

50 MLD STP AT RAMANA VARANASI

About the Project:

UP Jal Nigam was in a process of building a 50 MLD STP at Ramana in Varanasi. Raw sewage for this STP was to be received from an existing pumping station which is around 20 km away from the STP site at the confluence of the Assi & the Ganga river.

There is an existing pumping station from 25 years ago where 5 vertical non-clog pumps were in operation. As a part of this project, these pumps were to be replaced with higher capacity pumps so as to cater to the sewage from the increased population and feed to the new STP. This is first project in Varanasi of UP Jal Nigam on Hybrid Annuity PPP basis under the National Mission for Clean Ganga (NMCG) program.

The Challenge

1. New pumps were to be installed in the existing pumping station without much alteration in the existing civil & piping layout including the pit structure.
2. Although the new STP was to be designed with a capacity of 50 MLD, the current requirements were relatively lower. Therefore, suitable pumps were to be selected which can take care of existing as well as future requirements without changing the civil structure or the pumps of the pumping station.



The Solution

After initial discussions with officials of UP Jal Nigam and the turnkey contractor & consultant, KISHOR team visited the site and took actual measurements of the piping and civil structure. A series of meetings were carried out with UP Jal Nigam and turnkey contractor & the consultant. There was no possibility for any change in existing piping layout and structure. We needed to supply big capacity pumps within the existing piping layout. Finally, after a lot of deliberations & simulations it was decided to design & select the pumps for flow capacity of 1600 m³/hr (almost double the flow capacity of old pumps) @ 40 metre head (275 kW / 370 hp) for each pump & total quantity of pumps to be 5. Further, since the flow of new pumps had to be almost double the old flow rate in the same piping and civil layout, the new pumps had to be selected for double the rotational speed of 1450 rpm.

Outcomes :

KISHOR has supplied 5 number of vertical non clog dry pit pumps with standard motor in March 2019 after satisfactory inspection of UP Jal Nigam & the consultants, and the pumps are under installation.