

ภาคผนวก ง

ผลการวิเคราะห์ทางห้องปฏิบัติการ

ภาคผนวก ง1

ผลการวิเคราะห์คุณภาพน้ำทิ้ง

ANALYSIS REPORT

CUSTOMER NAME : CARLTON HOTEL BANGKOK SUKHUMVIT
ADDRESS : 491 SUKUMVIT ROAD KHLONG TOEI NUEA WATTANA BANGKOK 10110
CONTACT INFORMATION : TEL : 0 2090 7888 Ext.7804 e-mail : phanuphan.lekwilai@carltonhotel.co.th
SAMPLING SOURCE : WASTEWATER TREATMENT PLANT
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : MAY 22, 2025
SAMPLING TIME : 1/
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR SUKSAN BOONLEANG
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM
RECEIVED DATE : MAY 22, 2025
ANALYTICAL DATE : MAY 22-29, 2025
ISSUE DATE : MAY 30, 2025
REPORT NO. : 2025-U048523
WORK NO. : 2024-009366
ANALYSIS NO. : T25AL044-0001 - T25AL044-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	LIMIT OF QUANTITATION (LOQ)
			1 14:45 HOUR 1/ T25AL044-0001	2 14:40 HOUR 1/ T25AL044-0002		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.3 (33.8°C)	7.6 (32.5°C)	5.5-9.0	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	147	31.5	≤ 20	2.0
TOTAL SUSPENDED SOLIDS ^a	mg/L	TOTAL SUSPENDED SOLIDS DRIED FROM 103 TO 105 °C (SM: PART 2540 D)	1,686	30.2	≤ 30	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	410	351	≤ 1,000	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500 -S ²⁻ F)	< 0.50	< 0.50	≤ 1.0	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	184	35.4	≤ 35	5.0
OIL AND GREASE ^a	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	8	3	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	LIMIT OF QUANTITATION (LOQ)
			1 14:45 HOUR 1/ T25AL044-0001	2 14:40 HOUR 1/ T25AL044-0002		
MICROBIOLOGY						
TOTAL COLIFORMS ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B AND C)	>160,000	>160,000	-	-
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			BROWN/TURBID	YELLOW/TURBID		
SEDIMENT			BROWN	BROWN		

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 24th EDITION, 2023.

RESULT 1 : บ่อปรับสภาพน้ำ

RESULT 2 : บ่อน้ำใส

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS A, NOTIFICATION OF THE
MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 141,
PART 233 D, DATED AUGUST 27, 2024.

(MISS WILAILAK SRISUK)
LABORATORY SUPERVISOR

ภาคผนวก ง2

ผลการวิเคราะห์คุณภาพน้ำหอฝิ่งเย็น

ANALYSIS REPORT

CUSTOMER NAME : CARLTON HOTEL BANGKOK SUKHUMVIT
ADDRESS : 491 SUKUMVIT ROAD KHLONG TOEI NUEA WATTHANA BANGKOK 10110
CONTACT INFORMATION : TEL : 0 2090 7888 Ext.7804 e-mail : phanuphan.lekwilai@carltonhotel.co.th
SAMPLING SOURCE : COOLING TOWER
SAMPLE TYPE : COOLING WATER
SAMPLING DATE : MAY 22, 2025
SAMPLING TIME : 14:15 HOUR
SAMPLING METHOD ° : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ° : MR SUKSAN BOONLEANG
ANALYZED BY : MR NUTTACHOK LAKHAMMOON
RECEIVED DATE : MAY 22, 2025
ANALYTICAL DATE : MAY 22-29, 2025
ISSUE DATE : JUNE 6, 2025
REPORT NO. : 2025-U049593
WORK NO. : 2024-009366
ANALYSIS NO. : T25AL044-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			น้ำเข้ามาเดิม ในอ่างรองรับ T25AL044-0003	
pH ^c	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	7.6 (30.8°C)	-
RESIDUAL CHLORINE ^c	mg/L Cl ₂	MODIFIED DPD COLOURIMETRIC METHOD (AT SITE)	0.1	0.1
MICROBIOLOGY				
TOTAL COLIFORMS ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B AND C)	< 1.8	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR	

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT NOT IN SCOPE OF ACCREDITATION

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 24th EDITION, 2023.

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR



ANALYSIS REPORT

CUSTOMER NAME : CARLTON HOTEL BANGKOK SUKHUMVIT
ADDRESS : 491 SUKUMVIT ROAD KHLONG TOEI NUEA WATTHANA BANGKOK 10110
CONTACT INFORMATION : TEL : 0 2090 7888 Ext.7804 e-mail : phanuphan.lekwilai@carltonhotel.co.th
SAMPLING SOURCE : COOLING TOWER
SAMPLE TYPE : COOLING WATER
SAMPLING DATE : MAY 22, 2025
SAMPLING TIME : 14:15 HOUR
SAMPLING METHOD * : GRAB AND STERILE TECHNIQUE
SAMPLING BY * : MR SUKSAN BOONLEANG
ANALYZED BY : MISS ITSARIYAPORN BUATIB
RECEIVED DATE : MAY 22, 2025
ANALYTICAL DATE : MAY 22 - JUNE 4, 2025
ISSUE DATE : JUNE 6, 2025
REPORT NO. : 2025-U049595
WORK NO. : 2024-009366
ANALYSIS NO. : T25AL044-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			น้ำเข้ามาเดิม ในอ่างรองรับ T25AL044-0003		
MICROBIOLOGY					
Legionella spp.	CFU/L	ISO 11731:2017-05 (E)	NOT DETECTED	NOT DETECTED	100
SAMPLE CONDITION					
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR		
SEDIMENT			-		

THE LABORATORY HAS BEEN ACCEPTED AS AN ACCREDITED LABORATORY COMPLYING WITH THE ISO/IEC 17025.

* : TEST METHOD ARE NOT COVERED COMPLYING WITH THE ISO/IEC 17025, VERIFIED BY OWN LABORATORY QUALITY SYSTEM.

REGULATORY STANDARD : ANNOUNCEMENT OF THE DEPARTMENT OF HEALTH (THAILAND), PRACTICE FOR THE CONTROL OF LEGIONELLA BACTERIA IN COOLING TOWERS, JANUARY 2001.

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR



ANALYSIS REPORT

CUSTOMER NAME : CARLTON HOTEL BANGKOK SUKHUMVIT
ADDRESS : 491 SUKHUMVIT ROAD KHLONG TOEI NUEA WATTHANA BANGKOK 10110
CONTACT INFORMATION : TEL : 0 2090 7888 Ext.7804 e-mail : phanuphan.lekwilai@carltonhotel.co.th
SAMPLING SOURCE : COOLING TOWER
SAMPLE TYPE : COOLING WATER
SAMPLING DATE : MAY 22, 2025
SAMPLING TIME : 14:10 HOUR
SAMPLING METHOD ° : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ° : MR SUKSAN BOONLEANG
ANALYZED BY : MR NUTTACHOK LAKHAMMOON

RECEIVED DATE : MAY 22, 2025
ANALYTICAL DATE : MAY 22-29, 2025
ISSUE DATE : JUNE 6, 2025
REPORT NO. : 2025-U049597
WORK NO. : 2024-009366
ANALYSIS NO. : T25AL044-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			ห่อป้้าห้ังจาก ห่อฝ้งเ่ยน T25AL044-0004	
pH ^c	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	9.0 (29.1°C)	-
RESIDUAL CHLORINE ^c	mg/L Cl ₂	MODIFIED DPD COLOURIMETRIC METHOD (AT SITE)	0.6	0.1
MICROBIOLOGY				
TOTAL COLIFORMS ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B AND C)	23	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT ^a			YELLOW/CLEAR -	

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT NOT IN SCOPE OF ACCREDITATION

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 24th EDITION, 2023.

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

ANALYSIS REPORT

CUSTOMER NAME : CARLTON HOTEL BANGKOK SUKHUMVIT
ADDRESS : 491 SUKUMVIT ROAD KHLONG TOEI NUEA WATTHANA BANGKOK 10110
CONTACT INFORMATION : TEL : 0 2090 7888 Ext.7804 e-mail : phanuphan.lekwilai@carltonhotel.co.th
SAMPLING SOURCE : COOLING TOWER
SAMPLE TYPE : COOLING WATER
SAMPLING DATE : MAY 22, 2025
SAMPLING TIME : 14:10 HOUR
SAMPLING METHOD * : GRAB AND STERILE TECHNIQUE
SAMPLING BY * : MR SUKSAN BOONLEANG
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : MAY 22, 2025
ANALYTICAL DATE : MAY 22 - JUNE 4, 2025
ISSUE DATE : JUNE 6, 2025
REPORT NO. : 2025-U049600
WORK NO. : 2024-009366
ANALYSIS NO. : T25AL044-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			หอน้ำทิ้งจาก หอฝังเป็น T25AL044-0004		
MICROBIOLOGY					
Legionella spp.	CFU/L	ISO 11731:2017-05 (E)	NOT DETECTED	NOT DETECTED	100
SAMPLE CONDITION					
WATER'S COLOUR/TURBID			YELLOW/CLEAR		
SEDIMENT			-		

THE LABORATORY HAS BEEN ACCEPTED AS AN ACCREDITED LABORATORY COMPLYING WITH THE ISO/IEC 17025.

* : TEST METHOD ARE NOT COVERED COMPLYING WITH THE ISO/IEC 17025, VERIFIED BY OWN LABORATORY QUALITY SYSTEM.

REGULATORY STANDARD : ANNOUNCEMENT OF THE DEPARTMENT OF HEALTH (THAILAND), PRACTICE FOR THE CONTROL OF LEGIONELLA BACTERIA IN COOLING TOWERS, JANUARY 2001.



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