

ภาคผนวก ค

ใบรับรองผลการวิเคราะห์

ภาคผนวก ค-1

คุณภาพอากาศในบรรยากาศ



Analysis / Test Report



TESTING
No.0009

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531642
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3273125-1

Page 1 of 1

Sample Description Air Quality
Location บริเวณสำนักงานบริษัท (GPS 47P 0698599, 1589315)
Date Analysis Commenced May 02, 2025
Condition of Sample Drawn into two filter paper placed in plastic cassettes

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2531642-1	Apr 22 - Apr 23, 2025	0.037	0.022	757*	34.0*
2531642-2	Apr 23 - Apr 24, 2025	0.041	0.021	757*	33.7*
2531642-3	Apr 24 - Apr 25, 2025	0.040	0.021	757*	33.2*
2531642-4	Apr 25 - Apr 26, 2025	0.049	0.026	757*	34.1*
2531642-5	Apr 26 - Apr 27, 2025	0.050	0.018	757*	34.5*
2531642-6	Apr 27 - Apr 28, 2025	0.033	0.023	757*	34.0*
2531642-7	Apr 28 - Apr 29, 2025	0.073	0.029	757*	34.1*
Guideline		0.33	0.12	-	-

Reference Method

Total Suspended Particulate : In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008 (Include sampling)
Particulate Matter (PM-10) : In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008 (Include sampling)

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

Sampled By : Winyou Boontani

Remark : Result (s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.

Approved by

Orawan R.

Orawan Rakyong
Scientist (3)

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

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Analysis / Test Report



TESTING
No.0009

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531642
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301946-1

Page 1 of 1

Sample Description Air Quality
Location ร. รัดหนองปลาหมอ ขุมขมบ้านหนองพิภพ (GPS 47P 0700737, 1590864)
Date Analysis Commenced May 02, 2025
Condition of Sample Drawn into two filter paper placed in plastic cassettes

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2531642-22	Apr 22 - Apr 23, 2025	0.053	0.035	757*	34.0*
2531642-23	Apr 23 - Apr 24, 2025	0.048	0.031	757*	33.7*
2531642-24	Apr 24 - Apr 25, 2025	0.052	0.031	757*	33.2*
2531642-25	Apr 25 - Apr 26, 2025	0.049	0.034	757*	34.1*
2531642-26	Apr 26 - Apr 27, 2025	0.049	0.030	757*	34.5*
2531642-27	Apr 27 - Apr 28, 2025	0.043	0.031	757*	34.0*
2531642-28	Apr 28 - Apr 29, 2025	0.065	0.028	757*	34.1*
Guideline		0.33	0.12	-	-

Reference Method

Total Suspended Particulate : In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008 (Include sampling)
Particulate Matter (PM-10) : In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008 (Include sampling)

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

Sampled By : Winyou Boontani

Remark : Result (s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.

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Analysis / Test Report



TESTING
No.0009

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhæ, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531642
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301945-1

Page 1 of 1

Sample Description Air Quality
Location รร. วัดบัวหลุม ภูมิชนบ้านบัวหลุมกลาง (GPS 47P 0698465, 1594331)
Date Analysis Commenced May 02, 2025
Condition of Sample Drawn into two filter paper placed in plastic cassettes

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2531642-15	Apr 22 - Apr 23, 2025	0.044	0.025	757*	34.0*
2531642-16	Apr 23 - Apr 24, 2025	0.042	0.027	757*	33.7*
2531642-17	Apr 24 - Apr 25, 2025	0.048	0.032	757*	33.2*
2531642-18	Apr 25 - Apr 26, 2025	0.048	0.032	757*	34.1*
2531642-19	Apr 26 - Apr 27, 2025	0.063	0.030	757*	34.5*
2531642-20	Apr 27 - Apr 28, 2025	0.045	0.026	757*	34.0*
2531642-21	Apr 28 - Apr 29, 2025	0.046	0.027	757*	34.1*
Guideline		0.33	0.12	-	-

Reference Method

Total Suspended Particulate : In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008 (Include sampling)
Particulate Matter (PM-10) : In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008 (Include sampling)

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

Sampled By : Winyou Boontana

Remark : Result (s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.

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Analysis / Test Report



TESTING
No.0009

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhæ, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531642
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301944-1

Page 1 of 1

Sample Description Air Quality
Location รร. บ้านใหม่ทุ่งต้นขล ภูมิชนบ้านใหม่ทุ่งต้นขล (GPS 47P 0697239, 1589433)
Date Analysis Commenced May 02, 2025
Condition of Sample Drawn into two filter paper placed in plastic cassettes

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2531642-8	Apr 22 - Apr 23, 2025	0.050	0.025	757*	34.0*
2531642-9	Apr 23 - Apr 24, 2025	0.052	0.025	757*	33.7*
2531642-10	Apr 24 - Apr 25, 2025	0.047	0.028	757*	33.2*
2531642-11	Apr 25 - Apr 26, 2025	0.057	0.030	757*	34.1*
2531642-12	Apr 26 - Apr 27, 2025	0.059	0.026	757*	34.5*
2531642-13	Apr 27 - Apr 28, 2025	0.054	0.027	757*	34.0*
2531642-14	Apr 28 - Apr 29, 2025	0.065	0.032	757*	34.1*
Guideline		0.33	0.12	-	-

Reference Method

Total Suspended Particulate : In - house method : STM 04-051 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix B, revised as of July 1, 2008 (Include sampling)
Particulate Matter (PM-10) : In - house method : STM 04-052 based on U.S. Environmental Protection Agency 40 CFR, method 50, Appendix J, revised as of July 1, 2008 (Include sampling)

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

Sampled By : Winyou Boontana

Remark : Result (s) marked * is/are not included in scope of Accreditation ISO/IEC 17025.

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531101

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3273123-1

Page 1 of 1

Sample Description	Air Quality						
Location	บริเวณสำนักงานบริษัท (GPS 47P 0698599, 1589315)						
Parameter	Sulfur Dioxide (ppm)						
Measurement Date	Apr 22, 2025 - Apr 29, 2025						
Measurement by	Winyou Boontanai						
Time	2531101-1 Apr 22, 2025	2531101-2 Apr 23, 2025	2531101-3 Apr 24, 2025	2531101-4 Apr 25, 2025	2531101-5 Apr 26, 2025	2531101-6 Apr 27, 2025	2531101-7 Apr 28, 2025
09:00 AM - 10:00 AM	0.0006	0.0005	0.0009	0.0002	0.0004	0.0002	0.0007
10:00 AM - 11:00 AM	0.0003	0.0010	0.0008	0.0008	0.0002	0.0002	0.0006
11:00 AM - 12:00 PM	0.0003	0.0012	0.0010	0.0005	0.0003	0.0004	0.0005
12:00 PM - 01:00 PM	0.0002	0.0009	0.0005	0.0002	0.0002	0.0004	0.0005
01:00 PM - 02:00 PM	0.0006	0.0009	0.0009	0.0002	0.0004	0.0007	0.0007
02:00 PM - 03:00 PM	0.0006	0.0003	0.0002	0.0005	0.0005	0.0008	0.0011
03:00 PM - 04:00 PM	0.0004	0.0004	0.0004	0.0008	0.0008	0.0008	0.0010
04:00 PM - 05:00 PM	0.0002	0.0005	0.0005	0.0007	0.0008	0.0010	0.0011
05:00 PM - 06:00 PM	0.0003	0.0006	0.0005	0.0008	0.0004	0.0011	0.0009
06:00 PM - 07:00 PM	0.0002	0.0006	0.0006	0.0009	0.0007	0.0011	0.0009
07:00 PM - 08:00 PM	0.0003	0.0006	0.0005	0.0008	0.0006	0.0011	0.0009
08:00 PM - 09:00 PM	0.0005	0.0005	0.0005	0.0008	0.0006	0.0010	0.0008
09:00 PM - 10:00 PM	0.0006	0.0005	0.0005	0.0006	0.0005	0.0010	0.0009
10:00 PM - 11:00 PM	0.0008	0.0003	0.0004	0.0005	0.0002	0.0009	0.0007
11:00 PM - 12:00 AM	0.0003	0.0006	0.0003	0.0007	0.0005	0.0010	0.0007
12:00 AM - 01:00 AM	0.0004	0.0004	0.0005	0.0007	0.0002	0.0011	0.0007
01:00 AM - 02:00 AM	0.0003	0.0006	0.0006	0.0008	0.0008	0.0010	0.0008
02:00 AM - 03:00 AM	0.0002	0.0007	0.0008	0.0009	0.0009	0.0011	0.0009
03:00 AM - 04:00 AM	0.0002	0.0007	0.0007	0.0010	0.0010	0.0012	0.0011
04:00 AM - 05:00 AM	0.0002	0.0007	0.0007	0.0010	0.0009	0.0011	0.0010
05:00 AM - 06:00 AM	0.0005	0.0006	0.0008	0.0010	0.0009	0.0011	0.0011
06:00 AM - 07:00 AM	0.0006	0.0004	0.0007	0.0009	0.0007	0.0011	0.0010
07:00 AM - 08:00 AM	0.0002	0.0004	0.0005	0.0008	0.0006	0.0005	0.0009
08:00 AM - 09:00 AM	0.0008	0.0002	0.0003	0.0005	0.0003	0.0010	0.0007
Average	0.0004	0.0006	0.0006	0.0007	0.0006	0.0009	0.0008
1hr - Maximum	0.0008	0.0012	0.0010	0.0010	0.0010	0.0012	0.0011
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Standard	Notification of the National Environment Board No.10, 1995 (B.E.2538), No. 21, 2001 (B.E.2544) and No.24, 2004 (B.E.2547).						
Reference Method	US EPA Method Part 53 and 58						

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531101

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3300618-1

Page 1 of 1

Sample Description	Air Quality							
Location	ร. วัดหนองปลาหมอ หมู่บ้านหนองปลื้มใต้ (GPS 47P 0700737, 1590864)							
Parameter	Sulfur Dioxide (ppm)							
Measurement Date	Apr 22, 2025 - Apr 29, 2025							
Measurement by	Winyou Boontanai							
Time	2531101-22 Apr 22, 2025	2531101-23 Apr 23, 2025	2531101-24 Apr 24, 2025	2531101-25 Apr 25, 2025	2531101-26 Apr 26, 2025	2531101-27 Apr 27, 2025	2531101-28 Apr 28, 2025	
11:00 AM - 12:00 PM	0.0008	0.0004	0.0003	0.0002	0.0002	0.0002	0.0002	
12:00 PM - 01:00 PM	0.0006	0.0004	0.0003	0.0002	0.0002	0.0002	0.0004	
01:00 PM - 02:00 PM	0.0006	0.0004	0.0003	0.0002	0.0002	0.0002	0.0002	
02:00 PM - 03:00 PM	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	
03:00 PM - 04:00 PM	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	
04:00 PM - 05:00 PM	0.0004	0.0003	0.0003	0.0002	0.0002	0.0003	0.0002	
05:00 PM - 06:00 PM	0.0003	0.0004	0.0002	0.0002	0.0002	0.0008	0.0003	
06:00 PM - 07:00 PM	0.0003	0.0003	0.0003	0.0002	0.0002	0.0005	0.0008	
07:00 PM - 08:00 PM	0.0003	0.0003	0.0002	0.0003	0.0003	0.0006	0.0002	
08:00 PM - 09:00 PM	0.0004	0.0003	0.0002	0.0002	0.0005	0.0002	0.0005	
09:00 PM - 10:00 PM	0.0004	0.0003	0.0003	0.0002	0.0006	0.0002	0.0004	
10:00 PM - 11:00 PM	0.0004	0.0005	0.0005	0.0002	0.0002	0.0002	0.0002	
11:00 PM - 12:00 AM	0.0004	0.0006	0.0003	0.0002	0.0003	0.0002	0.0003	
12:00 AM - 01:00 AM	0.0004	0.0004	0.0004	0.0002	0.0004	0.0002	0.0002	
01:00 AM - 02:00 AM	0.0009	0.0003	0.0005	0.0002	0.0005	0.0002	0.0002	
02:00 AM - 03:00 AM	0.0008	0.0003	0.0003	0.0002	0.0001	0.0002	0.0002	
03:00 AM - 04:00 AM	0.0005	0.0004	0.0003	0.0002	0.0001	0.0002	0.0002	
04:00 AM - 05:00 AM	0.0005	0.0003	0.0003	0.0002	0.0001	0.0002	0.0004	
05:00 AM - 06:00 AM	0.0005	0.0004	0.0004	0.0002	0.0002	0.0002	0.0003	
06:00 AM - 07:00 AM	0.0005	0.0004	0.0003	0.0002	0.0002	0.0002	0.0003	
07:00 AM - 08:00 AM	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	
08:00 AM - 09:00 AM	0.0004	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	
09:00 AM - 10:00 AM	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	0.0005	
10:00 AM - 11:00 AM	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	0.0005	
Average	0.0005	0.0004	0.0003	0.0002	0.0002	0.0003	0.0003	
1hr - Maximum	0.0009	0.0006	0.0005	0.0003	0.0006	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	US EPA Method Part 53 and 58							

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531101

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3300617-1

Page 1 of 1

Sample Description Air Quality

Location รร. วัดป่าละอู หมู่ 7 ตำบลหนองหลวง (GPS 47P 0698465, 1594331)

Parameter Sulfur Dioxide (ppm)

Measurement Date Apr 22, 2025 - Apr 29, 2025

Measurement by Winyou Boontanai

Time	2531101-15 Apr 22, 2025	2531101-16 Apr 23, 2025	2531101-17 Apr 24, 2025	2531101-18 Apr 25, 2025	2531101-19 Apr 26, 2025	2531101-20 Apr 27, 2025	2531101-21 Apr 28, 2025
12:00 PM - 01:00 PM	0.0006	0.0007	0.0006	0.0007	0.0007	0.0007	0.0007
01:00 PM - 02:00 PM	0.0003	0.0007	0.0006	0.0007	0.0007	0.0006	0.0007
02:00 PM - 03:00 PM	0.0017	0.0008	0.0006	0.0007	0.0006	0.0007	0.0007
03:00 PM - 04:00 PM	0.0010	0.0007	0.0006	0.0006	0.0007	0.0006	0.0007
04:00 PM - 05:00 PM	0.0008	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007
05:00 PM - 06:00 PM	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0007
06:00 PM - 07:00 PM	0.0007	0.0006	0.0006	0.0007	0.0007	0.0006	0.0007
07:00 PM - 08:00 PM	0.0007	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005
08:00 PM - 09:00 PM	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0004
09:00 PM - 10:00 PM	0.0007	0.0006	0.0005	0.0006	0.0006	0.0006	0.0006
10:00 PM - 11:00 PM	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
11:00 PM - 12:00 AM	0.0007	0.0006	0.0006	0.0007	0.0007	0.0006	0.0006
12:00 AM - 01:00 AM	0.0006	0.0006	0.0006	0.0008	0.0008	0.0006	0.0006
01:00 AM - 02:00 AM	0.0006	0.0006	0.0006	0.0007	0.0007	0.0006	0.0006
02:00 AM - 03:00 AM	0.0006	0.0006	0.0006	0.0007	0.0007	0.0006	0.0007
03:00 AM - 04:00 AM	0.0006	0.0006	0.0006	0.0007	0.0007	0.0006	0.0006
04:00 AM - 05:00 AM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
05:00 AM - 06:00 AM	0.0007	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007
06:00 AM - 07:00 AM	0.0006	0.0006	0.0006	0.0007	0.0006	0.0006	0.0006
07:00 AM - 08:00 AM	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007
08:00 AM - 09:00 AM	0.0007	0.0005	0.0006	0.0006	0.0006	0.0007	0.0007
09:00 AM - 10:00 AM	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
10:00 AM - 11:00 AM	0.0008	0.0006	0.0006	0.0006	0.0006	0.0007	0.0006
11:00 AM - 12:00 PM	0.0008	0.0006	0.0007	0.0007	0.0006	0.0007	0.0007
Average	0.0007	0.0006	0.0006	0.0007	0.0006	0.0006	0.0006
1hr - Maximum	0.0017	0.0008	0.0007	0.0008	0.0008	0.0007	0.0007
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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

Reference Method : US EPA Method Part 53 and 58

Approved by

Orawan R.

Orawan Rakyong
Scientist (3)

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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S:\Reports_Air SOxNOx.rpt (3:40PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531101

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3300616-1

Page 1 of 1

Sample Description Air Quality

Location รร. บ้านใหม่ทุ่งดินสอด หมู่ 7 ตำบลใหม่ทุ่งดินสอด (GPS 47P 0697239, 1589433)

Parameter Sulfur Dioxide (ppm)

Measurement Date Apr 22, 2025 - Apr 29, 2025

Measurement by Winyou Boontanai

Time	2531101-8 Apr 22, 2025	2531101-9 Apr 23, 2025	2531101-10 Apr 24, 2025	2531101-11 Apr 25, 2025	2531101-12 Apr 26, 2025	2531101-13 Apr 27, 2025	2531101-14 Apr 28, 2025
10:00 AM - 11:00 AM	0.0011	0.0004	0.0009	0.0004	0.0016	0.0025	0.0007
11:00 AM - 12:00 PM	0.0013	0.0009	0.0004	0.0005	0.0017	0.0026	0.0007
12:00 PM - 01:00 PM	0.0012	0.0011	0.0005	0.0007	0.0019	0.0024	0.0006
01:00 PM - 02:00 PM	0.0017	0.0011	0.0005	0.0009	0.0021	0.0024	0.0007
02:00 PM - 03:00 PM	0.0017	0.0011	0.0006	0.0009	0.0020	0.0024	0.0008
03:00 PM - 04:00 PM	0.0020	0.0017	0.0018	0.0020	0.0018	0.0030	0.0007
04:00 PM - 05:00 PM	0.0021	0.0025	0.0036	0.0029	0.0020	0.0024	0.0006
05:00 PM - 06:00 PM	0.0019	0.0080	0.0030	0.0020	0.0020	0.0026	0.0007
06:00 PM - 07:00 PM	0.0020	0.0021	0.0018	0.0028	0.0023	0.0035	0.0006
07:00 PM - 08:00 PM	0.0021	0.0045	0.0027	0.0021	0.0023	0.0033	0.0007
08:00 PM - 09:00 PM	0.0023	0.0021	0.0020	0.0020	0.0027	0.0030	0.0005
09:00 PM - 10:00 PM	0.0023	0.0009	0.0016	0.0014	0.0025	0.0035	0.0005
10:00 PM - 11:00 PM	0.0030	0.0007	0.0016	0.0015	0.0025	0.0034	0.0004
11:00 PM - 12:00 AM	0.0023	0.0009	0.0015	0.0017	0.0024	0.0035	0.0004
12:00 AM - 01:00 AM	0.0015	0.0006	0.0011	0.0013	0.0024	0.0035	0.0005
01:00 AM - 02:00 AM	0.0010	0.0007	0.0006	0.0010	0.0025	0.0031	0.0005
02:00 AM - 03:00 AM	0.0007	0.0004	0.0004	0.0008	0.0028	0.0028	0.0005
03:00 AM - 04:00 AM	0.0005	0.0004	0.0004	0.0005	0.0027	0.0030	0.0006
04:00 AM - 05:00 AM	0.0004	0.0003	0.0006	0.0004	0.0027	0.0031	0.0010
05:00 AM - 06:00 AM	0.0003	0.0003	0.0007	0.0006	0.0031	0.0030	0.0043
06:00 AM - 07:00 AM	0.0002	0.0010	0.0004	0.0005	0.0026	0.0025	0.0059
07:00 AM - 08:00 AM	0.0003	0.0006	0.0004	0.0007	0.0025	0.0026	0.0041
08:00 AM - 09:00 AM	0.0005	0.0007	0.0003	0.0010	0.0023	0.0024	0.0031
09:00 AM - 10:00 AM	0.0004	0.0008	0.0004	0.0012	0.0024	0.0022	0.0028
Average	0.0014	0.0014	0.0012	0.0013	0.0023	0.0029	0.0013
1hr - Maximum	0.0030	0.0080	0.0036	0.0031	0.0031	0.0035	0.0059
Standard 1hr - Average	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Standard 24 hrs - Average	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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

Reference Method : US EPA Method Part 53 and 58

Approved by

Orawan R.

Orawan Rakyong
Scientist (3)

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S:\Reports_Air SOxNOx.rpt (3:40PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2530645

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3272909-1

Page 1 of 1

Sample Description Air Quality

Location บริเวณสำนักงานบริษัท (GPS 47P 0698599, 1589315)

Parameter Nitrogen dioxide (ppm)

Measurement Date Apr 22, 2025 - Apr 29, 2025

Measurement by Winyou Boontanai

Time	2530645-1 Apr 22, 2025	2530645-2 Apr 23, 2025	2530645-3 Apr 24, 2025	2530645-4 Apr 25, 2025	2530645-5 Apr 26, 2025	2530645-6 Apr 27, 2025	2530645-7 Apr 28, 2025
09:00 AM - 10:00 AM	0.0047	0.0034	0.0036	0.0041	0.0036	0.0061	0.0039
10:00 AM - 11:00 AM	0.0060	0.0042	0.0041	0.0049	0.0037	0.0037	0.0040
11:00 AM - 12:00 PM	0.0031	0.0056	0.0055	0.0059	0.0050	0.0042	0.0048
12:00 PM - 01:00 PM	0.0052	0.0075	0.0062	0.0067	0.0056	0.0046	0.0055
01:00 PM - 02:00 PM	0.0077	0.0081	0.0061	0.0070	0.0060	0.0045	0.0068
02:00 PM - 03:00 PM	0.0103	0.0088	0.0070	0.0080	0.0066	0.0047	0.0104
03:00 PM - 04:00 PM	0.0117	0.0098	0.0077	0.0092	0.0069	0.0056	0.0116
04:00 PM - 05:00 PM	0.0133	0.0112	0.0083	0.0102	0.0085	0.0070	0.0112
05:00 PM - 06:00 PM	0.0147	0.0118	0.0105	0.0112	0.0095	0.0068	0.0076
06:00 PM - 07:00 PM	0.0175	0.0126	0.0115	0.0124	0.0082	0.0065	0.0078
07:00 PM - 08:00 PM	0.0132	0.0111	0.0096	0.0133	0.0078	0.0063	0.0079
08:00 PM - 09:00 PM	0.0094	0.0085	0.0092	0.0122	0.0078	0.0055	0.0081
09:00 PM - 10:00 PM	0.0069	0.0066	0.0080	0.0086	0.0071	0.0054	0.0074
10:00 PM - 11:00 PM	0.0054	0.0053	0.0066	0.0065	0.0065	0.0055	0.0076
11:00 PM - 12:00 AM	0.0049	0.0047	0.0059	0.0059	0.0064	0.0054	0.0079
12:00 AM - 01:00 AM	0.0042	0.0044	0.0053	0.0059	0.0056	0.0054	0.0091
01:00 AM - 02:00 AM	0.0037	0.0048	0.0048	0.0058	0.0036	0.0059	0.0095
02:00 AM - 03:00 AM	0.0035	0.0049	0.0044	0.0050	0.0045	0.0057	0.0077
03:00 AM - 04:00 AM	0.0042	0.0053	0.0047	0.0045	0.0038	0.0058	0.0092
04:00 AM - 05:00 AM	0.0042	0.0053	0.0045	0.0042	0.0034	0.0063	0.0114
05:00 AM - 06:00 AM	0.0044	0.0048	0.0040	0.0042	0.0031	0.0061	0.0113
06:00 AM - 07:00 AM	0.0044	0.0050	0.0041	0.0042	0.0031	0.0061	0.0113
07:00 AM - 08:00 AM	0.0040	0.0050	0.0038	0.0039	0.0025	0.0091	0.0128
08:00 AM - 09:00 AM	0.0032	0.0036	0.0035	0.0034	0.0121	0.0040	0.0117
Average	0.0071	0.0068	0.0062	0.0070	0.0059	0.0057	0.0086
1hr - Maximum	0.0175	0.0126	0.0115	0.0133	0.0121	0.0091	0.0128
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

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

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

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

Approved by

Orawan R.

Orawan Rakyong
Scientist (3)

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2530645

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3300615-1

Page 1 of 1

Sample Description Air Quality

Location รร. วัดหนองปลาหมอ หมู่บ้านหนองปลกัศใต้ (GPS 47P 0700737, 1590864)

Parameter Nitrogen dioxide (ppm)

Measurement Date Apr 22, 2025 - Apr 29, 2025

Measurement by Winyou Boontanai

Time	2530645-22 Apr 22, 2025	2530645-23 Apr 23, 2025	2530645-24 Apr 24, 2025	2530645-25 Apr 25, 2025	2530645-26 Apr 26, 2025	2530645-27 Apr 27, 2025	2530645-28 Apr 28, 2025
11:00 AM - 12:00 PM	0.0031	0.0052	0.0040	0.0047	0.0038	0.0047	0.0120
12:00 PM - 01:00 PM	0.0034	0.0049	0.0041	0.0045	0.0029	0.0029	0.0043
01:00 PM - 02:00 PM	0.0041	0.0049	0.0037	0.0052	0.0035	0.0035	0.0055
02:00 PM - 03:00 PM	0.0030	0.0053	0.0061	0.0045	0.0027	0.0034	0.0094
03:00 PM - 04:00 PM	0.0040	0.0051	0.0052	0.0053	0.0037	0.0042	0.0108
04:00 PM - 05:00 PM	0.0061	0.0056	0.0058	0.0049	0.0042	0.0100	0.0065
05:00 PM - 06:00 PM	0.0071	0.0065	0.0054	0.0051	0.0057	0.0063	0.0075
06:00 PM - 07:00 PM	0.0078	0.0084	0.0074	0.0117	0.0049	0.0088	0.0075
07:00 PM - 08:00 PM	0.0116	0.0074	0.0095	0.0116	0.0083	0.0111	0.0100
08:00 PM - 09:00 PM	0.0092	0.0072	0.0119	0.0116	0.0127	0.0166	0.0125
09:00 PM - 10:00 PM	0.0103	0.0096	0.0133	0.0149	0.0108	0.0135	0.0095
10:00 PM - 11:00 PM	0.0104	0.0088	0.0127	0.0108	0.0091	0.0169	0.0157
11:00 PM - 12:00 AM	0.0118	0.0129	0.0140	0.0118	0.0025	0.0142	0.0157
12:00 AM - 01:00 AM	0.0102	0.0131	0.0151	0.0165	0.0029	0.0136	0.0136
01:00 AM - 02:00 AM	0.0120	0.0150	0.0139	0.0099	0.0081	0.0156	0.0134
02:00 AM - 03:00 AM	0.0133	0.0103	0.0137	0.0112	0.0083	0.0132	0.0196
03:00 AM - 04:00 AM	0.0143	0.0143	0.0117	0.0133	0.0113	0.0158	0.0229
04:00 AM - 05:00 AM	0.0149	0.0115	0.0142	0.0128	0.0136	0.0121	0.0286
05:00 AM - 06:00 AM	0.0138	0.0107	0.0146	0.0121	0.0178	0.0140	0.0265
06:00 AM - 07:00 AM	0.0128	0.0106	0.0117	0.0124	0.0168	0.0119	0.0280
07:00 AM - 08:00 AM	0.0074	0.0073	0.0061	0.0061	0.0108	0.0084	0.0212
08:00 AM - 09:00 AM	0.0051	0.0041	0.0056	0.0047	0.0065	0.0058	0.0158
09:00 AM - 10:00 AM	0.0049	0.0039	0.0043	0.0044	0.0059	0.0053	0.0062
10:00 AM - 11:00 AM	0.0053	0.0050	0.0040	0.0035	0.0053	0.0048	0.0058
Average	0.0086	0.0082	0.0091	0.0089	0.0075	0.0099	0.0137
1hr - Maximum	0.0149	0.0150	0.0151	0.0165	0.0178	0.0169	0.0286
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

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

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

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

Approved by

Orawan R.

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2530645

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3300614-1

Page 1 of 1

Sample Description	Air Quality						
Location	ร. บ้านโหนดชัย หมู่บ้านโหนดชัย (GPS 47P 0698465, 1594331)						
Parameter	Nitrogen dioxide (ppm)						
Measurement Date	Apr 22, 2025 - Apr 29, 2025						
Measurement by	Winyou Boontanai						
Time	2530645-15 Apr 22, 2025	2530645-16 Apr 23, 2025	2530645-17 Apr 24, 2025	2530645-18 Apr 25, 2025	2530645-19 Apr 26, 2025	2530645-20 Apr 27, 2025	2530645-21 Apr 28, 2025
12:00 PM - 01:00 PM	0.0100	0.0084	0.0067	0.0081	0.0066	0.0037	0.0065
01:00 PM - 02:00 PM	0.0061	0.0078	0.0063	0.0062	0.0066	0.0033	0.0041
02:00 PM - 03:00 PM	0.0052	0.0058	0.0066	0.0049	0.0066	0.0039	0.0038
03:00 PM - 04:00 PM	0.0058	0.0061	0.0065	0.0053	0.0068	0.0054	0.0057
04:00 PM - 05:00 PM	0.0063	0.0089	0.0079	0.0081	0.0097	0.0069	0.0069
05:00 PM - 06:00 PM	0.0093	0.0101	0.0115	0.0091	0.0160	0.0115	0.0133
06:00 PM - 07:00 PM	0.0107	0.0099	0.0106	0.0102	0.0139	0.0097	0.0144
07:00 PM - 08:00 PM	0.0182	0.0121	0.0203	0.0217	0.0118	0.0105	0.0232
08:00 PM - 09:00 PM	0.0111	0.0288	0.0223	0.0186	0.0157	0.0122	0.0219
09:00 PM - 10:00 PM	0.0100	0.0190	0.0168	0.0117	0.0130	0.0142	0.0193
10:00 PM - 11:00 PM	0.0103	0.0100	0.0143	0.0086	0.0120	0.0114	0.0152
11:00 PM - 12:00 AM	0.0096	0.0089	0.0121	0.0085	0.0041	0.0103	0.0154
12:00 AM - 01:00 AM	0.0090	0.0101	0.0103	0.0104	0.0056	0.0117	0.0141
01:00 AM - 02:00 AM	0.0080	0.0095	0.0108	0.0106	0.0077	0.0119	0.0111
02:00 AM - 03:00 AM	0.0103	0.0079	0.0099	0.0079	0.0075	0.0108	0.0100
03:00 AM - 04:00 AM	0.0110	0.0079	0.0095	0.0088	0.0087	0.0115	0.0145
04:00 AM - 05:00 AM	0.0134	0.0083	0.0119	0.0092	0.0083	0.0119	0.0143
05:00 AM - 06:00 AM	0.0156	0.0104	0.0124	0.0091	0.0095	0.0146	0.0153
06:00 AM - 07:00 AM	0.0181	0.0127	0.0132	0.0108	0.0144	0.0150	0.0150
07:00 AM - 08:00 AM	0.0161	0.0134	0.0115	0.0111	0.0112	0.0143	0.0210
08:00 AM - 09:00 AM	0.0097	0.0086	0.0081	0.0080	0.0080	0.0113	0.0199
09:00 AM - 10:00 AM	0.0098	0.0074	0.0066	0.0062	0.0062	0.0081	0.0122
10:00 AM - 11:00 AM	0.0087	0.0087	0.0072	0.0090	0.0064	0.0057	0.0096
11:00 AM - 12:00 PM	0.0081	0.0081	0.0083	0.0078	0.0062	0.0070	0.0102
Average	0.0104	0.0104	0.0109	0.0096	0.0093	0.0099	0.0132
1hr - Maximum	0.0182	0.0288	0.0223	0.0217	0.0160	0.0151	0.0232
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

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

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

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

Approved by

Orawan R.

Orawan Rakyong
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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2530645

Date Received : Apr 30, 2025

Date Reported : May 08, 2025

Report Number: 3300613-1

Page 1 of 1

Sample Description	Air Quality						
Location	ร. บ้านโหนดชัย หมู่บ้านโหนดชัย (GPS 47P 0697239, 1589433)						
Parameter	Nitrogen dioxide (ppm)						
Measurement Date	Apr 22, 2025 - Apr 29, 2025						
Measurement by	Winyou Boontanai						
	2530645-8	2530645-9	2530645-10	2530645-11	2530645-12	2530645-13	2530645-14
Time	Apr 22, 2025	Apr 23, 2025	Apr 24, 2025	Apr 25, 2025	Apr 26, 2025	Apr 27, 2025	Apr 28, 2025
10:00 AM - 11:00 AM	0.0092	0.0162	0.0179	0.0106	0.0026	0.0143	0.0118
11:00 AM - 12:00 PM	0.0086	0.0105	0.0117	0.0089	0.0040	0.0136	0.0151
12:00 PM - 01:00 PM	0.0051	0.0111	0.0108	0.0076	0.0034	0.0138	0.0136
01:00 PM - 02:00 PM	0.0070	0.0117	0.0137	0.0072	0.0028	0.0141	0.0146
02:00 PM - 03:00 PM	0.0086	0.0130	0.0141	0.0069	0.0029	0.0138	0.0072
03:00 PM - 04:00 PM	0.0111	0.0123	0.0152	0.0078	0.0037	0.0179	0.0083
04:00 PM - 05:00 PM	0.0139	0.0192	0.0228	0.0097	0.0045	0.0263	0.0198
05:00 PM - 06:00 PM	0.0108	0.0229	0.0404	0.0177	0.0051	0.0340	0.0431
06:00 PM - 07:00 PM	0.0132	0.0177	0.0386	0.0278	0.0056	0.0244	0.0321
07:00 PM - 08:00 PM	0.0228	0.0477	0.0514	0.0344	0.0100	0.0326	0.0337
08:00 PM - 09:00 PM	0.0248	0.0504	0.0369	0.0313	0.0076	0.0170	0.0241
09:00 PM - 10:00 PM	0.0187	0.0304	0.0327	0.0259	0.0184	0.0345	0.0392
10:00 PM - 11:00 PM	0.0210	0.0322	0.0360	0.0243	0.0166	0.0208	0.0343
11:00 PM - 12:00 AM	0.0139	0.0229	0.0246	0.0212	0.0209	0.0216	0.0279
12:00 AM - 01:00 AM	0.0128	0.0249	0.0285	0.0160	0.0213	0.0368	0.0212
01:00 AM - 02:00 AM	0.0169	0.0429	0.0313	0.0099	0.0146	0.0443	0.0204
02:00 AM - 03:00 AM	0.0181	0.0278	0.0255	0.0105	0.0217	0.0239	0.0189
03:00 AM - 04:00 AM	0.0156	0.0209	0.0126	0.0093	0.0182	0.0219	0.0166
04:00 AM - 05:00 AM	0.0164	0.0211	0.0117	0.0111	0.0264	0.0264	0.0175
05:00 AM - 06:00 AM	0.0116	0.0293	0.0099	0.0143	0.0203	0.0254	0.0304
06:00 AM - 07:00 AM	0.0148	0.0336	0.0104	0.0119	0.0125	0.0097	0.0281
07:00 AM - 08:00 AM	0.0216	0.0315	0.0114	0.0260	0.0096	0.0099	0.0254
08:00 AM - 09:00 AM	0.0178	0.0231	0.0101	0.0154	0.0108	0.0160	0.0065
09:00 AM - 10:00 AM	0.0136	0.0219	0.0100	0.0109	0.0121	0.0162	0.0081
Average	0.0145	0.0248	0.0220	0.0157	0.0115	0.0220	0.0216
1hr - Maximum	0.0248	0.0504	0.0514	0.0344	0.0264	0.0443	0.0431
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

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

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

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

Approved by

Orawan R.

Orawan Rakyong
Scientist (3)

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0947-211 EMAIL

S:\Reports_Air SOxNOx.rpt (3:36PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1

Page 1 of 2

Sample Number : 2531647-1 to 7

Parameter : Wind Speed / Wind Direction

Location : มหานครอุตสาหกรรม (GPS 47P 0698599, 1589315)

Sampling Date : Apr 22 - Apr 29, 2025

Sampling by : Winyou Boontana

Time	Apr 22 - Apr 23, 2025		Apr 23 - Apr 24, 2025		Apr 24 - Apr 25, 2025		Apr 25 - Apr 26, 2025		Apr 26 - Apr 27, 2025		Apr 27 - Apr 28, 2025		Apr 28 - Apr 29, 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)							
09:00 AM - 10:00 AM	0.2	-	-	0.2	-	-	0.8	202.0	SSW	0.0	-	-	0.8	200.0	SSW	0.4	141.0	SE	0.0	-	-
10:00 AM - 11:00 AM	0.1	-	-	0.7	117.0	ESE	0.0	-	-	0.0	-	-	0.8	209.0	SSW	0.0	-	-	0.0	-	-
11:00 AM - 12:00 PM	2.0	200.0	SSW	0.0	-	-	0.4	198.0	SSW	1.8	229.0	SW	0.0	-	-	0.5	248.0	WSW	0.0	-	-
12:00 PM - 01:00 PM	1.0	160.0	SSE	2.9	212.0	SSW	0.7	210.0	SSW	0.8	172.0	S	0.9	157.0	SSE	0.8	115.0	ESE	0.0	-	-
01:00 PM - 02:00 PM	0.5	287.0	WNW	0.3	207.0	SSW	2.2	222.0	SW	0.5	198.0	SSW	0.3	207.0	SSW	0.0	-	-	0.0	-	-
02:00 PM - 03:00 PM	0.2	-	-	0.4	273.0	W	0.6	231.0	SW	0.4	220.0	SW	1.6	226.0	SW	0.7	222.0	SW	0.9	24.0	NNE
03:00 PM - 04:00 PM	0.2	-	-	0.4	185.0	S	1.1	207.0	SSW	0.7	229.0	SW	0.8	181.0	S	0.0	-	-	1.5	94.0	E
04:00 PM - 05:00 PM	1.0	210.0	SSW	0.2	-	-	0.0	-	-	0.0	-	-	2.7	217.0	SW	0.0	-	-	0.9	205.0	SSW
05:00 PM - 06:00 PM	1.1	200.0	SSW	0.7	204.0	SSW	0.7	210.0	SSW	0.4	209.0	SSW	3.4	83.0	E	0.0	-	-	0.6	217.0	SW
06:00 PM - 07:00 PM	1.5	287.0	WNW	0.6	207.0	SSW	0.6	211.0	SSW	0.9	212.0	SSW	0.0	-	-	0.0	-	-	0.0	-	-
07:00 PM - 08:00 PM	0.8	198.0	SSW	1.2	211.0	SSW	0.0	-	-	0.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-
08:00 PM - 09:00 PM	0.3	200.0	SSW	0.0	-	-	0.0	-	-	0.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-
09:00 PM - 10:00 PM	0.5	175.0	S	0.4	204.0	SSW	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
10:00 PM - 11:00 PM	0.8	300.0	WNW	0.0	-	-	0.0	-	-	0.3	197.0	SSW	6.8	5.0	N	0.0	-	-	0.3	319.0	NW
11:00 PM - 12:00 AM	0.6	180.0	S	0.0	-	-	0.0	-	-	0.0	-	-	3.7	199.0	SSW	0.0	-	-	0.2	-	-
12:00 AM - 01:00 AM	1.2	210.0	SSW	0.0	-	-	0.0	-	-	0.3	193.0	SSW	0.0	-	-	0.0	-	-	0.1	-	-
01:00 AM - 02:00 AM	1.5	142.0	SE	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.7	9.0	N
02:00 AM - 03:00 AM	2.5	130.0	SE	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
03:00 AM - 04:00 AM	1.0	175.0	S	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	1.1	356.0	N
04:00 AM - 05:00 AM	1.3	110.0	ESE	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.2	-	-
05:00 AM - 06:00 AM	1.1	120.0	ESE	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	1.0	1.0	N
06:00 AM - 07:00 AM	1.0	145.0	SE	0.0	-	-	0.6	90.0	E	0.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-
07:00 AM - 08:00 AM	1.9	123.0	ESE	0.2	-	-	1.4	217.0	SW	0.6	178.0	S	0.4	161.0	SSE	0.0	-	-	0.0	-	-
08:00 AM - 09:00 AM	0.5	150.0	SSE	0.3	207.0	SSW	0.1	-	-	0.8	207.0	SSW	0.6	196.0	SSW	1.2	225.0	SW	0.1	-	-

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jitranont
Assistant General Manager

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

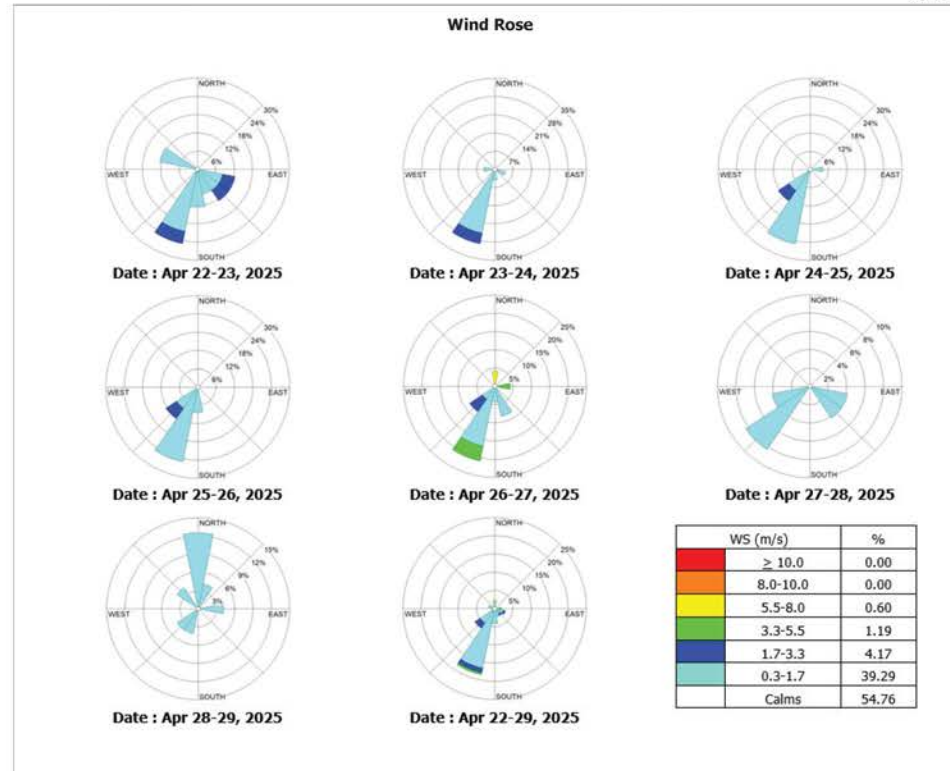
Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1

Page 2 of 2



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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1

Sample Number : 2531647-22 to 28

Parameter : Wind Speed / Wind Direction

Location : ร. รัตนลงปลาดานะ มุมชนบ้านหนองผักชีใต้ (GPS 47P 0700737, 1590864)

Sampling Date : Apr 22 - Apr 29, 2025

Sampling by : Winyou Boontana

Time	Apr 22 - Apr 23, 2025		Apr 23 - Apr 24, 2025		Apr 24 - Apr 25, 2025		Apr 25 - Apr 26, 2025		Apr 26 - Apr 27, 2025		Apr 27 - Apr 28, 2025		Apr 28 - Apr 29, 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	0.5	148.0	SSE	0.2	-	-	0.8	165.0	SSE	0.3	150.0	SSE	1.0	165.0
12:00 PM - 01:00 PM	0.6	169.0	S	0.5	124.0	SE	0.4	229.0	SW	0.4	204.0	SSW	1.5	233.0
01:00 PM - 02:00 PM	1.4	261.0	W	0.3	155.0	SSE	0.4	173.0	S	0.9	162.0	SSE	0.9	166.0
02:00 PM - 03:00 PM	1.0	206.0	SSW	0.5	138.0	SE	0.7	185.0	S	0.6	192.0	SSW	0.5	147.0
03:00 PM - 04:00 PM	0.8	181.0	S	1.2	181.0	S	0.2	-	-	0.7	181.0	S	0.7	207.0
04:00 PM - 05:00 PM	0.3	175.0	S	0.5	174.0	S	0.8	184.0	S	0.0	-	-	1.4	168.0
05:00 PM - 06:00 PM	0.0	-	-	0.6	139.0	SE	0.7	172.0	S	0.0	-	-	0.2	-
06:00 PM - 07:00 PM	0.2	-	-	0.4	183.0	S	0.3	172.0	S	0.1	-	-	0.3	119.0
07:00 PM - 08:00 PM	0.6	184.0	S	1.2	176.0	S	0.6	157.0	SSE	0.6	201.0	SSW	0.6	129.0
08:00 PM - 09:00 PM	0.1	-	-	0.3	133.0	SE	0.6	157.0	SSE	0.3	133.0	SE	0.3	125.0
09:00 PM - 10:00 PM	0.2	-	-	0.8	124.0	SE	0.0	-	-	0.5	139.0	SE	0.9	110.0
10:00 PM - 11:00 PM	0.3	126.0	SE	1.4	154.0	SSE	0.5	140.0	SE	0.7	127.0	SE	1.3	198.0
11:00 PM - 12:00 AM	0.3	127.0	SE	1.0	133.0	SE	0.4	139.0	SE	1.0	152.0	SSE	0.6	203.0
12:00 AM - 01:00 AM	0.2	-	-	1.0	144.0	SE	0.0	-	-	0.7	154.0	SSE	0.3	205.0
01:00 AM - 02:00 AM	0.5	131.0	SE	0.5	121.0	ESE	0.9	129.0	SE	0.4	130.0	SE	0.0	-
02:00 AM - 03:00 AM	0.0	-	-	0.3	155.0	SSE	0.2	-	-	0.4	140.0	SE	0.0	-
03:00 AM - 04:00 AM	0.3	143.0	SE	0.4	129.0	SE	0.5	145.0	SE	0.5	111.0	ESE	0.2	-
04:00 AM - 05:00 AM	0.0	-	-	0.7	158.0	SSE	0.2	-	-	0.0	-	-	0.1	-
05:00 AM - 06:00 AM	0.0	-	-	0.9	139.0	SE	0.3	141.0	SE	0.6	149.0	SSE	0.0	-
06:00 AM - 07:00 AM	0.5	142.0	SE	0.3	149.0	SSE	0.0	-	-	0.3	134.0	SE	0.0	-
07:00 AM - 08:00 AM	1.1	183.0	S	0.9	168.0	SSE	0.8	174.0	S	1.0	133.0	SE	0.6	157.0
08:00 AM - 09:00 AM	0.7	156.0	SSE	0.5	178.0	S	0.0	-	-	0.5	134.0	SE	0.3	140.0
09:00 AM - 10:00 AM	0.4	155.0	SSE	0.4	175.0	S	0.8	182.0	S	1.4	156.0	SSE	0.0	-
10:00 AM - 11:00 AM	0.0	-	-	0.6	168.0	SSE	0.5	162.0	SSE	0.7	150.0	SSE	0.2	-

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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

Approved by

Sarayuth Jittranont
Assistant General Manager

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

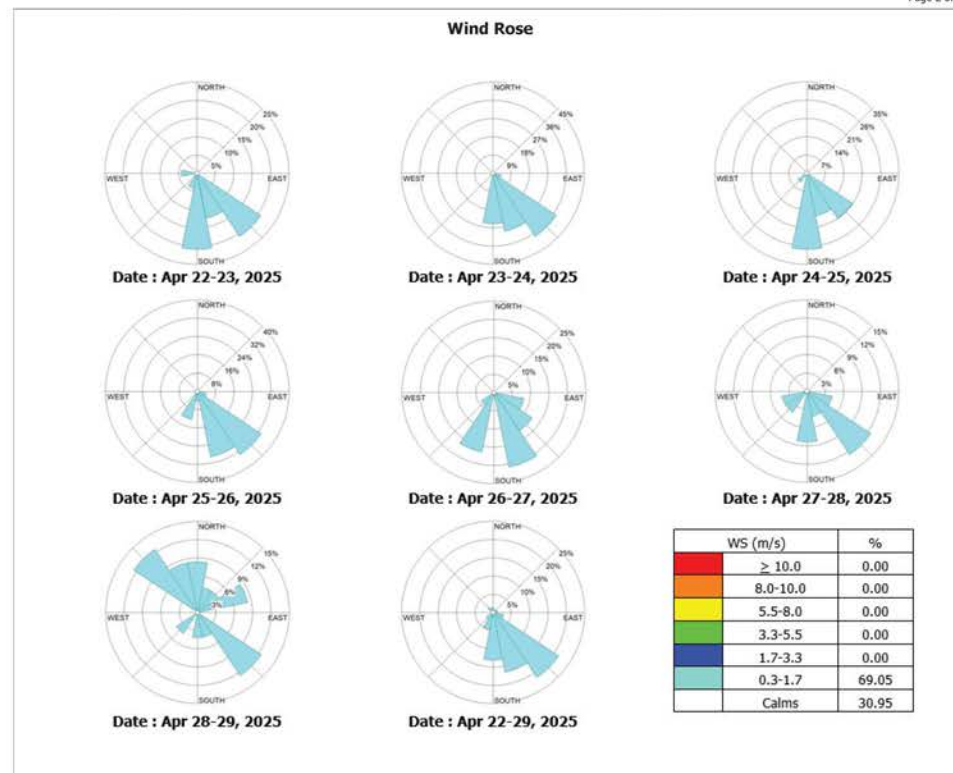
Project Location : WHA SIL

Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1



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.

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Sarayuth Jittranont
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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1

Sample Number : 2531647-15 to 21

Parameter : Wind Speed / Wind Direction

Location : ร. 101/101/101/101/101/101 (GPS 47P 0698465, 1594331)

Sampling Date : Apr 22 - Apr 29, 2025

Sampling by : Winyou Boontana

Time	Apr 22 - Apr 23, 2025			Apr 23 - Apr 24, 2025			Apr 24 - Apr 25, 2025			Apr 25 - Apr 26, 2025			Apr 26 - Apr 27, 2025			Apr 27 - Apr 28, 2025			Apr 28 - Apr 29, 2025		
	WS (m/s)	WD (deg)	E	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	1.0	95.0	E	0.0	-	-	2.2	119.0	ESE	0.0	-	-	1.3	197.0	SSW	2.0	170.0	S	0.4	287.0	WNW
01:00 PM - 02:00 PM	0.6	110.0	ESE	0.0	-	-	1.8	151.0	SSE	1.7	134.0	SE	1.9	129.0	SE	0.7	133.0	SE	0.0	-	
02:00 PM - 03:00 PM	1.3	136.0	SE	0.0	-	-	2.9	147.0	SSE	0.0	-	-	1.2	181.0	S	0.9	177.0	S	1.6	347.0	NNW
03:00 PM - 04:00 PM	3.1	169.0	S	0.0	-	-	1.5	148.0	SSE	0.0	-	-	0.0	-	-	0.0	-	-	1.6	354.0	N
04:00 PM - 05:00 PM	0.9	162.0	SSE	0.0	-	-	1.6	172.0	S	0.0	-	-	0.8	152.0	SSE	0.0	-	-	1.0	145.0	SE
05:00 PM - 06:00 PM	1.3	148.0	SSE	1.8	134.0	SE	1.2	181.0	S	0.0	-	-	0.8	118.0	ESE	0.0	-	-	1.4	199.0	SSW
06:00 PM - 07:00 PM	1.0	182.0	S	1.8	180.0	S	4.3	137.0	SE	0.0	-	-	2.7	149.0	SSE	0.8	134.0	SE	0.0	-	-
07:00 PM - 08:00 PM	1.7	175.0	S	2.0	186.0	S	1.3	144.0	SE	0.0	-	-	0.7	136.0	SE	0.0	-	-	0.0	-	-
08:00 PM - 09:00 PM	2.0	154.0	SSE	1.6	145.0	SE	1.5	197.0	SSW	0.9	164.0	SSE	0.7	93.0	E	0.0	-	-	0.0	-	-
09:00 PM - 10:00 PM	0.6	202.0	SSW	2.5	180.0	S	0.6	144.0	SE	1.2	135.0	SE	0.7	110.0	ESE	0.0	-	-	0.0	-	-
10:00 PM - 11:00 PM	0.6	145.0	SE	0.0	-	-	1.8	174.0	S	1.7	196.0	SSW	1.7	346.0	NNW	0.0	-	-	0.0	-	-
11:00 PM - 12:00 AM	0.2	-	-	0.0	-	-	1.3	138.0	SE	1.6	153.0	SSE	0.0	-	-	0.0	-	-	0.0	-	-
12:00 AM - 01:00 AM	0.0	-	-	1.9	137.0	SE	0.7	146.0	SE	1.7	135.0	SE	1.5	176.0	S	0.0	-	-	0.0	-	-
01:00 AM - 02:00 AM	0.3	164.0	SSE	1.1	136.0	SE	0.0	-	-	1.1	160.0	SSE	1.4	359.0	N	0.0	-	-	1.1	5.0	N
02:00 AM - 03:00 AM	0.4	142.0	SE	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.4	359.0	N
03:00 AM - 04:00 AM	0.4	171.0	S	1.6	132.0	SE	0.0	-	-	2.1	158.0	SSE	0.0	-	-	0.0	-	-	1.5	359.0	N
04:00 AM - 05:00 AM	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.6	147.0	SSE	0.0	-	-	2.3	10.0	N
05:00 AM - 06:00 AM	0.0	-	-	0.0	-	-	0.6	142.0	SE	0.0	-	-	0.0	-	-	0.0	-	-	1.5	24.0	NNE
06:00 AM - 07:00 AM	0.9	140.0	SE	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	2.3	349.0	N
07:00 AM - 08:00 AM	1.0	155.0	SSE	1.4	157.0	SSE	2.1	152.0	SSE	0.5	151.0	SSE	0.4	195.0	SSW	0.0	-	-	0.5	359.0	N
08:00 AM - 09:00 AM	1.0	158.0	SSE	0.8	129.0	SE	3.7	178.0	S	1.0	170.0	S	0.3	125.0	SE	0.5	145.0	SE	1.3	359.0	N
09:00 AM - 10:00 AM	1.2	164.0	SSE	3.0	169.0	S	1.1	140.0	SE	1.5	171.0	S	1.1	162.0	SSE	1.1	178.0	S	1.1	130.0	SE
10:00 AM - 11:00 AM	0.7	10.0	N	1.8	174.0	S	0.4	161.0	SSE	1.3	95.0	E	1.4	135.0	SE	0.2	-	-	0.8	100.0	E
11:00 AM - 12:00 PM	0.0	-	-	1.3	87.0	E	1.4	163.0	SSE	1.4	127.0	SE	1.0	151.0	SSE	1.5	151.0	SSE	0.5	98.0	E

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jitranont
Assistant General Manager

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

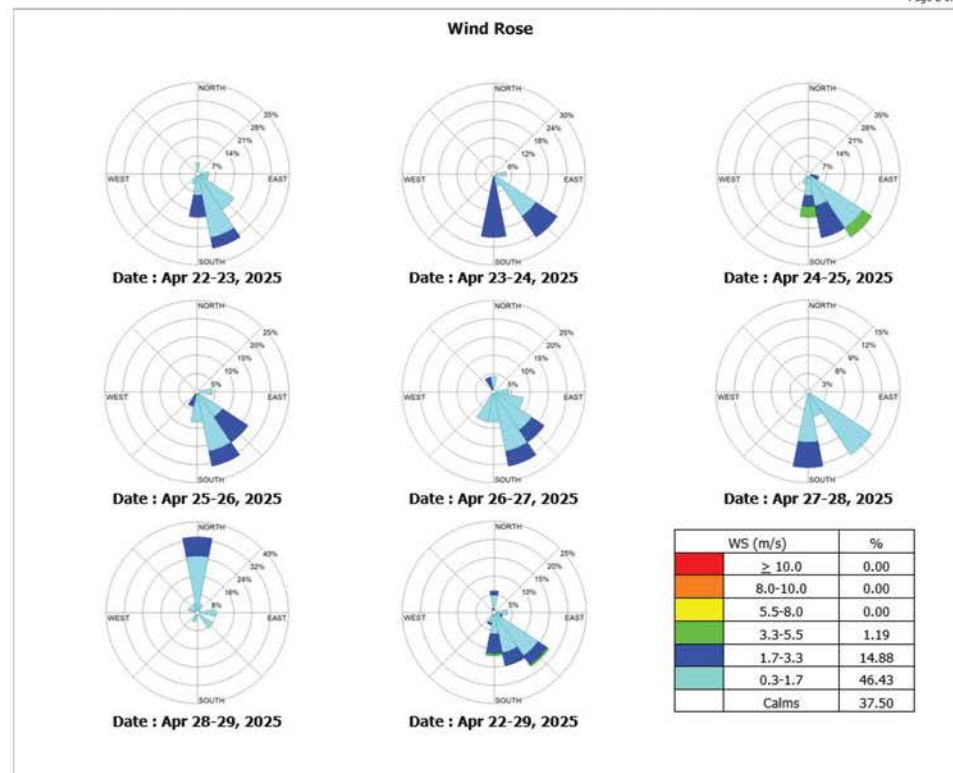
Project Location : WHA SIL

Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1



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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1

Page 1 of 2

Sample Number : 2531647-8 to 14

Parameter : Wind Speed / Wind Direction

Location : ร. ป่านโหวงต๋นขล ภูมณป่านโหวงต๋นขล (GPS 47P 0697239, 1589433)

Sampling Date : Apr 22 - Apr 29, 2025

Sampling by : Winyou Boontana

Time	Apr 22 - Apr 23, 2025			Apr 23 - Apr 24, 2025			Apr 24 - Apr 25, 2025			Apr 25 - Apr 26, 2025			Apr 26 - Apr 27, 2025			Apr 27 - Apr 28, 2025			Apr 28 - Apr 29, 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	1.5	180.0	S	1.6	262.0	W	1.4	231.0	SW	1.8	235.0	SW	1.9	180.0	S	3.1	159.0	SSE	1.7	263.0	W
11:00 AM - 12:00 PM	3.1	192.0	SSW	0.6	0.0	N	1.1	90.0	E	2.0	278.0	W	2.5	179.0	S	1.3	153.0	SSE	0.9	133.0	SSE
12:00 PM - 01:00 PM	1.2	179.0	S	1.4	185.0	S	0.7	101.0	E	1.4	246.0	WSW	1.5	251.0	WSW	0.0	-	-	3.0	59.0	ENE
01:00 PM - 02:00 PM	1.1	259.0	W	3.4	273.0	W	0.9	187.0	S	2.7	167.0	SSE	0.4	261.0	W	0.0	-	-	1.3	344.0	NNW
02:00 PM - 03:00 PM	0.7	244.0	WSW	0.7	81.0	E	1.5	140.0	SE	0.6	202.0	SSW	1.7	203.0	SSW	0.9	209.0	SSW	1.2	58.0	ENE
03:00 PM - 04:00 PM	0.5	251.0	WSW	0.8	153.0	SSE	1.0	233.0	SW	0.6	146.0	SE	2.2	235.0	SW	0.8	178.0	S	3.4	2.0	N
04:00 PM - 05:00 PM	1.4	227.0	SW	0.5	278.0	W	0.1	-	-	0.0	-	-	2.1	184.0	S	0.3	58.0	ENE	0.4	66.0	ENE
05:00 PM - 06:00 PM	1.7	220.0	SW	1.2	268.0	W	1.7	185.0	S	0.7	248.0	WSW	1.0	189.0	S	0.0	-	-	0.0	-	-
06:00 PM - 07:00 PM	1.4	241.0	WSW	1.0	171.0	S	1.6	202.0	SSW	0.2	-	-	1.2	132.0	SE	2.0	230.0	SW	1.5	144.0	SE
07:00 PM - 08:00 PM	1.0	200.0	SSW	2.8	191.0	S	2.0	235.0	SW	0.8	226.0	SW	1.2	105.0	ESE	0.0	-	-	1.3	67.0	ENE
08:00 PM - 09:00 PM	0.6	237.0	WSW	1.0	197.0	SSW	0.3	95.0	E	2.2	150.0	SSE	3.2	159.0	SSE	1.0	105.0	ESE	1.1	87.0	E
09:00 PM - 10:00 PM	0.4	171.0	S	0.9	181.0	S	1.9	180.0	S	1.7	171.0	S	1.7	133.0	SE	1.6	145.0	SE	0.7	142.0	SE
10:00 PM - 11:00 PM	0.6	249.0	WSW	1.0	148.0	SSE	0.8	193.0	SSW	2.3	208.0	SSW	5.5	88.0	E	1.0	177.0	S	0.2	-	-
11:00 PM - 12:00 AM	1.1	174.0	S	1.4	155.0	SSE	0.3	174.0	S	4.2	163.0	SSE	1.4	274.0	W	0.0	-	-	1.1	359.0	N
12:00 AM - 01:00 AM	1.1	193.0	SSW	1.5	166.0	SSE	1.4	161.0	SSE	0.7	270.0	W	0.3	340.0	NNW	0.8	215.0	SW	0.6	354.0	N
01:00 AM - 02:00 AM	1.9	162.0	SSE	3.3	146.0	SE	2.3	160.0	SSE	2.1	164.0	SSE	2.4	88.0	E	1.2	171.0	S	0.2	-	-
02:00 AM - 03:00 AM	2.1	145.0	SE	2.4	135.0	SE	3.2	138.0	SE	2.7	148.0	SSE	0.7	130.0	SE	0.7	168.0	SSE	3.0	74.0	ENE
03:00 AM - 04:00 AM	1.3	182.0	S	2.5	166.0	SSE	1.1	166.0	SSE	1.3	160.0	SSE	1.5	180.0	S	0.0	-	-	0.8	75.0	ENE
04:00 AM - 05:00 AM	1.7	139.0	SE	1.2	163.0	SSE	1.9	176.0	S	2.2	169.0	S	0.9	247.0	WSW	1.8	141.0	SE	1.0	80.0	E
05:00 AM - 06:00 AM	1.6	134.0	SE	2.5	154.0	SSE	1.7	124.0	SE	4.1	155.0	SSE	0.0	-	-	0.2	-	-	1.5	73.0	ENE
06:00 AM - 07:00 AM	1.1	192.0	SSW	3.0	144.0	SE	2.5	164.0	SSE	2.6	154.0	SSE	0.0	-	-	1.7	148.0	SSE	2.0	74.0	ENE
07:00 AM - 08:00 AM	1.8	184.0	S	2.8	175.0	S	2.8	194.0	SSW	2.4	112.0	ESE	1.7	169.0	S	2.7	145.0	SE	0.0	-	-
08:00 AM - 09:00 AM	0.3	164.0	SSE	1.6	163.0	SSE	2.3	142.0	SE	2.5	166.0	SSE	2.9	124.0	SE	1.9	237.0	WSW	0.0	-	-
09:00 AM - 10:00 AM	0.0	-	-	0.5	214.0	SW	0.3	115.0	ESE	1.0	103.0	ESE	2.3	273.0	W	0.0	-	-	0.2	-	-

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

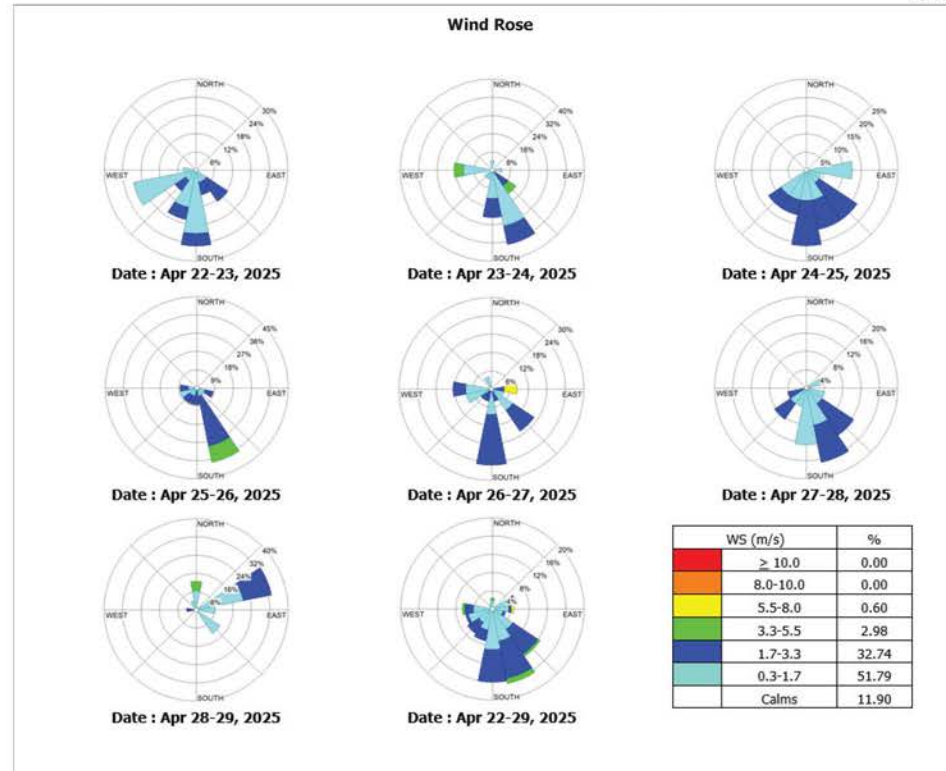
Lot ID: 2531647

Date Received : Apr 30, 2025

Date Reported : May 10, 2025

Report Number : 3273128-1

Page 2 of 2



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ภาคผนวก ค-2

ระดับเสียงในบรรยากาศโดยทั่วไป



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301957-1

Page 1 of 1

Sample Number 2531655-1
Parameter Noise (Leq 24 hrs.)
Location บริเวณสำนักงานบริษัท (GPS 47P 0698599, 1589315)
Measurement Date Apr 26 - Apr 27, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 858527

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	54.8	71.4	51.5
11:00 AM - 12:00 PM	53.4	70.8	50.4
12:00 PM - 01:00 PM	54.4	76.9	50.3
01:00 PM - 02:00 PM	62.2	76.8	51.9
02:00 PM - 03:00 PM	57.6	74.2	51.8
03:00 PM - 04:00 PM	55.9	74.9	51.4
04:00 PM - 05:00 PM	55.1	69.7	52.3
05:00 PM - 06:00 PM	55.2	70.9	52.9
06:00 PM - 07:00 PM	59.0	86.2	53.0
07:00 PM - 08:00 PM	55.2	71.2	52.0
08:00 PM - 09:00 PM	55.3	72.7	51.4
09:00 PM - 10:00 PM	53.0	67.9	50.4
10:00 PM - 11:00 PM	59.3	76.6	51.0
11:00 PM - 12:00 AM	59.6	82.2	54.5
12:00 AM - 01:00 AM	68.1	99.5	63.7
01:00 AM - 02:00 AM	66.6	75.0	66.1
02:00 AM - 03:00 AM	66.3	73.3	65.6
03:00 AM - 04:00 AM	63.8	67.7	62.5
04:00 AM - 05:00 AM	62.9	72.9	62.1
05:00 AM - 06:00 AM	60.0	74.0	55.1
06:00 AM - 07:00 AM	57.6	78.4	53.9
07:00 AM - 08:00 AM	57.9	77.8	53.7
08:00 AM - 09:00 AM	57.2	72.5	53.3
09:00 AM - 10:00 AM	53.5	70.5	51.7

Leq Average 24 hrs. (dB(A))

61.0

Lmax (dB(A))

99.5

L90 (dB(A))

52.3

Ldn (dB(A))

69.9

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

Orawan R.
Orawan Rakyong
Scientist (3)

Approved by

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Supot Salamteh
Section Head

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S:\Reports_Air Noise rpt (2:49PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301958-1

Page 1 of 1

Sample Number 2531655-2
Parameter Noise (Leq 24 hrs.)
Location บริเวณสำนักงานบริษัท (GPS 47P 0698599, 1589315)
Measurement Date Apr 27 - Apr 28, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 858527

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	56.2	76.0	51.8
11:00 AM - 12:00 PM	56.9	76.8	51.3
12:00 PM - 01:00 PM	55.9	71.2	50.8
01:00 PM - 02:00 PM	54.8	79.5	50.6
02:00 PM - 03:00 PM	55.4	76.8	50.1
03:00 PM - 04:00 PM	56.7	75.5	52.2
04:00 PM - 05:00 PM	53.7	72.3	50.8
05:00 PM - 06:00 PM	54.0	73.2	50.7
06:00 PM - 07:00 PM	55.4	78.6	51.4
07:00 PM - 08:00 PM	55.4	69.5	53.0
08:00 PM - 09:00 PM	55.8	73.6	53.5
09:00 PM - 10:00 PM	55.9	72.0	53.7
10:00 PM - 11:00 PM	59.8	71.0	58.3
11:00 PM - 12:00 AM	59.7	66.9	58.6
12:00 AM - 01:00 AM	56.8	68.4	54.6
01:00 AM - 02:00 AM	54.0	66.6	52.7
02:00 AM - 03:00 AM	52.5	67.0	51.2
03:00 AM - 04:00 AM	52.6	63.3	51.0
04:00 AM - 05:00 AM	56.9	63.1	54.7
05:00 AM - 06:00 AM	56.8	71.1	54.6
06:00 AM - 07:00 AM	58.5	72.4	53.4
07:00 AM - 08:00 AM	58.1	76.4	53.7
08:00 AM - 09:00 AM	57.8	72.3	53.0
09:00 AM - 10:00 AM	56.9	71.6	52.5

Leq Average 24 hrs. (dB(A))

56.5

Lmax (dB(A))

79.5

L90 (dB(A))

52.5

Ldn (dB(A))

63.4

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

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Orawan Rakyong
Scientist (3)

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S:\Reports_Air Noise rpt (2:49PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301959-1

Page 1 of 1

Sample Number 2531655-3
Parameter Noise (Leq 24 hrs.)
Location บริเวณสำนักงานบริษัท (GPS 47P 0698599, 1589315)
Measurement Date Apr 28 - Apr 29, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 858527

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	60.2	72.5	54.2
11:00 AM - 12:00 PM	56.6	82.4	51.9
12:00 PM - 01:00 PM	56.8	76.7	51.7
01:00 PM - 02:00 PM	56.1	71.6	52.2
02:00 PM - 03:00 PM	57.7	72.7	52.0
03:00 PM - 04:00 PM	56.4	71.0	52.2
04:00 PM - 05:00 PM	56.3	75.1	53.1
05:00 PM - 06:00 PM	56.5	76.9	52.7
06:00 PM - 07:00 PM	58.8	79.7	54.1
07:00 PM - 08:00 PM	57.0	79.9	53.6
08:00 PM - 09:00 PM	57.1	77.1	53.6
09:00 PM - 10:00 PM	55.1	72.1	52.2
10:00 PM - 11:00 PM	53.5	64.8	51.6
11:00 PM - 12:00 AM	53.4	66.4	51.1
12:00 AM - 01:00 AM	54.6	72.1	51.6
01:00 AM - 02:00 AM	53.7	65.8	51.2
02:00 AM - 03:00 AM	52.2	68.1	50.4
03:00 AM - 04:00 AM	51.5	70.4	50.2
04:00 AM - 05:00 AM	51.8	68.6	50.4
05:00 AM - 06:00 AM	54.4	76.9	51.3
06:00 AM - 07:00 AM	59.2	75.4	52.5
07:00 AM - 08:00 AM	58.8	76.5	53.5
08:00 AM - 09:00 AM	59.5	78.9	55.1
09:00 AM - 10:00 AM	57.4	73.0	52.7

Leq Average 24 hrs. (dB(A))

56.7

Lmax (dB(A))

82.4

L90 (dB(A))

52.2

Ldn (dB(A))

61.5

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

Orawan R.
Orawan Rakyong
Scientist (3)

Approved by

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Supot Salamteh
Section Head

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S:\Reports_Air Noise rpt (2:50PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301966-1

Page 1 of 1

Sample Number 2531655-10
Parameter Noise (Leq 24 hrs.)
Location รร. วัดหนองปลาหมอ หมู่ชนบ้านหนองผักชีใต้ (GPS 47P 0700733, 1590964)
Measurement Date Apr 26 - Apr 27, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 572552

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	57.9	79.5	47.7
01:00 PM - 02:00 PM	56.2	74.8	46.0
02:00 PM - 03:00 PM	58.9	86.1	49.2
03:00 PM - 04:00 PM	57.2	77.1	47.0
04:00 PM - 05:00 PM	57.7	75.3	48.9
05:00 PM - 06:00 PM	57.5	78.9	48.7
06:00 PM - 07:00 PM	64.3	83.6	52.6
07:00 PM - 08:00 PM	52.8	74.7	44.0
08:00 PM - 09:00 PM	50.1	65.3	45.6
09:00 PM - 10:00 PM	53.6	78.9	45.5
10:00 PM - 11:00 PM	59.9	83.5	46.8
11:00 PM - 12:00 AM	58.6	77.3	48.1
12:00 AM - 01:00 AM	62.2	85.4	48.5
01:00 AM - 02:00 AM	50.2	70.3	45.5
02:00 AM - 03:00 AM	52.4	72.8	49.0
03:00 AM - 04:00 AM	51.2	71.1	48.4
04:00 AM - 05:00 AM	52.3	71.8	49.4
05:00 AM - 06:00 AM	59.3	79.8	52.8
06:00 AM - 07:00 AM	57.4	78.7	51.4
07:00 AM - 08:00 AM	61.0	81.5	52.6
08:00 AM - 09:00 AM	61.5	82.4	52.1
09:00 AM - 10:00 AM	59.5	79.9	49.1
10:00 AM - 11:00 AM	56.5	73.4	46.1
11:00 AM - 12:00 PM	59.6	81.7	49.5

Leq Average 24 hrs. (dB(A))

58.5

Lmax (dB(A))

86.1

L90 (dB(A))

48.5

Ldn (dB(A))

64.3

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

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S:\Reports_Air Noise rpt (2:53PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301967-1

Page 1 of 1

Sample Number 2531655-11
Parameter Noise (Leq 24 hrs.)
Location รร. วัดหนองปลาหมอ หมู่ชนบ้านหนองผักชีโต (GPS 47P 0700733, 1590964)
Measurement Date Apr 27 - Apr 28, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 572552

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	58.6	77.5	48.8
01:00 PM - 02:00 PM	60.3	82.1	48.9
02:00 PM - 03:00 PM	57.4	77.6	47.4
03:00 PM - 04:00 PM	56.7	76.2	46.9
04:00 PM - 05:00 PM	58.7	81.8	47.6
05:00 PM - 06:00 PM	58.3	80.3	47.2
06:00 PM - 07:00 PM	58.9	73.3	51.7
07:00 PM - 08:00 PM	54.1	79.3	47.9
08:00 PM - 09:00 PM	54.8	70.4	48.9
09:00 PM - 10:00 PM	51.6	74.5	47.2
10:00 PM - 11:00 PM	50.2	72.3	45.6
11:00 PM - 12:00 AM	56.5	78.1	48.6
12:00 AM - 01:00 AM	51.1	70.0	49.3
01:00 AM - 02:00 AM	50.5	67.9	47.8
02:00 AM - 03:00 AM	49.5	69.5	47.1
03:00 AM - 04:00 AM	48.7	72.7	46.3
04:00 AM - 05:00 AM	56.4	73.6	46.3
05:00 AM - 06:00 AM	60.8	74.1	50.4
06:00 AM - 07:00 AM	57.7	76.0	51.7
07:00 AM - 08:00 AM	60.5	76.1	52.4
08:00 AM - 09:00 AM	61.6	76.8	54.3
09:00 AM - 10:00 AM	59.7	81.2	50.1
10:00 AM - 11:00 AM	62.3	82.9	51.0
11:00 AM - 12:00 PM	60.6	80.2	49.2

Leq Average 24 hrs. (dB(A))

58.0

Lmax (dB(A))

82.9

L90 (dB(A))

48.6

Ldn (dB(A))

62.6

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

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S:\Reports_Air Noise rpt (2:54PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301968-1

Page 1 of 1

Sample Number 2531655-12
Parameter Noise (Leq 24 hrs.)
Location รร. วัดหนองปลาหมอ หมู่ชนบ้านหนองผักชีโต (GPS 47P 0700733, 1590964)
Measurement Date Apr 28 - Apr 29, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 572552

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	61.1	82.1	50.8
01:00 PM - 02:00 PM	58.1	82.7	47.9
02:00 PM - 03:00 PM	57.4	75.2	47.6
03:00 PM - 04:00 PM	57.5	75.4	48.2
04:00 PM - 05:00 PM	57.8	74.0	52.0
05:00 PM - 06:00 PM	62.6	84.0	49.3
06:00 PM - 07:00 PM	58.4	73.7	50.9
07:00 PM - 08:00 PM	54.7	75.8	45.0
08:00 PM - 09:00 PM	53.4	77.3	44.1
09:00 PM - 10:00 PM	52.4	76.2	43.5
10:00 PM - 11:00 PM	51.9	75.1	45.7
11:00 PM - 12:00 AM	47.0	67.1	41.3
12:00 AM - 01:00 AM	48.8	71.4	39.6
01:00 AM - 02:00 AM	47.7	68.6	40.6
02:00 AM - 03:00 AM	47.6	72.7	42.4
03:00 AM - 04:00 AM	48.8	66.1	42.2
04:00 AM - 05:00 AM	56.5	68.2	45.4
05:00 AM - 06:00 AM	64.5	83.5	52.5
06:00 AM - 07:00 AM	57.9	77.8	50.7
07:00 AM - 08:00 AM	59.4	77.5	53.4
08:00 AM - 09:00 AM	64.1	76.6	54.4
09:00 AM - 10:00 AM	59.2	78.8	49.0
10:00 AM - 11:00 AM	55.7	72.6	45.3
11:00 AM - 12:00 PM	55.7	73.2	45.2

Leq Average 24 hrs. (dB(A))

58.3

Lmax (dB(A))

84.0

L90 (dB(A))

45.7

Ldn (dB(A))

63.6

Standard (dB(A))

70

115

Reference Method : ISO1996-1 and 1996-2

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

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S:\Reports_Air Noise rpt (2:54PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531655
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301963-1

Page 1 of 1

Sample Number 2531655-7
Parameter Noise (Leq 24 hrs.)
Location รร. วัดป่าลพ ยมชนบ้านป่าลพกลาง (GPS 47P 0698465, 1594331)
Measurement Date Apr 26 - Apr 27, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	55.1	69.8	47.4
02:00 PM - 03:00 PM	53.6	74.1	47.0
03:00 PM - 04:00 PM	53.1	68.4	46.9
04:00 PM - 05:00 PM	52.1	66.8	47.5
05:00 PM - 06:00 PM	52.9	70.4	48.2
06:00 PM - 07:00 PM	58.9	81.1	48.2
07:00 PM - 08:00 PM	48.9	67.8	46.1
08:00 PM - 09:00 PM	48.4	64.5	45.7
09:00 PM - 10:00 PM	48.7	70.2	45.5
10:00 PM - 11:00 PM	56.3	76.0	44.2
11:00 PM - 12:00 AM	55.9	71.6	48.6
12:00 AM - 01:00 AM	63.2	88.7	52.6
01:00 AM - 02:00 AM	53.4	73.3	52.1
02:00 AM - 03:00 AM	55.0	61.9	53.4
03:00 AM - 04:00 AM	58.4	65.0	54.6
04:00 AM - 05:00 AM	62.3	73.4	61.2
05:00 AM - 06:00 AM	61.7	78.3	57.9
06:00 AM - 07:00 AM	58.2	75.3	53.7
07:00 AM - 08:00 AM	57.0	74.7	53.3
08:00 AM - 09:00 AM	59.2	80.4	54.0
09:00 AM - 10:00 AM	55.9	77.0	50.0
10:00 AM - 11:00 AM	60.5	75.5	48.4
11:00 AM - 12:00 PM	54.6	76.5	48.7
12:00 PM - 01:00 PM	53.8	71.3	47.7

Leq Average 24 hrs. (dB(A)) 57.5
Lmax (dB(A)) 88.7
L90 (dB(A)) 48.4
Ldn (dB(A)) 65.5
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

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

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S:\Reports_Air Noise rpt (2:53PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531655
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301964-1

Page 1 of 1

Sample Number 2531655-8
Parameter Noise (Leq 24 hrs.)
Location รร. วัดป่าลพ ยมชนบ้านป่าลพกลาง (GPS 47P 0698465, 1594331)
Measurement Date Apr 27 - Apr 28, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	53.8	73.4	46.8
02:00 PM - 03:00 PM	65.1	80.9	47.9
03:00 PM - 04:00 PM	55.6	80.0	49.1
04:00 PM - 05:00 PM	52.9	74.3	46.3
05:00 PM - 06:00 PM	52.8	75.4	46.5
06:00 PM - 07:00 PM	54.8	72.0	48.5
07:00 PM - 08:00 PM	50.8	64.7	48.9
08:00 PM - 09:00 PM	52.7	73.4	51.4
09:00 PM - 10:00 PM	53.0	73.9	51.6
10:00 PM - 11:00 PM	52.8	72.3	51.2
11:00 PM - 12:00 AM	51.4	71.5	49.0
12:00 AM - 01:00 AM	50.9	72.6	46.9
01:00 AM - 02:00 AM	53.6	62.0	48.9
02:00 AM - 03:00 AM	58.6	66.0	56.3
03:00 AM - 04:00 AM	58.1	62.2	56.0
04:00 AM - 05:00 AM	55.4	75.7	47.8
05:00 AM - 06:00 AM	57.3	76.3	47.9
06:00 AM - 07:00 AM	53.8	73.2	48.6
07:00 AM - 08:00 AM	55.5	79.2	49.6
08:00 AM - 09:00 AM	57.8	76.4	53.5
09:00 AM - 10:00 AM	57.3	81.4	49.0
10:00 AM - 11:00 AM	56.4	74.0	50.1
11:00 AM - 12:00 PM	53.7	73.1	47.8
12:00 PM - 01:00 PM	53.8	70.6	47.2

Leq Average 24 hrs. (dB(A)) 56.5
Lmax (dB(A)) 81.4
L90 (dB(A)) 48.9
Ldn (dB(A)) 62.1
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

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

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531655
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301965-1

Page 1 of 1

Sample Number 2531655-9
Parameter Noise (Leq 24 hrs.)
Location รร. วัดป่าละอู หมู่ชนบ้านป่าละอูกลาง (GPS 47P 0698465, 1594331)
Measurement Date Apr 28 - Apr 29, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 858525

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
01:00 PM - 02:00 PM	54.8	79.3	46.1
02:00 PM - 03:00 PM	54.9	76.6	48.8
03:00 PM - 04:00 PM	52.1	77.4	45.8
04:00 PM - 05:00 PM	54.4	74.5	46.2
05:00 PM - 06:00 PM	56.4	79.5	51.1
06:00 PM - 07:00 PM	52.4	69.4	46.9
07:00 PM - 08:00 PM	48.5	62.0	45.9
08:00 PM - 09:00 PM	48.9	69.2	46.8
09:00 PM - 10:00 PM	47.8	66.7	45.6
10:00 PM - 11:00 PM	47.8	61.0	45.7
11:00 PM - 12:00 AM	46.4	57.7	44.3
12:00 AM - 01:00 AM	45.2	53.9	43.5
01:00 AM - 02:00 AM	45.2	65.5	41.6
02:00 AM - 03:00 AM	43.4	58.5	41.1
03:00 AM - 04:00 AM	44.8	70.7	41.2
04:00 AM - 05:00 AM	48.5	69.8	41.8
05:00 AM - 06:00 AM	57.8	70.9	44.2
06:00 AM - 07:00 AM	52.3	83.0	47.8
07:00 AM - 08:00 AM	56.4	75.6	47.6
08:00 AM - 09:00 AM	59.8	72.0	53.2
09:00 AM - 10:00 AM	57.1	69.4	49.5
10:00 AM - 11:00 AM	56.2	72.4	47.5
11:00 AM - 12:00 PM	56.5	84.2	50.3
12:00 PM - 01:00 PM	53.8	75.0	45.9

Leq Average 24 hrs. (dB(A)) 53.9
Lmax (dB(A)) 84.2
L90 (dB(A)) 45.9
Ldn (dB(A)) 58.1
Standard (dB(A)) 70 115
Reference Method : ISO1996-1 and 1996-2
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

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S:\Reports_Air Noise rpt (2:53PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2531655
Date Received : Apr 30, 2025
Date Reported : May 09, 2025
Report Number: 3301960-1

Page 1 of 1

Sample Number 2531655-4
Parameter Noise (Leq 24 hrs.)
Location รร. บ้านใหม่ทุ่งต้นขอ หมู่ชนบ้านใหม่ทุ่งต้นขอ (GPS 47P 0697239, 1589433)
Measurement Date Apr 26 - Apr 27, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 597159

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	48.7	67.0	43.6
12:00 PM - 01:00 PM	49.2	68.5	42.8
01:00 PM - 02:00 PM	51.4	65.5	43.4
02:00 PM - 03:00 PM	53.0	69.1	48.8
03:00 PM - 04:00 PM	55.1	77.5	46.6
04:00 PM - 05:00 PM	54.4	68.5	47.0
05:00 PM - 06:00 PM	57.6	80.8	52.2
06:00 PM - 07:00 PM	56.8	71.0	53.9
07:00 PM - 08:00 PM	53.2	69.5	50.8
08:00 PM - 09:00 PM	52.7	65.2	50.0
09:00 PM - 10:00 PM	52.8	73.4	48.9
10:00 PM - 11:00 PM	64.3	84.6	49.0
11:00 PM - 12:00 AM	52.6	75.0	49.1
12:00 AM - 01:00 AM	58.7	86.0	49.0
01:00 AM - 02:00 AM	52.7	71.9	49.4
02:00 AM - 03:00 AM	54.3	71.8	51.3
03:00 AM - 04:00 AM	53.9	68.4	51.6
04:00 AM - 05:00 AM	57.9	77.5	55.4
05:00 AM - 06:00 AM	58.9	77.4	54.0
06:00 AM - 07:00 AM	55.1	74.2	48.6
07:00 AM - 08:00 AM	54.5	78.6	47.1
08:00 AM - 09:00 AM	55.7	72.6	49.6
09:00 AM - 10:00 AM	56.6	76.1	46.5
10:00 AM - 11:00 AM	54.2	73.0	46.8

Leq Average 24 hrs. (dB(A)) 56.3
Lmax (dB(A)) 86.0
L90 (dB(A)) 49.0
Ldn (dB(A)) 64.3
Standard (dB(A)) 70 115
Reference Method : ISO1996-1 and 1996-2
Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

Orawan R.
Orawan Rakyong
Scientist (3)

Approved by

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Supot Salamteh
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S:\Reports_Air Noise rpt (2:50PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301961-1

Page 1 of 1

Sample Number 2531655-5
Parameter Noise (Leq 24 hrs.)
Location รร. บ้านใหม่ทุ่งดินฆ้อ หมู่ชนบ้านใหม่ทุ่งดินฆ้อ (GPS 47P 0697239, 1589433)
Measurement Date Apr 27 - Apr 28, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 597159

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	56.3	72.6	48.0
12:00 PM - 01:00 PM	58.2	70.2	47.2
01:00 PM - 02:00 PM	52.4	78.3	45.2
02:00 PM - 03:00 PM	52.2	72.9	45.4
03:00 PM - 04:00 PM	52.2	72.1	46.7
04:00 PM - 05:00 PM	51.2	75.1	44.9
05:00 PM - 06:00 PM	51.7	70.8	45.8
06:00 PM - 07:00 PM	52.3	69.9	47.1
07:00 PM - 08:00 PM	56.0	70.2	52.8
08:00 PM - 09:00 PM	56.0	63.1	54.6
09:00 PM - 10:00 PM	54.2	64.0	52.5
10:00 PM - 11:00 PM	55.3	64.3	52.8
11:00 PM - 12:00 AM	55.0	63.0	52.8
12:00 AM - 01:00 AM	53.6	65.4	51.4
01:00 AM - 02:00 AM	51.8	67.4	49.5
02:00 AM - 03:00 AM	51.0	59.9	49.4
03:00 AM - 04:00 AM	52.2	64.5	49.5
04:00 AM - 05:00 AM	54.2	72.7	50.8
05:00 AM - 06:00 AM	56.0	74.4	52.4
06:00 AM - 07:00 AM	54.1	74.8	49.8
07:00 AM - 08:00 AM	52.6	71.5	47.5
08:00 AM - 09:00 AM	55.8	80.1	45.5
09:00 AM - 10:00 AM	57.1	86.0	45.3
10:00 AM - 11:00 AM	51.2	79.2	42.4

Leq Average 24 hrs. (dB(A)) 54.4
Lmax (dB(A)) 86.0
L90 (dB(A)) 48.0
Ldn (dB(A)) 60.5
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

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Orawan Rakyong
Scientist (3)

Approved by

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S:\Reports_Air Noise rpt (2:50PM)



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2531655

Date Received : Apr 30, 2025

Date Reported : May 09, 2025

Report Number: 3301962-1

Page 1 of 1

Sample Number 2531655-6
Parameter Noise (Leq 24 hrs.)
Location รร. บ้านใหม่ทุ่งดินฆ้อ หมู่ชนบ้านใหม่ทุ่งดินฆ้อ (GPS 47P 0697239, 1589433)
Measurement Date Apr 28 - Apr 29, 2025
Measurement by Winyou Boontanai
Sound Level meter Serial No. 597159

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	49.1	69.0	43.2
12:00 PM - 01:00 PM	49.3	74.1	42.8
01:00 PM - 02:00 PM	48.8	63.5	43.8
02:00 PM - 03:00 PM	49.8	77.5	44.5
03:00 PM - 04:00 PM	51.5	77.7	45.7
04:00 PM - 05:00 PM	51.1	72.7	46.5
05:00 PM - 06:00 PM	52.5	73.3	47.2
06:00 PM - 07:00 PM	52.9	77.1	48.4
07:00 PM - 08:00 PM	54.1	77.3	50.7
08:00 PM - 09:00 PM	55.1	66.3	52.8
09:00 PM - 10:00 PM	54.1	67.3	49.6
10:00 PM - 11:00 PM	52.9	66.0	50.1
11:00 PM - 12:00 AM	53.0	67.6	50.2
12:00 AM - 01:00 AM	51.4	65.1	48.9
01:00 AM - 02:00 AM	50.7	71.8	47.6
02:00 AM - 03:00 AM	49.1	61.2	47.3
03:00 AM - 04:00 AM	49.6	63.6	47.7
04:00 AM - 05:00 AM	51.4	70.5	48.6
05:00 AM - 06:00 AM	56.5	74.6	51.4
06:00 AM - 07:00 AM	53.9	68.7	49.3
07:00 AM - 08:00 AM	54.7	79.7	47.4
08:00 AM - 09:00 AM	53.2	75.4	45.6
09:00 AM - 10:00 AM	52.4	71.7	46.2
10:00 AM - 11:00 AM	52.1	72.6	44.7

Leq Average 24 hrs. (dB(A)) 52.5
Lmax (dB(A)) 79.7
L90 (dB(A)) 47.4
Ldn (dB(A)) 59.0
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

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

Technical Management

Orawan R.
Orawan Rakyong
Scientist (3)

Approved by

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Supot Salamteh
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ภาคผนวก ค-3

คุณภาพน้ำผิวดิน



TESTING
No.0009

Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 1 of 9

Sample Number	2520898-1						
Sampled Date	Mar 05, 2025 1:20 PM						
Sample Description	Surface water						
Location	คลองระพีพัฒน์ บริเวณต้นน้ำก่อนถึงท่อผลของคลองหนองปรุ ประมาณ 500 เมตร						
Date Analysis Commenced	Mar 06, 2025						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Hexavalent Chromium	mg/L	0.003	0.01	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3500-Cr B	Bangkok
Lead	mg/L	0.0003	0.0005	0.0008	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	330.0	≤20000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	-	0.06	<0.06	≤0.5	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH3 (B, F)	Bangkok
BOD (5 days at 20 degree C) *	mg/L	-	2.0	<2.0	≤2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Conductivity at 25 degree C *	micromhos/cm	-	0.5	228	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Cyanide as CN	mg/L	0.002	0.005	<0.005	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - CN (C, E)	Bangkok

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

Savitree N.

Savitree Noisangiam
Manager

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TESTING
No.0009

Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 2 of 9

Sample Number	2520898-1						
Sampled Date	Mar 05, 2025 1:20 PM						
Sample Description	Surface water						
Location	คลองระพีพัฒน์ บริเวณต้นน้ำก่อนถึงท่อผลของคลองหนองปรุ ประมาณ 500 เมตร						
Date Analysis Commenced	Mar 06, 2025						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Dissolved Oxygen *	mg/L	-	0.1	7.2	≥4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok
Nitrate as N	mg/L	0.06	0.2	0.3	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4110 B	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	8.1	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	30.9	n	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	117	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	55	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 3)

n : Change from Natural condition not more than 3 degree C

n : Not Change from natural condition

Sampling By : Teerawat Puangsuk

Remark :

- LOD : Limit of Detection

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

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

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL



TESTING
No.0009

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 3 of 9

- 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



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL



TESTING
No.0009

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 4 of 9

Sample Number 2520898-2
Sampled Date Mar 05, 2025 1:40 PM
Sample Description Surface water
Location คลองหนอง บริเวณต้นน้ำก่อนถึงจุดระบายน้ำทิ้ง ประมาณ 500 เมตร
Date Analysis Commenced Mar 06, 2025
Condition of Sample Contained in two BOD bottles, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Hexavalent Chromium	mg/L	0.003	0.01	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3500-Cr B	Bangkok
Lead	mg/L	0.0003	0.0005	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	220.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	-	0.06	<0.06	≤0.5	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH3 (B, F)	Bangkok
BOD (5 days at 20 degree C) *	mg/L	-	2.0	<2.0	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Conductivity at 25 degree C *	micromhos/cm	-	0.5	902	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Cyanide as CN	mg/L	0.002	0.005	<0.005	0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - CN (C, E)	Bangkok

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

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Sawitree Noisangiam
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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

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TESTING
No.0009

Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 5 of 9

Sample Number	2520898-2						
Sampled Date	Mar 05, 2025 1:40 PM						
Sample Description	Surface water						
Location	คลองหนอง บริเวณต้นน้ำก่อนถึงจุดระบายน้ำทิ้ง ประมาณ 500 เมตร						
Date Analysis Commenced	Mar 06, 2025						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Dissolved Oxygen *	mg/L	-	0.1	7.5	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok
Nitrate as N	mg/L	0.06	0.2	1.0	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4110 B	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.8	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	30.6	n'	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	541	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	6	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act, B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)

n': Change from Natural condition not more than 3 degree C

Sampling By : Teerawat Puangsuk

Remark :

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

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TESTING
No.0009

Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 6 of 9

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

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TESTING
No.0009

Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 7 of 9

Sample Number	2520898-3						
Sampled Date	Mar 05, 2025 1:55 PM						
Sample Description	Surface water						
Location	คลองหนอง พายน้ำจากจุดระบายน้ำทิ้งลงมา ประมาณ 500 เมตร						
Date Analysis Commenced	Mar 06, 2025						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Hexavalent Chromium	mg/L	0.003	0.01	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3500-Cr B	Bangkok
Lead	mg/L	0.0003	0.0005	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	330.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	-	0.06	<0.06	≤0.5	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH3 (B, F)	Bangkok
BOD (5 days at 20 degree C) *	mg/L	-	2.0	<2.0	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Conductivity at 25 degree C *	micromhos/cm	-	0.5	312	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Cyanide as CN	mg/L	0.002	0.005	<0.005	0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - CN (C, E)	Bangkok

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

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Savitree Noisangiam
Manager

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TESTING
No.0009

Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2520898

Date Received : Mar 05, 2025

Date Reported : Mar 14, 2025

Report Number : 3248004-1

Page 8 of 9

Sample Number	2520898-3						
Sampled Date	Mar 05, 2025 1:55 PM						
Sample Description	Surface water						
Location	คลองหนอง พายน้ำจากจุดระบายน้ำทิ้งลงมา ประมาณ 500 เมตร						
Date Analysis Commenced	Mar 06, 2025						
Condition of Sample	Contained in two BOD bottles, one amber glass bottle and six plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Dissolved Oxygen *	mg/L	-	0.1	9.6	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok
Nitrate as N	mg/L	0.06	0.2	Not Detected	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4110 B	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	8.0	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	30.8	n'	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	167	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	13	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)

n' : Change from Natural condition not more than 3 degree C

Sampling By : Teerawat Puangsuk

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.

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 : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009

Lot ID: 2520898
Date Received : Mar 05, 2025
Date Reported : Mar 14, 2025
Report Number : 3248004-1

Page 9 of 9

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



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 1 of 9

Sample Number : 2549524-1
Sampled Date : Jun 04, 2025 4:05 PM
Sample Description : Surface water
Location : คลองระพีพัฒน์ บริเวณต้นน้ำก่อนถึงท่อลอดของคลองหลวง ประมาณ 500 เมตร
Date Analysis Commenced : Jun 05, 2025
Condition of Sample : Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Arsenic	mg/L	0.0003	0.0005	0.004	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Cadmium	mg/L	0.0003	0.0005	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Copper	mg/L	0.0003	0.0005	0.004	≤0.10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Hexavalent Chromium	mg/L	0.003	0.01	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3500-Cr B	Bangkok
Lead	mg/L	0.0003	0.0005	0.003	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Manganese	mg/L	0.0003	0.0005	0.17	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Mercury	mg/L	0.0001	0.0005	Not Detected	≤0.002	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Nickel	mg/L	0.0003	0.0005	0.003	≤0.10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

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Approved by

Savitree N.

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Manager

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Approved by

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 2 of 9

Sample Number	2549524-1						
Sampled Date	Jun 04, 2025 4:05 PM						
Sample Description	Surface water						
Location	คลองระพีพัฒน์ บริเวณต้นน้ำก่อนถึงท่อผลของคลองหนองปรุ ประมาณ 500 เมตร						
Date Analysis Commenced	Jun 05, 2025						
Condition of Sample	Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Zinc	mg/L	0.003	0.005	0.007	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	2400.0	≤20000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	-	0.06	<0.06	≤0.5	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH3 (B, F)	Bangkok
BOD (5 days at 20 degree C) *	mg/L	-	2.0	<2.0	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Conductivity at 25 degree C *	micromhos/cm	-	0.5	267	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Cyanide as CN	mg/L	0.002	0.005	Not Detected	0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - CN (C, E)	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	6.0	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 3 of 9

Sample Number	2549524-1						
Sampled Date	Jun 04, 2025 4:05 PM						
Sample Description	Surface water						
Location	คลองระพีพัฒน์ บริเวณต้นน้ำก่อนถึงท่อผลของคลองหนองปรุ ประมาณ 500 เมตร						
Date Analysis Commenced	Jun 05, 2025						
Condition of Sample	Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Nitrate as N	mg/L	0.06	0.2	0.4	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4110 B	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.9	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	30.2	n'	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	164	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	104	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)

n': Change from Natural condition not more than 3 degree C

Sampling By : Teerawat Puangsuik

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

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 4 of 9

Sample Number 2549524-2
Sampled Date Jun 04, 2025 4:45 PM
Sample Description Surface water
Location คลองหนองฯ บริเวณต้นน้ำก่อนถึงจุดระบายน้ำทิ้ง ประมาณ 500 เมตร
Date Analysis Commenced Jun 05, 2025
Condition of Sample Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Arsenic	mg/L	0.0003	0.0005	0.002	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Cadmium	mg/L	0.0003	0.0005	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Copper	mg/L	0.0003	0.0005	0.001	≤0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Hexavalent Chromium	mg/L	0.003	0.01	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3500-Cr B	Bangkok
Lead	mg/L	0.0003	0.0005	0.0005	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Manganese	mg/L	0.0003	0.0005	0.74	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Mercury	mg/L	0.0001	0.0005	Not Detected	≤0.002	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Nickel	mg/L	0.0003	0.0005	0.001	≤0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 5 of 9

Sample Number 2549524-2
Sampled Date Jun 04, 2025 4:45 PM
Sample Description Surface water
Location คลองหนองฯ บริเวณต้นน้ำก่อนถึงจุดระบายน้ำทิ้ง ประมาณ 500 เมตร
Date Analysis Commenced Jun 05, 2025
Condition of Sample Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Zinc	mg/L	0.003	0.005	0.005	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	1100.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	-	0.06	<0.06	≤0.5	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH3 (B, F)	Bangkok
BOD (5 days at 20 degree C) *	mg/L	-	2.0	2.4	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Conductivity at 25 degree C *	micromhos/cm	-	0.5	439	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Cyanide as CN	mg/L	0.002	0.005	<0.005	0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - CN (C, E)	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	3.2	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 6 of 9

Sample Number 2549524-2
Sampled Date Jun 04, 2025 4:45 PM
Sample Description Surface water
Location คลองหนองหูล้ง ไร่จากจุดตรวจน้ำทิ้งลงนา ประมาณ 500 เมตร
Date Analysis Commenced Jun 05, 2025
Condition of Sample Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Nitrate as N	mg/L	0.06	0.2	<0.2	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4110 B	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.7	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	30.8	n ¹	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	266	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	17	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)
n¹: Change from Natural condition not more than 3 degree C

Sampling By : Teerawat Puangsuk

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

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Approved by

Siriluk P.

Siriluk Bunnak
Section Head

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 7 of 9

Sample Number 2549524-3
Sampled Date Jun 04, 2025 4:25 PM
Sample Description Surface water
Location คลองหนองหูล้ง ไร่จากจุดตรวจน้ำทิ้งลงนา ประมาณ 500 เมตร
Date Analysis Commenced Jun 05, 2025
Condition of Sample Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Arsenic	mg/L	0.0003	0.0005	0.002	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Cadmium	mg/L	0.0003	0.0005	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Copper	mg/L	0.0003	0.0005	0.0010	≤0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Hexavalent Chromium	mg/L	0.003	0.01	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3500-Cr B	Bangkok
Lead	mg/L	0.0003	0.0005	0.0008	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Manganese	mg/L	0.0003	0.0005	0.95	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok
Mercury	mg/L	0.0001	0.0005	Not Detected	≤0.002	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Nickel	mg/L	0.0003	0.0005	0.001	≤0.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B,3030 F	Bangkok

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 8 of 9

Sample Number	2549524-3						
Sampled Date	Jun 04, 2025 4:25 PM						
Sample Description	Surface water						
Location	คลองหนองวัง พายน้ำจากจุดระบายน้ำทิ้งลงนา ประมาณ 500 เมตร						
Date Analysis Commenced	Jun 05, 2025						
Condition of Sample	Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Zinc	mg/L	0.003	0.005	<0.005	≤1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	790.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	-	0.06	<0.06	≤0.5	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH3 (B, F)	Bangkok
BOD (5 days at 20 degree C) *	mg/L	-	2.0	2.5	≤4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500 - O (C)	Bangkok
Conductivity at 25 degree C *	micromhos/cm	-	0.5	464	No Standard	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2510 B	Bangkok
Cyanide as CN	mg/L	0.002	0.005	Not Detected	0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - CN (C, E)	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	2.6	≥2	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500-O (C)	Bangkok

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL



TESTING
No.0009
Lot ID: 2549524
Date Received : Jun 04, 2025
Date Reported : Jun 13, 2025
Report Number : 3315892-1

Page 9 of 9

Sample Number	2549524-3						
Sampled Date	Jun 04, 2025 4:25 PM						
Sample Description	Surface water						
Location	คลองหนองวัง พายน้ำจากจุดระบายน้ำทิ้งลงนา ประมาณ 500 เมตร						
Date Analysis Commenced	Jun 05, 2025						
Condition of Sample	Contained in two BOD bottles, two glass vials, six plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Nitrate as N	mg/L	0.06	0.2	0.2	≤5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4110 B	Bangkok
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 5520 B	Bangkok
pH at 25 degree C		-	-	7.6	5.0-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 4500 - H (B)	Bangkok
Temperature *	Degree C	-	-	29.8	n'	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2550 B	Bangkok
Total Dissolved solids Dried at 180 degree C *	mg/L	-	5	285	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	Bangkok
Total Suspended Solids Dried at 103-105 degree C *	mg/L	-	5	12	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	Bangkok

Guideline : Notification of the National Environmental Board, No. 8, B.E.2537 issued under the Enhancement and Conservation of National Environmental Quality Act. B.E.2535, published in the Royal Government Gazette, Vol. 111, Part 16, Dated February 24, B.E. 2537 (Class 4)

n': Change from Natural condition not more than 3 degree C

Sampling By : Teerawat Puangsuik

Remark :

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



Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2530635
Date Received : Apr 02, 2025
Date Reported : Apr 10, 2025
Report Number : 3271319-1

Page 1 of 6

Sample Number	2530635-1						
Sampled Date	Apr 02, 2025 10:05 AM						
Sample Description	Soil (Dry Basis)						
Location	คลองหนองฯ ดินน้ำเหนือจุดระบายน้ำทิ้งจากโครงการ ประมาณ 500 เมตร						
Date Analysis Commenced	Apr 03, 2025						
Condition of Sample	Contained in one plastic bag and one glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method
Metals Testing							
Arsenic	mg/kg	-	0.50	1.58	≤10	≤33	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Cadmium	mg/kg	-	0.50	<0.50	≤1	≤5	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Copper	mg/kg	-	1.00	33.0	≤31.5	≤150	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Hexavalent Chromium	mg/kg	-	0.25	<0.25	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3060 A and 7196 A
Lead	mg/kg	-	1.00	16.3	≤36	≤130	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Manganese	mg/kg	-	1.00	865	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Mercury	mg/kg	-	0.10	<0.10	≤0.2	≤1	United States Environmental Protection Agency, EPA Method 7473
Nickel	mg/kg	-	1.00	16.0	≤23	≤50	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Selenium	mg/kg	-	0.50	<0.50	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Zinc	mg/kg	-	1.00	41.1	≤120	≤460	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Physical Parameters							
Moisture	%	-	0.1	34.6	No Standard	No Standard	In-house method based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 G

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Approved by

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Sawitree Noisangiam
Manager

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2530635
Date Received : Apr 02, 2025
Date Reported : Apr 10, 2025
Report Number : 3271319-1

Page 2 of 6

Guideline :
Guideline : (1) Notification of The National Environmental Board B.E.2565, for protect benthic animals
(2) Notification of The National Environmental Board B.E.2565, Annex1
Note : Analysis Results expressed on dry basis.
Sampling By : Teerawat Puangsuk
Remark :
- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2530635
Date Received : Apr 02, 2025
Date Reported : Apr 10, 2025
Report Number : 3271319-1

Page 3 of 6

Sample Number	2530635-2						
Sampled Date	Apr 02, 2025 9:50 AM						
Sample Description	Soil (Dry Basis)						
Location	คลองหนองหูก บริเวณจุดระบายน้ำจากโครงการ						
Date Analysis Commenced	Apr 03, 2025						
Condition of Sample	Contained in one plastic bag and one glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline (1)	Guideline (2)	Method
Metals Testing							
Arsenic	mg/kg	-	0.50	2.80	≤10	≤33	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Cadmium	mg/kg	-	0.50	<0.50	≤1	≤5	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Copper	mg/kg	-	1.00	30.1	≤31.5	≤150	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Hexavalent Chromium	mg/kg	-	0.25	<0.25	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3060 A and 7196 A
Lead	mg/kg	-	1.00	14.9	≤36	≤130	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Manganese	mg/kg	-	1.00	102	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Mercury	mg/kg	-	0.10	<0.10	≤0.2	≤1	United States Environmental Protection Agency, EPA Method 7473
Nickel	mg/kg	-	1.00	8.15	≤23	≤50	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Selenium	mg/kg	-	0.50	<0.50	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Zinc	mg/kg	-	1.00	26.5	≤120	≤460	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Physical Parameters							
Moisture	%	-	0.1	38.8	No Standard	No Standard	In-house method based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 G

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.
111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140
P/O : 54250024
Project Name : Monitoring
Project Location : WHA SIL

Lot ID: 2530635
Date Received : Apr 02, 2025
Date Reported : Apr 10, 2025
Report Number : 3271319-1

Page 4 of 6

Guideline :
Guideline : (1) Notification of The National Environmental Board B.E.2565, for protect benthic animals
(2) Notification of The National Environmental Board B.E.2565, Annex1
Note : Analysis Results expressed on dry basis.
Sampling By : Teerawat Puangsuk
Remark :
- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2530635

Date Received : Apr 02, 2025

Date Reported : Apr 10, 2025

Report Number : 3271319-1

Page 5 of 6

Sample Number	2530635-3						
Sampled Date	Apr 02, 2025 10:25 AM						
Sample Description	Soil (Dry Basis)						
Location	คลองหนองรี ตำบลกระเบา อำเภอลำลูกกา จังหวัดปทุมธานี 500 เมตร						
Date Analysis Commenced	Apr 03, 2025						
Condition of Sample	Contained in one plastic bag and one glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOQ)	Result	Guideline (1)	Guideline (2)	Method
Metals Testing							
Arsenic	mg/kg	-	0.50	2.28	≤10	≤33	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Cadmium	mg/kg	-	0.50	<0.50	≤1	≤5	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Copper	mg/kg	-	1.00	30.8	≤31.5	≤150	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Hexavalent Chromium	mg/kg	-	0.25	<0.25	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3060 A and 7196 A
Lead	mg/kg	-	1.00	18.1	≤36	≤130	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Manganese	mg/kg	-	1.00	494	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Mercury	mg/kg	-	0.10	<0.10	≤0.2	≤1	United States Environmental Protection Agency, EPA Method 7473
Nickel	mg/kg	-	1.00	11.8	≤23	≤50	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Selenium	mg/kg	-	0.50	<0.50	No Standard	No Standard	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Zinc	mg/kg	-	1.00	37.0	≤120	≤460	United States Environmental Protection Agency, EPA Method 3050 B and 6010 D
Physical Parameters							
Moisture	%	-	0.1	35.6	No Standard	No Standard	In-house method based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 G

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Analysis / Test Report

Client : WHA Saraburi Industrial Land Co., Ltd.

111 Moo 7, Nongplakradi Road, Nongplamoh, Nongkhae, Saraburi Thailand 18140

P/O : 54250024

Project Name : Monitoring

Project Location : WHA SIL

Lot ID: 2530635

Date Received : Apr 02, 2025

Date Reported : Apr 10, 2025

Report Number : 3271319-1

Page 6 of 6

Guideline :
Guideline : (1) Notification of The National Environmental Board B.E.2565, for protect benthic animals
(2) Notification of The National Environmental Board B.E.2565, Annex1
Note : Analysis Results expressed on dry basis.
Sampling By : Teerawat Puangsuk
Remark :
- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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ภาคผนวก ค-5

คุณภาพน้ำทิ้ง (ระบบบำบัดน้ำเสียรวมทางชีวภาพ)



ALS

Analysis / Test Report



TESTING
No.0009

Client: WTA Sdn Bhd and Power Public Company Limited
111, New 7, Rungtong Road, Rungtong, Bangkok, Thailand 10340

P/P / I:

Project Name: PHA 13L

Sample Number: PHA1302-4
Jan 07, 2023 11:35 AM

Sample Description: Group 1 Wastewater 1000 PPM
004-1021-1000 (S) - in Equilibrium Tank
Date Analysis Commenced: Jan 05, 2023

Condition of Sample: Contained in one amber glass bottle and seven plastic bottles, sample containers comply to requirement - preservation
standardly (PHA, 1000 PPM)
Notes: a lot of odour and hot and turbid

Physical Property

Test ID: 24410210
Date Received: Jan 05, 2023
Date Reported: Jan 05, 2023
Report Number: 202407-2

Page 1 of 1

Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Iron	mg/L	0.003	0.005	0.88	Not Standard	Standard Methods for the Examination of water and Wastewater, APHA, 1995, 20th ed., 2023, part 31.2, 8.303 P	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	—	—	400000.0	Not Standard	Standard Methods for the Examination of water and Wastewater, APHA, 1995, 1995, 20th ed., 2023, part 92.1	Bangkok
Water Testing							
Ammonia Nitrogen *	mg/L	—	0.08	24.7	Not Standard	Based on Standard Methods for the Examination of water and Wastewater, APHA, 1995, 1995, 20th ed., 2023, part 45.000-49.001	Bangkok
Conductivity at 25 degree C *	microhm/cm	—	0.5	1008	Not Standard	Based on Standard Methods for the Examination of water and Wastewater, APHA, 1995, 1995, 20th ed., 2023, part 25.001	Bangkok
Dissolved Oxygen (in site) *	mg/L	—	0.1	0.1	Not Standard	Standard Methods for the Examination of water and Wastewater, APHA, 1995, 1995, 20th ed., 2023, part 45.000-49.001	Bangkok
Nitrate as N *	mg/L	0.06	0.2	Not Detected	Not Standard	Based on Standard Methods for the Examination of water and Wastewater, APHA, 1995, 1995, 20th ed., 2023, part 45.001	Bangkok
Nitrite as N *	mg/L	0.06	0.2	Not Detected	Not Standard	Based on Standard Methods for the Examination of water and Wastewater, APHA, 1995, 1995, 2023, part 45.001	Bangkok

Guidelines: Standard of WTA Sdn Bhd Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling By: 1 Chulabul Watan

Issued:

Signature of the Analyst

Signature of the Client

Signature of the Tester

Approved By

Sintuk P.
Sintuk Bormae
Senior Head

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PHOTOGRAPH OF THE ANALYST AND THE CLIENT'S REPRESENTATIVE



Client : WWA Industrial and Power Public Company Limited
 113 Moo 7, Nongkhaeng Road, Nongkhaeng, Bangkok, Sardin Thailand 10183

P/O :

Project Name :
 Project Location : WWA SS

Sample Number : 258620-1
 Sampled Date : Feb 04, 2025 10:10 AM

Sample Description : Group 1 Wastewater - WWA Plant
 Location : WWA SS2, 4000 B9 - on sampling Tank

Date & Analyte Consumed : Feb 05, 2025

Condition of Sample : Combined in one amber glass bottle and seven plastic bottles, sample containers comply to pretreatment - preservation

Physical Property : Standard, a lot of residue, solid and turbid

Analysis / Test Report



TESTING
 Ref: 00005
Lot ID: 258620
 Date Received : Feb 04, 2025
 Date Reported : Feb 11, 2025
 Report Number : 3222942-0

Page 1 of 2

Analyte	Unit	LOD	LOQ	Result	Guideline / Spec. Reference	Method	Testing Location
Mercury Testing							
Total	mg/L	0.002	0.005	1.52	No Standard	Standard Method for the Determination of Metals and Inorganic Anions, ASTM E 1631, 2019 ed., 2022, page 5128 E, 3026 F	Bangkok
Microbiological Testing							
Total Coliform	MPN/100mL	-	-	2400000.0	No Standard	Standard Method for the Determination of Coliform and Enterobacter, ASTM, ASTM E 1631, 2019 ed., 2022, page 5123 E	Bangkok
Ammonia Nitrogen *	mg/L	-	0.06	18.3	No Standard	Based on Standard Method for the Determination of Nitrate and Inorganic Nitrogen, ASTM, ASTM E 1631, 2019 ed., 2022, page 4300-0601 E, 71	Bangkok
Conductivity at 25 Degree C *	microsiemens/cm	-	0.9	1040	No Standard	Based on Standard Method for the Determination of Chloride and Sulfate, ASTM, ASTM E 1631, 2019 ed., 2022, page 4300-0601 E, 71	Bangkok
Dissolved Oxygen (in sat) *	mg/L	-	0.1	0.2	No Standard	Standard Method for the Determination of Dissolved Oxygen, ASTM, ASTM E 1631, 2019 ed., 2022, page 4300-0601 E, 71	Bangkok
Nitrite as N *	mg/L	0.06	0.2	Not Detected	No Standard	Based on Standard Method for the Determination of Nitrate and Inorganic Nitrogen, ASTM, ASTM E 1631, 2019 ed., 2022, page 4300-0601 E, 71	Bangkok
Nitrate as N *	mg/L	0.06	0.2	Not Detected	No Standard	Based on Standard Method for the Determination of Nitrate and Inorganic Nitrogen, ASTM, ASTM E 1631, 2019 ed., 2022, page 4300-0601 E, 71	Bangkok

Guideline : Standard of WWA Sardin Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling By : Tarnsom Pongpang

Issued

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Approved by



Tarnsom Pongpang
 Sardin Head




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	 TESTING No. 05/08						
Client : WWA Utilities and Power Public Company Limited	Lot ID: 2569-25						
111 Rue 3, Hongkongsai Road, Bangnaeang, Bangkok, Saraburi Thailand 30140	Date Received : Feb 11, 2025						
P/O :	Date Reported : Feb 17, 2025						
Project Name :	Report Number : 322340-S-0						
Project Location : RW6 SL	<i>(Page 1 of 1)</i>						
Sample Number : 2569-25-01							
Sampled Date : Feb 11, 2023 1:09 PM							
Sample Description : Group 1 Wastewater Inlet Plant							
Location : RW6 SL, RWB D - on Separation Tank							
Date Analysis Commenced : Feb 11, 2023							
Detail of Sample : Collected in two plastic bottles, sample containers comply to pretreatment – preservation standards (APHA, USEPA)							
Physical Property : Yellow, a bit of odour, solid and turbid							
Analyte	Unit	LOD (IQR)	Result	Glide / Specification	Method	Testing Location	
Water Testing							
COD	mg/L	-	25	303	6700	Standard Methods for the Examination of Water and Wastewater APHA, AWWA & WEF, 19th ed., 2005, para 5120-D	Bangkok
pH at 25 degree C	-	-	7.5	5.5-8.0	5140	Standard Methods for the Examination of Water and Wastewater APHA, AWWA & WEF, 19th ed., 2005, para 4100-C	Bangkok
Guideline : Standard of WWA Sewerage Industrial Land. Maximum limits for wastewater discharging to central wastewater treatment plant.							
Sampling By : Trained Pumping and/or Sewer + O&M							
Remarks :							
① LOD = Limit of Detection ② “-” Lower than LOD or Out of Quantities OK or B of Reporting Analytically modified if water and soil as major contaminant according to BS EN ISO 15705							
Technical Management	 Somchai Chamsriwong <i>Scientist (S)</i> <small>incharge# +224+0028</small>			Approved by  Korb An <i>Resident Area</i> Resident General Manager <small>incharge# +224+0004</small>			
<p style="font-size: small; color: gray;">This report has been created in certified office after checking its compliance to ILS. This document will be kept accessible for 10 years after the date issuance of this certificate.</p> <hr/> <p style="font-size: x-small; margin: 0;">PREFACE: The PRAKASITON Co., Ltd. (PRAKASITON CO., LTD.) is a company established under the laws of Thailand. It is a public limited liability company registered with the Ministry of Commerce of Thailand. Its principal place of business is located at 111 Rue 3, Hongkongsai Road, Bangnaeang, Bangkok, Saraburi Thailand 30140. Tel: +66 9 720 3500 Fax: +66 9 720 3501 Email: info@prakiton.co.th Website: www.prakiton.co.th</p> <p style="font-size: x-small; margin: 0;">© Copyright 2025. All rights reserved. No part of this publication may be reproduced without prior written permission from Prakasitron Co., Ltd.</p> <p style="text-align: center; font-weight: bold; font-size: small;">www.alphalabo.com</p> <p style="text-align: center; font-size: xx-small; margin: 0;">PHOTOGRAPHY BY: PHOTOPROJECTOR.COM</p>							

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<h2 style="margin: 0;">Analysis / Test Report</h2>		TESTING No 00009				
Client : WSA Industri and Power Public Company Limited 111 Rusa 7, Nongkhalah Road, Nongkhalah, Saratani Thailand 20140		Lot ID: 256927 Date Received : Feb-25, 2025 Date Reported : Mar-03, 2025 Report Number : SNT-KT-05				
PTD : Project Name: Project Location: WSA SL		Page 1 of 1				
Sample Number: Z8827-5 Sampled Date: Feb-25, 2025 09:15 AM Sample Description: Group 1 (Exhauster) WSA Plant Location: WSA SL - RWB IN - In Equalization Tank Date Analysis Commenced: Feb-26, 2025 Condition of Sample: Contained in two plastic bottles, sample containers comply to pre-treatment - preservation standards (APHA, USEPA) Physical Property: Solid, a lot of odour, white, and turbid						
Analyte	Unit	LOD (IQR)	Result	Guideline / Specification	Method	Testing Location
Water Testing						
COD	mg/L	-	25	300	<750	Standard Methods for the Examination of water and WSP, 20th ed., 2023 page 522-5
pH at 25 degree C.		-	-	7.5	5.5-8.0	Standard Methods for the Examination of water and wastewater, APHA, 20th ed. WSP, 20th ed., 2023, page 4500-19-30
Guideline: Standard of WSA Sarutani Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant. Sampling By : Charming Siriluck incubated >-20+/-42349						
Notes: LOD : Limit of detection LQ : Lower limit value (of quantitation) (LQ = 3 x of background) Analytically method "A" was not included in scope of accreditation (SICRI), i.e. (A). Sampling is not included in scope of accreditation (SICRI), i.e. (A)						
Technical Management		<u>Siriluck P.</u> Siriluck Burmal Senior field incubator incubated >-20+/-42349		Approved by <u>Kath A.H.</u> Kathirayalan Kari Assistant General Manager incubated >-20+/-42349		
Note: Only the results are certified for accuracy and precision. All test report information generated by our system after analysis of the samples.						
REGISTRATION: Phasitkulakul Kit, Phasitkulak Rd., Phrasang Prachinrattana, Khao I-sang Suburb, Bangkok THCHU (THAILAND) *PHONE: +66 2 7202 5800 ~ FAX: +66 2 7202 5707 REGISTRAR: Phasitkulakul Kit, Phasitkulak Rd., Phrasang Prachinrattana, Khao I-sang Suburb, Bangkok THCHU (THAILAND) *PHONE: +66 2 7202 5800 ~ FAX: +66 2 7202 5707						
E-mail: Sales@als.com.my		www.alsglobal.com				
MYST SOLUTIONS GROUP BHD (PRIVATE) COMPANY						

ALS					TESTING No.0009	
Analysis / Test Report						
Client: Uthair-Uthair and Power Public Company Limited						
Address: 111 Moo 7, Nongkhalak Road, Nongkhalak, Nongkhalak, Saraburi Thailand 351615						
P/O #						
Project Name						
Project Location	Uthair-Uthair (Uthair-SL)					
Sample Number	250855-1					
Sample Date	May 04, 2015 2:20 PM					
Sample Description	Wastewater					
Location	WHA-SL, WHB-B1 in Equalization Tank					
Date Analysis Commenced	May 05, 2015					
Condition of Sample	Contained in one plastic bottle, sample containers comply to pretreatment - generator standards (NHA, US EPA)					
Physical Property	Yellow, a lot of solid, solid and liquid					
Analysis	Unit	LOD	LOQ (LOD)	Result	Guideline / Specification	Testing Location
Water Testing						
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	106	≤200	Saraburi
Guideline: Standard of NHA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant. Sampling By: Torment Pongkum, ID:204-0-0006						
Notes: LOD - Limit of Detection LOQ - Lower Limit Quant of Qualification (LOQ is half of Reportable Analytical value) Analytical method "A" is not included in scope of Accreditation ISO/IEC 17025. Sampling not included in scope of accreditation ISO/IEC 17025						
Technical Management  Sumrit Chantapong Scientist II				Approved by  Kachai Aue Assistant General Manager ID:204-0-0004		
This report is to be signed in accordance with the company policy. It is to be signed in accordance with the company policy. It is to be signed in accordance with the company policy.						
Address: 111 Moo 7, Nongkhalak Road, Nongkhalak, Nongkhalak, Saraburi Thailand 351615 www.alsglobal.com						

						
Analysis / Test Report		TESTING Ref: 0009				
Client : WTA (Utilities and Power Public Company Limited) 111 Moo 7, Bangsuek Road, Bangsuek, Bangkok, Saranath Thailand (3140)		Lot ID# : 2530147 Date Received : Mar 04, 2015 Date Reported : Mar 11, 2015 Report Number : 3075261-0				
PID # : Project Name : Project Location : WTA, SD,		Item 1 of 1				
Sample Number : 2530147-1 Sample Date : Mar 04, 2015 2:23 PM Sample Description : Group 1 Reservoir Water (Hot) Location : WTA-SD, WW-21 in Reservoir Tanks Date Analyzed/Comment : Mar 05, 2015 Combined to one single glass bottle, two glass vials and eight plastic bottles, sample containers comply to pretreatment - Physical Property : preservation standards (APHA, US EPA) Stack, A Mix of active, add and to test						
Analyte	Unit	LOD (LOQ) (LOD)	Result	Guideline / Specification	Method	Testing Location
Metals Testing						
Cadmium	mg/L	0.0003 0.0005	Not Detected	<0.03	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 9, 3039 F	Bangkok
Copper	mg/L	0.0003 0.0005	0.06	<1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 3039 F	Bangkok
Hexavalent Chromium	mg/L	0.057 0.13	Not Detected	<0.23	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 9	Bangkok
Lead	mg/L	0.0003 0.0005	0.030	<0.3	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 3039 F	Bangkok
Manganese *	mg/L	0.0001 0.0005	Not Detected	<0.005	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 3039 F	Bangkok
Nickel	mg/L	0.0003 0.0005	0.03	<1	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 3039 F	Bangkok
Totantal Chromium *	mg/L	- 0.01 0.02	0.76	<0.76	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, & WEF, 20th ed., 2012, pp.1020-8, 3039 F	Bangkok
Technical Management : <i>Sarathitorn N.</i> Sarathitorn Nongnang Manager INQ-0000047-0-204-0-0007						
Approved by : <i>Kab An</i> Kanchana Anon Assistant General Manager INQ-0000047-0-204-0-0009		Please Note: This report was generated using the testing results provided to us. It is the client's responsibility to ensure that the test results are used for the intended purpose. 00000015 WTA (Public Utility), Phra Prachin Road, 111 Moo 7, Bangsuek, Bangkok 10914 Thailand TEL: 02-260-1471 FAX: 02-260-1472 00000015 WTA (Public Utility), Phra Prachin Road, 111 Moo 7, Bangsuek, Bangkok 10914 Thailand TEL: 02-260-1471 FAX: 02-260-1472 00000015 WTA (Public Utility), Phra Prachin Road, 111 Moo 7, Bangsuek, Bangkok 10914 Thailand TEL: 02-260-1471 FAX: 02-260-1472				
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Method	Topic/Location
Standard Methods for the Examination of Water and Wastewater, APHA, 1995a & 1997, 19th ed., 2023, part 5220 D	Sample
Standard Methods for the Examination of Water and Wastewater, APHA, 1995b & 1997, 19th ed., 2023, part 4500-01-03	Sample
Standard Methods for the Examination of Water and Wastewater, APHA, 1995b & 1997, 19th ed., 2023, part 2540 D	Sample

Approved by: Karol Ann
Karol Ann

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Approved by Kenolden Anali
Kenolden Anali

by the author, approved by the director.

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Approved by Karol Ann
Karol Ann

and the value of this operator is the identity:

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: WWA SLL. Sample Number: 234805-1. Sample Date: Jun 04, 2023. Date Reported: Jun 04, 2023. Report Number: 3300303-1. Physical Property: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: COD, pH at 25 degree C, Total Suspended Solids Dried at 103-105 degree C. Guidelines: Standard of WWA Sanabul Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant. Sampling By: Tamsat Pungkum. Approved by: Kanchan Aek. Technical Management: Sauratua N. www.alshglobe.com

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ALS
ANALYTICAL SERVICES

Analysis / Test Report



TESTING
No.0509

Client: WTL Industries and Power Pulp & Paper Limited
111 Non-7, Nongpladung Road, Bangnaeng, Saraburi Thailand 35140

P/P / :

Project Name :

Project Location: 101A 102

Sample Number: 2527218-1
Sampled Date: Apr 29, 2023 9:20 AM
Sample Description: Group 1 Waterborne Ink Print
Location: 101A 102, 100 01 / ya Chonoi Contact Tank
Date Analysis Commenced: Apr 30, 2023
Condition of Sample: Contained in two plastic bottles, sample containers comply to pre-treatment - preservation standards (APHA, ISO)
Physical Property: Yellow, some odour, solid and no fluff

Let ID: 2527218
Date Received: May 03, 2023
Date Report: May 05, 2023
Report Number: 2034927-1

Page 1 of 1

Analysis	Unit	LOD	LOQ (LOD)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
COD	mg/L	-	25	51	≤120	Standard Methods for the Examination of water and Wastewater, 19th ed., 2012, 5210 D	Bangkok
pH at 25 degree C	-	-	-	7.9	5.5-8.5	Standard Methods for the Examination of water and Wastewater, 19th ed., 2012, 2545 D	Bangkok
Total Suspended Solids Chloro at 25 degree C	mg/L	-	5	12	≤50	Standard Methods for the Examination of water and Wastewater, 19th ed., 2012, 2545 D	Bangkok

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, 8.2.2540 (2517)

Remark:

- LOD = Limit of Detection
- LOQ = Lower than 1/10 (Limit of Quantitation) = 1/10 (5 and 10 of Reporting)
- "Insufficient method" is not not included in scope of Accredited (ISO/IEC 17025)
- "Outgoing" is not included in scope of accreditation ISO/IEC 17025

Technical Management

Siriluk P.

Siriluk Pannak
Technical Head
msn.pannak@als.com

Approved by

Kanokorn A.

Kanokorn Aon
Assistant General Manager
msn.aon@als.com

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RECENT TEST HISTORY: [VIEW TEST HISTORY](#)

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: WWA S2. Sample Date: 23/05/24. Date Received: 23/05/24. Date Reported: 23/05/24. Report Number: 230504-1. Sample Description: Group 1 Wastewater WSP Plant. Date Analysis Commenced: 23/05/24. Conditions of Sample: Contained in two glass vials, ten plastic bottles and three amber glass bottles. Physical Property: Yellow, some odour, solid and no turbidity. Analyte: COD, pH at 25 degree C, Total Suspended Solids. Results: COD 25, pH 7.7, TSS 13. Guidelines / Specification: 110, 6.5-9.0, 350. Method: Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 19th ed., 2023, part 912.8, 912.9, 912.10. Testing Location: Bangkok. Technical Management: Sanyut N. Approved by: Kanchan Aik. Laboratory Manager: Sanyut N. Assistant General Manager: Kanchan Aik. Endorsed by: Sanyut N. www.alsglobal.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: WWA S2. Sample Date: 23/05/24. Date Received: 23/05/24. Date Reported: 23/05/24. Report Number: 230504-1. Sample Description: Group 1 Wastewater WSP Plant. Date Analysis Commenced: 23/05/24. Conditions of Sample: Contained in two glass vials, ten plastic bottles and three amber glass bottles. Physical Property: Yellow, some odour, solid and no turbidity. Analyte: Ammonia, Barium, Cadmium, Copper, Hexavalent Chromium, Lead, Manganese. Results: Ammonia 0.0003, Barium 0.0003, Cadmium 0.0003, Copper 0.0003, Hexavalent Chromium 0.003, Lead 0.0003, Manganese 0.0003. Guidelines / Specification: 0.025, 0.25, 0.025, 0.2, 0.25, 0.02, 0.02. Method: Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 19th ed., 2023, part 912.8, 912.9, 912.10. Testing Location: Bangkok. Technical Management: Sanyut N. Approved by: Kanchan Aik. Laboratory Manager: Sanyut N. Assistant General Manager: Kanchan Aik. Endorsed by: Sanyut N. www.alsglobal.com

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Analysis / Test Report		TESTING	
Client : WTA Utilities and Power Public Company Limited 113, No.7, Nongkhet Road, Nongkhet, Bangkok, Thailand (2045)		Lot ID : 24541117 Issued Date : Jan 22, 2023 Date Reported : Jan 24, 2023 Report Number : 2309212-2	
P/O # : Project Name : Phraek Lommai (WHA-51) Project Location : Jan 06, 2023		Page 1 of 1	
Sample Number : 24191117-1 Sample Date : Jan 07, 2023 11:39 AM Sample Description : Group 1 Wastewater (see Wastewater) Location : WTA 52, WTA 40* (see Wastewater) Date Analysis Commenced : Jan 06, 2023 Physical Description of Sample : Combined in clear amber glass bottle and seven plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, US EPA) Physical Property : Yellow, odour neutral, no solid and turbid			
Analysis		Method	
Mercury Testing Total Mercury		Standard Method for the Examination of Water and Wastewater : APHA, 8160 B, 8160 B-2, 8160 B-201, 8160 B-202, 8160 B-203, P	
Unit	LOD	LOQ	Result
mg/L	0.003	0.005	0.006
Microbiological Testing Total Coliform		Standard Method for the Examination of Water and Wastewater : APHA, 9223, 9223 B, 9223 B	
Unit	LOD	LOQ	Result
MPN/100mL	—	760.0	5
Water Testing Conductivity Nitrogen *		Standard Method for the Examination of Water and Wastewater : APHA, 8005, 8005 B, 8005 B-201, 8005 B-202, 8005 B-203, 8005 B-204, 8005 B-205, 8005 B-206, 8005 B-207, 8005 B-208, 8005 B-209, 8005 B-210, 8005 B-211, 8005 B-212, 8005 B-213, 8005 B-214, 8005 B-215, 8005 B-216, 8005 B-217, 8005 B-218, 8005 B-219, 8005 B-220, 8005 B-221, 8005 B-222, 8005 B-223, 8005 B-224, 8005 B-225, 8005 B-226, 8005 B-227, 8005 B-228, 8005 B-229, 8005 B-230, 8005 B-231, 8005 B-232, 8005 B-233, 8005 B-234, 8005 B-235, 8005 B-236, 8005 B-237, 8005 B-238, 8005 B-239, 8005 B-240, 8005 B-241, 8005 B-242, 8005 B-243, 8005 B-244, 8005 B-245, 8005 B-246, 8005 B-247, 8005 B-248, 8005 B-249, 8005 B-250, 8005 B-251, 8005 B-252, 8005 B-253, 8005 B-254, 8005 B-255, 8005 B-256, 8005 B-257, 8005 B-258, 8005 B-259, 8005 B-260, 8005 B-261, 8005 B-262, 8005 B-263, 8005 B-264, 8005 B-265, 8005 B-266, 8005 B-267, 8005 B-268, 8005 B-269, 8005 B-270, 8005 B-271, 8005 B-272, 8005 B-273, 8005 B-274, 8005 B-275, 8005 B-276, 8005 B-277, 8005 B-278, 8005 B-279, 8005 B-280, 8005 B-281, 8005 B-282, 8005 B-283, 8005 B-284, 8005 B-285, 8005 B-286, 8005 B-287, 8005 B-288, 8005 B-289, 8005 B-290, 8005 B-291, 8005 B-292, 8005 B-293, 8005 B-294, 8005 B-295, 8005 B-296, 8005 B-297, 8005 B-298, 8005 B-299, 8005 B-300, 8005 B-301, 8005 B-302, 8005 B-303, 8005 B-304, 8005 B-305, 8005 B-306, 8005 B-307, 8005 B-308, 8005 B-309, 8005 B-310, 8005 B-311, 8005 B-312, 8005 B-313, 8005 B-314, 8005 B-315, 8005 B-316, 8005 B-317, 8005 B-318, 8005 B-319, 8005 B-320, 8005 B-321, 8005 B-322, 8005 B-323, 8005 B-324, 8005 B-325, 8005 B-326, 8005 B-327, 8005 B-328, 8005 B-329, 8005 B-330, 8005 B-331, 8005 B-332, 8005 B-333, 8005 B-334, 8005 B-335, 8005 B-336, 8005 B-337, 8005 B-338, 8005 B-339, 8005 B-340, 8005 B-341, 8005 B-342, 8005 B-343, 8005 B-344, 8005 B-345, 8005 B-346, 8005 B-347, 8005 B-348, 8005 B-349, 8005 B-350, 8005 B-351, 8005 B-352, 8005 B-353, 8005 B-354, 8005 B-355, 8005 B-356, 8005 B-357, 8005 B-358, 8005 B-359, 8005 B-360, 8005 B-361, 8005 B-362, 8005 B-363, 8005 B-364, 8005 B-365, 8005 B-366, 8005 B-367, 8005 B-368, 8005 B-369, 8005 B-370, 8005 B-371, 8005 B-372, 8005 B-373, 8005 B-374, 8005 B-375, 8005 B-376, 8005 B-377, 8005 B-378, 8005 B-379, 8005 B-380, 8005 B-381, 8005 B-382, 8005 B-383, 8005 B-384, 8005 B-385, 8005 B-386, 8005 B-387, 8005 B-388, 8005 B-389, 8005 B-390, 8005 B-391, 8005 B-392, 8005 B-393, 8005 B-394, 8005 B-395, 8005 B-396, 8005 B-397, 8005 B-398, 8005 B-399, 8005 B-400, 8005 B-401, 8005 B-402, 8005 B-403, 8005 B-404, 8005 B-405, 8005 B-406, 8005 B-407, 8005 B-408, 8005 B-409, 8005 B-410, 8005 B-411, 8005 B-412, 8005 B-413, 8005 B-414, 8005 B-415, 8005 B-416, 8005 B-417, 8005 B-418, 8005 B-419, 8005 B-420, 8005 B-421, 8005 B-422, 8005 B-423, 8005 B-424, 8005 B-425, 8005 B-426, 8005 B-427, 8005 B-428, 8005 B-429, 8005 B-430, 8005 B-431, 8005 B-432, 8005 B-433, 8005 B-434, 8005 B-435, 8005 B-436, 8005 B-437, 8005 B-438, 8005 B-439, 8005 B-440, 8005 B-441, 8005 B-442, 8005 B-443, 8005 B-444, 8005 B-445, 8005 B-446, 8005 B-447, 8005 B-448, 8005 B-449, 8005 B-450, 8005 B-451, 8005 B-452, 8005 B-453, 8005 B-454, 8005 B-455, 8005 B-456, 8005 B-457, 8005 B-458, 8005 B-459, 8005 B-460, 8005 B-461, 8005 B-462, 8005 B-463, 8005 B-464, 8005 B-465, 8005 B-466, 8005 B-467, 8005 B-468, 8005 B-469, 8005 B-470, 8005 B-471, 8005 B-472, 8005 B-473, 800	

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ALS					LABORATORY ACCREDITED NO. 0009		TESTING Lot ID: 24111119 Date Received: Jan 14, 2025 Date Reported: Jan 17, 2025 Report Number: 319490-3																																									
Client: WWA-Landwin and Power Public Company Limited 111 Moo 7, Nongkhalang Road, Nongkhalang, Bangkok, Saraburi Thailand 35140																																																
P/O ID: Project Name: Project Location: WWA S2																																																
Sample Number: 24111119-1																																																
Sampled Date: Jan 14, 2025 @ 9:15 AM																																																
Sample Description: Group 1 Wastewater WWA Plant																																																
Location: WWA S2, WWA-69 / ya Kasetnong Road Jan 15, 2025																																																
Date Analysis Commenced: Date of Analysis of Sample: Jan 15, 2025 Contained in two plastic bottles, sample containers comply to pre-treatment - preservation standards (APHA, USEPA)																																																
Physical Property: Green, some odour, acid and no turbid																																																
<table border="1"> <thead> <tr> <th>Analysis</th> <th>Unit</th> <th>LOD</th> <th>LOQ</th> <th>Result</th> <th>Guideline / Specification</th> <th>Method</th> <th>Testing Location</th> </tr> </thead> <tbody> <tr> <td>Water Testing</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CO2</td> <td>mg/L</td> <td>-</td> <td>25</td> <td>46</td> <td>1120</td> <td>Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 1120 D</td> <td>Bangkok</td> </tr> <tr> <td>pH (at 20°C)</td> <td>-</td> <td>-</td> <td>-</td> <td>8.2</td> <td>5.5-8.0</td> <td>Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 1120 D</td> <td>Bangkok</td> </tr> <tr> <td>Total Suspended Solids dried at 103-105 degree C</td> <td>mg/L</td> <td>-</td> <td>5</td> <td>9</td> <td>150</td> <td>Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 2540 D</td> <td>Bangkok</td> </tr> </tbody> </table>									Analysis	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location	Water Testing								CO2	mg/L	-	25	46	1120	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 1120 D	Bangkok	pH (at 20°C)	-	-	-	8.2	5.5-8.0	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 1120 D	Bangkok	Total Suspended Solids dried at 103-105 degree C	mg/L	-	5	9	150	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 2540 D	Bangkok
Analysis	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location																																									
Water Testing																																																
CO2	mg/L	-	25	46	1120	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 1120 D	Bangkok																																									
pH (at 20°C)	-	-	-	8.2	5.5-8.0	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 1120 D	Bangkok																																									
Total Suspended Solids dried at 103-105 degree C	mg/L	-	5	9	150	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, para 2540 D	Bangkok																																									
<p>Guideline: Effluent standard for factories, industrial estate and industrial park set by Notification of the Ministry of Natural Resources and Environment and effluent standard for factories and industrial park set by Notification of the Ministry of Industry dated June 21, B.E.2550 (2017).</p> <p>Sampling Per: Thermal Planting, industrial estate >100 <1000</p> <p>Remark:</p> <ul style="list-style-type: none"> LOD = Limit of Detection LOQ = Lower limit LOQ (Limit of Quantitation) >100 <1000 of Reporting Substrate: > 400 not included in scope of Accreditation (ISO 17025). The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025. 																																																
Technical Management			 Sirinuk Purnak Sampled report issued date >2024-01-17			Approved by:  Kanchan Anon Assistant General Manager issued date >2024-01-04																																										
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Analysis / Test Report



Client: WOL Industries and Power Rubber Company Limited
113 Km 7, Kungklaphad Road, Sangkhatao, Sangkhatao, Saraburi Thailand 35140

P/O #:

Project Name:

Project Location: RIMA 102

Sample Number: 230836-1

Sampled Date: Feb 04, 2023 10:30 AM

Sample Description: Group 5 Waterborne 300 Paint

Location: 1044-02, 1044-07, 1044-08, 1044-09, 1044-10, 1044-11, 1044-12, 1044-13, 1044-14, 1044-15, 1044-16, 1044-17, 1044-18, 1044-19, 1044-20, 1044-21, 1044-22, 1044-23, 1044-24, 1044-25, 1044-26, 1044-27, 1044-28, 1044-29, 1044-30, 1044-31, 1044-32, 1044-33, 1044-34, 1044-35, 1044-36, 1044-37, 1044-38, 1044-39, 1044-40, 1044-41, 1044-42, 1044-43, 1044-44, 1044-45, 1044-46, 1044-47, 1044-48, 1044-49, 1044-50, 1044-51, 1044-52, 1044-53, 1044-54, 1044-55, 1044-56, 1044-57, 1044-58, 1044-59, 1044-60, 1044-61, 1044-62, 1044-63, 1044-64, 1044-65, 1044-66, 1044-67, 1044-68, 1044-69, 1044-70, 1044-71, 1044-72, 1044-73, 1044-74, 1044-75, 1044-76, 1044-77, 1044-78, 1044-79, 1044-80, 1044-81, 1044-82, 1044-83, 1044-84, 1044-85, 1044-86, 1044-87, 1044-88, 1044-89, 1044-90, 1044-91, 1044-92, 1044-93, 1044-94, 1044-95, 1044-96, 1044-97, 1044-98, 1044-99, 1044-100, 1044-101, 1044-102, 1044-103, 1044-104, 1044-105, 1044-106, 1044-107, 1044-108, 1044-109, 1044-110, 1044-111, 1044-112, 1044-113, 1044-114, 1044-115, 1044-116, 1044-117, 1044-118, 1044-119, 1044-120, 1044-121, 1044-122, 1044-123, 1044-124, 1044-125, 1044-126, 1044-127, 1044-128, 1044-129, 1044-130, 1044-131, 1044-132, 1044-133, 1044-134, 1044-135, 1044-136, 1044-137, 1044-138, 1044-139, 1044-140, 1044-141, 1044-142, 1044-143, 1044-144, 1044-145, 1044-146, 1044-147, 1044-148, 1044-149, 1044-150, 1044-151, 1044-152, 1044-153, 1044-154, 1044-155, 1044-156, 1044-157, 1044-158, 1044-159, 1044-160, 1044-161, 1044-162, 1044-163, 1044-164, 1044-165, 1044-166, 1044-167, 1044-168, 1044-169, 1044-170, 1044-171, 1044-172, 1044-173, 1044-174, 1044-175, 1044-176, 1044-177, 1044-178, 1044-179, 1044-180, 1044-181, 1044-182, 1044-183, 1044-184, 1044-185, 1044-186, 1044-187, 1044-188, 1044-189, 1044-190, 1044-191, 1044-192, 1044-193, 1044-194, 1044-195, 1044-196, 1044-197, 1044-198, 1044-199, 1044-200, 1044-201, 1044-202, 1044-203, 1044-204, 1044-205, 1044-206, 1044-207, 1044-208, 1044-209, 1044-210, 1044-211, 1044-212, 1044-213, 1044-214, 1044-215, 1044-216, 1044-217, 1044-218, 1044-219, 1044-220, 1044-221, 1044-222, 1044-223, 1044-224, 1044-225, 1044-226, 1044-227, 1044-228, 1044-229, 1044-230, 1044-231, 1044-232, 1044-233, 1044-234, 1044-235, 1044-236, 1044-237, 1044-238, 1044-239, 1044-240, 1044-241, 1044-242, 1044-243, 1044-244, 1044-245, 1044-246, 1044-247, 1044-248, 1044-249, 1044-250, 1044-251, 1044-252, 1044-253, 1044-254, 1044-255, 1044-256, 1044-257, 1044-258, 1044-259, 1044-260, 1044-261, 1044-262, 1044-263, 1044-264, 1044-265, 1044-266, 1044-267, 1044-268, 1044-269, 1044-270, 1044-271, 1044-272, 1044-273, 1044-274, 1044-275, 1044-276, 1044-277, 1044-278, 1044-279, 1044-280, 1044-281, 1044-282, 1044-283, 1044-284, 1044-285, 1044-286, 1044-287, 1044-288, 1044-289, 1044-290, 1044-291, 1044-292, 1044-293, 1044-294, 1044-295, 1044-296, 1044-297, 1044-298, 1044-299, 1044-300, 1044-301, 1044-302, 1044-303, 1044-304, 1044-305, 1044-306, 1044-307, 1044-308, 1044-309, 1044-310, 1044-311, 1044-312, 1044-313, 1044-314, 1044-315, 1044-316, 1044-317, 1044-318, 1044-319, 1044-320, 1044-321, 1044-322, 1044-323, 1044-324, 1044-325, 1044-326, 1044-327, 1044-328, 1044-329, 1044-330, 1044-331, 1044-332, 1044-333, 1044-334, 1044-335, 1044-336, 1044-337, 1044-338, 1044-339, 1044-340, 1044-341, 1044-342, 1044-343, 1044-344, 1044-345, 1044-346, 1044-347, 1044-348, 1044-349, 1044-350, 1044-351, 1044-352, 1044-353, 1044-354, 1044-355, 1044-356, 1044-357, 1044-358, 1044-359, 1044-360, 1044-361, 1044-362, 1044-363, 1044-364, 1044-365, 1044-366, 1044-367, 1044-368, 1044-369, 1044-370, 1044-371, 1044-372, 1044-373, 1044-374, 1044-375, 1044-376, 1044-377, 1044-378, 1044-379, 1044-380, 1044-381, 1044-382, 1044-383, 1044-384, 1044-385, 1044-386, 10

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Analysis / Test Report



Client: WTA (Utilities and Power Public Company Limited)
111 Moo 7, Rungtarnjit Road, Rungtarnjit, Rungtarnjit (Thailand) 10114

P / I : _____

Project Name: _____

Project Location: WTA, ISL

TESTING
No.0009

Lot ID: 25350057

Date Received : May 13, 2025

Date Report : May 18, 2025

Report Number : 20250720-1

Sample Number: 253500-1

Sampled Date: May 13, 2025 9:50 AM

Sample Description: Group 1 Wastewater 100% Plant

Location: (WTA ISL) - 1000 MP - ya Rungtarnjit Pond

Date Analysis Commenced: May 14, 2025

Physical Description of Sample: Contained in two plastic bottles, sample container comply to pre-treatment - preservation standards (24hrs, 15.024)

Final Property: Wastewater, sewer effluent, solid and settled

Analyte	Unit	LOD	LOQ (0.05x)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
COD	mg/L	-	25	<25	≤120	Standard Methods for the Examination of water and wastewater, APHA, 1995 & WPT, 2001 ver. 2023 part 1220-D	Sampran
pH (at 20°C) *	-	-	-	7.8	5.5-9.0	Standard Methods for the Examination of water and wastewater, APHA, 1995 & WPT, 2001 ver. 2023 part 1005 - (10)	Sampran
Total Suspended Solids (TSS) at 20-100 degrees C	mg/L	-	5	13	≤30	Standard Methods for the Examination of water and wastewater, APHA, 1995 & WPT, 2001 ver. 2023 part 2540-D	Sampran

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.2556 (2013).

Sampling By: Nontorn Court (in-house) >204-0001

Technical Manager

C. N. S. W.

Nont Tarnung
Supervisor
nontnontnontnont >204-0009

Approved by

K. A. A.

Kasidorn Anon
Assistant General Manager
kasidornnont >204-0004

*Note: In this report, it is intended to identify only the playing role of the ALS. The information on responsibility is only referred to for a reference of the customer.

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ภาคผนวก ค-6

คุณภาพน้ำทิ้ง (โรงงานอุตสาหกรรม)

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[illegible]



Analysis / Test Report

Lot ID: 24141553
 Issue Received : Jan 08, 2025
 Date Reported : Jan 14, 2025
 Report Number : 2025069-2

Client : WTA Utilities and Power Public Company Limited
 111 Moo 7, Kunglamphong Road, Banglamung, Bangkok, Thailand 10340

P/O :
Project Name : Factory 1 Roadside
Project Location : HONG 131

Sample Number : 2141053-1
Sampled Date : Jan 08, 2025 9:45 AM
Sample Description : Group 2 Wastewater WSS-CT
Contract ID : SLS-2023-044
Date Analysis Commenced : Jan 13, 2025

Condition of Sample : Contained in one amber glass bottle and four plastic bottles sample containers comply to pre-treatment - preservation standards (DIN45685/ISO15709)
Physical Property : Yellow, some odour, solid and turbid

Analyte	Unit	LOD	LOQ (5xLOD)	Result	Compliance / Specification	Method	Testing Location
Arsenic (As) detected as HDA5	mg/L	0.03	0.03	18.7	<LO	Based on Standard Method for the Determination of Inorganic Arsenic, ASTM E 1699, 2001 ed., 2023, pp 3345 B, C	Bangkok

Guideline : Standard of WTA-Sanitary Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling by : Chaingarn Srikul

Remark :
 - LOD : Limit of Detection
 - LOQ : Lower than 1/10 (5x of Quantitation) : 1/10 (5x of Reporting)

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Approved by


 Srikul Bunee
 Senior Analyst

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TESTING
No. 0009
Lot ID: 258255
Date Received: Feb 07, 2025
Date Reported: Feb 13, 2025
Report Number: 3221576-1

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Technical Management

Must Sord

Isenhardtsen, Sonja
Specialist 2
msord@aol.com 7-204-4-0000

Approved by

Karl A. Anke

Karlson, Anke
Assistant General Manager
anke@aol.com 7-204-4-0004

People sign to this document as a witness, under the penalty law consequences, etc. The sign of the person is not required as a full witness of the other signers of the document.

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Lot ID: 258249
Date Received : Feb 11, 2025
Date Reported : Feb 19, 2025
Report Number : 3321666-5

Sample Number	250249-1		
Sampled Date	Feb 11, 2025 11:15 AM		
Sample Description	Group 2 Wastewater 100L CT		
Contract ID	SL_053_2554	Plot	36 Site Ready Clean Co., Ltd.
Date Analysis Commenced	Feb 13, 2025		
Conditions of Sample	Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standard		

Physical Property		Gases, some odor, no lead, and tested			Gaseolines / Significant		Method	Testing Location
Analysis	Unit	Low	Mid	High	Results			
		1000	1000	1000				
Water Testing								
15 days @ 22 degree C	mg/L	-	0.2	5.7	1500		Standard Methods for the Examination of water and Wastewater, APHA, 20th ed. 1995, para 9203, para 9204, C-2	WSP, para 6300
COD	mg/L	-	25	30	1250		Standard Methods for the Examination of water and Wastewater, APHA, 20th ed. 1995, para 5210, C-2	WSP, para 6300
Oil & Grease	mg/L	-	3	<3	110		Standard Methods for the Examination of water and Wastewater, APHA, 20th ed. 1995, para 9250, C-2	WSP, para 6300
pH (at 25 °C)		-	-	-	7.3	5.0-8.0	Standard Methods for the Examination of water and Wastewater, APHA, 20th ed. 1995, para 9240, C-10	WSP, para 6300
Temperature °	Degree C	-	-	-	26.4	14-5	Standard Methods for the Examination of water and Wastewater, APHA, 20th ed. 1995, para 1820, C-10	WSP, para 6300
Total Suspended Solids (dried at 105 °C)	mg/L	-	5	<5	1200		Standard Methods for the Examination of water and Wastewater, APHA, 20th ed. 1995, para 2540, C-2	WSP, para 6300

Guideline: Standard of WHO Sewer/Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant.
Sampling By: Tolmont Pongkajene on December 5-204-5-0055
Result:
 LOD : Limit of Detection
 * : Lower than LOD (Limit of Quantification) : LOD (Limit of Reporting)
 Analytical method : Accuquant Inducted by means of AccuQuant HPLC 1705.

Technical Management

Siriluk P.
Siriluk Sunnak
Section Head
WH0000097-1-204-1-0013

Approved by

Korakorn Aonk
Korakorn Aonk
Assistant General Manager
WH0000097-1-204-1-0008

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Lot ID: 258181
Date Received : Feb 11, 2025
Date Reported : Feb 19, 2025
Report Number : 3321406-0

Sample Number	ZSR01-0		
Sampled Date	Feb-11, 2025 1:13 PM		
Sample Description	Group 2 Westminster WW CT		
Contract ID	SD_041_2554	Plot 47	Site RiverPulp Pulp & Paper Company Limited (Ind)
Date Analysis Commenced	Feb 11, 2025		
Conditions of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards		

Physical Property		APPENDIX 1 Metric: colorless, clear, odor, and no visible					
Analysis	Unit	LOO	1.00	Result	Gradient / Specification	Method	Testing Location
Water Testing (5 to 25 at 28 degrees C)	mg/L		1.0	4.4	1300	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2013, sec 9101.10	Sanjour
CO ₂	mg/L		25	11	1750	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2013, sec 9101.10	Sanjour
Oil & Grease	mg/L		3	<3	110	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2013, sec 9101.10	Sanjour
pH (at 25 °C)				7.3	5.5-8.5	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2013, sec 9101.10	Sanjour
Temperature °C	Degrees C			27.8	14-5	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2013, sec 9101.10	Sanjour
Total Suspended Solids Dry	mg/L		5	6	1200	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2013, sec 9101.10	Sanjour

Guideline: Standard of WMA Sarabai Industrial Land, Maximum levels for wastewater (discharging) to central wastewater treatment plant.

Technical Management

Sirilik P.

Sirilik Punnak
Section Head
m040000017-1-204-e-0013

Approved by

Karobon Aonk

Karobon Aonk
Assistant General Manager
m040000017-1-204-e-0008

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Lot ID: 258217
Date Received: Feb 11, 2025
Date Reported: Feb 18, 2025
Report Number: 3321532-5

Physical Property	Unit	100	100 (100)	Result	Unit
Water Testing					
SCD (5 days at 20 degree C)	mg/L	-	2.0	3.6	
COD	mg/L	-	25	47	
Oil & Grease	mg/L	-	3	<3	
pH (at site) *		-	-	7.5	
Temperature *	(Degree C)	-	-	24.0	
Total Suspended Solids (dried at 105-109 degree C)	mg/L	-	5	7	

Guideline: Standard of WMA Saraburi Industrial Land, Maximum levels for wastewater discharge
Sampling By: Thongphol Sangthong wissanasorn 1-204-9-0148
Remark:
 1. OD : Limit of Detection
 2. * : Lower than LOD (Limit of Quantitation) ; LOD (Limit of Reporting)
 Analyte marked * is not included in scope of Accreditation ISO-IEC 17025.

Technical Management

C. S.

Nathan Sapping
Supervisor
R0100000001-204-0-0000

Approved

Results shown in this completed or identified, unless the project is pre-identified or not. The report must be completed.

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Lot ID: 258163
Date Received : Feb 11, 2025
Date Reported : Feb 19, 2025
Report Number : 3321465-5

Sample Number	25E265-1		
Sampled Date	Feb 11, 2025 10:15 AM		
Sample Description	Group 2 Wastewater W06 CT		
Contract ID	SL_015_2550	Plot	61.62
		Site	SEAC Co

Physical Property	Unit	LOD	LOQ (LOD)	Result	Comment
Wet Weight	mg/L	—	2.0	17.2	
COD	mg/L	—	25	73	
Oil & Grease	mg/L	—	3	4	
pH (in water) *		—	—	7.6	
Temperature *	Degree C	—	—	27.1	
Total Suspended Solids Dried at 103-105 degrees C.	mg/L	—	5	48	

Guideline: Standard of WHO/FAO/WHO Industrial Land, Maximum levels for wastewater discharge
Sampling By: Nanyang Pempoon Pollution Control S-204-S-0073
Remark:
 1. LOD : Limit of Detection
 2. LOR : Lower limit of Quantitation
 3. LOQ : Limit of Reporting
 Analytical method is not included in scope of Accreditation ISO/IEC 17025.

Technical Management

Siriluk P.
Siriluk Bunrak
Section Head
BRD/MAN/1-204-1-0513

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As a condition of the contract, the contractor agrees that the drawings are confidential and shall not be reproduced or used for any other purpose without the written consent of the client.

LIFE SOLUTIONS

Lot ID: 258194
Date Received : Feb 11, 2025
Date Reported : Feb 19, 2025
Report Number : 3321500-3

Sample Number	23E294-1		
Sampled Date	Feb 11, 2025 10:30 AM		
Sample Description	Group 2 Wastewater W99-CT		
Contract ID	SL_066_2557	Plot	59
		Site	Shubuta

Condition of Sample	Contained in one amber glass bottle and three plastic bottles: one for pH, one for DO, and one for temperature.			
Physical Property	Yellow, some odor, solid and turbid			
Analyte	Unit	100	1,000	Reflow
Water Testing				
DO (5 Days at 20 degrees C)	mg/L	—	2.0	19.6
COD	mg/L	—	25	70
Oil & Grease	mg/L	—	3	<3
pH (in air) *		—	—	3.7
Temperature *	Degree C	—	—	30.7
Total Suspended Solids Dried at 105°C	mg/L	—	5	10

Guideline: Standard of WHO Sanitary Industrial Land, Maximum levels for wastewater discharge.
Sampling By: Narsabhai Permpoon (narsabhai.p@nscd.gov.in) 9-204-s-0073

Remark:

- LOD: Limit of Detection
- "": Less Than LOD (Limit of Quantification) LOD (Limit of Reporting)

Technical Management

Siriluk P.
Siriluk Punnak
Section Head
en (Research) +204-4-0013

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 Alfa Laval Water Group Limited, Ltd., No. 80

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PURITY SOLUTIONS

Lot ID: 250251
Date Received : Feb 11, 2025
Date Reported : Feb 19, 2025
Report Number : 3321572-5

Technical Management Siriluk P.
Siriluk Bunrak
Section Head

Approved by Karolinn Aonk
Karolinn Aonk
Assistant General Manager

Results apply to the unpaired or paired data, unless the preceding requirements are met. The report must be accompanied by a list of all data or a list of the means.

NOVEMBER 2014

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Lot ID: 258252
Date Received : Feb 03, 2025
Date Reported : Feb 10, 2025
Report Number : X21579-1

Sample Number	250520-1
Sampled Date	Feb 03, 2025 9:40 AM
Sample Description	Group 2 Wastewater WWCT
Contact ID	631-000-7554 File # 85 Site Green-Sundman Co. Ltd (14)

Date Analysis Commenced	Feb 04, 2025
Condition of Sample	Contained in one amber glass bottle and four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)
Physical Description	Water, clear and colorless

Analysis	Unit	LOD	LOD (OR)	Result	Guideline / Specification	Method	Testing Location
Mercury Testing							
Lead	mg/L	0.0003	0.0005	0.03	§5.2	Standard Methods for the Examination of Water and Wastewater, APHA, 18th ed. 1992, pp. 1523, pp. 1528-1530	Sargento
Water Testing							
BOD: 5 days at 22 degree C	mg/L	-	2.0	4.4	<5000	Standard Methods for the Examination of Water and Wastewater, APHA, 18th ed. 1992, pp. 1529-1531	Sargento
COD	mg/L	-	35	36	1750	Standard Methods for the Examination of Water and Wastewater, APHA, 18th ed. 1992, pp. 1532-1533	Sargento
Oil & Grease	mg/L	-	3	<3	<50	Standard Methods for the Examination of Water and Wastewater, APHA, 18th ed. 1992, pp. 1534-1535	Sargento
pH (per site)	-	-	-	7.6	5.5-8.0	Standard Methods for the Examination of Water and Wastewater, APHA, 18th ed. 1992, pp. 4500-4501	Sargento
Temperature	Degrees C	-	-	26.8	6-15	Standard Methods for the Examination of Water and Wastewater, APHA, 18th ed. 1992, pp. 4502-4503	Sargento

						Examination of Matter and Macerated: AFM, AFM & WSP, 26th ed., 2023, part 2530 E
Total Dissolved Solids Dried at 180 degrees C	mg/L	—	\$	800	£3000	Standard Methods for the Examination of Water and Macerated: AFM, AFM & WSP, 26th ed., 2023, part 2540 C
Total Suspended Solids Dried at 102-103 degrees C	mg/L	—	\$	<5	£200	Standard Methods for the Examination of Water and Macerated: AFM, AFM & WSP, 26th ed., 2023, part 2540 C

Guideline: Standard of WPH Sarabati Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Technical Management 
Chanatt L. Inchausti
Geopje Head

Approved by 
Karolom Anil
Assistant General Manager

Account open in the name of the applicant, under the paying up contribution of A/S. The report will be signed by the company's authorized signatory.

80-80801 the Phrasarakorn rd, Phrasarakorn Rd, Khwaeng Phrasarakorn, Chatuchak, Bangkok 10250 Thailand | PHONE: +66 8 2766 3886 | FAX: +66 8 2766 3780
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No 0009
Lot ID: 258169
 Date Received : Feb 03, 2025
 Date Reported : Feb 10, 2025
 Report Number : 322471-0

Sample Number	234169-1
Sampled Date	Feb 03, 2025 9:30 AM
Sample Description	Group 2 Wastewater WWCT

Contract ID	SI_0_2354	Plot	01	Site	San Francisco Co., CA
Date Analysis Commenced	Feb 04, 2025				
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply with pretreatment - preservation standards (APHA/USEPA)				

Physical Property	Yellow, some color, a lot of solid, and no turbid					
Analyte	Unit	L of Solid [100]	Result	Gastrolite / Significance	Method	Testing Location
Water Testing						
CO ₂ [30 days at 20 degrees C]	mg/L	+ 2.0	17.8	<500	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 24th ed., section 2121 B-APHA 1997	Sergius
COD	mg/L	+ 25	34	>1750	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 24th ed., section 2121 B-APHA 1997	Sergius
Oil & Grease		-	3	<10	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 24th ed., section 2121 B-APHA 1997	Sergius
pH (at site) *		-	-	5.4-6.0	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 24th ed., section 2121 B-APHA 1997	Sergius
Temperature *	Degrees C	+/-	20.7	14-15	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 24th ed., section 2121 B-APHA 1997	Sergius
Total Suspended Solids, Gravid at 105 Degrees C	mg/L	-	8	>200	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & 1997, 24th ed., section 2121 B-APHA 1997	Sergius

Disclaimer: Standard of WMA Seroberi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant
Sampling By : Timorot Pumpjack and/or around 1-204-0-0056


Technical Management Siriluk P.
Siriluk Punnak
Siriluk.punnak@gmail.com

Approved by Kanokorn Aoi
Kanokorn Aoi
Assistant General Manager

Small print: The company is not responsible for any loss or damage to the goods or services provided by the company. The company is not responsible for any loss or damage to the goods or services provided by the company.

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 PUCHIT SAKATTHONG, President & CEO of A/S

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ALS
ANALYTICAL SERVICES

Analysis / Test Report



TESTING
No. 0009
ISO 9001

Client: WMA Utilities and River Public Company Limited
111 Moo 7, Nongkhalang Road, Nongkhalang, Saraburi Thailand 25180

P/O #: _____
Project Name: Factory / Monthly
Project Location: (SARU 152)

Sample Number: 250206-1
Sample Date: Feb 11, 2025 9:30 AM
Sample Description: Group 2 Wastewater WST-CF
 SS, pH, 2025 **Ph:** 132 **Site:** SJK (Thailand) Co., Ltd.
Date Analysis Commenced: Feb 11, 2025
Condition of Sample: (WMA/02/02/25)
 Contained in one amber glass bottle and three plastic bottles, samples containers comply to pre-treatment - preservation standards
 (WMA/02/02/25)
 WMA, a lot of colour, white, and turbid


Analysis Property	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testing SS (200 to 2000 mg/L)	mg/L	-	2.0	93.0	1500	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2012, part 501.6 (A), 501.6 (B), 501.6 (C)	Saraburi
COD	mg/L	-	25	196	6750	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2012, part 520.9 (A), 520.9 (B), 520.9 (C)	Saraburi
Oil & Grease	mg/L	-	3	6	110	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2012, part 552.0 (A), 552.0 (B), 552.0 (C)	Saraburi
pH (at site) *	-	-	-	7.3	5.5-8.0	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2012, part 450.0 (A), 450.0 (B), 450.0 (C)	Saraburi
Temperature *	(Degree C)	-	-	28.9	14-1	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2012, part 2510.8	Saraburi
Total Suspended Solids (Total at 202-125 Degree C)	mg/L	-	5	65	1200	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2012, part 2540.0 (A), 2540.0 (B), 2540.0 (C)	Saraburi

Summary By: Thermal Pumping Incubation Ltd, Maximum levels for wastewater discharging to central wastewater treatment plant.

Standard: * Thermal Pumping Incubation Ltd-2024-0009


Notes:
 - L.O.D. = Limit of Detection
 - L.O.Q. = Limit of Quantitation
 - * = (out of Specification) (LOQ and out of Specification)
 - (Ambient) tested * Acute tested in range of Accreditation ISO 9001: 2015.

Technical Management



Siriluk P.
Siriluk Parnon
Section Head
siriluk@wma-009-0009




Approved by





Kanchan Aue
Kanchan Aue
Section General Manager
kanchan@wma-009-0009

* Results are given in standard units, unless they are stated in brackets. All the reported results are subject to the conditions.

WMA/02/02/25-001, WMA/02/02/25-002, WMA/02/02/25-003, WMA/02/02/25-004, WMA/02/02/25-005, WMA/02/02/25-006, WMA/02/02/25-007, WMA/02/02/25-008, WMA/02/02/25-009, WMA/02/02/25-010, WMA/02/02/25-011, WMA/02/02/25-012, WMA/02/02/25-013, WMA/02/02/25-014, WMA/02/02/25-015, WMA/02/02/25-016, WMA/02/02/25-017, WMA/02/02/25-018, WMA/02/02/25-019, WMA/02/02/25-020, WMA/02/02/25-021, WMA/02/02/25-022, WMA/02/02/25-023, WMA/02/02/25-024, WMA/02/02/25-025, WMA/02/02/25-026, WMA/02/02/25-027, WMA/02/02/25-028, WMA/02/02/25-029, WMA/02/02/25-030, WMA/02/02/25-031, WMA/02/02/25-032, WMA/02/02/25-033, WMA/02/02/25-034, WMA/02/02/25-035, WMA/02/02/25-036, WMA/02/02/25-037, WMA/02/02/25-038, WMA/02/02/25-039, WMA/02/02/25-040, WMA/02/02/25-041, WMA/02/02/25-042, WMA/02/02/25-043, WMA/02/02/25-044, WMA/02/02/25-045, WMA/02/02/25-046, WMA/02/02/25-047, WMA/02/02/25-048, WMA/02/02/25-049, WMA/02/02/25-050, WMA/02/02/25-051, WMA/02/02/25-052, WMA/02/02/25-053, WMA/02/02/25-054, WMA/02/02/25-055, WMA/02/02/25-056, WMA/02/02/25-057, WMA/02/02/25-058, WMA/02/02/25-059, WMA/02/02/25-060, WMA/02/02/25-061, WMA/02/02/25-062, WMA/02/02/25-063, WMA/02/02/25-064, WMA/02/02/25-065, WMA/02/02/25-066, WMA/02/02/25-067, WMA/02/02/25-068, WMA/02/02/25-069, WMA/02/02/25-070, WMA/02/02/25-071, WMA/02/02/25-072, WMA/02/02/25-073, WMA/02/02/25-074, WMA/02/02/25-075, WMA/02/02/25-076, WMA/02/02/25-077, WMA/02/02/25-078, WMA/02/02/25-079, WMA/02/02/25-080, WMA/02/02/25-081, WMA/02/02/25-082, WMA/02/02/25-083, WMA/02/02/25-084, WMA/02/02/25-085, WMA/02/02/25-086, WMA/02/02/25-087, WMA/02/02/25-088, WMA/02/02/25-089, WMA/02/02/25-090, WMA/02/02/25-091, WMA/02/02/25-092, WMA/02/02/25-093, WMA/02/02/25-094, WMA/02/02/25-095, WMA/02/02/25-096, WMA/02/02/25-097, WMA/02/02/25-098, WMA/02/02/25-099, WMA/02/02/25-100, WMA/02/02/25-101, WMA/02/02/25-102, WMA/02/02/25-103, WMA/02/02/25-104, WMA/02/02/25-105, WMA/02/02/25-106, WMA/02/02/25-107, WMA/02/02/25-108, WMA/02/02/25-109, WMA/02/02/25-110, WMA/02/02/25-111, WMA/02/02/25-112, WMA/02/02/25-113, WMA/02/02/25-114, WMA/02/02/25-115, WMA/02/02/25-116, WMA/02/02/25-117, WMA/02/02/25-118, WMA/02/02/25-119, WMA/02/02/25-120, WMA/02/02/25-121, WMA/02/02/25-122, WMA/02/02/25-123, WMA/02/02/25-124, WMA/02/02/25-125, WMA/02/02/25-126, WMA/02/02/25-127, WMA/02/02/25-128, WMA/02/02/25-129, WMA/02/02/25-130, WMA/02/02/25-131, WMA/02/02/25-132, WMA/02/02/25-133, WMA/02/02/25-134, WMA/02/02/25-135, WMA/02/02/25-136, WMA/02/02/25-137, WMA/02/02/25-138, WMA/02/02/25-139, WMA/02/02/25-140, WMA/02/02/25-141, WMA/02/02/25-142, WMA/02/02/25-143, WMA/02/02/25-144, WMA/02/02/25-

ALS				 TESTING Lot ID: 00508 Lot ID: 258230 Issue Date: 1 Feb 13, 2025 Date Reported: 1 Feb 13, 2025 Report Number: 322349-1			
Client: WMA Ltd/Minerals and Power Public Company Limited 111 Moo 7, Bangpakong Road, Bangpakong, Saraburi Thailand 38140							
P/O ID: Project Name: Group 2 Monthly Project Location: Uthai Thani							
Sample Number: 258230-0 Sample Date: Feb 13, 2025 1:50 PM Sample Description: Group 2 Wastewater W99-CT SL, 252, 254B Ph: 25 Site: Thin Beverage Can Co., Ltd. Date Analysis Commenced: Feb 13, 2025 Condition of Sample: Contained a one amber glass bottle and three plastic bottles. sample containers comply to pre-treatment - preservation standards Physical Property: Gases, volatiles, non-volat, and bottled							
Analyte	Unit	LOD (3.0x)	Result	Guideline / Specification	Method	Testing Location	
Water Testing DO (30 sec at 20 degree C)	mg/L	-	2.0	4.5	5300	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO, 20th ed., 2005, 9191-9192, 9193	Saraburi
COD	mg/L	-	25	27	5170	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO, 20th ed., 2005, 9121-9122	Saraburi
Oil & Grease	mg/L	-	3	<3	510	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO, 20th ed., 2005, 9123-9124	Saraburi
pH (at 25°C)	-	-	-	7.8	5510-5	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO, 20th ed., 2005, 9100-9101	Saraburi
Temperature	Degree C	-	-	28.1	945	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO, 20th ed., 2005, 9120-9121	Saraburi
Total Suspended Solids dried at 103-105 degree C	mg/L	-	-	<5	<200	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO, 20th ed., 2005, 9104-9105	Saraburi
Guidance: Standard of WMA Saraburi Industrial Ltd, Maximum levels for wastewater discharging to central wastewater treatment plant. Sampling By: Thermal Gravimetric analysis >204 >205A							
Notes: - LOD = Limit of Detection - LCL = Lower than 10% (of that Quantified) (LOD and/or Reporting) - Analytical method = As per and included in range of Accreditation ISO/IEC 17025.							
Technical Management  Siriluk Punnak Section Head Microchemical >204 >205A		Approved by  Kanchan Koon Assistant General Manager Microchemical >204 >205A					
<small>*This report is generated in electronic format. Any printing or photocopying of this report is subject to the approval of the laboratory.</small>							
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ALS					LABORATORY OF ENVIRONMENTAL SCIENCE		
Analysis / Test Report					TESTING No. 0028		
Client: WOL Industries and Power Public Company Limited 113 Moo 7, Bangpakong Road, Bangpakong, Saraburi Thailand 35140					Let ID: 258173		
P/O #:					Date Received: Feb 06, 2025		
Project Name: Factory / Plantivity					Date Reported: Feb 14, 2025		
Project Location: RDNA 132.					Report Number: 322147-0		
Page 1 of 1							
Sample Number	258279-S						
Sampled Date	Feb 06, 2023 9:30 AM						
Sample Description	Group 2 Wastewater HSE CT						
Contract ID	SLC_028_2584	Plot	27B	Site:	Thai Mahavee Glass (Thailand) Co.,Ltd.		
Data Analysis Commissioned	Feb 07, 2023						
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pre-treatment - preservation standards (APHA/CEN/ISO)						
Physical Property	None, some solid, white and turbid						
Analyte	Unit	LOD	LOQ (\$/mg)	Result	Guideline / Specification	Method	
pH Testing							
RSD: (10 min @ 20 degree C)	mEq/L	-	3.0	10.8	<500	Standard methods for the Examination of water and Wastewater, APHA & WSP, 24th ed., 2012, part 1010 & 1011, part 4301 C-2	Biosonix
COD	mEq/L	-	25	301	>1700	Standard methods for the Examination of water and Wastewater, APHA & WSP, 24th ed., 2012, part 1020-2	Biosonix
Oil & Grease	mEq/L	-	3	<3	310	Standard methods for the Examination of water and Wastewater, APHA & WSP, 24th ed., 2012, part 1020-B	Biosonix
ppt (on site) *	-	-	-	7.5	3.5-6.2	Standard methods for the Examination of water and Wastewater, APHA & WSP, 24th ed., 2012, part 4300 -1(B)	Biosonix
Temperature *	Degree C	-	-	28.3	14-3	Standard methods for the Examination of water and Wastewater, APHA & WSP, 24th ed., 2012, part 2530-B	Biosonix
Total Suspended Solids dried at 103-105 Degree C	mEq/L	-	5	35	<1200	Standard methods for the Examination of water and Wastewater, APHA & WSP, 24th ed., 2012, part 2540-D	Biosonix
Guideline: Standard of WHO Sanitary Industrial Land. Maximum limits for wastewater discharging to central wastewater treatment plant. Sanitary By: National Pungtung Industry Standard >204-0009 Issued: - LOD : Limit of detection - LOQ : Lower than LOQ (at least of Quantitation) (LOQ is limit of Reporting) - Method used: * Not included in scope of Accreditation ISO/IEC 17025.							
Technical Management  Sriruk Poom Section Head mrcnrc@als.com >204-0003				Approved by  Kanchan An Assistant General Manager mrcnrc@als.com >204-0004			
<small>* Needs to be confirmed in certified lab for playing the reference value. All the analytical results or measurements are subject to the accuracy of the instrument.</small>							
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	<h2 style="margin: 0;">Analysis / Test Report</h2>						
Client: WMA Utilities and Power Public Company Limited 111 Moo 7, Bangnonglad Road, Bangnonglad, Bangkhong, Saraburi Thailand 38140	TESTING No. 0009						
P/O # Project Name : Factory 1 Roadside Project Location : WMA GL	Lot ID: 2518160 Date Received : 16 May 2025 Date Reported : 16 May 22, 2025 Report Number : 250406-01						
Page 1 of 1							
Sample Number 2518160-1 Received By Group 2 Warehouse 800 CT Contract ID SL 295 2394 Ph# 80 81 Date of Sample Collection 06 May 2025 Condition of Sample Contained in one amber glass bottle and three plastic bottles, sample containers comply to pre-treatment - greenwashing standards (APHA/USEPA)	Site Water Component Technology(Thailand) Co., Ltd.						
Physical Property Odourless, same color, solid and no-boiled							
Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testing 800 (5 days at 20 degree C)	mg/L	-	2.8	2.8	1500	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, pp. 9501-9502	Bangkok
COO	mg/L	-	25	<25	1750	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, pp. 9523-9524	Bangkok
OR 6 Grams	mg/L	-	3	3	110	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, pp. 9530-9531	Bangkok
pH (at site) *	-	-	-	7.7	5.5-8.0	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, pp. 9501-9502	Bangkok
Temperature *	-	-	-	32.2	145	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, pp. 9501-9502	Bangkok
Total Suspended Solids (D8) *	mg/L	-	5	<5	1200	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, pp. 9501-9502	Bangkok

Guideline: Standard of WMA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant
Sampling by: Themsat Pongsupakorn and Sany-0-0055

Remark:

- 1. LOD = 1/3 LOD of Detection
- 2. LOD (Lower than 1/3 LOD of Quantified) = 1/6 LOD of (Impurity)
- 3. Impurity included = Is not included in water of accreditation (ISO/IEC 17025).
- 4. Sampling is not included in scope of accreditation (ISO/IEC 17025)

Approved by 

Kasidat Joon
 Resident General Manager
 endusew-0204-0004

Technical Management



Nont Saming
 Supervisor
 endusew-0204-0009

* Result can be provided in certified units after checking in accordance with the test method and accreditation or by the use of second or third parties.

99199101001 Phatthana-Bon, Phatthana-Bon 1, Phatthana-Bon 2, Phatthana-Bon 3, Chai San, Chai San, Bangkok, 10110 Thailand | Phone: 08 9 730 3000 | Fax: 08 9 730 3000

99199101001 Phatthana-Bon, Phatthana-Bon 1, Phatthana-Bon 2, Phatthana-Bon 3, Chai San, Chai San, Bangkok, 10110 Thailand | Phone: 08 9 730 3000 | Fax: 08 9 730 3000

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WMA Saraburi

Analysis / Test Report

Client: WMA Utilities and Power Public Company Limited
111 Moo 7, Hongkongland Road, Bangkengkae, Nongkhai, Saraburi Thailand 30140
FPO:
Project Name: Factory 1 Monthly
Project Location: WMA 52.

Lot ID: 25182225
Disk Received: 1 Mar 07, 2025
Disk Reported: 1 Mar 24, 2025
Report Number: 32K303-2

Page 1 of 1

Sample Number	218222-1				
Sample Date	Mar 01, 2025 9:10 AM				
Sample Description	Group 2 Wastewater 600 CT				
Contract ID	SL 051.254	Ph1	36	Site	Ready Clean Co., Ltd.
Date Analysis Commenced	Mar 10, 2023				
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pre-treatment - preservation standards (APHA, USEPA) Cool, clear, odor, solid, and no turbid				
Physical Property					
Analyte	Unit	LOD	LOQ (LOEL)	Result	Guideline / Specification
Water Testing					
Aromatic Surfactant as PBAS	mg/L	0.015	0.05	0.57	430

Bangkok

Guideline: Standard of WMA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.
Sampling by: Technical Personnel

Notes:
1) LOD = Limit of Detection
LOQ = Lower Limit (10% Level of Quantification) (LOEL) (2 and 3 of Sampling)

Approved by

Summon C
Somchai Chuanrakong
Scientist (B)

Important Note: In the presence of circumstances where the issuing lab is considered to be at risk, this report shall not be issued and the client will be notified by email and phone.

00000101 For Pharmaceutical, 0001 Pharmaceutical Lab., Phrasaeng Pharmacy Laboratory, Khet Sanam, Bangkok 10210 Thailand | TEL:0066-8-7200-70000 | FAX: 0066-8-7200-71707
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File: 000000000

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Analysis / Test Report

Client : WWA Utilities and Power Public Company Limited
 111 Rue 7, Nongkhalak Road, Nongkhal, Nongkhal, Samsen Thabkhi (SR4)

P/O # :
Project Name : Factory 1 Hordly
Project Location : HANA-SIA

Sample Number : 2518135-1
Sample Date : Mar 02, 2020 10:20 AM
Sample Description : Group 2 Wastewater W9-CF
Contract ID : SLL_038_2554 **Plot** : 9.13
Location : Factory 1
Date Analysis Commenced : Mar 02, 2020

Objective of Sample :
 Confirmed in use amber glass bottle and three plastic bottles, samples submitted comply to pretreatment - preservation standards
Physical Property :
 Colorless, turbid odour, solid, and not frothy

Analysis	Unit	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testing						
BOD-5 (at 20 degree C)	mg/L	2.0	4.1	500	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2023, part 5211.8, part 5200-0-2	Samsen
COD	mg/L	25	28	6750	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2023, part 5211.8, part 5200-0-2	Samsen
Oil & Grease	mg/L	3	<3	210	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2023, part 5211.8, part 5200-0-2	Samsen
pH (at 25°C) °			7.5	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2023, part 4510-0-1 (B)	Samsen
Temperature °	Degree C		30.8	1-43	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2023, part 2550-0-1	Samsen
Total Suspended Solids Dried at 103-105 degree C	mg/L	5	8	5200	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2023, part 2550-0-1	Samsen

Guideline : Standard of WWA Samsen Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant.
Sampling : by a Turrent Pumping equipment >20+ <0.05

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Lot ID : 2518135
Date Received : Mar 02, 2020
Report Date : Mar 13, 2020
Report Number : 2520391-01

Page 1 of 1

Technical Management



 Nara Seem
 Supervisor
 email: nara.s@wpp.com

Approved by



 Nara Seem
 Manager General Manager
 email: nara.s@wpp.com




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Analysis / Test Report



Client : WPA Utilities and Power Public Company Limited
 111 Moo 7, Bangpakdi Road, Bangtham, Bangkok, Saraburi Thailand 12140

P/O :


Project Name : Factory 1 Monthly

Project Location : WPA 51.


TESTING
No 0009

Lot ID: 2518135
 Date Received : Mar 07, 2025
 Date Reported : Mar 12, 2025
 Report Number : 240931-1

Technical Management


 Nalin Lamsing
 Supervisor
 mobile:09-0-258-4-0050

Approved by


 Sarabhai Aree
 Account General Manager
 mobile:09-0-258-4-0008





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066 0 2520 0005 : 066 0 2520 0006 : 066 0 2520 0007 : 066 0 2520 0008 : 066 0 2520 0009 : 066 0 2520 0010 : 066 0 2520 0011 : 066 0 2520 0012 : 066 0 2520 0013 : 066 0 2520 0014 : 066 0 2520 0015 : 066 0 2520 0016 : 066 0 2520 0017 : 066 0 2520 0018 : 066 0 2520 0019 : 066 0 2520 0020 : 066 0 2520 0021 : 066 0 2520 0022 : 066 0 2520 0023 : 066 0 2520 0024 : 066 0 2520 0025 : 066 0 2520 0026 : 066 0 2520 0027 : 066 0 2520 0028 : 066 0 2520 0029 : 066 0 2520 0030 : 066 0 2520 0031 : 066 0 2520 0032 : 066 0 2520 0033 : 066 0 2520 0034 : 066 0 2520 0035 : 066 0 2520 0036 : 066 0 2520 0037 : 066 0 2520 0038 : 066 0 2520 0039 : 066 0 2520 0040 : 066 0 2520 0041 : 066 0 2520 0042 : 066 0 2520 0043 : 066 0 2520 0044 : 066 0 2520 0045 : 066 0 2520 0046 : 066 0 2520 0047 : 066 0 2520 0048 : 066 0 2520 0049 : 066 0 2520 0050 : 066 0 2520 0051 : 066 0 2520 0052 : 066 0 2520 0053 : 066 0 2520 0054 : 066 0 2520 0055 : 066 0 2520 0056 : 066 0 2520 0057 : 066 0 2520 0058 : 066 0 2520 0059 : 066 0 2520 0060 : 066 0 2520 0061 : 066 0 2520 0062 : 066 0 2520 0063 : 066 0 2520 0064 : 066 0 2520 0065 : 066 0 2520 0066 : 066 0 2520 0067 : 066 0 2520 0068 : 066 0 2520 0069 : 066 0 2520 0070 : 066 0 2520 0071 : 066 0 2520 0072 : 066 0 2520 0073 : 066 0 2520 0074 : 066 0 2520 0075 : 066 0 2520 0076 : 066 0 2520 0077 : 066 0 2520 0078 : 066 0 2520 0079 : 066 0 2520 0080 : 066 0 2520 0081 : 066 0 2520 0082 : 066 0 2520 0083 : 066 0 2520 0084 : 066 0 2520 0085 : 066 0 2520 0086 : 066 0 2520 0087 : 066 0 2520 0088 : 066 0 2520 0089 : 066 0 2520 0090 : 066 0 2520 0091 : 066 0 2520 0092 : 066 0 2520 0093 : 066 0 2520 0094 : 066 0 2520 0095 : 066 0 2520 0096 : 066 0 2520 0097 : 066 0 2520 0098 : 066 0 2520 0099 : 066 0 2520 0100 : 066 0 2520 0101 : 066 0 2520 0102 : 066 0 2520 0103 : 066 0 2520 0104 : 066 0 2520 0105 : 066 0 2520 0106 : 066 0 2520 0107 : 066 0 2520 0108 : 066 0 2520 0109 : 066 0 2520 0110 : 066 0 2520 0111 : 066 0 2520 0112 : 066 0 2520 0113 : 066 0 2520 0114 : 066 0 2520 0115 : 066 0 2520 0116 : 066 0 2520 0117 : 066 0 2520 0118 : 066 0 2520 0119 : 066 0 2520 0120 : 066 0 2520 0121 : 066 0 2520 0122 : 066 0 2520 0123 : 066 0 2520 0124 : 066 0 2520 0125 : 066 0 2520 0126 : 066 0 2520 0127 : 066 0 2520 0128 : 066 0 2520 0129 : 066 0 2520 0130 : 066 0 2520 0131 : 066 0 2520 0132 : 066 0 2520 0133 : 066 0 2520 0134 : 066 0 2520 0135 : 066 0 2520 0136 : 066 0 2520 0137 : 066 0 2520 0138 : 066 0 2520 0139 : 066 0 2520 0140 : 066 0 2520 0141 : 066 0 2520 0142 : 066 0 2520 0143 : 066 0 2520 0144 : 066 0 2520 0145 : 066 0 2520 0146 : 066 0 2520 0147 : 066 0 2520 0148 : 066 0 2520 0149 : 066 0 2520 0150 : 066 0 2520 0151 : 066 0 2520 0152 : 066 0 2520 0153 : 066 0 2520 0154 : 066 0 2520 0155 : 066 0 2520 0156 : 066 0 2520 0157 : 066 0 2520 0158 : 066 0 2520 0159 : 066 0 2520 0160 : 066 0 2520 0161 : 066 0 2520 0162 : 066 0 2520 0163 : 066 0 2520 0164 : 066 0 2520 0165 : 066 0 2520 0166 : 066 0 2520 0167 : 066 0 2520 0168 : 066 0 2520 0169 : 066 0 2520 0170 : 066 0 2520 0171 : 066 0 2520 0172 : 066 0 2520 0173 : 066 0 2520 0174 : 066 0 2520 0175 : 066 0 2520 0176 : 066 0 2520 0177 : 066 0 2520 0178 : 066 0 2520 0179 : 066 0 2520 0180 : 066 0 2520 0181 : 066 0 2520 0182 : 066 0 2520 0183 : 066 0 25

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	<h2 style="margin: 0;">Analysis / Test Report</h2>		<p>TESTING No. 0009</p>
<p>Client : WNA (Willem and Power Public Company Limited) 111 Moo 7, Nongklatrads Road, Nongklatmoh, Bangkhuae, Samut Prakan Thailand 10140</p> <p>P/O :</p> <p>Project Name : - Factory / Monthly</p> <p>Project Location : WNA SI,</p>	<p>Lot ID: 2518136 Date Received : Mar 15, 2025 Date Recreated : Mar 15, 2025 Report Number : 2459031-1</p>	<p style="text-align: right;">Page 1 of 2</p>	
<p>Technical Management</p> <div style="text-align: center; margin-top: 20px;">  Siriluk Puthak Service Head siriluk.p@wna.co.th </div>	<p>Approved by</p> <div style="text-align: center; margin-top: 20px;">  Kanchanum Anuk National General Manager wna@wna.co.th </div>		
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<p><small>ISO 9001:2015 (WNA) (Willem and Power Public Company Limited) 111 Moo 7, Nongklatrads Road, Nongklatmoh, Bangkhuae, Samut Prakan Thailand 10140</small></p>			
<p>Life Sciences</p> <p style="color: red; font-weight: bold;">www.als-lab.com</p> <p style="color: red; font-weight: bold;">PHACET - KOLAS - PHOTON - PHOTON - PHOTON</p>			



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TESTING
No. 0508

Analysis / Test Report

Client: WWA (Utilities and Power Public Company Limited)
111 Rong 7, Bangpakdi Road, Nongmakong, Nongkhai, Saraburi Thailand 35140

P/O #: _____

Project Name: Factory 1 (Rorphy)
Project Location: WWA (S)

Sample Number: 2551817-1
Collected Date: Mar 13, 2023 10:30 AM
Group / Watermark: WWA-CT
Contract ID: SL-905, 2562
Location: (rate 5%)
Draw Analysis Commenced: Mar 14, 2023
Condition of Sample: Contained in one amber glass bottle and three plastic bottles. sample containers comply to pre-treatment - preservation standards (SWS/AFS)
Physical Property: (SWS/AFS) water, some solid and solid

Analysis	Unit	LOD (µg/L)	Result	Guideline / Specification	Method	Twisting Location
Water Testing						
BOD (5 days @ 20 degree C)	mg/L	< 2.0	283	< 500	Standard Methods for the Examination of Water and Wastewater, APHA, 19th ed., 2005, part 1923.6, part 4301, vol. 19, 2002	Saraburi
COD	mg/L	< 25	463	< 750	Standard Methods for the Examination of Water and Wastewater, APHA, 19th ed., 2005, part 1923.6, part 4301, vol. 19, 2002	Saraburi
Oil & Grease	mg/L	< 3	7	< 10	Standard Methods for the Examination of Water and Wastewater, APHA, 19th ed., 2005, part 1923.6, part 4301, vol. 19, 2002	Saraburi
pH (on site) *		< 4.3	5.5-6.0		Standard Methods for the Examination of Water and Wastewater, APHA, 19th ed., 2005, part 1923.6, part 4301, vol. 19, 2002	Saraburi
Temperature *	Degree C	< 37.8	34.5		Standard Methods for the Examination of Water and Wastewater, APHA, 19th ed., 2005, part 1923.6, part 4301, vol. 19, 2002	Saraburi
Total Suspended Solids Dried at 105-130 degree C	mg/L	< 5	65	< 200	Standard Methods for the Examination of Water and Wastewater, APHA, 19th ed., 2005, part 1923.6, part 4301, vol. 19, 2002	Saraburi

Lot ID: 2518187
Date Received: Mar 13, 2023
Date Reported: Mar 16, 2023
Report Number: 254962-1

Page 1 of 1

Customer: Standard of WWA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling by: Teranont Pungkum (no document - 104-0-058)

Remarks:

- LOD = Limit of Detection
- LOQ = Limit of Quantitation (LOQ = 3.14 x LOD of Analytical)
- Analyst's remark: * Acid not included in scope of accreditation ISO/IEC 17025
- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management

Siriruk P

Siriruk Pungkum
Saraburi Head
Wastewater - 104-0-052

Approved by

Kanok An

Kanok An
Assistant Control Manager
Wastewater - 104-0-008

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Analysis / Test Report

Client: Uthairi Wasteline and Power Public Company Limited
 111 Moo 7, Bangpakdiwadi Road, Bangpakdi, Bangkok, Saraburi Thailand 18140

P/O #:

Project Name: Factory / Monthly

Project Location: Uthairi SA, 1

TESTING
 No.0008

Lot ID: 2518138
 Date Received: Mar 07, 2025
 Date Received: Mar 13, 2025
 Report Number: 2420434.01

Page 1 of 1

Sample Number: 2518138-1

Sample Date: Mar 02, 2025 11:30 AM

Sample Description: Group 1 Wastewater WWT-CF

Contract ID: SL-SD-2024 **Plot:** 7A **Site:** Sam Kook Thachooon Co., Ltd.



Analysis Comments: Mar 06, 2025

Condition of Sample: Submitted in one amber glass bottles and three plastic bottles, sample containers comply to pre-determined preservation standards (ASTM D1557A).

Physical Property: Yellow, opaque color, solid, and non-hazard

Physical Property	Unit	LOD	LOQ (mg/L)	Result	Guidance / Specification	Method	Testing Location
Water Testing BOD-5 (As at 25 Degree C)	mg/L	-	2.0	17.9	<500	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2019, para 5212 B, para 5100 - C-6	Nongkhai
COD	mg/L	-	25	66	<750	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2019, para 5212 D	Nongkhai
Oil & Grease		-	3	<3	110	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2019, para 5120 B	Nongkhai
pH (at 25 °C)		-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, 19th ed., 2019, para 4505 A, 4505 B, 4505 C, 4505 D, 4505 E, 4505 F, 4505 G, 4505 H, 4505 I, 4505 J, 4505 K, 4505 L, 4505 M, 4505 N, 4505 O, 4505 P, 4505 Q, 4505 R, 4505 S, 4505 T, 4505 U, 4505 V, 4505 W, 4505 X, 4505 Y, 4505 Z, 4505 AA, 4505 AB, 4505 AC, 4505 AD, 4505 AE, 4505 AF, 4505 AG, 4505 AH, 4505 AI, 4505 AJ, 4505 AK, 4505 AL, 4505 AM, 4505 AN, 4505 AO, 4505 AP, 4505 AQ, 4505 AR, 4505 AS, 4505 AT, 4505 AU, 4505 AV, 4505 AW, 4505 AX, 4505 AY, 4505 AZ, 4505 BA, 4505 BB, 4505 BC, 4505 BD, 4505 BE, 4505 BF, 4505 BG, 4505 BH, 4505 BI, 4505 BJ, 4505 BK, 4505 BL, 4505 BM, 4505 BN, 4505 BO, 4505 BP, 4505 BQ, 4505 BR, 4505 BS, 4505 BT, 4505 BU, 4505 BV, 4505 BW, 4505 BX, 4505 BY, 4505 BZ, 4505 CA, 4505 CB, 4505 CC, 4505 CD, 4505 CE, 4505 CF, 4505 CG, 4505 CH, 4505 CI, 4505 CJ, 4505 CK, 4505 CL, 4505 CM, 4505 CN, 4505 CO, 4505 CP, 4505 CQ, 4505 CR, 4505 CS, 4505 CT, 4505 CU, 4505 CV, 4505 CW, 4505 CX, 4505 CY, 4505 CZ, 4505 DA, 4505 DB, 4505 DC, 4505 DD, 4505 DE, 4505 DF, 4505 DG, 4505 DH, 4505 DI, 4505 DJ, 4505 DK, 4505 DL, 4505 DM, 4505 DN, 4505 DO, 4505 DP, 4505 DQ, 4505 DR, 4505 DS, 4505 DT, 4505 DU, 4505 DV, 4505 DW, 4505 DX, 4505 DY, 4505 DZ, 4505 EA, 4505 EB, 4505 EC, 4505 ED, 4505 EE, 4505 EF, 4505 EG, 4505 EH, 4505 EI, 4505 EJ, 4505 EK, 4505 EL, 4505 EM, 4505 EN, 4505 EO, 4505 EP, 4505 EQ, 4505 ER, 4505 ES, 4505 ET, 4505 EU, 4505 EV, 4505 EW, 4505 EX, 4505 EY, 4505 EZ, 4505 FA, 4505 FB, 4505 FC, 4505 FD, 4505 FE, 4505 FF, 4505 FG, 4505 FH, 4505 FI, 4505 FJ, 4505 FK, 4505 FL, 4505 FM, 4505 FN, 4505 FO, 4505 FP, 4505 FQ, 4505 FR, 4505 FS, 4505 FT, 4505 FU, 4505 FV, 4505 FW, 4505 FX, 4505 FY, 4505 FZ, 4505 GA, 4505 GB, 4505 GC, 4505 GD, 4505 GE, 4505 GF, 4505 GG, 4505 GH, 4505 GI, 4505 GJ, 4505 GK, 4505 GL, 4505 GM, 4505 GN, 4505 GO, 4505 GP, 4505 GQ, 4505 GR, 4505 GS, 4505 GT, 4505 GU, 4505 GV, 4505 GW, 4505 GX, 4505 GY, 4505 GZ, 4505 HA, 4505 HB, 4505 HC, 4505 HD, 4505 HE, 4505 HF, 4505 HG, 4505 HH, 4505 HI, 4505 HJ, 4505 HK, 4505 HL, 4505 HM, 4505 HN, 4505 HO, 4505 HP, 4505 HQ, 4505 HR, 4505 HS, 4505 HT, 4505 HU, 4505 HV, 4505 HW, 4505 HX, 4505 HY, 4505 HZ, 4505 IA, 4505 IB, 4505 IC, 4505 ID, 4505 IE, 4505 IF, 4505 IG, 4505 IH, 4505 II, 4505 IJ, 4505 IK, 4505 IL, 4505 IM, 4505 IN, 4505 IO, 4505 IP, 4505 IQ, 4505 IR, 4505 IS, 4505 IT, 4505 IU, 4505 IV, 4505 IW, 4505 IX, 4505 IY, 4505 IZ, 4505 JA, 4505 JB, 4505 JC, 4505 JD, 4505 JE, 4505 JF, 4505 JG, 4505 JH, 4505 JI, 4505 JJ, 4505 JK, 4505 JL, 4505 JM, 4505 JN, 4505 JO, 4505 JP, 4505 JQ, 4505 JR, 4505 JS, 4505 JT, 4505 JU, 4505 JV, 4505 JW, 4505 JX, 4505 JY, 4505 JZ, 4505 KA, 4505 KB, 4505 KC, 4505 KD, 4505 KE, 4505 KF, 4505 KG, 4505 KH, 4505 KI, 4505 KJ, 4505 KK, 4505 KL, 4505 KM, 4505 KN, 4505 KO, 4505 KP, 4505 KQ, 4505 KR, 4505 KS, 4505 KT, 4505 KU, 4505 KV, 4505 KW, 4505 KX, 4505 KY, 4505 KZ, 4505 LA, 4505 LB, 4505 LC, 4505 LD, 4505 LE, 4505 LF, 4505 LG, 4505 LH, 4505 LI, 4505 LJ, 4505 LK, 4505 LL, 4505 LM, 4505 LN, 4505 LO, 4505 LP, 4505 LQ, 4505 LR, 4505 LS, 4505 LT, 4505 LU, 4505 LV, 4505 LW, 4505 LX, 4505 LY, 4505 LZ, 4505 MA, 4505 MB, 4505 MC, 4505 MD, 4505 ME, 4505 MF, 4505 MG, 4505 MH, 4505 MI, 4505 MJ, 4505 MK, 4505 ML, 4505 MM, 4505 MN, 4505 MO, 4505 MP, 4505 MQ, 4505 MR, 4505 MS, 4505 MT, 4505 MU, 4505 MV, 4505 MW, 4505 MX, 4505 MY, 4505 MZ, 4505 NA, 4505 NB, 4505 NC, 4505 ND, 4505 NE, 4505 NF, 4505 NG, 4505 NH, 4505 NI, 4505 NJ, 4505 NK, 4505 NL, 4505 NM, 4505 NO, 4505 NP, 4505 NQ, 4505 NR, 4505 NS, 4505 NT, 4505 NU, 4505 NV, 4505 NW, 4505 NX, 4505 NY, 4505 NZ, 4505 OA, 4505 OB, 4505 OC, 4505 OD, 4505 OE, 4505 OF, 4505 OG, 4505 OH, 4505 OI, 4505 OJ, 4505 OK, 4505 OL, 4505 OM, 4505 ON, 4505 OO, 45	

[illegible]

	
Analysis / Test Report	
Client: WSA Utilities and River Public Company Limited 111 Hou T, Nongkhalad Road, Nongkhal, Bangkok, Sarsat Thailand 10140	TESTING No. 0009
FIG :	Let ID: 2518157
Project Name: Factory 1 Monthly	Date Received : Mar 11, 2020
Project Location: Nakhon Si Thammaraj	Date Reported : Mar 12, 2020
	Report Number : 20-04-013
(Page 1 of 2)	


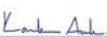
<p>Sample Number: 2518157-1</p> <p>Received Date: Mar 11, 2020 1:50 PM</p> <p>Sample Description: Group 2 Waterworks JPHM CT</p> <p>Contact ID: SI_044_2336 Pkt: 130 Site: SUR (Thailand) Co., Ltd.</p> <p>Dated Analysis Commenced: Mar 12, 2020</p> <p>Category of Sample: Sampling of clear amber glass bottles and three plastic bottles. samples customers comply to pretreatment - generation standards (JPHM/GSP/A)</p> <p>Physical Property: liquid, some solid, acid and buffer</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Analyte</th> <th>Unit</th> <th>LOQ</th> <th>(LOQ / Limit)</th> <th>Result</th> <th>Guideline / Specification</th> <th>Method</th> <th>Testing Location</th> </tr> </thead> <tbody> <tr> <td>Water Testing</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BOD (5 days at 20± degree C)</td> <td>mg/L</td> <td>-</td> <td>2.0</td> <td><20</td> <td>1000</td> <td>Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO: 2005 ed., 2017, part 5512B, para 8501 - 10</td> <td>Singapore</td> </tr> <tr> <td>COD</td> <td>mg/L</td> <td>-</td> <td>25</td> <td>90</td> <td>5700</td> <td>Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., part 5528 D</td> <td>Singapore</td> </tr> <tr> <td>O₂ & Diss</td> <td>mg/L</td> <td>-</td> <td>2</td> <td>9</td> <td>100</td> <td>Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A</td> <td>Singapore</td> </tr> <tr> <td>pH (in air) °C</td> <td>-</td> <td>-</td> <td>6.0</td> <td>5.5-8.0</td> <td></td> <td>Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A</td> <td>Singapore</td> </tr> <tr> <td>Temperature °C</td> <td>°C</td> <td>-</td> <td>35.0</td> <td>24.0</td> <td></td> <td>Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A</td> <td>Singapore</td> </tr> <tr> <td>Total Suspended Solids dried at 103-105 degree C</td> <td>mg/L</td> <td>-</td> <td>5</td> <td>40</td> <td><1000</td> <td>Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A</td> <td>Singapore</td> </tr> </tbody> </table>	Analyte	Unit	LOQ	(LOQ / Limit)	Result	Guideline / Specification	Method	Testing Location	Water Testing								BOD (5 days at 20± degree C)	mg/L	-	2.0	<20	1000	Standard Methods for the Examination of Water and Wastewater, APHA, ASTM & ISO: 2005 ed., 2017, part 5512B, para 8501 - 10	Singapore	COD	mg/L	-	25	90	5700	Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., part 5528 D	Singapore	O ₂ & Diss	mg/L	-	2	9	100	Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A	Singapore	pH (in air) °C	-	-	6.0	5.5-8.0		Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A	Singapore	Temperature °C	°C	-	35.0	24.0		Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A	Singapore	Total Suspended Solids dried at 103-105 degree C	mg/L	-	5	40	<1000	Standard Methods for the Examination of water and wastewater, APHA, ASTM & ISO: 2005 ed., parts 5510 B and 5510 A	Singapore
Analyte	Unit	LOQ	(LOQ / Limit)	Result	Guideline / Specification	Method	Testing Location																																																										
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Guidance: Standard of WSA Sarasin Industrial Land, Maximum levels for wastewater discharging to central sewerage treatment plant.

Complying by: Wastewater Picking-up standard allowed >204 <1020

Remark:

- 1.00 = 1.00% (Limit of detection)
- 1.00 = 1.00 mg/L (Limit of Quantitation) (1.00 µg/g or 100ppm)
- Avoidable method "A" are not included in scope of accreditation (ISO/IEC 17025). Sampling is not included in scope of accreditation (ISO/IEC 17025).

Technical Measurement  Sumrit Channagarn Scientist III Incorporated >204 <1020	Approved by  Karikson Ann Assistant General Manager Incorporated >204 <1020
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This report has been prepared exclusively for the sample(s) described above. This report does not constitute a contract between the laboratory and the client. The laboratory shall not be held responsible for any loss or damage arising from the use of this report for purposes other than those intended.

©2019-2020 ALS Environmental Services Pty. Ltd., Phnom Penh Laboratory, Khmer Street, Bangkok 10252 Thailand PHONE: +66 9 2520 8900 FAX: +66 9 2520 8907
15000015-154 Phnom Penh Lab, Phnom Penh, KH www.alsphnlab.com Email: info@alsphnlab.com Singapore Laboratory 15000015-154 Phnom Penh Lab, Phnom Penh, KH www.alsphnlab.com Email: info@alsphnlab.com
RECEIVED BY: SUMRIT CHANNAGARN DATE: 2020-03-11 10:00 AM

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.


ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.


ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.

ALS logo and analysis details for WWA Utilities and Power Public Company Limited. Includes project name, location, and a table of test results for water and wastewater samples. The table has columns for Analyte, Unit, LOD, LOQ, Result, Guidelines / Specification, Method, and Testing Location. Results are provided for parameters like BOD, COD, Oil & Grease, pH, and Temperature.



Analysis / Test Report



Client: WWA Utilities and Power Public Company Limited
 111 Moo 7, Bangkhalak Road, Bangkhalak, Bangkhalak, Sarakut Thailand 81410

P/O: _____
Project Name: Factory 1 Monthly
Project Location: WWA S2

Sample Reference: 2518132-1
Sample Date: Mar 11, 2025 12:30 PM
Sample Description: Wastewater WWA CT
Control ID: S2, S21, 2504 **Plat:** 4-S2
Date Analysis Commenced: Mar 11, 2025
Conditions of Sample: (APHA/CFR),
 Natural, some other, acid, and turbid

Physical Property: _____

TESTING
NO DUODU

Lot ID: 2518132
Date Received: Mar 11, 2025
Date Reported: Mar 18, 2025
Report Number: 204306-0

Page 1 of 1


Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 Days @ 20 degree C)	mg/L	-	2.0	86.3	<500	Standard Methods for the Examination of water and wastewater, APHA, 20th ed., 2005, part 5210.5, part 5210.2-1	Saraburi
COD	mg/L	-	25	155	<750	Standard Methods for the Examination of water and wastewater, APHA, 20th ed., 2005, part 5210.5, part 5210.2-1	Saraburi
Oil & Grease	mg/L	-	3	<3	<10	Standard Methods for the Examination of water and wastewater, APHA, 20th ed., 2005, part 5210.5, part 5210.2-1	Saraburi
pH (at 25 °C)	-	-	-	7.5	5.5-9.0	Standard Methods for the Examination of water and wastewater, APHA, 20th ed., 2005, part 9104, part 9104-1	Saraburi
Temperature °C	Degree C	-	-	33.7	1-45	Standard Methods for the Examination of water and wastewater, APHA, 20th ed., 2005, part 9104, part 9104-1	Saraburi
Total Suspended Solids dried at 103-105 °C 4h	mg/L	-	5	48	<200	Standard Methods for the Examination of water and wastewater, APHA, 20th ed., 2005, part 2540, part 2540-1	Saraburi

Guideline: Standard of WWA Sarakut Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant.


Sampling: by Wastewater Pumping (exceedance) >204 <220

Remark:
 - LOD : Limit of Detection
 - LOQ : Lower limit of quantification (1/10 R of and depending)
 - Method number : Not used included in scope of Accreditation ISO 17025.
 Sampling is not included in scope of accreditation ISO 9001:2015

Technical Management



 Somchai Chamsangkarn
 Scientist (S)
 incharge >204 <2028

Approved by



 Kanyarat Aue
 Resident General Manager
 incharge >204 <2004

Printed and sent to the Client and/or others after the checking and approval of the technical and administrative staff by the Laboratory.

REFERENCE: ISO 9001:2015, ISO 17025:2017, ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 26000:2010, ISO 27001:2017, ISO 28001:2017, ISO 29001:2018, ISO 31000:2018, ISO 34001:2018, ISO 37001:2017, ISO 39001:2018, ISO 40001:2018, ISO 43001:2018, ISO 45001:2018, ISO 50001:2018, ISO 55001:2018, ISO 56001:2018, ISO 59001:2018, ISO 60001:2018, ISO 63001:2018, ISO 64001:2018, ISO 65001:2018, ISO 68001:2018, ISO 70001:2018, ISO 73001:2018, ISO 74001:2018, ISO 75001:2018, ISO 76001:2018, ISO 77001:2018, ISO 78001:2018, ISO 79001:2018, ISO 80001:2018, ISO 81001:2018, ISO 82001:2018, ISO 83001:2018, ISO 84001:2018, ISO 85001:2018, ISO 86001:2018, ISO 87001:2018, ISO 88001:2018, ISO 89001:2018, ISO 90001:2018, ISO 91001:2018, ISO 92001:2018, ISO 93001:2018, ISO 94001:2018, ISO 95001:2018, ISO 96001:2018, ISO 97001:2018, ISO 98001:2018, ISO 99001:2018, ISO 10001:2018, ISO 101001:2018, ISO 102001:2018, ISO 103001:2018, ISO 104001:2018, ISO 105001:2018, ISO 106001:2018, ISO 107001:2018, ISO 108001:2018, ISO 109001:2018, ISO 110001:2018, ISO 111001:2018, ISO 112001:2018, ISO 113001:2018, ISO 114001:2018, ISO 115001:2018, ISO 116001:2018, ISO 117001:2018, ISO 118001:2018, ISO 119001:2018, ISO 120001:2018, ISO 121001:2018, ISO 122001:2018, ISO 123001:2018, ISO 124001:2018, ISO 125001:2018, ISO 126001:2018, ISO 127001:2018, ISO 128001:2018, ISO 129001:2018, ISO 130001:2018, ISO 131001:2018, ISO 132001:2018, ISO 133001:2018, ISO 134001:2018, ISO 135001:2018, ISO 136001:2018, ISO 137001:2018, ISO 138001:2018, ISO 139001:2018, ISO 140001:2018, ISO 141001:2018, ISO 142001:2018, ISO 143001:2018, ISO 144001:2018, ISO 145001:2018, ISO 146001:2018, ISO 147001:2018, ISO 148001:2018, ISO 149001:2018, ISO 150001:2018, ISO 151001:2018, ISO 152001:2018, ISO 153001:2018, ISO 154001:2018, ISO 155001:2018, ISO 156001:2018, ISO 157001:2018, ISO 158001:2018, ISO 159001:2018, ISO 160001:2018, ISO 161001:2018, ISO 162001:2018, ISO 163001:2018, ISO 164001:2018, ISO 165001:2018, ISO 166001:2018, ISO 167001:2018, ISO 168001:2018, ISO 169001:2018, ISO 170001:2018, ISO 171001:2018, ISO 172001:2018, ISO 173001:2018, ISO 174001:2018, ISO 175001:2018, ISO 176001:2018, ISO 177001:2018, ISO 178001:2018, ISO 179001:2018, ISO 180001:2018, ISO 181001:2018, ISO 182001:2018, ISO 183001:2018, ISO 184001:2018, ISO 185001:2018, ISO 186001:2018, ISO 187001:2018, ISO 188001:2018, ISO 189001:2018, ISO 190001:2018, ISO 191001:2018, ISO 192001:2018, ISO 193001:2018, ISO 194001:2018, ISO 195001:2018, ISO 196001:2018,



Analysis / Test Report



Client WMA Utilities and Power Public Company Limited
 111 Rue 7, Nongkhalang Road, Nongkhalang, Nongkhalang, Sarakun Thailand 91240

P/O ID Project Name : Factory 1 Monthly
 Project Location : WMA-PS-5

TESTING
 No. 0009

Lot ID: 2518148
 Date Received : 16 Jul 2025
 Date Reported : 16 Jul 2025
 Report Number : 3263944-0

Page 1 of 1

Sample Number	2518148-1					
Sample Date	Mon 12, 2025 1:25 PM					
Sample Description	Group 2 Wastewater WMA-CT					
Control ID	SL_076_2587	Phi	130-134	Site	WMA Corporation Public Limited Company	
Date Analysis Commenced	Mon 13, 2025					
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, 16.03.04)					
Physical Property	Liquid, at 44 °C, color, and turbid					

Analysis	Unit	LOD	LOQ	Result	Guidelines / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 degree C)	mg/L	—	2.0	83.6	1500	Standard Methods for the Examination of water and wastewater, APHA, 1995, 5051-5053, 2005, 5011, 2005, 5011-5018, 5019-5021, 5021-5022	Saragun
COD	mg/L	—	25	212	6750	Standard Methods for the Examination of water and wastewater, APHA, 1995, 5051-5053, 2005, 5011, 2005, 5011-5018, 5019-5021, 5021-5022	Saragun
Oil & Grease	mg/L	—	3	<3	110	Standard Methods for the Examination of water and wastewater, APHA, 1995, 5051-5053, 2005, 5011, 2005, 5011-5018, 5019-5021, 5021-5022	Saragun
pH (in air) °C	—	—	—	7.8	5.5-6.0	Standard Methods for the Examination of water and wastewater, APHA, 1995, 5051-5053, 2005, 5011, 2005, 5011-5018, 5019-5021, 5021-5022	Saragun
Temperature °C	—	—	—	35.2	14.5	Standard Methods for the Examination of water and wastewater, APHA, 1995, 5051-5053, 2005, 5011, 2005, 5011-5018, 5019-5021, 5021-5022	Saragun
Total Suspended Solids (dry at 103-105 degree C)	mg/L	—	5	52	6300	Standard Methods for the Examination of water and wastewater, APHA, 1995, 5051-5053, 2005, 5011, 2005, 5011-5018, 5019-5021, 5021-5022	Saragun


Guidelines : Standard of WMA Sarakun Industrial Land. Maximum levels for wastewater discharge to central wastewater treatment plant.

Sampling by : Channasorn Suanwong (wastewater) > 2304-0240

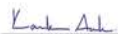
Remark :

- LOD : Limit of Detection
- LOQ : Lower Limit of Quantification
- LOE : Limit of Reporting
- Significantly modified : Not used and included in scope of Accreditation ISO 17025.
- Sampling is not included in scope of accreditation ISO 9001:2015

Technical Management


 Channasorn Suanwong
 Supervisor
 wmsdmsdmsd-1, 2304-0238



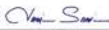

Approved by


 Kanyasorn Anan
 Business General Manager
 wmsdmsdmsd-1, 2304-0008



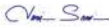

Note: This report is only valid for the purpose stated on the report. For any other purpose, the client must obtain a separate report.


REFERENCE: ISO 17025:2017, ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 55001:2018, ISO 56001:2018, ISO 59001:2018, ISO 60001:2018, ISO 63001:2018, ISO 64001:2018, ISO 65001:2018, ISO 66001:2018, ISO 67001:2018, ISO 68001:2018, ISO 69001:2018, ISO 70001:2018, ISO 71001:2018, ISO 72001:2018, ISO 73001:2018, ISO 74001:2018, ISO 75001:2018, ISO 76001:2018, ISO 77001:2018, ISO 78001:2018, ISO 79001:2018, ISO 80001:2018, ISO 81001:2018, ISO 82001:2018, ISO 83001:2018, ISO 84001:2018, ISO 85001:2018, ISO 86001:2018, ISO 87001:2018, ISO 88001:2018, ISO 89001:2018, ISO 90001:2018, ISO 91001:2018, ISO 92001:2018, ISO 93001:2018, ISO 94001:2018, ISO 95001:2018, ISO 96001:2018, ISO 97001:2018, ISO 98001:2018, ISO 99001:2018, ISO 10001:2018, ISO 101001:2018, ISO 102001:2018, ISO 103001:2018, ISO 104001:2018, ISO 105001:2018, ISO 106001:2018, ISO 107001:2018, ISO 108001:2018, ISO 109001:2018, ISO 110001:2018, ISO 111001:2018, ISO 112001:2018, ISO 113001:2018, ISO 114001:2018, ISO 115001:2018, ISO 116001:2018, ISO 117001:2018, ISO 118001:2018, ISO 119001:2018, ISO 120001:2018, ISO 121001:2018, ISO 122001:2018, ISO 123001:2018, ISO 124001:2018, ISO 125001:2018, ISO 126001:2018, ISO 127001:2018, ISO 128001:2018, ISO 129001:2018, ISO 130001:2018, ISO 131001:2018, ISO 132001:2018, ISO 133001:2018, ISO 134001:2018, ISO 135001:2018, ISO 136001:2018, ISO 137001:2018, ISO 138001:2018, ISO 139001:2018, ISO 140001:2018, ISO 141001:2018, ISO 142001:2018, ISO 143001:2018, ISO 144001:2018, ISO 145001:2018, ISO 146001:2018, ISO 147001:2018, ISO 148001:2018, ISO 149001:2018, ISO 150001:2018, ISO 151001:2018, ISO 152001:2018, ISO 153001:2018, ISO 154001:2018, ISO 155001:2018, ISO 156001:2018, ISO 157001:2018, ISO 158001:2018, ISO 159001:2018, ISO 160001:2018, ISO 161001:2018, ISO 162001:2018, ISO 163001:2018, ISO 164001:2018, ISO 165001:2018, ISO 166001:2018, ISO 167001:2018, ISO 168001:2018, ISO 169001:2018, ISO 170001:2018, ISO 171001:2018, ISO 172001:2018, ISO 173001:2018, ISO

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	<h2 style="margin: 0;">Analysis / Test Report</h2>						
Client: WWSA Offshore and Power Public Company Limited 113 Moo 2, Nongkluang Road, Nongkluang, Bangkok, Thailand 10240		TESTING No. 0009 Lot ID: 257113 Sample Received: Apr 03, 2025 Date Reported: Apr 09, 2025 Report Number: 20250221-0					
P/O #: Project Name: Factory / Municipality Local Location: (SNA 52)		(SNA 52)					
Sample Number: 257113-1 Sampled Date: Apr 03, 2025 13:18 AM Sample Description: Group 2 Wastewater WWS-CF 10L, 40L, 250L Plot: 95D Date Analysis Commenced: Apr 04, 2025 Condition of Sample (AHS-0029): Combined in one amber glass bottles and three plastic bottles, sample containers comply to pretreatment – preservation standards (Yellow, some residue, solid and turbid)							
Physical Property:							
Analysis	Unit	LOD	LOQ	Result	Guideline / Spec. Fraction	Method	Testing Location
Water Testing ISO-C1 Acid at 20+ Degree C	mg/L	-	2.0	13.4	≤500	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & ISO, 1998 ed., 2023, part 522.0	Bangkok
COD	mg/L	-	25	84	1750	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & ISO, 1998 ed., 2023, part 522.0	Bangkok
Oil & Grease	mg/L	-	3	3	110	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & ISO, 1998 ed., 2023, part 502.0	Bangkok
pH (in air) *	-	-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & ISO, 1998 ed., 2023, part 4500 - 10 (B)	Bangkok
Temperature *	Degree C	-	-	32.9	14.5	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & ISO, 1998 ed., 2023, part 1930.0	Bangkok
Total Suspended Solids Determined at 103-300 Degree C	mg/L	-	3	18	≤200	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & ISO, 1998 ed., 2023, part 2540.0	Bangkok
Reference: Standard of WWSA Sanction Industrial Land, Maximum limits for wastewater discharging to central wastewater treatment plant.							
Sampling by: Unsupervised Personnel (unaccredited) – 2024-00070							
Notes: * ISO = 10L of collected * ISO = 1000 mL (10L) of (Quintuplicate) (10L) and (duplicate) * Analytical method * has not included in order of Accreditation ISO/IEC 17025 * Including final residue in case of re-analysis (ISO/IEC 17025)							
Technical Management <div style="text-align: center; margin-top: 10px;">  Nara Sattang Supervisor unaccredited – 2024-00009 </div>		Approved by: <div style="text-align: center; margin-top: 10px;">  Kadee An Sanction Area Accredited National Manager accredited – 2024-00004 </div>					
This report is the property of ALS and may contain confidential information. It is loaned to you for diagnostic purposes only and is not to be re-used or further distributed.							
ALBERTUS (THAI) HOLDINGS CO., LTD. (Incorporated in Thailand), 113 Moo 2, Nongkluang Road, Nongkluang, Bangkok, Thailand 10240 (Phone: +662-0-00000000) Fax: +662-0-00000000 www.alsglobal.com							


[illegible][illegible]

	 SGS ENVIRONMENTAL SERVICES	<h2 style="margin: 0;">Analysis / Test Report</h2>	TESTING No. 00509 Lot ID: 2527084 Date Received : April 06, 2023 Date Reported : April 06, 2023 Report Number : J008093-4				
Client : OHA Industries and Power Public Company Limited 111 Moo 7, Bangkapi Road, Bangkapi, Bangkok, Thailand (SR4)							
P/O # : Project Name : Factory / Monthly Project Location : (SR4, SI)							
Sample Number 2527084-1 Sampled Date Apr 03, 2025 13:35 AM Sample Description Contract ID GCL_2004 Date Analysis Commenced Apr 04, 2025	Flow Chart Pict. 39 Data Entry Personnel Y.P.C. Conditions of Sample (APHA/USEPA) Yellow, some colour, solid and no turbid	Site DSG International (Thailand) P.L.C. Physical Property Combined in one amber glass bottle and three plastic bottles, sample containers comply to pretestment / preservation standards					
Analyte	Unit	LOD [mg/L]	LOQ [mg/L]	Result	Guideline / Specification	Method	Testing Location
BOD ₅ @ 20°C (at 20 °C)	mg/L	-	2.0	13.8	<500	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF, 19th ed., 2023 (april 2023) 5210 B	bangkok
CCO	mg/L	-	25	54	<750	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF, 19th ed., 2023 (april 2023) 5210 F	bangkok
Oil & Grease	mg/L	-	3	<3	<10	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF, 19th ed., 2023 (april 2023) 5520 B	bangkok
pH (at 20 °C) *	-	-	-	7.3	5.5-9.0	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF, 19th ed., 2023 (april 2023) 9100 - (B)	bangkok
Temperature *	Degree C	-	-	31.2	<45	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF, 19th ed., 2023 (april 2023) 2550 B	bangkok
Total Suspended Solids Determined at 102 ± 30°C Degree C	mg/L	-	3	?	<200	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF, 19th ed., 2023 (april 2023) 2540 D	bangkok
<p>Guideline: Standard of RWS Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.</p> <p>Sampling By: Normalized Personnel certificate# = J008093-002</p> <p>Remark:</p> <ul style="list-style-type: none"> *LOE = Limit of Detection *LUL = Lower Limit of Quantitation (LOE x 10, due to Reporting) *Analytically measured * Not met or failed in test of Accreditation ISO/IEC 17025 *Sampling In accordance to scope of accreditation ISO/IEC 17025 							
Technical Management  Nalin Sattang Supervisor certificate# = J008093-00000		Approved by  Kachan An Assistant General Manager certificate# = J008093-00004					
Thank you! If we have any questions while reviewing the results, please do not hesitate to contact us. We are happy to respond promptly to your queries while ensuring the integrity of our services.							
ADDRESS: 601/601/1, Phra Pradaeng Rd., Phra Pradaeng District, Samut Prakan Province, Bangkok 10130 (THAILAND) PHONE: +66(0) 2624 1111 FAX: +66(0) 2624 1112 E-MAIL: info@sgslab.com www.sgslab.com © 2023 SGS Environmental Services							
SGS SGS Environment		RMCT SOLUTIONS RMCT POWER CORP.					



ALS
ANALYTICAL SERVICES

Analysis / Test Report



TESTING
No: 0009
Lot ID: 2527105
 Date Received: April 29, 2025
 Report Number: April 29, 2025
 Data Reported: 5/5/2025 4:14

Client: UWA Utilities and Power Public Company Limited
 (111 No. 7, Bangna-Phra-Uthit Road, Bangnaeng, Bangkok, Thailand 10260)

P/O #: _____

Project Name: Factory / Monthly

Project Location: (UWA 52)

Page 1 of 1

Sample Number: 252105-1

Sample Date: April 23, 2025 9:45 AM

Sample Description: Part 2 Wastewater W9-47

Lab. Code: 252105 **File #:** 142 **Site:** P70 (Sawatchi) Co., Ltd

Date Analysis Commenced: April 24, 2025

Condition of Sample (UWAHS-0259): Collected in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (yellow, some odour, solid and no turbid)

Physical Property	Analyte	Unit	1000 [100%]	Result	Unit/Value / Specification	Method	Testing Location
Water Testing	800-12 (See April 22 Report)	mg/L	+	2.6	133.9	Standard Methods for the Examination of water and Wastewater, 19th ed., 2018	Bangkok
CO2		mg/L	+	25	71	Standard Methods for the Examination of water and Wastewater, 19th ed., 2018	Bangkok
Oil & Grease		mg/L	+	3	<3	Standard Methods for the Examination of water and Wastewater, 19th ed., 2018	Bangkok
pH (see April 22 Report)			+	-	7.5	Standard Methods for the Examination of water and Wastewater, 19th ed., 2018	Bangkok
Temperature		Degree C	+	-	36.7	Standard Methods for the Examination of water and Wastewater, 19th ed., 2018	Bangkok
Total Suspended Solids Determined at 120-150 Degree C		mg/L	+	5	?	Standard Methods for the Examination of water and Wastewater, 19th ed., 2018	Bangkok

Reference: Standard of WWA Sawatchi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plants.

Sampling By: Reported Personnel (indicated by +) (209-1002).

Notes:

- 100 = 100 ml of Sample
- 1000 = 1000 ml of Sample (1.0L) and (see Reporting)
- Analytically Invalid - "Not met specified to scope of Accreditation ISO 17025:2017"
- Insoluble in water (added to scope of accreditation ISO 17025:2017)

Technical Management

Chai Sam

Barin Sattang
Supervisor
indicated by + (204-1000)

Approved by

Kan An


Asst. Director
Assistant General Manager
indicated by + (204-1008)

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Analysis / Test Report



Client: ANS Oils and Rener Public Company Limited
 111 Rue 7, Bangkok Road, Bangkok, Bangkok, Thailand (8140)

P/O:

Project Name: Factory 1 Morib

Project Location: ANS CG

Sample Number: 1327069-1

Sampled Date: Apr 03, 2025 @ 01 AM

Sample Description: Grade 2 Wastewater WWS CT

Contract ID: US_002_2394 **Ph:** 77.78

Date Analysis Commenced: Apr 04, 2025

Condition of Sample (NHAH-502P): Coloured, a few amber glass bottle and three plastic bottle, sample containers comply to pre-treatment - preservation standard (volume, name, source, sealed and labeled)

Physical Property

Analyte	Unit	100	100	Result	Guideline / Specification	Method	Testing Location
		0.00	0.00				
Water Testing							
CO ₂ (in 20 ml @ 20 degree C)	mg/L	-	2.0	32.11	1300	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2012, apoc 1210 B-100, apoc 12-2	Samguk
CO ₂	mg/L	-	25	42	1750	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2012, apoc 1320 B-100	Samguk
Oil & Grease	mg/L	-	3	<3	110	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2012, apoc 1522 B-100	Samguk
pH (at 20 degree C)	-	-	-	6.2	5.5-8.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2012, apoc 4500 - (v-30)	Samguk
Temperature	degree C	-	-	36.3	143	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2012, apoc 2100 B-100	Samguk
Total Suspended Solids (dried at 102-103 degree C)	mg/L	-	5	14	1200	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2012, apoc 2540 B-100	Samguk

TESTING
Lot ID: 2527065
Date Received: Apr 06, 2025
Date Reported: Apr 06, 2025
Report Number: 1320-060-1

Page 1 of 1

Guideline: Standard of NHA Sanitary Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling By: Samguk Personnel (enclosed by 200 x 100 P)

Remarks:

- 1.0 - 1.00 L of Sample
- 1.0 - 1.00 L (Lower limit of Quantitation) 1.00 L (End of Reporting)
- Anybody tested * As per result included in Scope of Accreditation (SCAC) / PDS
- Issuing to you included in scope of accreditation (SCAC) / PDS

Technical Management

Ch. Sam

Name Surname
Supervisor
Inclused by 200 x 100-0008

Approved by

K. A. Al

Kasabulay Aun
Resident General Manager
Inclused by 200 x 100-0008

Results and/or test results are intended as advisory only. They are not intended to be used as a legal basis for any action. The responsibility for the use of the results rests with the client.

ADDRESS: 60 Phothachulalongkornrajavidyalaya Rd., Phothachulalongkorn Rajavidyalaya, Phrae Sang, Bangkok 10250 (THAILAND) TEL: 091-08-2722-880 135-438-2722-880

Branch: 60 Phothachulalongkornrajavidyalaya Rd., Phothachulalongkorn Rajavidyalaya, Phrae Sang, Bangkok 10250 (THAILAND)

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	<h2 style="margin: 0;">Analysis / Test Report</h2>																																																																	
Client: WTA Utilities and Power Public Company Limited 111 Rue 7, Songkhla Road, Nongkheung, Nongkheung, Saraburi Thailand (SR140)	TESTING Ref: 0008	Lot ID: 2527067 Date Received: Apr 02, 2025 Date Reported: Apr 29, 2025 Report Number: 3203694.0																																																																
P/F ID: _____ Project Name: / Factory / Monthly _____ Project Location: WTA 321 _____	(Rev. 04)																																																																	
Sample Number: 2527067-1 Sample Date: Apr 02, 2025 8:23 AM Sample Description: Group 2 Wastewater WTA CT Contract ID: SL 3607, 2594 Flt 2 Location: _____ Date Analysis Completed: Apr 02, 2025 Condition of Sample: Coloured in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (ISO 3270) Physical Property: Pellets, some solid, solid and no turbid	Site: Guardian Industries Corp Ltd.																																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Analyte</th> <th>Unit</th> <th>LOD</th> <th>LOQ</th> <th>Result</th> <th>Guideline / Specification</th> <th>Method</th> <th>Testing Location</th> </tr> </thead> <tbody> <tr> <td colspan="8"> Water Testing </td> </tr> <tr> <td>BOD (5 days at 20 degree C)</td> <td>mg/L</td> <td></td> <td>1.0</td> <td>2.8</td> <td><500</td> <td>Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6, part 5201.2, 2023, part 5212.6, part 5201.2</td> <td>Songkhro</td> </tr> <tr> <td>COD</td> <td>mg/L</td> <td></td> <td>25</td> <td>36</td> <td><750</td> <td>Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6, 2023, part 5212.6</td> <td>Songkhro</td> </tr> <tr> <td>Oil & Grease</td> <td>mg/L</td> <td></td> <td>3</td> <td><3</td> <td><10</td> <td>Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6</td> <td>Songkhro</td> </tr> <tr> <td>pH (in situ) *</td> <td>-</td> <td></td> <td>-</td> <td>7.6</td> <td>5.5-9.0</td> <td>Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 4504 - 4510</td> <td>Songkhro</td> </tr> <tr> <td>Temperature *</td> <td>Degree C</td> <td></td> <td>-</td> <td>31.8</td> <td>14-5</td> <td>Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 1901</td> <td>Songkhro</td> </tr> <tr> <td>Total Suspended Solids Dried at 103-105 degree C</td> <td>mg/L</td> <td></td> <td>5</td> <td>10</td> <td><200</td> <td>Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 2540.2</td> <td>Songkhro</td> </tr> </tbody> </table>			Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location	Water Testing								BOD (5 days at 20 degree C)	mg/L		1.0	2.8	<500	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6, part 5201.2, 2023, part 5212.6, part 5201.2	Songkhro	COD	mg/L		25	36	<750	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6, 2023, part 5212.6	Songkhro	Oil & Grease	mg/L		3	<3	<10	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6	Songkhro	pH (in situ) *	-		-	7.6	5.5-9.0	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 4504 - 4510	Songkhro	Temperature *	Degree C		-	31.8	14-5	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 1901	Songkhro	Total Suspended Solids Dried at 103-105 degree C	mg/L		5	10	<200	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 2540.2	Songkhro
Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location																																																											
Water Testing																																																																		
BOD (5 days at 20 degree C)	mg/L		1.0	2.8	<500	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6, part 5201.2, 2023, part 5212.6, part 5201.2	Songkhro																																																											
COD	mg/L		25	36	<750	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6, 2023, part 5212.6	Songkhro																																																											
Oil & Grease	mg/L		3	<3	<10	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 5212.6	Songkhro																																																											
pH (in situ) *	-		-	7.6	5.5-9.0	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 4504 - 4510	Songkhro																																																											
Temperature *	Degree C		-	31.8	14-5	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 1901	Songkhro																																																											
Total Suspended Solids Dried at 103-105 degree C	mg/L		5	10	<200	Standard Methods for the Examination of water and wastewater, 19th ed., 2023, part 2540.2	Songkhro																																																											
Guideline: Standard of WTA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.																																																																		
Sampling by: Nantawan Pempoon, inc@wta.net >204-0007																																																																		
Remarks: 1. LOD = Limit of Detection 2. LOQ = Lower Limit of Quantitation (1/10 of test of Reporting) 3. Analytical method * refers will included in scope of Accreditation (ISO/IEC 17025) 4. Sample is not included in scope of accreditation (ISO/IEC 17025)																																																																		
Technical Management <div style="text-align: center;">  Siriluk Poom Section Head inc@wta.net >204-0003 </div>	Approved by <div style="text-align: center;">  Kadee Aue Assistant General Manager inc@wta.net >204-0006 </div>																																																																	
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00000101-010 Phrayatulkarn Rd., Phrayatulkarn Rd., Khwaeng Phrayatulkarn, Khet Suan Phlu, Bangkok 10747 Thailand PHONE: +66 2 760 2700 FAX: +66 2 760 2702 EMAIL: inc@wta.net																																																																		
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Lot ID: 2527140
Date Received: Apr 02, 2025
Date Reported: Apr 06, 2025
Report Number: 3262880-5

Date Reported : Apr 08, 2025
Report Number : 3263980-2

Sample Number	2527140-1		
Sampled Date	Apr 02, 2025 10:30 AM		
Sample Description	Group 2 Wastewater WB-CT		
Contract ID	SL_007_2560	File	142/2 Site: NX SHOUZ (THAILAND) CO., LTD

Date Analysis Commenced	Apr 10, 2025
Conditions of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standard (NPHL/USEPA)

Physical Property		Units: Name, value, and unit of total and per barrel				Analysis			
		Vol	Val	LOQ	LOQ	Result	Specific/ General	Method	Test/ Detection
Water Testing									
ISO (15 days to 20 days @C)	mg/L	—	1.0	2.4	<500			Standard Methods for the Examination of water and wastewater, APHA, 2012A & 2005, 24th ed., 2012, part 1203 A, part 6000 - C-1	Sampling
CO ₂	mg/L	—	25	46	<150			Standard Methods for the Examination of water and wastewater, APHA, 2012A & 2005, 24th ed., 2012, part 1203 D	Sampling
Oil & Grease	mg/L	—	3	<3	<10			Standard Methods for the Examination of water and wastewater, APHA, 2012A & 2005, 24th ed., 2012, part 1202 B	Sampling
pH (in air) *		—	—	—	7.4	5.5-8.5		Standard Methods for the Examination of water and wastewater, APHA, 2012A & 2005, 24th ed., 2012, part 6040 - A-10	Sampling
Temperature *	Degree C	—	—	—	31.9	14-3		Standard Methods for the Examination of water and wastewater, APHA, 2012A & 2005, 24th ed., 2012, part 2510 B	Sampling
Total Suspended Solids Dried at 103 to 105 °C	mg/L	—	5	15	<200			Standard Methods for the Examination of water and wastewater, APHA, 2012A & 2005, 24th ed., 2012, part 2540 D	Sampling

Caution: Standard of APHA Sanjour Industrial Lab. Maximum levels for wastewater discharging to central wastewater treatment plant.

Summary:

- 1.00 : Limit of Detection
- >1.0 : Lower than 1.00 (Limit of Quantitation) / 1.00 (Limit of Reporting)

Sampling is not included in scope of accreditation (ISO/IEC 17001)

Yacht AI

Approved by _____
Kanderson Asst.

Section Head
enr@usmc.mil • 204-616-1111

Results apply to the population as a whole, unless the sampling was restricted to a sub-group. The report must include information on the sample size and the response rate.

APL 1A10A/10B CEDOP (15) 60 AND CO., LTD. An S2S United Company

Lot ID: 2527182
Date Received : Apr 02, 2025
Date Reported : Apr 06, 2025
Report Number : 3263903-2

Date Reported : Apr 09, 2025
Report Number : 3269902-2

Sample Number	2527552-1
Sampled Date	Apr 22, 2025 11:00 AM
Sample Description	Group 2 Wastewater W08 CT

Contract ID	SL_13_2594	Plot	36	Site	Ready Clean Co., Ltd.
Date Analysis Completed	Apr 03, 2025				
Condition of Sample	Contained in one white clear bottle and three white bottles. Second container contains no contentment. - contamination observed				

Physical Property		Unit	LOD	LOQ (LOD)	Result	Guideline / Specification	Method	Tested Location
Water Testing								
Anionic Surfactant as PBAS		mg/L	0.015	0.05	6.16	≤30	Based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 1995 ed., 1925 and 1930 B, C, 2	Enlarged

Guideline: Standard of WHO Geneva Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling by: Unfiltered Persimmon

Issued: 1/10/2024

Prepared by: [Signature]

Reviewed by: [Signature]

Checked by: [Signature]

Approved by: [Signature]

Lower than LOQ (Limit of Quantitation) (LOQ is limit of Reporting)

Approved by Siriluk P.

Srikala Bannath

Section Head

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Lot ID: 2527117
Date Received : Apr 05, 2025
Date Reported : Apr 07, 2025
Report Number : 3263829-6

Date Reported : Apr 07, 2025
Report Number : 3263829-6

Sample Number	2527113-1
Sampled Date	Apr 01, 2025 9:40 AM
Sample Description	Group 2 Wastewater W99-CT

Contract ID	02_07_2550	Plot	136	Site	Robit Hechatech (Thailand) Co., Ltd.
Date Analysis Commenced	Apr 02, 2025				
Condition of Sample	<p>Collected in one section along border and three other border. Inside sections covered in maintenance - communication along</p>				

Physical Property	Units	LOO	Low	Result	Conclusion	Guideline / Specification	Potential	Tissue Location
Water Testing BCKD 10 days at 28 degrees C	mg/L	1.00	2.0	16.8	< LOD	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Liver
COD	mg/L	-	25	80	1750	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Liver
Oil & Grease	-	-	3	43	110	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Liver
pH (in air) °C	-	-	-	8.2	5.5-8.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Liver
Temperature °C	Degrees C	-	-	25.1	19-25	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Liver
Total Suspended Solids Dry at 103-105 degree C	mg/L	-	5	24	< LOD	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 20th ed., 2005, part 9107-B, page 4500 - D-C	Liver

Sampling By : Chairatong Sribunnag (09488) t-254-y-0349

* (*) Lower than 100 (total of Quantitation) / 100 (total of Reporting)
Analytically method * is not included in scope of Accreditation ISO/IEC 17025
Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management: Summon C Approved by: Carl A

Summon Chaiwongpet

Scientist (3)
encl@uswest1-1-204-s-0018

Inserts used in the experiment are identified, and the findings are summarized in Table 1. The results indicate that the experimental design is valid without the aid of this device in the case

[illegible]

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE

[illegible]

TESTING
Nex 0001
Lot ID: 2527184
Date Received : Apr 02, 2018
Date Reported : Apr 08, 2018
Report Number : 3284001

Date Reported : Apr 09, 2025
Report Number : 3264051-0

Sampling is not included in scope of accreditation ISO/IEC 17021

Technical Management

Siriluk P.
Siriluk Bunrak
Section Head
encl@nrc.ca 1-204-9-0003

Approved by

Carole Ann
Carole Ann
Assistant General Manager
encl@nrc.ca 1-204-9-0004

Results apply to the certified or certified under the pending one controlled in A-1. This report and its contents are not to be used without the written approval of the Inspector.

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TESTING
No. 0001
Lot ID: 2527186
Date Received: Apr 07, 2011
Date Reported: Apr 15, 2011
Report Number: 3284003

Date Reported : Apr 15, 2025
Report Number : 3264093-2

Sample Number	2527186-1		
Sampled Date	Apr 07, 2025 9:50 AM		
Sample Description	Group 2 Watermeter 1004 CT		
Contract ID	522_000_2354	Plot 60	Site San Francisco Co, 33rd (2nd)
Date Analysis Commenced	Apr 06, 2025		
Conditions of Sample	Collected in one amber glass bottle and four plastic bottles, sample containers comply to pre-treatment - preservation standards (99.99, 100%)		

Physical Property	Yellow, some odour, solid and not fluted						
Analysis	Unit	LOD	LOQ	Result	Guidelines / Specifications	Method	Testing Location
Metals Testing							
Lead	mg/L	0.0003	0.0005	0.02	<0.2	Standard Methods for the Examination of Water and Wastewater, 19th, 4010-01-01, 4010-01-02, 4010-01-03, 4010-01-04, 4010-01-05, 4010-01-06, 4010-01-07, 4010-01-08, 4010-01-09, 4010-01-10, 4010-01-11, 4010-01-12, 4010-01-13, 4010-01-14, 4010-01-15, 4010-01-16, 4010-01-17, 4010-01-18, 4010-01-19, 4010-01-20, 4010-01-21, 4010-01-22, 4010-01-23, 4010-01-24, 4010-01-25, 4010-01-26, 4010-01-27, 4010-01-28, 4010-01-29, 4010-01-30, 4010-01-31, 4010-01-32, 4010-01-33, 4010-01-34, 4010-01-35, 4010-01-36, 4010-01-37, 4010-01-38, 4010-01-39, 4010-01-40, 4010-01-41, 4010-01-42, 4010-01-43, 4010-01-44, 4010-01-45, 4010-01-46, 4010-01-47, 4010-01-48, 4010-01-49, 4010-01-50, 4010-01-51, 4010-01-52, 4010-01-53, 4010-01-54, 4010-01-55, 4010-01-56, 4010-01-57, 4010-01-58, 4010-01-59, 4010-01-60, 4010-01-61, 4010-01-62, 4010-01-63, 4010-01-64, 4010-01-65, 4010-01-66, 4010-01-67, 4010-01-68, 4010-01-69, 4010-01-70, 4010-01-71, 4010-01-72, 4010-01-73, 4010-01-74, 4010-01-75, 4010-01-76, 4010-01-77, 4010-01-78, 4010-01-79, 4010-01-80, 4010-01-81, 4010-01-82, 4010-01-83, 4010-01-84, 4010-01-85, 4010-01-86, 4010-01-87, 4010-01-88, 4010-01-89, 4010-01-90, 4010-01-91, 4010-01-92, 4010-01-93, 4010-01-94, 4010-01-95, 4010-01-96, 4010-01-97, 4010-01-98, 4010-01-99, 4010-02-00, 4010-02-01, 4010-02-02, 4010-02-03, 4010-02-04, 4010-02-05, 4010-02-06, 4010-02-07, 4010-02-08, 4010-02-09, 4010-02-10, 4010-02-11, 4010-02-12, 4010-02-13, 4010-02-14, 4010-02-15, 4010-02-16, 4010-02-17, 4010-02-18, 4010-02-19, 4010-02-20, 4010-02-21, 4010-02-22, 4010-02-23, 4010-02-24, 4010-02-25, 4010-02-26, 4010-02-27, 4010-02-28, 4010-02-29, 4010-02-30, 4010-03-01, 4010-03-02, 4010-03-03, 4010-03-04, 4010-03-05, 4010-03-06, 4010-03-07, 4010-03-08, 4010-03-09, 4010-03-10, 4010-03-11, 4010-03-12, 4010-03-13, 4010-03-14, 4010-03-15, 4010-03-16, 4010-03-17, 4010-03-18, 4010-03-19, 4010-03-20, 4010-03-21, 4010-03-22, 4010-03-23, 4010-03-24, 4010-03-25, 4010-03-26, 4010-03-27, 4010-03-28, 4010-03-29, 4010-03-30, 4010-03-31, 4010-04-01, 4010-04-02, 4010-04-03, 4010-04-04, 4010-04-05, 4010-04-06, 4010-04-07, 4010-04-08, 4010-04-09, 4010-04-10, 4010-04-11, 4010-04-12, 4010-04-13, 4010-04-14, 4010-04-15, 4010-04-16, 4010-04-17, 4010-04-18, 4010-04-19, 4010-04-20, 4010-04-21, 4010-04-22, 4010-04-23, 4010-04-24, 4010-04-25, 4010-04-26, 4010-04-27, 4010-04-28, 4010-04-29, 4010-04-30, 4010-05-01, 4010-05-02, 4010-05-03, 4010-05-04, 4010-05-05, 4010-05-06, 4010-05-07, 4010-05-08, 4010-05-09, 4010-05-10, 4010-05-11, 4010-05-12, 4010-05-13, 4010-05-14, 4010-05-15, 4010-05-16, 4010-05-17, 4010-05-18, 4010-05-19, 4010-05-20, 4010-05-21, 4010-05-22, 4010-05-23, 4010-05-24, 4010-05-25, 4010-05-26, 4010-05-27, 4010-05-28, 4010-05-29, 4010-05-30, 4010-05-31, 4010-06-01, 4010-06-02, 4010-06-03, 4010-06-04, 4010-06-05, 4010-06-06, 4010-06-07, 4010-06-08, 4010-06-09, 4010-06-10, 4010-06-11, 4010-06-12, 4010-06-13, 4010-06-14, 4010-06-15, 4010-06-16, 4010-06-17, 4010-06-18, 4010-06-19, 4010-06-20, 4010-06-21, 4010-06-22, 4010-06-23, 4010-06-24, 4010-06-25, 4010-06-26, 4010-06-27, 4010-06-28, 4010-06-29, 4010-06-30, 4010-07-01, 4010-07-02, 4010-07-03, 4010-07-04, 4010-07-05, 4010-07-06, 4010-07-07, 4010-07-08, 4010-07-09, 4010-07-10, 4010-07-11, 4010-07-12, 4010-07-13, 4010-07-14, 4010-07-15, 4010-07-16, 4010-07-17, 4010-07-18, 4010-07-19, 4010-07-20, 4010-07-21, 4010-07-22, 4010-07-23, 4010-07-24, 4010-07-25, 4010-07-26, 4010-07-27, 4010-07-28, 4010-07-29, 4010-07-30, 4010-07-31, 4010-08-01, 4010-08-02, 4010-08-03, 4010-08-04, 4010-08-05, 4010-08-06, 4010-08-07, 4010-08-08, 4010-08-09, 4010-08-10, 4010-08-11, 4010-08-12, 4010-08-13, 4010-08-14, 4010-08-15, 4010-08-16, 4010-08-17, 4010-08-18, 4010-08-19, 4010-08-20, 4010-08-21, 4010-08-22, 4010-08-23, 4010-08-24, 4010-08-25, 4010-08-26, 4010-08-27, 4010-08-28, 4010-08-29, 4010-08-30, 4010-09-01, 4010-09-02, 4010-09-03, 4010-09-04, 4010-09-05, 40	

Technical Management

Savitree N.
Savitree Thakuragan
Manager
enclousure# 1-204-e-0007

Approved by

Lark A.
Karlsson Anik
Assistant General Manager
enclousure# 1-204-e-0008

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TESTING
No. 0001
Lot ID: 2527143
Date Received : Apr 03, 2011
Date Reported : Apr 08, 2011
Report Number : 3263961

Date Reported : Apr 08, 2025
Report Number : 3263962-5

Sample Number	2527143-1		
Sample Date	Apr 03, 2025 13:40 AM		
Sample Description	Group 2 Waterbender W09-CT		
Contract ID	SL_018_2500	Plot	31
		Site	San-Francisco Co., US
Date Analysis Commenced	Apr 04, 2025		
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (Q9MA5,SEPA)		

Physical Property	Yellow, a bit of white, solid and foamed						
Analysis	Unit	LOD	LOQ	Result	GasChrom / MassSpec	Method	Testing Location
Water Tension BOD (5 days @ 20 degrees C)	mg/L	-	1.0	112	1300	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2013, part 5210.10, part 5210.11	Environ
COO	mg/L	-	25	245	4700	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2013, part 5210.10	Environ
Oil & Grease	mg/L	-	3	4	110	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2013, part 5210.10	Environ
pH (in tank *)	-	-	7.0	7.8	5.5-6.0	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2013, part 4100-10	Environ
Temperature *	Degree C	-	15.5	14.5	14.5	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2013, part 2510.10	Environ
Total Suspended Solids Determined at 102-105 degrees C	mg/L	-	5	104	1200	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2013, part 2540.10	Environ

Sampling: Standard of 100% Sanctus Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant.
 Sampling by: Nurelwan Permatasari, Environmental & QA-QMS
 Issues:

* 1.00 = Level of Detection
 * 0.1 = Lower than 1.00 (Level of Quantitation) / 1.00 (Level of Reporting)
 Analytical results marked * below are not included in scope of Accreditation ISO/IEC 17025.

Sampling is not included in scope of accreditation ISO 9001:2015

Technical Management

Siriluk P.
Siriluk Jirattakul
Section Head
ec02000001-1-204-e-0013

Approved by

Karolinn Aoki
Karolinn Aoki
Assistant General Manager
ec02000001-1-204-e-0004

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ALS
ANALYTICAL
LABORATORIES

Analysis / Test Report



TESTING
Lab No: 00009

Client: WWA (Sri Lanka and Power Public Company Limited)
111, New 7, Rangimalai Road, Rangimalai, Nangalima, Sarnath Thailand 10140

P/P / I:

Project Name: Factory 1 Rindity
Project Location: 0104 15

Sample Number: 2102705-15
Analysis Date: Apr 14, 2023 9:25 AM
Sample Description: Group 2 Wastewater 100% CT
Container ID: SL-107-2024
Lot: 43,79-18
Location: Factory 2
Date of Sample Collection: Apr 05, 2023
Condition of Sample: Clear and amber glass bottle and three plastic bottles, sample containers simply pre-treated - preservation standards (APHA/USEPA)
Physical Property: White, some odor, a bit of solid and settled

Lab No: 00009
Site: Sam-Oyppim Division (Sarnath) Co., Ltd

Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 Days at 20 degrees C)	mg/L	-	2.0	18.7	5000	Detector Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2012, 2013, 2014, 2015, 2016 & 2017, 2018 & 2019, 2020 & 2021, 2022, 2023, 2024	Sergrip
COD	mg/L	-	20	80	5750	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2012, 2013, 2014, 2015, 2016 & 2017, 2018 & 2019, 2020 & 2021, 2022, 2023, 2024	Sergrip
Oil & Grease	mg/L	-	3	<3	610	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2012, 2013, 2014, 2015, 2016 & 2017, 2018 & 2019, 2020 & 2021, 2022, 2023, 2024	Sergrip
pH (at 20°C) *	-	-	-	7.8	5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2012, 2013, 2014, 2015, 2016 & 2017, 2018 & 2019, 2020 & 2021, 2022, 2023, 2024	Sergrip
Temperature *	°C	-	-	30.6	14-1	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2012, 2013, 2014, 2015, 2016 & 2017, 2018 & 2019, 2020 & 2021, 2022, 2023, 2024	Sergrip
Total Suspended Solids Direct at 102-105 degrees C	mg/L	-	5	48	5200	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2012, 2013, 2014, 2015, 2016 & 2017, 2018 & 2019, 2020 & 2021, 2022, 2023, 2024	Sergrip



Guideline: Standard of WWA (Sri Lanka Industrial Land, Maximum levels for wastewater discharging to central-cumulative stream)

Sampling by: Thermal Gravimetric analysis < 200-4, 000-6

Remarks:


- LOD = Limit of Detection
- * - - - (Lower Range 1/2 of Quantitation) / (1/3 of End of Reporting)
- Qualifying Impurity is not included in scope of accreditation ISO/IEC 17025, 17020, 17021, 17023, 17025, 17026, 17027, 17028, 17029, 17030, 17031, 17032, 17033, 17034, 17035, 17036, 17037, 17038, 17039, 17040, 17041, 17042, 17043, 17044, 17045, 17046, 17047, 17048, 17049, 17050, 17051, 17052, 17053, 17054, 17055, 17056, 17057, 17058, 17059, 17060, 17061, 17062, 17063, 17064, 17065, 17066, 17067, 17068, 17069, 17070, 17071, 17072, 17073, 17074, 17075, 17076, 17077, 17078, 17079, 17080, 17081, 17082, 17083, 17084, 17085, 17086, 17087, 17088, 17089, 17090, 17091, 17092, 17093, 17094, 17095, 17096, 17097, 17098, 17099, 17100, 17101, 17102, 17103, 17104, 17105, 17106, 17107, 17108, 17109, 17110, 17111, 17112, 17113, 17114, 17115, 17116, 17117, 17118, 17119, 17120, 17121, 17122, 17123, 17124, 17125, 17126, 17127, 17128, 17129, 17130, 17131, 17132, 17133, 17134, 17135, 17136, 17137, 17138, 17139, 17140, 17141, 17142, 17143, 17144, 17145, 17146, 17147, 17148, 17149, 17150, 17151, 17152, 17153, 17154, 17155, 17156, 17157, 17158, 17159, 17160, 17161, 17162, 17163, 17164, 17165, 17166, 17167, 17168, 17169, 17170, 17171, 17172, 17173, 17174, 17175, 17176, 17177, 17178, 17179, 17180, 17181, 17182, 17183, 17184, 17185, 17186, 17187, 17188, 17189, 17190, 17191, 17192, 17193, 17194, 17195, 17196, 17197, 17198, 17199, 17200, 17201, 17202, 17203, 17204, 17205, 17206, 17207, 17208, 17209, 17210, 17211, 17212, 17213, 17214, 17215, 17216, 17217, 17218, 17219, 17220, 17221, 17222, 17223, 17224, 17225, 17226, 17227, 17228, 17229, 17230, 17231, 17232, 17233, 17234, 17235, 17236, 17237, 17238, 17239, 17240, 17241, 17242, 17243, 17244, 17245, 17246, 17247, 17248, 17249, 17250, 17251, 17252, 17253, 17254, 17255, 17256, 17257, 17258, 17259, 17260, 17261, 17262, 17263, 17264, 17265, 17266, 17267, 17268, 17269, 17270, 17271, 17272, 17273, 17274, 17275, 17276, 17277, 17278, 17279, 17280, 17281, 17282, 17283, 17284, 17285, 17286, 17287, 17288, 17289, 17290, 17291, 17292, 17293, 17294, 17295, 17296, 17297, 17298, 17299, 17300, 17301, 17302, 17303, 17304, 17305, 17306, 17307, 17308, 17309, 17310, 17311, 17312, 17313, 17314, 17315, 17316, 17317, 17318, 17319,

[illegible]


ALS				LABORATORY SOLUTIONS ANALYTICAL	
Analysis / Test Report				TESTING Ref ID: 2571215 Date Received - Apr 30, 2025 Date Reported - Apr 29, 2025 Report Number - 20250401	
Client: WMA Industrial and Power Public Company Limited 111 Moo 7, Bangkang Road, Bangkang, Saraburi Thailand 35160					
P/O #: Project Name: Factory 1 Renovation Project Location: THNA 152					
Sample Number: 21257125-1 Sampled Date: Apr 15, 2025 10:55 AM Customer ID: Group 2 Waterworks WIS-CT Sample Description: SD, 125, 2025 Phi 1501		Site: WMA Corporation Public Limited Company			
Date Analysis Commenced: Apr 24, 2025 Condition of Sample: (WMA025292) Contained in six amber glass bottles and three plastic bottles, sample containers comply to pre-treatment - preservation standards Volume, a lot of water, solid and turbid					
Physical Property					
Analyte	Unit	LOD	LOQ (0.000)	Result	Guideline / Specification
Water Testing					
SD: (100 ml at 20 degree C)	mg/L	-	2.0	18.5	Standard Methods for the Examination of water and Wastewater, 19th Edition, 2011, part 1210-A, 2007, 4309, 41-2
COD	mg/L	-	25	124	Standard Methods for the Examination of water and Wastewater, 19th Edition, 2011, part 5220-D
Oil & Grease	mg/L	-	3	4	Standard Methods for the Examination of water and Wastewater, 19th Edition, 2011, part 5520-B
pH (on site) °	-	-	-	7.9	Standard Methods for the Examination of water and Wastewater, 19th Edition, 2011, part 4500 - (H+)
Temperature °	Degree C	-	-	33.5	Standard Methods for the Examination of water and Wastewater, 19th Edition, 2011, part 2510-B
Total Suspended Solids Direct at 120-125 Degree C	mg/L	-	5	37	Standard Methods for the Examination of water and Wastewater, 19th Edition, 2011, part 2540-D
Guideline: Standard of WMA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant. Sampling: By National Petroleum Industry Act (1924-1927)					
Notes: - LOD - Limit of Detection - LOQ - Limit of Quantitation (10% of the Reporting) - LCL - Limit of Compliance - AQL - Acceptance Level in range of Acceptable Quality Levels Sampling is based on the scope of accreditation ISO/IEC 17025					
Technical Management  Siriluk Poomk Section Head mrcs00046-1204-0023		Approved by  Kanchana Aon Resident General Manager mrcs00046-1204-0004			
*This report is intended only for the purpose of information. It is not a contract. The user shall be responsible for the accuracy of the data.					
00100101-001 Phatthana-Bon, Phatthana-Bon 1, Phatthana-Bon 2, Phatthana-Bon 3, Chao Phraya, Phatthana-Bon 4, Phatthana-Bon 5, Phatthana-Bon 6, Phatthana-Bon 7, Phatthana-Bon 8, Phatthana-Bon 9, Phatthana-Bon 10, Phatthana-Bon 11, Phatthana-Bon 12, Phatthana-Bon 13, Phatthana-Bon 14, Phatthana-Bon 15, Phatthana-Bon 16, Phatthana-Bon 17, Phatthana-Bon 18, Phatthana-Bon 19, Phatthana-Bon 20, Phatthana-Bon 21, Phatthana-Bon 22, Phatthana-Bon 23, Phatthana-Bon 24, Phatthana-Bon 25, Phatthana-Bon 26, Phatthana-Bon 27, Phatthana-Bon 28, Phatthana-Bon 29, Phatthana-Bon 30, Phatthana-Bon 31, Phatthana-Bon 32, Phatthana-Bon 33, Phatthana-Bon 34, Phatthana-Bon 35, Phatthana-Bon 36, Phatthana-Bon 37, Phatthana-Bon 38, Phatthana-Bon 39, Phatthana-Bon 40, Phatthana-Bon 41, Phatthana-Bon 42, Phatthana-Bon 43, Phatthana-Bon 44, Phatthana-Bon 45, Phatthana-Bon 46, Phatthana-Bon 47, Phatthana-Bon 48, Phatthana-Bon 49, Phatthana-Bon 50, Phatthana-Bon 51, Phatthana-Bon 52, Phatthana-Bon 53, Phatthana-Bon 54, Phatthana-Bon 55, Phatthana-Bon 56, Phatthana-Bon 57, Phatthana-Bon 58, Phatthana-Bon 59, Phatthana-Bon 60, Phatthana-Bon 61, Phatthana-Bon 62, Phatthana-Bon 63, Phatthana-Bon 64, Phatthana-Bon 65, Phatthana-Bon 66, Phatthana-Bon 67, Phatthana-Bon 68, Phatthana-Bon 69, Phatthana-Bon 70, Phatthana-Bon 71, Phatthana-Bon 72, Phatthana-Bon 73, Phatthana-Bon 74, Phatthana-Bon 75, Phatthana-Bon 76, Phatthana-Bon 77, Phatthana-Bon 78, Phatthana-Bon 79, Phatthana-Bon 80, Phatthana-Bon 81, Phatthana-Bon 82, Phatthana-Bon 83, Phatthana-Bon 84, Phatthana-Bon 85, Phatthana-Bon 86, Phatthana-Bon 87, Phatthana-Bon 88, Phatthana-Bon 89, Phatthana-Bon 90, Phatthana-Bon 91, Phatthana-Bon 92, Phatthana-Bon 93, Phatthana-Bon 94, Phatthana-Bon 95, Phatthana-Bon 96, Phatthana-Bon 97, Phatthana-Bon 98, Phatthana-Bon 99, Phatthana-Bon 100, Phatthana-Bon 101, Phatthana-Bon 102, Phatthana-Bon 103, Phatthana-Bon 104, Phatthana-Bon 105, Phatthana-Bon 106, Phatthana-Bon 107, Phatthana-Bon 108, Phatthana-Bon 109, Phatthana-Bon 110, Phatthana-Bon 111, Phatthana-Bon 112, Phatthana-Bon 113, Phatthana-Bon 114, Phatthana-Bon 115, Phatthana-Bon 116, Phatthana-Bon 117, Phatthana-Bon 118, Phatthana-Bon 119, Phatthana-Bon 120, Phatthana-Bon 121, Phatthana-Bon 122, Phatthana-Bon 123, Phatthana-Bon 124, Phatthana-Bon 125, Phatthana-Bon 126, Phatthana-Bon 127, Phatthana-Bon 128, Phatthana-Bon 129, Phatthana-Bon 130, Phatthana-Bon 131, Phatthana-Bon 132, Phatthana-Bon 133, Phatthana-Bon 134, Phatthana-Bon 135, Phatthana-Bon 136, Phatthana-Bon 137, Phatthana-Bon 138, Phatthana-Bon 139, Phatthana-Bon 140, Phatthana-Bon 141, Phatthana-Bon 142, Phatthana-Bon 143, Phatthana-Bon 144, Phatthana-Bon 145, Phatthana-Bon 146, Phatthana-Bon 147, Phatthana-Bon 148, Phatthana-Bon 149, Phatthana-Bon 150, Phatthana-Bon 151, Phatthana-Bon 152, Phatthana-Bon 153, Phatthana-Bon 154, Phatthana-Bon 155, Phatthana-Bon 156, Phatthana-Bon 157, Phatthana-Bon 158, Phatthana-Bon 159, Phatthana-Bon 160, Phatthana-Bon 161, Phatthana-Bon 162, Phatthana-Bon 163, Phatthana-Bon 164, Phatthana-Bon 165, Phatthana-Bon 166, Phatthana-Bon 167, Phatthana-Bon 168, Phatthana-Bon 169, Phatthana-Bon 170, Phatthana-Bon 171, Phatthana-Bon 172, Phatthana-Bon 173, Phatthana-Bon 174, Phatthana-Bon 175, Phatthana-Bon 176, Phatthana-Bon 177, Phatthana-Bon 178, Phatthana-Bon 179, Phatthana-Bon 180, Phatthana-Bon 181, Phatthana-Bon 182, Phatthana-Bon 183, Phatthana-Bon 184, Phatthana-Bon 185, Phatthana-Bon 186, Phatthana-Bon 187, Phatthana-Bon 188, Phatthana-Bon 189, Phatthana-Bon 190, Phatthana-Bon 191, Phatthana-Bon 192, Phatthana-Bon 193, Phatthana-Bon 194, Phatthana-Bon 195, Phatthana-Bon 196, Phatthana-Bon 197, Phatthana-Bon 198, Phatthana-Bon 199, Phatthana-Bon 200, Phatthana-Bon 201, Phatthana-Bon 202, Phatthana-Bon 203, Phatthana-Bon 204, Phatthana-Bon 205, Phatthana-Bon 206, Phatthana-Bon 207, Phatthana-Bon 208, Phatthana-Bon 209, Phatthana-Bon 210, Phatthana-Bon 211, Phatthana-Bon 212, Phatthana-Bon 213, Phatthana-Bon 214, Phatthana-Bon 215, Phatthana-Bon 216, Phatthana-Bon 217, Phatthana-Bon 218, Phatthana-Bon 219, Phatthana-Bon 220, Phatthana-Bon 221, Phatthana-Bon 222, Phatthana-Bon 223, Phatthana-Bon 224, Phatthana-Bon 225, Phatthana-Bon 226, Ph					

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Analysis / Test Report



Client: WWA Utilities and Power Public Company Limited
111 Moo 2, Bangkangburi Road, Bangkangburi, Bangkang, Saraburi Thailand 35140

P/O #:

Project Name: Factory / Municipality
Project Location: (SWS 50)

Sample Number: 202307-5

Sample Date: May 09, 2023 19:45 AM

Sample Description: Group 2 Wastewater WSP-CF
SS, pH, 20°C, 20°C

Site: Khwa/Options (Thailand) Co., Ltd.

Date Analysis Commenced: May 10, 2023

Collection of Sample: (SWS 50)

Physical Property: Combined as three plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (water, a bit of colour, solid and turbid)

TESTING
No. 0008

Lot ID: 2537599

Issue Date: May 09, 2023

Date Reported: May 10, 2023

Report Number: 202305-0

Page 1 of 1

Analyte	Unit	LOD	LOQ	Result	Guideline / Standard	Method	Testing Location
Water Testing SDO (30 sec at 20 degree C)	mg/L	-	2.0	42.2	<500	Standard Method for the Examination of water and wastewater, APHA, 1995 & 1997, 20th ed., 2023, part 502.9	Samgong
COO	mg/L	-	25	189	<750	Standard Method for the Examination of water and wastewater, APHA, 1995 & 1997, 20th ed., 2023, part 502.9	Samgong
Oil & Grease	mg/L	-	3	5	110	Standard Method for the Examination of water and wastewater, APHA, 1995 & 1997, 20th ed., 2023, part 502.9	Samgong
pH (in air @ 20°C)	-	-	-	7.6	5.5-8.2	Standard Method for the Examination of water and wastewater, APHA, 1995 & 1997, 20th ed., 2023, part 4500-19 (B)	Samgong
Temperature °C	Degree C	-	-	36.6	14-5	Standard Method for the Examination of water and wastewater, APHA, 1995 & 1997, 20th ed., 2023, part 1920 B	Samgong
Total Suspended Solids (dried at 102-103 degree C)	mg/L	-	5	42	<1200	Standard Method for the Examination of water and wastewater, APHA, 1995 & 1997, 20th ed., 2023, part 2540 D	Samgong


Remarks: Standard of WWA Sewerage Industrial Land, Maximum levels for wastewater discharging to central sewerage treatment plant.

Sampling by: Thermal Pumping (wastewater) > 204 < 6000

Result:


- (LOD) : Limit of detection
- (LOQ) : Lower limit (10% of Quantification) (LOE and of Reporting)
- Insoluble/soluble : "insoluble" was not included in average of insoluble (SDO) (LOE) (LOQ)
- Insoluble : was included in average of insoluble (SDO) (LOE) (LOQ)

Technical Management:



Natt Saming
wastewater > 204 < 6000

Approved by:



Kanyakorn Aue
Assistant General Manager
wastewater > 204 < 6000

This report is for reference only. After the sampling, the laboratory will send the test results and the test method report to the client after the client's approval of this report.

SEACOR (SWS 50) Khwa/Options (Thailand) Co., Ltd. Saraburi, Thailand 35140


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ALS
ANALYTICAL SERVICES

Analysis / Test Report



TESTING
No. 0009
Let ID: 2537661
(Issued on: 16 May 2025)
Date Reported: 16 May 2025
Report Number: 202505-0

Client: WMA Utilities and Power Public Company Limited
115, Moo 5, Nongkham Road, Nongkham, Nongkham, Saraburi Thailand 35160

P/O :

Project Name: Factory Ministry
Project Location: WMA SS

Sample Number: 2537661-5
Sampled Date: May 20, 2025 10:35 AM
Sample Description: Group 2 Wastewater BMS-CT
10, 2023, 2547
Project Location: May 20, 2025
Date Analysis Commenced: May 20, 2025
Details of Sample: Collected in three plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (CWA, USEPA)
Physical Property: Yellow, a bit of solid, cold and turbid

Site: Koromo (Thailand) CO., LTD.

Page 1 of 1


Analyte	Unit	LOD	LOQ	Result	Qualifier / Specification	Method	Testing Location
Water Testing							
SOD (15 days at 20 degrees C)	mg/L	-	3.0	148	<500	Standard Methods for the Examination of Water and Wastewater, APHA, 20th ed., 2017, 249-40, 2023, part 1620-8	Sarangk
COO	mg/L	-	25	333	<570	Standard Methods for the Examination of Water and Wastewater, APHA, 20th ed., 2017, 249-40, 2023, part 1620-9	Sarangk
Oil & Grease	mg/L	-	3	9	210	Standard Methods for the Examination of Water and Wastewater, APHA, 20th ed., 2017, 249-40, 2023, part 1620-8	Sarangk
pH (at 25°C)	-	-	-	6.9	5.5-8.5	Standard Methods for the Examination of Water and Wastewater, APHA, 20th ed., 2017, 249-40, 2023, part 4310-10-1 (B)	Sarangk
Temperature °	Degree C	-	-	23.4	3-45	Standard Methods for the Examination of Water and Wastewater, APHA, 20th ed., 2017, 249-40, 2023, part 1620-8	Sarangk
Total Suspended Solids Dried at 103-105 Degree C	mg/L	-	5	148	<200	Standard Methods for the Examination of Water and Wastewater, APHA, 20th ed., 2017, 249-40, 2023, part 1620-8	Sarangk

Remark: Standard of WMA Saraburi Industrial Land, Maximum limits for wastewater discharging to central wastewater treatment plant.


Sampling By: Internal Group collected >200-0015

Analysis:
 1.00 - 1 unit of detection
 1.01 - 1.000000 (unit of quantitation) (1.00 - 1 unit of reporting)
 Analytical detection limit = 1 unit of detection in range of 1.000000 (1.00 - 1 unit of reporting)
 Sampling is based on required level of quantitation 10.00, 1.000

Technical Management


 Nont Samsing
 Supervisor
 nontsamsing@wma-ss.com


Approved by


 Kanyasorn Aun
 Assistant General Manager
 kanyasorn@wma-ss.com

This report is to be retained, either before or after the expiry of the retention period, for a future reference in the event of any disputes.

PERMITTED TO BE REPRODUCED BY: Phatthana Pongthong, Chief Team Leader, Saraburi 10400 (P.O. Box) 191 0-1 (2500-2500) 1-14, 460-0 (2500-2500)

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ALS
ANALYTICAL SERVICES

Analysis / Test Report

TESTING
No. 0099
Lot ID: 2537603
Date Received : May 08, 2023
Report Number : May 15, 2023
Customer Number : 3208787-1

Client: Uthairi Utilities and River Public Company Limited
1111 Moo 7, Bangsuek Road, Bangsuek, Bangkok, Thailand 10280

P/P# : _____

Project Name: Factory / Industry

Project Location: Uthairi, SI.

Sample Number: 2537603-1

Sampled Date: May 08, 2023 12:00 PM

Sample Description: Group 2 Wastewater W-047
05L, 008, 024W **Plot:** SI, SI, SI, SI

Date Analysis Commenced: May 08, 2023


Condition of Sample (APHA/USEPA): Coloured in one amber glass bottle and three plastic bottles. sample containers comply to pretreatment / preservation standards


Physical Property: Tissue, some colour, solid, and no turbid

Site: Naenon Watech (Thailand) Co., Ltd.

Page 1 of 1

Physical Property	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testesd BOD-5 (Days at 20 Degree C)	mg/L	-	2.0	13.7	1500	Standard Method for the Examination of water and Wastewater - APHA, 1995 (5) 505; 505F, 505, 505B, 505C, 505D, 505E, 505F, 505G, 505H, 505I, 505J, 505K, 505L, 505M, 505N, 505O, 505P, 505Q, 505R, 505S, 505T, 505U, 505V, 505W, 505X, 505Y, 505Z, 505AA, 505AB, 505AC, 505AD, 505AE, 505AF, 505AG, 505AH, 505AI, 505AJ, 505AK, 505AL, 505AM, 505AN, 505AO, 505AP, 505AQ, 505AR, 505AS, 505AT, 505AU, 505AV, 505AW, 505AX, 505AY, 505AZ, 505BA, 505BB, 505BC, 505BD, 505BE, 505BF, 505BG, 505BH, 505BI, 505BJ, 505BK, 505BL, 505BM, 505BN, 505BO, 505BP, 505BQ, 505BR, 505BS, 505BT, 505BU, 505BV, 505BW, 505BX, 505BY, 505BZ, 505CA, 505CB, 505CC, 505CD, 505CE, 505CF, 505CG, 505CH, 505CI, 505CJ, 505CK, 505CL, 505CM, 505CN, 505CO, 505CP, 505CQ, 505CR, 505CS, 505CT, 505CU, 505CV, 505CW, 505CX, 505CY, 505CZ, 505DA, 505DB, 505DC, 505DD, 505DE, 505DF, 505DG, 505DH, 505DI, 505DJ, 505DK, 505DL, 505DM, 505DN, 505DO, 505DP, 505DQ, 505DR, 505DS, 505DT, 505DU, 505DV, 505DW, 505DX, 505DY, 505DZ, 505EA, 505EB, 505EC, 505ED, 505EE, 505EF, 505EG, 505EH, 505EI, 505EJ, 505EK, 505EL, 505EM, 505EN, 505EO, 505EP, 505EQ, 505ER, 505ES, 505ET, 505EU, 505EV, 505EW, 505EX, 505EY, 505EZ, 505FA, 505FB, 505FC, 505FD, 505FE, 505FF, 505FG, 505FH, 505FI, 505FJ, 505FK, 505FL, 505FM, 505FN, 505FO, 505FP, 505FQ, 505FR, 505FS, 505FT, 505FU, 505FV, 505FW, 505FX, 505FY, 505FZ, 505GA, 505GB, 505GC, 505GD, 505GE, 505GF, 505GG, 505GH, 505GI, 505GJ, 505GK, 505GL, 505GM, 505GN, 505GO, 505GP, 505GQ, 505GR, 505GS, 505GT, 505GU, 505GV, 505GW, 505GX, 505GY, 505GZ, 505HA, 505HB, 505HC, 505HD, 505HE, 505HF, 505HG, 505HH, 505HI, 505HJ, 505HK, 505HL, 505HM, 505HN, 505HO, 505HP, 505HQ, 505HR, 505HS, 505HT, 505HU, 505HV, 505HW, 505HX, 505HY, 505HZ, 505IA, 505IB, 505IC, 505ID, 505IE, 505IF, 505IG, 505IH, 505II, 505IJ, 505IK, 505IL, 505IM, 505IN, 505IO, 505IP, 505IQ, 505IR, 505IS, 505IT, 505IU, 505IV, 505IW, 505IX, 505IY, 505IZ, 505JA, 505JB, 505JC, 505JD, 505JE, 505JF, 505JG, 505JH, 505JI, 505JJ, 505JK, 505JL, 505JM, 505JN, 505JO, 505JP, 505JQ, 505JR, 505JS, 505JT, 505JU, 505JV, 505JW, 505JX, 505JY, 505JZ, 505KA, 505KB, 505KC, 505KD, 505KE, 505KF, 505KG, 505KH, 505KI, 505KJ, 505KK, 505KL, 505KM, 505KN, 505KO, 505KP, 505KQ, 505KR, 505KS, 505KT, 505KU, 505KV, 505KW, 505KX, 505KY, 505KZ, 505LA, 505LB, 505LC, 505LD, 505LE, 505LF, 505LG, 505LH, 505LI, 505LJ, 505LK, 505LL, 505LM, 505LN, 505LO, 505LP, 505LQ, 505LR, 505LS, 505LT, 505LU, 505LV, 505LW, 505LX, 505LY, 505LZ, 505MA, 505MB, 505MC, 505MD, 505ME, 505MF, 505MG, 505MH, 505MI, 505MJ, 505MK, 505ML, 505MN, 505MO, 505MP, 505MQ, 505MR, 505MS, 505MT, 505MU, 505MV, 505MW, 505MX, 505MY, 505MZ, 505NA, 505NB, 505NC, 505ND, 505NE, 505NF, 505NG, 505NH, 505NI, 505NJ, 505NK, 505NL, 505NM, 505NO, 505NP, 505NQ, 505NR, 505NS, 505NT, 505NU, 505NV, 505NW, 505NX, 505NY, 505NZ, 505OA, 505OB, 505OC, 505OD, 505OE, 505OF, 505OG, 505OH, 505OI, 505OJ, 505OK, 505OL, 505OM, 505ON, 505OO, 505OP, 505OQ, 505OR, 505OS, 505OT, 505OU, 505OV, 505OW, 505OX, 505OY, 505OZ, 505PA, 505PB, 505PC, 505PD, 505PE, 505PF, 505PG, 505PH, 505PI, 505PJ, 505PK, 505PL, 505PM, 505PN, 505PO, 505PP, 505PQ, 505PR, 505PS, 505PT, 505PU, 505PV, 505PW, 505PX, 505PY, 505PZ, 505QA, 505QB, 505QC, 505QD, 505QE, 505QF, 505QG, 505QH, 505QI, 505QJ, 505QK, 505QL, 505QM, 505QN, 505QO, 505QP, 505QQ, 505QR, 505QS, 505QT, 505QU, 505QV, 505QW, 505QX, 505QY, 505QZ, 505RA, 505RB, 505RC, 505RD, 505RE, 505RF, 505RG, 505RH, 505RI, 505RJ, 505RK, 505RL, 505RM, 505RN, 505RO, 505RP, 505RQ, 505RR, 505RS, 505RT, 505RU, 505RV, 505RW, 505RX, 505RY, 505RZ, 505SA, 505SB, 505SC, 505SD, 505SE, 505SF, 505SG, 505SH, 505SI, 505SJ, 505SK, 505SL, 505SM, 505SN, 505SO, 505SP, 505SQ, 505SR, 505SS, 505ST, 505SU, 505SV, 505SW, 505SX, 505SY, 505SZ, 505TA, 505TB, 505TC, 505TD, 505TE, 505TF, 505TG, 505TH, 505TI, 505TJ, 505	





Analysis / Test Report

Client: UTM Utilities and River Rube Company Limited
(11 Moa, Bangkok Road, Bangkok, Bangkok, Bangkok Thailand 10140)

P/O #:

Project Name: Factory / Monthly

Project Location: (MoA 55)

Sample Number: 253701-1

Sample Date: May 09, 2025 11:25 AM

Sample Description: Group 2 Wastewater WWC-CT

Lab ID: 253701-01 **Plot:** 60

Data Analysis Commented: May 15, 2025

Condition of Sample (Aqua, Solid): Combined in three plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (Aqua, Solid)

Physical Property: Yellow, a bit of odor, solid and turbid

Site: Hachima RCM Co., Ltd

TESTING
No: 00509
Lot ID: 253701-1
Date Received: May 09, 2025
Date Reported: May 15, 2025
Report Number: 253889-01

Page 1 of 1

Analytical Property	Unit	100% LOD	Result	Guideline / Specification	Method	Status/ Location
Water Testing: BOD-5 (day at 20 degree C)	mg/L	> 2.0	1238	<500	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF 1995, 20th ed., section 5212.0	Bangkok
COD	mg/L	> 25	280	<750	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF 1995, 20th ed., section 5222.0	Bangkok
Oil & Grease	mg/L	> 3	6	<10	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF 1995, 20th ed., section 5120.0	Bangkok
pH (on site) *	-	> 6.0	6.5	5.5-9.0	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF 1995, 20th ed., section 4510.0	Bangkok
Temperature *	Degree C	> 30.4	34.5	<45	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF 1995, 20th ed., section 2120.0	Bangkok
Total Suspended Solids Dried at 100 degree C	mg/L	> 5	46	<100	Standard Methods for the Examination of water and Wastewater, APHA, AWWA & WEF 1995, 20th ed., section 2542.0	Bangkok


Guideline: Standard of UTM Bangkok Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plants.

Sample Use: Internal Control, enclosed in 2538-01012


Remark:

- * - based on 100 ml of Sample
- * - * - * - lower than 1/10 of (Quantities) 1/10 of (and of Reporting)
- * - Analytical method * - * - * - not included in scope of accreditation (ISO/IEC 17025)
- * - Sampling is not included in scope of accreditation (ISO/IEC 17025)

Technical Management


 Niran Saming
 Supervisor
 enclosed in > 204 - 0000

Approved by


 Kanchana Aue
 Assistant General Manager
 enclosed in > 204 - 0000





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<h2 style="margin: 0;">Analysis / Test Report</h2>	
<p>Client : WINA Utilities and Power Public Company Limited 111 Moo 7, Bangsuekrath Road, Bangsuekruat, Bangkokue, Samsat Thailand 10140</p> <p>P/O :</p> <p>Project Name : Factory / Roadside</p> <p>Project Location : (016, 51)</p>	<p style="text-align: center;">TESTING No.0059</p> <p>Lot ID: 2537599</p> <p>Date Received : May 08, 2025</p> <p>Date Reported : May 08, 2025</p> <p>Report Number : 3208504-1</p>
<p><small>Sampling is not included in scope of accreditation (ISO 9001:2015)</small></p>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Technical Management</p> <div style="text-align: center;">  Natch Sattang Supervisor n.sattang@als-global.com </div> </div> <div style="width: 45%;"> <p>Approved by</p> <div style="text-align: center;">  Kanchana Aue Assistant General Manager k.aue@als-global.com </div> </div> </div>	
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<p> <small>3208504-1</small> 104 Pothakruat 40, Pothakruat Rd., Khwaeng Pothakruat, Khwaeng Samsat, Bangkok 10140 Thailand (Phone) +66-6-7768-9100 (Fax) +66-6-7768-9101 <small>3208504-1</small> 104 โพธิ์ครุฑ 40, โพธิ์ครุฑ ถนน, แขวง โพธิ์ครุฑ, แขวง สัมมาต, กรุงเทพฯ 10140 ประเทศไทย (โทรศัพท์) +66-6-7768-9100 (โทรสาร) +66-6-7768-9101 </p>	
<p>www.alsglobal.com</p>	


			
<h2 style="margin: 0;">Analysis / Test Report</h2>			
Client : WSA 00006 and Power Pilot Company Limited (11, Muo 7, Bangpakong Road, Bangpakong, Nongkhay, Saraburi Thailand 12140)		TESTING Ref ID : 2537925 Lab ID : NS-2019-05 Date Reported : May 13, 2020 Report Number : 2020004-1	
P/V D : Project Name : Road / Roadside Project Location : (NS04_52)		Page 1 of 1	
Sample Number 2537925-1	Sampled Date May 13, 2020 11:00 AM		
Sample Description Group 2 Waste/water WW-CT	Site Michaela Steel Co. Ltd. (2nd)		
Contract ID 013_013_2004	Plot 3,833.92		
Date Analysis Commenced May 14, 2020			
Condition of Sample Contained in one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)			
Physical Property Yellow, some solids, solid and frothy			
Analysis	Result	Guideline / Specification	Passing / Failing
Water Analysis Total Dissolved Solids Direct at 25°C mg/L 5	LOD 1000 (LOK)	1000	Standard Methods for the Examination of Water and Wastewater, APHA, 1995 & WEF 1995, 2005, 2012, 2017, 2019
Passed			
Qualifier : Standard of WSA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.			
Sampling by : Norasat Komol wongwongwong + 204 + 0015			
Remarks 1.00 : Limit of Detection 1.1 : Lower than LOD and of Quantitation / LOE (Limit of Reporting) Analytical method is not included in scope of Accreditation ISO 9001:2015 Sampling is not included in scope of accreditation ISO 14001:2015			
Technical Management  Somwan Chuanwang Supervisor WSA00004 + 204 + 0018		Approved by  Kanchana Jant Assistant General Manager WSA00004 + 204 + 0009	
Please note that the analysis is conducted using the sampling method outlined in the report and/or the method specified in the relevant standard of the client.			
00000001 WSA 000006-00, Phrakhanthong Rd., Khwaeng Phrakhanthong, Khet Thung Luang, Bangkok 10747 Thailand : Phone: 08-1-278-8880 : 000-000-0000 : 000-000-0000 00000001 WSA 000006-00, Phrakhanthong Rd., Khwaeng Phrakhanthong, Khet Thung Luang, Bangkok 10747 Thailand : Phone: 08-1-278-8880 : 000-000-0000 : 000-000-0000			
www.alstglobal.com			
00000001 WSA 000006-00, Phrakhanthong Rd., Khwaeng Phrakhanthong, Khet Thung Luang, Bangkok 10747 Thailand : Phone: 08-1-278-8880 : 000-000-0000 : 000-000-0000			

						
Analysis / Test Report				TESTING NO. 06509 Lot ID: 23537445		
Client: <u>Alinta Limited and Power Public Company Limited</u> <u>(113 Mile 2, Bangkalan Road, Bangkalan, Surabaya, East Java, Indonesia)</u>						
P/O #: _____						
Project Name: <u>Factor 3 Moribidi</u>						
Project Location: <u>WTA-52</u>						
Sample Number: <u>2357445-1</u>						
Sampled Date: <u>May 06, 2023 12:00 PM</u>						
Sample Description: <u>Group 2 Intermediate WWT-CF</u>						
<u>ISO, ISO 22840</u>						
Date Analysis Commenced: <u>May 10, 2023</u>						
Location of Sample <u>(WHA, US200)</u> <u>Waste, some odour, acid and turbid</u>						
Physical Property						
Analyte	Unit	LOD [LOQ]	Result	Guideline / Specification	Passing Limitation	
Water Testing [ISO 11 20.20 at 20 degree C]	mg/L	-	2.0	1500	Sample.	
COO	mg/L	-	25	323	1750	Sample.
Oil & Grease	mg/L	-	3	<3	110	Sample.
pH (at 20 °C)	-	-	-	7.5	5.5-8.0	Sample.
Temperature °C	Degree C	-	-	38.2	19-5	Sample.
Total Suspended Solids Dried at 102-105 degree C	mg/L	-	5	53	1200	Sample.
Remarks: Standard of WTA Surabaya Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant. Standard: <u>Peraturan Pemerintah No. 224-2008</u> .						
Notes: 1. ISO = International Organization for Standardization 2. °C = (Celsius) = (Fahrenheit) - 32 3. mg/L = milligram per liter 4. mg/L = milligram per liter 5. mg/L = milligram per liter 6. mg/L = milligram per liter 7. mg/L = milligram per liter 8. mg/L = milligram per liter 9. mg/L = milligram per liter 10. mg/L = milligram per liter 11. mg/L = milligram per liter 12. mg/L = milligram per liter 13. mg/L = milligram per liter 14. mg/L = milligram per liter 15. mg/L = milligram per liter 16. mg/L = milligram per liter 17. mg/L = milligram per liter 18. mg/L = milligram per liter 19. mg/L = milligram per liter 20. mg/L = milligram per liter 21. mg/L = milligram per liter 22. mg/L = milligram per liter 23. mg/L = milligram per liter 24. mg/L = milligram per liter 25. mg/L = milligram per liter 26. mg/L = milligram per liter 27. mg/L = milligram per liter 28. mg/L = milligram per liter 29. mg/L = milligram per liter 30. mg/L = milligram per liter 31. mg/L = milligram per liter 32. mg/L = 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ALS
ANALYTICAL
LABORATORIES

Analysis / Test Report



TESTING
No. 00559
Lot ID: 2537675
Date Received : May 06, 2023
Date Reported : May 14, 2023
Report Number : 328899-01

Client: WTA Utilities and Power Public Company Limited
111 Moo 7, Bangkapi Road, Bangkapi, Bangkok, Thailand 10740

P/O #:

Project Name: District 1 Roadway
Project Location: Hmua 13

Sample Number: 2537657-1
Received Date: May 06, 2023 2:10 PM
Sample Description: Group 2 Wastewater WIS-CF
Container ID: 502, 5250
Analysis Commenced: May 07, 2023
Condition of Sample: Contained a set amber glass bottle and three plastic bottles. Sample containers comply to pretreatment - preservation standards (APHA 2291.6)
Physical Property: Liquid, a lot of, some solid and turbid

Site: Nongkhai Industries Co., Ltd.

Analyte	Unit	LOD	LOQ (50:00)	Result	Guideline / Specification	Method	Testing Location
Water Testing: DO2 (1 day at 20 Degree C)	mg/L	—	1.6	88.6	≥500	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & 1995, 20th ed., part 1910.6, part 1910.6, 19.2	Nongkhai
COD	mg/L	—	25	239	670	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & 1995, 20th ed., part 5210.2	Nongkhai
Oil & Grease	mg/L	—	3	7	110	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & 1995, 20th ed., part 5510.8	Nongkhai
pH (on site) °		—	—	7.6	6.5-8.5	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & 1995, 20th ed., part 4500 + (v.10)	Nongkhai
Temperature °	Degree C	—	—	33.0	143	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & 1995, 20th ed., part 2510.8	Nongkhai
Total Suspended Solids Chloride at 120-125 Degree C	mg/L	—	5	58	≥200	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & 1995, 20th ed., part 2540.4	Nongkhai

Guideline / Standard of WTA Sewerage Industrial Plant, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling By: National Pongkhai Industrial Co., Ltd. 0059

Received:

- ✓ LOD - Limit of Detection
- ✓ LOQ - Limit of Quantitation (10% Limit of Reporting)
- ✓ Analytical method - As per test described in scope of accreditation (ISO 15613: 2002)
- ✓ Sampling is as indicated in scope of accreditation (ISO 15613: 2002)

Sritluk P

Sritluk Pongkhai
Sutthakorn Head
microbiology-2504-0023

K. A. A.

Kasidorn Aue
Business General Manager
microbiology-2504-0004

*This report is not intended to be a certificate, unless the testing is conducted in accordance with ISO 17025 or is within the scope of the accreditation.

PHOTOCHEMICAL INC., PHOTOCHEMICAL INC., PHOTOCHEMICAL INC., CHAI SANG CO., BANGKOK, THAILAND 10700
TEL: 02-675 20000 FAX: 02-675 20001
E-MAIL: info@photonet.com

www.alsglobal.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253747-1. Sample Date: May 09, 2023 10:45 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 38.2, 4500. COD, mg/L, 25, 80, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 7.2, 5.5-9.0. Temperature *, Degree C, -, 33.8, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 45, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253748-1. Sample Date: May 09, 2023 10:45 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 88.8, 4500. COD, mg/L, 25, 347, 4750. Oil & Grease, mg/L, 3, 5, 110. pH (on site) *, -, 7.3, 5.5-9.0. Temperature *, Degree C, -, 33.8, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 389, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253747-1. Sample Date: May 09, 2023 10:45 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 5.9, 4500. COD, mg/L, 25, 35, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 7.9, 5.5-9.0. Temperature *, Degree C, -, 33.3, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 8, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253747-1. Sample Date: May 09, 2023 10:45 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 0.03, 0.05, 1.00, 4500. COD, mg/L, 25, 44, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 7.8, 5.5-9.0. Temperature *, Degree C, -, 33.8, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 30, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com


ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253747-1. Sample Date: May 09, 2023 10:45 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 3.0, 4500. COD, mg/L, 25, 44, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 7.8, 5.5-9.0. Temperature *, Degree C, -, 33.8, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 30, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com


ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253748-1. Sample Date: May 09, 2023 10:45 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 3.2, 4500. COD, mg/L, 25, 46, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 8.0, 5.5-9.0. Temperature *, Degree C, -, 33.9, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 36, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253747-1. Sample Date: May 09, 2023 11:00 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 4.2, 4500. COD, mg/L, 25, 37, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 8.7, 5.5-9.0. Temperature *, Degree C, -, 36.1, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 8, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253744-1. Sample Date: May 09, 2023 11:20 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 4.0, 4500. COD, mg/L, 25, 26, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 7.8, 5.5-9.0. Temperature *, Degree C, -, 31.8, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, <5, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com

ALS logo and company information. Analysis / Test Report. Client: WWA Utilities and Power Public Company Limited. Project Name: Factory / Municipality. Project Location: WWA-12. Sample Number: 253744-1. Sample Date: May 09, 2023 9:30 AM. Sample Description: Group 2 Wastewater WWS-CT. Contract ID: SL_001_2534. Plot: 36. Date Analysis Commenced: May 13, 2023. Conditions of Sample: (CWA, LSPB). Physical Property: Yellow, some odor, solid and turbid. Analyte: Unit, LOD, LOQ, Result, Guideline / Specification, Method, Testing Location. Water Testing: BOD (5 days at 20 degrees C), mg/L, 2.0, 8.8, 4500. COD, mg/L, 25, 53, 4750. Oil & Grease, mg/L, 3, <3, 110. pH (on site) *, -, 7.2, 5.5-9.0. Temperature *, Degree C, -, 31.9, 145. Total Suspended Solids Drained at 120-125 degree C, mg/L, 5, 18, 4200. Guidelines: Standard of WWA Sanitary Industrial Land. Sampling By: Tetsawat Pungkum. Technical Management: Sirinuk P. Approved by: Kanchan Aik. www.alshghab.com





Analysis / Test Report

Client: WTA Utilities and Power Public Company Limited
111 Moo 7, Bangkapi Road, Bangkapi, Bangkok, Thailand 10740

P/O #:

Project Name: Factory 1 Monthly

Project Location: SATHA SEI

Sample Number: 257/20015

Sampled Date: May 06, 2025 10:30 AM

Sample Description: Group 2 Wastewater WWS-CF

Contract ID: 501, 251, 2556 **Ph#:** 61.62 **Site:** SONG CROP (Thailand) Co., Ltd

Date Analysis Commenced: May 06, 2025

Condition of Sample: Contained in three plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (USEPA, ISO/IEC 17025)

Physical Property: Wastewater, some acidic, a lot of solid and turbid

Analyte	Unit	LOD	LOQ (5xLOD)	Result	Guideline / Specification	Method	Testing Location
SSC (5 days at 20 degree C)	mg/L	---	1.6	13.6	≤500	Standard Methods for the Examination of water and wastewater, APHA, AWWA & WEF, 20th ed., 2012, part 5210-5	Namphok
COD	mg/L	---	25	71	≤750	Standard Methods for the Examination of water and wastewater, APHA, AWWA & WEF, 20th ed., 2012, part 5210-5	Namphok
Oil & Grease	mg/L	---	3	<3	≤10	Standard Methods for the Examination of water and wastewater, APHA, AWWA & WEF, 20th ed., 2012, part 5210-5	Namphok
pH (on site) °C		---	---	7.7	5.5-8.5	Standard Methods for the Examination of water and wastewater, APHA, AWWA & WEF, 20th ed., 2012, part 4500 - (H)	Namphok
Temperature °C		---	---	33.3	1-43	Standard Methods for the Examination of water and wastewater, APHA, AWWA & WEF, 20th ed., 2012, part 2510-8	Namphok
Total Suspended Solids (Solid at 253-105 degree C)	mg/L	---	5	18	≤200	Standard Methods for the Examination of water and wastewater, APHA, AWWA & WEF, 20th ed., 2012, part 2540-5	Namphok

TESTING
No. 0009

Lot ID: 2573670

Issue Received: May 06, 2025

Date Reported: May 16, 2025

Report Number: 328887-1

7/26/25


Signature: Standard of WTA Sathasai Industrial Land, Maximum values for wastewater discharging to central wastewater treatment plant.

Sampling By: Approved Normal (accredited >200 >1015)


Remark:

- LOI (lost of incinerator)
- LOI (loss heat 1000 (cal of combustion) 1006 (cal of incinerator)
- Incinerator method * Acid not included in scope of accreditation ISO/IEC 17025: 2005
- Sampling is not included in scope of accreditation ISO/IEC 17025

Technical Management


Nont Saming
Supervisor
accredited >204 >10009

Approved by


Kanchan Kiat
Assistant General Manager
accredited >204 >10009

*Note: this is not an official report, only for providing information. For official report, please refer to the certificate of accreditation.

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PHARMACO LABORATORY, THAILAND

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Analysis / Test Report

TESTING

No. 00009

Lot ID: **254518**

Date Issued: Jun 08, 2025

Report Number: Jun 16, 2025

Date Required: 300807-3

Page 1 of 1

Client: WSA Utilities and Power Public Company Limited
111 Nua 7, Nongpladung Road, Nongpladung, Bangkok, Sarabhai Thailand (SE184)

P/O ID: Factory 1 Fluidity

Project Name: Factory 1 Fluidity

Project Location: WSA SE1

Sample Number: 254518-1

Sampled Date: Jun 09, 2025 9:30 AM

Sample Description: Group 2 Wastewater HW-CF

Container ID: GL-006-2504

Location: Plot 2


Date Analysis Completed: Jun 10, 2025

Conditions of Sample: Container is an open glass bottle and three plastic bottles, sample containers comply to pre-treatment, preservation standards (SMA/SAFE)


Physical Property: White, some colour, acid and no turbid

Analyte	Unit	LOD (U/L)	Result	Guideline / Specification	Method	Testing Location
Water Testing						
BOD (5 days at 20 degrees C)	mg/L	—	2.0	4.0	1500	Singapore
					Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345,	

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Laboratory Accredited

Analysis / Test Report

Client : WWA Utilities and Power Public Company Limited
 111 Rue 1, Nongkhalang Road, Nongkhalang, Saraburi Thailand 91140

P / O :

Project Name : Factors 1 Facility

Project Location : 0101-32

Sample Number : 254903-1

Sample Date : Jan, 2025 10 29 AM

Sample Description : Ground 2 Watermeter W8-CT

Contract ID : 254, 254-254 **Plot :** 47

Date Analysis Commenced : Jan 30, 2025

Details of Sample : Collected as three plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (USEPA, 600/9-92)

Physical Property : Water, some sediment, acid and no float

TESTING
 No 0000

Lot ID: 25-45681
 Issued Date : Jan 16, 2025
 Report Number : Jan 16, 2025
 Date Reported : 30072-0

Page 1 of 1

Site : WWAEP Pulp & Paper Company Limited (Sat)

Analyzer	Unit	LOD	LOD (0.001)	Result	Qualifiers / Specification	Method	Testing Location
Water Testing SDS (5 to 25 degree C)	mg/L	-	1.0	10.1	<500	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & WSP, 20th ed., 2023, part 1203.8, part 4000, C-0	Saraburi
COO	mg/L	-	25	69	<750	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & WSP, 20th ed., 2023, part 6202.9	Saraburi
Oil & Grease	mg/L	-	3	<3	<10	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & WSP, 20th ed., 2023, part 6202.8	Saraburi
pH (in air) °C	-	-	-	7.2	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & WSP, 20th ed., 2023, part 4500, H-1030	Saraburi
Temperature °C	Degree C	-	-	32.8	14-3	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & WSP, 20th ed., 2023, part 2530.8	Saraburi
Total Suspended Solids (dried at 105-125 degree C)	mg/L	-	3	13	<200	Standard Methods for the Examination of Water and Wastewater, APHA, 2005 & WSP, 20th ed., 2023, part 2540.4	Saraburi

Remarks : Standard of WWA Saraburi Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling by : Chemical Laboratory and/or acid > 204 < 0.057

Notes :

- 1. LOD = limit of detection
- 2. "L" : Lower than LOD (Limit of Quantitation) (LOD & Limit of Reporting)
- 3. Analytical method : "w" can not be used in water of alkalinity (SDCE) (7-9)
- 4. Sampling is not included in scope of accreditation (010101, 0102)

Technical Management

Siriluk P.

Siriluk Pannak
 Section Head
 Accredited > 204 < 0.053


Approved by

Kasik A.

Kasikorn Aue
 Assistant General Manager
 Accredited > 204 < 0.004

Head office and the Saraburi branch office are holding the accreditation for the following categories (010101, 0102) and the Saraburi branch office is the Saraburi branch office

PHYSICAL: 010101, 01020101, 01020102, 01020103, 01020104, 01020105, 01020106, 01020107, 01020108, 01020109, 01020110, 01020111, 01020112, 01020113, 01020114, 01020115, 01020116, 01020117, 01020118, 01020119, 01020120, 01020121, 01020122, 01020123, 01020124, 01020125, 01020126, 01020127, 01020128, 01020129, 01020130, 01020131, 01020132, 01020133, 01020134, 01020135, 01020136, 01020137, 01020138, 01020139, 01020140, 01020141, 01020142, 01020143, 01020144, 01020145, 01020146, 01020147, 01020148, 01020149, 01020150, 01020151, 01020152, 01020153, 01020154, 01020155, 01020156, 01020157, 01020158, 01020159, 01020160, 01020161, 01020162, 01020163, 01020164, 01020165, 01020166, 01020167, 01020168, 01020169, 01020170, 01020171, 01020172, 01020173, 01020174, 01020175, 01020176, 01020177, 01020178, 01020179, 01020180, 01020181, 01020182, 01020183, 01020184, 01020185, 01020186, 01020187, 01020188, 01020189, 01020190, 01020191, 01020192, 01020193, 01020194, 01020195, 01020196, 01020197, 01020198, 01020199, 01020200, 01020201, 01020202, 01020203, 01020204, 01020205, 01020206, 01020207, 01020208, 01020209, 01020210, 01020211, 01020212, 01020213, 01020214, 01020215, 01020216, 01020217, 01020218, 01020219, 01020220, 01020221, 01020222, 01020223, 01020224, 01020225, 01020226, 01020227, 01020228, 01020229, 01020230, 01020231, 01020232, 01020233, 01020234, 01020235, 01020236, 01020237, 01020238, 01020239, 01020240, 01020241, 01020242, 01020243, 01020244, 01020245, 01020246, 01020247, 01020248, 01020249, 01020250, 01020251, 01020252, 01020253, 01020254, 01020255, 01020256, 01020257, 01020258, 01020259, 01020260, 01020261, 01020262, 01020263, 01020264, 01020265, 01020266, 01020267, 01020268, 01020269, 01020270, 01020271, 01020272, 01020273, 01020274, 01020275, 01020276, 01020277, 01020278, 01020279, 01020280, 01020281, 01020282, 01020283, 01020284, 01020285, 01020286, 01020287, 01020288, 01020289, 01020290, 01020291, 01020292, 01020293, 01020294, 01020295, 01020296, 01020297, 01020298, 01020299, 010



ALS
ANALYTICAL SERVICES

Analysis / Test Report

TESTING
NO 0059
Lot ID: 2545482
Date Received : 31 Jan, 2025
Date Reported : 3 Jan, 2025
Report Number : 3305213-1

Client: Uthairi Utilities and Power Public Company Limited
1111 Rue 7, Bangsuek Road, Bangsuek, Bangkok, Thailand 10280

P/O #: _____

Project Name: Factory / Industry

Project Location: Uthairi, SE

Sample Number: 250452-1

Sample Date: Jan 30, 2025 @ 15:45

Sample Description: Group 2 Wastewater WWS-07

Container ID: 001, 2004

Project #: 47

Date Analysis Commenced: Jan 31, 2025

Condition of Sample (APHA, USEPA): Combined in three plastic bottles and one amber glass bottle, sample containers cooled to pretestment / preservation standards (refrigerated, sealed, stored in dark)

Physical Property

Waste Type	Unit	LOD	LOQ	Result	Guideline / Spec/Requirement	Method	Testing Location
Water Testesd BOD-5 @ 20 ± 2°C	mg/L	-	2.00	82	500	Standard Method for the Examination of water and Wastewater - APHA, 1995 & USEPA, 1995, 2005, 2012, 2013, 2015, 2017, 2019, 2020, 2021, 2023, 2024, 2025	Bangkok
COD	mg/L	-	25	52	170	Standard Method for the Examination of water and Wastewater - APHA, 1995 & USEPA, 1995, 2005, 2012, 2013, 2015, 2017, 2019, 2020, 2021, 2023, 2024, 2025	Bangkok
Oil & Grease	mg/L	-	3	<3	110	Standard Method for the Examination of water and Wastewater - APHA, 1995 & USEPA, 1995, 2005, 2012, 2013, 2015, 2017, 2019, 2020, 2021, 2023, 2024, 2025	Bangkok
pH (at site) °C	-	-	-	8.0	5.5-9.0	Standard Method for the Examination of water and Wastewater - APHA, 1995 & USEPA, 1995, 2005, 2012, 2013, 2015, 2017, 2019, 2020, 2021, 2023, 2024, 2025	Bangkok
Temperature °C	Degree C	-	-	31.1	145	Standard Method for the Examination of water and Wastewater - APHA, 1995 & USEPA, 1995, 2005, 2012, 2013, 2015, 2017, 2019, 2020, 2021, 2023, 2024, 2025	Bangkok
Total Suspended Solids Determined at 102 ± 5°C	mg/L	-	3	12	<100	Standard Method for the Examination of water and Wastewater - APHA, 1995 & USEPA, 1995, 2005, 2012, 2013, 2015, 2017, 2019, 2020, 2021, 2023, 2024, 2025	Bangkok

TESTING

Sample By: Sathaporn Indurathorn *WWS-07* (254-0347)

Result:

- ✓ = Level of Detection
- ✓+ = Lower than 1/10 of (Specification) / 1/10 of (and of Reporting)
- ✓++ = Lower than 1/100 of (and of Reporting)
- ✓+++ = Lower than 1/1000 of (and of Reporting)
- ✓++++ = Lower than 1/10000 of (and of Reporting)
- ✓+/- = Sample not detected at or near or above the LOQ (LOD) (LOQ), sampling is not included in range of quantification (Q) (LOQ) (LOQ)

Technical Management

Siriruk P.

Siriruk Buranich
Section Head
enclined-01-2504-00023

Approved by

Kanok A.

Kanokkarn Aue
Assistant General Manager
enclined-01-2504-00004

Blank data is not considered a violation, only data missing or non-detectable. If you have any questions please contact your ALS Account Manager or the laboratory directly.

ADDRESS: 611 Phrasukhachon 41, Phrasukhachon 41, Khomuen, Pathumwan, Khomuen, Bangkok 10310 Thailand | TEL: +66 2 673 2700 | FAX: +66 2 673 2701

URL: www.als.com

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ANALYTICAL LABORATORY SERVICES



SGS
SOCIÉTÉ GÉNÉRALE D'ANALYSES

Analysis / Test Report

Client: 9916 Utilities and Rural: Public Company Limited
111 Bhis 7, Bangnaeng Road, Bangnaeng, Nongbuaeng, Saraburi Thailand 28140

P/O #:

Project Name: Factory 3 Monthly

Project Location: Factory 3

Sample Number: 284069181

Sampled Date: Jun 13, 2025 9:20 AM

Sample Description: Group 2 Wastewater WWS-CT

Contract ID: 001_0248

Date Analysis Commenced: Jun 13, 2025

Condition of Sample: Coloured to pale brown glass bottle and three plastic bottles, sample containers comply to pre-treatment - preservation standards (SMPA/MSD/001)

Physical Property: Yellow, some sediment, acid and not bubble

TESTING
Ref ID: 2545869
Date Received: Jun 14, 2025
Report Received: Jun 14, 2025
Report Number: 33827173-4

Page 1 of 1

Analyze	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Water Testing 800 (15 days at 20 degree C)	mg/L	-	1.0	<3.3	<500	Standard Methods for the Examination of water and Wastewater (APHA, AWWA & WEF, 19th ed., part 502.0 B, part 4300 °C	Bangkok
COO	mg/L	-	25	<25	<750	Standard Methods for the Examination of water and Wastewater (APHA, AWWA & WEF, 19th ed., part 502.0 B, part 4320 B	Bangkok
Oil & Grease	mg/L	-	3	<3	<10	Standard Methods for the Examination of water and Wastewater (APHA, AWWA & WEF, 19th ed., part 502.0 B, part 5120 B	Bangkok
pH (in pH)	-	-	-	7.6	5.5-9.0	Standard Methods for the Examination of water and Wastewater (APHA, AWWA & WEF, 19th ed., part 4500 4510 + (H)	Bangkok
Temperature °C	Degree C	-	-	29.8	<45	Standard Methods for the Examination of water and Wastewater (APHA, AWWA & WEF, 19th ed., part 2550 B	Bangkok
Total Suspended Solids (dry at 102-105 degree C)	mg/L	-	5	<5	<500	Standard Methods for the Examination of water and Wastewater (APHA, AWWA & WEF, 19th ed., part 2540 D	Bangkok


Guideline: Standard of WWSA (Sri Lanka Industrial Land, Maximum levels for wastewater (discharging to central wastewater treatment plant).

Remark: 1) "Total Suspended Solids (dry at 102-105 degree C)"

Remark:


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ALS
ANALYTICAL SERVICES

Analysis / Test Report



TESTING
No. 0509

Client : UIN-0816016 and Power Public Company Limited
(11 Mo'o, Bangpakong Road, Bangpakong, Bangpakong, Saraburi Thailand 35120)

P/O :

Project Name : Factory / Monthly

Project Location : (300.52)

Sample Number : 2041012-1

Sample Date : Jun 26, 2025 9:25 AM

Sample Description : Group 2 Wastewater PHW-CT

Contract ID : 02_2022-2024 **Plot** : Plot 11 **Site** : SGG Roofing Co Ltd

Data Analysis Commented : On Jun 26, 2025

Condition of Sample : (Analyzed in three plastic bottles and one amber glass bottle, sample containers comply to international - preservation standards (APHA, USEPA))
(Yellow, colorless, some solid and no smell)

Physical Property

Wastewater	Unit	LOD (0.001)	Result	Guideline / Spec./Standard	Method	Pass/Fail
Water Testing BOD-5 @ 20 °C (5 day DCO) □	mg/L	< 2.0	4.3	<100	Standard Method for the Examination of water and Wastewater, APHA, 1925 and 9207 501-502, 2012, (part 522) and 522B-2, 2012	Pass/Fail
COD	mg/L	< 25	28	<750	Standard Method for the Examination of water and Wastewater, APHA, 9207, 2012, (part 522) and 522B-2, 2012	Pass/Fail
Oil & Grease	mg/L	< 3	<3	<10	Standard Method for the Examination of water and Wastewater, APHA, 9207, 2012, (part 522) and 522B-2, 2012	Pass/Fail
pH (at 25 °C)			7.2	5.5-9.0	Standard Method for the Examination of water and Wastewater, APHA, 9207, 2012, (part 450) and 450B-1 (3)	Pass/Fail
Temperature °C	Degree C		31.1	<45	Standard Method for the Examination of water and Wastewater, APHA, 9207, 2012, (part 250) and 250B-1	Pass/Fail
Total Suspended Solids Determined at 105 °C □	mg/L	< 5	8	<100	Standard Method for the Examination of water and Wastewater, APHA, 9207, 2012, (part 254) and 254B-2	Pass/Fail

TESTING No. 0509

Lab ID: 2045512

Date Sampled: Jun 26, 2025

Date Reported: Jun 26, 2025

Report Number: 20250715-1

Remarks : Standard of UIN Saraburi Industrial Land, Maximum values for wastewater discharging to central wastewater treatment plant.

Remarks : 1. Total of 10 samples

2. * - Lower than 1/10 of (Quantification) 1/10 of (at Reporting)

3. Analytical method : * can not be tested in case of contamination (SO) BOD-5 (100)

4. Sampling is not included in waste of accumulation (SO) BOD-5

Technical Management

Siriluk P.

Siriluk Samart
Section Head
IN-04000-01 < 2014 < 0013

Approved by

Kaew A.

Kaewkarn Aue
Assistant General Manager
IN-04000-01 < 2014 < 0009


These data are the analysis as submitted, unless the accompanying test results are false. The validity and use of the test results are not the responsibility of ALS.

ADDRESS : 1094 Phatthana-Rong, Phatthana-Rong 3, Klong Bang Luang, Bangkok, Thailand 10110 **PHONE** : 02-029 3800 021-464 8 1200 021-464 8 1201


E-MAIL : info@alsglobal.com

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ANALYTICAL SERVICES LABORATORY



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SOCIÉTÉ GÉNÉRALE D'ANALYSES

Analysis / Test Report

Client: WWA Utilities and Power Public Company Limited
111 Thon B, Bangnaeng Road, Bangnaeng, Nongkhai, Saraburi Thailand 38140

P/O: _____

Project Name: Factory 3 Monthly

Project Location: WWA 13-1

Sample Number: 2940302-1

Sample Date: Jan 13, 2025 - 03:45 AM

Sample Description: Groundwater WWS-CF **Ph:** 10.41

Contract ID: 02_025_2304

Date Analysis Commenced: Jan 13, 2025

Condition of Sample: Coloured, a few amber glass bottles and three plastic bottles, sample containers comply to pre-treatment - preservation standards (WWSA/SGS/01)

Physical Property: Yellow, some white, solid and no turbid

TESTING
No.0009

Lot ID: 2545832

Date Received: Jan 13, 2025

Date Reported: Jan 15, 2025

Report Number: 3300712-4

Page 1 of 1

Analyzer	Unit	LOD (0.001)	Result	Guidelines / Standard/Reference	Method	Testing Location
Water Testing WQ2 (15 min at 20 Degree C)	mg/L	< 2.0	<2.0	<500	Standard Methods for the Examination of Water and Wastewater (APHA, AWWA & WEF, 20th ed., 2023, part 9210 B WQ2)	Bangkok
COO	mg/L	< 25	<25	<750	Standard Methods for the Examination of Water and Wastewater (APHA, AWWA & WEF, 20th ed., 2023, part 9210 B COO)	Bangkok
Oil & Grease	mg/L	< 3	<3	<10	Standard Methods for the Examination of Water and Wastewater (APHA, AWWA & WEF, 20th ed., 2023, part 9210 B Oil & Grease)	Bangkok
pH (in air) °C			< 7.8	5.5-9.0	Standard Methods for the Examination of Water and Wastewater (APHA, AWWA & WEF, 20th ed., 2023, part 9210 B pH)	Bangkok
Temperature °C	Degree C		30.7	14-5	Standard Methods for the Examination of Water and Wastewater (APHA, AWWA & WEF, 20th ed., 2023, part 9210 B Temperature)	Bangkok
Total Suspended Solids Dried at 102-105 Degree C	mg/L	< 3	<5	<200	Standard Methods for the Examination of Water and Wastewater (APHA, AWWA & WEF, 20th ed., 2023, part 9210 D TSS)	Bangkok

Remarks: Standard of WWA Surface Industrial Land, Maximum levels for wastewater (discharging to central-wastewater treatment plant).

Standard: Thai "Thermal Pollution" industrial effluent > 204 & 2050

Notes:

- 1.00 (Less than detection)
- < 7.7 (Less than 100 mg/L of Quantitation) < 100 mg/L of Reporting)
- Asymptotically, "As" can be used in water of contamination (WQ2) < 100.
- Sampling to not be used in water of contamination: WQ2, WQ3, WQ4

Siriluk P.

Siriluk Purnak
Section Head
incharge > 204 & 2053

Kob Aue

Kobkorn Aue
Assistant General Manager
incharge > 204 & 2004

These data and the analysis are certified, unless the company or laboratory has been notified in writing that the sample was not representative of the material or the place of origin of the material.


SGS (UK) Limited, 9000 Lakeside Road, Basingstoke, Hampshire, RG24 0AP, United Kingdom

SGS (USA) Inc., 9000 Lakeside Road, Basingstoke, Hampshire, RG24 0AP, United Kingdom

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Analysis / Test Report



Client : WWA Utilities and Power Public Company Limited
 113 New 7th, Nongkhai Road, Nongkhai, Sangkhro, Sangkhro Thailand 20181

P/O :

Project Name : Factory / Municipality
Project Location : (WWS-5)

Sample Number : 2549191-1
Sampled Date : Jun 12, 2015 11:15 AM
Sample Description : Group 2 Wastewater WWS-CF
Contract ID : 101, 200, 2054
Date Analysis Commenced : Jun 15, 2015
Analysis of Sample : Combined in three plastic bottles and one amber glass bottle, sample containers comply to pre-treatment - preservation standards (ASTM, ISO/IEC 17025)
Physical Property : liquid, some solid, solid not to touch

TESTING
 No.05059
Lot ID: 2545919
 Generated: Jun 12, 2015
 Date Reported: Jun 19, 2015
 Report Number: 3328201-1

Page 1 of 2

Analyte	Unit	LOD	LOQ	Result	Guideline / Specification	Method	Testing Location
Phenyl Testing							
Lead	mg/L	0.0025	0.0025	0.005	10.2	Standard Method for the Determination of metals and metalloids in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok
Water Testing							
SDO-C (at 20 to 25 Degree C)	mg/L	-	2.0	2.7	1500	Standard Method for the Determination of copper and lead in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok
COO	mg/L	-	25	<25	1750	Standard Method for the Determination of copper and lead in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok
Oil & Grease	mg/L	-	3	<3	610	Standard Method for the Determination of copper and lead in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok
pH (in 20 °C)	-	-	-	7.7	5.5-9.0	Standard Method for the Determination of copper and lead in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok
Temperature °C	Degree C	-	-	31.4	14-30	Standard Method for the Determination of copper and lead in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok
Total Suspended Solids (at 60 to 300 degree C)	mg/L	-	3	<3	4200	Standard Method for the Determination of copper and lead in water by oxidation, reduction, cuprous stannous, cathodic stripping voltammetry, pH=4.5, 2012, part 3121.8, 3025, 3035	Bangkok

Guideline: Standard of WWA Sangkhro Industrial Land. Maximum levels for wastewater discharging to central wastewater treatment plant.

Sampling By : (Sangkhro) Rahman, enclosed with >300-ml x 300-ml

Remark:
 1. Lot: 1 each of Collection

Technical Management

Sasitorn N
 Sasitorn Nongkhai
 Manager
 enclosed with >300-ml x 300-ml

Approved by

K. A. A.
 Kanyasara Aue
 Manager General Manager
 enclosed with >300-ml x 300-ml

This report is the property of ALS and is intended for use only by the client. It is the client's responsibility to ensure the proper use of the results and to ensure the confidentiality of the information.

ALSO (P) LTD. (Incorporated in Thailand) No. 11, Phra Prachin Road, Bangkok, Thailand 10110. Tel: 02-261-8788 Fax: 02-261-8789 Email: info@als.co.th

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				Analysis / Test Report			
Client : WTA Utilities and Power Public Company Limited 111 Rue 7, Hongkongland Road, Nongkhang, Nongkhang, Saraburi Thailand 20140				TESTING No. 0009			
P/O :				Lot ID: 2549199			
Project Name : Factory 1 Ministry				Date Received : Jan 13, 2025			
Project Location : PHA 101				Date Reported : Jan 15, 2025 Report Number : X30001-2			
				Page 1 of 1			
Sample Number	2549199-1						
Sampled Date	Jan 12, 2025 11:15 AM						
Sample Description	Group 2 Waterbody WS-CT						
Contract ID	SL_002_2154 PLO 48						
Date Analysis Commenced	Jan 13, 2025						
Description of Sample	Contained in three plastic bottles and one amber glass bottle, sample containers comply to pretreatment - preservation standards (DMS, GSPP)						
Physical Property	Yellow, some odor, solid and no turbid						
Analyte	Unit	LOD	LOQ	Result	Coefficient / Specification	Method	Testing Location
Water Testing							
Total Dissolved solids Direct at 180 degree C	mg/L	-	5	432	<3000	Standard Methods for the Examination of water and Wastewater, 19th ed., 1995, 200 ed., 2012, page 2344 C	Saraburi
Compliance: Different standard for Industrial, industrial waste and industrial park set by Notification of the Ministry of Natural Resource and Environment and official standard for factories and industrial park set by Notification of The Ministry of Industry dated June 07, B.E.2550 (2017)							
Sampling By : Geological Bureau and environment >JSA = G147							
Remark: L/D : (Limit of Detection) <- L/D : (Lower Limit of Quantitation) (LOE & Limit of Reporting) (analytical method) * as not included in scope of Accredited ISO/IEC 17025. Sampling is not included in scope of accreditation ISO/IEC 17025							
Technical Management  Sirinuk Parn Section Head m3n04m@v.com +204-8-0023				Approval by  Kachon Aue Assistant General Manager m3n04m@v.com +204-8-0004			
Note: This report is prepared after checking all documents, it is identical to original except for a 10 copies for the use of clients' records.							
APPROVED BY Mr. Phattanasak S. Phattanasak, Sr. Quality Officer, E&P Co., Ltd. (Saraburi, Bangkok, Thailand) PHONE: 08-9-770000 FAX: 044-8-2704-0101 08-9-770000 www.alphalab.com							
08-9-770000							

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<h2 style="margin: 0;">Analysis / Test Report</h2>	
Client : WWA Utilities and Power Public Company Limited 111 Moo 7, Bangkokmai Road, Bangkokmai, Bangkok, Thailand 10140 P/O # : Project Name : Factory / Ministry Project Location : WWA-02	TESTING No.0009 Lot ID: 25450918 Date Received : Jun-08, 2023 Date Reported : Jun 14, 2023 Report Number : 330896-1
Sampling By : Onsite/field tagsperson enclosed + 3309 + 0087	
Remark : (1) : (out of 3 samples) (2) : (over than 100 G out of 3 samples) / (100 G out of 3 samples) (3) : (sampled) : 1 "out of 3" samples in range of Accreditation (100 G) / (100 G) (4) : (sampled) : 1 "out of 3" samples in range of Accreditation (100 G) / (100 G)	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Technical Management</p> <div style="text-align: center;">  Chantana Jomtham Section Head enclosed + 3304 + 0080 </div> </div> <div style="width: 45%;"> <p>Approved by</p> <div style="text-align: center;">  Kanchana Aree Assistant General Manager enclosed + 3309 + 0088 </div> </div> </div>	
<small>* Each copy of the analysis or certificate, when the printing was completed for C/S, the report shall be an approved sample of 1/2 signed by the writer approved by the supervisor.</small>	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;"> SHRONG KHA PHATTHAKHON KH. PHATTHAKHON KH., Khayam Phatthakhon, Khao Sai Lam, Bangkok 10210 Thailand PHONE: +66 8 2768 0888 FAX: +66 8 2768 0197 254 SONGKROH ROAD, SONGKROH, BANGKOK 10110 THAILAND FAX: +66 2 254 50918 </div> <div style="width: 40%; text-align: center;"> www.alsglobal.com </div> <div style="width: 30%; text-align: right;"> ALPHATECHNOLOGY PVT. PRIVATE LIMITED </div> </div>	

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Analysis / Test Report					 TESTING No.0058 Lot ID: 2545380 Date Issued: Jun 28, 2025 Date Reported: Jun 30, 2025 Report Number: 1300701.0		
Client: RINA Utilities and Power Public Company Limited 111 Moo 7, Nongpladung Road, Nongpladung, Bangkok, Thailand 10240 (SR4)							
P/O #: Project Name: Factory / Facility Project Location: (SR4-52)							
Sample Number: 2545380.1 Sampled Date: Jun 06, 2025 11:05 AM Sample Description: Group 2 Wastewater W01-CH Contract ID: 161, 202, 254 Plat No: 50 Site: Sam Pankun Co., Ltd. Date Analysis Commenced: Jun 08, 2025 Physical Property of Sample: Combined in one amber glass bottle and three plastic bottles. sample container comply with pretreatment / preservation standards (4400-0202) Physical Property: Yellow, a lot of colour, solid and turbid							
Analyte	Unit	LOD	LOQ (3xLOD)	Result	Guideline / Specification	Method	Testing Location
Water Testing 800-TDS at 20 degree C	mg/L	-	2.0	73.5	5500	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, part 5212 B, part 4100, 19-2	Sinergik
CCO	mg/L	-	25	155	670	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, part 5212 G	Sinergik
Oil & Grease	mg/L	-	3	3	610	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, part 5520 B	Sinergik
pH (at 25) *	-	-	-	7.2	5.5-9.0	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, part 4100 - 130	Sinergik
Temperature *	Degree C	-	-	33.4	145	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, part 2500 B	Sinergik
Total Suspended Solids (at 800-255 degree C	mg/L	-	5	49	5200	Standard Methods for the Examination of Water and Wastewater, APHA, 1995, 20th ed., 2023, part 2540 B	Sinergik
Guideline: Standard of RINA Sinergik Industrial Land, Maximum levels for wastewater discharging to central wastewater treatment plant.							
Sampling By: Chantawan Himmaphanwong (independent) - V204-00587							
Notes: * ISO 1 - test of indicator * ISO 2 - (less than 100 mg/L of turbidity) (100 mg/L of impurity) * Analytical method: * can not test in water of Accreditation ISO/IEC 17025. Sampling is not suitable for water of accreditation ISO/IEC 17025							
Technical Management  Sinruk P. Section Head incharge of V204-00587		Approved by:  Kachai A. Assistant General Manager incharge of V204-00584					
Check date in 90 days after the date of issuance following the validity of the report and the expiration date of the water analysis accreditation							
Address: 101/101/101, Phraekhruang Rd, Phraekhruang, Khwaeng Bang, Bangkok 10210 Thailand Phone: 02-010-1781-1782 Fax: 02-010-1780-1781							
e-mail: info@sinergik.com www.sinergik.com							
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Analysis / Test Report



Client: USTIA, USTIDRA and Power Public Company Limited
111, Nth 7, Bangkolat Road, Bangkolat, Nongkhai, Sandesh Thantak 33140

P/O #

Project Name : Factory / Ministry
Project Location: 0000-00

Sample Number: 204900-01

Sample Description: Group 2 Wastewater WFO-C
SIS, 204, 2004
Phase: 0.15

Contract ID:

Location: Factory 2

Date Sample Commenced: Jan 30, 2025


Condition of Sample: (SAPL, USTIDRA)
Contained in three plastic bottles and one amber glass bottle, sample containers comply to pre-treatment - preservation standards


TESTING
Ref. No. 00008
Lot ID: 2345452
Date Received: Jan 30, 2025
Date Reported: Jan 30, 2025
Report Number: 2300074-0

Page 1 of 1

Analysis

Physical	Unit	LOD	LOD (U/L)	Result	Guideline / Specification	Method	Testing Location
Water Turbidity 8000 DU-Saps at 20 degree C	mg/L	-	2.0	<2.0	<500	Standard Methods for the Examination of water and wastewater, APHA, 1995, 2005, 2012, 2013, 2017, 2019, 2021, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 25	





Analysis / Test Report

Client : WTA Utilities and Power Public Company Limited
 113 Hsu Y. Nongpladung Road, Nongpladung, Nongpladung, Saraburi Thailand 38140

Project Name : Factory 1 Monthly
Project Location : WTA 13.

Sample Receiver : 2590254-4
Sample Date : Jan 13, 2025 9:40 AM
Sample Description : Group 2 Wastewater WWS-CF
Container ID : SL 017 2394 **Ph# :** 43.76 N/A
Location :
Date Analysis Completed : Jan 13, 2025
Qualification of Sample : (NONE, 100%)
Physical Property : Contained in three plastic bottles and one amber glass bottle, sample containers comply to pre-treatment - preservation standards (USEPA, 16 CFR 261.16), a lot of amber, white and turbid

TESTING
Lot ID: 25458256
Date Received : Jan 12, 2025
Date Reported : Jan 14, 2025
Report Number : XXXXXX-0


Page 1 of 2

Analysis	Unit	100	1000	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 Days at 20 degree C)	mg/L	—	2.0	32.9	≤500	Standard methods for the Examination of water and wastewater, 19th ed., 2013, part 5213, part 4300 + D	Singapore
COD	mg/L	—	25	183	≤750	Standard Methods for the Examination of water and wastewater, 19th ed., 2013, part 5213, part 4300 + D	Singapore
Oil & Grease	mg/L	—	3	<3	100	Standard Methods for the Examination of water and wastewater, 19th ed., 2013, part 5213, part 4300 + D	Singapore
pH (at site) °C	—	—	—	7.9	5.5-9.0	Standard Methods for the Examination of water and wastewater, 19th ed., 2013, part 5213, part 4300 + D	Singapore
Temperature °C	Degree C	—	—	30.9	14-30	Standard Methods for the Examination of water and wastewater, 19th ed., 2013, part 5213, part 4300 + D	Singapore
Total Suspended Solids Dried at 103-105 degree C	mg/L	—	5	96	≤200	Standard Methods for the Examination of water and wastewater, 19th ed., 2013, part 5213, part 4300 + D	Singapore


Summary: Standard of WTA Saraburi Industrial Park, Maximum limits for wastewater discharging to central wastewater treatment plant.

Guideline by : Singapore Environment Commission reference # 2/04-2/247

Remark :
 1/10 - Limit of detection
 2/1 - Lower than 1/10 (and unit of quantification) 1/10 (and of quantification)
 Analytical method 1 is not included in scope of accreditation ISO/IEC 17025.
 Sampling is not included in scope of accreditation ISO/IEC 17025



Sumitran Charnvong
 Senior General Manager
 Signature ID: 01054568-2/24-0008

Approved by 

Kiatkarn Aon
 Assistant General Manager
 Inclusion ID: 2/24-0008

NOTE: While the laboratory is accredited under the following accreditation, this report is not an official representation of the authority of the above accreditation.

ISO/IEC 17025:2017 (Chemical, Metallurgical, and Wastewater Analysis), ISO/IEC 17025:2017 (Water and Wastewater Analysis), ISO/IEC 17025:2017 (Environmental Testing)

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PROJECT: SINGAPORE WASTEWATER TREATMENT PLANT

ภาคผนวก ง

ใบรับรองการสอบเทียบเครื่องมือ

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Sample Name	Parameter	Equipment Name	ID No.	Calibration Date	Next Cal	Freq. Calibration
Water Lab	Total Phosphorus	Spectro unit	999_000010	6-Aug-25	6-Aug-25	10
Water Lab	Total Phosphorus	Spectro unit	999_000011	15-Aug-25	15-Aug-25	10
Water Lab	Total Sulfate	Spectro unit	999_000016	6-Aug-25	6-Aug-25	10
Water Lab	Chloride	Mercury analyzer	999_000017	18-Aug-24	20-Aug-25	12
Water Lab	Total Suspended Solids	Formetric Titratable Solids	999_000050	2-Aug-25	2-Aug-25	12
Water Lab	Total Suspended Solids	Formetric Titratable Solids	999_000071	19-Mar-24	19-Mar-24	12
Water Lab	Total Dissolved Solids (TDS)	Electronic Titration Balance	999_000000	2-Aug-25	2-Aug-25	12
Water Lab	Total Dissolved Solids (TDS)	Electronic Titration Balance	999_000079	18-Mar-24	18-Mar-24	12
Water Lab	Conductivity	Conductivity meter	999_000012	20-Dec-24	20-Dec-25	12
Water Lab	DO	DO meter	999_000025	2-Feb-25	3-Feb-25	18
Water Lab	DO	DO meter	999_000023	22-Aug-24	22-Aug-25	12
Water Lab	DO	Isolute	999_000011	17-Feb-24	17-Feb-25	18
Water Lab	DO	DO meter	999_000018	3-Jan-25	3-Jan-25	12
Water Lab	DO	Electrode/conductor	999_000010	12-Sep-24	18-Sep-25	12
Water Lab	Lead	ICP MS	999_000040	4-Oct-24	4-Apr-25	18
Water Lab	Lead	Post Blank	999_000004	4-Mar-25	4-Sep-25	18
Water Lab	Lead	Blank (Calibrating Blank)	999_000011	4-Jun-25	9-Jun-25	18
Water Lab	Iron	ICP MS	999_000040	4-Oct-24	3-Apr-25	18
Water Lab	Iron	Post Blank	999_000004	4-Mar-25	4-Sep-25	18
Water Lab	Iron	Blank (Calibrating Blank)	999_000011	4-Jun-25	6-Jun-25	18
Water Lab	Total Cadmium	AutoLab	999_000001	4-Mar-25	4-Sep-25	18
Water Lab	Total Cadmium	AutoLab	999_000005	3-Feb-24	3-Jun-25	18
Water Lab	Total Cadmium	AutoLab	999_000003	23-Apr-24	23-Oct-25	18
Water Lab	Temperature	See Menu with Sensor	999_000000	17-Feb-25	17-Feb-25	12
Water Lab	Cadmium	Spectrophotometer	999_000010	13-Jul-25	19-Jul-25	12
Water Lab	Cadmium	Blank (Calibrating Blank)	999_000011	4-Jun-25	4-Jun-25	18
Water Lab	Ammonia Nitrogen	Chemical analyzer	999_000000	18-Aug-24	18-Aug-24	12
Water Lab	Dissolved Oxygen	DO meter	999_000010	27-Jun-25	27-Jun-25	18
Water Lab	Dissolved Oxygen	Blank (Calibrating Blank)	999_000011	4-Jun-25	4-Jun-25	18
Water Lab	Lead	See Chemistry menu	999_000050	12-Sep-24	20-Oct-25	12
Water Lab	Hexavalent Chromium	Spectrophotometer	999_000000	10-Jun-24	10-Sep-25	12
Sludge	and	EPHORS	999_000001	23-Sep-24	23-Sep-25	18
Sludge	and	999_000020	4-Mar-25	4-Sep-25	4-Sep-25	18
Sludge	and	Blank (Calibrating Blank)	999_000011	4-Jun-25	4-Jun-25	18
Sludge	Mercury	See Menu Analyzer	999_000010	3-Oct-24	4-Oct-25	12

• **Dr. H. K. Singh**



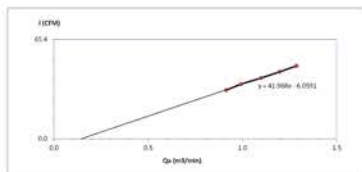
Sample Name	Parameter	Equipment Name	ID No.	Collection Date	Next Kit	Prev. Collection (months)
Scuba	Atmosphere	CG-002	895_020017	23-Sep-24	2-Sep-24	15
Scuba	Waterline	HW-003	895_020019	8-May-24	4-May-24	15
Scuba	Waterline	Chamber - Cooling Head	895_020022	8-Jun-28	4-Jun-28	15
Scuba	Water	CG-002	895_020027	23-Sep-24	23-May-24	18
Scuba	Water	HW-003	895_020034	8-May-24	4-May-24	15
Scuba	Water	Chamber - Cooling Head	895_020037	4-Jun-28	4-Jun-28	15
Scuba	CG-002	CG-002	895_020051	23-Sep-24	23-May-24	18
Scuba	Water	HW-003	895_020058	8-May-24	4-May-24	15
Scuba	Water	Chamber - Cooling Head	895_020061	8-Jun-28	4-Jun-28	15
Scuba	Atmosphere	CG-002	895_020071	18-Sep-24	18-May-24	18
Scuba	Atmosphere	HW-003	895_020074	8-May-24	4-May-24	15
Scuba	Atmosphere	Chamber - Cooling Head	895_020077	8-Jun-28	4-Jun-28	15
Scuba	Atmosphere	HW-003	895_020087	23-Sep-24	23-May-24	18
Scuba	Water	Chamber - Cooling Head	895_020097	8-Jun-28	4-Jun-28	15
Scuba	Water	HW-003	895_020104	8-May-24	4-May-24	15
Scuba	Water	Chamber - Cooling Head	895_020107	8-Jun-28	4-Jun-28	15
Scuba	Water	HW-003	895_020114	8-May-24	4-May-24	15
Scuba	Water	Chamber - Cooling Head	895_020117	8-Jun-28	4-Jun-28	15
Scuba	Water	HW-003	895_020124	8-May-24	4-May-24	15

• **1992** – 1993



Project Site:	NW Johnson Industrial Land Co., Ltd. 91.37608204°E 19.615117°N	Barometric Pressure (mm Hg):	757
Calibrate Location:	air3rd	Temperature (°C):	35
Calibrate Date:	22-Apr-25	Humidity (%)	BKX_P50377
Calibration Sheet No.:	C-220425-BKX_P50377	High Volume Model:	TE-5020A
Calibrator ID:	BKX_P50226	High Volume S/N:	5113
Calibrator Model:	TE-5020A	Calibrator Scope:	1.0x0.003
Calibrator S/N:	2385	Calibrator Interval:	-0.01265

Test No.	Delta H ₂ O (mm)	Q _a (m ³ /min)	I - Chart (g/g)	Linear Regression
1	2.2	0.913	52	Slope: 0.1676
2	2.6	0.992	36	Intercept: -4.0593
3	3.2	1.099	40	Correlation Coefficient: 0.9991
4	3.8	1.197	44	
5	4.4	1.287	48	



Calibrated by Winyau B
[Mr. Winyau Boontanui]
Period Scientist (2)

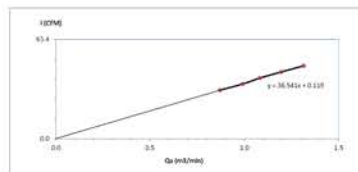
Approved by: 
(Mr. Neppong Buittaraporn)
Entero Field Coordinator Scientist (T)

FORM NO. F-06-074 REVISION NO. 2 ISSUE DATE: 20/11/13



Project Site:	9900 Macomber Industrial Land Co., Ltd.	Barometric Pressure (mm Hg):	757
Calibrate Location:	99, Macomber Industrial Land Co., Ltd.	Temperature (°C):	34
Calibrate Date:	22-Apr-25	High Volume ID:	80K_P50010
Calibration Sheet No:	C-220425-80K_P50010	High Volume Model:	TE-55005
Calibrator ID:	80K_P50010	High Volume S/N:	47008
Calibrator Model:	TE-5020A	Calibrator Slope:	1.00100
Calibrator S/N:	2345	Calibrator Intercept:	-0.01206

Test No.	Delta H ₂ O (m/s)	Q ₀ (m ³ /min)	F-Chart (%)	Linear Regression	
1	2.0	0.871	32	Slope:	36.5499
2	2.6	0.962	38	Intercept:	0.1150
3	3.1	1.082	40	Correlation Coefficient:	0.9990
4	3.8	1.197	44		
5	4.0	1.313	48		



Collected by: Wingau B
(Mr. Wingau Boontana)
Field Scientist (2)

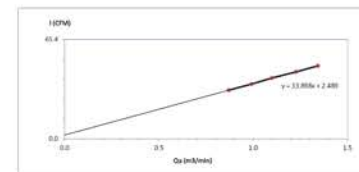
Approved by: 
[Mr. Noppong Jantaraporn]
Energy Field Coordinator Scientist (T)

FORM NO. F06-078, REVISION NO. 2, ISSUE DATE: 05/11/22



Project Site:	W. Hargreaves Industrial Land Co., Ltd. Off. of Environmental Protection Bureau Dushu	Barometric Pressure (mm Hg):	753
Calibration Location:		Temperature (°C):	34
Calibration Date:	22-Apr-25	High Volume ID:	80K-P51060
Calibration Sheet No.:	C-220425-80K-P51060	High Volume Model:	TE-5600H
Calibrator ID:	80K-P5106-25	High Volume Vol:	5.6(3)
Calibrator Model:	TE-56203	Calibrator Slope:	1.00003
Calibrator S/N:	2508	Calibrator Intercept:	-0.01266

Test No.	Delta H ₂ O (m/s)	Qs (m ³ /min)	t : Chart (UM)	Linear Regression	
1	2.0	0.871	32	Slope :	33.8177
2	2.6	0.992	36	Intercept :	2.4801
3	3.2	1.099	40	Correlation Coefficient:	0.9999
4	4.0	1.227	44		
5	4.8	1.343	48		

Collected by Wingyu B.
(Mr. Weyang Boostera
Field Scientist)

Approved by: 
(Mr. Nipping Burton)
Tanner Field Coordinator Scientist (1)

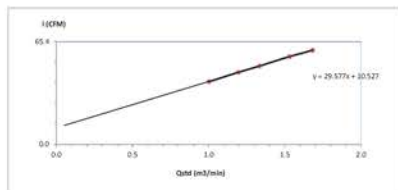
VERSION: 1.06-014 REVISION NO: 2 DATE: 28/11/2



High Volume Air Sampler Calibration Worksheet

Project Site: WHA Sarabhai Industrial Land Co. Ltd. Barometric Pressure (mm Hg): 757
 Calibrate Location: WHA Sarabhai Industrial Land Co. Ltd. Temperature (°C): 34
 Calibrate Date: 22-Apr-25 High Volume ID: BKK_F50741
 Calibration Sheet No.: C-220425-BKK_F50741 High Volume Model: TE-5009X
 Calibrator ID: BKK_F50741 High Volume S/N: 4156
 Calibrator Model: TE-50284 Calibrator Slope: 1.67329
 Calibrator S/N: 3185 Calibrator Intercept: -0.01925

Test No.	Delta H ₂ O (inch)	Q _{std} (m ³ /min)	I Chart (CFM)	Linear Regression
1	2.8	1.0925	40	Slope: 25.5113 Intercept: 18.1201 Correlation Coefficient: 0.9990
2	4.0	1.1945	46	
3	5.0	1.3312	50	
4	4.6	1.5209	55	
5	8.0	1.6013	60	



Calibrated by: Winyou B. Approved by: Mr. Noppong Jitranont
 (Mr. Winyou Boontana) (Mr. Noppong Jitranont)
 Field Scientist (2) Senior Field Coordinator Scientist (3)

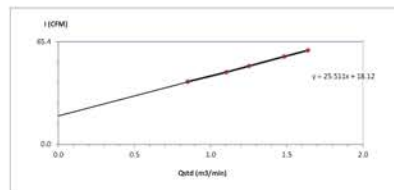
FORM NO.: F-06-073 REVISION NO.: 2 ISSUE DATE: 29/11/23



High Volume Air Sampler Calibration Worksheet

Project Site: WHA Sarabhai Industrial Land Co. Ltd. Barometric Pressure (mm Hg): 757
 Calibrate Location: WHA Sarabhai Industrial Land Co. Ltd. Temperature (°C): 34
 Calibrate Date: 22-Apr-25 High Volume ID: BKK_F51375
 Calibration Sheet No.: C-220425-BKK_F51375 High Volume Model: TE-5009X
 Calibrator ID: BKK_F50741 High Volume S/N: 4259
 Calibrator Model: TE-50284 Calibrator Slope: 1.67329
 Calibrator S/N: 2385 Calibrator Intercept: -0.01925

Test No.	Delta H ₂ O (inch)	Q _{std} (m ³ /min)	I Chart (CFM)	Linear Regression
1	2.8	1.0925	40	Slope: 25.5113 Intercept: 18.1201 Correlation Coefficient: 0.9990
2	3.4	1.1030	46	
3	4.4	1.2519	50	
4	6.2	1.4824	56	
5	7.6	1.6792	60	



Calibrated by: Winyou B. Approved by: Mr. Noppong Jitranont
 (Mr. Winyou Boontana) (Mr. Noppong Jitranont)
 Field Scientist (2) Senior Field Coordinator Scientist (3)

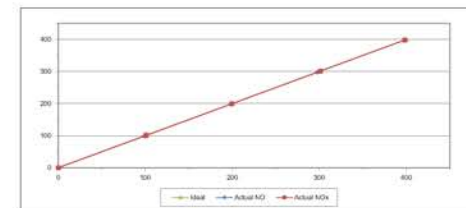
FORM NO.: F-06-073 REVISION NO.: 2 ISSUE DATE: 29/11/23



MULTIPOINT CALIBRATION REPORT

Calibration Date: 3-Jan-25 Equipment Name: NOx Analyzer
 Manufacturer: Teledyne API Model: T200
 Serial No.: 060 Equipment ID: BKK_F50741
 Calibrator Manufacturer: Teledyne API Model: 700
 Serial No.: 947
 Std. Gas Concentration (PPM): 55.88 Cylinder No.: GN0027222
 Cylinder Pressure (psi): 1800 Certified By: Angas 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	99.30	-0.70	-0.70	101.10	1.10	1.10
2	200.00	199.30	-0.70	-0.35	199.30	-0.70	-0.35
3	300.00	297.60	-2.40	-0.80	301.30	1.30	0.43
4	400.00	398.70	-1.30	-0.33	398.20	-1.80	-0.45
AVERAGE (%)				-0.51			0.17



Calibrated By: Mr. Jirawat Sakam Approved By: Mr. Sanyuth Jitranont
 Field Environmental Scientist (3) Assistant General Manager

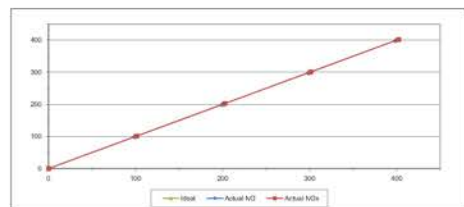
ALS Laboratory Group
 FORM NO.: F-06-056 REVISION NO.: 1 ISSUE DATE: 02/04/12



MULTIPOINT CALIBRATION REPORT

Calibration Date: 3-Jan-25 Equipment Name: NOx Analyzer
 Manufacturer: Teledyne API Model: 200E
 Serial No.: 4378 Equipment ID: BKK_F50773
 Calibrator Manufacturer: Teledyne API Model: 700
 Serial No.: 947
 Std. Gas Concentration (PPM): 55.88 Cylinder No.: GN0027222
 Cylinder Pressure (psi): 1800 Certified By: Angas 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	101.10	1.10	1.10	
2	200.00	199.60	-0.40	-0.20	202.70	2.70	1.35	
3	300.00	298.80	-1.20	-0.40	301.30	1.30	0.43	
4	400.00	399.60	-0.40	-0.10	402.50	2.50	0.63	
AVERAGE (%)				-0.35				0.71



Calibrated By: Mr. Jirawat Sakam Approved By: Mr. Sanyuth Jitranont
 Field Environmental Scientist (3) Assistant General Manager

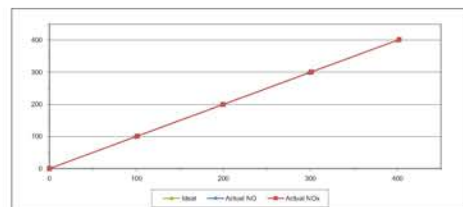
ALS Laboratory Group
 FORM NO.: F-06-056 REVISION NO.: 1 ISSUE DATE: 02/04/12



MULTIPOINT CALIBRATION REPORT

Calibration Date: 3-Jan-25 Equipment Name: NOx Analyzer
 Manufacturer: Teledyne API Model: 200E
 Serial No.: 4378 Equipment ID: BKK_F50778
 Calibrator Manufacturer: Teledyne API Model: 700
 Serial No.: 947
 Std. Gas Concentration (PPM): 55.88 Cylinder No.: GN0027222
 Cylinder Pressure (psi): 1800 Certified By: Angas 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	99.20	-0.80	-0.80	101.10	1.10	1.10	
2	200.00	199.50	-0.50	-0.25	199.50	-0.50	-0.25	
3	300.00	298.30	-1.70	-0.57	301.30	1.30	0.43	
4	400.00	401.50	1.50	0.38	402.00	2.00	0.50	
AVERAGE (%)				-0.25				0.38



Calibrated By: Mr. Jirawat Sakam Approved By: Mr. Sanyuth Jitranont
 Field Environmental Scientist (3) Assistant General Manager

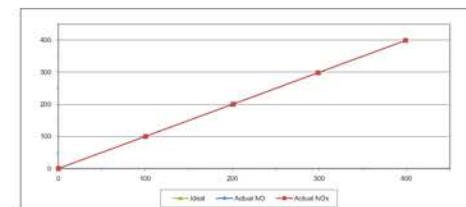
ALS Laboratory Group
 FORM NO.: F-06-056 REVISION NO.: 1 ISSUE DATE: 02/04/12



MULTIPOINT CALIBRATION REPORT

Calibration Date: 3-Jan-25 Equipment Name: NOx Analyzer
 Manufacturer: HORIBA Model: APNA-370
 Serial No.: WPGJMWJ Equipment ID: BKK_F50782
 Calibrator Manufacturer: Teledyne API Model: 700
 Serial No.: 947
 Std. Gas Concentration (PPM): 55.88 Cylinder No.: GN0027222
 Cylinder Pressure (psi): 1800 Certified By: Angas 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	99.60	-0.40	-0.40	100.60	0.60	0.60
2	200.00	199.70	-0.30	-0.15	201.10	1.10	0.55
3	300.00	298.70	-1.30	-0.43	298.50	-1.50	-0.50
4	400.00	398.70	-1.30	-0.33	399.10	-0.90	-0.22
AVERAGE (%)				-0.24			0.19



Calibrated By: Mr. Jirawat Sakam Approved By: Mr. Sanyuth Jitranont
 Field Environmental Scientist (3) Assistant General Manager

ALS Laboratory Group
 FORM NO.: F-06-056 REVISION NO.: 1 ISSUE DATE: 02/04/12

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Accredited calibration laboratory
ISO/IEC 17025:2017
ISO/IEC 17025
CALIBRATION 0367

WIND DIRECTION MEASUREMENT IDENTITY
Calibration services alignment

WIND DIRECTION MEASUREMENT IDENTITY
Calibration services alignment

Certificate Number
CND-039-67

CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM
MANUFACTURE
MODEL/TYPE
SERIAL NUMBER
ID NUMBER
CONDITION AS RECEIVED
CUSTOMER

Wind Direction Sensor
Model: WS-020
Serial: 130WS-250L-D
Serial: WS0-A5459
Data logger: AS459
ID: WS014
Used item
A2S Laboratory group (Thailand) Co., Ltd.
104 Phatthanasuk 40, Phatthanasuk Rd., Khwaeng Suan Luang, Bangkum 10250 Thailand

RECEIVED DATE
24 Dec 2024
MEASUREMENT DATE
26 Dec 2024
ISSUE DATE
27 Dec 2024

ENVIRONMENTAL CONDITIONS:
Ambient conditions in the laboratory are as follows:
Temperature: 23.0 ± 3.0 °C
Relative Humidity: 55.0 ± 3.0 %RH
Atmospheric Pressure: 1013 ± 3 hPa

PLACE OF CALIBRATION
CND type wind tunnel of Jiranatee Associates Co., Ltd.

CALIBRATION CONDITION
Wind tunnel cross-section area: 900 cm²
Wind direction (upwind): 130°
Diameter of rotating part: 120 mm
Blockage ratio of test object: 0.143

Reconditioning
Measurement Condition: 24 hours at ambient conditions.
The average values during measurement are (24.1°C, 55.0% RH and 1013.4 hPa).

TABULATION OF RESULTS:
The table on next page gives the measured values.

Calibrated by:
J NAC
JIRANATEE ASSOCIATES CO., LTD.

Approved signature:
Mr. Pongthorn Chomchuan
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

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Accredited calibration laboratory
ISO/IEC 17025:2017
ISO/IEC 17025
CALIBRATION 0367

WIND DIRECTION MEASUREMENT IDENTITY
Calibration services alignment

Certificate Number
CND-039-67

CERTIFICATE OF CALIBRATION

Page 2 of 2 Pages

MEASUREMENT RESULTS*

The wind direction sensor was calibrated against standard rotary encoder by comparison method. During calibration, the measurement was carried out at 40° intervals in clockwise and counter-clockwise direction after adjustment has been made. The flow speed of wind tunnel equally 1 m/s is test content while the sensor is rotated around to vertical axis. The results of calibration and associated measurement uncertainties are reported in the table below.

WV speed m/s	WV _{cal} Degrees (°)	WV _{ref} Degrees (°)	Error Degrees (°)	U ₉₅ (WV) Degrees (°)
4.00	41.000	41	-1	0.20
	50.000	51	-1	0.20
	130.000	131	-1	0.20
	140.000	139	-1	0.20
	225.000	227	-2	0.20
	230.000	231	-1	0.20
	315.000	319	-4	0.20
	360.000	359	-1	0.20

Remark:
* Calibration results only valid for the tested conditions and measurement conditions during which calibration test was performed.
* Direction of rotation: Clockwise

End of Certificate of Calibration

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Calibrated by:
J NAC
JIRANATEE ASSOCIATES CO., LTD.

Approved signature:
Mr. Pongthorn Chomchuan
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

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Accredited calibration laboratory
ISO/IEC 17025:2017
ISO/IEC 17025
CALIBRATION 0367

TEMPERATURE MEASUREMENT IDENTITY
Calibration services alignment

Certificate Number
CND-039-67

CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM
MANUFACTURE
MODEL/TYPE
SERIAL NUMBER
ID NUMBER
CONDITION AS RECEIVED
CUSTOMER

Data Logger with Temperature sensor
Model: 130WS-250L-D
Serial: AS459
ID: WS014
Used item
A2S Laboratory group (Thailand) Co., Ltd.
104 Phatthanasuk 40, Phatthanasuk Rd., Khwaeng Suan Luang, Bangkum 10250 Thailand

RECEIVED DATE
24 Dec 2024
MEASUREMENT DATE
26 Dec 2024
ISSUE DATE
27 Dec 2024

ENVIRONMENTAL CONDITIONS:
Ambient conditions in the laboratory are as follows:
Temperature: 23.0 ± 3.0 °C
Relative Humidity: 55.0 ± 3.0 %RH

NOTES: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:
The table on next page gives the measured values.

Calibrated by:
J NAC
JIRANATEE ASSOCIATES CO., LTD.

Approved signature:
Mr. Pongthorn Chomchuan
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

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Continuation of Certificate of Calibration Number CND-039-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20 °C to 40 °C

Function:
Table 1: This equipment was connected with temperature sensor Model: 130WS-250L-D (130WS-250L-D).
(Sensor: Diameter 12 mm, Length 90 mm)

Immersion Depth (mm)	Standard Reading (°C)	USC Reading (°C)	Error (°C)	Uncertainty (°C)
80	20.071	19.6	-0.5	0.099
80	25.062	24.6	-0.5	0.099
80	30.050	29.5	-0.5	0.099
80	35.042	34.6	-0.5	0.099
80	40.039	39.6	-0.5	0.099

USC: 130WS-250L-D

End of Certificate of Calibration

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Calibrated by:
J NAC
JIRANATEE ASSOCIATES CO., LTD.

Approved signature:
Mr. Pongthorn Chomchuan
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

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Accredited calibration laboratory
ISO/IEC 17025:2017
ISO/IEC 17025
CALIBRATION 0367

RELATIVE HUMIDITY MEASUREMENT IDENTITY
Calibration services alignment

Certificate Number
CND-039-67

CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM
MANUFACTURE
MODEL/TYPE
SERIAL NUMBER
ID NUMBER
CONDITION AS RECEIVED
CUSTOMER

Relative Humidity with data logger
Model: 130WS-250L-D
Serial: AS459
Data logger: AS459
ID: WS014
Used item
A2S Laboratory group (Thailand) Co., Ltd.
104 Phatthanasuk 40, Phatthanasuk Rd., Khwaeng Suan Luang, Bangkum 10250 Thailand

RECEIVED DATE
24 Dec 2024
MEASUREMENT DATE
26 Dec 2024
ISSUE DATE
27 Dec 2024

ENVIRONMENTAL CONDITIONS:
Ambient conditions in the laboratory are as follows:
Temperature: 23.0 ± 3.0 °C
Relative Humidity: 55.0 ± 3.0 %RH

NOTES: The certificate is valid only to the item calibrated on date and place of calibration.

TABULATION OF RESULTS:
The table on next page gives the measured values.

Calibrated by:
J NAC
JIRANATEE ASSOCIATES CO., LTD.

Approved signature:
Mr. Pongthorn Chomchuan
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

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Continuation of Certificate of Calibration Number CND-039-67

Page 2 of 2 Pages

Result of Calibration: ☒ Without Adjustment ☐ With Adjustment

Calibration Range: 20% RH to 80% RH

Function:
Table 1: The results of calibration of relative humidity at 20 °C are reported in table below.

WV Immersion (°C)	Standard Reading (%RH)	USC Reading (%RH)	Error (%RH)	Uncertainty (%RH)
20.0	59.82	59.5	-0.3	0.20
30.0	64.61	64.3	-0.3	0.20
40.0	70.40	70.1	-0.3	0.20

USC: 130WS-250L-D

End of Certificate of Calibration

J NAC
JIRANATEE ASSOCIATES CO., LTD.

Calibrated by:
J NAC
JIRANATEE ASSOCIATES CO., LTD.

Approved signature:
Mr. Pongthorn Chomchuan
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

CERTIFICATE OF CALIBRATION

Certificate No.: JCN-038-67

Page 1 of 2 Pages

MEASUREMENT ITEM:
MANUFACTURER:
MODEL/TYPE:
SERIAL NUMBER:
SI NUMBER:
CONDITION AS REQUESTED:
CUSTOMER:

Digital flowmeter:
Novamys
Series: L30-V5-P28P
Data logger: L30-V5-P28L-D
Series: BP-A5439
Data logger: A5439
Box: 200014
Used item:
JLS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanasri Rd, Phatthanasri Rd,
Klongkum Suburb, Klongkum Suburb,
Bangkok 10250 Thailand

Calibration procedure:
The Digital flowmeter was calibrated against
Digital pressure calibration. The digital flowmeter
was used as a reference pressure.

Traceability:
The measurement results are traceable to
the international system of units (SI) through
the BIPM International Prototype of the
Thermodynamic Temperature (IPK) 9000-24

Expanded uncertainty:
The expanded uncertainty of measurement is
based on GUM standard uncertainty multiplied
by a coverage factor k=2, which for a normal
distribution corresponds to a coverage
probability of approximately 95%. The
expanded uncertainty has been determined in
accordance with the GUM. The validity of
measurement data is valid for the expansion
of uncertainty in measurement.

RECEIVED DATE:
MEASUREMENT DATE:
ISSUE DATE:

14 Dec 2024
14 Dec 2024
17 Dec 2024

CONDITION OF THIS RESULT OF CALIBRATION:

1. Reference Standard instrument:

Instrument: Model: Serial No.: Rec Date:

Absolute Pressure Transducer: CP2020: MP-0000-24: 17 Dec 2024

2. The GUM was used in the calculation of the expanded uncertainty.

3. Calibration conditions:

4. Conditions:

Pressure transmitting medium:

air (DPC, 1 bar)

Pressure:

100.000 Pa

Temperature:

20.000 °C

5. The certificate is valid only for the instrument and date and place of calibration.

Calibration by:
Mr. Pongsak Boonchaisri
17 Dec 2024



Approved signature:
Mr. Pongsak Boonchaisri
Calibration Department Manager

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CERTIFICATE OF CALIBRATION

Certificate No.: JCN-038-67

Page 1 of 2 Pages

MEASUREMENT RESULTS:

Without adjustment With adjustment

CALIBRATION IN THE RANGE OF:

0.000 value to 1000.000 value

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

SI Unit	SI Unit	Error	Uncertainty (k=2)
(Pa)	(Pa)	(Pa)	(Pa)
0.000	0.000	0.0	0.0
100.000	100.000	0.0	0.0
1000.000	1000.000	0.0	0.0
10000.000	10000.000	0.0	0.0
100000.000	100000.000	0.0	0.0
1000000.000	1000000.000	0.0	0.0

Note: SI Unit Under Calibration

To convert the result to report unit Pa, it should be multiplied by 100.

End of certificate



Certificate of Calibration

Customer:

Name: JLS Laboratory Group Thailand Co., Ltd.

Address: 104 Soi Phatthanasri 40, Phatthanasri Road, Sun Lueang, Bangkok 10250

Certificate No.: 25-ACT-009

Request No.: Req 2025-009

Unit Under Calibration Details:

Measurement item: Acoustic Calibrator

Manufacturer: BION

Model: NC-74

Serial Number: 34170119

ID: BKK-FS0032

Class: 1

Range: 94 dB / 1000 Hz

Instrument Name: Used

Calibration Environment and Details

Temperature: (23 ± 2) °C

Humidity: (50 ± 20) %RH

Barometric Pressure: (1013 ± 0.0) kPa

Received Date: 15 January 2025

Calibration Date: 16 January 2025

Location of Calibration: LAB 1 Acoustic

Calibration Procedure: In-house method CP-ACT-02 based on IEC 60942:2017 Electroacoustics • Sound calibration

Reference Standard	Model	Serial Number	Traceable	Due Calibration
Sound Calibrator	SV 35A	58079	IEC	12 June 2025
THD Multimeter	2015	1007765	NIMT	16 January 2025

Traceability

This certificate provides traceability of measurement to recognized national standards, 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:

Mr. Naphon Luangpradit
Service Calibration Engineer

Approved By:

Mr. Pait Mahaveera
Calibration Engineer Supervisor

Issue Date:

16 January 2025

CALIBRATION REPORT

Calibration Number: PD-04122024

Page 1 of 2 Pages

Measurement Item: Rain gauge with rain logger

Manufacturer: Data logger: Novamys
Rain gauge: Novamys

Model/Type: Data logger: L30-V5-P28L-D
Rain gauge: L30-V5-P28L-D

Serial Number: Data logger: A5439
Rain gauge: PD-A5439

SI NO: SIEM_000174

Customer: JLS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanasri Rd, Phatthanasri Rd, Klongkum Suburb, Klongkum Suburb, Bangkok 10250, Thailand

Environmental Condition

The measurement was carried out in an ambient temperature of 25 ± 0.5 °C and relative humidity of 65 ± 10%.

Measurement Method

The Rain gauge, Unit Under Calibration (UUC) was calibrated by Precision reference bottle with flow adjuster at low rate 0.01 mm per minute in 1 tapping every 20 seconds. The tapping method was determined by procedure below:

1. Clean rain gauge test area.

Rain gauge orifice diameter is: $d_o = \text{Diameter} / \sqrt{2}$ (inches)

Rain gauge area: $A_{UUC} = \pi \times d_o^2 / 4$ (inches²)

Rain gauge area: 330.1 mm²

2. Clean theoretical correct rain gauge inner (number of tapping using 330.1 mm² test area and 0.01 mm³ of rain:

a) 10000 mm³ / 330.1 mm² test area = 30.29 mm³ per gauge area = 100.29 of square meter

b) 30.29 × 0.01 mm³ volume = 0.3029 mm³ of rain over 1 m² surface. 0.01 mm³ of rain volume on the rain gauge area = 15.18 mm³ of rain.

c) Number of tapping = 0.3029 / 0.02 mm³ = 15.14 tapping

Note: Rain gauge in fully cleaned and leveling prior the calibration performed.

Measurement Date: Dec. 20, 2024

Issue Date: Dec. 27, 2024

Performed by: Mr. Sornchai Thacharut
Mr. Jiraporn Lathaporn



Approved Signature: Mr. Pongsak Boonchaisri
Calibration Department Manager

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Continuation of Calibration of Calibration Number:

Calibration Number: PD-04122024

Page 2 of 2 Pages

Result of Calibration: Without Adjustment With Adjustment

The results of calibration are reported in table below:

Quantity of H ₂ O (mm)	Determined Tapping	Tapping count	Acceptable Tapping count
500	6.1	60	52 - 65
500	6.1	61	52 - 65
500	6.1	61	52 - 65
500	6.1	61	52 - 65
500	6.1	60	52 - 65

Remark: The procedure is made to verify the correct reading of the Unit Under Calibration rain gauge when a precise volume of water falls into its noise. We suggest that the number of tapping should be within ±2% different from the ±1% tapping. Current range: 50-63 tapping. It means that the rain gauge needs the manufacturer's acceptance test.

End of calibration report



Certificate No. : 25-ACT-009

Request No. : Req 2025-009

Sound pressure level

Calibration Result: Without Adjustment

Calibration Range (dB)	Without Adjustment (dB)	Adjustment (dB)	Uncertainty (± dB)	Acceptance Limit (Class 1 ± dB)	Result
94 dB / 1000 Hz	92.82	-0.18	0.13	0.25	Pass

Frequency of Sound pressure level

Calibration Range (Hz)	Without Adjustment (Hz)	Adjustment (Hz)	Uncertainty (± %)	Acceptance Limit (Class 1 ± %)	Result
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 1 ± %)	Result
94 dB / 1000 Hz	0.71	-	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 1

• The calibration results exclude the calibration process uncertainty

• The calibration results exclude the measurement volume correction

INNOVATIVE INSTRUMENT CALIBRATION LAB
INNOVATIVE INSTRUMENT CO., LTD. HEAD OFFICE
1101 MOO 11, NONGSITSAKORN 11 TAMBON BANG KHAO,
KAMPANG KHAM PHUMSAKAT PROVINCE, HONG THAI AND
TEL: 080-270-0000 / FAX: 0800-270-0000

Certificate No. : 25-ACCT-009
Request No. : Req-2025-0000

Decision Rule for Statements of Conformity
The standard decision rule applied for the extension of conformity to each calibration result will be applied using ISO/IEC 17025:2019 Guidelines on the Reporting of Conformity with Statistical Data following Fig. and notation:
Pass = The measurement result after the extended uncertainty with a 95% coverage probability was within the limit.
Fail = The measurement result was outside the limit. However, a portion of the expanded uncertainty of measurement at 95% is inside the limit.
Fail = The measurement result was outside the limit. However, a portion of the expanded uncertainty of measurement at 95% is inside the limit.
Fail = The measurement result after the extended uncertainty with a 95% coverage probability was outside the limit.

End of Calibration

150-708-ACCT-02 Rev.03 issue date 1/4/24

SITHIPORN ASSOCIATES CO., LTD.
CALIBRATION LABORATORY

401-402/3 Sathorn-Bangkok, Bangkok, Bangkok, 10120 Thailand
Tel: +66 3433 8330 Email: calibration@sithiporn.com

Cert. No. : ACL25095
Job No. : YC8AC0863
Page : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER
Manufacturer : RION
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24
Serial No. : 0055525 / 170583 / 72899
ID No. : DRK_P50115

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 ± 30) %

Received Date : 14 JANUARY 2025
Calibration Date : 27-29 JANUARY 2025
Date of Issue : 30 JANUARY 2025

Calibrated by : Nishakorn Pongpauan
Approved by : T. Petchu (Thamakul Petchu)

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.

SITHIPORN associates

SITHIPORN ASSOCIATES CALIBRATION LABORATORY

Cert. No. : ACL25095
Job No. : YC8AC0863
Pages : 2 of 8

Calibration Procedure : CP-AC-01

Calibration Method :
This equipment was calibrated by follow an IEC-61672-3 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Acoustic 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	MY5292742	EF-0007-24	05-FEB-25
Digital Multimeter	34461A	MY53220104	EEL-BP 21/0267	13-FEB-25
Digital Multimeter	34461A	MY53220076	EEL-BP 20/0267	15-FEB-25
Digital Multimeter	34461A	MY60024773	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	34500495	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. : ACL25095
Job No. : YC8AC0863
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. Time lag 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. : ACL25095
Job No. : YC8AC0863
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 (Hz)	Weighting (dB)
A-weight	12.6
C-weight	18.5
Flat	24.1

3. Acoustical signal tests of frequency weightings

Music 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	0.4	0.4	0.4	±1.5
1000	0.1	0.1	0.1	±1.0
8000	-1.0	-1.0	-1.0	±5.0

Cert. No. : ACL25095
Job No. : YC8AC0863
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	0.0	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
Log	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	±0.5

Cert. No. : ACL25095
Job No. : VCRAC0863
Pages : 6 of 8

7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	53.9	-0.1	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	38.9	-0.1	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	26.0	0.0	±1.1
25.0	25.0	0.0	±1.1

T. Petch.

Cert. No. : ACL25095
Job No. : VCRAC0863
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	28.9	-0.1	±1.1

9. Tone burst response

Time Weighting	Tone burst duration, T _b (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. : ACL25095
Job No. : VCRAC0863
Pages : 8 of 8

10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L _{peak} (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.

401-403/1 Sathorn Road, Bangkurin, Bangkok, 10700 Thailand
Tel: +66 2433 8888 Email: calibration@sithiporn.comCert. No. : ACL24401
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER
Manufacturer : RION
Model : NR-42 / Microphone UC-52 / Preamplifier NH-24
Serial No.: 00858527 / 157781 / 48096
ID No.: HKK_P50117

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 : 06 DECEMBER 2024
Calibration Date : 13-16 DECEMBER 2024
Date of Issue : 16 DECEMBER 2024

Calibrated by : Nuthakorn Pongpattan

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.

401-403/1 Sathorn Road, Bangkurin, Bangkok, 10700 Thailand
Tel: +66 2433 8888 Email: calibration@sithiporn.comCert. No. : ACL24401
Job No. : VCRAC0865
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 in Acoustical and Electrical signal tests of frequency weighting with Acoustic chamber and Reference Standard Instruments.
For tests results of each items were made by observation of each instrument 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	MY33202742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY3320104	EEL-RP-21-02-07	13-FEB-25
Digital Multimeter	33461A	MY3320076	EEL-RP-20-02-07	15-FEB-25
Digital Multimeter	34461A	MY60034273	EEL-RP-22-02-07	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 :

- National Institute of Metrology (Thailand).
- Thailand Institute of Scientific and Technological Research (TISTR).

T. Petch.

401-403/1 Sathorn Road, Bangkurin, Bangkok, 10700 Thailand
Tel: +66 2433 8888 Email: calibration@sithiporn.comCert. No. : ACL24401
Job No. : VCRAC0865
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 units of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal units 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

T. Petch.

SITHIPORN ASSOCIATES CO., LTD.
CALIBRATION LABORATORY

409-4015 Sirirach Road, Bangkum, Bangkok, 10700 Thailand
Tel: +66 2453 8338 Email: calibration@sithiporn.com



Cert. No. : ACL24481
Job No. : VCRAC0845
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)
16.3

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	13.1
C-weight	19.0
Flat	24.6

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	0.7	0.7	0.7	±1.5
1000	0.3	0.3	0.3	±1.0
8000	-0.6	-0.5	-0.5	±0.0

T. Petch

SITHIPORN ASSOCIATES CO., LTD.
CALIBRATION LABORATORY

409-4015 Sirirach Road, Bangkum, Bangkok, 10700 Thailand
Tel: +66 2453 8338 Email: calibration@sithiporn.com



Cert. No. : ACL24481
Job No. : VCRAC0845
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4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	0.0	0.0	0.1	±2.0
125	0.0	0.1	0.0	±1.5
250	0.0	0.1	0.0	±1.5
500	0.1	0.1	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.1	0.0	±2.0
4000	0.0	0.1	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	94.1	0.1	±0.3

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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. Time burst response

Time Weighting	Tone burst duration, T _b (ms)	Cycle	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Fast	0.25	1	108.0	107.9	-0.1	1.5; -5.0
	2	8	117.0	117.0	0.0	1.0; -2.5
	200	800	134.0	134.1	0.1	±1.0
Slow	2	8	108.0	108.0	0.0	1.5; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5; -5.0
SEL	2	8	108.0	108.0	0.0	1.0; -2.5
	200	800	128.0	128.0	0.0	±1.0

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10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, L _{peak} (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±1.0
One	133.4	133.4	0.0	±1.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	131.0	131.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	89.6	89.5	-0.1
Negative one-half cycle	89.6	89.5	-0.1

12. High level stability

Frequency Weighting	SIM Display at initial (dB)	SIM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.0	137.0	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor k = 2 or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

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Cert. No. : ACL24481
Job No. : VCRAC0845
Page : 6 of 8

7. Level linearity on the reference level range

Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
137.0	137.0	0.0	±1.1
136.0	136.0	0.0	±1.1
135.0	135.0	0.0	±1.1
134.0	134.0	0.0	±1.1
133.0	133.0	0.0	±1.1
132.0	132.0	0.0	±1.1
131.0	131.0	0.0	±1.1
129.0	129.0	0.0	±1.1
124.0	124.0	0.0	±1.1
119.0	119.0	0.0	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.0	0.0	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.1	0.1	±1.1
27.0	27.1	0.1	±1.1
26.0	26.1	0.1	±1.1
25.0	25.1	0.1	±1.1

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Calibration Certificate

Equipment : SOUND LEVEL METER
Manufacturer : RION
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24
Serial No. : 00572552 / 170384 / 72890
ID No. : BKCF130877

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.
194 PHATTANAKAN 40, PHATTANAKAN ROAD,
KHWAENG PHATTANAKAN, KHET SUAN LUANG,
BANGKOK, 10250 THAILAND.

Location : -
Ambient Temperature : (23.0 ± 3) °C
Pressure : (101.3 ± 1) kPa
Relative Humidity : (50.0 ± 20) %

Received Date : 15 NOVEMBER 2024
Calibration Date : 03 04 DECEMBER 2024
Date of Issue : 04 DECEMBER 2024

Calibrated by : Tanadaj Chaimongkol

Approved by : *T. Petch*
(Thanakul Petchursi)

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Cert. No. : ACL24379
Job No. : VCMAC0832
Pages : 2 of 8

Calibration Procedure : CP-AC-01

Calibration Method :

This equipment was calibrated by follow on IEC-61672-1 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.
For test results of each item were made by observation of each instrument 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	33218A	MY48017076	EF-0009-24	05-FEB-25
Waveform Generator	33511B	MY53202742	EF-0007-24	05-FEB-25
Digital Multimeter	33461A	MY53220104	EEL_BP 216267	13-FEB-25
Digital Multimeter	33461A	MY53220076	EEL_BP 200267	13-FEB-25
Digital Multimeter	34461A	MY60024773	EEL_BP 220267	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).

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Cert. No. : ACL24379
Job No. : VCMAC0832
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Summary of Measurement Result :

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For ~4 kHz to 10 kHz	0.3	0.7
For ~10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Cert. No. : ACL24379
Job No. : VCMAC0832
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Result of calibration :

1. Absolute sensitivity

Reference Acoustic Signal (dB)	Measured Value (dB)	Deviation (dB)	Acceptance Limit (dB)
93.9 (93.94)	93.9	0.0	±0.3

2. Self-generated noise

2.1 Normal test

Measured Value (dB)
14.2

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	17.4
Flat	23.2

3. Acoustical signal tests of frequency weightings

Mean free-field acoustic response at a level of 84 dB

Frequency (Hz)	Flat	C-weight	A-weight	Acceptance Limits
125	0.4	0.4	0.4	±1.5
1000	0.0	0.0	0.0	±1.0
8000	-1.2	-1.1	-1.1	±5.0

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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	0.1	0.0	±1.5
1000	0.0	0.0	0.0	±1.0
2000	0.0	0.1	0.0	±2.0
4000	0.0	0.1	0.0	±2.0
8000	0.1	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
Imp	94.0	94.0	0.0	±0.1

6. Long-term stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	94.0	94.1	0.1	±0.3

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Cert. No. : ACL24379
Job No. : VCMAC0832
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	119.1	0.1	±1.1
114.0	114.0	0.0	±1.1
109.0	109.0	0.0	±1.1
104.0	104.1	0.1	±1.1
99.0	99.0	0.0	±1.1
94.0	94.0	0.0	±1.1
89.0	89.0	0.0	±1.1
84.0	84.0	0.0	±1.1
79.0	79.0	0.0	±1.1
74.0	74.0	0.0	±1.1
69.0	69.0	0.0	±1.1
64.0	64.0	0.0	±1.1
59.0	59.0	0.0	±1.1
54.0	54.0	0.0	±1.1
49.0	49.0	0.0	±1.1
44.0	44.0	0.0	±1.1
39.0	39.0	0.0	±1.1
34.0	34.0	0.0	±1.1
30.0	30.0	0.0	±1.1
29.0	29.0	0.0	±1.1
28.0	28.0	0.0	±1.1
27.0	27.0	0.0	±1.1
26.0	26.0	0.0	±1.1
25.0	24.9	-0.1	±1.1

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Cert. No. : ACL24379
Job No. : VCMAC0832
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	108.0	0.0	1.5; -5.0
	200	800	127.6	127.6	0.0	±1.0
	0.25	1	99.0	98.9	-0.1	1.5; -5.0
SEL	2	8	108.0	108.0	0.0	1.0; -2.5
	200	800	128.0	128.0	0.0	±1.0

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Cert. No. : ACL24379
Job No. : VC6RAC0032
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10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (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	131.0	132.9	+0.1	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	133.4	135.1	+0.3	±2.0

11. Overload indication

Measured value (dB)		Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	89.5	89.5	0.0
Negative one-half cycle	89.5	89.5	0.0

12. High level stability

Frequency Weighting	SLM Display at initial (dB)	SLM Display at final (dB)	Deviated Value (dB)	Acceptance Limits (dB)
A-weight	137.1	137.1	0.0	±0.3

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k=2$ or any value following calculation, providing a level of confidence of approximately 95 %

End of Calibration Certificate

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Cert. No. : ACL24045
Job No. : VC6RAC0027
Pages : 1 of 8

Calibration Certificate

Equipment : SOUND LEVEL METER
Manufacturer : RION
Model : NL-42 / Microphone UC-52 / Preamplifier NH-24
Serial No.: 00597159 / 180402 / 88172
ID No.: BKK_J80995

Condition As Found : GOOD

Customer : ALS LABORATORY GROUP (THAILAND) CO., LTD.
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,
KHWAENG PHATTHANAKAN, KIDT SUAN LUANG,
BANGKOK, 10250 THAILAND.

Location : -
Ambient Temperature : (23.0 ± 3.) °C
Pressure : (101.3 ± 3.) kPa
Relative Humidity : (50.0 ± 20.) %
Received Date : 01 NOVEMBER 2024
Calibration Date : 12 NOVEMBER 2024
Date of Issue : 13 NOVEMBER 2024



Calibrated by : Nathakorn Petchuon

Approved by : *T. Petchu*
(Thakul Petchuon)

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Tel: +66 2433 8331 Email: calibration@sithiporn.com



Cert. No. : ACL24045
Job No. : VC6RAC0027
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 item 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	33216A	MY48017076	IF-0009-24	05-FEB-25
Waveform Generator	33511B	MY51302742	IF-0007-24	05-FEB-25
Digital Multimeter	34461A	MY51220104	EEL-BP 2100267	15-FEB-25
Digital Multimeter	34461A	MY51220676	EEL-BP 2000267	15-FEB-25
Digital Multimeter	34461A	MY60002723	EEL-BP 2200267	15-FEB-25
Programmable Attenuator	MAT-1070	62100114	IF-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).

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Cert. No. : ACL24045
Job No. : VC6RAC0027
Pages : 3 of 8

Summary of Measurement Result.:

Parameter	Uncertainty (dB)	Maximum-permitted uncertainty of measurement (dB)
1. Absolute sensitivity	0.2	N/A
2. Self-generated noise	0.2	N/A
3. Acoustical signal tests of frequency weightings		
125 Hz	0.3	0.6
1000 Hz	0.3	0.6
8000 Hz	0.3	0.7
4. Electrical signal tests of frequency weightings		
For 10 Hz to 4 kHz	0.3	0.6
For > 4 kHz to 10 kHz	0.3	0.7
For > 10 kHz to 20 kHz	0.3	1.0
5. Frequency and time weightings at 1 kHz	0.2	0.2
6. Long-term stability	0.1	0.1
7. Level linearity on the reference level range	0.2	0.3
8. Level linearity including the level range control	0.2	0.3
9. Tone burst response	0.2	0.3
10. Peak C sound level	0.2	0.35
11. Overload indication	0.2	0.25
12. High level stability	0.1	0.1

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Cert. No. : ACL24045
Job No. : VC6RAC0027
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)
15.7

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

Frequency Weighting	Weighting (dB)
A-weight	14.8
C-weight	20.9
Flat	26.4

3. Acoustical signal tests of frequency weightings

Measure four-field acoustic response at a level of 94 dB

Frequency (Hz)	Flat	C-weight	A-weight	Acceptance Limits
125	0.2	0.3	0.3	±1.5
1000	0.1	0.1	0.1	±1.0
8000	2.4	2.5	2.5	±5.0

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Cert. No. : ACL24045
Job No. : VC6RAC0027
Pages : 5 of 8

4. Electrical signal tests of frequency weightings

Weighting network response with relative to 1 kHz.

Frequency (Hz)	Deviation from various frequency weighting response curve (dB)			
	Flat	C-weight	A-weight	Acceptance Limits
63	-0.1	-0.1	-0.1	±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
Imp	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. Petchu

SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

459-463 Sirirach Road, Bangkum, Bangkok, 10700 Thailand
Tel: +66 2433 8338 Email: calibration@sithiporn.com



Cert. No. : ACL34345
Job No. : VCSAC0827
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	30.1	0.1	±1.1
29.0	29.1	0.1	±1.1
28.0	28.0	0.0	±1.1
27.0	27.1	0.1	±1.1
26.0	26.2	0.2	±1.1
25.0	25.1	0.1	±1.1

T. Petch

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Cert. No. : ACL34345
Job No. : VCSAC0827
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	29.1	0.1	±1.1

9. Time burst response

Time Weighting	Time burst duration, Th (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	117.0	117.0	0.0	1.0 ; -2.5
		200	134.0	134.0	0.0	±1.0
Slow	2	8	108.0	108.0	0.0	1.5 ; -5.0
		200	127.6	127.6	0.0	±1.0
		0.25	1	99.0	98.9	-0.1
SEL	2	8	108.0	108.0	0.0	1.0 ; -2.5
		200	128.0	128.0	0.0	±1.0

T. Petch

SITHIPORN ASSOCIATES CO., LTD. CALIBRATION LABORATORY

459-463 Sirirach Road, Bangkum, Bangkok, 10700 Thailand
Tel: +66 2433 8338 Email: calibration@sithiporn.com



Cert. No. : ACL34345
Job No. : VCSAC0827
Pages : 8 of 8

10. Peak C sound level

Number of cycle in test signal	Anticipated Value (dB)	Measured Value, Leqpk (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	130.0	130.0	0.0	±3.0
One	133.4	133.4	0.0	±3.0

Number of cycle in test signal	Anticipated Value (dB)	Measured Value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Continuous	133.0	133.0	0.0	±2.0
Positive half cycle	135.4	135.1	-0.3	±2.0
Negative half cycle	135.4	135.1	-0.3	±2.0

11. Overload indication

Measured value (dB)	Deviated Value (dB)	Acceptance Limits (dB)
Positive one-half cycle	89.5	0.0
Negative one-half cycle	89.5	0.0

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



Bara Scientific Co., Ltd.
968 U Chu Liang Building Floor 7 Ramat Road
Bangkok Bangkok Thailand 10500
Tel: 02-6324300 Fax: 02-6375496-7
www.barascientific.com



Certificate of Calibration

Number of Page(s) 1 of 3

Certificate No. BSCC-UV-37424
Equipment UV/VIS Spectrophotometer
Model UV-1800
Manufacturer Shimadzu
Serial No. A1149408033 CD
ID No. BSCC-UV-1800
Date of receipt 13 September 2024
Date of calibration 13 September 2024
Date of issue 13 SEP 2024

Customer name ALS Laboratory Group (Thailand) Co., Ltd.

Address 104 Soi Phatthanakarn 40, Phatthanakarn Road, Phatthanakarn, Suan Luang, Bangkok 10250

Temperature (25.3 - 26.7) °C (On site)
Humidity (50.4 - 55.5) %RH (On site)

Equipment condition Good Operation

Calibration Location Organic Preparation Lab

Calibration Procedure In-house method W-UV-703-01 based on ASTM E275-01

Traceability Wavelength Accuracy is traceable to certificate No. 106372 and 106371
Photometric Accuracy is traceable to certificate No. 106372 and 106371
The above certificate are traceable to SI unit through Bara Scientific Ltd.
(UKAS accredited calibration laboratory NO. 9569)

Calibrated by Mr. Wanchana Jarloy

Approval by

Signature
Mr. Suthi Teerapornasakul
Service Manager

The above results are valid exclusively for the calibrated item(s) as mention in this report / certificate.
Advertising the report / Certificate and publicity of the results are prohibited and also shall not be reproduced
except in full, without written approval of the Bara Scientific Co., Ltd.

PM/UV-703-02 Rev.01 (23/01/2024)



Bara Scientific Co., Ltd.
968 U Chu Liang Building Floor 7 Ramat Road
Bangkok Bangkok Thailand 10500
Tel: 02-6324300 Fax: 02-6375496-7
www.barascientific.com



Certificate of Calibration

Certificate No. BSCC-UV-37424

Number of Page(s) 2 of 3

Calibration Results:

1. Wavelength Accuracy

Certified Wavelength (nm)	UUC (nm)	Error (nm)	Uncertainty (nm)
241.70	241.55	-0.15	0.18
334.02	333.85	-0.17	0.18
418.53	418.57	0.04	0.18
572.99	572.97	-0.02	0.18
879.41	879.17	-0.24	0.18

2. Photometric Accuracy (UV)

Wavelength (nm)	Certified Absorbance (A)	UUC (A)	Error (A)	Uncertainty (ΔA)
235	0.0000	0.0000	0.0000	0.0075
	0.7171	0.7189	-0.0002	0.0075
	0.5500	0.5500	0.0000	0.0075
257	0.8354	0.8345	-0.0009	0.0075
	0.6000	0.6000	0.0000	0.0075
	0.2786	0.2781	-0.0005	0.0075
313	0.0000	0.0000	0.0000	0.0075
	0.0000	0.0000	0.0000	0.0075
	0.8199	0.8194	-0.0005	0.0075

*CNR = Customer not request

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PM/UV-703-02 Rev.01 (23/01/2024)



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www.barascientific.com



Certificate of Calibration

Certificate No. BSCC-UV-37424

Number of Page(s) 3 of 3

Calibration Results:

3. Photometric Accuracy (Visible)

Wavelength (nm)	Certified Absorbance (A)	UUC (A)	Error (A)	Uncertainty (ΔA)
420.0	0.0000	0.0000	0.0000	0.0042
	0.8781	0.8785	0.0004	0.0042
	0.7119	0.7105	-0.0014	0.0042
	1.0389	1.0378	-0.0011	0.0042
	0.9000	0.9000	0.0000	0.0042
440.0	0.5810	0.5813	0.0003	0.0042
	0.7901	0.7894	-0.0007	0.0042
	1.0004	1.0011	0.0007	0.0042
	0.0000	0.0000	0.0000	0.0042
	0.5235	0.5232	-0.0003	0.0042
460.0	0.6814	0.6808	-0.0006	0.0042
	0.9408	0.9444	0.0036	0.0042
	0.0000	0.0000	0.0000	0.0042
	0.0000	0.0000	0.0000	0.0042
	0.5249	0.5245	-0.0004	0.0042
540.0	0.6875	0.6866	-0.0009	0.0042
	1.0009	0.9994	-0.0015	0.0042
	0.0000	0.0000	0.0000	0.0042
	0.9000	0.9000	0.0000	0.0042
	1.1125	1.1114	-0.0011	0.0042
590.0	0.9000	0.9000	0.0000	0.0042
	0.5686	0.5686	0.0000	0.0042
	0.7502	0.7504	0.0002	0.0042
	1.0000	1.0011	0.0011	0.0042
	0.0000	0.0000	0.0000	0.0042

*CNR = Customer not request

4. Stray Light*

Standard cut-off wavelength (nm)	Wavelength (nm)	Transmission (%)	Absorbance (A)
255 BSCC 11 nm	190.58	0.0020	2.0217

The stray light transmission reference is less than 1.0% and stray light absorbance reference is greater than 2.00A

*Stray Light not NRC-OMC Accredited.

The measurement 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

The above results are valid exclusively for the calibrated item(s) as mention in this report / certificate.
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PM/UV-703-02 Rev.01 (23/01/2024)



Certificate No. T232160 Page 1 of 4

Certificate of Calibration

Equipment : Chamber (Cooling Room)
Manufacturer : KOLDTECH
Model : KM 320
Serial No. : TBN-1012061/05
Customer Code : BKK_EN0167
ID No. : T2463A3
Customer : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,
Khet Suan Luang, Bangkok 10250
Customer Location : Laboratory
Date of Receipt : 29 November 2023
Calibrated By : Atiphong Rongrat (Technician)
Approved By : Boonchai Suriyawong (Site Calibration Manager)
Date of Issue : 05 JAN 2024

REVIEW BY: *[Signature]*
APPROVED BY: *[Signature]*
NEXT CAL DATE: 06/12/25

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-L13 13/15-08-06

Calibration Report

Equipment : Chamber (Cooling Room)
Date of Calibration : 6 December 2023
Environment : Temperature : 23.4-24.9 °C
Line Voltage : 221.4-230.2 V
Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

1. This equipment was calibrated by insert 16 standard thermocouples type T into its chamber, the other one standard thermocouples type T use for ambient temperature measurement. The calibration was done in according to WI-T20 (based on ASTM E145-94 (Reapproved 2001) and AS2553-1986). All data show below were final values and the initial data from customer request. The temperature scale used was based on ITS - 90.

2. Reference Standard Instrument :
Instrument Model Instrument No. Certificate No. Due Date
TC TYPE T TN161-TN170 T230773 10 April 2024
TC TYPE T TN171-TN180 T230773 10 April 2024
DATA LOGGER 34970A T149 T230773 10 April 2024

3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TISI-TIS 17025 CALIBRATION 0244)

4. Condition of calibrated item : good

Equipment Description :

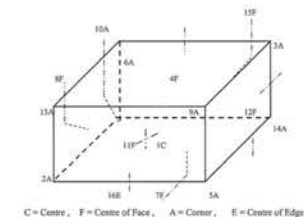
Time Constant : 1 Hour 30 Minute At 3 °C
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available

5. Adjustment : (X) without adjustment () after adjustment

Approved By: *[Signature]*

FM-L13 13/15-08-06

Calibration Report



1C = TN161	12F = TN172
2A = TN162	13A = TN173
3A = TN163	14A = TN174
4F = TN164	15F = TN175
5A = TN165	16E = TN176
6A = TN166	
7F = TN167	
8F = TN168	
9A = TN169	
10A = TN170	
11F = TN171	

Approved By: *[Signature]*

FM-L13 13/15-08-06

Calibration Report

Measurement Results

Calibration Point	Average Standard Reading at each position (°C)											
	TN161	TN162	TN163	TN164	TN165	TN166	TN167	TN168	TN169	TN170	TN171	TN172
3.0	3.83	3.34	2.95	3.46	3.45	3.76	3.25	3.46	3.39	3.50	3.58	3.42
	TN173	TN174	TN175	TN176								
	3.33	3.38	3.15	3.41								

Chamber (Cooling Room)			Temperature Distribution				Coverage Factor k
Reading (°C)			Average (°C)	Stability (±°C)	Uniformity (°C)	Uncertainty (±°C)	
Ising (°C)	Min	Max	Average				
3.0	2.8	4.1	3.5	3.36	1.30	2.00	1.90

The calibration result apply only the above calibrated item.
The result of test was found accurate as shown on date and place of test only.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 %.

Approved By: *[Signature]*

FM-L13 13/15-08-06



Certificate No. T250873 Page 1 of 4

Certificate of Calibration

Equipment : Chamber (Cooling Room)
Manufacturer : KOLDTECH
Model : KM 320
Serial No. : TBN-1012061/05
Customer Code : BKK_EN0167
ID No. : T2463A3
Customer : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,
Khet Suan Luang, Bangkok 10250

REVIEW BY: *[Signature]*
APPROVED BY: *[Signature]*
NEXT CAL DATE: 04/12/26

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

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-TL96 30/27-03-08

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 (Reapproved 2001) and AS2553-1986). 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-TISI-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
☐ Close
☒ Not Available

5. Adjustment : (X) without adjustment () after adjustment

Approved By: *[Signature]*

FM-TL97 30/27-03-08

Cert No.: 24CH1295
Page: 2 of 3

Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Ref. Standard Thermometer	218000	130RC044	241022	16 Sep 2025

- This Certification is traceable to SI Through Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials

The measurement results are traceable to SI through Hach Lange GmbH Ltd.
Deutsche Akkreditierungsgesellschaft, Accredited No. D-RM-15184-01-00
The measurement results are traceable to SI through CPA chem Ltd.
ANAB-ASQ National Accreditation Board, Accredited No. AN-1635

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	1034203	27 Sep 2026
pH 6.999	Hach Lange GmbH	C03143	28 Feb 2026
pH 10.010	CPA chem	1034205	27 Sep 2025

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Function: pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4.718)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (pH)	Coverage factor k
pH Electrode	4.008	4.028	174.6	0.0244	2.00
	6.999	7.014	1.4	0.0084	2.05
	10.010	10.018	-172.8	0.0086	2.00

Remark - Can not connect the BNC because the plug does not match with the socket.

Cert No.: 24CH1295
Page: 3 of 3

Calibration Results

Function: Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe:

- Model: PHC201

- Serial No.: 230473042902

Dimension of probe

- Length: 103 mm

- Diameter: 12 mm

- Immersion Depth: 90 mm

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor k
25.0	25.002	25.0	-0.002	0.13	2.00

Remark - UUC* = Unit Under Calibration

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

-000-

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES
3344 PRATTANAKARN ROAD SOI 18, SUANLIANG, SUANLIANG BANGKOK 10255
TEL.0-2717-3000-29 FAX.0-2719-9484

Cert No.: 24CG0952
Page: 1 of 2

Certificate of Calibration

Equipment: Burette

Capacity: 50 mL

Serial No.: -

ID No.: BKK-EN0171

Manufacturer: Witeg

Made in: Germany

Submitted by: ALS Laboratory Group (Thailand) Co., Ltd.
104 Phuthanankan 40, Phuthanankan Rd.,
Khwaeng Phuthanankan, Khet Suan Luang,
Bangkok 10250 Thailand

Ambient Temperature: (20 ± 2.8) °C
Relative Humidity: (50 ± 10) %
Barometric Pressure: 760 mmHg
Calibration Procedure: ASTM E 942 - 01

Calibrated by: Natcha Chayingchalew

Approved by: *Sink P.*
Approved Signatory

() Unnophol Harachai
(✓) Srisuda Khamtha
() Sa-neunkam Wongsas

Issue Date: 27 February 2024

The Uncertainties are for a confidence probability of approximately 95%

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Cert No.: 24CG0952
Page: 2 of 2

Equipment: Burette

Received Date: 23 February 2024

Condition As-Received: New Item

Calibration Date: 27 February 2024

Reference: 2402-075/DSC-1

Condition of this result of calibration

1. Reference Standard Instruments

Instruments	Model	Serial No.	ID No.	Certificate No.	Traceability	Due date
1) Balance	XP205DR	1126143764	140RC004	23RM538	TPA	15 Sep 2024
2) Thermo-Micrograph	THDX-CE	00016540	140EC001	23H1275	TPA	09 June 2024
3) Thermometer	-	0634181	140EC005	239448	TPA	10 Aug 2024

2. This certification is traceable to SI Unit

3. The certificate is valid only to the item calibrated on date and place of calibration.

3. True value is converted to true volume at the standard temperature of 20 °C.

Calibration result:

Nominal capacity (mL)	Reading (mL)	Uncertainty (± mL)	k Factor
50	50.0032	0.010	2.00

Remark mL = cm³

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-

Sartorius (Thailand) Co., Ltd.
100 Rama 9 Road, Prachinburi, Prachinburi 31000
Tel: +66 3651 8551-5 Fax: +66 3651 8551-6 Email: service@thailand.sartorius.com

Cert No.: 24BC0070
Page No.: 1 of 2

Certificate of Calibration

Model Number: M527345-100-000

Description: Analytical Balance

Serial Number: 0021490555

ID No.: BKK-EN0003

Manufacturer: Sartorius

Customer Name: ALS Laboratory Group (Thailand) Co., Ltd.
104 Phuthanankan 40/Phuthanankan Rd., Khwaeng Suan Luang, Khet Suan Luang, Bangkok 10250

Calibrated Place: Lab Room

Calibrated By: Mr. Chanchai Indrakum

Calibration Date: Friday, August 03, 2024

Calibration Procedure No.: This calibration was conducted by using in-house calibration procedure number (001-000) Based on UKAS LAB 14: 2019

Uncertainty Conditions

Temperature: 23.0 °C ± 0.5 °C

Humidity: 55.0 % RH ± 10.0 % RH

Pressure: - ±

Equipment Condition: M Good Operate M Fine

Measurement Method UKAS Publication Ref: Lab 14

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor k=2 to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which under the unit of measurement according to the International Standard System of Units (SI). Report of Uncertainty can be found in the report of Sartorius Metrological Specifications.

Traceability:

Model Number	Description	Traceability	Calibrate No.	Due Date
YC611-1229-09	Double weight set 100g - 2000g (0.0001g-100g)	TCN	M20081975	25-Aug-2025
Scales 124-B	Thermo-Micrograph, Scale 174H	ENISO	NET 061303JAN1410	12-Nov-2024

This certificate refers and apply this equipment only.
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Sartorius (Thailand) Co., Ltd.

SOP FM 33 03 February 2022

Sartorius (Thailand) Co., Ltd.
100 Rama 9 Road, Prachinburi, Prachinburi 31000
Tel: +66 3651 8551-5 Fax: +66 3651 8551-6 Email: service@thailand.sartorius.com

Cert No.: 24BC0070
Page No.: 2 of 2

Certificate of Calibration

Model Number: M527345-100-000

Description: Analytical Balance

Serial Number: 0021490555

ID No.: BKK-EN0003

Manufacturer: Sartorius

Customer Name: ALS Laboratory Group (Thailand) Co., Ltd.
104 Phuthanankan 40/Phuthanankan Rd., Khwaeng Suan Luang, Khet Suan Luang, Bangkok 10250

Calibrated Place: Lab Room

Calibrated By: Mr. Chanchai Indrakum

Calibration Date: Friday, August 03, 2024

Calibration Procedure No.: This calibration was conducted by using in-house calibration procedure number (001-000) Based on UKAS LAB 14: 2019

Uncertainty Conditions

Temperature: 23.0 °C ± 0.5 °C

Humidity: 55.0 % RH ± 10.0 % RH

Pressure: - ±

Equipment Condition: M Good Operate M Fine

Measurement Method UKAS Publication Ref: Lab 14

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor k=2 to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which under the unit of measurement according to the International Standard System of Units (SI). Report of Uncertainty can be found in the report of Sartorius Metrological Specifications.

Traceability:

Model Number	Description	Traceability	Calibrate No.	Due Date
YC611-1229-09	Double weight set 100g - 2000g (0.0001g-100g)	TCN	M20081975	25-Aug-2025
Scales 124-B	Thermo-Micrograph, Scale 174H	ENISO	NET 061303JAN1410	12-Nov-2024

This certificate refers and apply this equipment only.
This certificate may not be reproduced other than in full except with the prior written approval of the Verification Operation (Under Sartorius (Thailand) Co., Ltd.)

Sartorius (Thailand) Co., Ltd.

SOP FM 33 03 February 2022



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES
33/44 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL.0-2717-3000-29 FAX.0-2719-9484



Certificate of Calibration

Cert. No.: 24TM1618
Page : 1 of 3

Equipment : Water Bath
Manufacturer : Memmert
Model : WNE29
Serial No. : L622.0282
ID No. : BKK_EN0439
Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwang Phatthanakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location : Organic Preparation Lab
Received Order : 29 October 2024
Calibration Date : 29 October 2024
Ambient Temperature : (26 ± 10) °C
Relative Humidity : (50 ± 30) %
Calibrated by : Man Pattanapongpiaboon
Approved by : Kunchit Promrat
() Porpon Palaim
() Suwit Injai
(✓) Kunchit Promrat
Issue Date : 30 October 2024

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services & Equipment Calibration and Testing Services.



Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2410-0752OC-4
Procedure Used :
Cert. No.: 24TM1618
Page : 2 of 3

Calibration were conducted using in-house calibration procedure CP-OT04 Based on ASTM E715 according to direct measurement method with Data Acquisition which connected with Industrial Platinum Resistance Thermometer (PRT).

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 MYS7013711 24LM115 TPA 13 Jul 2025

2. This certificate is valid only to the item calibrated on date and place of calibration.

3. This certificate is traceable to the International System of Unit.

Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration : (°C) Without Adjustment

Function of UUC* : Temperature Source

Heat transfer medium used : Water

	Environmental		AC Voltage Supply	
	(°C)	(%R.H.)	(V)	
Beginning of Calibration	25	54	222	
Finished of Calibration	25	57	226	

	Position		Ref. Std.	
	1	2	ID No.	
1	4803988-001			
2	4803988-002			
3	4803988-003			
4	4803988-004			
5(ref.)	4803988-005			

Front



Equipment : Water Bath
Condition As-Received : Used Item
Reference : 2410-0752OC-4
Result of Calibration : (°C) Without Adjustment
Function of UUC* : Temperature Source
Cert. No.: 24TM1618
Page : 3 of 3

Calibration point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Average* Standard Reading (°C)					Uncertainty (± °C)
			1	2	3	4	5 (ref.)	
85.0	85.0	85.0	85.133	85.212	85.150	84.983	85.096	0.22

Calibration point (°C)	Uniformity (°C)	Stability (± °C)	Coverage Factor k
85.0	0.21	0.13	2

Average* : The average of 30 values in each position.

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.

Stability : One-half of the greatest maximum difference of measured temperature at any one probe.

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 %.

oDo-



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scieco.co.th

Certificate No. T250578

Page 1 of 4

Certificate of Calibration

Equipment : Digestion Unit
Manufacturer : SCP Science
Model : DigiPRER HT
Serial No. : HTC1120480658
Customer Code : BKK_EN0366
ID No. : T2635A5
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwang Phatthanakan, Khet Suan Luang, Bangkok 10250
Customer Location : Wet Chemistry Lab 1
Date of Receipt : 2 April 2025
Calibrated By : Atiphong Rongrat (Technician)
Approved By : Boonchal Suriyawong (Site Calibration Manager)
Date of Issue : 13 May 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.

PM-L13 BW/30-05-97



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scieco.co.th

Certificate No. T250578

Page 2 of 4

Calibration Report

Equipment : Digestion Unit
Date of Calibration : 9 April 2025
Environment : Temperature : 23.9 - 26.3 °C
Line Voltage : 221.8 - 225.9 V
Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

1. 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 accordance to NIST-710.

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 S	M7-CH11-C114	T242035	04 December 2025
DATA LOGGER	34970A	T121	T242035	04 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 40 Minute At 350 °C
Fresh Air Damper : ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available

5. Adjustment :

(X) without adjustment () after adjustment

Approved By : Boonchal

PM-L13 BW/30-05-97



Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110

Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109

Website : www.scieco.co.th E-Mail : calibrate@scieco.co.th

Certificate No. T250578

Page 3 of 4

Calibration Report



FRONT

Measurement Results			Position of Standards at Back											
Cal. Point	Setting	Reading	STD.	1	2	3	4	5	6	7	8	9	10	11
230.0	230.0	230.0	Reading	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Max °C	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Min °C	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Average °C	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Stability °C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Cal. Point	Setting	Reading	STD.	1	2	3	4	5	6	7	8	9	10	11
230.0	230.0	230.0	Reading	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Max °C	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Min °C	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Average °C	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
			Stability °C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Approved By : Boonchal

PM-L13 BW/30-05-97



Certificate No. T250578

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Calibration Report

Measurement Results

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.8 - 380.2	Max $^{\circ}\text{C}$	379.3	379.2	379.1	379.1	380.0	381.1	382.5	383.1
			Min $^{\circ}\text{C}$	379.1	379.0	378.9	379.2	380.5	381.8	382.1	381.1
			Average $^{\circ}\text{C}$	379.2	379.1	379.0	379.2	380.6	380.9	382.3	382.2
			Stability $^{\circ}\text{C}$	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.8 - 380.2	Max $^{\circ}\text{C}$	379.3	379.2	379.1	379.1	380.0	381.1	382.5	383.1
			Min $^{\circ}\text{C}$	379.1	379.0	378.9	379.2	380.5	381.8	382.1	381.1
			Average $^{\circ}\text{C}$	379.2	379.1	379.0	379.2	380.6	380.9	382.3	382.2
			Stability $^{\circ}\text{C}$	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.8 - 380.2	Max $^{\circ}\text{C}$	379.0	380.0	379.8	379.7	380.1	380.2	379.7	379.9
			Min $^{\circ}\text{C}$	379.0	379.4	379.3	379.3	379.8	379.4	379.4	379.5
			Average $^{\circ}\text{C}$	379.0	379.4	379.3	379.3	379.9	380.1	379.8	379.7
			Stability $^{\circ}\text{C}$	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1

The expanded uncertainty of temperature measurement was $\pm 2.36^{\circ}\text{C}$.
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 $k=2$, providing a level of confidence of approximately 95 %.

Approved By:

FSM-L13 38676-05-57



Certificate No. T240742

Page 1 of 5

Certificate of Calibration

Equipment : Digestion Unit
Manufacturer : SCP Science
Model : DigIPRER HT
Serial No. : HTC1120480658
Customer Code : BKK_EN0366
ID No. : T2635A5
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanasak 40, Phatthanasak Rd., Kluang Phatthanasak,
Khet Sunn Luang, Bangkok 10250
Customer Location : Wet Chemistry Lab 1
Date of Receipt : 11 April 2024
Calibrated By : Sujjar Naknakred (Site Calibration Manager)
Approved By : / Boonchal Suriyawong (Site Calibration Manager)
Date of Issue : 02 MAY 2024

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FSM-L13 38676-05-57



Certificate No. T240742

Page 2 of 5

Calibration Report

Equipment : Digestion Unit
Date of Calibration : 21 April 2024
Environment : Temperature : $23.9 - 26.3^{\circ}\text{C}$
Line Voltage : $221.8 - 225.9\text{ V}$
Relative Humidity : $55 - 65\% \text{RH}$

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, was based on ITS - 90.
- Reference Standard Instrument :
Instrument Model Instrument No. Certificate No. Due Date
TC Type S MDA2-CH11-CH14 T23086 09 May 2024
DATA LOGGER 34970A T47 T23086 09 May 2024
- This certificate is traceable to :
National Institute of Metrology (Thailand) through Metrological Center (NSC-TISI-TIS 17025 CALIBRATION 0344).
- Condition of calibrated item : good
Equipment Description :
Time Constant 1 Hour 8 Minute At 330°C
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available
- Adjustment :
(X) without adjustment () after adjustment

Approved By:

FSM-L13 38676-05-57



Certificate No. T240742

Page 3 of 5

Calibration Report



FRONT

Measurement Results

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.2 - 380.3	Max $^{\circ}\text{C}$	378.7	378.9	377.9	378.7	380.5	379.8	378.7	377.4
			Min $^{\circ}\text{C}$	378.2	378.3	377.9	378.1	380.1	379.3	378.3	378.9
			Average $^{\circ}\text{C}$	378.4	378.7	377.7	378.4	380.2	379.6	378.5	377.7
			Stability $^{\circ}\text{C}$	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.2 - 380.3	Max $^{\circ}\text{C}$	378.4	378.6	378.2	378.6	381.0	380.6	379.1	378.1
			Min $^{\circ}\text{C}$	377.8	378.1	378.1	378.2	381.4	379.9	378.3	377.2
			Average $^{\circ}\text{C}$	378.1	378.4	378.6	378.4	380.4	380.3	378.7	377.7
			Stability $^{\circ}\text{C}$	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.3

Approved By:

FSM-L13 38676-05-57



Certificate No. T240742

Page 4 of 5

Calibration Report



FRONT

Measurement Results

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.2 - 380.3	Max $^{\circ}\text{C}$	378.9	379.2	378.9	378.9	380.1	381.0	381.0	378.9
			Min $^{\circ}\text{C}$	378.2	378.6	378.1	378.6	381.7	380.3	378.3	377.2
			Average $^{\circ}\text{C}$	378.5	378.9	378.5	378.8	380.9	380.6	379.6	377.8
			Stability $^{\circ}\text{C}$	0.3	0.3	0.2	0.2	0.2	0.4	0.3	0.3

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.2 - 380.3	Max $^{\circ}\text{C}$	378.5	378.1	378.2	378.6	380.7	378.7	377.7	380.9
			Min $^{\circ}\text{C}$	378.2	377.8	377.7	378.1	380.3	378.4	377.2	380.4
			Average $^{\circ}\text{C}$	378.3	378.4	377.9	378.4	380.5	378.6	377.5	380.6
			Stability $^{\circ}\text{C}$	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3

Approved By:

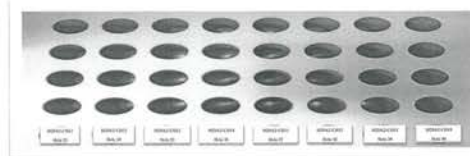
FSM-L13 38676-05-57



Certificate No. T240742

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Calibration Report



FRONT

Measurement Results

Cal. Point	Setting	Reading	STD.	Position of Standards in Block							
$^{\circ}\text{C}$	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Reading	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
380.0	380.0	379.2 - 380.3	Max $^{\circ}\text{C}$	378.2	377.9	376.7	375.5	381.6	380.7	378.4	378.9
			Min $^{\circ}\text{C}$	378.9	377.6	376.4	379.1	381.2	380.0	378.3	377.6
			Average $^{\circ}\text{C}$	378.5	377.8	376.6	377.3	381.4	380.3	378.4	377.8
			Stability $^{\circ}\text{C}$	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2

The expanded uncertainty of temperature measurement was $\pm 1.87^{\circ}\text{C}$.
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 $k=2$, providing a level of confidence of approximately 95 %.

Approved By:

FSM-L13 38676-05-57



Certificate No. T250578

Page 1 of 4

Certificate of Calibration

Equipment : Digestion Unit
Manufacturer : SCP Science
Model : DigiPRER HT
Serial No. : HTCI120480658
Customer Code : BKK_EN0366
ID No. : T2635A5
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthakanan 40, Phatthakanan Rd.,
Khwaeng Phatthakanan, Khet Suan Luang, Bangkok 10250
Customer Location : Wet Chemistry Lab I
Date of Receipt : 2 April 2025
Calibrated By : Atiphong Rongrat (Technician)
Approved By : *[Signature]* / Boonchai Suriyawong (Site Calibration Manager)
Date of Issue : 13 MAY 2025

REVIEW BY *[Signature]*
APPROVED BY *[Signature]*
NEXT CAL. DATE 19/01/26

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-L13 00030-05-57



Certificate No. T250578

Page 2 of 4

Calibration Report

Equipment : Digestion Unit
Date of Calibration : 9 April 2025
Environment : Temperature : 23.9 - 26.3 °C
Line Voltage : 221.8 - 225.9 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 WJ-T10.
- 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 S M7-(CHI-10) T242035 04 December 2025
DATA LOGGER 34970A T121 T242035 04 December 2025
- This certificate is traceable to :
National Institute of Metrology (Thailand) through Metrological Center (NSC-TIS-TS 17025 CALIBRATION 0244).
- Condition of calibrated item : good
Equipment Description :
Time Constant 2 Hour 40 Minute At 380 °C
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available
- Adjustment :
(X) without adjustment () after adjustment

Approved By : *[Signature]*

FM-L13 00030-05-57



Certificate No. T250578

Page 3 of 4

Calibration Report



FRONT

Measurement Results

Cal. Point	Setting	Reading	STD.	Position of Standards at Block
°C	°C	°C		
380.0	380.0	379.8 - 380.2	Max °C	380.0 380.0 380.0 380.0 380.0 380.0 380.0 380.0
			Min °C	380.0 380.0 380.0 380.0 380.0 380.0 380.0 380.0
			Average °C	380.0 380.0 380.0 380.0 380.0 380.0 380.0 380.0
			Stability °C	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

Approved By : *[Signature]*

FM-L13 00030-05-57



Certificate No. T250578

Page 4 of 4

Calibration Report

Cal. Point	Setting	Reading	STD.	Position of Standards at Block
°C	°C	°C		
380.0	380.0	379.8 - 380.2	Max °C	380.0 380.0 380.0 380.0 380.0 380.0 380.0 380.0
			Min °C	380.0 380.0 380.0 380.0 380.0 380.0 380.0 380.0
			Average °C	380.0 380.0 380.0 380.0 380.0 380.0 380.0 380.0
			Stability °C	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

The expanded uncertainty of temperature measurement was ± 0.36 °C
The calibration result apply only the above calibrated item.
The result of test was found accurate as shown in data and plot 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 % .

Approved By : *[Signature]*

FM-L13 00030-05-57



Certificate No. T249904

Page 1 of 3

Certificate of Calibration

Equipment : Chamber (Oven)
Manufacturer : Memmert
Model : UF 450
Serial No. : B717.0531
Customer Code : BKK_EN0273
ID No. : T8042A4
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthakanan 40, Phatthakanan Rd., Khwaeng Phatthakanan,
Khet Suan Luang, Bangkok 10250
Customer Location : Laboratory (Oven Room)
Date of Receipt : 08 May 2024
Calibrated By : Preecha Phisassutthikul (Temperature Calibration Manager)
Approved By : *[Signature]* / Nuafun Sungchum (Metrology Manager)
Date of Issue : 23 MAY 2024

REVIEW BY *[Signature]*
APPROVED BY *[Signature]*
NEXT CAL. DATE 19/01/25

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 13518-08-46



Certificate No. T249904

Page 2 of 3

Calibration Report

Equipment : Chamber (Oven)
Date of Calibration : 14 May 2024
Environment : Temperature : 24.5-28.1 °C
Line Voltage : 226.7-229.8 V
Relative Humidity : 51 - 57 %RH

Condition of this results of calibration :

- 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 WJ-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
RTD 100-ohm 21-(CHI-10) T231955 17 November 2024
DATA LOGGER 34970A T121 T231955 17 November 2024
- This certificate is traceable to :
National Institute of Metrology (Thailand) through Metrological Center (NSC-TIS-TS 17025 CALIBRATION 0244).
- Condition of calibrated item : good
Equipment Description :
Time Constant 1 Hour 30 Minute At 104 °C
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available
- Adjustment :
(X) without adjustment () after adjustment

Approved By : *[Signature]*

FM-L13 11818-08-46



Certificate No.: C15241274
Page: 2 of 2

Reference standard equipment:

Equipment	Certificate no	Cal. date	Next Cal. date
Digital Thermometer with Probe	QR24-3149	26 November 2024	28 November 2025

Calibration Results:

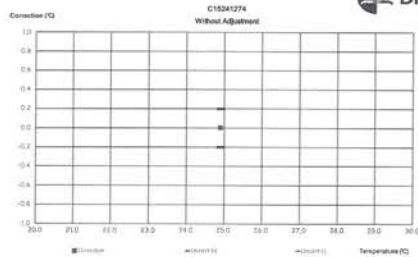
Without Adjustment

Sensor Type: RTD		Electrode Serial No.: BW1-13563		Channel: -	
Diameter (mm): 12		Length (mm): 120		Immersion (mm): 120	
Calibrate Point (°C)	STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty (± °C)	
25.0	24.904	24.9	0.004	0.20	

The End of Certificate

DKSH Business Services (Thailand) Co., Ltd.
2555 Sukhumvit Road, Bangkok, Thailand 10110
Phone: +66 (0)2 1000 0000 Email: info@dksh.com Website: www.dksh.com/thailand/indonesia
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CAL-FRM-C16-04-06 Dec 2022



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ใบตรวจสอบสภาพเครื่องมือวัดอุณหภูมิ

Equipment : Digital Thermometer with Probe
Serial No : 10013628

Certificate No.: C15241274
Model : TDSLine 7030

ตรวจพบ (ข้อ)	รายการตรวจพบ	ตรวจพบ (ข้อ)	หมายเหตุ
26-Dec-2024		26-Dec-2024	
ปกติ	ไม่ปกติ	ปกติ	ไม่ปกติ
General			
<input checked="" type="checkbox"/>	1. สายวัด	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	2. Adapter / Power supply 220 / 110 VAC	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	3. การใช้งาน Main Switch	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	4. การใช้งาน Selector Key	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	5. การแสดงผล Display	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	6. Battery	<input checked="" type="checkbox"/>	ไม่ใช้
<input checked="" type="checkbox"/>	7. สายวัดสัมผัส	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	8. สายวัด Sensor (In / Ex)	<input checked="" type="checkbox"/>	

ผู้ตรวจ:

Ms. Kawkan Suradech
Service Engineer

DKSH Business Services (Thailand) Co., Ltd.
2555 Sukhumvit Road, Bangkok, Thailand 10110
Phone: +66 (0)2 1000 0000 Email: info@dksh.com Website: www.dksh.com/thailand/indonesia
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Certificate of Calibration

Equipment: CONDUCTIVITY METER
Model: ORION STAR A215
Serial No. (or ID): X58031
Manufacturer: Thermo Scientific
Electrode Serial No.: YV1-15418
Condition: In Condition

Certificate No.: C24240300
Issued Date: 26 December 2024
Job No.: WO-0055577
Page: 1 of 2
Model: ORION 013009MD Brand: Thermo Scientific

Customer: ALS Laboratory Group (Thailand) Co., Ltd.
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Environment Condition: Temperature 23 °C ± 2 °C
Humidity 50 %RH ± 15 %RH

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Wet Chemistry Lab 2)
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Calibration By: Mr. Pongpau Sutcharitha
Calibration Date: 26 December 2024
The Method used: In house method, CAL-W-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. 990789, 990790, 990791

(Mr. Pongpau Sutcharitha)

Person in charge

(Ms. Kawkan Suradech)

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 or national standard or other recognized national standard laboratory.

The measurement uncertainty stated in the reported 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 the Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items listed, reference or samples. The report shall not be reproduced without the written approval of DKSH Technology Limited.

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CAL-FRM-C24-08 12 Sep 2022



Certificate No.: C24240300
Page: 2 of 2

Calibration Results:

Before Adjustment

Standard	Unit Under Calibration	Reading	Correction	Coverage Factor (k)	Uncertainty (±)
Conductivity Solution					
84.003 $\mu\text{S/cm}$	84.79 $\mu\text{S/cm}$	-10.787 $\mu\text{S/cm}$	2.00	0.58 $\mu\text{S/cm}$	
1413.1 $\mu\text{S/cm}$	1427 $\mu\text{S/cm}$	-13.9 $\mu\text{S/cm}$	2.00	9.3 $\mu\text{S/cm}$	
12.880 mS/cm	13.02 mS/cm	-0.140 mS/cm	2.00	0.082 mS/cm	

After Adjustment

Test Program: 100					
---	--	--	--	--	--

The End of Certificate

DKSH Business Services (Thailand) Co., Ltd.
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Phone: +66 (0)2 1000 0000 Email: info@dksh.com Website: www.dksh.com/thailand/indonesia
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CAL-FRM-C24-09 12 Sep 2022



ใบตรวจสอบสภาพเครื่องมือวัดสิ่งละลาย

รุ่นเครื่องมือ: CONDUCTIVITY METER			เลข ORION STAR A215		หมายเลขงาน: WO-0055577	
ตรวจพบ (ข้อ)			รายการตรวจพบ	ตรวจพบ (ข้อ)		
26 Dec 2024				26 Dec 2024		
ปกติ	ไม่ปกติ			ปกติ	ไม่ปกติ	
General						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. การสอบเทียบเครื่อง	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. ความสะอาด (ของเหลวตัวอย่าง, ภายในเซลล์)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. สวิตช์ On - Off (On-Off Switch)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. ปุ่มกด (Keypad)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. หน้าจอ (Display, Screen Contrast)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Spectrophotometer						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. แบตเตอรี่ (Battery Backup) >= 2.5 VDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. การควบคุมความยาวคลื่น (Wavelength Control)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. ความยาวคลื่น (Wavelength Check)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. แสงที่มองเห็น (UV < 3,000 hour)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. แสงที่มองเห็น (Visible < 5,000 hour)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. เซลล์แสงอาทิตย์ (Control Module)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
pH Meter and Conductivity Meter						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. อิเล็กโทรด (Electrode and Connection Cable)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. อิเล็กโทรดละลาย (Electrode (Level KCl))	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. ฝาปิดป้องกัน Electrode (Dust Protection Hood)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. ขาตั้งอิเล็กโทรด (Stand)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Turbidimeter						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. การควบคุมโฟลว์ (No Sample)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. ขบวนการละลายสารละลาย (>= 2.5 นาที 3.0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Automatic titrator						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. สาย Piston Burettes	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Function Rinsing and Dosing	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. ระบบควบคุมการเติมสารละลาย/การผสม	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

ผู้ตรวจ: * ผู้ตรวจต้องเซ็นชื่อและประทับตรา

Mr. Pongpau Sutcharitha
Service Engineer

DKSH Business Services (Thailand) Co., Ltd.
2555 Sukhumvit Road, Bangkok, Thailand 10110
Phone: +66 (0)2 1000 0000 Email: info@dksh.com Website: www.dksh.com/thailand/indonesia
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CAL-FRM-R31-03 30 Jul 2022



Equipment : Digital Thermometer with Probe
Model : OXION STAR A215
Serial No. : X58031
Manufacturer : Thermo Scientific
ID No. : -

Certificate No. : C15241275
Issued Date : 26 December 2024
Job No. : WO-0005577
Page : 1 of 2
Condition : In Condition

Customer : A&S Laboratory Group (Thailand) Co., Ltd.
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 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. (Wet Chemistry Lab 2
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Calibration By: Ms. Kaewkan Suradech
Calibration Date: 26 December 2024

The Method used : In house method, CAL-WI-09, by comparison with standard thermometer

(Miss Kaewkan Suradech)



(Mr. Tweewong Thairang)

Person in charge	Authorized signatory
<p>This certificate is issued for the sole purpose 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 laboratory.</p> <p>The measured 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).</p> <p>These results may be affected by deviations from specified conditions. The results relate only to the items tested, contained or sampled. The result shall not be reproduced except in full without approval of OGCIT Technology Limited.</p>	

Noni Beverage and its Effects
Datto Technology Limited
2537 Jln Pagar 10, #01-01, Singapore 109752
2537 Subramaniam Road, Singapore, Ponghawang, Bangkok 10260
Phone: +65 3278 7222 Email: info.dattotechnology.com Website: www.dattotechnology.com

CAL-FM-C15-14 08 Dec 2022



Reference standard equipment:

Equipment	Certificate no	Cal. date	Next Cal. date
Digital Thermometer with Probe	QR24-3149	26 November 2024	26 November 2025

Calibration Results:

Without Adjustment

Sensor Type: RTD		Electrode Serial No.: YV1-15416		Channel: -	
Diameter (mm): 15		Length (mm): 120		Immersion (mm): 120	
Calibrate Point (°C)	STD. Reading (°C)	UUC Reading (°C)	Correction of UUC (°C)	Uncertainty (± °C)	
25.0	24.988	25.0	-0.012	0.20	

The End of Certificate

Shia Business and Technology Inc.
2153 Avenue 66, Suite 100, North York, Ontario M2H 3C8
2153 Avenue 66, Suite 100, North York, Ontario M2H 3C8
Phone: (416) 291-1155 Fax: (416) 291-1155 Website: www.shia.com

CAL-FMC15-14: 06 Dec 2022



Equipment:	Automatic Titrator
Model:	TitroLine 7000
Serial No.:	10013826
Type of Titration :	Motor - driven
Exchange Unit Model:	WA-20
Burettes Model :	TZ 3320
Manufacturer:	SI Analytics
Condition:	In condition

Certificate No.: C32240068
 Issued Date: 27 December 2024
 Job No.: WO-00055577
 Page: 1 of 2
 Unit S/N: 10045524
 057734 Nominal Vol.: 20 ml

Customer: ALS Laboratory Group (Thailand) Co., Ltd.
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Environment Condition:	Temperature	22	°C	±	0.2 °C
	Relative Humidity	60	%RH	±	1.5 %RH
	Atmospheric Pressure	1014	mbar	±	0.4 mbar

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Wet Chemistry Lab 2)
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Calibration By: Mr. Atachai Ngamchanat
Calibration Date: 26 December 2024
The Method used: In house method, CAL-WI-57, base on ISO 8655:2002
Traceability: This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand Through DKSH Technology Limited, Certificate No. C01243206

(Mr. Atachai Ngamchanat)
Person in charge

(Miss Kaewkan Suradee)
Authorized signatory

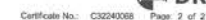
This certificate is issued the *date* of measurement according to the International System of Units (SI), and provides traceability of measurement to International System of Units (SI) and recognized national standard laboratories.

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 distributed 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, contained or represented. The report shall not be reproduced except in full without approval of DQMT Technology (Pvt) Ltd.

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CAL-FM-C35-11: 07 May 2022



Calibration Results:

Nominal Volume 20 ml

Volume (%)	Volume (m)	Measurement Volume (V ₀) (m)	Systematic error (biasness)		Random error (precision)		Measurement Uncertainty (μ)	k
			es (μ)	es (μ)	CV (%)	S (μ)		
10%	2.6000	2.0005	0.003	0.5	0.023	0.6	0.69	2.03
50%	10.0000	10.0077	0.039	7.7	0.003	0.7	0.92	2.00
100%	20.0000	20.0081	0.040	8.1	0.009	1.7	1.8	2.06

ISO 8655-3:2002(E) Table 1 - Maximum permissible errors for motor-driven piston burettes

Nominal volume	Maximum permissible systematic error		Maximum permissible random error	
	$\pm\%$	$\pm \mu\text{ l}^*$	$\pm\%$	$\pm \mu\text{ l}^*$
≤ 1	0.6	6	0.1	1
2	0.5	10	0.1	2
5	0.3	15	0.1	5
10	0.2	20	0.07	7
20	0.2	40	0.07	14
25	0.2	50	0.07	17.5
50	0.2	100	0.05	25
100	0.2	200	0.03	30

a Expressed as the deviation of the mean of tentoid measurement from the nominal volume or from the selected volume (see ISO 8655-6:2002, 5.4)

b Expressed as the coefficient of variation of a tenfold measurement (see ISO 8655-5:2002, 8.4)

c Expressed as the repeatability standard deviation of a tenfold measurement (see ISO 8855-8:2002, 8.5)

The End of Certificate

25-26 Houdoufai Rd, 10th Floor, Houdoufai Tower, P.O. Box 12200
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Phone: +66 (0)2 638 7000 Email: info@allindia.com Website: www.allindia.com

DOI: 10.1002/anie.200700000

ใบตรวจสอบสภาพเครื่องวัดสิ่งแวดล้อม

เลขที่ใบงาน: WO-0005577

ตรวจสอบ (ปี)	รายการตรวจเช็ค	ตรวจสอบ (ปี)	หมายเหตุ
26 Dec 2024		26 Dec 2024	
ปกติ	ไม่ปกติ	ปกติ	ไม่ปกติ
General			
<input checked="" type="checkbox"/>	1. ความสมบูรณ์เครื่อง	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	2. ความสะอาด (ของวัดสิ่งแวดล้อม, ภายในและนอกเครื่อง)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	3. สวิตช์ On/Off (On-Off Switch)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	4. ปุ่มกด (Keypad)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	5. หน้าจอ (Display, Screen Contrast)	<input checked="" type="checkbox"/>	
Spectrophotometer			
<input checked="" type="checkbox"/>	6. แบตเตอรี่สำรอง (Battery Backup) >= 2.5 VDC	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	7. ควบคุมแสงสว่างภายใน (Wavelength Control)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	8. ความยาวคลื่น (Wavelength Check)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	9. เวลาใช้งาน (UV < 3,000 hour)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	10. เวลาใช้งาน (Visible < 5,000 hour)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	11. เซนเซอร์แสงสว่าง (Caroused Module)	<input checked="" type="checkbox"/>	
pH Meter and Conductivity Meter			
<input checked="" type="checkbox"/>	12. อิเล็กโทรด (Electrode and Connection Cable)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	13. เซนเซอร์แสงสว่าง (Level KCl)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	14. ฝาปิดป้องกัน Electrode (Dual Protection Hood)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	15. ขาตั้งอิเล็กโทรด (Stand)	<input checked="" type="checkbox"/>	
Turbidimeter			
<input checked="" type="checkbox"/>	16. ความสมบูรณ์ถัง (No Sample)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	17. เซนเซอร์แสงสว่าง (No Sample)	<input checked="" type="checkbox"/>	
Automatic Titrator			
<input checked="" type="checkbox"/>	18. สภาพ Piston Burettes	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	19. Function Rinsing and Drying	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	20. ตรวจสอบสายเคเบิลอุปกรณ์เชื่อมต่อ	<input checked="" type="checkbox"/>	

เซ็นเซอร์อุณหภูมิ:

Mr. Atachai Ngamchanat
Service Engineer

DKSH Technology Limited
2020 Sukhumvit Road, Bangkok, Thailand 10110
Phone: +66 260 11800 Fax: +66 260 11801 Email: sales@dksh.com

CAL-FM/31-03: 20 Jul 2022

ใบตรวจสอบสภาพเครื่องวัดสิ่งแวดล้อม

เลขที่ใบงาน: WO-0005577

ตรวจสอบ (ปี)	รายการตรวจเช็ค	ตรวจสอบ (ปี)	หมายเหตุ
26 Dec 2024		26 Dec 2024	
ปกติ	ไม่ปกติ	ปกติ	ไม่ปกติ
General			
<input checked="" type="checkbox"/>	1. ความสมบูรณ์เครื่อง	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	2. ความสะอาด (ของวัดสิ่งแวดล้อม, ภายในและนอกเครื่อง)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	3. สวิตช์ On/Off (On-Off Switch)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	4. ปุ่มกด (Keypad)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	5. หน้าจอ (Display, Screen Contrast)	<input checked="" type="checkbox"/>	
Spectrophotometer			
<input checked="" type="checkbox"/>	6. แบตเตอรี่สำรอง (Battery Backup) >= 2.5 VDC	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	7. ควบคุมแสงสว่างภายใน (Wavelength Control)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	8. ความยาวคลื่น (Wavelength Check)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	9. เวลาใช้งาน (UV < 3,000 hour)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	10. เวลาใช้งาน (Visible < 5,000 hour)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	11. เซนเซอร์แสงสว่าง (Caroused Module)	<input checked="" type="checkbox"/>	
pH Meter and Conductivity Meter			
<input checked="" type="checkbox"/>	12. อิเล็กโทรด (Electrode and Connection Cable)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	13. เซนเซอร์แสงสว่าง (Level KCl)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	14. ฝาปิดป้องกัน Electrode (Dual Protection Hood)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	15. ขาตั้งอิเล็กโทรด (Stand)	<input checked="" type="checkbox"/>	
Turbidimeter			
<input checked="" type="checkbox"/>	16. ความสมบูรณ์ถัง (No Sample)	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	17. เซนเซอร์แสงสว่าง (No Sample)	<input checked="" type="checkbox"/>	
Automatic Titrator			
<input checked="" type="checkbox"/>	18. สภาพ Piston Burettes	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	19. Function Rinsing and Drying	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	20. ตรวจสอบสายเคเบิลอุปกรณ์เชื่อมต่อ	<input checked="" type="checkbox"/>	

เซ็นเซอร์อุณหภูมิ:

Mr. Atachai Ngamchanat
Service Engineer

DKSH Technology Limited
2020 Sukhumvit Road, Bangkok, Thailand 10110
Phone: +66 260 11800 Fax: +66 260 11801 Email: sales@dksh.com

CAL-FM/31-03: 20 Jul 2022

Certificate of Calibration

Equipment: Automatic Titrator
Model: TitroLine 7000
Serial No.: 10013826
Type of Titration: Motor - driven
Exchange Unit Model: WA-20
Burettes Model: T2 3020
Manufacturer: SI Analytics
Condition: In condition

Certificate No.: C32240089
Issued Date: 27 December 2024
Job No.: WO-0005577
Page: 1 of 2
Exchange Unit S/N: 10045489
S/N. No.: 007773 Nominal Vol.: 20 ml

Customer: ALS Laboratory Group (Thailand) Co., Ltd.
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Environment Condition: Temperature 21 °C ± 0.5 °C
Relative Humidity 61 %RH ± 1.8 %RH
Atmospheric Pressure 1014 mbar ± 0.6 mbar

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Wet Chemistry Lab 2)
104 Soi Pattanakarn 40, Pattanakarn Rd.,
Suan Luang, Bangkok 10250 Thailand

Calibration By: Mr. Atachai Ngamchanat
Calibration Date: 26 December 2024

The Method used: In house method, CAL-WH-57, base on ISO 8655:2002

Traceability: This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through DKSH Technology Limited. Certificate No. C01243206

(Mr. Atachai Ngamchanat)
Person in charge

(Miss Kaewkan Surdsach)
Authorized signatory

This certificate is issued in the units of measurement according to the International System of Units (SI). It includes traceability of measurement to International System of Units (SI) or other recognized national standard measurement.
The measurement uncertainty stated in the reported uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95% is expressed in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).
These results may be affected by deviations from specified conditions. The results only apply to the items tested, calibrated in samples. The report shall not be reproduced without the written approval of DKSH Technology Limited.

DKSH Technology Limited
2020 Sukhumvit Road, Bangkok, Thailand 10110
Phone: +66 260 11800 Fax: +66 260 11801 Email: sales@dksh.com

CAL-FM-C31-11: 27 Nov 2022

Cert.No.: 24TW28
Page: 1 of 2

Certificate of Testing

Equipment: DO Meter
Manufacturer: YSI
Model: 5100
Serial No.: 19L103204
ID No.: BKK EN0205
Received Date: 01 February 2024
Test Date: 02 February 2024
Reference: 2402-0008DSC-10
Submitted by: ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanasarn 40, Phatthanasarn Rd.,
Khuang Phatthanasarn, Khwa Suan Luang,
Bangkok 10250 Thailand

Laboratory Condition: Temperature (25 ± 6) °C
Humidity (50 ± 20) %
In - house method - CP-Q99
by Comparison Technique with Azide Modification Method

Tested by: Walek Srinthan

Approved by: Sathap
Approved Signatory

(✓) Sathap Meangmai
() Walek Srinthan
() Porpan Pajim

Issue Date: 7 February 2024

Certificate No.: C32240089 Page: 2 of 2

Calibration Results:

Nominal Volume 20 ml
Piston burettes of volumetric apparatus for automatic titrator

Volume (%)	Volume (mL)	Measurement Volume (V ₀) (mL)	Systematic error (bias):		Random error (precision):		Measurement Uncertainty		k
			es (%)	es (μL)	CV (%)	S (μL)	U (μL)	U (%)	
10%	2.0000	1.9988	-0.007	-1.4	0.003	0.6	0.70	2.03	
50%	10.0000	9.9932	-0.034	-6.8	0.003	0.6	0.90	2.00	
100%	20.0000	19.9916	-0.042	-6.5	0.002	0.5	1.5	2.00	

ISO 8655-5:2002(E) Table 1 - Maximum permissible errors for motor-driven piston burettes

Nominal volume ml	Maximum permissible systematic error		Maximum permissible random error	
	± %	± μl ^a	± % ^b	± μl ^c
≤ 1	0.6	6	0.1	1
2	0.5	10	0.1	2
5	0.3	15	0.1	5
10	0.2	20	0.07	7
20	0.2	40	0.07	14
25	0.2	60	0.07	17.5
50	0.2	100	0.06	25
100	0.2	200	0.03	30

^a Expressed as the deviation of the mean of tenfold measurement from the nominal volume or from the selected volume (see ISO 8655-6:2002, 8.4)

^b Expressed as the coefficient of variation of a tenfold measurement (see ISO 8655-6:2002, 8.5)

^c Expressed as the repeatability standard deviation of a tenfold measurement (see ISO 8655-6:2002, 8.3)

The End of Certificate

DKSH Technology Limited
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Phone: +66 260 11800 Fax: +66 260 11801 Email: sales@dksh.com

CAL-FM-C31-11: 27 Nov 2022



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 1: EQUIPMENT CALIBRATION AND TESTING SERVICES
5344 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL: 0-2717-5000 FAX: 0-2719-0484

Cert.No.: 24TW28
Page: 1 of 2

Certificate of Testing

Equipment: DO Meter
Manufacturer: YSI
Model: 5100
Serial No.: 19L103204
ID No.: BKK EN0205
Received Date: 01 February 2024
Test Date: 02 February 2024
Reference: 2402-0008DSC-10
Submitted by: ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanasarn 40, Phatthanasarn Rd.,
Khuang Phatthanasarn, Khwa Suan Luang,
Bangkok 10250 Thailand

Laboratory Condition: Temperature (25 ± 6) °C
Humidity (50 ± 20) %
In - house method - CP-Q99
by Comparison Technique with Azide Modification Method

Tested by: Walek Srinthan

Approved by: Sathap
Approved Signatory

(✓) Sathap Meangmai
() Walek Srinthan
() Porpan Pajim

Issue Date: 7 February 2024

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 1306U10 23CQ1172 22 Mar 2025
2. Balance 1124013362 14QR006 23MM18 20 Feb 2024

2. Standard Material:
Material Manufacturer Lot No. Assay
Sodium Thiosulfate pentahydrate Merck AM1763316 100.2%

Result: Dissolved Oxygen Meter Adjustment With Air 100 %
Dissolved Oxygen Probe No.: 17A100064

Titration Method (Azide Modification Method)	DO Meter Reading (mg/L)	Standard Deviation (mg/L)
8.18	8.18	0.0055

This report was certified only for the instrument we tested. It is allowable to use for study intent 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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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES
3344 PATTANAKARN ROAD SOI 18, SUANLIANG, SUANLIANG BANGKOK 10250
TEL.0-2717-3000-25 FAX.0-2719-9484

Certificate of Calibration
Cert. No.: 24LM15
Page: 1 of 2

Equipment : DO Meter with Sensor
Manufacturer : YSI
Model : 5100
Serial No. : 15L103204
ID No. : BKK_EN0205
Submitted by : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthakan Rd., Phatthakan Rd.,
Khaeng Phatthakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location : TPA Chemistry Calibration Laboratory
Received Order : 01 February 2024
Calibrated Date : 02 February 2024
Ambient Temperature : (26 ± 10) °C
Relative Humidity : (50 ± 30) %
AC Line Voltage : (220 ± 22) V
Calibrated by : Warakorn Lemgagrakul
Approved by :
() Pongthipha Taneyakul
() Pongsan Pajom
(x) Suwit Injai
Issue Date : 7 February 2024

The uncertainties are for a confidence probability of approximately 95%
This certificate may not be reproduced other than in full, except with the prior written approval of the head of Corporate Services & Equipment Calibration and Testing Services.

Certificate of Calibration
Cert. No.: 24LM15
Page: 2 of 2

Equipment : DO Meter with Sensor
Condition As-Received : Used Item
Reference : 2402-0006DSC-13
Procedure Used :-
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 218080 23/12/16 TPA 11 Oct 2024
2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certificate 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, SN: 17A100954
Calibration Point Immersion Depth Standard Temperature UUC* Reading Error Uncertainty Coverage Factor
(°C) (mm) (°C) (°C) (°C) (± °C) k
20.0 80 20.003 19.92 -0.083 0.15 2.00
UUC* : Unit Under Calibration
The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95 %.

SCG Metrology
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.

Certificate No. T241495
Page 2 of 4
Calibration Report

Equipment : Chamber (Incubator)
Date of Calibration : 22 August 2024 (Finished Time 11:19 AM)
Environment : Temperature 22.3-23.0 °C
Line Voltage 222.5-227.5 V

Condition of this results of test :
1. This instrument was calibrated by insert 12 standard resistance thermometer into its chamber and test according to WI-T20 (based on ASTM E145-94 (Reapproved 2001) and ASZ853-1986.)
All data show below were final values and the initial data may be obtained upon 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 27-CH1-101 T240709 19 April 2025
RTD 100 ohm 28-CH1-101 T240709 19 April 2025
DATA LOGGER 34970A T149 T240709 19 April 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
UUC Description :
Time Constant 1 Hour 38 Minute At 20 °C
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available
5. Result of test :
() without adjustment (X) after adjustment

Approved By:

SCG Metrology
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.

Certificate No T241495
Page 3 of 4
Calibration Report

Diagram showing the calibration points (1C, 2A, 3A, 4F, 5A, 6A, 7F, 8A, 9A, 10A, 11F, 12F) on a chamber. Legend: C = Centre, F = Centre of Face, A = Corner, B = Centre of Edge.
1C = 27-CH1
2A = 27-CH2
3A = 27-CH3
4F = 27-CH4
5A = 27-CH5
6A = 27-CH6
7F = 27-CH7
8F = 27-CH8
9A = 27-CH9
10A = 27-CH10
11F = 28-CH1
12F = 28-CH2

Approved By:

SCG 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

Certificate No. T241495
Page 1 of 4
Certificate of Calibration

Equipment : Chamber (Incubator)
Manufacturer : MEMMERT
Model : ICP 750
Serial No. : F818.0033
Customer Code : BKK_EN0272
ID No. : T8041A4
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthakan Rd., Phatthakan Rd., Khaeng Phatthakan,
Khet Suan Luang, Bangkok 10250
Customer Location : Wet Chemistry Lab 2
Date of Receipt : 14 August 2024
Calibrated By : Sujjar Naksakred (Site Calibration Manager)
Approved By : / Boonchal Suriyawong (Assistant Calibration Manager)
Date of Issue : 27 AUG 2024

REVIEW BY:
APPROVED BY:
NEXT CAL DATE: 22/08/25

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.

SCG Metrology
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoh, Saraburi 18110, Thailand.

Certificate No. T241495
Page 4 of 4
Calibration Report

Measurement Results
Average Standard Reading at each position (°C)
Calibration Point 27-CH1 27-CH2 27-CH3 27-CH4 27-CH5 27-CH6 27-CH7 27-CH8 27-CH9 27-CH10
20.0 20.32 20.32 20.29 20.23 20.30 20.34 20.40 20.16 20.34 19.62
28-CH1 28-CH2
19.70 19.65

Chamber (Incubator) Temperature Distribution
Setting (°C) Reading (°C) Average (°C) Stability (°C) Uniformity (°C) Uncertainty (°C) Coverage Factor k
Min, Max Average
20.0 19.9, 20.1 20.0 0.04 0.19 0.38 2.00

* The quoted uncertainty excludes "nonlinearity"
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:



Certificate No. T242116

Page 1 of 4

Certificate of Calibration

Equipment : Hot Block
Manufacturer : Environmental Express
Model : B3000-240
Serial No. : 2021C0DW148
Customer Code : BKK_EN0370
ID No. : T2940A5
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250
Customer Location : Wet Chemistry Lab 2
Date of Receipt : 25 December 2024
Calibrated By : Atiphong Rongrit (Technician)
Approved By : / Boonchai Suriyawong (Site Calibration Manager)
Date of Issue : 27 JAN 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 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.

PM-L12 10070-05-57



Certificate No. T242116

Page 2 of 4

Calibration Report

Equipment : Hot Block
Date of Calibration : 2 January 2025
Environment : Temperature : 20.1-23.4 °C
Line Voltage : 222.1-227.3 V
Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

1. This equipment was calibrated by insert 29 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	TN241-TN250	T240401	16 March 2025
TC	TYPE T	TN251-TN260	T240401	16 March 2025
TC	TYPE T	TN221-TN230	T240712	19 April 2025
TC	TYPE T	TN231-TN240	T240712	19 April 2025
DATA LOGGER	34970A	T193	T240401	16 March 2025

3. This certificate is traceable to :

National Institute of Metrology (Thailand) through Metrological Center (NSC-TIS9-TIS 17025 CALIBRATION 0244.)

4. Condition of calibrated item : good

Equipment Description :

Time Constant : 2 Hour 30 Minute At 150 °C
Fresh Air Disrupt : ☒ Open ☐ Max ☐ Medium ☐ Max
☐ Close
☒ Not Available

5. Adjustment :

() without adjustment

(X) after adjustment

Approved By:

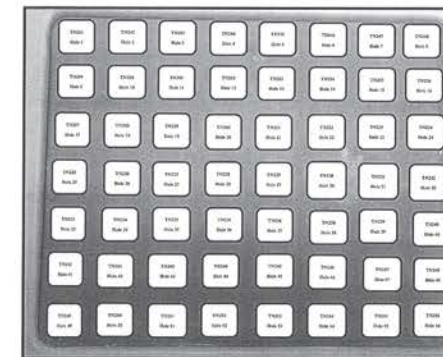
PM-L13 10070-05-57



Certificate No. T242116

Page 3 of 4

Calibration Report



FRONT CONTROL

Approved By:

PM-L13 10070-05-57



Certificate No. T242116

Page 4 of 4

Calibration Report

Measurement Results

		Average Standard Reading at each position (°C)															
CAL. POINT		Point No.1	Point No.2	Point No.3	Point No.4	Point No.5	Point No.6	Point No.7	Point No.8	Point No.9	Point No.10	Point No.11	Point No.12	Point No.13	Point No.14	Point No.15	Point No.16
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
150	Min	149.78	150.72	150.04	150.94	150.79	151.11	149.77	150.26	150.20	150.18	150.24	150.18	150.24	150.18	150.24	150.18
	Max	149.77	150.72	150.03	150.93	150.65	150.99	149.79	150.25	150.19	150.17	150.23	150.17	150.23	150.17	150.23	150.17
	Average	150.13	150.71	150.17	150.94	150.40	150.81	150.26	150.25	150.19	150.19	150.18	150.21	150.19	150.21	150.18	150.21
160	Min	159.78	160.72	160.03	160.93	160.78	161.10	159.76	160.25	160.19	160.17	160.23	160.17	160.23	160.17	160.23	160.17
	Max	159.79	160.72	160.04	160.94	160.87	161.04	159.77	160.26	160.21	160.19	160.24	160.19	160.24	160.19	160.24	160.19
	Average	159.79	160.72	160.03	160.94	160.83	161.04	159.78	160.26	160.20	160.19	160.21	160.21	160.21	160.21	160.21	160.20
170	Min	169.78	170.72	170.03	170.93	170.78	171.10	169.76	170.25	170.19	170.17	170.23	170.17	170.23	170.17	170.23	170.17
	Max	169.79	170.72	170.04	170.94	170.87	171.04	169.77	170.26	170.21	170.19	170.24	170.19	170.24	170.19	170.24	170.19
	Average	169.79	170.72	170.03	170.94	170.83	171.04	169.78	170.26	170.20	170.19	170.21	170.21	170.21	170.21	170.21	170.20
180	Min	179.78	180.72	180.03	180.93	180.78	181.10	179.76	180.25	180.19	180.17	180.23	180.17	180.23	180.17	180.23	180.17
	Max	179.79	180.72	180.04	180.94	180.87	181.04	179.77	180.26	180.21	180.19	180.24	180.19	180.24	180.19	180.24	180.19
	Average	179.79	180.72	180.03	180.94	180.83	181.04	179.78	180.26	180.20	180.19	180.21	180.21	180.21	180.21	180.21	180.20
190	Min	189.78	190.72	190.03	190.93	190.78	191.10	189.76	190.25	190.19	190.17	190.23	190.17	190.23	190.17	190.23	190.17
	Max	189.79	190.72	190.04	190.94	190.87	191.04	189.77	190.26	190.21	190.19	190.24	190.19	190.24	190.19	190.24	190.19
	Average	189.79	190.72	190.03	190.94	190.83	191.04	189.78	190.26	190.20	190.19	190.21	190.21	190.21	190.21	190.21	190.20
200	Min	199.78	200.72	200.03	200.93	200.78	201.10	199.76	200.25	200.19	200.17	200.23	200.17	200.23	200.17	200.23	200.17
	Max	199.79	200.72	200.04	200.94	200.87	201.04	199.77	200.26	200.21	200.19	200.24	200.19	200.24	200.19	200.24	200.19
	Average	199.79	200.72	200.03	200.94	200.83	201.04	199.78	200.26	200.20	200.19	200.21	200.21	200.21	200.21	200.21	200.20
210	Min	209.78	210.72	210.03	210.93	210.78	211.10	209.76	210.25	210.19	210.17	210.23	210.17	210.23	210.17	210.23	210.17
	Max	209.79	210.72	210.04	210.94	210.87	211.04	209.77	210.26	210.21	210.19	210.24	210.19	210.24	210.19	210.24	210.19
	Average	209.79	210.72	210.03	210.94	210.83	211.04	209.78	210.26	210.20	210.19	210.21	210.21	210.21	210.21	210.21	210.20
220	Min	219.78	220.72	220.03	220.93	220.78	221.10	219.76	220.25	220.19	220.17	220.23	220.17	220.23	220.17	220.23	220.17
	Max	219.79	220.72	220.04	220.94	220.87	221.04	219.77	220.26	220.21	220.19	220.24	220.19	220.24	220.19	220.24	220.19
	Average	219.79	220.72	220.03	220.94	220.83	221.04	219.78	220.26	220.20	220.19	220.21	220.21	220.21	220.21	220.21	220.20
230	Min	229.78	230.72	230.03	230.93	230.78	231.10	229.76	230.25	230.19	230.17	230.23	230.17	230.23	230.17	230.23	230.17
	Max	229.79	230.72	230.04	230.94	230.87	231.04	229.77	230.26	230.21	230.19	230.24	230.19	230.24	230.19	230.24	230.19
	Average	229.79	230.72	230.03	230.94	230.83	231.04	229.78	230.26	230.20	230.19	230.21	230.21	230.21	230.21	230.21	230.20
240	Min	239.78	240.72	240.03	240.93	240.78	241.10	239.76	240.25	240.19	240.17	240.23	240.17	240.23	240.17	240.23	240.17
	Max	239.79	240.72	240.04	240.94	240.87	241.04	239.77	240.26	240.21	240.19	240.24	240.19	240.24	240.19	240.24	240.19
	Average	239.79	240.72	240.03	240.94	240.83	241.04	239.78	240.26	240.20	240.19	240.21	240.21	240.21	240.21	240.21	240.20
250	Min	249.78	250.72	250.03	250.93	250.78	251.10	249.76	250.25	250.19	250.17	250.23	250.17	250.23	250.17	250.23	250.17
	Max	249.79	250.72	250.04	250.94	250.87	251.04	249.77	250.26	250.21	250.19	250.24	250.19	250.24	250.19	250.24	250.19
	Average	249.79	250.72	250.03	250.94	250.83	251.04	249.78	250.26	250.20	250.19	250.21	250.21	250.21	250.21	250.21	250.20
260	Min	259.78	260.72	260.03	260.93	260.78	261.10	259.76	260.25	260.19	260.17	260.23	260.17	260.23	260.17	260.23	260.17
	Max	259.79	260.72	260.04	260.94	260.87	261.04	259.77	260.26	260.21	260.19	260.24	260.19	260.24	260.19	260.24	260.19
	Average	259.79	260.72	260.03	260.94	260.83	261.04	259.78	260.26	260.20	260.19	260.21	260.21	260.21	260.21	260.21	260.20
270	Min	269.78	270.72	270.03	270.93	270.78	271.10	269.76	270.25	270.19	270.17	270.23	270.17	270.23	270.17	270.23	270.17
	Max	269.79	270.72	270.04	270.94	270.87	271.04	269.77	270.26	270.21	270.19	270.24	270.19	270.24	270.19	270.24	270.19
	Average	269.79	270.72	270.03	270.94	270.83	271.04	269.78	270.26	270.20	270.19	270.21	270.21	270.21	270.21	270.21	270.20
280	Min	279.78	280.72	280.03	280.93	280.78	281.10	279.76	280.25	280.19	280.17	280.23	280.17	280.23	280.17	280.23	280.17
	Max	279.79	280.72	280.04	280.94	280.87	281.04	279.77	280.26	280.21	280.19	280.24	280.19	280.24	280.19	280.24	280.19
	Average	279.79	280.72	280.03	280.94	280.83	281.04	279.78	280.26	280.20	280.19	280.21	280.21	280.21	280.21	280.21	280.20
290	Min	289.78	290.72	290.03	290.93	290.78	291.10	289.76	290.25	290.19	290.17	290.23	290.17	290.23	290.17	290.23	290.17
	Max	289.79	290.72	290.04	290.94	290.87	291.04	289.77	290.26	290.21	290.19	290.24	290.19	290.24	290.19	290.24	290.19
	Average	289.79	290.72	290.03	290.94	290.83	291.04	289.78	290.26	290.20	290.19	290.21	290.21	290.21	290.21	290.21	290.20
300	Min	299.78	300.72	300.03	300.93	300.78	301.10	299.76	300.25	300.19	300.17	300.23	300.17	300.23	300.17	300.23	300.17
	Max	299.79	300.72	300.04	300.94	300.87	301.04	299.77	300.26	300.21	300.19	300.24	300.19	300.24	300.19	300.24	300.19
	Average	299.79	300.72	300.03	300.94	300.83	301.04	299.78	300.26	300.20	300.19	300.21	300.21	300.21	300.21	300.21	300.20
310	Min	309.78	310.72	310.03	310.93	310.78	311.10	309.76	310.25	310.19	310.17	310.23	310.17	310.23	310.17	310.23	310.17
	Max	309.79	310.72	310.04	310.94	310.87	311.04	309.77	310.26	310.21	310.19	310.24	310.19	310.24	310.19	310.24	310.19
	Average	309.79	310.72	310.03	310.94	310.83	311.04	309.78	310.26	310.20	310.19	310.21	310.21	310.21	310.21	310.21	310.20
320	Min	319.78	320.72	320.03	320.93	320.78	321.10	319.76	320.25	320.19	320.17	320.23	320.17	320.23	320.17	320.23	320.17
	Max	319.79	320.72	320.04	320.94	320.87	321.04	319.77	320.26	320.21	320.19	320.24	320.19	320.24	320.19	320.24	320.19
	Average	319.79	320.72	320.03	320.94	320.83	321.04	319.78	320.26	320.20	320.19	320.21	320.21	320.21	320.21	320.21	320.20
330	Min	329.78	330.72	330.03	330.93	330.78	331.10	329.76	330.25	330.19	330.17	330.23	330.17	330.23	330.17	330.23	330.17
	Max	329.79	330.72	330.04	330.94	330.87	331.04	329.77	330.26	330.21	330.19	330.24	330.19	330.24	330.19	330.24	330.19
	Average	329.79	330.72	330.03	330.94	330.83	331.04	329.78	330.26	330.20	330.19	330.21	330.21	330.21	330.21	330.21	330.20
340	Min	339.78	340.72	340.03	340.93	340.78	341.10	339.76	340.25	340.19	340.17	340.23	340.17	340.23	340.17	340.23	340.17
	Max	339.79	340.72	340.04	340.94	340.87	341.04	339.77	340.26	340.21	340.19	340.24	340.19	340.24	340.19	340.24	340.19
	Average	339.79	340.72	340.03	340.94	340.83	341.04	339.78	340.26	340.20	340.19	340.21	340.21	340.21	340.21	340.21	340.20
350	Min	349.78	350.72	350.03	350.93	350.78	351.10	349.76	350.25	350.19	350.17	350.23	350.17	350.23	350.17	350.23	350.17
	Max	349.79	350.72	350.04	350.94	350.87	351.04	349.77	350.26	350.21	350.19	350.24	350.19	350.24	350.19	350.24	350.19
	Average	349.79	350.72	350.03	350.94	350.83	351.04	349.78	350.26	350.20	350.19	350.21	350.21	350.21	350.21	350.21	350.20
360	Min	359.78	360.72	360.03	360.93	360.78	361.10	359.76	360.25	360.19	360.17						

Service Information:

Problem Description: *950-000-00-7000-0001-253000		
Service Provided: Perform O2 Hardware Test: Test CEIS logic, auto sampler, auto burn, BG and 20 Min stability I calibrate the instrument for BKK_EL0054 test all pass.		
Service Overview Code: Reason Code: Scheduled Service Diagnosis Code: Scheduled Service Resolution Code: Scheduled Service		
Reported Hours: 7.0	Travel Hours: 2.0	
Customer Field Service Representative Name: Pattany Nonsathai	Customer Field Service Representative Signature: 	Date: 08 Oct 2025
Customer Name: Sapawee Mak	Customer Signature: 	Date: 08 Oct 2024
Additional Comments:		

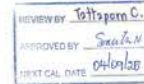


Certificate No. T250355

Page 1 of 6

Certificate of Calibration

Equipment : HEATING BLOCK
Manufacturer : Environmental Express
Model : SC 196
Serial No. : 6974CECW3285
Customer Code : BKK_EL0054
ID No. : T5306A3
Customer : ALS Laboratory Group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250
Customer Location : Acid Digestion Lab
Date of Receipt : 26 February 2025
Calibrated By : Atiphong Rongrat (Technician)
Approved By :  / Boonchai Suriyavong (Site Calibration Manager)
Date of Issue : 17 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 Bureau 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.

PM-L13 B06/30-05-27



Certificate No. T250355

Page 2 of 6

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 :

- This equipment was calibrated by insert nine standard thermocouples type T into its chamber , the other one standard thermocouple type T use for ambient temperature measurement . This 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 .
- Reference Standard Instrument :

Instrument	Model	Instrument No.	Certificate No.	Due Date
TC	TYPE T	TN221-TN230	T240712	19 April 2025
TC	TYPE T	TN211-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

- This certificate is traceable to : National Institute of Metrology (Thailand) through Metrological Center (NSC-TSM-TIS 17025 CALIBRATION 0244)
- Condition of calibrated item : good

Equipment Description :
Time Constant : 2 Hour 40 Minute At 95 °C
Fresh Air Damper : ☐ Open ☐ Min ☐ Median ☐ Max
☒ Close
☒ Not Available

- Adjustment :
() without adjustment (X) after adjustment

Approved By: 

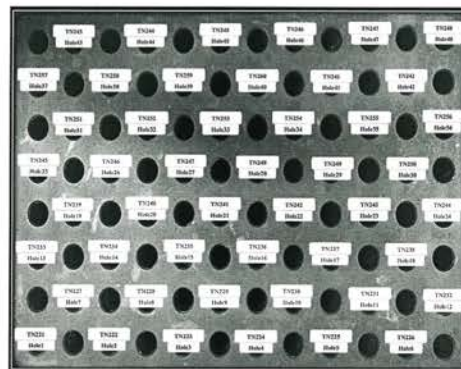
PM-L13 B06/30-05-27



Certificate No. T250355

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Calibration Report



FRONT CONTROL

Approved By: 

PM-L13 B06/30-05-27



Certificate No. T250355

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Calibration Report

Measurement Results		Average Standard Reading at each position (°C)						
Calibration Point		TN221	TN222	TN223	TN224	TN225	TN226	
R1 Hole1-Hole6	CAL POINT	Max	94.83	95.37	95.03	95.23	95.32	94.78
	95	Min	94.27	94.66	94.38	94.63	94.87	94.12
	Average	94.55	95.02	94.70	94.84	95.20	94.40	
	Max	94.71	94.56	94.79	95.32	95.48	95.06	
R2 Hole7-Hole12	CAL POINT	Max	94.03	93.89	94.10	94.65	94.00	94.63
	95	Min	94.30	94.22	94.44	94.89	95.17	94.83
	Average	94.30	94.22	94.44	94.89	95.17	94.83	
	Max	94.30	94.22	94.44	94.89	95.17	94.83	
R3 Hole13-Hole18	CAL POINT	Max	95.25	95.43	95.40	95.71	95.41	95.06
	95	Min	94.84	94.54	94.71	95.10	94.96	94.42
	Average	94.90	95.03	95.06	95.41	95.33	94.74	
	Max	95.13	95.06	95.68	96.18	95.33	95.80	
R4 Hole19-Hole24	CAL POINT	Max	94.30	94.43	94.86	95.51	94.88	95.12
	95	Min	94.70	94.72	95.27	95.83	95.12	95.40
	Average	94.70	94.72	95.27	95.83	95.12	95.40	
	Max	94.70	94.72	95.27	95.83	95.12	95.40	
R5 Hole25-Hole30	CAL POINT	Max	94.47	95.81	95.39	95.42	95.66	95.66
	95	Min	94.43	95.93	94.87	94.90	94.84	94.87
	Average	94.71	95.87	95.03	95.41	95.23	95.27	
	Max	94.71	95.87	95.03	95.41	95.23	95.27	
R6 Hole31-Hole36	CAL POINT	Max	95.07	95.34	96.28	95.39	94.92	95.12
	95	Min	95.28	94.25	95.51	94.62	94.13	94.23
	Average	95.17	94.79	95.89	95.00	94.54	94.71	
	Max	95.17	94.79	95.89	95.00	94.54	94.71	
R7 Hole37-Hole42	CAL POINT	Max	95.15	95.63	96.11	95.00	95.24	95.51
	95	Min	94.38	94.88	95.52	94.28	94.94	94.72
	Average	94.76	95.23	95.71	94.69	94.94	95.11	
	Max	94.76	95.23	95.71	94.69	94.94	95.11	
R8 Hole43-Hole48	CAL POINT	Max	95.84	95.87	95.44	95.72	95.65	95.71
	95	Min	95.06	95.10	94.60	94.93	94.87	94.98
	Average	95.45	95.48	95.02	95.34	95.26	95.36	
	Max	95.45	95.48	95.02	95.34	95.26	95.36	

Approved By: 

PM-L13 B06/30-05-27



Certificate No. T250355

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Calibration Report

Measurement Results		Average Standard Reading at each position (°C)						
Calibration Point		TN221	TN222	TN223	TN224	TN225	TN226	
R1 Hole1-Hole6	CAL POINT	Max	104.44	104.40	104.00	105.27	105.24	105.19
	95	Min	104.15	104.02	104.25	104.94	104.81	104.87
	Average	104.30	104.21	104.43	105.12	105.10	105.06	
	Max	105.20	105.42	105.59	105.96	105.81	106.03	
R2 Hole7-Hole12	CAL POINT	Max	104.92	105.18	105.29	105.64	105.53	105.79
	95	Min	105.06	105.29	105.43	105.80	105.67	105.91
	Average	105.06	105.29	105.43	105.80	105.67	105.91	
	Max	105.06	105.29	105.43	105.80	105.67	105.91	
R3 Hole13-Hole18	CAL POINT	Max	106.09	106.14	105.83	106.23	105.97	105.85
	95	Min	105.86	105.89	105.57	106.00	105.80	105.63
	Average	105.94	106.01	105.70	106.13	105.83	105.77	
	Max	105.94	106.01	105.70	106.13	105.83	105.77	
R4 Hole19-Hole24	CAL POINT	Max	105.87	105.73	105.30	105.07	105.22	105.66
	95	Min	105.42	105.32	105.13	104.90	105.05	105.49
	Average	105.65	105.63	105.23	104.98	105.14	105.37	
	Max	105.65	105.63	105.23	104.98	105.14	105.37	
R5 Hole25-Hole30	CAL POINT	Max	105.42	105.24	105.32	105.73	105.67	105.89
	95	Min	105.43	105.35	105.31	105.57	105.81	105.49
	Average	105.53	105.44	105.41	105.66	105.80	105.59	
	Max	105.53	105.44	105.41	105.66	105.80	105.59	
R6 Hole31-Hole36	CAL POINT	Max	106.13	106.24	106.47	105.96	105.76	105.35
	95	Min	106.02	106.14	106.31	105.77	105.54	105.18
	Average	106.08	106.19	106.39	105.87	105.67	105.27	
	Max	106.08	106.19	106.39	105.87	105.67	105.27	
R7 Hole37-Hole42	CAL POINT	Max	106.21	105.99	105.45	105.36	104.69	104.09
	95	Min	106.04	105.42	105.28	105.20	104.96	104.92
	Average	106.12	105.71	105.37	105.28	105.39	104.00	
	Max	106.12	105.71	105.37	105.28	105.39	104.00	
R8 Hole43-Hole48	CAL POINT	Max	106.34	106.33	105.78	105.54	105.42	105.69
	95	Min	106.38	106.18	105.60	105.20	105.25	105.52
	Average	106.48	106.23	105.69	105.39	105.33	105.61	
	Max	106.48	106.23	105.69	105.39	105.33	105.61	

Approved By: 

PM-L13 B06/30-05-27



Certificate No. T250355

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Calibration Report

Measurement Results:

Setting (°C)	Reading (°C)		Temperature Distribution	
	Min, Max	Average	Stability (±°C)	Uncertainty (±°C)
102.0	-	102.0	0.43	0.63
107.0	-	107.0	0.26	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:

PM-L13 306/50-05-57



Certificate No. T250353

Page 1 of 4

Certificate of Calibration

Equipment : Autoclave

Manufacturer : TOMY

Model : SX-700

Serial No. : 48134190

Customer Code : BKK_ML0041

ID No. : T7725A3

Customer : ALS Laboratory Group (Thailand) Co.,Ltd.

104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan,
Khet Suan Luang, Bangkok 10250

Customer Location : Washing Room

Date of Receipt : 26 February 2025

Calibrated By : Boonchai Suriyawong (Site Calibration Manager)

Approved By : / Sujjar Nakhakred (Site Calibration Manager)

Date of Issue : 18 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 Metrology.

PM-L13 110/13-06-60



Certificate No. T250353

Calibration Report

Page 2 of 4

Equipment : Autoclave
Date of Calibration : 4 March 2025
Environment : Temperature : 22.2-25.4 °C
Line Voltage : 221.1-224.7 V
Relative Humidity : 55 - 65 %RH

Condition of this results of calibration :

1. This equipment was calibrated by insert 3 standard temperature recorder into its chamber and test according to W1-T23 inhouse method (based on BS 2646-1 : 2021)

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	Standard No.	Certificate No.	Due Date
1. Temperature recorder	RTD	T210	T242025	11 December 2025
2. Temperature recorder	RTD	T211	T242025	11 December 2025
3. Temperature recorder	RTD	T212	T242030	11 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 :

Pressure Indicator 0.11-0.12 MPa At 121 °C Holding time 30 minute

5. Adjustment :

(X) without adjustment () after adjustment

Approved By:

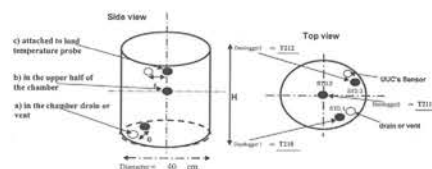
PM-L13 110/13-06-60



Certificate No. T250353

Page 3 of 4

Calibration Report



Remark :
Size of Installed Standard sensor STD.1 : Distance the chamber drain or vent : $e \leq 10$ cm (less than or be equal to 10 cm)
Size of Installed Standard sensor STD.2 : Geometric Center (upper half of the chamber)
Size of Installed Standard sensor STD.3 : Distance UUC's Sensor : $f = 2$ cm.

Measurement Results :

Calibration Point	Average Standard Reading at each position (°C)		
	T210	T211	T212
121	121.2	121.3	121.3

Setting (°C)	Reading (°C)		Temperature Distribution			
	Min, Max	Average	Stability (±°C)	Uniformity (±°C)	Uncertainty (±°C)	Coverage Factor k
121	-	121	0.1	0.1	0.65	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:

PM-L13 110/13-08-60

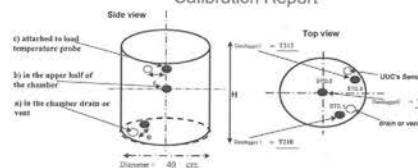


Certificate No. T250353

TEST REPORT (BKK_ML0041)

Page 4 of 4

Calibration Report



Remark :
Size of Installed Standard sensor STD.1 : Distance the chamber drain or vent : $e \leq 10$ cm (less than or be equal to 10 cm)
Size of Installed Standard sensor STD.2 : Geometric Center (upper half of the chamber)
Size of Installed Standard sensor STD.3 : Distance UUC's Sensor : $f = 2$ cm.

Measurement Results :

Calibration Point	Average Standard Reading at each position (°C)		
	T210	T211	T212
121	121.18	121.32	121.33

Setting (°C)	Reading (°C)		Temperature Distribution			
	Min, Max	Average	Stability (±°C)	Uniformity (±°C)	Uncertainty (±°C)	Coverage Factor k
121	-	121	0.10	0.10	0.65	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:

PM-L13 306/50-05-57



Certificate of Calibration

Cert. No. : 24TM1306

Page : 1 of 3

Equipment : Incubator
Manufacturer : SHEL-LAB
Model : 1915A
Serial No. : 0200099
ID No. : BKK_ML0010

Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwaeng Phatthanakan, Khet Suan Luang,
Bangkok 10250 Thailand

Location : Incubation & Micrological Reading

Received Order : 03 December 2024

Calibration Date : 03 December 2024

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

AC Line Voltage : (220 ± 22) V

Calibrated by : Kunchit Promrat

Approved by :

Approved Signatory

() Porntipap Tameyasil

() Porpan Papiin

(X) Suwit Injai

Issue Date : 17 December 2024

The Uncertainties are for a confidence probability of approximately 90%

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.

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Cert No.: 25CH006
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	5400049	130RC116	24E2759	25 Aug 2025
2) Ref. Standard Thermometer	490204	110RC044	24E757	14 July 2025

- This Certification is traceable to SI Through Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials

- The measurement results are traceable to SI through Hach Lange GmbH Ltd., Deutsche Akkreditierungsstelle, Accredited No. D-NN-15194-01-00

- The measurement results are traceable to SI through CPA chem Ltd., ANS-ASQ National Accreditation Board, Accredited No. AN-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.007	CPA chem	106665	18 Jan 2027
pH 6.999	Hach Lange GmbH	025220	29 Oct 2026
pH 10.010	CPA chem	106665	18 Jan 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	Coverage factor
	pH	mV	mV	(\pm mV)	k
pH Meter	4.00	177.48	177	0.58	2.00
S/N: B553912470	7.00	0.00	0	0.58	2.00
	10.00	-177.48	-178	0.58	2.00

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Cert No.: 25CH006
Page: 3 of 3

Calibration Results

Function: pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4.7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (\pm)	Coverage factor k
pH Electrode	4.007	4.01	181	0.0085	2.00
S/N: 4261148	6.999	7.00	6	0.0085	2.00
	10.010	10.01	-170	0.0085	2.00

Function: Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe:

- Model: InLabExpert Go-ISM

- Serial No.: 4261148

Dimension of probe:

- Length: 120 mm

- Diameter: 12 mm

- Immersion Depth: 100 mm

Calibration Point ($^{\circ}$ C)	Standard Temperature ($^{\circ}$ C)	UUC* Reading ($^{\circ}$ C)	Error ($^{\circ}$ C)	Uncertainty of measurement (\pm $^{\circ}$ C)	Coverage factor k
25.0	25.002	25.0	-0.002	0.13	2.00
45.0	44.999	45.0	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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Cert No.: 25CH006
Page: 3 of 3

Certificate of Calibration

ICS-2100: Anion (ID#659)

This certificate is to verify that instrument below are calibrated by Archemica Lab Co., Ltd.

ICS-2100 S/N: 15010977

AS-HV S/N: 5450A36659

For

ALS Laboratory Group (Thailand) Co., Ltd.

Operator Signature: Nutdanai Laekhwan Date: Jan 12, 2024

(Mr. Nutdanai Laekhwan)

Application Chemist

Agilent Technologies logo

Agilent Technologies (Thailand) Limited
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Service Request

Customer Purchase Order Number	Customer Number
7537513	7537513

Service Request: Service Request Date:

Service Order: Service Confirmation:

Service Confirmation: 000576193

Service Confirmation Number: 000576193

Service Confirmation Date: 23.09.2024

Service Information:

Problem Description: WU-QD-5105-00123365

Service Provided: Complete GPHW 5105CPDES Equipment ID: BOC 510501, all test passed

Service Overview Code: Reason Code: Scheduled Service Diagnosis Code: Scheduled Service Resolution Code: Scheduled Service

Reported Hours: 4.0 Travel Hours: 2.0

Customer Field Service Representative Name: Suresh Gokhale Date: 23 Sep 2024

Customer Name: CHANATAGARN (MCHRM) Customer Signature: Suresh Gokhale Date: 23 Sep 2024

Additional Comments:

Service Confirmation Number: 000576193

Service Confirmation Date: 23.09.2024

Service Information:

Problem Description: WU-QD-5105-00123365

Service Provided: Complete GPHW 5105CPDES Equipment ID: BOC 510501, all test passed

Service Overview Code: Reason Code: Scheduled Service Diagnosis Code: Scheduled Service Resolution Code: Scheduled Service

Reported Hours: 4.0 Travel Hours: 2.0

Customer Field Service Representative Name: Suresh Gokhale Date: 23 Sep 2024

Customer Name: CHANATAGARN (MCHRM) Customer Signature: Suresh Gokhale Date: 23 Sep 2024

Additional Comments:

Service Confirmation Number: 000576193

Service Confirmation Date: 23.09.2024

Service Information:

Problem Description: WU-QD-5105-00123365

Service Provided: Complete GPHW 5105CPDES Equipment ID: BOC 510501, all test passed

Service Overview Code: Reason Code: Scheduled Service Diagnosis Code: Scheduled Service Resolution Code: Scheduled Service

Reported Hours: 4.0 Travel Hours: 2.0

Customer Field Service Representative Name: Suresh Gokhale Date: 23 Sep 2024

Customer Name: CHANATAGARN (MCHRM) Customer Signature: Suresh Gokhale Date: 23 Sep 2024

Additional Comments:



BKK_EL0128

REVIEW BY	<u>Ornana T.</u>
APPROVED BY	<u>Sakda K.</u>
RECEIVED DATE	<u>06/11/15</u>

Performance Verification Certificate for Mercury Analyzer

PRODUCT ID *Quicktrace M-8000 , Teledyne Leeman Labs*

Equipment ID BKK_EL0128 Mercury Analyzer
S/N: US22133002

BKK_EL0129 Autosampler
S/N: 052222A560

Customer Name ALS Laboratory Group (Thailand) Co., Ltd.

Address 104 Soi Pattana 40, Pattana Rd. Suan Luang, Suan Luang
Bangkok 10250 Thailand

Date of Qualified December 6, 2024

Next Due date December 6, 2025

This certifies for products which was performed in acceptable criteria specifications

Autosampler & Sample Introduction	PASSED
Analyzer	PASSED
Gas Liquid Separator & Dryer	PASSED
CV/AFS Detector	PASSED
Electronics/Mechanical	PASSED
Data station/PC	PASSED
Analytical test	PASSED

Provided by

Scientist Instrument Co.,Ltd.
113 Soi Ekachai 44, Ekachai Road
Khlong Bang Phun, Bangkok
Bangkok 10150 Thailand

Certified by *Sakda K.*

Thunraphol Sakdayos
Service Engineer

ภาคผนวก จ

สำเนาหนังสืออนุญาตขึ้นทะเบียน
ห้องปฏิบัติการวิเคราะห์เอกชน

๗๕) นายประเสริฐ...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Copper	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
20	Cyanide	Distillation, Colorimetric Method ⁽⁴⁾
21	2,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
22	4,4'-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
23	2,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
24	4,4'-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
25	2,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
26	4,4'-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
27	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
28	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
29	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
30	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
31	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
32	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
33	Formaldehyde	Distillation, Colorimetric Method ⁽³⁾
34	Free Chlorine	1) DPD Ferrous Titrimetric Method ⁽⁴⁾ 2) DPD Colorimetric Method ⁽⁴⁾
35	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
36	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
37	Hexavalent Chromium	Colorimetric Method ⁽⁴⁾
38	3-Hydroxycarbofuran	High-Performance Liquid Chromatographic Method ⁽⁴⁾
39	Lead	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾

40 Manganese...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	Manganese	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
41	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
42	Methiocarb	High-Performance Liquid Chromatographic Method ⁽⁴⁾
43	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
44	Methomyl	High-Performance Liquid Chromatographic Method ⁽⁴⁾
45	Nickel	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
46	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method ⁽⁴⁾ 2) Soxhlet Extraction Method ⁽⁴⁾
47	Oxamyl	High-Performance Liquid Chromatographic Method ⁽⁴⁾
48	Propoxur	High-Performance Liquid Chromatographic Method ⁽⁴⁾
49	pH	Electrometric Method ⁽⁴⁾
50	Phenols	1) Distillation, Chloroform Extraction Method ⁽⁴⁾ 2) Distillation, Direct Photometric Method ⁽⁴⁾
51	Selenium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
52	Sulfide	Iodometric Method ⁽⁴⁾
53	Temperature	Laboratory and Field Methods ⁽⁴⁾
54	Total Dissolved Solids	Dried at 180 °C ⁽⁴⁾
55	Total Kjeldahl Nitrogen	Semi-Micro Kjeldahl Method ⁽⁴⁾
56	Total Phosphorous	Digestion, Colorimetric Method ⁽⁴⁾
57	Total Suspended Solids	Dried from 103-105 °C ⁽⁴⁾
58	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
59	Trivalent Chromium	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾
60	Zinc	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾

น้ำดื่ม...

น้ำดื่ม จำนวน 126 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
3	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
5	Antimony	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
8	Barium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
13	Benzoic Acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

18 Bis(2-ethylhexyl)phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
27	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
33	Chromium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation ⁽⁴⁾
35	Chromium (VI)	Colorimetric Method ⁽⁴⁾

36 Chrysene...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
37	Cyanide	Distillation, Colorimetric Method ⁽⁴⁾
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
39	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
40	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
41	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
43	Di-n-Butyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
47	3,3-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

56 1,3-Dichloropropene...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
57	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
58	Diethyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
63	Di-n-octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
64	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
65	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
69	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
70	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
74	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
75	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

76 γ-HCH...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
76	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
81	Lead	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
82	Manganese	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
83	Mercury	1) Digestion, Cold Vapor Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
84	Methanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
86	Methyl bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
87	Methylene chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
90	Methyl tert-butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
92	Nickel	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾

94 N-Nitrosodiphenylamine...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
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 ⁽⁴⁾
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
98	pH	Electrometric Method ⁽⁴⁾
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
100	Phenol	1) Distillation, Chloroform Extraction Method ⁽⁴⁾ 2) Distillation, Direct Photometric Method ⁽⁴⁾ 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
102	Selenium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
103	Silver	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ⁽⁴⁾
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾
109	TPH (C ₈ -C ₁₀)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(4,23)

110 TPH (C₈-C₁₀)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
110	TPH (C ₈ -C ₁₂)	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(9,22)
111	TPH (C ₁₃ -C ₃₃)	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^(9,22)
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
122	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
123	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
124	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ⁽⁴⁾
126	Zinc	1) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁴⁾

จากภาคเสีย...

จากภาคเสีย (ปล่อยระบาย) จำนวน 28 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
2	Arsenic	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
3	Beryllium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
4	Cadmium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
5	Carbon Monoxide	1) Instrumental Analyzer Method ⁽⁵⁾ 2) Sampling Bag Non-Dispersive Infrared Method ⁽⁵⁾
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
7	Chromium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
8	Cobalt	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
9	Copper	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
10	Cresol	Absorption Sampling, Gas Chromatographic Method ⁽⁵⁾
11	Dioxins	Isokinetic Sampling ⁽⁵⁾
12	Hydrogen Chloride	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method ⁽⁵⁾ 2) Isokinetic Sampling, Ion Chromatographic Method ⁽⁵⁾
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ⁽⁵⁾

15 Lead...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
15	Lead	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
16	Manganese	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
17	Mercury	1) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽⁵⁾
18	Nickel	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
19	Opacity	Ringelmann's Method ⁽²⁾
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method ⁽⁵⁾ 2) Absorption Sampling, Alkaline Permanganate/Colorimetric Method ⁽⁵⁾ 3) Instrumental Analyzer Method ⁽⁵⁾
21	Selenium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
22	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Method ⁽⁵⁾ 2) Instrumental Analyzer Method ⁽⁵⁾
23	Sulfuric Acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method ⁽⁵⁾
24	Tellurium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
25	Tin	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
26	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method ⁽⁵⁾ 2) Paired Train, Isokinetic Sampling, Gravimetric Method ⁽⁵⁾

27 Vanadium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Vanadium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ⁽⁵⁾ 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ⁽⁵⁾
28	Xylene	Absorption Sampling, Gas Chromatographic Method ⁽⁵⁾

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,24) 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,24) 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,24)
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,14) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,14) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,14) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,14) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)

5 Beryllium...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method ^(1.6,16,19) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method ^(1.6,17,19) 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7.8,16,19) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7.8, 17,19)

10 Chromium (VI)...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method ^(1.6,19) 2) Alkaline Digestion, Colorimetric Method ^(8,19)
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26)

2) Soxhlet...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
17	Dieldrin	2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26) 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
20	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

22 Mercury...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^(1.6,20) 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ^(1.6,30) 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽²⁰⁾ 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽³⁰⁾ 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method ⁽²¹⁾
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1.6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1.6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
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 ^(1.9,26) 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

- 2-Chlorobiphenyl...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
28	- 2-Chlorobiphenyl - 2,3-Dichlorobiphenyl - 2,2',5'-Trichlorobiphenyl - 2,4',5'-Trichlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5'-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl Pentachlorophenol	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26) Electrometric Method ^(23,24) 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
29	pH	
30	Selenium	

31 Silver...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^(1,9,26) 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 3) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^(1,6,16) 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(1,6,17) 3) Digestion, Inductively Coupled Plasma Method ^(7,16) 4) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)

ดิน...

ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
2	Acetone	1) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(15,25) 2) Equilibrium Headspace, Gas Chromatographic/Mass Spectrometric Method ⁽¹³⁾
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
5	Antimony	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
8	Barium	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
9	Benz(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
10	Benzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(15,25)

11 Benzo(b)fluoranthene

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	Benzo(b)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
12	Benzo(k)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
13	Benzoic acid	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
14	Benzo(a)pyrene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
15	Benzo(g,h,i)perylene	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method ^(7,17)
17	Bis(2-chloroethyl)ether	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
18	Bis(2-ethylhexyl)phthalate	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(15,25)
20	Bromoform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^(15,25)
21	Butanol	Equilibrium Headspace, Gas Chromatographic/Mass Spectrometric Method ^(13,25)
22	Butyl Benzyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^(11,26)

23 Cadmium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method ^(7,14) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
33	Chromium	1) Digestion, Inductively Coupled Plasma Method ^(7,14) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7,8,16,19) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^(7,8,17,19)
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method ^(8,19)

36 Chrysene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
37	Cyanide	Extraction, Distillation, Colorimetric Method ^(27,28,29)
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
39	DDD	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
40	DDE	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
41	DDT	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
42	Dibenz(a,h)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
43	Di-n-Butyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
47	3,3-Dichlorobenzidine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)

49 1,2-Dichloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
53	2,4-Dichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
58	Diethyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
59	2,4-Dimethylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
60	2,4-Dinitrophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
61	2,4-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
62	2,6-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

63 Di-n-Octyl Phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25) 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ⁽¹³⁾

73 n-Hexane...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
74	α -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
75	β -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
76	γ -HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
81	Lead	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
82	Manganese	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ⁽²⁰⁾ 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry ⁽²¹⁾ 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method ⁽²⁰⁾

84 Methanol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25) 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method ^(13,25)
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
92	Nickel	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารเคมี	วิธีวิเคราะห์
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4,6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6'-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5'-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5,6'-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
97	Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)

99 Phenol...

ลำดับที่	สารเคมี	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
101	Selenium	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
102	Silver	1) Digestion, Inductively Coupled Plasma Method ^(7,16) 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method ^(7,17)
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(10,26) 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^(11,26)
108	TPH (C ₅ -C ₉)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
109	TPH (C ₁₀ -C ₁₆)	1) Automate Extraction, Gas Chromatographic Method ^(11,22) 2) Solvent Extraction, Gas Chromatographic Method ^(11,22) 3) Ultrasonic Extraction, Gas Chromatographic Method ^(22,31)
110	TPH (C ₁₆ -C ₃₅)	1) Automate Extraction, Gas Chromatographic Method ^(11,22) 2) Solvent Extraction, Gas Chromatographic Method ^(11,22) 3) Ultrasonic Extraction, Gas Chromatographic Method ^(22,31)
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^(15,25)

115 2,4,5-Trichlorophenol...

อนึ่ง หนังสือฉบับนี้จะมีผลตามกฎหมายเมื่อได้รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ในวันที่ ๒ กันยายน ๒๕๖๔

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายพิเชษฐ์ กัณนิกรอง)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๕๓๑-๕

โทรสาร ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๕๓๔

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ที่ สก ๐๓๑๐(๑)/๑๒๓๖ ๘ /

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๑๘ ธันวาคม ๒๕๖๓

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขณัติสามารถของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒ ธันวาคม ๒๕๖๓

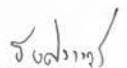
ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการ
วิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ
เขตสวนหลวง กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ออกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์
จำนวน ๘ ราย ได้แก่

๑) นายประจักษ์ วรณชอุทัย	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๖๐
๒) นายจิรณัฐ ขาวละอ	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๐๗๒
๓) นายพิรพัฒน์ กำคำ	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๑๐๘
๔) นางสาวอรุษา คำคง	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๑๓๔
๕) นายกิตติพงศ์ แซ่ลิ	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๑๔๔
๖) นายจิรเมธ ประเสริฐศิริพงศ์	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๑๖๐
๗) นายภัทรพงษ์ มนต์หาทอง	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๑๖๗
๘) นางสาวจางวรรณ กระจำพันธุ	ทะเบียนเลขที่ ๖-๒๐๔-๙-๐๑๘๑

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นายพิเชษฐ์ กัณนิกรอง)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน

กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ

โทร. ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๕๓๑-๕

โทรสาร ๐ ๒๕๓๐ ๖๓๑๒ ต่อ ๒๕๓๔

ไปรษณีย์อิเล็กทรอนิกส์ sarabang@dw.mail.go.th



"อุตสาหกรรมก้าวหน้า ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"



ที่ สก ๐๓๑๐/ ๑๕๓ ๘

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๐๘ สิงหาคม ๒๕๖๓

เรื่อง ต่ออายุหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขณัติสามารถของห้องปฏิบัติการวิเคราะห์
เอกชน ลงวันที่ ๒๗ พฤษภาคม ๒๕๖๓

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เอแอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด จำนวน ๓ แผ่น

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุ
หนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๐๓ สถานที่ตั้งเลขที่ ๖๓๖/๑๐ หมู่ที่ ๕
ตำบลแม่ไม้ อำเภอปลวกแดง จังหวัดระยอง ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ออกให้บริษัท เอแอลเอส แลบริทอรี กรุ๊ป (ประเทศไทย)
จำกัด ต่ออายุหนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมห้องปฏิบัติการวิเคราะห์เอกชน

๑) นายเดช ช้างชน	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๑
๒) นายวิวัฒน์ บริรักษ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๒
๓) นายสุพจน์ สยามเชื้อ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๓

ข. เจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน

๑) นายณัฐพงษ์ เพ็ชรขาวนา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๑
๒) นางสาวกัญญารัตน์ รักดี	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๒
๓) นางสาวสุภาวรัตน์ สีทองกลาง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๓
๔) นางสาวจิตสุภา ประเทืองสุข	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๔
๕) นายสุรเมธ คุ้มบุญ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๕
๖) นายณัฐวุฒิ ออมพรมราช	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๖
๗) นายจักรกฤษ สิวสา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๗
๘) นายสิริวิทย์ จูวรรณรัตน์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๘
๙) นายสิทธิพันธ์ เสนาธิ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๐๙
๑๐) นายอนุวัฒน์ เตมิก	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๐
๑๑) นายสุวิทย์ นราพงษ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๑
๑๒) นายณัฐพล เจริญวงศ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๒
๑๓) นายชานนท์ บุญชื่น	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๓
๑๔) นายณัฐกานต์ วงศ์อินทร์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๔
๑๕) นายอานนท์ โพธิ์พระทอง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๕

๑๖) นายณัฐพล...

๑๖) นายณัฐพล กล้ากลาง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๖
๑๗) นายสุภาวดี พิสิทธิ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๗
๑๘) นายสันติ คินันท์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๘
๑๙) นายวิญญู นิมาลี	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๑๙
๒๐) นายสุภาวดี สกุลกิตติศักดิ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๐
๒๑) นายเอกชัย ถิ่นทอง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๑
๒๒) นายพชรพล สิทธิธาดา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๒
๒๓) นายทินกร กุมภาณี	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๓
๒๔) นางสาวนันทิยา บุญจันทร์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๔
๒๕) นายสิทธิชัย อันพิมาย	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๕
๒๖) นางสาวภาวณิศา หลอดทอง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๖
๒๗) นางสาวพจนนา สิดา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๗
๒๘) นางสาวอนิศา กุลศิริวงศ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๘
๒๙) นายพิทยา ทองแดง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๒๙
๓๐) นางสาวเสาวจิต สูงเกษ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๐
๓๑) ว่าที่ร้อยตรี ธนชัย ม่วงมา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๑
๓๒) นายวรวิทย์ พิทยา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๒
๓๓) นายศักดิ์วันพร จีระกาย	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๓
๓๔) นายสุรศักดิ์ สาธิน	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๔
๓๕) นายเสถียร งามแก้ว	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๕
๓๖) นายสุทธิศักดิ์ โชคดิษฐ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๖
๓๗) นายวิไล หันเชนเน่	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๗
๓๘) นางสาววันวิสา เจริญพระกุล	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๘
๓๙) นายณัฐพล วงศ์ไชย	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๓๙
๔๐) นายชัยสุนทร เลิศนันทกุลชัย	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๐
๔๑) นายสิริยา เพ็ชรแสง	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๑
๔๒) นายกิตติคุณ มณีสัมพันธ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๒
๔๓) นายอานันท์ อธิจิตินดา	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๓
๔๔) นายสุภาวดี วงศ์วิทย์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๔
๔๕) นายไธส คันทิ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๕
๔๖) นางสาวกิตติยา สันติอุทัยวรรณ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๖
๔๗) นางสาวศิริรัตน์ ศิริวิริยะ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๗
๔๘) นายพิพัฒน์ นิกิทธิเศรษฐ์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๘
๔๙) นายศิริวิทย์ เรืองสม	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๔๙
๕๐) นายปารเมศ สัตยคุณ	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๕๐
๕๑) นายณัฐนาถ ธรรมะโร	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๕๑
๕๒) นางสาวสุกฤษณ์ โสจันทร์	ทะเบียนเลขที่ ๖-๒๐๓-๙-๐๐๕๒

๕๓) นายพชร...

๕๓) นายพรกร เจียรวิชัย ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๕๕
 ๕๔) นายพิวกร เจริญมาก ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๕๕
 ๕๕) นายอนุวัช ทองจรศักดิ์ ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๕๖
 ๕๖) นายอภิชาติ วิลาศ ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๕๗
 ๕๗) นายจิรวัฒน์ ศรีวิภา ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๕๘
 ๕๘) นายประจักษ์พร เจริญพร ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๕๙
 ๕๙) นายภาณุวัฒน์ วัฒน ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๖๐
 ๖๐) นายสันติ ชื่นชนะ ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๖๑
 ๖๑) นายทินกร กุศลชาติ ทะเบียนเลขที่ ๖-๑๒๓-๖-๐๐๖๒
 ค. ขอบข่ายชนิดสารมลพิษที่ได้รับขึ้นทะเบียนไว้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย ตามสิ่งส่งมาด้วย

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒๘ มิถุนายน ๒๕๖๓ หากประสงค์จะต่ออายุหนังสือ รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบการชำระค่าธรรมเนียม ๖๐ วัน ก่อนวันสิ้นสุดของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายพรศักดิ์ กนกนาค)
 อดีตรองอธิบดีกรมการควบคุมมลพิษ
 สำนักงานกรมการควบคุมมลพิษ

ศูนย์วิจัยและพัฒนาระบบนิเวศวิทยาภาคตะวันออก
 โทร. ๐ ๒๓๑๑ ๖๐๕๙ ต่อ ๕๐๐๑-๒
 ไปรษณีย์อิเล็กทรอนิกส์: eww@ddw.m.go.th



"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวทัน พร้อมพัฒนา อุตสาหกรรมสีเขียว"



เอกสารแนบท้ายหนังสือเปลี่ยนแปลงสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
 บริษัท เอนเนอจี้ แลบบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ๖-๑๒๓
 ที่ ๐๓๒๐/ ๗ ๕๓ ๘ ลงวันที่ ๐๕ สิงหาคม ๒๕๖๒

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๒๔ รายการ
 น้ำเสีย จำนวน 14 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Biochemical Oxygen Demand	1) 5-Day BOD Test, Membrane Electrode Method ^[2] 2) 5-Day BOD Test, Azide Modification Method ^[2]
2	Chemical Oxygen Demand	1) Open Reflux, Titrimetric Method ^[2] 2) Closed Reflux, Colorimetric Method ^[2] 3) Closed Reflux, Titrimetric Method ^[2]
3	Color	ADMI Weighted-Ordinate Spectrophotometric Method ^[2]
4	Cyanide	Distillation, Colorimetric Method ^[2]
5	Formaldehyde	Distillation, Colorimetric Method ^[2]
6	Free Chlorine	DPD Ferrous Titrimetric Method ^[2]
7	Oil and Grease	Liquid-Liquid, Partition-Gravimetric Method ^[2]
8	pH	Electrometric Method ^[2]
9	Phenols	1) Distillation, Chloroform Extraction Method ^[2] 2) Distillation, Direct Photometric Method ^[2]
10	Sulfide	ZnS Precipitation, Iodometric Method ^[2]
11	Temperature	Field Method ^[2]
12	Total Dissolved Solids	Dried at 180 °C ^[2]
13	Total Kjeldahl Nitrogen	Semi-Macro Kjeldahl Method ^[2]
14	Total Suspended Solids	Dried at 103-105 °C ^[2]

น้ำใต้ดิน จำนวน 3 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Cyanide	Distillation, Colorimetric Method ^[2]
2	pH	Electrometric Method ^[2]
3	Phenols	Distillation, Direct Photometric Method ^[2]

อากาศเสีย

อากาศเสีย (ปล่อยระบาย) จำนวน 7 รายการ

ลำดับ ที่	สารมลพิษ	วิธีวิเคราะห์
1	Carbon Monoxide	1) Sampling Bag, Non-Dispersive Infrared Method ^[3] 2) Instrumental Analyzer Method ^[3]
2	Hydrogen Sulfide	Absorption Sampling, Iodometric Method ^[3]
3	Opacity	Ringelmann's Method ^[3,4]
4	Oxide of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method ^[3] 2) Instrumental Analyzer Method ^[3]
5	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Acid Method ^[3] 2) Instrumental Analyzer Method ^[3,1]
6	Sulfuric Acid	Isokinetic Sampling, Barium - Titrimetric Method ^[6]
7	Total Suspended Particulate	Isokinetic Sampling, Gravimetric Method ^[7]

เอกสารอ้างอิง

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ที่ อก ๐๓๑๐/ ๑๐๐๕ ๕



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๐๕ ตุลาคม ๒๕๖๗

เรื่อง แก้ไขรายชื่อเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลборาทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง หนังสือ บริษัท เอแอลเอส แลборาทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขที่ Env 2024/005 ลงวันที่ ๓๐ สิงหาคม ๒๕๖๗

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กรมโรงงานอุตสาหกรรม ได้รับทราบและดำเนินการแก้ไขรายชื่อเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๕ ราย ตามที่แจ้งเรียบร้อยแล้ว เบื้องต้น

ลำดับที่ ๒๗ นางพจนา สีลา
ลำดับที่ ๒๘ นางสาวอนิศา กุลสุริวงศ์
ลำดับที่ ๓๐ นางชลธิชา สุขภัก
ลำดับที่ ๓๖ นายสุทธิศักดิ์ โชติพิพัฒน์
ลำดับที่ ๔๒ นายกัมภณ มณีสินพันธ์

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


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ที่ อก ๐๓๑๐(๓)/ ๔๒๔ ๖



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๕๐๐

๒๐ พฤษภาคม ๒๕๖๘

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

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อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๑๐ เมษายน ๒๕๖๘

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กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ออกเลิกเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๑ ราย ได้แก่ นายปารมศ สัตยาคุณ ทะเบียนเลขที่ ๖-๓๒๓-๖-๐๐๕๓

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ที่ อก ๐๓๑๐(๓)/ ๔๔๐ ๕



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