EMERSON EXCHANGE 2025

ACCELERATING INNOVATION

ACCELERATING INNOVATION

MOVing A Reliability Program Forward with Condition Based Monitoring

EMERSON EXCHANGE 2025
ACCELERATING INNOVATION

Disclaimer

The information and/or opinions expressed in this presentation are those of the authors and do not necessarily represent official policy or permission of Emerson or Emerson Exchange.

Important Reminders

Photography and audio/video recording is not permitted in any session, or in the exhibition areas, without press credentials or written permission from Emerson or Emerson Exchange.

Inquiries should be directed to:
EmersonExchange@Emerson.com

Matthew P. Pylychaty

Instrumentation Condition Based Monitoring Specialist, Reliability

ConocoPhillips

Stirling Sutton

Instrumentation Specialist, Maintenance

ConocoPhillips

ConocoPhillips

ConocoPhillips Canada is the Canadian division of ConocoPhillips.

Headquartered in Calgary, Alberta, we are focused on developing our world-class portfolio including the Surmont oil sands project in the Athabasca region of northeastern Alberta and exciting opportunities in the liquids-rich Montney play in northeastern British Columbia.

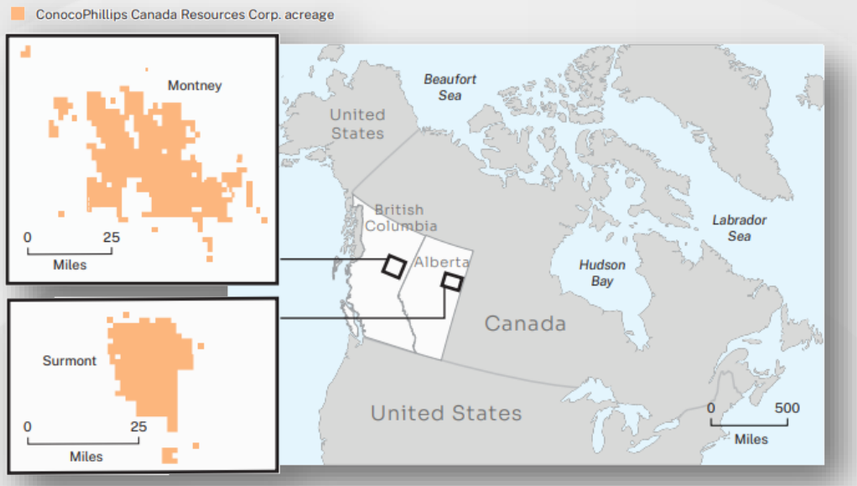
Surmont

Heavy-Oil SAGD

Montney

Liquids-Rich Unconventional

Operations consist primarily of Surmont and the Montney unconventional development in British Columbia.



Agenda

General Overview

- Going Electric
- Models Utilized

Working with the Data

- Communication to the Actuator
- Monitoring Practices

Operation Considerations

- Key Deferences in MOV Operation
- Initial Configuration Point of Interest
- Life Cycle Points of Interest

Summary

Going Electric

Obsolescence

- With the phase out of the TEC2, we had to transition to the XTE.
- Following testing, the XTE was identified as the optimal replacement.
- These XTE units are primarily located on steam service.

New Projects

- Construction of an All electric 24 well SAGD Pad
- 60 + On/Off RTS FQ
- 150 + Control Valve RTS FL

Since most of our facility relies on pneumatic actuation, we needed to adjust our Reliability program to include motor actuation as well.

Models Utilized

Primary Models Installed

- Bettis RTS FL Fail Safe – For Control Valves
- Bettis RTS FQ Fail Safe – For On/Off Valves
- Bettis XTE – Obsolescence for the TEC2

Legacy Models In Place

- M2CP

Primary Process

- Steam
- Emulsion
- Produced Gas

Communication to the Actuator

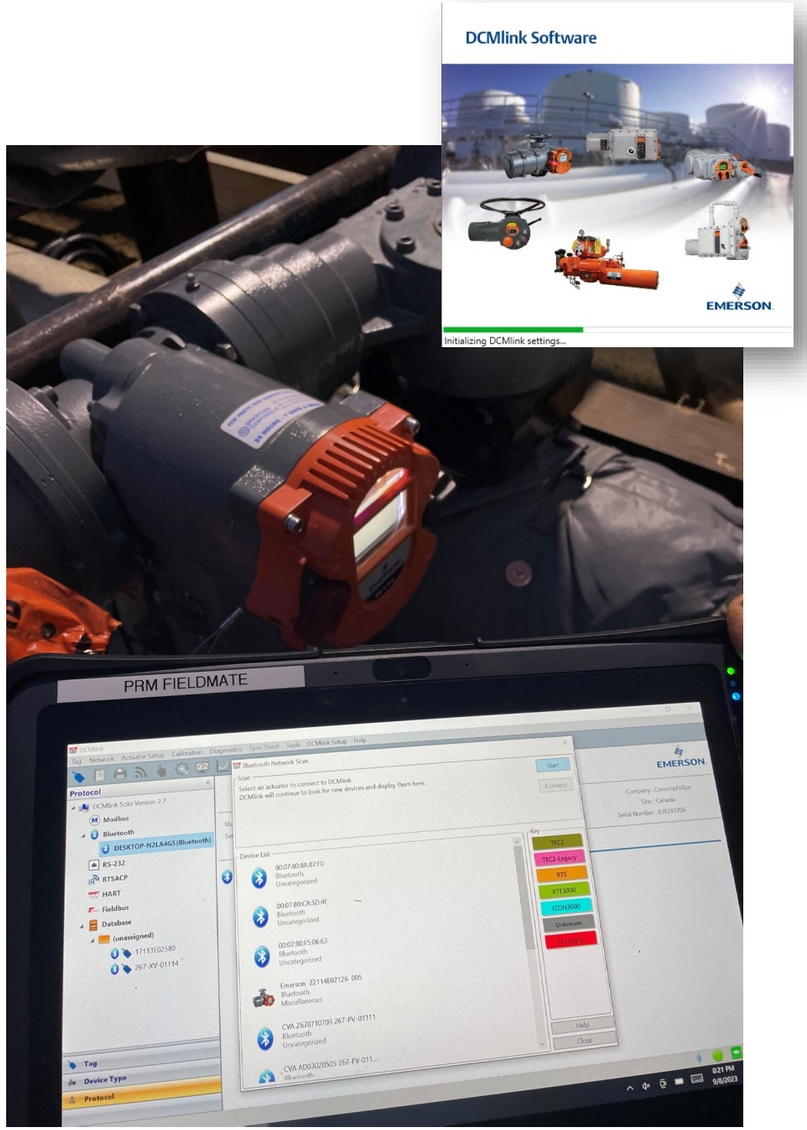
- With us standardizing on Bettis Products we utilize DCMLink.
- With DCMLink, you have the free basic version & then the Advanced version.

Data Benefits;

- Diagnostic Data – Understanding the health during operations
- Configuration – Optimizing the operation without entering the field
- Outage Testing – Verify operation during an outage remotely
- Detailed Investigation – Verify the issue remotely before field entry

- When communicating with the actuator it is key to use data plate Information:
  - **Serial number**
  - **Key**

- We employ two communication methods:
  - **Hard wired HART**
  - **Wireless HART Via THUM for discrete units**

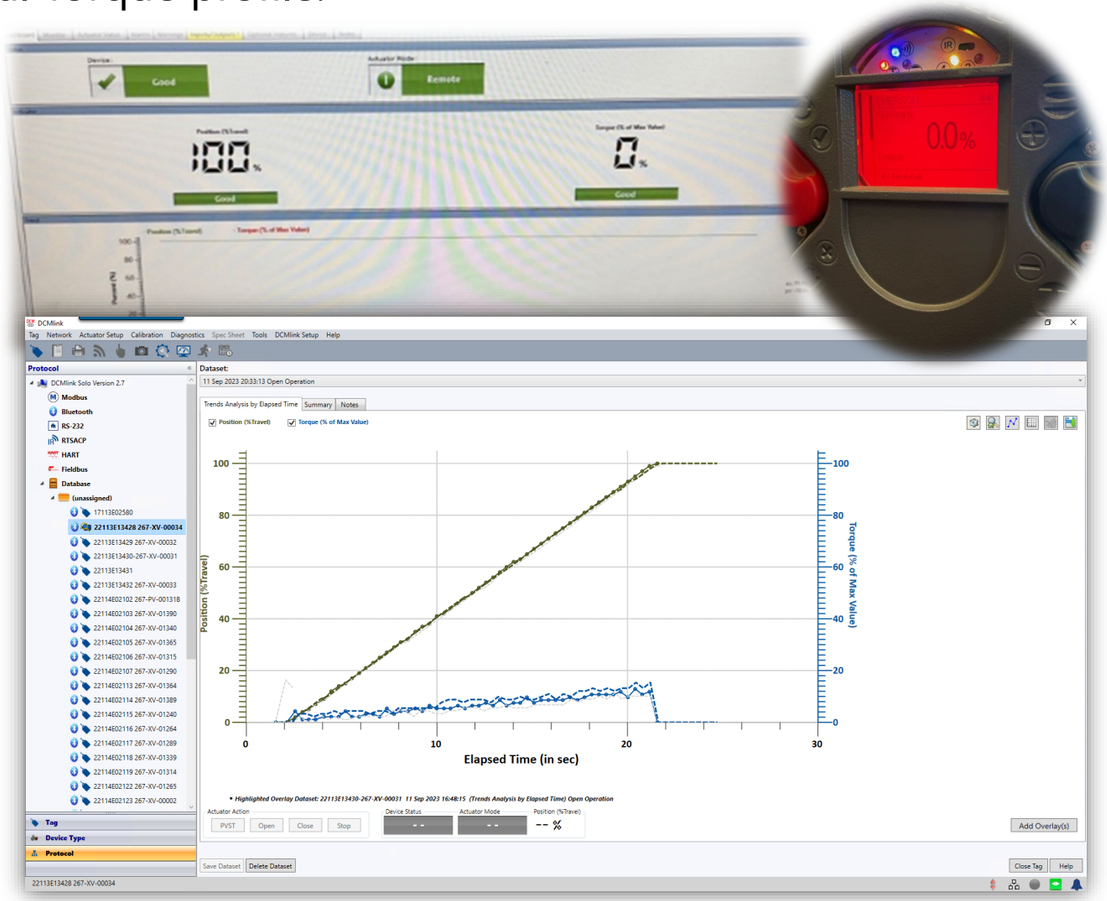


Monitoring Practices

- Baseline Torque profiles are captured prior to entering service.
- All configuration settings are verified and standardized.
- Every outage opportunity is captured and compared to the original Torque profile.

Specific Monitored Parameters

- Command 48 HART Alarms
- Binary Outputs
- Cycle Counts – Valve body, Trim, Actuator
- Deadband - Modulation
- Torque to Movement – Not just full torque but at key intervals
- Motor Run Time – To time of last failure
- Under & Over Voltage



Key Deference's in MOV Operation

- In the design phase, pneumatic systems are frequently referenced in relation to Motor Operated Valves.
- This can create performance issues if not fully understood.

Response time	*Slower*	*Faster*
Overshoot	*Less Likely*	*More Likely*
Fine Control %/Sec	*Variable*	*Yes*
Support Infrastructure	*UPS*	*Compressor & Header Piping*

Initial Configuration Point of Interest

Design

- Wiring Philosophy – Discrete vs. Analog or Combination?
- Wiring Extension Plate – How many pairs?

Digital Settings

- Learn In - Too Conservative?
- Position vs. Torque – Best why to detect valve damage?
- Emergency Close vs. Motor Close

Physical Items

- Initial Greasing – Prior to Operation
- Wiring Dip Switch Settings – Behind the Display
- Eddie Brake Assurance

Life Cycle Points of Interest

- Like any electronics, ambient temperature will affect the operation of the unit.
- With the number of moving parts within the actuator, attention is paid to the greasing regiment.
- Constant cycling at small travel ranges can place undue stress on various components.
- Depending on the configuration, adjustments may be need to ensure full closure.
- Configuration back-ups should be captured during outages.
- Long dwell times are also monitored.

Summary

Through the establishment of a Valve monitoring program on our MOVs, we successfully eliminated 81% of time-based preventative maintenance.

As a result of optimizations, corrective maintenance tasks have been limited to only predictive triggers.

By implementing monitoring practices and systems, the health of valves is maintained for operations that require minimal human involvement.

Questions?

EMERSON EXCHANGE 2025
ACCELERATING INNOVATION

Thank You