

ประเมินผลคุณภาพน้ำใช้ และน้ำดื่ม

เสนอ

Centara Grand Mirage Beach Resort Pattaya

ธันวาคม 2566

บริษัท เทสท์ เทค จำกัด

30, 32 ซอยพระรามที่ 2 ซอย 63 ถนนพระรามที่ 2 แขวงแหลมคำ เขตบางขุนเทียน กรุงเทพฯ 10150
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SRR NO. 66L/16022

Messrs : Centara Grand Mirage Beach Resort Pattaya**Address :** 277 Moo 5 , Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand**Factory Site :** Centara Grand Pattaya **Date :** 27 ธันวาคม 2566**Recommendation For :** คุณภาพน้ำใช้และน้ำดื่มประจำเดือนธันวาคม 2566**Report Reference :** R30616-24, R30121-22, R29837-42, R30123/66

RECOMMENDATION

1. คุณภาพน้ำใช้

1.1 Storage Tank : คุณภาพน้ำ มีค่าความขุ่นต่ำ ค่าเหล็กต่ำ ค่าความกระด้างมีค่าต่ำ, ค่าคลอไรด์มีค่าต่ำ
ตรวจไม่พบเชื้อ Coliform/E.Coli (คุณภาพน้ำมีค่าสารละลายต่างๆ ใกล้เคียงจากเดือนพฤศจิกายน 2566)

หมายเหตุ : การดูแล

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

1.2 Soft Water (Main Point) :

- pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้าง มีค่าต่ำ
- ค่าเหล็กตรวจพบต่ำกว่ามาตรฐาน
- ค่าแมกนีเซียมต่ำ
- 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
- ค่าเหล็กต่ำ
- ค่าแมงกานีสต่ำ
- ตรวจไม่พบ Coliform/E.Coli
- ค่าความกระด้างต่ำ

หมายเหตุ : - ควร Flushing ในระบบผลิตน้ำร้อน เพื่อลดการสะสมของเหล็กในระบบ
- ควบคุม Softener เพื่อควบคุมความกระด้างในระบบผลิตน้ำร้อน อาจก่อให้เกิดปัญหา
ตะกอนในระบบ

1.4 Guest Room Usage Water (Cold Water) : คุณภาพน้ำเย็นห้องพักแขก 2 จุด South A1708

และ South A1714 พบค่าดังนี้

- ค่าเหล็กตรวจไม่พบ
- ค่าแมงกานีสต่ำ
- ค่าความกระด้างและคลอไรด์ใกล้เคียงน้ำในถังพัก
- 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 South A1708

และ South A1714 พบค่าดังนี้

- คุณภาพน้ำทางเคมีพบความขุ่นต่ำ
- ค่าเหล็กต่ำ
- ค่าแมงกานีสต่ำ
- ตรวจไม่พบ Coliform/E.Coli
- ค่าความกระด้างและคลอไรด์ใกล้เคียงน้ำในถังพัก

หมายเหตุ : ควร Flushing ระบบท่อ ก่อนเปิดใช้ห้องพักเพื่อป้องกันการสะสมของ
ตะกอนเหล็กในเส้นท่อ

1.6 Cooling :

- 1) คุณภาพน้ำมีค่าการนำไฟฟ้าต่ำกว่ามาตรฐาน
- 2) ค่าความกระด้างสูง
- 3) ค่าเหล็กตรวจไม่พบ ค่าแมงกานีสตรวจไม่พบ
- 4) เคมีป้องกันตะกอน (phosphate) มีค่าต่ำ ควรตรวจสอบการเติมเคมี
- 5) ตรวจไม่พบ Legionella spp.

การดูแล

- ตรวจสอบระบบ Softener และผลิตน้ำ Soft ใช้เป็น Make Up Water ให้เพียงพอ และควบคุมการล้างเกลือ เพื่อควบคุมค่าความกระด้าง ≤ 20 ppm
- ควบคุมการเติมเคมีป้องกันตะกอน และตะไคร่น้ำ เนื่องจาก เคมีป้องกันตะกอน (phosphate) ยังต่ำ
- ควบคุมการระบายน้ำทิ้ง ให้สม่ำเสมอ เพื่อควบคุมค่า การนำไฟฟ้า ≤ 2500 umhos/cm

1.7 Chilled Water : คุณภาพน้ำใส และค่าเหล็กมีค่าสูง ค่า Nitrite ตรวจพบ มีค่าต่ำกว่าเกณฑ์ควบคุม มีค่า pH ก่อนข้างสูง

หมายเหตุ : - ควรเติมเคมีเพิ่มในรอบการบำรุงรักษาถัดไป โดยล้างระบบก่อนเติมเคมีเพื่อลดการสะสมของเหล็กก่อนเติมเคมี

2. น้ำดื่ม

- 1) Canteen : ค่าความกระด้างต่ำกว่ามาตรฐาน ค่าเหล็กต่ำ ค่าแมงกานีสต่ำ
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.Coli
- 2) Oasis Kitchen : ค่าความกระด้างเท่ากับมาตรฐาน ค่าเหล็กตรวจไม่พบ ค่าแมงกานีสต่ำ
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.Coli
- 3) Guest Room (1708) : ค่าความกระด้างต่ำ, ค่าเหล็กตรวจไม่พบ ค่าแมงกานีสต่ำ
ตรวจไม่พบ Coliform/E.Coli

การดูแล :

- ล้างระบบกรอง Softener และล้างสม่ำเสมอ เพื่อลดค่าความกระด้าง
- Flushing line ด้วยน้ำหลังเติมคลอรีน เพื่อฆ่าเชื้อแบคทีเรียที่สะสมในระบบ
- ตรวจสอบความสะอาดของถังและแท็งก์บรรจุน้ำดื่ม

3. Swimming Pool :

1) Main Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.82 pm
- ตรวจไม่พบ Coliform/ E.Coli

2) Lab Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.91 ppm
- ตรวจไม่พบ Coliform/ E.Coli

3) Lazy Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.86 ppm
- ตรวจไม่พบ Coliform/E.Coli

4) 18th Flr Pool :

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

หมายเหตุ : การดูแล

1. ควรตรวจสอบ pH สม่าเสมอในกรณีค่า pH ต่ำให้ปรับด้วยโซดาไฟหรือโซดาแอช และปรับด้วยกรดเกลือในกรณีค่า pH สูง
2. ตรวจสอบคลอรีนและเติมให้สม่าเสมอ
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 ~ 209 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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30616/66

Parameters	Unit	Method	TW28510 /66	TW28511 /66	TW28512 /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)	7.5	7.2	7.3	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	0.50	4.64	0.80	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	441	439	443	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	265	263	266	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	102	89	98	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	53	53	52	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	1.04	0.16	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.04	0.09	0.04	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	3.43	2.25	3.94	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	43.34	43.09	44.85	250
Sample Condition		Observation	Clear	Colorless, a little bit Particles	Clear	

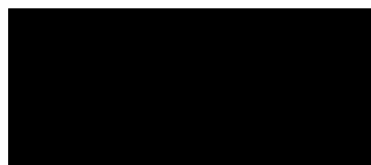
Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

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

27/12/2023



Technical Manager

27/12/2023

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

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Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30617/66

Parameters	Unit	Method	TW28510 /66	TW28511 /66	TW28512 /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	Colorless, a little bit Particles	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

27/12/2023

TEST TECH CO., LTD.

Technical Manager

27/12/2023

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Sampling by : Test Tech Co., Ltd.

Sampling Date : 14/12/2023

Received Date : 14/12/2023

Report Date : 27/12/2023

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:00 AM

Analytical Date : 14 - 25/12/2023

Report No. : R30618/66

Parameters	Unit	Method	TW28513 /66	TW28514 /66	Standard ^a
			Guest Room Cold Water (South A 1708)	Guest Room Cold Water (South A 1714)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.6	7.5	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	0.53	0.54	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	442	444	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	265	266	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	94	96	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	52	52	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.04	0.04	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	3.18	3.11	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	40.94	45.45	250
Sample Condition		Observation	Clear	Clear	

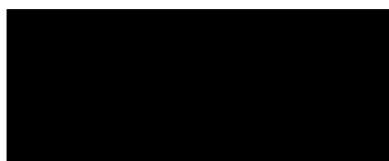
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Analyst

27/12/2023



Technical Manager

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Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30619/66

Parameters	Unit	Method	TW28513 /66	TW28514 /66	Standard ^a
			Guest Room Cold Water (South A 1708)	Guest Room Cold Water (South A 1714)	
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

27/12/2023



Technical Manager

27/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30620/66

Parameters	Unit	Method	TW28515 /66	TW28516 /66	Standard ^a
			Guest Room Hot Water (South A 1708)	Guest Room Hot Water (South A 1714)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.3	7.7	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	0.67	0.67	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	444	443	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	266	266	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	102	100	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	51	50	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.12	0.12	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	0.04	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	4.23	4.16	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	46.96	46.05	250
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. 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

27/12/2023

Technical Manager

27/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30621/66

Parameters	Unit	Method	TW28515 /66	TW28516 /66	Standard ^a
			Guest Room Hot Water (South A 1708)	Guest Room Hot Water (South A 1714)	
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

27/12/2023



Technical Manager

27/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30622/66

Parameters	Unit	Method	TW28517 /66	Standard ^a (Cooling Water)
			Cooling Water	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.8	8.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	723	< 2500
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	434	< 2000
* P-Alkalinity	mg/L as CaCO ₃	Titration	< 1	-
* M-Alkalinity	mg/L as CaCO ₃	Titration	75	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	132	< 100
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	94	< 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)	69.23	-
* Silica	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	10.93	-
* Total Phosphorus	mg/L as P	Stannous Chloride	0.02	-
Sample Condition		Observation	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-DMSQ.

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

5. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ



Analyst

27/12/2023



Technical Manager

27/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30623/66

Parameters	Unit	Method	TW28517 /66
			Cooling Water
<i>Legionella spp.</i>	CFU/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Clear



Analyst

27/12/2023



Technical Manager

27/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 25/12/2023

Report Date : 27/12/2023

Report No. : R30624/66

Parameters	Unit	Method	TW28518 /66	Standard ^a (Chilled Water)
			Chilled Water	
* pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	9.9	7.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	727	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	436	-
* P-Alkalinity	mg/L as CaCO ₃	Titration	35	-
* M-Alkalinity	mg/L as CaCO ₃	Titration	85	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	48	-
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	36	-
* Total Iron	mg/L as Fe	SM 2023 (3500-Fe B)	2.88	< 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)	41.24	-
Silica [#]	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	3.94	-
* Nitrite	mg/L as NO ₂ ⁻	SM 2023 (4500-NO ₂ ⁻ B)	110	500 - 1000
Sample Condition		Observation	Colorless, a little bit Particles	

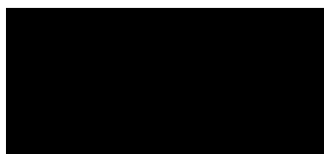
Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

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 : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ (Chilled Water)



Analyst

27/12/2023



Technical Manager

27/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 21/12/2023

Report Date : 22/12/2023

Report No. : R30121/66

Parameters	Unit	Method	TW28519 /66	TW28520 /66	TW28521 /66	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 1708)	
pH (25 °C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.2	7.4	6.9	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	< 0.50	≤ 5.0
Conductivity [#]	uS/cm	SM 2023 (2510 B)	438	441	440	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	263	265	264	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	96	100	97	≤ 100.0
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	47	43	36	≤ 250.0
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.11	< 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)	0.73	0.53	0.74	≤ 4.0
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	43.64	46.66	46.96	≤ 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
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 : 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

22/12/2023



Technical Manager

22/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 21/12/2023

Report Date : 22/12/2023

Report No. : R30122/66

Parameters	Unit	Method	TW28519 /66	TW28520 /66	TW28521 /66	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 1708)	
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, 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

22/12/2023

Technical Manager

22/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 18/12/2023

Report Date : 20/12/2023

Report No. : R29837/66

Parameters	Unit	Method	TW28522 /66	TW28523 /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	0.82	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

20/12/2023



Technical Manager

20/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 18/12/2023

Report Date : 20/12/2023

Report No. : R29838/66

Parameters	Unit	Method	TW28522 /66	TW28523 /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

20/12/2023



Technical Manager

20/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 18/12/2023

Report Date : 20/12/2023

Report No. : R29839/66

Parameters	Unit	Method	TW28524 /66	TW28525 /66	Standard ^a
			Lazy Pool	18 th Flr Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.5	7.6	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	DPD Colorimetric	0.86	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, 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

20/12/2023



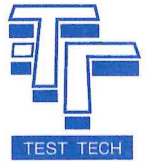
Technical Manager

20/12/2023

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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 : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 18/12/2023

Report Date : 20/12/2023

Report No. : R29840/66

Parameters	Unit	Method	TW28524 /66	TW28525 /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
20/12/2023



Technical Manager
20/12/2023

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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 : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 18/12/2023

Report Date : 20/12/2023

Report No. : R29841/66

Parameters	Unit	Method	TW28526 /66	TW28527 /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

20/12/2023



Technical Manager

20/12/2023

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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 : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 18/12/2023

Report Date : 20/12/2023

Report No. : R29842/66

Parameters	Unit	Method	TW28528 /66	TW28529 /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., 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

20/12/2023



Technical Manager

20/12/2023

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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 : Waste Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 14/12/2023

Sampling Time : 10:00 AM

Received Date : 14/12/2023

Analytical Date : 14 - 21/12/2023

Report Date : 22/12/2023

Report No. : R30123/66

Parameters	Unit	Method	TW28530 /66	Standard ^a
			Effluent	
pH	-	SM 2023 (4500-H ⁺ B)	6.8	-
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	209	≤ 1000
Total Suspended Solids	mg/L	SM 2023 (2540 D)	159	-
* Oil & Grease	mg/L	SM 2023 (5520 D)	94.3	-
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

22/12/2023



Technical Manager

22/12/2023

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