

เอกสารแนบ 12
ผลการตรวจวิเคราะห์คุณภาพน้ำทิ้งก่อนการบำบัด
คุณภาพน้ำทิ้งหลังการบำบัด และคุณภาพน้ำที่เข้าและออกหอฟุ้งเย็น

SES-25146/WW

July 11, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirikhan 77110
Sample Type : Wastewater
Sampling Date : July 2, 2025.
Sampling By : SES

Item	Parameter	Unit	Method of Analysis	Result		Standard ⁽¹⁾
				Wastewater Treatment System		
				Influent *	Effluent	
	Sample Description	–	–	brown turbid	yellow turbid sediment	–
1	pH	–	Electrometric (pH Meter)	7.30	7.61	5.5 - 9.0
2	BOD (Biochemical Oxygen Demand)	mg/L	5 Days BOD test, Azide Modification	201	12	≤20
3	COD (Chemical Oxygen Demand)	mg/L	Close Reflux Titrimetric	–	69	≤120 ⁽²⁾
4	TSS (Total Suspended Solids)	mg/L	Dried at 103-105°C	310	14	≤30
5	TDS (Total Dissolved Solids)	mg/L	Dried at 180°C	–	380	≤1,000
6	Sulfide	mg/L	Iodometric	3.4	<1.0	≤1.0
7	TKN (Total Kjeldahl Nitrogen)	mg/L	Semi Micro Kjeldahl	187.6	19.2	≤35
8	Oil & Grease	mg/L	Liquid-Liquid, Partition-Gravimetric	19.3	<3.0	≤20
9	Total Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	>1.6x10 ⁵	70	≤5,000
10	Fecal Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	–	<1.8	≤1,000
11	Free Chlorine	mg/L	Iodometric Electrode	–	0.04	≤1.0

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : ⁽¹⁾ Notification of the Ministry of Natural Resources and Environment; Building (B.E.2567), n Building

: ⁽²⁾ Notification of the Ministry of Natural Resources and Environment (B.E.2559)

Remark : TDS in the effluent is increase from TDS in water supply (TDS in water supply = 120 mg/L)

: * Influent no established standard



Approved

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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED NO.2210)

SES-25161/WW

August 11, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirikhan 77110
Sample Type : Wastewater
Sampling Date : August 1, 2025.
Sampling By : SES

Item	Parameter	Unit	Method of Analysis	Result		Standard ⁽¹⁾
				Wastewater Treatment System		
				Influent *	Effluent	
	Sample Description	–	–	gray turbid sediment	yellow	–
1	pH	–	Electrometric (pH Meter)	6.83	7.04	5.5 - 9.0
2	BOD (Biochemical Oxygen Demand)	mg/L	5 Days BOD test, Azide Modification	219	17	≤20
3	COD (Chemical Oxygen Demand)	mg/L	Close Reflux Titrimetric	–	112	≤120 ⁽²⁾
4	TSS (Total Suspended Solids)	mg/L	Dried at 103-105°C	614	27	≤30
5	TDS (Total Dissolved Solids)	mg/L	Dried at 180°C	–	340	≤1,000
6	Sulfide	mg/L	Iodometric	3.7	<1.0	≤1.0
7	TKN (Total Kjeldahl Nitrogen)	mg/L	Semi Micro Kjeldahl	145.7	28.6	≤35
8	Oil & Grease	mg/L	Liquid-Liquid, Partition-Gravimetric	27.2	5.7	≤20
9	Total Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	>1.6x10 ⁵	4.3x10 ³	≤5,000
10	Fecal Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	–	9.3x10 ²	≤1,000
11	Free Chlorine	mg/L	Iodometric Electrode	–	0.01	≤1.0

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : ⁽¹⁾ Notification of the Ministry of Natural Resources and Environment; Building (B.E.2567), n Building

: ⁽²⁾ Notification of the Ministry of Natural Resources and Environment (B.E.2559)

Remark : TDS in the effluent is increase from TDS in water supply (TDS in water supply = 120 mg/L)

: * Influent no established standard



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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED NO.210)

SES-25183/WW

September 10, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirikhan 77110
Sample Type : Wastewater
Sampling Date : September 1, 2025.
Sampling By : SES

Item	Parameter	Unit	Method of Analysis	Result		Standard ⁽¹⁾
				Wastewater Treatment System		
				Influent *	Effluent	
	Sample Description	–	–	yellow turbid sediment	yellow sediment	–
1	pH	–	Electrometric (pH Meter)	7.45	7.18	5.5 - 9.0
2	BOD (Biochemical Oxygen Demand)	mg/L	5 Days BOD test, Azide Modification	196	16	≤20
3	COD (Chemical Oxygen Demand)	mg/L	Close Reflux Titrimetric	–	110	≤120 ⁽²⁾
4	TSS (Total Suspended Solids)	mg/L	Dried at 103-105°C	597	28	≤30
5	TDS (Total Dissolved Solids)	mg/L	Dried at 180°C	–	220	≤1,000
6	Sulfide	mg/L	Iodometric	3.04	<1.0	≤1.0
7	TKN (Total Kjeldahl Nitrogen)	mg/L	Semi Micro Kjeldahl	138.2	31.8	≤35
8	Oil & Grease	mg/L	Liquid-Liquid, Partition-Gravimetric	31.5	3.2	≤20
9	Total Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	>1.6x10 ⁵	4.7x10 ³	≤5,000
10	Fecal Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	–	8.2x10 ²	≤1,000
11	Free Chlorine	mg/L	Iodometric Electrode	–	<0.01	≤1.0

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : ⁽¹⁾ Notification of the Ministry of Natural Resources and Environment; Building (B.E.2567), 11 Building

: ⁽²⁾ Notification of the Ministry of Natural Resources and Environment (B.E.2559)

Remark : TDS in the effluent is increase from TDS in water supply (TDS in water supply = 120 mg/L)

: * Influent no established standard



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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED NO.จ.210)

SES-25216/WW

October 14, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirikhan 77110
Sample Type : Wastewater
Sampling Date : October 2, 2025.
Sampling By : SES

Item	Parameter	Unit	Method of Analysis	Result		Standard ⁽¹⁾
				Wastewater Treatment System		
				Influent *	Effluent	
	Sample Description	–	–	brown turbid sediment	yellow	–
1	pH	–	Electrometric (pH Meter)	7.18	7.06	5.5 - 9.0
2	BOD (Biochemical Oxygen Demand)	mg/L	5 Days BOD test, Azide Modification	294	18	≤20
3	COD (Chemical Oxygen Demand)	mg/L	Close Reflux Titrimetric	–	112	≤120 ⁽²⁾
4	TSS (Total Suspended Solids)	mg/L	Dried at 103-105°C	583	21	≤30
5	TDS (Total Dissolved Solids)	mg/L	Dried at 180°C	–	240	≤1,000
6	Sulfide	mg/L	Iodometric	3.9	<1.0	≤1.0
7	TKN (Total Kjeldahl Nitrogen)	mg/L	Semi Micro Kjeldahl	146.8	32.4	≤35
8	Oil & Grease	mg/L	Liquid-Liquid, Partition-Gravimetric	35.3	<3.0	≤20
9	Total Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	>1.6x10 ⁵	4.8x10 ³	≤5,000
10	Fecal Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	–	9.2x10 ²	≤1,000
11	Free Chlorine	mg/L	Iodometric Electrode	–	0.01	≤1.0

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : ⁽¹⁾ Notification of the Ministry of Natural Resources and Environment; Building (B.E.2567), ๓ Building

: ⁽²⁾ Notification of the Ministry of Natural Resources and Environment (B.E.2559)

Remark : TDS in the effluent is increase from TDS in water supply (TDS in water supply = 90 mg/L)

: * Influent no established standard



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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED No.๖.210)

SES-25247/WW

November 17, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirkhan 77110
Sample Type : Wastewater
Sampling Date : November 5, 2025.
Sampling By : SES

Item	Parameter	Unit	Method of Analysis	Result		Standard ⁽¹⁾
				Wastewater Treatment System		
				Influent *	Effluent	
	Sample Description	–	–	brown turbid sediment	yellow turbid sediment	–
1	pH	–	Electrometric (pH Meter)	7.51	7.59	5.5 - 9.0
2	BOD (Biochemical Oxygen Demand)	mg/L	5 Days BOD test, Azide Modification	286	19	≤20
3	COD (Chemical Oxygen Demand)	mg/L	Close Reflux Titrimetric	–	116	≤120 ⁽²⁾
4	TSS (Total Suspended Solids)	mg/L	Dried at 103-105°C	595	27	≤30
5	TDS (Total Dissolved Solids)	mg/L	Dried at 180°C	–	340	≤1,000
6	Sulfide	mg/L	Iodometric	3.8	<1.0	≤1.0
7	TKN (Total Kjeldahl Nitrogen)	mg/L	Semi Micro Kjeldahl	291.5	24.6	≤35
8	Oil & Grease	mg/L	Liquid-Liquid, Partition-Gravimetric	37.6	8.1	≤20
9	Total Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	>1.6x10 ⁶	4.6x10 ³	≤5,000
10	Fecal Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	–	9.1x10 ²	≤1,000
11	Free Chlorine	mg/L	Iodometric Electrode	–	0.01	≤1.0

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : ⁽¹⁾ Notification of the Ministry of Natural Resources and Environment; Building (B.E.2567), ๗ Building

: ⁽²⁾ Notification of the Ministry of Natural Resources and Environment (B.E.2559)

Remark : TDS in the effluent is increase from TDS in water supply (TDS in water supply = 100 mg/L)

: * Influent no established standard



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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED No.๖.210)

SES-25262/WW

December 12, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirikhan 77110
Sample Type : Wastewater
Sampling Date : December 1, 2025.
Sampling By : SES

Item	Parameter	Unit	Method of Analysis	Result		Standard ⁽¹⁾
				Wastewater Treatment System		
				Influent *	Effluent	
	Sample Description	–	–	brown turbid sediment	yellow	–
1	pH	–	Electrometric (pH Meter)	7.16	7.42	5.5 - 9.0
2	BOD (Biochemical Oxygen Demand)	mg/L	5 Days BOD test, Azide Modification	349	60	≤20
3	COD (Chemical Oxygen Demand)	mg/L	Close Reflux Titrimetric	–	305	≤120 ⁽²⁾
4	TSS (Total Suspended Solids)	mg/L	Dried at 103-105°C	533	56	≤30
5	TDS (Total Dissolved Solids)	mg/L	Dried at 180°C	–	420	≤1,000
6	Sulfide	mg/L	Iodometric	3.3	<1.0	≤1.0
7	TKN (Total Kjeldahl Nitrogen)	mg/L	Semi Micro Kjeldahl	372.1	30.7	≤35
8	Oil & Grease	mg/L	Liquid-Liquid, Partition-Gravimetric	40.7	6.5	≤20
9	Total Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	>1.6x10 ⁵	9.4x10 ³	≤5,000
10	Fecal Coliform Bacteria	MPN/100ml	Multiple Tube Fermentation Technique	–	2.1x10 ³	≤1,000
11	Free Chlorine	mg/L	Iodometric Electrode	–	0.02	≤1.0

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : ⁽¹⁾ Notification of the Ministry of Natural Resources and Environment; Building (B.E.2567), n Building

: ⁽²⁾ Notification of the Ministry of Natural Resources and Environment (B.E.2559)

Remark : TDS in the effluent is increase from TDS in water supply (TDS in water supply = 100 mg/L)

: * Influent no established standard



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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED No.2.210)

SES-25161/WS

August 11, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirikhan 77110
Sample Type : Cooling Tower
Sampling Date : August 1, 2025.
Sampling by : SES

Item	Description	Unit	Method	Result	
				Cooling Tower	
				อ่างรองรับน้ำ (น้ำเข้า)	อ่างน้ำทิ้งจากหอผึ่งเย็น (น้ำออก)
	Sample Description	—	—	clear	clear
1	Legionella pneumophila	CFU/1000 ml.	Direct Count	Not-Detected	Not-Detected

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : Notification of the Ministry of Public Health, Department of Health (B.E.2544); Legionella pneumophila

Remark : Not-Detected = ไม่พบ



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ANALYST BY : V CARE ENVIRONMENT SERVICES CO.,LTD. (PRIVATE LABORATORY REGISTERED NO.2:210)

SES-25247/WS

November 17, 2025.

ANALYSIS REPORT

Customer : Bangkok Hospital/HuaHin
Address : 888 Petchkasem Road, HuaHin Sub District, HuaHin District, Prachuapkhirkhan 77110
Sample Type : Cooling Tower
Sampling Date : November 5, 2025.
Sampling by : SES

Item	Description	Unit	Method	Result	
				Cooling Tower	
				อ่างรองรับน้ำ (น้ำเข้า)	อ่างน้ำทิ้งจากหอผึ่งเย็น (น้ำออก)
	Sample Description	—	—	clear	clear
1	Legionella pneumophila	CFU/1000 ml.	Direct Count	Not-Detected	Not-Detected

Method of analysis based on Standard Method for the Examination of Water and Wastewater, APHA, AWWA, WEF 23rd Edition 2017

Standard : Notification of the Ministry of Public Health, Department of Health (B.E.2544); Legionella pneumophila

Remark : Not-Detected = ไม่พบ



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