Shubham Case Study – Zydus Hospital

Effluent Treatment Plant – 300 KLD

ABOUT ZYDUS

ZYDUS provides world standard healthcare solutions to the community by leveraging advances in medical research science and technology and adoption of best management practices by them.

Hospital wastewater containing infectious, pathogens, toxic, biodegradable and radioactive contaminants that can cause pollution and health problems hence its treatment should be done in efficacious way.

Hospital wastewater is wastewater generated from all activities of the hospital as medical and non medical activities from the operating, emergency & first aid, laboratory, diagnosis, radiology, kitchen and laundry activities that increase its content as BOD ,COD, TSS and all other degradable & non degradable materials

CHALLENGES FACED

1. **Prefabricated Tanks**

   As per the site and the client's requirement it was tough to manage the high flow in the prefab construction still we managed it to provide 350 KLD ZLD plant in the prefabricated structure..

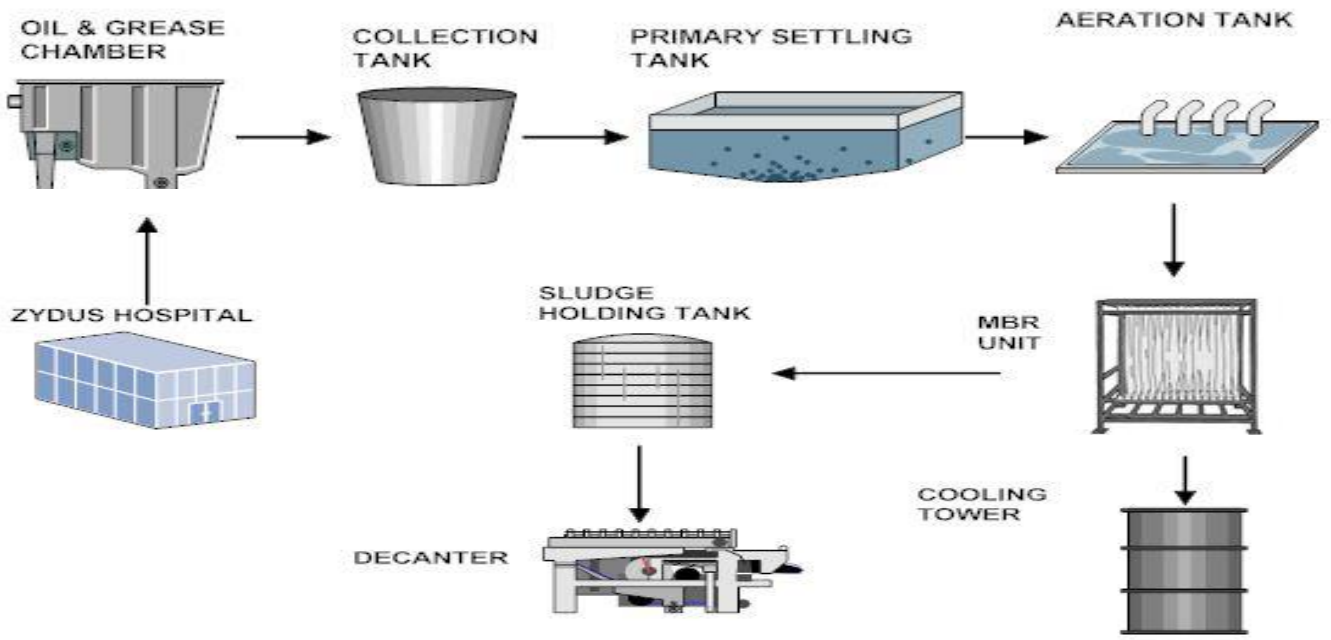
2. **Varying flow**

   The entire cycle of treating waste water generation, and the final supplying of the treated water to the process area required certain foot print area. But the availability of the space for the EFFLUENT TREATMENT plant was too conservative and hence the designing of the treatment plant needed to utilize every mm of space effectively. The entire vertical & horizontal available space was scrutinize to fit the plant effectively for operation & maintenance.

3. **Hospital was not in full operation**

   Handling of high temperature effluent is always challenging. Our focus remains to use this energy or to use the minimum energy to bring down the temperature for the suitable use.

PROCESS FLOW DIAGRAM



PROCESS SUMMARY

The process is very simple compact as because of the **less space** and high **EFFICIENT** with simple management of the plant, as a result of high degree of automation (low dependence on human factor)**.** Also constant effluent quality, regardless of the influent is the best part of the technology provided by us.

The waste water from the hospital is initially collected and its O&G is removed them primary treatment is done for the suspended solids removal. Aeration tank is provided for maintaining the dissolved oxygen content and then the MBR unit is provided for the removal of the impurities. Sludge generated from the above units is treated by Decanter and the treated water is used in the cooling tower.
Also small quantity of excess sludge and therewith connected costs with MBR plants enable Total Wastewater Management and also the sustainable environmental management.

ETP INLET		**ETP OUTLET**	
Flow	- 350 m3/day	Flow	- 325 - 350 m3/day
pH	- 7-7.5	pH	- 7.41
BOD	- 300 – 350 mg/l	BOD	- 3 mg/l
COD	- 450 – 600 mg/l	COD	- 6 mg/l
TSS	- 150 – 250 mg/l	TSS	- 10 mg/l
O&G	- 15 mg/l	O&G	- NIL

SUMMARY

Clean potable water is necessary in order for hospitals to safeguard patients' health. As such, it is vital that hospitals keep their potable water supply safe and treat their wastewater before it is discharged.

Using our knowledge and experience, we assisted a plant with developing cost-effective ways to manage and treat water and wastewater. This helped them to have consistently high potable water quality, benefitting patients' health. It also aid them in protecting the environment.

Hence we feel proud as our plant is running now so efficiently treating the waste water and providing for reuse again in the hospital without any problems.