



## CONSULTING SERVICE REPORT

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

### CLOSED LOOP SOLAR SYSTEM ANALYSIS

PARAMETER	CONTROL LIMITS	A1D1			
pH	9.0 - 10.5	10.16			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	1798			
TDS, ppm	--	1168			
'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	0.12			

#### Treatment Residuals

Nitrite, ppm	> 800	860			
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 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			--	
			--	
<b>Service Engineer:</b>	Murugaraaj		<b>Client:</b>	Mr. Ratheesh Muttath
<b>Signature:</b>			<b>Signature:</b>	



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### CLOSED LOOP SOLAR SYSTEM ANALYSIS

PARAMETER	CONTROL LIMITS	A2A3			
pH	9.0 - 10.5	10.31			
Conductivity, $\mu\text{s/cm}$	Max 3500	2164			
TDS, ppm	--	1406			
'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	0.07			

#### Treatment Residuals

Nitrite, ppm	> 800	890			
CaH Balance					
Dipslide	<10 <sup>3</sup>	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			
Cynauric Acid					

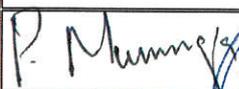
*All test results expressed in parts per million (ppm) as  $\text{CaCO}_3$  except pH and conductivity ( $\mu\text{mhos}$ ).*

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

#### 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

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<b>CUSTOMER ID: 3003</b>	<b>Copy: SERCO - NYUAD</b>	<b>LAST VISIT: 07-03-2020</b>

### CLOSED LOOP SOLAR SYSTEM ANALYSIS

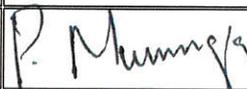
PARAMETER	CONTROL LIMITS	A4A5			
pH	9.0 - 10.5	10.16			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	2650			
TDS, ppm	--	1722			
'P' Alkalinity, ppm as $\text{CaCO}_3$	--				
Total Hardness, ppm as $\text{CaCO}_3$	--				
Calcium Hardness, ppm as $\text{CaCO}_3$	--				
Chloride, ppm as $\text{Cl}^-$	--				
Iron, ppm as Fe	0 - 2.0	0.13			

#### Treatment Residuals

Nitrite, ppm	> 800	1380			
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 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			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>	





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

**DATE: 12-04-2020**

**CUSTOMER ID: 3003**

**Copy: SERCO - NYUAD**

**LAST VISIT: 07-03-2020**

### CLOSED LOOP SOLAR SYSTEM ANALYSIS

PARAMETER	CONTROL LIMITS	C1B1			
pH	9.0 - 10.5	10.27			
Conductivity, $\mu\text{s}/\text{cm}$	Max 3500	2087			
TDS, ppm	--	1356			
'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	$\gt$ 800	870			
CaH Balance					
Dipslide	$<10^3$	ND			
Phosphate/Phosphonate					
Free Residual Chlorine as Cl	--	--			

*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 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
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>		

