

HF Leak Symulation



Daryl Dunham



Acid Release and Response Simulation

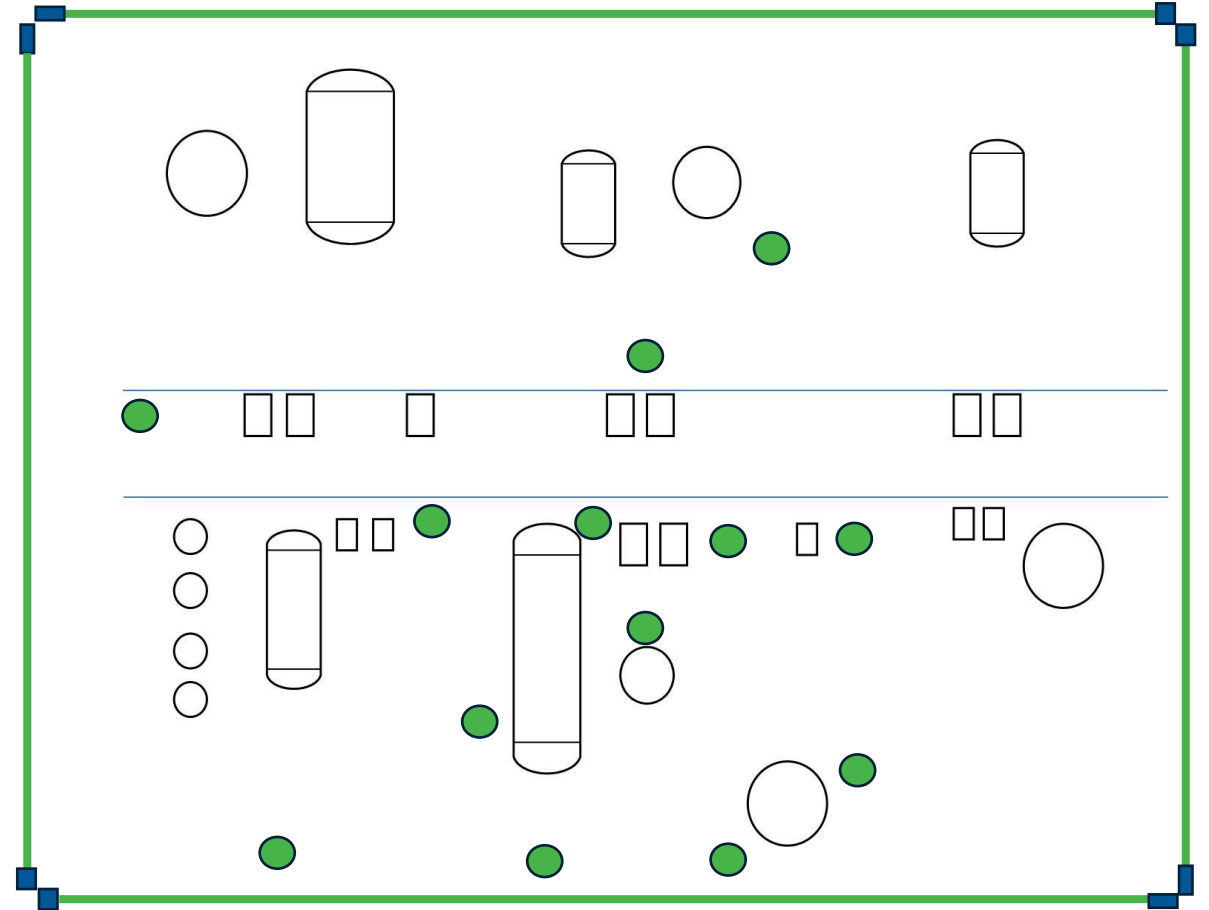
Theoretical leak on an HF Alkylation unit:

- Unit has laser detectors and point source HF detectors
- Unit has elevated high-capacity water canons
- Unit has a Rapid Acid Transfer System (RATS)
 - RATS design is not a standard design, but utilizes typical components.
- Actions of operators are open for discussion
- Entire event from leak to end of RATS is less than 4 minutes.
 - Timing will vary for unit design and type of acid transfer system.

Start
Simulation

- Flange Leak begins
- East Laser detector alarms
 - 120 ppm-meters
- South Laser detector alarms
 - 150 ppm-meters
- Point source detector alarms -
- Point source detector alarms -
- Point source detector alarms -

→ N



Operator Responds

00:47

Operator checks cameras
Operator checks weather station
Operator radios outside operators
Operator notifies shift supervisor

Operator initiates water sprays

Operator hits the RATS button



Rapid Acid Dump Begins

03:45

Isolation valves close

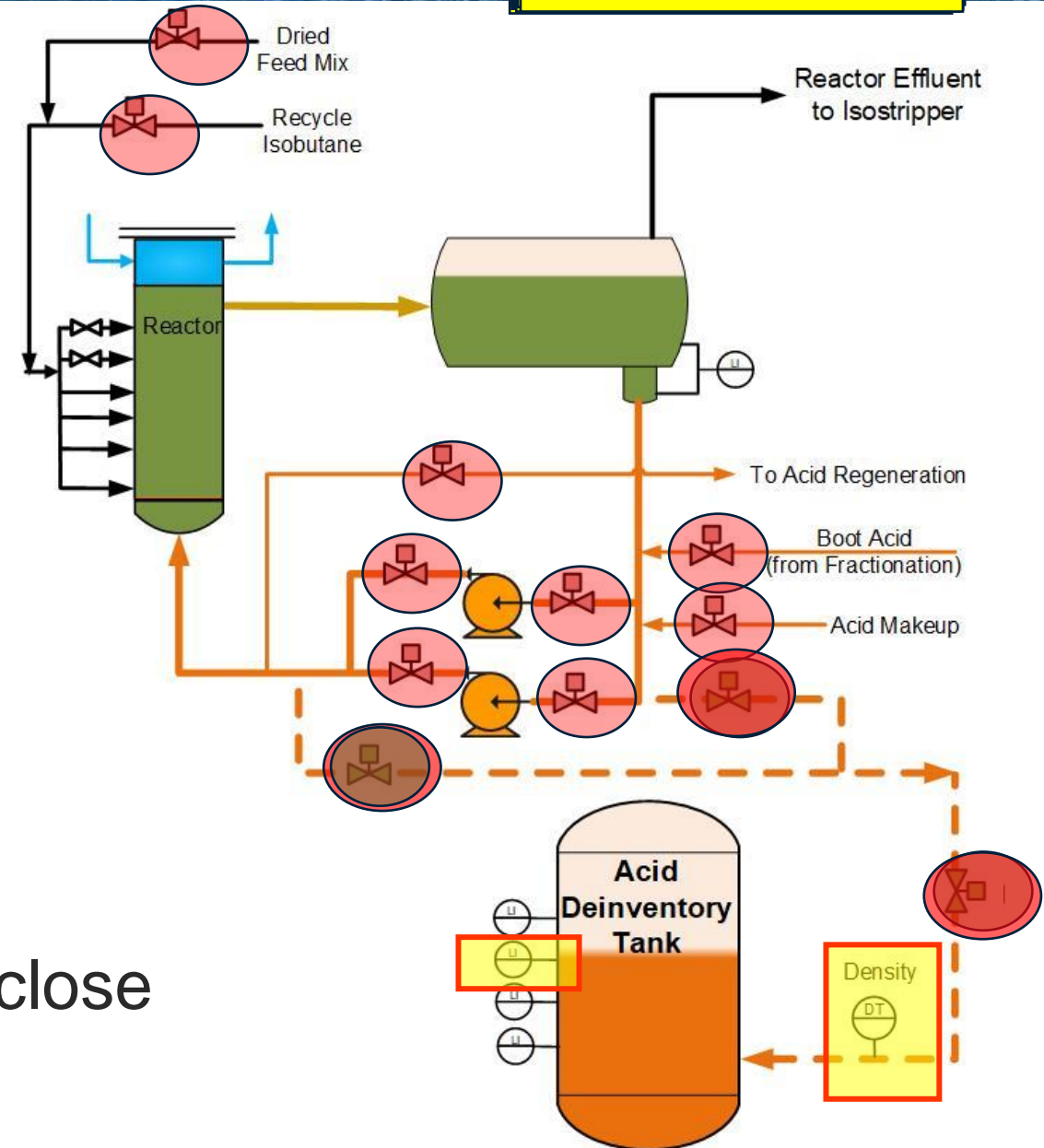
Settler Valve opens
(Acid is now moving)

Densitometer alarms

Settler Valve closes

Reactor Valve opens

Drum level alarms – Valves close





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