Safety alert

Mines

Mines Inspectorate

Safety alert no. 248 (Version 1)
23 August 2010

Facial impact injury from fuel tank cap releasing under pressure

Mine Type: All Mine Types

Incident: A driller's offsider went to check the level of fuel in a fuel pod during the final stages of refuelling a drill rig. The offsider released the "quick connect" 3 inch cam lock coupling (holding the cam fitting to the top of the pod) while the fuel pod was under pressure. The cam lock coupling released (under pressure) and hit the offsider in the face resulting in serious facial injuries.

Equipment: Pod mounted on the tray of a support vehicle used for refuelling drill rigs.

Hazard: Impact Injuries

Cause: Compressed air from the drill rig reservoir (approx 100psi pressure) was used to pressurise the fuel pod mounted on the tray of the support vehicle. The fuel discharge line on the fuel pod was at the lowest point on the pod. As the offsider released the securing cam lock which held the cam fitting to the top of the tank, compressed air from within the fuel pod propelled the 3" cam lock coupling into the offsider's face, causing serious eye and facial injuries.

Comments:

- The offsider had not been given a practical demonstration of the task to explain the hazards, and no one had ensured he was competent to perform the task safely.

Refuelling pod mounted on support vehicle


3" Cam lock fitting used to inject compressed air into the refuelling pod

Comments (continued):

- The offsider had not performed this task before and was not aware of the potential of the stored energy within the tank due to compressed air.
- The regular electrical transfer pump had failed and a new replacement had been ordered but had not arrived.
- A JSA or risk assessment on the task had not been completed prior to the task being undertaken.
- The offsider had removed his safety glasses to look inside the vessel to determine fuel level.
- The refuelling pod was not fitted with a sight glass.

Recommendations:

1. Do not use compressed air to transfer fuel in a system not designed to do so.
2. A risk assessment or an on the job safety analysis must be completed for all tasks to ensure hazards and identified and managed accordingly. A risk assessment should have identified the hazards associated with transferring the fuel under pressure and identified a higher order control such as using a drum pump.
3. Ensure there is an effective change management process to identify changed conditions. This may have triggered recognition of the change in equipment availability, the need to do a task differently and that a different risk assessment and procedure would be required.
4. Ensure equipment selected is fit for purpose. Is it appropriate to pressurise tanks and pods when they are not designated pressure vessels.
5. Consider the hierarchy of controls when applying hazard controls.
6. Procedures should be reviewed to ensure that compressed air in fuel tanks is recognised as a hazard, and the transfer of fuel can be achieved safely.
7. Once the procedural review is completed, inductions and training should be reviewed to ensure hazards have been controlled. Ensure all hazards associated with compressed air are recognised and controlled.
8. Where possible refuelling pods should be fitted with sight glasses.

Refuelling pod mounted on support vehicle

3” Cam lock fitting used to inject compressed air into refuelling pod

Close up of 3” Cam lock fitting used to inject compressed air into refuelling pod

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