

CASE STUDY NUMBER:	Case Study 16
DESCRIPTION:	3/4" T-piece Enclosure and restraint
CLIENT:	TENGIZCHEVROIL

SERVICE:	Condensate steam
Line size	3/4"
Design Pressure	10Bar
Operating Pressure	4,5Bar
Design Temperature	215 DegC
Operating Temperature	150 DegC
Material	SA333 Gr6
Line Class	150#

ANOMALY DESCRIPTION:

Through hole found in T-piece welding resulting in steam leak.

ROOT CAUSES

internal corrosion and possible welding defect on the T-piece weld

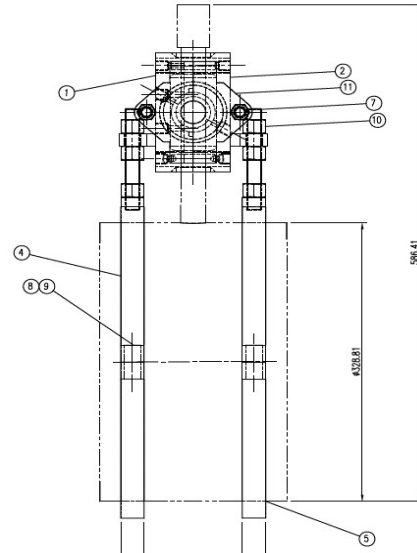
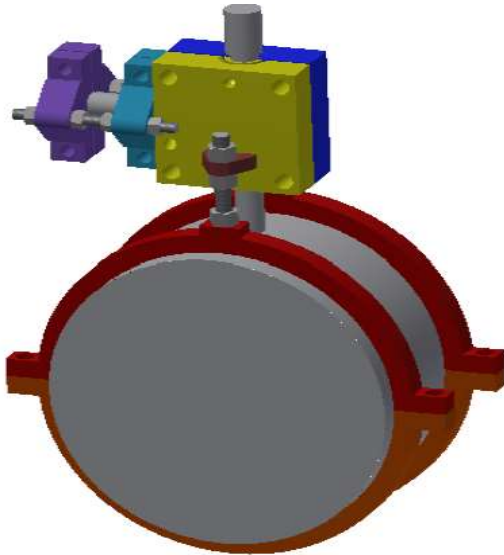
INTEGRITY CONCERNS (INCLUDING PICTURES)

Further deterioration of weld could result in separation of the T-piece from the piping, this could have resulted in possible shutdown of equipment and production loss.



THE BERUSEAL SOLUTION (WITH PICTURES)

Due to the possibility of a complete weld failure a strongback system had to be put in place to keep the system intact in the event of failure of the weld. Space below the T-piece enclosure was very limited and Beruseal devised a plan to design a restraint that went around the larger diameter pipe and ties in together with the enclosure.



INSTALLATION PICTURES



CONCLUSION

a polymer compound was injected into a sealing groove to avoid sealant entering the line through the defect, and a safe and successful repair was implemented that allowed the client to operate at full capacity until the next planned shutdown.