

Messrs : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5 , Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Factory Site : Centara Grand Pattaya Date : November 25, 2023

Recommendation For : Water Analysis of November, 2023

Report Reference : R27488-91, R27386-89, R27580/66, R27972-80/66

RECOMMENDATION

1. Raw Water

1.1 Storage Tank :

- Iron was low.
- Turbidity was low.
- Manganese was not found.
- Coliform/ E.Coli was not found.
- Hardness was low.

Note : - Storage Tank should be check and cleaned 1 -2 time/month to reduce iron accumulation.
- Chlorine should be routine added into buied-water and feeding into raw water to prevent bacterial growth.
- Softener in next step treatment must be taken care.

1.2 Soft Water (Main Point) :

- Hardness was low.
- Iron was low.
- Manganese was low.
- Coliform/ E.Coli was not found.

Note : The system should be operated.

- Water storage tank should be checked and cleaned if iron and bacteria accumulation.
- Softener should be flushing with low iron of raw water to reduce iron and bacteria accumulation, Rinsing step must be checked before use.
- The regeneration with salt should be routine operation to control hardness.

- Chlorine should be added in storage tank and back wash softener/regeneration should be done with chlorinated – water to prevent bacteria growth and accumulation.

1.3 Hot Water System (Main Point) :

- Hardness was low.
- Iron was low.
- Manganese was low.
- Coliform/E.Coli was not found.

Note : The system should be checked.

- Raw water storage tank cleaning and flushing should be done increase of iron accumulation.
- Hot water unit should be flushing with low iron water.
- Metal type in hot water system and pipe line should be checked to prevent Galvanic Corrosion Problems.

1.4 Guest Room Usage Water (Cold Water) : (South A1504, South A1616)

- Total Hardness was like raw water.
- Turbidity was low.
- Iron was not found.
- Manganese was low.
- Coliform/ E.Coli was not found.

Note : In the room which not usually open, flushing pipe line before open should be done to reduce iron and bacteria accumulation.

- Chlorine should be routine added into water supply.

1.5 Guest Room Usage Water (Hot Water) : (South A1504, South A1616)

- Hardness was like raw water.
- Turbidity was low.
- Iron was low.
- Manganese was high.
- Coliform/E.Coli was not found.

Note:

- Flushing of pipe – line before used should be done to reduce iron accumulation in pipe line.
- Soft water before hot water machine should be checked.

1.6 Cooling

- 1) Conductivity was low. Hardness was high.
- 2) Iron and Manganese was not found.
- 3) Antiscale and anticorrosion chemicals including with biocide should be adding into system.
- 4) Legionella spp. was not found.

- Note :**
- Bleed off should be controlled.
 - Softener should be checked about regeneration cycle to control hardness < 20 ppm.
 - Cooling water must be drained and adding new make up water to reduce TDS.

- 1.7 Chilled :** Iron was low. pH was high Anticorrosion chemical (Nitrite) was low for control.
Anti corrosion chemical should be added after cleaning, incase of maintenance.

2. Drinking Water :

- 1) Canteen : Hardness was low. Iron was not found. Manganese was not found.
Other water quality was in standard. Coliform/E.Coli was not found.
- 2) Oasis Kitchen : Hardness was low. Manganese was low.
Iron was not found. Other water quality was in standard. Coliform/E.Coli was not found.
- 3) Guest Room (1504) : Other water quality was in standard. Hardness was low. Iron was not found.
Manganese was low. Coliform/E.Coli was not found.

Note :

- Chlorine feeding into raw water should be done.
- Clean unit and Tank with chlorination water should be done.
- Drinking water treatment unit should be cleaned and regenerate to reduce hardness.

3. Swimming Water :

- 1) Main Pool : On used.
 - pH was normal.
 - Chlorine was found 0.92 ppm.
 - Coliform/ E.Coli was not found.
- 2) Lab Pool : On used.
 - pH was normal.
 - Chlorine was found 0.91 ppm.
 - Coliform/ E.Coli was not found.
- 3) Lazy Pool :
 - pH was normal.
 - Chlorine was found 0.94 ppm.
 - Coliform/E.Coli was not found.
- 4) 18th Flr Pool
 - pH was normal.
 - Chlorine was found 0.96 ppm.
 - Coliform/E.Coli was not found.

Recommendation :

1. pH should be routine checked. If pH low, the feeding of NaOH or Na₂CO₃ should be done.
If pH high , the pH adjustment by HCl should be added.
2. Chlorine should be routine checked to control ~ 1 – 3 ppm
3. Circulation water should be passed through filter for reduce bacteria accumulation.

4. Ice

- 1) Canteen (Cube) : Coliform/E.Coli was not found.
- 2) Banquet (Flake) : Coliform/E.Coli was not found.
- 3) Flames : Coliform/E.Coli was not found.
- 4) Oasis Kitchen (Flake) : Coliform/E.Coli was not found.

Recommendation : The ice machine should be disinfection by.

1. Flushing system by chlorine – added water should be done.
2. Scoop equipment should be cleaned without contamination.
3. Ice machine and filter system should be cleaned.
4. Ice box should be cleaned.

5. **Waste Water** : BOD of Effluent ~158 mg/L was in Pattaya Regulation (≤ 1000 mg/l).

The owner should pay for treatment following regulation rate.



Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27972/66

Parameters	Unit	Method	TW26004 /66	TW26005 /66	TW26006 /66	Standard ^a
			Water in Storage Tank	Soft Water System (Main Point)	Hot Water System (Main Point)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.0	7.0	7.1	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	1.66	0.72	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	355	361	336	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	213	217	202	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	78	78	72	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	42	44	40	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.10	0.22	0.10	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	0.05	0.05	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	2.36	2.50	2.64	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	46.96	51.47	46.05	250
Sample Condition		Observation	Clear	Clear	Clear	

- Remark :
1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
 2. Test marked "# " on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.
 3. Test marked "@ " on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.
 4. Test marked " * " on this report are not included in scope of Accreditation
 5. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.



Analyst

28/11/2023

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Technical Manager

28/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27973/66

Parameters	Unit	Method	TW26004 /66	TW26005 /66	TW26006 /66	Standard ^a
			Water in Storage Tank	Soft Water System (Main Point)	Hot Water System (Main Point)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 1.1	not found
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found	not found
Sample Condition		Observation	Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.

3. Coliform Bacteria < 1.1 MPN/100 mL is meaning not found

Analyst

28/11/2023

Technical Manager

28/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27974/66

Parameters	Unit	Method	TW26007 /66	TW26008 /66	Standard ^a
			Guest Room Cold Water (South A 1504)	Guest Room Cold Water (South A 1616)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.2	6.9	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	1.26	0.95	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	356	356	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	214	214	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	76	74	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	44	42	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	0.11	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.12	0.15	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	2.48	2.16	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	46.66	48.76	250
Sample Condition		Observation	Clear	Clear	

- Remark :
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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27975/66

Parameters	Unit	Method	TW26007 /66	TW26008 /66	Standard ^a
			Guest Room Cold Water (South A 1504)	Guest Room Cold Water (South A 1616)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	not found
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.

3. Coliform Bacteria < 1.1 MPN/100 mL is meaning not found

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27976/66

Parameters	Unit	Method	TW26009 /66	TW26010 /66	Standard ^a
			Guest Room Hot Water (South A 1504)	Guest Room Hot Water (South A 1616)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.2	6.7	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	1.51	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	341	341	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	205	205	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	78	72	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	40	42	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.12	< 0.10	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.16	0.06	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	2.39	2.14	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	47.86	47.86	250
Sample Condition		Observation	Clear	Clear	

- Remark :
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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27977/66

Parameters	Unit	Method	TW26009 /66	TW26010 /66	Standard ^a
			Guest Room Hot Water (South A 1504)	Guest Room Hot Water (South A 1616)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	not found
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.

3. Coliform Bacteria < 1.1 MPN/100 mL is meaning not found

Analyst

28/11/2023

Technical Manager

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27978/66

Parameters	Unit	Method	TW26011 /66	Standard ^a (Cooling Water)
			Cooling Water	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.7	8.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	507	< 2500
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	304	< 2000
* P-Alkalinity	mg/L as CaCO ₃	Titration	< 1	-
* M-Alkalinity	mg/L as CaCO ₃	Titration	50	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	112	< 100
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	64	< 400
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 1.0
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	-
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	67.72	-
* Silica	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	15.81	-
* Total Phosphorus	mg/L as P	Stannous Chloride	0.01	-
Sample Condition		Observation	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA; AWWA & WEF, 24th ed., 2023

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4. Test marked " * " on this report are not included in scope of Accreditation

5. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ

Analyst

28/11/2023

Technical Manager

28/11/2023

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TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27979/66

Parameters	Unit	Method	TW26011 /66
			Cooling Water
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27980/66

Parameters	Unit	Method	TW26012 /66	Standard ^a (Chilled Water)
			Chilled Water	
* pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	9.6	7.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	601	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	361	-
* P-Alkalinity	mg/L as CaCO ₃	Titration	25	-
* M-Alkalinity	mg/L as CaCO ₃	Titration	75	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	56	-
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	48	-
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 1.0
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	-
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	48.76	-
Silica [#]	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	4.94	-
* Nitrite	mg/L as NO ₂ ⁻	SM 2023 (4500-NO ₂ ⁻ B)	65.63	500 - 1000
Sample Condition		Observation	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

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4. Test marked " * " on this report are not included in scope of Accreditation

5. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ (Chilled Water)



Analyst

28/11/2023



Technical Manager

28/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Drinking Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 22/11/2023

Report No. : R27488/66

Parameters	Unit	Method	TW26013 /66	TW26014 /66	TW26015 /66	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 1504)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.4	7.4	7.2	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	1.14	0.67	≤ 5.0
Conductivity [#]	uS/cm	SM 2023 (2510 B)	353	354	352	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	212	212	211	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	73	75	76	≤ 100.0
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	42	42	42	≤ 250.0
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	< 0.10	≤ 0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	< 0.04	≤ 0.05
Nitrate Nitrogen [#]	mg/L as NO ₃ ⁻ N	SM 2023 (4500-NO ₃ ⁻ E)	0.56	0.54	0.45	≤ 4.0
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	44.55	46.96	48.16	≤ 250.0
Sample Condition		Observation	Clear	Clear	Clear	

- Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
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3. Test marked "@ " on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.
4. Test marked " * " on this report are not included in scope of Accreditation
5. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))

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Analyst

22/11/2023

Technical Manager

22/11/2023

Reported results refer to the sample as received only.

Test report shall not be reproduced except in full, without written approved of the laboratory.

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



Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Drinking Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 22/11/2023

Report No. : R27489/66

Parameters	Unit	Method	TW26013 /66	TW26014 /66	TW26015 /66	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 1504)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 1.1	< 2.2
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found	negative
Sample Condition			Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))



Analyst

22/11/2023



Technical Manager

22/11/2023

Reported results refer to the sample as received only.

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

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 22/11/2023

Report No. : R27490/66

Parameters	Unit	Method	TW26016 /66	TW26017 /66	Standard ^a
			Canteen (Cube)	Banquet (Flake)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 2.2
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 20232. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))

Analyst

22/11/2023

22/11/2023

Reported results refer to the sample as received only.

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

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 22/11/2023

Report No. : R27491/66

Parameters	Unit	Method	TW26018 /66	TW26019 /66	Standard ^a
			Flames	Oasis Kitchen (Flake)	
Coliform Bacteria <i>E. coli</i>	MPN/100 mL /100 mL	SM 2023 (9221 B) SM 2023 (9221 F, Detection)	< 1.1 not found	< 1.1 not found	< 2.2 negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
2. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))

Analyst

22/11/2023

Technical Manager

22/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 21/11/2023

Report No. : R27386/66

Parameters	Unit	Method	TW26020 /66	TW26021 /66	Standard ^a
			Main Pool	Lab Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.6	7.4	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	DPD Colorimetric	0.92	0.91	0.6-1.0
Sample Condition			Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205, dated October 14, B.E.2530 (1987)

Analyst

21/11/2023

Technical Manager

21/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

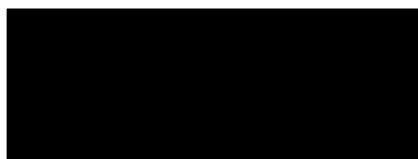
Report Date : 21/11/2023

Report No. : R27387/66

Parameters	Unit	Method	TW26020 /66	TW26021 /66	Standard ^a
			Main Pool	Lab Pool	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.8	< 1.8	< 10
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14, B.E.2530 (1987)



Analyst

21/11/2023



Technical Manager

21/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 21/11/2023

Report No. : R27388/66

Parameters	Unit	Method	TW26022 /66	TW26023 /66	Standard ^a
			Lazy Pool	18 th Flr Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.7	7.5	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	DPD Colorimetric	0.94	0.96	0.6-1.0
Sample Condition			Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14, B.E.2530 (1987)



Analyst

21/11/2023



Technical Manager

21/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 20/11/2023

Report Date : 21/11/2023

Report No. : R27389/66

Parameters	Unit	Method	TW26022 /66	TW26023 /66	Standard ^a
			Lazy Pool	18 th Flr Pool	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.8	< 1.8	< 10
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

- Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14, B.E.2530 (1987)



Analyst

21/11/2023



Technical Manager

21/11/2023

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

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Waste Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 22/11/2023

Report Date : 23/11/2023

Report No. : R27580/66

Parameters	Unit	Method	TW26024 /66	Standard ^a
			Effluent	
pH	-	SM 2023 (4500-H ⁺ B)	6.7	-
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	158	≤ 1000
Total Suspended Solids	mg/L	SM 2023 (2540 D)	98	-
* Oil & Grease	mg/L	SM 2023 (5520 D)	57.3	-
Sample Condition		Observation	Light Yellow, Cloud	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. Test marked " * " on this report are not included in scope of Accreditation

3. a : ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 22 (พ.ศ. 2544) เรื่อง กำหนดอัตราค่าบริการบำบัดน้ำเสียของระบบบำบัดน้ำเสียรวมเมืองพัทยา

Analyst

23/11/2023

Technical Manager

23/11/2023

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TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27981/66

Parameters	Unit	Method	TW26025 /66	TW26026 /66	TW26027 /66	TW26028 /66
			Point 1 A1 Head Shower Room (1504)	Point 2 A1 Head Shower Room (1616)	Point 3 A2 Head Shower Room (1630)	Point 4 A2 Head Shower Room (1634)
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected	not detected	not detected	not detected
Sample Condition			Clear	Clear	Clear	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

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TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27982/66

Parameters	Unit	Method	TW26029 /66	TW26030 /66	TW26031 /66	TW26032 /66
			Point 5 A1 Condensate from FCU Room (1504)	Point 6 A1 Condensate from FCU Room (1616)	Point 7 A2 Condensate from FCU Room (1630)	Point 8 A2 Condensate from FCU Room (1634)
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected	not detected	not detected	not detected
Sample Condition			Clear	Clear	Clear	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27983/66

Parameters	Unit	Method	TW26033 /66	TW26034 /66	TW26035 /66	TW26036 /66
			Point 9 Lazy River	Point 10 Main Pool	Point 11 Lab Pool	Point 12 Water in Storage Tank
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected	not detected	not detected	not detected
Sample Condition		Observation	Clear	Clear	Clear	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

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

TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27984/66

Parameters	Unit	Method	TW26037 /66	TW26038 /66	TW26039 /66
			Point 13 Jacuzzi (SPAF)	Point 14 Fitness (Locker F)	Point 18 Restaurant (Coast)
Legionella spp.	CFU/L	ISO 11731 : 2017	not detected	not detected	not detected
Sample Condition		Observation	Clear	Clear	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

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

TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/11/2023

Received Date : 15/11/2023

Report Date : 28/11/2023

Sample Type : Drinking Water

Sampling Method : Grab

Sampling Time : 11:00 AM

Analytical Date : 15 - 27/11/2023

Report No. : R27985/66

Parameters	Unit	Method	TW26040 /66
			Point 16 Drinking Water (Coast)
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

Reported results refer to the sample as received only.

Test report shall not be reproduced except in full, without written approved of the laboratory.

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

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27986/66

Parameters	Unit	Method	TW26041 /66	TW26042 /66
			Point 15 Ice Machine (Coast)	Point 17 Ice Machine (H/K2)
Legionella spp.	CFU/L	ISO 11731 : 2017	not detected	not detected
Sample Condition		Observation	Clear	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

Reported results refer to the sample as received only.

Test report shall not be reproduced except in full, without written approved of the laboratory.

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

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Sea Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27987/66

Parameters	Unit	Method	TW26043 /66	TW26044 /66	TW26045 /66
			Point 19 Sea Water (ห่างฝั่ง 50 เมตร)	Point 20 Sea Water (ห่างฝั่ง 100 เมตร)	Point 21 Sea Water (ห่างฝั่ง 500 เมตร)
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected	not detected	not detected
Sample Condition		Observation	Clear	Clear	Clear

Analyst

28/11/2023

บริษัท เทสท์ เทค จำกัด

Technical Manager

28/11/2023

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Test report shall not be reproduced except in full, without written approved of the laboratory.

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

TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/11/2023

Sampling Time : 11:00 AM

Received Date : 15/11/2023

Analytical Date : 15 - 27/11/2023

Report Date : 28/11/2023

Report No. : R27988/66

Parameters	Unit	Method	TW26046 /66
			Point 22 Beach Shower
Legionella spp.	CFU/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Clear

Analyst

28/11/2023

Technical Manager

28/11/2023

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