

Evaluation of the Effectiveness of a Sewage Treatment Plant in Oman: Samail Case Study

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Abstract : Treatment of wastewater involves physical, chemical, and biological processes to remove the pollutants from wastewater. This study evaluates the effectiveness of sewage treatment plants (STP) in Samail, Oman. Samail STP has tertiary treatment using conventional activated sludge with surface aeration. The collection of wastewater is through a network with a total length of about 60 km and also by tankers for the areas outside the network. Treated wastewater from this STP is used for the irrigation of vegetation in the STP premises and as a backwash for sand filters. Some treated water is supplied to the Samail municipality, which uses it for the landscaping, road construction, and 'the Million Date Palms' project. In this study, homogenous samples were taken from eight different treatment stages along the treatment continuum for one year, at a frequency of once a month, to evaluate the physical, chemical, and biological parameters. All samples were analyzed using the standard methods for the examination of water and wastewater. The spatial variations in water quality along the continuum are discussed. Despite these variations, the treated wastewater from Samail STP was of good quality, and most of the parameters are within class A category in Oman Standards for wastewater reuse and discharge.

Keywords : wastewater, STP, treatment, processes

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