

Exposure to residual hydrocarbon when breaking containment



Description of Process:

A work party were involved in the replacement of a flushed and purged section of 3" hydrocarbon pipework, including a 1" bypass section

Description of Issue:

Hydrocarbon pipework had been isolated and flushed. The 3" section, connected to the 1" bypass section via a take-off, was changed out successfully.

As the final cut was made to the horizontal section of the 1" bypass, a release of a small amount of trapped residue/vapour occurred.

The following morning, personnel presented to the medic due to exposure to hydrocarbon vapours.

Investigation findings:

Examination of the removed 1" bypass revealed a solid partial blockage which may have contributed to the trapping and release of residue/vapour.

As the preparatory pipework flush appeared to have been successful, the possibility of a blockage and trapped residue/vapour had not been recognised nor mitigated against.

Despite exposure to released vapours, the work party personnel continued working for a few moments to complete the task.

SAFETY ALERT

Good Practice Guidance:

- Preparation of plant for intrusive maintenance must consider system complexity and the potential for trapped hydrocarbons and deadlegs.
- Ensure development of detailed task risk assessments and adoption of appropriate control measures to mitigate against the potential for trapped hydrocarbons and deadlegs.
- Personnel to be fully aware of emergency response actions, fully discussing and agreeing upon these during toolbox talks.

Related Step Change resources:

Guidance – Hydrocarbon Release Reduction Toolkit

<https://www.stepchangeinsafety.net/safety-resources/publications/hydrocarbon-release-reduction-toolkit>

Safety moment – Deadlegs: not just a hazard in football

<https://www.stepchangeinsafety.net/safer-conversations/safety-alerts/safety-moment-deadlegs-not-just-hazard-football>

Joined-up Thinking – Communication

<https://www.stepchangeinsafety.net/safety-resources/joined-up-thinking/joined-up-thinking-resources/communication-high-res-video>