



Subsea 7

4000 Feet of Water

In an oil field off the coast of Angola, a water injection line ruptured in 1370 meters of water. The ruptured line was a 12-inch diameter pipe with a polypropylene coating. The coating needed to be removed and the pipe needed to be severed and beveled.

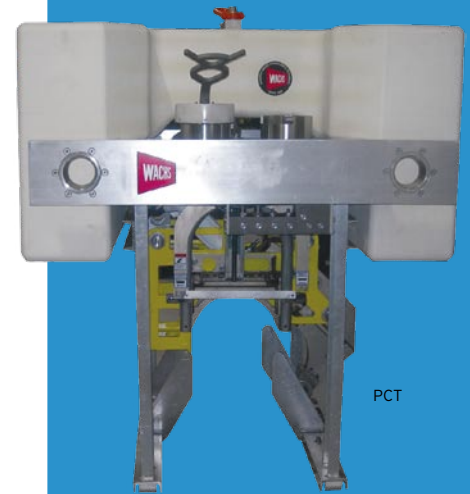
The challenge of designing and building machines that could accomplish this task at the crushing pressure at 4,495 feet below sea level was assigned to The E.H. Wachs Company.

At 1370 meters of operating depth, machines are required to be operated remotely by an ROV. Hydraulic clamping mechanisms are also required for secure attachment and reliable cutting.

The Wachs concept involved a Coating Removal Tool (CRT) that would be lowered on to the pipe by an ROV, and secured using two hydraulic clamps. A rotating “brush” would contact the pipe to strip off the coating while, at the same time, the frame holding the brush rotated around the pipe. The tool would move axially along the pipe, repeating the process until the coating is removed from the entire work area.

The Pipeline Cutting Tool (PCT) would then be lowered onto the pipe and clamped in place. The PCT would employ an auto-feed reciprocating Guillotine saw to cut through the pipeline.

After cutting, a Pipeline End Preparation Tool (PPT) would be mounted and clamped to the open end of the pipe. The PPT, would use a rotating frame to square and deburr the pipe end using lathe tooling mounted on trip-and-starwheel tool slides. The finished end would then be suitable for a repair connector to be slid into place over the pipe.



PCT



CRT



PPT

