

Water well drilling industry: Go Green!

We have heard this one over and over, and yes it is time that someone come up with an environmentally safe lubricant.

Joe Large of Jet-Lube provided a report to us at EDSI in which he explained the development of a number of lubricants that are biodegradable, nontoxic, and environmentally safe.

“Well Guard” is a non-toxic vegetable and synthetic-base tool joint thread compound that may be used on inner pipes in monitor wells. It must be welcome news for those poor dry threads.

“Alco-EP-ECF” is an extreme-service, multi-purpose grease that is extremely water resistant, making it an excellent choice for water swivels and upper bearings in rotary tables that usually turn to rust within a year. Spill grease will fall inside the rotary table into the gear oil, which adds to the rust and corrosion protection of this oil. It is also good for lubricated packing glands on duplex and centrifugal pump seals as well as Chicksan swivel joints.

“Eco-Safe” thread compound is the new “go green” material equal to the old standard Coppercote material—just as powerful, but without metals. This can be used on drill pipes without the worry of washing it off with mud when making a connection.

“Enviro-Guard” has an extremely good sealing element, and as such is a good choice for sharp threads such as a drop pipe or casing in the oilfield.

Handling the Drill Pipe

How many times have we heard the crew holler out, “There has got to be a better way.” Right on!

There are a number of companies that have semi-automatic pipe loaders and hydraulic make-and-break pipe spinners. At this very moment, one of our customers is looking for that “push button” connection. And yes, that too has been designed. The questions, though, are: “Who can afford it?” and “Can you transport the new systems legally in the United States?”

A large step in the right direction is the addition of a pipe spinner to the mast. Just about all of our water well rigs have a medium pressure (3000 psi) hydraulic system on board. These small hydraulic power tongs hang in the mast and swing around the upper tool joint. The tong must be backed up against the mast leg or fitted with a backup bar or sling to hold the tong’s torque.

Hydraulic power comes from the rig, but the helper actually operates the clamp forward or in reverse rotation with power controls. See Figure 1. Models are available up to 16½ inches in diameter. Another power supply could be air. The unit shown is the model 112H which handles up to 12-inch casing and applies a torque of 2200 foot pounds at 3000 psi hydraulic power. That equals a 4-foot pipe wrench with a 550-pound pull—which equals about five grown men in skid-resistant boots. Many top-drive machines have built-in break or make-up capabilities.

Drill Pipe Manufacturers

What kind of improvements have we seen over the last nine years from these guys? Some oilfield technology is now applied to our water well pipes. One big advantage is phosphating the tool joints. Refer to Figures 2, 3, and 4.

Figure 2 shows the bare steel tool joints, while those in Figure 3 have been phosphated. Figure 4 shows a couple of washed-out pins that, of course, have mating boxes. So all four joints of pipe have been damaged.

Advantages of phosphate:

- Anti-galling
- Self-lubrication
- Reduces friction
- Improves tool joint life
- Reduces wear and tear of threads.

We still recommend the use of a good quality pipe dope as was mentioned in the original article and the information above. What are those new API “NC” numbers for tool joint

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Figure 1. Courtesy of Rauch Mfg.



Figure 2. Courtesy of Tube Technologies Inc.



Figure 3. Courtesy of Tube Technologies Inc.



Figure 4. Courtesy of Tube Technologies Inc.

