



## River City Engineering – Operator Training

### Board Training: Entire Plant

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*Note: The timing and duration of this course will be tailored to your shift needs. For example, training from 11 am – 11pm to cover six hours for both day and night shift. 4 days across set change covering 2 days per set.*

#### 1. Introduction to Plant

- a. Background
  - i. Plant Products
  - ii. Process Overview (BFD or other high level overview)
  - iii. Description of control strategies
- b. Safety
  - i. Process Fluids
  - ii. Safety equipment at plant and on boards

#### 2. Plant Inlet

- a. Controls
  - i. Compressor Controls
    - 1. Loading/Unloading
    - 2. Start Up/Shutdown Compressors
    - 3. Recycle
  - ii. Slug Catcher Pressure Control
- b. Key Operating Parameters
- c. Optimization and troubleshooting
  - i. Recycle valve use

#### 3. Treating – Amine and Glycol

- a. Controls
  - i. Temperature Control
  - ii. Pressure Control
- b. Key Operating Parameters
  - i. Amine
    - 1. Still Overhead Temperature
    - 2. Flash Tank Pressure
    - 3. Temperature profile
  - ii. Glycol
    - 1. Reboiler Temperature
    - 2. Flash Tank Pressure
- c. Optimization and troubleshooting
  - i. Foaming

- ii. Stripping gas
- iii. Full regeneration
- iv. Minimize circulation rates while maintaining efficacy

#### **4. Dehydration – Mole Sieve**

- a. Controls
  - i. Flow control
  - ii. Moisture totalizers and dehy timer interlock
- b. Key Operating Parameters
  - i. Regeneration gas temperature and flow rate
- c. Optimization and Troubleshooting
  - i. Switching beds
  - ii. Regen Compressor discharge path
  - iii. Regen timing

#### **5. Cryo / Cold Plant**

- a. Controls
- b. Key Operating Parameters
  - i. Bottoms Temperature
  - ii. Tower Overhead Pressure
  - iii. Chiller Outlet Temperature
  - iv. Expander Speed / % Open JT Valve
- c. Optimization and Troubleshooting
  - i. Flow Splits
    - 1. Gas/Gas and Reboilers
    - 2. Expander/JT and Reflux
  - ii. Utilities use
    - 1. Refrigeration
    - 2. Hot Oil – Trim
  - iii. Hydrate formation and prevention
  - iv. Loss of thermosiphon

#### **6. Refrigeration**

- a. Controls
  - i. Relation between temperature and pressure for bubble point liquid
  - ii. Compressor discharge dictated by condenser outlet temperature
  - iii. Minimum pressures for compressors
- b. Key Operating Parameters
  - i. Chiller Pressure
  - ii. Chiller Level
  - iii. Economizer pressure
  - iv. Compressor discharge pressure
- c. Optimization and Troubleshooting
  - i. Cold weather considerations

- ii. Hot weather considerations
- iii. Loading of compressors

## **7. Residue Compression**

- a. Compressor Controls
  - 1. Loading/Unloading
  - 2. Start Up/Shutdown Compressors
  - 3. Recycle
- b. Key Operating Parameters
  - i. Discharge Pressure
  - ii. Flowrate
- c. Optimization and Troubleshooting
  - i. Recycle valves

## **8. Stabilizer**

- a. Control
  - i. Temperature Control
  - ii. Pressure Control
- b. Key Operating Parameters
  - i. RVP
  - ii. Temperature profile
- c. Optimization and Troubleshooting
  - i. Flow split to top feed and bottom feed
  - ii. Utility use

## **9. Entire Plant**

- a. Control
  - i. Whole Plant Recycle Valve
  - ii. Drains
  - iii. Flare blowdowns