

CASE STUDY NUMBER:	Case Study 23
DESCRIPTION:	3" DOUBLE VALVE ENCLOSURE
CLIENT:	TENGIZCHEVROIL

SERVICE:	
Line size	3"
Design Pressure	4,9
Operating Pressure	1
Design Temperature	50
Operating Temperature	10
Material	SA-333 Gr6
Line Class	150

ANOMALY DESCRIPTION:

Underground piping was inspected and it was found that two valves in close proximity to each other had extensive corrosion on the body and bolting. The header piping is 2" and branches out the valve to 3". The remaining wall thicknesses of piping between the valves were also below thickness specification.

ROOT CAUSES

Piping being underground and having damaged and missing paint coatings

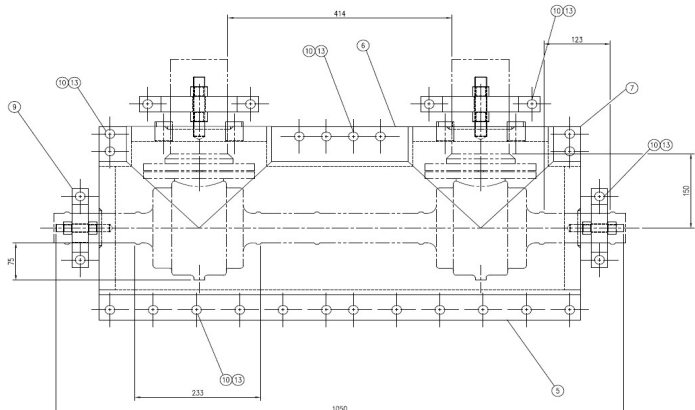
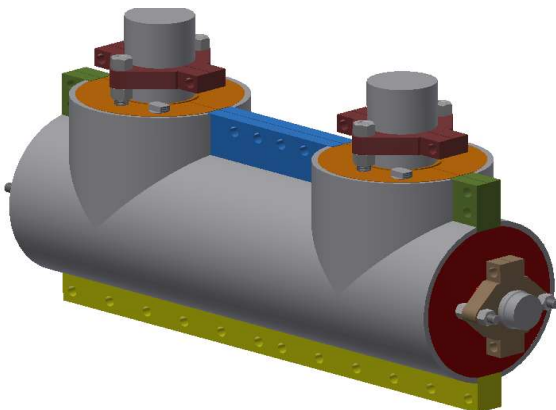
INTEGRITY CONCERNS (INCLUDING PICTURES)

The Remaining thicknesses of underground sections where below the minimum allowable value which posed the risks that leaks may occur in the near future, With Possible environmental contamination due to loss of containment.



THE BERUSEAL SOLUTION (WITH PICTURES)

A straight line enclosure with two nozzles was designed to encapsulate both valves, Strongbacks were designed to contain the complete system in the event of complete failure of piping welds or valve bolting.



INSTALLATION PICTURES



CONCLUSION

Due to the enclosure being underground a polymer sealant injection would cause possible problems should the enclosure start leaking and the enclosure needs to be re-injected, no visible signs of a leak would be evident.

Therefore a two part thermosetting resin was used to fill the complete cavity of the enclosure and encase the piping and the valves within the enclosure. This boasted a more permanent repair and the elimination of the enclosure leaking underground if the need of a re-injection arised