



## River City Engineering – Classroom Style Operator Training

### PHA Methodology: Training Agenda

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**Course Total: 4 hours**

**This course is available for online training format.**

- 1. Background** **30 minutes**
  - a. OSHA PHA Requirements
  - b. API 14C, What-If, and HAZOP Methodologies
    - i. RCE Unique methodology
  - c. Design stage this method can be applied
  - d. Overview on PHA Worksheets
  - e. Risk Ranking
  
- 2. PHA Worksheets** **30 minutes**
  - a. PHA Worksheet examines operating parameters (pressure, temperature, level, flow, etc.) and applies deviations for each incoming fluid on every P&ID.
  - b. Examine metallurgy, process instrumentation, and general safety concerns.
  - c. Evaluate ease of maintenance and operability by ability to isolate, drain, vent, purge, and start up.
  - d. Identify deficiencies with the design and rank risk associated with each deficiency.
  - e. Assign personnel to mitigate and reduce risk if needed.
  - f. Define documents required for mitigation (change to operating procedures, C&Es, etc.)
  - g. Development of recommendations list
    - i. Define concern and recommended mitigation.
    - ii. Include risk rank, party to ensure action, and date for resolution.
  
- 3. Example Walkthroughs** **3 hours**
  - a. Plant Inlet
  - b. Drain header into vessel
  - c. Cryo plant
  - d. Documents reviewed
    - i. P&IDs
    - ii. Plot Plan
    - iii. Area Classification Plan
    - iv. C&Es
    - v. Operating Procedures (if available)
    - vi. PSV Study (if available)
    - vii. Equipment datasheets