



# inBound

Document & Manage Safety, Environmental, and Operational Limits

# Information Required for Safe Operations

- Process Operators need immediate access to process design limitations to safely operate the plant
  - Desired Operating Zone (Optimal)
  - Safe Operating Zone (Normal)
  - Abnormal Operating Zone (Alarm settings)
  - Shut Down Limits (plant trips)
  - Emergency Procedures (major impact)
- Typical Operator manages thousands of limits
  - Pressures
  - Flows
  - Environmental
  - Quality
  - etc



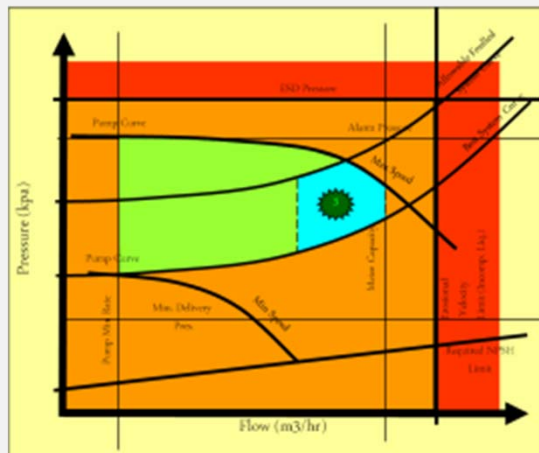
# Information Required for Safe Operations

- Limit Values Change with Time
  - Process Optimization Settings
  - Catalyst degeneration
  - Alarm set points
  - Equipment fouling & de-rating
  - Etc
- Current settings often invalid
  - Alarm setting above process trip point
- No Single reference source for the operator
  - Usually rely upon memory
  - No time to look up values during upset conditions



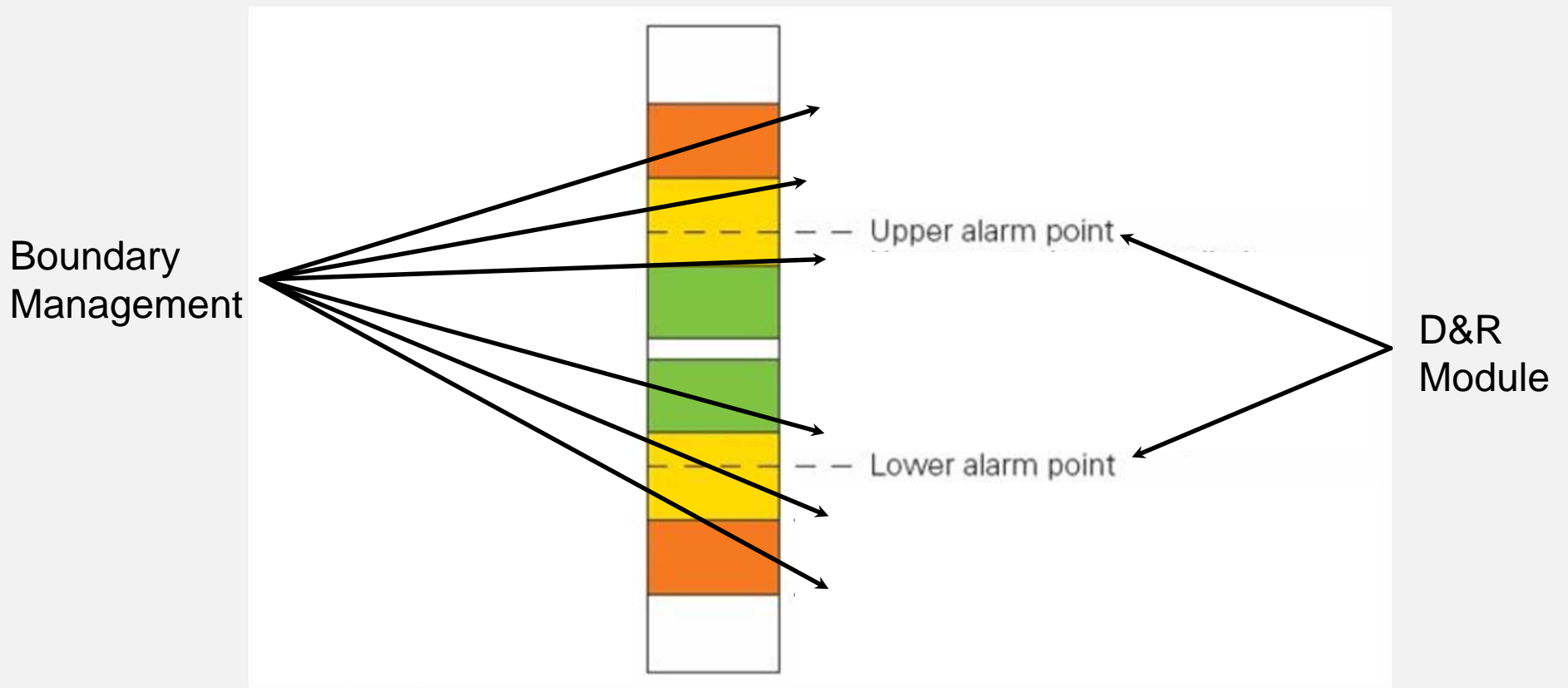
# inBound

- Documenting & Managing the Operating Envelope
  - Physical Constraints (vessel MAWP)
  - Design Constraints (relief valve setting)
  - Safe Operating Zone (Alarm settings)
  - Operating Constraint (pump curves)
  - Optimization (desired operating region)



# inBound

Getting the whole picture when designing alarms

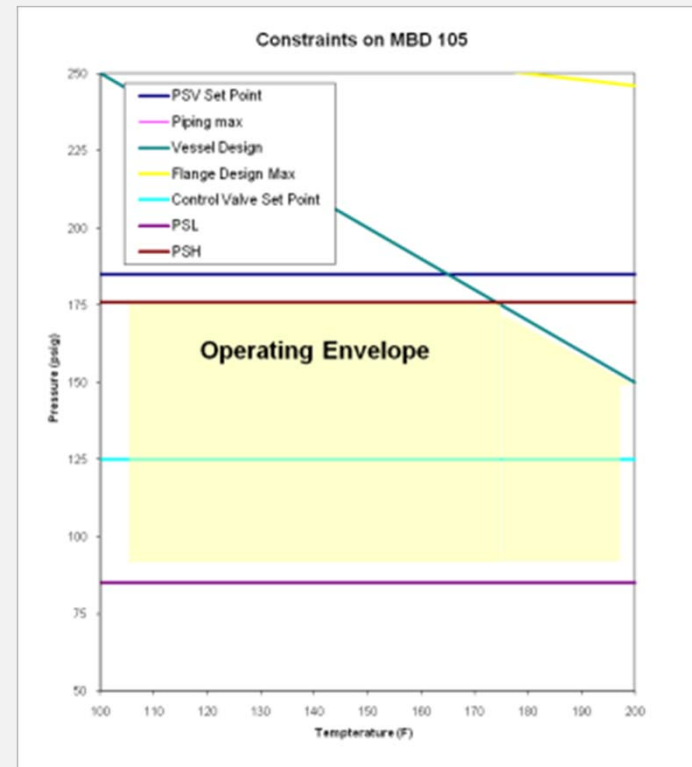


And any other parameter you might want to capture



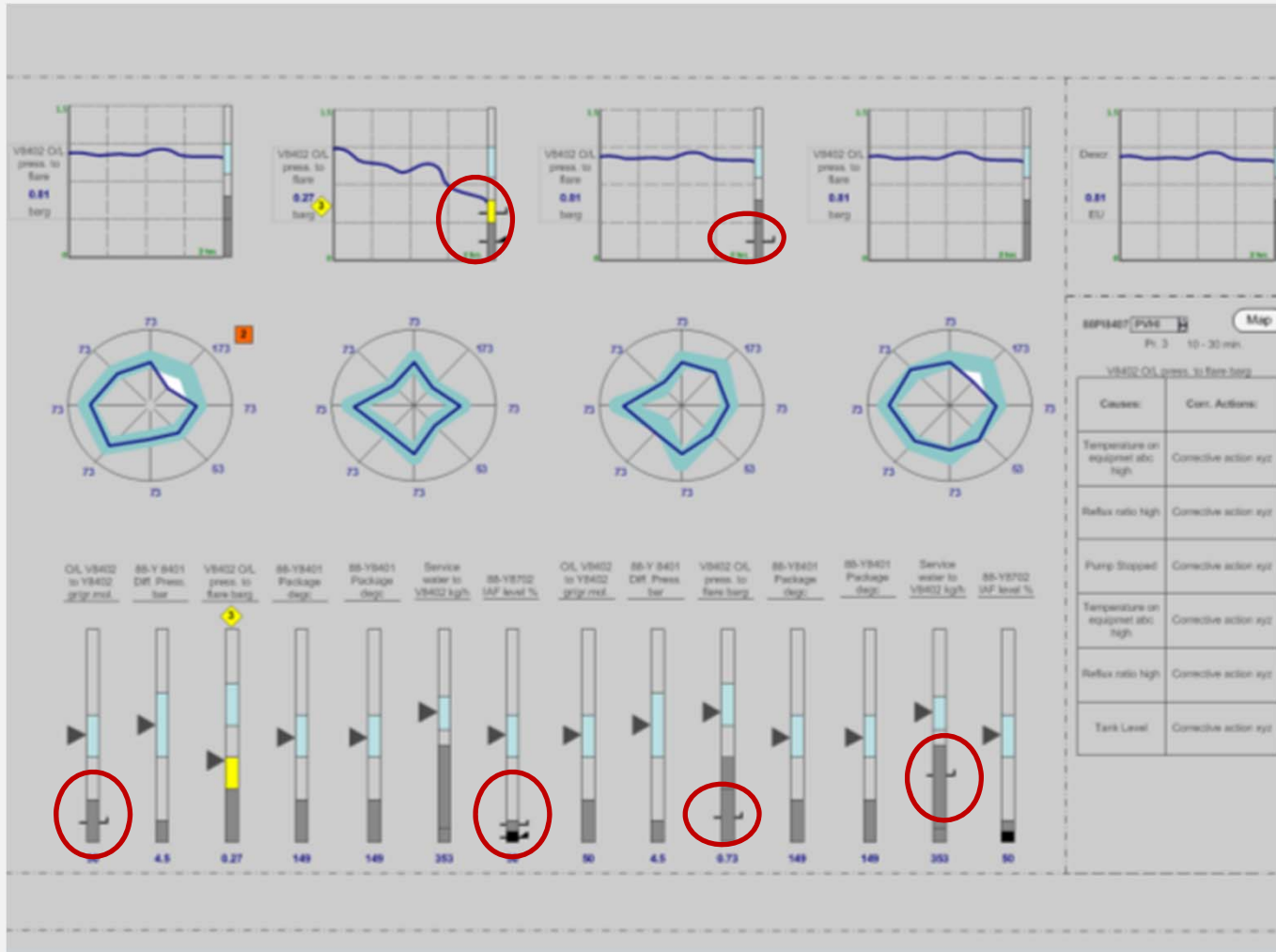
# inBound

- PSS inBound fully documents & manages operating envelopes
  - Document constraints (along with MOC approvals)
  - Receive constraints from third party databases (IPF settings in Offshore)
  - Constraints can be values or equations
  - Establish Constraint hierarchy, and automatically detect deviations (alarm setting above IPF setting)
  - Export limits to other applications
  - Graphical visualization of constraints

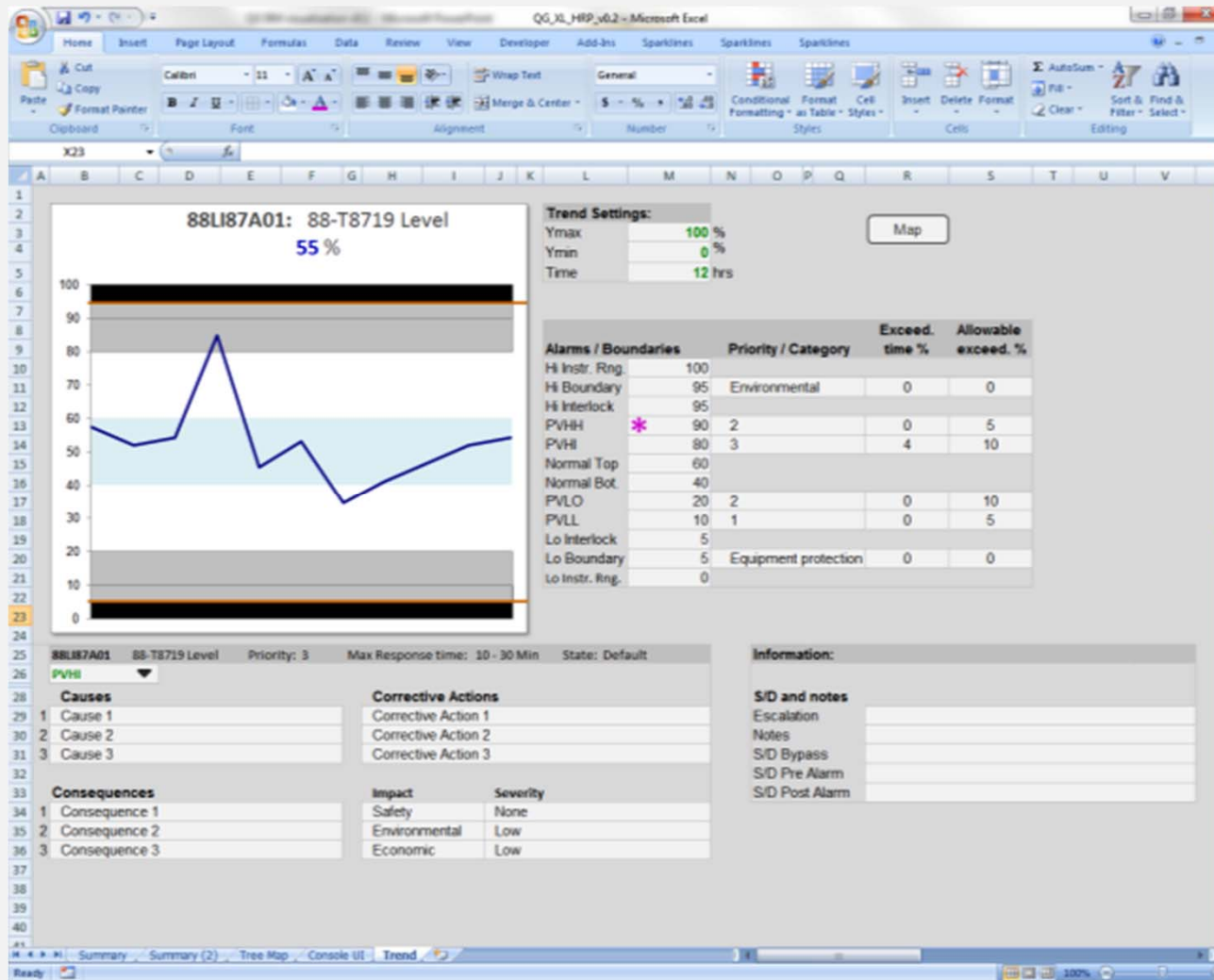


# Operator UI

Limit Information delivered to real time environment

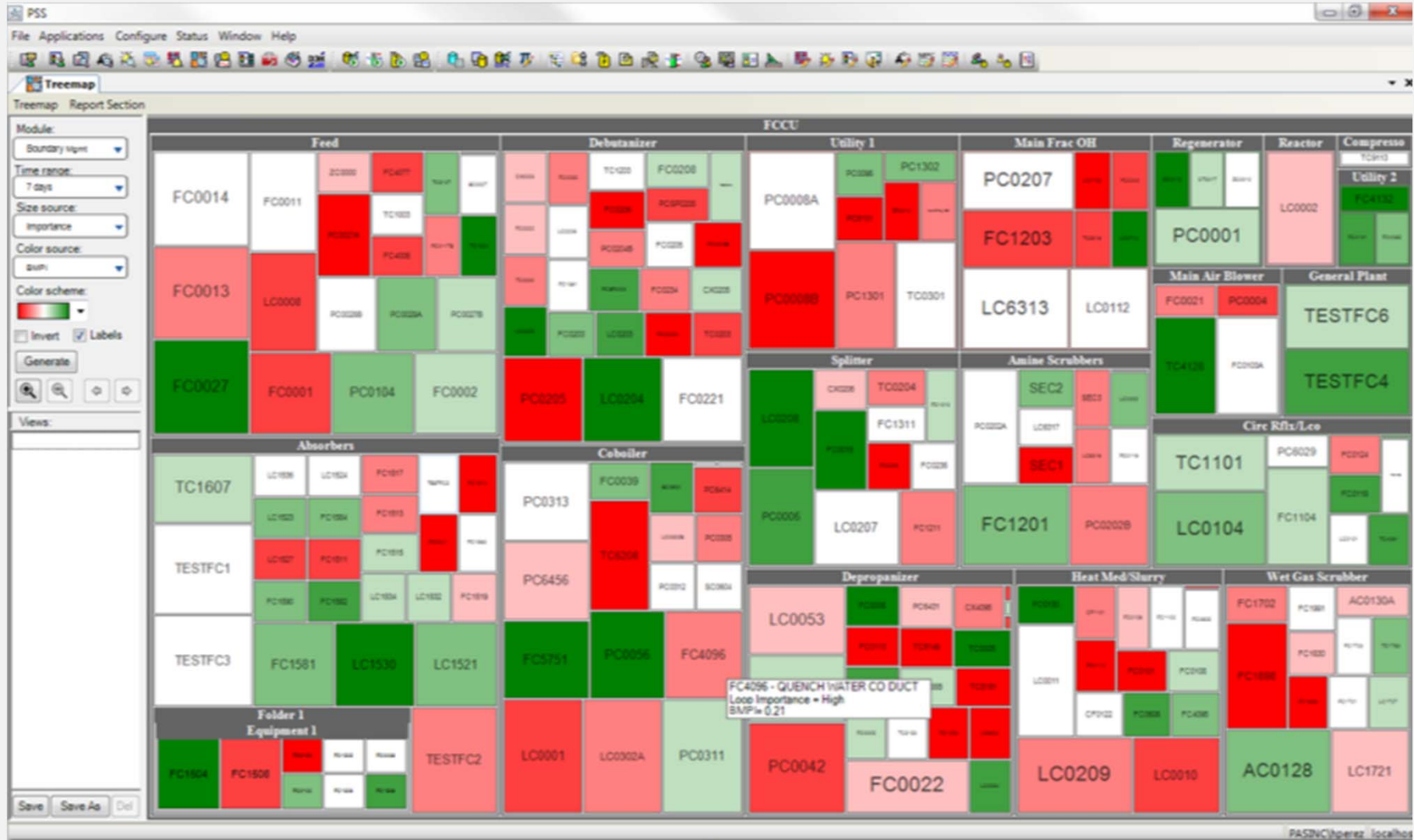


# Detail Report on Boundaries





# Historical Performance Scorecard



# Where inBound is Used

- Plant Management
  - Use Scorecard to measure adherence to Boundary Limits
- Operations
  - Single source for limit information
  - Available in DCS/SCADA graphics
- Engineering
  - Once location to document & manage constraints
  - “one version of the truth”
- Environmental
  - Document & Deliver information to operators to avoid environmental permitting excursions
  - Ensure limits stay current



Thank You

