The business of the Centralized Waste Treatment (CWT) industry is to handle wastewater treatment residuals and industrial process by-products that come from other manufacturing facilities. Centralized Waste Treatment (CWT) facilities receive a wide variety of hazardous and non-hazardous industrial wastes for treatment. Many of the wastes contain very high pollutant concentrations and are usually difficult to treat. Few facilities in the Centralized Waste Treatment (CWT) industry achieve optimum pollutant removal.

**Treatment of Industrial Oily Wastewater**

Free and so-called “soluble” (emulsified) oils, as well as heavy metals, can be separated from waste streams very effectively using membrane separation. Membrane separation is used based on its ability to selectively remove contaminants and produce a waste stream that is suitable for disposal to sanitary sewer or, in some cases for reuse. The systems operate by concentrating the oily emulsion, therefore reducing disposal costs. When heavy metals are present, the waste is pretreated to precipitate the metals prior to the membrane filter that then removes and concentrates the metals.

**System Design**

Any free oil that is present is first removed usually through the use of a coalescing oil/water separator. When metals must be removed, the waste passes through a pretreatment system to precipitate the metals. The waste is then transferred to a process (feed) tank ahead of the membrane system, in this case, a tubular Ultrafiltration system.

No oil can pass the membrane, only materials in solution in the aqueous stream such as surfactants. The treated fluid is known as “permeate”. The permeate is normally suitable for discharge or reuse without further treatment. The concentrate (reject) is periodically discharged from the process tank and is normally disposed of to an oil recovery company.

**Simple Mechanical Process**

The membrane filter is a mechanical system that allows clean water to pass; the contaminants are retained and returned to the waste holding tank. There are no chemicals used other than to adjust pH and/or precipitate metals. The levels of waste material for disposal are significantly lower than conventional physical/chemical waste processes. The system simply separates and concentrates the contaminants in the wastewater, which are then disposed of.

**Unattended Operation**

Since the process does not rely on coagulation and flocculation, continuous operator control is not needed. The system is completely mechanical and can be left unattended for long periods without operator intervention.

**Consistent High Quality Water**

The membrane filter forms a positive barrier to the flow of contaminants producing continuous high quality water without operator attention. The membrane system is not affected by variability in the waste stream. The purified water is suitable for reuse or sewer discharge.
DYNATEC TUBULAR ULTRAFILTRATION SYSTEM BENEFITS

Higher Quality
- Rugged construction
- Pressure, temperature and flow control using transmitters
- Easy to navigate HMI screens
- System construction allows for hot system cleaning

Lower Maintenance
- Higher circulating rates mean less cleaning
- Circulation pump provided with dynamic seal to provide protection against seal wear and failure
- High quality transmitters are long lived
- Larger tubular membrane module does not require prefiltration
- Ability to use aggressive cleaners to shorten cleaning
- All wetted surfaces plastic or stainless steel
- Ability to isolate passes of membranes for ease of maintenance
- Ability to mechanically clean membranes

Better Performance
- High circulation rate produces higher and more stable flux
- High concentration due to low reject with large tubular modules
- 100% removal of oils, suspended and colloidal contaminants

Greater Dependability and Reliability
- High performance duplex stainless steel circulation pump
- High stable flux

Lower Operating Cost
- Less cleaning time and chemical
- Less concentrate haul away
- Extremely long membrane life