

# **IMPROVEMENT FOR NAULA WATER TREATMENT PLANT AND DISTRIBUTION**

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## **Abstract**

Naula Reservoir has been selected as source of Naula Water Supply Scheme. During the dry season blackish color sludge is formed within water distribution system. And foul smelling occurs in the distribution system. In this research main purpose is the study this problem in Naula water Treatment Plant. Main Objective of this research is Propose the feasible and economical solution for appropriate to the Sri Lanka, problem involve Naula Water treatment Plant.

Methodology mainly contains three parts. Sample collection, DO variation with depth, Analysis of the samples. Samples collection was done in the reservoir, treatment plant, and the distribution system. Algae identification sample was collected from the surface water of the reservoir. All the collected samples were undergoes with the chemical and physical parameter analysis.  $S^{2-}$  content,  $NO_3^-$  content as N,  $NH_3$  content as N,  $PO_4^{3-}$  content were measured as chemical parameters and pH, color, Turbidity, Conductivity were measured as physical parameters.

Findings indicate that the Naula reservoir has thermal stratification. And the anaerobic condition in the hypolimnium of the reservoir. pH level of the anoxic hypolimnium is low and it creates acidic condition in the reservoir bottom. Sulfide content was also high in the hypolimnium of the reservoir. These two results are strong evidence for the Sulfur reducing bacteria (SRB) habitant. Sulfide content high in the bottom and it may form the hydrogen sulfide gas. It will form the foul smell (rotten egg smell). That will cause for the foul smelling in the distribution and Sulfides are precipitates in the pipe lines as black precipitates.

For the problem in the Naula treatment plant feasible solution is the aeration. In Naula reservoir water is stagnated and does not mixing air well. Another option is floating intake. Other option is Granular Activated Carbon (GAC) column filtration for raw water. It will remove the organic matters and the microorganism in the raw water.

Key Words: Anoxic hypolimnium, Naula Reservoir, Sulfur reducing Bacteria (SRB),