



KAWASAKI KEEPS

ZAP-LOK[®]

ON THE FAST TRACK IN PIPELINE CONSTRUCTION

Pipeline construction is booming — not just in North America, but all over the world.

In the United States it's estimated there are over 428,000 miles of energy-related pipelines, and another 1.8-million miles of mains and small lines carrying natural gas to homes and businesses. In 2010, nearly 80,000 miles were either under construction or on the drawing board all over the world. The use of pipelines is expected to grow as more nations develop their resources or extend their export destinations.

Pipelines move substances like water, natural gas, crude oil, gasoline, diesel and jet fuel, sewage, and chemicals. They are expensive to build, but once in place, they transport material 24/7/365. Plus they are cheaper to maintain and staff than other means like trucks, ships, or rail.

ALTERNATIVE TO WELDING

One reason steel pipelines are expensive to build is the use of welding to join each pipe joint. Welding takes time, skilled labor (which can be a problem overseas), and large support crews. It also requires X-raying to check each joint's strength. In areas that have environmental restrictions against open flames, welding becomes problematic.



Lubricant is removed from the pipe after the "bell" end is formed.



Zap-Lok's field units have been used all over the world.



The company's 70ZV-2s use an extra counterweight and 96-inch forks.

Zap-Lok Pipeline Systems, however, eliminates the need for welding and uses far fewer people in the field. Using a high-strength mechanical-interference connection, each Zap-Lok connection takes just three minutes or less to complete in the field. So construction rates of over 800 feet an hour are not uncommon. The result? Project savings of up to 40 percent, and a pipeline that is completed in far less time.

Zap-Lok can be used in high-pressure flow lines and gathering systems, CO₂/steam injection systems, and even corrosive transmission and disposal projects. The system will also work for underwater projects, as the equipment can be mounted on barges.

Small wonder their system, which is a combination of pipe treatment at the factory and a field unit (usually consisting of a hydraulic press to join the pipe ends, a power unit, and an epoxy mixer), is in such demand.

AT THE FACTORY

Customers ship their pipe to Zap-Lok's Houston, Texas, facility, where their proprietary bell-and-pin method is applied. This provides greater quality control than prepping pipe in the field.

Handling all that pipe are two Kawasaki 70ZV-2 wheel loaders.

"We use our Kawasakis on every piece of pipe we move," says Will Foster, Assistant Manager. "That's millions and millions and

millions of feet of heavy pipe because each pipeline can easily be 100,000 feet long. And keep in mind that each pipe or joint is usually 40 or 42 feet long. We also work with 'triples' or 60 footers."

The 70s handle each piece of pipe multiple times: offloading and stockpiling it; moving it over to the manufacturing facility for treatment and returning it to storage; then loading out so it can be trucked to either a coating facility or shipped to its final destination.

"Since our wheel loaders handle every piece that comes in, every piece that goes

Zap-Lok Type-4 Connection



out, and feeds our production line, they are our lifeline," states Will. "We use Hi-Way Equipment, the local Kawasaki dealer, to do all of our maintenance to keep us going. If we have a loader go down, we're in trouble."

"Before Kawasaki, we were using Clarks," says Michael Hill, General Manager. "We had a lot of maintenance issues. In 2007, Tuboscope next door had just bought their first Kawasaki so we went over there to take

a look. I asked their yard manager if they liked it, and he said they liked it a lot. So we contacted Hi-Way Equipment and got our first."

"Before we bought our new one, we got quotes for Volvo, Cat®, and Kawasaki," adds Will. "Case and John Deere were too small. Price matters, but we had already put the first Kawasaki through a five-year test and had no problems."

The reason they purchased a second Kawasaki is that business is booming.

"We tripled our staff and are in the process of doubling our fleet," explains Michael. "And we just opened up another shop to handle manufacturing of our hydraulic field units. Our biggest challenge is to build up our field equipment to keep up with demand."

LOGISTICAL PLANNING

Zap-Lok does more than put special connective ends on pipe and provide the means to permanently join them in the field. They also deal with the mind-boggling task of making sure everything arrives safely and on-time anywhere in the world, and the contractors are properly trained, as the company does not do pipeline installation itself.

"When we accept a project, we are given the lay of the land and the type of pipe," explains Will. "We have to set up the logistics to get the equipment to the field and draw up very detailed lists of the tools required. We have to allow enough lead time to get the pipe in,

Each piece of pipe is handled multiple times by the wheel loaders. "They are our lifeline." — Will Foster, Assistant Manager



connections added, sent on to coating, then shipped out to its final destination. Lead times also insure enough time is allowed on international jobs to have the equipment arrive via ship and clear through customs without a problem — which requires even more paperwork. Then our crew will need to go over for several days of training and set-up time, then have a safety meeting."

CERTIFICATION AND IMPROVEMENTS

Pipeline companies need to qualify their suppliers, making sure they meet stringent

requirements in terms of safety, quality, etc. The bigger the company, the greater the demands. It took Zap-Lok three years to meet one major company's standards. Field tests are often a part of the process. A staff engineer is currently working with another major oil company to meet additional qualifications, with the process expected to take a year. Because there are major companies as Zap-Lok clients, other companies can feel confident their needs will be met.

Zap-Lok also constantly works to further automate and update its system — not only to incorporate the latest technologies but also provide customized solutions for clients.

"One big company we work with wants to know everything about their pipe — the steel that goes into it, our own quality control, and where every field-install connection is located," says Chad Cooper, Marketing Manager. "They want to be able to trace it all the way through the system. So we're working on adding computer tracking and a web interface to allow a project manager to remotely monitor progress and pinpoint each and every connection made. We build to meet our customers' changing technology demands."

Zap-Lok is serviced by Hi-Way Equipment, Houston, Texas.