Dynatec Provides Multi-year Service Contract at a Welded Steel Tubing Manufacturer

Background

A welded steel tubing manufacturer is located in an isolated part of New York State inaccessible to a sanitary sewer connection. The company manufactures welded steel tubing, which is plated with zinc or copper. The wastewater discharge permit requires very low levels of discharge for copper, zinc and iron. The company operates six to seven days per week, twenty-four hours per day.

The company utilized conventional physical/chemical treatment to treat between 20,000 and 25,000 gallons per day of water and had significant problems continuously meeting the required discharge standards. Two full-time operators were required in the water treatment plant, which produced between twelve and sixteen cubic yards per month of dewatered sludge for disposal.

The Evaluation

Dynatec was asked to provide a solution to contain rising costs and to ensure continuous compliance with discharge requirements. First, typical samples were evaluated in Dynatec’s treatment laboratory to prove that the required standards could be achieved on a consistent basis and within the required cost constraints.

Evaluation of the waste showed that it contains low levels of oil and grease, as well as iron, zinc and copper. All of the contaminants; however, were well above permit levels and needed to be reduced in order to meet discharge compliance requirements.

After successful treatability work had been completed, a proposal was drawn up for Dynatec to own and operate a treatment plant at the owner’s facility under a Contract Service Agreement. This proposal was evaluated by the customer and a multi-year contract was signed. The proposal was first evaluated by New York DEC for compliance with regulation.

After this phase was completed, installation of the new plant was undertaken while the existing plant was still in operation. This presented several challenges since the space available for the new equipment was limited.
Prior to installation and startup, local operators were hired and trained by Dynatec in the operation and maintenance of the plant while the existing plant was still in place and operational.

The new plant was commissioned and, after a test period during which the new plant proved to provide both the qualitative and quantitative discharge requirements, the old plant was finally de-commissioned.

**New Plant Description**
The new waste treatment plant consists of equalization storage, chemical pretreatment and ultrafiltration to remove and concentrate the precipitated metals. Sludge dewatering is achieved using an existing filter press. The plant has achieved the required discharge standards without fail since within one week of startup and operates as much as twenty-four hours per day, seven days per week when the production plant is in operation.

As part of the contract, and in order to improve production quality, Dynatec installed a Reverse Osmosis system to treat the plant well water, which contains significant levels of hardness as well as other inorganic contaminants.

The overall plant design called for duplexing of all critical components so that breakdowns can be corrected and maintenance can be carried out while the treatment plant is operational.

**Implementation**
Dynatec operates the plant with two part-time operators, who between them work less than thirty hours per week. The plant is alarmed so that the operators receive a call if any abnormal situations occur.

**Economic Considerations**
Annual increases in the operation and maintenance of the wastewater treatment plant had exceeded budgeted amounts for several years and the owner wished to regain control of this significant expense. The cost of operation to the owner is now fixed for the period of the contract and is less than the owner has expended in the last few years. In addition, the cost of sludge disposal will drop by more than twelve times in the next year. Finally, production improvements, while not yet evaluated, include lower scrap rates, longer intervals between plating bath changes and lower rates of rinse recharge in rinse baths.

**Benefits**
- Owner now has fixed costs of wastewater plant operation for the period of the contract
- Dramatically lowered sludge production has significantly reduced disposal costs
- Higher quality incoming water (treated with Reverse Osmosis) has improved product quality and reduced chemical consumption
- Consistently high treatment negates risk of violating wastewater discharge permit