



FUELS INDUSTRY
Association of South Africa

LEARNING FROM INCIDENT

OILY WATER DRAINAGE SUMP 2 OVERFLOW

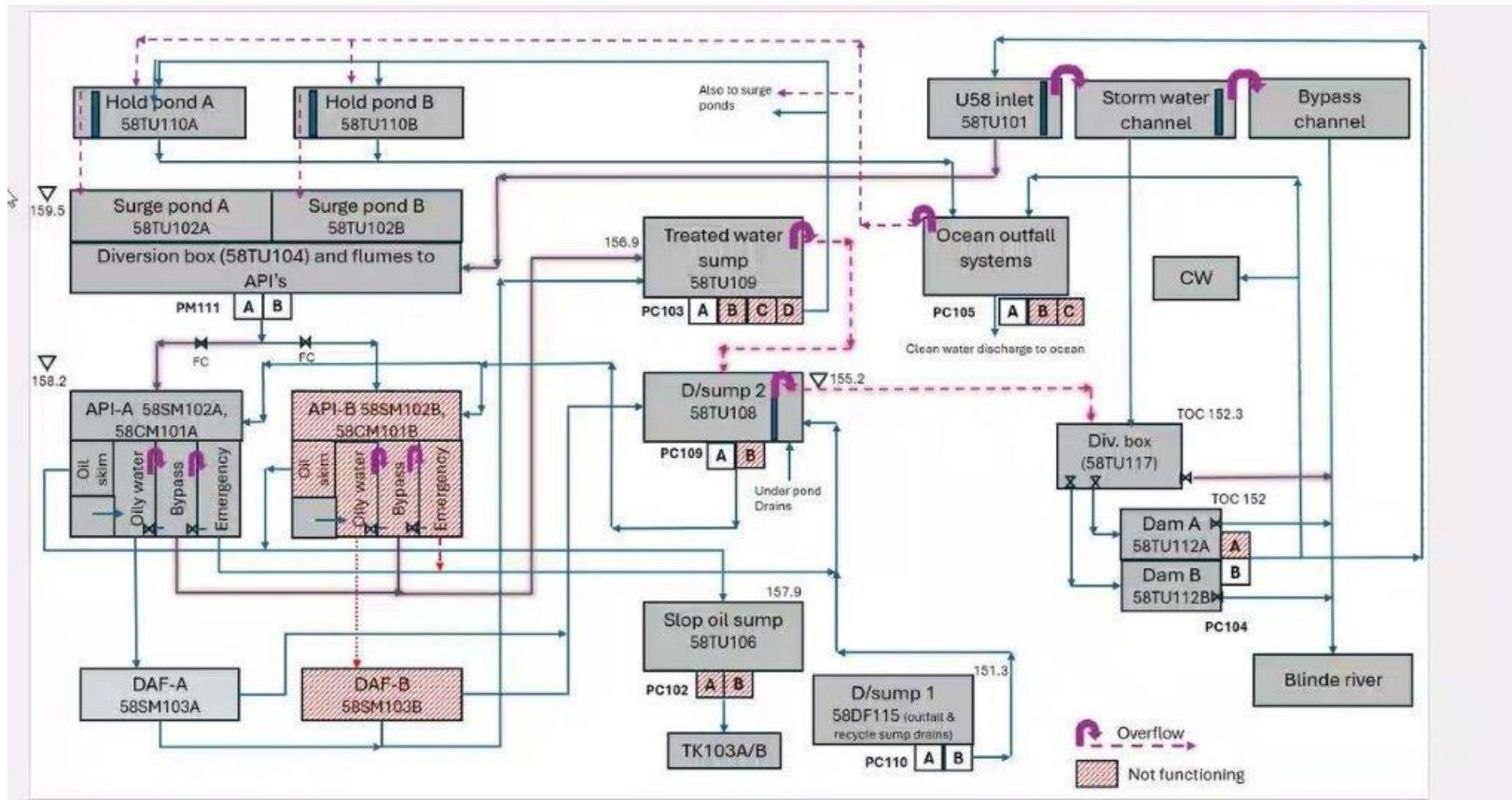
2024



INCIDENT

Background

Field Operators were conducting routine inspection at the Storm Water Ponds on Monday the 24th of March 2025, when they discovered that the Storm Water Ponds were covered with Oil. The findings were reported to the Production Supervisor on shift and a search started to find out where the oil came from.





INCIDENT INVESTIGATION

Substance Classification

The oil was classified as waste oil or slop oil product that is regarded as hazardous material with a potential to cause harm to human health or the environment. Using process trends, it was established that an overflow occurred approximately for about 36 hours without being noticed by Operators. It was difficult to estimate the magnitude of the uncontrolled release occurred thus, this incident was regarded as a Tier 1 PSE for exceeding the threshold quantity and discharge into the undesired location. However, the quantity released remained within the site premises and was recycled back to the effluent treatment plant; and the loss of containment was regarded as non-reportable environmental incident under NEMA Section 30.



INCIDENT ROOT CAUSE

The cause of the incident was analyzed in terms of the operating mode, direct cause and underlying risk control

Operating Mode

The dedicated sump pumps, 58PC109A/B normally regulate the sump level when the high alarm gets activated and pump out the water. Both these pumps were out on maintenance for an extended period of more than a year due to motor failures. In the absence of 58PC109A/B, the air powered pump was used as a substitute to carry out the functions to maintain the Drainage Sump 2 level and prevent overflow incident. The mode of operation at the time of LOPC was regarded as an abnormal operation of Drainage Sump 2 described as pumping out clean water from oil using an alternative air powered pump to regulate the sump level.

Direct Cause

On the day of an LOPC incident, heavy rain fall was experienced causing rapid rise of Drainage Sump 2 level. With high level alarm activated followed by high-high alarm at 85%, the Operators did not commission the air powered pump to empty the sump resulting in oil being carried over into the diversion box and ending up into the storm water dams.

Risk Control

The change in Drainage Sump 2 level management using air powered pump was communicated through management of change in June 2024. However, it was established from the shift on duty on the day of the incident that there were not aware of any working instruction or MOC that provide explicit operating guidance on maintaining the sump level using air powered pump.



BARRIER FAILURES & CASUAL FACTORS

Barrier Failure: Communication Gap

- No proof of signatory document available proving that Operators have read and understood the instruction on the MOC document.
- The site of release was regarded as a product overflowing from a process vessel, with underlying cause being the violation of operating procedure by Operators in a failure to empty the Drainage Sump 2 level when high and high-high level alarms got activated.
- Learning from incidents / Incident recalls: The investigation observations noted similar occurrences with the February 2024 incident at the same area which led to the hydrocarbon contamination of Blinde River and concluded that this was a repeat incident.

Casual Factors

- Maintenance planning failure in addressing the motor failures of 58PC109A/B
- The failure by Operators to not commission the air powered pump timeously highlighted the ignorance in carrying out routine inspection.



INCIDENT LEARNINGS

- **Safety Critical Task:** Continuous operation failed to identify and manage the risks associated with the absence of sump pumps giving rise to human intervention failure leading to an incident of product overflow.
- **Communication Gap:** Provide structured communication log (working instruction providing plant operating conditions as imagined) for managing changes in the plant safely. Lack of training on the pumps and level operation changes, MOC was done in isolation without necessary collaboration to assess the risk
- **Maintenance Plan:** Company financial constraints impacting on spares availability have resulted in backlog of repairs and increased risk of potential incidents.



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Thank You

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