Knovel®

EXPLORATION & PRODUCTION

Solution Story: Non-Conventional Oil & Gas Company

A broader view of current thinking on corrosion prevention led to a new, more cost-effective solution

Summary

Corrosion is a major concern for shale gas well equipment during low-throughput periods. Current standard methods are costly and lead to non-productive periods. Thanks to Knovel providing access to a broader range of resources, one process engineer found a new solution that reduced downtime and cost significantly.

Knovel provided ideas for a new solution that saves the company almost $250 K per year.

Knovel has extensive resources on corrosion prevention for oil & gas companies and service providers:

2887 highlighted book sections

1196 interactive tables

77 interactive graphs

11 equations

7 engineering cases

3 regulatory documents

Challenge

When throughput at shale gas wells decreases, the extraction equipment must be run at turndown conditions. This can result in longer residence times, which increases the likelihood of corrosive damage to the equipment.

The standard solution to prevent corrosion is to render the environment of the equipment inert by draining all the fluids and replacing them with a non-reactive gas. Nitrogen is the typical choice for large refineries. However, despite its wide availability, the cost of draining and refilling the system is significant. Besides the cost of the nitrogen, the drained system is non-productive.

The company is responsible for maintaining shale gas well equipment, so corrosion prevention during periods of decreased throughput is of great interest to them. They tasked one of their engineers with finding a solution that would cost less than the nitrogen-based method.

Solution

The process engineer turned to Knovel to investigate current thinking on corrosion prevention and the maintenance of this and similar types of equipment. The technical reference information that was easily found in Knovel covered all of the major aspects of the case, including:

- Research on keeping inert gases dry
- Methods for replacing aggressive fluids with non-corrosive ones
- Data on nitrogen handling, including dew points
- Regulatory information pertaining to shale gas wells
- The latest thinking on corrosion under insulation (CUI)

Interestingly, the engineer found considerable evidence that draining all fluids was not necessary. While it is true that corrosion is reduced by the exclusion of oxygen, this does not have to be done by replacing fluids with dry gas. It is also possible to replace corrosive fluids, such as seawater, with benign ones, such as fresh water.

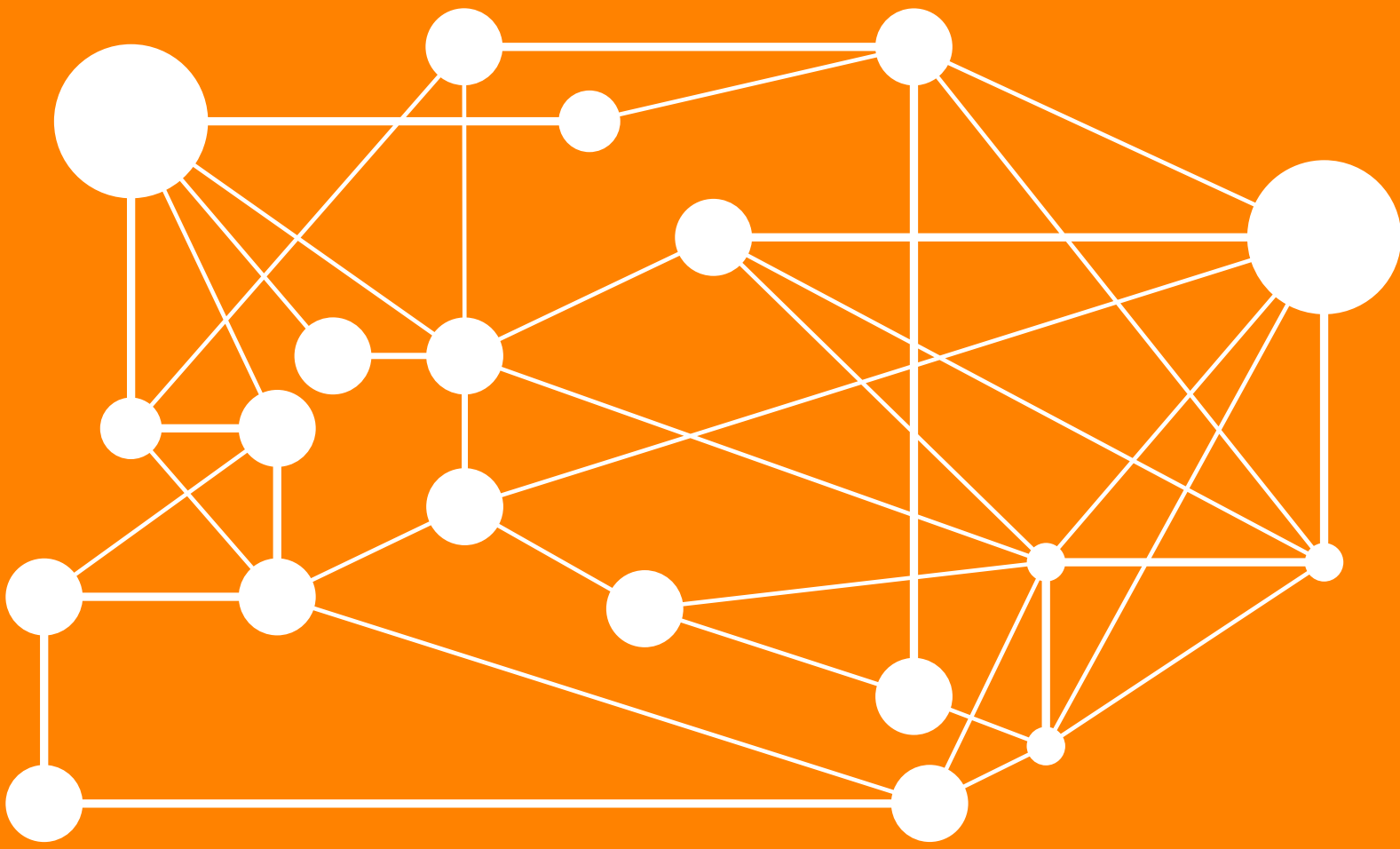
Business Impact

The resources found using Knovel included ideas that the engineer had not been aware of. This put them on the track of a new solution that keeps the equipment running during periods of low throughput and vastly reduces the risk of corrosion.

The company saved almost a quarter of a million US dollars per year on process chemical and nitrogen costs. This represented a very significant saving compared to the annual budget.

The new solution was only discovered thanks to the ready discoverability of information in Knovel (Figure 1).

Figure 1. Examples of information on corrosion prevention found using Knovel



Knovel

Knovel helps oil & gas companies minimize risk while maximizing output and efficiency by providing engineers access to technical reference materials and interactive tools for developing and managing projects with greater efficiency and certainty.

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ASIA AND AUSTRALIA
Tel: + 65 6349 0222
Email: sginfo@elsevier.com

JAPAN
Tel: + 81 3 5561 5034
Email: jpinfo@elsevier.com

KOREA AND TAIWAN
Tel: +82 2 6714 3000
Email: krinfo.corp@elsevier.com

EUROPE, MIDDLE EAST AND AFRICA
Tel: +31 20 485 3767
Email: nlinfo@elsevier.com

NORTH AMERICA, CENTRAL AMERICA AND CANADA
Tel: +1 888 615 4500
Email: usinfo@elsevier.com

SOUTH AMERICA
Tel: +55 21 3970 9300
Email: brinfo@elsevier.com

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