

CASE STUDY: NEW TREATMENT TECHNIQUE

Meat Packing Plant Wastewater Pretreatment using - Dissolved Air Flotation with Acid Adjustment

Type of Facility: Meat Packing, East Coast

Date Inspected: April, 2001

Project Scope: To obtain reduce sewer surcharges.

Overview: A large city municipality was drastically increasing sewer surcharge rates. As the costs were approaching \$40,000/month for this meat packing plant, action was necessary to start controlling these costs. World Water Works *www/RESOURCE* DAF and ancillary equipment was purchased and installed. Since startup, the system has provided for substantial savings.

Background: The client had very little space available. There were four sewer outfalls throughout the facility separately tied into the sewer. The plant flow was 60,000 GPD. The surcharges were based upon an equation which factored mainly BOD and TSS. The customer did not want to add wastewater treatment to his repertoire of core competencies. The solution would require an extremely efficient system requiring very little space and labor with capability of removing large quantities of the impurities.

Bench Testing: Bench testing revealed two difficulties: 1) The waste-water contained a high degree of emulsified organics, and 2) The total dissolved solids (TDS) were in excess of 5000 ppm. These factors typically yield high treatment costs.

Pilot Testing: A pilot study was conducted using the *www/RESOURCE* Dissolved Air Flotation (DAF) system. By using this unique *Polypropylene* DAF, unconventional treatment techniques could be used. An acid treatment approach was tested for its effectiveness. The results were very positive. TSS removal was well below the 350 ppm range necessary to reduce surcharges. BOD removal rates were ~40%. The cost of this acid treatment was ~50%



Design:

A small building was constructed in the back corner of the facility. Sump pumps were placed in each of the outfalls to pump the waste-streams to a new 30,000 gallon equal-



ization tank. A rotary screen was incorporated prior to the EQ Tank to screen the spices and other larger debris. All materials of construction were fiberglass or polypropylene to assure longevity.

Results:

The installation was quite successful. The www/RESOURCE DAF with the acid treatment provided consistent results that did not require an operator to monitor chemical coagulant injection concentrations. A significant reduction in the city's bill was seen immediately. This was before several items on the ancillary equipment were fine-tuned. With these now functioning properly, the results are better than expected.

<i>Impurity</i>	<i>Influent (ppm)</i>	<i>Effluent (ppm)</i>	<i>Reduction</i>
BOD	4500	1254	72%
TSS	1850	167	91%

The system operates a large portion of the day and all night without supervision. **With these results, the savings is well over \$20,000/month.**

Synopsis:

The customer accomplished his goals: significant cost reduction with minimized maintenance, operation cost and time. The www/RESOURCE DAF is highly efficient. The polypropylene construction offered tremendous flexibility to provide necessary performance at the lowest cost. With new regulations preventing rendering plants from accepting solids containing traditional coagulants, acid treatment will prove to be a very effective alternative.

