Written by Amanda Martyka, Assistant Editor
Sunday, 01 March 2009 00:00

Losses can really pile up when asset-intensive equipment goes down at a biomass facility. Keeping everything up and running calls for a maintenance software system that won't quit.

DTE Biomass Energy, a wholly owned subsidiary of DTE Energy, has been providing communities with safe, environmentally sound energy since 1988. The company helps limit greenhouse gas emissions by operating landfill gas recovery systems that capture the gas and put it to productive use. Such recovery systems eliminate harmful air emissions by preventing methane from migrating off-site and becoming a safety or odor problem. Landfill gas recovery systems also provide a renewable source of energy that can generate steam, electricity, fuel for industrial processes or pipeline quality gas.

The process of landfill gas recovery involves asset-intensive equipment that must be properly maintained. DTE relies on the availability of this equipment in its 24/7 operations. Failure of a major piece of equipment valued in excess of $1.5 million and the downtime associated with it means operational efficiencies are compromised and production suffers.

Daily maintenance management

To ensure its primary equipment assets and associated components are maintained on a routine basis, DTE schedules and manages all maintenance activity in a maintenance software system called Benchmate. Four DTE locations use this system every day including:

• Fresh Kills Purification Plant, Staten Island, NY
• Westside Gas Producers, Three Rivers, MI
• Pinnacle Gas Producers, Dayton, OH
• DTE Methane Resources, Thompsonville, IL

Each facility site manager schedules preventive maintenance (PM) based on a frequency according to equipment manufacturer specifications. Work order assignments for PMs are tagged as routine or scheduled and take into account the time interval frequency on a weekly, monthly, quarterly or annual basis. Weekly work normally includes basic maintenance for lubrication, oil and grease needs. Monthly preventive maintenance work involves rotating equipment and blowers while quarterly includes alignment checks. Annual PMs involve instrumentation calibration work.

The site facility managers are able to review their PM schedules in Benchmate and make assignments to operators and mechanics for work to be performed. Maintenance work routinely involves refrigeration equipment, pumps, vessels, exchangers, control valves, centrifugal blowers, piston rings, bearings and similar components critical to the performance of the high dollar compressor and gas engine assets. In fact, more than 500 pieces of equipment are maintained on a regular basis.

Mechanics at each site location are responsible for entering job data for their work assignment and for attaching any related documentation. These documents, which provide maintenance procedures, wear pattern readings or visual aids relative to a piece of equipment, are attached in the software system for quick reference.

Because the system captures all work that is scheduled and performed, it lets the facility site manager easily review completed or outstanding work orders for both large and small tasks. When work orders are closed out, Benchmate maintains a complete history of that work related to the specific equipment, component part or location where the maintenance work was performed.

"Prior to using Benchmate, our maintenance tracking and management was handled manually," says James Pena, director of pipeline and quality products for DTE. "Having this software system helps us focus on jobs that must be done. Because they're scheduled in the system, we

cannot ignore them, and that provides accountability that we need to be better organized and more efficient."

The benefits of a single system

Benchmate tracks work performed by maintenance personnel, as well as routine maintenance procedures that operators perform, such as greasing and oiling. Any work conducted by outside contractors also is captured in the system. For DTE, contractors are typically brought in during shutdowns for compressor overhaul maintenance work. Everything—including overhaul work, calibration reports and routine maintenance—is entered in Benchmate to provide a complete history on any equipment.

Because all maintenance work is planned and scheduled through it, the software system serves as a central reference point that indicates when work is to be done regardless of the timing. This is a tremendous help to DTE, where safety valve maintenance is performed every two years. When maintenance work on the valves is completed within the 24-month cycle, certification documentation is attached in Benchmate for reference purposes, thus providing an important audit trail for the required maintenance of the safety valves.

When it comes to spare parts tracking, Benchmate assists with cost control and purchasing decisions. Min/max and reorder points for spare parts are indicated within the system to streamline and manage the purchasing process. Having this type of data available at any time removes the guesswork and estimating process related to spare parts inventory management.

Monthly reports provide facility managers and other management personnel with key data related to all maintenance work. Completed work order reports indicate materials used for jobs, who performed the work and when it was done. And, these reports are supplied to the New York Department of Sanitation for its review since DTE operates this location for that agency.

But Benchmate goes well beyond maintenance in providing additional value to DTE Biomass Energy. As the company's quality program continues to be developed, this system will be included to account for issues related to safety and compliance. For DTE, the future of providing naturally occurring energy looks bright. The company will continue to be counted on as a key energy resource that improves the environment.

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