

ภาคผนวก ง

ใบรับรองผลการตรวจวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ง.1

ใบรับรองผลการตรวจวิเคราะห์
คุณภาพอากาศจากปล่องระบายอากาศ



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd.	REF. NO.	: 224004_Cert-Stack/TSP_Oct 24
	Branch 2 (BCC2)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 16-17/10/2024
RECEIVED DATE	: 18/10/2024	ANALYTICAL DATE	: 19-21/10/2024
REPORT DATE	: 22/10/2024	SAMPLE CONDITION	: Normal
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Natural Gas
OPERATOR	: Mr. Song Hangchhankun	STACK LOCATION	: HRSG 11

STACK DESCRIPTION

Height	: 40.0	m	Gas Velocity	: 14.4	m/s
Diameter	: 3.30	m	Flow Rate*	: 5,488	Ncu.m/min
Temperature	: 81.3	°C	Excess Oxygen	: 13.5	%

PARAMETER	UNITS	RESULTS*		STANDARDS ^U	REFERENCE
		13.5%O ₂	7%O ₂	7%O ₂	METHODS
Total Suspended Particulate	mg/Ncu.m.	2.32	4.36	60	US. EPA Method 5

(Miss Pornnapa Budtham)

Analyst

REG.NO.7-239-ท-0018

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ท-0018

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^U Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd.	REF. NO.	: 224004_Cert-Stack/PM-10_Oct 24
	Branch 2 (BCC2)		
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 16-17/10/2024
RECEIVED DATE	: 18/10/2024	ANALYTICAL DATE	: 19-21/10/2024
REPORT DATE	: 22/10/2024	SAMPLE CONDITION	: Normal
SOURCE DESCRIPTION	: Combustion	FUEL TYPE	: Natural Gas
OPERATOR	: Mr. Song Hangchhankun	STACK LOCATION	: HRSG 11

STACK DESCRIPTION

Height	: 40.0	m	Gas Velocity	: 14.4	m/s
Diameter	: 3.30	m	Flow Rate*	: 5,488	Ncu.m/min
Temperature	: 81.3	°C	Excess Oxygen	: 13.5	%

PARAMETER	UNITS	RESULTS*		STANDARDS	REFERENCE
		13.5%O ₂	7%O ₂	7%O ₂	METHODS
Particulate matter less than 10 microns	mg/Ncu.m.	1.12	2.10	-	US. EPA Method 201A

(Miss Pornnapa Budtham)

Analyst

REG.NO.7-239-ท-0018

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.7-239-ท-0018

Remark : 1. Reported analysis refers to submitted sample only.

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3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. - Standard is not specified.

The Monitoring Result of Emission Concentration
HRSG 11
BANGKOK COGENERATION 2 CO., LTD., (Branch 2)
October 16, 2024

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.55	13.50	11.07	11.04	20.74
2	13.56	13.52	11.17	11.14	20.98
3	13.56	13.51	11.07	11.04	20.77
Average	13.56	13.51	11.11	11.07	20.83

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.55	13.50	0.20	0.14	0.26
2	13.56	13.52	0.20	0.13	0.24
3	13.56	13.51	0.32	0.25	0.47
Average	13.56	13.51	0.24	0.17	0.33

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.55	13.50	0.50	0.41	0.77
2	13.56	13.52	0.47	0.38	0.72
3	13.56	13.51	0.53	0.44	0.83
Average	13.56	13.51	0.50	0.41	0.77

BANGKOK COGENERATION 2 CO., LTD., (Branch 2)
EMISSION TEST RESULT

Run # : 1
Date: October 16, 2024
Location : HRSG 11
Start time: 10:40 AM
Finish time : 11:00 AM
O₂ instrument Model: AMI 70
Serial No.: 071023-47
NO_x instrument Model: TELEDYNE 200 EM
Serial No.: 433
SO₂ instrument Model: API 100 AH
Serial No.: 058
CO instrument Model: API 300 A
Serial No.: 1070
Fuel Type : Natural Gas
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)
10:40 AM	13.55	10.98	0.02	0.51
10:41 AM	13.55	10.71	0.02	0.51
10:42 AM	13.56	11.20	0.01	0.51
10:43 AM	13.55	11.50	0.03	0.52
10:44 AM	13.55	11.01	0.00	0.54
10:45 AM	13.55	10.63	0.00	0.56
10:46 AM	13.55	11.36	0.22	0.54
10:47 AM	13.55	11.56	0.32	0.51
10:48 AM	13.55	11.42	0.32	0.54
10:49 AM	13.55	11.07	0.30	0.53
10:50 AM	13.55	10.87	0.30	0.53
10:51 AM	13.55	11.07	0.30	0.54
10:52 AM	13.55	11.29	0.30	0.51
10:53 AM	13.55	11.11	0.29	0.51
10:54 AM	13.55	10.82	0.27	0.51
10:55 AM	13.55	10.80	0.27	0.48
10:56 AM	13.55	10.94	0.25	0.45
10:57 AM	13.55	11.01	0.24	0.45
10:58 AM	13.55	11.00	0.24	0.45
10:59 AM	13.55	11.10	0.22	0.45
11:00 AM	13.55	11.08	0.22	0.45
Average	13.55	11.07	0.20	0.50


Signature 
(Miss Katesarin Vorradetwittaya)
Environmental Scientist

BANGKOK COGENERATION 2 CO., LTD., (Branch 2) EMISSION TEST RESULT

Run # : 2
Date: October 16, 2024
Start time: 11:01 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EM
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Location : HRSG 11
Finish time : 11:21 AM
Serial No.: 071023-47
Serial No.: 433
Serial No.: 058
Serial No.: 1070
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)
11:01 AM	13.55	10.96	0.22	0.46
11:02 AM	13.55	10.94	0.20	0.48
11:03 AM	13.55	11.08	0.20	0.46
11:04 AM	13.55	11.31	0.19	0.50
11:05 AM	13.55	11.17	0.19	0.46
11:06 AM	13.55	10.89	0.18	0.46
11:07 AM	13.55	11.00	0.15	0.47
11:08 AM	13.55	11.26	0.16	0.45
11:09 AM	13.55	11.16	0.14	0.45
11:10 AM	13.55	10.90	0.14	0.45
11:11 AM	13.56	11.45	0.13	0.45
11:12 AM	13.56	11.62	0.13	0.45
11:13 AM	13.57	11.20	0.13	0.45
11:14 AM	13.56	11.12	0.11	0.46
11:15 AM	13.57	11.20	0.11	0.46
11:16 AM	13.57	11.24	0.27	0.49
11:17 AM	13.58	11.11	0.34	0.49
11:18 AM	13.56	11.22	0.32	0.48
11:19 AM	13.57	11.46	0.32	0.50
11:20 AM	13.57	11.37	0.32	0.50
11:21 AM	13.57	11.00	0.31	0.50
Average	13.56	11.17	0.20	0.47

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

BANGKOK COGENERATION 2 CO., LTD., (Branch 2) EMISSION TEST RESULT

Run # : 3
Date: October 16, 2024
Start time: 11:22 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EM
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Location : HRSG 11
Finish time : 11:42 AM
Serial No.: 071023-47
Serial No.: 433
Serial No.: 058
Serial No.: 1070
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)
11:22 AM	13.58	10.96	0.29	0.51
11:23 AM	13.57	11.40	0.29	0.51
11:24 AM	13.56	11.68	0.28	0.51
11:25 AM	13.56	11.65	0.27	0.51
11:26 AM	13.57	11.34	0.25	0.56
11:27 AM	13.56	11.07	0.25	0.57
11:28 AM	13.58	11.15	0.26	0.57
11:29 AM	13.56	11.29	0.28	0.57
11:30 AM	13.56	11.24	0.28	0.57
11:31 AM	13.55	11.03	0.31	0.57
11:32 AM	13.56	10.84	0.31	0.57
11:33 AM	13.56	10.95	0.32	0.52
11:34 AM	13.59	11.08	0.32	0.52
11:35 AM	13.57	11.16	0.33	0.51
11:36 AM	13.56	11.19	0.34	0.46
11:37 AM	13.58	11.12	0.36	0.46
11:38 AM	13.55	11.12	0.36	0.51
11:39 AM	13.56	10.93	0.37	0.52
11:40 AM	13.57	10.58	0.38	0.52
11:41 AM	13.55	10.36	0.41	0.52
11:42 AM	13.55	10.42	0.39	0.52
Average	13.56	11.07	0.32	0.53

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REF. NO. : 224004_Cert-Stack/TSP_Oct 24
Branch 2 (BCC2)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 16-17/10/2024
RECEIVED DATE : 18/10/2024 ANALYTICAL DATE : 19-21/10/2024
REPORT DATE : 22/10/2024 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Song Hangchhwanun STACK LOCATION : HRSG 12
STACK DESCRIPTION

Height : 40.0 m Gas Velocity : 15.3 m/s
Diameter : 3.30 m Flow Rate* : 5,794 Ncu.m/min
Temperature : 82.8 °C Excess Oxygen : 13.5 %

PARAMETER	UNITS	RESULTS*		STANDARDS ^{1/}	REFERENCE METHODS
		13.5%O ₂	7%O ₂	7%O ₂	
Total Suspended Particulate	mg/Ncu.m.	2.26	4.24	60	US. EPA Method 5

Pornapa Puthum

(Miss Pornnapa Budtham)

Analyst

REG.NO. 2-239-ก-0018

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-ก-0010

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3. * At standard pressure of 760 mmHg and temperature of 25 °C, dry basis.

4. ^{1/} Notification of the Ministry of Industry, B.E.2549 and the Ministry of Natural Resources and Environment, B.E.2549.



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STACK EMISSION ANALYSIS REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REF. NO. : 224004_Cert-Stack/PM-10_Oct 24
Branch 2 (BCC2)
SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 16-17/10/2024
RECEIVED DATE : 18/10/2024 ANALYTICAL DATE : 19-21/10/2024
REPORT DATE : 22/10/2024 SAMPLE CONDITION : Normal
SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas
OPERATOR : Mr. Song Hangchhwanun STACK LOCATION : HRSG 12
STACK DESCRIPTION

Height : 40.0 m Gas Velocity : 15.3 m/s
Diameter : 3.30 m Flow Rate* : 5,793 Ncu.m/min
Temperature : 82.8 °C Excess Oxygen : 13.5 %

PARAMETER	UNITS	RESULTS*		STANDARDS	REFERENCE METHODS
		13.5%O ₂	7%O ₂	7%O ₂	
Particulate matter less than 10 microns	mg/Ncu.m.	1.09	2.05	-	US. EPA Method 201A

Pornapa Puthum

(Miss Pornnapa Budtham)

Analyst

REG.NO. 2-239-ก-0018

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-ก-0010

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4. - Standard is not specified.

**The Monitoring Result of Emission Concentration
HRSG 12
BANGKOK COGENERATION 2 CO., LTD., (Branch 2)
October 17, 2024**

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.51	13.47	10.76	10.72	20.05
2	13.51	13.48	10.66	10.62	19.89
3	13.54	13.50	10.65	10.61	19.93
Average	13.52	13.48	10.69	10.65	19.96

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.51	13.47	0.13	0.07	0.13
2	13.51	13.48	0.14	0.07	0.13
3	13.54	13.50	0.24	0.17	0.32
Average	13.52	13.48	0.17	0.10	0.19

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	13.51	13.47	0.54	0.50	0.94
2	13.51	13.48	0.52	0.48	0.90
3	13.54	13.50	0.49	0.45	0.85
Average	13.52	13.48	0.52	0.48	0.89

**BANGKOK COGENERATION 2 CO., LTD., (Branch 2)
EMISSION TEST RESULT**

Date: October 17, 2024
 Start time: 10:30 AM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 CO instrument Model: API 300 A
 Fuel Type : Natural Gas

Run # : 1
 Location : HRSG 12
 Finish time : 10:50 AM
 Serial No.: 071023-47
 Serial No.: 433
 Serial No.: 058
 Serial No.: 1070
 Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)
10:30 AM	13.51	10.65	0.18	0.54
10:31 AM	13.51	10.77	0.16	0.57
10:32 AM	13.52	10.96	0.16	0.57
10:33 AM	13.51	10.87	0.13	0.57
10:34 AM	13.51	10.85	0.13	0.57
10:35 AM	13.51	10.75	0.12	0.57
10:36 AM	13.51	10.85	0.11	0.59
10:37 AM	13.51	10.81	0.11	0.60
10:38 AM	13.51	10.61	0.10	0.57
10:39 AM	13.51	10.62	0.08	0.57
10:40 AM	13.51	10.59	0.08	0.53
10:41 AM	13.51	10.73	0.06	0.51
10:42 AM	13.51	10.72	0.05	0.51
10:43 AM	13.51	10.70	0.05	0.51
10:44 AM	13.51	10.83	0.03	0.51
10:45 AM	13.51	10.79	0.02	0.51
10:46 AM	13.51	10.75	0.06	0.51
10:47 AM	13.51	10.71	0.28	0.51
10:48 AM	13.51	10.72	0.27	0.51
10:49 AM	13.51	10.81	0.26	0.51
10:50 AM	13.51	10.90	0.25	0.51
Average	13.51	10.76	0.13	0.54

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

BANGKOK COGENERATION 2 CO., LTD., (Branch 2)

EMISSION TEST RESULT

Date: October 17, 2024
Start time: 10:51 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EM
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 2
Location : HRSG 12
Finish time : 11:11 AM
Serial No.: 071023-47
Serial No.: 433
Serial No.: 058
Serial No.: 1070
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)
10:51 AM	13.51	10.74	0.24	0.51
10:52 AM	13.51	11.02	0.23	0.51
10:53 AM	13.51	11.00	0.22	0.51
10:54 AM	13.51	10.90	0.20	0.51
10:55 AM	13.51	10.77	0.20	0.51
10:56 AM	13.51	10.68	0.18	0.51
10:57 AM	13.51	10.90	0.17	0.51
10:58 AM	13.51	10.62	0.17	0.51
10:59 AM	13.51	10.41	0.16	0.51
11:00 AM	13.51	10.60	0.14	0.53
11:01 AM	13.51	10.57	0.14	0.53
11:02 AM	13.51	10.44	0.12	0.57
11:03 AM	13.51	10.55	0.12	0.53
11:04 AM	13.51	10.48	0.10	0.51
11:05 AM	13.51	10.47	0.09	0.51
11:06 AM	13.51	10.57	0.09	0.51
11:07 AM	13.51	10.49	0.07	0.51
11:08 AM	13.51	10.61	0.06	0.51
11:09 AM	13.51	10.66	0.07	0.51
11:10 AM	13.51	10.62	0.05	0.51
11:11 AM	13.51	10.77	0.06	0.51
Average	13.51	10.66	0.14	0.52

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

BANGKOK COGENERATION 2 CO., LTD., (Branch 2)

EMISSION TEST RESULT

Date: October 17, 2024
Start time: 11:12 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: TELEDYNE 200 EM
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 3
Location : HRSG 12
Finish time : 11:32 AM
Serial No.: 071023-47
Serial No.: 433
Serial No.: 058
Serial No.: 1070
Test Operator : Kittipong T.

Time, min	O ₂ (%)	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)
11:12 AM	13.52	10.78	0.06	0.45
11:13 AM	13.51	11.01	0.05	0.45
11:14 AM	13.51	11.09	0.06	0.45
11:15 AM	13.52	10.78	0.06	0.45
11:16 AM	13.51	10.88	0.09	0.46
11:17 AM	13.53	10.70	0.32	0.51
11:18 AM	13.53	10.55	0.32	0.51
11:19 AM	13.53	10.74	0.32	0.51
11:20 AM	13.53	10.83	0.30	0.51
11:21 AM	13.53	10.48	0.30	0.50
11:22 AM	13.56	10.43	0.30	0.49
11:23 AM	13.55	10.62	0.30	0.50
11:24 AM	13.54	10.76	0.31	0.52
11:25 AM	13.57	10.61	0.30	0.52
11:26 AM	13.56	10.59	0.30	0.52
11:27 AM	13.57	10.53	0.29	0.49
11:28 AM	13.57	10.45	0.29	0.47
11:29 AM	13.57	10.64	0.29	0.52
11:30 AM	13.57	10.55	0.29	0.52
11:31 AM	13.57	10.39	0.30	0.52
11:32 AM	13.59	10.33	0.29	0.52
Average	13.54	10.65	0.24	0.49

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

ภาคผนวก ง.2

ใบรับรองผลการตรวจวิเคราะห์
คุณภาพอากาศในบรรยากาศทั่วไป

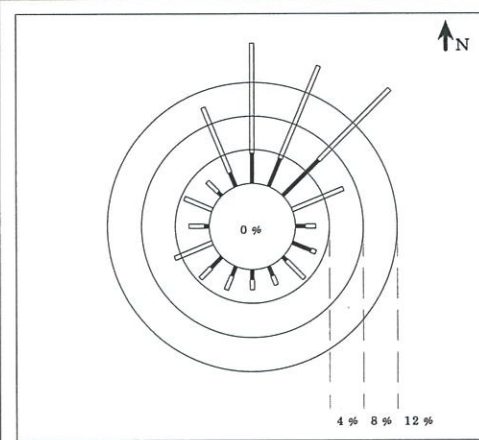


Meteorological Monitoring Results : Wind Rose

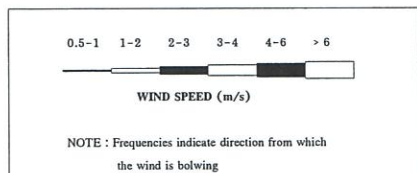
MTR-BCC2

Location : Ban Plong Community Monitor period : 15-22 Oct 2024
 Wind Speed Model : Novalynx WS-25 Serial No : A4905
 Wind Direction Model : Novalynx WS-25 Serial No : A4905

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0357	0.1310	0.0000	0.0000	0.0000	0.0000	0.1667
NNE	0.0357	0.1190	0.0000	0.0000	0.0000	0.0000	0.1548
NE	0.0595	0.1190	0.0000	0.0000	0.0000	0.0000	0.1786
ENE	0.0000	0.0655	0.0000	0.0000	0.0000	0.0000	0.0655
E	0.0119	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
ESE	0.0238	0.0060	0.0000	0.0000	0.0000	0.0000	0.0298
SE	0.0060	0.0298	0.0000	0.0000	0.0000	0.0000	0.0357
SSE	0.0119	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
S	0.0119	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
SSW	0.0119	0.0179	0.0000	0.0000	0.0000	0.0000	0.0298
SW	0.0179	0.0179	0.0000	0.0000	0.0000	0.0000	0.0357
WSW	0.0000	0.0476	0.0000	0.0000	0.0000	0.0000	0.0476
W	0.0060	0.0179	0.0000	0.0000	0.0000	0.0000	0.0238
WNW	0.0000	0.0357	0.0000	0.0000	0.0000	0.0000	0.0357
NW	0.0060	0.0179	0.0000	0.0000	0.0000	0.0000	0.0238
NNW	0.0179	0.0833	0.0000	0.0000	0.0000	0.0000	0.1012
CALM	0.0000						



Application : WindPro Ver.1.0
 Control : 16 Direction Calculation With
 Calm Wind < 0.5 m/s
 Data Unit : Direction in Deg.
 Wind Speed in m/s



File Control : R:\Database\Windrose\FileControl\Win-224004-Ban Plong Community 15-22 Oct 2024

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

Preeda S.
 (Miss Preeda Somjai)
 Technical Management Team



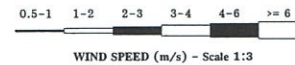
Meteorological Monitoring Results : Wind Rose

MTR-BCC2

Location : Ban Plong Community Monitor period : 15-22 Oct 2024
 Wind Speed Model : Novalynx WS-25 Serial No : A4905
 Wind Direction Model : Novalynx WS-25 Serial No : A4905

Time	15-16 Oct 2024		16-17 Oct 2024		17-18 Oct 2024		18-19 Oct 2024	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
15:00 - 16:00	0.7	NNW	1.1	NE	0.8	SSW	0.7	NNE
16:00 - 17:00	1.2	ESE	0.8	NE	1.2	E	1.3	N
17:00 - 18:00	1.4	NE	1.1	NE	0.8	NE	1.1	NNE
18:00 - 19:00	1.4	N	1.3	NE	1.1	NE	1.5	NE
19:00 - 20:00	1.0	NE	0.8	N	1.0	N	1.3	ENE
20:00 - 21:00	1.2	WNW	0.7	N	1.3	NNE	1.2	NNE
21:00 - 22:00	1.6	ENE	1.7	NNW	1.4	N	1.5	NE
22:00 - 23:00	1.0	N	1.4	N	1.1	NNE	0.7	NNE
23:00 - 24:00	1.4	N	0.7	N	1.2	N	0.9	N
00:00 - 01:00	1.5	NE	1.3	NE	1.0	N	1.2	NNE
01:00 - 02:00	1.2	N	0.9	NE	1.5	SE	1.6	N
02:00 - 03:00	0.9	NE	1.7	ENE	1.3	NNE	1.3	NE
03:00 - 04:00	1.1	NNW	1.0	N	1.5	NNW	1.2	NE
04:00 - 05:00	1.7	NNW	1.4	NNW	1.4	ENE	1.1	NNE
05:00 - 06:00	1.5	NNE	1.2	NNE	1.1	NNW	1.3	N
06:00 - 07:00	1.5	N	1.0	NNE	1.6	N	1.0	N
07:00 - 08:00	1.3	NNW	1.6	NNW	0.6	N	1.4	NE
08:00 - 09:00	0.8	ESE	1.1	WSW	1.6	NE	1.2	NNE
09:00 - 10:00	1.3	W	1.6	WNW	1.7	SE	1.1	NNE
10:00 - 11:00	1.1	WSW	1.0	W	0.7	S	0.9	NNE
11:00 - 12:00	1.1	SW	0.9	SE	0.9	SW	0.7	SSW
12:00 - 13:00	0.7	NNE	1.2	WSW	1.5	WSW	1.4	ENE
13:00 - 14:00	1.7	ENE	0.8	NNW	1.3	SSW	1.7	SSE
14:00 - 15:00	1.5	N	1.0	WSW	1.6	NE	0.6	ESE

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-224004-Ban Plong Community 15-22 Oct 2024

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

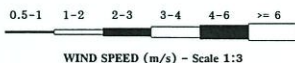
Preeda S.
 (Miss Preeda Somjai)
 Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-BCC2

Location : Ban Plong Community Monitor period : 15-22 Oct 2024
Wind Speed Model : Novalynx WS-25 Serial No : A4905
Wind Direction Model : Novalynx WS-25 Serial No : A4905

Time	19-20 Oct 2024		20-21 Oct 2024		21-22 Oct 2024		
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	
15:00 - 16:00	0.7	ESE	0.9	SSE	1.7	NW	
16:00 - 17:00	1.1	E	1.4	SSW	1.3	NNW	
17:00 - 18:00	1.6	S	0.7	NE	1.7	NNE	
18:00 - 19:00	0.8	NE	1.5	NE	1.0	NNE	
19:00 - 20:00	0.7	NNE	1.6	NNE	1.3	N	
20:00 - 21:00	0.9	NE	0.7	NE	1.2	WNW	
21:00 - 22:00	1.0	NE	1.0	N	1.3	NNW	
22:00 - 23:00	0.8	E	1.1	ENE	1.1	NNW	
23:00 - 24:00	1.1	ENE	1.2	NE	0.6	NE	
00:00 - 01:00	1.7	NNE	0.7	NNW	1.1	ENE	
01:00 - 02:00	1.3	ENE	1.4	N	1.5	NNW	
02:00 - 03:00	0.7	SW	0.7	ESE	1.4	NNE	
03:00 - 04:00	1.4	NNE	0.8	N	1.0	NNE	
04:00 - 05:00	1.0	N	1.2	NNE	1.0	NNW	
05:00 - 06:00	0.9	W	0.7	NNE	1.5	N	
06:00 - 07:00	1.4	SE	1.6	WSW	1.4	W	
07:00 - 08:00	1.6	NE	0.8	SW	1.5	NW	
08:00 - 09:00	0.9	NE	1.2	WSW	1.5	SW	
09:00 - 10:00	1.5	ENE	1.6	NE	1.6	WNW	
10:00 - 11:00	0.9	E	0.7	SSE	0.9	NW	
11:00 - 12:00	1.6	SSE	1.0	WSW	1.1	SW	
12:00 - 13:00	1.3	S	1.0	SSW	1.3	SE	
13:00 - 14:00	0.7	S	1.6	WNW	1.2	NNW	
14:00 - 15:00	1.6	SE	1.0	WNW	1.6	NW	
Wind Rose							



File Control : R:\Database\Windrose\FileControl\Win-224004-Ban Plong Community 15-22 Oct 2024

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REFERENCE NO. : 224004 Amb (Cert.)/TSP/Oct 2024
(BCC2) SAMPLING DATE : 15-23/10/2024
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 01-04/11/2024
RECEIVED DATE : 01/11/2024 SAMPLE CONDITION : Normal
REPORT DATE : 04/11/2024 SITE OPERATOR : Mr. Phuwarech Kaewjirakulsri

LOCATION DESCRIPTION : 1. Wat Map Chalute
2. Wat Sophon Wanaram
3. Ban Plong Community
4. Wat Nong Feab

PARAMETER	SAMPLING DATE	UNITS	RESULTS				STANDARD*	REFERENCE METHODS
			1	2	3	4		
TSP (24 hr)	15-16/10/2024	mg/m ³	0.029	0.045	0.058	0.033	0.330	High Volume Air
	16-17/10/2024	mg/m ³	-	0.038	0.065	0.038		Sampler/Gravimetric
	17-18/10/2024	mg/m ³	0.035	0.035	0.050	0.034		Method
	18-19/10/2024	mg/m ³	0.029	0.028	0.039	0.034		
	19-20/10/2024	mg/m ³	0.018	0.020	0.023	0.021		
	20-21/10/2024	mg/m ³	0.027	0.028	0.053	0.025		
	21-22/10/2024	mg/m ³	0.034	0.032	0.063	0.035		
	22-23/10/2024	mg/m ³	0.034	-	-	-		

(Miss Pornnapa Budtham)

Analyst

(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * Notification of National Environment Board, No.24, B.E.2547 (2004).



บริษัท ซีคोट จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REFERENCE NO. : 224004 Amb (Cert.)/PM-10/Oct 2024
(BCC2) SAMPLING DATE : 15-23/10/2024
SAMPLING BY : SECOT Co., Ltd. ANALYTICAL DATE : 01-04/11/2024
RECEIVED DATE : 01/11/2024 SAMPLE CONDITION : Normal
REPORT DATE : 04/11/2024 SITE OPERATOR : Mr. Phuwadech Kaewjirakulsri
LOCATION DESCRIPTION : 1. Wat Map Chalute
2. Wat Sophon Wanaram
3. Ban Plong Community
4. Wat Nong Feab

PARAMETER	SAMPLING DATE	UNITS	RESULTS				STANDARD*	REFERENCE METHODS
			1	2	3	4		
PM-10 (24 hr)	15-16/10/2024	mg/m ³	0.020	0.026	0.052	0.024	0.120	High Volume Air Sampler
	16-17/10/2024	mg/m ³	-	0.023	0.042	0.015		(Hi-Vol PM-10 Size
	17-18/10/2024	mg/m ³	0.032	0.028	0.039	0.025		Selective Inlet)/
	18-19/10/2024	mg/m ³	0.024	0.023	0.034	0.028		Gravimetric Method
	19-20/10/2024	mg/m ³	0.016	0.020	0.020	0.019		
	20-21/10/2024	mg/m ³	0.024	0.020	0.041	0.019		
	21-22/10/2024	mg/m ³	0.022	0.026	0.053	0.026		
	22-23/10/2024	mg/m ³	0.031	-	-	-		


(Miss Pornnapa Budtham)

Analyst


(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

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3. * Notification of National Environment Board, No.24, B.E.2547 (2004).

R:\Database\Ambient\FileControl\Amb-224004-Wat Map Chalute-SO2 15-22 Oct 2024



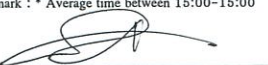
Ambient Air Monitoring Results : Sulfur dioxide MTR-BCC2


Location : Wat Map Chalute Monitor Period : 15-22 Oct 2024
Analyzer Model : Teledyne T100 Station No : SCT-18
Serial No : 119 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 04 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 03 Jan 2025

Time	SO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
15:00 - 16:00	0.0014	0.0048	0.0012	0.0019	0.0014	0.0023	0.0019
16:00 - 17:00	0.0013	0.0037	0.0010	0.0020	0.0009	0.0021	0.0008
17:00 - 18:00	0.0008	0.0027	0.0010	0.0015	0.0037	0.0014	0.0017
18:00 - 19:00	0.0009	0.0019	0.0007	0.0013	0.0031	0.0020	0.0012
19:00 - 20:00	0.0010	0.0018	0.0016	0.0017	0.0024	0.0015	0.0018
20:00 - 21:00	0.0019	0.0009	0.0010	0.0009	0.0012	0.0008	0.0012
21:00 - 22:00	0.0012	0.0013	0.0012	0.0007	0.0017	0.0020	0.0016
22:00 - 23:00	0.0017	0.0017	0.0014	0.0011	0.0008	0.0013	0.0018
23:00 - 00:00	0.0010	0.0010	0.0020	0.0008	0.0015	0.0012	0.0013
00:00 - 01:00	0.0014	0.0007	0.0019	0.0011	0.0015	0.0018	0.0020
01:00 - 02:00	0.0007	0.0014	0.0008	0.0010	0.0015	0.0008	0.0015
02:00 - 03:00	0.0013	0.0012	0.0016	0.0019	0.0015	0.0010	0.0013
03:00 - 04:00	0.0011	0.0016	0.0040	0.0038	0.0012	0.0019	0.0019
04:00 - 05:00	0.0019	0.0009	0.0012	0.0013	0.0008	0.0012	0.0019
05:00 - 06:00	0.0020	0.0011	0.0013	0.0017	0.0007	0.0014	0.0015
06:00 - 07:00	0.0016	0.0009	0.0018	0.0016	0.0036	0.0028	0.0016
07:00 - 08:00	0.0010	0.0013	0.0020	0.0024	0.0009	0.0030	0.0009
08:00 - 09:00	0.0019	0.0018	0.0012	0.0019	0.0014	0.0019	0.0016
09:00 - 10:00	0.0008	0.0008	0.0010	0.0009	0.0016	0.0008	0.0012
10:00 - 11:00	0.0007	0.0023	0.0016	0.0015	0.0007	0.0012	0.0016
11:00 - 12:00	0.0014	0.0021	0.0022	0.0014	0.0018	0.0024	0.0011
12:00 - 13:00	0.0013	0.0019	0.0018	0.0009	0.0018	0.0010	0.0012
13:00 - 14:00	0.0020	0.0013	0.0019	0.0012	0.0019	0.0025	0.0018
14:00 - 15:00	0.0035	0.0014	0.0017	0.0019	0.0025	0.0018	0.0015
Average-24Hr*	0.0014	0.0017	0.0015	0.0015	0.0017	0.0017	0.0015
Max-1Hr	0.0035	0.0048	0.0040	0.0038	0.0037	0.0030	0.0020
Min-1Hr	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 15:00-15:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-BCC2

Location : Wat Sophon Wanaram Monitor Period : 15-22 Oct 2024
Analyzer Model : API 100A Station No : SCT-19
Serial No : 376 Site Operator : Mr. Phuwarech Kaewjirakulsi

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 04 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 03 Jan 2025

Time	SO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
16:00 - 17:00	0.0011	0.0012	0.0035	0.0018	0.0097	0.0101	0.0013
17:00 - 18:00	0.0009	0.0008	0.0018	0.0024	0.0017	0.0024	0.0016
18:00 - 19:00	0.0012	0.0017	0.0022	0.0027	0.0018	0.0018	0.0026
19:00 - 20:00	0.0022	0.0014	0.0014	0.0020	0.0009	0.0018	0.0027
20:00 - 21:00	0.0025	0.0008	0.0020	0.0018	0.0010	0.0011	0.0024
21:00 - 22:00	0.0010	0.0021	0.0009	0.0013	0.0015	0.0015	0.0017
22:00 - 23:00	0.0015	0.0013	0.0025	0.0021	0.0018	0.0027	0.0013
23:00 - 00:00	0.0017	0.0012	0.0025	0.0017	0.0012	0.0026	0.0028
00:00 - 01:00	0.0027	0.0011	0.0009	0.0011	0.0011	0.0028	0.0023
01:00 - 02:00	0.0011	0.0010	0.0018	0.0027	0.0011	0.0021	0.0015
02:00 - 03:00	0.0026	0.0027	0.0022	0.0016	0.0017	0.0014	0.0016
03:00 - 04:00	0.0022	0.0013	0.0028	0.0014	0.0011	0.0013	0.0022
04:00 - 05:00	0.0018	0.0023	0.0019	0.0009	0.0024	0.0013	0.0016
05:00 - 06:00	0.0027	0.0024	0.0011	0.0022	0.0013	0.0010	0.0016
06:00 - 07:00	0.0027	0.0020	0.0012	0.0022	0.0022	0.0020	0.0009
07:00 - 08:00	0.0024	0.0019	0.0025	0.0028	0.0018	0.0025	0.0027
08:00 - 09:00	0.0024	0.0019	0.0009	0.0016	0.0009	0.0028	0.0011
09:00 - 10:00	0.0036	0.0016	0.0014	0.0024	0.0013	0.0020	0.0021
10:00 - 11:00	0.0026	0.0037	0.0013	0.0015	0.0026	0.0014	0.0016
11:00 - 12:00	0.0045	0.0099	0.0008	0.0018	0.0021	0.0024	0.0010
12:00 - 13:00	0.0024	0.0060	0.0009	0.0012	0.0008	0.0021	0.0034
13:00 - 14:00	0.0009	0.0010	0.0014	0.0022	0.0044	0.0049	0.0044
14:00 - 15:00	0.0012	0.0024	0.0025	0.0027	0.0063	0.0053	0.0018
15:00 - 16:00	0.0020	0.0016	0.0016	0.0072	0.0039	0.0095	0.0008
Average-24Hr*	0.0021	0.0022	0.0018	0.0021	0.0023	0.0029	0.0020
Max-1Hr	0.0045	0.0099	0.0035	0.0072	0.0097	0.0101	0.0044
Min-1Hr	0.0009	0.0008	0.0008	0.0009	0.0008	0.0010	0.0008
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 16:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-BCC2

Location : Ban Pong Community Monitor Period : 15-22 Oct 2024
Analyzer Model : API 100A Station No : SCT-16
Serial No : 342 Site Operator : Mr. Phuwarech Kaewjirakulsi

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 05 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 04 Jan 2025

Time	SO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
15:00 - 16:00	0.0017	0.0037	0.0034	0.0034	0.0026	0.0021	0.0032
16:00 - 17:00	0.0023	0.0028	0.0022	0.0036	0.0031	0.0032	0.0038
17:00 - 18:00	0.0029	0.0017	0.0029	0.0036	0.0024	0.0019	0.0036
18:00 - 19:00	0.0031	0.0022	0.0019	0.0018	0.0040	0.0032	0.0026
19:00 - 20:00	0.0023	0.0039	0.0017	0.0022	0.0035	0.0025	0.0033
20:00 - 21:00	0.0023	0.0036	0.0026	0.0029	0.0021	0.0035	0.0019
21:00 - 22:00	0.0028	0.0041	0.0028	0.0030	0.0031	0.0027	0.0022
22:00 - 23:00	0.0042	0.0038	0.0039	0.0036	0.0036	0.0036	0.0023
23:00 - 00:00	0.0037	0.0024	0.0038	0.0021	0.0027	0.0026	0.0028
00:00 - 01:00	0.0038	0.0029	0.0023	0.0022	0.0021	0.0035	0.0027
01:00 - 02:00	0.0019	0.0020	0.0026	0.0023	0.0027	0.0036	0.0035
02:00 - 03:00	0.0023	0.0032	0.0039	0.0030	0.0036	0.0033	0.0026
03:00 - 04:00	0.0033	0.0032	0.0031	0.0019	0.0033	0.0025	0.0020
04:00 - 05:00	0.0042	0.0032	0.0032	0.0027	0.0019	0.0022	0.0032
05:00 - 06:00	0.0033	0.0035	0.0028	0.0033	0.0038	0.0038	0.0024
06:00 - 07:00	0.0034	0.0033	0.0018	0.0025	0.0031	0.0027	0.0034
07:00 - 08:00	0.0032	0.0038	0.0036	0.0035	0.0025	0.0030	0.0019
08:00 - 09:00	0.0018	0.0027	0.0028	0.0034	0.0023	0.0039	0.0037
09:00 - 10:00	0.0018	0.0023	0.0038	0.0035	0.0042	0.0037	0.0029
10:00 - 11:00	0.0033	0.0034	0.0035	0.0019	0.0032	0.0037	0.0034
11:00 - 12:00	0.0030	0.0032	0.0030	0.0042	0.0018	0.0037	0.0031
12:00 - 13:00	0.0028	0.0032	0.0025	0.0021	0.0022	0.0037	0.0022
13:00 - 14:00	0.0029	0.0017	0.0019	0.0028	0.0021	0.0022	0.0022
14:00 - 15:00	0.0031	0.0030	0.0035	0.0034	0.0022	0.0024	0.0019
Average-24Hr*	0.0029	0.0030	0.0029	0.0029	0.0028	0.0031	0.0028
Max-1Hr	0.0042	0.0041	0.0039	0.0042	0.0042	0.0039	0.0038
Min-1Hr	0.0017	0.0017	0.0017	0.0018	0.0018	0.0019	0.0019
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 15:00-15:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-BCC2

Location : Wat Nong Feab
Analyzer Model : API 100E
Serial No : 069

Monitor Period : 15-22 Oct 2024
Station No : SCT-14
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E

Serial No : 587

Calibration Gas Cylinder I.D.: EB0102326

Certified Date : 05 Jan 2024

Cal Concentration (ppb) : 0,100,200,400

Expire Date : 04 Jan 2025

Time	SO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
14:00 - 15:00	0.0015	0.0024	0.0051	0.0040	0.0017	0.0032	0.0030
15:00 - 16:00	0.0017	0.0031	0.0034	0.0036	0.0022	0.0030	0.0016
16:00 - 17:00	0.0022	0.0046	0.0015	0.0027	0.0019	0.0023	0.0020
17:00 - 18:00	0.0018	0.0021	0.0021	0.0021	0.0030	0.0020	0.0032
18:00 - 19:00	0.0034	0.0022	0.0031	0.0019	0.0031	0.0024	0.0018
19:00 - 20:00	0.0035	0.0029	0.0033	0.0019	0.0018	0.0020	0.0014
20:00 - 21:00	0.0025	0.0016	0.0017	0.0018	0.0025	0.0031	0.0014
21:00 - 22:00	0.0022	0.0016	0.0035	0.0022	0.0019	0.0026	0.0027
22:00 - 23:00	0.0017	0.0030	0.0026	0.0014	0.0035	0.0023	0.0015
23:00 - 00:00	0.0024	0.0020	0.0019	0.0032	0.0019	0.0024	0.0034
00:00 - 01:00	0.0015	0.0025	0.0019	0.0035	0.0019	0.0034	0.0015
01:00 - 02:00	0.0021	0.0020	0.0033	0.0027	0.0031	0.0033	0.0028
02:00 - 03:00	0.0035	0.0015	0.0019	0.0033	0.0029	0.0027	0.0029
03:00 - 04:00	0.0019	0.0018	0.0017	0.0018	0.0017	0.0023	0.0035
04:00 - 05:00	0.0032	0.0025	0.0019	0.0014	0.0023	0.0034	0.0023
05:00 - 06:00	0.0027	0.0026	0.0025	0.0015	0.0029	0.0035	0.0026
06:00 - 07:00	0.0026	0.0029	0.0031	0.0017	0.0014	0.0024	0.0026
07:00 - 08:00	0.0035	0.0026	0.0020	0.0033	0.0031	0.0028	0.0036
08:00 - 09:00	0.0029	0.0017	0.0016	0.0021	0.0032	0.0033	0.0020
09:00 - 10:00	0.0020	0.0021	0.0014	0.0022	0.0030	0.0025	0.0023
10:00 - 11:00	0.0021	0.0015	0.0029	0.0023	0.0016	0.0021	0.0022
11:00 - 12:00	0.0025	0.0015	0.0031	0.0063	0.0023	0.0016	0.0035
12:00 - 13:00	0.0019	0.0017	0.0029	0.0081	0.0031	0.0018	0.0034
13:00 - 14:00	0.0018	0.0029	0.0032	0.0043	0.0043	0.0034	0.0028
Average-24Hr*	0.0024	0.0023	0.0026	0.0029	0.0025	0.0027	0.0025
Max-1Hr	0.0035	0.0046	0.0051	0.0081	0.0043	0.0035	0.0036
Min-1Hr	0.0015	0.0015	0.0014	0.0014	0.0014	0.0016	0.0014
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-BCC2

Location : Wat Map Chalute
Analyzer Model : API 200A
Serial No : 1523

Monitor Period : 15-22 Oct 2024
Station No : SCT-18
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E

Serial No : 587

Calibration Gas Cylinder I.D.: EB0102326

Certified Date : 05 Jan 2024

Cal Concentration (ppb) : 0,100,200,400

Expire Date : 04 Jan 2025

Time	NO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
15:00 - 16:00	0.0039	0.0053	0.0061	0.0077	0.0049	0.0079	0.0071
16:00 - 17:00	0.0047	0.0067	0.0058	0.0068	0.0059	0.0078	0.0070
17:00 - 18:00	0.0041	0.0058	0.0042	0.0047	0.0059	0.0069	0.0078
18:00 - 19:00	0.0055	0.0079	0.0080	0.0071	0.0052	0.0080	0.0062
19:00 - 20:00	0.0078	0.0079	0.0047	0.0046	0.0067	0.0071	0.0045
20:00 - 21:00	0.0057	0.0072	0.0038	0.0042	0.0044	0.0059	0.0060
21:00 - 22:00	0.0049	0.0057	0.0038	0.0051	0.0076	0.0048	0.0071
22:00 - 23:00	0.0081	0.0057	0.0052	0.0048	0.0069	0.0056	0.0076
23:00 - 00:00	0.0077	0.0064	0.0041	0.0072	0.0070	0.0055	0.0047
00:00 - 01:00	0.0065	0.0075	0.0075	0.0078	0.0066	0.0039	0.0053
01:00 - 02:00	0.0066	0.0075	0.0059	0.0051	0.0074	0.0059	0.0051
02:00 - 03:00	0.0047	0.0052	0.0077	0.0056	0.0042	0.0061	0.0043
03:00 - 04:00	0.0079	0.0052	0.0048	0.0052	0.0039	0.0065	0.0077
04:00 - 05:00	0.0042	0.0044	0.0067	0.0049	0.0064	0.0066	0.0045
05:00 - 06:00	0.0051	0.0052	0.0069	0.0070	0.0058	0.0052	0.0038
06:00 - 07:00	0.0058	0.0076	0.0050	0.0075	0.0064	0.0076	0.0064
07:00 - 08:00	0.0049	0.0076	0.0060	0.0072	0.0059	0.0048	0.0071
08:00 - 09:00	0.0044	0.0042	0.0055	0.0069	0.0076	0.0056	0.0078
09:00 - 10:00	0.0048	0.0065	0.0048	0.0046	0.0055	0.0048	0.0066
10:00 - 11:00	0.0051	0.0075	0.0080	0.0067	0.0072	0.0039	0.0066
11:00 - 12:00	0.0048	0.0081	0.0072	0.0062	0.0039	0.0063	0.0054
12:00 - 13:00	0.0055	0.0074	0.0067	0.0076	0.0046	0.0067	0.0075
13:00 - 14:00	0.0042	0.0042	0.0040	0.0053	0.0041	0.0070	0.0050
14:00 - 15:00	0.0058	0.0046	0.0041	0.0044	0.0056	0.0061	0.0051
Average-24Hr*	0.0055	0.0063	0.0057	0.0060	0.0058	0.0061	0.0061
Max-1Hr	0.0081	0.0081	0.0080	0.0078	0.0076	0.0080	0.0078
Min-1Hr	0.0039	0.0042	0.0038	0.0042	0.0039	0.0039	0.0038
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

Remark : * Average time between 15:00-15:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-BCC2

Location : Wat Sophon Wanaram Monitor Period : 15-22 Oct 2024
Analyzer Model : API 200AU Station No : SCT-19
Serial No : 144 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 05 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 04 Jan 2025

Time	NO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
16:00 - 17:00	0.0057	0.0042	0.0035	0.0048	0.0070	0.0061	0.0033
17:00 - 18:00	0.0035	0.0051	0.0061	0.0044	0.0031	0.0066	0.0040
18:00 - 19:00	0.0066	0.0040	0.0059	0.0030	0.0033	0.0029	0.0073
19:00 - 20:00	0.0033	0.0043	0.0067	0.0061	0.0055	0.0027	0.0033
20:00 - 21:00	0.0042	0.0029	0.0040	0.0040	0.0074	0.0064	0.0052
21:00 - 22:00	0.0064	0.0035	0.0038	0.0071	0.0063	0.0055	0.0036
22:00 - 23:00	0.0032	0.0066	0.0059	0.0072	0.0074	0.0053	0.0043
23:00 - 00:00	0.0050	0.0047	0.0046	0.0045	0.0059	0.0068	0.0033
00:00 - 01:00	0.0069	0.0028	0.0055	0.0056	0.0049	0.0057	0.0062
01:00 - 02:00	0.0029	0.0063	0.0068	0.0029	0.0065	0.0048	0.0051
02:00 - 03:00	0.0053	0.0050	0.0054	0.0035	0.0057	0.0047	0.0028
03:00 - 04:00	0.0055	0.0047	0.0065	0.0055	0.0049	0.0058	0.0029
04:00 - 05:00	0.0051	0.0033	0.0029	0.0042	0.0056	0.0031	0.0062
05:00 - 06:00	0.0031	0.0064	0.0052	0.0033	0.0038	0.0060	0.0067
06:00 - 07:00	0.0049	0.0042	0.0040	0.0045	0.0031	0.0037	0.0074
07:00 - 08:00	0.0056	0.0063	0.0047	0.0058	0.0039	0.0074	0.0073
08:00 - 09:00	0.0068	0.0040	0.0035	0.0054	0.0074	0.0057	0.0058
09:00 - 10:00	0.0050	0.0050	0.0047	0.0030	0.0053	0.0031	0.0053
10:00 - 11:00	0.0057	0.0029	0.0056	0.0070	0.0042	0.0046	0.0041
11:00 - 12:00	0.0036	0.0062	0.0037	0.0057	0.0049	0.0044	0.0035
12:00 - 13:00	0.0033	0.0059	0.0073	0.0044	0.0027	0.0031	0.0052
13:00 - 14:00	0.0039	0.0045	0.0046	0.0059	0.0045	0.0039	0.0055
14:00 - 15:00	0.0047	0.0037	0.0056	0.0051	0.0072	0.0028	0.0027
15:00 - 16:00	0.0051	0.0053	0.0065	0.0040	0.0059	0.0067	0.0074

Average-24Hr*	0.0048	0.0047	0.0051	0.0049	0.0053	0.0049	0.0049
Max-1Hr	0.0069	0.0066	0.0073	0.0072	0.0074	0.0074	0.0074
Min-1Hr	0.0029	0.0028	0.0029	0.0029	0.0027	0.0027	0.0027

Standard-1Hr 0.17 ppm(320 ug/cu.m)
Standard-24Hr -

Remark : * Average time between 16:00-16:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-BCC2

Location : Ban Pong Community Monitor Period : 15-22 Oct 2024
Analyzer Model : API 200A Station No : SCT-16
Serial No : 2384 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 05 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 04 Jan 2025

Time	NO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
15:00 - 16:00	0.0046	0.0063	0.0064	0.0066	0.0073	0.0081	0.0049
16:00 - 17:00	0.0061	0.0069	0.0057	0.0064	0.0054	0.0051	0.0070
17:00 - 18:00	0.0071	0.0079	0.0050	0.0063	0.0077	0.0053	0.0066
18:00 - 19:00	0.0081	0.0070	0.0075	0.0052	0.0072	0.0052	0.0055
19:00 - 20:00	0.0055	0.0054	0.0078	0.0047	0.0071	0.0063	0.0057
20:00 - 21:00	0.0050	0.0076	0.0065	0.0058	0.0057	0.0069	0.0063
21:00 - 22:00	0.0079	0.0077	0.0069	0.0078	0.0069	0.0059	0.0082
22:00 - 23:00	0.0074	0.0056	0.0076	0.0064	0.0078	0.0058	0.0046
23:00 - 00:00	0.0057	0.0080	0.0081	0.0071	0.0053	0.0051	0.0061
00:00 - 01:00	0.0074	0.0062	0.0078	0.0056	0.0069	0.0068	0.0080
01:00 - 02:00	0.0071	0.0052	0.0050	0.0070	0.0062	0.0068	0.0075
02:00 - 03:00	0.0063	0.0047	0.0057	0.0053	0.0057	0.0082	0.0047
03:00 - 04:00	0.0056	0.0073	0.0075	0.0063	0.0061	0.0073	0.0060
04:00 - 05:00	0.0078	0.0071	0.0060	0.0068	0.0067	0.0067	0.0071
05:00 - 06:00	0.0047	0.0066	0.0075	0.0071	0.0051	0.0081	0.0079
06:00 - 07:00	0.0051	0.0061	0.0067	0.0083	0.0063	0.0047	0.0069
07:00 - 08:00	0.0075	0.0049	0.0051	0.0081	0.0063	0.0059	0.0050
08:00 - 09:00	0.0053	0.0083	0.0054	0.0051	0.0050	0.0080	0.0077
09:00 - 10:00	0.0051	0.0077	0.0074	0.0072	0.0081	0.0048	0.0070
10:00 - 11:00	0.0070	0.0065	0.0083	0.0055	0.0073	0.0077	0.0061
11:00 - 12:00	0.0067	0.0066	0.0068	0.0075	0.0064	0.0057	0.0075
12:00 - 13:00	0.0071	0.0073	0.0062	0.0047	0.0055	0.0065	0.0071
13:00 - 14:00	0.0070	0.0053	0.0047	0.0048	0.0072	0.0082	0.0078
14:00 - 15:00	0.0076	0.0054	0.0060	0.0077	0.0074	0.0055	0.0061

Average-24Hr*	0.0064	0.0065	0.0066	0.0064	0.0065	0.0064	0.0066
Max-1Hr	0.0081	0.0083	0.0083	0.0083	0.0081	0.0082	0.0082
Min-1Hr	0.0046	0.0047	0.0047	0.0047	0.0050	0.0047	0.0046

Standard-1Hr 0.17 ppm(320 ug/cu.m)
Standard-24Hr -

Remark : * Average time between 15:00-15:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide

MTR-BCC2

Location : Wat Nong Feab Monitor Period : 15-22 Oct 2024
 Analyzer Model : API 200A Station No : SCT-14
 Serial No : 1645 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Teledyne 700E Serial No : 587
 Calibration Gas Cylinder I.D.: EB0102326
 Certified Date : 05 Jan 2024 Cal Concentration (ppb) : 0,100,200,400
 Expire Date : 04 Jan 2025

Time	NO2 Concentration (ppm)						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
14:00 - 15:00	0.0062	0.0070	0.0067	0.0054	0.0070	0.0062	0.0059
15:00 - 16:00	0.0069	0.0071	0.0046	0.0062	0.0053	0.0059	0.0051
16:00 - 17:00	0.0053	0.0061	0.0071	0.0053	0.0042	0.0051	0.0049
17:00 - 18:00	0.0070	0.0052	0.0052	0.0064	0.0069	0.0072	0.0046
18:00 - 19:00	0.0051	0.0055	0.0046	0.0059	0.0053	0.0050	0.0057
19:00 - 20:00	0.0070	0.0058	0.0056	0.0055	0.0072	0.0060	0.0061
20:00 - 21:00	0.0052	0.0048	0.0049	0.0067	0.0043	0.0062	0.0043
21:00 - 22:00	0.0069	0.0050	0.0064	0.0063	0.0058	0.0057	0.0068
22:00 - 23:00	0.0042	0.0052	0.0056	0.0057	0.0071	0.0073	0.0047
23:00 - 00:00	0.0047	0.0072	0.0048	0.0052	0.0054	0.0048	0.0044
00:00 - 01:00	0.0064	0.0044	0.0055	0.0069	0.0053	0.0049	0.0064
01:00 - 02:00	0.0043	0.0062	0.0070	0.0069	0.0047	0.0066	0.0052
02:00 - 03:00	0.0067	0.0059	0.0046	0.0072	0.0068	0.0071	0.0055
03:00 - 04:00	0.0051	0.0050	0.0049	0.0045	0.0061	0.0060	0.0073
04:00 - 05:00	0.0047	0.0053	0.0044	0.0071	0.0071	0.0054	0.0061
05:00 - 06:00	0.0069	0.0059	0.0066	0.0068	0.0056	0.0052	0.0062
06:00 - 07:00	0.0047	0.0043	0.0060	0.0051	0.0065	0.0046	0.0044
07:00 - 08:00	0.0064	0.0053	0.0042	0.0054	0.0048	0.0043	0.0072
08:00 - 09:00	0.0060	0.0043	0.0053	0.0053	0.0070	0.0058	0.0047
09:00 - 10:00	0.0054	0.0050	0.0067	0.0063	0.0069	0.0043	0.0059
10:00 - 11:00	0.0066	0.0050	0.0070	0.0054	0.0059	0.0052	0.0061
11:00 - 12:00	0.0049	0.0069	0.0046	0.0064	0.0070	0.0073	0.0045
12:00 - 13:00	0.0048	0.0047	0.0067	0.0053	0.0042	0.0064	0.0052
13:00 - 14:00	0.0051	0.0072	0.0065	0.0062	0.0066	0.0060	0.0055
Average-24Hr*	0.0057	0.0056	0.0056	0.0060	0.0060	0.0058	0.0055
Max-1Hr	0.0070	0.0072	0.0071	0.0072	0.0072	0.0073	0.0073
Min-1Hr	0.0042	0.0043	0.0042	0.0045	0.0042	0.0043	0.0043
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

Remark : * Average time between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team

ภาคผนวก ง.3

ใบรับรองผลการตรวจวัดระดับเสียงในบรรยากาศทั่วไป



Noise Monitoring Result : Community Noise

MTR-BCC2

Location : Wat Map Chalute	Monitor Period : 15-22 Oct 2024
SLM Model : Cirrus CR161B	Serial No : G302635
Site Operator : Mr. Phuwarech Kaewjirakulsi	
Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.7/0.0	Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-296	

Time	Equivalent Sound Pressure Level (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
15:00 - 16:00	59.0	57.4	58.3	57.4	57.3	53.7	59.3
16:00 - 17:00	58.8	60.8	59.7	60.3	56.6	56.5	57.8
17:00 - 18:00	60.4	61.5	60.9	60.1	58.7	56.2	58.4
18:00 - 19:00	58.8	58.7	58.2	61.9	59.5	57.8	57.8
19:00 - 20:00	58.6	57.5	57.4	60.4	56.1	56.8	57.6
20:00 - 21:00	56.9	55.2	55.5	57.8	53.7	52.3	61.3
21:00 - 22:00	51.3	51.1	51.3	52.3	52.4	52.3	52.5
22:00 - 23:00	51.9	52.7	53.5	49.9	53.3	51.8	51.0
23:00 - 00:00	52.0	52.1	49.9	50.8	50.8	55.2	52.9
00:00 - 01:00	53.0	52.2	49.9	53.6	51.3	53.6	52.1
01:00 - 02:00	52.4	48.5	48.6	52.2	51.0	47.6	55.4
02:00 - 03:00	53.3	49.1	52.2	51.8	51.2	49.6	60.2
03:00 - 04:00	54.2	49.2	50.5	50.2	52.5	50.0	51.9
04:00 - 05:00	58.8	50.3	52.7	50.1	49.7	50.8	52.0
05:00 - 06:00	57.8	56.2	56.4	56.0	55.7	55.9	58.9
06:00 - 07:00	62.7	62.1	62.5	62.9	62.6	62.8	63.5
07:00 - 08:00	62.9	61.8	62.4	62.1	61.9	62.8	63.0
08:00 - 09:00	59.4	58.8	58.6	58.9	59.0	58.9	59.1
09:00 - 10:00	56.5	57.0	56.4	57.1	58.2	57.3	56.3
10:00 - 11:00	57.3	56.5	57.1	54.9	58.0	56.5	56.0
11:00 - 12:00	56.9	57.6	57.2	56.6	56.8	56.6	57.4
12:00 - 13:00	73.0	58.1	65.1	57.4	57.4	57.6	58.4
13:00 - 14:00	58.9	57.1	68.8	55.2	54.7	66.6	74.0
14:00 - 15:00	56.4	57.0	56.7	57.5	55.7	60.2	70.6

Leq(24)*	61.6	57.4	59.8	57.8	57.0	58.3	63.3
Ldn	64.9	62.1	63.3	62.7	62.3	62.9	66.1
Lmax **	104.9	89.4	89.3	86.4	86.4	90.0	103.9

Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 15:00-15:00

** Maximum Sound Pressure Level between 15:00-15:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-BCC2

Location : Wat Map Chalute	Monitor Period : 15-22 Oct 2024
SLM Model : Cirrus CR161B	Serial No : G302635
Site Operator : Mr. Phuwarech Kaewjirakulsi	
Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.7/0.0	Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-296	

Time	L90 (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
15:00 - 16:00	47.9	43.6	43.4	47.9	47.9	42.8	49.5
16:00 - 17:00	46.4	46.0	47.2	51.4	46.6	43.6	49.2
17:00 - 18:00	52.4	45.6	49.5	52.5	46.9	45.1	49.1
18:00 - 19:00	50.4	47.3	49.2	50.8	47.0	45.3	49.6
19:00 - 20:00	48.8	48.4	48.1	49.4	47.5	45.2	47.4
20:00 - 21:00	46.5	46.3	45.6	46.6	46.8	45.5	47.1
21:00 - 22:00	46.0	45.7	46.3	45.5	45.9	45.6	47.5
22:00 - 23:00	47.1	46.4	44.7	44.4	49.6	43.7	46.6
23:00 - 00:00	48.1	49.0	43.9	45.8	45.0	44.1	47.2
00:00 - 01:00	48.0	46.8	44.3	48.1	46.9	41.4	46.8
01:00 - 02:00	48.4	45.7	46.2	48.7	48.5	42.6	47.4
02:00 - 03:00	49.3	45.7	45.9	48.7	49.4	46.5	49.2
03:00 - 04:00	49.2	44.1	47.7	46.0	49.2	44.0	47.8
04:00 - 05:00	46.3	43.6	45.3	42.5	44.5	42.9	47.1
05:00 - 06:00	46.0	44.4	45.4	43.1	44.3	42.1	48.5
06:00 - 07:00	50.7	50.6	51.8	50.8	51.2	51.6	53.1
07:00 - 08:00	50.8	50.3	51.6	48.3	49.9	51.0	51.8
08:00 - 09:00	44.9	45.7	45.5	43.4	49.4	47.1	48.4
09:00 - 10:00	42.5	45.5	46.4	43.4	47.3	45.8	45.3
10:00 - 11:00	43.5	43.5	45.8	42.9	45.2	45.2	44.5
11:00 - 12:00	43.8	44.5	46.9	43.2	45.2	46.1	45.0
12:00 - 13:00	54.9	45.4	51.5	44.8	44.7	45.9	47.4
13:00 - 14:00	49.1	44.7	56.3	44.8	43.6	51.2	53.6
14:00 - 15:00	48.0	44.8	47.1	51.0	43.1	48.2	54.9

L90(avg)*	48.8	46.5	48.7	47.9	47.4	46.5	49.4
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Remark : * Average time between 15:00-15:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-BCC2

Location : North of Fence Monitor Period : 15-22 Oct 2024
SLM Model : Cirrus CR161B Serial No : G303409
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-296

Time	Equivalent Sound Pressure Level (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
10:00 - 11:00	66.9	66.5	65.9	66.9	66.5	66.3	66.0
11:00 - 12:00	69.4	66.5	65.9	66.6	66.5	66.3	66.1
12:00 - 13:00	67.0	73.0	66.6	66.7	73.0	66.1	65.8
13:00 - 14:00	66.9	67.9	66.4	68.3	67.2	66.0	66.1
14:00 - 15:00	66.9	67.6	66.3	67.6	65.9	65.9	66.0
15:00 - 16:00	66.6	67.4	66.2	67.7	66.2	66.2	66.3
16:00 - 17:00	66.6	67.2	66.7	67.5	66.6	66.6	66.3
17:00 - 18:00	66.7	67.3	66.8	67.5	66.6	66.6	66.3
18:00 - 19:00	67.0	67.3	67.0	67.6	66.6	66.4	66.6
19:00 - 20:00	67.1	67.4	66.8	67.7	66.3	66.4	66.6
20:00 - 21:00	67.2	67.4	67.1	67.0	66.4	66.6	66.8
21:00 - 22:00	67.4	67.4	67.0	66.5	66.5	66.6	66.5
22:00 - 23:00	67.5	67.4	67.1	67.0	66.9	66.5	66.5
23:00 - 00:00	67.2	67.3	67.1	67.1	67.1	66.6	66.6
00:00 - 01:00	67.1	67.6	66.7	66.7	67.1	66.6	66.6
01:00 - 02:00	66.8	67.5	66.7	66.7	67.0	66.6	66.6
02:00 - 03:00	67.0	67.3	67.6	67.6	67.2	66.5	66.7
03:00 - 04:00	67.2	67.2	67.0	66.3	67.4	66.3	66.6
04:00 - 05:00	67.3	67.2	66.8	66.3	67.2	66.3	66.7
05:00 - 06:00	67.4	67.3	66.9	66.4	67.1	66.4	66.6
06:00 - 07:00	67.3	67.0	66.9	66.6	67.1	66.4	66.6
07:00 - 08:00	66.9	66.7	66.7	66.2	67.3	66.0	66.2
08:00 - 09:00	66.5	66.2	66.7	66.0	67.5	65.8	66.0
09:00 - 10:00	66.5	66.3	66.7	66.5	67.3	66.0	65.7
Leq(24)*	67.1	67.7	66.7	67.0	67.4	66.3	66.4
Ldn	73.6	73.8	73.3	73.2	73.6	72.8	73.0
Lmax **	95.0	98.5	82.7	85.0	98.5	76.9	76.7
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 10:00-10:00

** Maximum Sound Pressure Level between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-BCC2

Location : North of Fence Monitor Period : 15-22 Oct 2024
SLM Model : Cirrus CR161B Serial No : G303409
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-296

Time	L90 (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
10:00 - 11:00	65.6	65.6	65.4	66.0	65.5	65.5	65.3
11:00 - 12:00	66.7	65.2	64.9	65.8	65.3	65.5	65.1
12:00 - 13:00	66.3	67.0	65.8	66.0	67.1	65.2	64.7
13:00 - 14:00	66.2	67.1	65.4	66.7	65.9	65.2	65.4
14:00 - 15:00	66.0	66.7	64.9	66.5	65.0	65.0	65.1
15:00 - 16:00	65.8	66.4	65.1	66.6	65.3	64.9	65.5
16:00 - 17:00	65.8	66.3	65.7	66.6	65.7	65.8	65.5
17:00 - 18:00	65.9	66.4	66.1	66.7	65.7	65.6	65.5
18:00 - 19:00	66.2	66.4	66.2	66.8	65.7	65.6	65.8
19:00 - 20:00	66.3	66.5	66.2	66.7	65.6	65.7	65.8
20:00 - 21:00	66.4	66.5	66.4	65.9	65.7	65.9	66.0
21:00 - 22:00	66.7	66.6	66.2	65.8	65.8	65.8	65.8
22:00 - 23:00	66.7	66.5	66.3	66.3	66.2	65.8	65.8
23:00 - 00:00	66.4	66.5	66.3	66.5	66.5	65.9	65.9
00:00 - 01:00	66.3	66.8	66.0	66.0	66.5	65.9	65.9
01:00 - 02:00	66.2	66.8	66.0	66.0	66.2	66.0	65.9
02:00 - 03:00	66.2	66.7	66.4	66.4	66.4	65.9	66.0
03:00 - 04:00	66.4	66.5	66.2	65.8	66.5	65.8	65.9
04:00 - 05:00	66.2	66.5	66.1	65.7	66.4	65.7	66.1
05:00 - 06:00	66.4	66.5	66.1	65.8	66.3	65.8	66.0
06:00 - 07:00	66.4	66.3	66.2	65.9	66.3	65.8	66.0
07:00 - 08:00	66.0	66.0	66.1	65.6	66.5	65.3	65.6
08:00 - 09:00	65.8	65.5	65.7	65.2	66.9	64.9	65.2
09:00 - 10:00	65.7	65.5	65.8	65.6	66.5	65.2	64.7
L90(avg)*	66.2	66.4	65.9	66.1	66.1	65.6	65.6

Remark : * Average time between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise

MTR-BCC2

Location : South of Fence Monitor Period : 15-22 Oct 2024

SLM Model : Cirrus CR161B

Serial No : G302630

Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515

Serial No : 94296

Calibration Ref dB(A) : 94.0

Certified Date : 14 Feb 2024

SLM Reading / Adjust dB(A) : 93.7/0.0

Expire Date : 13 Feb 2025

Cal Sheet No.: CR-515-2024-296

Time	Equivalent Sound Pressure Level (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
09:00 - 10:00	56.6	57.2	68.3	67.9	57.2	58.6	57.2
10:00 - 11:00	60.0	57.2	56.8	57.0	55.7	56.0	57.7
11:00 - 12:00	69.0	57.8	57.2	57.6	56.4	56.7	58.6
12:00 - 13:00	57.3	71.0	57.2	58.0	56.3	57.3	57.2
13:00 - 14:00	57.4	61.1	56.8	65.9	56.7	55.9	56.9
14:00 - 15:00	56.8	59.4	57.4	59.1	59.5	56.4	57.2
15:00 - 16:00	56.0	58.2	57.2	58.7	63.2	56.3	57.3
16:00 - 17:00	56.5	58.2	56.4	59.4	56.3	56.1	56.3
17:00 - 18:00	56.2	58.1	57.7	59.7	57.3	57.1	57.0
18:00 - 19:00	56.9	59.2	56.9	59.0	57.2	57.0	57.7
19:00 - 20:00	57.7	58.8	56.6	59.3	56.8	56.6	57.4
20:00 - 21:00	58.0	59.0	57.6	58.3	57.2	57.6	57.7
21:00 - 22:00	60.4	59.2	57.1	58.4	57.9	58.2	58.8
22:00 - 23:00	61.7	58.4	56.7	58.2	57.5	57.9	60.8
23:00 - 00:00	67.1	58.4	57.5	56.2	57.6	58.1	62.0
00:00 - 01:00	63.4	57.6	57.0	57.1	57.7	57.5	60.8
01:00 - 02:00	57.7	57.5	57.2	57.0	56.9	57.5	56.4
02:00 - 03:00	58.2	58.2	59.8	56.3	58.0	58.2	56.9
03:00 - 04:00	57.7	57.6	56.4	57.2	59.0	57.0	57.0
04:00 - 05:00	61.7	56.7	56.9	57.6	57.0	56.1	57.1
05:00 - 06:00	59.0	58.1	57.7	57.1	57.4	57.6	56.8
06:00 - 07:00	58.0	57.5	57.5	57.9	58.3	57.6	57.7
07:00 - 08:00	57.8	57.1	57.1	57.0	59.4	56.3	57.5
08:00 - 09:00	57.5	57.5	60.6	56.9	59.7	57.8	56.6

Leq(24)*	60.9	60.7	59.1	60.0	58.1	57.2	58.1
Ldn	68.0	65.1	64.4	64.4	64.2	63.9	65.1
Lmax **	98.2	99.8	89.7	87.6	77.0	81.4	78.8

Standard-24Hr

70 dB(A)

Standard-Max

115 dB(A)

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-BCC2

Location : South of Fence

Monitor Period : 15-22 Oct 2024

SLM Model : Cirrus CR161B

Serial No : G302630

Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515

Serial No : 94296

Calibration Ref dB(A) : 94.0

Certified Date : 14 Feb 2024

SLM Reading / Adjust dB(A) : 93.7/0.0

Expire Date : 13 Feb 2025

Cal Sheet No.: CR-515-2024-296

Time	L90 (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
09:00 - 10:00	55.8	56.7	55.1	55.5	56.6	56.7	56.6
10:00 - 11:00	57.1	56.8	55.2	56.2	54.8	55.7	57.1
11:00 - 12:00	57.6	56.8	56.7	57.3	55.0	55.8	57.0
12:00 - 13:00	56.7	58.6	55.7	57.5	55.4	56.4	55.7
13:00 - 14:00	57.0	60.0	55.8	58.7	55.5	55.2	56.2
14:00 - 15:00	56.1	58.4	56.8	58.3	56.9	55.4	56.7
15:00 - 16:00	55.6	57.3	56.7	58.1	55.6	55.4	56.9
16:00 - 17:00	55.3	57.7	55.9	58.6	55.8	55.4	55.8
17:00 - 18:00	55.5	57.7	56.5	58.9	56.6	56.7	56.0
18:00 - 19:00	56.4	58.9	56.0	58.7	56.2	56.0	57.4
19:00 - 20:00	57.4	58.2	56.1	58.8	56.3	56.2	56.8
20:00 - 21:00	57.6	58.4	57.3	57.6	56.3	56.5	56.6
21:00 - 22:00	57.7	58.8	56.1	57.9	57.1	57.7	58.5
22:00 - 23:00	61.1	57.8	56.3	57.2	57.0	57.4	58.7
23:00 - 00:00	66.5	57.7	57.2	55.8	56.7	57.4	61.7
00:00 - 01:00	57.5	56.8	55.6	56.1	56.8	56.9	56.9
01:00 - 02:00	57.3	56.9	56.2	56.1	56.4	57.0	56.0
02:00 - 03:00	57.9	57.8	57.5	55.9	56.6	57.5	56.3
03:00 - 04:00	57.2	56.3	56.0	56.2	56.9	56.1	56.6
04:00 - 05:00	57.1	56.2	56.0	56.3	56.6	55.8	56.5
05:00 - 06:00	56.5	57.4	56.8	56.5	56.4	56.4	56.3
06:00 - 07:00	56.6	56.5	56.5	57.0	56.9	56.4	56.9
07:00 - 08:00	57.0	56.4	56.4	56.3	56.6	55.7	56.9
08:00 - 09:00	57.0	56.7	56.7	56.2	58.3	56.9	55.4

L90(avg)*	58.4	57.6	56.3	57.3	56.4	56.4	57.1
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Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-BCC2

Location : East of Fence Monitor Period : 15-22 Oct 2024
SLM Model : Cirrus CR161B Serial No : G301354
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-296

Time	Equivalent Sound Pressure Level (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
09:00 - 10:00	58.4	57.9	57.0	59.3	57.8	59.7	55.7
10:00 - 11:00	58.6	57.6	56.0	58.0	58.8	57.5	58.0
11:00 - 12:00	66.9	59.4	57.1	63.7	59.5	56.6	56.9
12:00 - 13:00	56.1	69.4	55.2	57.0	58.4	56.2	54.9
13:00 - 14:00	56.3	61.7	55.6	61.6	60.0	55.2	55.5
14:00 - 15:00	55.8	59.7	56.0	55.5	55.8	55.3	54.7
15:00 - 16:00	55.2	58.2	54.9	55.8	55.6	55.4	55.7
16:00 - 17:00	55.1	58.3	55.3	57.9	56.3	56.2	55.4
17:00 - 18:00	58.4	57.9	56.8	57.5	56.7	56.0	56.2
18:00 - 19:00	58.1	57.4	58.1	58.0	56.9	57.0	57.4
19:00 - 20:00	58.3	58.2	58.8	61.3	56.5	57.0	58.7
20:00 - 21:00	61.2	61.2	60.3	58.4	57.8	59.1	58.6
21:00 - 22:00	58.5	58.5	58.5	58.3	59.9	58.1	57.3
22:00 - 23:00	59.9	58.0	59.9	59.9	60.1	58.1	57.8
23:00 - 00:00	59.0	61.5	59.0	59.0	59.6	57.7	57.2
00:00 - 01:00	57.6	60.3	57.6	57.6	59.3	57.3	59.6
01:00 - 02:00	57.9	58.2	58.1	58.0	58.6	57.9	57.9
02:00 - 03:00	57.2	58.7	60.9	57.2	58.9	57.2	58.0
03:00 - 04:00	57.9	59.7	57.4	57.2	60.3	57.2	57.7
04:00 - 05:00	58.0	58.0	57.0	57.2	59.2	57.2	58.5
05:00 - 06:00	57.5	57.5	58.3	58.9	59.4	57.1	58.3
06:00 - 07:00	58.9	59.0	59.9	59.3	60.6	56.9	59.6
07:00 - 08:00	58.6	58.6	59.1	58.2	60.7	56.1	58.9
08:00 - 09:00	63.2	63.2	59.1	57.6	60.9	58.3	57.4

Leq(24)*	59.4	60.8	58.1	58.9	58.9	57.2	57.5
Ldn	65.0	66.0	65.1	64.9	65.9	63.8	64.6
Lmax **	97.3	96.9	93.6	99.5	93.6	89.1	91.5

Standard-24Hr 70 dB(A)
Standard-Max 115 dB(A)

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-BCC2

Location : East of Fence Monitor Period : 15-22 Oct 2024
SLM Model : Cirrus CR161B Serial No : G301354
Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 94296
Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-296

Time	L90 (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
09:00 - 10:00	56.3	56.4	55.7	57.1	56.7	58.3	54.3
10:00 - 11:00	57.0	56.8	55.4	57.4	57.1	56.2	57.1
11:00 - 12:00	57.7	57.2	54.6	56.7	57.0	55.2	55.5
12:00 - 13:00	55.1	59.9	53.4	55.8	57.5	54.6	53.3
13:00 - 14:00	55.6	60.0	54.6	56.1	56.7	54.4	54.0
14:00 - 15:00	54.7	58.9	55.0	54.6	54.7	54.3	53.7
15:00 - 16:00	54.5	57.1	54.1	54.8	54.7	54.5	54.7
16:00 - 17:00	54.4	57.4	54.6	55.7	55.4	55.3	54.8
17:00 - 18:00	54.8	55.9	55.8	56.2	55.9	55.3	55.4
18:00 - 19:00	57.1	56.2	57.5	57.2	56.2	56.0	56.8
19:00 - 20:00	57.4	57.5	57.7	57.3	55.8	56.2	57.8
20:00 - 21:00	57.1	57.1	57.6	57.4	56.4	56.9	57.6
21:00 - 22:00	57.8	57.6	57.8	57.5	58.1	56.7	56.4
22:00 - 23:00	58.5	57.3	58.5	58.5	58.9	56.6	56.1
23:00 - 00:00	58.0	57.3	58.0	58.0	58.5	56.2	56.7
00:00 - 01:00	56.2	57.4	56.2	56.2	58.6	56.3	57.2
01:00 - 02:00	56.7	57.4	56.1	56.3	56.8	56.7	57.2
02:00 - 03:00	56.6	58.0	56.8	56.6	57.8	56.6	57.3
03:00 - 04:00	56.9	57.5	56.7	56.6	58.8	56.6	56.6
04:00 - 05:00	57.2	57.3	56.3	56.2	58.2	56.2	57.4
05:00 - 06:00	56.5	56.5	57.1	57.6	58.3	56.4	57.6
06:00 - 07:00	57.5	57.6	59.2	58.2	59.1	56.2	58.7
07:00 - 08:00	57.8	57.8	58.4	56.6	58.4	55.5	57.4
08:00 - 09:00	56.5	56.5	57.0	56.6	59.5	55.0	56.5

L90(avg)* 56.7 57.6 56.7 56.8 57.5 56.0 56.5

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise

MTR-BCC2

Location : West of Fence Monitor Period : 15-22 Oct 2024
 SLM Model : Cirrus CR161B Serial No : G302628
 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 94296
 Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
 SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 13 Feb 2025
 Cal Sheet No.: CR-515-2024-296

Time	Equivalent Sound Pressure Level (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
09:00 - 10:00	64.7	64.3	64.8	63.8	64.7	65.5	63.1
10:00 - 11:00	65.1	64.3	64.9	64.1	64.6	64.9	63.6
11:00 - 12:00	69.7	63.3	63.7	64.1	64.6	63.7	63.4
12:00 - 13:00	66.1	70.3	63.9	63.9	64.7	63.3	62.9
13:00 - 14:00	65.4	66.1	64.3	66.9	64.2	63.2	63.2
14:00 - 15:00	64.8	65.7	63.7	65.5	63.1	63.1	63.0
15:00 - 16:00	64.6	65.3	63.3	65.2	63.0	63.3	63.0
16:00 - 17:00	64.6	65.2	63.8	65.2	63.3	63.5	63.2
17:00 - 18:00	64.7	65.4	64.4	65.5	63.6	63.6	63.6
18:00 - 19:00	65.1	65.3	65.1	65.3	64.1	64.2	64.5
19:00 - 20:00	65.0	65.4	65.3	65.3	64.3	64.3	64.6
20:00 - 21:00	64.9	65.2	65.0	65.3	64.6	64.5	64.5
21:00 - 22:00	64.9	65.4	65.3	65.2	64.8	64.4	64.3
22:00 - 23:00	65.1	65.5	65.3	65.1	64.8	64.4	64.2
23:00 - 00:00	65.0	65.3	64.8	64.9	64.8	64.3	64.3
00:00 - 01:00	65.0	65.1	64.7	65.0	65.0	64.4	64.3
01:00 - 02:00	65.0	65.2	64.5	65.1	64.9	64.4	64.3
02:00 - 03:00	65.0	65.2	65.0	64.6	64.9	64.3	64.4
03:00 - 04:00	65.1	65.1	64.5	64.6	65.3	64.3	64.4
04:00 - 05:00	65.2	65.1	64.4	64.6	65.1	64.3	64.5
05:00 - 06:00	65.3	65.0	64.6	64.6	64.9	64.4	64.5
06:00 - 07:00	65.1	65.1	64.7	64.6	65.1	64.4	64.6
07:00 - 08:00	65.0	65.0	64.8	64.7	65.5	63.9	63.4
08:00 - 09:00	64.5	64.7	64.2	64.6	66.2	63.3	62.9

Leq(24)*	65.4	65.5	64.6	65.0	64.6	64.1	63.9
Ldn	71.6	71.7	71.1	71.2	71.3	70.7	70.7
Lmax **	93.5	98.0	79.0	85.9	72.2	72.8	82.6

Standard-24Hr 70 dB(A)
 Standard-Max 115 dB(A)

Remark : * Average time between 09:00-09:00

** Maximum Sound Pressure Level between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team



Noise Monitoring Result : Background Noise

MTR-BCC2

Location : West of Fence Monitor Period : 15-22 Oct 2024
 SLM Model : Cirrus CR161B Serial No : G302628
 Site Operator : Mr. Phuwadech Kaewjirakulsri

Calibrator Model : Cirrus CR:515 Serial No : 94296
 Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
 SLM Reading / Adjust dB(A) : 93.7/0.0 Expire Date : 13 Feb 2025
 Cal Sheet No.: CR-515-2024-296

Time	L90 (dB(A))						
	15-16 Oct 2024	16-17 Oct 2024	17-18 Oct 2024	18-19 Oct 2024	19-20 Oct 2024	20-21 Oct 2024	21-22 Oct 2024
09:00 - 10:00	64.4	64.0	64.4	63.4	63.6	65.1	62.7
10:00 - 11:00	64.1	64.0	64.3	63.6	63.5	64.2	63.2
11:00 - 12:00	66.0	62.6	63.3	63.4	63.5	63.1	62.9
12:00 - 13:00	65.4	63.7	63.3	63.4	63.6	62.7	62.5
13:00 - 14:00	64.9	65.6	63.3	64.0	63.0	62.7	62.6
14:00 - 15:00	64.5	65.2	63.0	65.0	62.6	62.7	62.6
15:00 - 16:00	64.3	65.0	62.9	64.8	62.6	62.8	62.7
16:00 - 17:00	64.3	64.9	63.1	64.8	62.9	63.1	62.9
17:00 - 18:00	64.3	65.1	63.6	65.1	63.2	63.2	63.1
18:00 - 19:00	64.7	65.0	64.6	64.8	63.6	63.7	64.1
19:00 - 20:00	64.7	65.1	64.8	64.9	63.9	64.0	64.3
20:00 - 21:00	64.6	64.9	64.5	64.9	64.1	64.1	64.1
21:00 - 22:00	64.6	65.1	64.9	64.8	64.4	64.0	64.0
22:00 - 23:00	64.8	65.2	64.9	64.7	64.4	64.0	63.9
23:00 - 00:00	64.7	65.0	64.3	64.6	64.4	64.0	63.9
00:00 - 01:00	64.7	64.8	64.3	64.5	64.6	64.0	64.0
01:00 - 02:00	64.6	64.9	64.1	64.4	64.5	64.0	63.9
02:00 - 03:00	64.7	64.9	64.3	63.5	64.5	64.0	64.1
03:00 - 04:00	64.8	64.8	64.2	63.6	64.5	64.0	64.0
04:00 - 05:00	64.8	64.8	64.1	63.5	64.6	64.0	64.2
05:00 - 06:00	64.7	64.7	64.2	63.5	64.5	64.1	64.1
06:00 - 07:00	64.8	64.7	64.4	63.6	64.5	63.9	64.2
07:00 - 08:00	64.6	64.6	64.4	63.6	64.7	63.5	62.7
08:00 - 09:00	64.1	64.2	63.7	63.6	65.4	62.9	62.5

L90(avg)*	64.7	64.7	64.1	64.2	64.0	63.7	63.5
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Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Preeda Somjai)
 Technical Management Team

ภาคผนวก ง.4

ใบรับรองผลการตรวจวิเคราะห์คุณภาพน้ำทิ้ง



บริษัท ซีคอต จำกัด
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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC 2)	REQUEST SERVICE No.	: 1348/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 03/07/2024	SAMPLING TIME	: 10:10
RECEIVED DATE	: 04/07/2024	ANALYTICAL DATE	: 04-10/07/2024
REPORT DATE	: 11/07/2024	SITE OPERATOR	: Miss Wiraya Patchimboon
SAMPLE CONDITION	: Normal	FILE CODE	: 224004_WW_July

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)	บ่อพักน้ำทิ้งของโครงการ	
Flow Rate	m ³ /hr	-	-	12	-
Temperature	°C	2550 B	< 0.5	33.9	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.74	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,466	≤ 3,000
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ๖-239-ก-0004

- Remark :**
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 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the Ministry of the Natural Resources and Environment, B.E.2565 (2022).
 4. - Not available .



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC 2)	REQUEST SERVICE No.	: 1587/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 07/08/2024	SAMPLING TIME	: 09:11
RECEIVED DATE	: 08/08/2024	ANALYTICAL DATE	: 08-16/08/2024
REPORT DATE	: 16/08/2024	SITE OPERATOR	: Miss Wiraya Patchimboon
SAMPLE CONDITION	: Normal	FILE CODE	: 224004_WW_August

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)	บ่อพักน้ำทิ้งของโครงการ	
Flow Rate	m ³ /hr	-	-	13	-
Temperature	°C	2550 B	< 0.5	34.7	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.70	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,964	≤ 3,000
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ๖-239-ก-0004

- Remark :**
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 4. - Not available .



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC 2)	REQUEST SERVICE No.	: 1836/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/09/2024	SAMPLING TIME	: 08:40
RECEIVED DATE	: 05/09/2024	ANALYTICAL DATE	: 05-11/09/2024
REPORT DATE	: 12/09/2024	SITE OPERATOR	: Miss Salisa Ainree
SAMPLE CONDITION	: Normal	FILE CODE	: 224004_WW_September

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อพักน้ำทิ้งของโครงการ	STANDARD ^{1/}
Flow Rate	m ³ /hr	-	-	12	-
Temperature	°C	2550 B	< 0.5	32.5	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.45	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,354	≤ 3,000
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

Remark : 1. Reported analysis refers to submitted sample only.

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3. ^{1/} Notification of the Ministry of the Natural Resources and Environment, B.E.2565 (2022).

4. - Not available .



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC 2)	REQUEST SERVICE No.	: 2005/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 02/10/2024	SAMPLING TIME	: 08:50
RECEIVED DATE	: 03/10/2024	ANALYTICAL DATE	: 03-10/10/2024
REPORT DATE	: 11/10/2024	SITE OPERATOR	: Miss Salisa Ainree
SAMPLE CONDITION	: Normal	FILE CODE	: 224004_WW_October

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อพักน้ำทิ้งของโครงการ	STANDARD ^{1/}
Flow Rate	m ³ /hr	-	-	13	-
Temperature	°C	2550 B	< 0.5	34.3	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.71	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,724	≤ 3,000
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-ก-0005

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-ก-0004

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4. - Not available .



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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC 2)	REQUEST SERVICE No.	: 2244/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 06/11/2024	SAMPLING TIME	: 08:25
RECEIVED DATE	: 07/11/2024	ANALYTICAL DATE	: 07-14/11/2024
REPORT DATE	: 15/11/2024	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
SAMPLE CONDITION	: Normal	FILE CODE	: 224004_WW_November

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)	บ่อพักน้ำทิ้งของโครงการ	
Flow Rate*	m ³ /hr	-	-	9.0	-
Temperature	°C	2550 B	< 0.5	32.3	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.57	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,500	≤ 3,000
Total Suspended Solids	mg/l	2540 D	< 5	< 5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ๖-239-ก-0004

- Remark :
1. Reported analysis refers to submitted sample only.
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 3. ^{1/} Notification of the Ministry of the Natural Resources and Environment, B.E.2565 (2022).
 4. *Not registered with the Department of Industrial Works.
 5. - Not available .



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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC 2)	REQUEST SERVICE No.	: 2526/67
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING METHOD	: Grab
SAMPLING DATE	: 04/12/2024	SAMPLING TIME	: 08:48
RECEIVED DATE	: 05/12/2024	ANALYTICAL DATE	: 05-12/12/2024
REPORT DATE	: 12/12/2024	SITE OPERATOR	: Miss Thipsuda Wannakran
SAMPLE CONDITION	: Normal	FILE CODE	: 224004_WW_December

PARAMETER	UNIT	ANALYSIS	ND	STATION	STANDARD ^{1/}
		METHODS	(non-detectable)	บ่อพักน้ำทิ้งของโครงการ	
Flow Rate*	m ³ /hr	-	-	12	-
Temperature	°C	2550 B	< 0.5	31.3	≤ 40
pH	-	4500-H ⁺ B	< 0.10	7.66	5.5-9.0
Total Dissolved Solids	mg/l	2540 C	< 50	1,774	≤ 3,000
Total Suspended Solids	mg/l	2540 D	< 5	5	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	≤ 5

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. ๖-239-ก-0005

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. ๖-239-ก-0004

- Remark :
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the Ministry of the Natural Resources and Environment, B.E.2565 (2022).
 4. *Not registered with the Department of Industrial Works.
 5. - Not available .

ภาคผนวก ง.5

ใบรับรองผลการตรวจวัดระดับเสียงในพื้นที่ปฏิบัติงาน



Noise Monitoring Result : Working Noise

MTR-BCC2

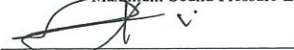
Location : Gas Turbine Generator No.11	Monitor Period : Sep 04, 2024
SLM Model : SCARLET ST-21D	Serial No : 820725
Site Operator : Miss Salisa Ainree	

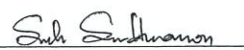
Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-243	

Time	Equivalent Sound Pressure Level (dB(A))
	Sep 04, 2024
00:00 - 01:00	
01:00 - 02:00	
02:00 - 03:00	
03:00 - 04:00	
04:00 - 05:00	
05:00 - 06:00	
06:00 - 07:00	
07:00 - 08:00	73.0
08:00 - 09:00	71.9
09:00 - 10:00	71.8
10:00 - 11:00	71.8
11:00 - 12:00	71.9
12:00 - 13:00	71.9
13:00 - 14:00	71.8
14:00 - 15:00	71.6
15:00 - 16:00	71.5
16:00 - 17:00	71.6
17:00 - 18:00	71.8
18:00 - 19:00	71.6
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	71.9
Lmax **	90.8
Standard-12Hr	87 dB(A)
Standard-Max	140 dB(A)

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise

MTR-BCC2


Location : Gas Turbine Generator No.12	Monitor Period : Sep 04, 2024
SLM Model : SCARLET ST-21D	Serial No : 820726
Site Operator : Miss Salisa Ainree	


Calibrator Model : Cirrus CR:515	Serial No : 94296
Calibration Ref dB(A) : 94.0	Certified Date : 14 Feb 2024
SLM Reading / Adjust dB(A) : 93.8/0.0	Expire Date : 13 Feb 2025
Cal Sheet No.: CR-515-2024-243	

Time	Equivalent Sound Pressure Level (dB(A))
	Sep 04, 2024
00:00 - 01:00	
01:00 - 02:00	
02:00 - 03:00	
03:00 - 04:00	
04:00 - 05:00	
05:00 - 06:00	
06:00 - 07:00	
07:00 - 08:00	77.0
08:00 - 09:00	76.1
09:00 - 10:00	76.3
10:00 - 11:00	52.0
11:00 - 12:00	75.7
12:00 - 13:00	75.5
13:00 - 14:00	75.5
14:00 - 15:00	75.4
15:00 - 16:00	75.6
16:00 - 17:00	76.3
17:00 - 18:00	76.5
18:00 - 19:00	76.7
19:00 - 20:00	
20:00 - 21:00	
21:00 - 22:00	
22:00 - 23:00	
23:00 - 24:00	
Leq(12)*	75.7
Lmax **	88.5
Standard-12Hr	87 dB(A)
Standard-Max	140 dB(A)

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00


(Miss Katesarin Vorradetwittaya)
Environmental Scientist


(Miss Sununta Sirawuttinanon)
Technical Management Team



Noise Monitoring Result : Working Noise

MTR-BCC2

Location : Steam Turbine Generator Monitor Period : Sep 04, 2024
 SLM Model : SCARLET ST-21D Serial No : 820723
 Site Operator : Miss Salisa Ainree

Calibrator Model : Cirrus CR:515 Serial No : 94296
 Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
 SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : 13 Feb 2025
 Cal Sheet No.: CR-515-2024-243

Time	Equivalent Sound Pressure Level (dB(A))	
	Sep 04, 2024	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00	81.9	
08:00 - 09:00	81.6	
09:00 - 10:00	81.6	
10:00 - 11:00	81.6	
11:00 - 12:00	82.0	
12:00 - 13:00	81.7	
13:00 - 14:00	81.7	
14:00 - 15:00	81.5	
15:00 - 16:00	81.5	
16:00 - 17:00	81.6	
17:00 - 18:00	81.5	
18:00 - 19:00	81.3	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	81.6	
Lmax **	98.2	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Sununta Sirawuttinanon)
 Technical Management Team



Noise Monitoring Result : Working Noise

MTR-BCC2

Location : Auxiliary Boiler Monitor Period : Sep 04, 2024
 SLM Model : SCARLET ST-21D Serial No : 820722
 Site Operator : Miss Salisa Ainree

Calibrator Model : Cirrus CR:515 Serial No : 94296
 Calibration Ref dB(A) : 94.0 Certified Date : 14 Feb 2024
 SLM Reading / Adjust dB(A) : 93.8/0.0 Expire Date : 13 Feb 2025
 Cal Sheet No.: CR-515-2024-243

Time	Equivalent Sound Pressure Level (dB(A))	
	Sep 04, 2024	
00:00 - 01:00		
01:00 - 02:00		
02:00 - 03:00		
03:00 - 04:00		
04:00 - 05:00		
05:00 - 06:00		
06:00 - 07:00		
07:00 - 08:00	60.7	
08:00 - 09:00	64.1	
09:00 - 10:00	72.2	
10:00 - 11:00	75.5	
11:00 - 12:00	70.7	
12:00 - 13:00	71.1	
13:00 - 14:00	62.3	
14:00 - 15:00	62.4	
15:00 - 16:00	61.7	
16:00 - 17:00	62.0	
17:00 - 18:00	61.5	
18:00 - 19:00	61.3	
19:00 - 20:00		
20:00 - 21:00		
21:00 - 22:00		
22:00 - 23:00		
23:00 - 24:00		
Leq(12)*	68.7	
Lmax **	87.4	
Standard-12Hr	87 dB(A)	
Standard-Max	140 dB(A)	

Remark : * Average time between 07:00-19:00

** Maximum Sound Pressure Level between 07:00-19:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Sununta Sirawuttinanon)
 Technical Management Team

ภาคผนวก ง.6

ใบรับรองผลการตรวจวัดระดับเสียงเฉลี่ยตลอดระยะเวลาการทำงาน



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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC2)	REFERENCE NO.	: 224004_Cert-Noise Dose/Sep 24
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 04/09/2024	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: Cogeneration Energy Facility, Branch 2	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Salisa Ainree	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
9800133	Operator Production	07.43-19.00	17.7	75.7	83.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.



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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: Bangkok Cogeneration Co., Ltd. (BCC2)	REFERENCE NO.	: 224004_Cert-Noise Dose/Sep 24
MEASUREMENT BY	: SECOT Co., Ltd.	INSTRUMENT	: Noise Dosimeter
MEASUREMENT DATE	: 04/09/2024	CALIBRATOR TYPE	: RC 110A
MEASUREMENT LOCATION	: Cogeneration Energy Facility, Branch 2	SERIAL NO.	: 95167
SITE OPERATOR	: Miss Salisa Ainree	CALIBRATOR REF.	: 114 dB @1,000 Hz

OPERATOR ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (8 hr)	STANDARD*
200315	Operator Maintenance	07.43-15.43	13.1	76.2	85.0

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

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3. *Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

4. TWA means Time Weighted Average.

ภาคผนวก ง.7

ใบรับรองผลการตรวจวัดระดับความร้อนในพื้นที่ปฏิบัติงาน



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HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REFERENCE NO. : 224004-Heat (Cert)/WBGT-Sep 2024
(BCC2)
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : WBGT Meter
MEASUREMENT DATE : 04/09/2024 MODEL NO. : JT2011-E2A
SITE OPERATOR : Miss Salisa Ainree SERIAL NO. : 3522210173

LOCATION	TIME	MEASURED TEMPERATURE (°C)					STANDARD (°C) *
		NWB	DB	GT	WBGT _{out}	WBGT _{Avg}	
HRSG 11	10.28-10.58	27.0	31.1	31.8	28.4	28.7	34.0
	10.58-11.28	27.2	31.4	32.4	28.7		
	11.28-11.58	27.2	32.0	33.0	28.8		
	11.58-12.28	27.2	32.0	33.6	29.0		

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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3. * WBGT standard was notified by the Ministerial Regulations of Labour, B.E.2559 (2016).

4. NWB = Natural Wet Bulb Temperature

DB = Dry Bulb Temperature

GT = Globe Temperature

WBGT = Wet Bulb Globe Temperature

5. Work Load - Light work load = 34°C, Moderate work load = 32°C and Heavy work load = 30°C



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HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REFERENCE NO. : 224004-Heat (Cert)/WBGT-Sep 2024
(BCC2)
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : WBGT Meter
MEASUREMENT DATE : 04/09/2024 MODEL NO. : JT2011-E2A
SITE OPERATOR : Miss Salisa Ainree SERIAL NO. : 3522210174

LOCATION	TIME	MEASURED TEMPERATURE (°C)					STANDARD (°C) *
		NWB	DB	GT	WBGT _{out}	WBGT _{Avg}	
HRSG 12	10.27-10.57	27.4	31.4	32.3	28.8	29.2	34.0
	10.57-11.27	27.4	31.7	32.7	28.9		
	11.27-11.57	27.8	32.4	33.6	29.4		
	11.57-12.27	28.2	32.7	34.1	29.8		

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REFERENCE NO. : 224004-Heat (Cert)/WBGT-Sep 2024
(BCC2)
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : WBGT Meter
MEASUREMENT DATE : 04/09/2024 MODEL NO. : JT2011-E2A
SITE OPERATOR : Miss Salisa Ainree SERIAL NO. : 3522210172

LOCATION	TIME	MEASURED TEMPERATURE (°C)					STANDARD (°C) *
		NWB	DB	GT	WBGT _{In}	WBGT _{Avg}	
Steam Turbine Generator	10.18-10.48	29.4	34.3	34.7	31.0	31.1	34.0
	10.48-11.18	29.5	34.4	34.6	31.0		
	11.18-11.48	29.3	34.7	35.1	31.0		
	11.48-12.18	29.5	34.9	35.4	31.3		


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

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HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. REFERENCE NO. : 224004-Heat (Cert)/WBGT-Sep 2024
(BCC2)
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : WBGT Meter
MEASUREMENT DATE : 04/09/2024 MODEL NO. : JT2011-E2A
SITE OPERATOR : Miss Salisa Ainree SERIAL NO. : 3522210176

LOCATION	TIME	MEASURED TEMPERATURE (°C)					STANDARD (°C) *
		NWB	DB	GT	WBGT _{out}	WBGT _{Avg}	
Auxiliary Boiler	10.08-10.38	27.8	31.8	35.7	29.8	30.2	34.0
	10.38-11.08	27.6	31.6	34.3	29.3		
	11.08-11.38	28.0	33.3	39.1	30.8		
	11.38-12.08	28.2	33.8	38.1	30.7		


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

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DB = Dry Bulb Temperature

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WBGT = Wet Bulb Globe Temperature

5. Work Load - Light work load = 34 °C, Moderate work load = 32 °C and Heavy work load = 30 °C

ภาคผนวก ง.8

ใบรับรองผลการตรวจวัดความเข้มของแสงสว่าง
ภายในสถานประกอบการ



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LIGHT INTENSITY MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. (BCC2) REFERENCE NO. : Cert-224004/Light-Day/Aug 24
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Digital Lux Meter
MEASUREMENT DATE : 04/09/2024 MODEL : 407026
MEASUREMENT LOCATION : Cogeneration Energy Facility, Branch 2 SERIAL NO. : A 051053
SITE OPERATOR : Miss Salisa Ainree

LOCATION	DATE	TIME	LIGHT INTENSITY (LUX)			
			AVERAGE VALUE	STANDARD*	MINIMUM VALUE	STANDARD*
Office 1st Floor						
ห้องประชุม 3	04/09/2024	08.05	541	≥ 300	451	≥ 150
ห้องอาหาร	04/09/2024	08.06	665	≥ 300	509	≥ 150
ทางเดิน ชั้น 1	04/09/2024	08.07	429	≥ 100	381	≥ 50
Office 2nd Floor						
ห้องประชุม 1	04/09/2024	07.54	1,303	≥ 300	1,053	≥ 150
ห้องประชุม 2	04/09/2024	08.03	1,052	≥ 300	1,000	≥ 150
ทางเดินหน้าห้องประชุม 2	04/09/2024	08.01	657	≥ 100	600	≥ 50
ทางเดิน ชั้น 2	04/09/2024	07.59	713	≥ 100	454	≥ 50
ทางเดินหน้าบันได ชั้น 2	04/09/2024	08.00	561	≥ 100	381	≥ 50
ทางเดินหน้า CCR ชั้น 2	04/09/2024	08.02	322	≥ 100	261	≥ 50

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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3. * Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018) :

The standards of light intensity in general area and process area (Table 1).



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LIGHT INTENSITY MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. (BCC2) REFERENCE NO. : Cert-224004/Light-Day/Aug 24
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Digital Light Meter
MEASUREMENT DATE : 04/09/2024 MODEL : 407026
MEASUREMENT LOCATION : Cogeneration Energy Facility, Branch 2 SERIAL NO. : A 051053
SITE OPERATOR : Miss Salisa Ainree

LOCATION	DATE	TIME	LIGHT INTENSITY (LUX)	
			RESULTS	STANDARD*
Office 2 nd Floor (ต่อ)				
โต๊ะ Control Panel 1	04/09/2024	08.28	739	400-500
โต๊ะ Control Panel 2	04/09/2024	08.29	527	400-500
โต๊ะ Control Panel 3	04/09/2024	08.29	606	400-500
โต๊ะ Control Panel 4	04/09/2024	08.29	568	400-500
โต๊ะ Shift Sup.	04/09/2024	08.29	810	400-500
โต๊ะทำงาน 1 (ว่าง)	04/09/2024	08.20	422	400-500
โต๊ะทำงานคุณชุตติกาญจน์	04/09/2024	08.20	410	400-500
โต๊ะทำงาน 2 (ว่าง)	04/09/2024	08.21	720	400-500
โต๊ะทำงานคุณพิภพ	04/09/2024	08.22	772	400-500
โต๊ะทำงานคุณสุกัญต์	04/09/2024	08.22	471	400-500
โต๊ะทำงานคุณทวิทรัพย์	04/09/2024	08.22	996	400-500
โต๊ะทำงานคุณสมเกียรติ	04/09/2024	08.22	851	400-500

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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3. * Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018) :

The standards of light intensity for employee in working area using specific sighting for working (Table 2).



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

LIGHT INTENSITY MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. (BCC2) REFERENCE NO. : Cert-224004/Light-Day/Aug 24
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Digital Light Meter
MEASUREMENT DATE : 04/09/2024 MODEL : 407026
MEASUREMENT LOCATION : Cogeneration Energy Facility, Branch 2 SERIAL NO. : A 051053
SITE OPERATOR : Miss Salisa Ainree

LOCATION	DATE	TIME	LIGHT INTENSITY (LUX)	
			RESULTS	STANDARD*
Office 2 nd Floor (ต่อ)				
โต๊ะทำงานคุณกุลธิดา	04/09/2024	08.24	487	400-500
โต๊ะทำงานคุณกิตติมา	04/09/2024	08.25	419	400-500
โต๊ะทำงานคุณรัชภูมิ	04/09/2024	08.25	437	400-500
โต๊ะทำงานคุณสันติพงษ์	04/09/2024	08.26	460	400-500
โต๊ะทำงานคุณโสภณ	04/09/2024	08.26	515	400-500
โต๊ะทำงานคุณนพรัตน์	04/09/2024	08.26	524	400-500

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018) :

The standards of light intensity for employee in working area using specific sighting for working (Table 2).



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LIGHT INTENSITY MEASUREMENT REPORT

CLIENT NAME : Bangkok Cogeneration Co., Ltd. (BCC2) REFERENCE NO. : Cert-224004/Light-Day/Aug 24
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Digital Lux Meter
MEASUREMENT DATE : 04/09/2024 MODEL : 407026
MEASUREMENT LOCATION : Cogeneration Energy Facility, Branch 2 SERIAL NO. : A 051053
SITE OPERATOR : Miss Salisa Ainree

LOCATION	TIME	LIGHT INTENSITY (LUX)					
		AREA 1	STANDARD ^{1/}	AREA 2	STANDARD ^{2/}	AREA 3	STANDARD ^{2/}
<u>Office 2nd Floor (ต่อ)</u>							
โต๊ะทำงานคุณยุทธพงษ์	08.23	1,163	400-500	1,190	≥ 300	954	≥ 200

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

(Miss Sununta Sirawuttinanon)

Technical Management Team

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3. Notification of the Department of Labour Protection and Welfare, B.E.2561 (2018).

^{1/} Table 2 The standard of light intensity for employee in working area, using specific sighting for working.

^{2/} Table 3 The standard of light intensity for surrounding area in which the employee works by focusing the eyesight on a specific spot.

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 8, 2024
 Hi-Vol Pump No. : BH-002 Indicator No. : CM-01
 Amb. Temp (°C) : 34 Press (mmHg) : 757
 Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	21.60	13.30	60.66	1,310.26	466.56	
13	17.60	10.40	53.96	949.70	309.76	
10	14.00	8.00	47.48	664.72	196.00	
7	9.40	4.90	37.44	351.94	88.36	
5	6.20	3.10	30.04	186.25	38.44	
Sum	68.80	39.70	229.58	3,462.86	1,099.12	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 6, 2024
 Hi-Vol Pump No. : BH-007 Indicator No. : CM-01
 Amb. Temp (°C) : 33 Press (mmHg) : 761
 Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	15.80	13.10	60.21	951.32	249.64	
13	13.20	10.20	53.45	705.54	174.24	
10	10.40	7.80	46.90	487.76	108.16	
7	7.40	5.10	38.17	282.46	54.76	
5	4.80	3.00	29.58	141.98	23.04	
Sum	51.60	39.20	228.31	2,569.06	609.84	

Calibrated by : Suphanut I. Approved by : Wittaya K.



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 6 Jan 24

Barometric press, Pb

Initial	Final	Average
759	759	759

mmHg

Dry Gas Meter Data

Console No. M50-06

Metering System ID

DGM Number 917415

DGM Model MST-C2-1

Calibrated by : Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0068

Last Calibration Date 26 Oct 23

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V _r Liters	DGM Volume V _m Liters	Temperature (°C)				Time ⊙ min	DGM Correction factor (Y)	ΔH@ mm
			Ref DGM T _r	Dry Gas Meter					
				Inlet T _i	Outlet T _o	Avg T _m			
12.5	100.2	101.7	25	25	24	24.5	8.87	0.9901	44.4570
25.0	100.1	102.0	25	25	24	24.5	6.52	0.9854	48.0383
50.0	100.3	101.1	25	25	24	24.5	4.72	0.9935	50.1707
76.0	99.3	99.3	25	25	24	24.5	3.70	0.9987	47.9159
100.0	100.1	101.6	25	25	24	24.5	3.70	0.9816	49.8135
150.0	100.2	100.2	25	25	24	24.5	2.67	0.9919	48.1679

Average 0.9902 48.0939

Approved by :



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 09-01-2024

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS25-03

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(A)
1	15.00	20.50	0.8468	0.0000
2	15.00	20.50	0.8468	0.0000
3	15.00	20.50	0.8468	0.0000

C_{P(A),avg} 0.8468

B Side Calibration

Run No.	ΔPstd (mm H ₂ O)	ΔPs (mm H ₂ O)	Cp(s)	Deviation, δ Cp(s) - Cp(B)
1	15.00	21.00	0.8367	-0.0034
2	15.00	21.00	0.8367	-0.0034
3	15.00	20.50	0.8468	0.0068

C_{P(B),avg} 0.8401

|CP(A)-CP(B)| = 0.0068

C_{P(Avg)} = 0.8435

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***
 *** |Cp(A)-Cp(B)| must also be < 0.01 if average of Cp(A) and Cp(B) is to be used ***



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 6, 2024

Hi-Vol Pump No. : BH-009 Indicator No. : CM-01

Amb. Temp (°C) : 30 Press (mmHg) : 761

Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	19.60	12.90	59.76	1,171.30	384.16	
13	15.60	10.20	53.45	833.82	243.36	
10	12.00	7.80	46.90	562.80	144.00	
7	8.00	5.00	37.81	302.48	64.00	
5	4.80	3.00	29.58	141.98	23.04	
Sum	60.00	38.90	227.50	3,012.38	858.56	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 6, 2024

Hi-Vol Pump No. : BH-011 Indicator No. : CM-01

Amb. Temp (°C) : 33 Press (mmHg) : 761

Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	16.20	12.80	59.53	964.39	262.44	
13	13.20	10.10	53.20	702.24	174.24	
10	10.40	7.60	46.31	481.62	108.16	
7	7.20	4.80	37.07	266.90	51.84	
5	4.40	3.00	29.58	130.15	19.36	
Sum	51.40	38.30	225.69	2,545.31	616.04	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 8, 2024
 Hi-Vol Pump No. : BH-014 Indicator No. : CM-01
 Amb. Temp (°C) : 34 Press (mmHg) : 757
 Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	16.20	11.90	57.45	930.69	262.44	
13	14.20	9.80	52.42	744.36	201.64	
10	10.60	7.10	44.81	474.99	112.36	
7	6.80	4.50	35.93	244.32	46.24	
5	4.60	2.70	28.12	129.35	21.16	
Sum	52.40	36.00	218.73	2,523.72	643.84	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 6, 2024
 Hi-Vol Pump No. : BH-017 Indicator No. : CM-01
 Amb. Temp (°C) : 33 Press (mmHg) : 761
 Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	19.00	13.30	60.66	1,152.54	361.00	
13	15.80	10.50	54.21	856.52	249.64	
10	12.60	8.10	47.77	601.90	158.76	
7	8.40	5.10	38.17	320.63	70.56	
5	5.20	3.10	30.04	156.21	27.04	
Sum	61.00	40.10	230.85	3,087.80	867.00	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 8, 2024
Hi-Vol Pump No. : BH-028 Indicator No. : CM-01
Amb. Temp (°C) : 34 Press (mmHg) : 757
Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	20.10	12.40	58.61	1,178.06	404.01	
13	16.20	9.80	52.42	849.20	262.44	
10	13.00	7.30	45.42	590.46	169.00	
7	8.80	4.80	37.07	326.22	77.44	
5	5.20	2.80	28.62	148.82	27.04	
Sum	63.30	37.10	222.14	3,092.77	939.93	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 8, 2024
Hi-Vol Pump No. : BH-031 Indicator No. : CM-01
Amb. Temp (°C) : 34 Press (mmHg) : 757
Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	18.60	11.60	56.73	1,055.18	345.96	
13	16.00	9.20	50.83	813.28	256.00	
10	13.00	7.00	44.50	578.50	169.00	
7	9.40	4.80	37.07	348.46	88.36	
5	6.20	2.80	28.62	177.44	38.44	
Sum	63.20	35.40	217.75	2,972.86	897.76	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 6, 2024
 Hi-Vol Pump No. : BH-034 Indicator No. : CM-01
 Amb. Temp (°C) : 30 Press (mmHg) : 761
 Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	18.60	11.90	57.45	1,068.57	345.96	
13	15.60	9.30	51.10	797.16	243.36	
10	13.20	7.40	45.72	603.50	174.24	
7	8.60	4.80	37.07	318.80	73.96	
5	5.40	2.80	28.62	154.55	29.16	
Sum	61.40	36.20	219.96	2,942.58	866.68	

Calibrated by : Suphanut I. Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 6, 2024
 Hi-Vol Pump No. : BH-036 Indicator No. : CM-01
 Amb. Temp (°C) : 33 Press (mmHg) : 761
 Calibration by : Mr.Suphanut I.

Plate	Indicate (X) (cm.)	True H ₂ O (in.)	Actual Flow (Y) (cfm)	XY	X ²	Remark
18	21.00	12.70	59.30	1,245.30	441.00	
13	17.80	10.10	53.20	946.96	316.84	
10	14.00	7.60	46.31	648.34	196.00	
7	9.60	5.00	37.81	362.98	92.16	
5	6.40	3.10	30.04	192.26	40.96	
Sum	68.80	38.50	226.66	3,395.83	1,086.96	

Calibrated by : Suphanut I. Approved by : Wittaya K.

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E04NI99E15AC084 Reference Number: 82-401409170-1
Cylinder Number: EB0102326 Cylinder Volume: 144.4 CF
Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2015 PSIG
PGVP Number: B52019 Valve Outlet: 660
Gas Code: CO,NO,NOX,SO2,BALN Certification Date: Feb 05, 2019

Expiration Date: Feb 05, 2027

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, 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 volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	50.00 PPM	51.01 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
NITRIC OXIDE	50.00 PPM	50.86 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
SULFUR DIOXIDE	50.00 PPM	50.87 PPM	G1	+/- 1.0% NIST Traceable	01/28/2019, 02/05/2019
CARBON MONOXIDE	0.5000 %	0.5050 %	G1	+/- 0.7% NIST Traceable	01/31/2019
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12367	APEX1099237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004497	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.971 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Siemens Ultramat 6 J3-599 COHIGH	NDIR	Jan 18, 2019
Nicolet 6700 APW1100391 NO	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 NO2	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 SO2	FTIR	Jan 10, 2019

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:

Gross Weight: 27806.3 grams

Net Weight: 4733.2 grams

This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol Document EPA-600/R-12/531. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and to Airgas ISO 9001:2008 and relate only to items identified on this certificate. All items are certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncertainty. This document shall not be reproduced in full without written approval of the issuer.



TESTING CERT No. 3082.05

[Signature]
Approved for Release

Page 1 of 82-401409170-1



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Sep 4, 24

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref. Calibrated (dB)	Eff. Calibrated (dB)
Cirrus	CR:515	94296	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	SCARLET	ST-21D	820722	93.8	0.0
2	SCARLET	ST-21D	820723	93.8	0.0
4	SCARLET	ST-21D	820725	93.8	0.0
5	SCARLET	ST-21D	820726	93.8	0.0

Calibrated by :

[Signature]

Approved by :

[Signature]



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Oct 15, 24

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	94296	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
13	Cirrus	CR161B	G301354	93.7	0.0
31	Cirrus	CR161B	G302628	93.7	0.0
35	Cirrus	CR161B	G302635	93.7	0.0
36	Cirrus	CR161B	G302630	93.7	0.0
54	Cirrus	CR161B	G303409	93.7	0.0

Calibrated by :

Approved by :

Preeda S.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

975 Moo 4, Bangpoo Industrial Estate, Soi 8, Sukhumvit Road km 37,

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860 Fax: +66 2324 0917



Certificate No.: CP20240083EA

Operation No.: CP2024020056

Certificate of Calibration

Equipment: Sound Calibrator

Manufacturer: Cirrus Research Plc

Model/Type: CR:515

Serial No.: 94296

ID No.: -

Customer: SECOT Co.,Ltd.

Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand

Received Date: 8 February 2024

Calibrated Date: 14 February 2024

Issued Date: 20 February 2024

Calibrated by: Ms. Juntaporn Kunhakom

Approved by:

(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor (k) providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.

Certificate No.: CP20240083EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: Cirrus Research Plc
Model/Type: CR:515
Serial No.: 94296
ID No.: -
Ambient Temperature: (23 ± 2) °C
Relative Humidity: (50 ± 15) %
Pressure: (101.3 ± 1.5) kPa
Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2661000	AA-1006-23	7 June 2024
2) Waveform Generator	33511B	MY52302264	CK20230039EA	27 June 2024
3) Audio Analyzing DMM	2015-P	4079144	E1U231797	23 April 2024
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P230024 CD20230196EA	20 March 2024 23 July 2024

2. This result of calibration was found accurate as shown on date and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

- Electrical and Electronics Institute; NSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

Normal Frequency (Hz)	Specified Sound Pressure level (dB)	Measured value (dB)	Deviated value ^[1] (dB)	Acceptance limit ^[3] (dB)
1000	94	93.89	-0.11	±0.25

2. Function : Frequency

Normal Sound Pressure level (dB)	Specified Frequency (Hz)	Measured value (Hz)	Deviated value ^[2] (%)	Acceptance limit ^[3] (%)
94	1000	1000.34	0.03	±0.70

Certificate No.: CP20240083EA

Calibration Report

3. Function : Total distortion + noise

Normal Sound Pressure level (dB)	Normal Frequency (Hz)	Measured value ^[4] (%)	Acceptance limit ^[5] (%)
94	1000	0.68	2.50

Uncertainty of measurement

Function	Uncertainty	Maximum-permitted uncertainty of measurement
Sound pressure level	0.10 dB	0.15 dB
Frequency	0.10 %	0.20 %
Total distortion + noise	0.40 %	0.50 %

Note: [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.

[2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.

[3] The acceptance limit is for the deviated value.

[4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.

[5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 1.

2. Maximum-permitted uncertainty of measurement was IEC 60942:2017 Class 1.

3. The coverage factor $k = 2.00$

- - End of Report - -



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.: 24CH1275
Page.: 1 of 3

Equipment : pH Meter
Manufacturer : Mettler Toledo
Model : Seven2Go
Serial No. : C033160713
ID No. : ID.20
Condition As-Received: Used Item
Received Date : 08 October 2024
Calibration Date : 09 October 2024
Reference : 2410-0258DN-3
Submitted by : Secot Co.,Ltd.
239 Rimklongprapa Road,
Bangsue, Bangkok 10800

Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure : In - house method :
- CP-CH5 by direct measurement with DC voltage
standard and direct measurement with
certified reference material (CRM)
- CP-CH8 by comparison with temperature standard

Calibrated by : Warakorn Lerngagtrakul
Saithip
Approved Signatory

() Unnopphol Harachai
() Ponpan Paipim
(✓) Saithip Meangmai

Issue Date : 10 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.: 24CH1275
Page.: 2 of 3

Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Document Process Calibrator	54030049	130RC116	24E2759	25 Aug 2025
2) Ref. Standard Thermometer	4982054	110RC044	24I757	14 July 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 Lenge 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 Lenge GmbH	C03145	28 Feb 2026
pH 9.997	CPA chem	970853	25 Apr 2025

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 (±mV)	Coverage factor k
	pH	mV	mV	pH		
pH Meter	4.00	177.48	178	4.00	0.58	2.00
S/N.: C033160713	7.00	0.00	0	7.00	0.58	2.00
	10.00	-177.48	-177	10.00	0.58	2.00



Cert.No.: 24CH1275

Page.: 3 of 3

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 (\pm)	Coverage factor k
pH Electrode	4.008	4.01	163	0.0079	2.00
S/N.: 3234329	6.999	7.00	-12	0.0085	2.00
	9.997	10.00	-183	0.0095	2.00

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLab®Expert Go-ISM

- Serial No. : 3234329

Dimension of probe

- Length : 120 mm.

- Diameter : 12 mm.

- Immersion Depth : 100 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (\pm °C)	Coverage factor k
25.0	25.003	25.1	0.097	0.13	2.00
30.0	30.002	30.1	0.098	0.13	2.00
35.0	35.002	35.2	0.198	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 %.

-000-



สถาบันพัฒนาอุตสาหกรรม
ศูนย์บริการห้องปฏิบัติการอุตสาหกรรมอาหาร

Foundation for Industrial Development National Food Institute
Food Industrial Laboratory Service Center



Calibration Certificate

Certificate No.: 2403705-002-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: Water Bath

Manufacturer: MEMMERT

Model: WB 29

Serial No.: I698.0051

ID No.: N/A

Order No.: 2403705

Operation No.: 2403705-002

Date of Receipt: 18 July 2024

Date of Calibration: 18 July 2024

Calibrated by Mr.Taveesak Seilee
Scientist

Approved by
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory
Responsible for the Technical Management Team

Date of Issue: 24 July 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 standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

F-CS-009 Revision: 01 Date: 20-04-65

2008 ปีที่ 35 ถนนสุขุมวิท แขวงคลองเตย เขตคลองเตย กรุงเทพมหานคร 10110
2008 Soi 35, Anur Achana Road, Bang Yai Khwa Subdistrict, Bang Phai District, Bangkok 10700, Thailand
Tel: +66(0) 2422 8588 Fax: +66(0) 2422 8345



Calibration Report

Certificate No.: 2403705-002-01

Equipment: Water Bath

Model: WB 29 Serial No.: I698.0051

Resolution: 0.1 °C ID No.: N/A

Manufacturer: MEMMERT

Date of Calibration: 18 July 2024 Page 2 of 3

Location: Laboratory, SECOT CO., LTD.

Environment Condition: Ambient Temperature (30 ± 1) °C

Relative Humidity (58 ± 1) %

Line Voltage (221 ± 1) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 5 standard thermometer into its liquid bath and calibration according to W-TE-011 based on ASTM E715-80 (2022): Standard Specification for Gravity-Convection and Forced-Circulation Water Baths.
- The temperature scale used is ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.

2. Reference Standard Instrument :

Instrument	Model	Serial No./ID No.	Certificate No.	Due Date	Through
Digital Thermometer with sensor	34972A	MY49018263	TE 670368-01	23-Mar-25	NATIONAL FOOD INSTITUTE
	RTD	RTD#201-205 / CH#201-205			

- This certificate is traceable to International System of Units (SI Units).
- This certificate was certified only for the instrument we calibrated.
- This result of calibration was found accurate as shown on date and place of calibration only.
- Condition of Calibrated item : Good

UUC Description:

Time of Record 1 Hour 9 Minute At 95.0 °C

7. Result of Calibration :
- ☒ Without adjustment
- ☐ After adjustment



Calibration Report

Certificate No.: 2403705-002-01

Equipment: Water Bath

Model: WB 29 Serial No.: I698.0051

Resolution: 0.1 °C ID No.: N/A

Manufacturer: MEMMERT

Date of Calibration: 18 July 2024 Page 3 of 3

Calibration point: 95.0 °C

Calibration result:

Calibration Condition	Temperature (°C)	Relative Humidity (%)	Line Voltage (Volt)
Min	29.9	57	220.3
Max	31.3	59	222.1



Sensor Installation Location

Table1 : Reporting of Temperature

Calibration Point (°C)	Measured Temperature (°C) @ Sensor No. (Sensor No.5 is REF)					Uncertainty ± (°C)
	# 1	# 2	# 3	# 4	# 5	
95.0	94.93	95.13	94.92	95.09	95.03	0.29

Table 2 : Reporting of Characterization Result

UUC* Setting (°C)	UUC* Reading (°C)			Stability ± (°C)	Uniformity (°C)	Overall Variation (°C)
	MIN	MAX	Average			
95.0	94.9	95.1	95.0	0.19	0.11	0.67

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity)"

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

Uniformity = The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor k= 2, providing a level of confidence of approximately 95 %.

----- End -----





Request Service No. 099/67

Page 1 of 3

Calibration Certificate

Nomenclature : Brand : Mettler Toledo Type : Top-Loading Electronic Balance

Model : AG245 Serial No. : 1117293916 (198129-0)

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.00001 g (41g)/ 0.0001 g (210g)

Calibration date : May 24, 2024

Reference Standard No. M2310081S, M2402083S, M2302167S, M2403062N, M2303005N

Traceable to : Metrological Center SCI ECO Services Company Limited.

Thai Calibration Services CO., LTD.

Ambient Condition : Temperature 24.20 – 24.70 °C

Humidity 50.70 – 52.00 % RH

Calibrated By : *Pornnapa Budthum*

Approved By : *Narisa Poowasanpetch*

(Miss Pornnapa Budthum)

(Miss Narisa Poowasanpetch)

Testing Officer

Chief of Technical Management

Date : 25/05/2024

Date : 25/05/2024

Issued Date : May 25, 2024

Measurement Report

Request Service No. 099/67

Page 2 of 3

Description : Brand : Mettler Toledo

Type : Top-Loading Electronic Balance

Model : AG245

Serial No. : 1117293916 (198129-0)

Calibration range : 0 – 200 g

Scale division : 0.00001 g (41g)/ 0.0001 g (210g)

Calibration date : May 24, 2024

Ambient Condition : Temperature 24.20-24.70 °C Relative humidity 50.70-52.00 % RH

Measurement data :

1. Repeatability of Reading :

Load (g)	Standard Deviation of Reading (g)	Maximum Difference between Successive Reading (g)
50	0.000125	0.0004
100	0.000105	0.0003
150	0.000125	0.0003
200	0.000173	0.0005

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

Center	Front	Left	Back	Right	Center	Maximum Difference
50.00010	50.00032	50.00048	50.00002	50.00008	50.00020	0.00038

Issued Date : May 25, 2024

3. Departure from Nominal Valve :

Reading (g)	Correction (g)	Uncertainty (+/- g)
0	0.000000	± 0.000034
0.5	0.000022	± 0.000033
1	0.000037	± 0.000018
10	-0.000067	± 0.000036
20	-0.000060	± 0.000044
40	-0.000193	± 0.000072
60	-0.00032	± 0.00011
80	-0.00033	± 0.00013
100	-0.00048	± 0.00015
120	-0.00049	± 0.00017
140	-0.00040	± 0.00022
160	-0.00054	± 0.00023
180	-0.00053	± 0.00024
200	-0.00084	± 0.00027

Calibrated by : *Pornnapa Budthum*

(Miss Pornnapa Budthum)

Testing Officer

Date : 25/05/2024

Approved By : *Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Chief of Technical Management

Date : 25/05/2024

Issued Date : May 25, 2024



Calibration Certificate

Nomenclature : Brand : Sartorius Type : Top-Loading Electronic Balance

Model : BSA224S-CW Serial No. : 32191636

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.0001 g (220 g)

Calibration date : May 22, 2024

Reference Standard No. M2402083S, M2302167S, M2403062N, M2303005N

Traceable to : Thai Calibration services Co., Ltd

Ambient Condition : Temperature 23.41-24.71 °C

Humidity 48.2-53.1 % RH

Calibrated By : *Khemchuda Insorn*

(Miss Khemchuda Insorn)

Testing Officer

Date : 23/05/2024

Approved By : *Narisa Poowasanpetch*

(Miss Narisa Poowasanpetch)

Chief of Technical Management

Date : 23/05/2024

Issued Date : May 23, 2024

Measurement Report

Request Service No.100/67

Page 2 of 3

Description : Brand : Sartorius

Type : Top-Loading Electronic Balance

Model : BSA224S-CW

Serial No. : 32191636

Calibration range : 0 – 200 g

Scale division : 0.0001 g (220 g)

Calibration date : May 22,2024

Ambient Condition : Temperature 23.41-24.71 °C Relative humidity 48.2-53.1 % RH

Measurement data :

1. Repeatability of Reading :

Load (g)	Standard Deviation of Reading (g)	Maximum Difference between Successive Reading (g)
50	0.00007	0.0002
100	0.00005	0.0001
150	0.00005	0.0001
200	0.00005	0.0001

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

Center	Front	Left	Back	Right	Center	Maximum Difference
49.99990	49.99992	49.99988	49.99992	49.99990	49.99992	0.00004

Issued Date : May 24,2024

Request Service No. 100/67

Page 3 of 3

3. Departure from Nominal Value :

Reading (g)	Correction (g)	Uncertainty (+/- g)
0	0.00000	± 0.00007
1	+ 0.00003	± 0.00007
5	+ 0.00004	± 0.00008
10	+ 0.00008	± 0.00008
20	+ 0.00003	± 0.00009
40	+ 0.00012	± 0.00010
60	+ 0.00004	± 0.00012
80	+ 0.00005	± 0.00013
100	+ 0.00006	± 0.00016
120	+ 0.00007	± 0.00018
140	+ 0.00008	± 0.00020
160	+ 0.00006	± 0.00022
180	+ 0.00007	± 0.00024
200	+ 0.00010	± 0.00027

Calibrated by :

Khemchuda Insorn

Approved By :

Narisara Poowasanpetch

(Miss Khemchuda Insorn)

(Miss Narisa Poowasanpetch)

Testing Officer

Chief of Technical Management

Date : 22/05/2024

Date : 23/05/2024

Issued Date : May 23,2024

CERTIFICATE OF CALIBRATION

ISSUED BY **Noisemeters**

DATE OF ISSUE **26 March 2024**

CERTIFICATE NUMBER **211259**

NoiseMeters

NoiseMeters
Acoustic House
Bridlington Road
Hunmanby
YO14 0PH
United Kingdom
www.noisemeters.com

Page 1 of 2

Approved signatory
N.Smith
Electronically signed:



doseBadge Reader : IEC 60942:2003

Instrument information

Manufacturer: Cirrus Research plc

Notes:

Model: RC:110A

Serial number: 95167

Class: 2

Test summary

Date of calibration: 25 March 2024

The doseBadge reader detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC60942_2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer's data.

The doseBadge Reader has been shown to conform to the Class 2 requirements for periodic testing, described in Annex B of IEC 60942:2003 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

However, as public evidence was not available, from a testing organisation responsible for pattern approval, to demonstrate that the model of doseBadge Reader conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, no general statement or conclusion can be made about conformance of the doseBadge Reader to the requirements of IEC 60942:2003.

Notes:

This certificate provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%.

CERTIFICATE OF CALIBRATION

Certificate Number:
211259

Page 2 of 2

Environmental conditions

The following conditions were recorded at the time of the test:

Before Pressure: 99.26 kPa Temperature: 22.1 °C Humidity: 33.4 %
After Pressure: 99.26 kPa Temperature: 22.1 °C Humidity: 34.6 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Distortion Meter	Keithley	2015	0839263
Acoustic Calibrator	Bruel and Kjaer	4231	2610257
Environmental Monitor	Comet	T7510	21962628

Initial Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.41	113.54	113.55	113.50	-0.50	±0.75	0.11 dB
Distortion (%)	< 4.00	0.49	0.50	0.55	0.51	0.51	+4.00	0.13 %
Frequency (Hz)	1000.0	990.5	990.5	990.4	990.5	-9.5	±20.0	0.1 Hz

The measured quantities or deviations (as applicable), extended by the expanded combined uncertainty of measurement, must not exceed the corresponding tolerance.

Adjusted Acoustic Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	114.00	113.99	113.99	113.98	113.99	-0.01	±0.75	0.11 dB
Distortion (%)	< 4.00	0.42	0.41	0.41	0.42	0.42	+4.00	0.13 %
Frequency (Hz)	1000.0	990.3	990.4	990.3	990.4	-9.6	±20.0	0.1 Hz

Functionality Results

Function	Result
Keypad	Pass
Battery Power	Pass
Display	Pass
Communication	Pass
2 way IR link	Pass
Clock	Pass

End of results

Instrument information

JANTYTECH
聚通科技

Name	WET BULB GLOBE TEMPERATURE (WBGT)METER
Series No	3522210172
Type	JT2011-E2A
Customer	SECOT CO., LTD.
Address	239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800

Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

Calibration Results

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (± °C)
WET	25.0	25.1	-0.1	0.2
	30.0	30.1	0.1	0.2
	35.0	35.2	-0.2	0.2
	40.0	39.9	0.1	0.2
	45.0	45.1	-0.1	0.2
DRY	25.0	24.9	0.1	0.2
	30.0	29.9	0.1	0.2
	35.0	35.1	-0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	44.9	0.1	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	39.9	0.1	0.2
	45.0	44.9	0.1	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000075

Calibration Engineer : _____

Date : _____



Instrument information

JANTYTECH
聚通科技

Name	WET BULB GLOBE TEMPERATURE (WBGT)METER
Series No	3522210173
Type	JT2011-E2A
Customer	SECOT CO., LTD.
Address	239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800

Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison test with standard instrument	✓

Calibration Results

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (± °C)
WET	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	40.2	-0.2	0.2
	45.0	45.1	-0.1	0.2
DRY	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	40.2	-0.2	0.2
	45.0	45.1	-0.1	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.2	-0.2	0.2
	40.0	40.1	-0.1	0.2
	45.0	45.1	-0.1	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000075

Calibration Engineer : _____

Date : _____



Instrument information



Name **WET BULB GLOBE TEMPERATURE (WBGT)METER**

SeriesNo **3522210174**

Type **JT2011-E2A**

Customer **SECOT CO., LTD.**

Address **239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800**

Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison testwith standard instrument	✓

Calibration Results

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
WET	25.0	25.1	-0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	44.8	0.2	0.2
DRY	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	45.1	-0.1	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	34.9	0.1	0.2
	40.0	39.8	0.2	0.2
	45.0	44.9	0.1	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000075

Calibration Engineer : 

Date : January 16, 2024

Instrument information



Name **WET BULB GLOBE TEMPERATURE (WBGT)METER**

SeriesNo **3522210176**

Type **JT2011-E2A**

Customer **SECOT CO., LTD.**

Address **239 Rim Klong Prapa Road, Bang Sue, Bang Sue, Bangkok 10800**

Integrity check of instrument

Appearance	✓
Parts integrity	✓
Screen display or touch	✓
Instrument button	✓
Power supply	✓
battery	✓
Data storage and export	✓
Deviation degree of comparison testwith standard instrument	✓

Calibration Results

UUC Sensor	Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
WET	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	40.1	-0.1	0.2
	45.0	45.2	-0.2	0.2
DRY	25.0	25.1	-0.1	0.2
	30.0	30.2	-0.2	0.2
	35.0	35.2	-0.2	0.2
	40.0	39.8	0.2	0.2
	45.0	44.8	0.2	0.2
GLOBE	25.0	24.9	0.1	0.2
	30.0	29.8	0.2	0.2
	35.0	35.1	-0.1	0.2
	40.0	39.9	0.1	0.2
	45.0	44.8	0.2	0.2

Environmental conditions: temperature: 26 °C±2°C, relative humidity: 30% RH±10RH%

Reference Standard : Standard Mercury Thermometers, Manufacturer: BGRI, Model: STA, SN : 2-56,
Calibrated Date : 20 February 2023, Calibration Certificate No. : RA21H-AB1000009

This Certificate is traceable to NCMT North China, Certificate No.: RA20J-AK000075

Calibration Engineer : 

Date : January 16, 2024



INTERNATIONAL TESTING SERVICE CO., LTD
1213/388 Ladprao 94 Ladprao Rd. Wangtonglang Bangkok 10310
Tel 0-2559-2095 Fax 0-2559-2096
E-mail : sale@itest-lab.com web site : www.itest-lab.com



CALIBRATION CERTIFICATE

Issued date: 15 January 2024

Client Name : **SECOT CO., LTD.**

Address : 239 Rimklongprapa Rd.,Bangsue, Bangkok 10800 Thailand.

Request No: **C-2401 - 011**

Laboratory No.: **CAL - 011**

Date of Request: 11 January 2024.

Date of Calibration: 12 January 2024.

1. Unit Under Calibration (UUC) :

Nomenclature : Digital Light Meter

Serial No.: A 051053

Maker : EXTECH

Model : 407026

2. Place of Calibration: Photometry Standard Laboratory, INTERNATIONAL TESTING SERVICE CO., LTD.

3. Range of Calibration: 1 Range

4. Condition of Laboratory: Ambient temperature: (25 ± 2) °C and relative humidity (60 ± 20) %.

5. Reference Standard: Standard Tungsten Halogen Lamp, Serial No.: 504010, which was calibrated on 14 June 2023, can be traceable to International System of Unit (SI) through National Institute of Metrology (Thailand), Certificate No.: TP-1027-23.

6. Support Equipment:

1. Photometric bench, 6.3 meter long.
2. DC. power supply, Serial No.: EJ 19A 009, Model: GPR-25H 300, Maker: GW INSTEK.
3. Digital Multimeter, Model: 34401A, S/N: MY44011212 and MY44011215.
4. Foot Candle / Lux Meter, Model: 407026, S/N: Q 558437, Maker: EXTECH.

7. Calibration Procedure:

The measurement was done in accordance with WI-CP-01. The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95 %.

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The Results shown in this certification report refer only to the equipment(s) calibrated unless otherwise stated. This Calibration Certificate cannot be reproduced, except in full, without permission of company.



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Request No: **C-2401 - 011**

Serial No.: A 051053

Laboratory No.: **CAL - 011**

Results :

UUC Range	Standard (lx)	UUC Reading (lx)		Correction (lx)	Uncertainty of Measurement (\pm lx)
		Before adjust	After adjust		
2000	0	0	0	0	0.60
	100	92	100	0	2.9 % of Reading
	496	455	494	+2	
	988	908	987	+1	
	1478	1368	1482	-4	
	1966	1831	1983	-17	

Note : 1. The results relate only to the items calibrated.
2. Zero adjust before used.

Calibration result approved by

Approved on behalf of
International Testing Service Co., Ltd

(Mr. Yutana Tholueng)



(Mr. Pichit Vivat-Anant)
Managing Director

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