

Sugar Mill Water Pollution control.

Basic Philosophy

1. The basic philosophy that was used to achieve this commenced with a review of the working of the Effluent Treatment Plant (ETP) to improve the quality of discharge for reuse in the process.
2. The other area of concentration was in the reduction of the Effluent Quantity being discharged from the plant and its quality through control of any leakages or spillages or overflows to the drain and finally to the ETP.
3. Reduction in cold water consumption.

Steps taken off season

- a. 100% Condensate (60 to 75 degree centigrade) usage for Masceration instead of cold water
- b. 100% condensate or surplus condensate at Wet Scrubbers for Air Pollution abatement instead of cold/fresh water
- c. Recycling of Vacuum Pumps Cooling water to Wet Scrubbing at the Air Pollution Control Devices and for storage in spare clarifier.
- d. Preparation of all chemicals with condensate water / once used water from process
- e. Blow down water of Boilers taken for treatment to ETP
- f. All streams which had been carrying effluent – towards railway line, spray pond overflow etc were all diverted to the ETP stream and sent for treatment.
- g. Surplus condensate of Wet Scrubbers recycled to Saraswati Mill Masceration Tank
- h. Usage of Condensate from reservoir(GSR) in Overhead Hot Water Service Tank at Boiling House in case of shortages instead of fresh water
- i. Recycling of Gland Cooling Water of Boiler Feed Water Pumps to Wet Scrubbers for Boiler Nos 15, 16, 17.
- j. Creation of closed loop system in Vertical Crystallizers
- k. Recycling of water being used for Callandria Cooling / Testing
- l. Recycling of excess water from recirculation tanks to avoid overflow by the installation of larger capacity pumps at Saraswati Tandem & at Power House recirculation tanks one extra pump to be put in operation.
- m. Usage of Condensate for Rotary Filters instead of water from Rotary Filter Vacuum Pumps.
- n. Improve the desuperheating of steam to below 130 deg C to ensure no damage to gaskets of Plate Heat Exchangers or to the gaskets of valves of evaporator bodies so that we reduce our water presently being used for cooling of the callandrias during cleaning of the bodies. These leaking valves would automatically remain in working order throughout the season.

- o. Reuse of condensate of Plate Type Heat Exchangers to Boilers rather than to process – shall reduce operation of DM Plant
- p. To increase capacity of sump for untreated effluent to take care of any sudden changes in flow / surges
- q. Cleaning of Juice Heaters with Spray Pond Water **(Not followed)**
- r. Cleaning of Sulphitators with Spray Pond / Injection Water
- s. All connections to ensure 100% recirculation of callandria testing water
- t. Capacity of Cooling Tower of Power House increased
- u. Stop cooling of mill bearings externally especially in Yamuna Tandem
- v. Gland Cooling of Pumps done in a controlled manner with a better system to reduce consumption
- w. Operate clarifier (RCC) for storage of surplus condensate
- x. Collection of surplus water of desuperheating for reuse
- y. Collection of condensate from steam traps
- z. Controlled Cleaning of Vessels to regulate flow of discharge
- aa. Shifting of oil and grease arresting machine to Yamuna mill area.
- bb. Use of vacuum pump recirculation water at GSR in case there is surplus water at APCM.
- cc. Transient heaters surplus water is diverted to GSR.
- dd. Direct addition of treated effluent to over head service tank for equal distribution.

Usage of Spray Pond Water instead of fresh water

- 4. Against the usage of fresh water the following operations were commenced with the use of Spray Pond Water
 - a. Fire Fighting
 - b. Sprinkling of water on Bagasse
 - c. Quenching of Ash
 - d. Priming of Spray Pumps
- 5. Besides the above, treated effluent was also used for
 - a. Horticulture at ETP & inside factory through fire fighting line.
 - b. Bio Composting
- 6. De-foaming in Injection Channel Water with the use of de-foamer/injection water instead of fresh water.
- 7. No wet cleaning of floors – instead either bagasse or simply dry cleaning.

Current Status

- 8. Post the above changes, the following is the current status

- a. Our drawal from the tubewells was at an average of 118 Litres/ MTCC against an average of 301 Litres/MTCC
- b. Generation of effluent from the Factory was 202 Litres /MTCC (zero physically with 100% recycle) against 209 Litres/MTCC last season.