

## Maintenance Considerations For Servicing Remote Locations

By Jeffrey Scott, Milton Roy, December 22, 2016

### Simplicity of design and availability of parts can increase the reliability and performance of chemical-processing and water-treatment pump equipment.

Servicing and maintaining pumps in remote locations requires critical planning and automation.

Since 1979, Furrow Pump, has provided water-treatment equipment throughout the Pacific Northwest, in Montana, Idaho, Washington, Oregon, and Alaska. Specifically, the company provides metering pumps for potable and industrial applications, while offering design and implementation services for a range of chemical feed applications. They also provide service, repair, and maintenance services for customers located in some of the most remote corners of the United States.

When it comes to delivering chemical feed applications, Furrow offers a unique approach to each customer. In some cases, the company augments existing water treatment systems by adding specific pumps. In other cases, it designs and delivers complete solutions on skids that are assembled in its Wilsonville, OR, plant. Water-treatment applications and chemical-equipment solutions that are common across Furrow's customer base include pH control, coagulation and flocculation, chemical neutralization and stabilization, and various measures for color and odor control.

Many of Furrow's customers are running continuous (or near continuous) operations and many of them are in extremely remote locations. Furrow Pump president J.B. Leahy said his team is mindful of these considerations when planning predictive and preventative maintenance activities. They have identified a number of pre-sale/pre-install items that impact the pump's efficiency, and that influence the amount of maintenance it will require throughout its lifetime.

Furrow's customers include a mix of large industrial companies and small municipal water-treatment plants. Their constituents know a lot about their own businesses.



*Water-treatment plants in rural areas strive to avoid unscheduled downtime at all costs. All images courtesy of LMI/Milton Roy.*

However, they are not pump experts, so they rely on the expertise of a support network to keep their machinery running at peak efficiency.

The industrial water-treatment side of Furrow's business features high-tech silicon manufacturers, food processors, timber and logging companies, foundries, and oil and gas customers. All of these customers need metering pumps to manage problem areas such as scaling, corrosion, and the accumulation of microbiological activity that could diminish the quality of the products they manufacture. Once their process is complete, they also use metering pumps for pH control, and to clean wastewater prior to

disposal. Many of these companies are large organizations, and some of them have their own maintenance teams.

On the municipal water-treatment side, Furrow has carved out a niche servicing small towns in remote locations where the municipal water-treatment systems serve less than 10,000 connections.

According to Leahy, servicing this type of market requires a high touch when it comes to maintenance. Some of these customers wear a number of different hats. "In some remote and rural areas, the city manager is also the one operating the water-treatment plant," stated Leahy. "But that's fine, because our business is based on bringing expertise and reliable technology to customers who need it."

### Sizing and proper pump selection

For more than 40 years, Furrow Pump's team has been amassing application knowledge that helps them design systems that last without excessive maintenance. Much effort is spent on analyzing application requirements, and customers are educated on the need to understand application limits, while always operating pumps at their best efficiency point (BEP).

An improper setup can substantially accelerate wear on the pump. As a simple example, chemical feed tanks should never be set below the pump. If they are, the pump will not function as though the tank were level with (or above) the pump with threaded suction. "Recognizing simple things like this can have a big impact on the longevity of systems," said Leahy.

Because of Furrow's expertise with many of their product lines—particularly LMI pumps—they know intimately which pumps are best suited for which jobs. It is not enough to look at a spec sheet and pick any

diaphragm pump that fits the applications parameters. If the pump is sized properly, it can minimize the amount of required maintenance, which is critical for customers in remote locations.

## Simplicity of design and availability of parts

Customers with limited access to repair shops should choose pumps with parts that are readily available. They should also select metering pumps that feature a simple design, where the liquid end can be easily swapped out and the diaphragm,

seals, and check valves can be repaired quickly. When Furrow's staff is alerted to a problem, they visit the customer site with parts on-hand. Their expertise with the LMI product line helps them quickly identify repair costs and estimate repair time (which in most cases is approximately an hour of bench time).

Furrow also maintains a large inventory of pumps that enables them to bring new replacement units on maintenance calls. This gives customers the option to repair existing units, or completely replace them. The ability to stock large inventories of complete pumps and replacement parts is critical for Furrow's business.

"We're not able to do that with every brand we carry," added Leahy. "If it takes up to 24 hours to get a replacement part, that can cause problems for customers that run continuous operations. But that's not an issue with the LMI product lines."

## Dealing with off-gassing

One of the biggest issues that water-treatment applications must address is vapor locking. Chemicals like sodium hypochlorite can turn to gas when they heat up or become agitated. When a fluid gasifies, the pump can lock, causing it to stop pumping. This issue, more than any other, prompts service calls. Therefore,

planning for and addressing this issue is a critical part of any effective preventive-maintenance program.

Customers should choose metering pumps with degassing valves that let gas escape in one direction and allow the process chemicals to flow as intended. Additional features such as auto-prime liquid ends, and front-scavenging technology assure high fluid velocity through the pump head and evacuate the entire liquid end with each stroke. This also helps to prevent air bubbles from accumulating and causing vapor lock.

"When it comes to dealing with vapor locking, an ounce of prevention is worth a pound of cure," Leahy said. "In this case, it's also worth several hours of maintenance."

Some of Furrow Pump's customers are experts in making food, paper, silicon wafers, or potable water, but they are not necessarily pump experts, Leahy said. The metering pump is just a part of their machinery. Having access to a responsive network of repair technicians that can keep them up and running is the key to their success in the rural corners of the Pacific Northwest. The ability to quickly and efficiently meet these customer requirements can be a critical key to maintenance and reliability success. RP

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*EXCEL XR metering pumps are designed for the specific chemical pumping requirements of municipal and industrial water treatment.*