha 2$	-3.1	$-10^\circ < \alpha 2 < +10^\circ$	OK
$\beta 1$	-0.4	$-5^\circ < \beta 1 < +5^\circ$	OK
$\beta 2$	9.3	$-5^\circ < \beta 2 < +5^\circ$	OK
$\gamma$	1.3	-	-
$\theta$	1.4	-	-
$Z = A \tan \gamma$	0.020	$Z \leq 0.125''$	OK
$W = A \tan \theta$	0.021	$W \leq 0.031''$	OK
Dt	0.375	$0.188'' \text{ to } 0.375''$	OK
$A/2Dt$	1.160	$1.05 \leq A/Dt \leq 1.5$	OK
A	0.87	$2.1Dt \leq A \leq 3Dt$	OK

Certify that pitot tube/probe meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube certification fact of 0.84. See 40 CFR Pt. 60, App. A, EPA Method 2.

Calibrated by : Prasert S.  
(Mr.Prasert Surakhan)  
Enviro Field Services Scientist (3)

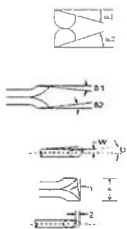
Approved By : S.P.  
(Mr.Samart Roo-ngan)  
Enviro Field Services Specialist (1)

FORM NO. : F 06-124 REVISION NO. : 0 ISSUE DATE: 25/12/23



Type S Pitot Tube Calibration

Date Calibration 5-Jul-24 Due Date 3-Jan-25  
Pitot ID BKK\_FS1117 Inclinator ID BKK\_FS1131  
Pitot SN W2002529 Vernier ID SGK\_FS0113



Parameter	Value	Allowable Range	Check
$\alpha 1$	-0.3	$-10^\circ < \alpha 1 < +10^\circ$	OK
$\alpha 2$	1	$-10^\circ < \alpha 2 < +10^\circ$	OK
$\beta 1$	-0.6	$-5^\circ < \beta 1 < +5^\circ$	OK
$\beta 2$	-1.7	$-5^\circ < \beta 2 < +5^\circ$	OK
$\gamma$	-0.4	-	-
$\theta$	0.06	-	-
$Z = A \tan \gamma$	-0.006	$Z \leq 0.125''$	OK
$W = A \tan \theta$	0.013	$W \leq 0.031''$	OK
Dt	0.310	$0.188'' \text{ to } 0.375''$	OK
$A/2Dt$	1.484	$1.05 \leq A/Dt \leq 1.5$	OK
A	0.92	$2.1Dt \leq A \leq 3Dt$	OK

Certify that pitot tube/probe meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube certification fact of 0.84. See 40 CFR Pt. 60, App. A, EPA Method 2.

Calibrated by : Prasert S.  
(Mr.Prasert Surakhan)  
Enviro Field Services Scientist (3)

Approved By : S.P.  
(Mr.Samart Roo-ngan)  
Enviro Field Services Specialist (1)

FORM NO. : F 06-124 REVISION NO. : 0 ISSUE DATE: 25/12/23

Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310  
Tel : +66 2643 8361-8, e-mail : service.thailand@sartorius.com



NSC-TS-17025  
CALIBRATION 0426

SARTORIUS

Certificate of Calibration

REVIEW BY : Y.L.A.  
APPROVED BY : S.P.  
NEXT CAL. DATE : 30/11/24

Model Number : SECURA224-1S Certificate No. : 238C10465  
Description : Analytical Balance Issued Date : Friday, December 01, 2023  
Serial Number : 0038304165 Reference No. : 223958  
ID No. : BKK\_EN0309  
Manufacturer : Sartorius Page No. : 1 of 2

Customer Name : ALS Laboratory Group (Thailand) Co., Ltd.  
104 Phatthanasakan 40, Phatthanasakan Rd., Khwaeng Suan Luang, Khet Suan Luang, Bangkok 10250.

Calibrated Place : Lab Room

Calibrated By : Mr.Chonchai Inthana Calibration Procedure No. : This calibration was conducted by  
Calibration Date : Thursday, November 30, 2023 Using in-house calibration procedure number (WH-003)  
Based on UKAS LAB 14 : 2019

Metrological data : Capacity : 220 g Readability : 0.0001 g  
Reasons for calibration : ☐ New Installation ☐ Service / Repair ☒ Re-calibration / Maintenance  
Ambients Conditions : Temperature : 21.1 °C ± 5.0 °C  
Humidity : 58.0 % RH ± 10.0 % RH  
Pressure : ☐ Equipment Condition : ☒ Good Operate ☐ Fair

Measurement Method : UKAS Publication Ref : Lab 14  
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 calibration certificate documents the traceability to National Standards, which realise the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came from list of Sartorius Metrological Specifications.

Traceability:

Model Number	Description	Traceability	Certificate No	Due Date
YCS011-522-00	Sartorius weight set 1mg - 5000g E2.YCS011-522-00	TCS	M2308197S	23-Aug-2025
MHB-382SD	Humidity/Barometer/Temp. Lutron MHB-382SD	DKSH	C19231845	23-Aug-2024

This certificate relate and apply this equipment only

This certificate may not be reproduced other than in full except with the prior written approval of the Verification Operation Division  
Sartorius (Thailand) Co., Ltd.

Mr.chonchai inthana(Technical Manager)

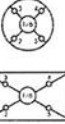


SOP FM 33 03 February 2022

# Certificate of Calibration

Model Number : SECURA224-1S Certificate No. : 23BCI0468  
Description : Analytical Balance Issued Date : Friday, December 01, 2023  
Serial Number : 0038304165 Reference No. : 223958  
ID No. : BKK\_EN0309  
Manufacturer : Sartorius Page No. : 2 of 2

## Calibration Results : Without Adjustment

Repeatability			Eccentricity (Off-center loading error)		
The reproducibility is the ability of a weighing instrument to display nearly identical readings under constant test conditions when the same load within a measurement series is placed repeatedly on the weighing pan in the same manner. The standard deviation is used to express reproducibility quantitatively.			The off-center loading error is yielded by the difference between the result of the load (i.e. 100 or 144 of maximum capacity, placed in the middle of the weighing pan and between each of four additional measurement points (positions defined according to OIML R76).		
Nominal Value : (Low Load)	20.0000	199.9999	Nominal value :	100	g
20 g	20.0000	200.0000	Tolerance	0.0004	g
Tolerance	0.0001 g	19.9999			
	19.9999	200.0000			
	19.9999	199.9999			
	20.0000	200.0000			
Nominal Value : (High Load)	19.9999	200.0000			
200 g	19.9999	199.9999			
Tolerance	0.0001 g	20.0000			
	20.0000	199.9999			
	20.0000	200.0000			
Standard Deviation	0.00005	0.00005			

Linearity				
The linearity, also called inaccuracy error, describes the deviation of the characteristic curve of a weighing instrument from the linear slope.				
Tolerance	0.0002 g			
Nominal Value	Conventional Mass Value	Displayed Value	Deviation	Uncertainty
(g)	(g)	(g)	(g)	(g)
0.01	0.0100	0.0100	0.0000	0.00014
0.05	0.0500	0.0500	0.0000	0.00014
0.1	0.1000	0.1000	0.0000	0.00014
0.5	0.5000	0.5000	0.0000	0.00014
1	1.0000	1.0000	0.0000	0.00014
2	2.0000	2.0000	0.0000	0.00014
5	5.0000	5.0000	0.0000	0.00014
10	10.0000	10.0000	0.0000	0.00014
20	20.0000	20.0000	0.0000	0.00014
200	200.0000	200.0000	0.0000	0.00029
End of Report.				



Lot No. : 24101162-1

## ANALYZER CALIBRATION DATA

Client : Gulf JP NKK Co., Ltd. Location : Ulae HRSG 12  
Date : 11 Sep 24 Test Operator : Ussaree N.  
O<sub>2</sub> ANALYZER : TELEDYNE API T200H Serial No. : 923  
Model : Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	8.00	7.99	0.04
Span Gas	18.04	18.05	18.04	0.04

NO<sub>2</sub> ANALYZER : TELEDYNE API T200H Serial No. : 923  
Model : Span (ppm) : 200

	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	55.88	55.48	55.60	0.05
Span Gas	182.90	182.94	182.85	0.14

SO<sub>2</sub> ANALYZER : TELEDYNE API T100H Serial No. : 536  
Model : Span (ppm) : 200

	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	56.30	56.10	56.03	0.04
Span Gas	182.60	182.68	182.52	0.08

CO ANALYZER : TELEDYNE API T300M Serial No. : 845  
Model : Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	55.22	55.00	55.05	0.02
Span Gas	156.00	155.93	155.86	0.03

Calibrated by

(Mr. Ussaree Namburee)  
Environmental Field Scientist (4)



Lot No. : 24101162-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : Gulf JP NKK Co., Ltd. Location : Ulae HRSG 12  
Date : 11 Sep 24 Test Operator : Ussaree N.

O<sub>2</sub> ANALYZER : Span (%) : 25  
Cylinder Conc. (%) : 18.04

	O <sub>2</sub> Analyzer Calibration Response	System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.02	0.08	0.03	0.12	0.04
Upscale Gas	18.05	18.08	0.12	18.10	0.20	0.08

NO<sub>2</sub> ANALYZER : Span (ppm) : 200  
Cylinder Conc. (ppm) : 182.90

	NO <sub>2</sub> Analyzer Calibration Response	System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.02	0.01	0.04	0.02	0.01
Upscale Gas	182.94	183.23	0.14	183.40	0.23	0.09

SO<sub>2</sub> ANALYZER : Span (ppm) : 200  
Cylinder Conc. (ppm) : 182.80

	SO <sub>2</sub> Analyzer Calibration Response	System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.02	0.01	0.02	0.01	0.00
Upscale Gas	182.68	181.40	0.64	181.23	0.73	0.09

CO ANALYZER : Span (ppm) : 200  
Cylinder Conc. (ppm) : 156.00

	CO Analyzer Calibration Response	System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.01	0.00	0.03	0.03	0.01	0.01
Upscale Gas	155.93	155.00	0.47	155.10	0.42	0.05

Calibrated by

(Mr. Ussaree Namburee)  
Environmental Field Scientist (4)



## EMISSION TEST RESULT

Client : Gulf JP NKK Co., Ltd. Location : Ulae HRSG 12  
Date : 11 Sep 24 Test Operator : Ussaree N.  
Start Time : 10:35  
Finish Time : 10:55  
NO<sub>x</sub> Analyzer Model : TELEDYNE API T100H  
CO Analyzer Model : TELEDYNE API T200H  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API T300M

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:35	14.03	3.87	21.54	0.10	0.42	
10:36	14.02	3.87	21.51	0.11	0.36	
10:37	14.01	3.88	21.48	0.06	0.40	
10:38	14.04	3.86	21.47	0.12	0.39	
10:39	14.02	3.87	21.54	0.13	0.35	
10:40	14.02	3.89	21.78	0.14	0.40	
10:41	14.05	3.88	21.88	0.15	0.36	
10:42	14.03	3.87	21.87	0.15	0.33	
10:43	14.06	3.87	21.86	0.11	0.38	
10:44	14.04	3.87	21.88	0.11	0.42	
10:45	14.03	3.87	21.91	0.15	0.48	
10:46	14.04	3.88	21.83	0.16	0.44	
10:47	14.02	3.87	21.71	0.12	0.45	
10:48	14.01	3.87	21.60	0.11	0.41	
10:49	14.03	3.86	21.94	0.13	0.42	
10:50	14.03	3.88	21.97	0.14	0.37	
10:51	14.03	3.88	21.92	0.14	0.35	
10:52	14.03	3.88	21.91	0.12	0.46	
10:53	14.04	3.88	21.93	0.12	0.42	
10:54	14.06	3.87	22.00	0.14	0.35	
10:55	14.04	3.86	21.90	0.14	0.41	
Average	14.03	3.87	21.79	0.13	0.40	

(Mr. Ussaree Namburee)  
Environmental Field Scientist (4)



## EMISSION TEST RESULT

Client: Gulf JP NKK Co., Ltd.  
Date: 11 Sep 24  
Start Time: 10:56  
SO<sub>2</sub> Analyzer Model: TELEDYNE API T100H  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model: TELEDYNE API T200H  
CO/CO<sub>2</sub> Analyzer Model: TELEDYNE API T300H

Run # 2  
Location: Jdaa HRSO 12  
Test Operator: Ussaree N.  
Finish Time: 11:16  
Serial No.: 536  
Serial No.: 923  
Serial No.: 845

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:56	14.02	3.87	21.80	0.13	0.40	
10:57	14.03	3.18	21.79	0.14	0.47	
10:58	14.05	3.44	21.83	0.16	0.40	
10:59	14.03	3.46	21.78	0.13	0.35	
11:00	14.01	3.86	21.80	0.12	0.38	
11:01	14.01	3.87	21.58	0.09	0.35	
11:02	14.04	3.18	22.09	0.10	0.43	
11:03	14.04	3.87	22.14	0.14	0.43	
11:04	14.04	3.87	22.02	0.13	0.42	
11:05	14.03	3.86	22.04	0.13	0.39	
11:06	14.02	3.86	22.10	0.09	0.35	
11:07	14.05	3.18	22.09	0.14	0.42	
11:08	14.03	3.18	22.03	0.14	0.33	
11:09	14.02	3.18	21.95	0.15	0.38	
11:10	14.03	3.18	21.95	0.12	0.37	
11:11	14.04	3.87	21.85	0.11	0.39	
11:12	14.03	3.18	21.91	0.06	0.32	
11:13	14.02	3.87	22.21	0.12	0.38	
11:14	14.02	3.18	22.33	0.16	0.37	
11:15	14.02	3.87	22.32	0.15	0.35	
11:16	14.01	3.87	22.32	0.17	0.37	
Average	14.03	3.87	22.02	0.13	0.38	

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO. F 06-062 REVISION NO. 1 ISSUE DATE 18/01/24  
ALS Laboratory Group



## EMISSION TEST RESULT

Client: Gulf JP NKK Co., Ltd.  
Date: 11 Sep 24  
Start Time: 11:17  
SO<sub>2</sub> Analyzer Model: TELEDYNE API T100H  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model: TELEDYNE API T200H  
CO/CO<sub>2</sub> Analyzer Model: TELEDYNE API T300H

Run # 3  
Location: Jdaa HRSO 12  
Test Operator: Ussaree N.  
Finish Time: 11:37  
Serial No.: 536  
Serial No.: 923  
Serial No.: 845

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:17	14.02	3.87	22.22	0.12	0.37	
11:18	14.03	3.87	22.13	0.13	0.36	
11:19	14.03	3.87	22.11	0.11	0.32	
11:20	14.03	3.18	22.20	0.14	0.28	
11:21	14.03	3.18	22.23	0.15	0.37	
11:22	14.02	3.87	22.22	0.15	0.36	
11:23	14.03	3.87	22.25	0.16	0.41	
11:24	14.01	3.87	22.22	0.12	0.41	
11:25	14.04	3.87	22.20	0.10	0.41	
11:26	14.01	3.87	22.25	0.12	0.39	
11:27	14.02	3.87	22.22	0.11	0.38	
11:28	14.02	3.87	22.27	0.13	0.39	
11:29	14.02	3.87	22.22	0.15	0.38	
11:30	14.02	3.87	22.18	0.13	0.39	
11:31	14.01	3.18	22.22	0.12	0.39	
11:32	14.04	3.18	22.16	0.11	0.37	
11:33	14.01	3.87	22.09	0.13	0.37	
11:34	14.01	3.89	22.16	0.11	0.37	
11:35	14.03	3.19	22.22	0.10	0.45	
11:36	14.04	3.18	22.10	0.08	0.35	
11:37	14.03	3.87	22.05	0.07	0.38	
Average	14.02	3.87	22.19	0.12	0.38	

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO. F 06-062 REVISION NO. 1 ISSUE DATE 18/01/24  
ALS Laboratory Group



## ANALYZER CALIBRATION DATA

Lot No.: 24101159-1

Client: Gulf JP NKK Co., Ltd.  
Date: 11 Sep 24  
Location: Jdaa HRSO 11  
Test Operator: Ussaree N.  
O<sub>2</sub> ANALYZER Model: TELEDYNE API T200H  
Span (%): 26  
Serial No.: 922

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	7.94	7.92	0.06
Span Gas	16.04	16.02	16.03	0.04

NO<sub>x</sub> ANALYZER Model: TELEDYNE API T200H  
Span (ppm): 200  
Serial No.: 922

	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	55.88	55.34	55.25	0.05
Span Gas	162.90	162.85	162.70	0.08

SO<sub>2</sub> ANALYZER Model: TELEDYNE API T100H  
Span (ppm): 200  
Serial No.: 534

	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	58.30	58.27	58.11	0.05
Span Gas	162.60	162.48	162.72	0.12

CO ANALYZER Model: TELEDYNE API T300M  
Span (ppm): 200  
Serial No.: 844

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.00	0.01
Low-Level Gas	55.22	55.03	55.05	0.01
Span Gas	156.00	156.07	155.91	0.08

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO. F 06-062 REVISION NO. 4 ISSUE DATE 18/01/24  
ALS Laboratory Group



## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Lot No.: 24101159-1

Client: Gulf JP NKK Co., Ltd.  
Date: 11 Sep 24  
Location: Jdaa HRSO 11  
Test Operator: Ussaree N.

O<sub>2</sub> ANALYZER Cylinder Conc. (%): 16.04 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	0.00	0.00	0.00	0.00	0.00
Upscale Gas	16.02	15.99	0.12	16.00	0.08	0.04

NO<sub>x</sub> ANALYZER Cylinder Conc. (ppm): 162.90 Span (ppm): 200

	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	0.01	0.05	0.03	0.02
Upscale Gas	162.85	162.33	0.26	162.17	0.34	0.08

SO<sub>2</sub> ANALYZER Cylinder Conc. (ppm): 162.60 Span (ppm): 200

	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	162.48	161.40	0.54	161.23	0.63	0.09

CO ANALYZER Cylinder Conc. (ppm): 156.00 Span (ppm): 200

	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	0.01	0.02	0.01	0.04	0.02	0.01
Upscale Gas	156.07	155.17	0.45	155.10	0.48	0.03

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO. F 06-062 REVISION NO. 4 ISSUE DATE 18/01/24  
ALS Laboratory Group



### EMISSION TEST RESULT

Client	Gulf JP NKK Co., Ltd.	Run #	1
Date	11 Sep 24	Location	Uda HRSG 11
Start Time	10:35	Test Operator	Ussaree N.
SO <sub>2</sub> Analyzer Model	TELEDYNE API T100H	Finish Time	10:55
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API T200H	Serial No.	534
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API T300H	Serial No.	922
		Serial No.	844

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:35	13.84	3.78	11.97	0.11	0.51	
10:36	13.84	3.80	11.93	0.09	0.52	
10:37	13.84	3.79	11.49	0.09	0.48	
10:38	13.13	3.79	11.85	0.08	0.53	
10:39	13.15	3.78	11.88	0.10	0.43	
10:40	13.85	3.78	11.83	0.11	0.49	
10:41	13.14	3.78	11.84	0.09	0.51	
10:42	13.84	3.79	11.97	0.11	0.52	
10:43	13.85	3.77	12.00	0.14	0.50	
10:44	13.85	3.77	11.96	0.11	0.55	
10:45	13.86	3.77	11.96	0.11	0.48	
10:46	13.16	3.78	11.93	0.09	0.45	
10:47	13.16	3.78	11.99	0.08	0.49	
10:48	13.84	3.77	12.05	0.11	0.48	
10:49	13.83	3.78	12.11	0.10	0.45	
10:50	13.83	3.78	12.18	0.10	0.47	
10:51	13.83	3.78	12.13	0.08	0.43	
10:52	13.86	3.79	12.08	0.09	0.49	
10:53	13.15	3.78	12.05	0.09	0.49	
10:54	13.83	3.78	12.04	0.09	0.45	
10:55	13.85	3.77	12.09	0.11	0.57	
Average	13.85	3.78	11.98	0.10	0.49	

(Mr. Ussaree Nambuee)

Environmental Field Scientist (4)

FORM NO F 06-060 REVISION NO 1 ISSUE DATE 18/01/24

ALS Laboratory Group

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### EMISSION TEST RESULT

Client	Gulf JP NKK Co., Ltd.	Run #	2
Date	11 Sep 24	Location	Uda HRSG 11
Start Time	10:58	Test Operator	Ussaree N.
SO <sub>2</sub> Analyzer Model	TELEDYNE API T100H	Finish Time	11:16
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API T200H	Serial No.	534
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API T300H	Serial No.	922
		Serial No.	844

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:58	13.85	3.77	12.12	0.13	0.45	
10:59	13.85	3.77	12.12	0.15	0.52	
10:58	13.84	3.78	12.17	0.17	0.56	
10:59	13.86	3.80	12.19	0.18	0.50	
11:00	13.87	3.77	12.06	0.09	0.50	
11:01	13.84	3.77	12.02	0.01	0.56	
11:02	13.84	3.78	12.16	0.02	0.56	
11:03	13.85	3.79	12.17	0.04	0.53	
11:04	13.86	3.79	12.08	0.09	0.48	
11:05	13.87	3.78	12.01	0.10	0.48	
11:06	13.84	3.78	12.05	0.13	0.51	
11:07	13.85	3.78	12.23	0.13	0.50	
11:08	13.85	3.79	12.33	0.16	0.53	
11:09	13.87	3.78	12.14	0.13	0.52	
11:10	13.85	3.79	12.06	0.12	0.50	
11:11	13.84	3.80	12.09	0.11	0.50	
11:12	13.86	3.78	11.99	0.08	0.56	
11:13	13.89	3.76	11.91	0.08	0.54	
11:14	13.85	3.79	12.09	0.09	0.53	
11:15	13.86	3.80	12.26	0.15	0.54	
11:16	13.85	3.78	12.23	0.16	0.52	
Average	13.85	3.78	12.12	0.11	0.52	

(Mr. Ussaree Nambuee)

Environmental Field Scientist (4)

FORM NO F 06-060 REVISION NO 1 ISSUE DATE 18/01/24

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### EMISSION TEST RESULT

Client	Gulf JP NKK Co., Ltd.	Run #	3
Date	11 Sep 24	Location	Uda HRSG 11
Start Time	11:17	Test Operator	Ussaree N.
SO <sub>2</sub> Analyzer Model	TELEDYNE API T100H	Finish Time	11:37
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API T200H	Serial No.	634
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API T300H	Serial No.	922
		Serial No.	844

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:17	13.84	3.79	12.23	0.19	0.53	
11:18	13.16	3.79	12.17	0.18	0.55	
11:19	13.84	3.78	12.06	0.14	0.52	
11:20	13.87	3.78	12.03	0.14	0.52	
11:21	13.84	3.78	12.17	0.15	0.53	
11:22	13.88	3.78	12.16	0.11	0.58	
11:23	13.82	3.78	12.20	0.13	0.51	
11:24	13.85	3.80	12.19	0.12	0.54	
11:25	13.86	3.78	12.20	0.15	0.53	
11:26	13.84	3.79	12.21	0.13	0.54	
11:27	13.85	3.79	12.29	0.12	0.51	
11:28	13.85	3.79	12.41	0.18	0.51	
11:29	13.85	3.79	12.45	0.19	0.54	
11:30	13.86	3.79	12.34	0.19	0.48	
11:31	13.85	3.79	12.27	0.16	0.51	
11:32	13.84	3.80	12.42	0.17	0.48	
11:33	13.86	3.80	12.56	0.22	0.52	
11:34	13.85	3.79	12.67	0.27	0.50	
11:35	13.82	3.78	12.70	0.28	0.52	
11:36	13.86	3.79	12.56	0.21	0.54	
11:37	13.84	3.79	12.53	0.21	0.47	
Average	13.85	3.79	12.32	0.17	0.52	

(Mr. Ussaree Nambuee)

Environmental Field Scientist (4)

FORM NO F 06-060 REVISION NO 1 ISSUE DATE 18/01/24

ALS Laboratory Group

Page 5 of 5



Airgas Specialty Gases  
Airgas USA LLC  
6141 Easton Road  
Plymouth, PA 19094  
Airgas.com

### CERTIFICATE OF ANALYSIS

#### Grade of Product: EPA PROTOCOL STANDARD

Customer:	AIR LIQUIDE (THAILAND) LTD	Reference Number:	160-402340012-1
Part Number:	EDAN9953HA0086	Cylinder Volume:	247.2 CF
Cylinder Number:	GN007222	Cylinder Pressure:	2215 PSIG
Laboratory:	124 - Plumsteadville - PA	Valve Outlet:	660
PGVP Number:	A12022	Certification Date:	Feb 09, 2022
Gas Code:	CO, NO, NO <sub>2</sub> , SO <sub>2</sub> , BALN		

Expiration Date: Feb 09, 2030

Certification performed in accordance with EPA Traceability Protocol for Analytical and Certification of Gaseous Calibration Standards (May 2012) documents EPA 8200-1-0201, using the analytical procedures listed. Analytical uncertainty does not require correction for analytical interference. This cylinder has a total 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 mole/mole basis unless otherwise noted.

Do Not Use This Cylinder before 100 days, i.e. 0.1 megatons.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NO <sub>x</sub>	55.00 PPM	55.66 PPM	G1	+/- 1.0% NIST Traceable	02/02/2022, 02/09/2022
CARBON MONOXIDE	55.00 PPM	55.22 PPM	G1	+/- 0.6% NIST Traceable	02/02/2022
NITRIC DIOXIDE	55.00 PPM	55.88 PPM	G1	+/- 1.0% NIST Traceable	02/02/2022, 02/09/2022
SULFUR DIOXIDE	55.00 PPM	56.30 PPM	G1	+/- 0.8% NIST Traceable	02/02/2022, 02/09/2022
NITROGEN	Balance				

Type	Lot ID	Cylinder No.	Concentration	Uncertainty	Expiration Date
NTRM	09010212	KAL004777	98.48 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	Oct 16, 2024
NTRM	200510-15	CC733106	98.61 PPM NITRIC DIOXIDE/NITROGEN	+/- 0.5%	Oct 06, 2025
GMS	12420689129	CC323707	4.097 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Sep 03, 2024
NTRM	11010416	KAL004813	99.0 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Jul 28, 2023

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicel IS50 FTIR AUP2010245 CO	FTIR	Jan 05, 2022
Nicel IS50 FTIR AUP2010245 NO	FTIR	Jan 12, 2022
Nicel IS50 FTIR AUP2010245 NO <sub>2</sub>	FTIR	Jan 27, 2022
Nicel IS50 FTIR AUP2010245 SO <sub>2</sub>	FTIR	Jan 20, 2022

Trid Data Available Upon Request

NOTES: Gross Weight: 49.4 Kg

Net Weight: 8.4 Kg



Approved for Release

Page 1 of 160-402340012-1

## CERTIFICATE OF ANALYSIS

### Grade of Product: EPA Protocol

Part Number: E04N199E3HA0021  
Cylinder Number: ND11221  
Laboratory: 124 - Plumsteadville - PA  
PGVP Number: A12021  
Gas Code: CO,NO,NOX,SO2,BALN  
Reference Number: 160-402138466-1  
Cylinder Volume: 247.2 CF  
Cylinder Pressure: 2215 PSIG  
Valve Outlet: 660  
Certification Date: Jul 15, 2021  
Expiration Date: Jul 15, 2029

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total 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 mole/mole basis unless otherwise noted.  
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	160.0 PPM	162.9 PPM	G1	+/- 1.4% NIST Traceable	07/06/2021, 07/15/2021
CARBON MONOXIDE	160.0 PPM	156.0 PPM	G1	+/- 0.8% NIST Traceable	07/06/2021
NITRIC OXIDE	160.0 PPM	162.9 PPM	G1	+/- 1.0% NIST Traceable	07/06/2021, 07/15/2021
SULFUR DIOXIDE	160.0 PPM	162.5 PPM	G1	+/- 1.0% NIST Traceable	07/06/2021, 07/15/2021
NITROGEN	Balance				

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	090103-29	KAL004559	978.0 PPM CARBON MONOXIDE	+/- 0.4%	Dec 21, 2026
PRM	12346	D65005	9.91 PPM ARGINITROGEN DIOXIDE	2.0%	Feb 20, 2020
NTRM	13010312	KAL003449	243.4 PPM NITRIC OXIDE/NITROGEN	+/- 0.5%	May 04, 2026
GMIS	12420889	CC333707	4.028 PPM NITROGEN DIOXIDE/NITROGEN	2.1%	Aug 15, 2021
NTRM	10010234	AAL073227	255.3 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Apr 25, 2022

The SRM, PRM or RDM noted above is only in reference to the GMS used in the assay and not part of the analysis.

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Jun 24, 2021
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Jul 01, 2021
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Jun 30, 2021
Nicolet iS50 FTIR AUP2010245 SO2	FTIR	Jul 09, 2021

Triad Data Available Upon Request

NOTES:  
Gross Weight: 48.8 Kg  
Net Weight: 8.5 Kg

*Michael A. Hudson*  
Approved for Release

Page 1 of 160-402138466-1

## CERTIFICATE OF ANALYSIS

### Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE (THAILAND) LTD  
Part Number: E02N192E3HA0000  
Cylinder Number: GN0027039  
Laboratory: 124 - Plumsteadville - PA  
PGVP Number: A12022  
Gas Code: O2,BALN  
Reference Number: 160-402340009-1  
Cylinder Volume: 248.4 CF  
Cylinder Pressure: 2214 PSIG  
Valve Outlet: 580  
Certification Date: Feb 10, 2022  
Expiration Date: Feb 10, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total 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 mole/mole basis unless otherwise noted.  
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	8.000 %	7.975 %	G1	+/- 0.4% NIST Traceable	02/10/2022
NITROGEN	Balance				

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	10010635	K022176	9.967 % OXYGEN/NITROGEN	+/- 0.3%	Apr 19, 2022

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2	PARAMAGNETIC	Jan 27, 2022

Triad Data Available Upon Request

NOTES: Gross Weight: 48.3 Kg  
Net Weight: 8.1 Kg



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Page 1 of 160-402340009-1

## CERTIFICATE OF ANALYSIS

### Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE (THAILAND) LTD  
Part Number: E02N192E3HA0001  
Cylinder Number: GN0027201  
Laboratory: 124 - Plumsteadville - PA  
PGVP Number: A12022  
Gas Code: O2,BALN  
Reference Number: 160-402340010-1  
Cylinder Volume: 249.8 CF  
Cylinder Pressure: 2214 PSIG  
Valve Outlet: 580  
Certification Date: Feb 02, 2022  
Expiration Date: Feb 02, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total 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 mole/mole basis unless otherwise noted.  
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	16.00 %	16.04 %	G1	+/- 0.4% NIST Traceable	02/02/2022
NITROGEN	Balance				

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08910230	K065228	23.26 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2022

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2	PARAMAGNETIC	Jan 27, 2022

Triad Data Available Upon Request

NOTES: Gross Weight: 48.6 Kg  
Net Weight: 8.2 Kg



*di*  
Approved for Release

Page 1 of 160-402340010-1

## SITHIPORN ASSOCIATES CO., LTD.

### CALIBRATION LABORATORY

451-451/1 Sirinthon Road, Bangbunru Bangkok, Bangkok, 10703 Thailand  
Tel: +66 2423 8331 Email: calibration@sithiporn.com

SITHIPORN  
associates



Cert. No.: ACC24010  
Pages: 1 of 3

## Calibration Certificate

Equipment: SOUND CALIBRATOR  
Manufacturer: KJON  
Model: NC-74  
Serial No.: 34178119  
ID No.: BKK\_FS0632

Condition As Found: GOOD

Customer: ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATHANAKAN 40, PHATHANAKAN ROAD,  
KHAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location: ( 23.0 ± 3 ) °C  
Ambient Temperature: ( 101.3 ± 3 ) kPa  
Pressure: ( 50.0 ± 20 ) %  
Relative Humidity:

Received Date: 19 JANUARY 2024  
Calibration Date: 26 JANUARY 2024  
Date of Issue: 29 JANUARY 2024

Calibrated by: Natchorn Pisutpaian

Approved by:

*T. Petchurai*  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.



# SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

451-451/1 Sirinthorn Road, Bangbunru, Bangplud, Bangkok 10700 Thailand  
Tel. +66 2433 8331 Email: calibration@sithiporn.com

SITHIPORN  
associates



Cert. No. : ACC24010  
Job No. : VC67AC0059  
Pages : 2 of 3

Calibration Procedure : CP-AC-03

## Calibration Method :

This equipment was calibrated by follow on IEC-60942-2003 Standard.

The sound pressure level, frequency and total distortion of the sound calibrator was measured using the reference microphone.

## Condition of this result of calibration :

### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL-BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL-BP 30/0267	13-FEB-24
Digital Multimeter	33461A	MY60024273	EEL-BP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAJ	34560495	AA-3002-23	14-FEB-24
Audio Analyzer	AVR-3360A	V744B6069	EF-0012-23	10-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*G. Petch*

# SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

451-451/1 Sirinthorn Road, Bangbunru, Bangplud, Bangkok 10700 Thailand  
Tel. +66 2433 8331 Email: calibration@sithiporn.com

SITHIPORN  
associates



Cert. No. : ACC24010  
Job No. : VC67AC0059  
Pages : 3 of 3

## Result of calibration :

### 1. Sound pressure level

Specified sound pressure level (dB)	Measured value (dB)	Deviated value (dB)	Uncertainty (dB)	Acceptance limit (dB)
94	93.94	-0.06	0.14	0.40

### 2. Frequency

Specified Frequency (Hz)	Measured value (Hz)	Deviated value (%)	Uncertainty (%)	Acceptance limit (%)
1000	1001.1	0.1	0.1	1.0

### 3. Total distortion

Measured value (%)	Uncertainty (%)	Acceptance limit (%)
1.48	0.10	3.0

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

*G. Petch*



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEL, BP, 166/0167

## CALIBRATION CERTIFICATE

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.  
Address : 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250  
Calibrated at : Electrical and Electronic Standards Laboratory, Industrial Metrology and Testing Service Centre, Soi 1C, Bangpoo Industrial Estate, Sukhumvit Rd., A.Muang, Samutprakan 10280.

Instrument Calibrated : Ambient Environment  
Description : Sound Level Meter Temperature : (23 ± 3) °C  
Manufacturer : Rion Relative Humidity : (50 ± 15) %  
Model : NL-42 Ambient Pressure : (101.325 ± 1.5) kPa  
Serial No. : 00873053 (ID : BKK FS0930)  
Microphone : UC-52 No.171587  
Preamplifier : NH-24 No.73329

### Standards used :

- Band Pass Filter Wavelec 752A S/N 90010494.
- Condenser Microphone Brüel&Kjær 4180 S/N 2889871
- Decade Attenuator Ando AL-205 S/N 00464602.
- Function/Arbitrary Waveform Generator Agilent 33220A S/N MY44042668.
- Digital Function Synthesizer NF Electronic Instruments DF-193A S/N 122037.
- Digital Multimeter Fluke 8520A S/N 4985007.
- Pistonphone Rion NC-72 S/N 00402446.
- Measuring Amplifier Brüel&Kjær 2636 S/N 1537484.

Date of Receipt : 24 Jan. 2024

Date of Calibration : 22 Feb. 2024

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The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicly of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

TABL MTC 002 Rev.4

Head Office  
81 Mu 3 Tambon Khlong Luang, Amphoe Khlong Luang,  
Chonburi Pathumthani 12120, Thailand  
Tel. (66) 0 2577 9000  
Fax. (66) 0 2577 9009  
E-mail : suthiporn@th.suthiporn.co.th

Office/Laboratory  
Soi 1C, Bangpoo Industrial Estate, Sukhumvit Road,  
Amphoe Muang, Chonburi Samutprakan 10280, Thailand  
Tel. (66) 0 2577 9000  
Fax. (66) 0 2577 9009  
E-mail : suthiporn@th.suthiporn.co.th

Office  
156 Phatthana Road, Chulabhorn Road, 12900,  
Thailand  
Tel. (66) 0 2577 1121-30 ext. 5224, 5225, 5212  
Fax. (66) 0 2577 8592  
E-mail : suthiporn@th.suthiporn.co.th



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEL, BP, 166/0167

- Power Amplifier Brüel&Kjær 2706 S/N 1517650.
- Speaker Tannoy Limited, Great Britain British Patent No. 215300.
- Digital Multimeter Agilent 34401A S/N MY44005560.
- Programmable Attenuator Tamagawa TPA-303A S/N 2212.

### Calibration Procedure :

This instrument was calibrated by using calibration procedures no CP-102-02 and CP-102-03, which were based on IEC 61672-3 Electroacoustics - Sound Level Meters - Part 3 : Periodic tests (2013). These calibration procedures were related to the electrical and acoustic signal tests. The electrical signal test was carried out with the direct measurement method. The acoustic signal test was performed in an anechoic room with the comparison measurement method.

This instrument has been calibrated against standards maintained at the Electrical and Electronic Standards Laboratory (EEL), which are traceable to the International System of Units through the National Institute of Metrology (Thailand).

The information on actual reading is attached herewith and the uncertainty limits quoted refer to the measured values only.

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

Date of Calibration : 22 Feb. 2024

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The results relate only to the items tested/calibrated or value assigned.

Advertising the Report/Certificate and publicly of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

TABL MTC 002 Rev.4

Head Office  
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Office/Laboratory  
Soi 1C, Bangpoo Industrial Estate, Sukhumvit Road,  
Amphoe Muang, Chonburi Samutprakan 10280, Thailand  
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Fax. (66) 0 2577 9009  
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Office  
156 Phatthana Road, Chulabhorn Road, 12900,  
Thailand  
Tel. (66) 0 2577 1121-30 ext. 5224, 5225, 5212  
Fax. (66) 0 2577 8592  
E-mail : suthiporn@th.suthiporn.co.th



### 1. Absolute Sensitivity

Reference Acoustic Signal (dB)	Measured value (dB)		Deviation value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	Before adjust	After adjust				
113.92	114.2	113.9	0.0	1.0	0.30	N/A

Note: The external calibration adjustment was firstly performed. The internal calibration adjustment was then completed at the display of 113.9 dB.

### 2. Self-generated noise

#### 2.1 Normal test

Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
26.4	0.10	N/A

#### 2.2 The microphone of the sound level meter was replaced by electrical signal input device

Frequency Weighting	Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-Weight	12.9	0.10	N/A
C-Weight	18.9	0.10	N/A
Flat	23.8	0.10	N/A

Date of Calibration : 22 Feb, 2024

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### 3. Acoustical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
125	-0.1	0.0	0.0	1.5	0.45	0.6
1 000	0.2	0.2	0.2	1.0	0.45	0.6
8 000	-0.7	-0.7	-0.8	5.0	0.45	0.7

### 4. Electrical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
63	0.0	0.0	0.0	2.0	0.20	0.6
125	0.1	0.1	0.0	1.5	0.20	0.6
250	0.1	0.0	0.0	1.5	0.20	0.6
500	0.1	0.0	0.0	1.5	0.20	0.6
1 000	0.0	0.0	0.0	1.0	0.20	0.6
2 000	-0.2	-0.2	-0.2	2.0	0.20	0.6
4 000	-0.3	-0.3	-0.3	3.0	0.20	0.6
8 000	0.1	0.0	-0.1	5.0	0.20	0.7

Date of Calibration : 22 Feb, 2024

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### 5. Long-term stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	94.0	0.0	0.3	0.10	0.1
End	94.0				

### 6. Frequency and time weightings at 1 kHz

#### 6.1 Frequency weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-weight	94.0	0.0	0.2	0.20	0.2
C-weight	94.0	0.0	0.2	0.20	0.2
Flat	94.0	0.0	0.2	0.20	0.2

#### 6.2 Time weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	94.0	0.0	0.1	0.20	0.2
Slow	94.0	0.0	0.1	0.20	0.2
Leq	94.0	0.0	0.1	0.20	0.2

Date of Calibration : 22 Feb, 2024

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### 7. Level linearity on the reference level range

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
137	137.1	0.1	1.1	0.30	0.3
136	136.1	0.1	1.1	0.30	0.3
135	135.1	0.1	1.1	0.30	0.3
134	134.1	0.1	1.1	0.30	0.3
129	129.1	0.1	1.1	0.30	0.3
124	124.0	0.0	1.1	0.30	0.3
119	119.0	0.0	1.1	0.30	0.3
114	114.0	0.0	1.1	0.30	0.3
109	109.0	0.0	1.1	0.30	0.3
104	104.0	0.0	1.1	0.30	0.3
99	99.0	0.0	1.1	0.30	0.3
94	94.0	0.0	1.1	0.30	0.3
89	89.0	0.0	1.1	0.30	0.3
84	84.0	0.0	1.1	0.30	0.3
79	79.1	0.1	1.1	0.30	0.3
74	74.1	0.1	1.1	0.30	0.3
69	69.0	0.0	1.1	0.30	0.3
64	64.0	0.0	1.1	0.30	0.3

Date of Calibration : 22 Feb, 2024

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## 7. Level linearity on the reference level range (cont.)

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
59	59.0	0.0	1.1	0.30	0.3
54	53.9	-0.1	1.1	0.30	0.3
49	49.0	0.0	1.1	0.30	0.3
44	44.0	0.0	1.1	0.30	0.3
39	39.0	0.0	1.1	0.30	0.3
34	34.0	0.0	1.1	0.30	0.3
29	29.0	0.0	1.1	0.30	0.3
28	28.0	0.0	1.1	0.30	0.3
27	27.0	0.0	1.1	0.30	0.3
26	26.0	0.0	1.1	0.30	0.3
25	25.0	0.0	1.1	0.30	0.3

## 8. Level linearity including the level range control

At reference sound level on the reference level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	94.0	94.0	0.0	1.1	0.30	0.3

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## 8. Level linearity including the level range control

At reference level at 5 dB greater than the under-range on a level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	35	35.0	0.0	1.1	0.30	0.3

## 9. Tone burst response

Time Weighting	Toneburst Duration, Tbl (ms)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	200	126.1	0.1	±1.0	0.20	0.3
	2	109.0	0.0	+1.0; -2.5	0.20	0.3
	0.25	100.0	0.0	+1.5; -5.0	0.20	0.3
Slow	200	119.6	0.0	±1.0	0.20	0.3
	2	100.0	0.0	+1.0; -5.0	0.20	0.3
	0.25	91.0	0.0	+1.5; -5.0	0.20	0.3

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## 10. Peak C sound level

Number of cycles in test signal	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Complete cycle	125.4	125.3	-0.1	3.0	0.20	0.35
Positive half cycle	124.4	124.1	-0.3	2.0	0.20	0.35
Negative half cycle	124.4	124.1	-0.3	2.0	0.20	0.35

## 11. Overload indication

Measured value (dB)		Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Positive one-half cycle	Negative one-half cycle				
136.8	136.8	0.0	1.5	0.20	0.25

## 12. High-level stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	129.0	0.0	0.3	0.10	0.1
End	129.0				

Calibrated by:

(Mr. Wuttawat Supanich)

Approved by:



Electrical and Electronic Standards Laboratory  
Industrial Metrology and Testing Service Centre

Date of Calibration : 22 Feb, 2024

Date of Issue : 23 Feb, 2024

Ref: 2011267012400346004

End of Certificate

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Cert. No.: ACL24176  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Preamplifier NII-24  
Serial No.: 00710640 / 170325 / 73077  
ID No.: BKK\_JS0024

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 23 MAY 2024  
Calibration Date : 12-13 JUNE 2024  
Date of Issue : 14 JUNE 2024

Calibrated by : Nathakorn Pisutpaisan

Approved by :  
( Thanakul Peichurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

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**CALIBRATION LABORATORY**

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Cert. No. : ACL24176  
Job No. : VC67AC0094  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

**Calibration Method :**

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).

The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL.BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL.BP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL.BP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KAJ	34560495	AA-3001-24	05-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*T. Petch*

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Cert. No. : ACL24176  
Job No. : VC67AC0094  
Pages : 3 of 8

**Summary of Measurement Result :**

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Cert. No. : ACL24176  
Job No. : VC67AC0094  
Pages : 4 of 8

**Result of calibration :**

**1. Absolute sensitivity**

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

**2. Self-generated noise**

2.1 Normal test

Measured Value (dB)
16.6

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A - weight	12.0
C - weight	18.0
Flat	24.0

**3. Acoustical signal tests of frequency weightings**

Meier free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.5
1000	-0.1	-0.1	-0.1	± 1.0
8000	-0.1	0.0	0.0	±5.0

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Cert. No. : ACL24176  
Job No. : VC67AC0094  
Pages : 5 of 8

**4. Electrical signal tests of frequency weightings**

Weighing network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	-0.1	-0.1	±2.0
125	0.1	0.0	-0.1	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.1	0.0	-0.1	±1.5
1000	0.0	0.0	-0.1	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	-0.1	±3.0
8000	0.0	0.0	0.0	±5.0

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Lcq	94.0	94.0	0.0	± 0.1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.1	0.1	± 0.3

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Pages : 6 of 8

**7. Level linearity on the reference level range**

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.1	0.1	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.1	0.1	±1.1
28.0	28.0	0.0	±1.1
27.0	27.1	0.1	±1.1
26.0	26.1	0.1	±1.1
25.0	25.2	0.2	±1.1

T. Petchur

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Cert. No. : ACL24176  
Job No. : VC67AC0094  
Pages : 7 of 8

**8. Level linearity including the level range control**

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	±1.1

**9. Tone burst response**

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	116.9	-0.1	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	107.9	-0.1	1.5 ; -5.0
	200	800	127.6	127.5	-0.1	±1.0
SEL	0.25	1	99.0	98.8	-0.2	1.5 ; -5.0
	2	8	108.0	107.9	-0.1	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, Lepeak (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.3	-0.1	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

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**11. Overload indication**

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

**12. High level stability**

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petchur

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Cert. No. : ACL24108  
Pages : 1 of 8

**Calibration Certificate**

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier N11-24  
**Serial No.:** 00710644 / 157228 / 10645  
**ID No.:** BKK\_FS0028

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHWAENG PHATTANAKAN, KHET SUAN LUANG,

**Location :** \*  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 03 APRIL 2024  
**Calibration Date :** 09-11 APRIL 2024  
**Date of Issue :** 12 APRIL 2024

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :**

T. Petchur  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

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Cert. No. : ACL24108  
Job No. : VC67AC0075  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

**Calibration Method :**

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EI-0009-4	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 20/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EP-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KA1	34560495	AA-3001-24	05-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*G. Ratan*

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Cert. No. : ACL24108  
Job No. : VC67AC0075  
Pages : 3 of 8

**Summary of Measurement Result :**

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Job No. : VC67AC0075  
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**Result of calibration :**

**1. Absolute sensitivity**

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

**2. Self-generated noise**

2.1 Normal test

Measured Value (dB)
14.6

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A - weight	13.1
C - weight	19.8
Flat	25.2

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.8	0.8	0.9	± 1.5
1000	0.2	0.2	0.2	± 1.0
8000	-2.6	-2.5	-2.5	± 5.0

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**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	0.0	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.3

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## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.1	0.1	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.1	0.1	±1.1
69.0	69.1	0.1	±1.1
64.0	64.0	0.0	±1.1
59.0	59.1	0.1	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	26.0	0.0	±1.1
25.0	24.9	-0.1	±1.1

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Cert. No. : ACL24108  
Job No. : VC67AC0075  
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## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
SEL	200	800	128.0	128.0	0.0	±1.0

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±3.0
One	136.4	135.7	-0.7	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.1	0.1	±2.0
Positive half cycle	135.4	135.3	-0.1	±2.0
Negative half cycle	135.4	135.3	-0.1	±2.0

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## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.7	0.2	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

*T. Petch*



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEL, BP, 164/0167

## CALIBRATION CERTIFICATE

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.  
Address : 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok, 10250  
Calibrated at : Electrical and Electronic Standards Laboratory, Industrial Metrology and Testing Service Centre,  
Sri 1C, Bangpoo Industrial Estate, Sukhumvit Rd., A-Muang, Samutprakan 10280.

Instrument Calibrated :  
Description : Sound Level Meter  
Manufacturer : Rion  
Model : NL-42  
Serial No. : 00858523 (ID : BKK\_FS0113)  
Microphone : UC-52 No.158774  
Preamplifier : NH-24 No.58775  
Standards used :

Ambient Environment  
Temperature : (23 ± 3) °C  
Relative Humidity : (50 ± 15) %  
Ambient Pressure : (101.325 ± 1.5) kPa

1. Band Pass Filter Wavetek 752A S/N 90010494.
2. Condenser Microphone Brüel&Kjær 4180 S/N 2889871
3. Decade Attenuator Ando AL-205 S/N 00464602.
4. Function/Arbitrary Waveform Generator Agilent 33220A S/N MY44042668.
5. Digital Function Synthesizer NF Electronic Instruments DI-193A S/N 122037.
6. Digital Multimeter Fluke 8520A S/N 49K5007.
7. Pistonphone Rion NC-72 S/N 00402446.
8. Measuring Amplifier Brüel&Kjær 2636 S/N 1337484.

Date of Receipt : 24 Jan. 2024  
Date of Calibration : 21 Feb. 2024

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The results relate only to the items described and as stated or as shown.  
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9. Power Amplifier Brüel&Kjær 2706 S/N 1517650,
10. Speaker Tansuy Limited, Great Britain British Patent No. 215300,
11. Digital Multimeter Agilent 34401A S/N MY44005560,
12. Programmable Attenuator Tamagawa TPA-303A S/N 2212.

#### Calibration Procedure :

This instrument was calibrated by using calibration procedures no CP-102-02 and CP-102-03, which were based on IEC 61672-3 Electroacoustics - Sound Level Meters - Part 3 : Periodic tests (2013). These calibration procedures were related to the electrical and acoustic signal tests. The electrical signal test was carried out with the direct measurement method. The acoustic signal test was performed in an anechoic room with the comparison measurement method.

This instrument has been calibrated against standards maintained at the Electrical and Electronic Standards Laboratory (EEL), which are traceable to the International System of Units through the National Institute of Metrology (Thailand).

The information on actual reading is attached herewith and the uncertainty limits quoted refer to the measured values only.

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

Date of Calibration : 21 Feb. 2024

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#### 1. Absolute Sensitivity

Reference Acoustic Signal (dB)	Measured value (dB)		Deviation value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	Before adjust	After adjust				
113,91	114,2	113,9	0,0	1,0	0,30	N/A

Note: The external calibration adjustment was firstly performed. The internal calibration adjustment was then completed at the display of 113,5 dB.

#### 2. Self-generated noise

##### 2.1 Normal test

Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
19,5	0,10	N/A

##### 2.2 The microphone of the sound level meter was replaced by electrical signal input device

Frequency Weighting	Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-Weight	10,9	0,10	N/A
C-Weight	17,5	0,10	N/A
Flat	21,7	0,10	N/A

Date of Calibration : 21 Feb. 2024

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#### 3. Acoustical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
125	0,4	0,5	0,5	1,5	0,45	0,6
1 000	-0,1	-0,1	-0,1	1,0	0,45	0,6
8 000	-2,6	-2,6	-2,7	5,0	0,45	0,7

#### 4. Electrical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
63	0,1	0,0	0,0	2,0	0,20	0,6
125	0,0	0,0	0,0	1,5	0,20	0,6
250	0,0	0,0	0,0	1,5	0,20	0,6
500	0,0	0,0	0,0	1,5	0,20	0,6
1 000	0,0	0,0	0,0	1,0	0,20	0,6
2 000	-0,1	-0,1	-0,2	2,0	0,20	0,6
4 000	-0,2	-0,3	-0,3	3,0	0,20	0,6
8 000	0,0	0,0	-0,1	5,0	0,20	0,7

Date of Calibration : 21 Feb. 2024

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#### 5. Long-term stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	94,0	0,0	0,3	0,10	0,1
End	94,0				

#### 6. Frequency and time weightings at 1 kHz

##### 6.1 Frequency weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-weight	94,0	0,0	0,2	0,20	0,2
C-weight	94,0	0,0	0,2	0,20	0,2
Flat	94,0	0,0	0,2	0,20	0,2

##### 6.2 Time weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	94,0	0,0	0,1	0,20	0,2
Slow	94,0	0,0	0,1	0,20	0,2
Leq	94,0	0,0	0,1	0,20	0,2

Date of Calibration : 21 Feb. 2024

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## 7. Level linearity on the reference level range

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
137	137.1	0.1	1.1	0.30	0.3
136	136.1	0.1	1.1	0.30	0.3
135	135.1	0.1	1.1	0.30	0.3
134	134.1	0.1	1.1	0.30	0.3
129	129.1	0.1	1.1	0.30	0.3
124	124.0	0.0	1.1	0.30	0.3
119	119.1	0.1	1.1	0.30	0.3
114	114.0	0.0	1.1	0.30	0.3
109	109.0	0.0	1.1	0.30	0.3
104	104.1	0.1	1.1	0.30	0.3
99	99.0	0.0	1.1	0.30	0.3
94	94.0	0.0	1.1	0.30	0.3
89	89.0	0.0	1.1	0.30	0.3
84	84.0	0.0	1.1	0.30	0.3
79	79.1	0.1	1.1	0.30	0.3
74	74.1	0.1	1.1	0.30	0.3
69	69.0	0.0	1.1	0.30	0.3
64	64.0	0.0	1.1	0.30	0.3

Date of Calibration : 21 Feb. 2024

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Thailand  
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Fax. 06610 2579 8592  
E-mail: sumakorn@tistr.ac.th

## 7. Level linearity on the reference level range (cont.)

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
59	59.0	0.0	1.1	0.30	0.3
54	53.9	-0.1	1.1	0.30	0.3
49	49.0	0.0	1.1	0.30	0.3
44	44.0	0.0	1.1	0.30	0.3
39	39.0	0.0	1.1	0.30	0.3
34	34.0	0.0	1.1	0.30	0.3
29	29.0	0.0	1.1	0.30	0.3
28	28.0	0.0	1.1	0.30	0.3
27	26.0	-0.1	1.1	0.30	0.3
26	25.9	-0.1	1.1	0.30	0.3
25	24.9	-0.1	1.1	0.30	0.3

## 8. Level linearity including the level range control

At reference sound level on the reference level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
30-130	94.0	94.0	0.0	1.1	0.30	0.3

Date of Calibration : 21 Feb. 2024

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## 8. Level linearity including the level range control

At reference level at 5 dB greater than the under-range on a level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
30-130	35	35.0	0.0	1.1	0.30	0.3

## 9. Tone burst response

Time Weighting	Toneburst Duration, T (ms)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
Fast	200	126.0	0.0	±1.0	0.20	0.3
	2	108.9	-0.1	+1.0; -2.5	0.20	0.3
	0.25	99.9	-0.1	+1.5; -5.0	0.20	0.3
Slow	200	119.5	-0.1	±1.0	0.20	0.3
	2	99.9	-0.1	+1.0; -5.0	0.20	0.3
	200	120.0	0.0	±1.0	0.20	0.3
SEL	2	100.0	0.0	+1.0; -2.5	0.20	0.3
	0.25	99.9	-0.1	+1.5; -5.0	0.20	0.3

Date of Calibration : 21 Feb. 2024

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## 10. Peak C sound level

Number of cycles in test signal	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
Complete cycle	125.4	125.3	-0.1	3.0	0.20	0.35
Positive half cycle	124.4	124.1	-0.3	2.0	0.20	0.35
Negative half cycle	124.4	124.1	-0.3	2.0	0.20	0.35

## 11. Overload indication

Measured value (dB)		Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
Positive one-half cycle	Negative one-half cycle				
126.9	136.9	0.0	1.5	0.20	0.25

## 12. High-level stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum permitted uncertainty of measurement (±dB)
Begin	129.0	0.0	0.3	0.10	0.1
End	129.0				

Calibrated by :

  
(Mr. Wintawat Supanich)

Approved by :

  
(Mr. Prasanna Khuyap)  
Director  
TISTR

Electrical and Electronic Standards Laboratory

Date of Calibration : 21 Feb. 2024

Date of Issue : 22 Feb. 2024

Ref: 2011267012400346002

End of Certificate

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Cert. No. : ACL24086  
Pages : 1 of 8

**Calibration Certificate**

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier NH-24  
**Serial No.:** 00858525 / 170383 / 72889  
**ID No.:** BKK\_FS0115

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTANAKAN ROAD,  
KHUWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** -  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 11 JANUARY 2024  
**Calibration Date :** 22-24 JANUARY 2024  
**Date of Issue :** 24 JANUARY 2024

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :**

*T. Petchurai*  
( Thanakul Petchurai )

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Cert. No. : ACL24086  
Job No. : VC67AC0055  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

**Calibration Method :**

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For test results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL.BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL.BP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	FEL.BP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAJ	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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**Result of calibration :**

**1. Absolute sensitivity**

Reference Acoustic Signal ( dB )	Measured Value ( dB )	Deviation ( dB )	Acceptance Limit ( dB )
93.9 (93.98)	93.9	0.0	±0.3

**2. Self-generated noise**

**2.1 Normal test**

Measured Value ( dB )
15.1

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value ( dB )
A - weight	12.6
C - weight	18.6
Flat	24.4

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.2	0.3	0.3	± 1.5
1000	0.0	0.1	0.1	± 1.0
8000	-0.6	-0.7	-0.7	±5.0

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**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	-0.1	-0.1	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

**5. Frequency and time weightings at 1 kHz**

**5.1 Frequency weightings at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

**5.2 Time weighting at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
1eq	94.0	94.0	0.0	± 0.1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

*J. Petch*

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**7. Level linearity on the reference level range**

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.0	0.0	± 1.1
136.0	136.0	0.0	± 1.1
135.0	135.0	0.0	± 1.1
134.0	134.0	0.0	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.0	0.0	± 1.1
114.0	114.0	0.0	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.0	0.0	± 1.1
99.0	99.0	0.0	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.1	0.1	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.1	0.1	± 1.1
69.0	69.1	0.1	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.1	0.1	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	30.0	0.0	± 1.1
29.0	29.1	0.1	± 1.1
28.0	28.0	0.0	± 1.1
27.0	27.1	0.1	± 1.1
26.0	26.2	0.2	± 1.1
25.0	25.2	0.2	± 1.1

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**8. Level linearity including the level range control**

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94.0	94.0	0.0	±1.1

**9. Tone burst response**

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108.0	107.9	-0.1	1.5 : -5.0
	2	8	117.0	117.0	0.0	1.0 : -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 : -5.0
	200	800	127.6	127.6	0.0	±1.0
	200	800	127.6	127.6	0.0	±1.0
SEL	0.25	1	99.0	98.9	-0.1	1.5 : -5.0
	2	8	108.0	108.0	0.0	1.0 : -2.5
	200	800	128.0	128.0	0.0	±1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, L <sub>peak</sub> ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.3	-0.1	±3.0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.2	-0.2	±2.0
Negative half cycle	135.4	135.2	-0.2	±2.0

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Job No. : VC67AC0055  
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**11. Overload indication**

Measured value ( dB )		Deviated Value ( dB )	Acceptance Limits ( dB )
Positive one-half cycle	Negative one-half cycle		
89.6	89.5	-0.1	±1.5

**12. High level stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

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Cert. No. : ACC24026  
Pages : 1 of 3

**Calibration Certificate**

**Equipment :** SOUND CALIBRATOR  
**Manufacturer :** RION  
**Model :** NC-74  
**Serial No.:** 34178117  
**ID No.:** BKK\_FS0630

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :**  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 11 JUNE 2024  
**Calibration Date :** 27 JUNE 2024  
**Date of Issue :** 28 JUNE 2024

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :**

*T. Petchur*  
( Thanakul Petchurai )

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Cert. No. : ACC24026  
Job No. : VC67AC0105  
Pages : 2 of 3

**Calibration Procedure :** CP-AC-03

**Calibration Method :**

This equipment was calibrated by follow on IEC-60942-2003 Standard.

The sound pressure level, frequency and total distortion of the sound calibrator was measured using the reference  
microphone.

**Condition of this result of calibration :**

**1. Reference Standard Instruments :**

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 20/0267	15-FEB-25
Digital Multimeter	33461A	MY60024273	EEL_BP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	29779000	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KA1	34560495	AA-3001-24	05-FEB-25
Audio Analyzer	AVR-3360A	V744B6069	EF-0009-24	09-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand),
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

**SITHIPORN ASSOCIATES CO., LTD.**  
**CALIBRATION LABORATORY**

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Cert. No. : ACC24026  
Job No. : VC67AC0105  
Pages : 3 of 3

**Result of calibration :**

**1. Sound pressure level**

Specified sound pressure level (dB)	Measured value (dB)	Deviated value (dB)	Uncertainty (dB)	Acceptance limit (dB)
94	94.14	0.14	0.14	0.40

**2. Frequency**

Specified Frequency (Hz)	Measured value (Hz)	Deviated value (%)	Uncertainty (%)	Acceptance limit (%)
1000	1001.7	0.2	0.1	1.0

**3. Total distortion**

Measured value (%)	Uncertainty (%)	Acceptance limit (%)
1.56	0.10	3.0

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

*T. Petchur*



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67-0231

MTC No. EEL\_BP\_167/0167

**CALIBRATION CERTIFICATE**

**Submitted by :** ALS Laboratory Group (Thailand) Co., Ltd.  
**Address :** 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khiet Suan Luang, Bangkok, 10250  
**Calibrated at :** Electrical and Electronic Standards Laboratory, Industrial Metrology and Testing Service Centre,  
Soi 1C, Bangpoo Industrial Estate, Sukhumvit Rd., A-Muang, Samutprakan 10280.

**Instrument Calibrated :**  
**Description :** Sound Level Meter  
**Manufacturer :** Rion  
**Model :** NL-42  
**Serial No. :** 00296511 (ID : BKK\_FS0968)  
**Microphone :** UC-52 No.179112  
**Preamplifier :** NH-24 No.87520  
**Ambient Environment :**  
**Temperature :** (23 ± 3) °C  
**Relative Humidity :** (50 ± 15) %  
**Ambient Pressure :** (101.325 ± 1.5) kPa

**Standards used :**

1. Band Pass Filter Wavecok 752A S/N 90010494.
2. Condenser Microphone Brüel&Kjær 4180 S/N 2889871
3. Decade Attenuator Ando AL-205 S/N 00464602.
4. Function/Arbitrary Waveform Generator Agilent 33220A S/N MY44042668.
5. Digital Function Synthesizer NF Electronic Instruments DF-193A S/N 122037.
6. Digital Multimeter Fluke 8520A S/N 4985007.
7. Pistophone Rion NC-72 S/N 00402446.
8. Measuring Amplifier Brüel&Kjær 2636 S/N 1537484.

**Date of Receipt :** 24 Jan, 2024

**Date of Calibration :** 27 Feb. 2024

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEI., BP. 167/0167

9. Power Amplifier Brüel&Kjær 2706 S/N 1517650,
10. Speaker Tannoy Limited, Great Britain British Patent No. 215300,
11. Digital Multimeter Agilent 34401A S/N MY44005560,
12. Programmable Attenuator Tamagawa TPA-303A S/N 2212.

#### Calibration Procedure :

This instrument was calibrated by using calibration procedures no CP-102-02 and CP-102-03, which were based on IEC 61672-3 Electroacoustics - Sound Level Meters - Part 3 : Periodic tests (2013). These calibration procedures were related to the electrical and acoustic signal tests. The electrical signal test was carried out with the direct measurement method. The acoustic signal test was performed in an anechoic room with the comparison measurement method.

This instrument has been calibrated against standards maintained at the Electrical and Electronic Standards Laboratory (EEL), which are traceable to the International System of Units through the National Institute of Metrology (Thailand).

The information on actual reading is attached herewith and the uncertainty limits quoted refer to the measured values only.

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

Date of Calibration : 22 Feb. 2024

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FM/BL/MTC.002 Rev.4

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEI., BP. 167/0167

#### 1. Absolute Sensitivity

Reference Acoustic Signal (dB)	Measured value (dB)		Deviation value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	Before adjust	After adjust				
113.92	114.1	113.9	0.0	1.0	0.30	N/A

Note: The external calibration adjustment was firstly performed. The internal calibration adjustment was then completed at the display of 113.9 dB.

#### 2. Self-generated noise

##### 2.1 Normal test

Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
23.3	0.10	N/A

##### 2.2 The microphone of the sound level meter was replaced by electrical signal input device

Frequency Weighting	Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-Weight	13.9	0.10	N/A
C-Weight	18.1	0.10	N/A
Flat	24.2	0.10	N/A

Date of Calibration : 22 Feb. 2024

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Request No. 21-67/0231

MTC No. EEI., BP. 167/0167

#### 3. Acoustic signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
125	0.1	0.2	0.2	1.5	0.45	0.6
1 000	0.2	0.2	0.2	1.0	0.45	0.6
8 000	-2.5	-2.6	-2.6	5.0	0.45	0.7

#### 4. Electrical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
63	0.0	0.0	0.0	2.0	0.20	0.6
125	0.0	0.0	0.0	1.5	0.20	0.6
350	0.0	0.0	0.0	1.5	0.20	0.6
500	0.0	0.0	0.0	1.5	0.20	0.6
1 000	0.0	0.0	0.0	1.0	0.20	0.6
2 000	-0.1	-0.1	-0.2	2.0	0.20	0.6
4 000	-0.3	-0.3	-0.3	3.0	0.20	0.6
8 000	0.0	0.0	-0.1	5.0	0.20	0.7

Date of Calibration : 22 Feb. 2024

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Request No. 21-67/0231

MTC No. EEI., BP. 167/0167

#### 5. Long-term stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	94.0	0.0	0.3	0.10	0.1
End	94.0				

#### 6. Frequency and time weightings at 1 kHz

##### 6.1 Frequency weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-weight	94.0	0.0	0.2	0.20	0.2
C-weight	94.0	0.0	0.2	0.20	0.2
Flat	94.0	0.0	0.2	0.20	0.2

##### 6.2 Time weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	94.0	0.0	0.1	0.20	0.2
Slow	94.0	0.0	0.1	0.20	0.2
Leq	94.0	0.0	0.1	0.20	0.2

Date of Calibration : 22 Feb. 2024

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Request No. 21-67/0231

MTC No. EEL, BP, 167/0167

7. Level linearity on the reference level range

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
137	137.0	0.0	1.1	0.30	0.3
136	136.1	0.1	1.1	0.30	0.3
135	135.0	0.0	1.1	0.30	0.3
134	134.1	0.1	1.1	0.30	0.3
129	129.1	0.1	1.1	0.30	0.3
124	124.0	0.0	1.1	0.30	0.3
119	119.1	0.1	1.1	0.30	0.3
114	114.0	0.0	1.1	0.30	0.3
109	109.0	0.0	1.1	0.30	0.3
104	104.1	0.1	1.1	0.30	0.3
99	99.0	0.0	1.1	0.30	0.3
94	94.0	0.0	1.1	0.30	0.3
89	89.0	0.0	1.1	0.30	0.3
84	84.0	0.0	1.1	0.30	0.3
79	79.0	0.0	1.1	0.30	0.3
74	74.0	0.0	1.1	0.30	0.3
69	69.0	0.0	1.1	0.30	0.3
64	63.9	-0.1	1.1	0.30	0.3

Date of Calibration : 22 Feb, 2024

7/9

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEL, BP, 167/0167

7. Level linearity on the reference level range (cont.)

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
59	58.9	-0.1	1.1	0.30	0.3
54	53.9	-0.1	1.1	0.30	0.3
49	48.9	-0.1	1.1	0.30	0.3
44	43.9	-0.1	1.1	0.30	0.3
39	38.9	-0.1	1.1	0.30	0.3
34	33.9	-0.1	1.1	0.30	0.3
29	28.9	-0.1	1.1	0.30	0.3
28	27.9	-0.1	1.1	0.30	0.3
27	26.9	-0.1	1.1	0.30	0.3
26	25.9	-0.1	1.1	0.30	0.3
25	24.9	-0.1	1.1	0.30	0.3

8. Level linearity including the level range control

At reference sound level on the reference level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	94.0	94.0	0.0	1.1	0.30	0.3

Date of Calibration : 22 Feb, 2024

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Request No. 21-67/0231

MTC No. EEL, BP, 167/0167

8. Level linearity including the level range control

At reference level at 5 dB greater than the under-range on a level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	35	35.0	0.0	1.1	0.30	0.3

9. Tone burst response

Time Weighting	Toneburst Duration, T <sub>b</sub> (ms)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	200	126.0	0.0	+1.0	0.20	0.3
	2	109.0	0.0	+1.0; +2.5	0.20	0.3
	0.25	100.0	0.0	+1.5; +5.0	0.20	0.3
Slow	200	119.5	-0.1	±1.0	0.20	0.3
	2	99.9	-0.1	+1.0; +5.0	0.20	0.3
	0.25	90.9	-0.1	+1.5; +5.0	0.20	0.3

Date of Calibration : 22 Feb, 2024

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Request No. 21-67/0231

MTC No. EEL, BP, 167/0167

10. Peak C sound level

Number of cycles in test signal	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Complete cycle	125.4	125.3	-0.1	3.0	0.20	0.35
Positive half cycle	124.4	124.2	-0.2	2.0	0.20	0.35
Negative half cycle	124.4	124.2	-0.2	2.0	0.20	0.35

11. Overload indication

Measured value (dB)		Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Positive one-half cycle	Negative one-half cycle				
136.9	136.9	0.0	1.5	0.20	0.25

12. High-level stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	129.0	0.0	0.3	0.10	0.1
End	129.0				

Calibrated by :

(Mr. Wittawat Supnueh)

Approved by :

(Mr. Piyawade Khawpa)  
Director

Electrical and Electronic Standards Laboratory

Industrial Metrology and Testing Service Centre

Date of Calibration : 22 Feb, 2024

Date of Issue : 23 Feb, 2024

Ref: 2011267012400346005

End of Certificate

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Cert. No. : ACL24174  
Pages : 1 of 8

## Calibration Certificate

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier NH-24  
**Serial No.:** 00710637 / 157783 / 48098  
**ID No.:** BKK\_FS0021

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** \*  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 23 MAY 2024  
**Calibration Date :** 12-13 JUNE 2024  
**Date of Issue :** 14 JUNE 2024

**Calibrated by :** Naitakorn Pisutpinan

**Approved by :**

*T. Petchur*  
( Thanakul Petchurai )

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Cert. No. : ACL24174  
Job No. : VC67AC0094  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

### Condition of this result of calibration :

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EELBP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EELBP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EELBP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KA1	34560495	AA-3001-24	05-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

1. National Institute of Metrology (Thailand),
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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Job No. : VC67AC0094  
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### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Job No. : VC67AC0094  
Pages : 4 of 8

### Result of calibration :

#### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

#### 2. Self-generated noise

##### 2.1 Normal test

Measured Value (dB)
15.1

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A-weight	12.6
C-weight	18.8
Flat	24.6

#### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.4	0.4	±1.5
1000	0.0	0.0	0.0	±1.0
8000	-1.9	-1.7	-1.7	±5.0

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**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	0.0	±2.0
125	-0.1	0.0	0.0	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.0	0.0	±5.0

**5. Frequency and time weightings at 1 kHz**

**5.1 Frequency weightings at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

**5.2 Time weighting at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Lcq	94.0	94.0	0.0	± 0.1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

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**7. Level linearity on the reference level range**

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.1	0.1	± 1.1
136.0	136.1	0.1	± 1.1
135.0	135.1	0.1	± 1.1
134.0	134.1	0.1	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.1	0.1	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.1	0.1	± 1.1
114.0	114.1	0.1	± 1.1
109.0	109.1	0.1	± 1.1
104.0	104.1	0.1	± 1.1
99.0	99.1	0.1	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.0	0.0	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	30.0	0.0	± 1.1
29.0	29.0	0.0	± 1.1
28.0	28.0	0.0	± 1.1
27.0	27.0	0.0	± 1.1
26.0	26.1	0.1	± 1.1
25.0	25.1	0.1	± 1.1

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**8. Level linearity Including the level range control**

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94.0	94.0	0.0	±1.1

**9. Tone burst response**

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
SEL	0.25	1	99.0	98.8	-0.2	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, L <sub>peak</sub> ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.4	0.0	±3.0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

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**11. Overload indication**

Measured value ( dB )		Deviated Value ( dB )	Acceptance Limits ( dB )
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

**12. High level stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

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Cert. No. : ACL24175  
Pages : 1 of 8

## Calibration Certificate

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier NH-24  
**Serial No.:** 00710638 / 136956 / 10639  
**ID No.:** HKK\_FS0022

**Condition As Found :** GOOD

**Customer :** AJS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KIWAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** +  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 23 MAY 2024  
**Calibration Date :** 12-13 JUNE 2024  
**Date of Issue :** 14 JUNE 2024

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :** T. Petchurai  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

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Cert. No. : ACL24175  
Job No. : VC67AC0094  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

### Condition of this result of calibration :

#### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EELBP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EELBP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EELBP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KAJ	34560495	AA-3001-24	05-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand),
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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Pages : 3 of 8

### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	+	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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### Result of calibration :

#### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

#### 2. Self-generated noise

##### 2.1 Normal test

Measured Value (dB)
15.6

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A-weight	10.8
C-weight	17.3
Flat	22.8

#### 3. Acoustical signal tests of frequency weightings

Meier free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.1	0.1	0.1	±1.5
1000	-0.1	-0.1	-0.1	±1.0
8000	0.1	0.1	0.2	±5.0

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**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	0.0	±2.0
125	-0.1	0.0	0.0	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.0	0.0	±5.0

**5. Frequency and time weightings at 1 kHz**

**5.1 Frequency weightings at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

**5.2 Time weighting at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

*Z. Petch*

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**7. Level linearity on the reference level range**

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.1	0.1	± 1.1
136.0	136.1	0.1	± 1.1
135.0	135.1	0.1	± 1.1
134.0	134.1	0.1	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.1	0.1	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.1	0.1	± 1.1
114.0	114.1	0.1	± 1.1
109.0	109.1	0.1	± 1.1
104.0	104.1	0.1	± 1.1
99.0	99.1	0.1	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.0	0.0	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	30.0	0.0	± 1.1
29.0	29.0	0.0	± 1.1
28.0	28.0	0.0	± 1.1
27.0	27.0	0.0	± 1.1
26.0	26.1	0.1	± 1.1
25.0	25.1	0.1	± 1.1

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**8. Level linearity including the level range control**

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94.0	94.0	0.0	±1.1

**9. Tone burst response**

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
	200	800	128.0	128.0	0.0	±1.0
SEL	0.25	1	99.0	98.8	-0.2	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, L <sub>peak</sub> ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.4	0.0	±3.0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

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**11. Overload indication**

Measured value ( dB )		Deviated Value ( dB )	Acceptance Limits ( dB )
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

**12. High level stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

*Z. Petch*

SITHIPORN ASSOCIATES CO., LTD.  
CALIBRATION LABORATORY

451-451/1 Sinitthorn Road, Bangbunru, Bangkok, 10700 Thailand  
Tel : +66 2433 8331 Email : calibration@sithiporn.com

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Cert. No. : ACL24207  
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NJ-42 / Microphone UC-52 / Preamplifier N11-24  
Serial No. : 00710639 / 136957 / 10640  
ID No. : HKC\_FS0023

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND,

Location : \*  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 20 JUNE 2024  
Calibration Date : 03-04 JULY 2024  
Date of Issue : 05 JULY 2024

Calibrated by : Nathakorn Pisuipaisan

Approved by : *T. Petch*  
( Thanakul Petchurui )

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Cert. No. : ACL24207  
Job No. : VC67AC0110  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).

The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

Condition of this result of calibration :

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY-48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL-BP 21-0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL-BP 20-0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL-BP 22-0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	KA-42KA1	34560495	AA-3001-24	05-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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Cert. No. : ACL24207  
Job No. : VC67AC0110  
Pages : 3 of 8

Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Job No. : VC67AC0110  
Pages : 4 of 8

Result of calibration :

1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

2. Self-generated noise

2.1 Normal test

Measured Value (dB)
16.4

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A-weight	12.6
C-weight	18.1
Flat	24.0

3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.1	0.1	0.1	±1.5
1000	+0.1	-0.1	-0.1	±1.0
8000	-0.6	-0.5	-0.4	±5.0



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**4. Electrical signal tests of frequency weightings**

Weighing network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0,0	0,0	0,0	±2,0
125	0,0	0,1	0,0	±1,5
250	0,0	0,0	0,0	±1,5
500	0,0	0,0	0,0	±1,5
1000	0,0	0,0	0,0	±1,0
2000	0,0	0,0	0,0	±2,0
4000	0,0	0,0	0,0	±3,0
8000	0,0	0,1	0,1	±5,0

**5. Frequency and time weightings at 1 kHz**

**5.1 Frequency weightings at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94,0	94,0	0,0	± 0,2
C - weight	94,0	94,0	0,0	± 0,2
Flat	94,0	94,0	0,0	± 0,2

**5.2 Time weighting at 1 kHz**

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94,0	94,0	0,0	± 0,1
Slow	94,0	94,0	0,0	± 0,1
Leq	94,0	94,0	0,0	± 0,1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94,0	94,0	0,0	± 0,2

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**7. Level linearity on the reference level range**

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137,0	137,0	0,0	± 1,1
136,0	136,0	0,0	± 1,1
135,0	135,0	0,0	± 1,1
134,0	134,0	0,0	± 1,1
133,0	133,0	0,0	± 1,1
132,0	132,0	0,0	± 1,1
131,0	131,0	0,0	± 1,1
129,0	129,0	0,0	± 1,1
124,0	124,0	0,0	± 1,1
119,0	119,0	0,0	± 1,1
114,0	114,0	0,0	± 1,1
109,0	109,0	0,0	± 1,1
104,0	104,0	0,0	± 1,1
99,0	99,0	0,0	± 1,1
94,0	94,0	0,0	± 1,1
89,0	89,0	0,0	± 1,1
84,0	84,0	0,0	± 1,1
79,0	79,0	0,0	± 1,1
74,0	74,0	0,0	± 1,1
69,0	69,0	0,0	± 1,1
64,0	64,0	0,0	± 1,1
59,0	59,0	0,0	± 1,1
54,0	54,0	0,0	± 1,1
49,0	49,0	0,0	± 1,1
44,0	44,0	0,0	± 1,1
39,0	38,9	-0,1	± 1,1
34,0	34,0	0,0	± 1,1
30,0	30,1	0,1	± 1,1
29,0	29,1	0,1	± 1,1
28,0	28,1	0,1	± 1,1
27,0	27,2	0,2	± 1,1
26,0	26,3	0,3	± 1,1
25,0	25,4	0,4	± 1,1

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**8. Level linearity including the level range control**

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94,0	94,0	0,0	±1,1

**9. Tone burst response**

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108,0	107,9	-0,1	1,5 ; -5,0
	2	8	117,0	117,0	0,0	1,0 ; -2,5
	200	800	134,0	134,0	0,0	±1,0
Slow	2	8	108,0	108,0	0,0	1,5 ; -5,0
	200	800	127,6	127,6	0,0	±1,0
SEL	0.25	1	99,0	98,9	-0,1	1,5 ; -5,0
	2	8	108,0	108,0	0,0	1,0 ; -2,5
	200	800	128,0	128,0	0,0	±1,0

**10. Peak C' sound level**

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, L <sub>peak</sub> ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133,0	133,0	0,0	±3,0
One	136,4	136,1	-0,3	±3,0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133,0	133,0	0,0	±2,0
Positive half cycle	135,4	135,2	-0,2	±2,0
Negative half cycle	135,4	135,2	-0,2	±2,0

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Job No. : VC67AC0110  
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**11. Overload indication**

Measured value ( dB )		Deviated Value ( dB )	Acceptance Limits ( dB )
Positive one-half cycle	Negative one-half cycle		
89,6	89,6	0,0	±1,5

**12. High level stability**

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	137,0	137,0	0,0	±0,3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

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Cert. No. : ACL24087  
Pages : 1 of 8

**Calibration Certificate**

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier NH-24  
**Serial No.:** 00858526 / 175176 / 85721  
**ID No.:** BKK\_FS0116

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** \*  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 11 JANUARY 2024  
**Calibration Date :** 22-24 JANUARY 2024  
**Date of Issue :** 24 JANUARY 2024

**Calibrated by :** Nathakorn Pisutpaisai

**Approved by :**

*T. Petchurui*  
( Thanokul Petchurui )

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Cert. No. : ACL24087  
Job No. : VC67AC0055  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

**Calibration Method :**

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For test results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

**1. Reference Standard Instruments :**

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EELBP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EELBP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EELBP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAI	34560495	AA-1002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*T. Petchurui*

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Job No. : VC67AC0055  
Pages : 3 of 8

**Summary of Measurement Result :**

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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**Result of calibration :**

**1. Absolute sensitivity**

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.98)	93.9	0.0	±0.3

**2. Self-generated noise**

**2.1 Normal test**

Measured Value (dB)
14.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A-weight	11.6
C-weight	17.7
Flat	23.4

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.0	0.1	0.1	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	2.5	2.6	2.6	±5.0

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## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	0.0	-0.1	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

## 5. Frequency and time weightings at 1 kHz

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Lux	94.0	94.0	0.0	± 0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

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## 7. Level linearity on the reference level range

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.0	0.0	± 1.1
136.0	136.0	0.0	± 1.1
135.0	135.0	0.0	± 1.1
134.0	134.0	0.0	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.0	0.0	± 1.1
114.0	114.0	0.0	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.0	0.0	± 1.1
99.0	99.0	0.0	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.1	0.1	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.1	0.1	± 1.1
69.0	69.1	0.1	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.1	0.1	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	30.1	0.1	± 1.1
29.0	29.1	0.1	± 1.1
28.0	28.1	0.1	± 1.1
27.0	27.1	0.1	± 1.1
26.0	26.2	0.2	± 1.1
25.0	25.1	0.1	± 1.1

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## 8. Level linearity including the level range control

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94.0	94.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
SEL	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, L <sub>peak</sub> ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.2	-0.2	±3.0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.1	0.1	±2.0
Positive half cycle	135.4	135.3	-0.1	±2.0
Negative half cycle	135.4	135.3	-0.1	±2.0

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Cert. No. : ACL24087  
Job No. : VC67AC0055  
Pages : 8 of 8

## 11. Overload Indication

Measured value ( dB )		Deviated Value ( dB )	Acceptance Limits ( dB )
Positive one-half cycle	Negative one-half cycle		
89.6	89.5	-0.1	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petch

SITHIPORN ASSOCIATES CO.,LTD.  
CALIBRATION LABORATORY

451-451/1 Srinthorn Rd.,Bangbunru, Bangplud Bangkok 10700 THAILAND.  
Tel.0-2435-8800 Fax.0-2433-1679 e-mail:cal-center@sithiphorn.com http://www.sithiphorn.com



Cert. No. : ACC23046  
Pages : 1 of 3

Calibration Certificate

Equipment : SOUND CALIBRATOR  
Manufacturer : KJON  
Model : NC-74  
Serial No. : 34425567  
ID No. : BKK\_FS0618

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHWAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 28 NOVEMBER 2023  
Calibration Date : 19 DECEMBER 2023  
Date of Issue : 22 DECEMBER 2023

Calibrated by : Nathakorn Pisutpaisan

Approved by : *T. Petchurai*  
( Thanakul Petchurai )

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QF-TS12-04-04-020664

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Continuation of Calibration Certificate

Cert. No. : ACC23046  
Job No. : VC67AC0035  
Pages : 2 of 3

Calibration Procedure : CP-AC-03

Calibration Method :

This equipment was calibrated by based on IEC-60942-2003 Standard.

The sound pressure level, frequency and total distortion of the sound calibrator was measured using the reference microphone.

Condition of this result of calibration :

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL-BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL-BP 30/0267	13-FEB-24
Digital Multimeter	33461A	MY60024273	EEL-BP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KA1	34560495	AA-3002-23	14-FEB-24
Audio Analyzer	AVR-3360A	V744B6069	EF-0012-23	10-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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*T. Petchurai*

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Continuation of Calibration Certificate

Cert. No. : ACC23046  
Job No. : VC67AC0035  
Pages : 3 of 3

Result of calibration :

1. Sound pressure level

Specified sound pressure level (dB)	Measured value (dB)	Deviated value (dB)	Uncertainty (dB)	Acceptance limit (dB)
94	94.03	0.03	0.14	0.40

2. Frequency

Specified Frequency (Hz)	Measured value (Hz)	Deviated value (%)	Uncertainty (%)	Acceptance limit (%)
1000	1004.3	0.4	0.1	1.0

3. Total distortion

Measured value (%)	Uncertainty (%)	Acceptance limit (%)
1.85	0.10	3.0

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

QF-TS12-04-04-020664

*T. Petchurai*

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Cert. No. : ACL23384  
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : KJON  
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24  
Serial No. : 00572551 / 158776 / 58777  
ID No. : BKK\_FS0876

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHWAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 17 NOVEMBER 2023  
Calibration Date : 11-13 DECEMBER 2023  
Date of Issue : 18 DECEMBER 2023

Calibrated by : Nathakorn Pisutpaisan

Approved by : *T. Petchurai*  
( Thanakul Petchurai )

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45/45/1 Sirinthorn Road, Bangbunmu, Bangkok, 10700 Thailand  
Tel : +66 2433 8331 Email : calibration@sithiporn.com



Cert. No. : ACL24017  
Job No. : VC67AC0045  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

**Calibration Method :**

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL_BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL_BP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EEL_BP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EA-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAI	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand),

3.2 Thailand Institute of Scientific and Technological Research (TISTR),

*T. Petch*

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Cert. No. : ACL24017  
Job No. : VC67AC0045  
Pages : 3 of 8

**Summary of Measurement Result :**

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Cert. No. : ACL24017  
Job No. : VC67AC0045  
Pages : 4 of 8

**Result of calibration :**

**1. Absolute sensitivity**

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.98)	93.9	0.0	±0.3

**2. Self-generated noise**

2.1 Normal test

Measured Value (dB)
16.3

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A-weight	13.8
C-weight	19.9
Flat	25.8

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	-0.2	-0.2	-0.2	± 5.0

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Cert. No. : ACL24017  
Job No. : VC67AC0045  
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**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±2.0
125	0.0	0.1	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.1	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.1	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.2
C-weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

**6. Long-term stability**

Frequency Weighting	SLM Display at Initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.3

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Cert. No. : ACL24017  
Job No. : VC67AC0045  
Pages : 6 of 8

**7. Level linearity on the reference level range**

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.1	0.1	±1.1
26.0	26.1	0.1	±1.1
25.0	25.1	0.1	±1.1

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Pages : 7 of 8

**8. Level linearity including the level range control**

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	±1.1

**9. Tone burst response**

Time Weighing	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.1	0.1	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
SIL	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±3.0
One	136.4	135.7	-0.7	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.2	-0.2	±2.0
Negative half cycle	135.4	135.2	-0.2	±2.0

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Pages : 8 of 8

**11. Overload indication**

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.6	89.5	-0.1	±1.5

**12. High level stability**

Frequency Weighing	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petchu

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Cert. No. : ACL23334  
Pages : 1 of 8

**Calibration Certificate**

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamp NH-24  
**Serial No.:** 00572457 / 170214 / 72795  
**ID No.:** BKK\_FS0923

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** -  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 20 OCTOBER 2023  
**Calibration Date :** 01-02 NOVEMBER 2023  
**Date of Issue :** 03 NOVEMBER 2023

**Calibrated by :** Natthakorn Pisutpaisan

**Approved by :** T. Petchu  
( Thanakul Petchurai )

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## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

## 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EELBP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EELBP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EELBP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KA1	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Pass	Fail	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	✓	-	0.2	N/A
2. Self-generated noise	✓	-	0.2	N/A
3. Acoustical signal tests of frequency weightings				
125 Hz	✓	-	0.3	0.6
1000 Hz	✓	-	0.3	0.6
8000 Hz	✓	-	0.3	0.7
4. Electrical signal tests of frequency weightings				
For 10 Hz to 4 kHz	✓	-	0.3	0.6
For > 4 kHz to 10 kHz	✓	-	0.3	0.7
For > 10 kHz to 20 kHz	-	-	-	1.0
5. Frequency and time weightings at 1 kHz	✓	-	0.2	0.2
6. Long - term stability	✓	-	0.1	0.1
7. Level linearity on the reference level range	✓	-	0.2	0.3
8. Level linearity including the level range control	✓	-	0.2	0.3
9. Tone burst response	✓	-	0.2	0.3
10. Peak C sound level	✓	-	0.2	0.35
11. Overload indication	✓	-	0.2	0.25
12. High level stability	✓	-	0.1	0.1

Note : Pass/Fail evaluation for each parameter,  
will be considered together from the acceptance limit and the Maximum-permitted uncertainty of measurement.

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T. Petchm.

## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.98)	93.9	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value (dB)
18.0

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A - weight	9.9
C - weight	16.4
Flat	22.4

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	-1.7	-1.7	-1.7	± 5.0

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T. Petchm.

## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	-0.1	0.0	±2.0
125	0.0	0.0	-0.1	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

## 5. Frequency and time weightings at 1 kHz

5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Lcu	94.0	94.0	0.0	± 0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.3

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## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	25.9	-0.1	±1.1
25.0	25.0	0.0	±1.1

QF-TS12-04-04-020664

T. Petchur

## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5; -5.0
	2	8	117.0	117.0	0.0	1.0; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5; -5.0
SEL	2	8	108.0	108.0	0.0	1.0; -2.5
	200	800	128.0	128.0	0.0	±1.0

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±3.0
One	136.4	135.7	-0.7	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

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T. Petchur

## Continuation of Calibration Certificate

Cert. No. : ACL23334  
Job No. : VC67AC0014  
Pages : 8 of 8

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.6	89.6	0.0	±1.5

## 12. High level stability

Frequency Weighting	S.L.M Display at initial (dB)	S.L.M Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

QF-TS12-04-04-020664

T. Petchur

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Tel:0-2435-8800 Fax:0-2433-1679 e-mail:cal-center@sithiporn.com http://www.sithiporn.comCert. No. : ACL23336  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24  
Serial No. : 00572609 / 170133 / 72947  
ID No. : BKK\_F50924

Condition As Found : GOOD

Customer : A.I.S. LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHWAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 20 OCTOBER 2023  
Calibration Date : 01-02 NOVEMBER 2023  
Date of Issue : 03 NOVEMBER 2023

Calibrated by : Nathakorn Pisutpaisan

Approved by : T. Petchur  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

QF-TS12-04-04-020664

## Continuation of Calibration Certificate

Cert. No. : ACL23336  
Job No. : VC67AC0014  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

## 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL-BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL-BP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EEL-RP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAI	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23336  
Job No. : VC67AC0014  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Pass	Fail	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	✓	-	0.2	N/A
2. Self-generated noise	✓	-	0.2	N/A
3. Acoustical signal tests of frequency weightings				
125 Hz	✓	-	0.3	0.6
1000 Hz	✓	-	0.3	0.6
8000 Hz	✓	-	0.3	0.7
4. Electrical signal tests of frequency weightings				
For 10 Hz to 4 kHz	✓	-	0.3	0.6
For > 4 kHz to 10 kHz	✓	-	0.3	0.7
For > 10 kHz to 20 kHz	-	-	-	1.0
5. Frequency and time weightings at 1 kHz	✓	-	0.2	0.2
6. Long - term stability	✓	-	0.1	0.1
7. Level linearity on the reference level range	✓	-	0.2	0.3
8. Level linearity including the level range control	✓	-	0.2	0.3
9. Tone burst response	✓	-	0.2	0.3
10. Peak C sound level	✓	-	0.2	0.35
11. Overload indication	✓	-	0.2	0.25
12. High level stability	✓	-	0.1	0.1

Note : Pass/Fail evaluation for each parameter, will be considered together from the acceptance limit and the Maximum-permitted uncertainty of measurement.

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23336  
Job No. : VC67AC0014  
Pages : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.98)	93.9	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value (dB)
15.1

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A - weight	11.6
C - weight	17.7
Flat	23.5

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.0	0.1	0.1	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	0.9	0.9	0.9	± 5.0

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T. Petch

## Continuation of Calibration Certificate

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Job No. : VC67AC0014  
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## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	-0.1	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.3

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T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23336  
Job No. : VC67AC0014  
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## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	25.9	-0.1	±1.1
25.0	24.9	-0.1	±1.1

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## Continuation of Calibration Certificate

Cert. No. : ACL23336  
Job No. : VC67AC0014  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5; -5.0
	2	8	117.0	117.0	0.0	1.0; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5; -5.0
	200	800	127.6	127.6	0.0	±1.0
SEL	0.25	1	99.0	98.9	-0.1	1.5; -5.0
	2	8	108.0	108.0	0.0	1.0; -2.5
	200	800	128.0	128.0	0.0	±1.0

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, Lcpeak (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.1	-0.3	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

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T. Peth...

## Continuation of Calibration Certificate

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## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.4	-0.1	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate



THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EFL BP, 168/0167

## CALIBRATION CERTIFICATE

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.  
Address : 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok, 10250  
Calibrated at : Electrical and Electronic Standards Laboratory, Industrial Metrology and Testing Service Centre, Soi 1/C, Bangpoo Industrial Estate, Sukhumvit Rd., A-Muang, Samutprakan 10280.

Instrument Calibrated :  
Description : Sound Level Meter  
Manufacturer : Rion  
Model : NL-42  
Serial No. : 00296512 (ID : BKK\_FSD0969)  
Microphone : UC-52 No.179113  
Preamplifier : NH-24 No.87521  
Standards used :

Ambient Environment  
Temperature : (23 ± 3) °C  
Relative Humidity : (50 ± 15) %  
Ambient Pressure : (101.325 ± 1.5) kPa

1. Band Pass Filter Wavecck 752A S/N 90010494.
2. Condenser Microphone Brüel&Kjær 4180 S/N 2849871
3. Decade Attenuator Ando AL-205 S/N 00464602.
4. Function/Arbitrary Waveform Generator Agilent 33220A S/N MY44042663.
5. Digital Function Synthesizer NF Electronic Instruments DF-193A S/N 122037.
6. Digital Multimeter Fluke 8520A S/N 4985007.
7. Pistophone Rion NC-72 S/N 00402446.
8. Measuring Amplifier Brüel&Kjær 2636 S/N 1537484.

Date of Receipt : 24 Jan, 2024

Date of Calibration : 23 Feb, 2024

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The results herein are to be kept confidential and not to be used for any other purpose without the permission of the provider of the results.

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QF-TS12-04-04-020664

T. Peth...

9. Power Amplifier Brüel&Kjær 2706 S/N 1517650,
10. Speaker Tannoy Limited, Great Britain British Patent No. 215300,
11. Digital Multimeter Agilent 34401A S/N MY44005560,
12. Programmable Attenuator Tamagawa TPA-303A S/N 2212,

#### Calibration Procedure :

This instrument was calibrated by using calibration procedures no CP-102-02 and CP-102-03, which were based on IEC 61672-3 Electroacoustics - Sound Level Meters - Part 3 : Periodic tests (2013). These calibration procedures were related to the electrical and acoustic signal tests. The electrical signal test was carried out with the direct measurement method. The acoustic signal test was performed in an anechoic room with the comparison measurement method.

This instrument has been calibrated against standards maintained at the Electrical and Electronic Standards Laboratory (EEL), which are traceable to the International System of Units through the National Institute of Metrology (Thailand).

The information on actual reading is attached herewith and the uncertainty limits quoted refer to the measured values only.

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

Date of Calibration : 23 Feb, 2024

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The results relate only to the items tested/calibrated or value assigned.  
Adopting the Report/Certificate and publication of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

FMBL/MTC.002 Rev.4

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#### 1. Absolute Sensitivity

Reference Acoustic Signal (dB)	Measured value (dB)		Deviation value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	Before adjust	After adjust				
113,92	114,1	113,9	0,0	1,0	0,30	N/A

Note: The external calibration adjustment was firstly performed. The internal calibration adjustment was then completed at the display of 114,1 dB.

#### 2. Self-generated noise

##### 2.1 Normal test

Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
20,4	0,10	N/A

##### 2.2 The microphone of the sound level meter was replaced by electrical signal input device

Frequency Weighting	Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-Weight	14,9	0,10	N/A
C-Weight	18,7	0,10	N/A
Flat	23,0	0,10	N/A

Date of Calibration : 23 Feb, 2024

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E-mail: samp@tistr.or.th

#### 3. Acoustical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
125	0,0	0,1	0,0	1,5	0,45	0,6
1 000	0,0	0,0	0,1	1,0	0,45	0,6
8 000	-1,0	-1,0	-1,2	5,0	0,45	0,7

#### 4. Electrical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response curve (dB)			Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
	A-weight	C-weight	Flat			
63	0,0	0,1	0,0	2,0	0,20	0,6
125	0,0	0,1	0,0	1,5	0,20	0,6
250	0,0	0,0	0,0	1,5	0,20	0,6
500	0,0	0,1	0,0	1,5	0,20	0,6
1 000	0,0	0,0	0,0	1,0	0,20	0,6
2 000	-0,2	-0,1	-0,2	2,0	0,20	0,6
4 000	-0,3	-0,3	-0,3	3,0	0,20	0,6
8 000	0,0	0,0	-0,1	5,0	0,20	0,7

Date of Calibration : 23 Feb, 2024

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#### 5. Long-term stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	94,0	0,0	0,3	0,10	0,1
End	94,0				

#### 6. Frequency and time weightings at 1 kHz

##### 6.1 Frequency weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-weight	94,0	0,0	0,2	0,20	0,2
C-weight	94,0	0,0	0,2	0,20	0,2
Flat	94,0	0,0	0,2	0,20	0,2

##### 6.2 Time weightings at 1 kHz

Frequency Weighting	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	94,0	0,0	0,1	0,20	0,2
Slow	94,0	0,0	0,1	0,20	0,2
Leq	94,0	0,0	0,1	0,20	0,2

Date of Calibration : 23 Feb, 2024

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## 7. Level linearity on the reference level range

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
137	137.1	0.1	1.1	0.30	0.3
136	136.1	0.1	1.1	0.30	0.3
135	135.1	0.1	1.1	0.30	0.3
134	134.1	0.1	1.1	0.30	0.3
129	129.1	0.1	1.1	0.30	0.3
124	124.0	0.0	1.1	0.30	0.3
119	119.1	0.1	1.1	0.30	0.3
114	114.0	0.0	1.1	0.30	0.3
109	109.0	0.0	1.1	0.30	0.3
104	104.0	0.0	1.1	0.30	0.3
99	99.0	0.0	1.1	0.30	0.3
94	94.0	0.0	1.1	0.30	0.3
89	89.0	0.0	1.1	0.30	0.3
84	84.0	0.0	1.1	0.30	0.3
79	79.0	0.0	1.1	0.30	0.3
74	74.0	0.0	1.1	0.30	0.3
69	69.0	0.0	1.1	0.30	0.3
64	63.9	-0.1	1.1	0.30	0.3

Date of Calibration : 23 Feb. 2024

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## 7. Level linearity on the reference level range (cont.)

Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
59	58.9	-0.1	1.1	0.30	0.3
54	53.9	-0.1	1.1	0.30	0.3
49	48.9	-0.1	1.1	0.30	0.3
44	43.9	-0.1	1.1	0.30	0.3
39	38.9	-0.1	1.1	0.30	0.3
34	33.9	-0.1	1.1	0.30	0.3
29	28.9	-0.1	1.1	0.30	0.3
28	27.9	-0.1	1.1	0.30	0.3
27	26.9	-0.1	1.1	0.30	0.3
26	25.9	-0.1	1.1	0.30	0.3
25	24.9	-0.1	1.1	0.30	0.3

## 8. Level linearity including the level range control

## At reference sound level on the reference level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	94.0	94.0	0.0	1.1	0.30	0.3

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## 8. Level linearity including the level range control

## At reference level at 5 dB greater than the under-range on a level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	35	35.0	0.0	1.1	0.30	0.3

## 9. Tone burst response

Time Weighting	Toneburst Duration, Tb (ms)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	200	126.0	0.0	±1.0	0.20	0.3
	2	106.9	-0.1	+1.0; -2.5	0.20	0.3
	0.25	99.9	-0.1	+1.5; -5.0	0.20	0.3
Slow	200	119.5	-0.1	±1.0	0.20	0.3
	2	100.0	0.0	+1.0; -5.0	0.20	0.3
	200	120.0	0.0	±1.0	0.20	0.3
SEL	2	100.0	0.0	+1.0; -2.5	0.20	0.3
	0.25	90.9	-0.1	+1.5; -5.0	0.20	0.3

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## 10. Peak C sound level

Number of cycles in test signal	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Complete cycle	125.4	125.3	-0.1	3.0	0.20	0.35
Positive half cycle	124.4	124.1	-0.3	2.0	0.20	0.35
Negative half cycle	124.4	124.1	-0.3	2.0	0.20	0.35

## 11. Overload indication

Measured value (dB)		Deviated value (dB)	Acceptance limit class 2 (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Positive one-half cycle	Negative one-half cycle				
137.0	137.0	0.0	1.5	0.20	0.25

## 12. High-level stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	129.0	0.0	0.3	0.10	0.1
End	129.0				

Calibrated by :

*Wittawat Supunich*  
(Mr. Wittawat Supunich)

Approved by :

*Prasanna Klayaporn*  
(Mr. Prasanna Klayaporn)  
Director  
Electrical and Electronic Standards Laboratory

Date of Calibration : 23 Feb. 2024

Date of Issue : 27 Feb. 2024

Ref : 201167012400316006

End of Certificate

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No.21-67/0231

MTC No. EEL, BP, 170/0167

### CALIBRATION CERTIFICATE

Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250.

Calibrated at : Electrical and Electronic Standards Laboratory, Industrial Metrology and Testing Service Centre,  
Sri 1C, Bangpoo Industrial Estate, Sukhumvit Rd., A.Muang, Samutprakan 10280.

#### Instrument Calibrated :

Description : Sound Level Meter

Manufacturer : Rion

Model : NL-42

Serial No. : 00296514 (ID: BKK\_FS0971)

Microphone : Type UC-52 No.179116

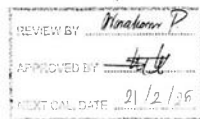
Preamplifier : Type NI-24 No.87523

#### Ambient Environment

Temperature :  $(23 \pm 3) ^\circ\text{C}$

Relative Humidity :  $(50 \pm 15) \%$

Ambient Pressure :  $(101.325 \pm 1.5) \text{ kPa}$



#### Standards used :

1. Band Pass Filter Wavelec 752A S/N 90010494.
2. Condenser Microphone Brüel&Kjær 4180 S/N 2889871.
3. Decade Attenuator Ando AI-205 S/N 00464602.
4. Function/Arbitrary Waveform Generator Agilent 33220A S/N MY44042668.
5. Digital Function Synthesizer NF Electronic Instruments DF-193A S/N 120337.
6. Digital Multimeter Fluke 8520A S/N 4985007.
7. Pistonphone Rion NC-72 S/N 00402446.
8. Measuring Amplifier Brüel&Kjær 2636 S/N 1537484.

Date of Receipt : 24 Jan, 2024

Date of Calibration : 22-28 Feb, 2024

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No.21-67/0231

MTC No. EEL, BP, 170/0167

9. Power Amplifier Brüel&Kjær 2706 S/N 1517650.

10. Speaker Tannoy Limited, Great Britain British Patent No. 215300.

11. Digital Multimeter Agilent 34401A S/N MY44005560.

12. Programmable Attenuator Tamagawa TPA-303A S/N 2212.

#### Calibration Procedure :

This instrument was calibrated by using calibration procedures no CP-102-02 and CP-102-03, which were based on IEC 61672-3 Electroacoustics - Sound Level Meters - Part 3 : Periodic tests (2013). These calibration procedures were related to the electrical and acoustic signal tests. The electrical signal test was carried out with the direct measurement method. The acoustic signal test was performed in an anechoic room with the comparison measurement method.

This instrument has been calibrated against standards maintained at the Electrical and Electronic Standards Laboratory (EEL), which are traceable to the International System of Units through the National Institute of Metrology (Thailand).

The information on actual reading is attached herewith and the uncertainty limits quoted refer to the measured values only.

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

Date of Calibration : 22-28 Feb, 2024

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No.21-67/0231

MTC No. EEL, BP, 170/0167

#### 1. Absolute Sensitivity

Reference Acoustic Signal (dB)	Measured value (dB)	Deviation value (dB)	Acceptance limit Class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
113.96	Before adjust: 114.4 After adjust: 113.9	-0.1	1.0	0.30	N/A

Note: The external calibration adjustment was firstly performed. The internal calibration adjustment was then completed at the display of 123.7 dB.

#### 2. Self-generated noise

##### 2.1 Normal test

Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
19.7	0.10	N/A

##### 2.2 The microphone of the sound level meter was replaced by electrical signal input device

Frequency Weighting	Measured value (dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-Weight	11.2	0.10	N/A
C-Weight	16.6	0.10	N/A
Flat	22.0	0.10	N/A

Date of Calibration : 22-28 Feb, 2024

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Request No.21-67/0231

MTC No. EEL, BP, 170/0167

#### 3. Acoustical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
125	0.5	0.6	1.5	0.45
1 000	-0.6	-0.6	-0.7	1.0
8 000	-1.4	-1.4	-1.3	5.0

#### 4. Electrical signal test of frequency weightings

Frequency (Hz)	Deviation from frequency response (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
63	+0.1	0.0	0.0	2.0
125	+0.1	0.0	0.0	1.5
250	+0.1	0.0	0.0	1.5
500	0.0	0.0	0.0	1.5
1 000	0.0	0.0	0.0	1.0
2 000	0.0	0.1	0.0	2.0
4 000	0.0	0.0	0.0	3.0
8 000	0.1	0.1	0.0	5.0

Date of Calibration : 22-28 Feb, 2024

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### 5. Long-term stability

Time	Measured Value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Begin	94.0	0.0	0.3	0.10	0.1
End	94.0				

### 6. Frequency and time weightings at 1 kHz

#### 6.1 Frequency weightings at 1 kHz

Frequency Weighting	Measured Value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
A-weight	94.0	0.0	0.2	0.20	0.2
C-weight	94.0	0.0	0.2	0.20	0.2
Flat	94.1	0.1	0.2	0.20	0.2

#### 6.2 Time weightings at 1 kHz

Frequency Weighting	Measured Value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	94.0	0.0	0.1	0.20	0.2
Slow	94.0	0.0	0.1	0.20	0.2
Leq	94.0	0.0	0.1	0.20	0.2

Date of Calibration : 22-28 Feb. 2024

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### 7. Level linearity on the reference level range

Anticipated value (dB)	Measured Value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
137	137.1	0.1	1.1	0.30	0.3
136	136.1	0.1	1.1	0.30	0.3
135	135.1	0.1	1.1	0.30	0.3
133	133.1	0.1	1.1	0.30	0.3
132	132.1	0.1	1.1	0.30	0.3
131	131.1	0.1	1.1	0.30	0.3
130	130.1	0.1	1.1	0.30	0.3
129	129.0	0.0	1.1	0.30	0.3
124	124.0	0.0	1.1	0.30	0.3
119	119.1	0.1	1.1	0.30	0.3
114	114.1	0.1	1.1	0.30	0.3
109	109.0	0.0	1.1	0.30	0.3
104	104.1	0.1	1.1	0.30	0.3
99	99.0	0.0	1.1	0.30	0.3
94	94.0	0.0	1.1	0.30	0.3
89	89.0	0.0	1.1	0.30	0.3
84	84.1	0.1	1.1	0.30	0.3
79	79.1	0.1	1.1	0.30	0.3
74	74.0	0.0	1.1	0.30	0.3
69	69.0	0.0	1.1	0.30	0.3
64	64.0	0.0	1.1	0.30	0.3
59	59.0	0.0	1.1	0.30	0.3

Date of Calibration : 22-28 Feb. 2024

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The results relate only to the items tested/calibrated or value assigned.

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FMIL.MTC.002 Rev.4

**Head Office**  
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Soi 10, Bangpoo Industrial Estate, Sukhumvit Road, Amphoe Muang, Chongkajit Pathumthani 12000, Thailand  
Tel. (66) 0 2323 1672-80 ext. 115, 116  
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216 Phahonyothin Road, Chatuchak, Bangkok 10900, Thailand  
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217  
Fax. (66) 0 2579 8192  
E-mail: sume@tistr.or.th

### 7. Level linearity on the reference level range (cont.)

Anticipated value (dB)	Measured Value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
54	54.0	0.0	1.1	0.30	0.3
49	49.0	0.0	1.1	0.30	0.3
44	44.0	0.0	1.1	0.30	0.3
39	39.0	0.0	1.1	0.30	0.3
34	34.0	0.0	1.1	0.30	0.3
29	28.9	-0.1	1.1	0.30	0.3
28	28.0	0.0	1.1	0.30	0.3
27	27.0	0.0	1.1	0.30	0.3
26	26.0	0.0	1.1	0.30	0.3
25	25.0	0.0	1.1	0.30	0.3

### 8. Level linearity including the level range control

At reference sound level on the reference level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	94.0	94.0	0.0	1.1	0.30	0.3

Date of Calibration : 22-28 Feb. 2024

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FMIL.MTC.002 Rev.4

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Fax. (66) 0 2579 8192  
E-mail: sume@tistr.or.th

### 8. Level linearity including the level range control

At reference level at 5 dB greater than the under-range on a level range

Range	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
30-130	25	25.0	0.0	1.1	0.30	0.3

### 9. Tone burst response

Time Weighting	Toneburst Duration, Tb (ms)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 (±dB)	Uncertainty (±dB)	Maximum-permitted uncertainty of measurement (±dB)
Fast	200	126.0	0.0	±1.0	0.20	0.3
	2	108.9	+0.1	+1.0; -2.5	0.20	0.3
	0.25	100.0	0.0	+1.5; -5.0	0.20	0.3
Slow	200	119.5	+0.1	±1.0	0.20	0.3
	2	100.0	0.0	+1.0; +5.0	0.20	0.3

Date of Calibration : 22-28 Feb. 2024

8 / 9

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FMIL.MTC.002 Rev.4

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Request No. 21-67/0231

MTC No. EEL, BP, 170/0167

#### 10. Peak C sound level

Number of cycles in test signal	Anticipated value (dB)	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 ( $\pm$ dB)	Uncertainty ( $\pm$ dB)	Maximum-permitted uncertainty of measurement ( $\pm$ dB)
Complete cycle	125.4	125.5	0.1	3.0	0.20	0.35
Positive half cycle	124.4	124.1	-0.3	2.0	0.20	0.35
Negative half cycle	124.4	124.1	-0.3	2.0	0.20	0.35

#### 11. Overload indication

Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 ( $\pm$ dB)	Uncertainty ( $\pm$ dB)	Maximum-permitted uncertainty of measurement ( $\pm$ dB)
Positive one-half cycle	Negative one-half cycle	value (dB)		
135.4	135.4	0.0	1.5	0.55

#### 12. High-level stability

Time	Measured value (dB)	Deviated value (dB)	Acceptance limit class 2 ( $\pm$ dB)	Uncertainty ( $\pm$ dB)	Maximum-permitted uncertainty of measurement ( $\pm$ dB)
Begin	129.0	0.0	0.3	0.10	0.1
End	129.0				

Calibrated by:   
(Mr. Pannasit Phasingri)

Approved by:   
Director of TISTR  
Electrical and Electronic Standards Laboratory  
Industrial Metrology and Testing Service Centre  
Ref: 2011267012400346008

End of Certificate

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FMIL MTC-002 Rev.4

## SITHIPORN ASSOCIATES CO.,LTD. CALIBRATION LABORATORY

451-451/1 Sirinthorn Rd, Bangbunru, Bangkok 10700 THAILAND.  
Tel: 0-2435-8800 Fax: 0-2433-1679 e-mail: cal-center@sithiporn.com http://www.sithiporn.com



Cert. No. : ACL23319  
Pages : 1 of 8

### Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24  
Serial No. : 00597156 / 170403 / 72904  
ID No. : BKK\_PS0994

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location : -  
Ambient Temperature : ( 23.0  $\pm$  3 ) °C  
Pressure : ( 101.3  $\pm$  3 ) kPa  
Relative Humidity : ( 50.0  $\pm$  20 ) %

Received Date : 11 OCTOBER 2023  
Calibration Date : 19-20 OCTOBER 2023  
Date of Issue : 24 OCTOBER 2023

Calibrated by : Nathakorn Pisutpaisan

Approved by :   
( Tanakul Peichurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

QF-TS12-04-04-020664

## SITHIPORN ASSOCIATES CO.,LTD. CALIBRATION LABORATORY

### Continuation of Calibration Certificate

Calibration Procedure : CP-AC-01

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 2 of 8

#### Calibration Method :

This equipment was calibrated by based on JEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

#### Condition of this result of calibration :

##### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL-BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL-BP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EEL-BP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAI	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

QF-TS12-04-04-020664

## SITHIPORN ASSOCIATES CO.,LTD. CALIBRATION LABORATORY

### Continuation of Calibration Certificate

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 3 of 8

#### Summary of Measurement Result :

Parameter	Pass	Fail	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	✓	-	0.2	N/A
2. Self-generated noise	✓	-	0.2	N/A
3. Acoustical signal tests of frequency weightings				
125 Hz	✓	-	0.3	0.6
1000 Hz	✓	-	0.3	0.6
8000 Hz	✓	-	0.3	0.7
4. Electrical signal tests of frequency weightings				
For 10 Hz to 4 kHz	✓	-	0.3	0.6
For > 4 kHz to 10 kHz	✓	-	0.3	0.7
For > 10 kHz to 20 kHz	-	-	-	1.0
5. Frequency and time weightings at 1 kHz	✓	-	0.2	0.2
6. Long-term stability	✓	-	0.1	0.1
7. Level linearity on the reference level range	✓	-	0.2	0.3
8. Level linearity including the level range control	✓	-	0.2	0.3
9. Tone burst response	✓	-	0.2	0.3
10. Peak C sound level	✓	-	0.2	0.35
11. Overload indication	✓	-	0.2	0.25
12. High level stability	✓	-	0.1	0.1

Note : Pass/Fail evaluation for each parameter, will be considered together from the acceptance limit and the Maximum-permitted uncertainty of measurement.

QF-TS12-04-04-020664

## Continuation of Calibration Certificate

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal ( dB )	Measured Value ( dB )	Deviation ( dB )	Acceptance Limit ( dB )
93.9 (93.98)	93.9	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value ( dB )
13.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value ( dB )
A - weight	9.9
C - weight	16.0
Flat	21.9

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.5	0.5	0.5	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	-1.6	-1.5	-1.5	±5.0

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.1	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.0	0.0	± 1.1
136.0	136.0	0.0	± 1.1
135.0	135.0	0.0	± 1.1
134.0	134.0	0.0	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.0	0.0	± 1.1
114.0	114.0	0.0	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.0	0.0	± 1.1
99.0	99.0	0.0	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.0	0.0	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	29.9	-0.1	± 1.1
29.0	28.9	-0.1	± 1.1
28.0	27.9	-0.1	± 1.1
27.0	27.0	0.0	± 1.1
26.0	25.9	-0.1	± 1.1
25.0	24.9	-0.1	± 1.1

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94.0	94.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.1	0.1	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
SEL	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.1	0.1	±1.0

## 10. Peak C' sound level

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, L <sub>peak</sub> ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±3.0
One	136.4	135.5	-0.9	±3.0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.2	-0.2	±2.0
Negative half cycle	135.4	135.2	-0.2	±2.0

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23319  
Job No. : VC67AC0011  
Pages : 8 of 8

## 11. Overload indication

Measured value (dB)		Deviated	Acceptance
Positive	Negative	Value	Limit
one-half cycle	one-half cycle	(dB)	(dB)
89.7	89.7	0.0	±1.5

## 12. High level stability

Frequency	SLM Display	SLM Display	Deviated	Acceptance
Weighting	at initial	at final	Value	Limit
	(dB)	(dB)	(dB)	(dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

QF-TS12-04-04-020664

T. Petchur

451-451/1 Sirinthorn Rd, Bangbunru, Bangplud Bangkok 10700 THAILAND  
Tel: 0-2435-8800 Fax: 0-2433-1679 e-mail: cal-center@sithiporn.com http://www.sithiporn.comCert. No. : ACL23310  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42/ Microphone UC-52 / Preamplifier NH-24  
Serial No. : 00597159 / 180402 / 83172  
ID No. : BKK\_FS0995

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 22 SEPTEMBER 2023  
Calibration Date : 16-18 OCTOBER 2023  
Date of Issue : 19 OCTOBER 2023

Calibrated by : Nathakorn Pisutpaisan

Approved by :

T. Petchur  
( Thanakul Petchurai )

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other than in full, except with the prior written approval of the head of Calibration Laboratory.

QF-TS12-04-04-020664

## Continuation of Calibration Certificate

Cert. No. : ACL23310  
Job No. : VC66AC0101  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference  
Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

## 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EELBP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EELBP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EELBP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAI	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

QF-TS12-04-04-020664

T. Petchur

## Continuation of Calibration Certificate

Cert. No. : ACL23310  
Job No. : VC66AC0101  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Pass	Fail	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	✓	-	0.2	N/A
2. Self-generated noise	✓	-	0.2	N/A
3. Acoustical signal tests of frequency weightings				
125 Hz	✓	-	0.3	0.6
1000 Hz	✓	-	0.3	0.6
8000 Hz	✓	-	0.3	0.7
4. Electrical signal tests of frequency weightings				
For 10 Hz to 4 kHz	✓	-	0.3	0.6
For > 4 kHz to 10 kHz	✓	-	0.3	0.7
For > 10 kHz to 20 kHz	-	-	-	1.0
5. Frequency and time weightings at 1 kHz	✓	-	0.2	0.2
6. Long-term stability	✓	-	0.1	0.1
7. Level linearity on the reference level range	✓	-	0.2	0.3
8. Level linearity including the level range control	✓	-	0.2	0.3
9. Tone burst response	✓	-	0.2	0.3
10. Peak C sound level	✓	-	0.2	0.35
11. Overload indication	✓	-	0.2	0.25
12. High level stability	✓	-	0.1	0.1

Note : Pass/Fail evaluation for each parameter,  
will be considered together from the acceptance limit and the Maximum-permitted uncertainty of measurement.

QF-TS12-04-04-020664

T. Petchur

## Continuation of Calibration Certificate

Cert. No. : ACL23310  
Job No. : VC66AC0101  
Pages : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal ( dB )	Measured Value ( dB )	Deviation ( dB )	Acceptance Limit ( dB )
93.9 (93.9%)	93.9	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value ( dB )
15.4

## 2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value ( dB )
A - weight	12.6
C - weight	18.4
Flat	24.2

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 94 dB

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.0	0.0	0.0	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	2.5	2.5	2.5	±5.0

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23310  
Job No. : VC66AC0101  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.2	-0.1	±2.0
125	-0.1	0.0	-0.1	±1.5
250	-0.1	0.0	-0.1	±1.5
500	-0.1	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.0	0.0	±5.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23310  
Job No. : VC66AC0101  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.1	0.1	± 1.1
136.0	136.1	0.1	± 1.1
135.0	135.1	0.1	± 1.1
134.0	134.1	0.1	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.1	0.1	± 1.1
114.0	114.1	0.1	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.1	0.1	± 1.1
99.0	99.1	0.1	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.0	0.0	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	29.9	-0.1	± 1.1
29.0	28.9	-0.1	± 1.1
28.0	27.9	-0.1	± 1.1
27.0	26.9	-0.1	± 1.1
26.0	25.9	-0.1	± 1.1
25.0	24.9	-0.1	± 1.1

QF-TS12-04-04-020664

T. Petch

## Continuation of Calibration Certificate

Cert. No. : ACL23310  
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## 8. Level linearity including the level range control

Range	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Auto	94.0	94.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb ( ms )	Cycle	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	116.9	-0.1	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.8	-0.2	1.5 ; -5.0
SEL	2	8	108.0	107.9	-0.1	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value, Lcpeak ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±3.0
One	136.4	136.4	0.0	±3.0

Number of cycle in test signal	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

QF-TS12-04-04-020664

T. Petch



Continuation of Calibration Certificate

Cert. No. : ACL23310  
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11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.6	89.5	-0.1	±1.5

12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

QF-TS12-04-04-020664

7. Peter

Certificate of Calibration

Customer

Name : ALS Laboratory Group Thailand Co., Ltd.  
Address : 104 Soi Phatthanasak 40, Phatthanasak Road, Suan 1 sang, Bangkok 10250

Certificate No : 24-SLM-019  
Request No : Req 2023-2672

Unit Under Calibration Details

Measurement item : Sound Level Meter  
Manufacturer : RION  
Model : NL-42  
Serial Number : 00559239  
ID : BKK\_FS0096  
Resolution : 0.1 dB  
Microphone Class : 2  
Microphone Model : UC-52  
Microphone S/N : 157780  
Preamplifier Model : N11-24  
Preamplifier S/N : 48095  
Instrument Status : Used

Calibration Environment and Details

Temperature : 23 °C ± 2 °C  
Humidity : 50 % RH ± 20 % RH  
Barometric Pressure : 1013 hPa ± 10 hPa  
Received Date : 20 December 2023  
Calibrated Date : 29 January 2024  
Calibration Procedure : In-house method CP-SLM-01 based on IEC 61672-3 : 2013 Electroacoustics - Sound level meters - Part 3, Periodic tests  
Location of Calibration : Lab Acoustic

Reference Standard

Instrument	Brand	Model	S/N	Due calibration	Traceability
Standard Microphone	GRAS	40/AN	198273	21 August 2024	GRAS
Multi-frequency Calibrator	Quest	Quest-cal	EF4000234	26 July 2024	TSI
Audio Generator	Svanick	Svan401	131	9 October 2024	WK Electric

Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor  $k = 2$ , providing a level of confidence approximately 95 %

Calibrated By : Mr. Noppadol Laueppit  
Service Calibration Engineer

Approved By : Mr. Pait Maitavorn  
Calibration Engineer Supervisor  
Issue Date : 29 January 2024

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

PM-708-SLM-01 Rev. 02 Issue date: 7/1/23

Certificate No : 24-SLM-019  
Request No : Req 2023-2672

1. Indication at the calibration check frequency

UUC Setting	Measured	Before Adjust		After Adjust		UNCERTAINTY (± dB)	Acceptance Limit (± dB)
FAST / A / 30-130	Level (dB)	UUC (dB)	ERR (dB)	UUC (dB)	ERR (dB)		
Calibrator Setting							
1000 Hz 114 dB	113.78	113.2	-0.58	113.8	0.02	0.20	0.30

Note : Absolute sensitivity was established by the use of Sound Calibrator Brand SVANTEK, Model SV 35A, SN: 58079

2. Self-generated noise, Microphone Installed

UUC Setting	Measured	UNCERTAINTY
FAST / 30-130	(dB)	(± dB)
UUC Weighting		
A	18.1	0.10

3. Self-generated noise, Microphone replaced by the electrical input signal device

UUC Setting	Measured	UNCERTAINTY
FAST / 30-130	(dB)	(± dB)
UUC Weighting		
A	12.9	0.10
C	17.2	0.10
Z	21.4	0.19

4. Acoustic signal test of frequency weightings (Without Windscreen)

UUC Setting	Deviation from various Frequency Weighting Response curve			UNCERTAINTY	Acceptance Limit
FAST / 30-130	A (dB)	C (dB)	Z (dB)	(± dB)	(± dB)
STD Setting					
125 Hz	0.4	0.6	0.6	0.60	1.5
1000 Hz	0.0	0.0	0.0	0.60	1.0
4000 Hz	0.8	0.8	0.8	0.60	3.0
8000 Hz	-1.1	-1.2	-1.2	0.70	5.0

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

PM-708-SLM-01 Rev. 02 Issue date: 7/1/23

Certificate No : 24-SLM-019  
Request No : Req 2023-2672

5. Electrical signal test of frequency weightings, Weighting network response with relative to 1 kHz

UUC Setting	Deviation from various Frequency Weighting Response curve			UNCERTAINTY	Acceptance Limit
FAST / 30-130	A (dB)	C (dB)	Z (dB)	(± dB)	(± dB)
STD Setting					
63 Hz	-0.2	-0.1	-0.1	0.20	2.0
125 Hz	-0.1	0.0	0.0		1.5
250 Hz	-0.1	0.0	0.0		1.5
500 Hz	0.0	0.0	0.0		1.5
1000 Hz	0.0	0.0	0.0		1.0
2000 Hz	0.0	0.0	0.0		2.0
4000 Hz	0.0	0.0	0.0		3.0
8000 Hz	0.0	0.1	0.0		3.0
16000 Hz	-1.4	-1.4	0.0		+5, -1dB

6. Frequency and time weightings at 1kHz

UUC Setting	STD	Measured		UNCERTAINTY	Acceptance Limit
FAST / 30-130	REF	UUC (dB)	ERR (dB)	(± dB)	(± dB)
UUC Weighting					
A	114.00	114.0	0.0	0.20	0.20
C	114.00	114.0	0.0	0.20	0.20
Z	114.00	114.0	0.0	0.20	0.20

UUC Setting	STD	Measured		UNCERTAINTY	Acceptance Limit
30-130 / A	REF	UUC (dB)	ERR (dB)	(± dB)	(± dB)
UUC Time Response					
Fast	114.00	114.0	0.0	0.10	0.10
Slow	114.00	114.0	0.0	0.20	0.10
Leq	114.00	114.0	0.0	0.0	0.10

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PM-708-SLM-01 Rev. 02 Issue date: 7/1/23

Certificate No : 24-SLM-019  
Request No : Req2023-2672

#### 7. Long Term Stability

UUC Setting	Measured	UNCERTAINTY	Acceptance Limit
FAST / A / 30-130	UUC	( $\pm$ dB)	( $\pm$ dB)
STD Setting	(dB)		
Initial	114.0		
Final	114.0		
Deviated	0.0	0.10	0.30

#### 8. Level linearity on the reference level range

UUC Setting	Anticipated	Deviation	UNCERTAINTY	Acceptance Limit
FAST / A / 30-130	REF	UUC	ERR	( $\pm$ dB)
STD dB	(dB)	(dB)	(dB)	( $\pm$ dB)
138.00	138	138.0	0.0	1.1
134.00	134	134.0	0.0	1.1
129.00	129	129.0	0.0	1.1
124.00	124	124.0	0.0	1.1
119.00	119	119.0	0.0	1.1
114.00	114	114.0	0.0	1.1
109.00	109	109.0	0.0	1.1
104.00	104	104.1	0.1	1.1
99.00	99	99.0	0.0	1.1
94.00	94	94.0	0.0	1.1
89.00	89	89.1	0.1	1.1
84.00	84	84.1	0.1	1.1
79.00	79	79.0	0.0	1.1
74.00	74	74.1	0.1	1.1
69.00	69	69.1	0.1	1.1
64.00	64	64.0	0.0	1.1
59.00	59	59.1	0.1	1.1
54.00	54	54.0	0.0	1.1
49.00	49	49.1	0.1	1.1
44.00	44	44.1	0.1	1.1
39.00	39	39.1	0.1	1.1
34.00	34	34.1	0.1	1.1
29.00	29	29.1	0.1	0.5
24.00	24	24.1	0.1	1.1

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ISM-709-SLM-01 Rev.02 Issue date: 01/23

Certificate No : 24-SLM-019  
Request No : Req2023-2672

#### 9. Level linearity including the level range control

UUC Setting	STD	Measured	UNCERTAINTY	Acceptance Limit
FAST / A	REF	UUC	ERR	( $\pm$ dB)
UUC Range	(dB)	(dB)	(dB)	( $\pm$ dB)
30-130	29.40	29.5	0.1	1.1
	114	114.0	0.0	1.1

#### 10. Tone burst response

UUC Setting	STD	Anticipated	Measured	UNCERTAINTY	Acceptance Limit
A / 30-130	Timeburst	Ref	UUC	ERR	( $\pm$ dB)
UUC Time Response	(ms)	(dB)	(dB)	(dB)	( $\pm$ dB)
Fast	200	126.0	126.0	0.0	1.0
	2	109.0	109.0	0.0	+1.0, -2.5
	0.25	109.0	99.9	-0.1	+1.5, -5.0
Slow	200	119.6	119.6	0.0	1.0
	2	100.0	100.0	0.0	+1.0, -5.0
S&L	200	120.0	120.0	0.0	1.0
	2	100.0	100.0	0.0	+1.0, -2.5
	0.25	91.0	92.9	+0.1	+1.5, -5.0

#### 11. Peak C Sound level

UUC Setting	Anticipated	Measured	UNCERTAINTY	Acceptance Limit
FAST / C / 55-141	REF	UUC	ERR	( $\pm$ dB)
STD Setting	(dB)	(dB)	(dB)	( $\pm$ dB)
Complete cycle	135.4	135.4	0.00	2.0
Positive half cycle	135.4	135.1	-0.30	2.0
Negative half cycle	135.4	135.1	-0.30	2.0

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

ISM-709-SLM-01 Rev.02 Issue date: 01/23

Certificate No : 24-SLM-019  
Request No : Req2023-2672

#### 12. Overload indication

UUC Setting	Measured	UNCERTAINTY	Acceptance Limit
FAST / A / 30-130	UUC	( $\pm$ dB)	( $\pm$ dB)
STD Setting	(dB)		
Positive one-half cycle	139.4		
Negative one-half cycle	139.4		
Deviated	0.0	0.20	1.5

#### 13. High Level Stability

UUC Setting	Measured	UNCERTAINTY	Acceptance Limit
FAST / A / 30-130	UUC	( $\pm$ dB)	( $\pm$ dB)
STD Setting	(dB)		
Initial	129.0		
Final	129.0		
Deviated	0.0	0.10	0.30

#### Note :

Function	Maximum-permitted Uncertainty of measurement
1. Indication at the calibration check frequency	Not applicable
2. Self-generated noise, Microphone installed	Not applicable
3. Self-generated noise, Microphone replaced by the electrical input signal device	Not applicable
4. Acoustic signal test of frequency weightings at 10 Hz to 4 kHz	0.60 dB
4. Acoustic signal test of frequency weightings at 4 kHz to 10 kHz	0.70 dB
5. Electrical signal test of frequency weightings, Weighting network response with relative to 1 kHz	0.20 dB
6. Frequency and time weightings at 1 kHz	0.20 dB
7. Long Term Stability	0.10 dB
8. Level linearity on the reference level range	0.30 dB
9. Level linearity including the level range control	0.30 dB
10. Tone burst response	0.30 dB
11. Peak C Sound level	0.35 dB
12. Overload indication	0.25 dB
13. High Level Stability	0.10 dB

\* Acceptance limit and Maximum-permitted Uncertainty was IEC 61672-1:2013

End of Certificate

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

ISM-709-SLM-01 Rev.02 Issue date: 01/23

#### Certificate of Calibration

##### Customer

Name : AISI Laboratory Group Thailand Co., Ltd.  
Address : 104 Soi Phatthanasak 40, Phatthanasak Road, Suan Luang, Bangkok 10250

Certificate No : 24-SLM-022  
Request No : Req2023-3675

##### Unit Under Calibration Details

Measurement item : Sound Level Meter  
Microphone Class : 2  
Manufacturer : RION  
Microphone Model : UC-92  
Model : NI-42  
Microphone S/N : 157785  
Serial Number : 00638240  
Preamplifier Model : NI-24  
ID : BKR\_TSD097  
Preamplifier S/N : 48094  
Resolution : 0.1 dB  
Instrument Status : Used

##### Calibration Environment and Details


Temperature :  $\pm 23^{\circ}\text{C} \pm 2^{\circ}\text{C}$   
Humidity :  $50\% \text{RH} \pm 20\% \text{RH}$   
Barometric Pressure :  $1013 \text{ hPa} \pm 10 \text{ hPa}$   
Received Date : 20 December 2023  
Calibrated Date : 29 January 2024  
Calibration Procedure : In-house method CP-SLM-01 based on IEC 61672-1:2013 Electroacoustics - Sound level meters - Part 3, Periodic tests  
Location of Calibration : Lab Acoustic

##### Reference Standard

Instrument	Brand	Model	S/N	Date calibration	Traceability
Standard Microphone	GRAS	40AN	188273	21 August 2024	GRAS
Multi-frequency Calibrator	QWB	QWB-cal	ET/A000224	26 July 2024	TSI
Audio Generator	Svantek	SPG-800	131	9 October 2024	WK, Elecon

##### Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor  $k = 2$ , providing a level of confidence approximately 95 %.

Calibrated By :   
Mr. Noppakorn Luangnam  
Service Calibration Engineer

Approved By :   
Mr. Pichet Mathuram  
Calibration Engineer Supervisor  
Issue Date : 29 January 2024

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

ISM-709-SLM-01 Rev.02 Issue date: 01/23

Certificate No : 24-SLM-022  
Request No : Req-2023-2675

## 1. Indication at the calibration check frequency

UUC Setting	Measured	Before Adjust	After Adjust	UNCERTAINTY	Acceptance
FAST / A / 30-130	Level	UUC	ERR	UUC	ERR
Calibrator Setting	(dB)	(dB)	(dB)	(dB)	(dB)
1000 Hz 114.00	113.78	114.0	-0.22	113.8	0.02
				0.20	0.30

Note : Absolute sensitivity was established by the use of Sound Calibrator Brand SVANTEK, Model SV 35A, SN: 53079

## 2. Self-generated noise, Microphone installed

UUC Setting	Measured	UNCERTAINTY
FAST / 30-130		
UUC Weighting	(dB)	(± dB)
A	16.8	0.10

## 3. Self-generated noise, Microphone replaced by the electrical input signal device

UUC Setting	Measured	UNCERTAINTY
FAST / 30-130		
UUC Weighting	(dB)	(± dB)
A	12.3	0.10
C	16.6	0.10
Z	21.2	0.10

## 4. Acoustic signal test of frequency weightings (Without Windscreen)

UUC Setting	Deviation from various Frequency	UNCERTAINTY	Acceptance
FAST / 30-130	Weighting Response curve		Limit
STD Setting	A (dB) C (dB) Z (dB)	(± dB)	(± dB)
125 Hz	0.5 0.6 0.6	0.60	1.5
1000 Hz	0.0 0.0 0.0	0.60	1.0
4000 Hz	0.1 0.2 0.3	0.60	3.0
8000 Hz	-0.7 -0.3 -0.8	0.70	5.0

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

IM-700-SLM-01 Rev.02 Issue date: 01/23

Certificate No : 24-SLM-022  
Request No : Req-2023-2675

## 5. Electrical signal test of frequency weightings, Weighting network response with relative to 1 kHz

UUC Setting	Deviation from various Frequency	UNCERTAINTY	Acceptance
FAST / 30-130	Weighting Response curve		Limit
STD Setting	A (dB) C (dB) Z (dB)	(± dB)	(± dB)
63 Hz	12.8 -0.1 0.0		2.0
125 Hz	-0.1 0.0 0.0		1.5
250 Hz	-0.1 0.0 0.0		1.5
500 Hz	0.0 0.0 0.0		1.5
1000 Hz	0.0 0.0 0.0	0.20	1.0
2000 Hz	0.0 0.1 0.0		2.0
4000 Hz	0.0 0.0 0.0		3.0
8000 Hz	0.1 0.1 0.0		5.0
16000 Hz	-1.3 -1.4 0.0		+5, -INF

## 6. Frequency and time weightings at 1 kHz

UUC Setting	STD	Measured	UNCERTAINTY	Acceptance
FAST / 30-130	REF	UUC	ERR	Limit
UUC Weighting	(dB)	(dB)	(dB)	(± dB)
A	114.00	114.0	0.0	0.20
C	114.00	114.0	0.0	0.20
Z	114.00	114.0	0.0	0.20

UUC Setting	STD	Measured	UNCERTAINTY	Acceptance
30-130 / A	REF	UUC	ERR	Limit
UUC Time Response	(dB)	(dB)	(dB)	(± dB)
Fast	114.00	114.0	0.0	0.10
Slow	114.00	114.0	0.0	0.10
Leq	114.00	114.0	0.0	0.10

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

IM-700-SLM-01 Rev.02 Issue date: 01/23

Certificate No : 24-SLM-022  
Request No : Req-2023-2675

## 7. Long Term Stability

UUC Setting	Measured	UNCERTAINTY	Acceptance
FAST / A / 30-130	UUC		Limit
STD Setting	(dB)	(± dB)	(± dB)
Initial	114.0		
Final	114.0		
Deviation	0.0	0.10	0.30

## 8. Level linearity on the reference level range

UUC Setting	Anticipated	Deviation	UNCERTAINTY	Acceptance
FAST / A / 30-130	REF	UUC	ERR	Limit
STD dB	(dB)	(dB)	(dB)	(± dB)
138.00	138	137.9	-0.1	1.1
134.00	134	134.0	0.0	1.1
129.00	129	129.0	0.0	1.1
124.00	124	124.0	0.0	1.1
119.00	119	119.0	0.0	1.1
114.00	114	114.0	0.0	1.1
109.00	109	109.0	0.0	1.1
104.00	104	104.0	0.0	1.1
99.00	99	99.0	0.0	1.1
94.00	94	94.0	0.0	1.1
89.00	89	89.0	0.0	1.1
84.00	84	84.0	0.0	1.1
79.00	79	79.0	0.0	1.1
74.00	74	74.0	0.0	1.1
69.00	69	69.0	0.0	1.1
64.00	64	64.0	0.0	1.1
59.00	59	59.0	0.0	1.1
54.00	54	54.0	0.0	1.1
49.00	49	49.0	0.0	1.1
44.00	44	44.0	0.0	1.1
39.00	39	39.0	0.0	1.1
34.00	34	34.0	0.0	1.1
29.00	29	29.0	0.0	0.8
24.00	24	23.9	-0.1	1.1

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

IM-700-SLM-01 Rev.02 Issue date: 01/23

Certificate No : 24-SLM-022  
Request No : Req-2023-2675

## 9. Level linearity including the level range control

UUC Setting	STD	Measured	UNCERTAINTY	Acceptance
FAST / A	REF	UUC	ERR	Limit
UUC Range	(dB)	(dB)	(dB)	(± dB)
30-130	29.60	29.8	0.2	1.1
	114	114.0	0.0	1.1

## 10. Tone burst response

UUC Setting	STD	Anticipated	Measured	UNCERTAINTY	Acceptance
A / 30-130	Time burst	Ref	UUC	ERR	Limit
UUC Time Response	(ms)	(dB)	(dB)	(dB)	(± dB)
Fast	200	126.0	126.0	0.0	1.0
	2	109.0	109.0	0.0	+1.0, +2.5
	0.25	100.0	99.9	-0.1	+1.5, -5.0
Slow	200	119.6	119.6	0.0	1.0
	2	100.0	100.0	0.0	+1.0, -5.0
	200	120.0	120.0	0.0	1.0
SEL	2	100.0	100.0	0.0	+1.0, +2.5
	0.25	91.0	90.9	-0.1	+1.5, +5.0

## 11. Peak C Sound level

UUC Setting	Anticipated	Measured	UNCERTAINTY	Acceptance
FAST / C / 55-141	REF	UUC	ERR	Limit
STD Setting	(dB)	(dB)	(dB)	(± dB)
Complete cycle	136.4	136.4	0.00	2.0
Positive half cycle	135.4	135.2	-0.20	2.0
Negative half cycle	135.4	135.2	-0.20	2.0

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

IM-700-SLM-01 Rev.02 Issue date: 01/23



Certificate No : 24-SLM-023  
Request No : Req-2023-2676

#### 7. Long Term Stability

UUC Setting	Measured	UNCERTAINTY	Acceptance
FAST / A / 30-130	UUC		Limit
STD Setting	(dB)	(± dB)	(± dB)
Initial	114.0		
Final	114.0		
Deviated	0.0	0.10	0.30

#### 8. Level linearity on the reference level range

UUC Setting	Anticipated	Measured	Deviation	UNCERTAINTY	Acceptance
FAST / A / 30-130	REF	UUC	ERR		Limit
STD dB	(dB)	(dB)	(dB)	(± dB)	(± dB)
130.00	135	135.0	0.0		1.0
134.00	124	124.0	0.0		1.0
129.00	129	129.0	0.0		1.0
124.00	124	124.0	0.0		1.0
119.00	119	119.0	0.0		1.0
114.00	114	114.0	0.0		1.0
109.00	109	109.0	0.0		1.0
104.00	104	104.0	0.0		1.0
99.00	99	99.0	0.0		1.0
94.00	94	94.0	0.0		1.0
89.00	89	89.0	0.0		1.0
84.00	84	84.0	0.0		1.0
79.00	79	79.0	0.0		1.0
74.00	74	74.0	0.0		1.0
69.00	69	69.0	0.0		1.0
64.00	64	64.0	0.0		1.0
59.00	59	59.0	0.0		1.0
54.00	54	54.0	0.0		1.0
49.00	49	49.0	0.0		1.0
44.00	44	44.0	0.0		1.0
39.00	39	39.0	0.0		1.0
34.00	34	34.0	0.0		1.0
29.00	29	29.0	0.0		0.8
24.00	24	24.0	0.0		1.0

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-109-0236-01 Rev.02 Issue date: 11/23

Certificate No : 24-SLM-023  
Request No : Req-2023-2676

#### 9. Level linearity including the level range control

UUC Setting	STD	Measured	UNCERTAINTY	Acceptance
FAST / A	REF	UUC	ERR	Limit
UUC Range	(dB)	(dB)	(dB)	(± dB)
30-130	29.70	29.8	0.1	1.1
	114	114.0	0.0	1.1

#### 10. Tone burst response

UUC Setting	STD	Anticipated	Measured	UNCERTAINTY	Acceptance
A / 30-130	Toneburst	Ref	UUC	ERR	Limit
UUC Time Response	(ms)	(dB)	(dB)	(dB)	(± dB)
Fast	200	126.0	126.0	0.0	1.0
	2	109.0	109.0	0.0	-1.0, -2.5
	0.25	100.0	99.9	-0.1	-1.5, -5.0
Slow	200	119.6	119.6	0.0	1.0
	2	100.0	100.0	0.0	-1.0, -5.0
SEL	200	120.0	120.0	0.0	1.0
	2	100.0	100.0	0.0	-1.0, -2.5
	0.25	91.0	90.9	-0.1	-1.5, -5.0

#### 11. Peak C Sound level

UUC Setting	Anticipated	Measured	UNCERTAINTY	Acceptance
FAST / C / 55-141	REF	UUC	ERR	Limit
STD Setting	(dB)	(dB)	(dB)	(± dB)
Complete cycle	136.4	136.3	-0.10	3.0
Positive half cycle	125.4	125.1	-0.30	2.0
Negative half cycle	135.4	135.1	-0.30	2.0

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-109-0236-01 Rev.02 Issue date: 11/23

Certificate No : 24-SLM-023  
Request No : Req-2023-2676

#### 12. Overload indication

UUC Setting	Measured	UNCERTAINTY	Acceptance
FAST / A / 30-130	UUC		Limit
STD Setting	(dB)	(± dB)	(± dB)
Positive one-half cycle	139.7		
Negative one-half cycle	139.4		
Deviated	0.3	0.20	1.5

#### 13. High Level Stability

UUC Setting	Measured	UNCERTAINTY	Acceptance
FAST / A / 30-130	UUC		Limit
STD Setting	(dB)	(± dB)	(± dB)
Initial	129.0		
Final	129.0		
Deviated	0.0	0.10	0.30

Note :

Function	Maximum-permitted Uncertainty of measurement
1. Indication at the calibration check frequency	Not applicable
2. Self-generated noise, Microphone installed	Not applicable
3. Self-generated noise, Microphone replaced by the electrical input signal device	Not applicable
4. Acoustic signal test of frequency weightings at 10 Hz to 4 kHz	0.60 dB
4. Acoustic signal test of frequency weightings at 4 kHz to 10 kHz	0.70 dB
5. Electrical signal test of frequency weightings, Weighting network response with relative to 1 kHz	0.20 dB
6. Frequency and time weightings at 1 kHz	0.20 dB
7. Long Term Stability	0.10 dB
8. Level linearity on the reference level range	0.30 dB
9. Level linearity including the level range control	0.30 dB
10. Tone burst response	0.30 dB
11. Peak C Sound level	0.35 dB
12. Overload indication	0.75 dB
13. High Level Stability	0.10 dB

\*Acceptance limit and Maximum permitted Uncertainty was REC 60672-4 2019

End of Certificate

The results related only to the item calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovative Instrument Co., Ltd.

FM-109-0236-01 Rev.02 Issue date: 11/23

## SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

451-451/ Sirinthon Road, Banglamung, Bangkok, 10700 Thailand  
Tel : +66 2433 8331 Email : calibration@sithiporn.com

Cert. No. : ACL24343  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Pre-amplifier NH-24  
Serial No. : 00584983 / 158777 / 158778  
ID No. : BKK\_FSD926

Condition As Found : GOOD

Customer : ALS LABORATORY (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location : -  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %  
Received Date : 01 NOVEMBER 2024  
Calibration Date : 12 NOVEMBER 2024  
Date of Issue : 13 NOVEMBER 2024

REVIEW BY : *[Signature]*  
APPROVED BY : *[Signature]*  
NEXT CAL DATE : 12/11/25

Calibrated by : Nathakorn Pisutpaisan

Approved by : *[Signature]*  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

# SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

45/45/1 Srinthorn Road, Bangburmu, Bangplud, Bangkok, 10700 Thailand  
Tel : +66 2433 8331 Email : calibration@sithiporn.com



Cert. No. : ACL24343  
Job No. : VC68AC0027  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EELBP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EELBP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EELBP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EJ-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KA1	34560495	AA-3001-24	05-FEB-25

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand),
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR),

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# SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

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Cert. No. : ACL24343  
Job No. : VC68AC0027  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Cert. No. : ACL24343  
Job No. : VC68AC0027  
Page : 4 of 8

## Result of calibration :

### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

### 2. Self-generated noise

#### 2.1 Normal test

Measured Value (dB)
13.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	12.6
C-weight	19.1
Flat	24.6

### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.6	0.7	0.7	±1.5
1000	0.1	0.1	0.1	±1.0
8000	-1.5	-1.4	-1.4	±5.0

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Cert. No. : ACL24343  
Job No. : VC68AC0027  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	0.0	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

## 5. Frequency and time weightings at 1 kHz

### 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.2
C-weight	94.0	94.0	0.0	±0.2
Flat	94.0	94.0	0.0	±0.2

### 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	±0.1
Slow	94.0	94.0	0.0	±0.1
Leq	94.0	94.0	0.0	±0.1

## 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.3

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Cert. No. : ACL24343  
Job No. : VC68AC0027  
Pages : 6 of 8

7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	± 1.1
136.0	136.0	0.0	± 1.1
135.0	135.0	0.0	± 1.1
134.0	134.0	0.0	± 1.1
133.0	132.9	-0.1	± 1.1
132.0	131.9	-0.1	± 1.1
131.0	130.9	-0.1	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.0	0.0	± 1.1
114.0	114.0	0.0	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.0	0.0	± 1.1
99.0	99.0	0.0	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.0	0.0	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	30.0	0.0	± 1.1
29.0	29.0	0.0	± 1.1
28.0	28.0	0.0	± 1.1
27.0	27.0	0.0	± 1.1
26.0	26.0	0.0	± 1.1
25.0	24.9	-0.1	± 1.1

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Cert. No. : ACL24343  
Job No. : VC68AC0027  
Pages : 7 of 8

8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	± 1.1

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	29.0	0.0	± 1.1

9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	± 1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	± 1.0
SEL	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	± 1.0

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Cert. No. : ACL24343  
Job No. : VC68AC0027  
Pages : 8 of 8

10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	± 3.0
One	133.4	133.4	0.0	± 3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	± 2.0
Positive half cycle	135.4	135.1	-0.3	± 2.0
Negative half cycle	135.4	135.1	-0.3	± 2.0

11. Overload indication

Measured value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	89.5	± 1.5
Negative one-half cycle	89.5	± 1.5

12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	137.0	137.0	0.0	± 0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petchur

SITHIPORN ASSOCIATES CO., LTD.  
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Cert. No. : ACL24004  
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Pre-amplifier NH-24  
Serial No. : 00672737 / 158772 / 58773  
ID No. : BKK\_FS0927

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 19 DECEMBER 2023  
Calibration Date : 05-08 JANUARY 2024  
Date of Issue : 09 JANUARY 2024

Calibrated by : Natlakorn Pisutpausan

Approved by :

T. Petchur  
( Thannakul Petchurai )

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**SITHIPORN ASSOCIATES CO., LTD.**  
**CALIBRATION LABORATORY**

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Cert. No. : ACL24004  
Job No. : VC67AC0043  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

**Calibration Method :**

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

**1. Reference Standard Instruments :**

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	ET-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EEL_BP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EEL_BP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EEL_BP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	ET-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAI	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable in the international system of unit maintained at :

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*T. Petcha*

**SITHIPORN ASSOCIATES CO., LTD.**  
**CALIBRATION LABORATORY**

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Cert. No. : ACL24004  
Job No. : VC67AC0043  
Pages : 3 of 8

**Summary of Measurement Result :**

Parameter	Uncertainty	Maximum-permitted
	(dB)	uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

*T. Petcha*

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Job No. : VC67AC0043  
Pages : 4 of 8

**Result of calibration :**

**1. Absolute sensitivity**

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.98)	93.9	0.0	±0.3

**2. Self-generated noise**

**2.1 Normal test**

Measured Value (dB)
13.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A - weight	9.9
C - weight	16.4
Flat	22.2

**3. Acoustical signal tests of frequency weightings**

Motor free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.5
1000	0.0	0.0	0.0	± 1.0
8000	-0.6	-0.6	-0.5	± 5.0

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**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	-0.1	±2.0
125	-0.1	0.0	-0.1	±1.5
250	-0.1	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.0	0.0	±5.0

**5. Frequency and time weightings at 1 kHz**

**5.1 Frequency weightings at 1 kHz**

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	93.9	-0.1	± 0.2
C - weight	94.0	93.9	-0.1	± 0.2
Flat	94.0	94.0	0.0	± 0.2

**5.2 Time weighting at 1 kHz**

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	93.9	-0.1	± 0.1
Slow	94.0	93.9	-0.1	± 0.1
Leq	94.0	94.0	0.0	± 0.1

**6. Long - term stability**

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	± 0.3

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**7. Level linearity on the reference level range**

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	± 1.1
136.0	136.1	0.1	± 1.1
135.0	135.1	0.1	± 1.1
134.0	134.1	0.1	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.1	0.1	± 1.1
114.0	114.1	0.1	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.1	0.1	± 1.1
99.0	99.1	0.1	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	79.0	0.0	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	64.0	0.0	± 1.1
59.0	59.0	0.0	± 1.1
54.0	54.0	0.0	± 1.1
49.0	49.0	0.0	± 1.1
44.0	44.0	0.0	± 1.1
39.0	39.0	0.0	± 1.1
34.0	34.0	0.0	± 1.1
30.0	30.0	0.0	± 1.1
29.0	29.0	0.0	± 1.1
28.0	28.0	0.0	± 1.1
27.0	26.9	-0.1	± 1.1
26.0	26.0	0.0	± 1.1
25.0	24.9	-0.1	± 1.1

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**8. Level linearity including the level range control**

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	± 1.1

**9. Tone burst response**

Time Weighing	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	116.9	-0.1	1.0 ; -2.5
	200	800	134.0	134.0	0.0	± 1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	± 1.0
SEL	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	± 1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	± 3.0
One	136.4	135.8	-0.6	± 3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	± 2.0
Positive half cycle	135.4	135.1	-0.3	± 2.0
Negative half cycle	135.4	135.1	-0.3	± 2.0

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**11. Overload indication**

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.7	89.5	-0.2	± 1.5

**12. High level stability**

Frequency Weighing	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	137.0	137.0	0.0	± 0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

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Cert. No. : ACL24018  
Pages : 1 of 8

**Calibration Certificate**

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplicifier NH-24  
**Serial No.:** 00597162 / 180405 / 88175  
**ID No.:** BKK\_FS0997

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHUWAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** \*  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 22 DECEMBER 2023  
**Calibration Date :** 10-11 JANUARY 2024  
**Date of Issue :** 12 JANUARY 2024

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :** *T. Petchur*  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

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Cert. No. : ACL24018  
Job No. : VC67AC0045  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-23	07-FEB-24
Waveform Generator	33511B	MY52302742	EF-0010-23	07-FEB-24
Digital Multimeter	33461A	MY53220104	EELBP 30/0266	13-FEB-24
Digital Multimeter	33461A	MY53220076	EELBP 29/0266	13-FEB-24
Digital Multimeter	34461A	MY60024273	EELBP 31/0266	14-FEB-24
Programmable Attenuator	MAT-1070	62100114	EF-0011-23	08-FEB-24
Condenser Microphone	4180	2977900	AA-1001-23	14-FEB-24
Measuring Amplifier	NA-42KAJ	34560495	AA-3002-23	14-FEB-24

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.

3. This certificate is traceable to the international system of unit maintained at :

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

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Job No. : VC67AC0045  
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## Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	-	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Job No. : VC67AC0045  
Pages : 4 of 8

## Result of calibration :

### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.98)	93.9	0.0	±0.3

### 2. Self-generated noise

#### 2.1 Normal test

Measured Value (dB)
16.1

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Measured value (dB)
A-weight	12.0
C-weight	18.3
Flat	24.3

### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.1	0.2	0.2	±1.5
1000	0.0	0.0	0.0	±1.0
8000	1.5	1.6	1.6	±5.0

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### 4. Electrical signal tests of frequency weightings

Weighing network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	0.0	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.1	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

### 5. Frequency and time weightings at 1 kHz

#### 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.2
C-weight	94.0	94.0	0.0	±0.2
Flat	94.0	94.0	0.0	±0.2

#### 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	±0.1
Slow	94.0	94.0	0.0	±0.1
Leq	94.0	94.0	0.0	±0.1

### 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.3

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**7. Level linearity on the reference level range**

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	38.9	-0.1	±1.1
34.0	33.9	-0.1	±1.1
30.0	29.9	-0.1	±1.1
29.0	28.9	-0.1	±1.1
28.0	27.9	-0.1	±1.1
27.0	26.9	-0.1	±1.1
26.0	25.9	-0.1	±1.1
25.0	24.8	-0.2	±1.1

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**8. Level linearity including the level range control**

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Auto	94.0	94.0	0.0	±1.1

**9. Tone burst response**

Time	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.1	0.1	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
SEL	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

**10. Peak C sound level**

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±3.0
One	136.4	135.9	-0.5	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.2	-0.2	±2.0
Negative half cycle	135.4	135.2	-0.2	±2.0

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**11. Overload indication**

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.6	89.5	-0.1	±1.5

**12. High level stability**

Frequency	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Weighting				
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

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Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



NSC-TIS-TIS 17025  
CALIBRATION 0367

**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-124-67

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MEASUREMENT ITEM  
MANUFACTURER  
MODEL/TYPE  
SERIAL NUMBER  
ID NUMBER  
CONDITION AS-RECEIVED  
CUSTOMER

Heat Stress Monitor  
Delta OHM  
HD32.2  
1500668R  
BK01\_F30569  
Used item  
ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khuang Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE : 08 Jul 2024  
MEASUREMENT DATE : 19 Jul 2024  
ISSUE DATE : 19 Jul 2024

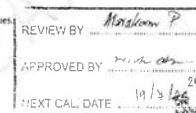
**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values



Calibrated by:  
Mr. Sorawit Thachalad  
Ms. Uthaporn Lertsomphol  
Ms. Puangrumpha Phoommit



Approved by: Mr. Parinya Booncharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 15015840.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.054	20.2	0.1	0.099
80	25.046	25.2	0.2	0.099
80	30.036	30.2	0.2	0.099
80	35.030	35.2	0.2	0.099
80	40.025	40.1	0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 22035465.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.054	20.2	0.1	0.099
110	25.046	25.2	0.2	0.099
110	30.036	30.2	0.2	0.099
110	35.030	35.2	0.2	0.099
110	40.025	40.2	0.2	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15015490.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.054	20.4	0.3	0.099
75	25.046	25.2	0.2	0.099
75	30.036	30.1	0.1	0.099
75	35.030	35.1	0.1	0.099
75	40.025	40.0	0.0	0.099

UUC: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-128-67

**MEASUREMENT ITEM**  
MANUFACTURER : Heat Stress Monitor  
MODEL/TYPE : Delta OHM  
SERIAL NUMBER : HD32.2  
ID NUMBER : 15006704  
CONDITION AS-RECEIVED : 8KK\_F50670  
CUSTOMER : Used item  
ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE** : 15 Jul 2024  
**MEASUREMENT DATE** : 22 Jul 2024  
**ISSUE DATE** : 24 Jul 2024

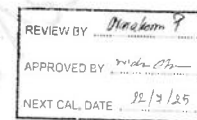
**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values.



Approved signatory

Mr. Parinya Booncharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 15017681.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.060	20.3	0.3	0.099
80	25.051	25.3	0.3	0.099
80	30.041	30.1	0.1	0.099
80	35.033	35.1	0.1	0.099
80	40.024	40.1	0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 15021838.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.060	20.1	0.1	0.099
110	25.051	25.1	0.0	0.099
110	30.041	30.1	0.1	0.099
110	35.033	35.1	0.1	0.099
110	40.024	40.0	0.0	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15015486.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.060	20.2	0.1	0.099
75	25.051	25.1	0.0	0.099
75	30.041	30.1	0.1	0.099
75	35.033	35.0	0.0	0.099
75	40.024	40.0	0.0	0.099

UUC: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-048-66

**MEASUREMENT ITEM**  
MANUFACTURER : Heat Stress Monitor  
MODEL/TYPE : Delta OHM  
SERIAL NUMBER : HD32.2  
ID NUMBER : 15006708  
CONDITION AS-RECEIVED : 8KK\_F50671  
CUSTOMER : Used item  
ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE** : 30 Nov 2023  
**MEASUREMENT DATE** : 01 Dec 2023  
**ISSUE DATE** : 01 Dec 2023

**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

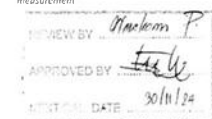
The table on next page give the measured values.

**Calibration procedure:**  
The temperature calibration was done by In-House calibration method as WI-CL-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature scale use was based on ITS-90.

**Traceability:**  
The measurement results are traceable to the international system of units (SI) through National Institute of Metrology Thailand (NIMT) Certificate number: IT-0038-23. Certificate number: ER-0101-23

**Reference Used During Calibration:**  
1. Standard Temperature Probe Model: STS-100 AS00, Serial No.: 667682-06, Due date: 28 Mar 2024  
2. Digital Temperature Indicator Model: DTI-1000 A MK II, Serial No.: 671407-00591 Due date: 14 Sep 2024

**Uncertainty of Measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, Which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM "Evaluation of measurement data - Guide to the expression of uncertainty in measurement"



Approved signatory

Mr. Parinya Booncharoen  
Calibration Department Manager

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



Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 – 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 15015843.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.057	20.1	0.0	0.099
80	25.051	25.1	0.0	0.099
80	30.046	30.1	0.1	0.099
80	35.038	35.1	0.1	0.099
80	40.036	40.2	0.2	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 15015979.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.057	20.0	-0.1	0.099
110	25.051	25.0	-0.1	0.099
110	30.046	29.9	-0.1	0.099
110	35.038	34.8	-0.2	0.099
110	40.036	39.7	-0.3	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 16009383.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.057	20.1	0.0	0.099
75	25.051	25.0	-0.1	0.099
75	30.046	29.9	-0.2	0.16
75	35.038	34.8	-0.2	0.099
75	40.036	39.7	-0.3	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.23 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



Jiranaatee Associates Co., Ltd.  
63/14-15, 67/25-26  
Pachakarn 7/25, 8/8 Wornasara, Bangkok,  
Bangkok 10600 (Thailand)  
Tel: +66 (0) 2632 1212  
Mobile: +66 (0) 919 99453  
E-mail: jiracal@jiranaatee.com  
Web site: www.jiranaatee.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



**CERTIFICATE OF CALIBRATION**

Certificate No.: CDT-047-67

Page 1 of 2 Pages

MEASUREMENT ITEM: Heat Stress Monitor  
MANUFACTURER: Delta OHM  
MODEL/TYPE: HD32.2  
SERIAL NUMBER: 15006710  
ID NUMBER: BKK\_F50672  
CONDITION AS-RECEIVED: Used Item  
CUSTOMER: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE: 05 Feb 2024  
MEASUREMENT DATE: 13 Feb 2024  
ISSUE DATE: 20 Feb 2024

**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature: 23.0 ± 3.0 °C  
Relative Humidity: 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values.

Signature: *Mr. Panya Booncharoen*  
Date: 19/2/24



Calibrated by:  
☐ Mr. Satewit Thachalad  
☐ Ms. Nitiraporn Kertsomphol  
☒ Miss Ruangrumpai Phoommit

Approved signatory: *Mr. Panya Booncharoen*  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 – 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 15015852.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.044	20.0	0.0	0.099
80	25.051	25.0	-0.1	0.099
80	30.042	30.0	0.0	0.099
80	35.039	35.0	0.0	0.099
80	40.032	40.0	0.0	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 15021832.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.044	20.1	0.1	0.099
110	25.051	25.1	0.0	0.099
110	30.042	30.1	0.1	0.099
110	35.038	35.1	0.1	0.099
110	40.032	40.1	0.1	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 14036714.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.044	20.0	0.0	0.099
75	25.051	24.9	-0.2	0.099
75	30.042	29.8	-0.2	0.099
75	35.039	34.7	-0.4	0.099
75	40.032	39.7	-0.3	0.099

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



Jiranaatee Associates Co., Ltd.  
63/14-15, 67/25-26  
Pachakarn 7/25, 8/8 Wornasara, Bangkok,  
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Web site: www.jiranaatee.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



**CERTIFICATE OF CALIBRATION**

Certificate No.: CDT-064-67

Page 1 of 2 Pages

MEASUREMENT ITEM: Heat Stress Monitor  
MANUFACTURER: Delta OHM  
MODEL/TYPE: HD32.2  
SERIAL NUMBER: 15006710  
ID NUMBER: BKK\_F50673  
CONDITION AS-RECEIVED: Used Item  
CUSTOMER: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE: 15 May 2024  
MEASUREMENT DATE: 17 May 2024  
ISSUE DATE: 21 May 2024

**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature: 23.0 ± 3.0 °C  
Relative Humidity: 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration

**TABULATION OF RESULTS:**

The table on next page give the measured values.

Signature: *Mr. Panya Booncharoen*  
Date: 21/5/24



Calibrated by:  
☐ Mr. Satewit Thachalad  
☐ Ms. Nitiraporn Kertsomphol  
☒ Miss Ruangrumpai Phoommit

Approved signatory: *Mr. Panya Booncharoen*  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 13035040.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.056	20.0	-0.1	0.099
80	25.051	25.0	-0.1	0.099
80	30.047	30.0	-0.1	0.099
80	35.036	35.0	-0.1	0.099
80	40.023	40.0	-0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3271.2 S/N: 20008276.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.056	20.0	-0.1	0.099
110	25.051	25.0	-0.1	0.099
110	30.046	30.0	-0.1	0.099
110	35.036	35.0	-0.1	0.099
110	40.024	40.0	-0.1	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 16009354.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.057	20.1	0.0	0.099
75	25.051	25.0	-0.1	0.099
75	30.046	29.9	-0.1	0.099
75	35.036	34.8	-0.2	0.099
75	40.024	39.5	-0.5	0.099

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-042-66

Page 1 of 2 Pages

**MEASUREMENT ITEM**

MANUFACTURER : Heat Stress Monitor  
MODEL/TYPE : Delta OHM  
SERIAL NUMBER : HD32.2  
ID NUMBER : 15036021  
CONDITION AS-RECEIVED : BKK\_F50679  
CUSTOMER : Used item  
ALS laboratory group (thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE : 26 Oct 2023  
MEASUREMENT DATE : 27 Oct 2023  
ISSUE DATE : 27 Oct 2023

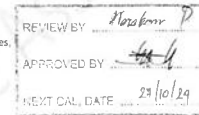
**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values.



Approved signatory

Mr. Parinya Booncharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 - 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 16008209.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.057	20.0	-0.1	0.099
80	25.049	24.8	-0.1	0.099
80	30.042	29.9	-0.1	0.099
80	35.039	34.5	-0.1	0.099
80	40.032	39.9	-0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 16008203.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.057	20.1	0.0	0.099
110	25.050	25.1	0.1	0.099
110	30.042	30.1	0.1	0.099
110	35.038	35.1	0.1	0.099
110	40.032	40.1	0.1	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15037322.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.057	20.1	0.0	0.099
75	25.050	24.9	-0.1	0.099
75	30.042	29.7	-0.3	0.099
75	35.038	34.6	-0.4	0.099
75	40.032	39.5	-0.5	0.099

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-075-67

Page 1 of 2 Pages

**MEASUREMENT ITEM**

MANUFACTURER : Heat Stress Monitor  
MODEL/TYPE : Delta OHM  
SERIAL NUMBER : HD32.2  
ID NUMBER : 15036132  
CONDITION AS-RECEIVED : BKK\_F50680  
CUSTOMER : Used item  
ALS laboratory group (thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE : 12 Apr 2024  
MEASUREMENT DATE : 26 Apr 2024  
ISSUE DATE : 26 Apr 2024

**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values.



Approved signatory

Mr. Parinya Booncharoen  
Calibration Department Manager

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

Continuation of Certificate of Calibration Number CDT-075-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 15015846.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.036	20.1	0.1	0.099
80	25.032	25.1	0.1	0.099
80	30.028	30.1	0.1	0.099
80	35.010	35.1	0.1	0.099
80	40.004	40.1	0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 15015972.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.036	20.0	0.0	0.099
110	25.032	25.0	0.0	0.099
110	30.028	30.0	0.0	0.099
110	35.010	35.0	0.0	0.099
110	40.002	40.0	0.0	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 14032362.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.037	20.3	0.3	0.099
75	25.032	25.1	0.1	0.099
75	30.028	30.0	0.0	0.099
75	35.010	34.9	-0.1	0.099
75	40.002	39.9	-0.1	0.099

UUC: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



Accredited calibration laboratory  
ISO/IEC 17025:2017  
NAC-TIS-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



NAC-TIS-TIS 17025  
CALIBRATION 0367

**CERTIFICATE OF CALIBRATION**

28/6/25

Page 1 of 2 Pages

Certificate No.: CDT-115-67

**MEASUREMENT ITEM**: Heat Stress Monitor  
**MANUFACTURER**: Delta OHM  
**MODEL/TYPE**: HD32.2  
**SERIAL NUMBER**: 13024790  
**ID NUMBER**: BKX\_F50650  
**CONDITION AS RECEIVED**: Used item  
**CUSTOMER**: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE**: 24 Jun 2024  
**MEASUREMENT DATE**: 28 Jun 2024  
**ISSUE DATE**: 28 Jun 2024

**ENVIRONMENTAL CONDITIONS**:  
Ambient condition in the laboratory are as follow:  
Temperature: 23.0 ± 3.0 °C  
Relative Humidity: 55.0 ± 15.0 %RH

**NOTED**: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS**:  
The table on next page give the measured values.

**Calibration procedure**:  
The temperature calibration was done by in-house calibration method as per CL-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature scale was based on ITS-90.

**Traceability**:  
The measurement results are traceable to the international system of units (SI) through National Institute of Metrology Thailand (NIMT) Certificate number: TT-0047-24, Certificate number: LR-0101-23

**Reference Used During Calibration**:  
1. Standard Temperature Probe  
Model: S15-100 AS500, Serial No.: 667682-09,  
Due date: 26 Mar 2025  
2. Digital Temperature Indicator  
Model: DTI-2000-A MK II, Serial No.: 671407-00592 Due date: 14 Sep 2024

**Uncertainty of Measurement**:  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2. Which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement.

Calibrated by:  
☒ Mr. Soravit Thachalad  
☒ Miss Jitraporn Lertsomphol  
☒ Miss Ruangsiraporn Phoommit



Approved signatory:   
Mr. Pannipha Booncharoen  
Calibration Department Manager

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

Continuation of Certificate of Calibration Number CDT-115-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 13030290.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.061	20.1	0.0	0.099
80	25.052	25.1	0.0	0.099
80	30.044	30.1	0.1	0.099
80	35.032	35.1	0.0	0.16
80	40.021	40.0	0.0	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 20032622.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.061	20.0	-0.1	0.099
110	25.052	25.0	-0.1	0.099
110	30.043	30.0	0.0	0.099
110	35.032	35.0	0.0	0.099
110	40.021	40.0	0.0	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 12038136.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.061	20.1	0.0	0.099
75	25.052	25.0	-0.1	0.099
75	30.043	29.9	-0.1	0.099
75	35.033	34.8	-0.2	0.099
75	40.021	35.7	-0.3	0.099

UUC: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



Accredited calibration laboratory  
ISO/IEC 17025:2017  
NAC-TIS-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



NAC-TIS-TIS 17025  
CALIBRATION 0367

**CERTIFICATE OF CALIBRATION**

Page 1 of 2 Pages

Certificate No.: CDT-194-67

**MEASUREMENT ITEM**: Heat Stress Monitor  
**MANUFACTURER**: Delta OHM  
**MODEL/TYPE**: HD32.2  
**SERIAL NUMBER**: 15001958  
**ID NUMBER**: BKX\_F50655  
**CONDITION AS RECEIVED**: Used item  
**CUSTOMER**: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE**: 15 Nov 2024  
**MEASUREMENT DATE**: 21 Nov 2024  
**ISSUE DATE**: 25 Nov 2024

**ENVIRONMENTAL CONDITIONS**:  
Ambient condition in the laboratory are as follow:  
Temperature: 23.0 ± 3.0 °C  
Relative Humidity: 55.0 ± 15.0 %RH

**NOTED**: The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS**:  
The table on next page give the measured values.

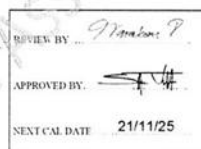
**Calibration procedure**:  
The temperature calibration was done by in-house calibration method as per CL-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature scale was based on ITS-90.

**Traceability**:  
The measurement results are traceable to the international system of units (SI) through National Institute of Metrology Thailand (NIMT) Certificate number: TT-0047-24, Certificate number: LR-0113-23

**Reference Used During Calibration**:  
1. Standard Temperature Probe  
Model: S15-100 AS500, Serial No.: 667682-09,  
Due date: 26 Mar 2025  
2. Digital Temperature Indicator  
Model: DTI-2000-A MK II, Serial No.: 671407-00592 Due date: 21 Oct 2025

**Uncertainty of Measurement**:  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2. Which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement.

Calibrated by:  
☒ Mr. Soravit Thachalad  
☒ Miss Jitraporn Lertsomphol  
☒ Miss Ruangsiraporn Phoommit



Approved signatory:   
Mr. Pannipha Booncharoen  
Calibration Department Manager

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



JIRANATH ASSOCIATES CO., LTD.

Continuation of Certificate of Calibration Number CDT-194-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

Function:

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2, S/N: 15003283, Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.056	20.1	0.0	0.099
80	25.062	25.1	0.0	0.099
80	30.053	30.1	0.0	0.099
80	35.043	35.1	0.1	0.099
80	40.032	40.1	0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2, S/N: 16006602, Dimension: Diameter 3.3 mm, Length 285 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.056	20.1	0.0	0.099
110	25.062	25.1	0.0	0.099
110	30.054	30.1	0.0	0.099
110	35.047	35.1	0.1	0.099
110	40.031	40.1	0.0	0.16

Table 3: This equipment was connected with temperature probe Model: TP3207.2, S/N: 15008016, Dimension: Diameter 14 mm, Length 350 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.056	20.2	0.1	0.099
75	25.062	25.1	0.0	0.099
75	30.053	30.0	-0.1	0.099
75	35.043	34.9	-0.1	0.099
75	40.032	39.9	-0.2	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



JIRANATH ASSOCIATES CO., LTD.

Branch: Bangkok Co., Ltd.  
63/14-15, E/15-16  
Pattana 2, J/1, Bt. Wachayra, Bangkok,  
Bangkok 10250 Thailand  
Tel: +6681-06812  
Mobile: +6681-099453  
E-mail: jnac@jiranath.com  
Web site: www.jiranath.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



NSC - TIS - TIS 17025  
CALIBRATION 0367

## CERTIFICATE OF CALIBRATION

Certificate No. : CDT-126-67

Page 1 of 2 Pages

MEASUREMENT ITEM  
MANUFACTURER  
MODEL/TYPE  
SERIAL NUMBER  
ID NUMBER  
CONDITION AS-RECEIVED  
CUSTOMER

: Heat Stress Monitor  
: Delta OHM  
: HD32.2  
: 15002056  
: BKK\_F50658  
: Used Item  
: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE  
MEASUREMENT DATE  
ISSUE DATE

: 15 Jul 2024  
: 22 Jul 2024  
: 24 Jul 2024

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:

The table on next page give the measured values.

REVIEW BY: *Wichan P.*  
APPROVED BY: *Wichan P.*  
NEXT CAL. DATE: 14 Sep 2024



Approved signatory

Mr. Pannya Booncharoen  
Calibration Department Manager

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



JIRANATH ASSOCIATES CO., LTD.

Continuation of Certificate of Calibration Number CDT-126-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

Function:

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 15008697, Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.041	19.9	-0.1	0.099
80	25.052	24.9	-0.2	0.099
80	30.035	29.9	-0.1	0.16
80	35.022	34.9	-0.1	0.099
80	40.013	39.8	-0.2	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 18009534, Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.041	19.9	-0.1	0.099
110	25.052	24.9	-0.2	0.099
110	30.035	29.9	-0.1	0.099
110	35.022	34.9	-0.1	0.099
110	40.013	39.9	-0.1	0.099

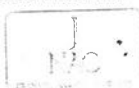
Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15003274, Dimension: Diameter 14 mm, Length 350 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.041	20.2	0.1	0.16
75	25.051	25.0	0.1	0.099
75	30.035	29.9	-0.1	0.099
75	35.022	34.8	-0.2	0.099
75	40.013	39.7	-0.2	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



JIRANATH ASSOCIATES CO., LTD.

Branch: Bangkok Co., Ltd.  
63/14-15, E/15-16  
Pattana 2, J/1, Bt. Wachayra, Bangkok,  
Bangkok 10250 Thailand  
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Mobile: +6681-099453  
E-mail: jnac@jiranath.com  
Web site: www.jiranath.com

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



NSC - TIS - TIS 17025  
CALIBRATION 0367

## CERTIFICATE OF CALIBRATION

Certificate No. : CDT-077-67

Page 1 of 2 Pages

MEASUREMENT ITEM  
MANUFACTURER  
MODEL/TYPE  
SERIAL NUMBER  
ID NUMBER  
CONDITION AS-RECEIVED  
CUSTOMER

: Heat Stress Monitor  
: Delta OHM  
: HD32.2  
: 15006302  
: BKK\_F50663  
: Used Item  
: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE  
MEASUREMENT DATE  
ISSUE DATE

: 19 Apr 2024  
: 26 Apr 2024  
: 26 Apr 2024

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 3.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:

The table on next page give the measured values.

REVIEW BY: *Wichan P.*  
APPROVED BY: *Wichan P.*  
NEXT CAL. DATE: 14 Sep 2024



Approved signatory

Mr. Pannya Booncharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 22035259, Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.042	20.0	0.0	0.099
80	25.037	25.0	0.0	0.099
80	30.025	30.0	0.0	0.099
80	35.011	35.0	0.0	0.099
80	40.005	40.0	0.0	0.16

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 20032620, Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.042	20.2	0.2	0.099
110	25.037	25.7	0.7	0.099
110	30.025	30.2	0.2	0.099
110	35.011	35.2	0.2	0.099
110	40.005	40.1	0.1	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15008018, Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.042	20.2	0.2	0.099
75	25.037	25.1	0.1	0.099
75	30.025	30.0	0.0	0.099
75	35.011	34.9	-0.1	0.099
75	40.005	39.8	-0.2	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No.: CDT-084-67

Page 1 of 2 Pages

**MEASUREMENT ITEM**  
MANUFACTURER: Delta OHM  
MODEL/TYPE: HD32.2  
SERIAL NUMBER: 15036012  
ID NUMBER: BKK\_F50673  
CONDITION AS RECEIVED: Used item  
CUSTOMER: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand

**RECEIVED DATE**: 15 May 2024  
**MEASUREMENT DATE**: 17 May 2024  
**ISSUE DATE**: 21 May 2024

**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature: 23.0 ± 3.0 °C  
Relative Humidity: 55.0 ± 15.0 %RH

**NOTED:** The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values



Approved signature:

Mr. Parinya Boontharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 13035040, Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.056	20.0	-0.1	0.099
80	25.057	25.0	-0.1	0.099
80	30.047	30.0	0.0	0.099
80	35.036	35.0	0.0	0.099
80	40.023	40.0	0.0	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 20008276, Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.056	20.0	-0.1	0.099
110	25.051	25.0	-0.1	0.099
110	30.046	30.1	0.1	0.099
110	35.036	35.1	0.1	0.099
110	40.024	40.1	0.1	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15006354, Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.057	20.1	0.1	0.099
75	25.051	25.0	-0.1	0.099
75	30.046	29.9	-0.1	0.099
75	35.030	34.9	-0.1	0.099
75	40.024	39.8	-0.2	0.099

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No.: CDT-113-67

Page 1 of 2 Pages

**MEASUREMENT ITEM**  
MANUFACTURER: Delta OHM  
MODEL/TYPE: HD32.2  
SERIAL NUMBER: 15036018  
ID NUMBER: BKK\_F50677  
CONDITION AS RECEIVED: Used item  
CUSTOMER: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE**: 18 Jun 2024  
**MEASUREMENT DATE**: 21 Jun 2024  
**ISSUE DATE**: 24 Jun 2024

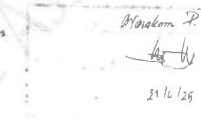
**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:  
Temperature: 23.0 ± 3.0 °C  
Relative Humidity: 55.0 ± 15.0 %RH

**NOTED:** The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**

The table on next page give the measured values



Approved signature:

Mr. Parinya Boontharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 16008215.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.043	20.1	0.1	0.089
80	25.047	25.1	0.1	0.099
80	30.037	30.0	0.1	0.16
80	35.026	35.0	0.0	0.099
80	40.017	40.0	0.0	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 16006602.  
Dimension: Diameter 3.3 mm, Length 205 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.043	20.1	0.1	0.099
110	25.047	25.1	0.1	0.099
110	30.037	30.0	0.0	0.099
110	35.026	35.0	0.0	0.099
110	40.017	40.0	0.0	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 15037318.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.043	20.2	0.2	0.099
75	25.047	25.0	0.0	0.099
75	30.038	29.9	-0.1	0.099
75	35.026	34.8	-0.2	0.099
75	40.017	39.7	-0.3	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.16, based on standard uncertainty multiplied by a coverage factor k=2.21 providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No. : CDT-048-67

Page 1 of 2 Pages

**MEASUREMENT ITEM**

**MANUFACTURER**

**MODEL/TYPE**

**SERIAL NUMBER**

**ID NUMBER**

**CONDITION AS-RECEIVED**

**CUSTOMER**

: Heat Stress Monitor

: Delta OHM

: HD32.2

: 15036019

: BKK\_F50678

: Used item

: ALS Laboratory group (Thailand) Co., Ltd.

: 104 Phatthanakan 40, Phatthanakan Rd.,

: Khwaeng Suan Luang, Khet Suan Luang,

: Bangkok 10250 Thailand.

**RECEIVED DATE**

**MEASUREMENT DATE**

**ISSUE DATE**

: 05 Feb 2024

: 14 Feb 2024

: 20 Feb 2024

**ENVIRONMENTAL CONDITIONS:**

Ambient condition in the laboratory are as follow:

Temperature : 23.0 ± 3.0 °C

Relative Humidity : 55.0 ± 15.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration

**TABULATION OF RESULTS:**

The table on next page give the measured values.

Handwritten signature and date: 14/2/24



Approved signature:

Handwritten signature of Mr. Panya Booncharoen

Mr. Panya Booncharoen  
Calibration Department Manager

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 - 40 °C

**Function:**

Table 1: This equipment was connected with wet bulb probe Model: HP3201.2 S/N: 13035045.  
Dimension: Diameter 3.3 mm, Length 170 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.061	20.1	0.0	0.099
80	25.056	25.1	0.0	0.079
80	30.046	30.1	0.1	0.099
80	35.036	35.1	0.1	0.099
80	40.028	40.1	0.1	0.099

Table 2: This equipment was connected with Globe thermometer probe Model: TP3276.2 S/N: 15022053.  
Dimension: Diameter 3.3 mm, Length 205 mm.

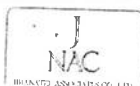
Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
110	20.061	20.1	0.0	0.099
110	25.056	25.1	0.0	0.099
110	30.046	30.1	0.1	0.099
110	35.036	35.1	0.1	0.099
110	40.028	40.1	0.1	0.099

Table 3: This equipment was connected with temperature probe Model: TP3207.2 S/N: 16010556.  
Dimension: Diameter 14 mm, Length 150 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
75	20.061	20.1	0.0	0.099
75	25.056	25.1	0.0	0.099
75	30.046	30.0	0.0	0.099
75	35.036	34.9	-0.1	0.099
75	40.028	39.9	-0.1	0.099

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
5344 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG, BANGKOK 10250  
TEL. 0-2717-3000-24 FAX. 0-2719-9484



**Certificate of Calibration**

Certificate No. : 24PH3  
Page : 1 of 2

Equipment : Lux Meter

Manufacturer : Extech

Model : 407026

Serial No. : A 080282

ID No. : BKK\_F51344

Condition As-Received: Used item

Received Date: 04 January 2024

Calibration Date: 08 January 2024

Reference: 2401-0065WSC

Ambient Temperature: ( 23 ± 2 ) °C

Relative Humidity: ( 50 ± 15 ) %

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except with the prior written approval of the head of  
Corporate Services 3: Equipment Calibration and Testing Services

Submitted by: ALS Laboratory Group (Thailand) Co., Ltd

104 Phatthanakan 40, Phatthanakan Rd.,

Khwaeng Phatthanakan, Khet Suan Luang,

Bangkok 10250 Thailand

Procedure used: Calibration were conducted using calibration procedure No. CP-PHD1 based on inverse square law technique.

**Condition of this result of calibration**

1 Reference standards instruments :

Instrument	Model	Serial No.	Certificate No.	Due Date
1) Photometry & Encorder	LMGulke 9,6 m	120RC003	DL-0064-22	20 Jul 2025
2) High-accuracy Irradiance Standard	OL-FEL-U	F-1473	TP-1028-23	14 Feb 2024

2. This result of calibration was made on request at the point specified by customer.

3. Test Equipment : Programmable Voltage/Current Source ( Model : OL89A, SN : 16221394 )

4. Test Equipment : Illuminance Meter ( Model : S1002, SN : 080129 )

5. The certificate is valid only to the item calibrated on date and place of calibration.

6. This Calibration is traceable to the International System of Unit maintained through:

- National Institute of Metrology Thailand (NIMT)

- National Institute of Metrology (Thailand), NSC-ONSC Accredited No. Calibration 0144

Handwritten signature and date: 8/1/25

Calibrated by : Nival Nilas  
Issue Date : 11 January 2024

Approved Signatory :

Handwritten signature of Pholinee Prabpai  
Pholinee Prabpai  
Chaiwan Khunpiak  
Nunlawa Khanchai

B 0332422





Cert. No.: 24PH3  
Page.: 2 of 2

Result of calibration: ( \* ) Without adjustment ( ) After adjustment

Function : Illuminance Measurement	Standard Value	UUC* Reading	Error	Uncertainty
	( lx )	( lx )	( lx )	( ± lx )
	0	0	0	-
	15	15	0	0.61
	100	102	2	1.4
	500	503	3	6.5
	1000	993	-7	13
	1500	1480	-20	20
	1900	1867	-33	25

Function : Illuminance Measurement	Standard Value	UUC* Reading	Error	Uncertainty
	( lx )	( lx )	( lx )	( ± lx )
	2000	2000	0	26
	3000	3000	0	39
	4000	3970	-30	52
	5000	4920	-80	65

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95 %

Light source factor setting mode : L  
UUC\* = Unit Under Calibration.

-000-

a 1196766



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, BANGKOK 10250  
TEL. 0-2717-3000-24 FAX 0-2719-9484



## Certificate of Calibration

Certificate No.: 24PH193  
Page: 1 of 2

Equipment : Lux Meter  
Manufacturer : Delta OptiM  
Model : 2102.2  
Serial No.: 16002028  
ID No.: BKK\_FG0806  
Condition As-Received: Used Item  
Received Date: 01 April 2024  
Calibration Date: 04 April 2024  
Reference: 2404-0335WSC  
Ambient Temperature: ( 23 ± 2 ) °C  
Relative Humidity: ( 50 ± 15 ) %  
Submitted by: ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand  
Procedure used: Calibration were conducted using calibration procedure No. CP-PH01 based on inverse square law technique.

### Condition of this result of calibration

#### 1. Reference standards instruments :

Instrument	Model	Serial No.	Certificate No.	Due Date
1) Photometry & Encoder	LMguide 9.6 m	12GRG200	DL-0064-22	20 Jul 2025
2) Luminous intensity standard lamp	OL FEL-U	F-1543	TP-1030-23	08 Jun 2024

2) This result of calibration was made on: requested at the point specified by customer.  
3) Test Equipment : Programmable Voltage/Current Source ( Model : OL81A, SN : 16221354 ).  
4) Test Equipment : Illuminance Meter ( Model : 51022, SN : 080129 ).  
5) The certificate is valid only to the item calibrated on date and place of calibration.  
6) This Certification is traceable to the International System of Unit maintained through :  
- National Institute of Metrology Thailand (NIMT)  
- National Institute of Metrology (Thailand), NSC-ONSC Accredited No. Calibration 0144

Calibrated by : Nival Nilas  
Issue Date : 05 April 2024

Approved Signatory :  
( ) Phalinee Prapaisap  
( ) Chatchawan Khunpluek  
(x) Nunkaew Khomcha

B 0338943



Cert. No.: 24PH193  
Page.: 2 of 2

Result of calibration: ( \* ) Without adjustment ( ) After adjustment

Function : Illuminance Measurement	Standard Value	UUC* Reading	Error	Uncertainty
	( lx )	( lx )	( lx )	( ± lx )
	0	0.00	0.00	-
	15	15.54	0.54	0.20
	100	97.65	-2.35	1.3
	500	489.8	-10.2	6.5
	1000	981.9	-18.1	13
	2000	1905.9	-14.1	26
	3000	2999	-1	39

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95 %

Calibration with Probe S/N : 15030918  
UUC\* = Unit Under Calibration.

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a 1210187



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, BANGKOK 10250  
TEL 0-2717-3000-29 FAX 0-2719-9484



## Certificate of Calibration

Cert.No.: 24CH1295  
Page.: 1 of 3

Equipment : pH Meter  
Manufacturer : Hach  
Model : HQ411d  
Serial No.: 200100031163  
ID No.: BKK\_EN0342  
Condition As-Received: Used Item  
Received Date: 16 October 2024  
Calibration Date: 17 October 2024  
Reference: 2410-0548DSC-5  
Submitted by: ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand  
Ambient Temperature : (25 ± 2.5) °C  
Relative Humidity : (50 ± 15) %  
Calibration Procedure : In - house method :  
- CP-CH5 by direct measurement with certified reference material (CRM)  
- CP-CH8 by comparison with temperature standard  
Calibrated by : Warakorn Lemgagtrakul  
Approved by : Sathip  
Approved Signatory  
( ) Unnopphol Harachai  
( ) Ponpan Palpin  
(x) Sathip Meangmai  
Issue Date : 21 October 2024

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.



Cert.No.: 24CH1295  
Page.: 2 of 3

#### Condition of this calibration result

##### 1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Ref. Standard Thermometer	2188080	130RC044	2411022	16 Sep 2025

- This Certification is traceable to SI Through Technology Promotion Association (Thailand - Japan)

##### 2. Certified Reference Materials

:The measurement results are traceable to SI through Hach Lange GmbH Ltd.,  
Deutsche Akkreditierungsstelle, Accredited No.D-RM-15184-01-00

:The measurement results are traceable to SI through CPA chem Ltd.,  
ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	1034203	27 Sep 2026
pH 6.999	Hach Lange GmbH	C03145	28 Feb 2026
pH 10.010	CPA chem	1034205	27 Sep 2025

3. This certificate is valid only to the item calibrated on date and place of calibration.

#### Calibration Results

##### Function: pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4,7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (±)	Coverage factor k
pH Electrode	4.008	4.028	174.6	0.0044	2.00
S/N: 230473042902	6.999	7.014	1.4	0.0084	2.05
	10.010	10.018	-172.8	0.0066	2.00

**Remark** - Can not connect the BNC because the plug does not match with the socket.



Cert.No.: 24CH1295  
Page.: 3 of 3

#### Calibration Results

##### Function: Temperature Measurement

(\*) Without adjustment

This equipment was connected with Temperature Probe;

- Model :	PHC281
- Serial No. :	230473042902
Dimension of probe	
- Length :	103 mm.
- Diameter :	12 mm.
- Immersion Depth :	90 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor k
25.0	25.002	25.0	-0.002	0.13	2.00

**Remark** : UUC\* = Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL 0-2717-3000-29 FAX 0-2719-9484



## Certificate of Calibration

Cert.No.: 24CG952  
Page.: 1 of 2

Equipment : Burette

Capacity : 50 mL

Serial No. :

ID. No. : BKK\_EN0171

Manufacturer :

Made in : Germany

Submitted by :

ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand

Ambient Temperature : (20 ± 2.5) °C

Relative Humidity : (50 ± 10) %

Barometric Pressure : 760 mmHg

Calibration Procedure : ASTM E 542 - 01

Calibrated by :

Natcha Chayyingsheiw

Approved by :

Approved Signatory

( ) Unnopphol Harachal

(✓) Srisuda Khamtha

( ) Sa-ngaeunkam Wongsu

Issue Date :

27 February 2024

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written  
Approval of the head of Corporate Services 3: Equipment Calibration and Testing Services



Equipment : Burette  
Received Date : 23 February 2024  
Condition As-Received : New Item  
Calibration Date : 27 February 2024  
Reference : 2402-0757DSC-1

Cert.No.: 24CG952  
Page.: 2 of 2

#### Condition of this result of calibration

##### 1. Reference Standard Instruments :

Instruments	Model	Serial No.	ID. No.	Certificate No.	Traceability	Due date
1) Balance	XP205DR	1126143764	140RC004	23MM538	TPA	15 Sep 2024
2) Thermo-Hygrograph	THDX-CE	00016540	140EC001	23H11275	TPA	09 June 2024
3) Thermometer	-	0834181	140EC005	231948	TPA	10 Aug 2024

This certification is traceable to SI Unit

- The certificate is valid only to the item calibrated on date and place of calibration.
- True value is converted to true volume at the standard temperature of 20 °C

#### Calibration result :

Nominal capacity (mL)	Reading (mL)	Uncertainty (± mL)	k Factor
50	50.0032	0.010	2.00

**Remark** mL = cm<sup>3</sup>

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

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## Metrology

SCI ECO Services Company Limited


33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.  
Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100  
Bangkok Tel : +668 9205 6851, +669 8247 2360  
Website : www.scieco.co.th E-Mail : calibrate@scg.com

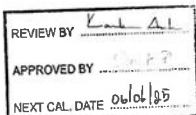


Certificate No. T232160

Page 1 of 4

### Certificate of Calibration

Equipment : Chamber (Cooling Room)  
Manufacturer : KOLDTECH  
Model : KM 320  
Serial No. : TBN-1012061/05  
Customer Code : BKK\_EN0167  
ID No. : T2463A3  
Customer : ALS Laboratory Group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,  
Khet Suan Luang, Bangkok 10250  
Customer Location : Laboratory  
Date of Receipt : 29 November 2023  
Calibrated By : Atiphong Rongrat (Technician)  
Approved By :  Boonchai Suriyawong (Site Calibration Manager)  
Date of Issue : 09 JAN 2024



The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrology.

FM-L14 119/18-08-66



## Metrology

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.



Certificate No. T232160

Page 2 of 4

### Calibration Report

Equipment : Chamber (Cooling Room)  
Date of Calibration : 6 December 2023  
Environment : Temperature : 23.4-24.9 °C  
Line Voltage : 221.4-230.2 V  
Relative Humidity : 55 - 65 %RH

#### Condition of this results of calibration :

1. This equipment was calibrated by insert 16 standard thermocouples type T into its chamber, the other one standard thermocouples type T use for ambient temperature measurement. The calibration was done in according to WI-T20 (based on ASTM E145-94 (Reapproved 2001) and AS2853-1986).  
All data show below were final values and the initial data from customer request. The temperature scale used was based on ITS - 90.

#### 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN161-TN170	T230773	10 April 2024
TC	TYPE T	TN171-TN180	T230773	10 April 2024
DATA LOGGER	34970A	T149	T230773	10 April 2024

#### 3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TISI-TIS 17025 CALIBRATION 0244).

#### 4. Condition of calibrated item : good

Equipment Description :  
Time Constant : 1 Hour  
Fresh Air Damper : ☐ Open ☒ Min ☐ Medium ☐ Max  
☐ Close  
☒ Not Available

5. Adjustment :  
( X ) without adjustment ( ) after adjustment

Approved By: 

FM-L15 118/18-08-66



## Metrology

SCI ECO Services Company Limited

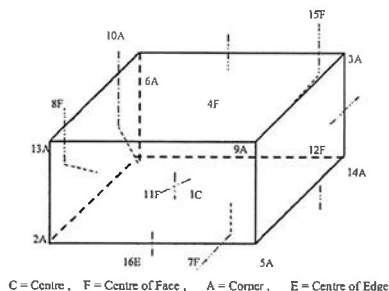
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.



Certificate No. T232160

Page 3 of 4

### Calibration Report



1C = TN161	12F = TN172
2A = TN162	13A = TN173
3A = TN163	14A = TN174
4F = TN164	15F = TN175
5A = TN165	16E = TN176
6A = TN166	
7F = TN167	
8F = TN168	
9A = TN169	
10A = TN170	
11F = TN171	

Approved By: 

FM-L15 118/18-08-66



## Metrology

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.



Certificate No. T232160

Page 4 of 4

### Calibration Report

#### Measurement Results

Calibration Point	Average Standard Reading at each position (°C)									
	TN161	TN162	TN163	TN164	TN165	TN166	TN167	TN168	TN169	TN170
3.0	2.83	3.34	2.95	3.46	3.45	3.76	3.25	3.46	3.39	3.50
	TN171	TN172	TN173	TN174	TN175	TN176				
	3.33	3.39	3.15	3.43						

Chamber (Cooling Room)			Temperature Distribution				
Setting (°C)	Reading (°C)		Average (°C)	Stability (±°C)	Uniformity (°C)	Uncertainty (±°C)	Coverage Factor k
	Min	Max					
3.0	2.8	4.1	3.5	3.36	1.10	2.00	1.90

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By: 

FM-L15 118/18-08-66

Sartorius (Thailand) Co., Ltd.  
120 Rama 9 Road, Huaywang, Bangkok 10310  
Tel : 02-2643 8261-6 Fax : 02-2643 8267 E-mail : service.thailand@sartorius.com



REVIEW BY: *Jinda K.*  
APPROVED BY: *Chit P.*  
CALIBRATION DATE: 02/08/25  
NEXT CAL DATE: 02/08/25

# Certificate of Calibration

Model Number: **MSE2245-100-DU** Certificate No.: **24BC0270**  
Description: **Analytical Balance** Issued Date: **Monday, August 05, 2024**  
Serial Number: **0027405555** Reference No.: **240942**  
ID No.: **BKK\_EN0003**  
Manufacturer: **Sartorius** Page No.: **1 of 2**

Customer Name: **ALS Laboratory Group (Thailand) Co., Ltd.**  
**104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Suan Luang, Khet Suan Luang, Bangkok 10250**

Calibrated Place: **Lab Room**

Calibrated By: **Mr. Chonchai Inthana**  
Calibration Date: **Friday, August 02, 2024**

Metrological data:  
Capacity: **220** g Readability: **0.0001** g  
Temperature: **23.0** °C ± **5.0** °C  
Humidity: **55.0** % RH ± **10.0** % RH  
Pressure: **1013** hPa

Reasons for calibration: ☒ New Installation ☐ Service / Repair ☐ Re-confirmation / Maintenance

Equipment Condition: ☒ Good ☐ Fair

Measurement Method: **UKAS Publication Ref: Lab 14**

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 calibration certificate documents the traceability to National Standards, which realise the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came from list of Sartorius Metrological Specifications.

## Traceability:

Model Number	Description	Traceability	Certificate No.	Due Date
YCS011-522-00	Sartorius weight set 1mg - 5000g F2/YCS011-522-00	ITS	M23061975	23-Aug-2025
Testo 174 H	Thermo-Hygrometer, Testo 174H	ENTECH	HT 661303.H661140	12-Nov-2024

This certificate relates and apply the equipment only.  
This certificate may not be reproduced other than in full except with the prior written approval of the Verification Operation Division Sartorius (Thailand) Co., Ltd.

*Chonchai Inthana*  
Mr. Chonchai Inthana (Technical Manager)



SOP FM 33 03 February 2022

Sartorius (Thailand) Co., Ltd.  
120 Rama 9 Road, Huaywang, Bangkok 10310  
Tel : 02-2643 8261-6 Fax : 02-2643 8267 E-mail : service.thailand@sartorius.com

SARTORIUS

# Certificate of Calibration

Model Number: **MSE2245-100-DU** Certificate No.: **24BC0270**  
Description: **Analytical Balance** Issued Date: **Monday, August 05, 2024**  
Serial Number: **0027405555** Reference No.: **240942**  
ID No.: **BKK\_EN0003**  
Manufacturer: **Sartorius** Page No.: **2 of 2**

## Calibration Results: Without Adjustment

Repeatability			Eccentricity (Off-center loading error)		
The repeatability is the ability of a weighing instrument to display nearly identical results under constant test conditions when the same load within a measurement range is placed repeatedly on the weighing pan in the same manner. The standard deviation is used to express repeatability.			The off-center loading error is defined by the difference between the result of the load in 10% or 10% of maximum capacity placed in the middle of the weighing pan and between each of four additional measurement points (positions defined according to OIML R110).		
Nominal Value: [Low Load]	20.0000	200.0000	Nominal value:	100	9
20 g	20.0000	199.9999	Tolerance	0.0004	9
Tolerance	0.0001	0.0000			
Nominal Value: [High Load]	20.0000	200.0000			
200 g	20.0000	200.0000			
Tolerance	0.0001	0.0000			
Standard Deviation	0.00004	0.00004			

Linearity				
The linearity, also called linearity error, describes the deviation of the characteristic curve of a weighing instrument from the linear slope.				
Tolerance	0.0002	g		
Nominal Value	Conventional Mass Value	Displayed Value	Deviation	Uncertainty
(g)	(g)	(g)	(g)	(g)
0.01	0.0100	0.0100	0.0000	0.00015
0.1	0.1000	0.1000	0.0000	0.00015
1	1.0000	1.0000	0.0000	0.00015
2	2.0000	2.0000	0.0000	0.00015
5	5.0000	5.0000	0.0000	0.00015
10	10.0000	10.0000	0.0000	0.00015
20	20.0000	20.0000	0.0000	0.00015
50	50.0000	50.0001	0.0001	0.00016
100	100.0000	100.0001	0.0001	0.00019
200	200.0000	200.0000	0.0000	0.00029

SOP FM 33 03 February 2022



## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhro, Saraburi 18110, Thailand  
Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100  
Bangkok Tel : +668 9205 6951, +668 9247 2360

Website : www.scieco.co.th E-Mail : calibrate@scg.com



Certificate No. T231303

Page 1 of 3

## Certificate of Calibration

Equipment: **Liquid Bath (Water)**  
Manufacturer: **MEMMERT**  
Model: **WNB29**  
Serial No.: **L611.0135**  
Customer Code: **BKK\_EN0148**  
ID No.: **T6455A4**  
Customer: **ALS Laboratory Group (Thailand) Co., Ltd.**  
**104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250**  
Customer Location: **ORGANIC PREPARATION LAB**  
Date of Receipt: **27 June 2023**  
Calibrated By: **Sujjar Nakuakred (Site Calibration Manager)**  
Approved By: **Boonchai Suriyawong (Site Calibration Manager)**  
Date of Issue: **11 JUL 2023**

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-14118 31-08-62



## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhro, Saraburi 18110, Thailand



Certificate No. T231303

Page 2 of 3

## Calibration Report

Equipment: **Liquid Bath (Water)**  
Date of Calibration: **4 July 2023**  
Environment: **Temperature : 22.2-22.5 °C**  
**Line Voltage : 221.6-224.8 V**  
**Relative Humidity : 55-65 %RH**

### Condition of this results of calibration :

- This equipment was calibrated by insert five resistance thermometer detectors into its water bath, the other one thermocouple type T use for ambient temperature measurement. The calibration was done in according to WI-T36 (based on ASTM E715-80 (Reapproved 2001)). All data show below were final values and the initial data from customer request. The temperature scale used was based on ITS - 90.
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 OIIM	M18 (CH1, CH6-CH7, CH9-CH10)	T230545	10 April 2024
DATA LOGGER	34970A	TJ49	T230545	10 April 2024
- This certificate is traceable to : National Institute of Metrology (Thailand) through Metrological Center (NIST-TIS 17025 CALIBRATION 0244).
- Condition of calibrated item : good  
Equipment Description :  
Time Constant : **3** Hour **45** Minute At **60** °C
- Adjustment :  
( X ) without adjustment ( ) after adjustment

Approved By: *Boonchai Suriyawong*

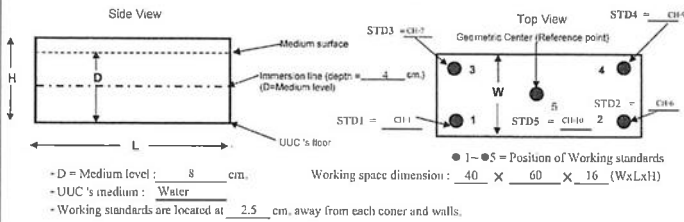
FM-14118 15-08-63



Certificate No. T231303

Page 3 of 3

### Calibration Report



#### Measurement Results:

Calibration Point	Average Standard Reading at each position (°C)				
	CH-1	CH-6	CH-7	CH-9	CH-10
60	60.03	60.06	60.24	60.11	60.18
85	84.79	84.83	85.42	85.05	85.20
95	93.71	93.83	94.62	94.15	94.42

Liquid Bath (Water)		Temperature Distribution				
Setting (°C)	Reading (°C)		Average (°C)	Stability (±°C)	Uniformity (±°C)	Uncertainty (±°C)
	Min	Max				
61.0	60.9	61.1	61.0	0.13	0.19	0.29
86.0	85.8	86.2	86.0	0.19	0.47	0.44
95.0	94.6	95	94.9	0.32	0.65	0.55

\* The quoted uncertainty exclude "uniformity"  
The calibration result apply only the above calibrated item.  
The result of test was found accurate as shown on date and place of test only.  
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k$  which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By:

FM-L15 11/15-05-67



Certificate No. T240904

Page 1 of 3

### Certificate of Calibration

Equipment : Chamber (Oven)

Manufacturer : Memmert

Model : UF 450

Serial No. : B717.0531

Customer Code : BKK\_EN0273

ID No. : T8042A4

Customer : ALS Laboratory Group (Thailand) Co.,Ltd.

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,

Khet Suan Luang, Bangkok 10250

Customer Location : Laboratory (Oven Room)

Date of Receipt : 08 May 2024

Calibrated By : Preecha Phisassutthikul (Temperature Calibration Manager)

Approved By : / Nuaon Sungchum (Metrology Manager)

Date of Issue : 23 MAY 2024

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrology.

FM-L14 11/918-08-66



Certificate No. T240904

Page 2 of 3

### Calibration Report

Equipment : Chamber (Oven)  
Date of Calibration : 14 May 2024  
Environment : Temperature : 26.5-28.1 °C  
Line Voltage : 226.7-229.8 V  
Relative Humidity : 51 - 57 %RH

#### Condition of this results of calibration :

1. This equipment was calibrated by insert nine resistance thermometer detectors into its chamber, the other one resistance thermometer detector use for ambient temperature measurement. The calibration was done in according to WI-T20 (based on ASTM E145-94 (Reapproved 2001) and AS2853-1986).  
All data show below were final values and the initial data from customer request. The temperature scale used was based on ITS - 90.

#### 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 ohm	21-(CH1-10)	T231955	17 November 2024
DATA LOGGER	34970A	T121	T231955	17 November 2024

#### 3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TIS-TIS 17025 CALIBRATION 0244).

#### 4. Condition of calibrated item : good

##### Equipment Description :

Time Constant : 1 Hour 30 Minute At 104 °C  
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max  
☒ Close  
☒ Not Available

#### 5. Adjustment :

( X ) without adjustment ( ) after adjustment

Approved By:

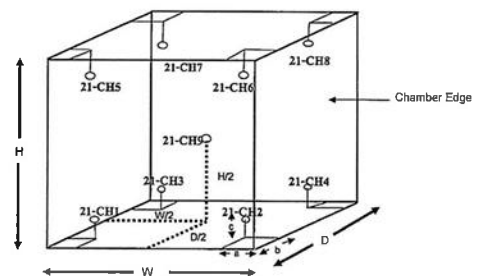
FM-L15 11/18/08-66



Certificate No. T240904

Page 3 of 3

### Calibration Report



#### Remark :

Internal Dimensions of Chamber : W (Width) = 104 cm, H (Height) = 72 cm and D (Depth) = 60 cm.  
Size of Installed Standard sensor number 21-CH1 to number 21-CH9 : a = 5 cm, b = 5 cm and c = 5 cm.  
Size of Installed Standard sensor number 21-CH9 : W/2 = 104 cm/2, H/2 = 72 cm/2 and D/2 = 60 cm/2

#### Measurement Results

Calibration Point	Average Standard Reading at each position (°C)								
	21-CH1	21-CH2	21-CH3	21-CH4	21-CH5	21-CH6	21-CH7	21-CH8	21-CH9
104	103.4	103.0	103.7	103.6	103.3	104.6	103.3	104.0	103.9
180	179.5	181.1	179.2	179.5	179.0	181.3	179.8	179.9	180.2

Chamber (Oven)		Temperature Distribution				
Setting (°C)	Reading (°C)		Average (°C)	Stability (±°C)	Uniformity (°C)	Uncertainty (±°C)
	Min	Max				
104.0	103.9	104	103.85	0.14	1.27	0.44
180.0	179.9	180.1	180.0	0.39	2.29	0.76

\* The quoted uncertainty exclude "uniformity"  
The calibration result apply only the above calibrated item.  
The result of test was found accurate as shown on date and place of test only.  
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k$  which for a t-distribution, providing a level of confidence of approximately 95 %.

End of Certificate

Approved By:

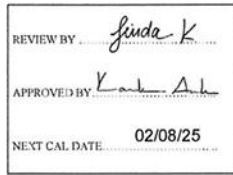
FM-L15 11/18/08-66



Cert.No.: 24TW28  
Page.: 1 of 2

## Certificate of Testing

Equipment : DO Meter  
Manufacturer : YSI  
Model : 5100  
Serial No. : 15L103204  
ID No. : BKK\_EN0205  
Received Date : 01 February 2024  
Test Date : 02 February 2024  
Reference : 2402-0008DSC-10  
Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand  
Laboratory Condition : Temperature (  $25 \pm 5$  ) °C  
Humidity (  $50 \pm 20$  ) %  
Test Procedure : In - house method : CP-CH9  
by Comparison Technique with Azide Modification Method  
Tested by : Walalak Sriithean  
Approved by :   
Approved Signatory  
(✓) Saithip Meangmal  
( ) Warakorn Lernagatrakul  
( ) Ponpan Palpim  
Issue Date : 7 February 2024



Cert.No.: 24TW28  
Page.: 2 of 2

### Condition of this result of calibration

1. Reference Standard Instruments :  
This certification is traceable to the International System of Unit through the reference standards  
laboratory of Industrial Calibration Center, Technology Promotion Association (Thailand-Japan).

Instruments	Serial No.	ID No.	Certificate No.	Due Date
1. Burette	-	130BU10	23CG1172	22 Mar 2025
2. Balance	1124013382	140RC006	23MM18	20 Feb 2024

### 2. Standard Material :-

Material	Manufacturer	Lot.No.	Assay
Sodium Thiosulfate pentahydrate	Merck	AM1763316	100.2%

Result : Dissolved Oxygen Meter Adjustment With Air 100 %  
Dissolved Oxygen Probe No.: 17A100064

Titration Method (Azide Modification Method) (mg/L)	DO Meter Reading (mg/L)	Standard Deviation (mg/L)
8.18	8.18	0.0055

This report was certified only for the instrument we tested. It is allowable to use for study  
intend to use for advertising and referral purpose is prohibited. This report may not be reproduced  
other in full, without written approval of the laboratory

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Cert. No.: 24LM15  
Page.: 1 of 2

## Certificate of Calibration

Equipment : DO Meter with Sensor  
Manufacturer : YSI  
Model : 5100  
Serial No. : 15L103204  
ID No. : BKK\_EN0205  
Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khet Suan Luang,  
Bangkok 10250 Thailand  
Location : TPA Chemistry Calibration Laboratory  
Received Order : 01 February 2024  
Calibrated Date : 02 February 2024  
Ambient Temperature : (  $26 \pm 10$  ) °C  
Relative Humidity : (  $50 \pm 30$  ) %  
AC Line Voltage : (  $220 \pm 22$  ) V  
Calibrated by : Warakorn Lernagatrakul  
Approved by :   
Approved Signatory  
( ) Pormthippa Tameyakul  
( ) Ponpan Palpim  
(✓) Suwit Imjai  
Issue Date : 7 February 2024

The Uncertainties are for a confidence probability of approximately 95%  
This certificate may not be reproduced other than in full, except with the prior written  
Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services



Equipment : DO Meter with Sensor  
Condition As-Received : Used Item  
Reference : 2402-0008DSC-13  
Procedure Used :-

Cert. No.: 24LM15  
Page.: 2 of 2

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with  
Industrial Platinum Resistance Thermometer ( IPRT ) Into Temperature Bath.  
The temperature scale used was based on ITS-90.

### Condition of this result of calibration

1. Reference standard instrument-  

Instrument	Serial No.	Cert. No.	Traceable	Due Date
1) Digital Thermometer	2188080	23I1216	TPA	11 Oct 2024

  
2. This certificate is valid only to the item calibrated on date and place of calibration.  
3. This certification is traceable to the International System of Unit.  
Remark : TPA : Technology Promotion Association ( Thailand - Japan )

Result of Calibration :- ( \* ) Without Adjustment  
Function : Temperature measurement.

This instrument was connected with temperature sensor, S/N: 17A100064

Calibration Point ( °C )	Immersion Depth ( mm )	Standard Temperature ( °C )	UUC* Reading ( °C )	Error ( °C )	Uncertainty ( ± °C )	Coverage Factor k
20.0	80	20.003	19.92	-0.083	0.15	2.00

UUC\* : Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a  
coverage factor k, providing a level of confidence of approximately 95 %.

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QUALITY CALIBRATION CO.,LTD.  
235 Petchkasem 63/2 Road, Laksong, Bangkok, Bangkok 10160  
Tel (662) 421-5402, (662) 444-0152-3, Fax (662) 809-4584  
www.qualitycalibration.com



CERTIFICATE No : 24T2851  
REFERENCE No : 72619-7

PAGE : 1 OF 2

### Certificate of Calibration

EQUIPMENT : COOLED INCUBATOR  
MANUFACTURER : MEMMERT  
MODEL : ICP750  
SERIAL No : F818.0075  
ID No : BKK\_EN0305  
CONDITION AS RECEIVED : USED ITEM  
SUBMITTED BY : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN RD., KJWAENG  
PHATTHANAKAN, KHET SUAN LUANG, BANGKOK 10250,  
THAILAND

REVIEW BY *Juda K*  
APPROVED BY *Srikul P*  
NEXT CAL DATE *30/03/25*

CALIBRATED BY : CHACHARN CH.  
CALIBRATION DATE : 20-Mar-24

APPROVED BY : *[Signature]*  
PONGSAK J.

ISSUED DATE : 21-Mar-24

RECEIVED DATE : 20-Mar-24

THIS CERTIFICATE MAY NOT BE REPRODUCED OTHER THAN IN FULL, EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF  
QUALITY CALIBRATION CO., LTD.

F-G010 REV : 03



QUALITY CALIBRATION CO.,LTD.  
235 Petchkasem 63/2 Road, Laksong, Bangkok, Bangkok 10160  
Tel (662) 421-5402, (662) 444-0152-3, Fax (662) 809-4584

CERTIFICATE No : 24T2851

PAGE : 2 OF 2

### Calibration Report

EQUIPMENT : COOLED INCUBATOR  
MANUFACTURER : MEMMERT  
MODEL : ICP750  
ID No : BKK\_EN0305  
RECEIVED DATE : 20-Mar-24  
AMBIENT TEMPERATURE : 27 °C ± 1 °C  
S/N : FR18.0075  
CALIBRATION DATE : 20-Mar-24  
RELATIVE HUMIDITY : 53 %RH ± 10 %RH

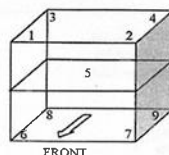
#### CONDITION OF THIS RESULTS OF CALIBRATION

1. THIS INSTRUMENT WAS CALIBRATED ACCORDING TO TLAS G-20 BY COMPARISON WITH CALIBRATED RTD P100 UNDER NO LOAD CONDITION. THE TEMPERATURE PROBES WERE PLACED ON NINE POINTS AND LOCATED ONE THERMOMETER PROBE IN EACH OF THE EIGHT CORNERS OF THE CHAMBER AND WAS AWAY FROM THE EACH WALL OF 5 cm TO 10 cm AND PLACED THE NINTH THERMOMETER PROBE WITHIN 2.5 cm OF THE GEOMETRIC CENTER OF THE CHAMBER. THE UNIFORMITY WAS MEASURED BETWEEN REFERENCE PROBE AND OTHER PROBES AT THE SAME TIME.

#### 2. REFERENCE STANDARD INSTRUMENTS :-

INSTRUMENT : DATA LOGGER WITH RTD  
MODEL : HYDRA 2635A  
SERIAL No : 6635300  
CERTIFICATE No : 2376637  
DUE DATE : 19-Jul-24  
1) DATA LOGGER WITH RTD  
3. THE CERTIFICATE IS VALID FOR THE ITEM CALIBRATED AS SHOWN ON THE DATE AND PLACE OF CALIBRATION ONLY.  
4. THIS RESULT EXCLUDE LONG TERM STABILITY OF THE UNIT UNDER CALIBRATION.  
5. THIS CERTIFICATE IS TRACEABLE TO THE INTERNATIONAL SYSTEM OF UNIT MAINTAINED AT :-  
- NATIONAL INSTITUTE OF METROLOGY (THAILAND) THROUGH QUALITY CALIBRATION CO., LTD.

#### RESULT OF CALIBRATION :- WITHOUT ADJUSTMENT



#### GENERAL INFORMATION

Overall Ambient Temperature around the Chamber (°C) variation : 0  
Overall Line Voltage (V) variation : 2  
Instrument Condition : Normal

#### CHAMBER PERFORMANCE

Controller Temperature (°C)	Indicating Temperature (°C)	Temperature Stability (±°C)	Temperature Uniformity (°C)	Overall Variation (°C)
20.0	20.0	0.03	0.24	0.38
25.0	25.0	0.07	0.22	0.36

#### TEMPERATURE MEASUREMENT ACCURACY TEST

Controller Temp (°C)	Indicating Temp (°C)	#1	#2	#3	#4	Ref. 5	#6	#7	#8	#9	Uncertainty (± °C)
20.0	20.0	19.53	19.73	19.63	19.74	19.72	19.70	19.84	19.71	19.75	0.25
25.0	25.0	24.66	24.81	24.68	24.81	24.81	24.83	24.91	24.85	24.91	0.25

NOTE 1 : THE UNCERTAINTY OF MEASUREMENT EXCLUDED TEMPERATURE UNIFORMITY OF THE CHAMBER.

NOTE 2 : LOCATION 5 WAS REFERENCE LOCATION.

NOTE 3 : THIS CALIBRATION WAS CARRIED OUT AT THE CUSTOMER'S PLACE AT LABORATORY AREA.

THE REPORTED UNCERTAINTY OF MEASUREMENT WAS BASED ON A STANDARD UNCERTAINTY MULTIPLIED BY A COVERAGE FACTOR k=2, PROVIDING A LEVEL OF CONFIDENCE APPROXIMATELY 95%.

END OF CALIBRATION REPORT

F-G010 REV : 03



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES  
534/4 PATTANAKARN ROAD SOI 18, SUAN LUANG, SUANLUANG BANGKOK 10250  
TEL 0-2717-3000-29 FAX 0-2719-9484



### Certificate of Calibration

Cert.No.: 24CH253  
Page.: 1 of 2

Equipment : pH Meter  
Manufacturer : Mettler Toledo  
Model : Seven2Go  
Serial No. : B553912470  
ID No. : BKK\_LG0031  
Condition As-Received : Used Item  
Received Date : 23 February 2024  
Calibration Date : 26 February 2024  
Reference : 2402-0757DSC-13  
Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khut Suan Luang,  
Bangkok 10250 Thailand

REVIEW BY *Chayathorn P.*  
APPROVED BY *Maratun P.*  
NEXT CAL DATE *26/02/25*

Ambient Temperature : (25 ± 2.5) °C  
Relative Humidity : (50 ± 15) %  
In - house method :  
Calibration Procedure : - CP-CH5 by direct measurement with DC voltage standard and direct measurement with certified reference material (CRM)

Calibrated by : Uthen Kankawil

Approved by : *Sailthip*  
Approved Signatory

( ) Pornthippa Tameyakul  
( ) Unnopphol Harachai  
(✓) Sailthip Meangmai

Issue Date : 26 February 2024

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services



Cert.No.: 24CH253  
Page.: 2 of 2

#### Condition of this calibration result

##### 1. Reference Standard Instrument

Instrument : Document Process Calibrator  
Serial No. : 46530031  
ID No. : 130RC098  
Cert. No. : 23E3105  
Due Date : 18 Sep 2024

This certification is traceable to the International System of Unit maintained through:-

- Technology Promotion Association (Thailand-Japan)

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd.,  
ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	940102	27 Nov 2025
pH 6.986	CPA chem	940104	02 Nov 2024
pH 9.997	CPA chem	940106	02 Nov 2024

3. This certificate is valid only to the item calibrated on date and place of calibration.

#### Calibration Results

##### Function : mV Measurement

##### Performing standard curve by Document Process Calibrator at pH (4,7,10)

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading	Uncertainty of Measurement	Coverage factor
	pH	mV	mV	(±mV)	k
pH Meter	4.00	177.48	177	0.58	2.00
S/N.: B553912470	7.00	0.00	0	0.58	2.00
	10.00	-177.48	-178	0.58	2.00

##### Function : pH Measurement

##### Performing three buffers standard curve by using buffer nominal pH (4,7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (±)	Coverage factor k
pH Electrode	4.008	4.01	173	0.0071	2.00
S/N.: 0191151	6.986	6.99	0	0.011	2.00
	9.997	10.00	-173	0.011	2.05

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

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## Certificate of Calibration

Cert. No.: 24LM27  
Page.: 1 of 2

Equipment : pH Meter with Sensor  
Manufacturer : Mettler Toledo  
Model : Seven2Go  
Serial No. : B553912470  
ID No. : BKK\_LG0031  
Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.,  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwaeng Phatthanakan, Khiet Suan Luang,  
Bangkok 10250 Thailand  
Location : TPA On Site Calibration Laboratory  
Received Order : 23 February 2024  
Calibrated Date : 27 February 2024  
Ambient Temperature : (26 ± 10) °C  
Relative Humidity : (50 ± 30) %  
AC Line Voltage : (220 ± 22) V  
Calibrated by : Warakorn Lerngagrakul  
Approved by :   
( ) Pornthipha Tameyakul  
( ) Unnopphol Harachai  
(✓) Suwit Imjai  
Issue Date : 27 February 2024

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services 3: Equipment Calibration and Testing Services.



Equipment : pH Meter with Sensor  
Condition As-Received : Used Item  
Reference : 2402-0757DSC-14  
Procedure Used :-

Cert. No.: 24LM27  
Page.: 2 of 2

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with Industrial Platinum Resistance Thermometer (IPRT) into Temperature Bath.  
The temperature scale used was based on ITS-90.

### Condition of this result of calibration

1. Reference standard instrument-

Instrument	Serial No.	Cert. No.	Traceable	Due Date
1) Digital Thermometer	2188080	231216	TPA	11 Oct 2024

2. This certificate is valid only to the item calibrated on date and place of calibration.

3. This certification is traceable to the International System of Unit.

Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (\*) Without Adjustment  
Function : Temperature measurement.

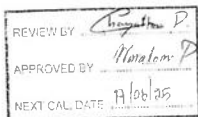
This instrument was connected with temperature sensor, S/N: 0191151

Calibration Point (°C)	Immersion Depth (mm)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty (± °C)	Coverage Factor k
20.0	100	20.004	20.1	0.096	0.16	2.00
25.0	100	25.004	25.1	0.096	0.16	2.00
30.0	100	30.003	30.1	0.097	0.16	2.00
35.0	100	35.004	35.2	0.196	0.16	2.00
40.0	100	40.002	40.2	0.198	0.16	2.00
45.0	100	45.004	45.2	0.196	0.16	2.00
50.0	100	50.001	50.2	0.199	0.16	2.00

UUC\* : Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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### Test Report

Customers	ALS Laboratory Group (Thailand) Co., Ltd.
Equipment	Colorimeter
Manufacturer	HACH
Model	DR5000 Pocket II
ID No.	BKK_LG0047
Controler Serial No.	21020602095
Sensor Serial No.	-
Date of test	17/05/2024
Period	1 Year
Environment temperature	25 °C
Humidity	60 %RH

### Results

Item	Characteristic	Before	After	Remark
1	Visual Inspect	Pass	Pass	
2	Power Supply (4.5 ~ 5.5 VDC)	6.0 VDC	6.0 VDC	
3	Display Check	Pass	Pass	
4	Keyboard Check	Pass	Pass	
5	Function System Program	Pass	Pass	

### Warning and Error Checked

Item	Event	Before	After
6	Error Set	None	None
		Appear	Appear

### Check with Standard

Item	Characteristic	Before	After	Remark
7	Blank (0.00 mg/L)	0.00 mg/L	0.00 mg/L	
8	Standard CD No. 1 (0.19 ± 0.09 mg/L)	0.20 mg/L	0.19 mg/L	
9	Standard CD No. 2 (0.87 ± 0.10 mg/L)	0.87 mg/L	0.87 mg/L	
10	Standard CD No. 3 (1.55 ± 0.14 mg/L)	1.50 mg/L	1.55 mg/L	
11	Blank (0.00 mg/L)	0.00 mg/L	0.00 mg/L	
12	Standard CD No. 1 (0.22 ± 0.02 mg/L)	2.2 mg/L	2.2 mg/L	
13	Standard CD No. 2 (3.9 ± 0.3 mg/L)	3.9 mg/L	3.6 mg/L	
14	Standard CD No. 3 (6.8 ± 0.6 mg/L)	6.7 mg/L	6.2 mg/L	



### Summary of checked

- ☒ The instrument can work normally and effectively. (เครื่องมือสามารถทำงานได้ตามปกติและใช้งานได้)
- ☒ The instrument can work reliably, resulting in no measurement error. (เครื่องมือสามารถทำงานได้อย่างน่าเชื่อถือและไม่เกิดข้อผิดพลาดในการวัด)
- ☐ The instrument could not work as it is according to specification. (เครื่องมือไม่สามารถทำงานได้ตามข้อกำหนด)

### Remark

### Standard Equipment Used

Equipment	Equipment ID
Standard Absorbance DPD-CHLORINE-4R	Lot No. A3000 Exp. date: Feb-25
Standard Absorbance DPD-CHLORINE-4R	Lot No. A4002 Exp. date: Feb-26
Digital multi meter	S/N: 19430516 Due date: 09-24
Thermometer	S/N: 45146.147 Due date: Aug-24

Test By

WIRALAK S.

Approved by

(Miss Wiralak Sawangpun)

(Mr Sumon Sanyangkul)

Service Engineer

Position

Assistant Service Division Manager



## Certificate of Calibration

Equipment: CONDUCTIVITY METER Certificate No.: C24230292  
Model: ORION STAR A215 Issued Date: 25 December 2023  
Serial No. (or ID.): X58031 Job No.: WO-00012662  
Manufacturer: Thermo Scientific Page: 1 of 2  
Electrode Serial No.: YV1-18416 Model: ORION D1300SMD Brand: Thermo Scientific  
Condition: In Condition

Customer: ALS Laboratory Group (Thailand) Co., Ltd.,  
104 Sol Pattanakarn 40, Pattanakarn Rd.,  
Suan Luang, Bangkok 10250 Thailand

Environment Condition: Temperature 21.7 °C ± 0.1 °C  
Humidity 53.7 %RH ± 0.1 %RH

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd., (Wet Chemistry Lab 2)  
104 Sol Pattanakarn 40, Pattanakarn Rd.,  
Suan Luang, Bangkok 10250 Thailand

Calibration By: Mr. Siwapan Srijan  
Calibration Date: 25 December 2023  
The Method used: In house method, CAL-WI-49, base on ASTM D 1125-14 and D 5391-14  
Traceability: This certificate is traceable to the SI Units maintained by CRM of NIST (SRM) through CPA chem Co., Ltd. (ISO/IEC 17034) Certificate No. 890590, 890591, 890592

(Mr. Siwapan Srijan)

Person in charge

This certificate is issued in accordance with 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, operated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

บริษัท เทคโนโลยี จำกัด  
DKSH Technology Limited  
2533 สุขุมวิท กรุงเทพมหานคร 10250  
2533 Sukhumvit Road, Bangkok, Thailand 10250  
Phone: +66 283 1500 Email: info@dksh.com Website: www.dksh.com/thailand

Delivering Growth - In Asia and Beyond.

CAL-FM-C24-09: 12 Sep 2022



Certificate No.: C24230292 Page: 2 of 2

### Calibration Results:

#### Before Adjustment

Standard Conductivity Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty (±)
84.000 µS/cm	92.64 µS/cm	-8.640 µS/cm	2.00	0.88 µS/cm
1413.0 µS/cm	1423 µS/cm	-10.0 µS/cm	2.00	11 µS/cm
12,880 mS/cm	12.81 mS/cm	0.070 mS/cm	2.00	0.10 mS/cm

After Adjustment : at 84.0 µS/cm, 1413 µS/cm, 12.88 mS/cm

Standard Conductivity Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty (±)
84.000 µS/cm	84.03 µS/cm	-0.030 µS/cm	2.00	0.68 µS/cm
1413.0 µS/cm	1414 µS/cm	-1.0 µS/cm	2.00	11 µS/cm
12,880 mS/cm	12.86 mS/cm	0.020 mS/cm	2.00	0.068 mS/cm

The End of Certificate

บริษัท เทคโนโลยี จำกัด  
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Delivering Growth - In Asia and Beyond.

CAL-FM-C24-09: 12 Sep 2022



## ใบตรวจสอบสภาพเครื่องวัดสิ่งแวดล้อม

เลขที่ใบงาน: WO-00012662

ชนิดเครื่อง: CONDUCTIVITY METER		รุ่น: ORION STAR A215	หมายเลขเครื่อง: X58031
ตรวจสอบ (รุ่น)		ตรวจสอบ (รุ่น)	หมายเหตุ
25 Dec 2023	รายการตรวจเช็ค	25 Dec 2023	
ปกติ	ไม่ปกติ	ปกติ	ไม่ปกติ
General			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. ความสมบูรณ์เครื่อง	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. ความสะอาด (ช่องใส่ตัวอย่าง, ถาดรับ-บอกเครื่อง)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. สวิตช์เปิด-ปิด เครื่อง (On-Off Switch)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. คีย์บอร์ด (Keypad)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. หน้าจอ (Display, Screen Contrast)	<input checked="" type="checkbox"/>
Spectrophotometer			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. แบตเตอรี่สำรอง (Battery Backup) >= 2.5 VDC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. ความแม่นยำความยาวคลื่น (Wavelength Control)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. ความยาวคลื่น (Wavelength Check)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. แหล่งกำเนิดแสง (UV < 3,000 hour)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. แหล่งกำเนิดแสง (Visible < 5,000 hour)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. ช่องใส่ตัวอย่าง (Carousel Module)	<input checked="" type="checkbox"/>
pH Meter and Conductivity Meter			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. อิเล็กโทรด (Electrode and Connection Cable)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. ระดับสารละลาย Electrode (Level KCl)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. ฝาปิดป้องกัน Electrode (Dust Protection Hood)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. ฐานยึดถือ (Stand)	<input checked="" type="checkbox"/>
Turbidimeter			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. ค่าความขุ่นที่ต่ำสุด (No Sample)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. ระดับการส่องสว่างของแสง (>= 2.5 ไมครอน 3.0)	<input checked="" type="checkbox"/>
Automatic titrator			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. สภาท Piston Burettes	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Function Rinsing and Dosing	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. ระบบปล่อยน้ำและดูดน้ำกลับ	<input checked="" type="checkbox"/>

ผู้ตรวจสอบ :

Mr. Siwapan Srijan  
Service Engineer

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CAL-FM-R31-03: 20 Jul 2022

BKJ\_EL0037

Agilent  
CrossLab  
From Insight to Outcome

## Agilent CrossLab Start Up Services

### Agilent 5100 5110 ICP-OES Preventive Maintenance

REVIEW BY	Thirina B.
APPROVED BY	Siwapan S.
NEXT CAL DATE	24/01/2025

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results.

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Revision A.02, Issued 21 January 2022  
Document Number: 69014-90075  
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Page 1 of 3



## Introduction

### Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

## Important Customer Web Links

- To access **Agilent University**, visit <http://www.agilent.com/resources/university/> to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit <https://www.agilent.com/en-us/agilentresources>. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit <https://community.agilent.com/welcome>.
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at <https://www.youtube.com/user/agilent>.
- Need to place a service call? Flexible Repair Options | Agilent

## Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "X" or tick mark "✓".
- Check "Service not applicable" check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the Service Review section together with the customer.
- Complete the fields for page numbers at the foot of each selected page.
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section.
- Ask the customer to sign the Service Verification section including the customer's and your signature.

## Instrument Maintenance

### System Information

- ☒ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	69010A / 11116010005
Instrument System Site and Location	ALS Laboratory Group (Thailand) Co., LTD

List System Component Product Numbers	List the Serial Numbers of each Component
1. 69010A	11116010005
2. 9410A	11116010005
3. 69010A - 00101	11116010005
4.	
5.	
6.	
7.	
8.	
9.	

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	<u>Spray</u>   OneWeb   Conical   Other
Spray Chamber	Cyclonic Single Pass   Cyclonic Double Pass   Other
Torch	Radial   Dual View   Other
Torch Type	One Piece   Semi-Dismountable   Fully Dismountable   Other
Injector Diameter	2.4mm   1.8mm   1.4mm   0.8mm   Other
Injector Material	<u>Quartz</u>   Ceramic   Other

**Preparation**

- ☒ Discuss any specific issues with the customer before starting
- ☒ Review the instrument logbook for recorded problems and comments.
- ☒ Save instrument control settings before starting the procedure
- ☒ Perform a general inspection of the system for cleanliness.
- ☒ Check for proper installation of parts, assemblies, sensors etc.
- ☒ Check system for required installation of components and implementation of Service Notes
- ☒ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☒ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☒ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES

**Preventive Maintenance Procedures****Record Pre-PM instrument performance**

- ☒ Run Instrument Performance test
- ☒ Record results in Instrument Performance Test Results Table – Pre-PM.

**Clean and inspect ICP-OES system**

- ☒ Look for any obvious external damage or problems
- ☒ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☒ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary
- ☒ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required
- ☒ Record the instrument operating conditions in the ICP-OES Status Results Table
- ☒ Replace the polychromator purge filter
- ☒ Replace the radial pre-optics window
- ☒ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☒ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☒ Replace air inlet dust filter.
- ☒ Replace high capacity air inlet dust filter element if installed
- ☒ Remove and clean instrument water inlet filter.

**Agilent Water Recirculator**

- ☐ Service not applicable
- ☒ Drain cooling fluid and remove any particles from the chiller reservoir
- ☒ Remove, clean and reinstall water inlet metal mesh filter if present
- ☒ Re fill with Agilent Cool Clear cooling fluid
- ☒ Clean the cooling system Air filter and the condenser.

**SPS 3 Auto Sampler**

- ☒ Service not applicable
- ☐ Power cycle the autosampler and verify successful initialization
- ☐ Inspect X and Z axis belts for wear. Replace if necessary
- ☐ Clean X and Z axis slide shafts
- ☒ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial

**SPS 4 Auto sampler**

- ☐ Service not applicable
- ☒ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent
- ☒ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner
- ☒ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☒ Check the X-axis, theta-axis and Z-axis H-C cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☒ Pump Tubing Replacement: Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☒ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not, use calibration wizard and calibrate the position

**AVS 4, 6, 7 Advanced Valve System**

- ☒ Service not applicable
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

**ICP-OES adjustment**

- ☒ Check position of Zn peak, adjust if required
- ☒ Check Argon Ratio, adjust to specified value if required
- ☒ Perform Detector Calibration
- ☒ Perform Instrument Calibration

**Record Post-PM instrument performance**

- ☒ Run Instrument Performance test
- ☒ Record results in Instrument Performance Test Results Table - Post PM.
- ☒ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☒ Subsystem Communications Test
  - ☒ Air Flow
  - ☒ Water Flow
  - ☒ Gas Flows
  - ☒ RF Generator
  - ☒ Camera Test
  - ☒ Optics Test
  - ☒ Nebulizer Test
- ☒ Record the result in the Instrument Test Results Table

## Restore Instrument

- ☒ For HF applications, ask the customer to reinstall their sample introduction system
- ☒ Leave system in an idle state, on and purging
- ☒ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

## Service Review

- ☒ Attach available reports/printouts of all tests to this documentation
- ☒ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☒ Record the PM event in the Smart Alerts logbook, if applicable.
- ☒ Update/reset instrument maintenance counters as appropriate
- ☒ Affix the PM sticker to the system or instrument logbook based on the customer's request
- ☒ Complete the Service Engineer Comments section if there are additional comments
- ☒ Review this service, parts replaced, and test results obtained with the customer.
- ☒ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation
- ☒ Complete the Signature Page with both Service Engineer and Customer signatures.

## Test Results

## Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial*	Radial	Axial*
7n 213.857 nm SRBR	1511.1	3445.3	1526.0	3421.8
Min 257.610 nm SRBR	1354.1	1355.4	1349.3	1359.3
Al 396.152 nm SBR	2.3	15.0	5.4	18.8
K 766.491 nm SBR	5.3	64.0	5.6	72.2

\* Axial result is not applicable for: G8016AA, G8012AA Radial View instruments.

## Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

## ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	211.31 V	VAC	215.13 V	VAC
Mains Current	0.09 A	A	0.11 A	A
Instrument Temperature	21.8	°C	23.2	°C
RF Air Flow (sensor speed)	19.0	Hz	23.0	Hz
Plasma Exhaust Temperature	No measurement		50.1	°C
Water Flow Oscillator	No measurement		1.20	L/min
Water Flow Detector	1.16	L/min	1.09	L/min
Water Inlet Temperature	22.6	°C	23.6	°C
Polychromator Temperature	35.0	°C	35.0	°C
CCD Temperature	-46.1	°C	-46.0	°C
Thermal Stabilizer	3.1	°C	3.4	°C
Argon Supply Pressure	614.44	kPa	551.10	kPa
Purge Gas Supply Pressure*1	610.61	kPa	574.30	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		7.11	kPa
Plasma Gas Flow	No measurement		11.44	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1146.6	W
RF Supply Current	No measurement		5.66	A
RF Supply Voltage	No measurement		194.51	V

\*1 If option installed

## Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-G8014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-G8015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	1
Purge Gas Filter	G8010-G0136	All	1
Air inlet filter	G8000-G8002	All	1
High Capacity Air Filter	G8010-G0189	Optional	-
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495	-
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	-
Rinse solution to rinse station 2.5mm id x 1m	G8410-B0123	SPS 4	1
Elbow connector 7.6mm i.d. x 1mm i.d.	G8410-B0174	SPS 4	1
PVC waste tubing 8mm od x 5mm id, 2m	G8410-B0122	SPS 4	1
Additional Parts may be required from engineer's stock:			
X-axis drive belt	5410047500	SPS 3	-
Z-axis drive belt	5410047400	SPS 3	-
Peristaltic pump tubing, PVC Solvalflex 3 bridged	3710049030	SPS 4	-

## Consumed Parts Reference

(Purchased by customer, not included as part of PM)

☒ Section Not Applicable

Part Description	Part Number	Product or Model# where used	Quantity consumed
------------------	-------------	------------------------------	-------------------



## Signature Page

## Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

## Service Verification

Service Request Number: 609 02534  
 Service Engineer Name: Niran L. (Signature)  
 Service Engineer Signature: Niran L. (Signature)  
 Total number of pages in this document: 14

Date Service Completed: Feb 29, 2024  
 Customer Name: (Signature)  
 Customer Signature: (Signature)

## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T231676

Page 1 of 6

## Certificate of Calibration

Equipment : HEATING BLOCK

Manufacturer : Environmental Express

Model : SC 196

Serial No. : 6974CECW3285

Customer Code : BKK\_EL0054

ID No. : T5306A3

Customer : ALS Laboratory Group (Thailand) Co., Ltd.

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,  
 Khet Suan Luang, Bangkok 10250

Customer Location : Acid Digestion Lab

Date of Receipt : 13 September 2023

Calibrated By : Sane Musikawan (Site Calibration Manager)

Approved By : (Signature) / Sujjar Naknakred (Site Calibration Manager)

Date of Issue : 26 SEP 2023

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-L12 109/30-05-57

## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T231676

Page 2 of 6

## Calibration Report

Equipment : HEATING BLOCK  
 Date of Calibration : 22 September 2023  
 Environment : Temperature : 21.8-23.1 °C  
 Line Voltage : 221.6-226.3 V  
 Relative Humidity : 55-65 %RH

## Condition of this results of calibration :

1. This equipment was calibrated by insert 20 standard thermocouples type T into its chamber, the other one standard thermocouples type T use for ambient temperature measurement. The calibration was done in according to WI-T20.

All data show below were final values and the initial data from customer request. The temperature scale used was based on ITS - 90.

## 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN21-TN30	T230014	17 January 2024
TC	TYPE T	TN31-TN40	T230014	17 January 2024
DATA LOGGER	34970A	T151	T230014	17 January 2024

## 3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TISI-TIS 17025 CALIBRATION 0244.)

## 4. Condition of calibrated item : good

## Equipment Description :

Time Constant : 2 Hour 20 Minute At 95 °C  
 Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max  
☐ Close  
☒ Not Available

## 5. Adjustment :

( ) without adjustment ( X ) after adjustment

Approved By: (Signature)

FM-L13 108/30-05-57

## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110

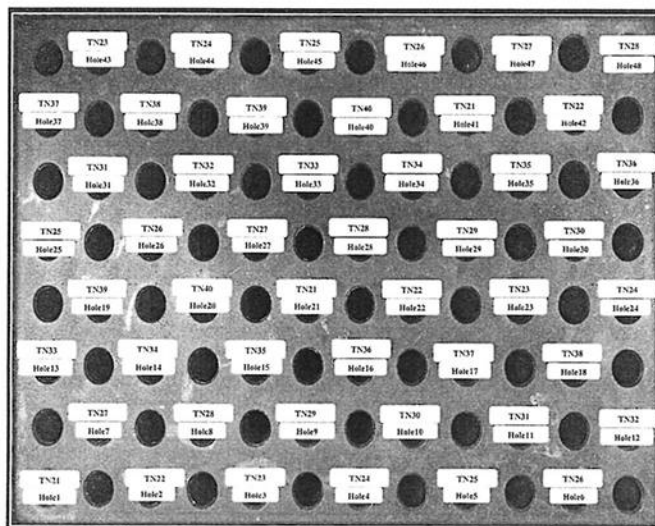
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Certificate No. T231676

Page 3 of 6

## Calibration Report



## FRONT CONTROL

Approved By: (Signature)

FM-L13 108/30-05-57



Certificate No T231676

Page 4 of 6

### Calibration Report

Measurement Results						
Calibration Point		Average Standard Reading at each position (°C)				
R1 Hole1-Hole6		TN21	TN22	TN23	TN24	TN25
CAL POINT	Max	95.01	94.81	95.20	95.41	94.51
	Min	94.79	94.18	94.98	95.17	94.26
	Average	94.90	94.50	95.09	95.29	94.89
R2 Hole7-Hole12		TN27	TN28	TN29	TN30	TN31
CAL POINT	Max	95.36	95.43	95.19	95.16	95.23
	Min	94.94	94.05	94.72	94.71	94.90
	Average	95.15	94.74	94.96	94.94	95.07
R3 Hole13-Hole18		TN33	TN34	TN35	TN36	TN37
CAL POINT	Max	95.37	95.50	95.22	95.21	95.33
	Min	94.99	95.09	94.78	94.82	94.88
	Average	95.18	95.30	95.00	95.02	95.11
R4 Hole19-Hole24		TN39	TN40	TN21	TN22	TN23
CAL POINT	Max	95.59	94.42	94.52	94.24	94.63
	Min	95.21	94.06	94.13	93.88	94.28
	Average	95.40	94.24	94.33	94.06	94.45
R5 Hole25-Hole30		TN25	TN26	TN27	TN28	TN29
CAL POINT	Max	95.19	95.38	92.93	95.30	95.14
	Min	94.83	95.03	92.56	94.95	94.79
	Average	95.01	95.20	92.75	95.12	94.96
R6 Hole31-Hole36		TN31	TN32	TN33	TN34	TN35
CAL POINT	Max	94.63	94.90	94.77	94.31	94.24
	Min	94.24	94.55	94.44	93.98	93.92
	Average	94.40	94.72	94.60	94.14	94.08
R7 Hole37-Hole42		TN37	TN38	TN39	TN40	TN21
CAL POINT	Max	94.30	94.44	94.04	93.81	94.89
	Min	93.95	94.05	93.67	93.88	94.39
	Average	94.13	94.24	93.86	93.85	94.64
R8 Hole43-Hole48		TN23	TN24	TN25	TN26	TN27
CAL POINT	Max	95.99	95.63	95.28	95.29	95.45
	Min	95.57	95.15	94.82	94.84	94.99
	Average	95.78	95.39	95.05	95.07	95.22

Approved By. \_\_\_\_\_

FM-L13 108/30-05-57



Certificate No T231676

Page 5 of 6

### Calibration Report

Measurement Results						
Calibration Point		Average Standard Reading at each position (°C)				
R1 Hole1-Hole6		TN21	TN22	TN23	TN24	TN25
CAL POINT	Max	105.23	104.32	105.43	105.35	104.44
	Min	104.94	103.95	105.15	105.04	104.11
	Average	105.09	104.13	105.29	105.15	104.28
R2 Hole7-Hole12		TN27	TN28	TN29	TN30	TN31
CAL POINT	Max	105.30	105.42	105.18	105.22	105.12
	Min	105.11	104.92	104.96	105.00	104.92
	Average	105.20	105.17	105.07	105.11	105.02
R3 Hole13-Hole18		TN33	TN34	TN35	TN36	TN37
CAL POINT	Max	105.37	105.03	105.02	104.80	104.09
	Min	105.17	105.37	104.75	104.59	104.50
	Average	105.27	105.50	104.88	104.69	104.60
R4 Hole19-Hole24		TN39	TN40	TN21	TN22	TN23
CAL POINT	Max	105.31	104.43	106.41	104.71	105.63
	Min	105.08	104.22	106.15	104.41	105.37
	Average	105.19	104.33	106.28	104.56	105.50
R5 Hole25-Hole30		TN25	TN26	TN27	TN28	TN29
CAL POINT	Max	104.95	106.26	103.34	105.78	105.59
	Min	104.67	105.96	103.08	105.56	105.56
	Average	104.81	106.11	105.21	105.67	105.57
R6 Hole31-Hole36		TN31	TN32	TN33	TN34	TN35
CAL POINT	Max	104.75	104.86	104.80	105.20	104.50
	Min	104.54	104.63	104.59	105.00	104.32
	Average	104.65	104.75	104.69	105.10	104.41
R7 Hole37-Hole42		TN37	TN38	TN39	TN40	TN21
CAL POINT	Max	104.30	104.90	104.85	104.65	104.98
	Min	104.09	104.72	104.66	104.49	104.63
	Average	104.19	104.81	104.75	104.57	104.76
R8 Hole43-Hole48		TN23	TN24	TN25	TN26	TN27
CAL POINT	Max	105.71	105.85	105.39	105.61	105.42
	Min	105.45	105.61	105.14	105.27	105.18
	Average	105.58	105.73	105.27	105.44	105.30

Approved By. \_\_\_\_\_

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### Calibration Report

#### Measurement Results:

HEATING BLOCK		Temperature Distribution		
Setting (°C)	Reading (°C)		Stability (°C)	Uncertainty (°C)
	Min, Max	Average		
100.0	100.3 , 100.5	100.4	0.26	0.81
107.0	107.0 , 107.1	107.1	0.19	0.78

\* The quoted uncertainty exclude " uniformity "

The calibration result apply only the above calibrated item

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 % .

Approved By. \_\_\_\_\_

FM-L13 108/30-05-57

## ภาคผนวก จ

สำเนาหนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน



ที่อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

## ๒ ๐ พฤศจิกายน ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๔ สิงหาคม ๒๕๖๖

- สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น  
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผ่น  
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผ่น

ตามหนังสือที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุหนังสือ  
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐  
ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด  
ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

- ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑  
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ ๑๘๑ ราย ตามสิ่งที่ส่งมาด้วย ๒  
ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล  
หรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ กันยายน ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือ  
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อ  
กรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นสุดของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายธีระ จันทร์เจ็ด)

นักวิทยาศาสตร์เชี่ยวชาญ วิชาการฯ

ผู้อำนวยการกองวิจัยและเฝ้าระวังมลพิษโรงงาน

ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเฝ้าระวังมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๕๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



สิ่งที่ส่งมาด้วย ๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

เลขทะเบียน ว-๒๐๔

ที่อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘

ลงวันที่ ๒ ๐ พฤศจิกายน ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย

๑) นางสาวยุพาพร จันทร์เปล่ง

ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๑

๒) นางสาวชัชชัย โกมารกุล ณ นคร

ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๒

๓) นายศรายุทธ จิตรานนท์

ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๓

๔) นางสาวกนกกร เอนก

ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๔

๕) นายสุริยา สอนแก้ว

ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๕

๖) นายวิชาญ ชุนทรี

ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๖

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ว-๒๐๔

ที่ ออก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ข. เจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์ จำนวน ๑๘๑ ราย

๑) นายกาจบัณฑิต กิตติศุภวัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๑
๒) นายภัทรพล สว่างใจธรรม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๒
๓) นายณารธิป เทือกชัยคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๓
๔) นายศิริโชค พงษ์ประสม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๔
๕) นายณัฐวุฒิ ดั่งวงแพ่ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๕
๖) นางสาวจินดา ไชจุลธรรม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๖
๗) นางสาวสาวิตรี น้อยเสี่ยม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๗
๘) นางสาวชนันฐาณูจน์ อัมมขม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๘
๙) นางสาวรินทร์ สายเส็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๙
๑๐) นางสาวนันทิตี สมบูรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๐
๑๑) นางสาวศรัณยา เฉลิมธำรงค์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๑
๑๒) นางสาวธัญญธร มงคลจิรวุฒิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๒
๑๓) นางสาวศิริลักษณ์ บุนนาค	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๓
๑๔) นายณพพงศ์ จันทร์พันธุ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๔
๑๕) นายณเรศรุฐ โกมลาลัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๕
๑๖) นายธินา จริยา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๖
๑๗) นางสาวเกศรินทร์ แก้วมัน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๗
๑๘) นางสาวสุวิมล ชัยเรืองวุฒิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๘
๑๙) นางสาวสุชาดา ธรรมถาวร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๙
๒๐) นางสาวเปมิกา ชัยเดชสกุล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๐
๒๑) นางสาวศศิธร หมูสวัสดิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๑
๒๒) นางสาวเสาวลักษณ์ ภูณาทำพร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๒
๒๓) นายอภิสิทธิ์ สิงหา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๓
๒๔) นายศักดิ์สิทธิ์ ไพศาลพิสุทธิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๔
๒๕) ว่าที่ร้อยตรีหญิง พรณิภา ขำเจริญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๕
๒๖) นางจิตตา คำแก้ว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๖
๒๗) นางสาวอรพรรณ รักยง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๗
๒๘) นางสาวนพรัตน์ แยมกรานต์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๘
๒๙) นายจุลเดช วารินทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๙
๓๐) นางสาวดาวยรัตน์ ร้องคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๐
๓๑) นายพรมณ์ ศรีปิตเนตร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๑
๓๒) นายอุทิศ อุ่นสม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๒
๓๓) ว่าที่ร้อยตรี เฉลิมเกียรติ อมรศรีเสริม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๓
๓๔) นางสาววริยา สร้างนา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๔
๓๕) นายอนุพงศ์ รัตนศรีประเสริฐ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๕

วิบูลย์

๓๖) นางสาวจุฑารัตน์...

๓๖) นางสาวจุฑารัตน์ โอนสันเทียะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๖
๓๗) นางสาวจรรวณ พิมพอกฤติยา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๗
๓๘) นางสาวปรารถน์ทิพย์ กิจไพศาลศักดิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๘
๓๙) นางสาวเตือนใจ ทางกลาง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๙
๔๐) นางสาวจิราพร ศิริเวช	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๐
๔๑) นายวรกร ผูกรักษ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๑
๔๒) นายทง วิริยะสทกิจ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๒
๔๓) นายธนิต เจนจบ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๓
๔๔) นายคณิศร ข้าเพชร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๔
๔๕) นายภูวิช พรหมสะอาด	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๕
๔๖) นายธนเดช โกทาพิพัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๖
๔๗) นายชวฤทธิ์ วงษ์จันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๗
๔๘) นายอาทิตย์ ศรีแสน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๘
๔๙) นายเจดิดินทร์ คงศักดิ์ไทย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๙
๕๐) นายธีร บุญยิ่ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๐
๕๑) นายธนาภิต เอนก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๑
๕๒) นายอภิวัฒน์ ทุมหนู	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๒
๕๓) นางสาวสุภาวัญ มาก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๓
๕๔) นางสาวทิพย์ ขวาลสมบูรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๔
๕๕) นางสาวธิดา บุญเพ็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๕
๕๖) นางสาวภาณุมาศ นามวัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๖
๕๗) นางสาวอุไรรัตน์ ทังสร้างแป้น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๗
๕๘) นายธีรวัฒน์ ปวงสุข	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๘
๕๙) นายอิทธิพล ยะโส	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๙
๖๐) นายประพจน์ วรรณชูชัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๐
๖๑) นายชยธร พงทิพย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๑
๖๒) นางสาวกนกวรรณ จันทบาล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๒
๖๓) นายสิทธิโชค ธงเงิน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๓
๖๔) นางศิวารวรรณ ใจบุญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๔
๖๕) นางสาวพรรณธิดา ทุมคง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๕
๖๖) นายณภัทร ศรีวิริยะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๖
๖๗) นายสุวิชา ทองอ่อน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๗
๖๘) นายวิญญู บุญตะนัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๘
๖๙) นายสมบูรณ์ บุตรจันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๙
๗๐) นายวิรัตน์ ไชยชนะรา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๐
๗๑) นายณฤเบศร์ เพิ่มพูน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๑
๗๒) นายจิรณัฐ ขวาละขอ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๒
๗๓) นายอัสรี นามบุรี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๓
๗๔) นายอัครเศ จอัสสาว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๔

วิบูลย์

๗๕) นายประเสริฐ...



๗๕) นายประเสริฐ สุระขันธุ์  
๗๖) นายบุญล จันทน์นิยม  
๗๗) นายพิรพงษ์ ทองคุณปรีดา  
๗๘) นายมฤพล ทองนุช  
๗๙) นายอนุวัฒน์ ม่วงแพร่  
๘๐) นายเจตศราวุฒิ ปิตตะมะ  
๘๑) นายกฤษณะ สายวรรณ  
๘๒) นายพิชัย บุญยงค์  
๘๓) นายภาณุพงศ์ โอเมวงศ์  
๘๔) นายสามารถ คุ่มปลี  
๘๕) นายสัณฐชัย โกศรีนาม  
๘๖) นายณัฐวุฒิ ศรีประเสริฐ  
๘๗) นายขวิธชัย นาคพนม  
๘๘) นายพงศธร ชัยทิพย์  
๘๙) นายสิทธิโชค ทาสีดา  
๙๐) นายธนากร อินสุตา  
๙๑) นางสาววรณิชา ขาติวันชัย  
๙๒) นางสาวพิมพ์ตะวัน มินากุล  
๙๓) นางสาวเพชรรัตน์ สิงห์สมบุญ  
๙๔) นางสาวชญาณีน พรหมจันทร์  
๙๕) นายกิตติ ทวีราช  
๙๖) นายจักริน หมั่นวิชา  
๙๗) นายฉัตรชัย สุขเปี้ย  
๙๘) นายณรนนท์ ต๊ะทองคำ  
๙๙) นายศุภผล สนนอก  
๑๐๐) นายทักษ์ดนัย อุบลศรี  
๑๐๑) นายธนศร นามะกุลณนา  
๑๐๒) นายธิตินพงศ์ บัวแดง  
๑๐๓) นายณนทชัย อุปถัมภ์  
๑๐๔) นายรัฐพล คุณสุทธิ  
๑๐๕) นายนิพนธ์วัฒน์ สาริน  
๑๐๖) นายปิยะนัฐ พลมะศรี  
๑๐๗) นายพงศ์สิริ โสมเขียว  
๑๐๘) นายพิรพัฒน์ กำคำ  
๑๐๙) นายภาณุพงศ์ มานิตย์  
๑๑๐) นายมงคล ผลาทิพย์  
๑๑๑) นายสิรินนท ทองอิน  
๑๑๒) นายอเนชา ทันสมัย  
๑๑๓) นายอดิศักดิ์ สมไผ่

ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๐๗๕  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๐๗๖  
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ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๒  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๓

วิมล

๑๑๔) นายอนันต์ชัย...

๑๑๔) นายอนันต์ชัย วิสม  
๑๑๕) นายวรุต ตีนก  
๑๑๖) นายแสงตะวัน นทะสิทธิ์  
๑๑๗) นายยุทธพงศ์ รัตนะ  
๑๑๘) นายชัยณัฐ ไชยชนะ  
๑๑๙) นายวิศรุต ศรีธรรมมา  
๑๒๐) นายณนทกร เผือกผ่อง  
๑๒๑) นายกำชัย สุทธะ  
๑๒๒) นางสาวณัฐภรณ์ บุญตะนัย  
๑๒๓) นางสาวพัชรินทร์ แสนสร้อย  
๑๒๔) นายไพรัชย์ เปี่ยมพิมาย  
๑๒๕) นางสาวศุภมาศ ทองมาก  
๑๒๖) นางสาวลลิตา จิตรสว่าง  
๑๒๗) นางสาวไมพร เลิกภูเขียว  
๑๒๘) นางสาวกฤติมาพร คำมีแก่น  
๑๒๙) นางสาวสกุลรัตน์ ภาภูมิ  
๑๓๐) นางสาวไพรินทร์ ศรีรูปี  
๑๓๑) นางสาวทิพนตร ผุยปัญญา  
๑๓๒) นางสาวสิริดา ปานทอง  
๑๓๓) นางสาวอริสา ทองนวล  
๑๓๔) นางสาวอรรษา คำคล้อง  
๑๓๕) นางสาวชุตินาถ สุนทรสนาน  
๑๓๖) นางสาวอัญชลี คำจันทร์  
๑๓๗) นายบุญฤทธิ์ เอี่ยมเทศ  
๑๓๘) นางสาวศุภรดา ปันมยุรา  
๑๓๙) นางสาวพาดิ คุณนาน  
๑๔๐) นางสาวจิราเจต พงศา  
๑๔๑) นางสาวอารยา มีชัย  
๑๔๒) นางสาววิชุดา นาคผจญ  
๑๔๓) นางสาวนันทิยา จันทะสุน  
๑๔๔) นายกิตติพงศ์ แซ่ลี  
๑๔๕) นายอนุวัติ ภูทิว  
๑๔๖) นายธีรพล แสงทอง  
๑๔๗) นายศักดิ์พัฒน์ บุญมัน  
๑๔๘) นายรัฐดิวิทย์ เอมอุไร  
๑๔๙) นายชัยณรงค์ ศรีบุรินทร์  
๑๕๐) นางสาวอัจฉราวรรณ สอนสนอง  
๑๕๑) นางสาวณัฐพร สิงหา  
๑๕๒) นายกัมเรศ แหม่มโต

ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๔  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๕  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๖  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๗  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๘  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๙  
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ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๒๑  
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ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๑  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๒

วิมล

๑๕๓) นางสาวอุบล...



๑๕๓) นางสาวอุบล เด็กศิริ  
๑๕๔) นางสาวมโนรัตน์ ทองบุตร  
๑๕๕) นายภาคภูมิ แทนไทย  
๑๕๖) นางสาวสุภาณัฐ เมสท์วง  
๑๕๗) นางสาวพรทิศา สาตาชนม์  
๑๕๘) นายเอกวิทย์ วันทะนา  
๑๕๙) นายไตรมณฑล ทิพย์วรรณ  
๑๖๐) นายจิรเมธ ประเสริฐศิริพงศ์  
๑๖๑) นายจิรายุส เกษมสุข  
๑๖๒) นายจิรศักดิ์ ศรีวิชัย  
๑๖๓) นายณัฐฤกษ์ สพานแก้ว  
๑๖๔) นายบุญศักดิ์ ปะที  
๑๖๕) นายปณณวิทย์ เสมอทรัพย์  
๑๖๖) นายพิษณุพงษ์ ไชยา  
๑๖๗) นายภัทรพงษ์ มณฑาทอง  
๑๖๘) นายวสันต์ ตรีนกุล  
๑๖๙) นายภาณุเดช เพชรสุด  
๑๗๐) นายอนุกุล วิลละแสง  
๑๗๑) นายภัทรพงษ์ มีสุข  
๑๗๒) นางสาวนุชรี ลีละทีป  
๑๗๓) นางสาวสุภาวดี โกศรีนาม  
๑๗๔) นางสาวอรณิชา เทียนดำ  
๑๗๕) นางสาวพรเพ็ญ ขอบสอน  
๑๗๖) นางสาววันวิสา ขอนพิกุล  
๑๗๗) นางสาวอรรณพ เภาวทอง  
๑๗๘) นางสาวอัยย์ลีน เมอร์วินณ์  
๑๗๙) นางสาววิสา คุ้มครอง  
๑๘๐) นายวุฒิกร ศิริวรรณ  
๑๘๑) นางสาวจรรุวรรณ กระจำพันธุ์

ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๓  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๔  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๕๕  
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ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๐  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๑  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๒  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๓  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๔  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๕  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๖  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๗  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๘  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๙  
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ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๗๕  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๗๖  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๗๗  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๗๘  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๗๙  
ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๐

วิมล

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๒๐๔  
ที่ อก ๐๓๑๐(๑)/ ๑๖ ๑ ๖ ๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๔

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๗๔ รายการ  
น้ำเสีย จำนวน 60 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldicarb	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
2	Aldicarb Sulfone	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
3	Aldicarb Sulfoxide	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
5	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
6	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
7	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
8	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
9	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
10	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
11	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method <sup>[4]</sup> 2) 5-Day BOD Test, Membrane Electrode Method <sup>[4]</sup>
12	Carbaryl	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
13	Carbofuran	High-Performance Liquid Chromatographic Method <sup>[4]</sup>
14	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
15	Chemical Oxygen Demand	1) Closed Reflux, Colorimetric Method <sup>[4]</sup> 2) Closed Reflux, Titrimetric Method <sup>[4]</sup>
16	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
17	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
18	Color	ADMI Weighted-Ordinate Spectrophotometric Method <sup>[4]</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Copper	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
20	Cyanide	Distillation, Colorimetric Method <sup>(4)</sup>
21	2,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
22	4,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
23	2,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
24	4,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
25	2,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
26	4,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
27	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
28	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
29	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
30	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
31	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
32	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
33	Formaldehyde	Distillation, Colorimetric Method <sup>(3)</sup>
34	Free Chlorine	1) DPD Ferrous Titrimetric Method <sup>(4)</sup> 2) DPD Colorimetric Method <sup>(4)</sup>
35	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
36	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
37	Hexavalent Chromium	Colorimetric Method <sup>(4)</sup>
38	3-Hydroxycarbofuran	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
39	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
41	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass spectrometric Method <sup>(4)</sup>
42	Methiocarb	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
43	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
44	Methomyl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
45	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
46	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method <sup>(4)</sup> 2) Soxhlet Extraction Method <sup>(4)</sup>
47	Oxamyl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
48	Propoxur	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
49	pH	Electrometric Method <sup>(4)</sup>
50	Phenols	1) Distillation, Chloroform Extraction Method <sup>(4)</sup> 2) Distillation, Direct Photometric Method <sup>(4)</sup>
51	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
52	Sulfide	Iodometric Method <sup>(4)</sup>
53	Temperature	Laboratory and Field Methods <sup>(4)</sup>
54	Total Dissolved Solids	Dried at 180 °C <sup>(4)</sup>
55	Total Kjeldahl Nitrogen	Semi-Micro Kjeldahl Method <sup>(4)</sup>
56	Total Phosphorous	Digestion, Colorimetric Method <sup>(4)</sup>
57	Total Suspended Solids	Dried from 103-105 °C <sup>(4)</sup>
58	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
59	Trivalent Chromium	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation <sup>(4)</sup>
60	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4)</sup>

น้ำไดคิน จำนวน 126 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
3	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
13	Benzoic Acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
15	Benzo[g,h,i]perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

18 Bis(2-ethylhexyl)phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
27	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation <sup>(4)</sup>
35	Chromium (VI)	Colorimetric Method <sup>(4)</sup>

36 Chrysene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
37	Cyanide	Distillation, Colorimetric Method <sup>(4)</sup>
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
39	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
40	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
41	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
43	Di-n-Butyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
47	3,3-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
57	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
58	Diethyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
63	Di-n-octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
64	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
65	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
69	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
70	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
74	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
75	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
83	Mercury	1) Digestion, Cold Vapor Atomic Absorption Spectrometric Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
84	Methanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
86	Methyl bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
87	Methylene chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
90	Methyl tert-butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

94 N-Nitrosodiphenylamine...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
96	Polychlorinated Biphenyls - PCB 1016 - PCB 1221 - PCB 1232 - PCB 1242 - PCB 1248 - PCB 1254 - PCB 1260	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
98	pH	Electrometric Method <sup>(4)</sup>
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
100	Phenol	1) Distillation, Chloroform Extraction Method <sup>(4)</sup> 2) Distillation, Direct Photometric Method <sup>(4)</sup> 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
102	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
103	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
109	TPH (C <sub>5</sub> -C <sub>9</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(14,25)</sup>

110 TPH (C<sub>8</sub>-C<sub>16</sub>)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
110	TPH (C <sub>8</sub> -C <sub>16</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>[9,22]</sup>
111	TPH (C <sub>16</sub> -C <sub>35</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>[9,22]</sup>
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[4]</sup>
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
122	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
123	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
124	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
126	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[4]</sup>

อากาศเสีย...

อากาศเสีย (ปล่อยระบาย) จำนวน 28 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
2	Arsenic	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
3	Beryllium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
4	Cadmium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
5	Carbon Monoxide	1) Instrumental Analyzer Method <sup>[5]</sup> 2) Sampling Bag Non-Dispersive Infrared Method <sup>[5]</sup>
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method <sup>[5]</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>[5]</sup>
7	Chromium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
8	Cobalt	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
9	Copper	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
10	Cresol	Adsorption Sampling, Gas Chromatographic Method <sup>[5]</sup>
11	Dioxins	Isokinetic Sampling <sup>[5]</sup>
12	Hydrogen Chloride	1) Absorption Sampling, Ion Chromatographic Method <sup>[5]</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>[5]</sup>
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method <sup>[5]</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>[5]</sup>
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method <sup>[5]</sup>

15 Lead...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
15	Lead	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
16	Manganese	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
17	Mercury	1) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>[5]</sup>
18	Nickel	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
19	Opacity	Ringelmann's Method <sup>[2]</sup>
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method <sup>[5]</sup> 2) Absorption Sampling, Alkaline Permanganate/Colorimetric Method <sup>[5]</sup> 3) Instrumental Analyzer Method <sup>[5]</sup>
21	Selenium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
22	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Method <sup>[5]</sup> 2) Instrumental Analyzer Method <sup>[5]</sup>
23	Sulfuric Acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method <sup>[5]</sup>
24	Tellurium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
25	Tin	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
26	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method <sup>[5]</sup> 2) Paired Train, Isokinetic Sampling, Gravimetric Method <sup>[5]</sup>

27 Vanadium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Vanadium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
28	Xylene	Adsorption Sampling, Gas Chromatographic Method <sup>[5]</sup>

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[11,26]</sup>
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>

5 Beryllium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[11,26]</sup>
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>[1,6,16,19]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>[1,6,17,19]</sup> 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>[7,8,16,19]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>[7,8,17,19]</sup>

10 Chromium (VI)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method <sup>[1,6,19]</sup> 2) Alkaline Digestion, Colorimetric Method <sup>[8,19]</sup>
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[11,26]</sup>
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[11,26]</sup>
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[11,26]</sup>
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup>

2) Soxhlet...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
20	Lead	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>

22 Mercury...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>[1,6,20]</sup> 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>[1,6,30]</sup> 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>[20]</sup> 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>[30]</sup> 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method <sup>[21]</sup>
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic Method <sup>[11,26]</sup>

- 2-Chlorobiphenyl...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
28	<ul style="list-style-type: none"> <li>- 2-Chlorobiphenyl</li> <li>- 2,3-Dichlorobiphenyl</li> <li>- 2,2',5-Trichlorobiphenyl</li> <li>- 2,4',5-Trichlorobiphenyl</li> <li>- 2,2',3,5'-Tetrachlorobiphenyl</li> <li>- 2,2',5,5'-Tetrachlorobiphenyl</li> <li>- 2,3',4,4'-Tetrachlorobiphenyl</li> <li>- 2,2',3,4,5'-Pentachlorobiphenyl</li> <li>- 2,2',4,5,5'-Pentachlorobiphenyl</li> <li>- 2,3,3',4',6-Pentachlorobiphenyl</li> <li>- 2,2',3,4,4',5'-Hexachlorobiphenyl</li> <li>- 2,2',3,4,5,5'-Hexachlorobiphenyl</li> <li>- 2,2',3,5,5',6-Hexachlorobiphenyl</li> <li>- 2,2',4,4',5,5'-Hexachlorobiphenyl</li> <li>- 2,2',3,3',4,4',5-Heptachlorobiphenyl</li> <li>- 2,2',3,4,4',5,5'-Heptachlorobiphenyl</li> <li>- 2,2',3,4,4',5',6-Heptachlorobiphenyl</li> <li>- 2,2',3,4',5,5',6-Heptachlorobiphenyl</li> <li>- 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl</li> <li>- Pentachlorophenol</li> </ul>	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup> Electrometric Method <sup>(23,24)</sup> 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
29	pH	
30	Selenium	

31 Silver...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

31ml

ดิน...

ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
2	Acetone	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13)</sup>
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
9	Benz(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>

11 Benzo(b)fluoranthene

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	Benzo(b)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
12	Benzo(k)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
13	Benzoic acid	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
14	Benzo(a)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
15	Benzo(g,h,i)perylene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
17	Bis(2-chloroethyl)ether	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
18	Bis(2-ethylhexyl)phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
21	Butanol	Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13,25)</sup>
22	Butyl Benzyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

23 Cadmium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,8,16,19)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,8,17,19)</sup>
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method <sup>(8,19)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
37	Cyanide	Extraction, Distillation, Colorimetric Method <sup>(27,28,29)</sup>
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
39	DDD	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
40	DDE	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
41	DDT	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
42	Dibenz(a,h)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
43	Di-n-Butyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
47	3,3-Dichlorobenzidine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
53	2,4-Dichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
58	Diethyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
59	2,4-Dimethylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
60	2,4-Dinitrophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
61	2,4-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
62	2,6-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

63 Di-n-Octyl Phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13)</sup>

73 n-Hexane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
74	$\alpha$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
75	$\beta$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
76	$\gamma$ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry <sup>(21)</sup> 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(30)</sup>

84 Methanol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13,25)</sup>
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
97	Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
101	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
102	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
108	TPH (C <sub>5</sub> -C <sub>8</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
109	TPH (C <sub>8</sub> -C <sub>16</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>[11,22]</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>[12,22]</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>[22,31]</sup>
110	TPH (C <sub>16</sub> -C <sub>35</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>[11,22]</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>[12,22]</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>[22,31]</sup>
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[15,25]</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
115	2,4,5-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
116	2,4,6-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
117	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
118	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
119	Vinyl Acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
120	Vinyl Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
121	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
122	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
123	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
124	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
125	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>

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*พิมพ์*



ที่ อก ๐๓๑๐(๑)/ ๔ ๑ ๒ ๑

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๕ เมษายน ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒๙ มีนาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓ ราย

๑) นางสาวพรรณธิดา ทุมคง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๕
๒) นายกำชัย สุทธิระ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๑
๓) นางสาวศุภรดา ปันมยุรา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๘

๒. ให้เพิ่มเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๑๒ ราย

๑) นางสาวฐานิดา กลิ่นเขียว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๒
๒) นางสาวกัญญ์ภัสสร สายคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๓
๓) นางสาวณัฐนันท์ กันทะวงศ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๔
๔) นายอำนาจ วงษาเคน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๕
๕) นายกฤษณพล ปัญญาวงศ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๖
๖) นายณชากร หารรักษา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๗
๗) นายวัชรินทร์ ผ่องสามสวน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๘
๘) นายณัฐพงศ์ โสภา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๙
๙) นายศักรินทร์ ปานเพ็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๐
๑๐) นายณัฐพล ชุ่มชื่น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๑
๑๑) นายธนา สุพาพันธุ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๒
๑๒) นายนราธร แก้วพงษ์ชา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๓

อนึ่ง หนังสือฉบับนี้...

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ในวันที่ ๒ กันยายน ๒๕๖๙

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายพรยศ กลั่นกรอง)

รองอธิบดี ปฏิบัติราชการแทน  
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ที่ อก ๐๓๑๐(๑)/ ๑๒๓๖๘ /

กรมโรงงานอุตสาหกรรม

ถนนพระรามที่ ๖ แขวงทุ่งพญาไท

เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๑๔ ธันวาคม ๒๕๖๗

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒ ธันวาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๕ ซอยพัฒนาการ ๕๐ ถนนพัฒนาการ แขวงพัฒนาการ  
เขตสวนหลวง กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์  
จำนวน ๘ ราย ได้แก่

- |                               |                            |
|-------------------------------|----------------------------|
| ๑) นายประพนธ์ วรรณชูชัย       | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๐ |
| ๒) นายจิรณัฐ ขาวละออ          | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๒ |
| ๓) นายพีรพัฒน์ คำคำ           | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๘ |
| ๔) นางสาวออรยา คำคล่อง        | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๔ |
| ๕) นายกิตติพงศ์ แซ่ลี         | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๔ |
| ๖) นายจิรเมธ ประเสริฐศิริพงศ์ | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๐ |
| ๗) นายภัทรพงษ์ มณฑาทอง        | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๗ |
| ๘) นางสาวจาวรรณ กระจำงพันธุ์  | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๑ |

จึงเรียนมาเพื่อทราบ

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โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

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