



Shot Peening Reduces Costs for Oil Companies

TRC Rod Services of Oklahoma is shot peening oil well sucker rods to reduce costs and prevent downtime for domestic oil companies. Sucker rods are one of the most critical elements in a working oil well, connecting the pump jack at the surface of the well to a down-hole pump. The twenty-five foot steel rods are joined by threaded couplings. The pump jack rotates and forces the rod string up and down, in turn driving the down-hole pump.

The constant movement and weight on the rod string generates enormous residual stresses in the sucker rods. Those stresses often lead to costly breaks in rods. A sucker rod's life span affects an operation's profitability in two ways:

- 1) Sucker rods are expensive as they are made from alloyed steel.
- 2) Failure of one of the rods can damage other rods in the string and force the shutdown of the well to retrieve and repair the rods.

TRC Rod Services are specialists in helping major and independent oil and gas companies extend the life of their sucker rods through TRC's inspection and reconditioning services. "Sucker rod failures have the potential of costing our customers millions of dollars each year," said Don Heck, President of TRC Rod Services of Oklahoma. "At the heart of our reconditioning service is shot peening, which gives new life to used rods by greatly reducing residual stress. Our services prevent costly failures at a fraction of the cost of purchasing a new string of rods," Heck elaborated.

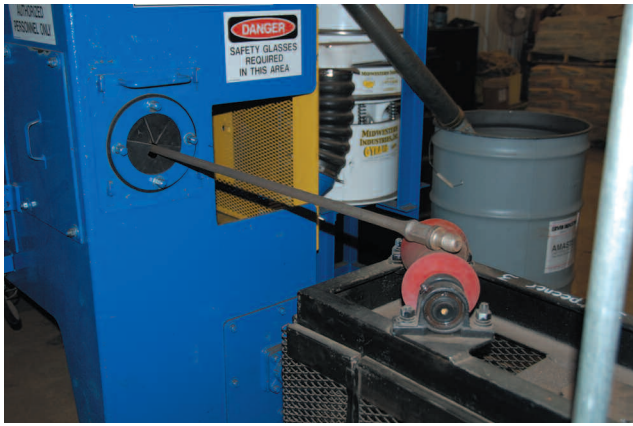
TRC company was formed in 1996 by a group of veterans in the sucker rod business that included Bob Payne—the originator of the sucker rod reconditioning process. "Shot peening is the most valuable and cost-effective process for sucker rod owners," Payne explained. "When we formed TRC, the industry had moved away from shot peening to cleaning the rods with shot blasting due to a lack of knowledge about the peening process and a desire to cut costs. We believed that we were uniquely positioned to bring the process back to the industry because of our prior experience in shot peening rods. And we knew that oil companies would jump on the opportunity to get new life out of their sucker rods through our reconditioning process," Payne went on.

Payne's prediction was accurate. TRC built a loyal customer base that appreciates the value of shot peening. Soon TRC's rod processing plant in Oklahoma City was operating at full capacity and needed more space. In February 2009, they opened a state-of-the-art facility situated on thirteen acres.

TRC's new sucker rod plant was based on the design of a rod plant built in 2007 by TRC's sister company, TRC Rod Services of Texas in Midland, Texas. Heck explained, "Before this plant was built, without question the most advanced sucker rod plant in the industry was the TRC Texas plant. We took their plant layout and design and improved it even further. Bar none, there are no other sucker rod plants in the country that can be compared to TRC's plants in Oklahoma City and Midland."



TRC Rod Services of Oklahoma's new facility



A sucker rod is fed into the Wheelabrator shot peen machine

A shot peen machine is one of the most important pieces of equipment in the new facility. TRC corroborated with the engineers at the Wheelabrator Group that had installed a shot peening machine in the Texas plant. TRC worked closely with Wheelabrator to design a new machine capable of effectively shot peening rods at a rate of seventy-five feet per minute and that could be placed in line with TRC's other inspection and reconditioning processes.

"The Wheelabrator Group proved to be just what the doctor ordered," joked Heck. "We pooled our years of experience in shot peening rods with their state-of-art equipment to develop a unique piece of equipment that effectively shot peens our customers' rods at a rate that doesn't slow down our operation."

The shot peening process relieves the residual stresses built up in the sucker rods from down-hole use and it provides the same benefits attained by shot peening aircraft and automobile parts—increased strength and durability. Shot peening also helps prevent corrosion of sucker rods when they are in oil wells by putting the outer layer of the rods into compression. In addition, the anchor pattern created by shot peening enables a corrosion inhibitor, applied during the reconditioning step, to adhere better. The inhibitor prevents corrosion during storage and in-use.

TRC is still the only company in the industry that shot peens sucker rods. Perhaps that's why TRC is also the only company that provides a written warranty on used sucker rods that is equal to the warranty on new rods. "I believe that we are the only company able to offer a warranty on sucker rods run through our plant because we are the only company that shot peens the rods. This gives us the confidence that our reconditioned rods will not fail," explained Heck.

Asked why TRC's competitors don't shot peen, Heck explained, "True shot peening is not a process that is easily implemented. The equipment is expensive, but the biggest hurdle is the learning curve associated with implementing the correct shot peening procedures. You can't just go out and buy a shot peen machine and start shot peening or you would do more harm to the rods than good. It takes years of experience and dedication to know how to effectively shot peen rods, and know-how is what TRC is all about." ●

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