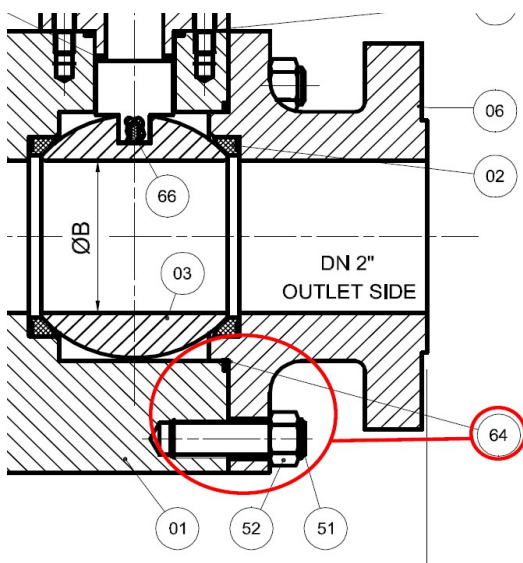


CASE STUDY NUMBER:	Case Study 19
DESCRIPTION:	2" VALVE FLANGE STRONGBACK
CLIENT:	TENGIZCHEVROIL

SERVICE:	
Line size	2"
Design Pressure	75
Operating Pressure	62
Design Temperature	156
Operating Temperature	156
Material	ASTM A479 Tp316
Line Class	600

ANOMALY DESCRIPTION:

a H₂S leak was found on the body flange of a 2" Double block and bleed valve, H₂S was bypassing the gasket and leaking through the bolt holes.





ROOT CAUSES

the root cause of the leak is due to a deteriorated spiral wound gasket and body seal resulting in H₂S passing through into the bolt pockets of the valve body.

INTEGRITY CONCERNS

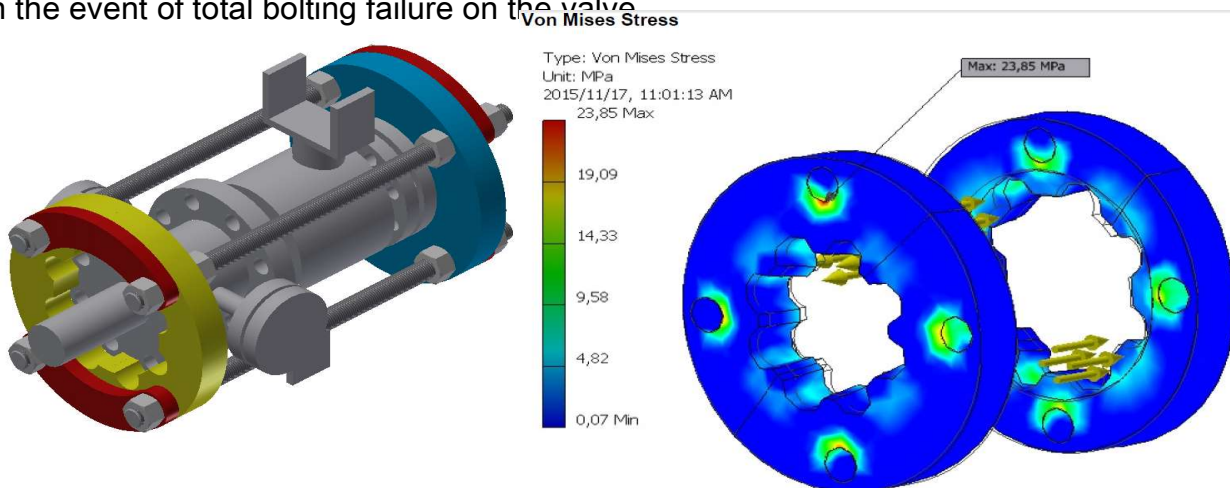
Further deterioration and complete failure of the 316 stainless spiral wound gasket leading to high amounts of H₂S leaking.

THE BERUSEAL SOLUTION (WITH PICTURES)

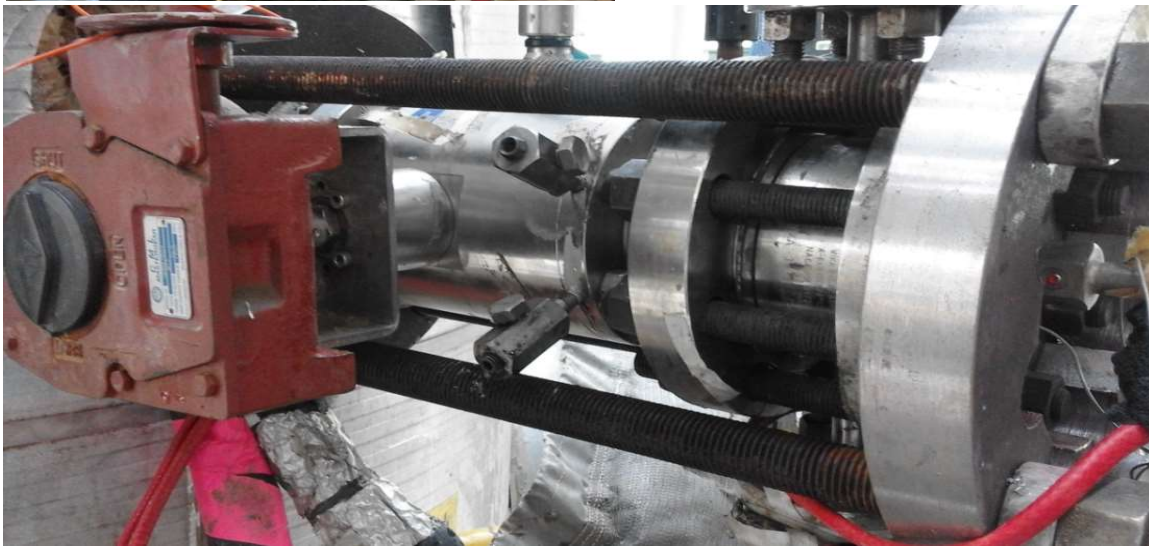
Beruseal designed and manufactured a stainless steel strongbacking system to contain the system should there be failure on bolting when drilling into each bolt pocket and injecting a PTFE sealant.

Injecting PTFE sealant puts additional strain on bolting where the condition and integrity of is unknown.

FEA analysis was performed on the strongback to analyse the stresses in the strongback in the event of total bolting failure on the valve



INSTALLATION PICTURES



CONCLUSION

A successful seal was obtained by drilling into each valve body bolt pocket and PTFE sealant was injected. This repair was successful up until the next scheduled turnaround when the valve was replaced.