

Rotterdam furnace fire due to tube failure

Date: 21 Augustus 2017

Location: ExxonMobil Rotterdam Refinery

Incident Summary:

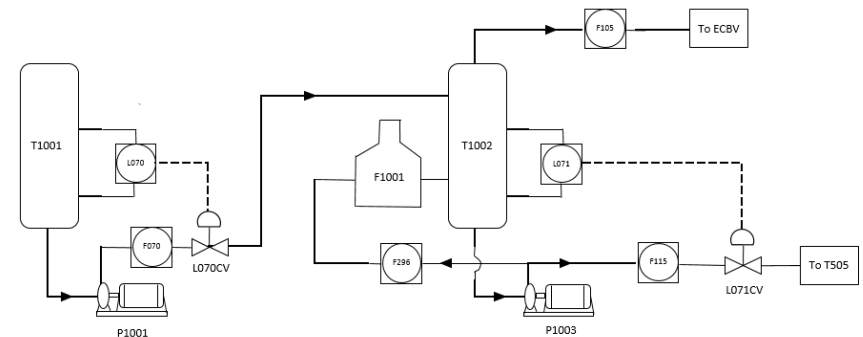
- Electrical failure in cable caused blower of waste heat boiler of furnaces to trip.
- Operator response led to trip of all power-former furnaces.
- During restart of unit, feed-pump of re-boiling furnace, tripped on overload, causing low-flow cut out of feed.
- Furnace was restarted with low-flow cut out protection in bypass.
- Furnace was fired for approx. 1 hour without flow, causing tube failure and consequential fire.
- Fire occurred in common stack of furnace and outside of furnace box , fire was extinguished after 45 minutes.



Cause:

Overheating of tube in furnace causing tube split
Due to :

1. Bypassing of critical protective system without approval and mitigations
2. Not following procedure for restart of furnace



Key learnings

Finding	Actions
System & standards not followed <ul style="list-style-type: none">• Bypassing of protective system was done without proper mitigations and authorization• Restart procedure not followed	Provided bypass field switches with key lock Hot restart procedure removed
Supervision <ul style="list-style-type: none">• Limited supervision and oversight during critical activities , including hold points• Notification of unit management team not done	Roles and responsibilities discussions held , including expected notifications and supervision during critical activities
Emergency procedures <ul style="list-style-type: none">• Emergency procedure for isolating furnace tube split not followed	Retraining done of required actions related to emergency procedures