

**ประเมินผลคุณภาพน้ำใช้ น้ำดื่ม และน้ำเสีย**

**เสนอ**

***Centara Grand Mirage Beach Resort Pattaya***

**พฤศจิกายน 2567**

**บริษัท เทสท์ เทค จำกัด**

30, 32 ซอยพระรามที่ 2 ซอย 63 ถนนพระรามที่ 2 แขวงสามตำ เขตบางขุนเทียน กรุงเทพฯ 10150  
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SRR NO. 67L3762

Messrs : Centara Grand Mirage Beach Resort Pattaya

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

Factory Site : Centara Grand Pattaya Date : 2 ธันวาคม 2567

Recommendation For : คุณภาพน้ำใช้และน้ำดื่มประจำเดือนพฤศจิกายน 2567

Report Reference : R28390-98/67, R27939-40/67, R27855-56/67, R27701-04/67, R28019/67

## RECOMMENDATION

### 1. คุณภาพน้ำใช้

**1.1 Storage Tank** : คุณภาพน้ำ มีค่าความขุ่นต่ำ ค่าเหล็กตรวจไม่พบ, ค่าแมงกานีสไม่พบ ค่าความกระด้างมีค่าต่ำ, ค่าคลอไรด์มีค่าต่ำ ตรวจไม่พบเชื้อ Coliform/E.Coli (คุณภาพน้ำมีค่าสารละลายต่างๆ ลดลงจากเดือนตุลาคม 2567)

**หมายเหตุ** : การดูแล

- เติมน้ำคลอรีนในระบบผลิตน้ำ และน้ำซื้อก่อนเก็บในถังพัก
- ควรตรวจสอบถังพัก 2 ครั้ง/เดือน และล้างถังเพื่อลดการสะสมของเหล็ก
- ควรดูแลขบวนการปรับสภาพน้ำส่วนต่อเนื่อง

### **1.2 Soft Water (Main Point)** :

- pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้าง มีค่าต่ำ
- ค่าเหล็กไม่พบ
- ค่าแมงกานีสไม่พบ
- ตรวจไม่พบเชื้อ Coliform, E.Coli
- คุณภาพน้ำทางเคมีอื่น ๆ ปกติอยู่ในมาตรฐาน

**หมายเหตุ** : การดูแลระบบ

- ควบคุมค่าเหล็กของน้ำในถังพักให้มีค่าต่ำ เพื่อลดการสะสมของเหล็กใน Softener
- ล้างกลับระบบ Softener ให้บ่อย เพื่อลดการสะสมของเหล็กและเชื้อในระบบกรอง
- ตรวจสอบค่าความกระด้าง และควบคุมการล้างเกลือ Softener ให้ต่อเนื่อง เพื่อควบคุมค่าความกระด้าง และควบคุมการล้างเกลือที่ตกค้างให้หมด ก่อนใช้งานปกติ
- ควรเติมน้ำคลอรีนในถังพักน้ำใช้ และ Regenerate Softener ด้วยน้ำหลังเติมน้ำคลอรีน เพื่อลดการสะสมของเหล็กใน Softener และฆ่าเชื้อที่สะสมในระบบกรอง

**1.3 Hot Water System (Main Point) :**

- ค่า pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้างต่ำ
- ค่าเหล็กไม่พบ
- ค่าแมงกานีสไม่พบ
- ตรวจไม่พบ Coliform/E.Coli

**หมายเหตุ :** - ควร Flushing ในระบบผลิตน้ำร้อน เพื่อลดการสะสมของเหล็กในระบบ  
- ควบคุม Softener เพื่อควบคุมความกระด้างในระบบผลิตน้ำร้อน อาจก่อให้เกิดปัญหาตะกรันในระบบ

**1.4 Guest Room Usage Water (Cold Water) :** คุณภาพน้ำเย็นห้องพักแขก 2 จุด North 1619

และ North 1621 พบค่าดังนี้

- ค่าความกระด้างและคลอไรด์ใกล้เคียงน้ำในถังพัก
- ค่าความขุ่นต่ำ
- ค่าเหล็กไม่พบ
- ค่าแมงกานีสไม่พบ
- ตรวจไม่พบ Coliform/ E.Coli

**หมายเหตุ :** ในกรณีไม่ค่อยเปิดใช้ห้อง ควร Flushing ท่อก่อนเปิดใช้ในโซนที่ไม่ค่อยเปิดห้องพัก เพื่อลดการสะสมของเหล็ก/แมงกานีสในเส้นท่อ  
- ตรวจสอบการเติมคลอรีนในถังพักน้ำประปา เพื่อฆ่าเชื้อที่สะสม

**1.5 Guest Room Usage Water (Hot Water) :** คุณภาพน้ำ 2 จุด คือ North 1619

และ North 1621 พบค่าดังนี้

- ค่าความกระด้างลดลงและคลอไรด์ใกล้เคียงน้ำในถังพัก
- ค่าความขุ่นต่ำ
- ค่าเหล็กมีค่าต่ำ
- ค่าแมงกานีสไม่พบ
- ตรวจไม่พบ Coliform/E.Coli

**หมายเหตุ :** ควร Flushing ระบบท่อ ก่อนเปิดใช้ห้องพักเพื่อป้องกันการสะสมของ  
ตะกอนเหล็กในเส้นท่อ

#### 1.6 Cooling :

- 1) คุณภาพน้ำมีค่าการนำไฟฟ้าสูงกว่ามาตรฐาน
- 2) ค่าความกระด้างสูงกว่ามาตรฐาน
- 3) ค่าเหล็กตรวจไม่พบ, ค่าแมงกานีสไม่พบ
- 4) เคมิป้องกันตะกรัน (phosphate) มีค่าต่ำ ควรตรวจสอบการเติมเคมี
- 5) ตรวจไม่พบ Legionella spp.

#### การดูแล

- ตรวจเช็คระบบ Softener และผลิตน้ำ Soft ใช้เป็น Make Up Water ให้เพียงพอ  
และควบคุมการล้างเกลือ เพื่อควบคุมค่าความกระด้าง  $\leq 20$  ppm
- ควบคุมการเติมเคมีป้องกันตะกรัน และตะไคร่น้ำ เนื่องจาก เคมิป้องกันตะกรัน (phosphate) ยังต่ำ
- ควบคุมการระบายน้ำทิ้ง ให้สม่ำเสมอ เพื่อควบคุมค่า การนำไฟฟ้า  $\leq 2500$  umhos/cm

**1.7 Chilled Water :** คุณภาพน้ำเหลืองจาง และค่าเหล็กต่ำ ค่า Nitrite ตรวจพบ มีค่าต่ำกว่าเกณฑ์ควบคุม  
มีค่า pH สูง

**หมายเหตุ :** - ควรเติมเคมีเพิ่มในรอบการบำรุงรักษาถัดไป

## 2. น้ำดื่ม

- 1) Canteen : ค่าความกระด้างสูงกว่ามาตรฐาน ค่าเหล็กและแมงกานีสไม่พบ  
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.Coli
- 2) Oasis Kitchen : ค่าความกระด้างสูงกว่ามาตรฐาน ค่าเหล็กและแมงกานีสไม่พบ  
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.Coli
- 3) Guest Room (509) : ค่าความกระด้างสูงกว่ามาตรฐาน ค่าเหล็กและแมงกานีสไม่พบ  
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.Coli

**การดูแล :**

- ล้างระบบกรอง Softener และล้างสว่านเสมอ เพื่อลดค่าความกระด้าง
- Flushing line ด้วยน้ำหลังเติมคลอรีน เพื่อฆ่าเชื้อแบคทีเรียที่สะสมในระบบ
- ตรวจสอบความสะอาดของถังและแท่งคาร์บอนน้ำดื่ม

**3. Swimming Pool :**

1) Main Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.92 pm
- ตรวจไม่พบ Coliform/ E.Coli

2) Lab Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.81 ppm
- ตรวจไม่พบ Coliform/ E.Coli

3) Lazy Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.83 ppm
- ตรวจไม่พบ Coliform/E.Coli

4) 18<sup>th</sup> Flr Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.92 ppm
- ตรวจไม่พบ Coliform/E.Coli

**หมายเหตุ :** การดูแล

1. ควรตรวจสอบ pH สว่านเสมอในกรณีค่า pH ต่ำให้ปรับด้วยโซดาไฟหรือโซดาแอช และปรับด้วยกรดเกลือในกรณีค่า pH สูง
2. ตรวจสอบคลอรีนและเติมให้สว่านเสมอ
3. หมุนเวียนน้ำผ่านกรอง เพื่อไม่ให้ตะกอนสะสม และเชื้อแบคทีเรีย

4. น้ำแข็ง :

- 1) Canteen (Cube) : ตรวจไม่พบ Coliform/E.Coli
- 2) Banquet (Flake) : ตรวจไม่พบ Coliform/E.Coli
- 3) Flames : ตรวจไม่พบ Coliform/E.Coli
- 4) Oasis Kitchen (Flake) : ตรวจไม่พบ Coliform/E.Coli

การดูแล :

1. เติมคลอรีนในน้ำประปา และล้างระบบผลิตน้ำแข็งด้วยน้ำหลังเติมคลอรีน
2. ตรวจสอบความสะอาดระบบผลิตน้ำแข็ง
3. ภาชนะตักน้ำแข็งต้องสะอาด และถังบรรจุต้องสะอาด และควรล้างทุกวัน
4. อย่าแช่อาหารปะปนในถังบรรจุน้ำแข็ง
5. ในกรณีน้ำแข็งซื้อ ควรตรวจสอบถุงบรรจุ

5. น้ำเสียออกจากระบบ : ลักษณะน้ำเหลืองขุ่น BOD ~ 9.3 mg/l และอยู่ในเกณฑ์การควบคุมของ  
พหยา ในการปล่อยน้ำทิ้งลงระบบบำบัดรวม (BOD  $\leq$  1000 mg/l) โดยต้องจ่ายค่าบริการบำบัดน้ำทิ้ง  
ตามข้อกำหนด



## 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 : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 26/11/2024

Report Date : 27/11/2024

Report No. : R28390/67

Parameters	Unit	Method	TW25765 /67	TW25766 /67	TW25767 /67	Standard <sup>a</sup>
			Water in Storage Tank	Soft Water System (Main Point)	Hot Water System (Main Point)	
pH (25°C) <sup>#</sup>	-	Based on SM 2023 (4500-H <sup>+</sup> B)	6.7	6.9	7.2	6.5-8.5
Turbidity <sup>#</sup>	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	< 0.50	5
Conductivity <sup>#</sup>	uS/cm	SM 2023 (2510 B)	474	442	446	-
Dissolved Solids	mg/L as NaCl	Electrical Conductivity	284	265	268	1000
Total Hardness <sup>@</sup>	mg/L as CaCO <sub>3</sub>	SM 2023 (2340 C)	112	116	116	300
Chloride <sup>@</sup>	mg/L as Cl <sup>-</sup>	SM 2023 (4500-Cl <sup>-</sup> B)	53	48	46	250
Total Iron <sup>#</sup>	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	< 0.10	0.3
Manganese <sup>#</sup>	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	< 0.04	0.1
Nitrate <sup>#</sup>	mg/L as NO <sub>3</sub> <sup>-</sup>	SM 2023 (4500-NO <sub>3</sub> <sup>-</sup> E)	15.13	16.56	16.12	50
Sulfate <sup>#</sup>	mg/L as SO <sub>4</sub> <sup>2-</sup>	Based on SM 2023 (4500-SO <sub>4</sub> <sup>2-</sup> E)	55.88	54.61	55.88	250
Sample Condition		Observation	Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24<sup>th</sup> 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-DMS.

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

27/11/2024



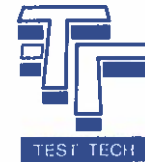
Technical Manager

27/11/2024

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



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Sampling by : Test Tech Co., Ltd.

Sampling Date : 14/11/2024

Received Date : 14/11/2024

Report Date : 27/11/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 26/11/2024

Report No. : R28391/67

Parameters	Unit	Method	TW25765 /67	TW25766 /67	TW25767 /67	Standard <sup>a</sup>
			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, 24<sup>th</sup> ed., 2023

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

Analyst

27/11/2024

Technical Manager

27/11/2024

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Report Date : 27/11/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 26/11/2024

Report No. : R28392/67

Parameters	Unit	Method	TW25768 /67	TW25769 /67	Standard <sup>a</sup>
			Guest Room Cold Water (North 1619)	Guest Room Cold Water (North 1621)	
pH (25°C) <sup>#</sup>	-	Based on SM 2023 (4500-H <sup>+</sup> B)	7.0	6.7	6.5-8.5
Turbidity <sup>#</sup>	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	5
Conductivity <sup>#</sup>	uS/cm	SM 2023 (2510 B)	473	473	-
Dissolved Solids	mg/L as NaCl	Electrical Conductivity	284	284	1000
Total Hardness <sup>@</sup>	mg/L as CaCO <sub>3</sub>	SM 2023 (2340 C)	108	106	300
Chloride <sup>@</sup>	mg/L as Cl <sup>-</sup>	SM 2023 (4500-Cl <sup>-</sup> B)	52	54	250
Total Iron <sup>#</sup>	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	0.3
Manganese <sup>#</sup>	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	0.1
Nitrate <sup>#</sup>	mg/L as NO <sub>3</sub> <sup>-</sup>	SM 2023 (4500-NO <sub>3</sub> <sup>-</sup> E)	15.36	19.50	50
Sulfate <sup>#</sup>	mg/L as SO <sub>4</sub> <sup>2-</sup>	Based on SM 2023 (4500-SO <sub>4</sub> <sup>2-</sup> E)	55.88	56.64	250
Sample Condition		Observation	Clear	Clear	

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

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Analyst

27/11/2024



Technical Manager

27/11/2024

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Sampling Date : 14/11/2024

Received Date : 14/11/2024

Report Date : 27/11/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 26/11/2024

Report No. : R28393/67

Parameters	Unit	Method	TW25768 /67	TW25769 /67	Standard <sup>a</sup>
			Guest Room Cold Water (North 1619)	Guest Room Cold Water (North 1621)	
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, 24<sup>th</sup> ed., 2023

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Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 26/11/2024

Report Date : 27/11/2024

Report No. : R28394/67

Parameters	Unit	Method	TW25770 /67	TW25771 /67	Standard <sup>a</sup>
			Guest Room Hot Water (North 1619)	Guest Room Hot Water (North 1621)	
pH (25°C) <sup>#</sup>	-	Based on SM 2023 (4500-H <sup>+</sup> B)	7.6	7.2	6.5-8.5
Turbidity <sup>#</sup>	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	5
Conductivity <sup>#</sup>	uS/cm	SM 2023 (2510 B)	446	446	-
Dissolved Solids	mg/L as NaCl	Electrical Conductivity	268	268	1000
Total Hardness <sup>@</sup>	mg/L as CaCO <sub>3</sub>	SM 2023 (2340 C)	100	104	300
Chloride <sup>@</sup>	mg/L as Cl <sup>-</sup>	SM 2023 (4500-Cl <sup>-</sup> B)	48	46	250
Total Iron <sup>#</sup>	mg/L as Fe	SM 2023 (3500-Fe B)	0.11	0.12	0.3
Manganese <sup>#</sup>	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	0.1
Nitrate <sup>#</sup>	mg/L as NO <sub>3</sub> <sup>-</sup>	SM 2023 (4500-NO <sub>3</sub> <sup>-</sup> E)	17.22	15.15	50
Sulfate <sup>#</sup>	mg/L as SO <sub>4</sub> <sup>2-</sup>	Based on SM 2023 (4500-SO <sub>4</sub> <sup>2-</sup> E)	55.88	55.37	250
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24<sup>th</sup> 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-DMSQ.

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

27/11/2024



Technical Manager

27/11/2024

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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 : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 26/11/2024

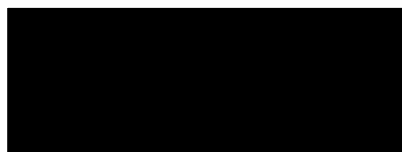
Report Date : 27/11/2024

Report No. : R28395/67

Parameters	Unit	Method	TW25770 /67	TW25771 /67	Standard <sup>a</sup>
			Guest Room Hot Water (North 1619)	Guest Room Hot Water (North 1621)	
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, 24<sup>th</sup> ed., 2023

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



Analyst

27/11/2024



Technical Manager

27/11/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 14/11/2024

Received Date : 14/11/2024

Report Date : 27/11/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 26/11/2024

Report No. : R28396/67

Parameters	Unit	Method	TW25772 /67	Standard <sup>a</sup>
			Cooling Water	( Cooling Water )
pH (25°C)	-	Based on SM 2023 (4500-H <sup>+</sup> B)	8.6	8.5 - 9.5
* Conductivity	uS/cm	SM 2023 (2510 B)	11650	< 2500
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	6990	< 2000
* P-Alkalinity	mg/L as CaCO <sub>3</sub>	Titration	35	-
* M-Alkalinity	mg/L as CaCO <sub>3</sub>	Titration	255	-
* Total Hardness	mg/L as CaCO <sub>3</sub>	SM 2023 (2340 C)	2150	< 100
* Chloride	mg/L as Cl <sup>-</sup>	SM 2023 (4500-Cl B)	2399	< 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 <sub>4</sub> <sup>2-</sup>	Based on SM 2023 (4500-SO <sub>4</sub> <sup>2-</sup> E)	2047	-
* Silica	mg/L as SiO <sub>2</sub>	SM 2023 (4500-SiO <sub>2</sub> C)	166	-
* Total Phosphorus	mg/L as P	Stannous Chloride	0.28	-
Sample Condition		Observation	Light Yellow, a little bit Particles	

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

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

3. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ



Analyst

27/11/2024



Technical Manager

27/11/2024

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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 : 14/11/2024

Received Date : 14/11/2024

Report Date : 27/11/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 26/11/2024

Report No. : R28397/67

Parameters	Unit	Method	TW25772 /67
			Cooling Water
Legionella spp.	/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Light Yellow, a little bit Particles

Analyst

27/11/2024

Technical Manager

27/11/2024

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 : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 26/11/2024

Report Date : 27/11/2024

Report No. : R28398/67

Parameters	Unit	Method	TW25773 /67	Standard <sup>a</sup> ( Chilled Water )
			Chilled Water	
pH (25°C)	-	Based on SM 2023 (4500-H <sup>+</sup> B)	9.8	7.5 - 9.5
Conductivity <sup>#</sup>	uS/cm	SM 2023 (2510 B)	949	-
Dissolved Solids	mg/L as NaCl	Electrical Conductivity	569	-
P-Alkalinity	mg/L as CaCO <sub>3</sub>	Titration	50	-
M-Alkalinity	mg/L as CaCO <sub>3</sub>	Titration	150	-
Total Hardness <sup>@</sup>	mg/L as CaCO <sub>3</sub>	SM 2023 (2340 C)	62	-
Chloride <sup>@</sup>	mg/L as Cl <sup>-</sup>	SM 2023 (4500-Cl <sup>-</sup> B)	56	-
Total Iron <sup>#</sup>	mg/L as Fe	SM 2023 (3500-Fe B)	0.76	< 1.0
Manganese <sup>#</sup>	mg/L	SM 2023 (3500-Mn B)	< 0.04	-
Sulfate <sup>#</sup>	mg/L as SO <sub>4</sub> <sup>2-</sup>	Based on SM 2023 (4500-SO <sub>4</sub> <sup>2-</sup> E)	56.90	-
Silica <sup>#</sup>	mg/L as SiO <sub>2</sub>	SM 2023 (4500-SiO <sub>2</sub> C)	4.39	-
Nitrite	mg/L as NO <sub>2</sub> <sup>-</sup>	SM 2023 (4500-NO <sub>2</sub> <sup>-</sup> B)	150	500 - 1000
Sample Condition		Observation	Light Yellow, a little bit Particles	

- Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24<sup>th</sup> 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-DMSQ.
4. Test marked " \* " on this report are not included in scope of Accreditation
5. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ (Chilled Water)

Analyst

27/11/2024

Technical Manager

27/11/2024

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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 14/11/2024

Received Date : 14/11/2024

Report Date : 21/11/2024

Sample Type : Drinking Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 19/11/2024

Report No. : R27939/67

Parameters	Unit	Method	TW25774 /67	TW25775 /67	TW25776 /67	Standard <sup>a</sup>
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 1619)	
pH (25°C) <sup>#</sup>	-	Based on SM 2023 (4500-H <sup>+</sup> B)	7.1	7.1	6.9	6.5-8.5
Turbidity <sup>#</sup>	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	< 0.50	≤ 5.0
Conductivity <sup>#</sup>	uS/cm	SM 2023 (2510 B)	444	454	439	-
Dissolved Solids	mg/L as NaCl	Electrical Conductivity	266	272	263	-
Total Hardness <sup>@</sup>	mg/L as CaCO <sub>3</sub>	SM 2023 (2340 C)	112	118	104	≤ 100.0
Chloride <sup>@</sup>	mg/L as Cl <sup>-</sup>	SM 2023 (4500-Cl <sup>-</sup> B)	44	42	43	≤ 250.0
Total Iron <sup>#</sup>	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	< 0.10	≤ 0.3
Manganese <sup>#</sup>	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	< 0.04	≤ 0.05
Nitrate Nitrogen <sup>#</sup>	mg/L as NO <sub>3</sub> -N	SM 2023 (4500-NO <sub>3</sub> -E)	2.16	2.32	3.40	≤ 4.0
Sulfate <sup>#</sup>	mg/L as SO <sub>4</sub> <sup>2-</sup>	Based on SM 2023 (4500-SO <sub>4</sub> <sup>2-</sup> E)	55.12	55.37	56.13	≤ 250.0
Sample Condition		Observation	Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24<sup>th</sup> 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-DMSQ.

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))



Analyst

21/11/2024



Technical Manager

21/11/2024

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



ISO/IEC 17025  
Accreditation No. 1201/54

## 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 : 14/11/2024

Received Date : 14/11/2024

Report Date : 21/11/2024

Sample Type : Drinking Water

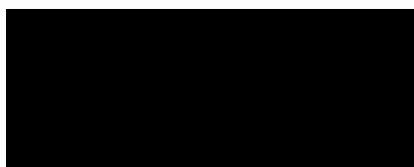
Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 19/11/2024

Report No. : R27940/67

Parameters	Unit	Method	TW25774 /67	TW25775 /67	TW25776 /67	Standard <sup>a</sup>
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 1619)	
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		Observation	Clear	Clear	Clear	

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

21/11/2024



Technical Manager

21/11/2024

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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 : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 18/11/2024

Report Date : 19/11/2024

Report No. : R27701/67

Parameters	Unit	Method	TW25781 /67	TW25782 /67	Standard <sup>a</sup>
			Main Pool	Lab Pool	
pH (25°C)	-	Based on SM 2023 (4500-H <sup>+</sup> B)	7.6	7.5	7.2-8.4
Residual Chlorine	mg/L as Cl <sub>2</sub>	DPD Colorimetric	0.92	0.81	0.6-1.0
Sample Condition		Observation	Clear	Clear	

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

19/11/2024

บริษัท เทสท์ เทค จำกัด

TEST TECH CO., LTD.  
Technical Manager

19/11/2024

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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 14/11/2024

Received Date : 14/11/2024

Report Date : 19/11/2024

Sample Type : Swimming Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 18/11/2024

Report No. : R27702/67

Parameters	Unit	Method	TW25781 /67	TW25782 /67	Standard <sup>a</sup>
			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, 24<sup>th</sup> ed., 20232. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,  
B.E.2530 (1987)

Analyst

19/11/2024



Technical Manager

19/11/2024

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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 : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 18/11/2024

Report Date : 19/11/2024

Report No. : R27703/67

Parameters	Unit	Method	TW25783 /67	TW25784 /67	Standard <sup>a</sup>
			Lazy Pool	18 <sup>th</sup> Flr Pool	
pH (25°C)	-	Based on SM 2023 (4500-H <sup>+</sup> B)	7.4	7.6	7.2-8.4
Residual Chlorine	mg/L as Cl <sub>2</sub>	DPD Colorimetric	0.83	0.92	0.6-1.0
Sample Condition		Observation	Clear	Clear	

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

19/11/2024

Technician Manager

19/11/2024

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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 14/11/2024

Received Date : 14/11/2024

Report Date : 19/11/2024

Sample Type : Swimming Water

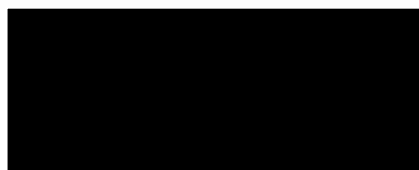
Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 14 - 18/11/2024

Report No. : R27704/67

Parameters	Unit	Method	TW25783 /67	TW25784 /67	Standard <sup>a</sup>
			Lazy Pool	18 <sup>th</sup> 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, 24<sup>th</sup> ed., 20232. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,  
B.E.2530 (1987)

Analyst

19/11/2024



Technical Manager

19/11/2024

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 : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 18/11/2024

Report Date : 20/11/2024

Report No. : R27855/67

Parameters	Unit	Method	TW25777 /67	TW25778 /67	Standard <sup>a</sup>
			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, 24<sup>th</sup> 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

20/11/2024

Technical Manager

20/11/2024

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 : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 18/11/2024

Report Date : 20/11/2024

Report No. : R27856/67

Parameters	Unit	Method	TW25779 /67	TW25780 /67	Standard <sup>a</sup>
			Flames	Oasis Kitchen (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, 24<sup>th</sup> 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

20/11/2024

Technical Manager

20/11/2024

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

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 : Waste Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/11/2024

Sampling Time : 10:30 AM

Received Date : 14/11/2024

Analytical Date : 14 - 21/11/2024

Report Date : 22/11/2024

Report No. : R28019/67

Parameters	Unit	Method	TW25785 /67	Standard <sup>a</sup>
			Effluent	
pH	-	SM 2023 (4500-H <sup>+</sup> B)	7.1	-
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	9.3	≤ 1000
Total Suspended Solids	mg/L	SM 2023 (2540 D)	23	-
Oil & Grease	mg/L	SM 2023 (5520 D)	< 3.0	-
Sample Condition		Observation	Light Yellow, Black Particles	

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

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



Analyst

22/11/2024



Technical Manager

22/11/2024

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