

TEST REPORT

Report No: QMTL/R-102832/2020

CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES Abu Dhabi PO Box : 131463 United Arab Emirates		Sample ID	QMTL/S-102832
		Date Received	09 May 2020
		Date(s) Tested	09 May 2020 - 11 May 2020
		Date Reported	17 May 2020
ATTN : MR. JASMAN PINTO			
Sample Description	ETS Room Chilled Water		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	09.05.2020/ 2:00 PM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4°C	Sample Onsite Temp	10.5°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
MICROBIOLOGICAL ANALYSIS				
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 Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	48

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
Test performed by Emp#	74 & 55
Report prepared by Emp#	72
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-102833/2020

CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES Abu Dhabi PO Box : 131463 United Arab Emirates ATTN : MR. JASMAN PINTO		Sample ID	QMTL/S-102833
		Date Received	09 May 2020
		Date(s) Tested	09 May 2020 - 11 May 2020
		Date Reported	17 May 2020
Sample Description	Redundant Chilled Water		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	09.05.2020/ 2:10 PM
Sample Container	1x500ml PB	Sampling Point	Tank
Sample Receipt Temp	4°C	Sample Onsite Temp	12°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
MICROBIOLOGICAL ANALYSIS				
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 Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	<1

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
Test performed by Emp#	74 & 55
Report prepared by Emp#	72
The above test results are only applicable to the sample(s) referred above.	

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END OF REPORT

TEST REPORT

Report No: QMTL/R-102834/2020

CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES Abu Dhabi PO Box : 131463 United Arab Emirates ATTN : MR. JASMAN PINTO		Sample ID	QMTL/S-102834
		Date Received	09 May 2020
		Date(s) Tested	09 May 2020 - 11 May 2020
		Date Reported	17 May 2020
Sample Description	RTER Chilled Water		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	09.05.2020/ 2:20 PM
Sample Container	1x500ml PB	Sampling Point	Tank
Sample Receipt Temp	4°C	Sample Onsite Temp	11.6°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
MICROBIOLOGICAL ANALYSIS				
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 Coliforms	APHA 9222 B (23rd Edition)	CFU/100 ml	-	Zero
Total Bacterial Count	APHA 9215 B (23rd Edition)	CFU/ml	10,000	<1

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
Test performed by Emp#	74 & 55
Report prepared by Emp#	72
The above test results are only applicable to the sample(s) referred above.	

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END OF REPORT

TEST REPORT

Report No: QMTL/R-102819/2020

CLIENT : CRYSTALLINE ENVIRONMENTAL SERVICES Abu Dhabi PO Box : 131463 United Arab Emirates ATTN : MR. JASMAN PINTO		Sample ID	QMTL/S-102819
		Date Received	09 May 2020
		Date(s) Tested	09 May 2020 - 11 May 2020
		Date Reported	17 May 2020
Sample Description	MTER-Chilled Water		
Sample Type	Water	Sampling Method	QMTL-WI-15
Client Name/Project	NP	Sampled By	QMTL Representative
Location	NYUAD	Sampling Date/Time	09.05.2020/ 11:10 AM
Sample Container	1x500ml PB	Sampling Point	Valve
Sample Receipt Temp	4°C	Sample Onsite Temp	11.5°C
Sample Appearance	Clear	On-site Treatment	NA
Reference	NP		

TEST RESULTS

PARAMETERS	TEST METHODS	UNITS	GUIDELINES	RESULTS
MICROBIOLOGICAL ANALYSIS				
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	60
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
Test performed by Emp#	74 & 55
Report prepared by Emp#	72
The above test results are only applicable to the sample(s) referred above.	

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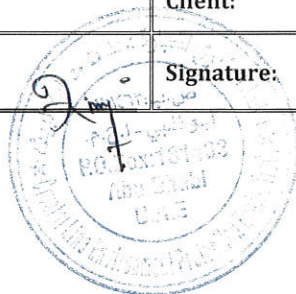


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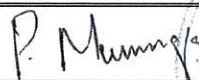
END OF REPORT

CONSULTING SERVICE REPORT

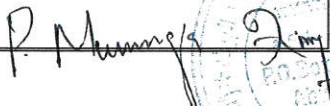
CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI		To: Mr. Ratheesh Muttath Operations Engineer		DATE: 09-05-2020	
CUSTOMER ID: 3003		Copy: SERCO - NYUAD		LAST VISIT: 12-04-2020	
CHILLED WATER ANALYSIS					
PARAMETER	CONTROL LIMITS	ETS			
pH	9.0 – 10.5	9.64			
Conductivity, $\mu\text{S}/\text{cm}$	Max 3500	1784			
TDS, ppm	--	1159			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 – 2.0	0.07			
Treatment Residuals					
Nitrite, ppm	> 800	870			
CaH Balance					
Dipslide	<10 ³	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					
<i>All test results expressed in parts per million (ppm) as CaCO_3 except pH and conductivity (μmhos).</i>					
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:		



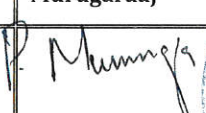
CONSULTING SERVICE REPORT

CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI		To: Mr. Ratheesh Muttath Operations Engineer		DATE: 09-05-2020	
CUSTOMER ID: 3003		Copy: SERCO - NYUAD		LAST VISIT: 12-04-2020	
CHILLED WATER ANALYSIS					
PARAMETER	CONTROL LIMITS	MTER			
pH	9.0 - 10.5	9.78			
Conductivity, $\mu\text{S}/\text{cm}$	Max 3500	2140			
TDS, ppm	--	1391			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 - 2.0	0.08			
Treatment Residuals					
Nitrite, ppm	$\text{> } 800$	910			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					
<i>All test results expressed in parts per million (ppm) as CaCO_3 except pH and conductivity (μmhos).</i>					
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			--		
			--		
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: 09-05-2020	
CUSTOMER ID: 3003		Copy: SERCO - NYUAD		LAST VISIT: 12-04-2020	
CHILLED WATER ANALYSIS					
PARAMETER	CONTROL LIMITS	Redundant			
pH	9.0 – 10.5	9.83			
Conductivity, $\mu\text{S}/\text{cm}$	Max 3500	2107			
TDS, ppm	--	1369			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 – 2.0	0.07			
Treatment Residuals					
Nitrite, ppm	≥ 800	910			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					
<i>All test results expressed in parts per million (ppm) as CaCO_3 except pH and conductivity (μmhos).</i>					
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			--		
			--		
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: 09-05-2020	
CUSTOMER ID: 3003		Copy: SERCO - NYUAD		LAST VISIT: 12-04-2020	
CHILLED WATER ANALYSIS					
PARAMETER	CONTROL LIMITS	RTER			
pH	9.0 – 10.5	9.71			
Conductivity, $\mu\text{S}/\text{cm}$	Max 3500	1968			
TDS, ppm	--	1279			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 – 2.0	0.12			
Treatment Residuals					
Nitrite, ppm	$\text{> } 800$	920			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					
<i>All test results expressed in parts per million (ppm) as CaCO_3 except pH and conductivity (μmhos).</i>					
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.					
INVENTORY LEVELS			DOSAGE SCHEDULE		
Chemical	Quantity	Chemical	Present Dosage	Revised Dosage	
Crystal 5547C			--		
Crystal 9040			--		
Service Engineer:	Murugaraaj		Client:	Mr. Ratheesh Muttath	
Signature:			Signature:		