



## Line stopping and Hot tapping successfully completed on a 66" water line

Client	A Petrochemical company
Country	Saudi Arabia
Date/ Year	2017
Service details	Our specialist hot tapping equipment enables a connection to be made to a piping system or a vessel without shutdown or interruption to production. Hot taps can be performed safely on most types of pipes, ranging from carbon steel to GRE. They can be carried out on systems containing oil, gas, fuel, steam, water and many other line mediums with pressures up to 1000 psig @ 100 Deg. F.

### Summary of the Project

Unique Onsite Engineering division successfully performed Line stopping and hot tapping on a 66" cooling water line on a chemical plant in Saudi Arabia with no shutdown, no interruption to operations, and no loss of revenue to the client. It was one of the toughest engineering challenges we worked on in 2017 not just due to the size but also the configuration of the piping system and condition of the pipe.

### Client Requirement / Problem

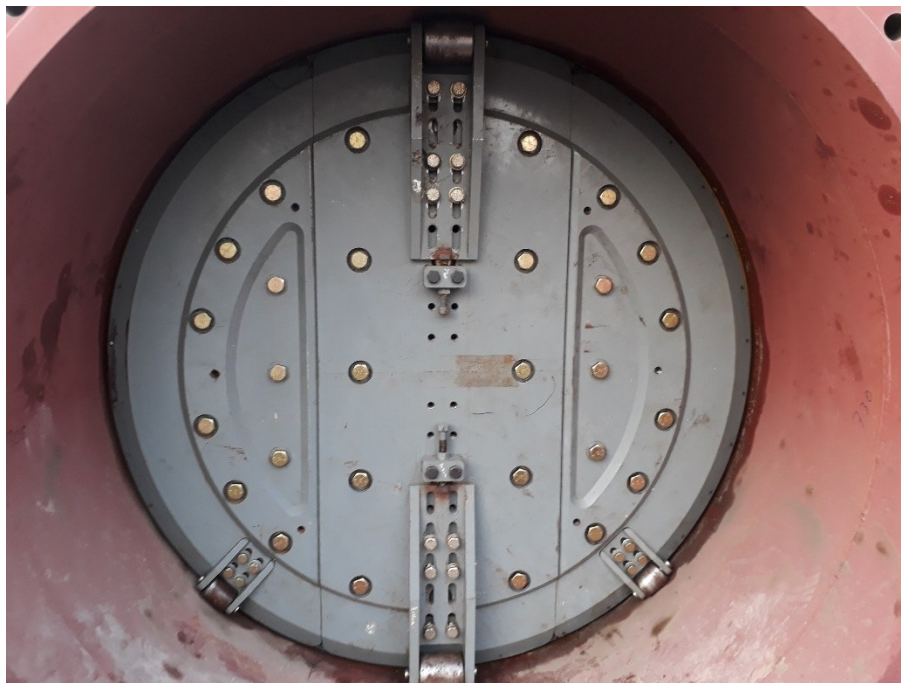
The client approached us with a failed valve on the main plant cooling water manifold that needed isolating and changing to allow a part plant shutdown which was fed from the manifold branch in question and we were asked to isolate it and replace it, while live. Key challenges we faced were :

- While we have previously carried out line stopping up to 40" above 70 bar, the issues with this much larger line, connected to a common manifold were that the spiral wound pipe was irregular in shape and ovality excess of 1-1/4" which created problems with installing a contemporary round line plugging head.
- To counteract the issue, the plugging head was modified with adjustable backing plates to support the seal in areas where there was excessive ovality
- The plugging line equipment was in excess of 15m in length with a combined weight of 20tons; the weight had to be safely supported by engineering special supports to reduce loads on the parent pipe
- While the system was running at 8 bar, we had to design and manufacture the head to allow a safety margin of 1.5



### Unique Solution we delivered

We designed a 66" line plugging equipment suitable for 12 bar pressure applications, which was proven through full FAT mock up trials prior to deployment on site and was inserted through a 48" hot tapping point. To counteract the ovality issue, the plugging head was modified with adjustable backing plates to support the seal in areas where there was excessive ovality



66" Folding plugging head on test prior to deployment

### Benefits delivered

- The whole line plugging operation and valve removal/insertion was completed within a 36-hour window, with 100% leak free isolation being achieved.
- On completion the client was able to replace the 66" in-line valve without a total site shutdown to production.
  - No loss of revenue to the client



**Unique Group**  
Strength in Depth

Division: On-Site Engineering