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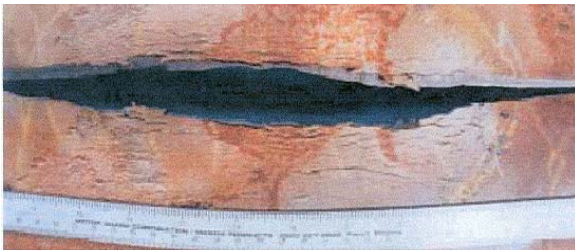
WTIA National Diffusion Networks Project (NDNP) funded by the Federal and State and Territory Governments and industry



SUCCESS STORY NUMBER PE10: IMPROVED UNDERSTANDING OF POTENTIAL PIPELINE CRACKING ISSUES – *Visiting expert trains Australian pipeline engineers*

Stress-corrosion Cracking

Stress-corrosion cracking (SCC), cracking induced from the combined influence of tensile stress and a corrosive environment, continues to be a safety concern to gas pipeline operators and government regulatory agencies throughout the world. Although only a relatively small number of failures do occur, SCC still needs to be addressed in integrity management plans and pipeline engineers need to be educated in its avoidance, identification and repair.



Visiting Expert



In November 2005, WTIA invited Dr Raymond Fessler, SCC consultant for the US Gas Research Institute (GRI) and the Pipeline Research

Council International Inc. (PRCI) and subject expert, to present a 3- day training course in Melbourne, Victoria. Dr Fessler recently completed a comprehensive gap analysis on SCC and actively participated in drafting the NACE Recommended Practice on SCC Direct Assessment.

The course, attended by 23 delegates from around Australia, included a number of presentations to:

- provide a detailed description of what is known about the appearance and causes of SCC;
- discuss various approaches to mitigating and managing the problem;

- show how to recognise and deal with SCC; and
- show how research results have led to current understanding of causes and methods of management.

Important practical outcomes for the delegates included the better understanding of the mechanisms that control SCC and thus the critical locations in a pipeline where inspection should be focussed. Factors such as cathodic protection, soil type, stress fluctuation and pressure cycles, gas and ground temperature and pipeline coating should all be taken into consideration in an integrity management strategy.

Outcomes

The course was highly acclaimed by the delegates who suggested that it should be run again in Australia at a future date. One regulator representative commented “the course was good for providing information regarding SCC and different repair strategies, to allowed informed discussions within industry and to provide comfort regarding repair work proposed by operators”. “I thoroughly enjoyed the workshop by Ray and I would like to thank WTIA for providing such an excellent opportunity for us to take advantage from the experience of a world authority on SCC” said another industry delegate.

Recent figures show there are more than 29,000 kilometres of pipeline in Australia, of which more than 21,000 kilometres are used to transmit natural gas. Natural gas is the third most important energy commodity in Australia, providing an estimated 20% of Australia's energy¹.

Clearly the knowledge gained by the delegates to this course will contribute significantly to the future operation of safe and economical gas pipelines in Australia.

¹ Australian Pipeline Industry Association