



CASE STUDY

OISD/CS/2022-23/E&P/03

Dt.: 17.08.2022

INTRODUCTION

Title: Fall of stopper pipe on victim.

Location: On-land Drilling Location.

Loss/ Outcome: Fatal Injury.

BRIEF OF INCIDENT

During rig dismantling job at an onshore rig, a fatal accident occurred, wherein victim who was involved in the job of fitment of spreader beam at ground near bottom box area got hit by a piece of pipe on his head which got rolled down after entangling with swinging railing at rig floor. He was given preliminary first aid at nearby medical facility, then he was immediately shifted to hospital where he was declared brought dead.

OBSERVATIONS/ SHORTCOMINGS

Following observations were made during investigation by visit at the incident site, interaction with the related officials, their written statements and available documents:

- Rig was released and the rig dismantling activities were started without proper work plan and coordination (Rig building team has started rig dismantling activities without the presence of rig crew/ Installation Manager to save time). The rig crew members along with IM proceeded for breakfast, without following rotational system.
- Checklist for preparation activities for lowering of Mast was not available. Checks/ inspections with sequence of operations required to be undertaken prior to lowering of mast were not followed as per clause 3.4 of OISD-GDN-218.
- Rig team & Rig building team conducted Job Safety Analysis and Tool Box Talk (TBT) separately without addressing all the key aspects such as identification of potential hazards of various sub tasks, possible control measures, required tools & tackles, appropriate PPE as per OISD-GDN-206 etc.
- No coordination was found between rig crew and rig building team for carrying out rig dismantling job. Preparation of mast lowering operation requires dismantling of equipment which requires complete understanding and teamwork between crew members of rig and rig building teams, which was not evident.
- Combined operations/ jobs were carried out as one team was carrying out jobs on rig floor including removal of railings and the other was carrying out job of spreader beam fitment, which was corroborated by CCTV footage. This kind of simultaneous jobs should not be carried out at any stage as risk level is very high specially the risk of falling object.

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- Two nos. of stopper pipes locally fabricated (2 7/8" OD of 6.5 ppf having 3.04M approx. length) were fitted on railing instead of using conventional chain barrier in order to prevent any person from falling through the V door. This modification was carried out without following MOC procedure as per OISD-GDN-178.
- Loose part and tool of the rig were not securely fastened, in this case the stopper pipe was not properly secured on derrick floor.
- Crane operator failed to see persons working under crane boom.
- The railing adjacent to the V door (off driller side) was welded with its adjacent railing (conjoined) as the socket for inserting the lower foot pipe was in damaged condition on derrick floor which caused sticking of railing and subsequent swinging due to improper slinging procedure for that kind of bulky & lengthy railing (30 kgs/3.04 M) during the removal.
- No internal audits were conducted during rig building/dismantling period.
- Safety trainings and awareness programs were not conducted for the personnel (Rig Building Team and Rig Crew) working in the rig specially for carrying out rig building/dismantling jobs.

ROOT CAUSE OF THE INCIDENT

- Design modification (from chain barrier to 2-7/8" pipe stopper) without MOC procedure.
- Proper Job safety analysis (JSA) to visualize the risk involved at workplace was not done.
- Failed to secure loose items on derrick floor.
- Poor Coordination between Rig crew and Rig Building team.
- Poor supervision by both Rig as well as Rig Building team.
- Unsafe procedure for removal of such a lengthy (3.04M) railing by crane.

RECOMMENDATIONS

- Checklist should be prepared and followed for checks/ inspections with sequence of operations required to be undertaken prior to lowering of Mast, keeping in view the type of rig and associated equipment as per clause 4.3 of OISD-GDN-218.
- Tag line should be attached when railings are being taken out.
- Proper Job safety analysis and Toolbox Talk covering all the aspects should be done before start of any critical job or non-routine operation as per OISD- GDN-206.
- Ensure that there are no personnel working under crane boom or remain under suspended loads before start of any job.
- If there is change/ modification in any part of rig (in this case railing of derrick floor) with respect to the rig design, that should be carried out through Management of Change (MOC) procedure as per OISD- STD- 178.

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- Pipe stopper should be discontinued, and earlier chain barrier system or proper engineering solution (Risk assessment) should be used for the intended purpose as per OISD- GDN- 206.
- Proper socket for resting railing foot should be ensured.
- Supervision for critical jobs such as Rig building/lowering should be strengthened by deputing competent experienced personnel.
- The surveillance camera on rig periphery should be operational during drilling operations, rig building and rig lowering activities and all-weather power sources should be explored.
- Safety audits should be conducted during rig building/lowering operations as per OISD-STD-145.
- Safety trainings/awareness program should be conducted specially for lifting operations/ rig building operations.
- Proper coordination between different teams of rig crew and rig building team.
- Loose items should be secured/ removed from derrick.



The stopper pipe that hit the IP.

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