

Agitator started moving during mud tank cleaning – leading to injury

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What happened?

An agitator in a mud tank started up when an employee of a third-party contractor working in the tank was in the way. He was hit by the agitator paddle in his lower back and fell to the tank floor.



The contractor came on-board to wash mud tanks with a high-pressure washer. Mud tanks on the vessel had been emptied earlier in the day and agitators were running until the tanks were empty.

The agitators were stopped on bridge IAS only and had not been isolated or locked out.

As the last of three tanks was being washed, the agitator (42 rpm) suddenly started with one person inside the tank.

The person was hit by the agitator paddle in his lower back and fell to the tank floor. He had his back to the agitator at the time and didn't notice it starting. He managed to climb out of the tank by himself and was transported to hospital by ambulance. He was discharged the same day with bruises and one broken rib.

IOGP Life Saving Rules:



Bypassing safety controls



Confined space



Energy isolation



Line of fire



Picture of bridge IAS control left and properly isolated control valve hydraulic flow right

What were the causes?

Investigation found several direct and contributing causes for the incident:

- Procedures concerning isolation of moving or rotating equipment were not followed:
 - Isolation of the agitator was simply forgotten even though there was no rush to start work, nor were the bridge crew particularly busy.
 - An isolation certificate was consequently never issued.
 - There were no properly implemented routines for isolation when initiated by bridge.
- Risk assessment contained check of isolation, but was not thoroughly reviewed.
- The third-party company had in their procedures to verify/check isolation, but this was not done as this was considered a vessel responsibility.
- There was not full involvement of the engine department in tank washing operations, as isolation requests were usually initiated on the bridge, i.e. they had no independent sense of responsibility and merely acted on bridge initiative to isolate equipment.
- The agitator started by itself, for as yet unknown reasons. Investigation is ongoing as to the technical cause, but this is considered less important as the incident would never have happened had the agitator been isolated as per procedures.

What actions were taken?

- **Physical verification** that safety isolations and barriers, controls and lockouts are in place – double check.
- Focus on how to **improve compliance with existing procedures**.
- **Review relevant risk assessment**.
- **Better communication** between bridge department and engine department, particularly relating to tank maintenance operations.
- Improve isolation routines to include lock and tag and issuance of isolation certificate.
- Third-party tank washers will **improve their procedure** to include physical verification that agitators are properly isolated before entering

tank.

Members may wish to refer to:

- Fatal accident in connection with the operation of an A-frame based launch and recovery system (LARS) used for ROV operations *[the combination of technical and human error had resulted in an unfortunate breach of barriers causing the fatality]*
- Near-miss (HIPO): Engine started and running whilst crew member working on shaft generator *[lesson learned: the necessity for a permit to work (PTW) and isolation of equipment should have been identified. This would have ensured proper isolation of equipment, ensured that bridge and engine control room (ECR) personnel were informed of on-going work, and ensured the crew member could complete the task with all safety precautions/barriers in place]*

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