

## Introduction to Infrastructure

Field Visit Report on:

- Kotarpur Water Works, Ahmedabad

Submitted By:



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**Place: KOTARPUR WATER WORKS.**

**Date: April 5<sup>th</sup>, 2014**

**Time of visit: 2:30 AM**

**Time of return: 5:00 PM**

As we reach there, we were taken to the model room, where the whole model of the plant was made. Then we were given brief information about the history of plant and how it is working.

### **HISTORY OF PLANT:**

- The plant was planned many years before it came into existence but failed to start as there was no raw water available during that time.
- Then on 5<sup>th</sup> of April, 2000, **exactly 14 years before the date of our visit**, this plant started functioning, as Raska Water Works provided the plant with raw water.

### **AMOUNT OF WATER BEING SUPPLIED TO PLANT:**

- The amount of water required by AMC is 1100 MLD.
- Kotarpur plant produces 650 MLD of treated water.
- Raska water work provides 125 MLD.
- Jaspur water works provides 200 MLD.
- And 125 to 150 MLD is taken through French wells.
- 350 MLD is taken from Sardar Sarovar using canal. This is possible because kotarpur plant is at low level than Sardar sarovar dam, so gravity assists the process.

### **TYPE OF IMPURITIES FOUND IN WATER:**

- Floating type: Removed using screening process.
- Suspended solids: Removed using chemical process.

## WORKING OF TREATMENT PLANT:

- In the beginning of process, raw water from different suppliers is collected in intake tank. There were total of three units for treatment of water, so this stored water is divided into three units using pipes, each contain 225 MLD.
- The first stage of is screening, here the water is allowed to pass through a big fine mesh (cross wire gauge) having tiny pores. Because of this, the impurities which are bigger in size than pores get removed.
- Once the screening is done, chemical processes are implied on water. Raw water has an NTU (Nephelometric turbidity unit) value. According to WHO, water should have up to 5.0 NTU.
- In summer, raw water has 5 NTU, but in winter or monsoon, it has about 10 NTU. So in order to maintain this value, chemical dosing is used.
- In this process, aluminum sulphate alum is dozed on water. Because of this color of water changes somewhat. Alum is sprayed on water so that it gets mixed.
- The ratio of alum is 1:10. After 2 to 2.5 hour, the water gets discolored. More than 90% impurities are removed till now.
- Water passes through flocculation process.
- Here alum and water is mixed well using flocculates. Because of this, many impurities collide and forms bundle which can easily be removed.
- All these impurities were being dumped into a 4 by 4 foot pit.
- Then comes the sedimentation process, here the water is settled for sometimes, as a result, some impurities get settled down at the edge of tank.
- After this, the impurities settled at bottom are taken to the center for dumping with a use of Traction Bridge. It has scrappers at the bottom at some angle and revolves at speed of 1rev/45 min. It rotates 2” above the surface.
- Then filtration takes place, where any other invisible impurities left in water is removed.
- Types of filter used: 1) decline rate type & 2) gravity sand filter.
- Filter media contains fine coarse silica sand. It has 350 mm of gravels and 750 mm of fine silica sand.
- Impurities get settled in media used for filtration.
- Filtration rate is 1450 liter/second.

- In order to clean the filter media so that it do not gets chocked, process called back wash is used. Here the water is allowed to fall on filter media down to up and thus filter media gets cleaned up. This process is repeated every 6 week for maintenance.
- The last stage of treatment is chlorination. Basic task of this is to remove bacteria, viruses and smell from water, in short to make water ammonia free.
- Chlorination is done at ratio of 1ppm.

**This is how we get the pure and treated water at our homes.**

**The whole visit was very much knowledge gaining. It was a wonderful experience to know that how we get the pure water for daily use. So overall, the whole visit was fruitful, giving great learning experience at the same time.**