2023 Spartan University
Calgary, AB
Thursday, June 15th, 2023

Seminar Information

8:30am - 9:30am

Lessons learned from hydrogen blending projects
Presenter: Ryan McKimmie
Spartan's recently completed hydrogen blending project in Southern California is used as a case study to highlight hydrogen measurement and natural gas blending control in this high-level overview presentation. The presentation will showcase a brief flyover of the hydrogen blending application and the project in which Spartan participated. It will also review the major challenges that need to be addressed in this application, provide an overview of the SpartanPRO Hydrogen Blending Solution designed to tackle these challenges, and summarize the key learnings gained. This presentation is relevant to project engineers, flow measurement specialists, analyzer specialists, and hydrogen program managers.

Valve and Actuator selection guidelines for liquid CO2 pipelines
Presenter: Doug Garritty
This presentation will discuss isolation valves and actuators in liquid CO2 pipelines. It will cover the differences in isolation valve technologies and the various options available. Actuator technologies will also be covered, outlining the available options for safely operating CO2 pipelines with a focus on eliminating environmental emissions.

Navigating Industry Standards Motors & VFDs
Presenters: Ryan Huynh & Rob Sinclair
With today's challenges in the supply chain and the focus on electrification, understanding industry standards and design criteria is fundamental to effectively managing cost and delivery when specifying/selecting motors and Variable Frequency Drives (VFDs). This presentation will help attendees understand the flexibility and options they can explore in selecting motors and drives based on application criteria in industries such as Oil & Gas, Process & Infrastructure, Pulp & Paper, Food & Beverage, and more.

OnePlant Benefits on Hydrogen Production Facilities
Presenter: Jerry St-Amand
The need to blend Hydrogen into Natural Gas is becoming more and more of a market requirement. Adding a PLC based Hydrogen compression package to an existing plant can make the integration limited and difficult. This presentation will explore how collectively the OnePlant concept can pay dividends over the operational life of a facility beyond the project phase by reducing maintenance costs, providing a born-digital architecture that can be leveraged for the whole plant lifecycle.

Emissions Measurement using Thermal Mass Meters
Presenter: Kyle Kergen
With the ever growing need to measure a variety of emissions being demanded by regulators it can present users with a challenge to find a suitable flow measurement technology to fit this application. Thermal Mass meters have started to emerge as a highly prevalent flow metering technology to suit these very applications. Thermal Mass meters are a great fit due to their inherent ability to measure not only low flows but with their high turndown capabilities they can also capture upset events as well. They provide users with ease of use in addition to being well suited to be easily installed in existing applications where flow measurement is now a requirement. In this presentation we will discuss the theory of operation, installation options, challenges with the technology and how to overcome these situations, as well as some emissions locations that are well suited to using this type of measurement.

9:40am - 10:40am

Operational Carbon Management - a digital journey beyond reporting
Presenter: Mark Guirguis
Organizations investing in Carbon Management face challenges in the sustainability reporting cycle, lacking long-term data infrastructure and struggling with changing requirements, verification, and auditing. A bottom-up approach is needed, creating collaborative Carbon Sequestration Hubs to address protocols and reporting needs while ensuring data integrity and cybersecurity. Verification and transparency are crucial, and this presentation will explore the challenges of MMV requirements in Carbon Management projects, drawing parallels from production accounting.

Control Valve Selection Considerations for CO2 and Carbon Capture Processes
Presenter: Emily Stone
It is essential to ensure that control valves selected for carbon dioxide (CO2) process applications effectively accommodate the dynamic properties of this challenging fluid. In this presentation, we will review key control valve technologies and discuss best practices that can help you effectively control the flow of carbon dioxide in your process systems.

Carbon credits primer – an overview of regulations and compliance requirements
Presenter: Brian Van Vliet
Carbon Credits have been in place for over 15 years in Western Canada, offering a means to achieve quantified greenhouse gas (GHG) reductions. Understanding the generation, tracking, validation, and serialization of Carbon Credits is crucial when developing the design philosophy of a CCS project. In this presentation, we will discuss the details of Carbon Credit generation, the crediting process, and their ongoing importance for future carbon compliance.

Atmospheric CO2 leak detection for carbon sequestration MMV programs
Presenter: Jim Hueston
This presentation shares best practices for optimizing design and configuration in two critical areas of Carbon Capture and Storage (CCS) projects: atmospheric monitoring and leak detection. Effective atmospheric monitoring ensures the achievement and surpassing of MMV performance targets. Additionally, due to the high concentrations and pressures of CO2 in CCS injection wells, leak detection becomes vital for risk mitigation. Attendees will gain valuable insights into recognized engineering practices for enhancing performance and safety in these areas of CCS projects.

CO2 Metering in Carbon Capture & Sequestration Networks
Presenter: Ryan McKimmie & Kent Swanlund
Selection of metering technology in Carbon Capture is highly dependent on the application and the rules and regulations governing the process. Understanding the rules and regulations and which technologies can be selected is important during the design of any CCUS operation to ensure the facility is complying and providing accurate data back to the regulatory body. This session will review the regulatory landscape in Canada, discuss metering technology choices, showcase compliance systems, and offer guidance from Spartan Controls.

10:50am - 11:50am

Optimize steam production and utilization in SAGD while minimizing emissions
Presenter: Ian Ignatiuk
SAGD producers are under constant pressure to increase production, reduce emissions, and improve efficiency within their operation. This seminar will cover Spartan's proven approach to optimizing SAGD facilities via our steam system and production optimization control strategies. This multi-layered controls approach utilizes industry best practice Regulatory Control, Advanced Process Control, Supervisory Control, and Sitewide Optimization to take the guess work out operations hands. In the pursuit of operational excellence, our goal is to achieve a stable and efficient operation that reduces emissions for all SAGD producers.

Control valve selection guide for Hydrogen and Ammonia production processes
Presenter: Aaron Ivers
The sustainable production and transportation of hydrogen is a critical component in achieving long-term sustainability and decarbonization goals. Fisher Control valves have been successfully used in hydrogen applications for over 60 years, offering a wide range of products that are well suited to meet application needs and process conditions. In this presentation, we will explore key considerations for sizing and selecting control valves in hydrogen service applications.

Fundamentals of Process Data Management (101)
Presenter: Vishal Singh
Process and operational data play a critical role in the digital maturity of organizations. Teams across the organization utilize this data to uncover new insights and create value. As the demand for process data continues to increase, it is essential to establish and maintain a data infrastructure that can support both present and future organizational needs. In this session, we will delve into best practices concerning architecture, asset data modeling, contextualization, and visualization.

Asset Condition Monitoring: Essential Considerations
Presenter: Tom Bingham
As demands on assets continue to increase, the importance and functionality of today's vibration programs continue to evolve. Reliability, Operational and Control platforms now are dependent on the information served up by the once" bearing changing" applications. Although 30 years have passed since adoption of the vibration technology in most industrial organizations, the value is often not fully realized. Integration into maintenance management systems driving work efficiencies, process and big data demands from periodic, continuous and on-demand data sources, all combine to increase the complexity of today's vibration programs. This session is intended to provide attendees with insights and information that will assist in evaluation or improvement of a new or legacy vibration program. Use cases will be recent and supportive to resolving todays cultural and technology challenges.

CO2 Analyzers for Carbon Capture Optimization and Custody Transfer
Presenter: Don Ford
Gas Analyzers are a critical part of CO2 capture processes and a requirement for custody transfer systems. CO2 removal technologies such as Amine systems respond differently with varied CO2 amounts and react adversely to other gases. Optimization and control involves measuring the flue gas composition. Once the CO2 is compressed and sent for transportation, measurement of the CO2 concentration is critical along with measurement of various impurities to ensure pipeline integrity. We will discuss various solutions that Spartan Controls provides for CO2 and impurity concentration measurement.

12:40pm - 1:40pm

Leveraging advanced control combustion techniques to optimize OTSG and complex combustion appliances
Presenter: Chad Vollman
CSA B149.3 gas code provides regulatory requirements for gas-fired equipment. While the code is prescriptive, it lacks options for utilizing advanced combustion design principles. Interpreting the code, applying proper design methodologies, and leveraging application knowledge can lead to process optimization opportunities. This seminar explores real-world examples and configuration options for advanced applications. We examine how cohesive integration of application knowledge, best design practices, and modern technology (such as advanced instrumentation and BMS Systems) can safely design and operate complex applications like OTSGs, HRSGs, boilers, and FD furnaces, resulting in improved efficiencies, environmental benefits, and increased reliability while reducing operational costs.

Techniques and Technologies to Liberate Stranded OT Data
Presenter: Ellie Foden
Spartan Controls has been helping organizations extract value from stranded operational technology (OT) data for a variety of use cases. This presentation will help you distinguish what OT data sets do and don't belong in a traditional process data historian, how you can securely and reliably move data from site to enterprise, and how technology can be leveraged to provide tangible insights to your organization.

Navigating Industry Standards: MCCs
Presenter: Ryan Huynh & Doug Wynne
To date, MCCs are usually designed and procured one way – why not consider evaluating the larger electrical picture, the MCC specs, and procurement strategy? When specifying MCCs, understanding the options and working with an MCC that is flexible enough to accommodate creative choices and last-minute changes in design, can make or break your project. This presentation will help attendees to understand the flexibility and options they can explore when designing their MCC and offer innovative win-win strategies to consider.

Hydrogen Analysis for Production, Blending and Purity
Presenter: Don Ford
Hydrogen analysis techniques vary depending on the application requirement. Specific properties of hydrogen such as thermal conductivity allow us to measure H2 in various ways from production to blending, but care must be taken in applying these techniques. BTU measurement of blended H2 and Natural Gas can be determined using a couple different techniques. Pure H2 needs to be quantified by monitoring the impurities. We will examine the different analyzer solutions that Spartan Controls offers for each of these measurements.

SPARTAN CONTROLS

1:50pm - 2:50pm

Predictive Maintenance in the Digital World
Presenter: Keith Berriman
Technological advancements enable us to monitor our equipment in real time more efficiently than ever before. Through digital connectivity, we can combine and analyze data from various sources to receive early warnings of potential faults. However, determining what to measure, how to connect data streams, and how to present this information to our operations for effective decision-making can be challenging. In this presentation, we will discuss the foundations of this digital PdM integration and what companies are doing to collect, analyze and present data to improve operational effectiveness.

Designing Natural Gas Systems for Emissions Reduction
Presenter: Morgan Cummings
This presentation examines monitoring and control strategies for natural gas applications aimed at reducing or eliminating methane emissions during normal operations.

Measurement Solutions for Hydrogen
Presenter: Don Ford
Hydrogen presents unique challenges for measurement devices. From pressure, temperature and flow measurement, consideration needs to be given for handling hydrogen. Join us to learn what devices are affected by H2, and the solutions for overcoming those effects.