

# ***Fin fan plug dislodge***

# What happened?

On 7 January 2024 around 12:55, product was released from a fin fan header box plug resulting in an unplanned shutdown of the unit. The header box plug dislodged from the header box and product was released. Earlier, a leak was identified on another header box plug and a leak seal device was in progress to be installed during the time of the incident. The installation of the leak seal device did not contribute to release.

# Causes

- The header box plug was found to be severely corroded resulting in a compromised integrity of a plug to header box joint.
- Incorrect plug material was installed during the box-up activities of the fin fan. Some of the installed plugs were manufactured using carbon steel instead of stainless steel. During shutdown correct plugs were issued to the service provider as part of maintenance.
- Inadequate punching after maintenance. The carbon steel plugs were not identified during the punching activities. Plugs appeared the same and as a result, it became difficult for the artisan to distinguish between carbon steel and stainless-steel plugs during punching activities.
- Inadequate quality control plan (QCP) which did not include any integrity checks for plugs installation

# Learnings

- Artisans must be equipped with the correct tools e.g., magnetic pick-up tool to enable effective punching activities.
- Materials must be positively identifiable, ensure that all the plug heads are marked with material grades, mentioned on the QCP and material certificates are attached to the QCP.
- A QCP must be compiled to include all openings including threaded joints of the pressure envelope.
- Plugs or bolts which are not hard stamped with the material grade should not be used unless a positive material identification is conducted and stamped with the correct material grade thereafter.
- During the leak seal device risk assessment consider the probability of a catastrophic failure of the leaking component.

# Learnings

- The carbon steel and stainless-steel header box plugs has the same color when new, both plugs are shiny. See photo below.



Stainless steel left and carbon steel on right



Top view of dislodged plug



# *Questions*