

Corvelle Service Offering

Reliability Engineering Analysis Implementation

Recently Corvelle led a reliability engineering analysis project for a mid-size Canadian oil & gas producer. Corvelle can produce similar results for your oil & gas company.

[Reliability engineering](#) analysis is becoming an important tool for enhancing the profitability achieved from downhole and surface equipment for upstream oil & gas producers. This project focused on resolving the following reliability engineering challenges:

1. Improve wellhead and downhole equipment reliability and make reasonable predictions about the timing and likely cause of future equipment failures.
2. Evaluate the use of alternative equipment components to improve reliability.
3. Accurately forecast the availability of wells to create production forecasts.

This monograph summarizes:

1. The business value of reliability engineering analysis.
2. A best practice approach for implementing reliability engineering analysis.

Business value

The business value of using reliability engineering analysis is increased well profitability through reduced down time. The business value includes increased:

1. Ability to identify best practices in equipment lifecycle management.
2. Ability to anticipate equipment failures.
3. Understanding of cash flow at risk due to production interruptions.
4. Run-life of equipment.
5. Scheduling efficiencies of well services work due to the ability to predict failures before they occur.
6. Accuracy of production forecasts.
7. Life of marginal wells by coordinating interventions among several wells.
8. Quality of data to support reliability engineering work.

A reliability engineering analysis project will typically produce a one-year payout.

Corvelle Drives Concepts To Completion

Audience

Building an understanding of reliability engineering analysis will typically interest oil & gas professionals in the following disciplines:

1. Production and Facilities Engineers
2. Well services
3. Management for performance measures
4. Financial risk analysts

Reliability engineering analysis project description

A typical reliability engineering analysis project consists of the following phases that Corvelle can deliver for your oil & gas company.

Create an Excel-based prototype

Create a reliability engineering analysis prototype as an Excel¹ workbook to provide:

1. A rapid prototyping approach to better understanding analysis functionality.
2. Clarity of requirements for more advanced solutions.
3. Clarity about the quality of the data required to support reliability engineering analysis in the following areas:
 - a. Well servicing history
 - b. Well and facility configuration
 - c. Well and facility downtime history
4. Confirmation of expected business benefits.

Select required software

Evaluate software with a view to selecting the development tool or a specific software package.

Implement a production-quality application

Implement a production-quality application based on learnings from the prototype:

1. Perform data cleanup as required.
2. Confirm business requirements.
3. Develop and implement.
4. Deliver training and one-on-one support.
5. Identify, prioritize and develop reliability engineering analysis enhancements.

¹ There is no initial software licensing costs if Microsoft Excel is part of the computing environment