

WSH Alert



17 February 2020, Ref: 1920100

Accident Advisory: Worker struck by toppled gas cylinders

Ref: [1920086](#) WSH Alert Accident Notification dated 10 January 2020

On 8 January 2020, a group of workers was installing piles using a crawler crane at a construction site. During the works, the crane operator turned the crane and the crane's chassis struck a pallet of gas cylinders near it, toppling the pallet of gas cylinders. The pallet of gas cylinders landed on a worker who was working nearby. The worker was pronounced dead at the scene by paramedics.



Figure 1: Overview of accident scene.

Recommendations

Persons in control of similar workplaces and work activities such as occupiers, principals, and employers are advised to consider the following risk control measures to prevent similar incidents:

Lifting plan and pre-lift checks

- Establish and implement a lifting plan to ensure that the lifting operation can be carried out safely. The lifting plan should include key information relating to the lifting works, including the load details, lifting equipment and lifting gears used, rigging methods, sketch of the lifting zone (comprising the initial and final location of the load, and its path of travel), lifting sequence and the personnel involved.
- Properly demarcate the lifting zone to inform and prevent unauthorised persons from entering the zone especially when the crane is in operation.
- Prior to moving or operating the crane, carry out checks to ensure that all personnel (including contractors) and equipment which are not involved in the lifting operation are outside the lifting zone.

Work supervision

- Ensure a lifting supervisor is on site to co-ordinate and supervise all lifting activities in accordance with the lifting plan.

- Prior to commencement of the lifting operation, the lifting supervisor should conduct on-site walkabout to ensure the safety of the lifting team and confirm that there is no obstruction along the load's path of travel which may hinder safe load manoeuvring.
- Deploy an on-site banksman to provide ground guidance to the crane operator and ensure safe movement of the crane.

Worker training

- Deploy only lifting team members (e.g. crane operator, lifting supervisor, signalman, rigger) who have successfully completed the relevant safety and health training, and are competent for their respective role(s).

Effective communications

- Lifting supervisors must communicate the lifting plan and any WSH hazards associated with the lifting operation (e.g. due to overloading, ground conditions, presence of on-site obstacles) and environmental conditions (e.g. strong wind, lightning risk) prior to the lifting operation. Lifting supervisors may use the daily toolbox meeting to communicate the required information. Toolbox meetings are typically conducted prior to work commencement and before shift handover.
- Ensure a proper means of communication is provided to facilitate on-site communication between team members during the lifting operation. Communication devices (e.g. walkie-talkies) should be maintained regularly and checked to be in good working condition. Workers should also be trained on the standard hand signals used for lifting operations.

Risk Assessment

Conduct a thorough Risk Assessment (RA) for all work activities to control any foreseeable risk that may arise during the lifting operation. The RA should cover, but not limited to, the following areas:

- Effectiveness of the Permit-to-Work system to avoid any conflicting or incompatible works.
- Personnel movement in and around the lifting zone.
- The need for a banksman to guide the safe movement of the crane and other on-site traffic.
- Worker's health (e.g. fitness to work, pre-existing health condition, if any, before assigning the work) and well-being (e.g. proper rest area to avoid fatigue and heat injuries).
- Emergency response procedure including site-specific rescue plan and medical evacuation.

Further Information

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulations
3. Workplace Safety and Health (General Provisions) Regulations
4. Workplace Safety and Health (Construction) Regulations 2007
5. Workplace Safety and Health (Operation of Cranes) Regulations 2011
6. Code of Practice on Workplace Safety and Health Risk Management

7. Code of Practice on Safe Lifting Operations in the Workplaces
8. SS 536: 2008 Code of Practice for the Safe Use of Mobile Cranes
9. WSH Council's Guidebook for Lifting Supervisors
10. WSH Council's Worker's Safety Handbook for Rigger and Signalman
11. WSH Council's Worker's Safety Handbook for Crane Operator
12. WSH Council's Guide to Effective Toolbox Meeting
13. WSH Council's 6 Basic WSH Rules for Lifting Operations

* Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 23 January 2020. This may be subject to change as investigations are still on-going. Please note that the information provided here is not exhaustive and for the benefit of enhancing workplace safety and health so that a recurrence may be prevented. The information provided is not to be construed as implying any liability to any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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