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Physical Properties of Waghur Dam Reservoir Water, Jalgaon

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Abstract -As we know water is essential requirement for all living beings but Water pollution or Contamination may cause hazard to living beings. Now day's water Contamination is increasing with rapid increase in world population and per capita consumption of water due to rising standards of living and other levels of activity have greatly intensified the demand for water all over the world. Different impurities/ in water can be determined by various different water tests. The Tests of water is divided into three types Tests:

1. Physical Tests
2. Chemical Tests
3. Microbiological Tests

For determining Contamination in water, Proper water sampling is essential because it is the most careful consideration of all relevant circumstances. This paper deals with study of physical properties of waghur dam reservoir water. As per BIS physical test on water are Turbidity test, pH test, Temperature test, Total dissolved solids test, Colour test and Odour test. In this paper, physical test recommended by BIS conducted on Waghur dam reservoir water and its results shown with the help of graphical representation.

Key Words:Contamination, Physical Test, Turbidity test, pH test, Temperature test & Total dissolved solids test.

1. INTRODUCTION

Waghur River originates from the Ajanta, Dist. Aurangabad from hills of Sahyadri range in the Aurangabad district of Maharashtra and flows from Ajanta to Jalgaon and meets to Tapi River which is the second largest westward flowing river in India. The Waghur dam is constructed across waghur river and its main purpose is water supply to Jalgaon city. Waghur dam is located at Raipur Village, Jalgaon, Maharashtra.

Total Capacity of Waghur dam reservoir is 75 TMC and its surface area is 467 km^2. The volume of wastewater generated by domestic and commercial sources has been increasing with population, urbanization, improved living conditions, and economic development of the Villages.

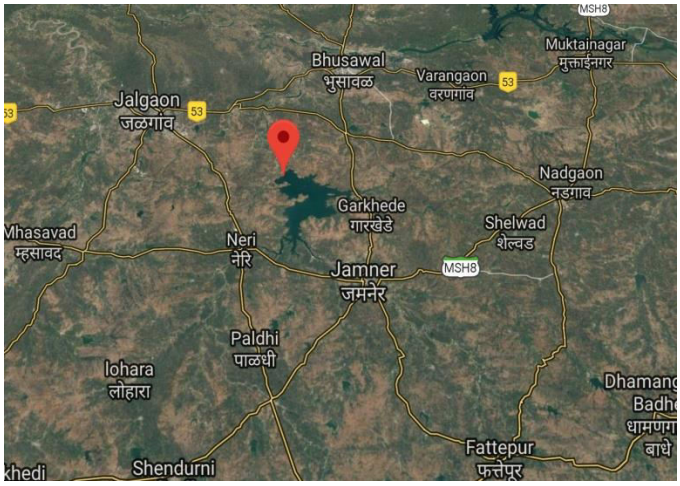


Fig. 1 Location of Waghur Dam Reservoir

2. CAUSES OF POLLUTION:

Following are main causes of water pollution in Waghur River…

- Disposal of Domestic waste water without any treatment from villages located near bank of Waghur River into the rivers.
- Disposal of Municipal Solid Waste into Waghur River from villagers near bank of Waghur River.
- Human activities like - cloth washing, vehicle washing, animals washing and human excreta disposal in Waghur River.

3. SAMPLING:

Water samples are collected from different three locations of waghur Dam reservoir; about 50m away from each other on 10th December 2019. The samples are collected in clean and sterilized bottles. Selections of Three different locations were identified and water samples were collected at sites and assign as S1, S2 and S3.

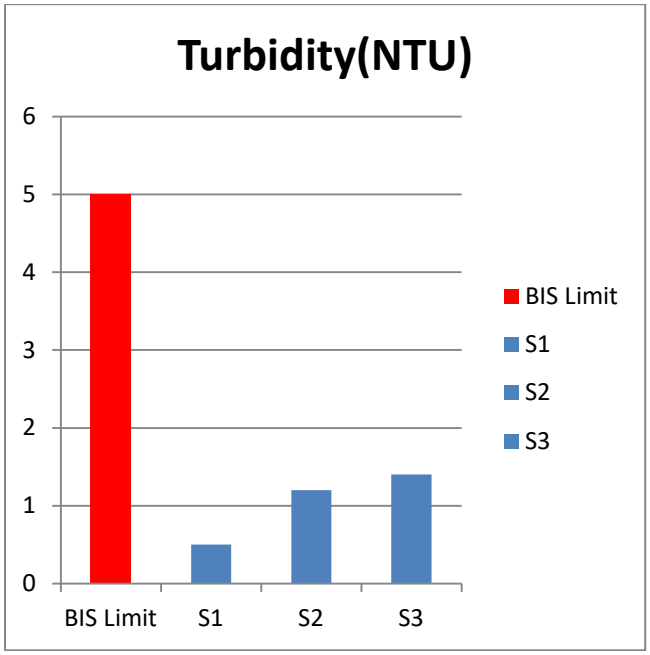
4. PHYSICAL EXAMINATION:

4.1. Turbidity Test by Nephelometer:

Nephelometer is modern equipment in which the light intensity is measured at right angle to the incident ray in which the light intensity is measured after the some passes straights through the turbid meter. Turbidity is measured by Nephelometer and it

is expressed in NTU(Nephelometric Turbidity Unit). Result of test is shown in the form of graph.

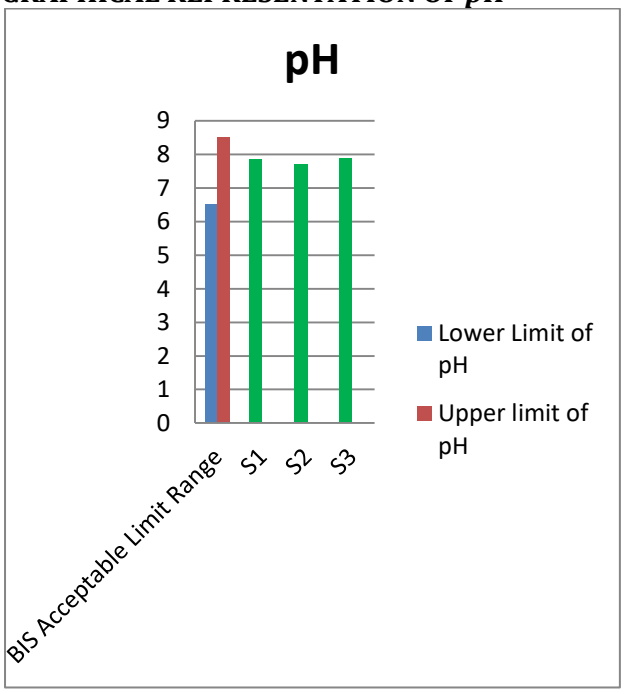
GRAPHICAL REPRESENTATION OF TUBIDITY



4.2. *p*H value measured by Electrometric method:

*p*H meter is used for this method. The specimen of water is kept in clean beaker and two electrodes of the instruments are dipped in water connected to a dry cell. When current passes through the circuit, the *p*H value indicates on the dial. Result of test is shown in the form of graph.

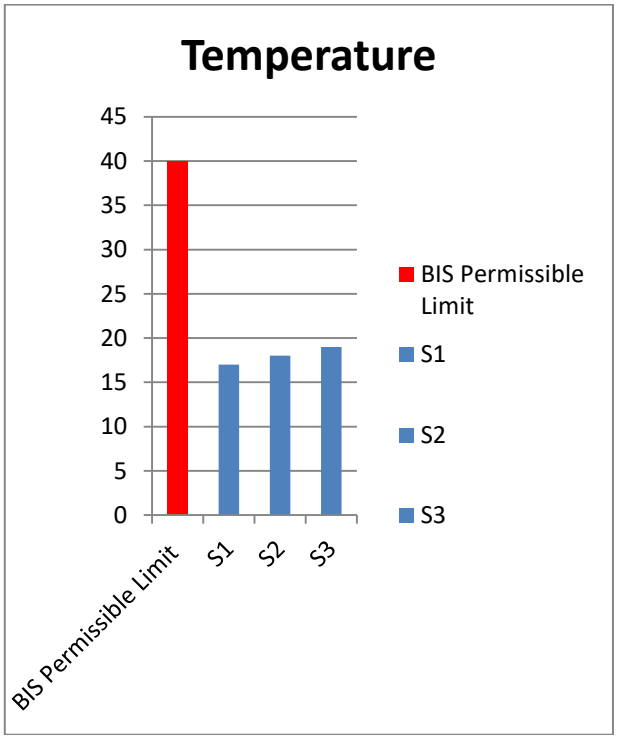
GRAPHICAL REPRESENTATION OF *p*H



4.3. Temperature Test:

Temperature of water is measured by ordinary thermometer having range 0 to 50 °. Temperature of water affects biological activities. Temperature of water also affects density, vapor pressure, surface tension, Gases dissolved and B.O.D of water. Result of test is shown in the form of graph.

GRAPHICAL REPRESENTATION OF TEMPERTURE IN CELSIUS



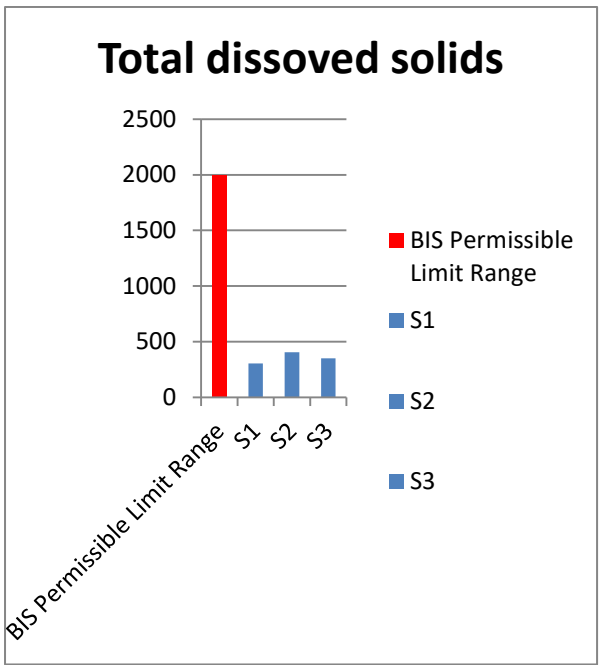
4.4 Colour test:

Main cause of color water is the presence of minerals in water. Colour of water is measured by simple comparison with standard solution using a spectrometer. From colour test, it is observed that no presence of any colour in three samplesof waghurdam reservoir water.

4.5 Total dissolved solids Test:

Dissolved solids are generally salts, Metals cations or anions in water. For determining dissolved solids, the filter sample of water is evaporated & residue left is weighed with the help of Platinum Dish. Result of test is shown in the form of graph.

GRAPHICAL REPRESENTATION OF TOTAL DISSOLVED SOLIDS



5. CONCLUSIONS

We have conduct turbidity test, pH test, Temperature test, Total dissolved solids test and colour test. From all results, we have found that all physical water properties of waghur dam reservoir wateris under permissible limit stated by BIS standard for drinking water.

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