

## Recent Bulletins

[06-17 Site visits - stick to the scope](#)

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[02-17 Cows can kill](#)

## Learning from a site assessment

Importance of evaluating design changes.

## Introduction

One of our engineers was assessing an existing sludge pipeline on a client's site. The pipeline was not running efficiently, frequently failed and required a lot of maintenance to keep the sludge process running. The pumps were also wearing prematurely.

The engineer's observations were shared via BOB and included:

- A pressure sensor inhibitor to sludge pumps was being bypassed by a closed isolation valve resulting in the over pressurisation of the pipeline and pumps
- The site operatives were locally changing the control philosophy, contributing to the poor performance of the sludge pipeline
- The as-built sludge pipeline was longer with more bends than the original design, resulting in increased friction and pressure



Pressure sensor with isolation valve below

## What this means to us

Any piece of equipment incorporated to protect people or assets must not be intentionally bypassed. Our engineer took positive immediate action and advised the site manager of the actions of the site operators.

The design of safety systems should also consider the influence of **human factors**. Could the controls be bypassed by a human?

In this case perhaps a suitable valve with a lock-off facility, or removal of the valve handle would be a more appropriate control measure.

The additional pipeline length and bends incorporated during construction were significant enough to change the sludge pumping philosophy from single to two stage pumping.

The site changes were not communicated with the designer resulting in a compromise to the single stage pumping system.

As designers we need to work closely with our construction counterparts and ensure they are aware of the sensitivities of the design and how unauthorised changes could lead to future issues.

## Key messages:

- ✓ Report any unsafe conditions or behaviours to a responsible person at that location
- ✓ Utilise BOB to share learning
- ✓ Maintain a relationship with the contractor through the construction phase
- ✓ Encourage contractors to seek approval for design changes
- ✓ Utilise learning opportunities from examples like this in your designs
- ✓ Review the as-built product and check the impact of design changes on the intended design philosophy
- ✓ Consider human factors - Put control measures in place which cannot be easily over-ruled to prevent operators putting themselves, equipment or even customers at risk.

BOB would like to thank our Engineer for sharing his feedback as I'm sure you will agree there is learning here for all of us.

## Contacts



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