Learning From Incident:
Flexible Hose Rupture During Tanker Loading

25 April 2024

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LFI: Flexible Hose Rupture During Tanker Loading

Background

- A flexible cargo hose was connected onto the tanker manifold.
- During product transfer operations, the flexible hose ruptured near the receiving tanker's manifold, causing Diesel to spray on deck and tanker's body.
- The Operator responded immediately by raising the alarm, activating the emergency button to stop the transfer pump and by taking prompt action to report the incident to the Supervisor.

Investigation Analysis

- Quick and effective response of the Operator was instrumental in ensuring minimum volume of about 150 liters of Diesel released.
- Failure of the hose was put down to improper planning in the replacement of flexible hoses resulting in the use of hose not rated for the intended purpose. The system pressure became excessive compared to hose bursting pressure rating (100 kPa vs 900 kPa).
- Markings on the hose indicated that it was last pressure tested more than two years before the incident.

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Barrier Elements Reviewed

- ***Safety management control:*** The hose failure was identified as incorrect use of an equipment or tool.
- Lack of practicing the PSSR prior to executing task was the major contributor as there were no records of inspection and test could be produced on demand for confirming the hose was fit for the intended service.
- ***Mitigation control against escalation:*** Prompt action by Operator in application of drilled emergency procedures resulted in quick response to confine, collect Diesel spillage on deck and wash it off to the dedicated hazardous drain.

Incident Classification

- The incident was regarded as Tier 2, uncontrolled release of combustible product (Diesel)

Learning From Incident: Hydraulic Oil Drained to the Ocean

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LFI: Hydraulic Oil Drained to the Ocean

Background

- 2x Mech Fitters were busy with refilling of the Turbine oil tank using a steel braided flexible hose and air driven pump at the Offshore Platform.
- The Operator during field inspection reported oil sheen to be visible on the sea North side of the Platform. This was after the refilling activity.

Investigation Analysis

- The flexible hose body had a leak that was not noticed.
- Investigation established that about 112 liters of oil leak accumulated on the platform water drain gutter which drains overboard into the sea resulting in an environmental pollution.
- Failure of the hose was put down to wearing out condition as the kinks were noted during investigation.
- No markings were found on the hose indicating a “fit for use” tests.
- Due to the nature of Turbine oil tank refilling activity, no evidence could be established in ensuring the valves were all open to verify pumping against closed valves (over pressurization).
- No continuous physical inspection of the hose and connections was conducted during the activity for identifying challenges and new hazards posed by the operation itself.

LFI: Hydraulic Oil Drained to the Ocean

Barrier Elements Failure

- ***Safety management control:*** The hose failure was identified as wear and tear attributed to no records of inspection and test could be produced on demand for confirming the hose was fit for the intended service. The Mech Fitters did not carefully inspect flexible hose prior to use as per practice of PSSR.
- ***Mitigation control against escalation:*** Drain valve not isolated during oil transfer activity was the main contributor to the cause of spillage resulting to an environmental incident.

Incident Classification

- The incident was regarded as Tier 1, uncontrolled release of oil into the sea resulting in an environmental pollution. This attracted at fine of R500k from marine authorities.

LFI: Take Away Learnings From The Use of Flexible Hoses

- Flexible hoses are to be properly inspected for the intended use before starting product transfer operations. This includes annual pressure tests and certification.
- Non-compliant flexible hoses should be discarded / replaced
- Practice isolation of all drain openings during oil transfer activities to prevent such spills causing environmental incidents
- Operator’s alertness is of vital importance in monitoring transfer operations as well as application of drilled procedures.

Questions

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