

Safely reaching the bottom of an oil or gas well with a six kilometre tube? Since Draka acquired the American company Pressure Tube Manufacturing (PTM) in June 2010, it also acquired that technology. After all, the former PTM is specialised in the manufacture of high-end tubing and is now a Draka subdivision called Draka Engineered Specialties - Specialty Tubing (DES ST). One of their experts is Joe McEnerney, known to most as Joe Mac. In one of his roles, he helps customers select tubing with adequate corrosion resistance and strength for their applications. By purchasing PTM, Draka also acquired Joe's expertise.

## The Specialist: Joe McEnerney **Looking for the right alloy**

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DES ST specialises in stainless steel and nickel-base alloy tubing. This is primarily applied in the oil and gas industry and typically ranges up to 13 mm outside diameter. There are two distinct product lines: sheathed and pressure tubing. Sheathed tubing contains a core consisting of insulated electrical conductor (IEC) and/or optical fiber (OF) which provides power and communication to down-hole gages. Pressure tubing is generally used to inject fluids or provide hydraulic control. In many instances, the tubing must be able to support its own weight plus that of internal fluids, IEC and/or OF. Several kilometres of tubing may be suspended in a well and be exposed to elevated temperature and highly corrosive fluids. The tubing must therefore be manufactured in accordance with carefully controlled processes, such as welding.

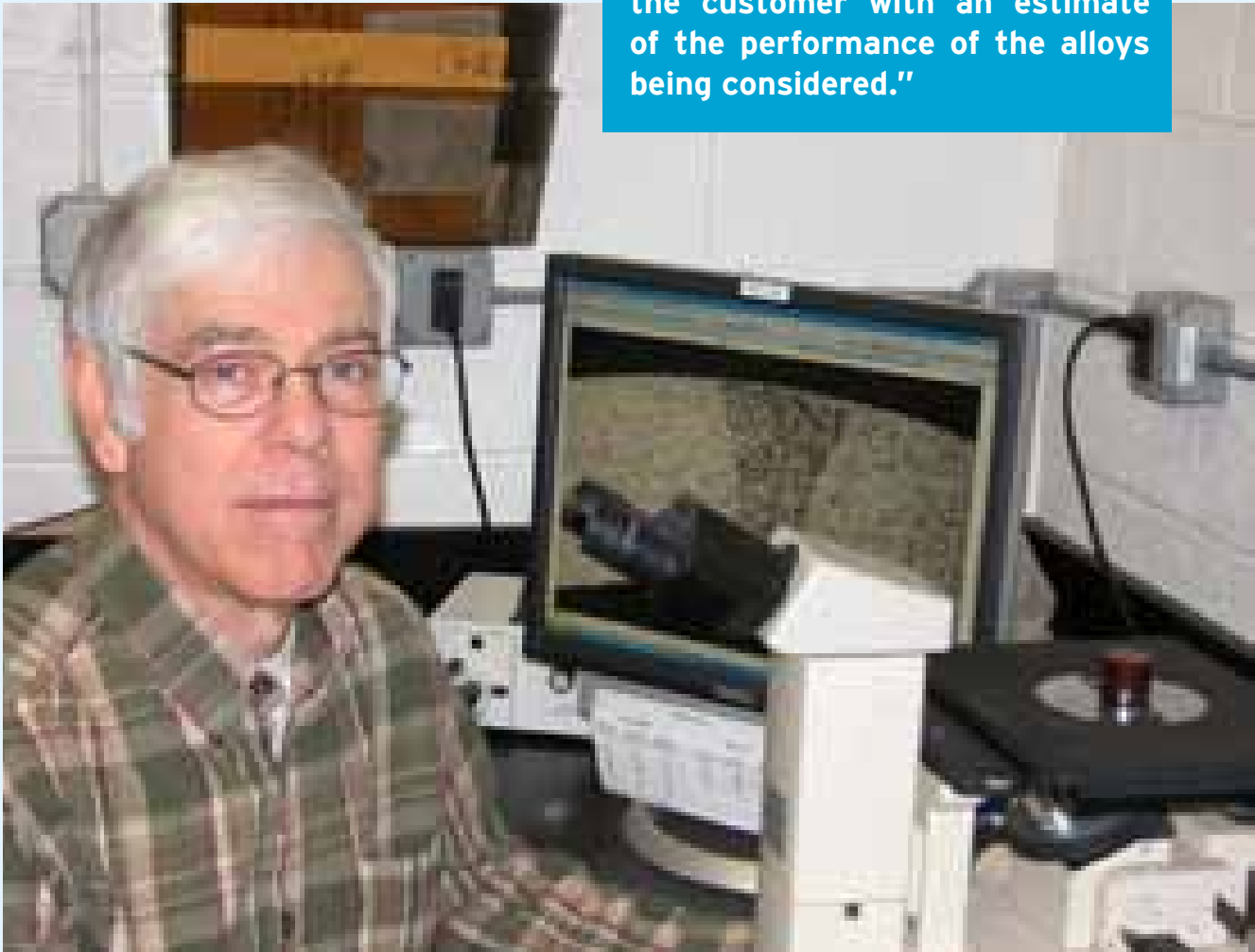
### **Pushing metals to the limit**

The tubing starts as flat metal strip. The strip is formed into a tubular cross section and welded. Depending upon the product, up to three types of welds may be present: strip splice welds used to join the ends of the flat strip, a longitudinal seam weld joining the edges of the strip along the entire length of the tubing, and orbital welds used to join lengths of tubing. Development and qualification testing must be performed for each tubing alloy, size and combination of production processes used. Joe directs a team of metallurgical personnel to accomplish all that. Several tubing products are manufactured with what they call Enhanced Properties. Simply stated, tubing with a lower strength is cold worked to increase the strength. The so-called enhanced properties tubing products enable alloys with lower strength to be used in applications where they must be self supporting, i.e. capable of supporting their own weight plus that of internal contents.

### **Perfectionist**

Joe has earned BS, MS and MBA degrees and has 38 plus years experience, involving various aspects of materials and welding engineering. He became interested in metallurgy during his sophomore year in college while taking courses aimed at helping engineers select the discipline of engineering in which to major.

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Joe using a microscope to examine a sample

“My education and training as a materials engineer have prepared me for the two roles I play within DES ST. Firstly, I am a materials engineer, helping customers select the most appropriate tubing product. Based upon the reported oil or gas well environment, we provide the customer with an estimate of the performance of the alloys being considered. My second role involves the ISO 9001 quality system. My philosophy is to live the ISO requirements on a daily basis. Some may call me a perfectionist, but that may not be bad in our line of business.”

#### **Family man**

“My personal life heavily involves my family. I enjoy hiking with my wife near the banks of the Delaware River. This spring is an exciting time since my daughter is expecting our first grandchild in March and my son is getting married in April. My two children unfortunately live a great distance from me in the Western part of the United States. However, my wife and I try to visit them as often as we can. But even in this family context my engineering mentality is hard to ignore. If a family member has to make a difficult decision, I sometimes try to be supportive by creating spreadsheets. I can't help myself - it's who I am, I guess”, Joe concludes with a big smile. ■