

## TEST REPORT

Report No: QMTL/R-110939/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates		Sample ID	QMTL/S-110939
<b>ATTN : MR. JASMAN PINTO</b>		Date Received	11 Jul 2020
		Date(s) Tested	11 Jul 2020 - 13 Jul 2020
		Date Reported	14 Jul 2020
Sample Description	<b>Redundant- Chilled Water</b>		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	11.07.2020/ 3:30 PM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	18°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

## TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
<b>MICROBIOLOGICAL ANALYSIS</b>				
E.coli	APHA 9222 H & I (23rd Edition)	CFU/100 ml	-	Zero
Fecal Coliforms	APHA 9222 D (23rd Edition)	CFU/100 ml	-	Zero
Pseudomonas aeruginosa	APHA 9213 E (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	1
Total Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero

Remarks	The sample meets DM Water Systems quality (2010) specifications for Cooling Water Systems with respect to the above tests only.
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Keywords	CFU: Colony Forming Unit, APHA: American Public Health Association, DM: Dubai Municipality, NP: Not Provided, NA: Not Applicable, WI: Work Instruction
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Test method deviation	None
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Test performed by Emp#	55 & 74
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Report prepared by Emp#	22
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The above test results are only applicable to the sample(s) referred above.

Reported By



**ANILA GEORGE**  
LABORATORY MANAGER



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**END OF REPORT**

## TEST REPORT

Report No: QMTL/R-110940/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates  <b>ATTN : MR. JASMAN PINTO</b>		Sample ID	QMTL/S-110940
		Date Received	11 Jul 2020
		Date(s) Tested	11 Jul 2020 - 13 Jul 2020
		Date Reported	14 Jul 2020
Sample Description	<b>ETS – Chilled Water</b>		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	11.07.2020/ 3:40 PM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	10.9°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

## TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
<b>MICROBIOLOGICAL ANALYSIS</b>				
E.coli	APHA 9222 H & I (23rd Edition)	CFU/100 ml	-	Zero
Fecal Coliforms	APHA 9222 D (23rd Edition)	CFU/100 ml	-	Zero
Pseudomonas aeruginosa	APHA 9213 E (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	110
Total Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero

Remarks	The sample meets DM Water Systems quality (2010) specifications for Cooling Water Systems with respect to the above tests only.
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Keywords	CFU: Colony Forming Unit, APHA: American Public Health Association, DM: Dubai Municipality, NP: Not Provided, NA: Not Applicable, WI: Work Instruction
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Test method deviation	None
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Test performed by Emp#	55 & 74
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Report prepared by Emp#	22
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The above test results are only applicable to the sample(s) referred above.

Reported By



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**END OF REPORT**

## TEST REPORT

Report No: QMTL/R-110941/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates		Sample ID	QMTL/S-110941
<b>ATTN : MR. JASMAN PINTO</b>		Date Received	11 Jul 2020
		Date(s) Tested	11 Jul 2020 - 13 Jul 2020
		Date Reported	14 Jul 2020
Sample Description	<b>MTER – Chilled Water</b>		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	11.07.2020/ 3:50 PM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	14.2°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

## TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
<b>MICROBIOLOGICAL ANALYSIS</b>				
E.coli	APHA 9222 H & I (23rd Edition)	CFU/100 ml	-	Zero
Fecal Coliforms	APHA 9222 D (23rd Edition)	CFU/100 ml	-	Zero
Pseudomonas aeruginosa	APHA 9213 E (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	<1
Total Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero

Remarks	The sample meets DM Water Systems quality (2010) specifications for Cooling Water Systems with respect to the above tests only.
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Keywords	CFU: Colony Forming Unit, APHA: American Public Health Association, DM: Dubai Municipality, NP: Not Provided, NA: Not Applicable, WI: Work Instruction
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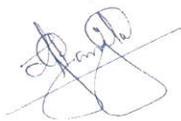
Test method deviation	None
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Test performed by Emp#	55 & 74
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Report prepared by Emp#	22
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The above test results are only applicable to the sample(s) referred above.

Reported By




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**END OF REPORT**

## TEST REPORT

Report No: QMTL/R-110942/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates		Sample ID	QMTL/S-110942
		Date Received	11 Jul 2020
		Date(s) Tested	11 Jul 2020 - 13 Jul 2020
<b>ATTN : MR. JASMAN PINTO</b>		Date Reported	14 Jul 2020
Sample Description	<b>RTER – Chilled Water</b>		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	11.07.2020/ 4:00 PM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	13.4°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

## TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
<b>MICROBIOLOGICAL ANALYSIS</b>				
E.coli	APHA 9222 H & I (23rd Edition)	CFU/100 ml	-	Zero
Fecal Coliforms	APHA 9222 D (23rd Edition)	CFU/100 ml	-	Zero
Pseudomonas aeruginosa	APHA 9213 E (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	8
Total Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero

Remarks	The sample meets DM Water Systems quality (2010) specifications for Cooling Water Systems with respect to the above tests only.
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Keywords	CFU: Colony Forming Unit, APHA: American Public Health Association, DM: Dubai Municipality, NP: Not Provided, NA: Not Applicable, WI: Work Instruction
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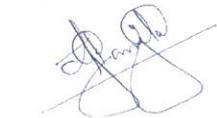
Test method deviation	None
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Test performed by Emp#	55 & 74
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Report prepared by Emp#	22
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The above test results are only applicable to the sample(s) referred above.

Reported By



**ANILA GEORGE**  
**LABORATORY MANAGER**



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**END OF REPORT**

## CONSULTING SERVICE REPORT

<b>CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI</b>	<b>To: Mr. Ratheesh Muttath Operations Engineer</b>	<b>DATE: 11-07-2020</b>
<b>CUSTOMER ID: 3003</b>	<b>Copy: SERCO - NYUAD</b>	<b>LAST VISIT: 13-06-2020</b>

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	ETS			
pH	9.0 - 10.5	9.75			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1715			
TDS, ppm	--	1114			
'P' Alkalinity, ppm as $\text{CaCO}_3$	--				
Total Hardness, ppm as $\text{CaCO}_3$	--				
Calcium Hardness, ppm as $\text{CaCO}_3$	--				
Chloride, ppm as $\text{Cl}^-$	--				
Iron, ppm as Fe	0 - 2.0	0.08			

Treatment Residuals					
Nitrite, ppm	$\gt$ 800	830			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

*All test results expressed in parts per million (ppm) as  $\text{CaCO}_3$  except pH and conductivity ( $\mu\text{mhos}$ ).*

COMMENTS:	ACTION:
The pH and Conductivity/TDS are found satisfactory. <input type="checkbox"/>	No action recommended.
Dissolved iron levels are found within control limits. <input type="checkbox"/>	No action recommended.
Corrosion Inhibitor levels found satisfactory. <input type="checkbox"/>	No action recommended.

**The chilled water controller is calibrated. Dosing pumps, tubes and tank are in good condition.**

INVENTORY LEVELS			DOSAGE SCHEDULE	
Chemical	Quantity	Chemical	Present Dosage	Revised Dosage
Crystal 5547C			--	
Crystal 9040			--	
			--	
<b>Service Engineer:</b>	<b>Murugaraaj</b>		<b>Client:</b>	<b>Mr. Ratheesh Muttath</b>
<b>Signature:</b>			<b>Signature:</b>	





## CONSULTING SERVICE REPORT

**CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI**

**To: Mr. Ratheesh Muttath**  
Operations Engineer

**DATE: 11-07-2020**

**CUSTOMER ID: 3003**

**Copy: SERCO - NYUAD**

**LAST VISIT: 13-06-2020**

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	MTER			
pH	9.0 - 10.5	10.22			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	2148			
TDS, ppm	--	1396			
'P' Alkalinity, ppm as $\text{CaCO}_3$	--				
Total Hardness, ppm as $\text{CaCO}_3$	--				
Calcium Hardness, ppm as $\text{CaCO}_3$	--				
Chloride, ppm as $\text{Cl}^-$	--				
Iron, ppm as Fe	0 - 2.0	0.16			

#### Treatment Residuals

Nitrite, ppm	> 800	960			
CaH Balance					
Dipslide	<10 <sup>3</sup>	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

*All test results expressed in parts per million (ppm) as  $\text{CaCO}_3$  except pH and conductivity ( $\mu\text{mhos}$ ).*

#### COMMENTS:

#### ACTION:

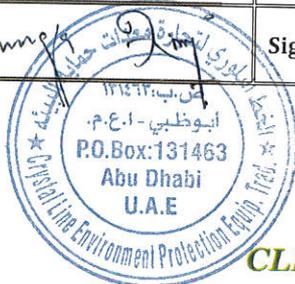
The pH and Conductivity/TDS are found satisfactory.	⇒	No action recommended.
Dissolved iron levels are within control limits.	⇒	No action recommended.
Corrosion Inhibitor levels found satisfactory.	⇒	No action recommended.

The chilled water controller is calibrated. Dosing pumps, tubes and tank are in good condition. Corrosion inhibitor sensor are ok.

#### INVENTORY LEVELS

#### DOSAGE SCHEDULE

Chemical	Quantity	Chemical	Present Dosage	Revised Dosage
Crystal 5547C			--	
Crystal 9040			--	
			--	
Service Engineer:	Murugaraaj		Client:	Mr. Ratheesh Muttath
Signature:			Signature:	





## CONSULTING SERVICE REPORT

**CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI**

**To: Mr. Ratheesh Muttath  
Operations Engineer**

**DATE: 11-07-2020**

**CUSTOMER ID: 3003**

**Copy: SERCO - NYUAD**

**LAST VISIT: 13-06-2020**

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	Redundant			
pH	9.0 - 10.5	10.39			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1852			
TDS, ppm	--	1203			
'P' Alkalinity, ppm as $\text{CaCO}_3$	--				
Total Hardness, ppm as $\text{CaCO}_3$	--				
Calcium Hardness, ppm as $\text{CaCO}_3$	--				
Chloride, ppm as $\text{Cl}^-$	--				
Iron, ppm as Fe	0 - 2.0	0.11			

#### Treatment Residuals

Nitrite, ppm	> 800	990			
CaH Balance					
Dipslide	<10 <sup>3</sup>	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

*All test results expressed in parts per million (ppm) as  $\text{CaCO}_3$  except pH and conductivity ( $\mu\text{mhos}$ ).*

#### COMMENTS:

#### ACTION:

The pH and Conductivity/TDS are found satisfactory.	⇒	No action recommended.
Dissolved iron levels are satisfactory.	⇒	No action recommended.
Corrosion Inhibitor levels satisfactory	⇒	No action recommended.

**The chilled water controller is calibrated. Dosing pumps, tubes and tank are in good condition.**

#### INVENTORY LEVELS

#### DOSAGE SCHEDULE

Chemical	Quantity	Chemical	Present Dosage	Revised Dosage
Crystal 5547C			--	
Crystal 9040			--	
			--	
Service Engineer:	Murugaraaj		Client:	Mr. Ratheesh Muttath
Signature:			Signature:	





## CONSULTING SERVICE REPORT

**CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI**

**To: Mr. Ratheesh Muttath  
Operations Engineer**

**DATE: 11-07-2020**

**CUSTOMER ID: 3003**

**Copy: SERCO - NYUAD**

**LAST VISIT: 13-06-2020**

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	RTER			
pH	9.0 - 10.5	9.94			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1953			
TDS, ppm	--	1269			
'P' Alkalinity, ppm as $\text{CaCO}_3$	--				
Total Hardness, ppm as $\text{CaCO}_3$	--				
Calcium Hardness, ppm as $\text{CaCO}_3$	--				
Chloride, ppm as $\text{Cl}^-$	--				
Iron, ppm as Fe	0 - 2.0	0.17			

#### Treatment Residuals

Nitrite, ppm	> 800	910			
CaH Balance					
Dipslide	<10 <sup>3</sup>	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

*All test results expressed in parts per million (ppm) as  $\text{CaCO}_3$  except pH and conductivity ( $\mu\text{mhos}$ ).*

#### COMMENTS:

#### ACTION:

The pH and Conductivity/TDS are found satisfactory.	⇒	No action recommended.
Dissolved iron levels are satisfactory.	⇒	No action recommended.
Corrosion Inhibitor levels found satisfactory	⇒	No action recommended.

**The chilled water controller is calibrated. Dosing pumps, tubes and tank are in good condition.**

#### INVENTORY LEVELS

#### DOSAGE SCHEDULE

Chemical	Quantity	Chemical	Present Dosage	Revised Dosage
Crystal 5547C			--	
Crystal 9040			--	
Service Engineer:	Murugaraaj		Client:	Mr. Ratheesh Muttath
Signature:			Signature:	

