

Utilizing Mobile VaporLock™ Systems to Aid in Process Unit Deinventory – Meeting Refiners' Challenges with MACT CC



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Changing Regulatory Landscape

- Refinery RTR is changing how many plants approach deinventory.
- New MACT standards restrict the ability for process equipment to be openly purged to atmosphere.
- Flare and/or flare gas recovery capacity in many facilities is limited during maintenance activities.
- Deinventory operations can be impacted by pressure limitations of support equipment.

Regulatory Impacts

- Increased downtime resulting in higher costs, lost revenue, and decreased profits
- Pressure limitations resulting less effective deinventory and cleaning operations
- Increased potential for a safety or environmental incident

Flare Capacity

- Limited flare and/or flare gas recovery capacity results in bottlenecks during deinventory and cleaning operations.
- Vapor Point utilizes liquid scrubbing technology to efficiently remove contaminants, such as VOCs, H_2S , and NH_3 .
- Allows for vapor to go to atmosphere after scrubbing, limiting reliance on flare capacity.



Pressure Limitations

- Impacts deinventory and chemical cleaning operations causing:
 - Increased timeline
 - Dead legs
 - Ineffective cleaning results
- Vapor Point utilizes pressurized vessels and innovative processes to eliminate pressure limitations.



Case Study – Client's Challenges

- A client contacted Vapor Point to assist in the deinventory and cleaning of a quench system for an Ethylene unit.
- Previously, large amounts of solids remained in the quench system.
- Prior projects resulted in vapor releases requiring work in unit to be performed in fresh air.

Case Study – Client's Challenges

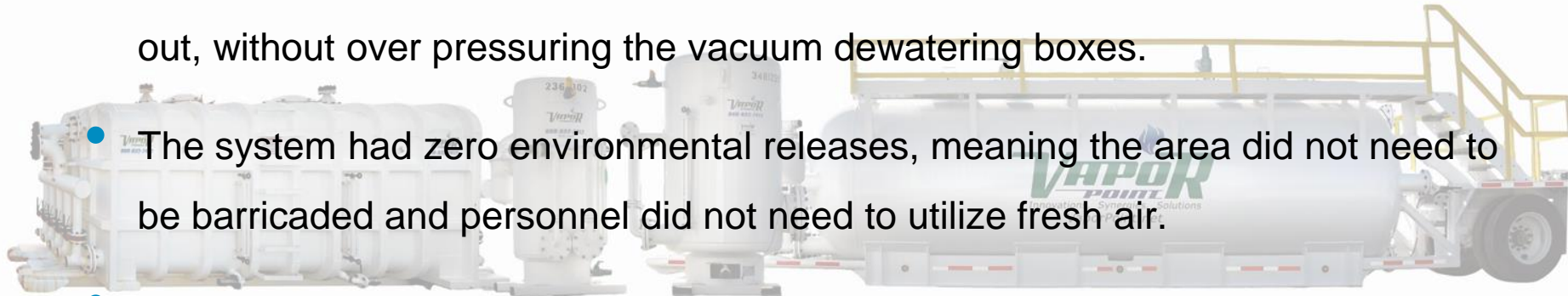
- Previous operations involved performing rumbles on the system to dislodge solids. The solids were then pumped to vacuum dewatering boxes.
- The pressure limitations of the vacuum dewatering boxes led to liquid and vapor excursions.
- In order to effectively remove the solids, the liquid present in the quench system had to be moved quickly to avoid solids reformation.
- Pumping off the solids too quick caused the vacuum dewatering boxes to be compromised, releasing many contaminants liquid and vapor, particularly Benzene.
- Slowing down the pump rate allowed solids to remain in the system.

Vapor Point's Solution

- Vapor Point proposed a system utilizing higher pressure vessels to take the slurry being pumped and recirculate them.
- The slurry was pumped at a controlled rate to the vacuum dewatering boxes, eliminating blown seals.
- Vapor controls were placed on the tanks, the air machine for the vacuum dewatering boxes, and the vacuum trucks drawing off the water. This eliminated the breathing air requirement.

Vapor Point's Results

- Vapor Point's system allowed for the effluent from the rumble to be drained from the quench system completely, limiting the ability for the solids to settle back out, without over pressuring the vacuum dewatering boxes.
- The system had zero environmental releases, meaning the area did not need to be barricaded and personnel did not need to utilize fresh air.
- The quench system was cleaner than in previous rumble operations. On a previous TAR, 356 drum of solids had to be removed following the rumbles, after utilizing the Vapor Point system, 11 drums of solids had to be removed.



Questions?

