

## TEST REPORT

Report No: QMTL/R-100473/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates  <b>ATTN : MR. JASMAN PINTO</b>	Sample ID	QMTL/S-100473	
	Date Received	12 Apr 2020	
	Date(s) Tested	12 Apr 2020 - 14 Apr 2020	
	Date Reported	18 Apr 2020	
Sample Description	ETS Room- Mechanical Room 27, Chilled Water		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	12.04.2020/ 10:30 AM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	8°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	2
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#	14 & 55
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Report prepared by Emp#	72
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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-100474/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates		Sample ID	QMTL/S-100474
		Date Received	12 Apr 2020
		Date(s) Tested	12 Apr 2020 - 14 Apr 2020
<b>ATTN : MR. JASMAN PINTO</b>		Date Reported	18 Apr 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	12.04.2020/ 10:40 AM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	13°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	140
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#	14 & 55
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Report prepared by Emp#	72
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**END OF REPORT**

## TEST REPORT

Report No: QMTL/R-100475/2020

CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES Abu Dhabi PO Box : 131463 United Arab Emirates		Sample ID	QMTL/S-100475
ATTN : MR. JASMAN PINTO		Date Received	12 Apr 2020
		Date(s) Tested	12 Apr 2020 - 14 Apr 2020
		Date Reported	18 Apr 2020
Sample Description	RTER -Mechanical Room 33, Chilled Water		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	12.04.2020/ 10:50 AM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4.5°C	Sample Onsite Temp	11°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#	14 & 55
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## TEST REPORT

Report No: QMTL/R-100476/2020

<b>CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES</b> Abu Dhabi PO Box : 131463 United Arab Emirates  <b>ATTN : MR. JASMAN PINTO</b>	Sample ID	QMTL/S-100476		
	Date Received	12 Apr 2020		
	Date(s) Tested	12 Apr 2020 - 14 Apr 2020		
	Date Reported	18 Apr 2020		
Sample Description	<b>MTER Room-Mechanical Room 18, Chilled Water</b>			
Sample Type	Water	Sampling Method	QMTL-WI-15	
Client Name/Project	NP	Sampled By	QMTL Representative	
Location	NYUAD	Sampling Date/Time	12.04.2020/ 11:00 AM	
Sample Container	1x500ml PB	Sampling Point	Valve	
Sample Receipt Temp	4.5°C	Sample Onsite Temp	10.7°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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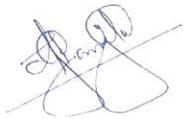
Test method deviation	None
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Test performed by Emp#	14 & 55
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Report prepared by Emp#	72
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**END OF REPORT**



## CONSULTING SERVICE REPORT

<b>CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI</b>	<b>To: Mr. Ratheesh Muttath Operations Engineer</b>	<b>DATE: 12-04-2020</b>
<b>CUSTOMER ID: 3003</b>	<b>Copy: SERCO - NYUAD</b>	<b>LAST VISIT: 07-03-2020</b>

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	ETS			
pH	9.0 - 10.5	9.66			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1571			
TDS, ppm	--	1021			
'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	0.14			

Treatment Residuals					
Nitrite, ppm	$\text{> } 800$	870			
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. $\Rightarrow$	No action recommended.
Dissolved iron levels are found within control limits. $\Rightarrow$	No action recommended.
Corrosion Inhibitor levels found satisfactory. $\Rightarrow$	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

<b>CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI</b>	<b>To: Mr. Ratheesh Muttath Operations Engineer</b>	<b>DATE: 12-04-2020</b>
<b>CUSTOMER ID: 3003</b>	<b>Copy: SERCO - NYUAD</b>	<b>LAST VISIT: 07-03-2020</b>

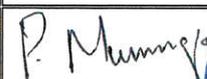
### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	MTER			
pH	9.0 - 10.5	9.97			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	2088			
TDS, ppm	--	1357			
'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	0.13			
<b>Treatment Residuals</b>					
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. $\Rightarrow$	No action recommended.
Dissolved iron levels are within control limits. $\Rightarrow$	No action recommended.
Corrosion Inhibitor levels found satisfactory. $\Rightarrow$	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			--	
			--	
<b>Service Engineer:</b>	Murugaraaj		<b>Client:</b>	Mr. Ratheesh Muttath
<b>Signature:</b>			<b>Signature:</b>	





## CONSULTING SERVICE REPORT

<b>CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI</b>	<b>To: Mr. Ratheesh Muttath Operations Engineer</b>	<b>DATE: 12-04-2020</b>
<b>CUSTOMER ID: 3003</b>	<b>Copy: SERCO - NYUAD</b>	<b>LAST VISIT: 07-03-2020</b>

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	Redundant			
pH	9.0 - 10.5	9.86			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1654			
TDS, ppm	--	1075			
'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	890			
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. $\Rightarrow$	No action recommended.
Dissolved iron levels are satisfactory. $\Rightarrow$	No action recommended.
Corrosion Inhibitor levels satisfactory $\Rightarrow$	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

<b>CUSTOMER: SERCO – NEW YORK UNIVERSITY, ABU DHABI</b>	<b>To: Mr. Ratheesh Muttath Operations Engineer</b>	<b>DATE: 12-04-2020</b>
<b>CUSTOMER ID: 3003</b>	<b>Copy: SERCO - NYUAD</b>	<b>LAST VISIT: 07-03-2020</b>

### CHILLED WATER ANALYSIS

PARAMETER	CONTROL LIMITS	RTER			
pH	9.0 – 10.5	9.86			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1976			
TDS, ppm	--	1284			
'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			

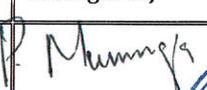
Treatment Residuals					
Nitrite, ppm	$\gt$ 800	960			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

*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. $\Rightarrow$	No action recommended.
Dissolved iron levels are satisfactory. $\Rightarrow$	No action recommended.
Corrosion Inhibitor levels found satisfactory $\Rightarrow$	No action recommended.

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

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

