OLI Systems Inc. Refining Training Syllabus

Day1: Overhead (OVHD) Corrosion in OLI Studio & OLI Flowsheet: ESP (4 hours, virtual)

OVHD Corrosion in OLI Studio (2 hours)
The first part of the training program will focus on the analysis of individual process streams:

1. **Entering a Boot Water Analysis**
   - Water analysis reconciliation
   - Creating a molecular flows stream

2. **Entering a Naphtha Assay**
   - Create a pseudocomponent stream

3. **Creation of the Tower OVHD stream**
   - Use boot water, naphtha and off-gas composition to create the stream that feeds the OVHD condensers, and ultimately the accumulator

4. **Temperature surveys**
   - Use temperature surveys to identify salt point, ionic dew point and water dew point/mass% point
   - Discuss neutralizing amine selection

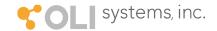OVHD Corrosion in OLI Flowsheet: ESP (2 hours)
The second part will focus on using the OLI Flowsheet program in the following areas:

Create an overhead system model in Flowsheet
   - Setup controllers to match water analysis and pH
   - Setup controllers to identify ideal neutralizing amine flow rate
   - Identify ideal wash water flow rate
   - Identify ideal wash water injection point
   - Transfer OVHD stream to Studio for additional surveys

Goal: After this training, attendees will be able to develop overhead corrosion monitoring tools for column overhead streams that will enable them to complete the following:

   - Understand the column overhead corrosion risk
   - Calculate Ionic Dew Point, Water Dew Points, Hydrocarbon Dew Points, and Salting Points
   - Set Integrity Operating Windows for tower OVHDs

Day 2: OLI Flowsheet: ESP – Refinery Applications (4 hours, virtual)

Refinery Applications using OLI Flowsheet: ESP
Building on Day 1, Day 2 of the training will focus on the use of OLI Flowsheet: ESP to model the following systems:

1. **Hydroprocessing (~1.5 hours):** Create a reactor effluent cooling (REAC) system model
   - Model Feed/Effluent exchangers
   - Model REAC system
   - Identify NH_4HS desublimation point
   - Calculate NH_4HS wt% in sour water
   - Calculate optimal wash water rates and discuss location

2. **Sour Water Strippers (~1.5 hours)**
   - Build a Sour Water Stripper Column
     - Adjust tower parameters to remove H_2S and CO_2
     - Add waste streams to treat in the SWS and analyze impact
     - Adjust model parameters to prevent scaling and corrosion

3. **Overview of App Builder for Refinery Applications (0.5 – 1 hours)**

Goal: After this training, attendees will be able to:

- Model Tower OVHDs in OLI Flowsheet in order to optimize neutralizer dosage, wash water rates and monitoring for salts and corrosion
- Model the Feed/Effluent-REAC cooling system and identify which shells are at risk of salt fouling and corrosion to apply mitigation steps and prevent a unit shutdown. In addition, users will be able to optimize wash water rates to control corrosion in the REAC
- Model Sour Water Strippers and create monitoring tools for optimal operation

think simulation | getting the chemistry right