



## Analysis / Test Report

TESTING  
No.0166

**Lot ID: 237931**

Date Received : Feb 08, 2023

Date Reported : Feb 24, 2023

Report Number : 2577628-1

Page 1 of 2

**Client :** Bangkok Phuket Hospital Co., Ltd.  
2/1, Hongyok Utis Road, Taladyai, Muang, Phuket Thailand 83000  
**P/O :** 005 - 4305591519  
**Project Name :** Water Testing : BPK  
**Project Location :**

**Sample Number** 237931-13  
**Sampled Date** Feb 07, 2023 9:45 AM  
**Sample Description** น้ำดื่มขวดเขียวในระบบ Cooling tower  
**Location** น้ำดื่มขวดเขียวในระบบ Cooling tower  
**Date Analysis Commenced** Feb 08, 2023  
**Condition of Sample** Contained in five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.001	0.005	<0.005	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Songkhla
<b>Microbiological Testing</b>							
<i>Legionella spp.</i> *	CFU/L	-	-	Not Detected**	Not Detected (1)	ISO 11731 (2017)	Bangkok
<b>Water Testing</b>							
Calcium Hardness as CaCO <sub>3</sub> *	mg/L	-	1	37	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3500-Ca (B)	Songkhla
<sup>[A]</sup> Chloride as Cl	mg/L	0.06	0.2	25.7	≤300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4110 B	Bangkok
Conductivity *	micromhos/cm	-	0.5	245	≤3000	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Songkhla
pH at 25 degree C		-	-	7.7	7-9	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Songkhla
Phosphate as P *	mg/L	0.15	0.5	Not Detected	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4110 B	Bangkok
Silica as SiO <sub>2</sub> *	mg/L	0.02	0.05	22.1	≤120	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-SiO <sub>2</sub> (D)	Bangkok
Total Alkalinity as CaCO <sub>3</sub> *	mg/L	-	1	25	≤1000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2320 B	Songkhla

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

*Sutthirak T.*

Sutthirak Tiprat  
Scientist (2)

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No.0166

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**P/O :** 005 - 4305591519  
**Project Name :** Water Testing : BPK  
**Project Location :**

**Lot ID: 237931**

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Page 2 of 2

**Sample Number** 237931-13  
**Sampled Date** Feb 07, 2023 9:45 AM  
**Sample Description** น้ำดื่มขดเขยในระบบ Cooling tower  
**Location** น้ำดื่มขดเขยในระบบ Cooling tower  
**Date Analysis Commenced** Feb 08, 2023  
**Condition of Sample** Contained in five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	182	≤2000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Songkhla
Total Hardness as CaCO <sub>3</sub>	mg/L	-	1	48	≤300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2340 C	Songkhla

**Guideline :** หนังสือการปรุงแต่งคุณภาพน้ำ มาตรฐานน้ำใน Cooling Tower ดร.มันสัน ตัณฑุลเวศน์  
(1) ประกาศกรมอนามัย พ.ศ. 2544 เรื่องข้อปฏิบัติการควบคุมเชื้อลิจิโอเนลลา ในหอฝ้งเย็นของอาคารในประเทศไทย

**Note :** \*\* Not Detected mean Bacteria not found in agar plate.

**Sampling By :** Yuttapong Rattana , Thaksin Aintrom

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
- [A] Analysis conducted by ALS Laboratory Group (Thailand) Co.,Ltd. Bangkok Branch, DMSc Accreditation No. 1031/47.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

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Sutthirak Tiprat  
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TESTING  
No.0166

**Client :** Bangkok Phuket Hospital Co., Ltd.  
2/1, Hongyok Utis Road, Taladyai, Muang, Phuket Thailand 83000  
**P/O :** 005 - 4305591519  
**Project Name :** Water Testing : BPK  
**Project Location :**

**Lot ID: 237931**

Date Received : Feb 08, 2023  
Date Reported : Feb 24, 2023  
Report Number : 2577629-1

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<b>Sample Number</b>	237931-14
<b>Sampled Date</b>	Feb 07, 2023 9:39 AM
<b>Sample Description</b>	น้ำในถาด Cooling tower
<b>Location</b>	Cooling tower
<b>Date Analysis Commenced</b>	Feb 08, 2023
<b>Condition of Sample</b>	Contained in five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
Iron	mg/L	0.001	0.005	0.05	≤1.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Songkhla
<b>Microbiological Testing</b>							
<i>Legionella spp.</i> *	CFU/L	-	-	Not Detected**	Not Detected (1)	ISO 11731 (2017)	Bangkok
<b>Water Testing</b>							
Calcium Hardness as CaCO <sub>3</sub> *	mg/L	-	1	239	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3500-Ca (B)	Songkhla
<sup>[A]</sup> Chloride as Cl	mg/L	0.06	0.2	202	≤300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4110 B	Bangkok
Conductivity *	micromhos/cm	-	0.5	1653	≤3000	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Songkhla
pH at 25 degree C		-	-	8.4	7-9	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Songkhla
Phosphate as P *	mg/L	0.15	0.5	Not Detected	≤20	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4110 B	Bangkok
Silica as SiO <sub>2</sub> *	mg/L	0.02	0.05	150	≤120	Based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-SiO <sub>2</sub> (D)	Bangkok
Total Alkalinity as CaCO <sub>3</sub> *	mg/L	-	1	105	≤1000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2320 B	Songkhla

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**P/O :** 005 - 4305591519  
**Project Name :** Water Testing : BPK  
**Project Location :**

**Lot ID: 237931**

Date Received : Feb 08, 2023  
Date Reported : Feb 24, 2023  
Report Number : 2577629-1

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**Sample Number** 237931-14  
**Sampled Date** Feb 07, 2023 9:39 AM  
**Sample Description** น้ำในถาด Cooling tower  
**Location** Cooling tower  
**Date Analysis Commenced** Feb 08, 2023  
**Condition of Sample** Contained in five plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Dissolved solids Dried at 180 degree C	mg/L	-	5	1258	≤2000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Songkhla
Total Hardness as CaCO <sub>3</sub>	mg/L	-	1	327	≤300	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2340 C	Songkhla

**Guideline :** หนังสือการปรุงแต่งคุณภาพน้ำ มาตรฐานน้ำใน Cooling Tower ดร.มันสัน ตัณฑุลเวศน์  
(1) ประกาศกรมอนามัย พ.ศ. 2544 เรื่องข้อปฏิบัติในการควบคุมเชื้อลิจิโอเนลลา ในหอฝักเย็นของอาคารในประเทศไทย

**Note :** \*\* Not Detected mean Bacteria not found in agar plate.

**Sampling By :** Yuttapong Rattana , Thaksin Aintrom

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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**Client :** Bangkok Phuket Hospital Co., Ltd.  
2/1, Hongyok Utis Road, Taladyai, Muang, Phuket Thailand 83000  
**P/O :** 005 - 4305591519  
**Project Name :** Water Testing : BPK  
**Project Location :**

**Lot ID: 237931**

Date Received : Feb 08, 2023  
Date Reported : Feb 24, 2023  
Report Number : 2577633-1

Page 1 of 1

**Sample Number** 237931-18  
**Sampled Date** Feb 07, 2023 11:00 AM  
**Sample Description** น้ำประปาจากอ่างล้างตา - จุดล้างตัวฉุกเฉิน  
**Location** จุดล้างตัว - จุดล้างตัวฉุกเฉิน  
**Date Analysis Commenced** Feb 08, 2023  
**Condition of Sample** Contained in four plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Microbiological Testing</b>							
<i>Escherichia coli</i>	MPN/100mL	-	-	<1.1	<1.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B. F	Songkhla
<sup>[A]</sup> <i>Legionella spp.</i>	CFU/L	-	-	<1	No Standard	ISO 11731 (2017)	Bangkok
<i>Pseudomonas aeruginosa</i> *	in 100 mL	-	-	Not Detected	No Standard	In-house method in connection with: - Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9213 E	Bangkok
Total Coliform	MPN/100mL	-	-	<1.1	<1.1	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Songkhla

**Guideline :** เกณฑ์คุณภาพน้ำประปาดื่มได้ ประกาศ กรมอนามัย พ.ศ. 2563

**Note :** Microbiological Testing Result <1 mean Bacteria not found in agar plate.

**Sampling By :** Yuttapong Rattana , Thaksin Aintrom

Remark :

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Chompoonuch F.

Chompoonuch Funtha  
Scientist (4)

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