ANAEROBIC/AEROBIC TREATMENT OF WET CORN MILLING WASTEWATER

**Background**

A company using a wet corn milling operation required treatment of the process wastewater to meet the requirements of the State of Indiana. Due to the location of the facility, a “Zero Discharge System” treatment system with no discharge of treated water was required. An anaerobic/aerobic process including land application was selected because of the wastewater characteristics, degree of treatment necessary, and low operational requirements.

**Project Scope**

Owner required a complete “turnkey” approach to the wastewater treatment system. MRV provided all permitting, engineering, process design, procurement, project/construction management, installation and system start-up. MRV provided contract operations for the first three years and assumed liability for meeting operating permit compliance.

**Project Description**

The system consists of solids recovery, a two-stage high-rate anaerobic system, a low-rate anaerobic process, anaerobic process units, and land irrigation system. Solids recovered during the initial steps are sold as animal feed supplement. The solids recovery, combined with high-rate anaerobic process, provides 75% BOD and 80% TSS reduction prior to the low-rate system. The low-rate anaerobic and aerobic process units provide final treatment and effluent polishing prior to land application. Overall reduction of organics through the treatment system is 95% BOD and 90% TSS.

Another function of the low-rate process is to receive all biosolids produced in the various processes and provide further degradation. This reduces the need to waste biosolids to once every three to five years. Sufficient land is available to apply biosolids to the land.

The high rate anaerobic system consist of a 35 ft. diameter by 24 ft. SWH EQ/conditioning tank followed by a 52 ft. diameter by 24 SWH anaerobic reactor. The low-rate anaerobic process utilizes a 260 ft. x 520 ft. x 20 ft. water depth lagoon. The aerobic system includes a 135 ft. by 270 ft. lagoon divided into facultative, aerated and clarification zones. The land application process consists of an 80 acre fixed nozzle irrigation system.