FUNDAMENTALS OF SCADA SYSTEMS FOR THE OIL & GAS INDUSTRY

December 9-10, 2019
Royal Sonesta Houston
Houston, TX

POST-COURSE WORKSHOP
SCADA Oil & Gas Leak Detection
TUESDAY, DECEMBER 10, 2019

“Gives a good high-level overview of the technical background of a SCADA system.”
Gas Control Engineer, Eversource Energy

EUCI is authorized by IACET to offer 1.1 CEUs for the course and 0.4 CEUs for the workshop
OVERVIEW

The Fundamentals of SCADA Systems for the Oil & Gas Industry course will explore the history and evolution of SCADA systems, including the differences in the SCADA types and how they have evolved. The course will examine SCADA hardware components and how they work together. Attendees of this course will gain a comprehensive understanding of how SCADA systems work for the oil & gas industry, how and why they were developed, how they are structured, the database and data collection techniques, and uses of the dynamic data by the end user.

There will be an explanation of the data flow from field, through RTU, to frontend processor, and to the control room. We will examine how different telemetry points are processed, learn about analogs, status points, accumulators, and the different ways that they can be collected in field RTU for data exchange, scan rates, and protocols. The course will discuss how data can be processed for the end user, alarm processing, supervisory controls, processing logic in database, and putting it into the dynamic graphic user interface for end to end control and monitoring. We will explore the best data maintenance practices, such as maintaining the data standards, templates, creating the point list and checkout lists, performing point-to-point testing, and maintaining the quality assurance systems independent from productions where jobs are run first.

LEARNING OUTCOMES

- Review the history and evolution of SCADA systems for oil & gas
- Illustrate the basic hardware and software components of SCADA systems
- Discuss protocols that are used to transmit, collect, store and manage data
- Discuss the increased need for cyber security for ICS
- Describe different instrumentation measurement technologies
- Review SCADA system architecture
- Discuss the data flow from field to control room
- Identify alarm processing and supervisory control

WHO SHOULD ATTEND

- Oil and Gas Industry Leadership
- Managers
- Marketers
- Engineers
- Accountants
- Technicians
- Volume Processing Analysts
- Legal Professionals

“It was refreshing to hear other professionals’ day to day scope of work and goals with technology moving forward.”

Director, Monument Oil Technologies

“This was a good class. Breaking SCADA down to the basics and then taking it to higher levels.”

Superintendent of Operations, Long Beach Energy Resources
AGENDA
MONDAY, DECEMBER 9, 2019

8:00 – 8:30 am  Registration and Continental Breakfast

8:30 am – 5:00 pm  Course Timing

11:30 am – 12:30 pm  Group Luncheon

• SCADA Definition
• SCADA History and Evolution
  o By technological evolution
  o Telemetry based SCADA
  o Microprocessors - PLC
• SCADA Types
  o By market evolution
  o Distributed
  o Networked
• SCADA Systems Components
• Common SCADA Abbreviations
• Typical Hardware SCADA Architecture
  o Master administrator - data repository
  o Communicator - data acquisition
  o Front end processor - RTU
  o Historian - data archiving
  o Human Machine Interface - individual users
• Typical System Division
  o Primary system
  o Backup system
  o Training system
• RTUs
  o RTU protocols types
  o RTU scans rates and options
  o Field devices
    - Upstream vs Midstream vs Downstream
• SCADA Data Collection - Point Types and Uses
  o Analog points (measurements)
    - Limits
    - Setpoints
  o Digital points
  o Accumulators (periodic collection)
    - Meter collections
    - Counter values
  o Status points (indication and controls)
    - Alarm processing
    - Supervisory controls
• Data Collection and Q&A Session
• Course Adjourns for Day

“Great for those with minimal or no exposure to SCADA.”
Gas Services Field Rep III, Long Beach Energy Resources
AGENDA

TUESDAY, DECEMBER 10, 2019

8:00 – 8:30 am
Continental Breakfast

8:30 am – 12:00 pm
Course Timing

- Review of Day 1
- Data Management
- Maintaining the Data and Best Practices
  - Construction project
  - Midstream Case Study
- Engineering points list
- Data standards
- Regulations
  - Upstream/Midstream/Downstream Case Studies
- Point to point testing
- Checklist and procedures
- SCADA Security and Additional Applications
- Network Processing
- Cyber Security of SCADA
- Course Concludes

INSTRUCTOR

Carin Meyer
Senior SCADA Manager, Marathon Petroleum

Carin Meyer has been working with Pipeline SCADA for 13 years. Ms. Meyer started with BP Pipelines in Tulsa Oklahoma as a SCADA Engineer and advanced to SCADA Team Lead. Carin has a bachelor’s degree in Business Administration from Regis University, an MBA from Colorado Technical University, and a Masters of Management IT – Project Management from Colorado Technical University. Ms. Meyer sits on several industry steering committees for SCADA Regulation, Leak Detection, and SCADA Cybersecurity. In addition to her current roll, Carin speaks at industry conferences, is a technical SCADA instructor for continuing education, and consults for clients who benefit from her SCADA expertise.

“Extremely knowledgeable and great speaker. I will highly recommend to my coworkers.”

IT Systems Administrator, Markwest Energy Partners

“Carin offered practical experience combined with theory and textbook instruction. Keeping the course relevant and topical.”

Project Manager, JPS Measurement, LLC
POST-COURSE WORKSHOP

SCADA Oil & Gas Leak Detection

TUESDAY, DECEMBER 10, 2019

12:30 – 1:00 pm  Workshop Registration
1:00 – 5:00 pm  Workshop Timing

OVERVIEW

During this afternoon workshop—paired to run after Fundamentals of SCADA Systems for the Oil & Gas Industry—the goal is to understand the various moving parts when it comes to leak detection specifically in SCADA systems. Attendees will learn the types of leak detection, as well as the regulations, implementations, integrations, and more. Those in class will understand the problems and solutions regarding leak detection, and there will be discussion on assets versus evaluations along with a deep dive on leak detection requirements for the differences between assets and levels of operation.

Although this workshop is a continuation of the SCADA Fundamentals course, those not registering for the prior course are more than welcome to attend.

LEARNING OUTCOMES

• Review the process of receiving a leak detection alert and how to handle the situation from beginning to end
• Evaluate how to recognize an alert versus an alarm, assess the problem, and find the solution
• Discuss how everything regarding SCADA and leak detection integrates, along with any implementations and future training, service, or maintenance

WORKSHOP INSTRUCTORS

Carin Meyer
Senior SCADA Manager, Marathon Petroleum

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Jake Brown
Director, Monument Oil

Jake Brown has increased awareness on leak detection for four years. He studied business at The University of Arizona and realized the regulatory movement towards continuous monitoring of oil and gas assets. Focused on representing the new developments in technologies, Mr. Brown has aided in development of a new sensing product and brought a fiber optic sensor to market. Jake continues to seek the cutting edge of new technologies which will protect the environment as well as mitigate risk for Oil and Gas operators and asset owners. He also works with his fourth-generation downstream oil distribution company.
WORKSHOP AGENDA

TUESDAY, DECEMBER 10, 2019

12:30 – 1:00 pm  Workshop Registration
1:00 – 5:00 pm  Workshop Timing

1. Regulations
   a. API 1135/API 1175
      i. Alert vs alarm
         1. Alarm requires action
      ii. Leak detection requirements for different assets and level of operation
         1. Pipeline
            a. Transmission, gathering, pipeline, upstream, water transfer, HDPE, steel, and downstream
         2. Storage tank and vessel
            a. Upstream vs midstream vs downstream
         3. Compressor station
         4. Terminal
         5. Refinery
      iii. Future regulatory requirements and planning
         1. Rollover periods and timing of implementation
      iv. Show drill down from SCADA

2. Types of Leak Detection (LDS); Data is king; There is no one solution
   a. Types of assets
   b. Problems
      i. Corrosion
         1. Susceptible areas on pipeline elbows
      ii. Third party impact
         1. Mexico article/Pemex
   c. Solutions
      i. Continuous
         1. CPM
            a. Classified vs certified (alert vs alarm)
            b. Mass balance/wave
         2. Fiber optics
            a. Discrete vs distributed
            b. Temp, position, strain, acoustic
         3. Hydrocarbon detection
      ii. Snapshot in time
         1. Lidar/visual/drone
         2. Dogs
   3. Asset vs LDS evaluation
      a. Evaluate by today's standards and today's technology; retrofit vs install on new asset
         i. Today's technology is ever-changing
   4. Integration/Implementation/Training/Service/Maintenance
      a. Service contracts with standing call once a week
   5. Making LDS plan with your asset
INSTRUCTIONAL METHODS

PowerPoint presentations, interactive group exercise, and group discussion will be used during this course.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for a minimum of four hours to be eligible for any continuing education credit.

IACET CREDITS

EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 1.1 CEUs for this course and 0.4 CEUs for the workshop.

EVENT LOCATION

A room block has been reserved at the Royal Sonesta Houston, 2222 West South Loop, Houston, TX 77027, for the nights of December 8-9, 2019. Room rates are US $134, plus applicable tax. To reserve your room, please call 1-855-463-3091 or click here. Attendees need to reference the EUCI Group Code: 201912EUCI to get the group rate. The cutoff date to receive the group rate is November 17, 2019 but as there are a limited number of rooms available at this rate, the room block may close sooner. Please make your reservations early.

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this conference may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.
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**SPECIAL BUNDLE PRICE**
FUNDAMENTALS OF SCADA SYSTEMS FOR THE OIL & GAS INDUSTRY COURSE AND POST-COURSE WORKSHOP: SCADA OIL & GAS LEAK DETECTION
DECEMBER 9-10, 2019: US $1795
EARLY BIRD on or before NOVEMBER 22, 2019: US $1595

**FUNDAMENTALS OF SCADA SYSTEMS FOR THE OIL & GAS INDUSTRY COURSE ONLY**
DECEMBER 9-10, 2019: US $1395
EARLY BIRD on or before NOVEMBER 22, 2019: US $1195

**POST-COURSE WORKSHOP: SCADA OIL & GAS LEAK DETECTION ONLY**
TUESDAY, DECEMBER 10, 2019: US $595
EARLY BIRD on or before NOVEMBER 22, 2019: US $495

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How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

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**CREDIT CARD INFORMATION**

Name on Card

Billing Address

Account Number

Billing City

Exp. Date

Billing State

Security Code (last 3 digits on the back of Visa and MC or 4 digits on front of AmEx)

Billing Zip Code/Postal Code

**OR** Enclosed is a check for $ to cover registrations.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before November 18, 2019 in order to be refunded and will be subject to a US $195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI’s liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices. EUCI reserves the right to alter this program without prior notice.