

ประเมินผลคุณภาพน้ำใช้ และน้ำดื่ม

เสนอ

Centara Grand Mirage Beach Resort Pattaya

สิงหาคม 2567

บริษัท เทสท์ เทค จำกัด

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SRR NO. 67L2797

Messrs : Centara Grand Mirage Beach Resort Pattaya

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

Factory Site : Centara Grand Pattaya Date : 3 กันยายน 2567

Recommendation For : คุณภาพน้ำใช้และน้ำดื่มประจำเดือนสิงหาคม 2567

Report Reference : R20895-903/67, R20509-10/67, R20106-111/67, R20511/67

RECOMMENDATION

1. คุณภาพน้ำใช้

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

หมายเหตุ : การดูแล

- เติมนคลอรีนในระบบผลิตน้ำ และน้ำซื้อก่อนเก็บในถังพัก
- ควรตรวจสอบถังพัก 2 ครั้ง/เดือน และล้างถังเพื่อลดการสะสมของเหล็ก
- ควบคุมเลขบวณการปรับสภาพน้ำส่วนต่อเนื่อง

1.2 Soft Water (Main Point) :

- pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้าง มีค่าต่ำ
- ค่าเหล็กตรวจไม่พบ
- ค่าแมงกานีสต่ำ
- ตรวจไม่พบเชื้อ Coliform, E.Coli
- คุณภาพน้ำทางเคมีอื่น ๆ ปกติอยู่ในมาตรฐาน

หมายเหตุ : การดูแลระบบ

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

1.3 Hot Water System (Main Point) :

- ค่า pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้างต่ำ
- ค่าเหล็กมีค่าต่ำ
- ค่าแมงกานีสมีค่าต่ำ
- ตรวจไม่พบ Coliform/E.Coli

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

1.4 Guest Room Usage Water (Cold Water) : คุณภาพน้ำเย็นห้องพักแขก 2 จุด North 509

และ North 511 พบค่าดังนี้

- ค่าความกระด้างและคลอไรด์ใกล้เคียงน้ำในถังพัก
- ค่าความขุ่นต่ำ
- ค่าเหล็กต่ำ
- ค่าแมงกานีสต่ำ
- 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 509

และ North 511 พบค่าดังนี้

- ค่าความกระด้างลดลงและคลอไรด์ใกล้เคียงน้ำในถังพัก
- คุณภาพน้ำทางเคมีพบความขุ่นต่ำ
- ค่าเหล็กมีค่าต่ำ
- ค่าแมงกานีสมีค่าต่ำ
- ตรวจไม่พบ Coliform/E.Coli



หมายเหตุ : ควร Flushing ระบบท่อ ก่อนเปิดใช้ห้องพักเพื่อป้องกันการสะสมของ
ตะกอนเหล็กในเส้นท่อ

1.6 Cooling :

- 1) คุณภาพน้ำมีค่าการนำไฟฟ้าสูงกว่ามาตรฐาน
- 2) ค่าความกระด้างสูงกว่ามาตรฐาน
- 3) ค่าเหล็กและแมงกานีสตรวจไม่พบ
- 4) เคมีป้องกันตะกรัน (phosphate) มีค่าต่ำ ควรตรวจสอบการเติมเคมี
- 5) ตรวจไม่พบ Legionella spp.

การดูแล

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

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

หมายเหตุ : - ควรเติมเคมีเพิ่มในรอบการบำรุงรักษาถัดไป

2. น้ำดื่ม

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



การดูแล :

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

3. Swimming Pool :

1) Main Pool :

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

2) Lab Pool :

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

3) Lazy Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.97 ppm
- ตรวจไม่พบ Coliform/E.Coli

4) 18th Flr Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.89 ppm
- ตรวจไม่พบ Coliform/E.Coli

หมายเหตุ : การดูแล

1. ควรตรวจสอบ pH ส้มเสมอในกรณีค่า pH ทำให้ปรับด้วยโซดาไฟหรือโซดาแอช และปรับด้วยกรดเกลือในกรณีค่า pH สูง
2. ตรวจสอบคลอรีนและเติมให้สม่ำเสมอ
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. เติมน้ำกลอรีนในน้ำประปา และล้างระบบผลิตน้ำแข็งด้วยน้ำหลังเติมน้ำกลอรีน
- 2. ตรวจสอบความสะอาดระบบผลิตน้ำแข็ง
- 3. ภาชนะตักน้ำแข็งต้องสะอาด และถังบรรจุต้องสะอาด และควรล้างทุกวัน
- 4. อย่าแช่อาหารปะปนในถังบรรจุน้ำแข็ง
- 5. ในกรณีน้ำแข็งซื้อ ควรตรวจสอบถุงบรรจุ

5. น้ำเสียออกจากระบบ : ลักษณะน้ำเหลืองขุ่น BOD ~ 72 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 : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 27/08/2024

Report Date : 28/08/2024

Report No. : R20895/67

Parameters	Unit	Method	TW18840 /67	TW18841 /67	TW18842 /67	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)	7.6	7.0	7.8	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	0.60	< 0.50	1.67	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	557	528	575	-
Dissolved Solids [*]	mg/L as NaCl	Electrical Conductivity	334	317	345	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	118	65	33	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	63	56	66	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	0.21	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.08	< 0.04	0.07	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	13.51	12.53	12.86	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	64.26	57.18	60.21	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

28/08/2024

TEST TECH CO., LTD.
Technician Manager

28/08/2024

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

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

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 28/08/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 27/08/2024

Report No. : R20896/67

Parameters	Unit	Method	TW18840 /67	TW18841 /67	TW18842 /67	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.



Analyst

28/08/2024



TEST TECH CO., LTD.

Technical Manager

28/08/2024

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Analysis/Test Report

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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 : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 27/08/2024

Report Date : 28/08/2024

Report No. : R20897/67

Parameters	Unit	Method	TW18843 /67	TW18844 /67	Standard ^a
			Guest Room Cold Water (North A 509)	Guest Room Cold Water (North A 511)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.8	7.4	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	557	557	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	334	334	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	118	120	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	64	65	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	0.19	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.08	0.05	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	14.16	13.18	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	61.23	61.48	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
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28/08/2024



TEST TECH CO., LTD.

Technical Manager

28/08/2024

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Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 27/08/2024

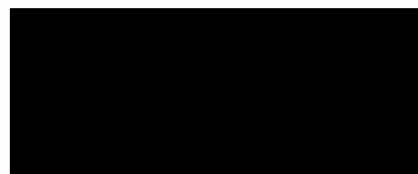
Report Date : 28/08/2024

Report No. : R20898/67

Parameters	Unit	Method	TW18843 /67	TW18844 /67	Standard ^a
			Guest Room Cold Water (North A 509)	Guest Room Cold Water (North A 511)	
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

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Analyst

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Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 28/08/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 27/08/2024

Report No. : R20899/67

Parameters	Unit	Method	TW18845 /67	TW18846 /67	Standard ^a
			Guest Room Hot Water (North A 509)	Guest Room Hot Water (North A 511)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.4	7.4	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	0.87	0.89	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	576	575	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	346	345	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	34	32	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	64	65	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.18	< 0.10	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	0.05	0.07	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	11.98	12.75	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	61.48	62.49	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.
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 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

28/08/2024

Technical Manager

28/08/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 28/08/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 27/08/2024

Report No. : R20900/67

Parameters	Unit	Method	TW18845 /67	TW18846 /67	Standard ^a
			Guest Room Hot Water (North A 509)	Guest Room Hot Water (North A 511)	
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.

Analyst

28/08/2024

TEST TECH CO., LTD.

Technical Manager

28/08/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 28/08/2024

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 27/08/2024

Report No. : R20901/67

Parameters	Unit	Method	TW18847 /67	Standard ^a
			Cooling Water	(Cooling Water)
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	8.6	8.5 - 9.5
* Conductivity	uS/cm	SM 2023 (2510 B)	11980	< 2500
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	7188	< 2000
* P-Alkalinity	mg/L as CaCO ₃	Titration	30	-
* M-Alkalinity	mg/L as CaCO ₃	Titration	240	-
* Total Hardness	mg/L as CaCO ₃	SM 2023 (2340 C)	1900	< 100
* Chloride	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	2519	< 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)	2596	-
* Silica	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	97.45	-
* Total Phosphorus	mg/L as P	Stannous Chloride	0.32	-
Sample Condition		Observation	Light Yellow, 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 not included in scope of Accreditation

3. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ



Analyst

28/08/2024



Technical Manager

28/08/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 28/08/2024

Sample Type : Usage Water

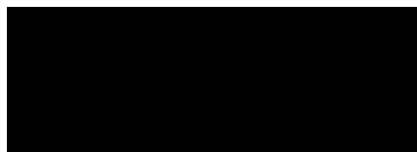
Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 27/08/2024

Report No. : R20902/67

Parameters	Unit	Method	TW18847 /67
			Cooling Water
<i>Legionella spp.</i>	/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Light Yellow, Clear



Analyst

28/08/2024



Technical Manager

28/08/2024

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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 : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 27/08/2024

Report Date : 28/08/2024

Report No. : R20903/67

Parameters	Unit	Method	TW18848 /67	Standard ^a (Chilled Water)
			Chilled Water	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	9.7	7.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	898	-
Dissolved Solids	mg/L as NaCl	Electrical Conductivity	539	-
P-Alkalinity	mg/L as CaCO ₃	Titration	35	-
M-Alkalinity	mg/L as CaCO ₃	Titration	115	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	64	-
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	61	-
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.79	< 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)	53.38	-
Silica [#]	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	5.44	-
Nitrite	mg/L as NO ₂ ⁻	SM 2023 (4500-NO ₂ B)	138	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, 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

28/08/2024

บริษัท เทสท์ เทค จำกัด

TEST TECH CO., LTD.

Technical Manager

28/08/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 23/08/2024

Sample Type : Drinking Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 22/08/2024

Report No. : R20509/67

Parameters	Unit	Method	TW18849 /67	TW18850 /67	TW18851 /67	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 509)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.0	7.6	7.4	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	0.64	0.61	0.72	≤ 5.0
Conductivity [#]	uS/cm	SM 2023 (2510 B)	553	556	554	-
Dissolved Solids [*]	mg/L as NaCl	Electrical Conductivity	332	334	332	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	119	118	120	≤ 100.0
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl B)	63	64	64	≤ 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)	0.14	0.11	0.10	≤ 0.05
Nitrate Nitrogen [#]	mg/L as NO ₃ -N	SM 2023 (4500-NO ₃ E)	2.70	2.63	2.85	≤ 4.0
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	65.27	63.76	62.74	≤ 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))

^{xx} Notification of the Ministry of Public Health, No. 416 , B.E. 2563 (2020)

Analyst

23/08/2024

TEST TECH CO., LTD.
Technical Manager

23/08/2024

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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 : 15/08/2024

Received Date : 15/08/2024

Report Date : 23/08/2024

Sample Type : Drinking Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 22/08/2024

Report No. : R20510/67

Parameters	Unit	Method	TW18849 /67	TW18850 /67	TW18851 /67	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 509)	
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

23/08/2024

TEST TECH CO., LTD.

Technical Manager

23/08/2024

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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 : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 19/08/2024

Report Date : 21/08/2024

Report No. : R20108/67

Parameters	Unit	Method	TW18856 /67	TW18857 /67	Standard ^a
			Main Pool	Lab Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.6	7.7	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	DPD Colorimetric	0.81	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., 20232. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,
B.E.2530 (1987)

Analyst

21/08/2024



Technical Manager

21/08/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 21/08/2024

Sample Type : Swimming Water

Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 19/08/2024

Report No. : R20109/67

Parameters	Unit	Method	TW18856 /67	TW18857 /67	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., 20232. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,
B.E.2530 (1987)

Analyst

21/08/2024



Technical Manager

21/08/2024

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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)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 15/08/2024

Received Date : 15/08/2024

Report Date : 21/08/2024

Sample Type : Swimming Water

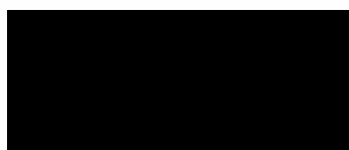
Sampling Method : Grab

Sampling Time : 10:30 AM

Analytical Date : 15 - 19/08/2024

Report No. : R20110/67

Parameters	Unit	Method	TW18858 /67	TW18859 /67	Standard ^a
			Lazy Pool	18 th Flr Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.4	7.8	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	DPD Colorimetric	0.97	0.89	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., 20232. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,
B.E.2530 (1987)

Analyst

21/08/2024



Technical Manager

21/08/2024

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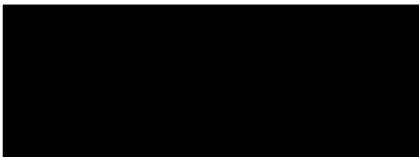


Analysis/Test Report

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 : 15/08/2024 Sampling Time : 10:30 AM
Received Date : 15/08/2024 Analytical Date : 15 - 19/08/2024
Report Date : 21/08/2024 Report No. : R20111/67

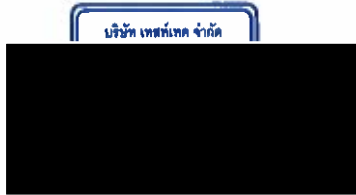
Parameters	Unit	Method	TW18858 /67	TW18859 /67	Standard ^a
			Lazy Pool	18 th Flr Pool	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.8	< 1.8	< 10
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

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

21/08/2024



Technical Manager

21/08/2024

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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 : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 19/08/2024

Report Date : 21/08/2024

Report No. : R20106/67

Parameters	Unit	Method	TW18852 /67	TW18853 /67	Standard ^a
			Canteen (Cube)	Banquet (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

21/08/2024

Technical Manager

21/08/2024

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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 : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 19/08/2024

Report Date : 21/08/2024

Report No. : R20107/67

Parameters	Unit	Method	TW18854 /67	TW18855 /67	Standard ^a
			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, 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

21/08/2024

Technical Manager

21/08/2024

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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 : Waste Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 15/08/2024

Sampling Time : 10:30 AM

Received Date : 15/08/2024

Analytical Date : 15 - 22/08/2024

Report Date : 23/08/2024

Report No. : R20511/67

Parameters	Unit	Method	TW18860 /67	Standard ^a
			Effluent	
pH	-	SM 2023 (4500-H ⁺ B)	7.3	-
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	72	≤ 1000
Total Suspended Solids	mg/L	SM 2023 (2540 D)	88	-
Oil & Grease	mg/L	SM 2023 (5520 D)	19.1	-
Sample Condition		Observation	Light Yellow, Black Particles	

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

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



Analyst

23/08/2024



Technical Manager

23/08/2024

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