



**WATER MATRIX  
TECHNOLOGIES FZE**

# *Case Study*

Revamping of 8 MLD to 20 MLD Sewage Treatment Plant  
By Adding AIRE-O2 Advanced Aeration System

*M/s. Haya Water Works  
at Muscat, Oman*



**Water Matrix Technologies FZE**

**Corporate Office :**

PO BOX # 120366

A2-087, SAIF ZONE, SHARJAH, UAE

**P.:** + 971 6 557 1647 **F.:** + 971 6 557 1363

**E.:** [info@watermatrix.net](mailto:info@watermatrix.net) **W.:** [www.watermatrix.net](http://www.watermatrix.net)





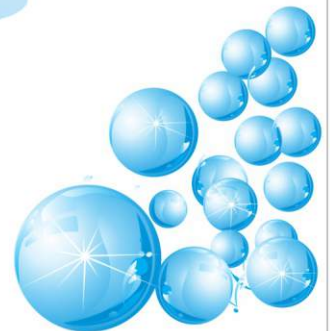
# Sewage Treatment Plant at Old Al-Ansab

## Before Revamping : Process Parameters

● Project Name	:	At Old Al-Ansab STP
● Previous Flow	:	8,000m <sup>3</sup> /day (8 MLD)
● Inlet BOD	:	600mg/l
● Outlet BOD	:	5 PPM
● Average Oil & Grease in (mg/l)	:	150
● Tank Dimensions of Aeration Tank	:	69x50x4.5m (Each Tank Dim: 23x25x4.5m)
● Total Aeration Tank	:	2 Nos. (3 Nos. Compartments in each Aeration tank)

## Problems:

- **Existing Surface Aerators:** 120.6 HP Surface Aerator in Each Compartment (90kw) (6 Nos. 120.6HP (90KW) Surface Aerators are working in 6 Compartments)
- Insufficient Oxygen supply due to Less HP
- Fiscal Maintenance Issues.
- Less Mixing & Immense Noise





# Design Parameters for Upgradation



Upgraded Flow	:	20,000 m <sup>3</sup> / day	
Type of Waste	:	Sewage	
BOD as per Tender	:	Inlet : 460 mg/l	Discharge Limit of Outlet : 5mg/l
Ammonical Nitrogen (NH <sub>3</sub> -N)	:	64 mg/l	Discharge Limit of Outlet : 1.0mg/l
BOD as per Lab Result	:	Inlet: 563 mg/l	Discharge Limit of Outlet : 5mg/l
(NH <sub>3</sub> -N) as per Lab Result	:	40 mg/l	Discharge Limit of Outlet : <1.0mg/l
Total Aeration Tank Dimension	:	69 x 50 x 4.5m (Each Tank Dim: 69 x 25 x 4.5m)	
Total Aeration Tanks	:	2 Nos.	
Total Compartments	:	6 Nos. (3Nos. of Compartment in each tank)	
Each Compartment Size	:	23m x 25m x 4.5m	



## AIRE-O<sub>2</sub> TRITON Dual-Function Aerator/Mixer Benefits:



- Dual function process advantage of aeration + mixing and mixing only i.e., Nitrification and Denitrification in one system only.
- EPA - defined "Fine Bubble" Aeration, less than 2.2 mm in size
- Superior Oxygen Transfer efficiency (1.83kgO<sub>2</sub>/KWHr)
- Deep mixing capability upto 10m which ensures smaller footprint and less land requirement.
- Negligible noise levels - Only 60 Decibels
- Low speed (900 rpm/60 Hz-750 rpm/50 Hz) operation ensures aerator life, improves mixing and quiet operation.
- No VFD's Requirement - individual Turn down Capability.
- No gearbox, aerosols, splashing or released pathogens into air and eliminate odors.
- Maintenance Friendly



## Suggestions

- installed 16 Nos. of 60 HP Triton Process Aerators / Mixers in the Aeration Tanks and 4 Nos. of 5 HP Triton Mixers in the Anoxic Tanks.
- Client is satisfied and achieving desired results after installing AIRE-O<sub>2</sub>, USA make Dual Functionally Triton Process Aerators cum Mixers.





## Results:

### Efficient Mixing



### Excellent Oxygen Transfer Efficiency



### Process controlled D.O. Based Automation



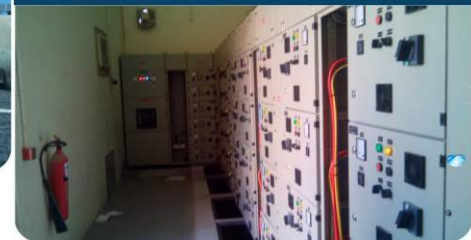
### Easy Installation



### Maintenance & Operator Friendly



### MCC Panel



## Conclusion:

- After upgrading the existing STP with our advanced Triton Process / Mixer make AIRE-O<sub>2</sub> USA, HAYA Water Works Management was very much satisfied with increased efficiency of over all plant by the performance of aerators.
- The performance of the Aerators with regards to high BOD removal, Environmental friendly, Excellent BNR Removal, Less Power consumption due to individual Blower turndown capability and Low maintenance inventory.





HAYA WATER

O & M

4100-FOM-053

Revision: 02

### Completion Certificate Form

<b>Contract No:</b>	HAYA/T35/C256/2014		
<b>Project Title:</b>	Design, Supply, Installation & Commissioning of Aeration System at Old Ansab STP		
<b>Contractor's Name &amp; Address</b>	Water Matrix Technologies FZE		
<b>Supervision Consultant</b>	N.A		
<b>Contractual Completion Date:</b>	31.12.2014	<b>Actual Completion Date:</b>	31.12.2014
		<b>Defects Liability/ Maint. Period</b>	1 YEAR

#### Brief Scope of Work:

The scope of this project was to design, supply, install and commission floating aerators for the Aeration tanks located at Old Ansab STP in order to increase plant capacity from 8,000 to 20,000 M3/d. Contractor supplied, installed and commissioned 18 No's of Floating aerators in Aeration tank at Old Ansab STP with total value of project R.O. 664,210.600 without additional cost of adding 2 units in the system (Originally 16 Aerators as agreed).

The Work perform under this contract has been completed, Inspected and Handed Over dated 31.12.2014 and found to be finally Accepted (Performance Report Attached). The date of Final Completion of the Project is hereby established as 31.12.2014.

Failure to identify incomplete work items or requirements of Contract Documents prior to issuance of this Certificate does not alter the responsibility of the Contractor to comply with all provisions of Contract Documents. The Contractor shall be held responsible for any defects found related to his work or incomplete work/ assignments under this contract even after issuing this certificate.

Retention money, if any may be released to the Contractor where applicable as per the relevant Clauses of the Contract.

#### **Consultant:**

Name	Signature	Date
N.A	N.A	N.A





HAYA WATER

O & M

4100-FOM-053


Revision: 02

### Completion Certificate Form

#### Haya Water Project Engineer/Focal Point (Contract Holder)

Name	Signature	Date
Wasfi Mohammad Wasfi Abumughli		31/01/2016
Ahmed Al Araini		31/01/2016

#### Haya Water General Manager/Dept. Head (Contract Owner)

Name	Signature	Date
Mahmood Abu El Soud		3/04/2016