IESL TECHNICAL BULLETIN

July 2007

This is yet another bulletin to share information/experience with all of you regarding **"Real Facts- Commissioning of NGPSTP and WTP Commissioning"** in plant being serviced by IESL.

INDION NGPSTP Commissioning at M/s. Ginger Hotel, Pune: IEI supplied INDION NGPSTP 2000 to M/s. Ginger Hotel, Pune in month of June 2006. The installation and commissioning had been offloaded to IESL Pune. IESL Pune had completed erection activity and commission the NGPSTP in month of November 2006. During commissioning they conducted the raw water trial followed by commissioning with sewage.

Scheme:

Raw Sewage Collection tank→ Sewage transfer Pumps→ INDION NGPSTP→ Chlorine Dosing→ MGF→ ACF→ Treated water to Municipal Drain

After commissioning of NGPSTP, the geared motor has failed/burned more than 6 times at this site. Every time IESL engineer visited the site and found sewage water was continuously spilling back into geared motor compartment and which was culprit for motor failure. The question was how and why it was happening?

The actual reasons for above trouble were,

a. Mal-operation of NGPSTP, i.e., running the NGPSTP at higher feed flow rate than average feed flow rate.
b. Lack of preventive maintenance
c. No operator for operating the NGPSTP
d. No proper communication with IEI/IESL

High Flow rate: All NGPSTP has designed for their respective capacity and we have to run all models at average flow rate based on exact design capacity. If anyone exceeds the same sewage water is find its way and it starts filling NGPSTP from bottom, top and sides. Thus sewage water use to enter into geared motor zone and was forcing motor to burn.
Lack of preventive maintenance: Lamella clarifier weirs are require cleaning at regular interval, otherwise it restricts free flow and the same fact again repeats as narrated above.
Nobody was monitoring higher feed flow rate and any abnormal run of motor. Even there was no check for gearbox lubricant. No fixed operator, all electricians were operating the NGPSTP, who are having Hotel Room service on higher priority. There was No communication from M/s. Ginger to IESL/IEI until motor fails/burns.

Solutions to prevent the motor failure in INDION NGPSTP:

a. Run the INDION NGPSTP at its average flow rate
b. Do check the lubricant for motor gearbox
c. Do check the any abnormal condition for motor or gearbox
d. Do preventive maintenance for both Lamella clarifiers
e. Do check the hydraulics of water while running
f. Run RBC rotors continuously
g. Do record motor current and voltage rating on regular frequency
h. Do analyze the quality of Inlet and outlet monthly

WTP Commissioning at M/s. Renuka Sugars Limited Gulbarga: IEI supplied water treatment plant to M/s. Renuka Sugars Limited Gulbarga in 2006. The installation and commissioning had been offloaded to IESL Bangalore. IESL Bangalore had completed erection activity and commission the plant in month of January.

Scheme:

River Water→ Feed Pumps→ MGF → UF Plant→ UF Permeate water Tank→Ro feed Pump→ CF → HPP→ RO Plant→ Degasser Tower→ DG Water Pumps→ Pumps→ Mixed Bed→ DM Water storage tank

IESL commissioned the plant, but from day first of commissioning they struggled to achieve the SDI reduction across UF plant. There was No reduction in SDI at all. IESL tried all available/alternative practices like alum dosing, polymer dosing, ROCA dosing, but No success!
The actual reasons for above trouble were,

a. Raw water source
b. Contamination of raw water with Spint water (Sugar & molasses condensate)
c. Lack of systematic approach during commissioning of WTP
d. No analysis of Raw water before commissioning of plant

Raw Water Source: IEI had designed this plant for surface water (River Water) and they provided the scheme with utmost safety including MGF and UF before RO. But at site customer were drawing the river water and were storing in centralized sump.

When we inspected the source and the centralized storage sump. The scenario was surprising! The river water was very clear, but the storage sump was getting contaminated with spint water. Because of this the stored sump water was giving sugar cane juice smell. When we analyzed this water for sugar test, **Sugar Test was positive.**

Lack of systematic approach: We did not find any kind of analysis of raw water before starting the commissioning activity. Because of customer pressure and requirement of DM water, IEI and IESL representative had commissioned the plant.

Solutions to prevent above trouble and steps to proceed commissioning:

a. Do analyze the raw water and establish its characteristics before starting the commissioning.
b. Do communicate the proper deviation regarding raw water characteristics and get the corrective action.
c. Do check the pretreatment equipment performance with suitable criteria
d. Do not commission the UF plant in manual mode. It may crate irreversible damage to UF membrane
e. Once after getting SDI as per design consideration at UF outlet, proceed for RO commissioning
f. Please do not entertrain the customer pressure for commissioning of plant unless and until it matches design consideration with allowable deviation from supplier

Hopefully, this Bulletin will help all our engineer for regular commissioning to avoid unnecessary delay in commissioning of plants.

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