

SAPREF - Flood incident learning - PS perspective



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- On April 12, 2022, the refinery experienced a significant and rapid influx of water throughout the entire plot area. As a result, the water level in the facility reached up to three meters in height, requiring staff on nightshift to seek out higher grounds.
- The floodwater entered and built up in the NCR, NZ Control rooms, Admin Block, Fire Station and TAR buildings which were all occupied by nightshift personnel. These persons escaped the floods by seeking refuge on the roofs of buildings, with the personnel on-site seeking refuge within higher structures in the operating areas.
- The flooding resulted in mud as thick as 30cm in certain areas. In the initial three weeks, the focus was on making the refinery safe by identifying and mitigating hazards, cleaning up certain areas to allow access, and restoring emergency response capabilities.
- In addition, facilities such as the clinic, ablution and canteen were made available to enable individuals to come in and do detailed asset damage assessments.

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The refinery was only accessed after the flood waters subsided 2 days later, drones were flown out to observe damage and a team went in to make safe:

- To secure and isolate imported MRG and isolate boilers and furnace FG valves.
- The FG system was passing to flare and was isolated in several location.
- Hazard inventories were secured and isolated and boxed in for tanks, spheres and bullets where accessible.
- IA had failed and all EDP valves had failed open and the refinery was depressurized to flare from the process units.
- The refinery failed safe on loss of IA (CVs FO / FC), SILs tripped safe
- First focus was to secure process HC hazards and Chemical hazards and ensure no continued LOPCs.
- Thereafter focus was re-introducing nitrogen systems and purging the refinery to flare after recommissioning the flare.
- All process operations and electrical changes were carried out via MoC as all operations were viewed as abnormal because of no electrical power, no utilities, no DCS and no Safeguarding systems. All MoCs focused on restoring control and recovery barriers and temp power, DCS and safeguarding systems.
- Currently still busy with decontamination of the refinery and removing bulk hydrocarbons and process chemicals from the refinery.
- The HFA unit and removal of the bulk HF from the refinery was one of the 1st major milestones achieved shortly after the flood.

SAPREF - MHI Findings Feedback



Questions