The Importance of Asset Management Systems in Long Term Corrosion Control

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Too often we as engineers and managers of critical infrastructure focus on the technical details in a bid to control corrosion. We focus on the design and the performance of the products we specify to ensure we eliminate corrosion from our assets. However, our experience tells us that over time, the elements of nature take their toll on the integrity of our assets; constantly challenging our best designs and taking advantage of our not so good designs.

Historically, our employees have become the ultimate source of asset knowledge; knowing when something is 'not right' and when to take action. For many organisations that manage large long term assets, it had become a given that the right person with the right knowledge would still be performing the same role as always, maintaining continuity in managing the issues that threaten the integrity of our assets.

So what happens when an organisation responsible for the operations and maintenance of long term critical infrastructure is subject to changes in management structure, organisational structure, loss of asset records and worst of all loss of employees with critical asset knowledge. With the sea-saw of building and losing knowledge over the years it becomes apparent that the ability to manage integrity over the long term becomes most critical to the asset manager.

As obvious as it might sound, developing a system and its associated processes to manage both field activity and the records that it generates is a good first step. Taking it further, a system that fuses the integrity management cycle with the business processes to ensure essential activities are budgeted, scheduled and actioned is even better. From personal experience, achieving even the former is a huge undertaking for any business let alone aiming to implement the latter. The resources and commitment required to achieve such a goal is not to be taken lightly, but is more than worth it if you get it right.

This is a journey that I have been a part of at Jemena over the last 2 years, responsible for implementing the Asset Management System and developing the processes for my asset class, all with the ultimate goal of contributing towards Jemena's accreditation to the ISO 55000

East End after Excavation.

East End Corrosion.

Pipe bridge crossing body of water.

Pipe cleaned and recoated.

The above ground pipe section recoated.

Asset Management Standard. It has been within this journey, that we have questioned everything we currently do and that which we no longer do. Looking at the records that we have and the ones we believe we need to maintain the asset in a sustainable manner.

It was at this point one of my engineers presented me with a discovery he had made with his field based colleague; corrosion at the soil-air transition point where our asset crosses a body of water. How had this happened? We have always regularly inspected these assets… right? Looking to find records of such inspections, all that was discovered were service orders that were shown as completed, but little information on the status of the condition of the asset at each inspection.

An investigation of the cause revealed that the corrosion was attributed to coating failure combined with an environment conducive to corrosion, whilst cathodic protection was ineffective because the design had isolated that section of the asset from the CP current.

However, upon further analysis, it was clear that the real issue was not the corrosion, nor that the records had not been kept; these were just the end result of the fact that the process for managing this threat had not been documented. I could not locate any documentation stating the requirements of the inspection, the records that needed to be captured as part of the inspection, where the records were to be kept or how the findings would be escalated if something unusual was identified.

Immediately, this presented an opportunity to document the process of inspection and review the existing documented process for repair of the discovered anomaly. Despite the additional work involved in documenting the process, which was on top of the work involved in repairing the corrosion, the value added from this activity is truly realised when the organisation can continue to change and grow without detriment to the asset, through having appropriately documented and understood processes that naturally drive our critical activities.

It is here, that the importance of a well-developed Asset Management System is understood, as the 'value' realised by pursuing the aforementioned opportunity is recognised as one of the four principles that the ISO 55001 international asset management standard reinforces ('leadership', 'alignment' and 'assurance' being the others). However, the real key to the success of any such system is how deeply it is integrated into one's organisation (i.e. 'alignment') and how committed that organisation is (i.e. 'leadership') to implementing it.