

ภาคผนวก ณ

ผลการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม

ภาคผนวก ณ-1

ผลการติดตามตรวจสอบคุณภาพน้ำเสียและน้ำทิ้ง

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 : Piya.nalamphun@carltonhotel.co.th
SAMPLING SOURCE : WASTEWATER TREATMENT PLANT
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : JANUARY 31, 2023
SAMPLING TIME : 1/
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR WEERAYUT MOKKAEW
ANALYZED BY : MISS AMONRAT PUTTALEE

RECEIVED DATE : JANUARY 31, 2023
ANALYTICAL DATE : JANUARY 31 - FEBRUARY 7, 2023
REPORT NO. : 2023-U009921
WORK NO. : 2022-008301
ANALYSIS NO. : T23AB616-0001 - T23AB616-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 15:05 HOUR 1/ T23AB616-0001	2 15:00 HOUR 1/ T23AB616-0002		
pH ^a	-	ELECTROMETRIC METHOD AT SITE (SM:4500-H ⁺ B)	6.6 (30°C)	7.2 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	407	124	≤ 20	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: 2540 D)	129	142	≤ 30	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM 2540 C	552	414	500*	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: 4500-S ²⁻ F)	3.0	< 0.50	≤ 1.0	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: 4500-Norg C	41.9	29.1	≤ 35	1.5
FAT, OIL AND GREASE ^a	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	72	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 15:05 HOUR 1/ T23AB616-0001	2 15:00 HOUR 1/ T23AB616-0002		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/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)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

IN-HOUSE : BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

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 122,
PART 125 D, DATED DECEMBER 29, 2005 AND VOL 139 SPECIAL PART 171 D, DATED JULY 21, 2022.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED
(TOTAL DISSOLVED SOLIDS STANDARD VALUE OF TAP WATER QUALITY IS 1,000 mg/L).

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

FEBRUARY 15, 2023

ANALYSIS REPORT

CUSTOMER NAME	: CARLTON HOTEL BANGKOK SUKHUMVIT	RECEIVED DATE	: FEBRUARY 27, 2023
ADDRESS	: 491 SUKUMVIT ROAD KHLONG TOEI NUEA WATTHANA BANGKOK 10110	ANALYTICAL DATE	: FEBRUARY 27 - MARCH 7, 2023
CONTACT INFORMATION	: TEL : 0 2090 7888 Ext.7804 e-mail : Piya.nalamphun@carltonhotel.co.th	REPORT NO.	: 2023-U017864
SAMPLING SOURCE	: WASTEWATER TREATMENT PLANT	WORK NO.	: 2022-008301
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AD431-0001 - T23AD431-0002
SAMPLING DATE	: FEBRUARY 27, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY	: MR WEERAYUT MOKKAEW		
ANALYZED BY	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 14:20 HOUR 1/ T23AD431-0001	2 14:15 HOUR 1/ T23AD431-0002		
pH ^a	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	6.6 (29°C)	7.4 (31°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 4500-O ₂ G AND PART 5210 B)	436	109	≤ 20	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	168	123	≤ 30	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	498	360	500*	25
SULPHIDE ^c	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ -F)	4.0	< 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	41.0	38.4	≤ 35	1.5
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	25	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 14:20 HOUR 1/ T23AD431-0001	2 14:15 HOUR 1/ T23AD431-0002		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/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)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

IN-HOUSE : BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

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 122,
PART 125 D, DATED DECEMBER 29, 2005 AND VOL 139 SPECIAL PART 171 D, DATED JULY 21, 2022.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED
(TOTAL DISSOLVED SOLIDS STANDARD VALUE OF TAP WATER QUALITY IS 1,000 mg/L).

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

MARCH 15, 2023

ANALYSIS REPORT

CUSTOMER NAME	: CARLTON HOTEL BANGKOK SUKHUMVIT	RECEIVED DATE	: MARCH 29, 2023
ADDRESS	: 491 SUKUMVIT ROAD KHLONG TOEI NUEA WATTHANA BANGKOK 10110	ANALYTICAL DATE	: MARCH 29 - APRIL 12, 2023
CONTACT INFORMATION	: TEL : 0 2090 7888 Ext.7804 e-mail : Piya.nalamphun@carltonhotel.co.th	REPORT NO.	: 2023-U027351
SAMPLING SOURCE	: WASTEWATER TREATMENT PLANT	WORK NO.	: 2022-008301
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AF646-0001 - T23AF646-0002
SAMPLING DATE	: MARCH 29, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD ^c	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY ^c	: MR SUKSAN BOONLEANG		
ANALYZED BY	: MISS AKSARIN BUNKONG		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 15:20 HOUR 1/ T23AF646-0001	2 15:15 HOUR 1/ T23AF646-0002		
pH ^c	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.3 (33°C)	6.8 (31°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	281	86.2	≤ 20	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	90.1	114	≤ 30	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	405	350	500*	25
SULPHIDE ^c	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	4.3	2.0	≤ 1.0	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	48.7	47.8	≤ 35	1.5
FAT, OIL AND GREASE ^a	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	21	11	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 15:20 HOUR 1/ T23AF646-0001	2 15:15 HOUR 1/ T23AF646-0002		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/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)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

IN-HOUSE : BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

RESULT 1 : ปฏิกิริยาสภาพน้ำ

RESULT 2 : ปฏิกิริยาใส

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 122,
PART 125 D, DATED DECEMBER 29, 2005 AND VOL 139 SPECIAL PART 171 D, DATED JULY 21, 2022.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

APRIL 18, 2023

ภาคผนวก ฅ-2

ผลการติดตามตรวจสอบคุณภาพน้ำหอฝิ่งเย็น

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 : Piya.nalamphun@carltonhotel.co.th
SAMPLING SOURCE : COOLING TOWER
SAMPLE TYPE : COOLING WATER
SAMPLING DATE : JUNE 30, 2023
SAMPLING TIME : 16:05 HOUR
SAMPLING METHOD * : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY * : MR SUKSAN BOONLEANG
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : JUNE 30, 2023
ANALYTICAL DATE : JUNE 30-JULY 9, 2023
REPORT NO. : 2023-U057227
WORK NO. : 2022-008301
ANALYSIS NO. : T23AM520-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			น้ำเข้ามาเติม ในอ่างรองรับ T23AM520-0001		
pH *	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H* B)	7.8 (29°C)	-	-
RESIDUAL CHLORINE *	mg/L Cl ₂	MODIFIED DPD COLOURIMETRIC METHOD (AT SITE)	0.1	-	0.1
MICROBIOLOGY					
<i>Legionella</i> spp. #	CFU/L	ISO 11731:2017-05 (E)	NOT DETECTED	NOT DETECTED	-
COLIFORM BACTERIA *	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	7.8	-	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR -		

: ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF MEDICAL SCIENCE (DMSC)
* : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

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

JULY 14, 2023



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 : Piya.nalamphun@carltonhotel.co.th
SAMPLING SOURCE : COOLING TOWER
SAMPLE TYPE : COOLING WATER
SAMPLING DATE : JUNE 30, 2023
SAMPLING TIME : 16:00 HOUR
SAMPLING METHOD * : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY * : MR SUKSAN BOONLEANG
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : JUNE 30, 2023
ANALYTICAL DATE : JUNE 30-JULY 9, 2023
REPORT NO. : 2023-U057238
WORK NO. : 2022-008301
ANALYSIS NO. : T23AM520-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ท่อน้ำทิ้งจาก หอผึ่งเย็น T23AM520-0002		
pH *	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	8.6 (28°C)	-	-
RESIDUAL CHLORINE *	mg/L Cl ₂	MODIFIED DPD COLOURIMETRIC METHOD (AT SITE)	ND	-	0.1
MICROBIOLOGY					
<i>Legionella</i> spp. #	CFU/L	ISO 11731:2017-05 (E)	NOT DETECTED	NOT DETECTED	-
COLIFORM BACTERIA *	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	22	-	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR -		

: ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF MEDICAL SCIENCE (DMSC)
* : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

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

ND : NON-DETECTABLE.

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

JULY 14, 2023

