



FUELS INDUSTRY
Association of South Africa

LEARNING FROM PSV INCIDENT

2024



INCIDENT DESCRIPTION

The previous day a LPG leak from the internal reboiler resulted in shutdown of the LPG section. To repair the LPG leak it was required to blank off the column. During the night mechanical teams were busy with the blanking of the column. At shift change the blanks were not installed. A mechanical team was installing a gasket on a 6" slip plate of the column overhead line when one of the team members was exposed to LPG.



PHOTOS

Top platform
where person was
exposed

Second platform
where first line
break was done
on the feed line

Reboiler



Position of injured
person





INCIDENT ROOT CAUSE

- **Management system and administration deficiencies:** Lack of written procedures or instructions.
 - Prior to the shutdown, inadequacies were identified regarding safe making standards from the flare incident and interim philosophies were established for the shutdown. However, the interim safe- making plan was for the LPG system and not specifically for the column only.
 - No procedure or instruction could be obtained that guides employees not to use globe valves as an effective process isolation method.
- **Management system failure:** Insufficient first level of assurance conducted and recorded by management.
- **Risk tolerance, low risk perception by individual or teams:** The production and service provider team perceived the risk of hydrocarbons and in particular LPG to be low in that:
 - There were visible signs that something was wrong. Two triggers provided indications of this: fumes from the reboiler and the feed line being iced up, which led to LPG leaking into the system, and the work was subsequently not stopped.
 - The safe maker/standby did not stop and evacuate the service provider team working on the overhead line next to the open vent on the top platform, when product was noticed in the feed line during first line break.
 - After a process safety incident, the previous day, which led to the need for the work on the column, the appointed production foreman did not regard this activity as high risk and requested the acting production foreman to issue the permit.
 - The service provider team did not stop the work even though they could smell LPG in the work area.



INCIDENT LEARNINGS

- Improvement to safe making standards must be considered when preparing for similar activities to avoid repeat incidents. (The flare incident)
- Ensure safe makers and standby personnel are suitably trained with emphasis on their roles in terms of stopping work when product leaks are detected.
- The likelihood of leakage of valves during safe making should be managed (tested and confirmed), e.g. globe valves tend to have a higher probability of leaking through.
- Safe making complex systems must include additional safe making risk mitigations, such as, PDAs, marked MFDs, procedures, drawings, etc.
- There is a common perception that cold work permits involve low risk activities only, which can create a false sense of comfort among permit issuers and safe makers. A safe maker must be able to confirm that risks or hazards have been adequately addressed and eliminated, as outlined in the permit to work, e.g. by ensuring a gas test is conducted. Residual product, post safe making, must be managed correctly.
- All levels of supervision and management should develop, implement, and adhere to a schedule for first- level assurance, if not already in place. The focus of first level assurance should be on identifying overall compliance and systemic issues.
- Appropriate management intervention to be applied where non-compliances to procedures/standards are identified.



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Thank You

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