

- BITUMEN TANK FIRE 2020

What Happened

Tanker driver spotted product on the floor

Advised site team who investigated and found no issues

Removed cladding at ground level to check source of leak

Product identified in cladding and around inlet pipe – no tank fracture and inlet pipe not for that tank

Ignition occurred following morning as a result of heat from the tank allowing lighter oils released from pipework volatilize effect – pipe fracture identified - aged insulation (>20years) disintegrated acting as a wick. By removing the cladding to check issue effectively open to air oxygen introduced and over 8hours unseen smouldering occurred to enable ignition after glowing effect

Local site measures put out the fire and brigade called. Attended site, removed cladding using non sparking - fire safe equipment to reveal and remove further hazards

Fire watch teams put in place until all risk removed over a 3 day 24/7 period



Fire Triangle



What worked well

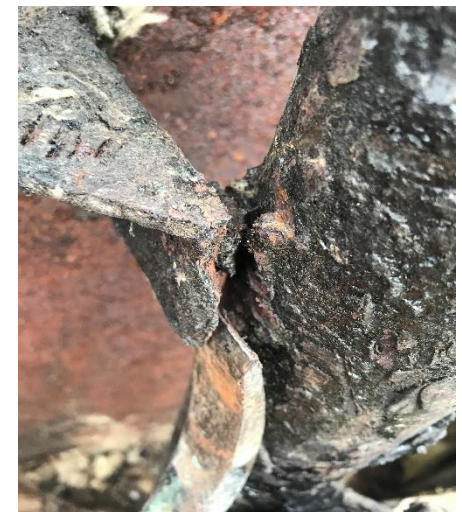
Site safety procedures

- Correct, relevant and followed
- Fire brigade provided information appropriate to the event and safety considerations
- Site controls – interactions and pressures managed
- Early assessment of possible causes and interaction with SHEQ team, Fire service and manufacturers
- Fracture as a result of welding to the tank and pipe and no allowance for movement, d clamp type bolts not used. As pipes inside insulation and cladding no ability to inspect without removing, unusual arrangement
- Design of intake system unusual for current times but could exist elsewhere so immediate calls to all units and assessments carried out within 12 hours
- Inspections of equipment and shared learnings with ourselves and others via industry working groups and own networks
- Alert to be shared with MPA working group and associated organisations

SECTION 2.1:
Description - Your Tank System 'EV'
CLARIMAC-CARTEN

The Clarimac Carten EV (Electrically Heated Vertical) Tank System is a safety-critical, reliable, economic unit with the minimum of manual intervention. The tank consists of a mild steel shell, fully insulated internally and manufactured for a long operating life.

Feature	Specific action
Access	Full opening
Arrangement	Vertical cylindrical
Insulation	250mm thick, 4.5m, 100mm thick
Weather Protection	Protected Cladding, Coarse wire mesh (DMS), All joints, flanges & penetrations sealed with silicon sealant to ground water ingress.
Heating source	Electrical Multi-Tank, Flange mounted immersion heater with automatic, approved loading elements.
Heating capacity	2.5m ³ tank, 1.5m ³ tank
Control panels	Lockable IP65 Control Panels for panel interlocked with doors, interlocked electrical, cladding tank isolation.
Safety / Protection	Interlocks High temperature lock out Low contents level lock out. Independent High fluid level switch and visual alarm. (see below) Minimum group breakers (M.C.B.) Kerosene/ Hydraulic pressure sensors.
Contents level detection	Kerntrupp Contents display located at tank fill station. Calibration on location.
Contents display	Localised fill station. At pipe 2000 (Tank 100) Terminating in 1" Steel Flanges for delivery tanker coupling.
Fill system arrangement	Fill pipes under cladding on tanks 1 and 4. Connected to tanks 2 & 3 via high level sensors. 2.5m ³ fill in elements tank 100.
High Level sensing	Bells Independent Electrical Bells which positioned above Control panel at high level. Audible alarm and beacon for audible and visual alarm. Trigger point is at approximately 1000 litres before overflow.
Sampling arrangement	3/4" Manual sampling valve connected to each tank lead to instrument sockets, sample control panel.
Access	No lock access required - no ladder, walkways or platforms.
Ground loading	As ground loading drawing contained in drawing register section.



Next Steps

Asset assessment Short / Medium / Long term

- What ifs
 - S - Could the issue exist elsewhere
 - S - Inspect all facilities
 - M - Instigate a hierarchy of inspection and review
 - L - Asset risk register and plans for periodic assessments / inspections / replacements

What's been done and what Next

- All tanks checked - completed
- No similar design identified - completed
- 3rd party tank inspection regime - commenced
- Asset evaluation programme: commenced
- Components listed and change / replace programme developed
 - Flanges – annual
 - Heat banks – 5 years replace bolts / seals
 - Heat elements – under review
 - Trace heating – 10 years replace insulation
 - Inlet pipework – 10 years replace
 - Paint pipework easy to see leak colour
 - Produce a procedure what to do / not do ref leaks, spills, fire triangle considerations
 - Internal and external safety devices – annual checks
 - Insulation – 20 years replace
 - Tanks – under review – depending on use and surveys
 - Develop thickness and soundness programme of integrity testing – every 3 years
 - ANY INCIDENTS replace all affected parts immediately

