The Dynatec Difference

**OILY WASTEWATER — TITANIUM PLANT**

**DBOOM SYSTEM**

**Background**
This company recovers titanium metal for reuse. Among other processes, the materials are de-oiled and washed in alkaline based chelated cleaners. This produces oily wastewater that also contains very high levels of COD and heavy metals in solution. Some of the metals are also complexed.

**The Sale**
In 1989, the titanium facility purchased an oily-waste ultrafiltration system to remove emulsified oils and metals prior to discharge to sewer. This system worked well for many years.

In 2003, Dynatec was approached with two requests: first, the local sewer authority had issued a requirement to reduce COD and second, the original UF system was no longer keeping up with the increased flows from manufacturing operations.

The final requirement was to provide a system at the lowest possible cost in a confined space in the plant to meet demanding metals and COD requirements.

**System Design**
To remove COD, the selected technology was MBR. This allows for the best possible COD reduction in the smallest possible tank space. The MBR concept that was adopted (Dynatec HiRate™) also allowed for long sludge age, and the mixed liquor concentrations can be operated at high levels.

Since the original UF system was no longer large enough for increased flows, a new larger UF system was provided to remove oil, suspended solids and heavy metals. To complement this system a new coalescing oil/water separator was provided and an enhanced metal precipitation system. This constituted the new primary treatment system.

Since cost was an issue, Dynatec offered to own and operate the system under a long term contract. This was accepted by the company, and since startup in 2007, the system has performed well. The system is operated by a part-time operator, who visits the site daily. In addition, Dynatec can view and operate remotely.

**Significant Savings**
- Minimized chemical precipitation costs
- Lowest capital cost
- Low operator attention
- Minimal sludge disposal
- Low maintenance
- Costs are fixed during multi-year contract

**Technology Benefits**
- Membrane separation does not allow system upsets
- Consistently high quality water production
- Ability to reuse purified water
- Low operating costs
- Low operator attention required

**Dynatec Services Provided**
- Process design
- System design
- Controls design
- System build
- System installation
- Startup, commissioning and operator training

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