CASE STUDY

project:	Prevention of Pipe Failures in an Ash Slurry Pipeline
product:	Biocide + Corrosion & Scale inhibitors
industry:	Power Generation
location:	New South Wales

water treatment services

background

To manage the ash & dust from the coal combustion process, a large power station mixes the ash with process water, then pumps this slurry a long distance in duplicated pipelines, to dams for settling and containment. The dual pipeline system allows for one pipe to be in service, with the other in standby.

Historically, and over many years, asset protection of the standby pipeline had been achieved using a WTS engineered product, with no subsequent failures that could be attributed to corrosive influences.

However due to a change in the configuration and operation of the dual pipes, the plant discontinued the use of the WTS treatment. Over subsequent years, their condition deteriorated, resulting in several pipe failures.

A major capital upgrade project was initiated by the power station, including new pipelines. In the project planning stages, protection of the new pipelines was prioritised.

WTS was still closely involved in water chemistry management in other parts of the plant and had many years of experience with this aspect of the plant. We worked closely with the client's team of project managers, design engineers and subcontractors to design an appropriate treatment regime.

approach

WTS worked closely with the client's team, consulting the following issues:

- The long-term protection of the assets (predominantly the pipelines).
- The pipe failure analyses indicated the possibility of the presence of sulphate-reducing bacteria (SRB) under scale deposits where pitting and subsequent failures had occurred (extensive metallurgical analyses were carried out by a specialist company).
- The need to manage both the potential biological issues (SRB) and re-establish the asset protection (corrosion inhibition) in the stored pipeline.
- The provision of an on-going service and support programme, which is an integral part of ensuring the reliability and success of the treatment regime.

Self-contained chemical storage & dosing unit.

Solution

The project faced several challenges in the initial stages and several chemical treatment ideas were considered. WTS was involved in numerous HAZOP and project progress meetings and ultimately WTS, the client and engineering consultants came to a group consensus on the most appropriate treatment regime.

WTS engineered a suitable treatment system, including

- the supply and installation of two bulk tanks and bespoke dosing systems;
  - one for a biocide to control any potential microbiological issues, and
  - one for a corrosion & scale inhibitor.

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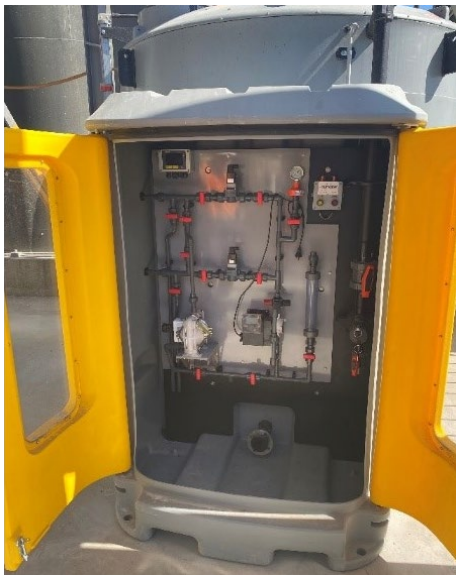
- WTS re-formulated the previous solution, (which was proven effective many years prior), to better suit the new systems; WTS 0-02B is a bespoke corrosion and scale inhibitor product for this application.
- WTS determined the optimal dosing regimens, controlled by the system flowrate, to ensure effective, yet cost-effective performance and management of any potential biological and corrosion / scaling effects.
- Ongoing site visits and support from WTS personnel is an integral part of the monitoring and improvement of the treatment program.

results and benefits

- **Technical support.** Expert advice and consultation with all parties throughout the process and ongoing plant service and support by WTS.
- **Asset protection.** Asset protection is excellent due to the bespoke applied engineered treatment solution and ongoing monitoring.
- **Convenience.** Problem identification, solution application, ongoing management, monitoring and continuous improvement all provided by WTS.
- **Efficiency.** Bespoke chemistry, dosed according to a scientifically designed regimen, controlled by ORP & Biocide sensors ensures the assets are protected using the minimum required chemical.
- **Partnership.** Working closely with the client's team, we were able to confidently deliver a solution which considered the requirements of all relevant stakeholders.
- **Confidence.** WTS continues to provide scientifically proven improvements to the plant over two decades of constructive collaboration.



Chemical dosing & control equipment inside chemical storage unit.