Pipelines – Passing on the Good Genes

Genes and the information contained within them are responsible for the characteristics we inherit. They have evolved over time to suit our environment. In a similar way, we have many aged pipelines and over 50 years of lessons learnt in design and operation. Pipelines are critical infrastructure with high costs of construction and potentially significant consequences of failure. As pipelines age, the degradation mechanisms become more problematic, and therefore the integrity of the pipelines must be proactively managed. Industry best practice requires the implementation of a specific Pipeline Integrity Management System (PIMS).

Much research, development and application has been done in this area. Overarching principles of management are embodied in modern thinking with respect to enterprise risk management and asset management. These are supported by a plethora of pipeline specific legislation, more general legislation, codes, standards and guidelines, an ever-increasing number of promising technological advances in inspection technology, data management, cloud services and machine learning.

Unfortunately, integrity activities are often seen as a cost rather than an investment. This can lead to a small team. Industry downturn has also lead to an increasingly small pool of external resources. With these restraints, taking advantage of what the industry can offer can be a challenge.

Penspen have recorded lessons leant from 30 years of working with pipeline operators through formal audits, development of improvement plans and incident investigation. This has led to a practical view on the what defines the good genes of pipeline system. This paper discusses some of these with the intent of passing of them on.

Lessons learnt include: links between policy and enterprise risk, understanding of performance objectives, management of data, influence over design, life cycle cost and optimization and knowledge management.

Key lessons leant are in the areas of organization, competency and emergency response. Where competencies aren't always defined and emergency preparedness isn't always appropriate, or maintained and neither are linked to risk.