

CONSULTING SERVICE REPORT

CUSTOMER: SERCO - NEW YORK UNIVERSITY, ABU DHABI	To: Mr. Ratheesh Muttath Operations Engineer	DATE: 07-12-2019
CUSTOMER ID: 3003	Copy: SERCO - NYUAD	LAST VISIT: 10-11-2019

CLOSED LOOP SOLAR SYSTEM ANALYSIS

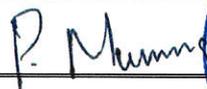
PARAMETER	CONTROL LIMITS	A1D1			
pH	9.0 - 10.5	9.12			
Conductivity, $\mu\text{s/cm}$	Max 3500	2780			
TDS, ppm	--	1807			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 - 2.0	0.14			

Treatment Residuals

Nitrite, ppm	> 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 CaCO_3 except pH and conductivity (μmhos).

COMMENTS:	ACTION:
The pH levels are 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.

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



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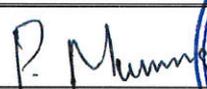
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PARAMETER	CONTROL LIMITS	A2A3			
pH	9.0 - 10.5	9.68			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	2840			
TDS, ppm	--	1846			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 - 2.0	0.24			
Treatment Residuals					
Nitrite, ppm	\gt 800	890			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

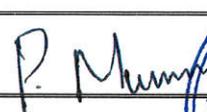
All test results expressed in parts per million (ppm) as CaCO_3 except pH and conductivity (μmhos).

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 satisfactory \Rightarrow	No action recommended.

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



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CLOSED LOOP SOLAR SYSTEM ANALYSIS					
PARAMETER	CONTROL LIMITS	A4A5			
pH	9.0 – 10.5	10.10			
Conductivity, $\mu\text{s/cm}$	Max 3500	1535			
TDS, ppm	--	997			
'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	0.21			
Treatment Residuals					
Nitrite, ppm	> 800	820			
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 found are satisfactory \Rightarrow			No action recommended.		
Dissolved iron levels are found within control limits. \Rightarrow			No action recommended.		
Corrosion Inhibitor levels satisfactory \Rightarrow			No action recommended.		
INVENTORY LEVELS					
INVENTORY LEVELS			DOSAGE SCHEDULE		
Chemical	Quantity	Chemical	Present Dosage	Revised Dosage	
Crystal 5547C			--		
Crystal 9040			--		
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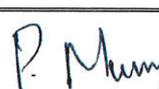
PARAMETER	CONTROL LIMITS	C1B1			
pH	9.0 - 10.5	9.27			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1806			
TDS, ppm	--	1173			
'P' Alkalinity, ppm as CaCO_3	--				
Total Hardness, ppm as CaCO_3	--				
Calcium Hardness, ppm as CaCO_3	--				
Chloride, ppm as Cl^-	--				
Iron, ppm as Fe	0 - 2.0	0.26			

Treatment Residuals

Nitrite, ppm	> 800	920			
CaH Balance					
Dipslide	<10 ³	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			

All test results expressed in parts per million (ppm) as CaCO_3 except pH and conductivity (μmhos).

COMMENTS:	ACTION:
The pH and Conductivity/TDS levels are satisfactory \Rightarrow	No action recommended.
Dissolved iron levels are found within control limits. \Rightarrow	No action recommended.
Corrosion Inhibitor levels found are satisfactory \Rightarrow	No action recommended.

INVENTORY LEVELS			DOSAGE SCHEDULE	
Chemical	Quantity	Chemical	Present Dosage	Revised Dosage
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