

# ภาคผนวก ค

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ผลการตรวจวัดคุณภาพสิ่งแวดล้อม

คุณภาพอากาศจากแหล่งกำเนิด

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 2556898  
Date Received : Jul 07, 2025  
Date Reported : Jul 15, 2025  
Report Number : 3360390-1

Page 1 of 1

Sample Number	2556898-1
Sampled Date	Jul 07, 2025 10:00 AM
Sample Description	Wastewater
Location	Normal Pond (Sump)
Date Analysis Commenced	Jul 07, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
<b>Water Testing</b>						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	62	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	35.6	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1260	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	172	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Narunat thammassaro ระบุณเลขที่ 323-3-0052 , Akkarin Budsaktee ระบุณเลขที่ 204-3-0196

Remark :

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

Technical Management

Photchana S

Photchana Seeda  
Scientist (4)  
ระบุณเลขที่ 323-3-0028

Approved by

D. Chamon

Dej Changchon  
Senior Manager  
ระบุณเลขที่ 323-3-0001

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 2566828  
Date Received : Aug 05, 2025  
Date Reported : Aug 13, 2025  
Report Number : 3381710-1

Page 1 of 1

Sample Number	2566828-1
Sampled Date	Aug 05, 2025 9:20 AM
Sample Description	Wastewater
Location	Normal Pond (Sump)
Date Analysis Commenced	Aug 05, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
<b>Water Testing</b>						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	31	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.8	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	36.6	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1630	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Narunat thammassaro ระบุณเลขที่ 323-3-0052 , Akkarin Budsaktee ระบุณเลขที่ 204-3-0196

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Technical Management

Photchana S

Photchana Seeda  
Scientist (4)  
ระบุณเลขที่ 323-3-0028

Approved by

D. Chamon

Dej Changchon  
Senior Manager  
ระบุณเลขที่ 323-3-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



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

**Lot ID: 2574830**  
**Date Received :** Sep 24, 2025  
**Date Reported :** Oct 01, 2025  
**Report Number :** 3418570-1

Page 1 of 1

Sample Number	2574830-1					
Sampled Date	Sep 24, 2025 2:35 PM					
Sample Description	Wastewater					
Location	Normal Pond (Sump)					
Date Analysis Commenced	Sep 24, 2025					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	37.9	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1820	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	29	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Sampling By :** Narunat thammassaro ทะเบียนเลขที่ ร-323-ร-0052 , Akkarin Budsaktee ทะเบียนเลขที่ ร-204-ร-0196

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Technical Management

*Jitsupa P.*

Jitsupa Pratuangsuk  
Scientist (2)  
ทะเบียนเลขที่ ร-323-ร-0004

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ ร-323-ร-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



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

**Lot ID: 2586351**  
**Date Received :** Oct 22, 2025  
**Date Reported :** Oct 30, 2025  
**Report Number :** 3438370-1

Page 1 of 1

Sample Number	2586351-1					
Sampled Date	Oct 22, 2025 9:45 AM					
Sample Description	Wastewater					
Location	Normal Pond (Sump)					
Date Analysis Commenced	Oct 22, 2025					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	25	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	30.3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1032	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	32	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Sampling By :** Wanlop Hunchainaow ทะเบียนเลขที่ ร-323-ร-0038 , Akkarin Budsaktee ทะเบียนเลขที่ ร-204-ร-0196

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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

*Photchana S.*

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ ร-323-ร-0028

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ ร-323-ร-0001

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## Analysis / Test Report



TESTING  
No.0042

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 25100331**  
Date Received : Nov 10, 2025  
Date Reported : Nov 17, 2025  
Report Number : 3452441-1

Page 1 of 1

<b>Sample Number</b>	25100331-1
<b>Sampled Date</b>	Nov 10, 2025 9:35 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	Normal Pond (Sump)
<b>Date Analysis Commenced</b>	Nov 10, 2025
<b>Condition of Sample</b>	Contained in one amber glass bottle and three plastic bottles. Sample containers comply to pretreatment - preservation standards. (APHA / USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
<b>Water Testing</b>						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	0.6	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	32.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1360	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	24	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Sampling By :** Sansoen Khuiyokul หมายเลขที่ 3-323-3-0005 , Samart Khumphlee หมายเลขที่ 3-204-3-0084

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Technical Management

*Jitsupa P.*

Jitsupa Pratuangsuk  
Scientist (2)  
หมายเลขที่ 3-323-3-0004

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
หมายเลขที่ 3-323-3-0001

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## Analysis / Test Report



TESTING  
No.0042

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 25103283**  
Date Received : Dec 08, 2025  
Date Reported : Dec 16, 2025  
Report Number : 3472729-1

Page 1 of 1

<b>Sample Number</b>	25103283-1
<b>Sampled Date</b>	Dec 08, 2025 9:30 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	Normal Pond (Sump)
<b>Date Analysis Commenced</b>	Dec 08, 2025
<b>Condition of Sample</b>	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
<b>Water Testing</b>						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	61	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	1.2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	29.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	4050	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	49	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Sampling By :** Wanlop Hunchainao หมายเลขที่ 3-323-3-0038 , Akkarin Budsaktee หมายเลขที่ 3-204-3-0196

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Technical Management

*Photchana S.*

Photchana Seeda  
Scientist (4)  
หมายเลขที่ 3-323-3-0028

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
หมายเลขที่ 3-323-3-0001

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## System Audit

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right solutions.  
right partner.

# CEMs System Audit

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Date:

September 24,2025

Author:

Apisit Singha





## CEMS System Audit Inspection Sheet

รายละเอียดโครงการ (Plant Information)

Lot ID .....

ชื่อโครงการ (Project Name)	Siam Power Generation Co, Ltd.
ที่ตั้ง (Location)	55/1 หมู่ 5 ต.หนองละลอก อ.บ้านค่าย จ.ระยอง
ชื่อปล่อง (Stack name)	HRSG-1
วันที่ตรวจสอบ (Inspection Date)	September 24,2025
เจ้าหน้าที่ประจำโครงการ (Plant Operation Name )	-
เจ้าของโครงการ (Project Owner Name)	General Electric International Operations Company Inc.
เจ้าหน้าที่ตรวจสอบ (ALS Inspector Name)	Mr. Apisit Sing-ha



รายละเอียดของ CEMs (CEMs System Information)

Parameter	Analyzer Brand	Model	Serial No.	Range	System Type*	Sample Condition**	Sampling Technique*/	Unit
IO <sub>x</sub>	H H ISO I	H IT4 T- I> IV I> I> IO2	454902329210	0-200	I	C	I	ppm
CO				0-100	I	C	I	ppm
O <sub>2</sub>				0-25	I	C	I	%
Idr Me d r	I I H G	I- I I I00-20	1306811	0-3,000,000	I	W	I	I m <sup>3</sup> / m <sup>3</sup>
A dso h d I e s s u e m e d r	I I H G	I- I I I00	1207359	0-8.8	I	W	I	m d r
I h f I e s s u e M e d r	I I I	M S100 IS9 I14 I Y T I I9 I I I	3 5646623011168	900-1100	I	W	I	m d r
T e m p e r a t u r e M e d r	W I H	T M0- I ( M I I T100)	-	0-250	I	W	I	deg ee C

คำจำกัดความ

\* (Direct system = D, Dilution system = Di)

,

\*\* (Hot-Wet = W, Cool-Dry = C)

,

\*/ (Direct Extractive = E, In-situ = I)



### # ตำแหน่งติดตั้ง เครื่องตรวจวัด (Analyzer)

What to Check	Observations
ความสูงปล่อง	35.0 m by Drawing
ตำแหน่งติดตั้งเครื่องตรวจวัด (Analyzer)	
Gas Analyzer	Near stack on ground floor
Flow Analyzer	on stack floor
การเข้าถึง (Accessibility) ตำแหน่งเครื่อง CEMs	เข้าถึงได้โดย walk wayและบันไดป็น
สะดวกในการบำรุงรักษาเครื่องตรวจวัด (Analyzer)	สะดวกในการดำเนินการ

### # Probe and Probe Location Checks

What to Check	Observations
การเข้าถึง (Accessibility) ตำแหน่ง Probe CEMs	walk wayและบันไดป็น
ชนิดของ Probe เก็บตัวอย่าง	SS 316 Heated sampling Probe
ระยะความสูงของจุดติดตั้ง Probe เป็นไปตามข้อกำหนดหรือไม่	32.4 m by Drawing from Mechanical_12_DM-HNE-04-001_Arrangement Drawing of Main Stack_Rev2021 (MOC2020)
ระยะจากปลาย Probe อยู่ห่างจากผนังของปล่องมากกว่า 1 เมตร	1.5 m from stack wall by Drawing Refer 2.4.30 Equipment Detail list





#### # Source Level Extractive Systems

What to Check	Observations
ตรวจสอบว่ามีหยดน้ำบริเวณท่อนำตัวอย่างที่เข้าสู่ห้องระบบหรือไม่	ไม่พบหยดน้ำในสายนำ ตัวอย่างที่เข้าสู่ระบบปรับสภาพอากาศ
ระบบอากาศแห้ง (Air Dry System) มีการบันทึกค่าอุณหภูมิหรือไม่ และมีการกำหนดช่วงอุณหภูมิ ตาม QA/QC Plan และทำการตรวจสอบอุณหภูมิหรือไม่	มีการจดบันทึกอุณหภูมิ ว่าเป็นไปตามเกณฑ์การยอมรับ ความใช้ได้ของระบบอากาศแห้งที่ระบุไว้ใน GPFRM-7.1.5-03-OM-SIPCO-003_CEMS Online Calibration Form

#### # Flow Monitors

What to Check	Observations
มีการทดสอบ Flow Monitors ให้เป็นไปตาม QA/QC Plan หรือไม่	มีแผนการดำเนินการและมีผลการทดสอบในปี 2567 ให้เป็นไปตามข้อบังคับตามกฎหมาย
มีการเปลี่ยนอุปกรณ์ หรือ Filters ตามข้อกำหนดใน QA/QC Plan หรือไม่	ไม่พบการกำหนดหรือการแสดงผลการดำเนินการที่เกี่ยวข้อง
มีการทำ QA/QC temperature และ stack pressure สำหรับแปลงค่า flow monitor ตาม QA/QC Plan หรือไม่	มีแผนการดำเนินการ การรับรองการทวนกลับช่วงการวัด และมีผลการทดสอบในปี 2567 ให้เป็นไปตามข้อบังคับตามกฎหมาย
มีการทดสอบ Factor ในการแปลงค่า flow monitor หรือไม่	พบการกำหนดและการแสดงผลการรับรองการทวนกลับช่วงการวัด
เมื่อระบบมีปัญหา มีการแสดงสัญญาณเตือนหรือไฟเตือนหรือไม่	ไม่พบการแสดงผลการเตือนปัญหาที่เกี่ยวข้อง



## # Analyzer

What to Check	Observations
มีการปรับเปลี่ยน (เชื้อเพลิง ระบบบำบัด กำลังการผลิต หรืออื่นๆ) ของแหล่งกำเนิดในการตรวจวัดหรือไม่	ไม่มีการเปลี่ยนแปลงเชื้อเพลิง แต่มีการปรับกำลังการผลิตตามความต้องการของลูกค้า
เมื่อระบบมีปัญหา มีการแสดงสัญญาณเตือน หรือไฟเตือน และมีการอธิบายความหมายของสัญญาณเตือน หรือไฟเตือนหรือไม่	มีการแจ้งเตือนที่ระบบในDCS รวมถึงมีการบันทึกการแจ้งเตือนไว้ในระบบ DCS ด้วย
ตรวจสอบช่วงการตรวจวัด (Range) ว่าเป็นไปตามข้อกำหนด หรือไม่	ไม่มีการปรับเปลี่ยน เป็นไปตามข้อกำหนดตามEIAและข้อบังคับตามกฎหมาย Refer to GPWI-7.1.5-03-OM-SIPCO-001_Measuring Equipment and Calibration
ตรวจสอบอัตราการดึงตัวอย่าง (Sampling Flow) เป็นไปตามข้อกำหนดหรือไม่	มีการตรวจสอบตามวงรอบการตรวจสอบการทำงานของระบบ CEMs ตาม CEMs online calibration form: GPFRM-7.1.5-03-OM-SIPCO-003_CEMS Online Calibration Form และอยู่ระหว่างการปรับปรุงระบบเพื่อการทวนสอบอัตราการดึงตัวอย่างที่แท้จริง
กรณีที่มีการทำ Dilution System มีการเปลี่ยน correction factors ที่ใช้ในการแปลผล หลังจากการทดสอบครั้งล่าสุดหรือไม่	ไม่เกี่ยวข้อง



## # Calibration Gases

What to Check	Observations
ชนิดและประเภทของก๊าซมาตรฐาน (Standard Gas)  Span gas	Standard Single Gas COA Grade (Linde)
Diluent Gas	Standard Single Gas COA Grade (Linde)
N <sub>2</sub>	UHP grade
วันหมดอายุของก๊าซมาตรฐาน (Standard Gas)  Span gas	NO <sub>x</sub> (D599214): 2 Dec 2025  CO (D749338) : 29 Jul 2027
Diluent Gas	O <sub>2</sub> (18K1149177): 15 Nov 2026
N <sub>2</sub>	From Issue date 24 May 2027
ช่วงความเข้มข้นของก๊าซมาตรฐาน เป็นไปตามช่วงที่กำหนดหรือไม่  Point 1: 20% - 30% of span  Point 2: 50% -60% of span  Point 3: 80% - 100% of span	NO <sub>x</sub> at Point 3 (172 ppm)  CO at Point 3 (86.1 ppm)  O <sub>2</sub> at Point 3 (21.1%)
มีเอกสารยืนยันมาตรฐาน zero air gas ให้เป็นไปตามข้อกำหนดหรือไม่ (Supplier certification)	N <sub>2</sub> Gas Certify by Linde follow Request
มีการจดบันทึกความเข้มข้นของก๊าซมาตรฐาน ในการทำ Calibration error and linearity test หรือไม่	Record on GPFRM-7.1.5-03-OM-SIPCO-003_CEMS  Online Calibration Form





ตรวจสอบแรงดันก๊าซมาตรฐานมีค่า < 150 psi. หรือไม่	Record on GPFRM-7.1.5-03-OM-SIPCO-003_CEMS
Span gas	Online Calibration Form > 150 Psi
Diluent Gas	Record on GPFRM-7.1.5-03-OM-SIPCO-003_CEMS
	Online Calibration Form > 150 Psi
N <sub>2</sub>	Record on GPFRM-7.1.5-03-OM-SIPCO-003_CEMS
	Online Calibration Form > 150 Psi
มีการใช้ Stainless steel regulators สำหรับ SO <sub>2</sub> cylinders หรือไม่	ใช้ stainless steel regulator สำหรับการใช้งานกับ Gas ถังกร่อน

#### # ระบบ DAHS

What to Check	Observations
มีระบบบันทึกข้อมูลที่ครอบคลุมพารามิเตอร์และช่วงการตรวจวัด (Range) ของระบบตรวจวัดหรือไม่	ครอบคลุมทุกค่าที่ทำการตรวจวัด และการบันทึกช่วงการตรวจวัดถูกต้อง ตามระบบบันทึกผลใน CCR
มีการตรวจสอบความถูกต้องของข้อมูลจากเครื่องตรวจวัดที่เข้าระบบบันทึกข้อมูลหรือไม่	การรับส่งสัญญาณค่าระหว่าง CEMS System และระบบบันทึกข้อมูลใน CCR ไม่มีความแตกต่างเนื่องจากช่วงสัญญาณการตรวจวัดในระบบไม่สามารถเปลี่ยนแปลงช่วงได้
มีการใส่ correction factors ใน DAHS และมีการบันทึกการใส่ correction factors และการแก้ไขหรือไม่	มีการใส่ค่า Correct factor ป้องกันการติดลบในระบบบันทึกข้อมูล NO <sub>x</sub> และ O <sub>2</sub>



ระบบการส่งถ่ายข้อมูลเป็นชนิดใด (เช่น Analog, Digital)	เป็นการส่งสัญญาณแบบ Analog (4-20 mA) ที่ไม่สามารถปรับช่วงการตรวจวัดได้ (single range)
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#### # Optional Control Equipment Parameter Monitoring

What to Check	Observations
มี QA/QC Plan ในการยืนยันช่วงการตรวจวัด (Range) ให้ครอบคลุมและเหมาะสมหรือไม่	แผนการทดสอบสอดคล้องกับช่วงการตรวจวัดของเครื่องมือ เป็นไปตามข้อกำหนดของ DIW และ EIA
มีการจัดบันทึกการขาดหายของข้อมูลหรือไม่	ไม่มีการบันทึกการขาดหายของข้อมูลในระบบ DAS แต่มีการคงค่าก่อนหน้าในช่วงเวลาที่มีการทดสอบเครื่องวัดประจำวันรอบ
มีวิธีการชดเชย ข้อมูลที่ขาดหายไปหรือไม่	มีการชดเชยข้อมูลตาม PSWI-8.1-01-OM-SIPCO-S057 , 4.3.4 CEMS Malfunction / Exceeded reading than emission limit. ในการชดเชยข้อมูลที่มีค่าเกินกว่าช่วงการยอมรับ

#### # Maintenance Log Review

What to Check	Observations
สามารถทดสอบการดึงข้อมูลจากระบบบันทึกข้อมูลได้หรือไม่	สามารถทำการดึงข้อมูลย้อนหลังได้ทุกราชการทดสอบ
มีการแสดงข้อผิดพลาดของระบบตรวจวัดในระบบบันทึกข้อมูลหรือไม่	มีการบันทึกข้อผิดพลาดของระบบไว้ในฐานข้อมูล และใน Analyzer Logs



มีการจัดทำคำอธิบายข้อผิดพลาดและการแจ้งเตือนของระบบตรวจวัดหรือไม่	มีการแสดงคำอธิบาย สำหรับการแจ้งเตือนในระบบ
มีแนวทางการแก้ไขปัญหาในการเดินระบบเบื้องต้นหรือไม่	มีการกำหนดแนวทางการปฏิบัติเมื่อเกิดความผิดปกติของระบบCEMs อ้างอิง <b>Operation Manual (EI-QJY-78-001)</b>
มีการจดบันทึกการปรับแต่งระบบตรวจวัดหรือไม่	มีการจดบันทึกในรายงานการดำเนินงาน ( <b>activity Log</b> ) ในระบบ และแสดงไว้หน้างาน
มีอุปกรณ์และชิ้นส่วนสำหรับการบำรุงรักษาระบบหรือไม่	มีครบถ้วน ยกเว้นการบำรุงรักษาที่เกินกว่าการบำรุงรักษาปกติ

#### # QA/QC Plan Review

What to Check	Observations
มีการกำหนดช่วงเวลาการทำ QA/QC หรือไม่ และมีการปรับปรุงให้เป็นปัจจุบันหรือไม่	มีการทบทวนทุกเดือน ตามข้อกำหนด ใน <b>Compliance Calendar: QA/QC plan review and completed</b>
มีการกำหนดการปรับปรุงเครื่องมือที่ไม่เป็นไปตามข้อกำหนดหรือไม่	มีการกำหนดไว้ตาม <b>Compliance Calendar: QA/QC plan review and completed</b>
มีการเก็บบันทึกการบำรุงรักษาเครื่องวัดหรือไม่	มีการบันทึกไว้ตาม <b>C&amp;I-2025 Report Calibration CEMS.</b>





#### #ข้อเสนอแนะเพิ่มเติม

หัวข้อ	ข้อเสนอแนะ
1.แผนการบำรุงรักษาและสอบเทียบประจำปี	<ul style="list-style-type: none"><li>- พบแผนการดำเนินการบำรุงรักษา เป็นไปตามข้อกำหนดในEIA และข้อกำหนดตามกฎหมายที่เกี่ยวข้อง</li></ul>
2.การทดสอบความใช้ได้ประจำวงรอบของระบบตรวจวัดคุณภาพอากาศ	<p>จากแบบบันทึก <b>calibration record of analyzer</b> พบว่า</p> <ul style="list-style-type: none"><li>- พบรายการผลการทดสอบที่เกี่ยวข้องตามEIA และกฎหมายไม่มีข้อสังเกตใดๆในการดำเนินการ</li></ul>
3.การตรวจสอบการเดินระบบ	<ul style="list-style-type: none"><li>- พบระบบนำตัวอย่างมีการไหลผ่านของตัวอย่างอากาศผ่านระบบ <b>Nox Converter</b> ที่อาจส่งผลกระทบต่อผลการตรวจวัดและทดสอบได้</li><li>- พบว่าการตรวจสอบความเป็นตัวอย่างที่แท้จริงไม่สามารถตรวจสอบได้จากระบบนำตัวอย่าง (<b>Flow check</b>) เนื่องจากการตรวจสอบอัตราดึงตัวอย่างเข้าสู่ระบบอยู่ระหว่างการติดตั้ง</li></ul>
4.การปฏิบัติตามข้อกำหนดEIAและกฎหมาย	<ul style="list-style-type: none"><li>- พบการกำหนดการดำเนินการบำรุงรักษา เป็นไปตามข้อกำหนดในEIA และข้อกำหนดที่เกี่ยวข้อง</li><li>- พบการดำเนินการตรวจรับรองระบบตรวจวัดตามที่กำหนดไว้ตามกฎหมาย การกำหนดการติดตั้งเครื่องตรวจวัดคุณภาพอากาศปล่อยระบายอัตโนมัติ ปี 2565 และผลการรับรองในปี2566 ผ่านตามเกณฑ์ที่กำหนด</li></ul>

หมายเหตุ : ดัดแปลงจาก 40 CFR Part 60 regulations

## Relative Accuracy Test Audit (RATA)

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 2591418**  
Date Received : Nov 17, 2025  
Date Reported : Dec 11, 2025  
Report Number : 3416831-1

Page 1 of 4

**Sample Number** 2591418-1  
**Sampled Date** Nov 15, 2025  
**Sample Description** Emission from Stationary Source  
**Location** HRSG #1  
**Parameter** NOx

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Nov 25	11:30	11:50	6.08	7.53	13.41	16.89	3.48
2	15 Nov 25	11:51	12:11	6.52	7.43	14.39	16.63	2.24
3	15 Nov 25	12:12	12:32	6.47	7.40	14.30	16.57	2.27
4*	15 Nov 25	12:33	12:53	5.94	7.09	13.17	15.91	2.73
5	15 Nov 25	12:54	13:14	5.50	6.29	12.25	14.18	1.93
6	15 Nov 25	13:15	13:35	5.37	6.26	11.95	14.08	2.13
7	15 Nov 25	13:36	13:56	7.40	8.52	16.30	18.98	2.68
8*	15 Nov 25	13:57	14:17	7.58	8.81	16.74	19.63	2.89
9	15 Nov 25	14:18	14:38	7.72	8.73	17.07	19.44	2.37
10	15 Nov 25	14:39	14:59	7.59	8.71	16.81	19.39	2.58
11	15 Nov 25	15:00	15:20	7.59	8.68	16.83	19.35	2.53
12	15 Nov 25	15:21	15:41	7.69	8.75	17.07	19.50	2.43
Average						15.22	17.57	2.35
Confidence Coefficient (CC)								0.18
Relative Accuracy (Compared with Emission Standard : 60 ppm) (%)								4.22
Relative Accuracy Criteria <sup>1/</sup> (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 7E

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

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

RA Result is within Criteria

Technical Management

*Wichan Choonharat*  
Wichan Choonharat  
Manager  
ทะเบียนเลขที่ 2-204-ก-0006

Approved by

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

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

ADDRESS 104 Phatthanal an 40, Phatthanal an Pd., 1 Hwaeng Phatthanal an, 1 het Suan Luang, Bangl oi 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 2591418**  
Date Received : Nov 17, 2025  
Date Reported : Dec 11, 2025  
Report Number : 3416831-1

Page 2 of 4

**Sample Number** 2591418-1  
**Sampled Date** Nov 15, 2025  
**Sample Description** Emission from Stationary Source  
**Location** HRSG #1  
**Parameter** SO2

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	15 Nov 25	11:30	11:50	0.48	0.16	1.05	0.36	-0.69
2	15 Nov 25	11:51	12:11	0.50	0.16	1.10	0.35	-0.74
3	15 Nov 25	12:12	12:32	0.49	0.16	1.08	0.36	-0.72
4	15 Nov 25	12:33	12:53	0.48	0.16	1.07	0.37	-0.70
5	15 Nov 25	12:54	13:14	0.48	0.16	1.07	0.36	-0.71
6	15 Nov 25	13:15	13:35	0.51	0.14	1.13	0.32	-0.80
7	15 Nov 25	13:36	13:56	0.55	0.18	1.21	0.39	-0.81
8	15 Nov 25	13:57	14:17	0.54	0.18	1.20	0.39	-0.81
9*	15 Nov 25	14:18	14:38	0.58	0.18	1.28	0.39	-0.88
10*	15 Nov 25	14:39	14:59	0.59	0.18	1.31	0.40	-0.91
11	15 Nov 25	15:00	15:20	0.56	0.17	1.23	0.38	-0.85
12*	15 Nov 25	15:21	15:41	0.59	0.18	1.32	0.39	-0.92
Average						1.13	0.37	-0.76
Confidence Coefficient (CC)								0.05
Relative Accuracy (Compared with Emission Standard : 15 ppm) (%)								5.37
Relative Accuracy Criteria <sup>1/</sup> (Compared with Emission Standard)								≤ 10%

Reference Method : US EPA Method 6C

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

<sup>1/</sup> Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard 15 ppm at 7%O2

RA Result is within Criteria

Technical Management

*Wichan Choonharat*  
Wichan Choonharat  
Manager  
ทะเบียนเลขที่ 2-204-ก-0006

Approved by

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

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591418  
Date Received : Nov 17, 2025  
Date Reported : Dec 11, 2025  
Report Number : 3416831-1

Page 3 of 4

Sample Number 2591418-1  
Sampled Date Nov 15, 2025  
Sample Description Emission from Stationary Source  
Location HRSG #1  
Parameter CO

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	15 Nov 25	11:30	11:50	9.35	9.56	20.63	21.44	0.81
2	15 Nov 25	11:51	12:11	9.17	9.38	20.25	21.00	0.74
3	15 Nov 25	12:12	12:32	8.88	9.12	19.62	20.42	0.80
4*	15 Nov 25	12:33	12:53	13.47	11.96	29.87	26.84	-3.02
5	15 Nov 25	12:54	13:14	20.21	20.76	45.02	46.81	1.79
6*	15 Nov 25	13:15	13:35	20.04	21.51	44.58	48.43	3.85
7*	15 Nov 25	13:36	13:56	6.59	7.80	14.51	17.37	2.85
8	15 Nov 25	13:57	14:17	6.31	6.17	13.93	13.75	-0.18
9	15 Nov 25	14:18	14:38	6.39	6.33	14.12	14.09	-0.03
10	15 Nov 25	14:39	14:59	6.28	6.34	13.92	14.12	0.20
11	15 Nov 25	15:00	15:20	6.47	6.39	14.35	14.24	-0.11
12	15 Nov 25	15:21	15:41	6.20	6.22	13.76	13.86	0.10
Average						19.51	19.97	0.46
Confidence Coefficient (CC)								0.49
Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)								0.14
Relative Accuracy Criteria <sup>1/</sup> (Compared with Emission Standard)								≤ 5%

Reference Method : US EPA Method 10

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

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

Emission Standard 690 ppm at 7%O2

RA Result is within Criteria

Technical Management

Wichan Choonharat  
Manager  
ทะเบียนเลขที่ 2-204-ก-0006

Approved by

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

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591420  
Date Received : Nov 17, 2025  
Date Reported : Dec 11, 2025  
Report Number : 3454141-1

Page 1 of 2

Sample Number 2591420-1  
Sampled Date Nov 15, 2025  
Sample Description Emission from Stationary Source  
Location HRSG #1  
Parameter Flowrate

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Flowrate Data		Difference
		Start	Stop	CEMs (Nm3/Hr)	RM (Nm3/Hr)	
1	15 Nov 25	11:30	11:50	1,257,003	1,181,847	-75,156
2	15 Nov 25	11:51	12:11	1,257,428	1,182,069	-75,359
3	15 Nov 25	12:12	12:32	1,259,501	1,196,816	-62,685
4	15 Nov 25	12:33	12:53	1,239,286	1,197,251	-42,035
5	15 Nov 25	12:54	13:14	1,217,258	1,183,464	-33,794
6	15 Nov 25	13:15	13:35	1,219,927	1,159,662	-60,265
7*	15 Nov 25	13:36	13:56	1,406,322	1,300,408	-105,914
8*	15 Nov 25	13:57	14:17	1,434,320	1,300,707	-133,613
9	15 Nov 25	14:18	14:38	1,436,465	1,334,584	-101,881
10*	15 Nov 25	14:39	14:59	1,445,314	1,321,242	-124,072
11	15 Nov 25	15:00	15:20	1,450,141	1,344,708	-105,433
12	15 Nov 25	15:21	15:41	1,458,041	1,400,034	-58,007
Average				1,310,561	1,242,271	-68,291
Confidence Coefficient (CC)						18,603
Relative Accuracy <sup>1/</sup> (Compared with RM) (%)						6.99
Relative Accuracy Criteria (Compared with RM)						≤ 20 %

Reference Method : US EPA Method 2

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

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

RA Result is within Criteria

Technical Management

Wichan Choonharat  
Manager  
ทะเบียนเลขที่ 2-204-ก-0006

Approved by

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

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 2591420**  
Date Received : Nov 17, 2025  
Date Reported : Dec 11, 2025  
Report Number : 3454141-1

Page 2 of 2

**Sample Number** 2591420-1  
**Sampled Date** Nov 15, 2025  
**Sample Description** Emission from Stationary Source  
**Location** HRSR #1  
**Parameter** Stack Temperature

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Temperature Data		Difference
		Start	Stop	CEMs (°C)	RM (°C)	
1	15 Nov 25	11:30	11:50	138.2	130.7	-7.5
2	15 Nov 25	11:51	12:11	138.1	130.5	-7.6
3	15 Nov 25	12:12	12:32	138.1	131.0	-7.1
4	15 Nov 25	12:33	12:53	137.8	130.7	-7.1
5	15 Nov 25	12:54	13:14	137.3	129.9	-7.4
6	15 Nov 25	13:15	13:35	137.4	129.9	-7.5
7	15 Nov 25	13:36	13:56	141.1	135.4	-5.7
8	15 Nov 25	13:57	14:17	142.3	135.3	-7.0
9	15 Nov 25	14:18	14:38	142.5	135.1	-7.4
10*	15 Nov 25	14:39	14:59	142.6	134.9	-7.7
11*	15 Nov 25	15:00	15:20	142.7	134.8	-7.9
12*	15 Nov 25	15:21	15:41	142.8	135.1	-7.7
Average				139.2	132.1	-7.1
Confidence Coefficient (CC)						0.4
Relative Accuracy <sup>1/</sup> (Compared with RM) (%)						5.7
Relative Accuracy Criteria (Compared with RM)						≤ 20 %

Reference Method : US EPA Method 2

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

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

RA Result is within Criteria

**Sampled By :** Arnon Phophrathong

**Technical Management**

*Wichan Choonharat*  
Wichan Choonharat  
Manager

ทะเบียนเลขที่ 2-204-ก-0006

**Approved by**

*Sarayuth Jitranont*  
Sarayuth Jitranont  
Assistant General Manager

ทะเบียนเลขที่ 2-204-ก-0003

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**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 2591418**  
Date Received : Nov 17, 2025  
Date Reported : Dec 11, 2025  
Report Number : 3416831-1

Page 4 of 4

**Sample Number** 2591418-1  
**Sampled Date** Nov 15, 2025  
**Sample Description** Emission from Stationary Source  
**Location** HRSR #1  
**Parameter** O2

### Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1*	15 Nov 25	11:30	11:50	14.60	14.70	0.10
2*	15 Nov 25	11:51	12:11	14.60	14.69	0.09
3*	15 Nov 25	12:12	12:32	14.61	14.69	0.08
4	15 Nov 25	12:33	12:53	14.63	14.71	0.07
5	15 Nov 25	12:54	13:14	14.66	14.73	0.07
6	15 Nov 25	13:15	13:35	14.65	14.73	0.07
7	15 Nov 25	13:36	13:56	14.59	14.66	0.07
8	15 Nov 25	13:57	14:17	14.60	14.66	0.06
9	15 Nov 25	14:18	14:38	14.61	14.66	0.04
10	15 Nov 25	14:39	14:59	14.62	14.66	0.03
11	15 Nov 25	15:00	15:20	14.63	14.66	0.03
12	15 Nov 25	15:21	15:41	14.64	14.66	0.02
Average				14.63	14.68	0.05
Confidence Coefficient (CC)						-
Relative Accuracy (Compared in Actual) (%)						0.05
Relative Accuracy Criteria (%)						≤ 1%

Reference Method : US EPA Method 3A

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

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

RA Result is within Criteria

**Sampled By :** Khunakorn Manchuan

**Technical Management**

*Wichan Choonharat*  
Wichan Choonharat  
Manager

ทะเบียนเลขที่ 2-204-ก-0006

**Approved by**

*Sarayuth Jitranont*  
Sarayuth Jitranont  
Assistant General Manager

ทะเบียนเลขที่ 2-204-ก-0003

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## Analysis / Test Report



TESTING  
No.0042

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1758  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 25103628**  
Date Received : Nov 25, 2025  
Date Reported : Nov 28, 2025  
Report Number: 3447455-1

Page 1 of 1

Sample Description		Air Quality			
Location		Ban Mabtong (GPS 47P 0741951, 1416054)			
Date Analysis Commenced		Nov 25, 2025			
Condition of Sample		Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag			
Sample Number	Sampled Date	Sampling Condition		Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)
		Pressure (mm Hg)	Temperature (°C)		
25103628-1	Nov 15 - Nov 16, 2025	757	29.4	0.044	0.032
25103628-2	Nov 16 - Nov 17, 2025	757	29.7	0.022	0.010
25103628-3	Nov 17 - Nov 18, 2025	757	29.5	0.021	0.011
25103628-4	Nov 18 - Nov 19, 2025	757	29.2	0.033	0.017
25103628-5	Nov 19 - Nov 20, 2025	757	29.0	0.027	0.010
25103628-6	Nov 20 - Nov 21, 2025	757	28.7	0.026	0.019
25103628-7	Nov 21 - Nov 22, 2025	757	28.5	0.046	0.028
Guideline		-	-	0.33	0.12

### Reference Method

Total Suspended Particulate : United States Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008  
Particulate Matter (PM-10) : United States Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008

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

**Sampled By :** Adisak Tarisoon

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report



TESTING  
No.0042

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1758  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 25103628**  
Date Received : Nov 25, 2025  
Date Reported : Nov 28, 2025  
Report Number: 3447455-2

Page 1 of 1

Sample Description	Air Quality				
Location	Ban Krachediang (Wad Krached) (GPS 47P 0741408, 1411396)				
Date Analysis Commenced	Nov 25, 2025				
Condition of Sample	Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag				
Sample Number	Sampled Date	Sampling Condition		Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)
		Pressure (mm Hg)	Temperature (°C)		
25103628-8	Nov 15 - Nov 16, 2025	757	29.6	0.037	0.021
25103628-9	Nov 16 - Nov 17, 2025	757	29.9	0.024	0.015
25103628-10	Nov 17 - Nov 18, 2025	757	29.8	0.032	0.014
25103628-11	Nov 18 - Nov 19, 2025	757	29.4	0.025	0.014
25103628-12	Nov 19 - Nov 20, 2025	757	29.2	0.018	0.011
25103628-13	Nov 20 - Nov 21, 2025	757	29.1	0.026	0.016
25103628-14	Nov 21 - Nov 22, 2025	757	28.7	0.047	0.026
Guideline		-	-	0.33	0.12

### Reference Method

Total Suspended Particulate : United States Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008  
Particulate Matter (PM-10) : United States Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008

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

**Sampled By :** Adisak Tarisoon

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25103628  
Date Received : Nov 25, 2025  
Date Reported : Nov 28, 2025  
Report Number: 3447455-3

Page 1 of 1

Sample Description Air Quality  
Location Ban Nonglaloak (Wad Nongkrabok) (GPS 47P 0747563, 1413915)  
Date Analysis Commenced Nov 25, 2025  
Condition of Sample Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Sampling Condition		Total Suspended Particulate (mg/m <sup>3</sup> )	Particulate Matter (PM-10) (mg/m <sup>3</sup> )
		Pressure (mm Hg)	Temperature (°C)		
25103628-15	Nov 15 - Nov 16, 2025	757	30.1	0.038	0.026
25103628-16	Nov 16 - Nov 17, 2025	757	30.4	0.028	0.015
25103628-17	Nov 17 - Nov 18, 2025	757	30.1	0.026	0.019
25103628-18	Nov 18 - Nov 19, 2025	757	29.5	0.029	0.019
25103628-19	Nov 19 - Nov 20, 2025	757	29.5	0.031	0.016
25103628-20	Nov 20 - Nov 21, 2025	757	29.3	0.027	0.019
25103628-21	Nov 21 - Nov 22, 2025	757	29.0	0.044	0.027
Guideline	-	-	-	0.33	0.12

### Reference Method

Total Suspended Particulate : United States Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008  
Particulate Matter (PM-10) : United States Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008

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

Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1125  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591594  
Date Received : Nov 17, 2025  
Date Reported : Nov 20, 2025  
Report Number : 3417330-1

Page 1 of 3

Sample Number 2591594-1  
Sampled Date Nov 15, 2025  
Sample Description Air Quality  
Location Ban Mahtong (GPS 47P 0741951, 1416054)  
Date Analysis Commenced Nov 18, 2025  
Condition of Sample Drawn into one filter paper placed in plastic cassette  
Barometric Pressure 757 mmHg  
Atmospheric Temperature 29.4 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
Air Testing									
Particulate Matter as PM 2.5	15/11/25 - 16/11/25	ug/m3	-	5.0	16.6	37.5	U.S. Environmental Protection Agency, EPA Method 40 CFR Part 50, Appendix L	NEB 2022	Rayong

### Guideline :

NEB 2022 : Notification of the National Environmental Board., 2022 (B.E.2565)

Sampled By : Adisak Tarisoorn

### Remark :

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

Approved by

Thanita K.

Thanita Kulsuriwong  
Scientist (4)

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**P/O :** 2025-1125  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 2591594**  
Date Received : Nov 17, 2025  
Date Reported : Nov 20, 2025  
Report Number : 3417330-1

Page 2 of 3

**Sample Number** 2591594-2  
**Sampled Date** Nov 15, 2025  
**Sample Description** Air Quality  
**Location** Ban Krachedlang (Wad Krached) (GPS 47P 0741408, 1411396)  
**Date Analysis Commenced** Nov 18, 2025  
**Condition of Sample** Drawn into one filter paper placed in plastic cassette  
**Barometric Pressure** 757 mmHg  
**Atmospheric Temperature** 29.6 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Particulate Matter as PM 2.5	15/11/25 - 16/11/25	ug/m3	-	5.0	13.2	37.5	U.S. Environmental Protection Agency, EPA Method 40 CFR Part 50, Appendix L	NEB 2022	Rayong

**Guideline :**  
NEB 2022 : Notification of the National Environmental Board., 2022 (B.E.2565)  
**Sampled By :** Adisak Tarisoorn

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

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1125  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 2591594**  
Date Received : Nov 17, 2025  
Date Reported : Nov 20, 2025  
Report Number : 3417330-1

Page 3 of 3

**Sample Number** 2591594-3  
**Sampled Date** Nov 15, 2025  
**Sample Description** Air Quality  
**Location** Ban Nonglaloak (Wad Nongkrabok) (GPS 47P 0747563, 1413915)  
**Date Analysis Commenced** Nov 18, 2025  
**Condition of Sample** Drawn into one filter paper placed in plastic cassette  
**Barometric Pressure** 757 mmHg  
**Atmospheric Temperature** 30.1 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Particulate Matter as PM 2.5	15/11/25 - 16/11/25	ug/m3	-	5.0	14.5	37.5	U.S. Environmental Protection Agency, EPA Method 40 CFR Part 50, Appendix L	NEB 2022	Rayong

**Guideline :**  
NEB 2022 : Notification of the National Environmental Board., 2022 (B.E.2565)  
**Sampled By :** Adisak Tarisoorn

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

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1758  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 25103622**  
Date Received : Nov 25, 2025  
Date Reported : Dec 01, 2025  
Report Number: 3462362-1

Page 1 of 1

**Sample Description** Air Quality  
**Location** Ban Mabtong (GPS 47P 0741951, 1416054)  
**Parameter** Nitrogen dioxide (ppm)  
**Measurement Date** Nov 15, 2025 - Nov 22, 2025  
**Measurement by** Adisak Tarisoan

Time	25103622-1 Nov 15, 2025	25103622-2 Nov 16, 2025	25103622-3 Nov 17, 2025	25103622-4 Nov 18, 2025	25103622-5 Nov 19, 2025	25103622-6 Nov 20, 2025	25103622-7 Nov 21, 2025
10:00 AM - 11:00 AM	0.0047	0.0045	0.0046	0.0048	0.0039	0.0037	0.0044
11:00 AM - 12:00 PM	0.0043	0.0041	0.0042	0.0044	0.0036	0.0034	0.0040
12:00 PM - 01:00 PM	0.0039	0.0037	0.0038	0.0040	0.0033	0.0031	0.0036
01:00 PM - 02:00 PM	0.0041	0.0040	0.0041	0.0042	0.0035	0.0033	0.0039
02:00 PM - 03:00 PM	0.0051	0.0050	0.0052	0.0053	0.0042	0.0040	0.0049
03:00 PM - 04:00 PM	0.0076	0.0075	0.0078	0.0081	0.0060	0.0056	0.0074
04:00 PM - 05:00 PM	0.0090	0.0092	0.0096	0.0100	0.0074	0.0070	0.0093
05:00 PM - 06:00 PM	0.0079	0.0076	0.0082	0.0086	0.0066	0.0062	0.0077
06:00 PM - 07:00 PM	0.0060	0.0058	0.0062	0.0064	0.0051	0.0048	0.0059
07:00 PM - 08:00 PM	0.0047	0.0045	0.0048	0.0050	0.0041	0.0038	0.0046
08:00 PM - 09:00 PM	0.0037	0.0035	0.0038	0.0039	0.0032	0.0030	0.0036
09:00 PM - 10:00 PM	0.0031	0.0030	0.0032	0.0033	0.0027	0.0026	0.0031
10:00 PM - 11:00 PM	0.0027	0.0026	0.0028	0.0029	0.0024	0.0023	0.0027
11:00 PM - 12:00 AM	0.0023	0.0022	0.0024	0.0025	0.0020	0.0019	0.0023
12:00 AM - 01:00 AM	0.0020	0.0019	0.0021	0.0022	0.0018	0.0018	0.0020
01:00 AM - 02:00 AM	0.0024	0.0023	0.0025	0.0026	0.0021	0.0021	0.0024
02:00 AM - 03:00 AM	0.0030	0.0029	0.0031	0.0032	0.0026	0.0028	0.0030
03:00 AM - 04:00 AM	0.0046	0.0045	0.0048	0.0041	0.0038	0.0044	0.0046
04:00 AM - 05:00 AM	0.0073	0.0074	0.0078	0.0059	0.0054	0.0071	0.0073
05:00 AM - 06:00 AM	0.0099	0.0102	0.0107	0.0078	0.0072	0.0096	0.0099
06:00 AM - 07:00 AM	0.0086	0.0088	0.0092	0.0070	0.0065	0.0083	0.0086
07:00 AM - 08:00 AM	0.0066	0.0067	0.0070	0.0056	0.0052	0.0064	0.0066
08:00 AM - 09:00 AM	0.0053	0.0054	0.0057	0.0046	0.0043	0.0052	0.0053
09:00 AM - 10:00 AM	0.0048	0.0049	0.0051	0.0042	0.0039	0.0047	0.0048
Average	0.0052	0.0051	0.0054	0.0050	0.0042	0.0045	0.0051
1hr - Maximum	0.0099	0.0102	0.0107	0.0100	0.0074	0.0096	0.0099
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

**Standard :** Notification of the National Environment Board No. 33, 2009 (B.E. 2552).  
**Reference Method :** U.S. Environmental Protection Agency Method Part 50 App. F (Chemiluminescence)

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Saranya C.

Saranya Chalermthamrong  
Scientist (4)

ADDRESS 104 Phatthanalan an 40, Phatthanalan an Pd., I hwaeng Phatthanalan an, I het Suan Luang, Bangl oi 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1758  
**Project Name :** EIA Monitoring  
**Project Location :**

**Lot ID: 25103622**  
Date Received : Nov 25, 2025  
Date Reported : Dec 01, 2025  
Report Number: 3462363-1

Page 1 of 1

**Sample Description** Air Quality  
**Location** Ban Krachedlang (Wad Krached) (GPS 47P 0741408, 1411396)  
**Parameter** Nitrogen dioxide (ppm)  
**Measurement Date** Nov 15, 2025 - Nov 22, 2025  
**Measurement by** Adisak Tarisoan

Time	25103622-8 Nov 15, 2025	25103622-9 Nov 16, 2025	25103622-10 Nov 17, 2025	25103622-11 Nov 18, 2025	25103622-12 Nov 19, 2025	25103622-13 Nov 20, 2025	25103622-14 Nov 21, 2025
11:00 AM - 12:00 PM	0.0058	0.0055	0.0054	0.0056	0.0051	0.0053	0.0055
12:00 PM - 01:00 PM	0.0052	0.0050	0.0049	0.0051	0.0047	0.0048	0.0050
01:00 PM - 02:00 PM	0.0046	0.0044	0.0043	0.0045	0.0041	0.0042	0.0044
02:00 PM - 03:00 PM	0.0049	0.0048	0.0047	0.0050	0.0045	0.0046	0.0049
03:00 PM - 04:00 PM	0.0062	0.0061	0.0060	0.0063	0.0057	0.0059	0.0062
04:00 PM - 05:00 PM	0.0085	0.0080	0.0083	0.0087	0.0076	0.0081	0.0084
05:00 PM - 06:00 PM	0.0114	0.0112	0.0115	0.0119	0.0108	0.0111	0.0116
06:00 PM - 07:00 PM	0.0101	0.0098	0.0102	0.0105	0.0094	0.0099	0.0103
07:00 PM - 08:00 PM	0.0076	0.0074	0.0077	0.0079	0.0069	0.0075	0.0078
08:00 PM - 09:00 PM	0.0058	0.0056	0.0059	0.0061	0.0053	0.0057	0.0060
09:00 PM - 10:00 PM	0.0045	0.0042	0.0046	0.0049	0.0041	0.0044	0.0047
10:00 PM - 11:00 PM	0.0038	0.0037	0.0039	0.0042	0.0036	0.0038	0.0040
11:00 PM - 12:00 AM	0.0032	0.0029	0.0033	0.0035	0.0028	0.0031	0.0034
12:00 AM - 01:00 AM	0.0025	0.0024	0.0026	0.0028	0.0022	0.0024	0.0027
01:00 AM - 02:00 AM	0.0020	0.0018	0.0021	0.0023	0.0017	0.0019	0.0022
02:00 AM - 03:00 AM	0.0028	0.0022	0.0029	0.0027	0.0021	0.0023	0.0026
03:00 AM - 04:00 AM	0.0035	0.0031	0.0036	0.0034	0.0030	0.0032	0.0033
04:00 AM - 05:00 AM	0.0054	0.0050	0.0055	0.0048	0.0051	0.0053	0.0050
05:00 AM - 06:00 AM	0.0088	0.0086	0.0090	0.0075	0.0082	0.0089	0.0080
06:00 AM - 07:00 AM	0.0132	0.0130	0.0137	0.0121	0.0128	0.0135	0.0129
07:00 AM - 08:00 AM	0.0115	0.0112	0.0118	0.0104	0.0110	0.0116	0.0111
08:00 AM - 09:00 AM	0.0084	0.0081	0.0087	0.0072	0.0079	0.0085	0.0080
09:00 AM - 10:00 AM	0.0065	0.0063	0.0068	0.0059	0.0062	0.0066	0.0062
10:00 AM - 11:00 AM	0.0058	0.0057	0.0060	0.0054	0.0056	0.0059	0.0056
Average	0.0063	0.0061	0.0064	0.0062	0.0058	0.0062	0.0062
1hr - Maximum	0.0132	0.0130	0.0137	0.0121	0.0128	0.0135	0.0129
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

**Standard :** Notification of the National Environment Board No. 33, 2009 (B.E. 2552).  
**Reference Method :** U.S. Environmental Protection Agency Method Part 50 App. F (Chemiluminescence)

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Approved by

Saranya C.

Saranya Chalermthamrong  
Scientist (4)

ADDRESS 104 Phatthanalan an 40, Phatthanalan an Pd., I hwaeng Phatthanalan an, I het Suan Luang, Bangl oi 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103622

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3447408-1

Page 1 of 1

Sample Description	Air Quality						
Location	Ban Nonglaloak (Wad Nongkrabok) (GPS 47P 0747563, 1413915)						
Parameter	Nitrogen dioxide (ppm)						
Measurement Date	Nov 15, 2025 - Nov 22, 2025						
Measurement by	Adisak Tarisoos						
Time	25103622-15 Nov 15, 2025	25103622-16 Nov 16, 2025	25103622-17 Nov 17, 2025	25103622-18 Nov 18, 2025	25103622-19 Nov 19, 2025	25103622-20 Nov 20, 2025	25103622-21 Nov 21, 2025
12:00 PM - 01:00 PM	0.0015	0.0016	0.0015	0.0017	0.0016	0.0018	0.0016
01:00 PM - 02:00 PM	0.0012	0.0013	0.0012	0.0014	0.0013	0.0014	0.0013
02:00 PM - 03:00 PM	0.0010	0.0011	0.0010	0.0011	0.0010	0.0011	0.0011
03:00 PM - 04:00 PM	0.0011	0.0012	0.0011	0.0013	0.0012	0.0013	0.0012
04:00 PM - 05:00 PM	0.0014	0.0015	0.0014	0.0016	0.0015	0.0017	0.0015
05:00 PM - 06:00 PM	0.0019	0.0020	0.0021	0.0022	0.0021	0.0023	0.0021
06:00 PM - 07:00 PM	0.0028	0.0029	0.0030	0.0031	0.0030	0.0032	0.0030
07:00 PM - 08:00 PM	0.0032	0.0033	0.0034	0.0035	0.0034	0.0036	0.0034
08:00 PM - 09:00 PM	0.0029	0.0028	0.0030	0.0030	0.0029	0.0031	0.0029
09:00 PM - 10:00 PM	0.0024	0.0023	0.0025	0.0024	0.0023	0.0025	0.0023
10:00 PM - 11:00 PM	0.0018	0.0019	0.0019	0.0019	0.0018	0.0020	0.0019
11:00 PM - 12:00 AM	0.0015	0.0014	0.0016	0.0015	0.0014	0.0016	0.0015
12:00 AM - 01:00 AM	0.0011	0.0010	0.0012	0.0011	0.0010	0.0012	0.0011
01:00 AM - 02:00 AM	0.0008	0.0007	0.0009	0.0008	0.0007	0.0008	0.0008
02:00 AM - 03:00 AM	0.0005	0.0004	0.0006	0.0005	0.0004	0.0005	0.0005
03:00 AM - 04:00 AM	0.0003	0.0003	0.0004	0.0003	0.0003	0.0003	0.0004
04:00 AM - 05:00 AM	0.0002	0.0002	0.0003	0.0002	0.0002	0.0003	0.0003
05:00 AM - 06:00 AM	0.0006	0.0007	0.0008	0.0007	0.0008	0.0006	0.0008
06:00 AM - 07:00 AM	0.0015	0.0016	0.0017	0.0015	0.0017	0.0015	0.0017
07:00 AM - 08:00 AM	0.0029	0.0030	0.0031	0.0029	0.0030	0.0029	0.0031
08:00 AM - 09:00 AM	0.0037	0.0036	0.0037	0.0036	0.0037	0.0036	0.0037
09:00 AM - 10:00 AM	0.0034	0.0033	0.0035	0.0033	0.0034	0.0033	0.0035
10:00 AM - 11:00 AM	0.0026	0.0025	0.0027	0.0026	0.0028	0.0026	0.0027
11:00 AM - 12:00 PM	0.0020	0.0019	0.0021	0.0020	0.0022	0.0020	0.0021
Average	0.0018	0.0018	0.0019	0.0018	0.0018	0.0019	0.0019
1hr - Maximum	0.0037	0.0036	0.0037	0.0036	0.0037	0.0036	0.0037
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

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

Reference Method : U.S. Environmental Protection Agency Method Part 50 App. F (Chemiluminescence)

Approved by

Saranya C.

Saranya Chalermthamrong  
Scientist (4)

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103627

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3460672-1

Page 1 of 1

Sample Description	Air Quality						
Location	Ban Mabtong (GPS 47P 0741951, 1416054)						
Parameter	Sulfur Dioxide (ppm)						
Measurement Date	Nov 15, 2025 - Nov 22, 2025						
Measurement by	Adisak Tarisoos						
Time	25103627-1 Nov 15, 2025	25103627-2 Nov 16, 2025	25103627-3 Nov 17, 2025	25103627-4 Nov 18, 2025	25103627-5 Nov 19, 2025	25103627-6 Nov 20, 2025	25103627-7 Nov 21, 2025
10:00 AM - 11:00 AM	0.0011	0.0012	0.0013	0.0012	0.0012	0.0012	0.0012
11:00 AM - 12:00 PM	0.0012	0.0011	0.0012	0.0011	0.0011	0.0011	0.0011
12:00 PM - 01:00 PM	0.0013	0.0013	0.0011	0.0013	0.0012	0.0013	0.0012
01:00 PM - 02:00 PM	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
02:00 PM - 03:00 PM	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
03:00 PM - 04:00 PM	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
04:00 PM - 05:00 PM	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
05:00 PM - 06:00 PM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
06:00 PM - 07:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
07:00 PM - 08:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
08:00 PM - 09:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
09:00 PM - 10:00 PM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
10:00 PM - 11:00 PM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
11:00 PM - 12:00 AM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
12:00 AM - 01:00 AM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
01:00 AM - 02:00 AM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
02:00 AM - 03:00 AM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
03:00 AM - 04:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
04:00 AM - 05:00 AM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
05:00 AM - 06:00 AM	0.0007	0.0007	0.0008	0.0007	0.0008	0.0007	0.0008
06:00 AM - 07:00 AM	0.0009	0.0009	0.0010	0.0009	0.0010	0.0009	0.0010
07:00 AM - 08:00 AM	0.0011	0.0011	0.0012	0.0011	0.0012	0.0011	0.0012
08:00 AM - 09:00 AM	0.0012	0.0012	0.0013	0.0012	0.0013	0.0013	0.0013
09:00 AM - 10:00 AM	0.0013	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013
Average	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008
1hr - Maximum	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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

Reference Method : U.S. Environmental Protection Agency, EPA Method Part 53 and 58

Approved by

Saranya C.

Saranya Chalermthamrong  
Scientist (4)

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103627

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3447432-1

Page 1 of 1

Sample Description	Air Quality						
Location	Ban Krachedlang (Wad Krached) (GPS 47P 0741408, 1411396)						
Parameter	Sulfur Dioxide (ppm)						
Measurement Date	Nov 15, 2025 - Nov 22, 2025						
Measurement by	Adisak Tarisoorn						
Time	25103627-8 Nov 15, 2025	25103627-9 Nov 16, 2025	25103627-10 Nov 17, 2025	25103627-11 Nov 18, 2025	25103627-12 Nov 19, 2025	25103627-13 Nov 20, 2025	25103627-14 Nov 21, 2025
11:00 AM - 12:00 PM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
12:00 PM - 01:00 PM	0.0008	0.0007	0.0007	0.0006	0.0007	0.0007	0.0007
01:00 PM - 02:00 PM	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
02:00 PM - 03:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
03:00 PM - 04:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
04:00 PM - 05:00 PM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
05:00 PM - 06:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
06:00 PM - 07:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
07:00 PM - 08:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
08:00 PM - 09:00 PM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
09:00 PM - 10:00 PM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
10:00 PM - 11:00 PM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
11:00 PM - 12:00 AM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
12:00 AM - 01:00 AM	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
01:00 AM - 02:00 AM	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
02:00 AM - 03:00 AM	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
03:00 AM - 04:00 AM	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
04:00 AM - 05:00 AM	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
05:00 AM - 06:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
06:00 AM - 07:00 AM	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005
07:00 AM - 08:00 AM	0.0006	0.0006	0.0007	0.0006	0.0006	0.0006	0.0006
08:00 AM - 09:00 AM	0.0007	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007
09:00 AM - 10:00 AM	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
10:00 AM - 11:00 AM	0.0008	0.0008	0.0007	0.0008	0.0008	0.0008	0.0008
Average	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1hr - Maximum	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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

Reference Method : U.S. Environmental Protection Agency, EPA Method Part 53 and 58

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Approved by

Saranya C.

Saranya Chalerthamrong  
Scientist (4)

ADDRESS 104 Phatthanalan an 40, Phatthanalan an Pd., I hwaeng Phatthanalan an, I het Suan Luang, Bangl oi 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103627

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462366-1

Page 1 of 1

Sample Description	Air Quality						
Location	Ban Nonglaloak (Wad Nongkrabok) (GPS 47P 0747563, 1413915)						
Parameter	Sulfur Dioxide (ppm)						
Measurement Date	Nov 15, 2025 - Nov 22, 2025						
Measurement by	Adisak Tarisoorn						
Time	25103627-15 Nov 15, 2025	25103627-16 Nov 16, 2025	25103627-17 Nov 17, 2025	25103627-18 Nov 18, 2025	25103627-19 Nov 19, 2025	25103627-20 Nov 20, 2025	25103627-21 Nov 21, 2025
12:00 PM - 01:00 PM	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
01:00 PM - 02:00 PM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
02:00 PM - 03:00 PM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
03:00 PM - 04:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
04:00 PM - 05:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
05:00 PM - 06:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
06:00 PM - 07:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
07:00 PM - 08:00 PM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
08:00 PM - 09:00 PM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
09:00 PM - 10:00 PM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
10:00 PM - 11:00 PM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
11:00 PM - 12:00 AM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
12:00 AM - 01:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
01:00 AM - 02:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
02:00 AM - 03:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
03:00 AM - 04:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
04:00 AM - 05:00 AM	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
05:00 AM - 06:00 AM	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
06:00 AM - 07:00 AM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
07:00 AM - 08:00 AM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
08:00 AM - 09:00 AM	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
09:00 AM - 10:00 AM	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
10:00 AM - 11:00 AM	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
11:00 AM - 12:00 PM	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Average	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
1hr - Maximum	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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

Reference Method : U.S. Environmental Protection Agency, EPA Method Part 53 and 58

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Saranya C.

Saranya Chalerthamrong  
Scientist (4)

ADDRESS 104 Phatthanalan an 40, Phatthanalan an Pd., I hwaeng Phatthanalan an, I het Suan Luang, Bangl oi 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591422  
Date Received : Nov 25, 2025  
Date Reported : Dec 02, 2025  
Report Number : 3416840-1

Sample Number : 2591422-1 to 7  
Parameter : Wind Speed / Wind Direction  
Location : Ban Mablong (GPS 47P 0741951, 1416054)  
Sampling Date : Nov 15 - Nov 22, 2025  
Sampling by : Adisak Tarison

Time	Nov 15 - Nov 16, 2025			Nov 16 - Nov 17, 2025			Nov 17 - Nov 18, 2025			Nov 18 - Nov 19, 2025			Nov 19 - Nov 20, 2025			Nov 20 - Nov 21, 2025			Nov 21 - Nov 22, 2025		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)	
10:00 AM - 11:00 AM	0.6	338.0	NNW	1.1	41.0	NE	0.9	32.0	NNE	1.6	49.0	NE	1.4	29.0	NNE	3.0	66.0	ENE	2.6	65.0	ENE
11:00 AM - 12:00 PM	0.4	191.0	S	2.0	72.0	ENE	1.6	107.0	ESE	1.9	62.0	ENE	2.2	74.0	ENE	1.7	56.0	NE	1.2	103.0	ESE
12:00 PM - 01:00 PM	1.1	86.0	E	2.5	64.0	ENE	1.1	63.0	ENE	0.4	36.0	NE	2.0	63.0	ENE	0.9	355.0	N	0.8	175.0	S
01:00 PM - 02:00 PM	1.9	62.0	ENE	1.6	69.0	ENE	1.3	74.0	ENE	4.5	20.0	NNE	2.4	82.0	E	0.9	343.0	NNW	1.7	223.0	SW
02:00 PM - 03:00 PM	1.2	20.0	NNE	1.9	74.0	ENE	0.6	221.0	SW	0.7	104.0	ESE	1.8	105.0	ESE	1.8	68.0	ENE	2.0	226.0	SW
03:00 PM - 04:00 PM	1.9	42.0	NE	1.5	73.0	ENE	0.1	-	-	2.3	42.0	NE	3.0	56.0	NE	1.6	59.0	ENE	1.1	37.0	NE
04:00 PM - 05:00 PM	1.7	61.0	ENE	1.2	108.0	ESE	0.3	316.0	NW	1.0	53.0	NE	1.1	85.0	E	1.8	47.0	NE	2.4	49.0	NE
05:00 PM - 06:00 PM	0.1	-	-	1.7	59.0	ENE	0.5	311.0	NW	1.1	56.0	NE	1.4	69.0	ENE	2.1	56.0	NE	1.3	58.0	NE
06:00 PM - 07:00 PM	0.4	13.0	NNE	1.6	80.0	E	1.2	307.0	NW	2.3	64.0	ENE	1.6	30.0	NNE	1.0	60.0	ENE	0.8	43.0	NE
07:00 PM - 08:00 PM	0.2	-	-	1.9	55.0	NE	0.4	224.0	SW	1.8	45.0	NE	1.9	107.0	ESE	0.0	-	-	1.2	69.0	ENE
08:00 PM - 09:00 PM	0.4	31.0	NNE	1.1	91.0	E	0.0	-	-	0.3	34.0	NE	1.3	34.0	NE	0.3	354.0	N	1.0	96.0	E
09:00 PM - 10:00 PM	1.4	15.0	NNE	2.6	55.0	NE	0.9	312.0	NW	0.2	-	-	1.5	21.0	NNE	1.0	56.0	NE	0.3	70.0	ENE
10:00 PM - 11:00 PM	0.3	18.0	NNE	1.1	64.0	ENE	0.0	-	-	0.3	45.0	NE	2.4	50.0	NE	0.1	-	-	0.7	267.0	W
11:00 PM - 12:00 AM	0.6	16.0	NNE	1.1	45.0	NE	0.4	30.0	NNE	0.5	23.0	NNE	3.2	73.0	ENE	1.3	18.0	NNE	0.4	191.0	S
12:00 AM - 01:00 AM	0.0	-	-	1.8	71.0	ENE	2.9	33.0	NNE	0.6	65.0	ENE	0.9	5.0	N	0.7	195.0	SSW	1.0	198.0	SSW
01:00 AM - 02:00 AM	1.0	39.0	NE	2.2	61.0	ENE	0.0	-	-	0.8	63.0	ENE	1.9	76.0	ENE	0.9	42.0	NE	1.3	85.0	E
02:00 AM - 03:00 AM	1.0	299.0	VNW	2.2	48.0	NE	0.6	40.0	NE	0.5	56.0	NE	2.2	26.0	NNE	0.5	35.0	NE	0.9	216.0	SW
03:00 AM - 04:00 AM	1.0	88.0	E	0.8	67.0	ENE	0.7	52.0	NE	0.6	52.0	NE	3.0	58.0	ENE	1.2	45.0	NE	1.3	42.0	NE
04:00 AM - 05:00 AM	0.3	17.0	NNE	0.4	56.0	NE	0.4	92.0	E	0.0	-	-	2.3	48.0	NE	1.1	28.0	NNE	1.2	0.0	N
05:00 AM - 06:00 AM	0.9	36.0	NE	0.5	45.0	NE	0.1	-	-	2.1	63.0	ENE	1.1	57.0	ENE	0.6	3.0	N	0.4	60.0	ENE
06:00 AM - 07:00 AM	1.5	189.0	S	0.3	33.0	NNE	1.0	15.0	NNE	1.6	58.0	ENE	2.4	62.0	ENE	0.3	64.0	ENE	1.8	211.0	SSW
07:00 AM - 08:00 AM	0.6	12.0	NNE	0.7	313.0	NW	1.5	21.0	NNE	1.3	58.0	ENE	3.1	69.0	ENE	3.5	76.0	ENE	1.3	78.0	ENE
08:00 AM - 09:00 AM	1.1	37.0	NE	1.8	72.0	ENE	1.4	88.0	E	3.4	53.0	NE	3.6	71.0	ENE	1.4	228.0	SW	3.1	36.0	NE
09:00 AM - 10:00 AM	0.4	66.0	ENE	1.2	79.0	E	1.0	62.0	ENE	3.3	89.0	E	2.3	58.0	ENE	2.2	63.0	ENE	0.3	52.0	NE

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jittranon  
Assistant General Manager

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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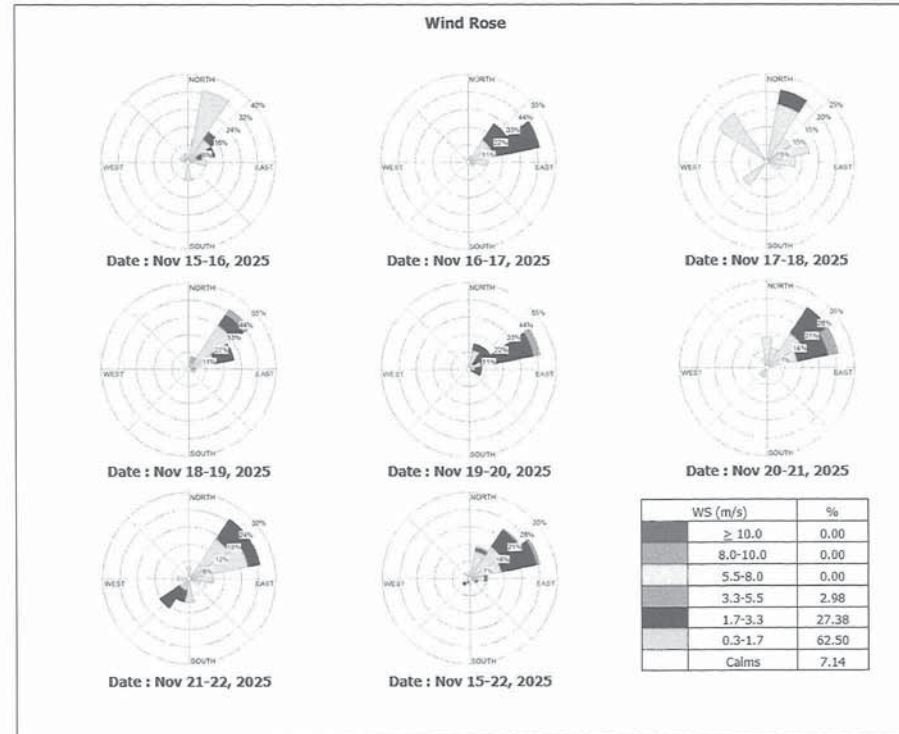


## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591422  
Date Received : Nov 25, 2025  
Date Reported : Dec 02, 2025  
Report Number : 3416840-1



Location : Ban Mablong (GPS 47P 0741951, 1416054)

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Approved by

Sarayuth Jittranon  
Assistant General Manager

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

Lot ID: 25103629  
Date Received : Nov 25, 2025  
Date Reported : Dec 02, 2025  
Report Number : 3447467-1

P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :

Page 1 of 2

Sample Number : 25103629-1 to 7  
Parameter : Wind Speed / Wind Direction  
Location : Ban Krachedlang (Wad Krached) (GPS 47P 0741408, 1411396)  
Sampling Date : Nov 15 - Nov 22, 2025  
Sampling by : Adisak Tarisoon

Time	Nov 15 - Nov 16, 2025			Nov 16 - Nov 17, 2025			Nov 17 - Nov 18, 2025			Nov 18 - Nov 19, 2025			Nov 19 - Nov 20, 2025			Nov 20 - Nov 21, 2025			Nov 21 - Nov 22, 2025		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)	
11:00 AM - 12:00 PM	0.8	55.0	NE	0.5	60.0	ENE	2.7	34.0	NE	0.4	25.0	NNE	2.7	42.0	NE	1.1	34.0	NE	1.3	30.0	NNE
12:00 PM - 01:00 PM	1.1	70.0	ENE	0.9	321.0	NW	2.1	12.0	NNE	0.8	57.0	ENE	2.3	76.0	ENE	0.6	201.0	SSW	1.7	37.0	NE
01:00 PM - 02:00 PM	1.5	15.0	NNE	1.3	234.0	SW	1.5	63.0	ENE	1.2	54.0	NE	1.9	119.0	ESE	0.3	325.0	NW	2.1	74.0	ENE
02:00 PM - 03:00 PM	1.3	31.0	NNE	1.7	77.0	ENE	1.1	77.0	ENE	1.5	37.0	NE	1.5	58.0	ENE	0.3	85.0	E	2.4	48.0	NE
03:00 PM - 04:00 PM	0.9	72.0	ENE	2.1	16.0	NNE	0.7	43.0	NE	1.8	78.0	ENE	1.1	31.0	NNE	0.5	53.0	NE	2.7	12.0	NNE
04:00 PM - 05:00 PM	0.5	33.0	NNE	2.4	19.0	NNE	0.3	61.0	ENE	2.2	49.0	NE	0.7	56.0	NE	0.2	-	-	3.0	68.0	ENE
05:00 PM - 06:00 PM	0.2	-	-	2.8	40.0	NE	0.1	-	-	2.6	62.0	ENE	0.3	26.0	NNE	0.5	77.0	ENE	2.5	73.0	ENE
06:00 PM - 07:00 PM	0.0	-	-	2.5	87.0	E	0.0	-	-	3.1	65.0	ENE	0.1	-	-	1.0	69.0	ENE	1.9	338.0	NNW
07:00 PM - 08:00 PM	0.1	-	-	2.0	46.0	NE	0.2	-	-	3.5	71.0	ENE	2.0	71.0	ENE	1.4	25.0	NNE	1.4	52.0	NE
08:00 PM - 09:00 PM	0.4	40.0	NE	1.6	29.0	NNE	0.6	119.0	ESE	2.9	58.0	ENE	0.1	-	-	1.9	329.0	NNW	1.0	44.0	NE
09:00 PM - 10:00 PM	0.8	59.0	ENE	1.2	33.0	NNE	1.0	54.0	NE	2.3	86.0	E	0.4	41.0	NE	2.3	76.0	ENE	0.6	12.0	NNE
10:00 PM - 11:00 PM	1.2	42.0	NE	0.8	83.0	E	1.4	74.0	ENE	1.8	35.0	NE	0.8	71.0	ENE	2.6	72.0	ENE	2.2	323.0	NW
11:00 PM - 12:00 AM	1.6	51.0	NE	0.4	8.0	N	1.9	176.0	S	1.3	71.0	ENE	1.2	94.0	E	2.9	64.0	ENE	0.2	-	-
12:00 AM - 01:00 AM	1.9	45.0	NE	0.1	-	-	2.3	16.0	NNE	0.8	3.0	N	1.6	58.0	ENE	2.5	52.0	NE	0.1	-	-
01:00 AM - 02:00 AM	2.2	57.0	ENE	0.0	-	-	2.5	52.0	NE	0.4	60.0	ENE	2.0	40.0	NE	2.0	98.0	E	0.3	46.0	NE
02:00 AM - 03:00 AM	1.8	60.0	ENE	0.1	-	-	2.1	79.0	E	0.1	-	-	2.4	56.0	NE	1.5	203.0	SSW	0.7	71.0	ENE
03:00 AM - 04:00 AM	1.4	33.0	NNE	0.3	64.0	ENE	1.7	66.0	ENE	0.0	-	-	2.8	54.0	NE	1.0	74.0	ENE	1.1	55.0	NE
04:00 AM - 05:00 AM	1.1	322.0	NW	0.7	18.0	NNE	1.3	36.0	NE	0.2	-	-	3.3	74.0	ENE	0.6	72.0	ENE	1.5	69.0	ENE
05:00 AM - 06:00 AM	0.6	36.0	NE	1.2	50.0	NE	0.9	55.0	NE	0.5	211.0	SSW	3.8	69.0	ENE	0.3	99.0	E	1.8	66.0	ENE
06:00 AM - 07:00 AM	0.3	66.0	ENE	1.8	76.0	ENE	0.5	45.0	NE	0.9	49.0	NE	4.2	61.0	ENE	0.1	-	-	2.2	42.0	NE
07:00 AM - 08:00 AM	0.1	-	-	2.3	59.0	ENE	0.2	-	-	1.4	91.0	E	3.5	63.0	ENE	0.0	-	-	2.6	57.0	ENE
08:00 AM - 09:00 AM	0.0	-	-	2.6	73.0	ENE	0.0	-	-	1.8	62.0	ENE	2.8	26.0	NNE	0.2	-	-	1.1	12.0	NNE
09:00 AM - 10:00 AM	0.0	-	-	2.9	74.0	ENE	0.3	45.0	NE	2.2	31.0	NNE	2.2	55.0	NE	0.5	63.0	ENE	2.4	30.0	NNE
10:00 AM - 11:00 AM	0.2	-	-	3.2	68.0	ENE	0.1	-	-	2.4	183.0	S	1.6	324.0	NW	0.9	57.0	ENE	0.3	67.0	ENE

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Sarayuth Jitranont  
Assistant General Manager

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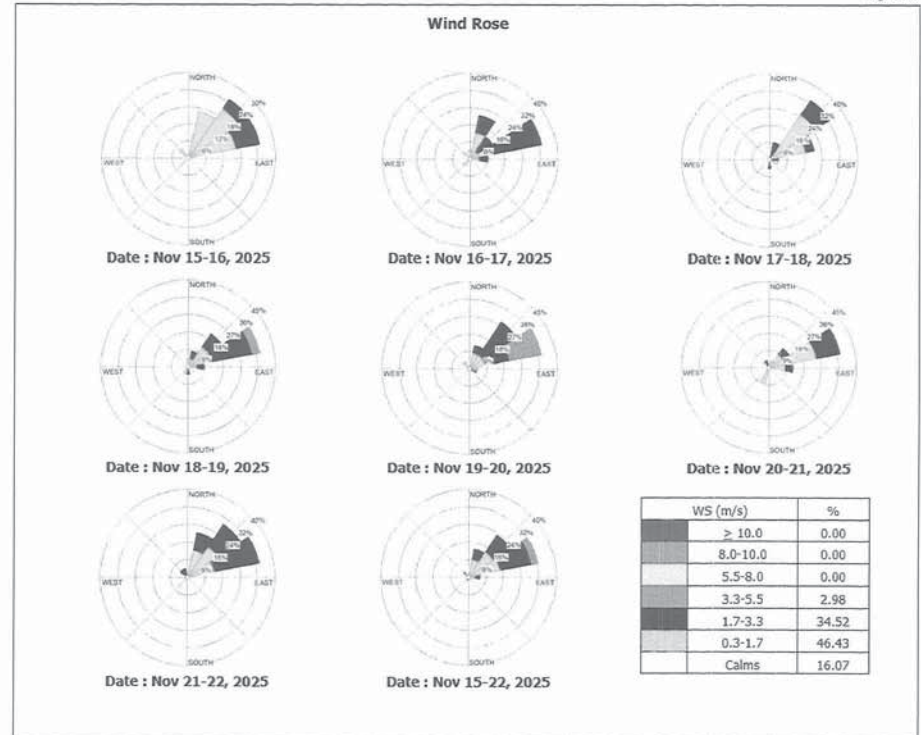
## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

Lot ID: 25103629  
Date Received : Nov 25, 2025  
Date Reported : Dec 02, 2025  
Report Number : 3447467-1

P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :

Page 2 of 2



Location : Ban Krachedlang (Wad Krached) (GPS 47P 0741408, 1411396)

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591422  
Date Received : Nov 25, 2025  
Date Reported : Dec 02, 2025  
Report Number : 3416840-1

Sample Number : 2591422-8 to 14  
Parameter : Wind Speed / Wind Direction  
Location : Ban Nonglaloak (Wad Nongkrabok) (GPS 47P 0747563, 1413915)  
Sampling Date : Nov 15 - Nov 22, 2025  
Sampling by : Adisak Tarisoon

Time	Nov 15 - Nov 16, 2025			Nov 16 - Nov 17, 2025			Nov 17 - Nov 18, 2025			Nov 18 - Nov 19, 2025			Nov 19 - Nov 20, 2025			Nov 20 - Nov 21, 2025			Nov 21 - Nov 22, 2025		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)	
12:00 PM - 01:00 PM	0.6	45.0	NE	2.7	64.0	ENE	2.4	26.0	NNE	0.9	45.0	NE	5.1	36.0	NE	0.3	28.0	NNE	2.0	14.0	NNE
01:00 PM - 02:00 PM	2.6	52.0	NE	3.6	36.0	E	1.6	358.0	N	1.2	23.0	NNE	2.6	350.0	N	2.7	19.0	NNE	1.4	198.0	SSW
02:00 PM - 03:00 PM	3.8	63.0	ENE	4.3	90.0	E	1.8	40.0	NE	0.6	98.0	E	4.0	34.0	NE	0.6	57.0	ENE	0.6	59.0	ENE
03:00 PM - 04:00 PM	3.1	38.0	NE	2.5	25.0	NNE	0.0	-	-	0.7	47.0	NE	2.5	62.0	ENE	1.6	79.0	E	1.0	45.0	NE
04:00 PM - 05:00 PM	1.5	22.0	NNE	2.4	48.0	NE	0.6	51.0	NE	0.9	71.0	ENE	2.6	50.0	NE	1.0	64.0	ENE	1.8	60.0	ENE
05:00 PM - 06:00 PM	0.4	68.0	ENE	2.1	60.0	ENE	0.1	-	-	0.3	27.0	NNE	1.0	18.0	NNE	0.0	-	-	0.6	29.0	NNE
06:00 PM - 07:00 PM	0.3	59.0	ENE	2.1	335.0	NNW	0.4	70.0	ENE	2.4	6.0	N	0.4	22.0	NNE	0.6	330.0	NNW	0.7	23.0	NNE
07:00 PM - 08:00 PM	0.6	41.0	NE	4.9	69.0	ENE	1.1	88.0	E	3.2	42.0	NE	1.6	95.0	E	2.2	32.0	NNE	1.8	56.0	NE
08:00 PM - 09:00 PM	1.5	15.0	NNE	4.9	44.0	NE	0.5	35.0	NE	0.5	64.0	ENE	2.9	41.0	NE	1.4	66.0	ENE	2.1	81.0	E
09:00 PM - 10:00 PM	0.2	-	-	1.3	20.0	NNE	0.2	-	-	0.2	-	-	2.3	68.0	ENE	0.6	54.0	NE	0.3	62.0	ENE
10:00 PM - 11:00 PM	0.6	50.0	NE	0.0	-	-	0.5	310.0	NW	0.8	17.0	NNE	1.9	25.0	NNE	0.4	43.0	NE	0.8	34.0	NE
11:00 PM - 12:00 AM	2.4	72.0	ENE	1.1	53.0	NE	0.3	59.0	ENE	0.4	69.0	ENE	2.7	188.0	S	0.0	-	-	0.3	340.0	NNW
12:00 AM - 01:00 AM	1.0	66.0	ENE	0.5	78.0	ENE	0.0	-	-	0.0	-	-	1.0	46.0	NE	0.6	102.0	ESE	0.9	31.0	NNE
01:00 AM - 02:00 AM	0.6	84.0	E	0.8	65.0	ENE	0.3	66.0	ENE	1.6	38.0	NE	1.3	73.0	ENE	0.7	49.0	NE	0.6	65.0	ENE
02:00 AM - 03:00 AM	0.3	28.0	NNE	0.7	39.0	NE	0.5	29.0	NNE	3.5	15.0	NNE	1.8	53.0	NE	0.5	75.0	ENE	0.6	52.0	NE
03:00 AM - 04:00 AM	0.1	-	-	0.0	-	-	0.5	21.0	NNE	0.0	-	-	1.7	20.0	NNE	0.6	26.0	NNE	0.3	18.0	NNE
04:00 AM - 05:00 AM	0.1	-	-	0.5	31.0	NNE	1.0	54.0	NE	0.2	-	-	0.7	70.0	ENE	0.8	4.0	N	0.5	25.0	NNE
05:00 AM - 06:00 AM	1.2	110.0	ESE	0.0	-	-	0.3	80.0	E	2.1	44.0	NE	0.9	86.0	E	1.9	40.0	NE	0.5	92.0	E
06:00 AM - 07:00 AM	0.5	55.0	NE	0.0	-	-	0.1	-	-	0.4	65.0	ENE	2.1	39.0	NE	0.7	63.0	ENE	0.4	42.0	NE
07:00 AM - 08:00 AM	0.0	-	-	0.6	46.0	NE	0.2	-	-	0.8	30.0	NNE	1.0	13.0	NNE	2.7	51.0	NE	0.7	71.0	ENE
08:00 AM - 09:00 AM	0.4	18.0	NNE	0.8	12.0	NNE	0.3	320.0	NW	0.1	-	-	1.1	305.0	NW	1.8	16.0	NNE	0.5	27.0	NNE
09:00 AM - 10:00 AM	1.7	205.0	SSW	1.8	105.0	ESE	3.1	33.0	NNE	2.1	55.0	NE	3.1	61.0	ENE	1.2	69.0	ENE	0.5	212.0	SSW
10:00 AM - 11:00 AM	2.9	42.0	NE	2.3	49.0	NE	1.6	61.0	ENE	4.3	82.0	E	0.6	48.0	NE	1.9	89.0	E	2.6	47.0	NE
11:00 AM - 12:00 PM	1.9	58.0	ENE	3.6	74.0	ENE	2.0	56.0	NE	1.7	58.0	ENE	3.6	67.0	ENE	1.4	37.0	NE	0.6	58.0	ENE

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Sarayuth Jitranont  
Assistant General Manager

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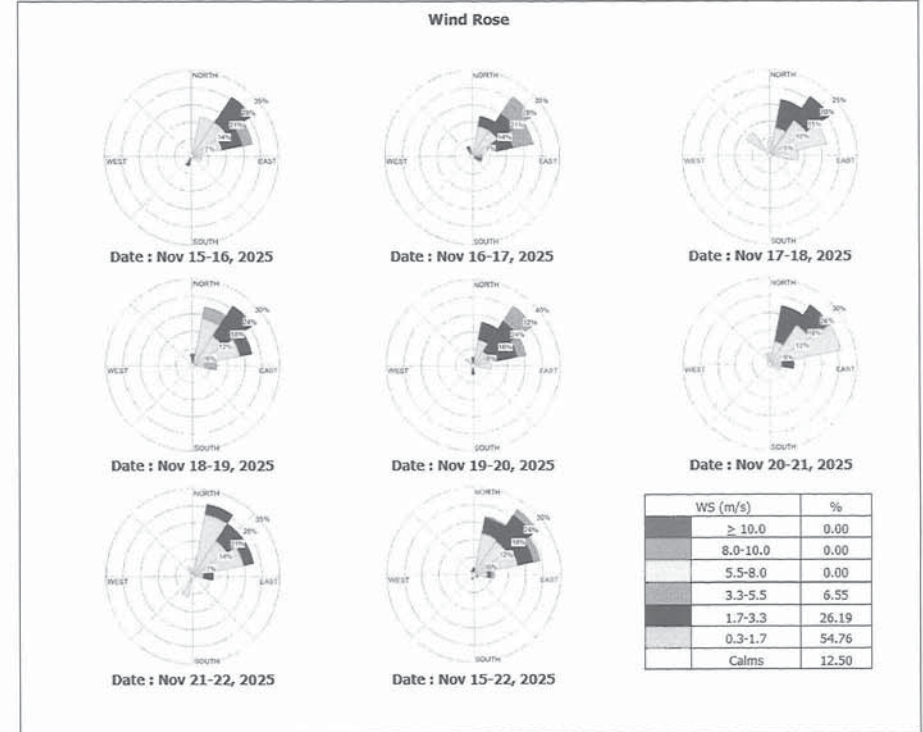


## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2591422  
Date Received : Nov 25, 2025  
Date Reported : Dec 02, 2025  
Report Number : 3416840-1



Location : Ban Nonglaloak (Wad Nongkrabok) (GPS 47P 0747563, 1413915)

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Approved by

Sarayuth Jitranont  
Assistant General Manager

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 2556898  
Date Received : Jul 07, 2025  
Date Reported : Jul 15, 2025  
Report Number : 3360390-1

Page 1 of 1

Sample Number	2556898-1
Sampled Date	Jul 07, 2025 10:00 AM
Sample Description	Wastewater
Location	Normal Pond (Sump)
Date Analysis Commenced	Jul 07, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	62	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	35.6	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1260	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	172	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Narunat thammasaro ระบุณที่ รว-323-ร-0052 , Akkarin Budsaktee ระบุณที่ รว-204-ร-0196

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

Technical Management

Photchanas

Photchana Seeda  
Scientist (4)  
ระบุณที่ รว-323-ร-0028

Approved by

Dej Changchon

Dej Changchon  
Senior Manager  
ระบุณที่ รว-323-ร-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 2566828  
Date Received : Aug 05, 2025  
Date Reported : Aug 13, 2025  
Report Number : 3381710-1

Page 1 of 1

Sample Number	2566828-1
Sampled Date	Aug 05, 2025 9:20 AM
Sample Description	Wastewater
Location	Normal Pond (Sump)
Date Analysis Commenced	Aug 05, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	31	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.8	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	36.6	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1630	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Narunat thammasaro ระบุณที่ รว-323-ร-0052 , Akkarin Budsaktee ระบุณที่ รว-204-ร-0196

Remark :  
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- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.  
- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Photchanas

Photchana Seeda  
Scientist (4)  
ระบุณที่ รว-323-ร-0028

Approved by

Dej Changchon

Dej Changchon  
Senior Manager  
ระบุณที่ รว-323-ร-0001

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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2574830  
Date Received : Sep 24, 2025  
Date Reported : Oct 01, 2025  
Report Number : 3418570-1

Page 1 of 1

Sample Number	2574830-1					
Sampled Date	Sep 24, 2025 2:35 PM					
Sample Description	Wastewater					
Location	Normal Pond (Sump)					
Date Analysis Commenced	Sep 24, 2025					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	37.9	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1820	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	29	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Narunat thammasaro เลขที่ 323-3-0052, Akkarin Budsaktee เลขที่ 204-3-0196

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)  
เลขที่ 323-3-0004

Approved by

D. Chongchon

Dej Changchon  
Senior Manager  
เลขที่ 323-3-0001

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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2586351  
Date Received : Oct 22, 2025  
Date Reported : Oct 30, 2025  
Report Number : 3438370-1

Page 1 of 1

Sample Number	2586351-1					
Sampled Date	Oct 22, 2025 9:45 AM					
Sample Description	Wastewater					
Location	Normal Pond (Sump)					
Date Analysis Commenced	Oct 22, 2025					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)					
Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
Water Testing						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	25	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	30.3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1032	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	32	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Wanlop Hunchainaw เลขที่ 323-3-0038, Akkarin Budsaktee เลขที่ 204-3-0196

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Photchana S

Photchana Seeda  
Scientist (4)  
เลขที่ 323-3-0028

Approved by

D. Chongchon

Dej Changchon  
Senior Manager  
เลขที่ 323-3-0001

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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25100331  
Date Received : Nov 10, 2025  
Date Reported : Nov 17, 2025  
Report Number : 3452441-1

Page 1 of 1

Sample Number	25100331-1
Sampled Date	Nov 10, 2025 9:35 AM
Sample Description	Wastewater
Location	Normal Pond (Sump)
Date Analysis Commenced	Nov 10, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles. Sample containers comply to pretreatment - preservation standards. (APHA / USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
<b>Water Testing</b>						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	30	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	0.6	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	32.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1360	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	24	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Sansoen Khuiyokul ทะเบียนเลขที่ 3-323-3-0005 , Samart Khumphlee ทะเบียนเลขที่ 3-204-3-0084

Remark :

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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)  
ทะเบียนเลขที่ 3-323-3-0004

Approved by

D. Khunon.

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-3-0001

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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25103283  
Date Received : Dec 08, 2025  
Date Reported : Dec 16, 2025  
Report Number : 3472729-1

Page 1 of 1

Sample Number	25103283-1
Sampled Date	Dec 08, 2025 9:30 AM
Sample Description	Wastewater
Location	Normal Pond (Sump)
Date Analysis Commenced	Dec 08, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Method	Testing Location
<b>Water Testing</b>						
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	61	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	1.2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	29.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	4050	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	49	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Sampling By : Wanlop Hunchainaow ทะเบียนเลขที่ 3-323-3-0038 , Akkarin Budsaktee ทะเบียนเลขที่ 3-204-3-0196

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Photchana S.

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-3-0028

Approved by

D. Khunon.

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-3-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING

No.0042

Lot ID: 2556898

Date Received : Jul 07, 2025

Date Reported : Jul 15, 2025

Report Number : 3360391-1

Page 1 of 2

Sample Number	2556898-2
Sampled Date	Jul 07, 2025 10:10 AM
Sample Description	Wastewater
Location	Final Pond (Holding Pond)
Date Analysis Commenced	Jul 07, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	37	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-CI (F)	Rayong
Temperature *	Degree C	-	-	33.8	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1420	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

**Sampling By :** Narunat thammassaro ทะนันนารถ 3-323-ก-0052, Akkarin Budsaktee ทะนันนารถ 3-204-ก-0196

Remark :

Technical Management

Photchanas

Photchanas Seeda

Scientist (4)

ทะเบียนเลขที่ 3-323-ก-0028

Approved by

D. Changchon

Dej Changchon

Senior Manager

ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING

No.0042

Lot ID: 2556898

Date Received : Jul 07, 2025

Date Reported : Jul 15, 2025

Report Number : 3360391-1

Page 2 of 2

- LOD : Limit of Detection
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Technical Management

Photchanas

Photchanas Seeda

Scientist (4)

ทะเบียนเลขที่ 3-323-ก-0028

Approved by

D. Changchon

Dej Changchon

Senior Manager

ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0009**  
**Lot ID: 2556898**  
Date Received : Jul 07, 2025  
Date Reported : Jul 15, 2025  
Report Number : 3360391-2

Page 1 of 1

Sample Number	2556898-2						
Sampled Date	Jul 07, 2025 10:10 AM						
Sample Description	Wastewater						
Location	Final Pond (Holding Pond)						
Date Analysis Commenced	Jul 07, 2025						
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Calcium	mg/L	0.03	0.05	137	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.03	0.05	25.1	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *	-	-	0.10	9.18	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.03	0.05	445	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Water Testing							
Dissolved Oxygen *	mg/L	-	0.1	6.7	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (G)	Rayong
Flow rate *	m3/s	-	-	0.029	No Standard	Flow meter	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
**Sampling By :** Narunat thammassaro , Akkarin Budsaktee

**Remark :**  
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Approved by

*Savitree N.*

Savitree Noisangiam  
Manager

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0042**  
**Lot ID: 2556902**  
Date Received : Jul 07, 2025  
Date Reported : Jul 14, 2025  
Report Number : 3333816-1

Page 1 of 1

Sample Number	2556902-1						
Sampled Date	Jul 07, 2025 10:10 AM						
Sample Description	Wastewater						
Location	บึงกวดน้ำ Final Pond (Holding Pond)						
Date Analysis Commenced	Jul 08, 2025						
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	2.2	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Norg (C), part NH3 (D)	Rayong

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Narunat thammassaro หนองนงแลวที่ 3-323-ก-0052 , Akkarin Budsaktee หนองนงแลวที่ 3-204-ก-0196

**Remark :**  
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Technical Management

*Photchana S*

Photchana Seeda  
Scientist (4)  
หนองนงแลวที่ 3-323-ก-0028

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
หนองนงแลวที่ 3-323-ก-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
No.0009

**Lot ID: 2556902**  
Date Received : Jul 07, 2025  
Date Reported : Jul 14, 2025  
Report Number : 3333816-2

Page 1 of 1

**Sample Number** 2556902-1  
**Sampled Date** Jul 07, 2025 10:10 AM  
**Sample Description** Wastewater  
**Location** บึงกวน Final Pond (Holding Pond)  
**Date Analysis Commenced** Jul 08, 2025  
**Condition of Sample** Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Copper	mg/L	0.0003	0.0005	0.003	≤2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Zinc	mg/L	0.003	0.005	0.25	≤5.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Narunat thammasaro ๓๓๓๓๓๓๓๓๓๓๓ ๓-323-๓-0052 , Akkarin Budsaktee ๓๓๓๓๓๓๓๓๓๓๓ ๓-204-๓-0196

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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

*Sawitree N.*

Sawitree Noisangiam  
Manager  
๓๓๓๓๓๓๓๓๓๓๓ ๓-204-๓-0007

Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Assistant General Manager  
๓๓๓๓๓๓๓๓๓๓๓ ๓-204-๓-0004

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
No.0009

**Lot ID: 2556902**  
Date Received : Jul 07, 2025  
Date Reported : Jul 14, 2025  
Report Number : 3333816-3

Page 1 of 1

**Sample Number** 2556902-1  
**Sampled Date** Jul 07, 2025 10:10 AM  
**Sample Description** Wastewater  
**Location** บึงกวน Final Pond (Holding Pond)  
**Date Analysis Commenced** Jul 08, 2025  
**Condition of Sample** Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.003	0.005	0.08	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
<b>Water Testing</b>							
Nitrate as N *	mg/L	0.015	0.05	1.26	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Narunat thammasaro , Akkarin Budsaktee

**Remark :**

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

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
**No.0042**  
**Lot ID: 2566828**  
**Date Received :** Aug 05, 2025  
**Date Reported :** Aug 13, 2025  
**Report Number :** 3381711-1

Page 1 of 2

Sample Number	2566828-2						
Sampled Date	Aug 05, 2025 9:25 AM						
Sample Description	Wastewater						
Location	Final Pond (Holding Pond)						
Date Analysis Commenced	Aug 05, 2025						
Condition of Sample	Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	25	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	36.2	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	2020	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	7	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
**Sampling By :** Narunat thammassaro ทะนันนารถสิน 323-4-0052, Akkarin Budsaktee ทะนันนารถสิน 323-4-0196

Remark :

Technical Management

**Photchanas**

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-4-0028

Approved by

**D. Chuan**

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-4-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
**No.0042**  
**Lot ID: 2566828**  
**Date Received :** Aug 05, 2025  
**Date Reported :** Aug 13, 2025  
**Report Number :** 3381711-1

Page 2 of 2

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

**Photchanas**

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-4-0028

Approved by

**D. Chuan**

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-4-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0009

Lot ID: 2566828  
Date Received : Aug 05, 2025  
Date Reported : Aug 13, 2025  
Report Number : 3381711-2

Page 1 of 1

Sample Number 2566828-2  
Sampled Date Aug 05, 2025 9:25 AM  
Sample Description Wastewater  
Location Final Pond (Holding Pond)  
Date Analysis Commenced Aug 05, 2025  
Condition of Sample Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	mg/L	0.03	0.05	108	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.03	0.05	19.9	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *	-	-	0.10	12.8	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.03	0.05	551	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Dissolved Oxygen *	mg/L	-	0.1	6.7	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (G)	Rayong
Flow rate *	m3/s	-	-	0.030	No Standard	Flow meter	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

Sampling By : Narunat thammasaro , Akkarin Budsaktee

#### Remark :

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Approved by

Sawitree N.

Sawitree Noisangiam  
Manager

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 2566831  
Date Received : Aug 05, 2025  
Date Reported : Aug 11, 2025  
Report Number : 3359481-1

Page 1 of 1

Sample Number 2566831-1  
Sampled Date Aug 05, 2025 9:25 AM  
Sample Description Wastewater  
Location บึงกวน Final Pond (Holding Pond)  
Date Analysis Commenced Aug 05, 2025  
Condition of Sample Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	<1.0	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Norg (C), part NH3 (D)	Rayong

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the d'scharge of wastewater from an electric power plant.

Sampling By : Narunat thammasaro ทะเบียนเลขที่ 3-323-ก-0052 , Akkarin Budsaktee ทะเบียนเลขที่ 3-204-ก-0196

#### Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Photchana S

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-ก-0028

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0009  
Lot ID: 2566831  
Date Received : Aug 05, 2025  
Date Reported : Aug 11, 2025  
Report Number : 3359481-2

Page 1 of 1

Sample Number 2566831-1  
Sampled Date Aug 05, 2025 9:25 AM  
Sample Description Wastewater  
Location บึงจระเข้ Final Pond (Holding Pond)  
Date Analysis Commenced Aug 06, 2025  
Condition of Sample Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Copper	mg/L	0.0003	0.0005	0.002	≤2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Zinc	mg/L	0.003	0.005	0.22	≤5.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Narunat thammassaro ระบุเบี่ยงเบนค่าที่ >323-ก-0052 , Akkarin Budsaktee ระบุเบี่ยงเบนค่าที่ >204-ก-0196

### Remark :

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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

*Chanatt L.*

Chanattagarn Imchom  
Section Head  
ระบุเบี่ยงเบนค่าที่ >204-ก-0008

Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
Assistant General Manager  
ระบุเบี่ยงเบนค่าที่ >204-ก-0004

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0009  
Lot ID: 2566831  
Date Received : Aug 05, 2025  
Date Reported : Aug 11, 2025  
Report Number : 3359481-3

Page 1 of 1

Sample Number 2566831-1  
Sampled Date Aug 05, 2025 9:25 AM  
Sample Description Wastewater  
Location บึงจระเข้ Final Pond (Holding Pond)  
Date Analysis Commenced Aug 06, 2025  
Condition of Sample Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.003	0.005	0.10	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
<b>Water Testing</b>							
Nitrate as N *	mg/L	0.015	0.05	2.34	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Narunat thammassaro , Akkarin Budsaktee

### Remark :

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaok, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING  
No.0042

Lot ID: 2574830

Date Received : Sep 24, 2025

Date Reported : Oct 01, 2025

Report Number : 3418571-1

Page 1 of 2

Sample Number	2574830-2
Sampled Date	Sep 24, 2025 2:30 PM
Sample Description	Wastewater
Location	Final Pond (Holding Pond)
Date Analysis Commenced	Sep 24, 2025
Condition of Sample	Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-CI (F)	Rayong
Temperature *	Degree C	-	-	35.9	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1740	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	8	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

Sampling By : Narunat thammassaro ทะเบียนเลขที่ 7-323-ก-0052, Akkarin Budsaktee ทะเบียนเลขที่ 7-204-ก-0196

Remark :

Technical Management

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)  
ทะเบียนเลขที่ 7-323-ก-0004

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 7-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaok, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING  
No.0042

Lot ID: 2574830

Date Received : Sep 24, 2025

Date Reported : Oct 01, 2025

Report Number : 3418571-1

Page 2 of 2

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Technical Management

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)  
ทะเบียนเลขที่ 7-323-ก-0004

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 7-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0009

Lot ID: 2574830  
Date Received : Sep 24, 2025  
Date Reported : Oct 01, 2025  
Report Number : 3418571-2

Page 1 of 1

Sample Number	2574830-2						
Sampled Date	Sep 24, 2025 2:30 PM						
Sample Description	Wastewater						
Location	Final Pond (Holding Pond)						
Date Analysis Commenced	Sep 24, 2025						
Condition of Sample	Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Calcium	mg/L	0.03	0.05	124	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.03	0.05	23.7	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *		-	0.10	8.67	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.03	0.05	402	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Water Testing							
Dissolved Oxygen *	mg/L	-	0.1	6.7	No Standard	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (G)	Rayong
Flow rate *	m3/s	-	-	0.033	No Standard	Flow meter	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
Sampling By : Narunat thammassaro , Akkarin Budsaktee

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Approved by

*Sawitree N.*  
Sawitree Noisanglam  
Manager

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 2574832  
Date Received : Sep 24, 2025  
Date Reported : Sep 30, 2025  
Report Number : 3378832-1

Page 1 of 1

Sample Number	2574832-1						
Sampled Date	Sep 24, 2025 2:30 PM						
Sample Description	Wastewater						
Location	บึงหนองบัว Final Pond (Holding Pond)						
Date Analysis Commenced	Sep 26, 2025						
Condition of Sample	Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	2.2	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Norg (C), part NH3 (D)	Rayong

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Narunat thammassaro ระบุเบบเบบเบบ 323-3-0052 , Akkarin Budsaktee ระบุเบบเบบเบบ 324-3-0196

Remark :  
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

*Photchana S.*  
Photchana Seeda  
Scientist (4)  
ระบุเบบเบบเบบ 323-3-0028

Approved by

*D. Changchon*  
Dej Changchon  
Senior Manager  
ระบุเบบเบบเบบ 323-3-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
No.0009

**Lot ID: 2574832**  
Date Received : Sep 24, 2025  
Date Reported : Sep 30, 2025  
Report Number : 3378832-2

Page 1 of 1

**Sample Number** 2574832-1  
**Sampled Date** Sep 24, 2025 2:30 PM  
**Sample Description** Wastewater  
**Location** บึงกวน Final Pond (Holding Pond)  
**Date Analysis Commenced** Sep 25, 2025  
**Condition of Sample** Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Copper	mg/L	0.0003	0.0005	0.002	≤2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Zinc	mg/L	0.003	0.005	0.26	≤5.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Narunat thammamasaro ระบุณที่ 323-3-0052 , Akkarin Budsaktee ระบุณที่ 204-3-0196

**Remark :**

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- Sampling is not included in scope of accreditation ISO/IEC 17025



## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
No.0009

**Lot ID: 2574832**  
Date Received : Sep 24, 2025  
Date Reported : Sep 30, 2025  
Report Number : 3378832-3

Page 1 of 1

**Sample Number** 2574832-1  
**Sampled Date** Sep 24, 2025 2:30 PM  
**Sample Description** Wastewater  
**Location** บึงกวน Final Pond (Holding Pond)  
**Date Analysis Commenced** Sep 25, 2025  
**Condition of Sample** Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.003	0.005	0.11	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
<b>Water Testing</b>							
Nitrate as N *	mg/L	0.015	0.05	2.78	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Narunat thammamasaro , Akkarin Budsaktee

**Remark :**

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

Technical Management

*Sawitree N.*

Sawitree Noisangiam  
Manager

ระบุณที่ 204-3-0007

Approved by

*Kanokorn Anek*

Kanokorn Anek  
Assistant General Manager

ระบุณที่ 204-3-0004

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Approved by

*Sawitree N.*

Sawitree Noisangiam  
Manager

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0042**  
**Lot ID: 2586351**  
Date Received : Oct 22, 2025  
Date Reported : Oct 30, 2025  
Report Number : 3438371-1

Page 1 of 2

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	<25	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.2	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-CI (F)	Rayong
Temperature *	Degree C	-	-	30.7	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	2020	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
**Sampling By :** Wanlop Hunchanaow ทะเบียนเลขที่ 3-323-ก-0038 , Akkarin Budsaktee ทะเบียนเลขที่ 3-204-ก-0196

Remark :

Technical Management

**Photchanas**

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-ก-0028

Approved by

**D. Khun**

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0042**  
**Lot ID: 2586351**  
Date Received : Oct 22, 2025  
Date Reported : Oct 30, 2025  
Report Number : 3438371-1

Page 2 of 2

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

**Photchanas**

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-ก-0028

Approved by

**D. Khun**

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



TESTING  
No.0009

**Lot ID: 2586351**  
Date Received : Oct 22, 2025  
Date Reported : Oct 30, 2025  
Report Number : 3438371-2

Page 1 of 1

**Sample Number** 2586351-2  
**Sampled Date** Oct 22, 2025 9:50 AM  
**Sample Description** Wastewater  
**Location** Final Pond (Holding Pond)  
**Date Analysis Commenced** Oct 22, 2025  
**Condition of Sample** Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	mg/L	0.03	0.05	81.7	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.03	0.05	14.4	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *	-	-	0.10	14.0	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.03	0.05	522	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Dissolved Oxygen *	mg/L	-	0.1	7.2	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (G)	Rayong
Flow rate *	m3/s	-	-	0.028	No Standard	Flow meter	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

**Sampling By :** Wanlop Hunchainao , Akkarin Budsaktee

**Remark :**

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- Sampling is not included in scope of accreditation ISO/IEC 17025

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Approved by

*Chanatt L.*

Chanattagarn Imchom  
Section Head

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



TESTING  
No.0042

**Lot ID: 2586361**  
Date Received : Oct 22, 2025  
Date Reported : Oct 29, 2025  
Report Number : 3405340-1

Page 1 of 1

**Sample Number** 2586361-1  
**Sampled Date** Oct 22, 2025 9:50 AM  
**Sample Description** Wastewater  
**Location** บึงระนอง Final Pond (Holding Pond)  
**Date Analysis Commenced** Oct 24, 2025  
**Condition of Sample** Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	1.2	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Norg (C), part NH3 (D)	Rayong

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Wanlop Hunchainao , Akkarin Budsaktee

**Remark :**

- LOD : Limit of Detection
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

*Photchana S.*

Photchana Seeda  
Scientist (4)  
หมายเลขโทรศัพท์ 3-323-9-0028

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager  
หมายเลขโทรศัพท์ 3-323-9-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
**No.0009**  
**Lot ID: 2586361**  
**Date Received :** Oct 22, 2025  
**Date Reported :** Oct 29, 2025  
**Report Number :** 3405340-2

Page 1 of 1

**Sample Number** 2586361-1  
**Sampled Date** Oct 22, 2025 9:50 AM  
**Sample Description** Wastewater  
**Location** บึงหนอง Final Pond (Holding Pond)  
**Date Analysis Commenced** Oct 24, 2025  
**Condition of Sample** Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Copper	mg/L	0.0003	0.0005	0.002	≤2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Zinc	mg/L	0.003	0.005	0.11	≤5.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Wanlop Hunchainaow ทะเบียนเลขที่ ๖-323-๖-0038 , Akkarin Budsaktee ทะเบียนเลขที่ ๖-204-๖-0196

**Remark :**

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Technical Management

*Chanatt L.*

Chanattagarn Imchom  
Section Head  
ทะเบียนเลขที่ ๖-204-๖-0008

Approved by

*Kanokorn Anek*

Kanokorn Anek  
Assistant General Manager  
ทะเบียนเลขที่ ๖-204-๖-0004

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location :**



**TESTING**  
**No.0009**  
**Lot ID: 2586361**  
**Date Received :** Oct 22, 2025  
**Date Reported :** Oct 29, 2025  
**Report Number :** 3405340-3

Page 1 of 1

**Sample Number** 2586361-1  
**Sampled Date** Oct 22, 2025 9:50 AM  
**Sample Description** Wastewater  
**Location** บึงหนอง Final Pond (Holding Pond)  
**Date Analysis Commenced** Oct 24, 2025  
**Condition of Sample** Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.003	0.005	0.09	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
<b>Water Testing</b>							
Nitrate as N *	mg/L	0.015	0.05	1.44	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Wanlop Hunchainaow , Akkarin Budsaktee

**Remark :**

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location:



TESTING  
No.0042

Lot ID: 25100331

Date Received : Nov 10, 2025

Date Reported : Nov 17, 2025

Report Number : 3452442-1

Page 1 of 2

Sample Number	25100331-2
Sampled Date	Nov 10, 2025 10:00 AM
Sample Description	Wastewater
Location	Final Pond (Holding Pond)
Date Analysis Commenced	Nov 10, 2025
Condition of Sample	Contained in one amber glass bottle and three plastic bottles. Sample containers comply to pretreatment - preservation standards. (APHA / USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	33	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.5	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	0.1	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-CI (F)	Rayong
Temperature *	Degree C	-	-	32.3	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	2180	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	5	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

Sampling By : Sansoen Khuyokun ๖-๓๒๓-๖-๐๐๐๕, Samart Khumphlee ๖-๒๐๔-๖-๐๐๘๔

Remark :

Technical Management

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)  
๖-๓๒๓-๖-๐๐๐๔

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
๖-๓๒๓-๖-๐๐๐๑

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location:



TESTING  
No.0042

Lot ID: 25100331

Date Received : Nov 10, 2025

Date Reported : Nov 17, 2025

Report Number : 3452442-1

Page 2 of 2

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

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)  
๖-๓๒๓-๖-๐๐๐๔

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
๖-๓๒๓-๖-๐๐๐๑

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0009**  
**Lot ID: 25100331**  
Date Received : Nov 10, 2025  
Date Reported : Nov 17, 2025  
Report Number : 3452442-2

Page 1 of 1

Sample Number	25100331-2						
Sampled Date	Nov 10, 2025 10:00 AM						
Sample Description	Wastewater						
Location	Final Pond (Holding Pond)						
Date Analysis Commenced	Nov 10, 2025						
Condition of Sample	Contained in one amber glass bottle and three plastic bottles. Sample containers comply to pretreatment - preservation standards. (APHA / USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	mg/L	0.03	0.05	133	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.03	0.05	24.6	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *	-	-	0.10	10.1	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.03	0.05	484	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Dissolved Oxygen *	mg/L	-	0.1	7.7	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (G)	Rayong
Flow rate *	m3/s	-	-	0.028	No Standard	Flow meter	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
**Sampling By :** Sansoen Khuiyoksul , Samart Khumphilee

**Remark :**  
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- Sampling is not included in scope of accreditation ISO/IEC 17025

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Approved by

*Chanatt L.*

Chanattagarn Imchom  
Section Head

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0042**  
**Lot ID: 25100335**  
Date Received : Nov 10, 2025  
Date Reported : Nov 15, 2025  
Report Number : 3438461-1

Page 1 of 1

Sample Number	25100335-1						
Sampled Date	Nov 10, 2025 10:00 AM						
Sample Description	Wastewater						
Location	บึงน้ำจืด Final Pond (Holding Pond)						
Date Analysis Commenced	Nov 11, 2025						
Condition of Sample	Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	1.4	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Norg (C), part NH3 (D)	Rayong

**Guideline :** Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

**Sampling By :** Sansoen Khuiyoksul ทะเบียนเลขที่ ๖-323-๖-0005 , Samart Khumphilee ทะเบียนเลขที่ ๖-204-๖-0084

**Remark :**  
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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

*Photchana S*

Photchana Seeda  
Scientist (4)

ทะเบียนเลขที่ ๖-323-๖-0028

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager

ทะเบียนเลขที่ ๖-323-๖-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location:



TESTING  
No.0042

Lot ID: 25100335

Date Received : Nov 10, 2025

Date Reported : Nov 15, 2025

Report Number : 3438461-2

Page 1 of 1

Sample Number	25100335-1
Sampled Date	Nov 10, 2025 10:00 AM
Sample Description	Wastewater
Location	บึงกวน Final Pond (Holding Pond)
Date Analysis Commenced	Nov 11, 2025
Condition of Sample	Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Copper	mg/L	0.0003	0.0005	0.004	≤2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Zinc	mg/L	0.003	0.005	0.19	≤5.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Sansoen Khuiyoksui ทะเบียนเลขที่ ร-323-ก-0005 , Samart Khumphlee ทะเบียนเลขที่ ร-204-ก-0084

Remark :

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Technical Management

*Savitree N.*

Savitree Naisangiam  
Manager

ทะเบียนเลขที่ ร-204-ก-0007

Approved by

*D. Changchon*

Dej Changchon  
Senior Manager

ทะเบียนเลขที่ ร-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location:



TESTING  
No.0009

Lot ID: 25100335

Date Received : Nov 10, 2025

Date Reported : Nov 15, 2025

Report Number : 3438461-3

Page 1 of 1

Sample Number	25100335-1
Sampled Date	Nov 10, 2025 10:00 AM
Sample Description	Wastewater
Location	บึงกวน Final Pond (Holding Pond)
Date Analysis Commenced	Nov 11, 2025
Condition of Sample	Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.003	0.005	0.13	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
<b>Water Testing</b>							
Nitrate as N *	mg/L	0.015	0.05	3.60	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Sansoen Khuiyoksui , Samart Khumphlee

Remark :

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- Sampling is not included in scope of accreditation ISO/IEC 17025

Approved by

*Savitree N.*

Savitree Naisangiam  
Manager

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0042**  
**Lot ID: 25103283**  
Date Received : Dec 08, 2025  
Date Reported : Dec 16, 2025  
Report Number : 3472730-1

Page 1 of 2

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O G	Rayong
COD	mg/L	1.5	25	42	≤120	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5220 D	Rayong
Oil & Grease	mg/L	-	3	<3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.6	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Residual Free Chlorine *	mg/L	-	0.1	<0.1	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl (F)	Rayong
Temperature *	Degree C	-	-	30.9	≤40	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	1960	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤50	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).  
**Sampling By :** Wanlop Hunchanaow ทะเบียนเลขที่ 3-323-ก-0038 , Akkarin Budsaktee ทะเบียนเลขที่ 3-204-ก-0196

Remark :

Technical Management

**Photchanas**

Photchanas Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-ก-0028

Approved by

**D. Chuan**

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :** 2025-1066  
**Project Name :** EIA Monitoring  
**Project Location:**



**TESTING**  
**No.0042**  
**Lot ID: 25103283**  
Date Received : Dec 08, 2025  
Date Reported : Dec 16, 2025  
Report Number : 3472730-1

Page 2 of 2

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- \* Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

**Photchanas**

Photchanas Seeda  
Scientist (4)  
ทะเบียนเลขที่ 3-323-ก-0028

Approved by

**D. Chuan**

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location:



TESTING

No.0009

Lot ID: 25103283

Date Received : Dec 08, 2025

Date Reported : Dec 16, 2025

Report Number : 3472730-2

Page 1 of 1

Sample Number	25103283-2						
Sampled Date	Dec 08, 2025 9:40 AM						
Sample Description	Wastewater						
Location	Final Pond (Holding Pond)						
Date Analysis Commenced	Dec 08, 2025						
Condition of Sample	Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Calcium	mg/L	0.03	0.05	150	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Magnesium	mg/L	0.03	0.05	28.4	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
SAR *		-	0.10	7.60	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
Sodium	mg/L	0.03	0.05	387	No Standard	In-house method : STM 05-014 based on United States Environmental Protection Agency, 1994, EPA Method 200.7	Bangkok
<b>Water Testing</b>							
Dissolved Oxygen *	mg/L	-	0.1	7.3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (G)	Rayong
Flow rate *	m3/s	-	-	0.029	No Standard	Flow meter	Rayong

Guideline : Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resource and Environment and effluent standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2560 (2017).

Sampling By : Wanlop Hunchainaow , Akkarin Budsaktee

Remark :

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Approved by

Sawitree N.

Sawitree Naisangiam  
Manager

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location:



TESTING

No.0042

Lot ID: 25103285

Date Received : Dec 08, 2025

Date Reported : Dec 15, 2025

Report Number : 3446671-1

Page 1 of 1

Sample Number	25103285-1						
Sampled Date	Dec 08, 2025 9:40 AM						
Sample Description	Wastewater						
Location	บึงกวน Final Pond (Holding Pond)						
Date Analysis Commenced	Dec 09, 2025						
Condition of Sample	Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Kjeldahl Nitrogen as N	mg/L	-	1.0	4.5	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-Norg (C), part NH3 (D)	Rayong

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Wanlop Hunchainaow ทะเบียนเลขที่ ร-323-ก-0038 , Akkarin Budsaktee ทะเบียนเลขที่ ร-204-ก-0196

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- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Photchana S

Photchana Seeda  
Scientist (4)  
ทะเบียนเลขที่ ร-323-ก-0028

Approved by

D. Changchon

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ ร-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042  
Lot ID: 25103285  
Date Received : Dec 08, 2025  
Date Reported : Dec 15, 2025  
Report Number : 3446671-2

Page 1 of 1

Sample Number 25103285-1  
Sampled Date Dec 08, 2025 9:40 AM  
Sample Description Wastewater  
Location บึงจระเข้ Final Pond (Holding Pond)  
Date Analysis Commenced Dec 09, 2025  
Condition of Sample Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Copper	mg/L	0.0003	0.0005	0.006	≤2.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Zinc	mg/L	0.003	0.005	0.27	≤5.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Wanlop Hunchainaoow ทะเบียนเลขที่ 7-323-ก-0038 , Akkarin Budsaktee ทะเบียนเลขที่ 7-204-ก-0196

### Remark :

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Technical Management

*Chanatt L.*

Chanattagarn Imchom  
Section Head  
ทะเบียนเลขที่ 7-204-ก-0008

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 7-323-ก-0001

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0009  
Lot ID: 25103285  
Date Received : Dec 08, 2025  
Date Reported : Dec 15, 2025  
Report Number : 3446671-3

Page 1 of 1

Sample Number 25103285-1  
Sampled Date Dec 08, 2025 9:40 AM  
Sample Description Wastewater  
Location บึงจระเข้ Final Pond (Holding Pond)  
Date Analysis Commenced Dec 09, 2025  
Condition of Sample Contained in three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.003	0.005	0.38	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
<b>Water Testing</b>							
Nitrate as N *	mg/L	0.015	0.05	3.14	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Guideline : Notification of the Ministry of Natural Resources and Environment B.E. 2565 : The standard for controlling the discharge of wastewater from an electric power plant.

Sampling By : Wanlop Hunchainaoow , Akkarin Budsaktee

### Remark :

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Approved by

*Chanatt L.*

Chanattagarn Imchom  
Section Head

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O :

Project Name :

Project Location :



TESTING

No.0042

Lot ID: 2574825

Date Received : Sep 24, 2025

Date Reported : Oct 02, 2025

Report Number : 3378822-1 C1

Page 1 of 2

Sample Number	2574825-1							
Sampled Date	Sep 24, 2025 10:37 AM							
Sample Description	Surface Water							
Location	SW1 : Klong Changtai Canal : 1000 m. above drainage point							
Date Analysis Commenced	Sep 24, 2025							
Condition of Sample	Contained in two glass vials, one amber glass bottle, two BOD bottles and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)							
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline ( 1 )	Guideline ( 2 )	Method	Testing Location
Volatile Organics Compounds								
Bromodichloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Bromoform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Chloroform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Dibromochloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Total Trihalomethanes *	ug/L	0.2	1	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Water Testing								
BOD *	mg/L	-	2	<2.0	≤2	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O C	Rayong
Dissolved Oxygen *	mg/L	-	0.1	7.2	≥4	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Rayong
Flow rate *	m3/s	-	-	0.330	No Standard	No Standard	Flow meter	Rayong
Nitrate as N *	mg/L	0.015	0.05	1.23	≤5	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Photchana S

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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10309-21/ EPAL



## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O :

Project Name :

Project Location :



TESTING

No.0042

Lot ID: 2574825

Date Received : Sep 24, 2025

Date Reported : Oct 02, 2025

Report Number : 3378822-1 C1

Page 2 of 2

Sample Number	2574825-1							
Sampled Date	Sep 24, 2025 10:37 AM							
Sample Description	Surface Water							
Location	SW1 : Klong Changtai Canal : 1000 m. above drainage point							
Date Analysis Commenced	Sep 24, 2025							
Condition of Sample	Contained in two glass vials, one amber glass bottle, two BOD bottles and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)							
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline ( 1 )	Guideline ( 2 )	Method	Testing Location
<b>Water Testing</b>								
Oil & Grease	mg/L	-	3	<3	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.3	5.0-9.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	29.0	(c)	(c)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	91	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	11	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong
<b>Guideline :</b> (1) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3) (2) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4) (a) Not Change from natural condition (b) Non Objectionable (c) Change from Natural condition not more than 3 degree C								
<b>Sampling By :</b> Narunat thammassaro , Akkarin Budsaktee								
<b>Remark :</b> - LOD : Limit of Detection - "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting) - Analyte(s) marked * is/are not included in scope of Accreditation ISO/IEC 17025. - Sampling is not included in scope of accreditation ISO/IEC 17025								

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Photchana S

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

**P/O :**

**Project Name :**

**Project Location :**



TESTING

No.0042

**Lot ID: 2574827**

Date Received : Sep 24, 2025

Date Reported : Oct 01, 2025

Report Number : 3378825-1 C1

Page 1 of 2

Sample Number	2574827-1							
Sampled Date	Sep 24, 2025 11:05 AM							
Sample Description	Surface Water							
Location	SW2 : Klong Changtai Canal : Drainage point							
Date Analysis Commenced	Sep 24, 2025							
Condition of Sample	Contained in two BOD bottles, two plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)							
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline ( 1 )	Guideline ( 2 )	Method	Testing Location
Water Testing								
BOD *	mg/L	-	2	<2.0	≤2	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O C	Rayong
Dissolved Oxygen *	mg/L	-	0.1	5.2	≥4	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Rayong
Flow rate *	m3/s	-	-	No Velocity	No Standard	No Standard	Flow meter	Rayong
Nitrate as N *	mg/L	0.015	0.05	0.99	≤5	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong
Oil & Grease *	mg/L	-	3	<3	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.0	5.0-9.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	28.8	(c)	(c)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	112	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	8	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

**P/O :**

**Project Name :**

**Project Location :**



TESTING

No.0042

**Lot ID: 2574827**

Date Received : Sep 24, 2025

Date Reported : Oct 01, 2025

Report Number : 3378825-1 C1

Page 2 of 2

**Guideline :** (1) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3)  
(2) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)  
(a) Not Change from natural condition  
(b) Non Objectionable  
(c) Change from Natural condition not more than 3 degree C

**Sampling By :** Narunat thamasaro

**Remark :**

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

Approved by

Jitsupa P.

Jitsupa Pratuangsuk  
Scientist (2)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O :  
Project Name :  
Project Location :



TESTING

No.0042

Lot ID: 2574826

Date Received : Sep 24, 2025  
Date Reported : Oct 03, 2025  
Report Number : 3378823-1 C1

Page 1 of 2

Sample Number	2574826-1
Sampled Date	Sep 24, 2025 10:20 AM
Sample Description	Surface Water
Location	SW3 : Klong Changtai Canal : 1000 m. Below drainage point
Date Analysis Commenced	Sep 24, 2025
Condition of Sample	Contained in two glass vials, one amber glass bottle, two BOD bottles and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Volatile Organics Compounds</b>								
Bromodichloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Bromoform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Chloroform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Dibromochloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Total Trihalomethanes *	ug/L	0.2	1	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Water Testing</b>								
BOD *	mg/L	-	2	<2.0	≤2	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O C	Rayong
Dissolved Oxygen *	mg/L	-	0.1	7.5	≥4	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Rayong
Flow rate *	m3/s	-	-	0.201	No Standard	No Standard	Flow meter	Rayong
Nitrate as N *	mg/L	0.015	0.05	0.99	≤5	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Photchana S

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O :  
Project Name :  
Project Location :



TESTING

No.0042

Lot ID: 2574826

Date Received : Sep 24, 2025  
Date Reported : Oct 03, 2025  
Report Number : 3378823-1 C1

Page 2 of 2

Sample Number	2574826-1
Sampled Date	Sep 24, 2025 10:20 AM
Sample Description	Surface Water
Location	SW3 : Klong Changtai Canal : 1000 m. Below drainage point
Date Analysis Commenced	Sep 24, 2025
Condition of Sample	Contained in two glass vials, one amber glass bottle, two BOD bottles and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Water Testing</b>								
Oil & Grease *	mg/L	-	3	<3	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.2	5.0-9.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	29.0	(c)	(c)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	104	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	25	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** (1) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3)  
(2) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)  
(a) Not Change from natural condition  
(b) Not Objectable  
(c) Change from Natural condition not more than 3 degree C

**Sampling By :** Narunat thammassaro , Akkarin Budsaktee

Remark :

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

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Photchana S

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :**  
**Project Name :**  
**Project Location :**



**TESTING**  
No.0042  
**Lot ID: 25103292**  
Date Received : Dec 08, 2025  
Date Reported : Dec 17, 2025  
Report Number : 3446678-1 C1

Page 1 of 2

**Sample Number** 25103292-1  
**Sampled Date** Dec 08, 2025 10:40 AM  
**Sample Description** Surface Water  
**Location** SW1 : Klong Changtai Canal : 1000 m. above drainage point  
**Date Analysis Commenced** Dec 08, 2025  
**Condition of Sample** Drawn into two BOD bottles, one amber glass bottle, two glass vials and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Volatile Organics Compounds</b>								
Bromodichloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Bromoform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Chloroform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Dibromochloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Total Trihalomethanes *	ug/L	0.2	1	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Water Testing</b>								
BOD *	mg/L	-	2	<2.0	≤2	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O C	Rayong
Dissolved Oxygen *	mg/L	-	0.1	7.0	≥4	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Rayong
Flow rate *	m3/s	-	-	0.114	No Standard	No Standard	Flow meter	Rayong
Nitrate as N *	mg/L	0.015	0.05	1.25	≤5	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

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Photchana S

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Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :**  
**Project Name :**  
**Project Location :**



**TESTING**  
No.0042  
**Lot ID: 25103292**  
Date Received : Dec 08, 2025  
Date Reported : Dec 17, 2025  
Report Number : 3446678-1 C1

Page 2 of 2

**Sample Number** 25103292-1  
**Sampled Date** Dec 08, 2025 10:40 AM  
**Sample Description** Surface Water  
**Location** SW1 : Klong Changtai Canal : 1000 m. above drainage point  
**Date Analysis Commenced** Dec 08, 2025  
**Condition of Sample** Drawn into two BOD bottles, one amber glass bottle, two glass vials and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Water Testing</b>								
Oil & Grease *	mg/L	-	3	<3	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	6.9	5.0-9.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	26.4	(c)	(c)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	80	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	<5	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** (1) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3)  
(2) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)  
(a) Not Change from natural condition  
(b) Non Objectionable  
(c) Change from Natural condition not more than 3 degree C

**Sampling By :** Narunat thammassaro , Akkarin Budsaktee

**Remark :**

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

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

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Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O :  
Project Name :  
Project Location :



TESTING  
No.0042  
**Lot ID: 25103296**  
Date Received : Dec 08, 2025  
Date Reported : Dec 17, 2025  
Report Number : 3446680-1 C1

Page 1 of 2

Sample Number	25103296-1							
Sampled Date	Dec 08, 2025 11:00 AM							
Sample Description	Surface Water							
Location	SW2 : Klong Changtai Canal : Drainage point							
Date Analysis Commenced	Dec 08, 2025							
Condition of Sample	Contained in one amber glass bottle, two BOD bottles and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)							
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline ( 1 )	Guideline ( 2 )	Method	Testing Location
Water Testing								
BOD *	mg/L	-	2	<2.0	≤2	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O C	Rayong
Dissolved Oxygen *	mg/L	-	0.1	7.0	≥4	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Rayong
Flow rate *	m3/s	-	-	0.360	No Standard	No Standard	Flow meter	Rayong
Nitrate as N *	mg/L	0.015	0.05	1.20	≤5	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong
Oil & Grease *	mg/L	-	3	<3	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C		-	-	7.0	5.0-9.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	27.0	(c)	(c)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	262	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	36	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

**Photchana S**

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phukdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O :  
Project Name :  
Project Location :



TESTING  
No.0042  
**Lot ID: 25103296**  
Date Received : Dec 08, 2025  
Date Reported : Dec 17, 2025  
Report Number : 3446680-1 C1

Page 2 of 2

**Guideline :** (1) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3)  
(2) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)  
(a) Not Change from natural condition  
(b) Non Objectionable  
(c) Change from Natural condition not more than 3 degree C

**Sampling By :** Narunat thammassaro

Remark :

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

Approved by

**Photchana S**

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phukdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :**  
**Project Name :**  
**Project Location :**



TESTING

No.0042

**Lot ID: 25103294**

Date Received : Dec 08, 2025

Date Reported : Dec 17, 2025

Report Number : 3446679-1 C1

Page 1 of 2

**Sample Number** 25103294-1  
**Sampled Date** Dec 08, 2025 10:20 AM  
**Sample Description** Surface Water  
**Location** SW3 : Klong Changtai Canal : 1000 m. Below drainage point  
**Date Analysis Commenced** Dec 08, 2025  
**Condition of Sample** Contained in two BOD bottles, one amber glass bottle, two glass vials and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Volatile Organics Compounds</b>								
Bromodichloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Bromoform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Chloroform *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Dibromochloromethane *	ug/L	0.2	0.5	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
Total Trihalomethanes *	ug/L	0.2	1	Not Detected	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 6200 B	Bangkok
<b>Water Testing</b>								
BOD *	mg/L	-	2	<2.0	≤2	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500 - O C	Rayong
Dissolved Oxygen *	mg/L	-	0.1	7.3	≥4	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Rayong
Flow rate *	m3/s	-	-	0.252	No Standard	No Standard	Flow meter	Rayong
Nitrate as N *	mg/L	0.015	0.05	0.79	≤5	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NO3 (E)	Rayong

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Photchana S

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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18309-21/ EPMAL



## Analysis / Test Report

**Client :** General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
**P/O :**  
**Project Name :**  
**Project Location :**



TESTING

No.0042

**Lot ID: 25103294**

Date Received : Dec 08, 2025

Date Reported : Dec 17, 2025

Report Number : 3446679-1 C1

Page 2 of 2

**Sample Number** 25103294-1  
**Sampled Date** Dec 08, 2025 10:20 AM  
**Sample Description** Surface Water  
**Location** SW3 : Klong Changtai Canal : 1000 m. Below drainage point  
**Date Analysis Commenced** Dec 08, 2025  
**Condition of Sample** Contained in two BOD bottles, one amber glass bottle, two glass vials and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Water Testing</b>								
Oil & Grease *	mg/L	-	3	<3	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Rayong
pH at 25 degree C	-	-	-	7.1	5.0-9.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	26.6	(c)	(c)	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	108	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	94	No Standard	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong

**Guideline :** (1) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3)  
(2) Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)  
(a) Not Change from natural condition  
(b) Non Objectionable  
(c) Change from Natural condition not more than 3 degree C

**Sampling By :** Narunat thammassaro , Akkarin Budsaktee

Remark :

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

Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. The report shall not be reproduced except in full without the written approval of the laboratory.

Approved by

Photchana S

Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 25103655  
Date Received : Nov 25, 2025  
Date Reported : Dec 01, 2025  
Report Number: 3462230-1

Page 1 of 1

Sample Number : 25103655-1  
Parameter : Noise (Leq 24 hrs.)  
Location : หมู่ 10 บ้านนาทอง  
Measurement Date : Nov 15 - Nov 16, 2025  
Measurement by : Adisak Tarisoon  
Sound Level meter : Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	52.8	79.9	45.0
01:00 PM - 02:00 PM	50.3	75.2	45.0
02:00 PM - 03:00 PM	51.2	74.2	45.6
03:00 PM - 04:00 PM	50.4	69.9	46.5
04:00 PM - 05:00 PM	51.5	66.7	48.1
05:00 PM - 06:00 PM	54.7	79.3	47.3
06:00 PM - 07:00 PM	54.8	85.5	47.0
07:00 PM - 08:00 PM	61.6	96.6	48.7
08:00 PM - 09:00 PM	53.3	75.2	49.6
09:00 PM - 10:00 PM	54.2	83.6	49.8
10:00 PM - 11:00 PM	58.5	85.1	49.0
11:00 PM - 12:00 AM	58.3	89.7	49.6
12:00 AM - 01:00 AM	52.9	84.4	49.2
01:00 AM - 02:00 AM	50.8	67.6	48.5
02:00 AM - 03:00 AM	51.6	67.8	48.9
03:00 AM - 04:00 AM	50.6	66.5	48.5
04:00 AM - 05:00 AM	49.9	69.0	47.9
05:00 AM - 06:00 AM	51.3	72.2	48.2
06:00 AM - 07:00 AM	53.5	84.3	48.6
07:00 AM - 08:00 AM	51.7	66.4	46.6
08:00 AM - 09:00 AM	50.3	65.3	46.1
09:00 AM - 10:00 AM	50.6	71.8	46.0
10:00 AM - 11:00 AM	51.2	79.1	46.0
11:00 AM - 12:00 PM	51.6	75.3	46.3

Leq Average 24 hrs. (dB(A)) : 54.2  
Lmax (dB(A)) : 96.6  
L90 (dB(A)) : 47.9  
Ldn (dB(A)) : 60.7  
Standard (dB(A)) : 70  
Reference Method : ISO 1996-1 : 2016  
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548  
Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

*Chontichak*  
Chonticha Subongkoch  
Scientist (3)

Approved by

*Supot S*  
Supot Salamteah  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :



TESTING  
No.0042

Lot ID: 25103655  
Date Received : Nov 25, 2025  
Date Reported : Dec 01, 2025  
Report Number: 3462231-1

Page 1 of 1

Sample Number : 25103655-2  
Parameter : Noise (Leq 24 hrs.)  
Location : หมู่ 10 บ้านนาทอง  
Measurement Date : Nov 16 - Nov 17, 2025  
Measurement by : Adisak Tarisoon  
Sound Level meter : Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	56.8	92.6	45.6
01:00 PM - 02:00 PM	49.4	73.4	45.0
02:00 PM - 03:00 PM	50.4	73.6	44.2
03:00 PM - 04:00 PM	50.0	66.5	45.1
04:00 PM - 05:00 PM	51.8	82.8	45.6
05:00 PM - 06:00 PM	54.8	84.9	46.0
06:00 PM - 07:00 PM	52.9	82.0	47.0
07:00 PM - 08:00 PM	54.6	86.6	49.2
08:00 PM - 09:00 PM	58.9	92.9	49.0
09:00 PM - 10:00 PM	60.7	94.7	48.2
10:00 PM - 11:00 PM	49.8	80.3	45.4
11:00 PM - 12:00 AM	48.6	78.8	44.6
12:00 AM - 01:00 AM	47.9	63.4	45.1
01:00 AM - 02:00 AM	49.4	64.0	46.5
02:00 AM - 03:00 AM	48.5	75.4	45.8
03:00 AM - 04:00 AM	49.6	70.8	46.1
04:00 AM - 05:00 AM	47.8	72.2	45.4
05:00 AM - 06:00 AM	48.3	67.7	46.0
06:00 AM - 07:00 AM	54.5	87.3	46.6
07:00 AM - 08:00 AM	53.5	84.6	46.6
08:00 AM - 09:00 AM	51.8	87.2	45.6
09:00 AM - 10:00 AM	51.4	74.6	46.8
10:00 AM - 11:00 AM	62.9	88.4	45.7
11:00 AM - 12:00 PM	65.8	92.5	46.5

Leq Average 24 hrs. (dB(A)) : 56.5  
Lmax (dB(A)) : 94.7  
L90 (dB(A)) : 45.8  
Ldn (dB(A)) : 58.9  
Standard (dB(A)) : 70  
Reference Method : ISO 1996-1 : 2016  
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548  
Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

*Chontichak*  
Chonticha Subongkoch  
Scientist (3)

Approved by

*Supot S*  
Supot Salamteah  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25103655  
Date Received : Nov 25, 2025  
Date Reported : Dec 01, 2025  
Report Number: 3462232-1

Page 1 of 1

Sample Number 25103655-3  
Parameter Noise (Leq 24 hrs.)  
Location N1 : หมู่ 10 บ้านนาบดลอง  
Measurement Date Nov 17 - Nov 18, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	48.7	69.0	42.4
01:00 PM - 02:00 PM	50.0	69.8	44.3
02:00 PM - 03:00 PM	50.9	74.5	43.1
03:00 PM - 04:00 PM	51.7	74.6	44.4
04:00 PM - 05:00 PM	51.7	73.3	46.0
05:00 PM - 06:00 PM	54.6	87.9	43.6
06:00 PM - 07:00 PM	63.6	90.5	44.1
07:00 PM - 08:00 PM	54.1	87.8	47.9
08:00 PM - 09:00 PM	50.2	65.7	47.5
09:00 PM - 10:00 PM	49.9	68.3	47.5
10:00 PM - 11:00 PM	49.1	70.4	47.7
11:00 PM - 12:00 AM	50.6	84.0	47.4
12:00 AM - 01:00 AM	48.5	64.3	47.5
01:00 AM - 02:00 AM	49.5	78.5	47.9
02:00 AM - 03:00 AM	49.5	63.0	48.1
03:00 AM - 04:00 AM	49.9	70.3	48.4
04:00 AM - 05:00 AM	49.0	66.8	47.6
05:00 AM - 06:00 AM	49.5	64.5	48.0
06:00 AM - 07:00 AM	53.8	82.4	47.7
07:00 AM - 08:00 AM	52.8	75.9	47.3
08:00 AM - 09:00 AM	53.7	71.7	47.9
09:00 AM - 10:00 AM	58.7	84.4	48.4
10:00 AM - 11:00 AM	63.1	88.4	48.7
11:00 AM - 12:00 PM	63.8	89.3	47.7

Leq Average 24 hrs. (dB(A)) 56.3  
Lmax (dB(A)) 90.5  
L90 (dB(A)) 47.5  
Ldn (dB(A)) 58.9  
Standard (dB(A)) 70 115

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supt S

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1758  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25103655  
Date Received : Nov 25, 2025  
Date Reported : Dec 01, 2025  
Report Number: 3462233-1

Page 1 of 1

Sample Number 25103655-4  
Parameter Noise (Leq 24 hrs.)  
Location N1 : หมู่ 10 บ้านนาบดลอง  
Measurement Date Nov 18 - Nov 19, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	48.7	67.4	44.4
01:00 PM - 02:00 PM	49.7	68.5	45.3
02:00 PM - 03:00 PM	51.6	72.7	45.2
03:00 PM - 04:00 PM	50.2	68.0	45.8
04:00 PM - 05:00 PM	52.1	84.0	46.8
05:00 PM - 06:00 PM	55.6	84.2	46.8
06:00 PM - 07:00 PM	52.9	84.9	44.8
07:00 PM - 08:00 PM	55.2	73.7	47.3
08:00 PM - 09:00 PM	51.4	66.9	48.6
09:00 PM - 10:00 PM	50.9	63.4	48.6
10:00 PM - 11:00 PM	54.3	84.1	48.5
11:00 PM - 12:00 AM	51.3	74.4	49.0
12:00 AM - 01:00 AM	52.8	79.1	49.0
01:00 AM - 02:00 AM	52.9	78.2	50.0
02:00 AM - 03:00 AM	53.5	65.9	49.1
03:00 AM - 04:00 AM	50.6	63.3	48.5
04:00 AM - 05:00 AM	50.8	67.1	48.9
05:00 AM - 06:00 AM	55.2	66.1	49.4
06:00 AM - 07:00 AM	57.6	76.0	51.4
07:00 AM - 08:00 AM	58.5	88.9	48.9
08:00 AM - 09:00 AM	54.8	75.5	48.0
09:00 AM - 10:00 AM	62.3	86.3	49.9
10:00 AM - 11:00 AM	63.7	88.3	49.9
11:00 AM - 12:00 PM	61.1	88.9	50.2

Leq Average 24 hrs. (dB(A)) 56.3  
Lmax (dB(A)) 88.9  
L90 (dB(A)) 48.6  
Ldn (dB(A)) 60.9  
Standard (dB(A)) 70 115

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supt S

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103655

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462234-1

Page 1 of 1

Sample Number	25103655-5
Parameter	Noise (Leq 24 hrs.)
Location	N1 : หมู่ 10 บ้านนาหนอง
Measurement Date	Nov 19 - Nov 20, 2025
Measurement by	Adisak Tarisoorn
Sound Level meter	Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	55.1	72.7	49.7
01:00 PM - 02:00 PM	53.5	67.0	49.8
02:00 PM - 03:00 PM	54.4	67.8	50.4
03:00 PM - 04:00 PM	54.3	79.5	49.2
04:00 PM - 05:00 PM	53.8	78.5	48.0
05:00 PM - 06:00 PM	56.1	72.0	52.1
06:00 PM - 07:00 PM	63.3	98.3	48.9
07:00 PM - 08:00 PM	54.1	76.2	49.4
08:00 PM - 09:00 PM	56.3	84.7	49.9
09:00 PM - 10:00 PM	52.2	80.1	48.5
10:00 PM - 11:00 PM	52.7	68.6	49.5
11:00 PM - 12:00 AM	52.2	78.5	48.5
12:00 AM - 01:00 AM	53.1	78.2	49.3
01:00 AM - 02:00 AM	55.4	81.5	50.6
02:00 AM - 03:00 AM	56.8	85.1	51.2
03:00 AM - 04:00 AM	54.9	79.8	50.1
04:00 AM - 05:00 AM	55.2	82.3	50.4
05:00 AM - 06:00 AM	57.5	88.4	51.5
06:00 AM - 07:00 AM	60.1	90.1	52.1
07:00 AM - 08:00 AM	58.4	87.5	51.8
08:00 AM - 09:00 AM	56.2	84.2	50.9
09:00 AM - 10:00 AM	55.8	83.6	50.5
10:00 AM - 11:00 AM	54.3	79.1	49.8
11:00 AM - 12:00 PM	53.7	76.5	49.4

Leq Average 24 hrs. (dB(A))	56.3		
Lmax (dB(A))		98.3	
L90 (dB(A))			49.8
Ldn (dB(A))	62.5		
Standard (dB(A))	70	115	

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

**Chontichak**  
Chonticha Subongkoch  
Scientist (3)

Approved by

**Supot S**  
Supot Salamteht  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103655

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462235-1

Page 1 of 1

Sample Number	25103655-6
Parameter	Noise (Leq 24 hrs.)
Location	N1 : หมู่ 10 บ้านนาหนอง
Measurement Date	Nov 20 - Nov 21, 2025
Measurement by	Adisak Tarisoorn
Sound Level meter	Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	52.9	74.2	48.9
01:00 PM - 02:00 PM	52.1	69.8	48.5
02:00 PM - 03:00 PM	51.8	68.5	48.2
03:00 PM - 04:00 PM	51.5	67.9	48.0
04:00 PM - 05:00 PM	51.4	67.5	47.9
05:00 PM - 06:00 PM	52.3	70.5	48.6
06:00 PM - 07:00 PM	54.1	75.8	49.5
07:00 PM - 08:00 PM	56.5	82.4	50.8
08:00 PM - 09:00 PM	58.2	86.8	51.6
09:00 PM - 10:00 PM	59.8	89.5	52.1
10:00 PM - 11:00 PM	58.9	88.1	51.8
11:00 PM - 12:00 AM	57.4	84.5	51.4
12:00 AM - 01:00 AM	56.1	81.2	50.9
01:00 AM - 02:00 AM	55.6	80.5	50.5
02:00 AM - 03:00 AM	56.5	82.9	51.1
03:00 AM - 04:00 AM	55.2	79.6	50.3
04:00 AM - 05:00 AM	55.9	81.8	50.7
05:00 AM - 06:00 AM	57.8	86.5	51.6
06:00 AM - 07:00 AM	60.5	91.2	52.3
07:00 AM - 08:00 AM	59.2	89.4	51.9
08:00 AM - 09:00 AM	57.1	85.3	51.2
09:00 AM - 10:00 AM	56.4	84.1	50.8
10:00 AM - 11:00 AM	54.8	80.2	50.1
11:00 AM - 12:00 PM	53.9	77.4	49.5

Leq Average 24 hrs. (dB(A))	56.4		
Lmax (dB(A))		91.2	
L90 (dB(A))			50.7
Ldn (dB(A))	63.6		
Standard (dB(A))	70	115	

Reference Method : ISO 1996-1 : 2016

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
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Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

**Chontichak**  
Chonticha Subongkoch  
Scientist (3)

Approved by

**Supot S**  
Supot Salamteht  
Section Head

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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1758

Project Name : EIA Monitoring

Project Location :

Lot ID: 25103655

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462236-1

Page 1 of 1

Sample Number	25103655-7
Parameter	Noise (Leq 24 hrs.)
Location	N1 : หมู่ 10 บ้านนาทอง
Measurement Date	Nov 21 - Nov 22, 2025
Measurement by	Adisak Tarisoan
Sound Level meter	Serial No. 1122579

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	53.1	75.1	49.0
01:00 PM - 02:00 PM	52.4	71.2	48.7
02:00 PM - 03:00 PM	52.0	69.4	48.3
03:00 PM - 04:00 PM	51.7	68.2	48.1
04:00 PM - 05:00 PM	51.6	67.8	48.0
05:00 PM - 06:00 PM	52.8	71.5	48.8
06:00 PM - 07:00 PM	54.6	76.9	49.7
07:00 PM - 08:00 PM	56.9	83.5	50.9
08:00 PM - 09:00 PM	58.6	87.2	51.8
09:00 PM - 10:00 PM	60.2	90.5	52.4
10:00 PM - 11:00 PM	59.1	88.9	52.0
11:00 PM - 12:00 AM	57.8	85.1	51.5
12:00 AM - 01:00 AM	56.5	81.8	51.1
01:00 AM - 02:00 AM	55.9	81.1	50.7
02:00 AM - 03:00 AM	56.8	83.5	51.3
03:00 AM - 04:00 AM	55.5	80.2	50.5
04:00 AM - 05:00 AM	56.2	82.4	50.9
05:00 AM - 06:00 AM	58.1	87.1	51.8
06:00 AM - 07:00 AM	60.8	91.8	52.5
07:00 AM - 08:00 AM	59.5	89.9	52.1
08:00 AM - 09:00 AM	57.4	85.8	51.4
09:00 AM - 10:00 AM	56.7	84.6	51.0
10:00 AM - 11:00 AM	55.1	80.7	50.3
11:00 AM - 12:00 PM	54.2	77.9	49.7

Leq Average 24 hrs. (dB(A))	56.8		
Lmax (dB(A))		91.8	
L90 (dB(A))			50.9
Ldn (dB(A))	63.9		
Standard (dB(A))	70	115	

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

*Chontichak*

Chonticha Subongkoch  
Scientist (3)

Approved by

*Supot S*

Supot Salamteah  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plua daeng Pa yong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462080-1

Page 1 of 1

Sample Number	2591423-1
Parameter	Noise (Leq 24 hrs.)
Location	N2 : บริเวณโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)
Measurement Date	Nov 15 - Nov 16, 2025
Measurement by	Adisak Tarisoan
Sound Level meter	Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.2	75.8	52.5
01:00 PM - 02:00 PM	53.9	76.9	52.2
02:00 PM - 03:00 PM	53.5	69.5	51.9
03:00 PM - 04:00 PM	53.2	66.2	52.0
04:00 PM - 05:00 PM	54.0	68.1	52.9
05:00 PM - 06:00 PM	55.8	73.8	52.9
06:00 PM - 07:00 PM	54.5	70.8	53.0
07:00 PM - 08:00 PM	54.9	74.9	53.1
08:00 PM - 09:00 PM	55.1	70.5	53.5
09:00 PM - 10:00 PM	54.8	65.1	53.8
10:00 PM - 11:00 PM	54.2	64.5	53.4
11:00 PM - 12:00 AM	53.5	63.2	53.1
12:00 AM - 01:00 AM	52.8	62.5	52.8
01:00 AM - 02:00 AM	52.1	61.8	52.4
02:00 AM - 03:00 AM	51.8	61.2	52.1
03:00 AM - 04:00 AM	51.5	60.9	51.9
04:00 AM - 05:00 AM	51.4	60.5	51.8
05:00 AM - 06:00 AM	52.2	63.5	52.3
06:00 AM - 07:00 AM	53.5	68.2	52.8
07:00 AM - 08:00 AM	54.8	73.5	53.2
08:00 AM - 09:00 AM	55.5	75.8	53.5
09:00 AM - 10:00 AM	55.2	74.5	53.4
10:00 AM - 11:00 AM	54.9	73.2	53.1
11:00 AM - 12:00 PM	54.7	76.1	52.9

Leq Average 24 hrs. (dB(A))	54.0		
Lmax (dB(A))		76.9	
L90 (dB(A))			52.9
Ldn (dB(A))	59.4		
Standard (dB(A))	70	115	

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

*Chontichak*

Chonticha Subongkoch  
Scientist (3)

Approved by

*Supot S*

Supot Salamteah  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plua daeng Pa yong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING  
No.0042

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462081-1

Page 1 of 1

Sample Number 2591423-2  
Parameter Noise (Leq 24 hrs.)  
Location N2 : ริมรั้วโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)  
Measurement Date Nov 16 - Nov 17, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.5	76.4	52.7
01:00 PM - 02:00 PM	53.8	77.5	52.1
02:00 PM - 03:00 PM	53.1	68.7	52.0
03:00 PM - 04:00 PM	53.1	65.5	52.1
04:00 PM - 05:00 PM	53.9	67.4	52.8
05:00 PM - 06:00 PM	56.1	74.5	52.8
06:00 PM - 07:00 PM	54.3	70.1	53.1
07:00 PM - 08:00 PM	54.8	75.3	53.0
08:00 PM - 09:00 PM	55.3	70.0	53.6
09:00 PM - 10:00 PM	55.1	64.2	53.9
10:00 PM - 11:00 PM	54.5	65.4	53.5
11:00 PM - 12:00 AM	53.8	63.8	53.1
12:00 AM - 01:00 AM	53.1	62.5	52.6
01:00 AM - 02:00 AM	52.5	61.2	52.2
02:00 AM - 03:00 AM	52.1	60.8	51.9
03:00 AM - 04:00 AM	51.8	60.2	51.6
04:00 AM - 05:00 AM	51.6	59.8	51.4
05:00 AM - 06:00 AM	52.4	62.5	51.9
06:00 AM - 07:00 AM	53.8	67.2	52.5
07:00 AM - 08:00 AM	55.2	74.5	53.1
08:00 AM - 09:00 AM	56.5	78.2	53.8
09:00 AM - 10:00 AM	56.1	76.8	53.5
10:00 AM - 11:00 AM	55.4	74.5	53.2
11:00 AM - 12:00 PM	54.8	72.1	52.9

Leq Average 24 hrs. (dB(A))

54.3

Lmax (dB(A))

78.2

L90 (dB(A))

52.8

Ldn (dB(A))

59.7

Standard (dB(A))

70

115

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plua daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING  
No.0042

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462082-1

Page 1 of 1

Sample Number 2591423-3  
Parameter Noise (Leq 24 hrs.)  
Location N2 : ริมรั้วโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)  
Measurement Date Nov 17 - Nov 18, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.5	76.8	52.7
01:00 PM - 02:00 PM	53.9	78.2	52.2
02:00 PM - 03:00 PM	53.2	69.2	52.1
03:00 PM - 04:00 PM	53.5	66.5	52.2
04:00 PM - 05:00 PM	54.1	67.8	52.9
05:00 PM - 06:00 PM	56.3	74.9	52.9
06:00 PM - 07:00 PM	54.6	70.5	53.2
07:00 PM - 08:00 PM	55.1	75.8	53.2
08:00 PM - 09:00 PM	55.5	70.9	53.7
09:00 PM - 10:00 PM	55.2	64.5	54.1
10:00 PM - 11:00 PM	54.7	64.8	53.6
11:00 PM - 12:00 AM	53.9	63.5	53.2
12:00 AM - 01:00 AM	53.2	62.2	52.7
01:00 AM - 02:00 AM	52.6	61.0	52.3
02:00 AM - 03:00 AM	52.2	60.6	52.0
03:00 AM - 04:00 AM	51.9	60.0	51.7
04:00 AM - 05:00 AM	51.7	59.6	51.5
05:00 AM - 06:00 AM	52.5	62.8	52.0
06:00 AM - 07:00 AM	53.9	67.5	52.6
07:00 AM - 08:00 AM	55.3	74.8	53.2
08:00 AM - 09:00 AM	56.6	78.5	53.9
09:00 AM - 10:00 AM	56.2	77.1	53.6
10:00 AM - 11:00 AM	55.5	74.8	53.3
11:00 AM - 12:00 PM	54.9	72.4	53.0

Leq Average 24 hrs. (dB(A))

54.4

Lmax (dB(A))

78.5

L90 (dB(A))

52.9

Ldn (dB(A))

59.8

Standard (dB(A))

70

115

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plua daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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S:\Reports\_Air Noise.rpt (10:51AM)





## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462083-1

Page 1 of 1

Sample Number 2591423-4  
Parameter Noise (Leq 24 hrs.)  
Location N2 : ริมรั้วโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)  
Measurement Date Nov 18 - Nov 19, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.6	77.1	52.8
01:00 PM - 02:00 PM	54.0	78.5	52.3
02:00 PM - 03:00 PM	53.3	69.5	52.2
03:00 PM - 04:00 PM	53.6	66.8	52.3
04:00 PM - 05:00 PM	54.2	68.1	53.0
05:00 PM - 06:00 PM	56.4	75.2	53.0
06:00 PM - 07:00 PM	54.7	70.8	53.3
07:00 PM - 08:00 PM	55.2	76.1	53.3
08:00 PM - 09:00 PM	55.6	71.2	53.8
09:00 PM - 10:00 PM	55.3	64.8	54.2
10:00 PM - 11:00 PM	54.8	65.1	53.7
11:00 PM - 12:00 AM	54.0	63.8	53.3
12:00 AM - 01:00 AM	53.3	62.5	52.8
01:00 AM - 02:00 AM	52.7	61.3	52.4
02:00 AM - 03:00 AM	52.3	60.9	52.1
03:00 AM - 04:00 AM	52.0	60.3	51.8
04:00 AM - 05:00 AM	51.8	59.9	51.6
05:00 AM - 06:00 AM	52.6	63.1	52.1
06:00 AM - 07:00 AM	54.0	67.8	52.7
07:00 AM - 08:00 AM	55.4	75.1	53.3
08:00 AM - 09:00 AM	56.7	78.8	54.0
09:00 AM - 10:00 AM	56.3	77.4	53.7
10:00 AM - 11:00 AM	55.6	75.1	53.4
11:00 AM - 12:00 PM	55.0	72.7	53.1

Leq Average 24 hrs. (dB(A)) 54.5  
Lmax (dB(A)) 78.8  
L90 (dB(A)) 53.0  
Ldn (dB(A)) 59.9  
Standard (dB(A)) 70

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S.

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Pual daeng Pa/jong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report



TESTING  
No.0042

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462084-1

Page 1 of 1

Sample Number 2591423-5  
Parameter Noise (Leq 24 hrs.)  
Location N2 : ริมรั้วโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)  
Measurement Date Nov 19 - Nov 20, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.7	77.4	52.9
01:00 PM - 02:00 PM	54.1	78.8	52.4
02:00 PM - 03:00 PM	53.4	69.8	52.3
03:00 PM - 04:00 PM	53.7	67.1	52.4
04:00 PM - 05:00 PM	54.3	68.4	53.1
05:00 PM - 06:00 PM	56.5	75.5	53.1
06:00 PM - 07:00 PM	54.8	71.1	53.4
07:00 PM - 08:00 PM	55.3	76.4	53.4
08:00 PM - 09:00 PM	55.7	71.5	53.9
09:00 PM - 10:00 PM	55.4	65.1	54.3
10:00 PM - 11:00 PM	54.9	65.4	53.8
11:00 PM - 12:00 AM	54.1	64.1	53.4
12:00 AM - 01:00 AM	53.4	62.9	52.9
01:00 AM - 02:00 AM	52.8	61.6	52.5
02:00 AM - 03:00 AM	52.4	61.2	52.2
03:00 AM - 04:00 AM	52.1	60.6	51.9
04:00 AM - 05:00 AM	51.9	60.2	51.7
05:00 AM - 06:00 AM	52.7	63.4	52.2
06:00 AM - 07:00 AM	54.1	68.1	52.8
07:00 AM - 08:00 AM	55.5	75.4	53.4
08:00 AM - 09:00 AM	56.8	79.1	54.1
09:00 AM - 10:00 AM	56.4	77.7	53.8
10:00 AM - 11:00 AM	55.7	75.4	53.5
11:00 AM - 12:00 PM	55.1	73.0	53.2

Leq Average 24 hrs. (dB(A)) 54.6  
Lmax (dB(A)) 79.1  
L90 (dB(A)) 53.1  
Ldn (dB(A)) 60.0  
Standard (dB(A)) 70

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S.

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Pual daeng Pa/jong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING  
No.0042

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462085-1

Page 1 of 1

Sample Number 2591423-6  
Parameter Noise (Leq 24 hrs.)  
Location N2 : ริมรั้วโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)  
Measurement Date Nov 20 - Nov 21, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.8	77.7	53.0
01:00 PM - 02:00 PM	54.2	79.1	52.5
02:00 PM - 03:00 PM	53.5	70.1	52.4
03:00 PM - 04:00 PM	53.8	67.4	52.5
04:00 PM - 05:00 PM	54.4	68.7	53.2
05:00 PM - 06:00 PM	56.6	75.8	53.2
06:00 PM - 07:00 PM	54.9	71.4	53.5
07:00 PM - 08:00 PM	55.4	76.7	53.5
08:00 PM - 09:00 PM	55.8	71.8	54.0
09:00 PM - 10:00 PM	55.5	65.4	54.4
10:00 PM - 11:00 PM	55.0	65.7	53.9
11:00 PM - 12:00 AM	54.2	64.4	53.5
12:00 AM - 01:00 AM	53.5	63.1	53.0
01:00 AM - 02:00 AM	52.9	61.9	52.6
02:00 AM - 03:00 AM	52.5	61.5	52.3
03:00 AM - 04:00 AM	52.2	60.9	52.0
04:00 AM - 05:00 AM	52.0	60.5	51.8
05:00 AM - 06:00 AM	52.8	63.7	52.3
06:00 AM - 07:00 AM	54.2	68.4	52.9
07:00 AM - 08:00 AM	55.6	75.7	53.5
08:00 AM - 09:00 AM	56.9	79.4	54.2
09:00 AM - 10:00 AM	56.5	78.0	53.9
10:00 AM - 11:00 AM	55.8	75.7	53.6
11:00 AM - 12:00 PM	55.2	73.3	53.3

Leq Average 24 hrs. (dB(A)) 54.7  
Lmax (dB(A)) 79.4  
L90 (dB(A)) 53.2  
Ldn (dB(A)) 60.1  
Standard (dB(A)) 70 115

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

**Chontichak**  
Chonticha Subongkoch  
Scientist (3)

Approved by

**Supot S**  
Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :



TESTING  
No.0042

Lot ID: 2591423

Date Received : Nov 25, 2025

Date Reported : Dec 01, 2025

Report Number: 3462086-1

Page 1 of 1

Sample Number 2591423-7  
Parameter Noise (Leq 24 hrs.)  
Location N2 : ริมรั้วโครงการระยะที่ 1 ทางด้านทิศเหนือ (GPS 47P 0743825, 1415122)  
Measurement Date Nov 21 - Nov 22, 2025  
Measurement by Adisak Tarisoon  
Sound Level meter Serial No. 1122607

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	54.9	78.0	53.1
01:00 PM - 02:00 PM	54.3	79.4	52.6
02:00 PM - 03:00 PM	53.6	70.4	52.5
03:00 PM - 04:00 PM	53.9	67.7	52.6
04:00 PM - 05:00 PM	54.5	69.0	53.3
05:00 PM - 06:00 PM	56.7	76.1	53.3
06:00 PM - 07:00 PM	55.0	71.7	53.6
07:00 PM - 08:00 PM	55.5	77.0	53.6
08:00 PM - 09:00 PM	55.9	72.1	54.1
09:00 PM - 10:00 PM	55.6	65.7	54.5
10:00 PM - 11:00 PM	55.1	66.0	54.0
11:00 PM - 12:00 AM	54.3	64.7	53.6
12:00 AM - 01:00 AM	53.6	63.4	53.1
01:00 AM - 02:00 AM	53.0	62.2	52.7
02:00 AM - 03:00 AM	52.6	61.8	52.4
03:00 AM - 04:00 AM	52.3	61.2	52.1
04:00 AM - 05:00 AM	54.4	79.5	52.7
05:00 AM - 06:00 AM	53.7	70.5	52.5
06:00 AM - 07:00 AM	54.0	67.8	52.7
07:00 AM - 08:00 AM	54.6	69.1	53.4
08:00 AM - 09:00 AM	56.8	76.4	53.5
09:00 AM - 10:00 AM	55.1	72.0	53.8
10:00 AM - 11:00 AM	55.6	77.3	53.7
11:00 AM - 12:00 PM	56.0	72.4	54.3

Leq Average 24 hrs. (dB(A)) 54.8  
Lmax (dB(A)) 79.5  
L90 (dB(A)) 53.3  
Ldn (dB(A)) 60.4  
Standard (dB(A)) 70 115

Reference Method : ISO 1996-1 : 2016

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

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

Technical Management

**Chontichak**  
Chonticha Subongkoch  
Scientist (3)

Approved by

**Supot S**  
Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## ระดับเสียงในบริเวณทำงาน

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :

Lot ID: 2584805

Date Received : Sep 23, 2025

Date Reported : Sep 29, 2025

Report Number: 3416816-1

Page 1 of 1

Sample Number	2584805-1
Parameter	Noise (Leq 8 hrs.)
Location	Gas Turbine Generator
Measurement Date	Sep 22, 2025
Measurement by	Natthapon Jiengwareewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:10 AM - 11:10 AM	83.8	91.5	81.7
11:10 AM - 12:10 PM	83.6	90.9	81.9
12:10 PM - 01:10 PM	83.4	91.0	81.5
01:10 PM - 02:10 PM	83.4	91.5	81.6
02:10 PM - 03:10 PM	83.4	90.7	81.6
03:10 PM - 04:10 PM	83.5	91.4	81.8
04:10 PM - 05:10 PM	83.8	91.4	82.2
05:10 PM - 06:10 PM	83.6	90.4	82.0

Leq Average 8 hrs. (dB(A))

83.6

Lmax (dB(A))

91.5

Standard (dB(A))

90

140

Reference Method : ISO 1996-1 : 2016

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย  
ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๔๖

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.

55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120

P/O : 2025-1066

Project Name : EIA Monitoring

Project Location :

Lot ID: 2584805

Date Received : Sep 23, 2025

Date Reported : Sep 29, 2025

Report Number: 3416817-1

Page 1 of 1

Sample Number	2584805-2
Parameter	Noise (Leq 8 hrs.)
Location	Air Compressor
Measurement Date	Sep 22, 2025
Measurement by	Natthapon Jiengwareewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:08 AM - 11:08 AM	82.3	90.0	80.2
11:08 AM - 12:08 PM	81.8	89.1	80.1
12:08 PM - 01:08 PM	81.6	89.2	79.7
01:08 PM - 02:08 PM	81.6	89.7	79.8
02:08 PM - 03:08 PM	81.6	88.9	79.8
03:08 PM - 04:08 PM	81.7	89.6	80.0
04:08 PM - 05:08 PM	82.0	89.6	80.4
05:08 PM - 06:08 PM	81.8	88.6	80.2

Leq Average 8 hrs. (dB(A))

81.8

Lmax (dB(A))

90.0

Standard (dB(A))

90

140

Reference Method : ISO 1996-1 : 2016

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัย  
ในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๔๖

Technical Management

Chontichak

Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S

Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 2584805  
Date Received : Sep 23, 2025  
Date Reported : Sep 29, 2025  
Report Number: 3416818-1

Page 1 of 1

Sample Number	2584805-3
Parameter	Noise (Leq 8 hrs.)
Location	Steam Turbine Generator
Measurement Date	Sep 22, 2025
Measurement by	Natthapon Jengwareewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:13 AM - 11:13 AM	81.0	93.6	80.7
11:13 AM - 12:13 PM	81.0	83.0	80.8
12:13 PM - 01:13 PM	81.0	82.7	80.8
01:13 PM - 02:13 PM	81.3	93.9	81.0
02:13 PM - 03:13 PM	81.3	83.3	81.1
03:13 PM - 04:13 PM	81.3	83.0	81.1
04:13 PM - 05:13 PM	81.1	93.7	80.8
05:13 PM - 06:13 PM	81.1	83.1	80.9
Leq Average 8 hrs. (dB(A))	81.1		
Lmax (dB(A))		93.9	
Standard (dB(A))	90	140	
Reference Method : ISO 1996-1 : 2016			
Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัยในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๕๖			

Technical Management

*Chontichak*  
Chonticha Subongkoch  
Scientist (3)

Approved by

*Supot S*  
Supot Salamteh  
Section Head

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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25108639  
Date Received : Dec 04, 2025  
Date Reported : Dec 12, 2025  
Report Number: 3469722-1

Page 1 of 1

Sample Number	25108639-1
Parameter	Noise (Leq 8 hrs.)
Location	Gas Turbine Generator
Measurement Date	Dec 03, 2025
Measurement by	Apisit Singha

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:39 AM - 10:39 AM	84.0	86.5	83.6
10:39 AM - 11:39 AM	84.1	85.5	83.8
11:39 AM - 12:39 PM	83.9	85.0	83.5
12:39 PM - 01:39 PM	83.8	85.5	83.4
01:39 PM - 02:39 PM	83.5	84.5	83.1
02:39 PM - 03:39 PM	83.6	84.4	83.4
03:39 PM - 04:39 PM	83.5	84.4	83.3
04:39 PM - 05:39 PM	83.3	84.5	83.1
Leq Average 8 hrs. (dB(A))	83.7		
Lmax (dB(A))		86.5	
Standard (dB(A))	90	140	
Reference Method : ISO 1996-1 : 2016			
Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรฐานการคุ้มครองความปลอดภัยในการประกอบกิจการโรงงานเกี่ยวกับสภาวะแวดล้อมในการทำงาน พ.ศ.๒๕๕๖			

Technical Management

*Chontichak*  
Chonticha Subongkoch  
Scientist (3)

Approved by

*Supot S*  
Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25108639  
Date Received : Dec 04, 2025  
Date Reported : Dec 12, 2025  
Report Number: 3469723-1

Page 1 of 1

Sample Number 25108639-2  
Parameter Noise (Leq 8 hrs.)  
Location Air Compressor  
Measurement Date Dec 03, 2025  
Measurement by Apisit Singha

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:18 AM - 10:18 AM	81.8	94.5	79.7
10:18 AM - 11:18 AM	80.6	83.9	79.6
11:18 AM - 12:18 PM	80.5	83.8	79.6
12:18 PM - 01:18 PM	80.5	83.7	79.6
01:18 PM - 02:18 PM	80.6	83.8	79.7
02:18 PM - 03:18 PM	80.8	84.0	79.9
03:18 PM - 04:18 PM	80.9	83.9	80.1
04:18 PM - 05:18 PM	80.4	83.9	79.4

Leq Average 8 hrs. (dB(A))

80.8

Lmax (dB(A))

94.5

Standard (dB(A))

90

140

Reference Method : ISO 1996-1 : 2016

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรการคุ้มครองความปลอดภัย  
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Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S  
Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location :

Lot ID: 25108639  
Date Received : Dec 04, 2025  
Date Reported : Dec 12, 2025  
Report Number: 3469724-1

Page 1 of 1

Sample Number 25108639-3  
Parameter Noise (Leq 8 hrs.)  
Location Steam Turbine Generator  
Measurement Date Dec 03, 2025  
Measurement by Apisit Singha

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:30 AM - 10:30 AM	81.4	82.8	81.1
10:30 AM - 11:30 AM	81.2	82.6	80.9
11:30 AM - 12:30 PM	81.1	82.4	80.8
12:30 PM - 01:30 PM	81.0	82.3	80.7
01:30 PM - 02:30 PM	81.2	83.7	80.9
02:30 PM - 03:30 PM	81.2	82.5	80.9
03:30 PM - 04:30 PM	81.1	82.3	80.8
04:30 PM - 05:30 PM	81.1	82.5	80.8

Leq Average 8 hrs. (dB(A))

81.2

Lmax (dB(A))

83.7

Standard (dB(A))

90

140

Reference Method : ISO 1996-1 : 2016

Standard : ประกาศกระทรวงอุตสาหกรรม เรื่อง มาตรการคุ้มครองความปลอดภัย  
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Technical Management

Chontichak  
Chonticha Subongkoch  
Scientist (3)

Approved by

Supot S  
Supot Salamteh  
Section Head

ADDRESS 616/10 Moo 5 T. Maenam I hu A. Plual daeng Payong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Noise Contour Map

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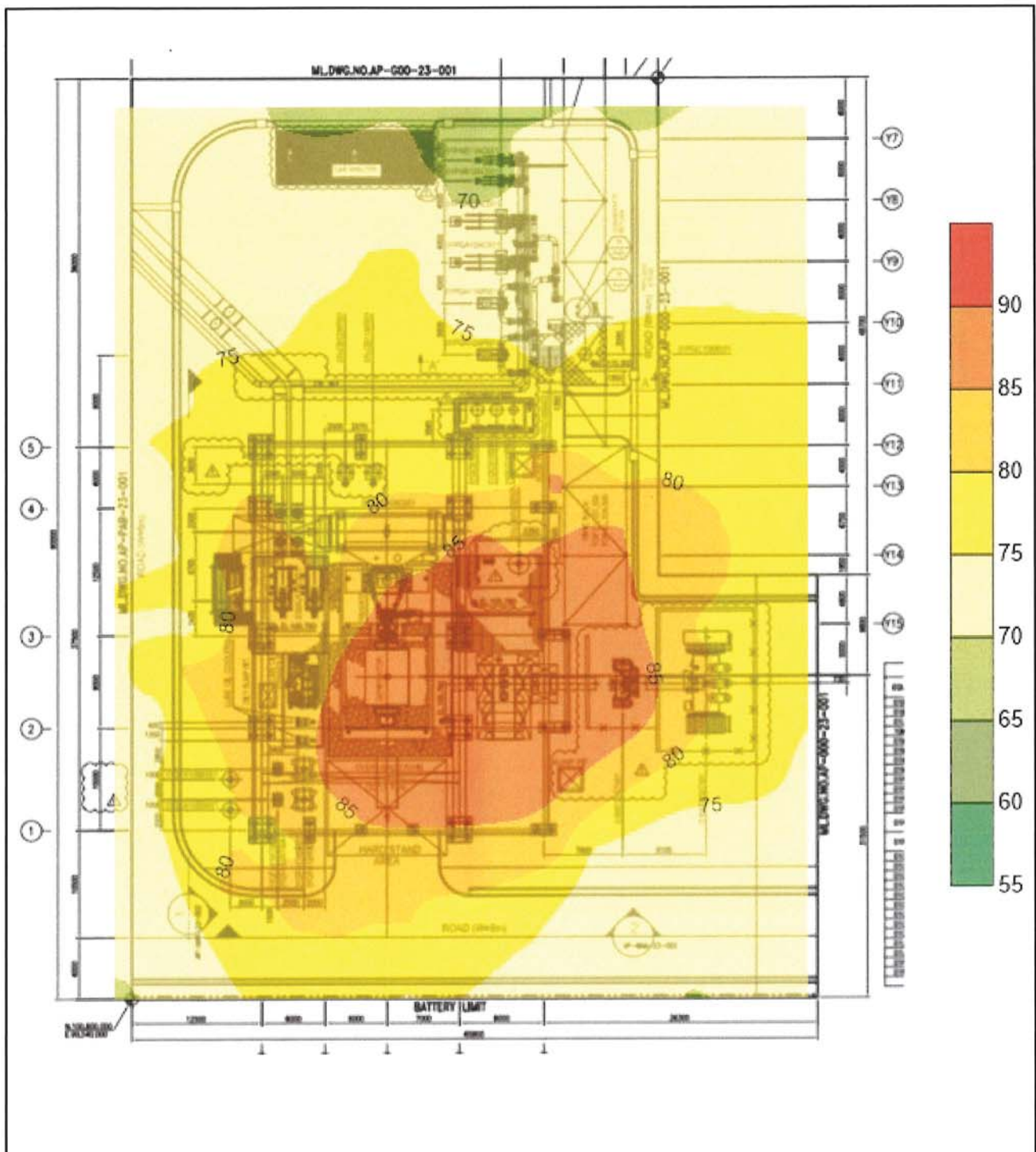


# Noise Contour Map

Reference Number : Lot 2533646-1

General Electric International Operations Company Inc. Measurement Date : Apr 29, 2025

(Steam Turbine Area ชั้น 1)



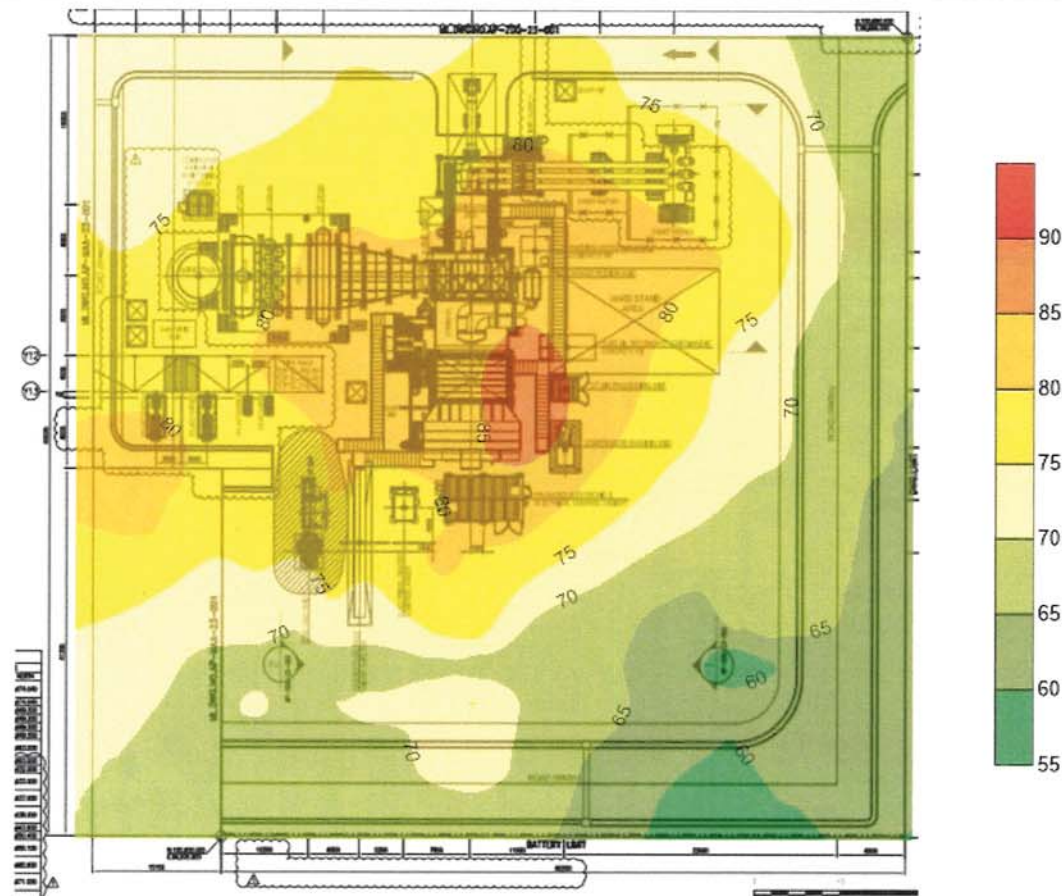


# Noise Contour Map

General Electric International Operations Company Inc.  
(Gas Turbine Area and HRSG Area)

Reference Number : Lot 2533647-1

Measurement Date : Apr 29, 2025



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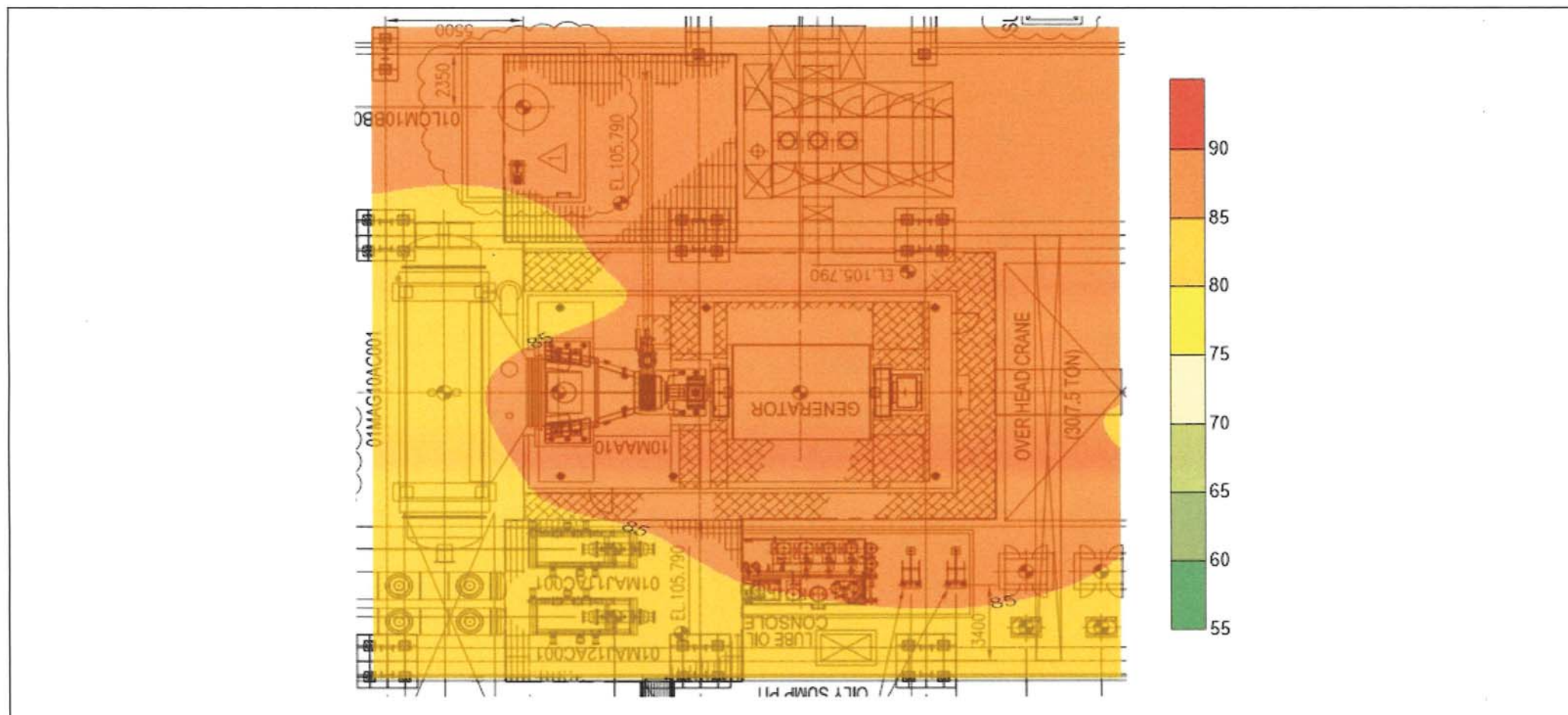
# Noise Contour Map

General Electric International Operations Company Inc.

(Stream Turbine Area ชั้น 2)

Reference Number : Lot 2533648-1

Measurement Date : Apr 29, 2025



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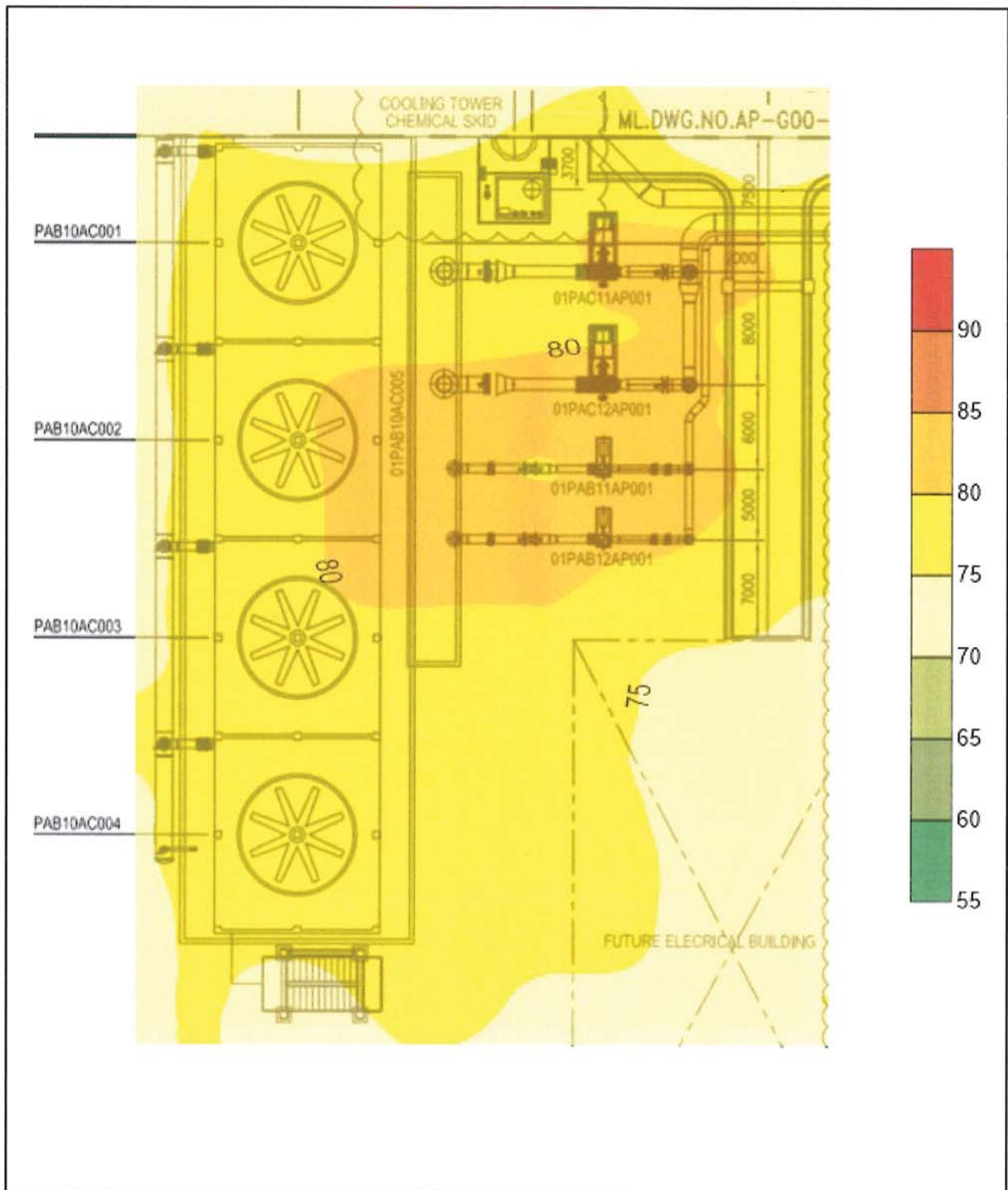


# Noise Contour Map

Reference Number : Lot 2533649-1

General Electric International Operations Company Inc. Measurement Date : Apr 29, 2025

(Cooling Tower Area)







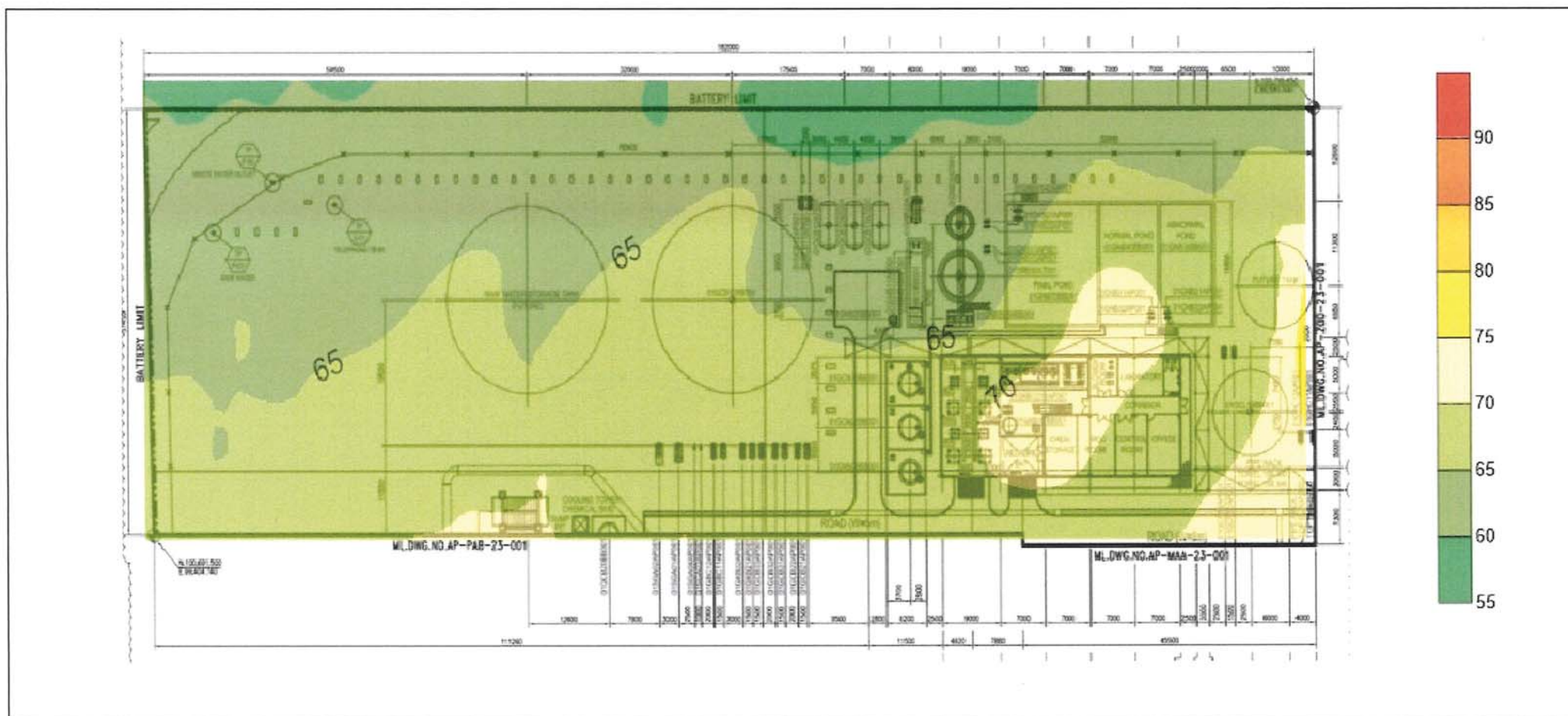
# Noise Contour Map

Reference Number : Lot 2533650-1

Measurement Date : Apr 29, 2025

General Electric International Operations Company Inc.

(Water Treatment Plant)



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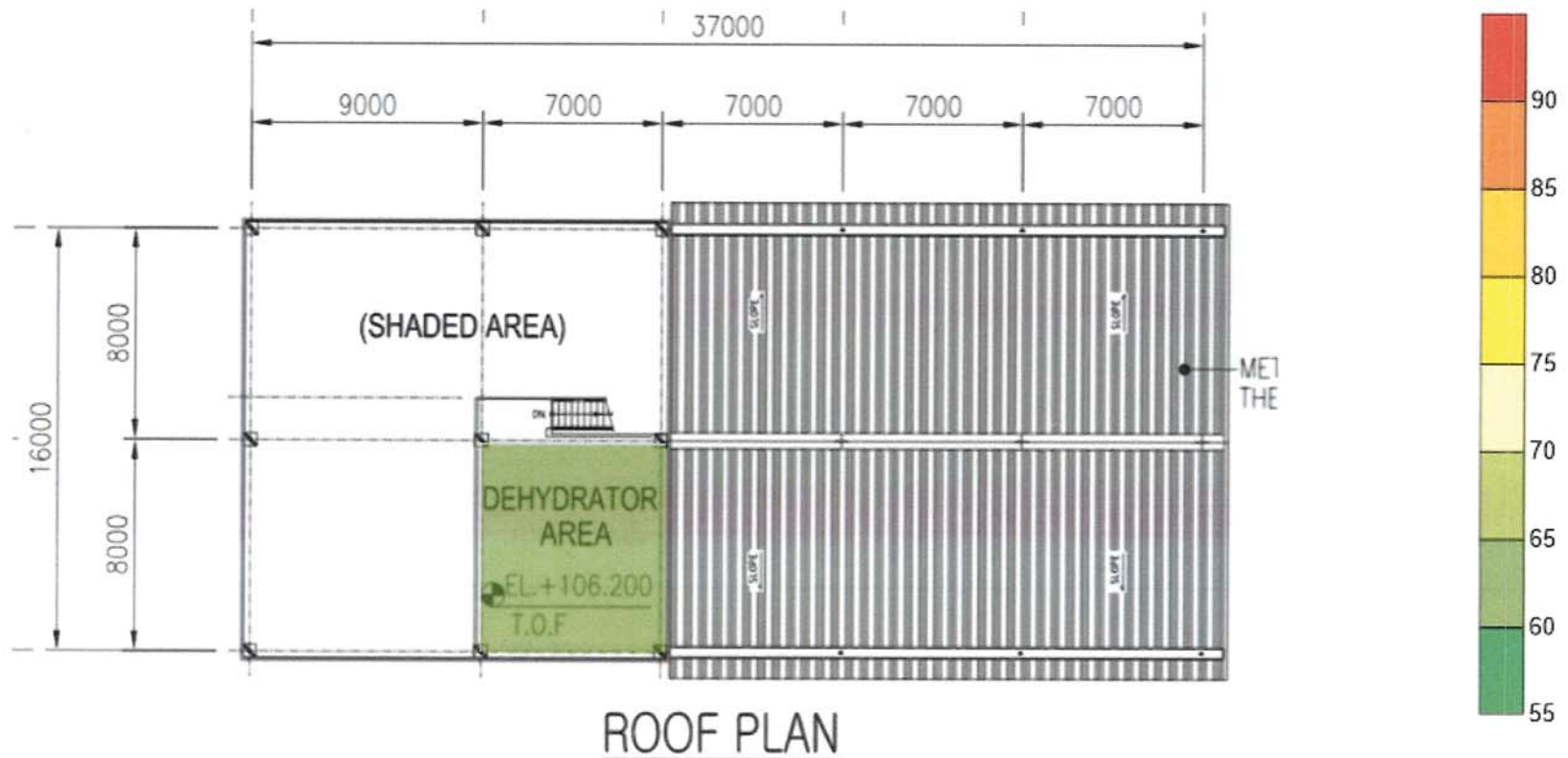
# Noise Contour Map

General Electric International Operations Company Inc.

(Water Treatment Plant 2<sup>nd</sup> Floor)

Reference Number : Lot 2533651-1

Measurement Date : Apr 29, 2025



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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O :  
Project Name : EIA Monitoring  
Project Location:

Lot ID: 2596205  
Date Received : Nov 10, 2025  
Date Reported : Nov 20, 2025  
Report Number : 3428710-1 C1

Page 1 of 1

Sample Number	2596205-1
Sampled Date	Nov 10, 2025 12:00 PM
Sample Description	Groundwater
Location	GW1 : บริเวณริมถนนของสวนอุตสาหกรรมฯ ทางทิศตะวันตกเฉียงเหนือของโครงการ
Date Analysis Commenced	Nov 10, 2025
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	809	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Rayong
pH at 25 degree C	-	-	-	5.8	6.5-9.2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	496	≤1200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	314	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong
Water Level	m	-	-	5.23	No Standard	Water Level Meter	Rayong

Guideline : Groundwater Quality Standards for Drinking Purposes set by Notification of Ministry of Natural Resources and Environment B.E. 2551, Maximum allowable., (1) Suitable Allowance  
Sampled By : Wanlop Hunchainaow

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

Approved by

Photchana S  
Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluaekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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## Analysis / Test Report

Client : General Electric International Operations Company Inc.  
55/1 Moo 5, Tambon Nonglaloak, Amphoe Bankhai, Rayong Thailand 21120  
P/O : 2025-1066  
Project Name : EIA Monitoring  
Project Location:

Lot ID: 25100333  
Date Received : Nov 10, 2025  
Date Reported : Nov 14, 2025  
Report Number : 3438460-1

Page 1 of 1

Sample Number	25100333-1
Sampled Date	Nov 10, 2025 10:30 AM
Sample Description	Groundwater
Location	GW2 : บริเวณโครงการระยะที่ 1 ทางทิศใต้
Date Analysis Commenced	Nov 10, 2025
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	208	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Rayong
pH at 25 degree C	-	-	-	4.2	6.5-9.2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	130	≤1200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	58	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Rayong
Water Level	m	-	-	3.30	No Standard	Water Level Meter	Rayong

Guideline : Groundwater Quality Standards for Drinking Purposes set by Notification of Ministry of Natural Resources and Environment B.E. 2551, Maximum allowable., (1) Suitable Allowance  
Sampling By : Sansoen Khuiyoksui

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

Approved by

Photchana S  
Photchana Seeda  
Scientist (4)

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluaekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
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Sample Name	Parameter	Equipment Name	ID No.	Calibrated Date	Next Cal	Freq. Calibrate (Months)
Stack (CEMs)	Carbon Monoxide	Analyzer , System calibration, Stand	-	-	-	-
Stack (CEMs)	Oxides of Nitrogen	Analyzer , System calibration, Stand	-	-	-	-
Stack (CEMs)	Sulfur Dioxide	Analyzer , System calibration, Stand	-	-	-	-
Stack (CEMs)	Oxygen	Analyzer , System calibration, Stand	-	-	-	-
Stack	Total Suspended Particulate	Console Control Unit	BKK_FS0518	10-Jul-25	10-Jan-26	6
Stack	Total Suspended Particulate	Pitot Tube	BKK_FS0551	24-May-25	23-Nov-25	6
Stack	Total Suspended Particulate	Digital Balance	RYG_EN0003	20-Feb-25	20-Feb-26	12
Stack	PM 2.5	Console Control Unit	BKK_FS0518	10-Jul-25	10-Jan-26	6
Stack	PM 2.5	Pitot Tube	BKK_FS0551	24-May-25	23-Nov-25	6
Stack	PM 2.5	Digital Balance	RYG_EN0004	20-Feb-25	20-Feb-26	12
Stack	Flow Rate	Console Control Unit	BKK_FS0518	10-Jul-25	10-Jan-26	6
Stack	Flow Rate	Fuel Gas Analyzer	RYG_FS0564	25-Apr-25	24-Apr-26	12
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	RYG_FS0264	2-Jul-25	2-Jan-26	6
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	BKK_FS1086	3-Jul-25	3-Jan-26	6
Ambient	Nitrogen Dioxide	NO <sub>2</sub> Analyzer	BKK_FS1088	3-Jul-25	3-Jan-26	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	RYG_FS0263	2-Jul-25	2-Jan-26	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	BKK_FS1085	2-Jul-25	2-Jan-26	6
Ambient	Sulfur Dioxide	SO <sub>2</sub> Analyzer	BKK_FS1087	2-Jul-25	2-Jan-26	6
Ambient	Particulate Matter (PM-10)	High Volume	RYG_FS0398	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	RYG_FS0185	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	High Volume	RYG_FS0183	-	-	On site Calibration
Ambient	Particulate Matter (PM-10)	Digital Balance	RYG_EN0001	20-Feb-25	20-Feb-26	12
Ambient	Total Suspended Particulate	High Volume	RYG_FS0664	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	BKK_FS0364	-	-	On site Calibration
Ambient	Total Suspended Particulate	High Volume	RYG_FS0182	-	-	On site Calibration
Ambient	Total Suspended Particulate	Digital Balance	RYG_EN0001	20-Feb-25	20-Feb-26	12
Ambient	Particulate Matter (PM 2.5)	PM 2.5 Air SAMPLER	RYG_FS0729	-	-	On site Calibration
Ambient	Particulate Matter (PM 2.5)	PM 2.5 Air SAMPLER	RYG_FS0723	-	-	On site Calibration
Ambient	Particulate Matter (PM 2.5)	PM 2.5 Air SAMPLER	RYG_FS0194	-	-	On site Calibration
Ambient	Particulate Matter (PM 2.5)	Digital Balance	RYG_EN0001	20-Feb-25	20-Feb-26	12
Ambient	Wind Speed / Wind Direction	Wind Speed / Wind Direction	RYG_FS0647	15-Jan-25	14-Jul-26	18
Ambient	Wind Speed / Wind Direction	Wind Speed / Wind Direction	RYG_FS0648	16-Jan-25	15-Jul-26	18
Ambient	Wind Speed / Wind Direction	Wind Speed / Wind Direction	RYG_FS0611	26-Jun-24	26-Dec-25	18
Noise	Leq 24 hrs	Sound Calibrator	RYG_FS0215	8-Oct-25	7-Oct-26	12
Noise	Leq 24 hrs	Sound Level Meter	RYG_FS0019	21-Jan-25	21-Jan-26	12
Noise	Leq 24 hrs	Sound Level Meter	RYG_FS0018	21-Jan-25	21-Jan-26	12
Noise	Leq 8 hrs	Sound Calibrator	RYG_FS0213	16-Jan-25	16-Jan-26	12
Noise	Leq 8 hrs	Sound Level Meter	RYG_FS0491	27-Jan-25	26-Jan-26	12
Noise	Leq 8 hrs	Sound Level Meter	RYG_FS0492	27-Jan-25	26-Jan-26	12
Noise	Leq 8 hrs	Sound Level Meter	RYG_FS0493	27-Jan-25	26-Jan-26	12
Noise	Leq 8 hrs	Sound Calibrator	RYG_FS0496	19-Mar-25	19-Mar-26	12
Noise	Leq 8 hrs	Sound Level Meter	NKH_FS0129	14-Jul-25	14-Jul-26	12
Noise	Leq 8 hrs	Sound Level Meter	NKH_FS0131	14-Jul-25	14-Jul-26	12
Noise	Leq 8 hrs	Sound Level Meter	NKH_FS0133	14-Jul-25	14-Jul-26	12
Rayong Lab	pH at 25 °C	pH Meter	RYG_EN0183	18-Jul-25	18-Jan-27	18
Rayong Lab	BOD	DO meter with Sensor	RYG_EN0032	20-Jan-25	20-Jul-26	18
Rayong Lab	BOD	Incubator	RYG_EN0154	1-Nov-24	1-May-26	18
Rayong Lab	COD	Spectrophotometer	RYG_EN0037	18-Mar-25	18-Sep-26	18
Rayong Lab	Temperature	pH meter	RYG_FS0596	25-Jun-25	25-Jun-26	12
Rayong Lab	Total Suspended Solids	Electronic Balance	RYG_EN0163	20-Feb-25	20-Feb-26	12
Rayong Lab	Total Suspended Solids	Chamber (Oven)	RYG_EN0012	10-Sep-25	10-Mar-27	18
Rayong Lab	Total Dissolved Solids 180°C	Electronic Balance	RYG_EN0163	20-Feb-25	20-Feb-26	12
Rayong Lab	Total Dissolved Solids 180°C	Chamber (Oven)	RYG_EN0012	10-Sep-25	10-Mar-27	18
Rayong Lab	Oil & Grease	Electronic Balance	RYG_EN0003	20-Feb-25	20-Feb-26	12
Rayong Lab	Oil & Grease	Liquid Bath (Water)	RYG_EN0220	27-Nov-25	27-Nov-26	12
Rayong Lab	Nitrate	Spectrophotometer	RYG_EN0037	18-Mar-25	18-Sep-26	18
Rayong Lab	Dissolved Oxygen	Chamber (Cooling Room)	RYG_EN0184	27-Nov-25	27-May-27	18
Rayong Lab	Conductivity	Conductivity meter	RYG_EN0200	21-Mar-25	21-Mar-26	12



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Sample Name	Parameter	Equipment Name	ID No.	Calibrated Date	Next Cal	Freq. Calibrate (Months)
Rayong Lab	Total Kjeldahl Nitrogen	Block Digestion Unit	RYG_EN0188	10-Sep-25	10-Mar-27	18
Rayong Lab	Total Kjeldahl Nitrogen	pH Meter	RYG_EN0183	18-Jul-25	18-Jan-27	18
Water Lab	Chloroform	Gas Chromatography (MSD)	BKK_EN0059	25-Jun-25	25-Dec-26	18
Water Lab	Bromoform	Gas Chromatography (MSD)	BKK_EN0059	25-Jun-25	25-Dec-26	18
Water Lab	Dibromochloromethane	Gas Chromatography (MSD)	BKK_EN0059	25-Jun-25	25-Dec-26	18
Water Lab	Total Trihalomethanes	Gas Chromatography (MSD)	BKK_EN0059	25-Jun-25	25-Dec-26	18
Water Lab	Bromodichloromethane	Gas Chromatography (MSD)	BKK_EN0059	25-Jun-25	25-Dec-26	18
Water Lab	Total Trihalomethanes	Gas Chromatography (MSD)	BKK_EN0059	25-Jun-25	25-Dec-26	18
Water Lab	Calcium	ICP-OES	BKK_EL0037	23-Sep-24	23-Mar-26	18
Water Lab	Calcium	Hot Block	BKK_EL0054	4-Mar-25	4-Sep-26	18
Water Lab	Calcium	Chamber (Cooling Room)	BKK_EN0167	4-Jun-25	4-Dec-26	18
Water Lab	Magnesium	ICP-OES	BKK_EL0037	23-Sep-24	23-Mar-26	18
Water Lab	Magnesium	Hot Block	BKK_EL0054	4-Mar-25	4-Sep-26	18
Water Lab	Magnesium	Chamber (Cooling Room)	BKK_EN0167	4-Jun-25	4-Dec-26	18
Water Lab	SAR	ICP-OES	BKK_EL0037	23-Sep-24	23-Mar-26	18
Water Lab	SAR	Hot Block	BKK_EL0054	4-Mar-25	4-Sep-26	18
Water Lab	SAR	Chamber (Cooling Room)	BKK_EN0167	4-Jun-25	4-Dec-26	18
Water Lab	Iron	ICP-MS	BKK_EL0043	4-Oct-24	3-Apr-26	18
Water Lab	Iron	Hot Block	BKK_EL0054	4-Mar-25	4-Sep-26	18
Water Lab	Iron	Chamber (Cooling Room)	BKK_EN0167	4-Jun-25	4-Dec-26	18
Water Lab	Copper	ICP-MS	BKK_EL0043	4-Oct-24	3-Apr-26	18
Water Lab	Copper	Hot Block	BKK_EL0054	4-Mar-25	4-Sep-26	18
Water Lab	Copper	Chamber (Cooling Room)	BKK_EN0167	4-Jun-25	4-Dec-26	18
Water Lab	Zinc	ICP-MS	BKK_EL0043	4-Oct-24	3-Apr-26	18
Water Lab	Zinc	Hot Block	BKK_EL0054	4-Mar-25	4-Sep-26	18
Water Lab	Zinc	Chamber (Cooling Room)	BKK_EN0167	4-Jun-25	4-Dec-26	18





Lot No. 2591415-1

## ANALYZER CALIBRATION DATA

Client : General Electric International OCL  
Date : 15 Nov 25  
Location : HRSQ #1  
Test Operator : Khunakon M.O<sub>2</sub> ANALYZER  
Model : TELEDYNE API N200H  
Span (%) : 25  
Serial No. : 101

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.05	0.03
Low-Level Gas	8.19	8.20	8.17	0.12
Span Gas	16.07	16.09	16.05	0.18

NO<sub>x</sub> ANALYZER  
Model : TELEDYNE API N200H  
Span (ppm) : 100  
Serial No. : 101

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.91	55.89	55.85	0.04
Span Gas	82.51	82.48	82.48	0.02

SO<sub>2</sub> ANALYZER  
Model : TELEDYNE API N100H  
Span (ppm) : 100  
Serial No. : 68

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	58.28	58.19	58.15	0.04
Span Gas	79.76	79.74	79.71	0.03

CO ANALYZER  
Model : TELEDYNE API N300M  
Span (ppm) : 100  
Serial No. : 80

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.25	55.18	55.16	0.02
Span Gas	79.74	79.72	79.69	0.03

Calibrated by

( Mr. Khunakon Manchuan )  
Environmental Field Scientist (1)FORM NO. : F 06-062 REVISION NO. : 4 ISSUE DATE : 18/01/24  
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Lot No. 2591415-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : General Electric International OCL  
Date : 15 Nov 25  
Location : HRSQ #1  
Test Operator : Khunakon M.O<sub>2</sub> ANALYZER  
Cylinder Conc. (%) : 16.07  
Span (%) : 25

	O <sub>2</sub> Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.03	0.05	0.08	0.08	0.08	0.08	0.20	0.12
Upscale Gas	16.09	16.06	0.12	16.02	0.08	0.28	0.18	

NO<sub>x</sub> ANALYZER  
Cylinder Conc. (ppm) : 82.51  
Span (ppm) : 100

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.04	0.04	0.08	0.08	0.08	0.04	0.04
Upscale Gas	82.48	82.42	0.06	82.36	0.12	0.08		

SO<sub>2</sub> ANALYZER  
Cylinder Conc. (ppm) : 79.76  
Span (ppm) : 100

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01
Upscale Gas	79.74	79.54	0.20	79.46	0.28	0.08		

CO ANALYZER  
Cylinder Conc. (ppm) : 79.74  
Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.03	0.03	0.03	0.02	0.02
Upscale Gas	79.72	79.60	0.12	79.48	0.24	0.12		

Calibrated by

( Mr. Khunakon Manchuan )  
Environmental Field Scientist (1)FORM NO. : F 06-063 REVISION NO. : 4 ISSUE DATE : 18/01/24  
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## EMISSION TEST RESULT

Client : General Electric International OCL  
Date : 15 Nov 25  
Start Time : 14:00  
Run # : 1  
Location : HRSQ #1  
Test Operator : Khunakon M.  
Finish Time : 14:20  
SO<sub>x</sub> Analyzer Model : TELEDYNE API N100H  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API N200H  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API N300M  
Serial No. : 101  
Serial No. : 80

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>x</sub> (ppm)	CO (ppm)	Remark
14.00	14.66	3.61	8.25	0.18	5.99	
14.01	14.66	3.61	8.85	0.18	6.00	
14.02	14.66	3.61	8.90	0.17	6.06	
14.03	14.66	3.62	8.87	0.16	6.15	
14.04	14.66	3.62	8.84	0.17	6.18	
14.05	14.67	3.62	8.84	0.18	6.15	
14.06	14.67	3.62	8.80	0.18	6.25	
14.07	14.66	3.62	8.78	0.18	6.25	
14.08	14.66	3.62	8.77	0.17	6.25	
14.09	14.67	3.62	8.75	0.19	6.26	
14.10	14.66	3.61	8.75	0.18	6.30	
14.11	14.66	3.61	8.78	0.19	6.29	
14.12	14.67	3.61	8.77	0.17	6.30	
14.13	14.66	3.61	8.76	0.18	6.28	
14.14	14.67	3.61	8.73	0.19	6.28	
14.15	14.66	3.62	8.71	0.17	6.28	
14.16	14.66	3.62	8.71	0.19	6.22	
14.17	14.66	3.62	8.71	0.18	6.24	
14.18	14.66	3.61	8.63	0.17	6.29	
14.19	14.66	3.61	8.61	0.17	6.33	
14.20	14.66	3.62	8.66	0.17	6.33	
Average	14.66	3.62	8.76	0.18	6.22	

( Mr. Khunakon Manchuan )

Environmental Field Scientist (1)

FORM NO. : F 06-060 REVISION NO. : 1 ISSUE DATE : 18/01/24  
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## EMISSION TEST RESULT

Client : General Electric International OCL  
Date : 15 Nov 25  
Start Time : 14:21  
Run # : 2  
Location : HRSQ #1  
Test Operator : Khunakon M.  
Finish Time : 14:41  
SO<sub>x</sub> Analyzer Model : TELEDYNE API N100H  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API N200H  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API N300M  
Serial No. : 101  
Serial No. : 80

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>x</sub> (ppm)	CO (ppm)	Remark
14.21	14.66	3.63	8.72	0.17	6.39	
14.22	14.66	3.62	8.80	0.18	6.39	
14.23	14.66	3.62	8.78	0.18	6.39	
14.24	14.64	3.62	8.76	0.17	6.28	
14.25	14.66	3.62	8.73	0.17	6.27	
14.26	14.66	3.62	8.73	0.18	6.30	
14.27	14.66	3.62	8.79	0.18	6.31	
14.28	14.65	3.62	8.79	0.19	6.30	
14.29	14.65	3.61	8.74	0.18	6.36	
14.30	14.65	3.62	8.78	0.18	6.35	
14.31	14.66	3.62	8.79	0.18	6.30	
14.32	14.65	3.62	8.77	0.18	6.27	
14.33	14.66	3.61	8.69	0.17	6.26	
14.34	14.66	3.61	8.70	0.17	6.29	
14.35	14.66	3.61	8.71	0.19	6.30	
14.36	14.65	3.62	8.74	0.19	6.34	
14.37	14.65	3.62	8.75	0.18	6.38	
14.38	14.66	3.62	8.70	0.18	6.43	
14.39	14.66	3.61	8.67	0.17	6.40	
14.40	14.65	3.61	8.62	0.17	6.44	
14.41	14.66	3.61	8.65	0.17	6.42	
Average	14.66	3.62	8.73	0.18	6.34	

( Mr. Khunakon Manchuan )

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FORM NO. : F 06-060 REVISION NO. : 1 ISSUE DATE : 18/01/24  
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## EMISSION TEST RESULT

Client	General Electric International OCL	Run #	3
Date	15 Nov 25	Location	HRSG #1
Start Time	14:42	Test Operator	Khunakon M.
SO <sub>2</sub> Analyzer Model	TELEDYNE API N150H	Finish Time	15:02
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API N200H	Serial No.	101
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API N300M	Serial No.	89

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
14:42	14.65	3.62	8.68	0.19	6.45	
14:43	14.65	3.62	8.74	0.18	6.39	
14:44	14.66	3.62	8.71	0.17	6.37	
14:45	14.65	3.62	8.68	0.18	6.39	
14:46	14.65	3.62	8.70	0.18	6.39	
14:47	14.64	3.62	8.74	0.19	6.34	
14:48	14.66	3.63	8.71	0.21	6.39	
14:49	14.65	3.62	8.65	0.19	6.43	
14:50	14.66	3.62	8.65	0.19	6.40	
14:51	14.65	3.61	8.71	0.19	6.28	
14:52	14.67	3.61	8.67	0.19	6.26	
14:53	14.66	3.61	8.71	0.17	6.24	
14:54	14.66	3.62	8.75	0.18	6.24	
14:55	14.65	3.62	8.80	0.19	6.22	
14:56	14.66	3.61	8.77	0.19	6.30	
14:57	14.66	3.62	8.80	0.19	6.29	
14:58	14.66	3.61	8.76	0.16	6.24	
14:59	14.66	3.62	8.71	0.16	6.26	
15:00	14.67	3.62	8.71	0.17	6.29	
15:01	14.67	3.62	8.68	0.18	6.32	
15:02	14.66	3.61	8.73	0.18	6.37	
Average	14.66	3.62	8.72	0.18	6.33	

(Mr. Khunakon Manchuan)  
Environmental Field Scientist (1)

FORM NO: F-06-005 REVISION NO: 1 ISSUE DATE: 18/01/24

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## ANALYZER CALIBRATION DATA

Client	General Electric International OCL	Location	HRSG #1
Date	15 Nov 25	Test Operator	Khunakon M.
O <sub>2</sub> ANALYZER Model	TELEDYNE API N200H	Serial No.	101
Span (%)	25		

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.05	0.08
Low-Level Gas	8.19	8.20	8.17	0.12
Span Gas	16.07	16.09	16.05	0.16

NO <sub>x</sub> ANALYZER Model	TELEDYNE API N200H	Serial No.	101
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.91	55.85	55.85	0.04
Span Gas	82.51	82.48	82.48	0.02

SO <sub>2</sub> ANALYZER Model	TELEDYNE API N100H	Serial No.	88
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.23	56.19	56.15	0.04
Span Gas	79.76	79.74	79.71	0.03

CO ANALYZER Model	TELEDYNE API N300M	Serial No.	80
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.20	55.18	55.16	0.02
Span Gas	79.74	79.72	79.69	0.03

Calibrated by

(Mr. Khunakon Manchuan)  
Environmental Field Scientist (1)

FORM NO: F-06-002 REVISION NO: 4 ISSUE DATE: 18/01/24

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## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client	General Electric International OCL	Location	HRSG #1
Date	15 Nov 25	Test Operator	Khunakon M.

O <sub>2</sub> ANALYZER Cylinder Conc. (%)	16.07	Span (%)	25
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	O <sub>2</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.03	0.05	0.08	0.05	0.20	0.12
Upscale Gas	16.09	16.06	0.12	16.02	0.28	0.16

NO <sub>x</sub> ANALYZER Cylinder Conc. (ppm)	82.51	Span (ppm)	100
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	NO <sub>x</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.04	0.04	0.08	0.08	0.04
Upscale Gas	82.48	82.42	0.05	82.35	0.12	0.06

SO <sub>2</sub> ANALYZER Cylinder Conc. (ppm)	79.76	Span (ppm)	100
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	SO <sub>2</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.02	0.02	0.01
Upscale Gas	79.74	79.54	0.20	79.46	0.28	0.08

CO ANALYZER Cylinder Conc. (ppm)	79.74	Span (ppm)	100
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	CO Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.03	0.03	0.03
Upscale Gas	79.72	79.60	0.12	79.48	0.24	0.12

Calibrated by

(Mr. Khunakon Manchuan)  
Environmental Field Scientist (1)

FORM NO: F-06-003 REVISION NO: 4 ISSUE DATE: 18/01/24

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## CEMS Data

Client Name	General Electric International OCL	Date	15 Nov 25
Plant Name	HRSG #1	Location	HRSG #1

Run No. 1	Time Base: 21 min	Run No. 2	Time Base: 21 min
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Day	Time	SO <sub>2</sub>	NO <sub>x</sub>	CO	O <sub>2</sub>	CO <sub>2</sub>	Day	Time	SO <sub>2</sub>	NO <sub>x</sub>	CO	O <sub>2</sub>	CO <sub>2</sub>
15-Nov-25	11:00	842	835	924	14.98	14.98	15-Nov-25	11:01	843	835	924	14.98	14.98
15-Nov-25	11:01	839	835	924	14.98	14.97	15-Nov-25	11:02	844	835	924	14.98	14.97
15-Nov-25	11:02	839	835	924	14.98	14.97	15-Nov-25	11:03	848	835	913	14.92	14.97
15-Nov-25	11:03	839	835	924	14.98	14.97	15-Nov-25	11:04	848	835	924	14.98	14.97
15-Nov-25	11:04	839	835	924	14.98	14.97	15-Nov-25	11:05	848	835	924	14.98	14.97
15-Nov-25	11:05	839	835	924	14.98	14.97	15-Nov-25	11:06	848	835	924	14.98	14.97
15-Nov-25	11:06	839	835	924	14.98	14.97	15-Nov-25	11:07	848	835	924	14.98	14.97
15-Nov-25	11:07	839	835	924	14.98	14.97	15-Nov-25	11:08	848	835	924	14.98	14.97
15-Nov-25	11:08	839	835	924	14.98	14.97	15-Nov-25	11:09	848	835	924	14.98	14.97
15-Nov-25	11:09	839	835	924	14.98	14.97	15-Nov-25	11:10	848	835	924	14.98	14.97
15-Nov-25	11:10	839	835	924	14.98	14.97	15-Nov-25	11:11	848	835	924	14.98	14.97
15-Nov-25	11:11	839	835	924	14.98	14.97	15-Nov-25	11:12	848	835	924	14.98	14.97
15-Nov-25	11:12	839	835	924	14.98	14.97	15-Nov-25	11:13	848	835	924	14.98	14.97
15-Nov-25	11:13	839	835	924	14.98	14.97	15-Nov-25	11:14	848	835	924	14.98	14.97
15-Nov-25	11:14	839	835	924	14.98	14.97	15-Nov-25	11:15	848	835	924	14.98	14.97
15-Nov-25	11:15	839	835	924	14.98	14.97	15-Nov-25	11:16	848	835	924	14.98	14.97
15-Nov-25	11:16	839	835	924	14.98	14.97	15-Nov-25	11:17	848	835	924	14.98	14.97
15-Nov-25	11:17	839	835	924	14.98	14.97	15-Nov-25	11:18	848	835	924	14.98	14.97
15-Nov-25	11:18	839	835	924	14.98	14.97	15-Nov-25	11:19	848	835	924	14.98	14.97
15-Nov-25	11:19	839	835	924	14.98	14.97	15-Nov-25	11:20	848	835	924	14.98	14.97
15-Nov-25	11:20	839	835	924	14.98	14.97	15-Nov-25	11:21	848	835	924	14.98	14.97
15-Nov-25	11:21	839	835	924	14.98	14.97	15-Nov-25	11:22	848	835	924	14.98	14.97
15-Nov-25	11:22	839	835	924	14.98	14.97	15-Nov-25	11:23	848	835	924	14.98	14.97
15-Nov-25	11:23	839	835	924	14.98	14.97	15-Nov-25	11:24	848	835	924	14.98	14.97
15-Nov-25	11:24	839	835	924	14.98	14.97	15-Nov-25	11:25	848	835	924	14.98	14.97
15-Nov-25	11:25	839	835	924	14.98	14.97	15-Nov-25	11:26	848	835	924	14.98	14.97
15-Nov-25	11:26	839	835	924	14.98	14.97	15-Nov-25	11:27	848	835	924	14.98	14.97
15-Nov-25	11:27	839	835	924	14.98	14.97	15-Nov-25	11:28	848	835	924	14.98	14.97
15-Nov-25	11:28	839	835	924	14.98	14.97	15-Nov-25	11:29	848	835	924	14.98	14.97
15-Nov-25	11:29	839	835	924	14.98	14.97	15-Nov-25	11:30	848	835	924	14.98	14.97
15-Nov-25	11:30	839	835	924	14.98	14.97	15-Nov-25	11:31	848	835	924	14.98	14.97
15-Nov-25	11:31	839	835	924	14.98	14.97	15-Nov-25	11:32	848	835	924	14.98	14.97
15-Nov-25	11:32	839	835	924	14.98	14.97	15-Nov-25	11:33	848	835	924	14.98	14.97
15-Nov-25	11:33	839	835	924	14.98	14.97	15-Nov-25	11:34	848	835	924	14.98	14.97
15-Nov-25	11:34	839	835	924	14.98	14.97	15-Nov-25	11:35	848	835	924	14.98	14.97
15-Nov-25	11:35	839	835	924	14.98	14.97	15-Nov-25	11:36	848	835	924	14.98	14.97
15-Nov-25	11:36	839	835	924	14.98	14.97	15-Nov-25	11:37	848	835	924	14.98	14.97
15-Nov-25	11:37	839	835	924	14.98	14.97	15-Nov-25	11:38	848	835	924	14.98	14.97
15-Nov-25	11:38	839	835	924	14.98	14.97	15-Nov-25	11:39	848	835	924	14.98	14.97
15-Nov-25	11:39	839	835	924	14.98	14.97	15-Nov-25	11:40	848	835	924	14.98	14.97
15-Nov-25	11:40	839	835	924	14.98	14.97	15-Nov-25	11:41	848	835	924	14.98	14.97
15-Nov-25	11:41	839	835	924	14.98	14.97	15-Nov-25	11:42	848	835	924	14.98	14.97
15-Nov-25	11:42	839	835	924	14.98	14.97	15-Nov-25	11:43	848	835	924	14.98	14.97
15-Nov-25	11:43	839	835	924	14.98	14.97	15-Nov-25	11:44	848	835	924	14.98	14.97
15-Nov-25	11:44	839	835	924	14.98	14.97	15-Nov-25	11:45	848	835	924	14.98	14.97
15-Nov-25	11:45	839	835	924	14.98	14.97	15-Nov-25	11:46	848	835	924	14.98	14.97
15-Nov-25	11:46	839	835	924	14.98	14.97	15-Nov-25	11:47	848	835	924	14.98	14.97
15-Nov-25	11:47	839	835	924	14.98	14.97	15-Nov-25	11:48	848	835	924	14.98	14.97
15-Nov-25	11:48	839	835	924	14.98	14.97	15-Nov-25	11:49	848	835	924	14.98	14.97
15-Nov-25	11:49	839	835	924	14.98	14.97	15-Nov-25	11:50	848	835	924	14.98	14.97
15-Nov-25	11:50	839	835	924	14.98	14.97	15-Nov-25	11:51	848	835	924	14.98	14.97
15-Nov-25	11:51	839	835	924	14.98	14.97	15-Nov-25	11:52	848	835	924	14.98	14.97
15-Nov-25	11:52	839	835	924	14.98	14.97	15-Nov-25	11:53	848	835	924	14.98	14.97
15-Nov-25	11:53	839	835	924	14.98	14.97	15-Nov-25	11:54	848	835	924	14.98	14.97
15-Nov-25	11:54	839	835	924	14.98	14.97	15-Nov-25	11:55	848	835	924	14.98	14.97
15-Nov-25	11:55	839	835	924	14.98	14.97	15-Nov-25	11:56	848	835	924	14.98	14.97
15-Nov-25	11:56	839	835	924	14.98	14.97	15-Nov-25	11:57	848	835	924	14.98	14.97
15-Nov-25	11:57	839	835	924	14.98	14.97	15-Nov-25	11:58	848	835	924	14.98	14.97
15-Nov-25	11:58	839	835	924	14.98	14.97	15-Nov-25	11:59	848	835	924	14.98	14.97
15-Nov-25	11:59	839	835	924	14.98	14.97	15-Nov-25	12:00	848	835	924	14.98	14.97
15-Nov-25	12:00	839	835	924	14.98	14.97	15-Nov-25	12:01	848	835	924	14.98	14.97
15-Nov-25	12:01	839	835	924	14.98	14.97	15-Nov-25	12:02	848	835	924	14.98	14.97
15-Nov-25	12:02	839	835	924	14.98	14.97	15-Nov-25	12:03	848	835	924	14.98	14.97
15-Nov-25	12:03	839	835	924	14.98	14.97	15-Nov-25	12:04	848	835	924	14.98	14.97
15-Nov-25	12:04	839	835	924	14.98	14.97	15-Nov-25	12:05	848	835	924	14.98	14.97
15-Nov-25	12:05	839	835	924	14.98	14.97	15-Nov-25	12:06	848	835	924	14.98	14.97
15-Nov-25	12:06	839	835	924	14.98	14.97	15-Nov-25	12:07	848	835	924	14.98	14.97
15-Nov-25	12:07	839	835	924	14.98	14.97	15-Nov-25	12:08	848	835	924	14.98	14.97
15-Nov-25	12:08	839	835	924	14.98	14.97	15-Nov-25	12:09	848	835	924	14.98	14.97
15-Nov-25	12:09	839	835	924	14.98	14.97	15-Nov-25	12:10	848	835	924	14.98	14.97
15-Nov-25	12:10	839	835	924	14.98	14.97	15-Nov-25	12:11	848	835	924	14.98	14.97
15-Nov-25	12:11	839	835	924	14.98	14.97	15-Nov-25	12:12	848	835	924	14.98	14.97
15-Nov-25	12:12	839	835	924	14.98	14.97	15-Nov-25	12:13	848	835	924	14.98	14.97
15-Nov-25	12:13	839	835	924	14.98	14.97	15-Nov-25	12:14	848	835	924	14.98	14.97
15-Nov-25	12:14	839	835	924	14.98	14.97	15-Nov-25	12:15	848	835	924	14.98	14.97
15-Nov-25	12:15	839	835	924	14.98	14.97	15-Nov-25	12:16	848	835	924	14.98	14.97
15-Nov-25	12:16	839	835	924	14.98	14.97	15-Nov-25	12:17	848	835	924	14.98	14.97
15-Nov-25	12:17	839	835	924	14.98	14.97	15-Nov-25	12:18	848	835	924	14.98	14.97
15-Nov-25	12:18	839	835	924	14.98	14.97	15-Nov-25	12:19	848	835	924	14.98	14.97
15-Nov-25	12:19	839	835	924	14.98	14.97	15-Nov-25	12:20	848	835	924	14.98	14.97
15-Nov-25	12:20	839	835	924	14.98	14.97	15-Nov-25	12:21	848	835	924	14.98	14.97
15-Nov-25	12:21	839	835	924	14.98	14.97	15-Nov-25	12:22	848	835	924	14.98	14.97
15-Nov-25	12:22	839	835	924	14.98	14.97	15-Nov-25	12:23	848	835	924	14.98	14.97
15-Nov-25	12:23	839	835	924	14.98	14.97	15-Nov-25	12:24	848	835	924	14.98	14.97
15-Nov-25	12:24	839	835	924	14.98	14.97	15-Nov-25	12:25	848	835	924	14.98	14.97
15-Nov-25	12:25	839	835	924	14.98	14.97	15-Nov-25	12:26	848	835	924	14.98	14.97
15-Nov-25	12:26	839	835	924	14.98	14.97	15-Nov-25	12:27	848	835	924	14.98	14.97
15-Nov-25	12:27	839	835	924	14.98	14.97	15-Nov-25	12:28	848	835	924	14.98	14.97
15-Nov-25	12:28	839	835	924	14.98	14.97	15-Nov-25	12:29	848	835	924	14.98	14.97
15-Nov-25	12:29	839	835	924	14.98	14.97	15-Nov-25	12:30	848	835	924	14.98	14.97
15-Nov-25	12:30	839	835	924	14.98	14.97	15-Nov-25	12:31	848	835	924	14.98	14.97
15-Nov-25	12:31	839	835	924	14.98								





Run No. 11							Time Base: 21 min							Run No. 12							Time Base: 21 min						
Date	Time	SSD	MSd	CO	SD	CO	Date	Time	SSD	MSd	CO	SD	CO	Date	Time	SSD	MSd	CO	SD	CO	Date	Time	SSD	MSd	CO	SD	CO
18 Nov 25	19:00	241	779	9.65	1488	245	18 Nov 25	19:21	271	158	8.38	1482	241	18 Nov 25	19:22	241	158	8.38	1482	241	18 Nov 25	19:23	241	158	8.38	1482	241
18 Nov 25	19:01	243	839	9.64	1488	245	18 Nov 25	19:24	241	158	8.38	1482	241	18 Nov 25	19:24	241	158	8.38	1482	241	18 Nov 25	19:25	241	158	8.38	1482	241
18 Nov 25	19:02	254	879	9.67	1489	249	18 Nov 25	19:25	241	158	8.38	1482	241	18 Nov 25	19:25	241	158	8.38	1482	241	18 Nov 25	19:26	241	158	8.38	1482	241
18 Nov 25	19:03	244	739	9.64	1488	247	18 Nov 25	19:26	241	158	8.38	1482	241	18 Nov 25	19:26	241	158	8.38	1482	241	18 Nov 25	19:27	241	158	8.38	1482	241
18 Nov 25	19:04	244	739	9.64	1488	247	18 Nov 25	19:27	241	158	8.38	1482	241	18 Nov 25	19:27	241	158	8.38	1482	241	18 Nov 25	19:28	241	158	8.38	1482	241
18 Nov 25	19:05	250	747	9.68	1482	247	18 Nov 25	19:28	241	158	8.38	1482	241	18 Nov 25	19:28	241	158	8.38	1482	241	18 Nov 25	19:29	241	158	8.38	1482	241
18 Nov 25	19:06	250	747	9.68	1482	247	18 Nov 25	19:29	241	158	8.38	1482	241	18 Nov 25	19:29	241	158	8.38	1482	241	18 Nov 25	19:30	241	158	8.38	1482	241
18 Nov 25	19:07	251	747	9.68	1482	247	18 Nov 25	19:30	241	158	8.38	1482	241	18 Nov 25	19:30	241	158	8.38	1482	241	18 Nov 25	19:31	241	158	8.38	1482	241
18 Nov 25	19:08	251	747	9.68	1482	247	18 Nov 25	19:31	241	158	8.38	1482	241	18 Nov 25	19:31	241	158	8.38	1482	241	18 Nov 25	19:32	241	158	8.38	1482	241
18 Nov 25	19:09	251	747	9.68	1482	247	18 Nov 25	19:32	241	158	8.38	1482	241	18 Nov 25	19:32	241	158	8.38	1482	241	18 Nov 25	19:33	241	158	8.38	1482	241
18 Nov 25	19:10	254	839	9.64	1488	249	18 Nov 25	19:33	241	158	8.38	1482	241	18 Nov 25	19:33	241	158	8.38	1482	241	18 Nov 25	19:34	241	158	8.38	1482	241
18 Nov 25	19:11	250	739	9.64	1488	249	18 Nov 25	19:34	241	158	8.38	1482	241	18 Nov 25	19:34	241	158	8.38	1482	241	18 Nov 25	19:35	241	158	8.38	1482	241
18 Nov 25	19:12	250	739	9.64	1488	249	18 Nov 25	19:35	241	158	8.38	1482	241	18 Nov 25	19:35	241	158	8.38	1482	241	18 Nov 25	19:36	241	158	8.38	1482	241
18 Nov 25	19:13	254	839	9.64	1488	249																					

Personal OOI \_\_\_\_\_ Date \_\_\_\_\_

Run Step		Time Base: 21 min						Run Step						Time Base: 21 min						
Date	Time	SOC	NOx	CO	CO2	PM2.5	Date	Time	SOC	NOx	CO	CO2	PM2.5	Date	Time	SOC	NOx	CO	CO2	PM2.5
18-Nov-15	0:04	0.14	0.07	0.07	14.7	0.47	18-Nov-15	0:12	0.12	0.07	0.07	14.7	0.47	18-Nov-15	0:20	0.12	0.07	0.07	14.7	0.47
18-Nov-15	0:16	0.18	0.08	0.08	14.8	0.47	18-Nov-15	0:16	0.18	0.08	0.08	14.8	0.47	18-Nov-15	0:24	0.20	0.09	0.09	14.9	0.48
18-Nov-15	0:20	0.16	0.16	0.16	14.9	0.47	18-Nov-15	0:17	0.14	0.08	0.08	14.7	0.47	18-Nov-15	0:28	0.20	0.09	0.09	14.9	0.48
18-Nov-15	0:24	0.17	0.17	0.17	14.9	0.47	18-Nov-15	0:18	0.18	0.08	0.08	14.8	0.47	18-Nov-15	0:32	0.24	0.10	0.10	15.0	0.49
18-Nov-15	0:28	0.13	0.09	0.09	14.7	0.47	18-Nov-15	0:19	0.14	0.08	0.08	14.8	0.47	18-Nov-15	0:36	0.26	0.10	0.10	15.0	0.49
18-Nov-15	0:29	0.11	0.09	0.09	14.7	0.47	18-Nov-15	0:20	0.16	0.09	0.09	14.9	0.47	18-Nov-15	0:40	0.26	0.10	0.10	15.0	0.49
18-Nov-15	0:33	0.13	0.10	0.10	14.8	0.47	18-Nov-15	0:21	0.16	0.09	0.09	14.9	0.47	18-Nov-15	0:44	0.26	0.10	0.10	15.0	0.49
18-Nov-15	0:37	0.18	0.10	0.10	14.8	0.47	18-Nov-15	0:22	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:48	0.26	0.10	0.10	15.0	0.49
18-Nov-15	0:40	0.16	0.07	0.07	14.8	0.47	18-Nov-15	0:23	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:52	0.24	0.07	0.07	14.8	0.47
18-Nov-15	0:44	0.16	0.07	0.07	14.8	0.47	18-Nov-15	0:24	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:56	0.24	0.07	0.07	14.8	0.47
18-Nov-15	0:48	0.16	0.08	0.08	14.8	0.47	18-Nov-15	0:25	0.18	0.09	0.09	14.9	0.47	18-Nov-15	1:00	0.24	0.07	0.07	14.8	0.47
18-Nov-15	0:52	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:26	0.18	0.09	0.09	14.9	0.47	18-Nov-15	1:04	0.24	0.07	0.07	14.8	0.47
18-Nov-15	0:56	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:27	0.18	0.09	0.09	14.9	0.47	18-Nov-15	1:08	0.24	0.07	0.07	14.8	0.47
18-Nov-15	1:00	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:28	0.18	0.09	0.09	14.9	0.47	18-Nov-15	1:12	0.24	0.07	0.07	14.8	0.47
18-Nov-15	1:04	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:29	0.18	0.09	0.09	14.9	0.47	18-Nov-15	1:16	0.24	0.07	0.07	14.8	0.47
18-Nov-15	1:08	0.18	0.09	0.09	14.9	0.47	18-Nov-15	0:30	0.18	0.09	0.09	14.9	0.47	18-Nov-15	1:20	0.24	0.07	0.07	14.8	0.47
18-Nov-15	1:12	0.17	0.07	0.07	14.7	0.47	18-Nov-15	0:31	0.14	0.07	0.07	14.7	0.47	18-Nov-15	1:24	0.24	0.07	0.07	14.8	0.47
18-Nov-15	1:16	0.17	0.07	0.07	14.7</															



1504 DING

Date: 11								Date: 12							
Run	Time	SS	Nb	CS	Q2	Q3	Q4	Run	Time	SS	Nb	CS	Q2	Q3	Q4
18 Nov 23	15:00	0.37	0.71	0.83	0.47	0.52		18 Nov 23	15:01	0.73	0.78	0.72	0.48	0.65	0.63
18 Nov 23	15:01	0.71	0.88	0.82	0.46	0.51		18 Nov 23	15:02	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:02	0.71	0.88	0.82	0.46	0.51		18 Nov 23	15:03	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:03	0.71	0.87	0.83	0.46	0.51		18 Nov 23	15:04	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:04	0.71	0.88	0.83	0.47	0.51		18 Nov 23	15:05	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:05	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:06	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:06	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:07	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:07	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:08	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:08	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:09	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:10	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:11	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:12	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:13	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:14	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:15	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:16	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:17	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:18	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:19	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:20	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:21	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:22	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:23	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:24	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:25	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:26	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:27	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:28	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:29	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:30	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:31	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:32	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:33	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:34	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:35	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:36	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:37	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:38	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:39	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:40	0.71	0.88	0.83	0.46	0.51		18 Nov 23	15:41	0.71	0.78	0.73	0.45	0.60	0.60
18 Nov 23	15:42	0.71	0.88												



Client Name		Geo-Environ International OGI				Location		Sheet #1							
Run No. 1				Run No. 2				Run No. 3				Run No. 4			
Date	Time	Fluence m <sup>2</sup> /hr	Temperature °C	Date	Time	Fluence m <sup>2</sup> /hr	Temperature °C	Date	Time	Fluence m <sup>2</sup> /hr	Temperature °C	Date	Time	Fluence m <sup>2</sup> /hr	Temperature °C
18-Sep-18	13:00	2,257.833	138.4	18-Sep-18	13:01	2,267.007	138.1	18-Sep-18	13:02	2,268.228	138.1	18-Sep-18	13:03	2,269.388	138.1
18-Sep-18	13:05	2,269.818	138.4	18-Sep-18	13:06	2,270.887	138.1	18-Sep-18	13:07	2,272.007	138.1	18-Sep-18	13:08	2,273.127	138.1
18-Sep-18	13:10	2,271.814	138.4	18-Sep-18	13:11	2,280.907	138.1	18-Sep-18	13:12	2,281.794	138.1	18-Sep-18	13:13	2,282.914	138.1
18-Sep-18	13:15	2,284.438	138.4	18-Sep-18	13:16	2,291.477	138.1	18-Sep-18	13:17	2,292.606	138.1	18-Sep-18	13:18	2,293.726	138.1
18-Sep-18	13:20	2,296.434	138.4	18-Sep-18	13:21	2,303.477	138.1	18-Sep-18	13:22	2,304.606	138.1	18-Sep-18	13:23	2,305.726	138.1
18-Sep-18	13:25	2,298.437	138.2	18-Sep-18	13:26	2,308.508	138.1	18-Sep-18	13:27	2,309.637	138.1	18-Sep-18	13:28	2,310.757	138.1
18-Sep-18	13:30	2,298.436	138.2	18-Sep-18	13:31	2,303.508	138.1	18-Sep-18	13:32	2,304.637	138.1	18-Sep-18	13:33	2,305.757	138.1
18-Sep-18	13:35	2,298.436	138.2	18-Sep-18	13:36	2,303.508	138.1	18-Sep-18	13:37	2,304.637	138.1	18-Sep-18	13:38	2,305.757	138.1
18-Sep-18	13:40	2,298.436	138.2	18-Sep-18	13:41	2,303.508	138.1	18-Sep-18	13:42	2,304.637	138.1	18-Sep-18	13:43	2,305.757	138.1
18-Sep-18	13:45	2,298.436	138.2	18-Sep-18	13:46	2,303.508	138.1	18-Sep-18	13:47	2,304.637	138.1	18-Sep-18	13:48	2,305.757	138.1
18-Sep-18	13:50	2,298.436	138.2	18-Sep-18	13:51	2,303.508	138.1	18-Sep-18	13:52	2,304.637	138.1	18-Sep-18	13:53	2,305.757	138.1
18-Sep-18	13:55	2,298.436	138.2	18-Sep-18	13:56	2,303.508	138.1	18-Sep-18	13:57	2,304.637	138.1	18-Sep-18	13:58	2,305.757	138.1
18-Sep-18	14:00	2,298.436	138.2	18-Sep-18	14:01	2,303.508	138.1	18-Sep-18	14:02	2,304.637	138.1	18-Sep-18	14:03	2,305.757	138.1
18-Sep-18	14:05	2,298.436	138.2	18-Sep-18	14:06	2,303.508	138.1	18-Sep-18	14:07	2,304.637	138.1	18-Sep-18	14:08	2,305.757	138.1
18-Sep-18	14:10	2,298.436	138.2	18-Sep-18	14:11	2,303.508	138.1	18-Sep-18	14:12	2,304.637	138.1	18-Sep-18	14:13	2,305.757	138.1
18-Sep-18	14:15	2,298.436	138.2	18-Sep-18	14:16	2,303.508	138.1	18-Sep-18	14:17	2,304.637	138.1	18-Sep-18	14:18	2,305.757	138.1
18-Sep-18	14:20	2,298.436	138.2	18-Sep-18	14:21	2,303.508	138.1	18-Sep-18	14:22	2,304.637	138.1	18-Sep-18	14:23	2,305.757	138.1
18-Sep-18	14:25	2,298.436	138.2	18-Sep-18	14:26	2,303.508	138.1	18-Sep-18	14:27	2,304.637	138.1	18-Sep-18	14:28	2,305.757	138.1
18-Sep-18	14:30	2,298.436	138.2	18-Sep-18	14:31	2,303.508	138.1	18-Sep-18	14:32						



#### CEMs Data

Client Name General Electric International OCI  
Plant Name

Location HRSG #1

Run No. 5				Run No. 6				Run No. 7				Run No. 8			
Date	Time	Fluents m/s	Temperature °C	Date	Time	Fluents m/s	Temperature °C	Date	Time	Fluents m/s	Temperature °C	Date	Time	Fluents m/s	Temperature °C
15-Nov-10	12:26	1.274-0.08	17.3	15-Nov-10	13:16	1.218-0.56	17.3	15-Nov-10	13:38	1.216-0.22	18.0	15-Nov-10	13:17	1.241-0.51	18.4
15-Nov-10	12:28	1.232-0.09	17.3	15-Nov-10	13:18	1.222-0.77	17.3	15-Nov-10	13:37	1.237-0.56	18.3	15-Nov-10	13:17	1.235-0.08	18.3
15-Nov-10	12:30	1.232-0.07	17.3	15-Nov-10	13:20	1.222-0.56	17.3	15-Nov-10	13:39	1.237-0.56	18.3	15-Nov-10	13:18	1.235-0.08	18.3
15-Nov-10	12:32	1.232-0.07	17.3	15-Nov-10	13:22	1.218-0.56	17.3	15-Nov-10	13:40	1.233-0.60	18.3	15-Nov-10	13:19	1.235-0.08	18.3
15-Nov-10	12:34	1.232-0.07	17.3	15-Nov-10	13:24	1.218-0.56	17.3	15-Nov-10	13:42	1.233-0.60	18.3	15-Nov-10	13:20	1.235-0.08	18.3
15-Nov-10	12:36	1.232-0.07	17.3	15-Nov-10	13:26	1.218-0.56	17.3	15-Nov-10	13:44	1.233-0.60	18.3	15-Nov-10	13:21	1.237-0.08	18.3
15-Nov-10	12:38	1.232-0.07	17.3	15-Nov-10	13:28	1.218-0.56	17.3	15-Nov-10	13:46	1.233-0.60	18.3	15-Nov-10	13:22	1.237-0.08	18.3
15-Nov-10	12:40	1.232-0.07	17.3	15-Nov-10	13:30	1.218-0.56	17.3	15-Nov-10	13:48	1.233-0.60	18.3	15-Nov-10	13:23	1.237-0.08	18.3
15-Nov-10	12:42	1.232-0.07	17.3	15-Nov-10	13:32	1.218-0.56	17.3	15-Nov-10	13:50	1.233-0.60	18.3	15-Nov-10	13:24	1.237-0.08	18.3
15-Nov-10	12:44	1.232-0.07	17.3	15-Nov-10	13:34	1.218-0.56	17.3	15-Nov-10	13:52	1.233-0.60	18.3	15-Nov-10	13:25	1.237-0.08	18.3
15-Nov-10	12:46	1.232-0.07	17.3	15-Nov-10	13:36	1.218-0.56	17.3	15-Nov-10	13:54	1.233-0.60	18.3	15-Nov-10	13:26	1.237-0.08	18.3
15-Nov-10	12:48	1.232-0.07	17.3	15-Nov-10	13:38	1.218-0.56	17.3	15-Nov-10	13:56	1.233-0.60	18.3	15-Nov-10	13:27	1.237-0.08	18.3
15-Nov-10	12:50	1.232-0.07	17.3	15-Nov-10	13:40	1.218-0.56	17.3	15-Nov-10	13:58	1.233-0.60	18.3	15-Nov-10	13:28	1.237-0.08	18.3
15-Nov-10	12:52	1.232-0.07	17.3	15-Nov-10	13:42	1.218-0.56	17.3	15-Nov-10	14:00	1.233-0.60	18.3	15-Nov-10	13:29	1.237-0.08	18.3
15-Nov-10	12:54	1.232-0.07	17.3	15-Nov-10	13:44	1.218-0.56	17.3	15-Nov-10	14:02	1.233-0.60	18.3	15-Nov-10	13:30	1.237-0.08	18.3
15-Nov-10	12:56	1.232-0.07	17.3	15-Nov-10	13:46	1.218-0.56	17.3	15-Nov-10	14:04	1.233-0.60	18.3	15-Nov-10	13:31	1.237-0.08	18.3
15-Nov-10	12:58	1.232-0.07	17.3	15-Nov-10	13:48	1.218-0.56	17.3	15-Nov-10	14:06	1.233-0.60	18.3	15-Nov-10	13:32	1.237-0.08	18.3
15-Nov-10	13:00	1.232-0.07	17.3	15-Nov-10	13:50	1.218-0.56	17.3	15-Nov-10	14:08	1.233-0.60	18.3	15-Nov-10	13:33	1.237-0.08	18.3
15-Nov-10	13:02	1.232-0.07	17.3	15-Nov-10	13:52	1.218-0.56	17.3	15-Nov-10	14:10	1.233-0.60	18.3	15-Nov-10	13:34	1.237-0.08	18.3
15-Nov-10	13:04	1.232-0.07	17.3	15-Nov-10	13:54	1.218-0.56	17.3	15-Nov-10	14:12	1.233-0.60	18.3	15-Nov-10	13:35	1.237-0.08	18.3
15-Nov-10	13:06	1.232-0.07	17.3	15-Nov-10	13:56	1.218-0.56	17.3	15-Nov-10	14:14	1.233-0.60	18.3	15-Nov-10	13:36	1.237-0.08	18.3
15-Nov-10	13:08	1.232-0.07	17.3	15-Nov-10	13:58	1.218-0.56	17.3	15-Nov-10	14:16	1.233-0.60	18.3	15-Nov-10	13:37	1.237-0.08	18.3
15-Nov-10	13:10	1.232-0.07	17.3	15-Nov-10	14:00	1.218-0.56	17.3	15-Nov-10	14:18	1.233-0.60	18.3	15-Nov-10	13:38	1.237-0.08	18.3
15-Nov-10	13:12	1.232-0.07	17.3	15-Nov-10	14:02	1.218-0.56	17.3	15-Nov-10	14:20	1.233-0.60	18.3	15-Nov-10	13:39	1.237-0.08	18.3
15-Nov-10	13:14	1.232-0.07	17.3	15-Nov-10	14:04	1.218-0.56	17.3	15-Nov-10	14:22	1.233-0.60	18.3	15-Nov-10	13:40	1.237-0.08	18.3
15-Nov-10	13:16	1.232-0.07	17.3	15-Nov-10	14:06	1.218-0.56	17.3	15-Nov-10	14:24	1.233-0.60	18.3	15-Nov-10	13:41	1.237-0.08	18.3
15-Nov-10	13:18	1.232-0.07	17.3	15-Nov-10	14:08	1.218-0.56	17.3	15-Nov-10	14:26	1.233-0.60	18.3	15-Nov-10	13:42	1.237-0.08	18.3
15-Nov-10	13:20	1.232-0.07	17.3	15-Nov-10	14:10	1.218-0.56	17.3	15-Nov-10	14:28	1.233-0.60	18.3	15-Nov-10	13:43	1.237-0.08	18.3
15-Nov-10	13:22	1.232-0.07	17.3	15-Nov-10	14:12	1.218-0.56	17.3	15-Nov-10	14:30	1.233-0.60	18.3	15-Nov-10	13:44	1.237-0.08	18.3
15-Nov-10	13:24	1.232-0.07	17.3	15-Nov-10	14:14	1.218-0.56	17.3	15-Nov-10	14:32	1.233-0.60	18.3	15-Nov-10	13:45	1.237-0.08	18.3
15-Nov-10	13:26	1.232-0.07	17.3	15-Nov-10	14:16	1.218-0.56	17.3	15-Nov-10	14:34	1.233-0.60	18.3	15-Nov-10	13:46	1.237-0.08	18.3
15-Nov-10	13:28	1.232-0.07	17.3	15-Nov-10	14:18	1.218-0.56	17.3	15-Nov-10	14:36	1.233-0.60	18.3	15-Nov-10	13:47	1.237-0.08	18.3
15-Nov-10	13:30	1.232-0.07	17.3	15-Nov-10	14:20	1.218-0.56	17.3	15-Nov-10	14:38	1.233-0.60	18.3	15-Nov-10	13:48	1.237-0.08	18.3
15-Nov-10	13:32	1.232-0.07	17.3	15-Nov-10	14:22	1.218-0.56	17.3	15-Nov-10	14:40	1.233-0.60	18.3	15-Nov-10	13:49	1.237-0.08	18.3
15-Nov-10	13:34	1.232-0.07	17.3	15-Nov-10	14:24	1.218-0.56	17.3	15-Nov-10	14:42	1.233-0.60	18.3	15-Nov-10	13:50	1.237-0.08	18.3
15-Nov-10	13:36	1.232-0.07	17.3	15-Nov-10	14:26	1.218-0.56	17.3	15-Nov-10	14:44	1.233-0.60	18.3	15-Nov-10	13:51	1.237-0.08	18.3
15-Nov-10	13:38	1.232-0.07	17.3	15-Nov-10	14:28	1.218-0.56	17.3	15-Nov-10	14:46	1.233-0.60	18.3	15-Nov-10	13:52	1.237-0.08	18.3
15-Nov-10	13:40	1.232-0.07	17.3	15-Nov-10	14:30	1.218-0.56	17.3	15-Nov-10	14:48	1.233-0.60	18.3	15-Nov-10	13:53	1.237-0.08	18.3
15-Nov-10	13:42	1.232-0.07	17.3	15-Nov-10	14:32	1.218-0.56	17.3	15-Nov-10	14:50	1.233-0.60	18.3	15-Nov-10	13:54	1.237-0.08	18.3
15-Nov-10	13:44	1.232-0.07	17.3	15-Nov-10	14:34	1.218-0.56	17.3	15-Nov-10	14:52	1.233-0.60	18.3	15-Nov-10	13:55	1.237-0.08	18.3
15-Nov-10	13:46	1.232-0.07	17.3	15-Nov-10	14:36	1.218-0.56	17.3	15-Nov-10	14:54	1.233-0.60	18.3	15-Nov-10	13:56	1.237-0.08	18.3
15-Nov-10	13:48	1.232-0.07	17.3	15-Nov-10	14:38	1.218-0.56	17.3	15-Nov-10	14:56	1.233-0.60	18.3	15-Nov-10	13:57	1.237-0.08	18.3
15-Nov-10	13:50	1.232-0.07	17.3	15-Nov-10	14:40	1.218-0.56	17.3	15-Nov-10	14:58	1.233-0.60	18.3	15-Nov-10	13:58	1.237-0.08	18.3
15-Nov-10	13:52	1.232-0.07	17.3	15-Nov-10	14:42	1.218-0.56	17.3	15-Nov-10	15:00	1.233-0.60	18.3	15-Nov-10	13:59	1.237-0.08	18.3
15-Nov-10	13:54	1.232-0.07	17.3	15-Nov-10	14:44	1.218-0.56	17.3	15-Nov-10	15:02	1.233-0.60	18.3	15-Nov-10	14:00	1.237-0.08	18.3
15-Nov-10	13:56	1.232-0.07	17.3	15-Nov-10	14:46	1.218-0.56	17.3	15-Nov-10	15:04	1.233-0.60	18.3	15-Nov-10	14:01	1.237-0.08	18.3
15-Nov-10	13:58	1.232-0.07	17.3	15-Nov-10	14:48	1.218-0.56	17.3	15-Nov-10	15:06	1.233-0.60	18.3	15-Nov-10	14:02	1.237-0.08	18.3
15-Nov-10	14:00	1.232-0.07	17.3	15-Nov-10	14:50	1.218-0.56	17.3	15-Nov-10	15:08	1.233-0.60	18.3	15-Nov-10	14:03	1.237-0.08	18.3
15-Nov-10	14:02	1.232-0.07	17.3	15-Nov-10	14:52	1.218-0.56	17.3	15-Nov-10	15:10	1.233-0.60	18.3	15-Nov-10	14:04	1.237-0.08	18.3
15-Nov-10	14:04	1.232-0.07	17.3	15-Nov-10	14:54	1.218-0.56	17.3	15-Nov-10	15:12	1.233-0.60	18.3	15-Nov-10	14:05	1.237-0.08	18.3
15-Nov-10	14:06	1.232-0.07	17.3	15-Nov-10	14:56	1.218-0.56	17.3	15-Nov-10	15:14	1.233-0.60	18.3	15-Nov-10	14:06	1.237-0.08	18.3
15-Nov-10	14:08	1.232-0.07	17.3	15-Nov-10	14:58	1.218-0.56	17.3	15-Nov-10	15:16	1.233-0.60	18.3	15-Nov-10	14:07	1.237-0.08	18.3
15-Nov-10	14:10	1.232-0.07	17.3	15-Nov-10	15:00	1.218-0.56	17.3	15-Nov-10	15:18	1.233-0.60	18.3	15-Nov-10	14:08	1.237-0.08	18.3
15-Nov-10	14:12	1.232-0.07	17.3	15-Nov-10	15:02	1.218-0.56	17.3	15-Nov-10	15:20	1.233-0.60	18.3	15-Nov-10	14:09	1.237-0.08	18.3
15-Nov-10	14:14	1.232-0.07	17.3	15-Nov-10	15:04	1.218-0.56	17.3	15-Nov-10	15:22	1.233-0.60	18.3	15-Nov-10	14:10	1.237-0.08	18.3
15-Nov-10	14:16	1.232-0.07	17.3	15-Nov-10	15:06	1.218-0.56	17.3	15-Nov-10	15:24	1.233-0.60	18.3	15-Nov-10	14:11	1.237-0.08	18.3
15-Nov-10	14:18	1.232-0.07	17.3	15-Nov-10	15:08	1.218-0.56	17.3	15-Nov-10	15:26	1.233-0.60	18.3	15-Nov-10	14:12	1.237-0.08	18.3
15-Nov-10	14:20	1.232-0.07	17.3	15-Nov-10	15:10	1.218-0.56	17.3	15-Nov-10	15:28	1.233-0.60	18.3	15-Nov-10	14:13	1.237-0.08	18.3
15-Nov-10	14:22	1.232-0.07	17.3	15-Nov-10	15:12	1.218-0.56	17.3	15-Nov-10	15:30	1.233-0.60	18.3	15-Nov-10	14:14	1.237-0.08	18.3
15-Nov-10	14:24	1.232-0.07	17.3	15-Nov-10	15:14	1.218-0.56	17.3	15-Nov-10	15:32	1.233-0.60	18.3	15-Nov-10	14:15	1.237-0.08	18.3
15-Nov-10	14:26	1.232-0.07	17.3	15-Nov-10	15:16	1.218-0.56	17.3	15-Nov-10	15:34	1.233-0.60	18.3	15-Nov-10	14:16	1.237-0.08	18.3
15-Nov-10	14:28	1.232-0.07	17.3	15-Nov-10	15:18	1.218-0.56	17.3	15-Nov-10	15:36	1.233-0.60	18.3	15-Nov-10	14:17	1.237-0.08	18.3
15-Nov-10	14:30	1.232-0.07	17.3	15-Nov-10	15:20	1.218-0.56	17.3	15-Nov-10	15:38	1.233-0.60	18.3	15-Nov-10	14:18	1.237-0.08	18.3
15-Nov-10	14:32	1.232-0.07	17.3	15-Nov-10	15:22	1.218-0.56	17.3	15-Nov-10	15:40	1.233-0.60	18.3	15-Nov-10	14:19	1.237-0.08	18.3
15-Nov-10	14:34	1.232-0.07	17.3	15-Nov-10	15:24	1.218-0.56	17.3	15-Nov-10	15:42	1.233-0.60	18.3	15-Nov-10	14:20	1.237-0.08	18.3
15-Nov-10	14:36	1.232-0.07	17.3	15-Nov-10	15:26	1.218-0.56	17.3	15-Nov-10	15:44	1.233-0.60	18.3	15-Nov-10	14:21	1.237-0.08	18.3
15-Nov-10	14:38	1.232-0.07	17.3												



### CEMs Data

Client Name General Electric International OCI  
Plant Name -

Location \_\_\_\_\_ HRSG #1 \_\_\_\_\_

Run No. 9				Run No. 10				Run No. 11				Run No. 12			
Day	Time	Pressure hPa	Temperature °C	Day	Time	Pressure hPa	Temperature °C	Day	Time	Pressure hPa	Temperature °C	Day	Time	Pressure hPa	Temperature °C
15-Mar-10	16:18	1.4330	16.0	15-Mar-10	16:18	1.4328	16.0	15-Mar-10	16:00	1.4360	16.0	15-Mar-10	16:00	1.4360	16.0
15-Mar-10	16:19	1.4320	16.0	15-Mar-10	16:41	1.4320	16.0	15-Mar-10	16:01	1.4350	16.0	15-Mar-10	16:01	1.4350	16.0
15-Mar-10	16:20	1.4317	16.0	15-Mar-10	16:42	1.4318	16.0	15-Mar-10	16:02	1.4340	16.0	15-Mar-10	16:02	1.4340	16.0
15-Mar-10	16:21	1.4314	16.0	15-Mar-10	16:43	1.4315	16.0	15-Mar-10	16:03	1.4330	16.0	15-Mar-10	16:03	1.4330	16.0
15-Mar-10	16:22	1.4310	16.0	15-Mar-10	16:44	1.4312	16.0	15-Mar-10	16:04	1.4320	16.0	15-Mar-10	16:04	1.4320	16.0
15-Mar-10	16:23	1.4307	16.0	15-Mar-10	16:45	1.4309	16.0	15-Mar-10	16:05	1.4310	16.0	15-Mar-10	16:05	1.4310	16.0
15-Mar-10	16:24	1.4304	16.0	15-Mar-10	16:46	1.4306	16.0	15-Mar-10	16:06	1.4300	16.0	15-Mar-10	16:06	1.4300	16.0
15-Mar-10	16:25	1.4301	16.0	15-Mar-10	16:47	1.4303	16.0	15-Mar-10	16:07	1.4290	16.0	15-Mar-10	16:07	1.4290	16.0
15-Mar-10	16:26	1.4298	16.0	15-Mar-10	16:48	1.4299	16.0	15-Mar-10	16:08	1.4280	16.0	15-Mar-10	16:08	1.4280	16.0
15-Mar-10	16:27	1.4295	16.0	15-Mar-10	16:49	1.4296	16.0	15-Mar-10	16:09	1.4270	16.0	15-Mar-10	16:09	1.4270	16.0
15-Mar-10	16:28	1.4292	16.0	15-Mar-10	16:50	1.4293	16.0	15-Mar-10	16:10	1.4260	16.0	15-Mar-10	16:10	1.4260	16.0
15-Mar-10	16:29	1.4289	16.0	15-Mar-10	16:51	1.4290	16.0	15-Mar-10	16:11	1.4250	16.0	15-Mar-10	16:11	1.4250	16.0
15-Mar-10	16:30	1.4286	16.0	15-Mar-10	16:52	1.4287	16.0	15-Mar-10	16:12	1.4240	16.0	15-Mar-10	16:12	1.4240	16.0
15-Mar-10	16:31	1.4283	16.0	15-Mar-10	16:53	1.4284	16.0	15-Mar-10	16:13	1.4230	16.0	15-Mar-10	16:13	1.4230	16.0
15-Mar-10	16:32	1.4280	16.0	15-Mar-10	16:54	1.4281	16.0	15-Mar-10	16:14	1.4220	16.0	15-Mar-10	16:14	1.4220	16.0
15-Mar-10	16:33	1.4277	16.0	15-Mar-10	16:55	1.4278	16.0	15-Mar-10	16:15	1.4210	16.0	15-Mar-10	16:15	1.4210	16.0
15-Mar-10	16:34	1.4274	16.0	15-Mar-10	16:56	1.4275	16.0	15-Mar-10	16:16	1.4200	16.0	15-Mar-10	16:16	1.4200	16.0
15-Mar-10	16:35	1.4271	16.0	15-Mar-10	16:57	1.4272	16.0	15-Mar-10	16:17	1.4190	16.0	15-Mar-10	16:17	1.4190	16.0
15-Mar-10	16:36	1.4268	16.0	15-Mar-10	16:58	1.4269	16.0	15-Mar-10	16:18	1.4180	16.0	15-Mar-10	16:18	1.4180	16.0
15-Mar-10	16:37	1.4265	16.0	15-Mar-10	16:59	1.4266	16.0	15-Mar-10	16:19	1.4170	16.0	15-Mar-10	16:19	1.4170	16.0
15-Mar-10	16:38	1.4262	16.0	15-Mar-10	17:00	1.4263	16.0	15-Mar-10	16:20	1.4160	16.0	15-Mar-10	16:20	1.4160	16.0
15-Mar-10	16:39	1.4259	16.0	15-Mar-10	17:01	1.4260	16.0	15-Mar-10	16:21	1.4150	16.0	15-Mar-10	16:21	1.4150	16.0
15-Mar-10	16:40	1.4256	16.0	15-Mar-10	17:02	1.4257	16.0	15-Mar-10	16:22	1.4140	16.0	15-Mar-10	16:22	1.4140	16.0
15-Mar-10	16:41	1.4253	16.0	15-Mar-10	17:03	1.4254	16.0	15-Mar-10	16:23	1.4130	16.0	15-Mar-10	16:23	1.4130	16.0
15-Mar-10	16:42	1.4250	16.0	15-Mar-10	17:04	1.4251	16.0	15-Mar-10	16:24	1.4120	16.0	15-Mar-10	16:24	1.4120	16.0
15-Mar-10	16:43	1.4247	16.0	15-Mar-10	17:05	1.4248	16.0	15-Mar-10	16:25	1.4110	16.0	15-Mar-10	16:25	1.4110	16.0
15-Mar-10	16:44	1.4244	16.0	15-Mar-10	17:06	1.4245	16.0	15-Mar-10	16:26	1.4100	16.0	15-Mar-10	16:26	1.4100	16.0
15-Mar-10	16:45	1.4241	16.0	15-Mar-10	17:07	1.4242	16.0	15-Mar-10	16:27	1.4090	16.0	15-Mar-10	16:27	1.4090	16.0
15-Mar-10	16:46	1.4238	16.0	15-Mar-10	17:08	1.4239	16.0	15-Mar-10	16:28	1.4080	16.0	15-Mar-10	16:28	1.4080	16.0
15-Mar-10	16:47	1.4235	16.0	15-Mar-10	17:09	1.4236	16.0	15-Mar-10	16:29	1.4070	16.0	15-Mar-10	16:29	1.4070	16.0
15-Mar-10	16:48	1.4232	16.0	15-Mar-10	17:10	1.4233	16.0	15-Mar-10	16:30	1.4060	16.0	15-Mar-10	16:30	1.4060	16.0
15-Mar-10	16:49	1.4229	16.0	15-Mar-10	17:11	1.4230	16.0	15-Mar-10	16:31	1.4050	16.0	15-Mar-10	16:31	1.4050	16.0
15-Mar-10	16:50	1.4226	16.0	15-Mar-10	17:12	1.4227	16.0	15-Mar-10	16:32	1.4040	16.0	15-Mar-10	16:32	1.4040	16.0
15-Mar-10	16:51	1.4223	16.0	15-Mar-10	17:13	1.4224	16.0	15-Mar-10	16:33	1.4030	16.0	15-Mar-10	16:33	1.4030	16.0
15-Mar-10	16:52	1.4220	16.0	15-Mar-10	17:14	1.4221	16.0	15-Mar-10	16:34	1.4020	16.0	15-Mar-10	16:34	1.4020	16.0
15-Mar-10	16:53	1.4217	16.0	15-Mar-10	17:15	1.4218	16.0	15-Mar-10	16:35	1.4010	16.0	15-Mar-10	16:35	1.4010	16.0
15-Mar-10	16:54	1.4214	16.0	15-Mar-10	17:16	1.4215	16.0	15-Mar-10	16:36	1.4000	16.0	15-Mar-10	16:36	1.4000	16.0
15-Mar-10	16:55	1.4211	16.0	15-Mar-10	17:17	1.4212	16.0	15-Mar-10	16:37	1.3990	16.0	15-Mar-10	16:37	1.3990	16.0
15-Mar-10	16:56	1.4208	16.0	15-Mar-10	17:18	1.4209	16.0	15-Mar-10	16:38	1.3980	16.0	15-Mar-10	16:38	1.3980	16.0
15-Mar-10	16:57	1.4205	16.0	15-Mar-10	17:19	1.4206	16.0	15-Mar-10	16:39	1.3970	16.0	15-Mar-10	16:39	1.3970	16.0
15-Mar-10	16:58	1.4202	16.0	15-Mar-10	17:20	1.4203	16.0	15-Mar-10	16:40	1.3960	16.0	15-Mar-10	16:40	1.3960	16.0
15-Mar-10	16:59	1.4200	16.0	15-Mar-10	17:21	1.4201	16.0	15-Mar-10	16:41	1.3950	16.0	15-Mar-10	16:41	1.3950	16.0
15-Mar-10	17:00	1.4197	16.0	15-Mar-10	17:22	1.4198	16.0	15-Mar-10	16:42	1.3940	16.0	15-Mar-10	16:42	1.3940	16.0
15-Mar-10	17:01	1.4194	16.0	15-Mar-10	17:23	1.4195	16.0	15-Mar-10	16:43	1.3930	16.0	15-Mar-10	16:43	1.3930	16.0
15-Mar-10	17:02	1.4191	16.0	15-Mar-10	17:24	1.4192	16.0	15-Mar-10	16:44	1.3920	16.0	15-Mar-10	16:44	1.3920	16.0
15-Mar-10	17:03	1.4188	16.0	15-Mar-10	17:25	1.4189	16.0	15-Mar-10	16:45	1.3910	16.0	15-Mar-10	16:45	1.3910	16.0
15-Mar-10	17:04	1.4185	16.0	15-Mar-10	17:26	1.4186	16.0	15-Mar-10	16:46	1.3900	16.0	15-Mar-10	16:46	1.3900	16.0
15-Mar-10	17:05	1.4182	16.0	15-Mar-10	17:27	1.4183	16.0	15-Mar-10	16:47	1.3890	16.0	15-Mar-10	16:47	1.3890	16.0
15-Mar-10	17:06	1.4179	16.0	15-Mar-10	17:28	1.4180	16.0	15-Mar-10	16:48	1.3880	16.0	15-Mar-10	16:48	1.3880	16.0
15-Mar-10	17:07	1.4176	16.0	15-Mar-10	17:29	1.4177	16.0	15-Mar-10	16:49	1.3870	16.0	15-Mar-10	16:49	1.3870	16.0
15-Mar-10	17:08	1.4173	16.0	15-Mar-10	17:30	1.4174	16.0	15-Mar-10	16:50	1.3860	16.0	15-Mar-10	16:50	1.3860	16.0
15-Mar-10	17:09	1.4170	16.0	15-Mar-10	17:31	1.4171	16.0	15-Mar-10	16:51	1.3850	16.0	15-Mar-10	16:51	1.3850	16.0
15-Mar-10	17:10	1.4167	16.0	15-Mar-10	17:32	1.4168	16.0	15-Mar-10	16:52	1.3840	16.0	15-Mar-10	16:52	1.3840	16.0
15-Mar-10	17:11	1.4164	16.0	15-Mar-10	17:33	1.4165	16.0	15-Mar-10	16:53	1.3830	16.0	15-Mar-10	16:53	1.3830	16.0
15-Mar-10	17:12	1.4161	16.0	15-Mar-10	17:34	1.4162	16.0	15-Mar-10	16:54	1.3820	16.0	15-Mar-10	16:54	1.3820	16.0
15-Mar-10	17:13	1.4158	16.0	15-Mar-10	17:35	1.4159	16.0	15-Mar-10	16:55	1.3810	16.0	15-Mar-10	16:55	1.3810	16.0
15-Mar-10	17:14	1.4155	16.0	15-Mar-10	17:36	1.4156	16.0	15-Mar-10	16:56	1.3800	16.0	15-Mar-10	16:56	1.3800	16.0
15-Mar-10	17:15	1.4152	16.0	15-Mar-10	17:37	1.4153	16.0	15-Mar-10	16:57	1.3790	16.0	15-Mar-10	16:57	1.3790	16.0
15-Mar-10	17:16	1.4149	16.0	15-Mar-10	17:38	1.4150	16.0	15-Mar-10	16:58	1.3780	16.0	15-Mar-10	16:58	1.3780	16.0
15-Mar-10	17:17	1.4146	16.0	15-Mar-10	17:39	1.4147	16.0	15-Mar-10	16:59	1.3770	16.0	15-Mar-10	16:59	1.3770	16.0
15-Mar-10	17:18	1.4143	16.0	15-Mar-10	17:40	1.4144	16.0	15-Mar-10	17:00	1.3760	16.0	15-Mar-10	17:00	1.3760	16.0
15-Mar-10	17:19	1.4140	16.0	15-Mar-10	17:41	1.4141	16.0	15-Mar-10	17:01	1.3750	16.0	15-Mar-10	17:01	1.3750	16.0
15-Mar-10	17:20	1.4137	16.0	15-Mar-10	17:42	1.4138	16.0	15-Mar-10	17:02	1.3740	16.0	15-Mar-10	17:02	1.3740	16.0
15-Mar-10	17:21	1.4134	16.0	15-Mar-10	17:43	1.4135	16.0	15-Mar-10	17:03	1.3730	16.0	15-Mar-10	17:03	1.3730	16.0
15-Mar-10	17:22	1.4131	16.0	15-Mar-10	17:44	1.4132	16.0	15-Mar-10	17:04	1.3720	16.0	15-Mar-10	17:04	1.3720	16.0
15-Mar-10	17:23	1.4128	16.0	15-Mar-10	17:45	1.4129	16.0	15-Mar-10	17:05	1.3710	16.0	15-Mar-10	17:05	1.3710	16.0
15-Mar-10	17:24	1.4125	16.0	15-Mar-10	17:46	1.4126	16.0	15-Mar-10	17:06	1.3700	16.0	15-Mar-10	17:06	1.3700	16.0
15-Mar-10	17:25	1.4122	16.0	15-Mar-10	17:47	1.4123	16.0	15-Mar-10	17:07	1.3690	16.0	15-Mar-10	17:07	1.3690	16.0
15-Mar-10	17:26	1.4119	16.0	15-Mar-10	17:48	1.4120	16.0	15-Mar-10	17:08	1.3680	16.0	15-Mar-10	17:08	1.3680	16.0
15-Mar-10	17:27	1.4116	16.0	15-Mar-10	17:49	1.4117	16.0	15-Mar-10	17:09	1.3670	16.0	15-Mar-10	17:09	1.3670	16.0
15-Mar-10	17:28	1.4113	16.0	15-Mar-10	17:50	1.4114	16.0	15-Mar-10	17:10	1.3660	16.0	15-Mar-10	17:10	1.3660	16.0
15-Mar-10	17:29	1.4110	16.0	15-Mar-10	17:51	1.4111	16.0	15-Mar-10	17:11	1.3650	16.0	15-Mar-10	17:11	1.3650	16.0
15-Mar-10	17:30	1.4107	16.0	15-Mar-10	17:52	1.4108	16.0	15-Mar-10							



**Airgas Specialty Gases**  
Airgas USA LLC  
6141 Easton Road  
Plumsteadville, PA 18949  
Airgas.com



**Airgas Specialty Gases**  
Airgas USA, LLC  
6141 Easton Road  
Bldg 2  
Plumsteadville, PA 18949  
Airgas.com

### CERTIFICATE OF ANALYSIS

## Grade of Product: EPA PROTOCOL STANDARD

Customer:	AIR LIQUIDE		
Part Number:	(THAILAND) LTD	Reference Number:	160-402340012-1
Cylinder Number:	E04N199E3HA0066	Cylinder Volume:	247.2 CF
Laboratory:	GNO022726	Cylinder Pressure:	2215 PSIG
PGVP Number:	124 - Plumsteadville - PA	Valve Outlet:	660
Gas Code:	A12022	Certification Date:	Feb 09, 2022
	CO,NO,NOX,SO2,BALN		

Expiration Date: Feb 09, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA-800/R-12/051, 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

ANALYTICAL RESULTS						
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates	
NOX	55.00 PPM	55.91 PPM	G1	+/- 1.0% NIST Traceable	02/02/2022, 02/09/2022	
CARBON MONOXIDE	55.00 PPM	55.20 PPM	G1	+/- 0.5% NIST Traceable	02/02/2022	
NITRIC OXIDE	55.00 PPM	55.91 PPM	G1	+/- 0.5% NIST Traceable	02/02/2022, 02/09/2022	
SULFUR DIOXIDE	55.00 PPM	55.20 PPM	G1	+/- 0.5% NIST Traceable	02/02/2022, 02/09/2022	
METHANOL	Below LOD					

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	09010212	KL0404777	98.48 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	Oct 16, 2024
NTRM	20050-15	CC753108	98.81 PPM NITRIC OXIDE/NITROGEN	+/- 0.5%	Oct 06, 2026
CM	0904081939	02321701	4.097 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	03/04/2025
NTRM	11010419	KL0404913	99.6 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Jul 20, 2023

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Jan 06, 2022
Nicolet iS50 FTIR AUP2010246 NO	FTIR	Jan 12, 2022
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Jan 27, 2022
Nicolet iS50 FTIR AUP2010246 NO2	FTIR	Jan 29, 2022

**TRUSTEES**

Triad Data Available Upon Request

NOTES: Gross Weight: 8.4 Kg  
Net Weight: 8.4 Kg



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### CERTIFICATE OF ANALYSIS

## Grade of Product: EPA Protocol

Part Number:	E04N199E3HA0002	Reference Number:	160-402138465-1
Cylinder Number:	ND11222	Cylinder Volume:	247.2 Cubic Feet
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2215 PSIG
PGVP Number:	A12021	Valve Outlet:	680
Gas Code:	CO,NO,NOX,SO2,BALN	Certification Date:	Jul 15, 2021
Expiration Date: Jul 15, 2029			

Expiration Date: Jul 15, 2029

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

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

ANALYTICAL RESULTS						
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates	
NOX	80.00 PPM	82.51 PPM	G1	+/- 1.4% NIST Traceable	07/08/2021	07/19/2021
CARBON MONOXIDE	80.00 PPM	79.74 PPM	G1	+/- 0.8% NIST Traceable	07/09/2021	
NITRIC OXIDE	80.00 PPM	82.20 PPM	G1	+/- 1.4% NIST Traceable	07/08/2021	07/19/2021
SULFUR DIOXIDE	80.00 PPM	79.76 PPM	G1	+/- 1.6% NIST Traceable	07/08/2021	07/19/2021
NITROGEN	Balance					

		CALIBRATION STANDARDS			
	Lot/ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	11011530	KAL040538	97.31 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Oct 04, 2022
PRM	12385	D868025	9.91 PPM AIR/NITROGEN DIOXIDE	2.0%	Feb 20, 2020
NTRM	20090150	CC733426	98.81 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Oct 05, 2025
QMS	124208889	CC537597	4.028 PPM NITROGEN DIOXIDE/NITROGEN	2.1%	Aug 15, 2021
NTRM	18010224	KAL020338	97.69 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Dec 23, 2021

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Jun 24, 2021
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Jul 01, 2021
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Jun 30, 2021
Nicolet iS50 FTIR AUP2010245 RO2	FTIR	Jul 09, 2021

Triad Data Available Upon Request

NOTES:

Gross Weight: 48.0 Kg

Net Weight: 7.8 Kg



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## CERTIFICATE OF ANALYSIS

### Grade of Product: EPA PROTOCOL STANDARD

Customer: AIR LIQUIDE  
(THAILAND) LTD  
Part Number: E02N192E3HA0001  
Cylinder Number: GN0029535  
Laboratory: 124 - Plumsteadville - PA  
PGVP Number: A12023  
Gas Code: O2,BALN

Reference Number: 160-402830555-1  
Cylinder Volume: 250.0 CF  
Cylinder Pressure: 2214 PSIG  
Valve Outlet: 590  
Certification Date: Sep 05, 2023

Expiration Date: Sep 05, 2031

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	19.05 %	18.07 %	G1	+/- 0.4% NIST Traceable	09/05/2023
NITROGEN	80.95 %				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	00010205	0091516	23.2 % OXYGEN/NITROGEN	+/- 0.4 %	Jun 01, 2024
ANALYTICAL EQUIPMENT					
Instrument/Make/Model			Analytical Principle		Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2			PARAMAGNETIC		Aug 18, 2023

Triad Data Available Upon Request

NOTES: Gross Weight: 50.0 Kg  
Net Weight: 8.4 Kg



*[Signature]*  
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## CERTIFICATE OF ANALYSIS

### Grade of Product: EPA Protocol

Part Number: E02N192E3HA0000  
Cylinder Number: GN0025086  
Laboratory: 124 - Plumsteadville - PA  
PGVP Number: A12020  
Gas Code: O2,BALN

Reference Number: 160-401948144-1  
Cylinder Volume: 248.4 CF  
Cylinder Pressure: 2214 PSIG  
Valve Outlet: 590  
Certification Date: Nov 11, 2020

Expiration Date: Nov 11, 2028

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 in mole/mole 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
OXYGEN	8.000 %	8.166 %	G1	+/- 0.3% NIST Traceable	11/11/20
NITROGEN	Balance				
CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	10010602	1038055	9.997 % OXYGEN/NITROGEN	+/- 0.3 %	Apr 19, 2022
ANALYTICAL EQUIPMENT					
Instrument/Make/Model			Analytical Principle		Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2			PARAMAGNETIC		Oct 26, 2020

Triad Data Available Upon Request

NOTES:

Gross Weight: 48.1 Kg  
Net Weight: 8.2 Kg



*[Signature]*  
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## DIGITAL TEMPERATURE CALIBRATION DATA SHEET

Calibration Date : 10 Jul 25		Ambient Temperature (°C) 27.1			
Calibration sheet No. : C-100725-BKK_FS0519		Relative Humidity (%): 43.7			
Digital Temperature ID : BKK_FS0519		Reference Temperature ID BKK_FS1144			
Serial No. : 1504025		Serial No. : 20109000013			
Model : XC-S72-V		Model : Digicon-CC-VT-MS			
		Next Calibrate : 5 Jan 26			
Location	Reference Temperature °C	Digital Temperature °C	Error °C	MPE	Pass / Fail
Stack	0	3	3	+3	Pass
	25	27	2	+3	Pass
	50	51	1	+3	Pass
	100	100	0	+3	Pass
	150	148	-2	+3	Pass
	200	198	-2	+3	Pass
Probe	250	247	-3	+3	Pass
	300	298	-2	+3	Pass
	500	497	-3	+3	Pass
	100	100	0	+3	Pass
	120	120	0	+3	Pass
	140	139	-1	+3	Pass
Oven	100	100	0	+3	Pass
	120	120	0	+3	Pass
	140	139	-1	+3	Pass
Filter	100	100	0	+3	Pass
	120	120	0	+3	Pass
	140	139	-1	+3	Pass
Exit	0	1	1	+3	Pass
	10	11	1	+3	Pass
	20	21	1	+3	Pass
Meter	0	0	0	+3	Pass
	25	26	1	+3	Pass
	50	51	1	+3	Pass
AUX	0	0	0	+3	Pass
	25	26	1	+3	Pass
	50	50	0	+3	Pass

MPE : (Maximum permissible error of measurement) ค่าความคลาดเคลื่อนสูงสุดของผลการวัด

Calibrated by :

Mr. Warasut. Putha  
RYG Field Service Scientist (3)

Approved by :

Mr. Nathaporn Jengwansong  
RYG Field Service Specialist (1)

FORM NO. : F 06-027 REVISION NO. : 2 ISSUE DATE: 9 Feb 23

## CONSOLE CONTROL UNIT CALIBRATION TEST REPORT

Calibration of Date : 10-Jul-25  
Next Cal. Date : 10-Jan-26

Console Control Meter Data:  
Calibration No : C-100725-BKK\_FS0519  
Dry Gas Meter ID : BKK\_FS0519  
Serial No : 1504025  
Model No : XC-S72-V

Barometric Pressure (mmHg):  
Relative Humidity (%):  
Temperature (°C):  
Reference Dry Gas Meter ID :  
Serial No :  
Correction Factor (%):  
Next Calibration Date:

AH		θ		Reference Dry Gas Meter Calibration				Console Control Dry Gas Meter			
mm Hg	mmHg	mmHg	mmHg	Flow	Temp	°C	°F	Flow	Temp	°C	°F
15	12.22	100.11	0.00	100.11	29.0	307945.6	567793.0	100.00	29.0	307945.6	567793.0
25	9.45	100.11	0.00	100.11	29.0	307945.6	567793.0	100.00	29.0	307945.6	567793.0
50	0.04	100.00	0.00	100.00	29.0	307945.6	567793.0	100.00	29.0	307945.6	567793.0
80	0.16	100.01	0.00	100.01	31.0	308081.2	563227.0	100.00	31.0	308081.2	563227.0
120	4.20	100.03	0.00	100.03	32.0	308045.4	563099.0	100.00	32.0	308045.4	563099.0

V : Ratio of reading of reference to dry gas meter : Interference for individual values  $\pm 0.02$  from average.

ΔP : On-line pressure difference : Interference for individual values  $\pm 0.25$  mm Hg at 25 °C and 100 mm Hg mercury, mm Hg : Interference for individual values  $\pm 0.5$

Procedure : ISO 6006:2019, SEC 5.3.5.7

Calibrated by :

*[Signature]*  
Mr. Warasut. Putha  
RYG Field Service Scientist (3)

Approved by :

*[Signature]*  
Mr. Nathaporn Jengwansong  
RYG Field Service Specialist (1)







Adjustment Status

The measuring device was internally adjusted before the calibration.

Environmental and measuring conditions

Date of calibration 20 Feb 2025  
Temperature at place of calibration | Temp. diff. 24.7 °C | 0.3 K  
Twilights - 7place  
Measuring conditions The installation site is suitable. The device was levelled. Balance was loaded up to Max before test.  
Comments Humidity 62.3 %RH.

Measurement results | Measurement uncertainties

Repeatability		Eccentricity	
Test load (nominal): 10 g   200 g		Test load (nominal): 100 g	
10 g	200 g	Center	100.0000 g
1 10.0000 g	200.0000 g	Front left	100.0000 g
2 10.0000 g	200.0001 g	Back left	100.0001 g
3 9.9999 g	200.0000 g	Back right	99.9999 g
4 10.0000 g	200.0000 g	Front right	99.9999 g
5 10.0000 g	200.0001 g	Maximum deviation from centric loading indication	
6 9.9999 g	200.0000 g	Δm <sub>cc</sub>   <sub>max</sub> = 0.0001 g	
7 10.0000 g	200.0000 g		
8 10.0000 g	200.0000 g		
9 10.0000 g	200.0000 g		
10 10.0000 g	200.0001 g		
s = 0.00004 g			
s = 0.00005 g			

Testload	Indication	Error	Expansion factor	Uncertainty	Uncertainty relative
L	I	E	k	U(I)	U <sub>rel</sub> (I)
0.0100 g	0.0100 g	0.0000 g	2.00	0.00012 g	1.2 %
0.1000 g	0.1000 g	0.0000 g	2.00	0.00013 g	0.13 %
0.5000 g	0.5000 g	0.0000 g	2.00	0.00013 g	0.026 %
1.0000 g	1.0000 g	0.0000 g	2.00	0.00013 g	0.013 %
5.0000 g	5.0000 g	0.0000 g	2.00	0.00013 g	0.0026 %
10.0000 g	10.0000 g	0.0000 g	2.00	0.00013 g	0.0013 %
20.0000 g	20.0000 g	0.0000 g	2.00	0.00014 g	0.00068 %
50.0000 g	50.0000 g	0.0000 g	2.00	0.00015 g	0.00029 %
100.0000 g	100.0001 g	0.0001 g	2.00	0.00018 g	0.00018 %
200.0000 g	200.0000 g	0.0000 g	2.00	0.00028 g	0.00014 %
220.0000 g	220.0000 g	0.0000 g	2.00	0.00032 g	0.00015 %
Maximum error of indication		E  <sub>max</sub> = 0.0001 g			

U<sub>rel</sub>(I) is the quotient of U(I) and test load I. The uncertainty of measurement U(I) is valid only if error E is considered. You will find reference notes on the uncertainty of measurement in use under: Appendix to the calibration certificate | Interpretation of measurement results.  
Reference note: The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the documented expansion factor, determined in accordance with the European Calibration Guideline EURAMET cg-18, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

End of calibration certificate

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129 Rama 9 Road, Huaykwang  
10310 Bangkok

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SARTORIUS

Accredited by  
NSC-TISI-TIS 17025  
Calibration 0426



Calibration certificate

Calibration Certificate No. 25BK0006

Object	Electronic non-automatic weighing instrument	This calibration certificate documents the traceability to national standards.
Manufacturer	Sartorius	Uncertainties of measurements are taken into account when only statements of compliance are made.
Type	MSE125P-100-DU	This certificate was prepared by Sartorius Corporation in accordance to the current ISO/IEC 17025:2017 standard and Sartorius Work Instruction (Method) SOP W100.
Serial   QM Ident. no.	33108993   RYG_EN0004	This certificate relate and apply this equipment only.
Customer	ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)	
Order no.	2230	
Number of pages	4	
Date of calibration	20 Feb 2025	

REVIEW BY *Thanitak*

APPROVED BY *D. Kachen*

NEXT CAL DATE: 20/02/26

This calibration certificate may not be reproduced other than in full except with the permission of NSC-TISI-TIS-17025 and the issuing laboratory. Calibration certificates without signature are not valid.  
The user is obliged to have the object recalibrated at appropriate intervals.

Date	06 Mar 2025	Approval of the Calibration Certificate	Person in charge
		<i>Mr. Chonchai Inthana</i>	<i>Kachen Lalee</i>

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129 Rama 9 Road, Huaykwang  
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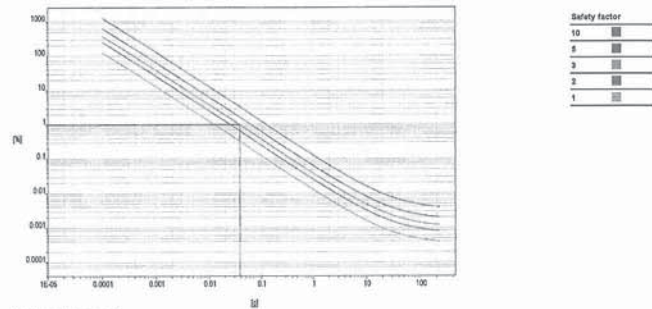
Uncertainty of measurement in use

Device adjusted before measurement Yes  
Temperature deviation considered 1.5 K (isoCAL active)  
Temperature coefficient considered 1 · 10<sup>-4</sup> /K  
Uncertainty of the weighing result U<sub>95</sub>(W) U<sub>95</sub>(W) = 0.00013 g + 3.42 · 10<sup>-4</sup> · R

Reference note: The current uncertainty of measurement is calculated by entering the reading R into this formula. In relation to this, there is no need for a correction of the indication error. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied with an expansion factor of 2, determined in accordance with the European Calibration Guideline EURAMET cg-18, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

Indication in % from max load	Net indication R	Uncertainty U <sub>95</sub> (W)	Uncertainty relative U <sub>95</sub> (W) <sub>rel</sub>
1 %	2.2000 g	0.00014 g	0.0063 %
25 %	55.0000 g	0.00032 g	0.00058 %
50 %	110.0000 g	0.00051 g	0.00046 %
75 %	165.0000 g	0.00089 g	0.00042 %
100 %	220.0000 g	0.00088 g	0.00040 %

Graphic realization of the relative uncertainty of measurement | process accuracy



Displayed example

Process accuracy 1.00 %  
Safety factor 3  
Minimum sample weight 0.0380 g

Calibration object

Multi Interval Instrument

Model	MSE125P-100-DU
Serial Number	33108993
QM Ident. no   Inventory no.	RYG_EN0004   —
Range	1 2
Maximum capacity (Max. load)	60.00000 g 120.0000 g
Measured range	60.00000 g 120.0000 g
Scale interval	0.00001 g 0.0001 g

Place of calibration

Address	According to page 1
Department   Cost center	Laboratory Department.   —
Building   Floor	—   1st Floor.
Room	Balance Room.
Maximum temperature variation at place of calibration	5 K

Calibration procedure

EURAMET cg-18, V4.0 - Guidelines on the Calibration of Non-Automatic Weighing Instruments

Test equipment

Test equipment type	Test equipment ID	Valid until
Thermometer	MHB-382SD s/nB011342 Traceable to SI unit through DKSH	21 Aug 2025
Test weight set OIML R111 E2	Certificate No.M2308197S_E2(Traceable to SI unit through TCS)	23 Aug 2025

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## Adjustment Status

The measuring device was internally adjusted before the calibration.

## Environmental and measuring conditions

Date of calibration 20 Feb 2025  
Temperature at place of calibration | Temp. diff. 24.2 °C | 0.3 K  
Twights - Tplace  
Measuring conditions The installation site is suitable. The device was levelled. Balance was loaded up to Max before test.  
Comments Humidity 62.5 %RH.

## Measurement results | Measurement uncertainties

Repeatability		Eccentricity	
Test load (nominal): 60 g   100 g		Test load (nominal): 60 g	
50 g	100 g	Center	50.00002 g
1 50.00002 g	100.00000 g	Front left	50.00000 g
2 50.00001 g	100.00000 g	Back left	50.00000 g
3 50.00003 g	100.00000 g	Back right	50.00001 g
4 50.00002 g	100.00000 g	Front right	50.00003 g
5 50.00001 g	100.00000 g	Maximum deviation from centric loading indication	
6 50.00002 g	99.99999 g	Δecc  max = 0.00002 g	
7 50.00002 g	100.00000 g		
8 50.00001 g	100.00000 g		
9 50.00001 g	100.00000 g		
10 50.00002 g	100.00000 g		
s = 0.000007 g		s = 0.00003 g	

### Error of indication

Testload	Indication	Error	Expansion factor	Uncertainty	Uncertainty relative
L	I	E	k	U(E)	Urel(E)
0.01000 g	0.01000 g	0.00000 g	2.00	0.000024 g	0.24 %
0.10000 g	0.10000 g	0.00000 g	2.00	0.000037 g	0.037 %
1.00000 g	1.00000 g	0.00000 g	2.00	0.000037 g	0.0037 %
5.00002 g	5.00002 g	0.00000 g	2.00	0.000050 g	0.0010 %
20.00002 g	20.00002 g	0.00000 g	2.00	0.000089 g	0.00034 %
55.00004 g	55.00003 g	-0.00001 g	2.00	0.00017 g	0.00031 %
70.00000 g	70.00000 g	0.00000 g	2.00	0.00017 g	0.00024 %
80.0001 g	80.0001 g	0.00000 g	2.00	0.00018 g	0.00023 %
100.0000 g	100.0000 g	0.00000 g	2.00	0.00017 g	0.00017 %
110.0000 g	110.0000 g	0.00000 g	2.00	0.00028 g	0.00025 %
120.0000 g	119.9999 g	-0.00001 g	2.00	0.00028 g	0.00023 %
Maximum error of indication		E  max = 0.00010 g			

Urel(E) is the quotient of U(E) and test load L. The uncertainty of measurement U(E) is valid only if error E is considered. You will find reference notes on the uncertainty of measurement in use under: Appendix to the calibration certificate | Interpretation of measurement results.  
Reference note: The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the documented Expansion factor, determined in accordance with the European Calibration Guideline EURAMET cg-16, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

End of calibration certificate

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## Calibration Certificate



Certificate No: G 680274  
Date of issue: 28-Apr-25

Instrument description : Five Gas Analyzer  
Instrument model : Testo 350 New  
Instrument serial no. : 62965049/1121  
Control unit serial no. : 03580182/1121  
ID no. or control no. : RYG F50564  
Manufacturer : Testo SE & Co. KGaA  
Probe description : -  
Probe model : -  
Probe serial no. : -  
Customer name : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
Customer address : 164 Phatthanakan 40, Phatthanakan Road, Khwaeng Phatthanakan, Khet Suan Luang, Bangkok, 10250 Thailand  
Total pages of certificate : 2 Pages  
Receiving no. : L-751464  
Receiving date : 24-Apr-25  
Parameter of calibration : Gas Calibration (Oxygen 2.50, 9.584, 21.01 %vol, Carbon Monoxide 80.45, 302.1007 ppm)  
Nitrogen Dioxide 30.68, 81.8, 202.6 ppm, Nitric Oxide 30.8, 151.8, 322.5 ppm, Sulphur Dioxide 50.36, 100.7, 600.8 ppm)  
Condition of UUC : Used  
Ambient condition : All of the Measurement were carried out the stabilized laboratory  
Temperature : 23.45 °C  
Humidity : 55 ± 15 %RH  
Calibration place : 17/121 Soi Ngamwongwan 47 Yaek 48, Toongsoonghong, Leksi, Bangkok 10710  
Calibration procedure no : This instrument was calibrated by comparison with Standard gas mixture according to calibration Work Instruction no. WI-CL-28-C

REVIEW BY:   
APPROVED BY:   
NEXT CAL DATE: 24/04/2026

The calibration certificate expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.  
This certificate is applied only to item under test environmental condition.  
This Calibration Certificate may not be reproduced other than in full except with the permission of the issuing laboratory.  
Calibration certificates without signature and seal are not valid and The results relate only to the items tested/calibrated.  
This calibration certificate documents are traceability to national standards, which realize measurement according to the International System of Units (SI).  
Date of calibration : 25-Apr-25

Ms. Kwanchai Khairudong  
Calibration Technician

Mrs. Nongluck Wongsattee  
Technical Manager

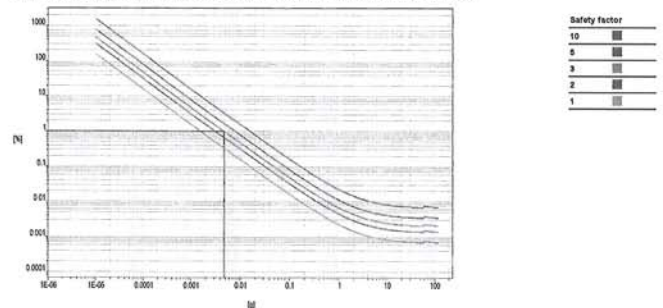
## Uncertainty of measurement in use

Device adjusted before measurement Yes  
Temperature deviation considered 1.5 K (ISO CAL active)  
Temperature coefficient considered 1 · 10<sup>-4</sup>/K  
Uncertainty of the weighing result U<sub>g</sub>(W)  
Partial weighing range 1 | 0.00000 g...60.00000 g U<sub>g</sub>(W) = 0.000018 g + 6.81 · 10<sup>-4</sup> · R  
Partial weighing range 2 | 60.00000 g...120.00000 g U<sub>g</sub>(W) = 0.000088 g + 6.19 · 10<sup>-4</sup> · R

Reference note: The current uncertainty of measurement is calculated by entering the reading R into this formula. In relation to this, there is no need for a correction of the indication error. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by an Expansion factor of 2, determined in accordance with the European Calibration Guideline EURAMET cg-16, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

Indication in % from Max1	Net indication	Uncertainty	Uncertainty relative
	R	U <sub>g</sub> (W)	U <sub>g</sub> (W) <sub>rel</sub>
1 %	0.60000 g	0.000020 g	0.0033 %
25 %	15.00000 g	0.00012 g	0.00077 %
50 %	30.00000 g	0.00021 g	0.00071 %
75 %	45.00000 g	0.00031 g	0.00070 %
100 %	60.00000 g	0.00041 g	0.00069 %

### Graphic realization of the relative uncertainty of measurement | process accuracy



### Displayed example

Process accuracy 1.00 %  
Safety factor 3  
Minimum sample weight 0.00474 g

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## Calibration Certificate



Certificate No.: G 680274

### Standard References (Table 1)

Standard	Certificate No.	Vendor	Due date
Oxygen (O <sub>2</sub> ) 2.50 % Vol	2412/23	Linde	27-Aug-27
Oxygen (O <sub>2</sub> ) 9.584 % Vol	CG-0113-24	Heraeus	01-Aug-29
Oxygen (O <sub>2</sub> ) 21.01 % Vol	CG-0112-24	Heraeus	01-Aug-29
Carbon monoxide (CO) 80.45 ppm	CG-0132-24	Heraeus	10-Sep-29
Carbon monoxide (CO) 302 ppm	1915/23	Linde	16-Jun-25
Carbon monoxide (CO) 1007 ppm	1870/24	Linde	17-Jun-26
Nitrogen Dioxide (NO <sub>2</sub> ) 30.68 ppm	2832/24	Linde	08-Sep-26
Nitrogen Dioxide (NO <sub>2</sub> ) 81.8 ppm	2330/24	Linde	01-Aug-26
Nitrogen Dioxide (NO <sub>2</sub> ) 202.6 ppm	3794/24	Linde	23-Dec-26
Nitric Oxide (NO) 30.8 ppm	CG-0065-24	Heraeus	06-May-26
Nitric Oxide (NO) 151.8 ppm	0404/25	Linde	09-Feb-27
Nitric Oxide (NO) 322.5 ppm	1974/23	Linde	17-Jul-25
Sulphur Dioxide (SO <sub>2</sub> ) 50.36 ppm	2004/23	Linde	17-Jul-25
Sulphur Dioxide (SO <sub>2</sub> ) 100.7 ppm	2662/24	Linde	25-Aug-26
Sulphur Dioxide (SO <sub>2</sub> ) 600.8 ppm	2003/23	Linde	17-Jul-25

### Measured room conditions

Temperature : 22.6 °C Humidity : 59.8 %RH Pressure : 1010.3 mbar

### Calibration conditions

Gas Temperature : 23 °C Flow rate : 1,300 ml/min Gas pressure : 1016.2 mbar

### Calibration Results (Without adjustment) (Table 2)

Parameter of Standard	Standard Values	Mean of UUC	Error	Uncertainty (k=1)
O <sub>2</sub> (%Vol)	2.50	2.44	-0.06	0.15
O <sub>2</sub> (%Vol)	9.584	9.89	-0.094	0.20
O <sub>2</sub> (%Vol)	21.01	21.11	0.10	0.30
CO (ppm)	80.45	81	0.55	3.0
CO (ppm)	302	303	1	6.0
CO (ppm)	1007	1006	-1	12
NO <sub>2</sub> (ppm)	30.68	29.4	-1.28	8.0
NO <sub>2</sub> (ppm)	81.8	79.9	-1.9	8.0
NO <sub>2</sub> (ppm)	202.6	199.8	-2.8	12
NO (ppm)	30.8	31	0.2	8.0
NO (ppm)	151.8	154	2.2	8.0
NO (ppm)	322.5	322	-0.5	12
SO <sub>2</sub> (ppm)	50.36	49	-1.36	6.0
SO <sub>2</sub> (ppm)	100.7	100	-0.7	6.0
SO <sub>2</sub> (ppm)	600.8	602	1.2	13

Remark : 1 cmol/mol = 1 %vol, 1 μmol/mol = 1 ppm, Sensor (NO<sub>2</sub>, NO, SO<sub>2</sub>) linear.

## End of Report

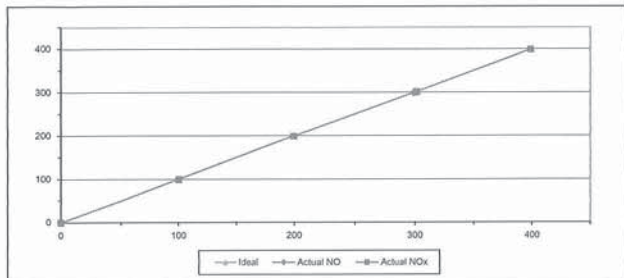




## MULTIPOINT CALIBRATION REPORT

Calibration Date 2-Jul-25 Equipment Name NOx Analyzer  
Manufacturer HORIBA Model APNA-370  
Serial No. 8G314J3K Equipment ID RYG\_FS0264  
Calibrator Manufacturer Teledyne API Model 700  
Serial No. 947  
Std. Gas Concentration (PPM) 55.88 Cylinder No. GN0027222  
Cylinder Pressure (psi) 1600 Certified By Algas Inc.  
Certified Date 9-Feb-22 Expired Date 9-Feb-30

Point	CALIBRATION RESULTS						
	Ideal	Actual NO	Error NO	%Error NO	Actual NOx	Error NOx	%Error NOx
ZERO	0.00	0.05	0.05	0.05	0.10	0.10	0.10
1	100.00	99.20	-0.80	-0.80	100.10	0.10	0.10
2	200.00	198.70	-1.30	-0.65	199.30	-0.70	-0.35
3	300.00	298.60	-1.40	-0.47	301.40	1.40	0.47
4	400.00	398.60	-1.40	-0.35	398.80	-1.20	-0.30
AVERAGE (%)				-0.44			0.00



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

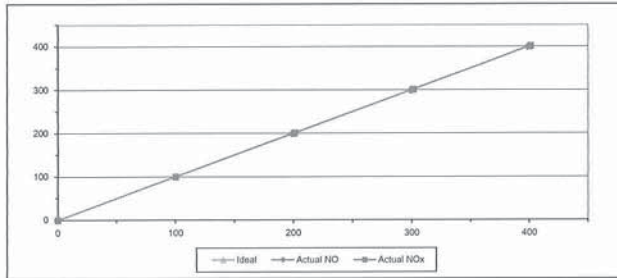
ALS Laboratory Group  
FORM NO.: F 06-056 REVISION NO.: ISSUE DATE: 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date 3-Jul-25 Equipment Name NOx Analyzer  
Manufacturer HORIBA Model APNA-370  
Serial No. 30K18RHM Equipment ID BKK\_FS1088  
Calibrator Manufacturer Teledyne API Model 700  
Serial No. 947  
Std. Gas Concentration (PPM) 55.88 Cylinder No. GN0027222  
Cylinder Pressure (psi) 1600 Certified By Algas Inc.  
Certified Date 9-Feb-22 Expired Date 9-Feb-30

Point	CALIBRATION RESULTS						
	Ideal	Actual NO	Error NO	%Error NO	Actual NOx	Error NOx	%Error NOx
ZERO	0.00	0.05	0.05	0.05	0.10	0.10	0.10
1	100.00	99.50	-0.50	-0.50	100.20	0.20	0.20
2	200.00	198.30	-1.70	-0.85	201.10	1.10	0.55
3	300.00	298.50	-1.50	-0.50	301.10	1.10	0.37
4	400.00	398.60	-1.40	-0.35	401.30	1.30	0.33
AVERAGE (%)				-0.43			0.31



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

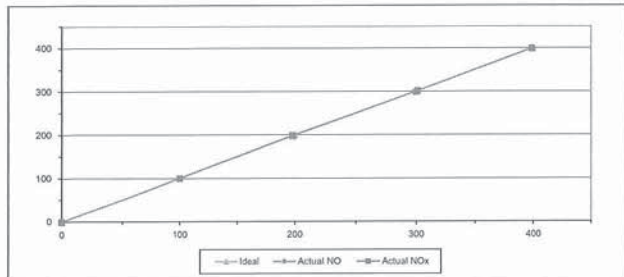
ALS Laboratory Group  
FORM NO.: F 06-056 REVISION NO.: ISSUE DATE: 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date 3-Jul-25 Equipment Name NOx Analyzer  
Manufacturer HORIBA Model APNA-370  
Serial No. PX13CWA0 Equipment ID BKK\_FS1088  
Calibrator Manufacturer Teledyne API Model 700  
Serial No. 947  
Std. Gas Concentration (PPM) 55.88 Cylinder No. GN0027222  
Cylinder Pressure (psi) 1600 Certified By Algas Inc.  
Certified Date 9-Feb-22 Expired Date 9-Feb-30

Point	CALIBRATION RESULTS						
	Ideal	Actual NO	Error NO	%Error NO	Actual NOx	Error NOx	%Error NOx
ZERO	0.00	0.10	0.10	0.10	0.10	0.10	0.10
1	100.00	99.10	-0.90	-0.90	100.20	0.20	0.20
2	200.00	198.30	-1.70	-0.85	199.10	-1.90	-0.95
3	300.00	298.40	-1.60	-0.53	301.30	1.30	0.43
4	400.00	399.90	-0.10	-0.03	398.90	-1.10	-0.28
AVERAGE (%)				-0.44			-0.10



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

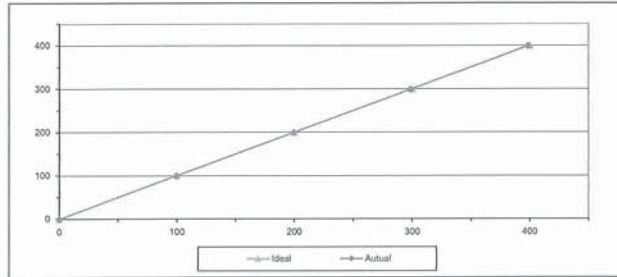
ALS Laboratory Group  
FORM NO.: F 06-056 REVISION NO.: ISSUE DATE: 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date 2-Jul-25 Equipment Name SO2 Analyzer  
Manufacturer HORIBA Model AP8A-370  
Serial No. YPRXJ20 Equipment ID RYG\_FS0283  
Calibrator Manufacturer Teledyne API Model 700  
Serial No. 947  
Std. Gas Concentration (PPM) 50.3 Cylinder No. GN0027222  
Cylinder Pressure (psi) 1600 Certified By Algas Inc.  
Certified Date 9-Feb-22 Expired Date 9-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	99.70	-0.30	-0.30
2	200.00	199.40	-0.60	-0.30
3	300.00	298.20	-1.80	-0.60
4	400.00	398.50	-1.50	-0.38
AVERAGE (%)				-0.30



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

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

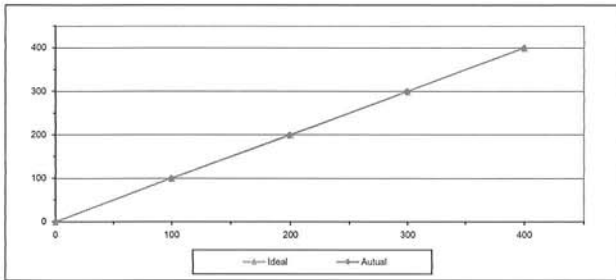




## MULTIPOINT CALIBRATION REPORT

Calibration Date	2-Jul-25	Equipment Name	SO2 Analyzer
Manufacturer	HORIBA	Model	AP8A-370
Serial No.	42B579RC	Equipment ID	BKK_FS1085
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	56.3	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Algas Inc.
Certified Date	9-Feb-22	Expired Date	9-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	99.50	-0.50	-0.50
2	200.00	198.80	-1.20	-0.60
3	300.00	299.10	-0.90	-0.30
4	400.00	399.50	-0.50	-0.13
AVERAGE (%)				-0.28



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

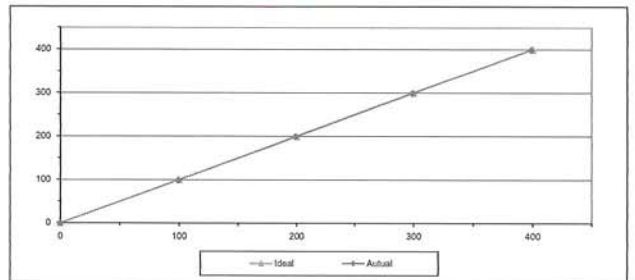
ALS Laboratory Group  
FORM NO.: F 06-056 REVISION NO.: ISSUE DATE: 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date	2-Jul-25	Equipment Name	SO2 Analyzer
Manufacturer	HORIBA	Model	AP8A-370
Serial No.	XHV1859F	Equipment ID	BKK_FS1067
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	56.3	Cylinder No.	GN0027222
Cylinder Pressure (psi)	1800	Certified By	Algas Inc.
Certified Date	9-Feb-22	Expired Date	9-Feb-30

Point	CALIBRATION RESULTS			
	Ideal	Actual	Error	%Error
ZERO	0.00	0.10	0.10	0.10
1	100.00	99.10	-0.90	-0.90
2	200.00	198.80	-1.20	-0.60
3	300.00	298.80	-1.20	-0.40
4	400.00	398.30	-1.70	-0.42
AVERAGE (%)				-0.44



Calibrated By

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

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

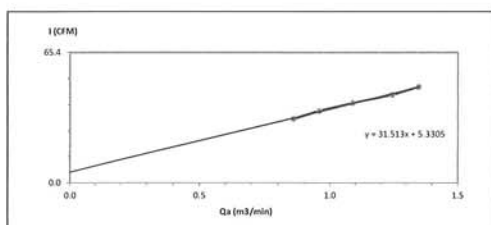
ALS Laboratory Group  
FORM NO.: F 06-056 REVISION NO.: ISSUE DATE: 02/04/12



## High Volume Air Sampler Calibration Worksheet

Project Site:	General Electric International Operations Company Inc.	Barometric Pressure (mm Hg):	756.8
Calibrate Location:	Ban Mahtong	Temperature (°C):	29.4
Calibrate Date:	15-Nov-25	High Volume ID:	RYG-FS0398
Calibration Sheet No.:	C-151125-RYG-FS0398	High Volume Model:	TE-5009X
Calibrator ID:	RYG-FS0205	High Volume S/N:	5684
Calibrator Model:	TE-5028A	Calibrator Slope:	0.95091
Calibrator S/N:	1166	Calibrator Intercept:	-0.01856

Test No.	Delta H <sub>2</sub> O (inch)	Qa (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	1.6	0.059	32	Slope: 31.5126 Intercept: 5.3305 Correlation Coefficient: 0.9975
2	2.0	0.959	36	
3	2.6	1.099	40	
4	3.4	1.244	44	
5	4.0	1.340	48	



Calibrated by: Adisak T.  
(Mr. Adisak Tartsuon)  
RYG Field Services Scientist (3)

Approved by: Supt S.  
(Mr. Supot Salameh)  
Field Services Section Head

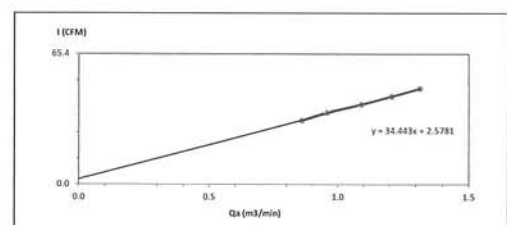
FORM NO.: F 06-074 REVISION NO.:2 ISSUE DATE: 20/11/23



## High Volume Air Sampler Calibration Worksheet

Project Site:	General Electric International Operations Company Inc.	Barometric Pressure (mm Hg):	756.8
Calibrate Location:	Ban Krachedrang (Wad Krached)	Temperature (°C):	29.6
Calibrate Date:	15-Nov-25	High Volume ID:	RYG-FS0185
Calibration Sheet No.:	C-151125-RYG-FS0185	High Volume Model:	TE-5009X
Calibrator ID:	RYG-FS0205	High Volume S/N:	4793
Calibrator Model:	TE-5028A	Calibrator Slope:	0.95091
Calibrator S/N:	1166	Calibrator Intercept:	-0.01856

Test No.	Delta H <sub>2</sub> O (inch)	Qa (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	1.6	0.060	32	Slope: 34.4433 Intercept: 2.5781 Correlation Coefficient: 0.9992
2	2.0	0.959	36	
3	2.6	1.091	40	
4	3.2	1.208	44	
5	3.8	1.315	48	



Calibrated by: Adisak T.  
(Mr. Adisak Tartsuon)  
RYG Field Services Scientist (3)

Approved by: Supt S.  
(Mr. Supot Salameh)  
Field Services Section Head

FORM NO.: F 06-074 REVISION NO.:2 ISSUE DATE: 20/11/23

## High Volume Air Sampler Calibration Worksheet

Accredited by

NSC-TISI-TIS 17025

Calibration 0428

## Calibration certificate

Calibration Certificate No. 25BKL0001

Object	Electronic non-automatic weighing instrument	This calibration certificate documents the traceability to national standards.
Manufacturer	Sartorius	Uncertainties of measurements are taken into account when only statements of compliance are made.
Type	LA130S-F	This certificate was prepared by Sartorius Corporation in accordance to the current ISO/IEC 17025:2017 standard and Sartorius Work Instruction (Method) SOP M108.
Serial   QM Ident. no.	25409684   RYG_EN0001	This certificate relate and apply this equipment only.
Customer	ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)	
Order no.	2230	
Number of pages	4	
Date of calibration	20 Feb 2025	

This calibration certificate may not be reproduced other than in full except with the permission of NSC-TISI-TIS-17025 and the issuing laboratory. Calibration certificates without signature are not valid.

The user is obliged to have the object recalibrated at appropriate intervals.

Date	06 Mar 2025	Approval of the Calibration Certificate	Person in charge
			
		Mr. Chonchai Inthana	Kachen LaLee

Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaykwang  
10310 Bangkok

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Page 1 | 4

Calibration certificate No.: 25BKL0001

## Calibration Certificate

## Calibration object

### Single range instrument

Model	LA130S-F
Serial Number	25409664
QM Ident. no   Inventory no.	RYG_EN0001   —
Maximum capacity (Max. load)	150.0000 g
Measured range	150.0000 g
Scale interval	0.0001 g

## Place of calibration

Address	According to page 1
Department   Cost center	Laboratory Department.   —
Building   Floor	—   1st Floor.
Room	Balance Room.
Maximum temperature variation at place of calibration	5 K

### Calibration procedure

EURAMET cg-18, V4.0 - Guidelines on the Calibration of Non-Automatic Weighing Instruments

### Test equipment

Test equipment type	Test equipment ID	Valid until
Thermometer	MHB-362SD s/nB011342 Traceable to SI unit through DKSH	21 Aug 2025
Test weight set OIML R111 E2	Certificate No.M230819S ,E2(Traceable to SI unit through TCS)	23 Aug 2025

### Adjustment Status

The measuring device was internally adjusted before the calibration.

### Environmental and measuring conditions

Date of calibration	20 Feb 2025
Temperature at place of calibration   Temp. diff.	24.5 °C   1.0 K
Twilights - T <sub>place</sub>	
Measuring conditions	The installation site is suitable. The device was levelled. Balance was loaded up to Max before test.
Comments	Humidity 58.0 %RH.

## Measurement results | Measurement uncertainties

Repeatability			Eccentricity	
Test load (nominal): 10 g   100 g			Test load (nominal): 50 g	
	10 g	100 g	Center	50,0000 g
1	10,0000 g	100,0000 g	Front left	50,0001 g
2	9,9999 g	100,0000 g	Back left	50,0000 g
3	10,0000 g	99,9999 g	Back right	49,9999 g
4	10,0000 g	100,0000 g	Front right	50,0001 g
5	10,0000 g	99,9999 g	Maximum deviation from centric loading indication	
6	9,9999 g	99,9999 g	ΔA <sub>cc</sub>   <sub>max</sub> = 0.0001 g	
7	10,0000 g	100,0000 g		
8	10,0000 g	100,0000 g		
9	10,0000 g	100,0000 g		
10	10,0000 g	100,0000 g		
s = 0.00004 g		s = 0.00005 g		

Error of indication

Testload	Indication	Error	Expansion factor	Uncertainty	Uncertainty relative
$L$	$I$	$E$	$K$	$U(E)$	$U_r(E)$
0.0100 g	0.0100 g	0.0000 g	2.00	0.00012 g	1.2 %
0.0500 g	0.0500 g	0.0000 g	2.00	0.00013 g	0.25 %
0.1000 g	0.1000 g	0.0000 g	2.00	0.00013 g	0.13 %
0.5000 g	0.5000 g	0.0000 g	2.00	0.00013 g	0.026 %
1.0000 g	1.0000 g	0.0000 g	2.00	0.00013 g	0.013 %
2.0000 g	2.0000 g	0.0000 g	2.00	0.00013 g	0.0065 %
5.0000 g	5.0000 g	0.0000 g	2.00	0.00013 g	0.0026 %
10.0000 g	10.0000 g	0.0000 g	2.00	0.00013 g	0.0013 %
20.0000 g	20.0000 g	0.0000 g	2.00	0.00014 g	0.00069 %
100.0000 g	100.0000 g	0.0000 g	2.00	0.00021 g	0.00021 %
150.0000 g	149.9999 g	-0.0001 g	2.00	0.00026 g	0.00019 %

Maximum error of indication  $U_{L_{max}} = 0.0001$  g

Maximum error of indication  $|E|_{\max} = 0,0001 \text{ g}$

$U(E)$  is the quotient of  $U(E)$  and test load  $L$ . The uncertainty of measurement  $U(E)$  is valid only if error  $E$  is considered. You will find reference notes on the uncertainty of measurement in use under. Appendix to the calibration certificate

Reference note: The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the documented Expansion factor, determined in accordance with the European Calibration Guideline EURAMET cg-18, V4.0. There is a 95 % probability that the value of the measured will be in the assigned value range.

End of calibration certificate



## Uncertainty of measurement in use

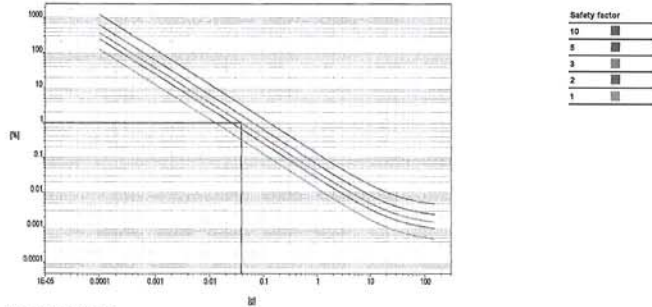
Device adjusted before measurement: Yes  
Temperature deviation considered: 1.5 K (isoCAL active)  
Temperature coefficient considered:  $1 \cdot 10^{-4}/K$

Uncertainty of the weighing result  $U_{95}(W)$ :  $U_{95}(W) = 0.00013 \text{ g} + 3.96 \cdot 10^{-4} \cdot R$

Reference note: The current uncertainty of measurement is calculated by entering of the reading R into this formula. In relation to this, there is no need for a correction of the indication error. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied with an Expansion factor of 2, determined in accordance with the European Calibration Guideline EURAMET cg-16, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

Indication in % from max load	Net indication R	Uncertainty $U_2(W)$	Uncertainty relative $U_2(W)/rel$
1 %	1.5000 g	0.00014 g	0.0091 %
25 %	37.5000 g	0.00028 g	0.00074 %
50 %	75.0000 g	0.00043 g	0.00057 %
75 %	112.5000 g	0.00058 g	0.00051 %
100 %	150.0000 g	0.00072 g	0.00048 %

Graphic realization of the relative uncertainty of measurement | process accuracy



Displayed example

Process accuracy: 1.00 %  
Safety factor: 3  
Minimum sample weight: 0.0380 g

Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaykwang  
10310 Bangkok

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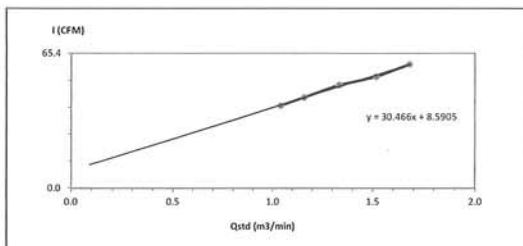
Page 4 | 4



## High Volume Air Sampler Calibration Worksheet

Project Site: General Electric International Operations Company Inc.  
Calibrate Location: Ban Krachediang (Wad Krached)  
Calibrate Date: 15-Nov-25  
CalibrationSheet No.: C-151125-BKK-FS0364  
Calibrator ID: RYG-FS0205  
Calibrator Model: TE-5028A  
Calibrator S/N: 1166  
Barometric Pressure (mm Hg): 756.8  
Temperature (°C): 29.6  
High Volume ID: BKK-FS0364  
High Volume Model: TE-5009X  
High Volume S/N: 4154  
Calibrator Slope: 1.51825  
Calibrator Intercept: -0.02964

Test No.	Delta H <sub>2</sub> O (inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.4	1.0401	40	Slope: 30.4664
2	3.0	1.1594	44	Intercept: 8.5905
3	4.0	1.3341	50	Correlation Coefficient: 0.9973
4	5.2	1.5170	54	
5	6.4	1.6797	60	



Calibrated by: Adisak T.  
( Mr. Adisak Tarisoorn )  
RYG Field Services Scientist (3)

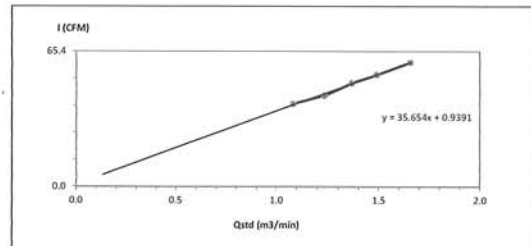
Approved by: Supt S  
( Mr. Supot Salamteh )  
Field Services Section Head

FORM NO.: F 06-073 REVISION NO.:2 ISSUE DATE: 20/11/23

## High Volume Air Sampler Calibration Worksheet

Project Site: General Electric International Operations Company Inc.  
Calibrate Location: Ban Mahtong  
Calibrate Date: 15-Nov-25  
CalibrationSheet No.: C-151125-RYG-FS0664  
Calibrator ID: RYG-FS0205  
Calibrator Model: TE-5028A  
Calibrator S/N: 1166  
Barometric Pressure (mm Hg): 756.8  
Temperature (°C): 29.4  
High Volume ID: RYG-FS0664  
High Volume Model: TE-5009X  
High Volume S/N: 6261  
Calibrator Slope: 1.51825  
Calibrator Intercept: -0.02964

Test No.	Delta H <sub>2</sub> O (inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.6	1.0917	40	Slope: 35.6540
2	3.4	1.2327	44	Intercept: 0.9391
3	4.2	1.3668	50	Correlation Coefficient: 0.9977
4	5.0	1.4886	54	
5	6.2	1.6543	60	



Calibrated by: Adisak T.  
( Mr. Adisak Tarisoorn )  
RYG Field Services Scientist (3)

Approved by: Supt S  
( Mr. Supot Salamteh )  
Field Services Section Head

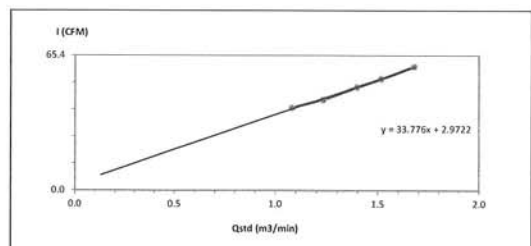
FORM NO.: F 06-073 REVISION NO.:2 ISSUE DATE: 20/11/23



## High Volume Air Sampler Calibration Worksheet

Project Site: General Electric International Operations Company Inc.  
Calibrate Location: Ban Nonglaleak (Wad Nongkrabok)  
Calibrate Date: 15-Nov-25  
CalibrationSheet No.: C-151125-RYG-FS0182  
Calibrator ID: RYG-FS0205  
Calibrator Model: TE-5028A  
Calibrator S/N: 1166  
Barometric Pressure (mm Hg): 756.8  
Temperature (°C): 30.1  
High Volume ID: RYG-FS0182  
High Volume Model: TE-5170D  
High Volume S/N: 5335  
Calibrator Slope: 1.51825  
Calibrator Intercept: -0.02964

Test No.	Delta H <sub>2</sub> O (inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	2.6	1.0805	40	Slope: 33.7755
2	3.4	1.2313	44	Intercept: 2.9722
3	4.4	1.3967	50	Correlation Coefficient: 0.9985
4	5.2	1.5158	54	
5	6.4	1.6783	60	



Calibrated by: Adisak T.  
( Mr. Adisak Tarisoorn )  
RYG Field Services Scientist (3)

Approved by: Supt S  
( Mr. Supot Salamteh )  
Field Services Section Head

FORM NO.: F 06-073 REVISION NO.:2 ISSUE DATE: 20/11/23







Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

Function: Table 1. This equipment was connected with temperature sensor Model: HMP60 S/N: V1920212.  
Dimension: Diameter 12 mm, Length 80 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.077	19.8	-0.3	0.095
80	25.066	24.8	-0.3	0.095
80	30.053	29.8	-0.3	0.095
80	35.041	34.7	-0.3	0.095
80	40.019	39.7	-0.3	0.095

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



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ISO/IEC 17025:2017  
NSC-TISI-TIS 17025  
CALIBRATION 0367

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TISI-TIS 17025  
CALIBRATION 0367

Relative humidity and Air Temperature measurement laboratory  
Calibration services department.



## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

Certificate No. : COT-002-68

**MEASUREMENT ITEM**  
: Relative humidity with data logger  
**MANUFACTURER**  
: NovaLinc  
**MODEL/TYPE**  
: Data logger: 110-WS-25DC-D  
Sensor: HMP60  
**SERIAL NUMBER**  
: Data logger: A5977  
Sensor: V1920212  
**ID NUMBER**  
: RYG, F50647  
**CONDITION AS RECEIVED**  
: Used item  
**CUSTOMER**  
: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd, Khwaeng Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand

**Calibration procedure:**  
The Relative humidity and Air Temperature calibration was done by the Naue calibration method as per CIP and WELC200 according to comparison method with Standard Calibrated Minor Hygrometer with Temperature sensor and standard Humidity generator chamber.

**Traceability:**  
The measurements are traceable to the International System of Units (SI) through National Institute of Metrology Thailand (NIMT). Certificate number: TH-0465-24 and Jiranatee Associates Co., Ltd. Certificate number: COT-028-68.

**Uncertainty of Measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement.

**RECEIVED DATE**  
: 10 Jan 2025  
**MEASUREMENT DATE**  
: 10 Jan 2025  
**ISSUE DATE**  
: 20 Jan 2025

**ENVIRONMENTAL CONDITIONS:**  
Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 1.0 °C  
Relative Humidity : 55.0 ± 15.0 %RH

**NOTE:** The certificate is valid only to the item calibrated on date and place of calibration.

**TABULATION OF RESULTS:**  
The table on next page give the measured values.



Calibrated by:  
☐ Mr. Somchai Thakulchai  
☒ Mr. Jirananee Lertsamphol  
☐ Miss Wangsarnpai Phoomsil

Approved signature:   
Mr. Jirananee Lertsamphol  
Calibration Department Manager

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

### Measurement Results:

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Table 1: The results of calibration of relative humidity at 30 °C are reported in table below.  
Calibration Range: 20/50 to 80/50%

Air Temperature (°C)	Standard Reading (%RH)	UUC Reading (%RH)	Error (%RH)	Uncertainty (%RH)
20.72	19.84	18.6	-1.3	0.78
25.73	51.26	49.0	-2.3	1.3
29.74	82.83	79.7	-3.2	2.1

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



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NSC-TISI-TIS 17025  
CALIBRATION 0367

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TISI-TIS 17025  
CALIBRATION 0367

Pressure measurement laboratory  
Calibration services department.



## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

Certificate No. : COT-002-68

**MEASUREMENT ITEM**  
: Digital barometer  
**MANUFACTURER**  
: NovaLinc  
**MODEL/TYPE**  
: Sensor: 110-WS-25BP  
Data logger: 110-WS-25DC-D  
**SERIAL NUMBER**  
: Sensor: BP-A5977  
Data logger: A5977  
**ID NUMBER**  
: RYG, F50647  
**CONDITION AS RECEIVED**  
: Used item  
**CUSTOMER**  
: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd, Khwaeng Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

**Calibration procedure:**  
The Digital barometer was calibrated using the Digital pressure calibration method as per CIP and WELC200 according to comparison method with Standard Calibrated Minor Hygrometer with Temperature sensor and standard Humidity generator chamber.

**Traceability:**  
The measurements are traceable to the International System of Units (SI) through National Institute of Metrology Thailand (NIMT). Certificate number: TH-0465-24 and Jiranatee Associates Co., Ltd. Certificate number: COT-028-68.

**Reference Line During Calibration:**  
1. Absolute Pressure: 1013.25 hPa  
Mean Pressure: 1013.25 hPa

**RECEIVED DATE**  
: 10 Jan 2025  
**MEASUREMENT DATE**  
: 15 Jan 2025  
**ISSUE DATE**  
: 20 Jan 2025

**Uncertainty of Measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement.

### CONDITION OF THIS RESULT OF CALIBRATION:

1. Calibration effort for calibration sequence C
2. The UUC\* was installed in vertical orientation above reference standard instrument and center of UUC\* was used as the reference level.
3. Calibration conditions:

4. Condition: ☒ Normal ☐ Abnormal  
Pressure transmitting medium: Air  
 $p_1$  (20°C, 1 bar): 1.1032 g/m<sup>3</sup>  
 $p_{ref}$ : (52.422.6) hPa  
 $p_{ref}$ : (22.546.12) °C  
 $p_{ref}$ : (1011.0 ± 1.5) mbar
5. The certificate is valid only to the item calibrated on date and place of calibration



Calibrated by:

Approved signature:   
Mr. Jirananee Lertsamphol  
Calibration Department Manager

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





MEASUREMENT RESULTS<sup>1</sup>

The wind direction sensor was calibrated against standard rotary encoder by comparison method. During calibration, the measurement was carried out at 45° intervals in clockwise and counter-clockwise directions after offset adjustment has been made. The flow speed of wind tunnel (usually 5 m/s) is kept constant while the sensor is rotated around its vertical axis. The results of calibration and associated measurement uncertainties are reported in the table below.

Air speed m/s	D <sub>cal</sub> Degree (°)	D <sub>ref</sub> Degree (°)	Error Degree (°)	U (k=2) Degree (°)
5.01	45.000	42	3	0.80
	90.000	88	-2	0.80
	135.000	135	0	0.80
	180.000	182	2	0.80
	225.000	228	3	0.80
	270.000	273	3	0.80
	315.000	318	3	0.80
	360.000	359	-1	0.80

## Remarks:

<sup>1</sup> Calibration results only valid for the tested circumstances and environmental conditions during which calibration took place.

<sup>2</sup> Direction of standard.

<sup>3</sup> Direction of Wind under Calibration.

\*\*\*End of Certificate of Calibration\*\*\*



Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS 17025  
CALIBRATION 0367

Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS 17025  
CALIBRATION 0367

Temperature measurement laboratory  
Calibration services department



NSC-TIS 17025  
CALIBRATION 0367

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

Certificate No.: COT-029-68

MEASUREMENT ITEM  
MANUFACTURER  
MODEL/TYPE  
SERIAL NUMBER  
ID NUMBER  
CONDITION AS-RECEIVED  
CUSTOMER

Data Logger with Temperature sensor  
Novallix  
110-WS-2501-D  
A5978  
RVG, J50648  
Used item  
AIS laboratory group (Thailand) Co., Ltd.  
104 Phatthanasak 40, Phatthanasak Rd.,  
Khuang Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE  
MEASUREMENT DATE  
ISSUE DATE

10 Jan 2025  
16 Jan 2025  
20 Jan 2025

## ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 0.3 °C  
Relative Humidity : 55.0 ± 3.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration

## TABULATION OF RESULTS:

The table on next page give the measured values.

## Calibration procedure:

The temperature calibration was done by in-house calibration method using 1994C-001 according to comparison method with standard digital temperature indicator and standard temperature probe. The temperature scale was based on ITS-90.

## Traceability:

The measurement results are traceable to the international system of units (SI) through National Institute of Metrology Thailand (NIMT). Certificate number: IT 0047-24, Certificate number: ER 0113-24

## Reference Used During Calibration:

1. Standard Temperature Probe  
Model: STS 100 A500, Serial No.: 667682-09,  
Due date: 26 Mar 2025  
2. Digital Temperature Indicator  
Model: DTI-1003-A MK II, Serial No.: 671907,  
00591 Due date: 21 Oct 2025

Uncertainty of Measurement:  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement.



Calibrated by:  
☒ Mr. Sorawit Thachalad  
☒ Miss Jitraporn Lertsomphol  
☒ Miss Jiraporn Phoommit

Approved signature: Mr. Parinya Booncharoen  
Calibration Department Manager

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Continuation of Certificate of Calibration Number COT-029-68

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

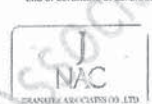
## Function:

Table 1: This equipment was connected with temperature sensor Model: HMP60 5/N: V1920213.  
Dimension: Diameter 12 mm, Length 80 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.077	19.6	-0.5	0.099
80	25.066	24.6	-0.5	0.099
80	30.054	29.6	-0.5	0.099
80	35.035	34.5	-0.5	0.099
80	40.018	39.5	-0.5	0.099

UUC\*: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



Accredited calibration laboratory  
ISO/IEC 17025:2017  
NSC-TIS 17025  
CALIBRATION 0367

Relative humidity and Air Temperature measurement laboratory  
Calibration services department



NSC-TIS 17025  
CALIBRATION 0367

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

Certificate No.: CRT-003-68

MEASUREMENT ITEM  
MANUFACTURER  
MODEL/TYPE  
SERIAL NUMBER  
ID NUMBER  
CONDITION AS-RECEIVED  
CUSTOMER

Relative humidity with data logger  
Novallix  
Data Logger: 110-WS-2501-D  
Sensor: HMP60  
Data Logger: A5978  
Sensor: V1920213  
RVG, J50648  
Used item  
AIS laboratory group (Thailand) Co., Ltd.  
104 Phatthanasak 40, Phatthanasak Rd., Khuang Suan Luang,  
Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE  
MEASUREMENT DATE  
ISSUE DATE

10 Jan 2025  
16 Jan 2025  
20 Jan 2025

## ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:  
Temperature : 23.0 ± 0.3 °C  
Relative Humidity : 55.0 ± 3.0 %RH

NOTED: The certificate is valid only to the item calibrated on date and place of calibration

## TABULATION OF RESULTS:

The table on next page give the measured values.

## Calibration procedure:

The relative humidity and Air Temperature calibration was done by in-house calibration method using W19-CL-002 and W19-CL-003 according to comparison method with Standard Clinical Micro Hygrometer with Temperature scale and standard Humidity generator chamber.

## Traceability:

The measurement results are traceable to the international system of units (SI) through National Institute of Metrology Thailand (NIMT). Certificate number: TH0416-24 and Issuance Associate (I), Ltd. Certificate number: COT-029-68.

Uncertainty of Measurement:  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM Evaluation of measurement data - Guide to the expression of uncertainty in measurement.



Calibrated by:  
☒ Mr. Sorawit Thachalad  
☒ Miss Jitraporn Lertsomphol  
☒ Miss Jiraporn Phoommit

Approved signature: Mr. Parinya Booncharoen  
Calibration Department Manager

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**Measurement Results:**

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Table 1: The results of calibration of relative humidity at 30 °C are reported in table below.  
Calibration Range: 20RH to 80RH

Air Temperature (°C)	Standard Reading (%RH)	UUC Reading (%RH)	Error (%RH)	Uncertainty (%RH)
29.71	39.86	38.5	-1.4	0.78
29.75	51.31	49.0	-2.2	1.3
29.75	82.84	80.0	-2.8	2.1

UUC: Unit Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**CERTIFICATE OF CALIBRATION**

Certificate No.: CRT-003-68

Page 1 of 2 Pages

**MEASUREMENT ITEM**: Digital barometer  
**MANUFACTURER**: Novolyne  
**MODEL/TYPE**: Sensor: 110-WS-250P  
Data logger: 110-WS-250L-D  
**SERIAL NUMBER**: Sensor: BP-AS978  
Data logger: AS978  
**ID NUMBER**: RYG\_750648  
**CONDITION AS-RECEIVED**: Used item  
**CUSTOMER**: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanasak 40, Phatthanasak Rd,  
Khuaseng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE**: 10 Jan 2025  
**MEASUREMENT DATE**: 16 Jan 2025  
**ISSUE DATE**: 20 Jan 2025

**Calibration procedure:**  
The digital barometer was calibrated against Digital pressure calibration, the UUC-0593 was used as a calibration standard.

**Traceability:**  
The measurement results are traceable to the International system of units (SI) through the NIST (National Metrology Institute of Thailand) via Certificate number: MP-0003-24

**Reference Unit/Type Calibration:**  
1. Absolute Pressure Transducer  
Model: CP52500, Serial No.: 4100126P

**Uncertainty of measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM "Evaluation of measurement data - Guide to the expression of uncertainty in measurement"

**CONDITION OF THIS RESULT OF CALIBRATION:**

1. Calibration effort for calibration sequence C  
2. The UUC\* was installed in vertical orientation above reference standard instrument and center of UUC\* was used as the reference level.

3. Calibration conditions:

4. Condition: ☒ Normal ☐ Abnormal  
Pressure transmitting medium: Air  
At (20°C, 1 bar): 1.19 kg/m³  
P<sub>ref</sub>: (55.312 ± 0.15)  
T<sub>amb</sub>: (23.140 ± 0.1)  
P<sub>amb</sub>: (1013.210 ± 0.7) mbar

5. The certificate is valid only to the item calibrated on date and place of calibration

Calibrated by:  
Mr. Somchai Thongphol  
Mr. Jiraporn Lertwongtham



Approved signature:  
Mr. Pongpoo Booncharon  
Calibration Department Manager

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**CERTIFICATE OF CALIBRATION**

Page 1 of 2 Pages

Certificate No.: CRT-003-68

Page 2 of 2 Pages

**MEASUREMENT RESULTS**: ☐ Without adjustment ☒ With adjustment  
**CALIBRATION IN THE RANGE OF**: 950 mbar to 1050 mbar

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

STD (mbar)	UUC* (mbar)	Error (mbar)	Uncertainty (k=2) (mbar)
950.13	951.7	1.6	0.38
970.13	971.1	1.0	0.37
990.09	990.6	0.5	0.37
1010.05	1010.0	0.0	0.37
1029.99	1029.5	-0.5	0.38
1050.07	1049.0	-1.1	0.37

Note: UUC\* Unit Under Calibration  
To convert the result in report unit to Pa should be multiply by 100

\*End of certificate



**MEASUREMENT ITEM**: Cup anemometer  
**MANUFACTURER**: Novolyne  
**MODEL/TYPE**: Sensor: WS-02P  
Data logger: 110-WS-250L-D  
**SERIAL NUMBER**: Sensor: WS-00912  
Data logger: AS978  
**ID NUMBER**: RYG\_750611  
**CONDITION AS-RECEIVED**: Used item  
**CUSTOMER**: ALS laboratory group (Thailand) Co., Ltd.  
104 Phatthanasak 40, Phatthanasak Rd,  
Khuaseng Suan Luang, Khet Suan Luang,  
Bangkok 10250 Thailand.

**RECEIVED DATE**: 10 Jan 2024  
**MEASUREMENT DATE**: 26 Jun 2024  
**ISSUE DATE**: 26 Jun 2024

**ENVIRONMENTAL CONDITIONS:**

Air-test condition in the laboratory are as follow:  
Temperature: (23.0 ± 0.5) °C  
Relative Humidity: (55.0 ± 15.0) %RH  
Atmospheric Pressure: (1010 ± 10) hPa

**PLACE OF CALIBRATION**: 100% type wind tunnel of Jiranatee Associates Co., Ltd.

**CALIBRATION CONDITIONS**: Wind tunnel cross section area: 900 cm²  
Wind direction frontal area: 100 cm²  
Diameter of mounting plate: 0.111 m

**Preconditioning**: 30 hours at ambient conditions.  
**Measurement Condition**: The average values during measurement are (24.0) °C, (44.0) %RH and (1003.0) hPa.

**TABULATION OF RESULTS:**  
The table on next page give the measured values.

Calibrated by:  
Mr. Somchai Thongphol  
Mr. Jiraporn Lertwongtham



Approved signature:  
Mr. Pongpoo Booncharon  
Calibration Department Manager

**Remarks:**  
\* Actual flow section area of the wind tunnel  
\* Flowable cross-section area of the tested object include mounting plate  
\* Diameter of mounting plate  
\* Ratio: 1:1

**Calibration procedure:**  
The Cup anemometer was calibrated against standard air velocity transducer model: 8450-02 and pitot tube with pressure differential pressure meter model: DPV4250 in air flow calibration of 800 m/s. The WS-00912 used as a reference unit. The WS-00912 used as a reference unit. The WS-00912 used as a reference unit.

**Traceability:**  
This certificate provides a traceability of the measurement to the International system of units (SI) through the NIST (National Metrology Institute of Thailand) via Certificate number: MP-0003-24 and MP-0003-24

**Uncertainty of Measurement:**  
The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM "Evaluation of measurement data - Guide to the expression of uncertainty in measurement"

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## CERTIFICATE OF CALIBRATION

Certificate No. : CFR-007-67

Page 2 of 2 Pages

MEASUREMENT RESULTS : ☐ Without adjustment ☒ With adjustment

CALIBRATION IN THE RANGE OF : 950 mbar to 1050 mbar

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

STD (mbar)	UUC* (mbar)	Error (mbar)	Uncertainty (k=2) (mbar)
950.11	951.9	1.8	0.37
970.08	971.3	1.2	0.37
990.08	991.0	0.9	0.37
1010.09	1010.4	0.3	0.37
1030.02	1030.9	-0.2	0.37
1050.02	1049.3	-0.8	0.37

Note: UUC\* Unit Under Calibration

: To convert the result in report unit to Pa should be multiply by 100

\*End of certificate\*



Certificate No. : CDT-104-67

Page 1 of 2 Pages

MEASUREMENT ITEM : Data logger with Temperature sensor  
MANUFACTURER : Novolyte  
MODEL/TYPE : 110-WS-25DL-D  
SERIAL NUMBER : A5912  
ID NUMBER : RVG\_F50611  
CONDITION AS RECEIVED : Used item  
CUSTOMER : AIS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khaewang Suai Luang, Khet Suai Luang,  
Bangkok 10250 Thailand.

RECEIVED DATE : 10 Jun 2024  
MEASUREMENT DATE : 26 Jun 2024  
ISSUE DATE : 26 Jun 2024

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:

Temperature :  $23.0 \pm 3.0$  °C  
Relative Humidity :  $55.0 \pm 15.0$  %RH

NOTE: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:

The table on next page give the measured values.

Calibration procedure:  
The temperature calibration was done by  
in-house calibration method as per  
according to comparison method with standard  
digital temperature indicator and standard  
temperature probe. The temperature scale use  
was based on ITS-90.

Traceability:  
The measurement results are traceable to the  
international system of units (SI) through  
National Institute of Metrology Thailand (NIMT)  
Certificate number: 11-0047-24, Certificate  
number: 11-0101-23.

Reference Used During Calibration:  
1. Standard Temperature Probe  
Model: STS-100 AS500, Serial No: 667602-03,  
Due date: 26 Mar 2025  
2. Digital Temperature Indicator  
Model: DIT-1000 A SM II, Serial No: 671407-  
00391 due date: 14 Sep 2024

Uncertainty of Measurement:  
The reported uncertainty of measurement is  
based on the standard uncertainty multiplied by  
a coverage factor k=2, which for a normal  
distribution corresponds to a coverage  
probability of approximately 95%. The standard  
uncertainty has been determined in accordance  
with the GUM Evaluation of measurement data  
- Guide to the expression of uncertainty in  
measurement.

Calibrated by:  
☒ Mr. Jiraporn Thacharad  
☒ Mr. Jiraporn Leksamphol  
☒ Mr. Jiraporn Phommit



Approved signature:   
Mr. Pinyea Booncharoen  
Calibration Department Manager

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Continuation of Certificate of Calibration Number CDT-104-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

Function:

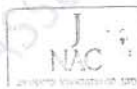
Table 3: This equipment was connected with temperature sensor Model: HMP60 S/N: U3911247,  
Dimension: Diameter 12 mm, Length 80 mm.

Immersion Depth (mm)	Standard Reading (°C)	UUC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.055	19.6	-0.5	0.099
80	25.058	24.6	-0.5	0.099
80	30.048	29.7	-0.3	0.099
80	35.033	34.7	-0.4	0.14
80	40.045	39.5	-0.5	0.099

UUC\*: Unit Under Calibration

Remark: The reported uncertainty of measurement is 0.14, based on standard uncertainty multiplied by a coverage factor k=2,14  
providing a level of confidence of approximately 95%.

\*\*\*End of Certificate of Calibration\*\*\*



## CERTIFICATE OF CALIBRATION

Certificate No. : CRT-016-67

Page 1 of 2 Pages

MEASUREMENT ITEM : Relative humidity with data logger  
MANUFACTURER : Novolyte  
MODEL/TYPE : Data Logger: 110-WS-25DL-D  
Sensor: HMP60  
SERIAL NUMBER : Data Logger: A5912  
Sensor: U3911247  
ID NUMBER : RVG\_F50611  
CONDITION AS RECEIVED : Used item  
CUSTOMER : AIS laboratory group (Thailand) Co., Ltd.  
104 Phatthanakan 40, Phatthanakan Rd., Khaewang Suai Luang,  
Khet Suai Luang, Bangkok 10250 Thailand.

RECEIVED DATE : 10 Jun 2024  
MEASUREMENT DATE : 26 Jun 2024  
ISSUE DATE : 26 Jun 2024

ENVIRONMENTAL CONDITIONS:

Ambient condition in the laboratory are as follow:

Temperature :  $23.0 \pm 3.0$  °C  
Relative Humidity :  $55.0 \pm 15.0$  %RH

NOTE: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:

The table on next page give the measured values.

Calibration procedure:  
The Relative humidity and Air Temperature  
calibration was done by in-house calibration  
method as per according to comparison method with standard  
humidity generator and standard  
humidity generator.

Traceability:  
The measurement results are traceable to the  
international system of units (SI) through National  
Institute of Metrology Thailand (NIMT). Certificate  
number: 11-0047-23 and through National  
Institute of Metrology Co., Ltd. Certificate number: 11-0101-23.

Uncertainty of Measurement:  
The reported uncertainty of measurement is based  
on the standard uncertainty multiplied by a  
coverage factor k=2, which for a normal distribution  
corresponds to a coverage probability of  
approximately 95%. The standard uncertainty has  
been determined in accordance with the GUM  
Evaluation of measurement data - Guide to the  
expression of uncertainty in measurement.

Calibrated by:  
☒ Mr. Jiraporn Thacharad  
☒ Mr. Jiraporn Leksamphol  
☒ Mr. Jiraporn Phommit



Approved signature:   
Mr. Pinyea Booncharoen  
Calibration Department Manager

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Continuation of Certificate of Calibration Number: CAT-016-67

Page 2 of 2 Pages

**Measurement Results:**

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

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Table 1: The results of calibration of relative humidity at 20 °C are reported in table below.

Calibration Range: 20%RH to 80%RH

Air Temperature (°C)	Standard Reading (RH%)	UUC Reading (RH%)	Error (RH%)	Uncertainty ± (RH%)
29.90	58.60	58.6	-1.0	0.51
29.83	50.55	49.0	-3.6	1.3
29.81	41.61	39.8	-3.5	2.3

UUC\*: Unc Under Calibration

\*\*\*End of Certificate of Calibration\*\*\*



**Calibration Certificate**

Cert. No. : ACC25058

Pages : 1 of 3

Equipment : SOUND CALIBRATOR  
Manufacturer : RION  
Model : NC-74  
Serial No.: 34178123  
ID No.: RYG\_FS0215

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN-40, PHATTHANAKAN ROAD,  
KHUWAENG PHATTHANAKAN, KHUET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location :  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %  
Received Date : 22 SEPTEMBER 2025  
Calibration Date : 08 OCTOBER 2025  
Date of Issue : 10 OCTOBER 2025

REVIEW BY	<i>[Signature]</i>
APPROVED BY	<i>[Signature]</i>
NEXT CAL DATE	07/10/2026

Calibrated by : Nathakorn Pisutpaisan

Approved by : *[Signature]*  
( Nitinun Srihawan )

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Cert. No. : ACC25058  
Job No. : VC68AC0188  
Pages : 2 of 3

Calibration Procedure : CP-AC-03

**Calibration Method :**

This equipment was calibrated by follow on IEC-60942:2003 Standard.

The sound pressure level, frequency and total distortion of the sound calibrator was measured using the reference microphone.

**Condition of this result of calibration :**

**1. Reference Standard Instruments :**

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33511B	MY52302742	EF-0012-25	11-FEB-26
Digital Multimeter	33461A	MY53220104	EEL_BP 24/0268	22-APR-26
Digital Multimeter	33461A	MY53220076	EEL_BP 23/0268	22-APR-26
Digital Multimeter	33461A	MY60024273	CA2025120EA	18-MAR-26
Programmable Attenuator	MAT-1070	62100114	EF-0006-25	11-FEB-26
Condenser Microphone	4180	2977900	AA-1002-25	19-FEB-26
Measuring Amplifier	NA-42KAI	34560495	AA-3002-25	19-FEB-26
Audio Analyzer	AVR-3360A	V744B6069	EF-0013-25	13-FEB-26

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).
- 3.3 Electrical And Electronics Institute (EEI).

Cert. No. : ACC25058  
Job No. : VC68AC0188  
Pages : 3 of 3

**Result of calibration :**

**1. Sound pressure level**

Specified sound pressure level (dB)	Measured value (dB)	Deviated value (dB)	Uncertainty (dB)	Acceptance limit (dB)
94	94.11	0.11	0.14	0.40

**2. Frequency**

Specified Frequency (Hz)	Measured value (Hz)	Deviated value (%)	Uncertainty (%)	Acceptance limit (%)
1000	1001.5	0.1	0.1	1.0

**3. Total distortion**

Measured value (%)	Uncertainty (%)	Acceptance limit (%)
1.83	0.10	3.0

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate



Cert. No. : ACL25072  
Pages : 1 of 8

## Calibration Certificate

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier NH-24  
**Serial No.:** 01122607 / 145554 / 34373  
**ID No.:** RYG\_FS0019

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** -  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 07 JANUARY 2025  
**Calibration Date :** 21 - 23 JANUARY 2025  
**Date of Issue :** 24 JANUARY 2025

REVIEW BY *Spt S*  
APPROVED BY *[Signature]*  
NEXT CAL DATE: 21/01/2028

**Calibrated by :** Nathakorn Pinutpaisan

**Approved by :** *T. Petchur*  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

### Condition of this result of calibration :

#### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	FF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL-BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL-BP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL-BP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KAI	34560495	AA-3001-24	05-FEB-25

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Pages : 3 of 8

### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Page : 4 of 8

### Result of calibration :

#### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

#### 2. Self-generated noise

##### 2.1 Normal test

Measured Value (dB)
16.0

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	12.6
C-weight	17.7
Flat	22.6

#### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.5	0.5	0.5	± 1.5
1000	0.1	0.1	0.1	± 1.0
8000	-1.2	-1.2	-1.2	± 5.0

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	-0.1	-0.1	±2.0
125	-0.1	0.0	-0.1	±1.5
250	-0.1	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.0	0.0	±5.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.2
C-weight	94.0	94.0	0.0	±0.2
Flat	94.0	94.0	0.0	±0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	±0.1
Slow	94.0	94.0	0.0	±0.1
Leq	94.0	94.0	0.0	±0.1

## 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.1	0.1	±0.3

S. Pich.

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.1	0.1	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.1	0.1	±1.1
114.0	114.1	0.1	±1.1
109.0	109.0	0.0	±1.1
104.0	104.1	0.1	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	25.9	-0.1	±1.1
25.0	24.9	-0.1	±1.1

S. Pich.

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±1.1

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	29.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	108.0	0.0	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.1	0.1	±1.0
Slow	2	8	108.0	108.1	0.1	1.5 ; -5.0
	200	800	127.6	127.7	0.1	±1.0
	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
SEL	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.1	0.1	±1.0

Cert. No. : ACL25072  
Job No. : VC68AC0059  
Pages : 8 of 8

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±3.0
One	133.4	133.4	0.0	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

S. Pich.

S. Pich.

Cert. No. : ACL25071  
Pages : 1 of 8

## Calibration Certificate

**Equipment :** SOUND LEVEL METER  
**Manufacturer :** RION  
**Model :** NL-42 / Microphone UC-52 / Preamplifier NH-24  
**Serial No.:** 01122579 / 172172 / 74022  
**ID No.:** RYG\_FS0018

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

**Location :** -  
**Ambient Temperature :** ( 23.0 ± 3 ) °C  
**Pressure :** ( 101.3 ± 3 ) kPa  
**Relative Humidity :** ( 50.0 ± 20 ) %

**Received Date :** 07 JANUARY 2025  
**Calibration Date :** 21 - 23 JANUARY 2025  
**Date of Issue :** 24 JANUARY 2025

REVIEW BY: *S/S*  
APPROVED BY: *[Signature]*  
NEXT CAL DATE: 21/01/2026

Calibrated by : Nathakorn Pisutpaisan

Approved by : *[Signature]*  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Cert. No. : ACL25071  
Job No. : VC68AC0059  
Pages : 3 of 8

### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

*[Signature]*

Cert. No. : ACL25071  
Job No. : VC68AC0059  
Pages : 2 of 8

**Calibration Procedure :** CP-AC-01

### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anecoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

### Condition of this result of calibration :

#### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 21/02/27	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 20/02/27	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL_BP 22/02/27	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KA1	34560495	AA-3001-24	05-FEB-25

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*[Signature]*

Cert. No. : ACL25071  
Job No. : VC68AC0059  
Page : 4 of 8

### Result of calibration :

#### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

#### 2. Self-generated noise

##### 2.1 Normal test

Measured Value (dB)
14.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	12.0
C-weight	18.3
Flat	24.0

#### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	±1.5
1000	0.1	0.1	0.1	±1.0
8000	1.1	1.1	1.1	±5.0

*[Signature]*



Cert. No. : ACL25071  
Job No. : VC68AC0059  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±2.0
125	0.0	0.0	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.2
C-weight	94.0	94.0	0.0	±0.2
Flat	94.0	94.0	0.0	±0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	±0.1
Slow	94.0	94.0	0.0	±0.1
Leq	94.0	94.0	0.0	±0.1

## 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	±0.3

T. Petch

Cert. No. : ACL25071  
Job No. : VC68AC0059  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	78.9	-0.1	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	63.9	-0.1	±1.1
59.0	59.0	0.0	±1.1
54.0	53.9	-0.1	±1.1
49.0	48.9	-0.1	±1.1
44.0	43.9	-0.1	±1.1
39.0	38.9	-0.1	±1.1
34.0	33.9	-0.1	±1.1
30.0	30.0	0.0	±1.1
29.0	28.9	-0.1	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	26.0	0.0	±1.1
25.0	25.1	0.1	±1.1

T. Petch

Cert. No. : ACL25071  
Job No. : VC68AC0059  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±1.1

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	29.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
SEL	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.1	0.1	±1.0

T. Petch

Cert. No. : ACL25071  
Job No. : VC68AC0059  
Pages : 8 of 8

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±3.0
One	133.4	133.3	-0.1	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.2	-0.2	±2.0
Negative half cycle	135.4	135.2	-0.2	±2.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.6	0.1	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$   
or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petch





















































### Certificate of Calibration
















Customer:   
  
  
Certificate No:   
Request No:   


#### Unit Under Calibration Details


#### Calibration Environment and Details

Reference Standard	Model	Serial Number	Traceable	Due Calibration
				
				
				

Traceability:   


#### Note

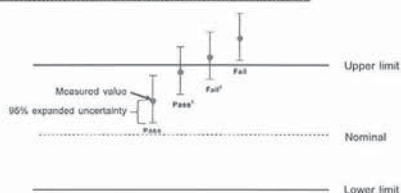

Calibrated By:   
  
  
Approved By:   
  
  
Issue Date: 

FM-708-ACT-Q2 Rev 03 Issue date 5/6/24

Certificate No:   
Request No: 

#### Decision Rule for Statements of Conformity









  
  
  
  
  









End of Calibration

Certificate No: 









Request No: 

Calibration Range (dB)	Without Adjustment (dB)		Adjustment (dB)		Uncertainty (± dB)	Acceptance limit Class 1 (± dB)	Result
	Measured	Deviated value	Measured	Deviated value			
							









#### Frequency of Sound pressure level

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)	Acceptance limit Class 1 (± %)	Result
	Measured (Hz)	Deviated	Measured (Hz)	Deviated			
							

#### Total Harmonic Distortion plus Noise of Sound pressure level (THD+N %)

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)	Acceptance limit Class 1 (± %)	Result
	Measured (%)	Deviated	Measured (%)	Deviated			
							

#### Note:

Function	Maximum-permitted Uncertainty of measurement
	
	
	
	


### SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

451-451/1 Sirinthorn Road, Bangbunni, Bangkok, Bangkok, 10700 Thailand  
Tel: +66 2433 8331 Email: calibration@sithiporn.com

Cert. No.: ACL25106  
Pages: 1 of 8

## Calibration Certificate

Equipment: SOUND LEVEL METER  
Manufacturer: RION  
Model: NL-42 / Microphone UC-52 / Preamplifier NH-24  
Serial No.: 00709746 / 187332 / 01297  
ID No.: RYG\_FS0491

Condition As Found: GOOD

Customer: ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location: -  
Ambient Temperature: ( 23.0 ± 3 ) °C  
Pressure: ( 101.3 ± 3 ) kPa  
Relative Humidity: ( 50.0 ± 20 ) %

Received Date: 14 JANUARY 2025  
Calibration Date: 27-29 JANUARY 2025  
Date of Issue: 30 JANUARY 2025

Calibrated by: Nathakorn Pisutpaisan

Approved by:   
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

FM-708-ACT-Q2 Rev 03 Issue date 5/6/24



Cert. No. : ACL25106  
Job No. : VC68AC0064  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

#### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

#### Condition of this result of calibration :

##### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL_BP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0005-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KAI	34560495	AA-3001-24	05-FEB-25

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

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

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*Signature*

#### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

*Signature*

Cert. No. : ACL25106  
Job No. : VC68AC0064  
Page : 4 of 8

Cert. No. : ACL25106  
Job No. : VC68AC0064  
Pages : 5 of 8

#### Result of calibration :

##### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

##### 2. Self-generated noise

###### 2.1 Normal test

Measured Value (dB)
14.8

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	13.4
C-weight	20.0
Flat	25.5

##### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.5
1000	0.2	0.2	0.2	± 1.0
8000	2.1	2.1	2.1	±5.0

*Signature*

#### 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	-0.1	±2.0
125	-0.1	0.0	-0.1	±1.5
250	0.0	0.0	-0.1	±1.5
500	0.0	0.0	-0.1	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.0	0.1	±5.0

#### 5. Frequency and time weightings at 1 kHz

##### 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.2
C-weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

##### 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Lsq	94.0	94.0	0.0	± 0.1

#### 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.3

*Signature*



Cert. No. : ACL25106  
Job No. : VC68AC0064  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	132.9	-0.1	±1.1
132.0	131.9	-0.1	±1.1
131.0	130.9	-0.1	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	27.9	-0.1	±1.1
27.0	26.9	-0.1	±1.1
26.0	26.0	0.0	±1.1
25.0	25.0	0.0	±1.1

T. Petch.

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## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±3.0
One	133.4	133.4	0.0	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petch.

Cert. No. : ACL25106  
Job No. : VC68AC0064  
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## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±1.1

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	29.0	0.0	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, T <sub>b</sub> (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; 5.0
	200	800	127.6	127.6	0.0	±1.0
SPL	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

T. Petch.



## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24  
Serial No. : 00900071 / 188464 / 01733  
ID No. : RYG 150492

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHWAENG PHATTANAKAN, KHUET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location : -  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 14 JANUARY 2025  
Calibration Date : 27-29 JANUARY 2025  
Date of Issue : 30 JANUARY 2025

Calibrated by :

Nathakorn Pisutpaisan

Approved by :

T. Petch.  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Cert. No. : ACL25107  
Job No. : VC68AC0064  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

#### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.

For tests results of each items were made by observation of each Instruments display and also with SLM's display.

#### Condition of this result of calibration :

##### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL_BP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KA1	34560495	AA-3001-24	05-FEB-25

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

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

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

Cert. No. : ACL25107  
Job No. : VC68AC0064  
Pages : 3 of 8

#### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25107  
Job No. : VC68AC0064  
Page : 4 of 8

#### Result of calibration :

##### 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

##### 2. Self-generated noise

###### 2.1 Normal test

Measured Value (dB)
15.1

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	12.0
C-weight	18.4
Flat	24.1

##### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Flat	C-weight	A-weight	Acceptance Limits
125	0.2	0.2	0.2	± 1.5
1000	0.1	0.1	0.1	± 1.0
8000	0.9	0.9	0.9	± 5.0

##### 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±2.0
125	0.0	0.1	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

##### 5. Frequency and time weightings at 1 kHz

###### 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.2
C-weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

###### 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

##### 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.3

Cert. No. : ACL25107  
Job No. : VC68AC0064  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	± 1.1
136.0	136.0	0.0	± 1.1
135.0	135.0	0.0	± 1.1
134.0	134.0	0.0	± 1.1
133.0	133.0	0.0	± 1.1
132.0	132.0	0.0	± 1.1
131.0	131.0	0.0	± 1.1
129.0	129.0	0.0	± 1.1
124.0	124.0	0.0	± 1.1
119.0	119.0	0.0	± 1.1
114.0	114.0	0.0	± 1.1
109.0	109.0	0.0	± 1.1
104.0	104.0	0.0	± 1.1
99.0	99.0	0.0	± 1.1
94.0	94.0	0.0	± 1.1
89.0	89.0	0.0	± 1.1
84.0	84.0	0.0	± 1.1
79.0	78.9	-0.1	± 1.1
74.0	74.0	0.0	± 1.1
69.0	69.0	0.0	± 1.1
64.0	63.9	-0.1	± 1.1
59.0	59.0	0.0	± 1.1
54.0	53.9	-0.1	± 1.1
49.0	48.9	-0.1	± 1.1
44.0	43.9	-0.1	± 1.1
39.0	38.9	-0.1	± 1.1
34.0	33.9	-0.1	± 1.1
30.0	30.0	0.0	± 1.1
29.0	29.0	0.0	± 1.1
28.0	28.0	0.0	± 1.1
27.0	27.1	0.1	± 1.1
26.0	26.1	0.1	± 1.1
25.0	25.2	0.2	± 1.1

T. Petch.

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## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	± 3.0
One	133.4	133.3	-0.1	± 3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	± 2.0
Positive half cycle	135.4	135.2	-0.2	± 2.0
Negative half cycle	135.4	135.2	-0.2	± 2.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.6	0.1	± 1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	± 0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

T. Petch.

Cert. No. : ACL25107  
Job No. : VC68AC0064  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	± 1.1

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	29.2	0.2	± 1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, T <sub>b</sub> (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	± 1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	± 1.0
SEL	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	± 1.0

T. Petch.

Cert. No. : ACL25108  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24  
Serial No. : 00900072 / 188465 / 01734  
ID No. : RYG\_FS0493

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTANAKAN 40, PHATTANAKAN ROAD,  
KHWAENG PHATTANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.Location : -  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %Received Date : 14 JANUARY 2025  
Calibration Date : 27-29 JANUARY 2025  
Date of Issue : 30 JANUARY 2025

Calibrated by :

Nathakorn Pisutpaison

Approved by :

T. Petch.  
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.



Cert. No. : ACL25108  
Job No. : VC68AC0064  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

#### Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anchoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

#### Condition of this result of calibration :

##### 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY52302742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 21/0267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024273	EEL_BP 22/0267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	EF-0008-24	05-FEB-25
Condenser Microphone	4180	2977900	AA-1001-24	12-FEB-25
Measuring Amplifier	NA-42KAI	34560495	AA-3001-24	05-FEB-25

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

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

3.1 National Institute of Metrology (Thailand).

3.2 Thailand Institute of Scientific and Technological Research (TISTR).

*S. Petch...*

*S. Petch...*

Cert. No. : ACL25108  
Job No. : VC68AC0064  
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Cert. No. : ACL25108  
Job No. : VC68AC0064  
Pages : 5 of 8

#### Result of calibration :

##### 1. Absolute sensitivity

Reference Acoustic Signal ( dB )	Measured Value ( dB )	Deviation ( dB )	Acceptance Limit ( dB )
93.9 (93.94)	93.9	0.0	±0.3

##### 2. Self-generated noise

###### 2.1 Normal test

Measured Value ( dB )
14.2

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting ( dB )
A - weight	10.8
C - weight	17.0
Flat	22.9

##### 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.5	0.5	0.5	± 1.5
1000	0.2	0.2	0.2	± 1.0
8000	-0.4	-0.4	-0.4	± 5.0

*S. Petch...*

#### Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

*S. Petch...*

##### 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±2.0
125	0.0	0.1	0.0	±1.5
250	0.0	0.0	0.0	±1.5
500	0.0	0.0	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±2.0
4000	0.0	0.0	0.0	±3.0
8000	0.0	0.1	0.1	±5.0

##### 5. Frequency and time weightings at 1 kHz

###### 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

###### 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

##### 6. Long - term stability

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.3

*S. Petch...*

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Job No. : VC68AC0064  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	78.9	-0.1	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	53.9	-0.1	±1.1
49.0	48.9	-0.1	±1.1
44.0	43.9	-0.1	±1.1
39.0	38.9	-0.1	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	26.1	0.1	±1.1
25.0	25.0	0.0	±1.1

Z. Petch

Cert. No. : ACL25108  
Job No. : VC68AC0064  
Pages : 8 of 8

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, Lepeak (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±3.0
One	133.4	133.1	-0.3	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.2	-0.2	±2.0
Negative half cycle	135.4	135.2	-0.2	±2.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

Z. Petch

Cert. No. : ACL25108  
Job No. : VC68AC0064  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±1.1

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	28.8	-0.2	±1.1

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5 ; -5.0
	2	8	117.0	117.0	0.0	1.0 ; -2.5
	200	800	134.0	134.0	0.0	+1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
	200	800	127.6	127.6	0.0	+1.0
SPL	0.25	1	99.0	98.9	-0.1	1.5 ; -5.0
	2	8	108.0	108.0	0.0	1.0 ; -2.5
	200	800	128.0	128.0	0.0	±1.0

Z. Petch

INNOVATIVE INSTRUMENT CALIBRATION LAB

INNOVATIVE INSTRUMENT CO., LTD. HEAD OFFICE

7/19 MOO 13, SOI SUTSINAKORN II, TAMBON BANG KAO,

AMPHUR BANG PHU, SAMUT PRAKAN PROVINCE 10540 THAILAND

TEL: 0869-2110-1100 FAX: 0869-2110-7140



Page 1 of 3

## Certificate of Calibration

## Customer

Name : ALS Laboratory Group Thailand Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Suan Luang, Bangkok 10250

Certificate No : 25-ACT-042

Request No : Req-2025-0604

## Unit Under Calibration Details

Measurement item : Acoustic Calibrator

Manufacturer : RION

Model : NC-75

Serial Number : 35002736

ID : RYG\_FS0496

Class : 1

Range : 94 dB / 1000 Hz

Instrument Status : Used

## Calibration Environment and Details

Temperature : (23 ± 2 °C)

Humidity : (50 ± 20 %RH)

Barometric Pressure : (1013 ± 10.0 hPa)

Received Date : 6 March 2025

Calibration Date : 19 March 2025

Location of Calibration : LAB 1 Acoustic

Calibration Procedure : In-house method CP-ACT-02 based on IEC 60942:2017 Electroacoustics - Sound calibrators

REVIEW BY	<i>M. Petch</i>
APPROVED BY	<i>[Signature]</i>
NEXT CAL DATE	19/03/26

Reference Standard	Model	Serial Number	Traceable	Due Calibration
Sound Calibrator	SV 35A	58079	FEL	12 June 2025
1HD Multimeter	2015	1047765	NIMT	4 February 2026

**Traceability** : This certificate provides traceability of measurement to recognized national standard, and to the realization of the international System of Units (SI).

## Note

The reported uncertainty is based on standard uncertainty multiplied by the Coverage Factor  $k = 2$ , providing a level of confidence approximately 95 %.

Calibrated By :

*M. Petch*  
Mr. Noppadol Luangart  
Service Calibration Engineer

Approved By :

*M. Petch*  
Mr. Pachi Mathayom  
Calibration Engineer Supervisor  
Issue Date : 19 March 2025

Certificate No : 25-ACT-042  
Request No : Req-2025-0604

Sound pressure level

Calibration Results : Without Adjustment

Calibration Range (dB)	Without Adjustment (dB)		Adjustment (dB)		Uncertainty (± dB)	Acceptance limit Class I (± dB)	Result
	Measured	Deviated value	Measured	Deviated value			
94 dB / 1000 Hz	94.06	0.06	-	-	0.13	0.25	Pass

Frequency of Sound pressure level

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)	Acceptance limit Class I (± %)	Result
	Measured (Hz)	Deviated	Measured (Hz)	Deviated			
94 dB / 1000 Hz	1000.00	0.00	-	-	0.01	0.70	Pass

Total Harmonic Distortion plus Noise of Sound pressure level (THD+N %)

Calibration Range (Hz)	Without Adjustment		Adjustment		Uncertainty (± %)	Acceptance limit Class I (± %)	Result
	Measured (%)	Deviated (%)	Measured (%)	Deviated (%)			
94 dB / 1000 Hz	0.98	-	-	-	0.40	2.5	Pass

Note :

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

→ Acceptance limit was IEC 60942:2017 Class I

→ The calibration results exclude the ambient pressure correction

→ The calibration results exclude the microphone volume correction

The results related only to the items calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovate Instrument Co., Ltd.

FM-708 ACT 02 Rev 03 Issue date 5/6/24

SITHIPORN ASSOCIATES CO., LTD.  
CALIBRATION LABORATORY

451-451/1 Sirinthorn Road, Bangbunma, Bangkok, 10700 Thailand  
Tel. +66 2433 9331 Email: calibration@sithiporn.com



Cert. No. : ACL25270  
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-52A / Microphone UC-59 / Preamplifier NH-25  
Serial No. : 00531293 / 23025 / 32969  
ID No. : NKH\_FS0129

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHUWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location : -  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 03 JULY 2025  
Calibration Date : 14-15 JULY 2025  
Date of Issue : 16 JULY 2025

REVIEW BY : *Nathakorn P.*  
APPROVED BY : *[Signature]*  
NEXT CAL DATE : 14/07/26

Calibrated by : Nathakorn Pisutpaisan

Approved by : *Wichok E.*  
( Wichok Ekpongpradit )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Certificate No : 25-ACT-042  
Request No : Req-2025-0604

Decision Rule for Statements of Conformity

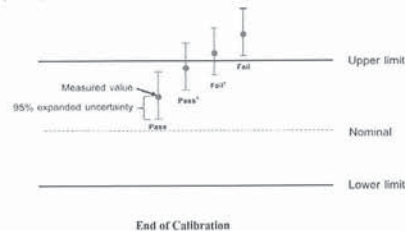
The standard decision rule employed for the statements of conformity to each calibration result will be applied using IEC 60942:2017, Guidelines on the Reporting of Conformity with Specification as following Fig. and statements

Pass → The measurement result plus the expanded uncertainty with a 95% coverage probability were within the limit.

Pass<sup>1</sup> → The measurement result was within the limit. However, a portion of the expanded uncertainty of measurement at 95% exceeds the limit.

Fail<sup>1</sup> → The measurement result was out of the limit. However, a portion of the expanded uncertainty of measurement at 95% is within the limit.

Fail → The measurement result plus the expanded uncertainty with a 95% coverage probability were outside the limit.



The results related only to the items calibrated. The certificate shall not be reproduced except in full, without written approval of the Innovate Instrument Co., Ltd.

FM-708 ACT 02 Rev 03 Issue date 5/6/24

SITHIPORN  
associates

SITHIPORN ASSOCIATES  
CALIBRATION LABORATORY

Calibration Procedure : CP-AC-01

Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anchoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

Condition of this result of calibration :

1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0011-25	11-FEB-26
Waveform Generator	33511B	MY52302742	EF-0012-25	11-FEB-26
Digital Multimeter	33461A	MY53220104	EEL_BP 24/0268	22-APR-26
Digital Multimeter	33461A	MY53220076	EEL_BP 23/0268	22-APR-26
Digital Multimeter	34461A	MY60924273	CA20251201EA	18-MAR-26
Programmable Attenuator	MAT-1070	62100114	EF-0006-25	11-FEB-26
Condenser Microphone	4180	2977900	AA-1002-25	19-FEB-26
Measuring Amplifier	NA-42KAI	34560495	AA-3002-25	19-FEB-26

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

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

- 3.1 National Institute of Metrology (Thailand),
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR),
- 3.3 Electrical And Electronics Institute (EEI).



Cert. No. : ACL25270  
Job No. : VC68AC0143  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25270  
Job No. : VC68AC0143  
Page : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	94.0	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value (dB)
13.4

## 2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	9.8
C-weight	14.8
Flat	20.4

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.3	0.3	± 1.0
1000	0.2	0.2	0.2	± 0.7
8000	0.4	0.5	0.4	+ 1.5, - 2.5

Cert. No. : ACL25270  
Job No. : VC68AC0143  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±1.0
125	0.0	0.1	0.1	±1.0
250	0.0	0.0	0.0	±1.0
500	0.0	0.1	0.0	±1.0
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±1.0
4000	0.0	0.0	0.0	±1.0
8000	0.0	0.1	0.1	+ 1.5, - 2.5
16000	0.0	-1.2	-1.2	+ 2.5, -16.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.2
C-weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Loq	94.0	94.0	0.0	± 0.1

## 6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.0	0.0	± 0.1

Cert. No. : ACL25270  
Job No. : VC68AC0143  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±0.8
136.0	136.0	0.0	±0.8
135.0	135.0	0.0	±0.8
134.0	134.0	0.0	±0.8
133.0	133.0	0.0	±0.8
132.0	132.0	0.0	±0.8
131.0	131.0	0.0	±0.8
129.0	129.0	0.0	±0.8
124.0	124.0	0.0	±0.8
119.0	119.0	0.0	±0.8
114.0	114.0	0.0	±0.8
109.0	109.0	0.0	±0.8
104.0	104.0	0.0	±0.8
99.0	99.0	0.0	±0.8
94.0	94.0	0.0	±0.8
89.0	89.0	0.0	±0.8
84.0	84.0	0.0	±0.8
79.0	79.0	0.0	±0.8
74.0	74.0	0.0	±0.8
69.0	69.0	0.0	±0.8
64.0	64.0	0.0	±0.8
59.0	59.0	0.0	±0.8
54.0	53.9	-0.1	±0.8
49.0	49.0	0.0	±0.8
44.0	43.9	-0.1	±0.8
39.0	38.9	-0.1	±0.8
34.0	33.9	-0.1	±0.8
30.0	30.0	0.0	±0.8
29.0	28.9	-0.1	±0.8
28.0	27.9	-0.1	±0.8
27.0	26.9	-0.1	±0.8
26.0	25.9	-0.1	±0.8
25.0	24.9	-0.1	±0.8

Cert. No. : ACL25270  
Job No. : VC68AC0143  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±0.8

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	28.9	-0.1	±0.8

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.0 ; -3.0
	2	8	117.0	117.0	0.0	1.0 ; -1.5
	200	800	134.0	134.0	0.0	±0.5
Slow	2	8	108.0	108.0	0.0	1.0 ; -3.0
	200	800	127.6	127.6	0.0	±0.5
SEL	0.25	1	99.0	98.9	-0.1	1.0 ; -3.0
	2	8	108.0	108.0	0.0	1.0 ; -1.5
	200	800	128.0	128.0	0.0	±0.5

Cert. No. : ACL25270  
Job No. : VC68AC0143  
Pages : 8 of 8

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>cp</sub> peak (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±2.0
One	133.4	133.3	-0.1	±2.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±1.0
Positive half cycle	135.4	135.2	-0.2	±1.0
Negative half cycle	135.4	135.2	-0.2	±1.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.1

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

Cert. No. : ACL25272  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-52A / Microphone UC-59 / Preamplifier NH-25  
Serial No.: 00531295 / 23094 / 32971  
ID No.: NKH\_FS0131

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHUWAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location : -  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 03 JULY 2025  
Calibration Date : 14-15 JULY 2025  
Date of Issue : 16 JULY 2025

REVIEW BY	<i>Nathakorn P.</i>
APPROVED BY	<i>[Signature]</i>
NEXT CAL DATE	14/07/26

Calibrated by : Nathakorn Pisutpaisan

Approved by : *Wichok E.*  
( Wichok Ekpongpradit )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Cert. No. : ACL25272  
Job No. : VC68AC0143  
Pages : 2 of 8

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

## 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0011-25	11-FEB-26
Waveform Generator	33511H	MY52302742	EF-0012-25	11-FEB-26
Digital Multimeter	33461A	MY53220104	EEL-BP 24/0268	22-APR-26
Digital Multimeter	33461A	MY53220076	EEL-BP 23/0268	22-APR-26
Digital Multimeter	33461A	MY60024273	CA2025120EA	18-MAR-26
Programmable Attenuator	MAT-1070	62100114	EF-0006-25	11-FEB-26
Condenser Microphone	4180	2977900	AA-1002-25	19-FEB-26
Measuring Amplifier	NA-42KAI	34560495	AA-3002-25	19-FEB-26

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).
- 3.3 Electrical And Electronics Institute (EEI).

Cert. No. : ACL25272  
Job No. : VC68AC0143  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25272  
Job No. : VC68AC0143  
Page : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	94.0	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value (dB)
13.8

## 2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A - weight	8.7
C - weight	14.7
Flat	20.1

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 84 dB

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.3	0.4	0.4	±1.0
1000	0.2	0.2	0.2	±0.7
8000	-0.1	0.0	-0.1	±1.5, -2.5

Cert. No. : ACL25272  
Job No. : VC68AC0143  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	-0.1	±1.0
125	0.0	0.0	0.0	±1.0
250	0.0	0.0	0.0	±1.0
500	0.0	0.0	-0.1	±1.0
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±1.0
4000	0.0	0.0	0.0	±1.0
8000	0.0	0.0	0.0	±1.5, -2.5
16000	0.0	-1.3	-1.2	±2.5, -16.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	±0.2
C - weight	94.0	94.0	0.0	±0.2
Flat	94.0	94.0	0.0	±0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	94.0	94.0	0.0	±0.1
Slow	94.0	94.0	0.0	±0.1
Leq	94.0	94.0	0.0	±0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	94.0	94.0	0.0	±0.1

Cert. No. : ACL25272  
Job No. : VC68AC0143  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±0.8
136.0	136.0	0.0	±0.8
135.0	135.0	0.0	±0.8
134.0	134.1	0.1	±0.8
133.0	133.0	0.0	±0.8
132.0	132.0	0.0	±0.8
131.0	131.0	0.0	±0.8
129.0	129.0	0.0	±0.8
124.0	124.0	0.0	±0.8
119.0	119.1	0.1	±0.8
114.0	114.1	0.1	±0.8
109.0	109.0	0.0	±0.8
104.0	104.1	0.1	±0.8
99.0	99.0	0.0	±0.8
94.0	94.0	0.0	±0.8
89.0	89.0	0.0	±0.8
84.0	84.0	0.0	±0.8
79.0	79.0	0.0	±0.8
74.0	74.0	0.0	±0.8
69.0	69.0	0.0	±0.8
64.0	64.0	0.0	±0.8
59.0	59.0	0.0	±0.8
54.0	54.0	0.0	±0.8
49.0	49.0	0.0	±0.8
44.0	44.0	0.0	±0.8
39.0	39.0	0.0	±0.8
34.0	34.0	0.0	±0.8
30.0	30.0	0.0	±0.8
29.0	29.0	0.0	±0.8
28.0	28.0	0.0	±0.8
27.0	27.0	0.0	±0.8
26.0	26.0	0.0	±0.8
25.0	25.0	0.0	±0.8



Cert. No. : ACL25272  
Job No. : VC68AC0143  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±0.8

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	29.0	0.0	±0.8

## 9. Tone burst response

Time Weighting	Tone burst duration, T <sub>b</sub> (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.0; -3.0
	2	8	117.0	116.9	-0.1	1.0; -1.5
	200	800	134.0	134.0	0.0	±0.5
Slow	2	8	108.0	108.0	0.0	1.0; -3.0
	200	800	127.6	127.6	0.0	±0.5
	0.25	1	99.0	98.9	-0.1	1.0; -3.0
SEL	2	8	108.0	107.9	-0.1	1.0; -1.5
	200	800	128.0	128.0	0.0	±0.5

Cert. No. : ACL25272  
Job No. : VC68AC0143  
Pages : 8 of 8

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>cp</sub> peak (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±2.0
One	133.4	133.4	0.0	±2.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±1.0
Positive half cycle	135.4	135.2	-0.2	±1.0
Negative half cycle	135.4	135.2	-0.2	±1.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle	0.0	±1.5
89.5	89.5		

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.1

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

Cert. No. : ACL25274  
Pages : 1 of 8

## Calibration Certificate

Equipment : SOUND LEVEL METER  
Manufacturer : RION  
Model : NL-52A / Microphone UC-59 / Preamplifier NH-25  
Serial No.: 00531297 / 23200 / 32973  
ID No.: NK11 FS0133

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.  
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,  
KHAENG PHATTHANAKAN, KHET SUAN LUANG,  
BANGKOK, 10250 THAILAND.

Location : -  
Ambient Temperature : ( 23.0 ± 3 ) °C  
Pressure : ( 101.3 ± 3 ) kPa  
Relative Humidity : ( 50.0 ± 20 ) %

Received Date : 03 JULY 2025  
Calibration Date : 14-15 JULY 2025  
Date of Issue : 16 JULY 2025

REVIEW BY	<i>Nathakorn P.</i>
APPROVED BY	<i>[Signature]</i>
NEXT CAL DATE	14/07/26

Calibrated by : Nathakorn Pisutpaisan

Approved by : *[Signature]*  
( Wichok Ekpongpradit )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

Calibration Procedure : CP-AC-01

## Calibration Method :

This equipment was calibrated by follow on IEC-61672-3 (2013) Standard for sound level meter (SLM).  
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.  
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

## Condition of this result of calibration :

## 1. Reference Standard Instruments :

Instrument	Model	Serial No.	Cert. No.	Due Date
Waveform Generator	33210A	MY48017076	EF-0011-25	11-FEB-26
Waveform Generator	33511B	MY52302742	EF-0012-25	11-FEB-26
Digital Multimeter	33461A	MY53220104	EEL-BP 24/0268	22-APR-26
Digital Multimeter	33461A	MY53220076	EEL-BP 23/0268	22-APR-26
Digital Multimeter	34461A	MY60024273	CA2025120EA	18-MAR-26
Programmable Attenuator	MAT-1070	62100114	EF-0006-25	11-FEB-26
Condenser Microphone	4180	2977900	AA-1002-25	19-FEB-26
Measuring Amplifier	NA-42KAI	34560495	AA-3002-25	19-FEB-26

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

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

- 3.1 National Institute of Metrology (Thailand).
- 3.2 Thailand Institute of Scientific and Technological Research (TISTR).
- 3.3 Electrical And Electronics Institute (EEI).

Cert. No. : ACL25274  
Job No. : VC68AC0143  
Pages : 3 of 8

## Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long - term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

Cert. No. : ACL25274  
Job No. : VC68AC0143  
Page : 4 of 8

## Result of calibration :

## 1. Absolute sensitivity

Reference Acoustic Signal ( dB )	Measured Value ( dB )	Deviation ( dB )	Acceptance Limit ( dB )
93.9 (93.94)	94.0	0.0	±0.3

## 2. Self-generated noise

## 2.1 Normal test

Measured Value ( dB )
13.4

## 2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting ( dB )
A - weight	9.9
C - weight	14.8
Flat	20.3

## 3. Acoustical signal tests of frequency weightings

Meter free-field acoustic response at a level of 94 dB

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
125	0.4	0.4	0.4	± 1.0
1000	0.2	0.2	0.2	± 0.7
8000	-0.1	0.0	0.0	+ 1.5, - 2.5

Cert. No. : ACL25274  
Job No. : VC68AC0143  
Pages : 5 of 8

## 4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency ( Hz )	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.0	±1.0
125	0.0	0.1	0.0	±1.0
250	0.0	0.0	0.0	±1.0
500	0.0	0.0	0.0	±1.0
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.0	0.0	±1.0
4000	0.0	0.0	0.0	±1.0
8000	0.0	0.1	0.1	+ 1.5, - 2.5
16000	0.0	-1.2	-1.2	+ 2.5, -16.0

## 5. Frequency and time weightings at 1 kHz

## 5.1 Frequency weightings at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.2
C - weight	94.0	94.0	0.0	± 0.2
Flat	94.0	94.0	0.0	± 0.2

## 5.2 Time weighting at 1 kHz

Frequency Weighting	Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
Fast	94.0	94.0	0.0	± 0.1
Slow	94.0	94.0	0.0	± 0.1
Leq	94.0	94.0	0.0	± 0.1

## 6. Long - term stability

Frequency Weighting	SLM Display at initial ( dB )	SLM Display at final ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
A - weight	94.0	94.0	0.0	± 0.1

Cert. No. : ACL25274  
Job No. : VC68AC0143  
Pages : 6 of 8

## 7. Level linearity on the reference level range

Anticipated Value ( dB )	Measured Value ( dB )	Deviated Value ( dB )	Acceptance Limits ( dB )
137.0	137.0	0.0	±0.8
136.0	136.0	0.0	±0.8
135.0	135.0	0.0	±0.8
134.0	134.0	0.0	±0.8
133.0	133.0	0.0	±0.8
132.0	132.0	0.0	±0.8
131.0	131.0	0.0	±0.8
129.0	129.0	0.0	±0.8
124.0	124.0	0.0	±0.8
119.0	119.0	0.0	±0.8
114.0	114.0	0.0	±0.8
109.0	109.0	0.0	±0.8
104.0	104.0	0.0	±0.8
99.0	99.0	0.0	±0.8
94.0	94.0	0.0	±0.8
89.0	89.0	0.0	±0.8
84.0	83.9	-0.1	±0.8
79.0	78.9	-0.1	±0.8
74.0	74.0	0.0	±0.8
69.0	68.9	-0.1	±0.8
64.0	63.9	-0.1	±0.8
59.0	58.9	-0.1	±0.8
54.0	53.9	-0.1	±0.8
49.0	48.9	-0.1	±0.8
44.0	43.9	-0.1	±0.8
39.0	38.9	-0.1	±0.8
34.0	33.9	-0.1	±0.8
30.0	29.9	-0.1	±0.8
29.0	28.9	-0.1	±0.8
28.0	28.0	0.0	±0.8
27.0	26.9	-0.1	±0.8
26.0	25.9	-0.1	±0.8
25.0	24.9	-0.1	±0.8

Cert. No. : ACL25274  
Job No. : VC68AC0143  
Pages : 7 of 8

## 8. Level linearity including the level range control

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	94.0	94.0	0.0	±0.8

Range	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
130	29.0	28.9	-0.1	±0.8

## 9. Tone burst response

Time Weighting	Tone burst duration, Tb (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.0 ; -3.0
	2	8	117.0	117.0	0.0	1.0 ; -1.5
	200	800	134.0	134.0	0.0	±0.5
Slow	2	8	108.0	108.0	0.0	1.0 ; -3.0
	200	800	127.6	127.6	0.0	±0.5
SEL	0.25	1	99.0	98.9	-0.1	1.0 ; -3.0
	2	8	108.0	108.0	0.0	1.0 ; -1.5
	200	800	128.0	128.0	0.0	±0.5

Cert. No. : ACL25274  
Job No. : VC68AC0143  
Pages : 8 of 8

## 10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L <sub>peak</sub> (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±2.0
One	133.4	133.4	0.0	±2.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.1	0.1	±1.0
Positive half cycle	135.4	135.3	-0.1	±1.0
Negative half cycle	135.4	135.3	-0.1	±1.0

## 11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	Negative one-half cycle		
89.5	89.5	0.0	±1.5

## 12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A - weight	137.0	137.0	0.0	±0.1

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor  $k = 2$  or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
534/4 PATTANAKARIN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL.0-2717-3000-29 FAX.0-2719-9484



## Certificate of Calibration

Cert.No.: 25CH847  
Page: 1 of 3

Equipment :  
Manufacturer :  
Model :  
Serial No. :  
ID No. :  
Condition As-Received:  
Received Date :  
Calibration Date :  
Reference :  
Submitted by :

pH Meter

Mettler Toledo

SevenCompact S220

C104059460

RYG\_EN0183

Used Item

17 July 2025

18 July 2025

2507-0561DSC-3

ALS Laboratory Group (Thailand) Co.,Ltd.

Rayong Branch

616/10 Moo 5, T.Maenam Khu,

A.Pluakdaeng, Rayong 21140, Thailand

Ambient Temperature :  
Relative Humidity :  
Calibration Procedure :

(25 ± 2.5) °C

(50 ± 15) %

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 :

Walalak Sirithean

Approved by :

Sathip

Approved Signatory

( ) Chakrit Waewwanjua  
( ) Ponpan Palpim  
(✓) Sathip Meangmai

Issue Date :

21 July 2025

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services 3: Equipment Calibration and Testing Services.

Cert.No.: 25CH847  
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	3240076	60RC033	25I394	01 Apr 2026

- This measurement result is traceable to SI through Technology Promotion Association (Thailand - Japan)

## 2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.007	CPA chem	1066665	18 Jan 2027
pH 6.965	CPA chem	1066667	18 Jan 2026
pH 10.010	CPA chem	1114385	08 June 2026

## 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 S/N.: C104059460	4.000	177.48	177.3	4.000	0.058	2.00
	7.000	0.00	-0.2	7.000	0.058	2.00
	10.000	-177.48	-177.6	10.000	0.058	2.00





Cert.No.: 25CH847  
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 S/N.: 5240606	4.007	4.008	184.6	0.0044	2.00
	6.965	6.966	10.2	0.0084	2.00
	10.010	10.009	-164.9	0.0065	2.00

##### Function : Temperature Measurement

(\*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLabExpert Pro-ISM

- Serial No. : 5240606

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	25.001	25.0	-0.001	0.13	2.00

Remark : - UUC\* = Unit Under Calibration

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

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CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
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TEL. 0-2717-3000-24 FAX. 0-2719-9484



#### Certificate of Calibration

Certificate No. : 25E2372  
Page : 1 of 2

Equipment : pH Meter  
Manufacturer : Mettler Toledo  
Model : SevenCompact S220  
Serial No. : C104059460  
ID No. : RYG\_EN0183  
Condition As-Received : Used Item  
Received Date : 17 July 2025  
Calibration Date : 22 July 2025  
Reference : 2507-0561DSC  
Ambient Temperature : ( 23  $\pm$  2 ) °C  
Relative Humidity : ( 50  $\pm$  10 ) %

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.

Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch  
616/10 Moo 5, T.Maenam Khu, A. Pluakdaeng,  
Rayong 21140, Thailand

Procedure used : Calibration were conducted using calibration procedure No. CP-E17 according to EURAMET cg-15.

#### Condition of this result of calibration

1.Reference standards instruments :

Instrument	Model	Serial No.	Certificate No.	Due Date
1) Multi-Product Calibrator	5500A	6315011	25E1627	19 May 2026

2.This result of calibration was made on requested at the point specified by customer.

3.The certificate is valid only to the item calibrated on date and place of calibration.

4.This measurement result is traceable to the International System of Unit maintained through:-

-Technology Promotion Association (Thailand-Japan), NSC-ONSC Accredited No. Calibration 0008

Calibrated by : Napachanok Prasomsosin  
Issue Date : 23 July 2025

Approved Signatory :  
[ ] Phalinee Prabpai  
[ ] Nuntawat Khamchai  
[x] Pongsagom Boonyaporn



Cert. No.: 25E2372  
Page.: 2 of 2

#### Result of calibration:- (\*) Without adjustment ( ) After adjustment

Function: DC voltage measurement

Range: 2000 mV

Standard Value (mV)	UUC* Reading (mV)	Error (mV)	Uncertainty ( $\pm$ $\mu$ V)
-200.0000	-200.0	0.0	68
-150.0000	-150.0	0.0	65
-100.0000	-100.0	0.0	63
-50.0000	-50.0	0.0	61
0.0000	0.0	0.0	58
50.0000	49.9	-0.1	61
100.0000	99.9	-0.1	63
150.0000	149.9	-0.1	65
200.0000	199.9	-0.1	68

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

UUC\* = Unit Under Calibration.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
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TEL. 0-2717-3000-29 FAX. 0-2719-9484



#### Certificate of Calibration

Cert. No.: 25LM10  
Page.: 1 of 2

Equipment : DO Meter with Sensor  
Manufacturer : YSI  
Model : 5000-115V  
Serial No. : 15E102796  
ID No. : RYG\_EN0032

Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.  
(Rayong Branch)  
616/10 Moo 5 T. Maenam Khu, A. Pluakdaeng,  
Rayong 21140 Thailand  
Location : TPA On Site Calibration Laboratory

Received Order : 17 January 2025  
Calibrated Date : 20 January 2025  
Ambient Temperature : ( 26  $\pm$  10 ) °C  
Relative Humidity : ( 50  $\pm$  30 ) %  
AC Line Voltage : ( 220  $\pm$  22 ) V

Calibrated by : Warakorn Lemagatrakul

Approved by :  
[x] Chakrit Waewwanjua  
[ ] Suwit Imjai  
[ ] Kunchit Promprat

Issue Date : 23 January 2025

The Uncertainties are for a confidence probability of approximately 95%  
This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services 3: Equipment Calibration and Testing Services.



Equipment : DO Meter with Sensor  
Condition As-Received : Used Item  
Reference : 2501-0600DSC-2  
Procedure Used :-

Cert. No.: 25LM10  
Page.: 2 of 2

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with Industrial Platinum Resistance Thermometer (IPRT) into Temperature Bath.  
The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

1. Reference standard instrument:-

Instrument	Serial No.	Cert. No.	Traceable	Due Date
1) Digital Thermometer	2188080	2411022	TPA	17 Sep 2025

2. This certificate is valid only to the item calibrated on date and place of calibration.

3. This certification is traceable to the International System of Unit.

Remark : TPA : Technology Promotion Association ( Thailand - Japan )

Result of Calibration :- ( \* ) Without Adjustment

Function : Temperature measurement.

This instrument was connected with temperature sensor, S/N : 15E100464

Calibration Point ( °C )	Immersion Depth ( mm )	Standard Temperature ( °C )	UUC* Reading ( °C )	Error ( °C )	Uncertainty ( ± °C )	Coverage Factor k
20.00	60	20.002	19.81	-0.192	0.15	2.00

UUC\* : Unit Under Calibration

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

-000-



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 FAX. 0-2719-9484

**Certificate of Testing**

Cert.No.: 25TW15  
Page.: 1 of 2

Equipment : DO Meter  
Manufacturer : YSI  
Model : 5000-115V  
Serial No. : 15E102796  
ID No. : RYG\_EN0032  
Received Date : 17 January 2025  
Test Date : 20 January 2025  
Reference : 2501-0600DSC-1  
Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.  
(Rayong Branch)  
616/10 Moo 5, T.Maenam Khu, A.Pluakdaeng,  
Rayong 21140, Thailand  
Laboratory Condition : Temperature ( 25 ± 5 ) °C  
Humidity ( 50 ± 20 ) %  
Test Procedure : In - house method : CP-CH9  
by Comparison Technique with Azide Modification Method  
Tested by : Walalak Sirthean  
Approved by :   
Approved Signatory  
( ) Ponthippa Tameyakul  
( ) Ponpan Paipim  
(✓) Sathip Meangmal

Issue Date : 21 January 2025



Cert.No.: 25TW15  
Page.: 2 of 2

**Condition of this result of calibration**

1. Reference Standard Instruments :

This certification is traceable to the International System of Unit through the reference standards laboratory of Industrial Calibration Center, Technology Promotion Association (Thailand-Japan).

Instruments	Serial No.	ID No.	Certificate No.	Due Date
1. Burette	-	130BU10	23CG1172	22 Mar 2025
2. Balance	14233821	110RC001	24MM131	04 July 2025

2. Standard Material :-

Material	Manufacturer	Lot.No.	Assay
Sodium Thiosulfate 5-Hydrate AR	KEMAUS	2203162447	99.6%

Result : Dissolved Oxygen Meter Adjustment With Air 100 %  
Dissolved Oxygen Probe No.: 15E100464

Titration Method (Azide Modification Method) (mg/L)	DO Meter Reading (mg/L)	Standard Deviation (mg/L)
8.20	8.20	0.0084

This report was certified only for the instrument we tested. It is allowable to use for study intend to use for advertising and referral purpose is prohibited. This report may not be reproduced other in full, without written approval of the laboratory

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TEL. 0-2717-3000-29 FAX. 0-2719-9484



**Certificate of Calibration**

Cert. No.: 24TM1663  
Page : 1 of 3

Equipment : Low Temp. Incubator  
Manufacturer : Memmert  
Model : IPP750  
Serial No. : V818.0084  
ID No. : RYG\_EN0154  
Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch  
616/10 Moo 5, T.Maenam Khu,  
A.Pluakdaeng,  
Rayong 21140, Thailand  
Location : BOD Room  
Received Order : 01 November 2024  
Calibration Date : 01 November 2024  
Ambient Temperature : ( 26 ± 10 ) °C  
Relative Humidity : ( 50 ± 30 ) %  
AC Line Voltage : ( 220 ± 22 ) V  
Calibrated by : Krisda Maies  
Approved by :   
Approved Signatory  
( ) Ponpan Paipim  
( ) Suwit Imjai  
(✓) Kunchit Promprat  
Issue Date : 07 November 2024

REVIEW BY	
APPROVED BY	
NEXT CAL DATE	01/05/26

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.





Equipment : Low Temp. Incubator  
Condition As-Received : Used Item  
Reference : 2411-0002OC-1

Cert. No.: 24TM1663  
Page : 2 of 3

#### Procedure Used :-

Calibration were conducted using calibration procedure CP-OT02 based on TLAS G-20 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector ( RTD ).  
The temperature scale used was based on ITS-90.

#### Condition of this result of calibration

##### 1. Reference standard instrument-

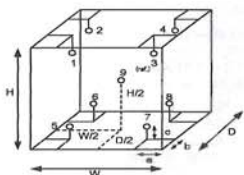
Instrument Serial No. Cert. No. Traceable Due Date  
1) Data Acquisition MY44073381 24LM73 TPA 18 May 2025  
2. This certificate is valid only to the item calibrated on date and place of calibration.  
3. This certification is traceable to the International System of Unit.

Remark : TPA : Technology Promotion Association ( Thailand - Japan )

Result of Calibration :- ( ° ) Without Adjustment

Function of UUC\* : Temperature Source

Fresh air setting : Close



#### Probe Installation Details :

#### Dimension of Chamber :

a = 10 cm  
b = 10 cm  
c = 10 cm  
D = 0.60 m  
W = 1.0 m  
H = 1.2 m  
Capacity = 0.72 m<sup>3</sup>

Environment during calibration		
	Beginning	Finished
Temp. ( °C )	24	25
REL.Humid. ( % )	55	53
AC Supply ( Volt )	220	221

Position :	Ref. Std. ID No.:
1	1RTD-2/1
2	1RTD-2/2
3	22-01RTD-03
4	1RTD-2/4
5	1RTD-2/5
6	1RTD-2/6
7	23-01RTD-07
8	1RTD-2/8
9 (ref.)	23-01RTD-09



Equipment : Low Temp. Incubator  
Condition As-Received : Used Item  
Reference : 2411-0002OC-1

Cert. No.: 24TM1663  
Page : 3 of 3

#### Result of Calibration :-

( ° ) Without Adjustment

Function of UUC\* : Temperature Source

Fresh air setting : Close

Calibration Point ( °C )	UUC* Setting ( °C )	UUC* Reading ( °C )	Temperature stability ( ± °C )	Temperature uniformity ( °C )	Overall Variation ( °C )	Coverage Factor k
20.0	20.0	20.0	0.026	0.26	0.53	2

Calibration Point ( °C )	Measured Temperature ( °C )									Uncertainty ( ± °C )
	1	2	3	4	5	6	7	8	9 (ref.)	
20.0	20.071	19.915	20.273	20.179	19.977	19.782	20.056	20.026	20.033	0.30

Average\* : The average of 30 values in each position.

Temperature stability : One-half of the greatest maximum difference of measured temperature at any one sensor.

Temperature 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 or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.

Overall Variation : The Difference of the maximum and minimum measured temperatures throughout observation.

UUC\* : Unit Under Calibration

Note : The reported uncertainty of measurement was included stability and excluded uniformity .

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 %.

-o0o-



## Certificate of Calibration

Equipment: SPECTROPHOTOMETER  
Model: DR6000  
Serial No. (or ID.): 1627845 (RYG\_EN0037)  
Manufacturer: HACH  
Condition: In Condition

Certificate No.: C06250108  
Issued Date: 18 March 2025  
Job No.: WO-00064379  
Page: 1 of 3

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

Environment Condition: Temperature 24.4 °C ± 0.3 °C  
Humidity 60.8 %RH ± 3.5 %RH

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
( Wet Chemistry Lab )  
616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng, Rayong 21140, Thailand.

Calibration By: Mr.Preecha Phoansai  
Calibration Date: 18 March 2025  
The Method used: In house method, CAL-WI-24, base on ASTM E 275-08 and ASTM E 387-04

Traceability: This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 111583 and 111584  
The standard for Photometric Certificate No. 9114984 and 111588  
The standard for Stray light Certificate No. 111586 and 111585  
The standard for Spectral resolution Certificate No. 111587

(Mr. Preecha Phoansai)

Person in charge

(Miss Kaewkan Suradech)

Authorized signatory

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

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

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

DKSH Technology Limited

2533 Sukhumvit Road, Bangkok, Prachinburi 10260  
Phone : +66 2378 7500 Email : info@dksh.com Website : www.dksh.com/thailand

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CAL-FM-C06-16: 11 Mar 2024



Certificate No.: C06250108 Page 2 of 3

#### Calibration Results:

##### Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 2 nm and UUC at 2 nm

Standard Wavelength	Unit Under Calibration	Correction	Uncertainty
418.61	418.5	0.11	0.13
536.68	536.7	-0.04	0.13
637.98	638.3	-0.32	0.13
748.48	748.8	-0.32	0.13
807.93	807.5	-0.47	0.13

##### Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance	Unit Under Calibration	Correction	Uncertainty
420 nm	0.0000	0.000	0.0000	0.0045
	0.2930	0.291	0.0020	0.0045
	0.5168	0.518	-0.0012	0.0045
	1.0298	1.031	-0.0012	0.0045
440 nm	0.0000	0.000	0.0000	0.0045
	0.2867	0.285	0.0017	0.0045
	0.5073	0.508	-0.0007	0.0045
	1.0083	1.009	-0.0007	0.0045
465 nm	0.0000	0.000	0.0000	0.0045
	0.2518	0.250	0.0018	0.0045
	0.4505	0.461	-0.0015	0.0045
	0.9334	0.935	-0.0016	0.0045
546.1 nm	0.0000	0.000	0.0000	0.0045
	0.2461	0.246	0.0001	0.0045
	0.4652	0.466	-0.0008	0.0045
	0.9468	0.948	-0.0012	0.0045
590 nm	0.0000	0.000	0.0000	0.0045
	0.2594	0.259	0.0004	0.0045
	0.5040	0.505	-0.0010	0.0045
	1.0032	1.004	-0.0008	0.0045
635 nm	0.0000	0.000	0.0000	0.0045
	0.2579	0.258	-0.0001	0.0045
	0.4971	0.497	0.0001	0.0045
	0.9720	0.973	-0.0010	0.0045

DKSH Technology Limited

2533 Sukhumvit Road, Bangkok, Prachinburi 10260

Phone : +66 2378 7500 Email : info@dksh.com Website : www.dksh.com/thailand

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CAL-FM-C06-16: 11 Mar 2024



Calibration Results:  
Without Adjustment

Photometric Accuracy (Absorbance)				
Wavelength	Standard absorbance	Unit Under Calibration	Correction	Uncertainty
235 nm	0.0000	0.000	0.0000	0.0080
	0.7355	0.738	-0.0025	0.0080
257 nm	0.0000	0.000	0.0000	0.0080
	0.8574	0.857	0.0004	0.0080
313 nm	0.0000	0.000	0.0000	0.0080
	0.2854	0.290	-0.0036	0.0080
350 nm	0.0000	0.000	0.0000	0.0080
	0.6374	0.637	0.0004	0.0080
Stray light *				
Standard: cut-off	UUC: Wavelength (nm)	UUC: Transmission (%T)	Absorbance (A)	
260.62 +/- 0.11 nm	260.6	1.7	1.770	
391.44 +/- 0.11 nm	391.4	1.4	1.854	
Spectral Resolution *				
Nominal Concentration 0.02 % v/v	Peak	Trough	Ratio	SBW
Standard Wavelength ( nm )	268.85	266.69	1.38	2.00
UUC: Wavelength (nm)	268.2	266.2		
Std Absorbance ( A )	0.4566	0.2780		
UUC: Absorbance (A)	0.413	0.299		

\* Calibration Marked "Not TISI Accredited" in this Certificate have been included for completeness.

The End of Certificate

บริษัท ดีเคเอส อีเซีย จำกัด  
DKSH Technology Limited  
2533 Sukhumvit Road Bangkok, Prachinburi Bangkok 10562  
Phone: +66 2610 7000 Email: info@dksh.com/office@dksh.com Website: www.dksh.com/thailand  
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CAL-FM-C06-15: 11 Mar 2024

## ใบตรวจสอบสภาพเครื่องวัดสิ่งแวดล้อม

เลขที่ใบงาน: WO-00064379

ชนิดเครื่องมือ: SPECTROPHOTOMETER

รุ่น: DR6000

หมายเลขเครื่อง: 1627845

ตรวจสอบ (วัน)		รายการตรวจสอบ	ตรวจสอบ (ครั้ง)		หมายเหตุ
18 Mar 2025			18 Mar 2025		
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
General					
<input type="checkbox"/>	<input type="checkbox"/>	1. ความสมบูรณ์เครื่อง	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	2. ความสะอาด ( ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	3. สวิตช์ ปิด - เปิด เครื่อง (On-Off Switch)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	4. ปุ่มกด (Keypad)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	5. หน้าจอ (Display, Screen Contrast)	<input type="checkbox"/>	<input type="checkbox"/>	
Spectrophotometer					
<input type="checkbox"/>	<input type="checkbox"/>	6. แรงดันไฟฟ้า (Battery Backup) >= 2.5 VDC	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	7. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	8. ความยาวคลื่น (Wavelength Check)	<input type="checkbox"/>	<input type="checkbox"/>	*
<input type="checkbox"/>	<input type="checkbox"/>	9. แหล่งกำเนิดแสง (UV < 3,000 hour)	<input type="checkbox"/>	<input type="checkbox"/>	13.5 Hours
<input type="checkbox"/>	<input type="checkbox"/>	10. แหล่งกำเนิดแสง (Visible < 5,000 hour)	<input type="checkbox"/>	<input type="checkbox"/>	893.0 Hours
<input type="checkbox"/>	<input type="checkbox"/>	11. ช่องใส่ตัวอย่าง (Carousel Module)	<input type="checkbox"/>	<input type="checkbox"/>	
pH Meter and Conductivity Meter					
<input type="checkbox"/>	<input type="checkbox"/>	12. อิเล็กโทรด ( Electrode and Connection Cable )	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	13. ระดับสารละลายใน Electrode (Level KCl )	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	14. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	15. ขาจับอิเล็กโทรด (Stand)	<input type="checkbox"/>	<input type="checkbox"/>	
Turbidimeter					
<input type="checkbox"/>	<input type="checkbox"/>	16. ค่าความทึบที่ต่ำสุด (No Sample)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	17. ระดับการส่องสว่างของแสง (>= 2.5 ไมล์ 3.0)	<input type="checkbox"/>	<input type="checkbox"/>	
Automatic titrator					
<input type="checkbox"/>	<input type="checkbox"/>	18. สภาพ Piston Burettes	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	19. Function Rinsing and Dosing	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	20. ระบบท่อสายยางและอุปกรณ์ประกอบ	<input type="checkbox"/>	<input type="checkbox"/>	

เพื่อเป็นข้อมูลแนะนำ: \* 656.1nm = 656.1nm

\* 486.0nm = 486.7nm

Mr.Preecha Phoosai  
Service Engineer

บริษัท ดีเคเอส อีเซีย จำกัด  
DKSH Technology Limited  
2533 Sukhumvit Road Bangkok, Prachinburi Bangkok 10562  
Phone: +66 2610 7000 Email: info@dksh.com/office@dksh.com Website: www.dksh.com/thailand  
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CAL-FM-R31-03: 25 Jul 2022



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534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL 0-2717-3000-29 FAX 0-2719-9484



## Certificate of Calibration

Cert.No.: 25CH458  
Page: 1 of 3

Equipment:	pH Meter
Manufacturer:	Mettler Toledo
Model:	Seven2Go S2
Serial No.:	C221115514
ID No.:	RYG_FS0596
Condition As-Received:	Used Item
Received Date:	24 June 2025
Calibration Date:	25 June 2025
Reference:	2506-0782DSC-4
Submitted by:	ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch 616/10 Moo 5, T.Maenam Khu, A.Pluakdaeng, Rayong 21140, Thailand
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:	Walalak Sirithan <i>Saithip</i>
Approved by:	<i>Saithip</i> Approved Signatory
( ) Chakrit Waewwanjua	
( ) Ponpan Paipim	
(✓) Saithip Meangmai	
Issue Date:	26 June 2025

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.: 25CH458  
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 measurement result is traceable to SI through Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd.,  
ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.007	CPA chem	1066665	18 Jan 2027
pH 6.955	CPA chem	1066667	18 Jan 2026
pH 10.010	CPA chem	1114385	08 June 2026

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
			mV	pH		
pH Meter S/N.: C221115514	4.00	177.48	178	4.00	0.58	2.00
	7.00	0.00	0	7.00	0.58	2.00
	10.00	-177.48	-178	10.00	0.58	2.00

Cert.No.: 25CH458  
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 ( $\Delta$ )	Coverage factor $k$
pH Electrode S/N.: 3293232	4.007	4.01	163	0.0079	2.00
	6.965	6.99	-10	0.011	2.00
	10.010	10.00	-185	0.0092	2.00

## Function : Temperature Measurement

(\*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLabExpert Go-ISM

- Serial No. : 3293232

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	25.002	25.1	0.098	0.13	2.00
45.0	45.001	45.2	0.199	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 %.

-o-o-

Accredited by

NSC-TIS-TIS 17025  
Calibration 0426

## Calibration certificate

Calibration Certificate No. 25BKL0002

Object	Electronic non-automatic weighing instrument	This calibration certificate documents the traceability to national standards.
Manufacturer	Sartorius	Uncertainties of measurements are taken into account when only statements of compliance are made.
Type	MCE224S-2S00-U	This certificate was prepared by Sartorius Corporation in accordance to the current ISO/IEC 17025:2017 standard and Sartorius Work Instruction (Method) SOP-WI06.
Serial   QM Ident. no.	38101399   RYG_EN0163	This certificate relate and apply this equipment only.
Customer	ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)	
	616/10 Moo 5 T.Maenam Khu, A.Pluk Daeng, Rayong 21140, Thailand.	
Order no.	2230	REVIEW BY <i>Thanitak</i>
Number of pages	4	APPROVED BY <i>D. Kachen</i>
Date of calibration	20 Feb 2025	NEXT CAL DATE: 20/02/26

This calibration certificate may not be reproduced other than in full except with the permission of NSC-TIS-TIS-17025 and the issuing laboratory. Calibration certificates without signature are not valid.

The user is obliged to have the object recalibrated at appropriate intervals.

Date	08 Mar 2025	Approval of the Calibration Certificate	Person in charge
		<i>Chonchai Inthana</i>	<i>Kachen</i>
		Mr. Chonchai Inthana	Kachen Lalee

Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaykwang  
10310 BangkokVerical®  
Version 6.5

Page 1 | 4

Calibration certificate No.: 25BKL0002  
Calibration Certificate

## Calibration object

## Single range instrument

Model	MCE224S-2S00-U
Serial Number	38101399
QM Ident. no   Inventory no.	RYG_EN0163   —
Maximum capacity (Max. load)	220.0000 g
Measured range	220.0000 g
Scale interval	0.0001 g

## Place of calibration

Address	According to page 1
Department   Cost center	Laboratory Department.   —
Building   Floor	—   1st Floor.
Room	Balance Room.
Maximum temperature variation at place of calibration	5 K

## Calibration procedure

EURAMET cg-18, V4.0 - Guidelines on the Calibration of Non-Automatic Weighing Instruments

## Test equipment

Test equipment type	Test equipment ID	Valid until
Thermometer	MHB-382SD s/nB011342 Traceable to SI unit through DKSH	21 Aug 2025
Test weight set OIML R111 E2	Certificate No.M2308197S ;E2(Traceable to SI unit through TCS)	23 Aug 2025

## Adjustment Status

The measuring device was internally adjusted before the calibration.

## Environmental and measuring conditions

Date of calibration	20 Feb 2025
Temperature at place of calibration   Temp. diff.	24.4 °C   0.6 K
Twilights - T <sub>place</sub>	
Measuring conditions	The installation site is suitable. The device was levelled. Balance was loaded up to Max before test.
Comments	Humidity 58.0 %RH.

## Measurement results | Measurement uncertainties

Repeatability	Eccentricity
Test load (nominal): 10 g   200 g	Test load (nominal): 100 g
10 g	Center
10.0000 g	100.0000 g
1.0000 g	Front left
0.1000 g	100.0000 g
0.0100 g	Back left
0.0010 g	100.0000 g
0.0001 g	Back right
0.0000 g	100.0000 g
0.0000 g	Front right
0.0000 g	99.9999 g
0.0000 g	Maximum deviation from centric loading indication
0.0000 g	$ \Delta_{ecc} _{max} = 0.0001 g$

Testload	Indication	Error	Expansion factor	Uncertainty	Uncertainty relative
$L$	$I$	$E$	$k$	$U(E)$	$U_{rel}(E)$
0.0100 g	0.0100 g	0.0000 g	2.00	0.00013 g	1.3 %
0.1000 g	0.1000 g	0.0000 g	2.00	0.00013 g	0.13 %
0.5000 g	0.5000 g	0.0000 g	2.00	0.00013 g	0.026 %
1.0000 g	1.0000 g	0.0000 g	2.00	0.00013 g	0.013 %
5.0000 g	5.0000 g	0.0000 g	2.00	0.00013 g	0.0026 %
10.0000 g	9.9999 g	-0.0001 g	2.00	0.00013 g	0.0013 %
20.0000 g	20.0000 g	0.0000 g	2.00	0.00014 g	0.00068 %
50.0000 g	50.0001 g	0.0001 g	2.00	0.00015 g	0.00029 %
100.0000 g	100.0000 g	0.0000 g	2.00	0.00016 g	0.00016 %
200.0000 g	200.0000 g	0.0000 g	2.00	0.00028 g	0.00014 %
220.0000 g	220.0000 g	0.0000 g	2.00	0.00032 g	0.00015 %
Maximum error of indication		$ E _{max} = 0.0001 g$			

$U_{rel}(E)$  is the quotient of  $U(E)$  and test load  $L$ . The uncertainty of measurement  $U(E)$  is valid only if error  $E$  is considered. You will find reference notes on the uncertainty of measurement in use under: Appendix to the calibration certificate | Interpretation of measurement results.  
Reference note: The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the documented Expansion factor, determined in accordance with the European Calibration Guideline EURAMET cg-18, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

End of calibration certificate



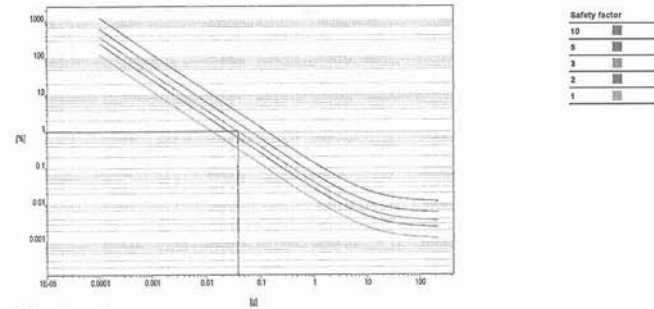
## Uncertainty of measurement in use

Device adjusted before measurement Yes  
Temperature deviation considered 1.5 K (isoCAL active)  
Temperature coefficient considered  $1 \cdot 10^{-4} \text{K}$   
Uncertainty of the weighing result  $U_9(W)$   $U_9(W) = 0.00013 \text{ g} + 1.16 \cdot 10^{-4} \cdot R$

Reference note: The current uncertainty of measurement is calculated by entering the reading  $R$  into this formula. In relation to this, there is no need for a correction of the indication error. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied with an Expansion factor of 2, determined in accordance with the European Calibration Guideline EURAMET cg-18, V4.0. There is a 95 % probability that the value of the measurand will be in the assigned value range.

Indication in % from max load	Net indication $R$	Uncertainty $U_9(W)$	Uncertainty relative $U_9(W)_{\text{rel}}$
1 %	22000 g	0.00018 g	0.00071 %
25 %	550000 g	0.00077 g	0.0014 %
50 %	1100000 g	0.0014 g	0.0013 %
75 %	1650000 g	0.0020 g	0.0012 %
100 %	2200000 g	0.0027 g	0.0012 %

## Graphic realization of the relative uncertainty of measurement | process accuracy



## Displayed example

Process accuracy 1.00 %  
Safety factor 3  
Minimum sample weight 0.0381 g

Sartorius (Thailand) Co., Ltd.  
129 Rama 9 Road, Huaykwang  
10310 Bangkok

Verical®  
Version 6.5

Page 4 | 4



Metrology Center  
SCI ECO Services Company Limited  
51 Moo 8, Tubkwang, Kaeng Khoi, Saraburi, Thailand 18260



Certificate No. T251530

Page 2 of 3

## Calibration Report

Equipment : Chamber ( Oven )  
Date of Calibration : 10 September 2025  
Environment : Temperature : 35.7-36.6 °C  
Line Voltage : 226.8-233.7 V  
Relative Humidity : 55 - 65 %RH

## Condition of this results of calibration :

1. This equipment was calibrated by insert nine resistance thermometer detectors into its chamber , the other one resistance thermometer detector use for ambient temperature measurement . The calibration was done in according to WI-T20 ( based on ASTM E145-94 ( Reapproved 2019 ) and AS2853-1986 ). All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .

## 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 ohm	30-(CH1-10)	T242203	9 November 2025
DATA LOGGER	34970A	T47	T242203	9 November 2025

## 3. This certificate is traceable to :

National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244.

## 4. Condition of calibrated item : good

## Equipment Description :

Time Constant 3 Hour 29 Minute At 104 °C  
Fresh Air Damper ☒ Open ☒ Min ☐ Medium ☐ Max  
☐ Close  
☐ Not Available

## 5. Adjustment :

( ) without adjustment ( X ) after adjustment

Approved By.



Metrology Center  
SCI ECO Services Company Limited  
51 Moo 8, Tubkwang, Kaeng Khoi, Saraburi, Thailand 18260  
Bangkok Tel : +668 9205 6651 , +669 81924 0059  
Saraburi Tel : +669 6247 2360  
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



Certificate No. T251530

## Certificate of Calibration

Page 1 of 3

Equipment : Chamber ( Oven )  
Manufacturer : MEMMERT  
Model : UF 110  
Serial No. : B416.2420  
Customer Code : RYG\_EN0012  
ID No. : T6444A5  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch )  
616/10 Moo 5 T.Maenamkoo,  
A.Pluakdaeng, Rayong 21140  
Customer Location : ENVIRONMENT LABORATORY  
Date of Receipt : 3 September 2025  
Calibrated By : Sujjar Naknakred ( Site Calibration Manager )  
Approved By : Boonchai Suriyawong (Site Calibration Manager)  
Date of Issue : 17 SEP 2025

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-TL06 102/27-03-68



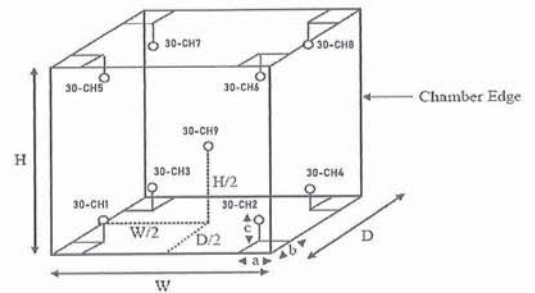
Metrology Center  
SCI ECO Services Company Limited  
51 Moo 8, Tubkwang, Kaeng Khoi, Saraburi, Thailand 18260



Certificate No. T251530

Page 3 of 3

## Calibration Report



Remark : Internal Dimensions of Chamber : W (Width) = 56 cm. , H (Height) = 48 cm. and D (Depth) = 40 cm.  
Size of Installed Standard sensor number 30-CH1 to number 30-CH8 : a = 5 cm. , b = 5 cm. and c = 5 cm.  
Size of Installed Standard sensor number 30-CH9 : W2 = 56 cm./2 , H2 = 48 cm./2 and D2 = 40cm./2

## Measurement Results

Average Standard Reading at each position (°C)								
Calibration Point	30-CH1	30-CH2	30-CH3	30-CH4	30-CH5	30-CH6	30-CH7	30-CH8
104	104.02	103.70	104.01	104.16	104.11	104.08	104.01	104.33
180	180.67	178.78	180.38	179.85	179.26	180.27	180.99	181.04
Chamber ( Oven )								
Setting °C	Reading (°C)			Temperature Distribution				
	Min, Max	Average		Average (°C)	Stability (x °C)	Uniformity (°C)	Uncertainty (x °C)	Coverage Factor K
104.0	103.9 , 104.1	104.0		104.00	0.08	0.61	0.42	2.00
180.0	179.9 , 180.1	180.0		180.07	0.21	1.51	0.52	2.00

\* The quoted uncertainty exclude "uniformity"

This calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing

a level of confidence of approximately 95 % .

End of Certificate.

Approved By.





## Metrology

SCI ECO Services Company Limited  
33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.  
Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100  
Bangkok Tel : +668 9205 6851, +669 8247 2360  
Website : www.scieco.co.th E-Mail : calibrate@scg.com



## Metrology

SCI ECO Services Company Limited  
33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.



Certificate No. T242075

Page 2 of 3

Certificate No. T242075

Page 1 of 3

### Certificate of Calibration

Equipment : Liquid Bath ( Water )  
Manufacturer : Memmert  
Model : WNE29  
Serial No. : L623.0105  
Customer Code : RYG\_EN0220  
ID No. : T5650A5  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch )  
616/10 Moo 5 T.Meenam Khu,  
A.Pluakdaeng, Rayong 21140  
Customer Location : Wet Chemistry Lab  
Date of Receipt : 11 December 2024  
Calibrated By : Atiphong Rongrat ( Technician )  
Approved By : / Boonchai Suriyawong (Site Calibration Manager)  
Date of Issue : 20 DEC 2024

REVIEW BY

APPROVED BY

NEXT CAL DATE: 19/12/25

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrology.

FM-L14 119/18-08-66

Equipment : Liquid Bath ( Water )  
Date of Calibration : 19 December 2024  
Environment : Temperature : 25.3-25.9 °C  
Line Voltage : 221.4-225.4 V  
Relative Humidity : 55 - 65 %RH

#### Condition of this results of calibration :

- This equipment was calibrated by insert five resistance thermometer detectors into its water bath, the other one thermocouple type T use for ambient temperature measurement. The calibration was done in according to WI-T36 ( based on ASTM E715-80 ( Reapproved 2001 ) ). All data show below were final values and the initial data from customer request. The temperature scale used, was based on ITS - 90.
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 QHM	M34 (CH1-CH5)	T240400	16 March 2025
DATA LOGGER	34970A	T193	T240400	16 March 2025
- This certificate is traceable to :  
National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TIS-TIS 17025 CALIBRATION 0244 )
- Condition of calibrated item : good  
Equipment Description :  
Time Constar : 1 Hour 30 Minute At 63 °C
- Adjustment :  
( X ) without adjustment ( ) after adjustment

Approved By:

FM-L15 118/18-08-66



## Metrology

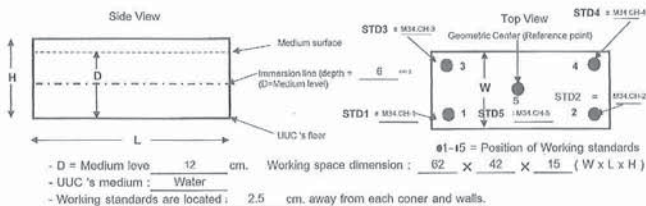
SCI ECO Services Company Limited  
33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.



Certificate No. T242075

Page 3 of 3

### Calibration Report



#### Measurement Results:

Average Standard Reading at each position ( °C )					
Calibration Point	M34.CH-1	M34.CH-2	M34.CH-3	M34.CH-4	M34.CH-5
63	62.87	63.00	62.88	62.88	63.22
85	84.76	85.14	84.89	85.07	85.24

Liquid Bath ( Water )		Temperature Distribution				
Settling ( °C )	Reading ( °C )		Average ( °C )	Stability ( ± °C )	Uniformity ( ± °C )	Uncertainty ( ± °C )
	Min	Max				
63.0	-	63.0	62.99	0.07	0.25	0.23
85.0	-	85.0	85.02	0.13	0.35	0.26

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By:



## Metrology Center

SCI ECO Services Company Limited

51 Moo 8, Tubkiwong, Keeng Khoh, Saraburi, Thailand 18260  
Bangkok Tel : +668 9205 6851, +669 81924 0059  
Saraburi Tel : +669 8247 2360  
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



Certificate No. T252169

### Certificate of Calibration

Page 1 of 3

Equipment : Liquid Bath ( Water )  
Manufacturer : Memmert  
Model : WNE29  
Serial No. : L623.0105  
Customer Code : RYG\_EN0220  
ID No. : T5650A5  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch )  
616/10 Moo 5 T.Maenamkoo,  
A.Pluakdaeng, Rayong 21140  
Customer Location : Wet Chemistry Lab  
Date of Receipt : 19 November 2025  
Calibrated By : Sujjar Nakkakred ( Site Calibration Manager )  
Approved By : / Boonchai Suriyawong (Site Calibration Manager)  
Date of Issue : 01 DEC 2025

REVIEW BY

APPROVED BY

NEXT CAL DATE: 02/12/26

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-L15 118/18-08-66

FM-TL06 102/27-03-65



Certificate No. T252169

## Calibration Report

Page 2 of 3

Equipment : Liquid Bath ( Water )  
Date of Calibration : 27 November 2025  
Environment : Temperature : 25.5-25.7 °C  
Line Voltage : 221.8-225.5 V  
Relative Humidity : 55 - 65 %RH

### Condition of this results of calibration :

- This equipment was calibrated by insert five resistance thermometer detectors into its water bath , the other one thermocouple type T use for ambient temperature measurement . The calibration was done in according to WI-T36 ( based on ASTM E715-80 ( Reapproved 2022 ) ). All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
RTD	100 OHM	M18 (CH1-CH5)	T251758	17 October 2026
DATA LOGGER	34970A	T261	T251758	17 October 2026
- This certificate is traceable to : National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244 ).
- Condition of calibrated item : good  
Equipment Description :  
Time Constant 1 Hour 3 Minute At 63 °C
- Adjustment :  
( X ) without adjustment ( ) after adjustment

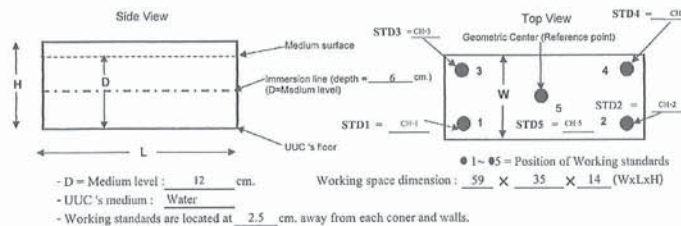
Approved By.

FM-TL07 102/27-03-68

Certificate No. T252169

## Calibration Report

Page 3 of 3



### Measurement Results:

Calibration Point	Average Standard Reading at each position (°C)				
	CH-1	CH-2	CH-3	CH-4	CH-5
63	62.93	63.13	62.94	63.10	63.09
85	85.15	85.33	85.21	85.43	85.20

Liquid Bath ( Water )		Temperature Distribution					
Setting (°C)	Reading (°C)		Average (°C)	Stability (± °C)	Uniformity (± °C)	Uncertainty (± °C)	Coverage Factor k
	Min	Max					
63.0	62.9	63.1	63.04	0.08	0.17	0.27	2.06
85.0	84.8	85.2	85.0	0.13	0.24	0.43	2.23

\* The quoted uncertainty exclude "uniformity"  
The calibration result apply only the above calibrated item.  
The result of test was found accurate as shown on date and place of test only.  
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 % .

End of Certificate.

Approved By.

FM-TL07 102/27-03-68



Certificate No. T241120

## Certificate of Calibration

Page 1 of 4

Equipment : Chamber ( Cold Room )  
Manufacturer : MODULAR  
Model : IREVCOHCOO  
Serial No. : C00351459  
Customer Code : RYG\_EN0184  
ID No. : T1939A5  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch )  
616/10 Moo 5 T.Maenam Khu,  
A.Pluakdaeng, Rayong 21140  
Customer Location : Laboratory  
Date of Receipt : 5 June 2024  
Calibrated By : Sujjar Naknakred ( Site Calibration Manager )  
Approved By : Preecha Phisassutthikul ( Temperature Calibration Manager )  
Date of Issue : 12 JUN 2024

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrology.

FM-L14 117 13-03-66



Certificate No. T241120

Page 2 of 4

## Calibration Report

Equipment : Chamber ( Cold Room )  
Date of Calibration : 11 June 2024  
Environment : Temperature : 23.1-24.1 °C  
Line Voltage : 222.3-226.3 V  
Relative Humidity : 55 - 65 %RH

### Condition of this results of calibration :

- This equipment was calibrated by insert nine standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20 ( based on ASTM E145-94 ( Reapproved 2001 ) and AS2853-1986 ) . All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN161-TN170	T240713	19 April 2025
TC	TYPE T	TN171-TN180	T240713	19 April 2025
DATA LOGGER	34970A	T149	T240713	19 April 2025
- This certificate is traceable to : National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244 ).
- Condition of calibrated item : good  
Equipment Description :  
Time Constant 3 Hour 30 Minute At 3 °C  
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max  
☐ Close  
☒ Not Available
- Adjustment :  
( ) without adjustment ( X ) after adjustment

Approved By.

FM-L13 118/18-06-66

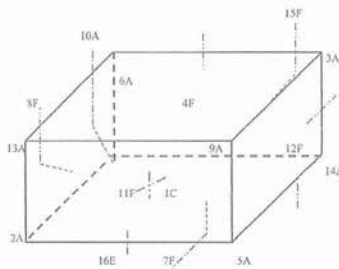




Certificate No. T241120

Page 3 of 4

### Calibration Report



C = Centre, F = Centre of Face, A = Corner, E = Centre of Edge

1C =	TN161	11F =	TN171
2A =	TN162	12F =	TN172
3A =	TN163	13A =	TN173
4F =	TN164	14A =	TN174
5A =	TN165	15F =	TN175
6A =	TN166	16E =	TN176
7F =	TN167		
8F =	TN168		
9A =	TN169		
10A =	TN170		

Approved By:

FM-L15118-15-08-65



Certificate No. T241120

Page 4 of 4

### Calibration Report

#### Measurement Results:

Calibration Point	Average Standard Reading at each position (°C)									
	TN161	TN162	TN163	TN164	TN165	TN166	TN167	TN168	TN169	TN170
3	2.73	2.70	2.77	2.78	2.99	2.35	3.09	3.21	3.08	2.99
	TN171	TN172	TN173	TN174	TN175	TN176				
	3.39	3.01	2.92	2.81	3.42	3.42				

Chamber ( Cold Room )			Temperature Distribution				
Settling (°C)	Reading (°C)		Average (°C)	Stability (± °C)	Uniformity (°C)	Uncertainty (± °C)	Coverage Factor k
	Min , Max	Average					
3.0	2.9 , 4.4	3.7	2.97	1.32	1.13	2.02	2.60

\* The quoted uncertainty exclude " uniformity "

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By:

FM-L15118-15-08-66



Certificate No. T252167

### Certificate of Calibration

Page 1 of 4

Equipment : Chamber ( Cold Room )  
Manufacturer : MODULAR  
Model : IREYCOHCOO  
Serial No. : C00351459  
Customer Code : RYG\_EN0184  
ID No. : TI939A5  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch )  
616/10 Moo 5 T.Maenamkoo,  
A.Plukdaeng, Rayong 21140  
Customer Location : ENVIRONMENT LABORATORY  
Date of Receipt : 19 November 2025  
Calibrated By : Sujjar Naknakred ( Site Calibration Manager )  
Approved By : Boonchai Surlyawong (Site Calibration Manager)  
Date of Issue : 01 DEC 2025

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-TL06 102/27-03-68



Certificate No. T252167

Page 2 of 4

### Calibration Report

Equipment : Chamber ( Cold Room )  
Date of Calibration : 27 November 2025  
Environment : Temperature : 24.7-25.6 °C  
Line Voltage : 222.3-226.3 V  
Relative Humidity : 55 - 65 %RH

#### Condition of this results of calibration :

1. This equipment was calibrated by insert nine standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20 ( based on ASTM E145-94 ( Reapproved 2019 ) and AS2853-1986 ).  
All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .

#### 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN161-TN170	T251760	17 October 2026
TC	TYPE T	TN171-TN180	T251760	17 October 2026
DATA LOGGER	34970A	T261	T251760	17 October 2026

#### 3. This certificate is traceable to :

National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244 )

#### 4. Condition of calibrated item : good

##### Equipment Description :

Time Constant	1	Hour	12	Minute	At	3	°C
Fresh Air Damper	<input type="checkbox"/> Open	<input type="checkbox"/> Min	<input type="checkbox"/> Medium	<input type="checkbox"/> Max			
	<input type="checkbox"/> Close						
	<input checked="" type="checkbox"/> Not Available						

#### 5. Adjustment :

( ) without adjustment

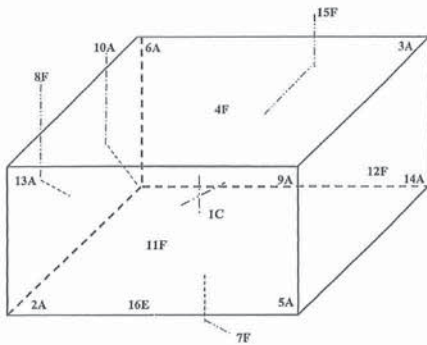
( X ) after adjustment

Approved By:

FM-TL07 102/27-03-68



## Calibration Report



C = Centre, F = Centre of Face, A = Corner, E = Centre of Edge

1C = TN161	11F = TN171
2A = TN162	12F = TN172
3A = TN163	13A = TN173
4F = TN164	14A = TN174
5A = TN165	15F = TN175
6A = TN166	16E = TN176
7F = TN167	
8F = TN168	
9A = TN169	
10A = TN170	

Approved By:

FM-TL07 102/27-03-68

## Calibration Report

## Measurement Results:

Calibration Point	Average Standard Reading at each position (°C)									
	1C TN161	2A TN162	3A TN163	4F TN164	5A TN165	6A TN166	7F TN167	8F TN168	9A TN169	10A TN170
3	2.59	2.80	2.94	2.86	3.05	3.44	3.11	3.30	3.29	3.66
	11F TN171	12F TN172	13A TN173	14A TN174	15F TN175	16E TN176				
	3.41	3.56	3.38	3.54	3.36	3.16				

Setting (°C)	Reading (°C)		Temperature Distribution				
	Min, Max	Average	Average (°C)	Stability (°C)	Uniformity (°C)	Uncertainty (°C)	Coverage Factor k
3.0	2.9, 4.1	3.7	3.21	1.25	1.92	1.85	2.00

\* The quoted uncertainty exclude "uniformity"

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

End of Certificate.

Approved By:

FM-TL07 102/27-03-68



## Certificate of Calibration

Equipment: CONDUCTIVITY METER  
Model: Orion STAR A215  
Serial No. (or ID.): X58821 (RYG-EN0200)  
Manufacturer: Thermo Scientific  
Electrode Serial No. YQ1-11982  
Condition: In Condition

Certificate No.: C24250077  
Issued Date: 21 March 2025  
Job No.: WO-00064803  
Page: 1 of 2  
Model: ORION 013005MD  
Brand: Thermo Scientific

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

Environment Condition: Temperature 23.5 °C ± 0.8  
Humidity 52.4 %RH ± 1.3

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
(Wet Chemistry Lab) 616/10 Moo 5 T.Maenam Khu,  
A.Pluakdaeng, Rayong 21140, Thailand.

Calibration By: Mr. Pongpisut Suebchantha  
Calibration Date: 21 March 2025  
The Method used: In house method, CAL-WI-49, base on ASTM D 1125-14 and D 5391-14  
Traceability: This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO/IEC 17034) Certificate No. 1066608, 1066607, 1066608, 1066609

(Mr. Pongpisut Suebchantha)  
Person in charge

(Miss Kaewkan Suradech)  
Authorized signatory

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.  
The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).  
These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.  
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Phone: +66 2073 7500 Email: info@dksh.com Website: www.dksh.com

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CAL-FM-C24-03 12 Sep 2022



Certificate No.: C24250077

Page: 2 of 2

## Calibration Results:

## Before Adjustment

Standard Conductivity Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty (±)
25.000 µS/cm	27.43 µS/cm	-2.430 µS/cm	2.00	0.28 µS/cm
84.003 µS/cm	90.76 µS/cm	-6.757 µS/cm	2.00	0.68 µS/cm
1413.1 µS/cm	1464 µS/cm	-50.9 µS/cm	2.00	11 µS/cm
12.881 mS/cm	13.41 mS/cm	-0.529 mS/cm	2.00	0.098 mS/cm

## After Adjustment: at 25 µS/cm, 84 µS/cm, 1413 µS/cm, 12.88 mS/cm

Standard Conductivity Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty (±)
25.000 µS/cm	25.63 µS/cm	-0.630 µS/cm	2.00	0.28 µS/cm
84.003 µS/cm	84.53 µS/cm	-0.527 µS/cm	2.00	0.68 µS/cm
1413.1 µS/cm	1415 µS/cm	-1.9 µS/cm	2.00	11 µS/cm
12.881 mS/cm	12.92 mS/cm	-0.039 mS/cm	2.00	0.098 mS/cm

The End of Certificate

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2533 Sukhumvit Road Bangkok, Phrasarang, Bangkok 10260  
Phone: +66 2073 7500 Email: info@dksh.com Website: www.dksh.com

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CAL-FM-C24-03 12 Sep 2022



## ใบตรวจสอบสภาพเครื่องวัดสิ่งแวดล้อม

เลขที่ใบงาน: WO-00064803

ชนิดเครื่องมือ: CONDUCTIVITY METER		รุ่น: Orion STAR A215	หมายเลขเครื่อง: X58821
ตรวจสอบ (ปี)	รายการตรวจเช็ค	ตรวจสอบ (ปี)	หมายเหตุ
21 Mar 2025		21 Mar 2025	
ปกติ	ไม่ปกติ	ปกติ	ไม่ปกติ
<b>General</b>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Spectrophotometer</b>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>pH Meter and Conductivity Meter</b>			
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Turbidimeter</b>			
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Automatic titrator</b>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

โดย: \_\_\_\_\_

Mr. Pongpisut Suebchantha  
Service Engineer

DKSH Technology Limited  
2533 ถนนสุขุมวิท แขวงคลองเตย เขตคลองเตย กรุงเทพมหานคร 10110  
Phone +66 2639 7000 Email info@dksh.com Website www.dksh.com

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CAL-FM-R31-03: 29 Jul 2022



Certificate No.: C15250430  
Page: 2 of 2

### Reference standard equipment:

Equipment	Certificate no	Cal. date	Next Cal. date
Digital Thermometer with Probe	QR24-2043	21 August 2024	21 August 2025

### Calibration Results:

#### Without Adjustment

Sensor Type: RTD		Electrode Serial No. CS1-11923		Channel: -	
Diameter (mm): 15		Length (mm): 120		Immersion (mm): 110	
Calibrate Point(°C)	STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty (± °C)	
25.0	24.954	24.9	0.054	0.20	

The End of Certificate



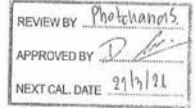
## Certificate of Calibration

Equipment : Digital Thermometer with Probe  
Model : Orion STAR A215  
Serial No. : X58821  
Manufacturer : Thermo Scientific  
ID No. : RYG-EN0200

Certificate No. : C15250430  
Issued Date : 21 March 2025  
Job No. : WO-00064803  
Page : 1 of 2  
Condition : In Condition

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

Environment Condition : Temperature : 30 °C ± 10 °C  
Humidity : 55 %RH ± 25 %RH  
Voltage : 220 VAC ± 10 %



Calibration Place : ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
(Wet Chemistry Lab) 616/10 Moo 5 T.Maenam Khu,  
A.Pluakdaeng, Rayong 21140, Thailand.

Calibration By : Mr. Piypat Saidoung  
Calibration Date : 21 March 2025

The Method used : In house method, CAL-WI-69, by comparison with standard thermometer  
Traceability : This certificate is traceable to the International System of Unit maintained by:  
Quality Reborn Co., Ltd. (QR)

\_\_\_\_\_ (Mr. Piypat Saidoung)  
Person in charge

\_\_\_\_\_ (Mr. Tweewong Thaihiang)  
Authorized signatory

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.  
The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).  
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Phone +66 2639 7000 Email info@dksh.com Website www.dksh.com

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CAL-FM-C15-14: 08 Dec 2022



Certificate No.: C15250430  
Page: 2 of 2

### Reference standard equipment:

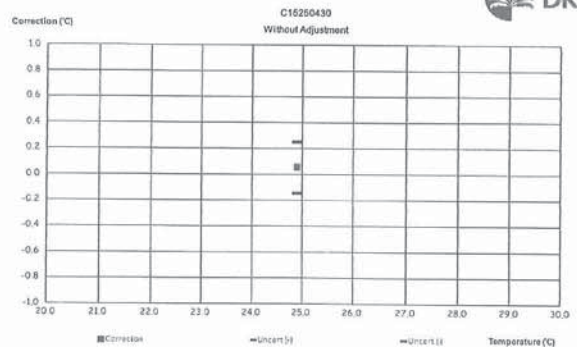
Equipment	Certificate no	Cal. date	Next Cal. date
Digital Thermometer with Probe	QR24-2043	21 August 2024	21 August 2025

### Calibration Results:

#### Without Adjustment

Sensor Type: RTD		Electrode Serial No. CS1-11923		Channel: -	
Diameter (mm): 15		Length (mm): 120		Immersion (mm): 110	
Calibrate Point(°C)	STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty (± °C)	
25.0	24.954	24.9	0.054	0.20	

The End of Certificate



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CAL-FM-C15-14: 08 Dec 2022

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ใบตรวจสอบสภาพเครื่องมือวัดอุณหภูมิ

Equipment : Digital Thermometer with Probe  
Serial No. : X58821

Certificate No. : C15250430  
Model : Orion STAR A215

ตรวจสอบ (รับ)	ตรวจสอบ (ส่ง)	หมายเหตุ
21-Mar-2025	21-Mar-2025	
ปกติ	ปกติ	
General		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1. สายไฟ
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2. Adapter / Power supply 220 / 110 VAC
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3. การทำงาน Main Switch
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4. การทำงาน Selector Key
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5. การแสดง Display
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6. Battery
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7. สภาพเครื่องมือ
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8. สภาพ Sensor ( In / Ex )

ชื่อผู้ส่ง :  
\_\_\_\_\_

Mr. Piyapat Saidoung  
Service Engineer

DKSH Technology (Thailand) Co., Ltd.  
2531 Sukhumvit Road, Bangkok 10260  
Phone: +66 2634 7000 Email: info.dksh@dksh.com Website: www.dksh.com/thailand

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Certificate of Calibration

Represent to Certificate of Calibration No. C29240007

Equipment: Block Digestion Unit  
Model: KT-20s  
Serial No. (or ID.): 5720210009/5770200073  
Manufacturer: Gerhardt  
Condition: In Condition  
Digestion Block: 20 holes.

Certificate No.: C29240011  
Issued Date: 22 March 2024  
Job No.: WO-00020429  
Page: 1 of 4

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

Environment Condition: Temperature: 25 °C ± 0.7 °C  
Humidity: 54 %RH ± 4.1 %RH  
Voltage: 225 VAC ± 1.7 VAC



Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
( Wet Chemistry Lab )  
616/10 Moo 5 T. Maenam Khu, A. Pluakdaeng, Rayong 21140, Thailand.

Calibration By: Mr. Thanathorn Phunook  
Calibration Date: 11 March 2024  
The Method used: In house method, base on by comparison with standard  
Traceability: This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through N.M. Technical Center Laboratory (NTL)  
Certificate No.: TC22/0080

Signature of Mr. Thanathorn Phunook

Signature of Mr. Udon Srichana

(Mr. Thanathorn Phunook)  
Person in charge

(Mr. Udon Srichana)  
Authorized signatory

This certificate is issued for the purpose of measurement according to the International System of Units (SI). It provides traceability of measurement to international standards.  
The measurement uncertainty stated is the expanded uncertainty which is derived from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).  
These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

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CAL-PM-C29-07: 20 Jul 2022

Certificate No.: C29240011

Page: 2 of 4

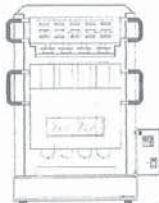
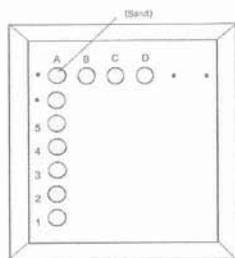


Fig. 1: Front view



Location of standard

Fig. 2: Digestion block

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the Digestion block.

Measured Temperature: The average reading of working standard at any position or location.

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CAL-PM-C29-07: 20 Jul 2022

Certificate No.: C29240011

Page: 3 of 4

Calibration Results:

Pre Calibration

Locations	Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature (°C)	Correction of UUC. (°C)	Uncertainty (± °C)
A1	380	380	380	401.5	21.5	1.5
A2				401.2	21.2	1.5
A3				399.1	19.1	1.5
A4				397.8	17.8	1.5
A5				395.1	15.1	1.5
B1				398.8	16.8	1.5
B2				396.1	16.1	1.5
B3				392.9	12.9	1.5
B4				391.6	11.6	1.5
B5				390.7	10.7	1.5
C1				395.3	15.3	1.5
C2				395.8	15.8	1.5
C3				392.8	12.8	1.5
C4				391.7	11.7	1.5
C5				390.3	10.3	1.5
D1				397.6	17.6	1.5
D2				396.8	16.8	1.5
D3				395.0	15.0	1.5
D4				394.2	14.2	1.5
D5				393.0	13.0	1.5

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CAL-PM-C29-07: 20 Jul 2022



Calibration Results:  
Without adjustment

Certificate No.: C29240011

Page: 4 of 4

Locations	Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature (°C)	Correction of UUC. (°C)	Uncertainty (± °C)
A1	380	305	365	362.5	17.5	1.5
A2				362.4	17.4	1.5
A3				362.1	17.1	1.5
A4				379.7	14.7	1.5
A5				378.3	13.3	1.5
B1				380.1	15.1	1.5
B2				380.1	15.1	1.5
B3				378.5	13.5	1.5
B4				378.3	13.3	1.5
B5				379.1	14.1	1.5
C1				380.1	15.1	1.5
C2				380.1	15.1	1.5
C3				378.9	13.9	1.5
C4				378.2	13.2	1.5
C5				377.3	12.3	1.5
D1				380.5	15.5	1.5
D2				380.6	15.6	1.5
D3				378.1	13.1	1.5
D4				378.7	13.7	1.5
D5				377.7	12.7	1.5

The End of Certificate

## ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: WO-00020429

ชนิดเครื่องมือ: Block Digestion Unit รุ่น: KT-20s  
หมายเลขเครื่อง: 572021009/5770200073

ตรวจสอบ (รับ)		รายการตรวจเช็ค	ตรวจสอบ (ส่ง)		หมายเหตุ
11 Mar 2024			11 Mar 2024		
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. สายไฟ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. การทำงาน Main Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. การทำงาน Selector Key	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. การแสดงผล Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. สภาพ Hole	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	6. สภาพฝาปิด	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. สภาพตัวเครื่อง	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

ชื่อแบบนำ:

Mr. Thanathorn Phunook  
Service EngineerDKSH Technology Limited  
2533 Sukhumvit Road, 25th Floor, Phrasaeng, Bangkok 10260  
Phone: +66 2138 7000 Email: info.dksh@dksh.com Website: www.dksh.com/dksh-thailand  
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CAL-PM-C29-07: 20 Jul 2022

DKSH Technology Limited  
2533 Sukhumvit Road, 25th Floor, Phrasaeng, Bangkok 10260  
Phone: +66 2138 7000 Email: info.dksh@dksh.com Website: www.dksh.com/dksh-thailand  
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**Metrology Center**  
SCI ECO Services Company Limited  
51 Moo 8, Tubkwang, Kaeng Khoi, Saraburi, Thailand 18260  
Bangkok Tel: +668 9205 6851, +669 81924 0059  
Saraburi Tel: +669 8247 2360  
Website: www.scieco.co.th E-Mail: calibrate@scg.co.th



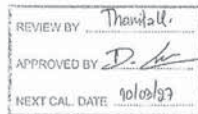
**Metrology Center**  
SCI ECO Services Company Limited  
51 Moo 8, Tubkwang, Kaeng Khoi, Saraburi, Thailand 18260

Certificate No. T251529

## Certificate of Calibration

Page 1 of 3

Equipment : DIGESTION UNIT  
Manufacturer : Gerhardt, Germany  
Model : KT - 20S  
Serial No. : 572021009  
Customer Code : RYG\_EN0188  
ID No. : T6452A5  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch)



616/10 Moo 5 T.Maenamkoo,  
A.Pluakdaeng, Rayong 21140

Customer Location : ENVIRONMENT LABORATORY

Date of Receipt : 3 September 2025

Calibrated By : Sujjar Nakkred ( Site Calibration Manager )

Approved By : / Boonchai Suriyawong (Site Calibration Manager)

Date of Issue : 17 SEP 2025

The uncertainties are for a confidence probability of approximately 95%.

Certificate No. T251529

Page 2 of 3

## Calibration Report

Equipment : DIGESTION UNIT  
Date of Calibration : 10 September 2025  
Environment : Temperature : 21.7 - 24.3 °C  
Line Voltage : 226.9 - 232.1 V  
Relative Humidity : 55 - 65 %RH

## Condition of this results of calibration :

- This equipment was calibrated by insert four standard thermocouples type S into its chamber , the other one thermocouple type T use for ambient temperature measurement . The calibration was done in according to WI-T10.
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	Type S	M20A1-(CH1-CH4)	T250750	14 May 2026
DATA LOGGER	34970A	T261	T250750	14 May 2026
- This certificate is traceable to :  
National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244.)
- Condition of calibrated item : good  
Equipment Description :  
Time Constant : 1 Hour 46 Minute At 380 °C  
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max  
☐ Close  
☒ Not Available
- Adjustment :  
( X ) without adjustment ( ) after adjustment

Approved By.

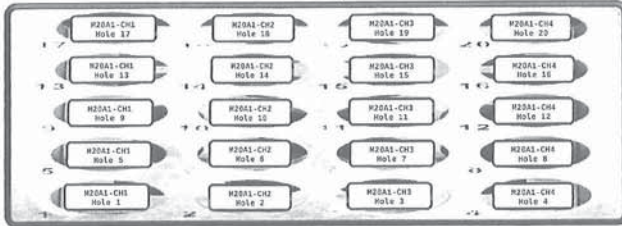
This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrology Center.



Certificate No. T251529

Page 3 of 3

## Calibration Report



### DISPLAY CONTROL (FRONT)

#### Measurement Results

Cal.Point	Setting	Reading	STD.	Position of Standards at Block															
(°C)	(°C)	(°C)	Reading	H20A1-CH1 Hole 1	H20A1-CH2 Hole 2	H20A1-CH3 Hole 3	H20A1-CH4 Hole 4	H20A1-CH5 Hole 5	H20A1-CH6 Hole 6	H20A1-CH7 Hole 7	H20A1-CH8 Hole 8	H20A1-CH9 Hole 9	H20A1-CH10 Hole 10	H20A1-CH11 Hole 11	H20A1-CH12 Hole 12	H20A1-CH13 Hole 13	H20A1-CH14 Hole 14	H20A1-CH15 Hole 15	H20A1-CH16 Hole 16
380	360	360	Max °C	381.2	380.5	381.0	381.0	379.2	380.8	381.3	377.7	382.8	381.5						
			Min °C	380.7	380.0	380.4	380.5	378.6	380.1	380.9	377.2	381.9	380.9						
			Average °C	381.0	380.3	380.7	380.8	378.9	380.4	381.1	377.5	382.4	381.2						
			Stability °C	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.5	0.3						
Cal.Point	Setting	Reading	STD.	Position of Standards at Block															
(°C)	(°C)	(°C)	Reading	H20A1-CH1 Hole 17	H20A1-CH2 Hole 18	H20A1-CH3 Hole 19	H20A1-CH4 Hole 20	H20A1-CH5 Hole 1	H20A1-CH6 Hole 2	H20A1-CH7 Hole 3	H20A1-CH8 Hole 4	H20A1-CH9 Hole 5	H20A1-CH10 Hole 6	H20A1-CH11 Hole 7	H20A1-CH12 Hole 8	H20A1-CH13 Hole 9	H20A1-CH14 Hole 10	H20A1-CH15 Hole 11	H20A1-CH16 Hole 12
380	360	360	Max °C	382.5	377.2	378.7	378.8	378.5	379.9	383.2	381.0	382.4	381.1						
			Min °C	381.7	376.5	378.5	378.5	378.1	379.5	382.7	380.6	381.6	380.4						
			Average °C	382.1	376.8	378.6	378.7	378.3	379.7	383.0	380.8	382.0	380.8						
			Stability °C	0.4	0.4	0.1	0.2	0.2	0.2	0.3	0.2	0.4	0.4						

The expanded uncertainty of temperature measurement was  $\pm 1.8$  °C  
The calibration result apply only the above calibrated items.  
The result of test was found accurate as shown on date and place of test only.  
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95 %.

End of Certificate.

Approved By:

FM-TL05 102/27-03-68

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Agilent CrossLab Compliance Services

## Certificate of System Qualification

GC-OQ + GCMS-OQ

System ID:	BKK_EN0259(GM-7)
Organization Name:	ALS Laboratory Group (Thailand) Co., Ltd.
Organization Location:	104 Pathanakarn 40, Pathanakarn Rd., Khwaeng Suan Luang, Khet Suan Luang, Bangkok
Date:	June 25, 2025 8:40:18 PM
EQP Name:	AgilentRecommended, AgilentRecommended
EQP Revision:	GC.02.50, GCMS.02.50
Overall Qualification Status:	Pass

REVIEW BY:

APPROVED BY:

NEXT CAL. DATE: 25-Dec-26

### System Inspection and Basic Safety and Operation

Name:	7890
Setpoint Status:	Pass

### Overall System Inspection and Basic Safety and Operation Test Status

Pass

### Inlet Pressure Accuracy

Name:	7890
Front:	SSL
Setpoint Status:	Pass
Setpoint:	25.0
Actual:	25.2
Inlet Pressure:	25.0 psi
Accuracy:	0.2 psi
Agilent Recommended:	<= 1.2

### Overall Inlet Pressure Accuracy Test Status

Pass

### GC Oven Temperature Accuracy

Date:	June 25, 2025 8:40:18 PM
System ID:	BKK_EN0259(GM-7)

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Agilent CrossLab Compliance Services

Name:	7890
Setpoint Status:	Pass
Zone:	Oven
Setpoint/Actual:	
Temperature:	230.0
Accuracy:	-1.2 °C
Agilent Recommended:	>= -1.0 % setpoint in K ( -5.0 °C ) <= 1.0 % setpoint in K ( 5.0 °C )
Setpoint Status:	Pass
Zone:	Oven
Setpoint/Actual:	
Temperature:	100.0
Accuracy:	0.8 °C
Agilent Recommended:	>= -1.0 % setpoint in K ( -3.7 °C ) <= 1.0 % setpoint in K ( 3.7 °C )

### Overall GC Oven Temperature Accuracy Test Status

Pass

### GC Oven Temperature Stability

Name:	7890
Setpoint Status:	Pass
Setpoint/Average:	
Temperature:	100.0
Stability:	0.0 °C
Agilent Recommended:	<= 0.5

### Overall GC Oven Temperature Stability Test Status

Pass

### Log Amp

Tested Combination1	Front	SSL	/ External	SQ
Name:	5977A			

Date: June 25, 2025 8:40:18 PM  
System ID: BKK\_EN0259(GM-7)

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Agilent CrossLab Compliance Services

Setpoint Status: Pass

### Overall Log Amp Test Status

Pass

### RPPA

Tested Combination1	Front	SSL	/ External	SQ
Name:	5977A			
Setpoint Status:	Pass			
Amu:	1050			
Drift After Five Minutes:	2 mV			
RPPA Voltage:	462 mV			
Agilent Recommended:	>= -100 and <= 100 <= 1100			

### Overall RPPA Test Status

Pass

### Tune EI

Tested Combination1	Front	SSL	/ External	SQ
Name:	5977A			
Setpoint Status:	Pass			
Filament:	1			
Setpoint Status:	Pass			
Filament:	2			

### Overall Tune EI Test Status

Pass

### Signal to Noise EI

Tested Combination1	Front	SSL	/ External	SQ
Name:	5977A			

Date: June 25, 2025 8:40:18 PM  
System ID: BKK\_EN0259(GM-7)

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Source: EI - Extractor

Filament: 1

Setpoint Status: Pass

Signal to Noise: 35784093956

Agilent Recommended: >= 1200

Source: EI - Extractor

Filament: 2

Setpoint Status: Pass

Signal to Noise: 32894068229

Agilent Recommended: >= 1200

Overall Signal to Noise EI Test Status

Pass

NOTE: This test's 0 comment(s) and 3 deviation(s) are available in the Attachments section.

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Agilent CrossLab Compliance Services

Instrument Details

Purpose

This section describes the as found system configuration.

Details

System

System ID

BKK\_EN0259(GM-7)

Manufacturer

Agilent Technologies

Name

7890

Tested Combination1

Injection Technique

Manual Injection

Inlet

Front

Detector

External

LTM Included?

No

Sampler 1

Manufacturer

Agilent Technologies

Type

Manual Injection

Usage

Sample Injection

Syringe Volume (µL)

10

Mainframe 1

Manufacturer

Agilent Technologies

Name

7890

Model Number

G3442B

Serial Number

CN14133181

Firmware Revision

B.02.03

Oven Type

Standard

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Agilent CrossLab Compliance Services

Inlet 1

Manufacturer

Agilent Technologies

Name

7890

Type

SSL

Location

Front

Carrier Gas

Helium

Control Type

Electronic Pressure Control (EPC)

Purged Inlet

Yes

Detector 1

Manufacturer

Agilent Technologies

Name

Mass Spectrometer

Type

Mass Spectrometer

Location

External

Mass Spectrometer 1

Manufacturer

Agilent Technologies

Type

SQ

Name

5977A

Serial Number

US1415M2C9

Firmware Revision

5977 6.00.21

High Vacuum System

Turbo Pump

Scouting Run Standard

OFN Std

MS EI Source 1

Manufacturer

Agilent Technologies

Source Type

EI - Extractor

Number of filaments

2

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Agilent CrossLab Compliance Services

Electronic Signature

Purpose

This signature page was created and published because the ACE sign-off action was executed, which is valid for the entire document, including attachments. The ACE sign-off is an electronic signature that requires two distinct identification components: unique username and personal password. The Agilent representative who has delivered this service understands the meaning and legal status of an electronic signature. As a trained official operator, the Agilent representative has a unique password and login to access ACE and electronically sign this document. (Other e-signatures can be applied to this document using a Document Content Management or other suitable method defined in your data access and control procedures.)

Details

Full Name of Signer:

Supasak Nimsongtham

Logged On User Name:

supasak.nimsongtham@agilent.com

Signature Creation Date:

June 25, 2025

Reason for Signature:

Executed protocol and published this original version of document.

ACE Self Qualification Status

The installed version of ACE used to deliver this service passed qualification; the results conform with expected values. The self qualification summary report is available in the session folder location SDS/ClearStore/AceSelfQualification.

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Date: June 25, 2025 8:40:18 PM

System ID: BKK\_EN0259(GM-7)

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User Name: supark.kim@agilent.com  
Report Generated By: supark.kim  
System ID: BKH\_EN0259(GM-7)  
Print Date: June 25, 2025 9:40:25 PM

GM-7-2025 Transaction log:

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2025 10:01:23 AM	Auto	SessionCreated	Session	Host Name: SCD11159AG, Drive Serial Number: C2031772
June 13, 2025 10:21:24 AM	start	Configuration	Session	None
June 13, 2025 10:21:24 AM	Auto	Enlightenment	Licensing	User is Field Engineer and does not require an unlock code
June 13, 2025 10:04:40 AM	Auto	ReLoaded	Session	SCP data is for primary tomorrow (SC) - File path: (PhotosPacksGo/Config/inst02/EOQs/02.50 east, EOP File Name: (SC/02.50 east), EOP Name: (AgilentRecommended/Photo Revision (06.03.55) EOP data for hyperstar 14000 (3045) - File path: (PhotosPacksGo/Config/inst02/EOQs/02.50 east, EOP File Name: (06/03/55 east), EOP Name: (AgilentRecommended)
June 13, 2025 10:04:51 AM	End	Configuration	Session	None
June 13, 2025 10:05:03 AM	start	Qualification	Session	QC
June 13, 2025 10:05:03 PM	start	Execution	System Inspection and Basic Safety and Operation - 7890 - Qualitative Test - No separate associated	None
June 13, 2025 10:05:35 AM	End	Execution	System Inspection and Basic Safety and Operation - 7890 - Qualitative Test - No separate associated	Run Count: 1

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Date: June 25, 2025 9:40:18 PM  
System ID: BKH\_EN0259(GM-7)

User Name: supark.kim@agilent.com  
Report Generated By: supark.kim  
System ID: BKH\_EN0259(GM-7)  
Print Date: June 25, 2025 9:40:23 PM

GM-7-2025 Transaction log:

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2025 10:05:49 AM	start	Execution	Isot Pressure Accuracy - Front SSL - Pressure Controlled Isot. - 0.25.0 psi - L: <= 1.2 psi	None
June 13, 2025 10:06:56 AM	End	Execution	Isot Pressure Accuracy - Front SSL - Pressure Controlled Isot. - 0.25.0 psi - L: <= 1.2 psi	Run Count: 1
June 13, 2025 10:07:00 AM	start	Execution	GC Oven Temperature Accuracy - 7890 - Temperature - Over - 0.235.0°C - L: <= 4.0 AND <= 1.0 % setpoint in K	None
June 13, 2025 10:07:39 AM	Auto	Data	GC Oven Temperature Accuracy - 7890 - Temperature - Over - 0.235.0°C - L: <= 4.0 AND <= 1.0 % setpoint in K	Manual Data Entry
June 13, 2025 10:07:35 AM	End	Execution	GC Oven Temperature Accuracy - 7890 - Temperature - Over - 0.235.0°C - L: <= 4.0 AND <= 1.0 % setpoint in K	Run Count: 1
June 13, 2025 10:07:50 AM	start	Execution	BPPA - 9377A SQ - Source: B1 None - Extractor	None
June 13, 2025 10:11:14 AM	start	Execution	GC Oven Temperature Accuracy - 7890 - Temperature - Over - 0.100.0°C - L: <= 4.0 AND <= 1.0 % setpoint in K	None
June 13, 2025 10:12:12 AM	Auto	Data	GC Oven Temperature Accuracy - 7890 - Temperature - Over - 0.100.0°C - L: <= 4.0 AND <= 1.0 % setpoint in K	Manual Data Entry
June 13, 2025 10:12:17 AM	End	Execution	GC Oven Temperature Accuracy - 7890 - Temperature - Over - 0.100.0°C - L: <= 4.0 AND <= 1.0 % setpoint in K	Run Count: 1

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Date: June 25, 2025 9:40:18 PM  
System ID: BKH\_EN0259(GM-7)

User Name: supark.kim@agilent.com  
Report Generated By: supark.kim  
System ID: BKH\_EN0259(GM-7)  
Print Date: June 25, 2025 9:40:25 PM

GM-7-2025 Transaction log:

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2025 10:12:19 AM	start	Execution	GC Oven Temperature Stability - 7890 - Temperature - Over - 0.100.0°C - L: <= 0.5°C	None
June 13, 2025 10:30:39 AM	Auto	Data	GC Oven Temperature Stability - 7890 - Temperature - Over - 0.100.0°C - L: <= 0.5°C	Manual Data Entry
June 13, 2025 10:30:45 AM	End	Execution	GC Oven Temperature Stability - 7890 - Temperature - Over - 0.100.0°C - L: <= 0.5°C	Run Count: 1
June 13, 2025 10:30:56 AM	start	Execution	Log Amp - 9377A SQ - Source: B1 - Extractor	None
June 13, 2025 10:31:15 AM	End	Execution	Log Amp - 9377A SQ - Source: B1 - Extractor	Run Count: 1
June 13, 2025 10:51:14 AM	Auto	AcqClosed	Session	None
June 16, 2025 11:55:55 AM	Auto	AcqRestarted	Session	Host Name: DESKTOP-67H02AL, Drive Serial Number: 8484E493
June 16, 2025 11:55:55 AM	Auto	SessionReloaded	Session	None
June 16, 2025 11:58:07 AM	start	Qualification	Session	QC
June 16, 2025 5:47:31 PM	Auto	AcqClosed	Session	None
June 17, 2025 1:24:47 PM	Auto	AcqRestarted	Session	Host Name: DESKTOP-67H02AL, Drive Serial Number: 8484E493
June 17, 2025 1:30:58 PM	Auto	AcqClosed	Session	None
June 17, 2025 1:52:55 PM	Auto	AcqRestarted	Session	Host Name: DESKTOP-67H02AL, Drive Serial Number: 8484E493
June 17, 2025 3:03:36 PM	Auto	SessionReloaded	Session	None
June 17, 2025 3:23:56 PM	start	Qualification	Session	QC
June 17, 2025 3:24:06 PM	Auto	AcqClosed	Session	None

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Date: June 25, 2025 9:40:18 PM  
System ID: BKH\_EN0259(GM-7)

User Name: supark.kim@agilent.com  
Report Generated By: supark.kim  
System ID: BKH\_EN0259(GM-7)  
Print Date: June 25, 2025 9:40:25 PM

GM-7-2025 Transaction log:

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 25, 2025 3:07:51 PM	Auto	AcqRestarted	Session	Host Name: SCD11159AG, Drive Serial Number: C2031772
June 25, 2025 3:07:54 PM	Auto	SessionReloaded	Session	None
June 25, 2025 3:09:13 PM	start	Qualification	Session	QC
June 25, 2025 3:09:35 PM	start	Execution	BPPA - 9377A SQ - Source: B1 None - Extractor	None
June 25, 2025 3:10:29 PM	End	Execution	BPPA - 9377A SQ - Source: B1 None - Extractor	Run Count: 1
June 25, 2025 3:10:39 PM	start	Execution	Signal to Noise B1 - Liquid Injection, Front SSL, SQ - Source: B1 - Extractor using Filament 1 - L: <= 1200	None
June 25, 2025 3:10:40 PM	start	Execution	Time B1 - 9377A SQ - Source: B1 - Extractor Filament 1 (Qualitative - No separate associated)	None
June 25, 2025 4:10:23 PM	start	Execution	Signal to Noise B1 - Liquid Injection, Front SSL, SQ - Source: B1 - Extractor using Filament 1 - L: <= 1200	None
June 25, 2025 4:10:23 PM	start	Execution	Time B1 - 9377A SQ - Source: B1 - Extractor Filament 1 (Qualitative - No separate associated)	None
June 25, 2025 4:12:43 PM	End	Execution	Time B1 - 9377A SQ - Source: B1 - Extractor Filament 1 (Qualitative - No separate associated)	Run Count: 1
June 25, 2025 4:10:45 PM	start	Execution	Time B1 - 9377A SQ - Source: B1 - Extractor Filament 2 (Qualitative - No separate associated)	None

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Date: June 25, 2025 9:40:18 PM  
System ID: BKH\_EN0259(GM-7)

User Name: s004643@msn-gf.com

System ID: BKH\_CNO009/GM-7

Report Generated by Hostname: SC01151106

Print Date: June 25, 2025 9:40:23 PM

GM-7-2023 Transaction log |

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 25, 2025 4:11:08 PM	End	Execution	Turn E1 - C277A-SQ - Source - Run Count: 1	
			E1 - Extractor Flament 2	
			Qualitative - No sagitta associated	
June 25, 2025 4:15:11 PM	Start	Execution	Signal to Noise E1 - Liquid Injection, Front SS, BQ - Source - E1 - Extractor using Flament 1 - L -> 1200	None
June 25, 2025 4:20:02 PM	Start	Execution	Signal to Noise E1 - Liquid Injection, Front SS, BQ - Source - E1 - Extractor using Flament 1 - L -> 1200	None
June 25, 2025 5:20:28 PM	Auto	Data	Signal to Noise FI - Liquid Injection, Front SS, BQ - Source - E1 - Extractor using Flament 1 - L -> 1200	Data File Path: C:\Users\msn-gf\Download x000 data\OQ data\OQ_SFI_001.D
June 25, 2025 5:24:19 PM	Auto	Data	Data Manager	Data Manager was in a data verification state but the user chose to start over
June 25, 2025 5:26:41 PM	Auto	Data	Signal to Noise FI - Liquid Injection, Front SS, BQ - Source - E1 - Extractor using Flament 1 - L -> 1200	Data File Path: C:\Users\msn-gf\Download x000 data\OQ data\OQ_SFI_001.D
June 25, 2025 5:27:20 PM	Auto	Hooping	Reintegration	Reintegration Count: 1 -> Integration Type: Integration Executive Correction Mode: Advanced Initial Slope Sensitivity: 12 Initial Peak Width: 0.01 Initial Area: 20000 Integration Off by: 0 Integration On in 4

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User Name: vjvackx@slimstrong  
Report Generated By: Administrator: SC0311HNG

System ID: BHK\_000233(GM7)  
Print Date: June 08, 2020 8:41:20 PM

GM7-2025 Transaction Log:

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 25, 2020 5:29:45 PM	End	Execution	Signal to Noise E1 - Liquid Injection, Front SSIL, SQ - Source: E1 - Extractor using Flament 1 - L = 1200	Run Count: 1
June 25, 2020 5:31:32 PM	Auto	Test/Inject	Signal to Noise E1 - Liquid Injection, Front SSIL, SQ - Source: E1 - Extractor using Flament 1 - L = 1200	Deviation flag for Run Count : 1
June 25, 2020 5:31:32 PM	Start	Execution	Signal to Noise E1 - Liquid Injection, Front SSIL, SQ - Source: E1 - Extractor using Flament 1 - L = 1200	None
June 25, 2020 5:34:18 PM	Auto	Data	Signal to Noise E1 - Liquid Injection, Front SSIL, SQ - Source: E1 - Extractor using Flament 1 - L = 1200	Data File Path : C:\Users\slimstrong\Desktop\YIQ data\OQ data\OQ_SV_F1_001.D
June 25, 2020 5:35:23 PM	Auto	Data	Data Manager	Data Manager was in a data verification was but the user OQ04 to start over
June 25, 2020 6:37:01 PM	Auto	Data	Signal to Noise E1 - Liquid Injection, Front SSIL, SQ - Source: E1 - Extractor using Flament 1 - L = 1200	Data File Path : C:\Users\slimstrong\Desktop\YIQ data\OQ data\OQ_SV_F1_001.D
June 25, 2020 5:37:47 PM	Auto	Reporting	Reintegration	Reintegration Count: 1 - [ Integration Type Injection Baseline Correction Mode Adaptive Baseline Peak Sensitivity: 10 Initial Peak Width: 0.01 Initial Area Repeat: 0 Initial Height Repeat: 25000 Integration: OFF at 9.00 minutes (ON at 4)

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User Name: vspuser@mcgresham  
 Report Generated by Maxima: JCG1155HGC

System ID: 0005\_000225(019-7)  
 Print Date: June 25, 2025 8:42:20 PM

GMV-2025 Transaction Log

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 25, 2025 5:40:08 PM	End	Execution	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 1 - L1 == 1200	Run Count: 2
June 25, 2025 5:41:09 PM	Start	Execution	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 2 - L1 == 1200	None
June 25, 2025 5:44:37 PM	Audit	Data	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 2 - L1 == 1200	Data File Path : C:\Users\mcgresham\Download\svQC_data\svQC_data\svQC_BN_F2_001.D
June 25, 2025 5:48:28 PM	End	Execution	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 2 - L1 == 1200	Run Count: 1
June 25, 2025 5:49:38 PM	Audit	Test/Unlocked	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 2 - L1 == 1200	Deviation fixed for Run Count: 1
June 25, 2025 5:49:49 PM	Start	Execution	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 2 - L1 == 1200	None
June 25, 2025 5:57:10 PM	Audit	Data	Signal to Notify B1 - Liquid Injection, Front BSL, BQ - Source: B1 - Extractor using Filament 2 - L1 == 1200	Data File Path : C:\Users\mcgresham\Download\svQC_data\svQC_data\svQC_BN_F2_001.D
June 25, 2025 5:57:46 PM	Audit	Data	Data Manager	Data Manager was in a data verification state but the user chose to start over

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User Name: jayashankar@nagaham Report Generated by Username: SUG11155612 GMS-2025 Transaction Log :					
Agent: SCSLCSAO Print Date: July 25, 2025 8:42:22 PM					
Time	Transaction State	Activity Performed	Type of Transaction	Optional Information	
June 25, 2025 8:38:51 PM	Audit	Data	Signal to Noise E1 - Liquid Injection, Front SBL, BQ - Source: E1 - Extractor using Flament 2 - L >= 1200	Data File Path : C:\Users\jaysankar\Downloads v103 data\QO data\QO_SIN_F2_001.D	
June 25, 2025 8:00:02 PM	Audit	Data	DataManager	DataManager was in a data verification state but the user chose to start over	
June 25, 2025 8:02:07 PM	Audit	Data	Signal to Noise E1 - Liquid Injection, Front SBL, BQ - Source: E1 - Extractor using Flament 2 - L >= 1200	Data File Path : C:\Users\jaysankar\Downloads v103 data\QO data\QO_SIN_F2_001.D	
June 25, 2025 8:02:24 PM	Audit	Data	DataManager	DataManager was in a data verification state but the user chose to start over	
June 25, 2025 8:19:29 PM	Audit	Data	DataManager	DataManager was in a data verification state but the user chose to start over	
June 25, 2025 8:27:38 PM	Audit	Data	Signal to Noise E1 - Liquid Injection, Front SBL, BQ - Source: E1 - Extractor using Flament 2 - L >= 1200	Data File Path : C:\Users\jaysankar\Downloads v103 data\QO data\QO_SIN_F2_002.D	
June 25, 2025 8:33:07 PM	End	Execution	Signal to Noise E1 - Liquid Injection, Front SBL, BQ - Source: E1 - Extractor using Flament 2 - L >= 1200	Run Count: 2	
June 25, 2025 8:34:17 PM	Audit	Test/Shutdown	Signal to Noise E1 - Liquid Injection, Front SBL, BQ - Source: E1 - Extractor using Flament 2 - L >= 1200	Deviation Detail for Run Count : 2	
June 25, 2025 8:34:17 PM	End	Execution	Signal to Noise E1 - Liquid Injection, Front SBL, BQ - Source: E1 - Extractor using Flament 2 - L >= 1200	None	

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Certificate No. T250355

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## Certificate of Calibration

**Equipment** : HEATING BLOCK  
**Manufacturer** : Environmental Express  
**Model** : SC 196  
**Serial No.** : 6974CECW3285  
**Customer Code** : BKK\_EL0054  
**ID No.** : T5306A3  
**Customer** : ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd.,  
Khwang Phatthanakan, Khet Suan Luang, Bangkok 10250  
**Customer Location** : Acid Digestion Lab  
**Date of Receipt** : 26 February 2025  
**Calibrated By** : Atiphong Rongrat (Technician)  
**Approved By** :  / Boonchai Suriyawong (Site Calibration Manager)  
**Date of Issue** : 7 MAR 2025

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-L12 109/30-05-57

Certificate No. T250355

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## Calibration Report

**Equipment** : HEATING BLOCK  
**Date of Calibration** : 4 March 2025  
**Environment** : Temperature : 24.4-24.9 °C  
Line Voltage : 221.6-226.3 V  
Relative Humidity : 55-65 %RH

### Condition of this results of calibration :

1. This equipment was calibrated by insert nine standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20.

All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .

### 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN221-TN230	T240712	19 April 2025
TC	TYPE T	TN231-TN240	T240712	19 April 2025
TC	TYPE T	TN241-TN250	T240401	16 March 2025
TC	TYPE T	TN251-TN260	T240401	16 March 2025
DATA LOGGER	34970A	T193	T240401	16 March 2025

### 3. This certificate is traceable to :

National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244.)

### 4. Condition of calibrated item : good

#### Equipment Description :

Time Constant : 2 Hour 40 Minute At 95 °C  
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max  
☒ Close  
☒ Not Available

### 5. Adjustment :

( ) without adjustment ( X ) after adjustment

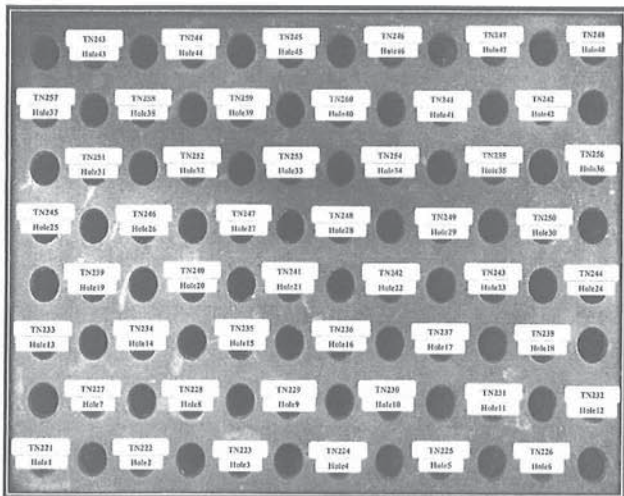
Approved By: 

FM-L13 108/30-05-57


Certificate No. T250355

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## Calibration Report



FRONT CONTROL

Approved By: 

FM-L13 109/30-05-57

Certificate No. T250355

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## Calibration Report

### Measurement Results

Calibration Point	Average Standard Reading at each position (°C)					
R1 Hole1-Hole6	TN221	TN222	TN223	TN224	TN225	TN226
CAL POINT	Max	94.85	95.37	95.03	95.25	95.52
	Min	94.17	94.66	94.38	94.63	94.87
	Average	94.51	95.02	94.70	94.94	95.20
R2 Hole7-Hole12	TN227	TN228	TN229	TN230	TN231	TN232
	Max	94.71	94.56	94.79	95.32	95.44
	Min	94.05	93.88	94.10	94.65	94.90
	Average	94.38	94.22	94.44	94.99	95.17
R3 Hole13-Hole18	TN233	TN234	TN235	TN236	TN237	TN238
	Max	95.26	95.41	95.49	95.71	95.41
	Min	94.54	94.64	94.71	95.10	94.86
	Average	94.90	95.03	95.06	95.41	95.13
R4 Hole19-Hole24	TN239	TN240	TN241	TN242	TN243	TN244
	Max	95.13	95.06	95.68	96.16	95.35
	Min	94.39	94.43	94.86	95.51	94.88
	Average	94.76	94.75	95.27	95.83	95.12
R5 Hole25-Hole30	TN245	TN246	TN247	TN248	TN249	TN250
	Max	94.95	95.81	95.39	95.82	95.66
	Min	94.47	95.03	94.67	94.99	94.84
	Average	94.71	95.42	95.03	95.41	95.25
R6 Hole31-Hole36	TN251	TN252	TN253	TN254	TN255	TN256
	Max	96.07	95.34	96.28	95.39	94.95
	Min	95.28	94.55	95.51	94.62	94.13
	Average	95.67	94.95	95.90	95.00	94.54
R7 Hole37-Hole42	TN257	TN258	TN259	TN260	TN241	TN242
	Max	95.15	95.63	96.11	95.09	95.34
	Min	94.38	94.88	95.32	94.28	94.54
	Average	94.76	95.25	95.71	94.69	94.94
R8 Hole43-Hole48	TN243	TN244	TN245	TN246	TN247	TN248
	Max	95.84	95.87	95.44	95.72	95.65
	Min	95.06	95.10	94.60	94.95	94.87
	Average	95.45	95.48	95.02	95.34	95.26

Approved By: 

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### Calibration Report

#### Measurement Results

Calibration Point	Average Standard Reading at each position (°C)					
R1 Hole1-Hole6	TN221	TN222	TN223	TN224	TN225	TN226
CAL POINT	Max	104.48	104.40	104.60	105.27	105.24
	Min	104.15	104.02	104.25	104.94	104.91
	Average	104.32	104.21	104.42	105.10	105.08
R2 Hole7-Hole12	TN227	TN228	TN229	TN230	TN231	TN232
	Max	105.20	105.45	105.58	105.96	105.81
	Min	104.92	105.14	105.29	105.64	105.53
	Average	105.06	105.29	105.43	105.80	105.67
R3 Hole13-Hole18	TN233	TN234	TN235	TN236	TN237	TN238
	Max	106.09	106.14	105.83	106.25	105.97
	Min	105.80	105.89	105.57	106.00	105.69
	Average	105.94	106.01	105.70	106.13	105.83
R4 Hole19-Hole24	TN239	TN240	TN241	TN242	TN243	TN244
	Max	105.87	105.75	105.30	105.07	105.22
	Min	105.62	105.32	105.13	104.90	105.05
	Average	105.74	105.63	105.21	104.98	105.14
R5 Hole25-Hole30	TN245	TN246	TN247	TN248	TN249	TN250
	Max	105.62	105.54	105.52	105.75	105.97
	Min	105.45	105.35	105.31	105.57	105.81
	Average	105.53	105.44	105.41	105.66	105.89
R6 Hole31-Hole36	TN251	TN252	TN253	TN254	TN255	TN256
	Max	106.19	106.34	106.47	105.96	105.76
	Min	106.02	106.16	106.31	105.77	105.58
	Average	106.10	106.25	106.39	105.87	105.67
R7 Hole37-Hole42	TN257	TN258	TN259	TN260	TN241	TN242
	Max	106.21	105.59	105.45	105.76	106.08
	Min	106.04	105.42	105.28	105.20	105.90
	Average	106.12	105.51	105.37	105.28	105.99
R8 Hole43-Hole48	TN243	TN244	TN245	TN246	TN247	TN248
	Max	106.54	106.33	105.78	105.38	105.42
	Min	106.38	106.16	105.60	105.20	105.25
	Average	106.46	106.25	105.69	105.29	105.33

Approved By:

FM-L13 108/30-05-57



Certificate No. T250355

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### Calibration Report

#### Measurement Results:

HEATING BLOCK			Temperature Distribution	
Setting (°C)	Reading (°C)		Stability (±°C)	Uncertainty (±°C)
	Min, Max	Average		
102.0	-	102.0	0.43	0.83
107.0	-	107.0	0.20	0.70

\* The quoted uncertainty exclude " uniformity "

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 % .

Approved By:

FM-L13 108/30-05-57



Certificate No. T250873

Page 2 of 4

### Calibration Report

Equipment : Chamber ( Cooling Room )  
Date of Calibration : 4 June 2025  
Environment : Temperature : 23.4-24.9 °C  
Line Voltage : 221.4-230.2 V  
Relative Humidity : 55 - 65 %RH

#### Condition of this results of calibration :

1. This equipment was calibrated by insert 16 standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20 ( based on ASTM E145-94 ( Recapproved 2001 ) and AS2853-1986 ).

All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .

#### 2. Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN91-TN100	T242036	3 December 2025
TC	TYPE T	TN101-TN110	T242036	3 December 2025
DATA LOGGER	34970A	T121	T242036	3 December 2025

#### 3. This Certificate is traceable to :

National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TIS-TIS 17025 CALIBRATION 0244 )

#### 4. Condition of calibrated item : good

#### Equipment Description :

Time Constant : 2 Hour 20 Minute At 3 °C  
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max  
☒ Not Available

#### 5. Adjustment :

( X ) without adjustment ( ) after adjustment

Approved By:

FM-TL07 102/27-03-08

Model : KM 320  
Serial No. : TBN-1012061/05  
Customer Code : BKK\_EN0167  
ID No. : T2463A3  
Customer : ALS Laboratory Group (Thailand) Co.,Ltd.  
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,  
Khet Suan Luang, Bangkok 10250  
Customer Location : Laboratory Room  
Date of Receipt : 28 May 2025  
Calibrated By : Atiphong Rongrat ( Technician )  
Approved By : / Boonchai Suriyawong (Site Calibration Manager)  
Date of Issue : 19 JUN 2025

REVIEW BY:   
APPROVED BY:   
NEXT CAL DATE: 04/12/26

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

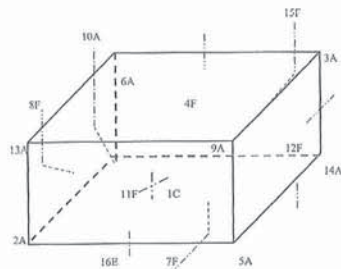
FM-TL06 102/27-03-08



Certificate No. T250873

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## Calibration Report



C = Centre, F = Centre of Face, A = Corner, E = Centre of Edge

1C = TN91	12F = TN102
2A = TN92	13A = TN103
3A = TN93	14A = TN104
4F = TN94	15F = TN105
5A = TN95	16E = TN106
6A = TN96	
7F = TN97	
8F = TN98	
9A = TN99	
10A = TN100	
11F = TN101	

Approved By:

FM-TL07 102/27-03-68

BKK\_EL0043

Certificate No. T250873

Page 4 of 4

## Calibration Report

## Measurement Results

Calibration Point	Average Standard Reading at each position (°C)										
	TN91	TN92	TN93	TN94	TN95	TN96	TN97	TN98	TN99	TN100	TN101
3.0	2.95	2.92	3.09	2.92	3.16	3.50	3.40	3.03	3.14	2.98	3.44
	TN103	TN104	TN105	TN106							
	3.19	3.06	3.46	2.92							

Setting (°C)	Reading (°C)		Temperature Distribution				
	Min	Max	Average (°C)	Stability (±°C)	Uniformity (°C)	Uncertainty (±°C)	Coverage Factor k
3.0	2.8	3.9	3.4	3.14	1.20	1.30	1.90

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By:

FM-TL07 102/27-03-68

Agilent Technologies

Agilent Technologies (Thailand) Limited  
U-GUO LIVING BLDG. 22/F UNIT A/D  
SIR PANA 4 ROAD, SUILOM, BANGKOK  
Bangkok 10500 Thailand  
Tel: +662 637 6363  
Fax: +662 637 4334  
Email: [sales@agilent.com](mailto:sales@agilent.com)  
Website: [www.agilent.com/thai](http://www.agilent.com/thai)

Service Confirmation Number: 6905905441  
Service Confirmation Date: 08.10.2024

## Customer Contact:

ALS Laboratory Group (Thailand) Co.  
Ltd Head Office

104 Phatthanakan 40 Phatthanakan Rd.  
Khwaeng Phatthanakan Khet Suan  
TAX ID: 0105540004859  
[chaosittarn.inchom@agilent.com](mailto:chaosittarn.inchom@agilent.com)  
227158760

## Invoice To:

ALS Laboratory Group (Thailand) Co.  
Ltd Head Office

104 Phatthanakan 40 Phatthanakan Rd.  
Khwaeng Phatthanakan Khet Suan

## Delivery Site:

ALS Laboratory Group (Thailand) Co.  
Ltd Head Office

104 Phatthanakan 40 Phatthanakan Rd.  
Khwaeng Phatthanakan Khet Suan

## Location:

Room  
Bldg  
Lab  
Dept

## SERVICE REPORT

Customer Purchase Order Number:	Customer Number: 70371013
Service Request:	Service Request Date:
Service Order: 800687606	Service Confirmation: 6905905441

REVIEW BY:

APPROVED BY:

NEXT CAL. DATE: 21/4/2025

## Direct Inquiries to:

Contact Name: Customer Contact Center  
Contact E-mail: [ccc-sm@agilent.com](mailto:ccc-sm@agilent.com)  
Contact Telephone: +662 637 6363  
Contact Fax: +662 637 4334

## Service Instrument:

Model Number	Model Description	Serial Number	System Handle	Parent Asset
SYS-IM-7900	ICPMS 7900 System			
G8410A	SPS 4 Autosampler	AU15439722	ICP MS 7900	SYS-IM-7900
G8411A	ISIS 3 for Agilent 7850/7900/8900	JP15510227	ICP MS 7900	SYS-IM-7900
G3292A	PSC 6108T Chiller	ZU15A1948	ICP MS 7900	SYS-IM-7900
G8403A	Agilent 7900 ICP-MS	JP15471169	ICP MS 7900	SYS-IM-7900

## Service Items:

Item	Service/Part #	Description	Qty	Entitlement	Service Start	Service End
1000	EOO	Enterprise Operational Qualification	1.00	Agreement Entitlement 100 % covered	04.10.2024	04.10.2024
1010	5185-5850	ICP-MS Checkout Solutions	1.00	Agreement Entitlement 100 % covered		

## Additional Information:

Products &amp; Services

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Agilent Technologies (Thailand) Limited Head Office  
U-GUO Living Bldg. 22/F Unit A/D  
SIR PANA 4 ROAD, SUILOM, BANGKOK  
Bangkok 10500 Thailand  
Tax ID: 0105540004859

Chiang Mai Branch  
339 Intechbang 21 Building, Sukhumvit Road, Khlongtoei New  
Sub-district, Watana District, Bangkok 10110 Thailand  
Ass. No. 012-4852-087  
The Bangkok Thai Bank PCL  
Bank Service B. 488/11 Rama 4 Rd. Pathumwan, BKK 10330  
Thailand

ORIGINAL



Service Information:

<b>Problem Description:</b> *WU-EOO-IM-7800-5001253655		
<b>Service Provided:</b> Perform OQ Hardware. Test CDS logon, auto sampler, Auto tune, BG and 20 Min stability. I calibrate the instrument No BKK_EL0043 test all pass.		
<b>Service Overview Code:</b> Reason Code: Scheduled Service Diagnosis Code: Scheduled Service Resolution Code: Scheduled Service		
<b>Reported Hours:</b> 7.0	<b>Travel Hours:</b> 2.0	
<b>Customer Field Service Representative Name:</b> Panthop Kurasathain	<b>Customer Field Service Representative Signature:</b> 	<b>Date:</b> 09 Oct 2024
<b>Customer Name:</b> Supakwan Mak	<b>Customer Signature:</b> 	<b>Date:</b> 09 Oct 2024
<b>Additional Comments:</b>		

# ภาคผนวก จ

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สำเนาหนังสือใบอนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

สิ่งที่ส่งมาด้วย ๑

ที่ อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒ ๐ พฤศจิกายน ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๔ สิงหาคม ๒๕๖๖

- สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น  
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผ่น  
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผ่น

ตามหนังสือที่ย่างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุหนังสือ  
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔-๔-๐๐๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐  
ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด  
ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

- ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑  
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ ๑๘๑ ราย ตามสิ่งที่ส่งมาด้วย ๒  
ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล  
หรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ กันยายน ๒๕๖๘ หากประสงค์จะต่ออายุหนังสือ  
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อ  
กรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายธีระ จันทน์เจริญ)

นักวิทยาศาสตร์เชี่ยวชาญ วิชาการอาหารและ  
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน  
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๕

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๒๐๔  
ที่ อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘ ลงวันที่ ๒ ๐ พฤศจิกายน ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย

- |                                |                            |
|--------------------------------|----------------------------|
| ๑) นางสาวยุพาพร จันทร์ปลั่ง    | ทะเบียนเลขที่ ๖-๒๐๔-๔-๐๐๐๑ |
| ๒) นางสาวชินนัย โกมารกุล ณ นคร | ทะเบียนเลขที่ ๖-๒๐๔-๔-๐๐๐๒ |
| ๓) นายศราวุธ จิตรานนท์         | ทะเบียนเลขที่ ๖-๒๐๔-๔-๐๐๐๓ |
| ๔) นางสาวกนกกร เอนก            | ทะเบียนเลขที่ ๖-๒๐๔-๔-๐๐๐๔ |
| ๕) นายสุริยา สอนแก้ว           | ทะเบียนเลขที่ ๖-๒๐๔-๔-๐๐๐๕ |
| ๖) นายวิชาญ ชุมทรัพย์          | ทะเบียนเลขที่ ๖-๒๐๔-๔-๐๐๐๖ |

วิภา



เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ว-๒๐๔

ที่ อก ๐๓๑๐(๑)/ ๑ ๖ ๑ ๖ ๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๘๑ ราย

๑) นายกางบัณฑิต กิตติคุณชัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๑
๒) นายภัทรพล สว่างใจธรรม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๒
๓) นายณารัตน์ เทือกชัยคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๓
๔) นายศิริโชค พงษ์ประสม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๔
๕) นายณัฐภูมิ ตัวงแพง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๕
๖) นางสาวจินดา ไชจุธรรม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๖
๗) นางสาวสาวตรี น้อยเส้งม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๗
๘) นางสาวณัฐกาญจน์ อัมม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๘
๙) นางสาวนรินทร์ สายเล้ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๙
๑๐) นางสาวนันทิ สมบูรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๐
๑๑) นางสาวศรัณยา เกลิมอ้างค์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๑
๑๒) นางสาวธัญญธร มงคลจิรวุฒิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๒
๑๓) นางสาวศิริลักษณ์ บุนนาค	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๓
๑๔) นายณพพงศ์ จันทร์พันธุ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๔
๑๕) นายนครเศรษฐ์ โกมลย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๕
๑๖) นายธันวา จิยา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๖
๑๗) นางสาวเกศรินทร์ แก้วมัน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๗
๑๘) นางสาวสุวิมล ชัยเรืองวุฒิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๘
๑๙) นางสาวสุชาดา ธรรมถาวร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๙
๒๐) นางสาวเบญจก ชัยเดชธนกุล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๐
๒๑) นางสาวศศิธร หนูสวัสดิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๑
๒๒) นางสาวเสาวลักษณ์ ภูณาทำพร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๒
๒๓) นายอภิสิทธิ์ สิงหา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๓
๒๔) นายศักดิ์สิทธิ์ โพธิ์พิสุทธิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๔
๒๕) ว่าที่ร้อยตรีหญิง พรรณิภา ขำเจริญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๕
๒๖) นางจิตตา คำแก้ว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๖
๒๗) นางสาวอรรณพ รักษ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๗
๒๘) นางสาวนพรัตน์ แยมกรานต์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๘
๒๙) นายจุลเดช วารินทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๙
๓๐) นางสาวดาญรัตน์ ร้องคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๐
๓๑) นายพรมมี ศรีปิตเนตร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๑
๓๒) นายอุทิศ อุ่นสม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๒
๓๓) ว่าที่ร้อยตรี เกลิมเกียรติ อมรศรีเสริม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๓
๓๔) นางสาววริยา สร้างนา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๔
๓๕) นายอนุพงศ์ รัตนศรีประเสริฐ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๕

วิภา

๓๖) นางสาวจุฬารัตน์...

๓๖) นางสาวจุฬารัตน์ โอนสันเพียร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๖
๓๗) นางสาวจรรณ พันธ์ภักดี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๗
๓๘) นางสาวปรางค์ทิพย์ กิจไพศาลศักดิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๘
๓๙) นางสาวเดือนใจ ทางกลาง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๙
๔๐) นางสาวจิราพร ศิริเวช	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๐
๔๑) นายวรารกร ผู้รักภัก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๑
๔๒) นายทง วิริยะสทกิจ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๒
๔๓) นายธนิต เจนจบ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๓
๔๔) นายคณิศร ข้าเพชร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๔
๔๕) นายภูวิช พรหมสะอาด	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๕
๔๖) นายธนเดช โกศาพิพัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๖
๔๗) นายชวฤทธิ์ วงษ์จันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๗
๔๘) นายอาทิตย์ ศรีเสน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๘
๔๙) นายเจตนาถ ศรีศักดิ์ไทย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๙
๕๐) นายจรัส บุญยัง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๐
๕๑) นายธนาธิปไตย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๑
๕๒) นายอภิวัฒน์ พุ่มหนู	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๒
๕๓) นางสาวสุภาวธิยา มาก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๓
๕๔) นางสาวทิพร ขวาลสมบูรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๔
๕๕) นางสาวอติมา บุญเพ็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๕
๕๖) นางสาวภาณุมาศ นามวัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๖
๕๗) นางสาวอุไรรัตน์ ทั้งสร้างแป้น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๗
๕๘) นายธีรวัฒน์ ปวงสุข	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๘
๕๙) นายอิทธิพล ยะโส	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๙
๖๐) นายประพนธ์ วรรณสุขชัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๐
๖๑) นายชยธร พงษ์ทิพย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๑
๖๒) นางสาวกนกวรรณ จันทร์บาล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๒
๖๓) นายสิทธิโชค ธงเงิน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๓
๖๔) นางศิวารณ ใจบุญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๔
๖๕) นางสาวพรรณธิดา พุ่มคง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๕
๖๖) นายณภัทร ศรีวิริยะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๖
๖๗) นายสุวิชา ทองอ่อน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๗
๖๘) นายวิญญู บุญตะนัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๘
๖๙) นายสมบูรณ์ บุตรจันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๙
๗๐) นายวิรัตน์ ไชยชนะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๐
๗๑) นายณกฤษณ์ เพิ่มพูน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๑
๗๒) นายจิณัฐ ขวาลอ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๒
๗๓) นายอัสนี นามบุรี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๓
๗๔) นายอัศวเดช จ่อสว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๔

วิภา

๗๕) นายประเสริฐ...

๗๕) นายประเสริฐ สุระขันธุ์  
๗๖) นายบุญกุล จันทรเนียม  
๗๗) นายพิรพงษ์ ทองคุณปรีดา  
๗๘) นายณฤพล ทองบุษ  
๗๙) นายอนุวัฒน์ ม่วงแพร่  
๘๐) นายเจตศรารุณี ปิตตะมะ  
๘๑) นายกฤษณะ สายวรรณ  
๘๒) นายพิชัย บุญยงค์  
๘๓) นายภาณุพงศ์ ไหมวงศ์  
๘๔) นายสามารณ คุ่มบิลี  
๘๕) นายสัณชัย โกศรีนาม  
๘๖) นายณัฐวุฒิ ศรีประเสริฐ  
๘๗) นายชวัลลภ นาคพนม  
๘๘) นายพงศธร ชัยทิพย์  
๘๙) นายสิทธิโชค ทาสีดา  
๙๐) นายธนากร อินสุตา  
๙๑) นางสาวรณิชา ขาดีวันชัย  
๙๒) นางสาวพิมพ์ตะวัน มีนากุล  
๙๓) นางสาวเพชรรัตน์ สิงห์สมบุญ  
๙๔) นางสาวชญานิษฐ์ พรหมจันทร์  
๙๕) นายกัณธิ์ ทวีราช  
๙๖) นายจักริน หมั่นวิชา  
๙๗) นายฉัตรชัย สุขเปี้ย  
๙๘) นายณรณนที ต๊ะทองคำ  
๙๙) นายศุภพล สมนอก  
๑๐๐) นายทักษิณน้อย อุบลศรี  
๑๐๑) นายธเนศวร นามะกุลณมา  
๑๐๒) นายธิตินพงศ์ บัวแดง  
๑๐๓) นายณนพชัย อุปถัมภ์  
๑๐๔) นายณัฐพล คุณสุทธิ  
๑๐๕) นายบัณฑิตน์ สาริน  
๑๐๖) นายปิยะนัฐ พลมะศรี  
๑๐๗) นายพงศ์สิริ โสมเขียว  
๑๐๘) นายพีรพัฒน์ กำคำ  
๑๐๙) นายภาณุพงศ์ มาปิตย์  
๑๑๐) นายมงคล ผลาทิพย์  
๑๑๑) นายสิรินนท ทองอิน  
๑๑๒) นายอนชา พันสมัย  
๑๑๓) นายอดิศักดิ์ ผนมโน

ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๕  
ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๖  
ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๗  
ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๘  
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ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๗  
ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๘  
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ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๓

วิภา

๑๑๔) นายอนันต์ชัย...

๑๑๔) นายอนันต์ชัย วิสม  
๑๑๕) นายวรวิศ คีนิก  
๑๑๖) นายแสงตะวัน นตะสัด  
๑๑๗) นายยุทธพงศ์ รัตนะ  
๑๑๘) นายชัยณัฐ ไชยชนะ  
๑๑๙) นายวิศรุต ศรีธรรมมา  
๑๒๐) นายณนทกร เผือกผ่อง  
๑๒๑) นายกำชัย สุทธะ  
๑๒๒) นางสาวณัฐกรณีย์ บุญตะนัย  
๑๒๓) นางสาวพัชรินทร์ แสนสร้อย  
๑๒๔) นายไพโรจน์ เปี่ยมพิมาย  
๑๒๕) นางสาวศุภมาศ ทองมาก  
๑๒๖) นางสาวลลิตา จิตรสว่าง  
๑๒๗) นางสาวไมพร เล็กภูเขียว  
๑๒๘) นางสาวกฤติมาพร คำมีแก่น  
๑๒๙) นางสาวสกลรัตน์ ภาคภูมิ  
๑๓๐) นางสาวไพรินทร์ ศรีรูปี  
๑๓๑) นางสาวทิพนพร ผุยปัญญา  
๑๓๒) นางสาวสาธิตา ปามทอง  
๑๓๓) นางสาวอริสา ทองนวล  
๑๓๔) นางสาวอรยา คำล้อง  
๑๓๕) นางสาวชุตารณ สุนทรสนาม  
๑๓๖) นางสาวอัญชลี คำจันทร์  
๑๓๗) นายบุญฤทธิ์ เอี่ยมเทศ  
๑๓๘) นางสาวศุภรดา ปันมยุรา  
๑๓๙) นางสาวพาดิ์ คุณน่าน  
๑๔๐) นางสาวจิราเจต พองดา  
๑๔๑) นางสาวอารยา มีชัย  
๑๔๒) นางสาววิษุตา นาคผจญ  
๑๔๓) นางสาวนันทิยา จันทะลุน  
๑๔๔) นายกิตติพงศ์ แซ่ลี  
๑๔๕) นายอนุวัติ ภูถวิล  
๑๔๖) นายธีรพล แสงทอง  
๑๔๗) นายศักดิ์พัฒน์ บุญมัน  
๑๔๘) นายฐิติวัตร เอมอุไร  
๑๔๙) นายชัยณรงค์ ศรีปุนทร  
๑๕๐) นางสาวอัจฉราวรรณ สวนสนอง  
๑๕๑) นางสาวณัฐพร สิงหา  
๑๕๒) นายกัมเรศ หมยมโต

ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๔  
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ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๒

วิภา

๑๕๓) นางสาวอุบล...



- ๕ -

๑๕๓) นางสาวอุบล เกลิกศิริ  
๑๕๔) นางสาวโนรีรัตน์ ทองบุตร  
๑๕๕) นายภาคภูมิ แทนไทย  
๑๕๖) นางสาวสุภาณัฐ เมล์พ่วง  
๑๕๗) นางสาวพรทิศา สาตาชนม์  
๑๕๘) นายเอกวิทย์ วันทะนา  
๑๕๙) นายไตรมณฑล ทิพย์วรรณ  
๑๖๐) นายจิรเมธ ประเสริฐศิริพงศ์  
๑๖๑) นายจิรายุส เกษมสุข  
๑๖๒) นายจิรศักดิ์ ศรีวิชัย  
๑๖๓) นายณัฐกฤษณ์ สะพานแก้ว  
๑๖๔) นายบูรณศักดิ์ ปะที  
๑๖๕) นายปิ่นณวิชัย เสมอทรัพย์  
๑๖๖) นายพิษณุพงษ์ ไชยา  
๑๖๗) นายภัทรพงษ์ มณฑาทอง  
๑๖๘) นายสันต์ ศรีนกุล  
๑๖๙) นายภาณุเดช เพชรอุด  
๑๗๐) นายอนุกุล วิลละแสง  
๑๗๑) นายภัทรพงษ์ มีสุข  
๑๗๒) นางสาวนุชวิ ลีละทีป  
๑๗๓) นางสาวสุภาวดี โกศรินาม  
๑๗๔) นางสาวอรณิษา เทียนคำ  
๑๗๕) นางสาวพรเพ็ญ ขอบสอน  
๑๗๖) นางสาววันวิสา ขอนพิกุล  
๑๗๗) นางสาวอรวรรณ เถาว์ทอง  
๑๗๘) นางสาวอัยยลิน เมอริวัฒน์  
๑๗๙) นางสาววิสรา ค่อยครอง  
๑๘๐) นายวุฒิกร ศิริวรรณ  
๑๘๑) นางสาวจาวรรณ กระจางพันธุ์

ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๓  
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ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๑

วิมล

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ว-๒๐๔  
ที่ ออก ๐๓๑๐(๑)/ ๑๖ ๑ ๖ ๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๗๔ รายการ

น้ำเสีย จำนวน 60 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldicarb	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
2	Aldicarb Sulfone	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
3	Aldicarb Sulfoxide	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
5	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
6	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
7	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
8	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
9	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
10	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
11	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method <sup>(4)</sup> 2) 5-Day BOD Test, Membrane Electrode Method <sup>(4)</sup>
12	Carbaryl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
13	Carbofuran	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
14	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
15	Chemical Oxygen Demand	1) Closed Reflux, Colorimetric Method <sup>(4)</sup> 2) Closed Reflux, Titrimetric Method <sup>(4)</sup>
16	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
17	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
18	Color	ADMI Weighted-Ordinate Spectrophotometric Method <sup>(4)</sup>



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Copper	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
20	Cyanide	Distillation, Colorimetric Method <sup>(4)</sup>
21	2,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
22	4,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
23	2,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
24	4,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
25	2,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
26	4,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
27	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
28	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
29	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
30	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
31	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
32	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
33	Formaldehyde	Distillation, Colorimetric Method <sup>(3)</sup>
34	Free Chlorine	1) DPD Ferrous Titrimetric Method <sup>(4)</sup> 2) DPD Colorimetric Method <sup>(4)</sup>
35	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
36	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
37	Hexavalent Chromium	Colorimetric Method <sup>(4)</sup>
38	3-Hydroxycarbofuran	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
39	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>

40 Manganese...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
41	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
42	Methiocarb	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
43	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
44	Methomyl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
45	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
46	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method <sup>(4)</sup> 2) Soxhlet Extraction Method <sup>(4)</sup>
47	Oxamyl	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
48	Propoxur	High-Performance Liquid Chromatographic Method <sup>(4)</sup>
49	pH	Electrometric Method <sup>(4)</sup>
50	Phenols	1) Distillation, Chloroform Extraction Method <sup>(4)</sup> 2) Distillation, Direct Photometric Method <sup>(4)</sup>
51	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
52	Sulfide	Iodometric Method <sup>(4)</sup>
53	Temperature	Laboratory and Field Methods <sup>(4)</sup>
54	Total Dissolved Solids	Dried at 180 °C <sup>(4)</sup>
55	Total Kjeldahl Nitrogen	Semi-Micro Kjeldahl Method <sup>(4)</sup>
56	Total Phosphorous	Digestion, Colorimetric Method <sup>(4)</sup>
57	Total Suspended Solids	Dried from 103-105 °C <sup>(4)</sup>
58	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
59	Trivalent Chromium	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation <sup>(4)</sup>
60	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4)</sup>

น้ำได้ดิน...

น้ำใต้ดิน จำนวน 126 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
3	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
9	Benzo(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
13	Benzoic Acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

18 Bis(2-ethylhexyl)phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
27	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(4)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation <sup>(4)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation <sup>(4)</sup>
35	Chromium (VI)	Colorimetric Method <sup>(4)</sup>

36 Chrysene...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
37	Cyanide	Distillation, Colorimetric Method <sup>(4)</sup>
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
39	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
40	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
41	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
43	Di-n-Butyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
47	3,3-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

56 1,3-Dichloropropene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
57	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
58	Diethyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
63	Di-n-octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
64	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
65	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
69	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
70	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
74	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>
75	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(4)</sup>

76 γ-HCH...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
83	Mercury	1) Digestion, Cold Vapor Atomic Absorption Spectrometric Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
84	Methanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
86	Methyl bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
87	Methylene chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
90	Methyl tert-butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>

94 N-Nitrosodiphenylamine...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
96	Polychlorinated Biphenyls - PCB 1016 - PCB 1221 - PCB 1232 - PCB 1242 - PCB 1248 - PCB 1254 - PCB 1260	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
98	pH	Electrometric Method <sup>[4]</sup>
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
100	Phenol	1) Distillation, Chloroform Extraction Method <sup>[4]</sup> 2) Distillation, Direct Photometric Method <sup>[4]</sup> 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
102	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
103	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4]</sup>
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[4]</sup>
109	TPH (C <sub>8</sub> -C <sub>16</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>[14,25]</sup>

110 TPH (C<sub>8</sub>-C<sub>16</sub>)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
110	TPH (C <sub>8</sub> -C <sub>16</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>[9,22]</sup>
111	TPH (C <sub>16</sub> -C <sub>35</sub> )	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method <sup>[9,22]</sup>
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[4]</sup>
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
122	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
123	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
124	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method <sup>[4]</sup>
126	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>[4]</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[4]</sup>

อากาศเสีย..

อากาศเสีย (ปล่องระบาย) จำนวน 28 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
2	Arsenic	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
3	Beryllium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
4	Cadmium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
5	Carbon Monoxide	1) Instrumental Analyzer Method <sup>[5]</sup> 2) Sampling Bag Non-Dispersive Infrared Method <sup>[5]</sup>
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method <sup>[5]</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>[5]</sup>
7	Chromium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
8	Cobalt	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
9	Copper	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
10	Cresol	Adsorption Sampling, Gas Chromatographic Method <sup>[5]</sup>
11	Dioxins	Isokinetic Sampling <sup>[5]</sup>
12	Hydrogen Chloride	1) Absorption Sampling, Ion Chromatographic Method <sup>[5]</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>[5]</sup>
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method <sup>[5]</sup> 2) Isokinetic Sampling, Ion Chromatographic Method <sup>[5]</sup>
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method <sup>[5]</sup>

15 Lead...



- ๑๒ -

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
15	Lead	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
16	Manganese	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
17	Mercury	1) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>[5]</sup>
18	Nickel	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
19	Opacity	Ringelmann's Method <sup>[2]</sup>
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method <sup>[5]</sup> 2) Absorption Sampling, Alkaline Permanganate/Colorimetric Method <sup>[5]</sup> 3) Instrumental Analyzer Method <sup>[5]</sup>
21	Selenium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
22	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Method <sup>[5]</sup> 2) Instrumental Analyzer Method <sup>[5]</sup>
23	Sulfuric Acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method <sup>[5]</sup>
24	Tellurium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
25	Tin	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
26	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method <sup>[5]</sup> 2) Paired Train, Isokinetic Sampling, Gravimetric Method <sup>[5]</sup>

27 Vanadium...

- ๑๓ -

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Vanadium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method <sup>[5]</sup> 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[5]</sup>
28	Xylene	Adsorption Sampling, Gas Chromatographic Method <sup>[5]</sup>

สิ่งบ่งชี้หรือวัสดุที่ไม่ได้แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,2,6]</sup>
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[7,17]</sup>

5 Beryllium...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>[1,6,16,19]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>[1,6,17,19]</sup> 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>[7,8,16,19]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>[7,8,17,19]</sup>

10 Chromium (VI)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method <sup>[1,6,19]</sup> 2) Alkaline Digestion, Colorimetric Method <sup>[8,19]</sup>
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,6,16]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,6,17]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[7,16]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[7,17]</sup>
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[10,26]</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>[11,26]</sup>
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>[1,9,26]</sup>

2) Soxhlet...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup> 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
20	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(1,6,20)</sup> 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(1,6,30)</sup> 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(30)</sup> 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method <sup>(21)</sup>
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic /Mass Spectrometric Method <sup>(11,26)</sup>
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic /Mass Spectrometric Method <sup>(11,26)</sup>
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic Method <sup>(11,26)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
28	<ul style="list-style-type: none"> <li>- 2-Chlorobiphenyl</li> <li>- 2,3-Dichlorobiphenyl</li> <li>- 2,2',5-Trichlorobiphenyl</li> <li>- 2,4',5-Trichlorobiphenyl</li> <li>- 2,2',3,5'-Tetrachlorobiphenyl</li> <li>- 2,2',5,5'-Tetrachlorobiphenyl</li> <li>- 2,3',4,4'-Tetrachlorobiphenyl</li> <li>- 2,2',3,4,5'-Pentachlorobiphenyl</li> <li>- 2,2',4,5,5'-Pentachlorobiphenyl</li> <li>- 2,3,3',4',6-Pentachlorobiphenyl</li> <li>- 2,2',3,4,4',5'-Hexachlorobiphenyl</li> <li>- 2,2',3,4,5,5'-Hexachlorobiphenyl</li> <li>- 2,2',3,5,5',6-Hexachlorobiphenyl</li> <li>- 2,2',4,4',5,5'-Hexachlorobiphenyl</li> <li>- 2,2',3,3',4,4',5-Heptachlorobiphenyl</li> <li>- 2,2',3,4,4',5,5'-Heptachlorobiphenyl</li> <li>- 2,2',3,4,4',5,6-Heptachlorobiphenyl</li> <li>- 2,2',3,4',5,5',6-Heptachlorobiphenyl</li> <li>- 2,2',3,3',4,4',5,6-Nonachlorobiphenyl</li> <li>- Pentachlorophenol</li> </ul>	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup> Electrometric Method <sup>(23,24)</sup> 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
29	pH	
30	Selenium	

31 Silver...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(1,9,26)</sup> 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(10,26)</sup> 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method <sup>(11,26)</sup>
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,6,16)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,6,17)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(7,17)</sup>

ดิน...



ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
2	Acetone	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13)</sup>
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
5	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
8	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
9	Benz(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>

11 Benzo(b)fluoranthene

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	Benzo(b)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
12	Benzo(k)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
13	Benzoic acid	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
14	Benzo(a)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
15	Benzo(g,h,i)perylene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
17	Bis(2-chloroethyl)ether	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
18	Bis(2-ethylhexyl)phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
21	Butanol	Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13,25)</sup>
22	Butyl Benzyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

23 Cadmium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
33	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,8,16,19)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(7,8,17,19)</sup>
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method <sup>(8,19)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
37	Cyanide	Extraction, Distillation, Colorimetric Method <sup>(27,28,29)</sup>
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
39	DDD	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
40	DDE	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
41	DDT	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
42	Dibenz(a,h)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
43	Di-n-Butyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
47	3,3-Dichlorobenzidine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
53	2,4-Dichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
58	Diethyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
59	2,4-Dimethylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
60	2,4-Dinitrophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
61	2,4-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
62	2,6-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

63 Di-n-Octyl Phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13)</sup>

73 n-Hexane...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
74	α-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
75	β-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
76	γ-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
81	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
82	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method <sup>(20)</sup> 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry <sup>(21)</sup> 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method <sup>(30)</sup>

84 Methanol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup> 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method <sup>(13,25)</sup>
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
92	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3',3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,5',6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
97	Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>

99 Phenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
101	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
102	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
108	TPH (C <sub>5</sub> -C <sub>8</sub> )	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
109	TPH (C <sub>8</sub> -C <sub>16</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>(11,22)</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>(12,22)</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>(22,31)</sup>
110	TPH (C <sub>16</sub> -C <sub>35</sub> )	1) Automate Extraction, Gas Chromatographic Method <sup>(11,22)</sup> 2) Solvent Extraction, Gas Chromatographic Method <sup>(12,22)</sup> 3) Ultrasonic Extraction, Gas Chromatographic Method <sup>(22,31)</sup>
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>

115 2,4,5-Trichlorophenol...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
115	2,4,5-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
116	2,4,6-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(10,26)</sup> 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method <sup>(11,26)</sup>
117	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
118	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>
119	Vinyl Acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
120	Vinyl Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
121	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
122	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
123	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
124	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method <sup>(15,25)</sup>
125	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>(7,16)</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>(7,17)</sup>

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ที่ อก ๐๓๑๐(๑)/ ๔ ๑ ๒ ๑

กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๕ เมษายน ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เวียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒๙ มีนาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓ ราย

๑) นางสาวพรณิศา พุ่มคง	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๐๖๔
๒) นายกำชัย สุทธิระ	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๒๑
๓) นางสาวศุภรดา ปันมยุรา	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๑๘

๒. ให้เพิ่มเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๑๒ ราย

๑) นางสาวฐานิดา กลิ่นเขียว	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๒
๒) นางสาวกัญญ์ภัสสร สายคำ	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๓
๓) นางสาวณัฐนันท์ กันทะวงศ์	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๔
๔) นายอำนาจ วงษาเคน	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๕
๕) นายกฤษณพล ปัญญาวงศ์	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๖
๖) นายณชากร พรรษา	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๗
๗) นายวัชรินทร์ ผ่องสามสวน	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๘
๘) นายณัฐพงศ์ โสภา	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๙
๙) นายศักรินทร์ ปานเพ็ง	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๙๐
๑๐) นายณัฐพล ชุ่มชื่น	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๙๑
๑๑) นายธนาธิ สุภาพันธุ์	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๙๒
๑๒) นายณราธร แก้วพงษ์ษา	ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๙๓

อนึ่ง หนังสือฉบับนี้...

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ในวันที่ ๒ กันยายน ๒๕๖๙

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

ก

(นายพรยศ กลั่นกรอง)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

ที่ อก ๐๓๑๐(๑)/ ๑๒๓๖ ๘ /



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๑๘ ธันวาคม ๒๕๖๗

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒ ธันวาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ  
เขตสวนหลวง กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์  
จำนวน ๘ ราย ได้แก่

- |                                 |                            |
|---------------------------------|----------------------------|
| ๑) นายประพจน์ วรรณชูชัย         | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๐๖๐ |
| ๒) นายจิรณัฐ ขาวละออ            | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๐๗๒ |
| ๓) นายพีรพัฒน์ กำคำ             | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๐๘ |
| ๔) นางสาวอรยา คำคล่อง           | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๓๔ |
| ๕) นายกิตติพงศ์ แซ่ลี           | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๔๔ |
| ๖) นายจิรเมธ ประเสริฐสิริพงศ์   | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๐ |
| ๗) นายภัทรพงษ์ มณฑาทอง          | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๖๗ |
| ๘) นางสาวจารุวรรณ กระช่างพันธุ์ | ทะเบียนเลขที่ ๖-๒๐๔-จ-๐๑๘๑ |

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

อ

(นายธีรทัศน์ อิศรางกูร ณ อยุธยา)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ที่ ออก ๐๓๑๐(๑)/ ๓๑ ๕ ๐



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๑๐ เมษายน ๒๕๖๘

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒ เมษายน ๒๕๖๘

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ  
เขตสวนหลวง กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์  
จำนวน ๒ ราย ได้แก่

- |                        |                            |
|------------------------|----------------------------|
| ๑) นายอิทธิพงศ์ บัวแดง | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๒ |
| ๒) นายมงคล ผลาพิชัย    | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๐ |

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ



(นายจิรพันธ์ อิศรางกูร ณ อยุธยา)  
รองอธิบดี ปฏิบัติราชการแทน  
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๑๔

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ที่ ออก ๐๓๑๐(๑)/ ๕๖ ๗ ๓



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๐๕ มิถุนายน ๒๕๖๘

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๗ พฤษภาคม ๒๕๖๘

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ  
เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้เพิ่มเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน  
จำนวน ๑๓ ราย ได้แก่

- |                                   |                            |
|-----------------------------------|----------------------------|
| ๑) นายคุณากร มั่นชื่น             | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๔ |
| ๒) นายชัยมงคล แสนมาตร             | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๕ |
| ๓) นายเอกรินทร์ บุตสิกกี          | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๖ |
| ๔) นายพัชชานนท์ อินปรีก           | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๗ |
| ๕) นายศตวรรษ แก้วกันหา            | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๘ |
| ๖) นายวิกรม มีศิริ                | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๙ |
| ๗) นายภคนันท์ คำจันทราช           | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๐ |
| ๘) นายศิริวิทย์ มีโพธิ์           | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๑ |
| ๙) นายธีรพงษ์ ศรีคำแหง            | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๒ |
| ๑๐) นายอภิสิทธิ์ ศรีคงแก้ว        | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๓ |
| ๑๑) ว่าที่ร้อยตรี ภาณุพงศ์ แสนศรี | ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๔ |

อนึ่ง หนังสือฉบับนี้จะสำเนาพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ในวันที่ ๒ กันยายน ๒๕๖๘

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ



(นายจิรพันธ์ อิศรางกูร ณ อยุธยา)

นักวิทยาศาสตร์สิ่งแวดล้อม ทรัพยากรธรรมชาติและสิ่งแวดล้อม

ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน

ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๑๔

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"





ที่ อก ๐๓๑๐(๑)/ ๒๕๐๘



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๑ สิงหาคม ๒๕๖๘

เรื่อง เปลี่ยนแปลงสารมลพิษที่วิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒๗ มิถุนายน ๒๕๖๘

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษที่วิเคราะห์  
บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด จำนวน ๖ แผ่น

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ  
เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงสารมลพิษที่วิเคราะห์ ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด  
เพิ่มขอขยายชนิดสารมลพิษที่วิเคราะห์ในน้ำใต้ดิน สิ่งปฏิกูลและวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย

อนึ่ง หนังสือฉบับนี้จะสิ้นสุดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ในวันที่ ๒ กันยายน ๒๕๖๙

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นางสาวปัทมวรรณ คุณประเสริฐ)  
ผู้อำนวยการกองวิจัยและเฝ้าระวังมลพิษโรงงาน  
ปฏิบัติการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเฝ้าระวังมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



“อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว”



เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษที่วิเคราะห์

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

เลขทะเบียน ว-๒๐๔

ที่ อก ๐๓๑๐(๑)/ ๒๕๐๘

ลงวันที่ ๒๑ สิงหาคม ๒๕๖๘

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๔๐ รายการ

น้ำใต้ดิน จำนวน ๔ รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aluminum	Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[2]</sup>
2	Copper	Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[2]</sup>
3	Iron	Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[2]</sup>
4	Molybdenum	Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[2]</sup>

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 17 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,3,6]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,3,7]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>
2	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,3,6]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,3,7]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>
3	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>[1,3,6]</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>[1,3,7]</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>

๓๗

Beryllium

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
4	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
5	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
6	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
7	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>(1,3,6,8)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method <sup>(1,3,7,8)</sup> 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(4,5,6,8)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(4,5,7,8)</sup>
8	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup>

๑๗

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
9	Copper	3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup> 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
10	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
11	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
12	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
13	Selenium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>

๑๗

14 Silver...



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
14	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
15	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
16	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
17	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method <sup>(1,3,6)</sup> 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(1,3,7)</sup> 3) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>

ดิน จำนวน 19 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aluminum	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
2	Antimony	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
3	Arsenic	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
4	Barium	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
5	Beryllium	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
6	Cadmium	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
7	Chromium	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
8	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(4,5,6,8)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method <sup>(4,5,7,8)</sup>
9	Copper	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
10	Iron	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
11	Lead	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
12	Manganese	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
13	Molybdenum	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>
14	Nickel	1) Digestion, Inductively Coupled Plasma Method <sup>(4,6)</sup> 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method <sup>(4,7)</sup>



ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
15	pH	Electrometric Method <sup>[9]</sup>
16	Selenium	1) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>
17	Silver	1) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>
18	Vanadium	1) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>
19	Zinc	1) Digestion, Inductively Coupled Plasma Method <sup>[4,6]</sup> 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method <sup>[4,7]</sup>

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ที่ อก ๐๓๑๐(๑)๘๐ ๑ ๑



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๖ กันยายน ๒๕๖๔

เรื่อง เปลี่ยนแปลงบุคลากร ชื่อตัวและชื่อสกุลของบุคลากร

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๒๑ สิงหาคม ๒๕๖๔

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบราทอรี กรุ๊ป (ประเทศไทย) จำกัดห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ  
แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ชื่อตัวและชื่อสกุลของบุคลากร  
ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๒ ราย

๑) นางสาวพายุดี คุณนาน ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๔

๒) นางสาวอรณิข เทียนคำ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๔

๒. ให้เปลี่ยนชื่อตัวและชื่อสกุลของเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จากเดิม  
นายอาทิตย์ ศรีเสน เป็น นายรัฐธีร ทวีกิจวรพจน์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๔

อนึ่ง หนังสือฉบับนี้จะส่งอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ในวันที่ ๒ กันยายน ๒๕๖๔

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

๒

(นางสาวปัทมวรรณ คุณประเสริฐ)  
ผู้อำนวยการกองวิจัยและติดตามเฝ้าระวังโรงงาน  
ปฏิบัติการตามแผนปฏิบัติการกรมโรงงานอุตสาหกรรม

กองวิจัยและเฝ้าระวังมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕

โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๔๙

ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



“อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว”





กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ เขตทุ่งพระยาไ  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๐๘ สิงหาคม ๒๕๖๗

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์  
เอกชน ลงวันที่ ๒๗ พฤษภาคม ๒๕๖๗

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด จำนวน ๓ แผ่น

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุ  
หนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๓๒๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕  
ตำบลแม่ไม้คู่ อำเภอบลวกแดง จังหวัดระยอง ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย)  
จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมห้องปฏิบัติการวิเคราะห์เอกชน

- ๑) นายเดช ช่างชน ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๑
- ๒) นางวิลาวัลย์ บริรักษ์ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๒
- ๓) นายสุพจน์ สลามเด๊ะ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๓

ข. เจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน

- ๑) นายณัฐพงษ์ เพ็ชรนา ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๑
- ๒) นางสาวกัญญพรชน วัคคี ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๒
- ๓) นางสาวจุฑารัตน์ สัตทองกลาง ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๓
- ๔) นางสาวจิตสุภา ประเทืองสุข ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๔
- ๕) นายสรเสริญ คุ้มกลุ่ย ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๕
- ๖) นายณัฐวุฒิ อรรถพรราช ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๖
- ๗) นายจิตรกร สีวะสา ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๗
- ๘) นายสิทธิวิทย์ สุวรรณรัตน์ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๘
- ๙) นายสิทธิพันธ์ เสนาชีวะ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๐๙
- ๑๐) นายอนุวัฒน์ เตมมา ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๐
- ๑๑) นายสุวิทย์ นราพงษ์ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๑
- ๑๒) นายณัฐพล เจียงวรีวงศ์ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๒
- ๑๓) นายชานนท์ บุญชื่น ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๓
- ๑๔) นายณัฐกานต์ วงศ์อินทร์อยู่ ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๔
- ๑๕) นายอานนท์ ไพโรหะทอง ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๕

- ๑๖) นายณัฐพล ถักกลาง
- ๑๗) นายศุภณัฐ หิรัญพันธ์
- ๑๘) นายสันต์ คันทิ
- ๑๙) นายวิญญู ฉิมพาลี
- ๒๐) นายศุภณัฐ สกฤตติมงคล
- ๒๑) นายเอกชัย ถันทอง
- ๒๒) นายพงษ์เทพ สิริพิไล
- ๒๓) นายทินกร กุมภาชี
- ๒๔) นางสาวนันทยา บุญจันท์
- ๒๕) นายสิทธิชัย ยันพิมาย
- ๒๖) นางสาวภาณิน หลอดทอง
- ๒๗) นางสาวพวงมา สีดา
- ๒๘) นางสาวณิศา กุลศิริวงศ์
- ๒๙) นายพิทยา ทองแดง
- ๓๐) นางสาวชลธิชา สุนัข
- ๓๑) ว่าที่ร้อยตรี ธนชัย ม่วงมา
- ๓๒) นายวรวิทย์ พันพา
- ๓๓) นายศักดิ์รินทร์ จรัสกาย
- ๓๔) นายสุรศักดิ์ สาชิน
- ๓๕) นายสถาพร ลาแก้ว
- ๓๖) นายสุทธิดำรง โชคปิตินันท์
- ๓๗) นายวิมลภ ทนไชยเนา
- ๓๘) นางสาววนาลี เจริญตระกูล
- ๓๙) นายธนสิทธิ์ วงศ์ไชย
- ๔๐) นายชัยยุทธ เลิศนันทกุลชัย
- ๔๑) นายสัจจา เพ็ชรแสง
- ๔๒) นายกิตติภณ มณีสัมพันธ์
- ๔๓) นายธรรินทร์ อธิจินดา
- ๔๔) นายศุภชัย วงศ์สุริยฉาย
- ๔๕) นายไธ ตันโพธิ์
- ๔๖) นางสาวกิตติยา สัญญาอริยาภรณ์
- ๔๗) นางสาวธิดารัตน์ ศิริมงคลโร
- ๔๘) นายพิพัฒน์ นิกัทรเศรษฐ์
- ๔๙) นายศิริวิทย์ เรืองสม
- ๕๐) นายปารเมศ สัตยาคุณ
- ๕๑) นายณนท ธรรมสโร
- ๕๒) นางสาวศุภรัตน์ ไสจันทร์

- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๗
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๘
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๑๙
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๐
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๑
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๒
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๓
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๔
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๕
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๖
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๗
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๘
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๒๙
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๐
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๑
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๒
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๓
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๔
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๕
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๖
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๗
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๘
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๓๙
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๐
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๑
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๒
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๓
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๔
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๕
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๖
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๗
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๘
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๔๙
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๕๐
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๕๑
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๕๒
- ทะเบียนเลขที่ ๖-๓๒๓-๓-๐๐๕๓

๕๒) นายพรกร เจ็งเจริญ	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๕๔
๕๓) นายทิวากร เชื้อมาก	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๕๕
๕๔) นายอนุรักษ์ ทองขจรศักดิ์	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๕๖
๕๕) นายอภิชาติ วิลาศ	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๕๗
๕๖) นายจรัสระวี ศรีรักษา	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๕๘
๕๘) นายประสานมิตร เพ็ชรเพชร	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๕๙
๕๙) นายภาณุวัฒน์ วัชรบง	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๖๐
๖๐) นายสันติ ชัยชนะ	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๖๑
๖๑) นายทินกร กุศลชาติ	ทะเบียนเลขที่ ๖-๓๒๓-จ-๐๐๖๒

ค. ขอบข่ายชนิดสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย ตามสิ่งที่ส่งมาด้วย

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒๘ มิถุนายน ๒๕๖๑ หากประสงค์จะต่ออายุหนังสือ รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรมภายใน ๖๐ วัน ก่อนวันสิ้นสุดอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

  
(นายพิชัย กษณกร)   
รองอธิบดี ปฏิบัติราชการแทน   
อธิบดีกรมโรงงานอุตสาหกรรม

ศูนย์วิจัยและเตือนภัยมลพิษโรงงานภาคตะวันออก  
โทร. ๐ ๓๓๑๓ ๖๐๕๔ ต่อ ๕๐๐๑-๒  
ไปรษณีย์อิเล็กทรอนิกส์ [enw@dmw.mail.go.th](mailto:enw@dmw.mail.go.th)



“อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว”



เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๓๒๓  
ที่ อก ๐๓๒๐/ ๗ ๕๓ ๘ ลงวันที่ ๐๔ สิงหาคม ๒๕๖๗

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๒๕ รายการ  
น้ำเสีย จำนวน 14 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Biochemical Oxygen Demand	1) 5-Day BOD Test, Membrane Electrode Method <sup>[2]</sup> 2) 5-Day BOD Test, Azide Modification Method <sup>[2]</sup>
2	Chemical Oxygen Demand	1) Open Reflux, Titrimetric Method <sup>[2]</sup> 2) Closed Reflux, Colorimetric Method <sup>[2]</sup> 3) Closed Reflux, Titrimetric Method <sup>[2]</sup>
3	Color	ADMI Weighted-Ordinate Spectrophotometric Method <sup>[2]</sup>
4	Cyanide	Distillation, Colorimetric Method <sup>[2]</sup>
5	Formaldehyde	Distillation, Colorimetric Method <sup>[1]</sup>
6	Free Chlorine	DPD Ferrous Titrimetric Method <sup>[2]</sup>
7	Oil and Grease	Liquid-Liquid, Partition-Gravimetric Method <sup>[2]</sup>
8	pH	Electrometric Method <sup>[2]</sup>
9	Phenols	1) Distillation, Chloroform Extraction Method <sup>[2]</sup> 2) Distillation, Direct Photometric Method <sup>[2]</sup>
10	Sulfide	ZnS Precipitation, Iodometric Method <sup>[2]</sup>
11	Temperature	Field Method <sup>[2]</sup>
12	Total Dissolved Solids	Dried at 180 °C <sup>[2]</sup>
13	Total Kjeldahl Nitrogen	Semi-Macro Kjeldahl Method <sup>[2]</sup>
14	Total Suspended Solids	Dried at 103-105 °C <sup>[2]</sup>

น้ำใต้ดิน จำนวน 3 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Cyanide	Distillation, Colorimetric Method <sup>[2]</sup>
2	pH	Electrometric Method <sup>[2]</sup>
3	Phenols	Distillation, Direct Photometric Method <sup>[2]</sup>

อากาศเสีย...



อากาศเสีย (ปล่องระบาย) จำนวน 7 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Carbon Monoxide	1) Sampling Bag, Non-Dispersive Infrared Method <sup>[5]</sup> 2) Instrumental Analyzer Method <sup>[9]</sup>
2	Hydrogen Sulfide	Absorption Sampling, Iodometric Method <sup>[5]</sup>
3	Opacity	Ringelmann's Method <sup>[3,4]</sup>
4	Oxide of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method <sup>[8]</sup> 2) Instrumental Analyzer Method <sup>[10]</sup>
5	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Acid Method <sup>[5]</sup> 2) Instrumental Analyzer Method <sup>[11]</sup>
6	Sulfuric Acid	Isokinetic Sampling, Barium -- Titrimetric Method <sup>[6]</sup>
7	Total Suspended Particulate	Isokinetic Sampling, Gravimetric Method <sup>[7]</sup>

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7.United States...

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ที่ อก ๐๓๒๐/ ๑ ๐ ๐ ๙ ๙



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๑๔ ตุลาคม ๒๕๖๗

เรื่อง แก้อิสรายชื่อเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง หนังสือ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขที่ Env 2024/005  
ลงวันที่ ๓๐ สิงหาคม ๒๕๖๗

ตามหนังสือที่อ้างถึง บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๓๒๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕ ตำบลแม่น้ำคู่ อำเภอปลวกแดง จังหวัดระยอง ขอแก้ไขชื่อเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน เนื่องจากมีความคลาดเคลื่อน ความละเอียด  
แจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรม ได้รับทราบและดำเนินการแก้ไขรายชื่อเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๕ ราย ตามที่แจ้งเรียบร้อยแล้ว เป็นดังนี้

ลำดับที่ ๒๗ นางพจนา สีดา  
ลำดับที่ ๒๘ นางสาวธนิศา กุลสุริวงศ์  
ลำดับที่ ๓๐ นางชลธิชา สิบงกษ  
ลำดับที่ ๓๖ นายสุทธิดำรงค์ โชคปิณฑินท์  
ลำดับที่ ๔๒ นายกันตภณ มณีสัมพันธ์

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายพรยศ กลิ่นกรอง)  
รองอธิบดี ปฏิบัติราชการแทน  
อธิบดีกรมโรงงานอุตสาหกรรม

ศูนย์วิจัยและเตือนภัยมลพิษโรงงานภาคตะวันออก  
โทร. ๐ ๓๓๑๓ ๖๐๕๙ ต่อ ๕๐๐๑-๖  
ไปรษณีย์อิเล็กทรอนิกส์ eirw@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ที่ อก ๐๓๑๐(๓)/ ๕ ๒ ๔ ๖



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๐ พฤษภาคม ๒๕๖๘

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๑๐ เมษายน ๒๕๖๘

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๓๒๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕ ตำบลแม่น้ำคู่ อำเภอปลวกแดง จังหวัดระยอง ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน  
จำนวน ๑ ราย ได้แก่ นายปารามศ สัตยาคุณ ทะเบียนเลขที่ ว-๓๒๓-จ-๐๐๕๑

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายประสม ดำรงพงษ์)  
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน  
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

ศูนย์วิจัยและเตือนภัยมลพิษโรงงานภาคตะวันออก

โทร. ๐ ๓๓๑๓ ๖๐๕๙ ต่อ ๕๐๐๑-๖

ไปรษณีย์อิเล็กทรอนิกส์ eirw@diw.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ที่ อก ๐๓๑๐(๓)/ ๕๕๐๙



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

## ๒๗ พฤษภาคม ๒๕๖๘

เรื่อง เปลี่ยนแปลงชื่อ-สกุลบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๑๕ พฤษภาคม ๒๕๖๘

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ว-๓๒๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕ ตำบลแม่น้ำคู้ อำเภอบลวกแดง  
จังหวัดระยอง ขอเปลี่ยนแปลงชื่อ-สกุลบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้เปลี่ยนแปลงชื่อ-สกุลบุคลากร จำนวน ๑ ราย  
จากนายธนสิทธิ์ วงศ์ไชย เป็น นายอมลวิษฐ์ วงศ์ไชย

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายประสม ดำรงพงษ์)  
ผู้อำนวยการกองวิจัยและเฝ้าระวังมลพิษโรงงาน  
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

ศูนย์วิจัยและเฝ้าระวังมลพิษโรงงานภาคตะวันออก  
โทร. ๐ ๓๓๓๓ ๖๐๕๕ ต่อ ๕๐๐๑-๒  
ไปรษณีย์อิเล็กทรอนิกส์ eirw@div.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ที่ อก ๐๓๑๐(๓)/ ๕๗๖๕



กรมโรงงานอุตสาหกรรม  
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท  
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

## ๐๒ ธันวาคม ๒๕๖๘

เรื่อง เปลี่ยนแปลงสารมลพิษที่วิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน  
ลงวันที่ ๓๑ ตุลาคม ๒๕๖๘

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษที่วิเคราะห์

บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด จำนวน ๒ แผ่น

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ  
วิเคราะห์เอกชน เลขทะเบียน ว-๓๒๓ สถานที่ตั้งเลขที่ ๖๑๖/๑๐ หมู่ที่ ๕ ตำบลแม่น้ำคู้ อำเภอบลวกแดง  
จังหวัดระยอง ขอเปลี่ยนแปลงสารมลพิษที่วิเคราะห์ ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบลอราทอรี กรุ๊ป (ประเทศไทย) จำกัด  
เพิ่มขอบข่ายชนิดสารมลพิษที่วิเคราะห์ที่ในน้ำเสีย และน้ำใต้ดิน ตามสิ่งที่ส่งมาด้วย

อนึ่ง หนังสือฉบับนี้จะสิ้นสุดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน  
ในวันที่ ๒๘ มิถุนายน ๒๕๗๑

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นางสาวปัทมวรรณ คุณประเสริฐ)  
ผู้อำนวยการกองวิจัยและเฝ้าระวังมลพิษโรงงาน  
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเฝ้าระวังมลพิษโรงงาน  
ศูนย์วิจัยและเฝ้าระวังมลพิษโรงงานภาคตะวันออก  
โทร. ๐ ๓๓๓๓ ๖๐๕๕ ต่อ ๕๐๐๑-๒  
ไปรษณีย์อิเล็กทรอนิกส์ eirw@div.mail.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"





เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษที่วิเคราะห์

บริษัท เอแอลเอส แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๓๒๓

ที่ อก ๐๓๑๐(๓)/ ๙๗ ๖ ๕ ลงวันที่ ๐๒ ธันวาคม ๒๕๖๘

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๒๓ รายการ

น้ำเสีย จำนวน 13 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Arsenic	Digestion, Inductively Coupled Plasma Method
2	Barium	Digestion, Inductively Coupled Plasma Method
3	Cadmium	Digestion, Inductively Coupled Plasma Method
4	Chromium	Digestion, Inductively Coupled Plasma Method
5	Copper	Digestion, Inductively Coupled Plasma Method
6	Hexavalent Chromium	Colorimetric Method
7	Lead	Digestion, Inductively Coupled Plasma Method
8	Manganese	Digestion, Inductively Coupled Plasma Method
9	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method
10	Nickel	Digestion, Inductively Coupled Plasma Method
11	Selenium	Digestion, Inductively Coupled Plasma Method
12	Trivalent Chromium	Calculation
13	Zinc	Digestion, Inductively Coupled Plasma Method

น้ำใต้ดิน จำนวน 20 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aluminum	Digestion, Inductively Coupled Plasma Method
2	Antimony	Digestion, Inductively Coupled Plasma Method
3	Arsenic	Digestion, Inductively Coupled Plasma Method
4	Barium	Digestion, Inductively Coupled Plasma Method
5	Beryllium	Digestion, Inductively Coupled Plasma Method
6	Cadmium	Digestion, Inductively Coupled Plasma Method
7	Chromium	Digestion, Inductively Coupled Plasma Method
8	Chromium (III)	Calculation
9	Chromium (VI)	Colorimetric Method
10	Copper	Digestion, Inductively Coupled Plasma Method

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ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	Iron	Digestion, Inductively Coupled Plasma Method
12	Lead	Digestion, Inductively Coupled Plasma Method
13	Manganese	Digestion, Inductively Coupled Plasma Method
14	Mercury	Digestion Cold-Vapor Atomic Absorption Spectrometric Method
15	Molybdenum	Digestion, Inductively Coupled Plasma Method
16	Nickel	Digestion, Inductively Coupled Plasma Method
17	Selenium	Digestion, Inductively Coupled Plasma Method
18	Silver	Digestion, Inductively Coupled Plasma Method
19	Vanadium	Digestion, Inductively Coupled Plasma Method
20	Zinc	Digestion, Inductively Coupled Plasma Method

เอกสารอ้างอิง

APHA, AWWA, WEF. **Standard Methods for the Examination of Water and Wastewater**. 24th ed. Washington, DC: APHA, 2023.