

Safety & Health Circular No. 46 / 2014

Enhanced Safety Management for Lifting Procedures

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In a recent fatal accident happened in a non-Housing Authority (HA) site, a welder was struck to death by a falling pile casing detached from the hook of a crawler-mounted crane when the casing was being lifted by the crane. To prevent recurrence of similar accidents on HA sites, contractors are reminded to consider the following enhanced safety measures and lifting procedures:-

(a) "No-man Zone"

- (i) This is the zone of area within a radius of a certain distance from every piling rig spanning 270 degrees in front of it, and all designated piling locations on site shall be checked and confirmed to be suitable for implementation of the "No-man Zone" concept. This distance shall not be less than the length of pile casing being lifted by the crane. Each zone shall be fenced off with guardrails and no one shall be allowed to enter the area except riggers and welders, and only when their work so requires. The signaler shall keep watch and ensure that the rule is not breached at any time when work is in progress, in particular when lifting and drilling / driving work is going on. The site foremen and safety personnel shall check this during their routine site inspections.
- (ii) It is only when lifting and drilling / driving work is stopped and with the permission of the signaler that riggers and welders can enter and work inside the zone.
- (iii) The purpose of establishing the No-man Zone system is to ensure that no workman shall remain in the area where and when the temporary casing is being lifted and / or installed onto the drilling rod of the piling rig, and when the casing

is being driven into the ground, just in case it falls off the hook or off the rig despite all the precautionary measures taken. It is there to make sure that in the unlikely event that such accident does happen, no one in the vicinity will sustain any injuries.

(b) Modification of Safety Latch of Hook to Improve Security –

- (i) The lifting hook of the piling rig shall be equipped with an additional safety device to make sure that no loaded sling can be dislodged from the hook. There is installed on and near the tip of the existing safety latch a master link which is to be looped by hand around the end of the hook after the loaded sling has been locked behind the safety latch. On top of the spring action which keeps the safety latch in a closed position, the new master link further stops the latter's movement in any direction and thereby prevents any accidental opening of the latch, and in turn the dislodgement from the hook of the sling which carries the load.
- (ii) The new master link is designed and made to lock the safety latch in place by being looped around the end of the lifting hook in a tight-fit manner so that once looped, the link stays looped by gravity as long as the hook is loaded and can only be dislodged by external force acting in opposite direction to any force that may at the same time be forcing open the safety latch. This simply means that the link cannot be dislodged from the hook unless deliberately done by hand.



(c) Replacement of Wire Rope Sling by Chain Sling –

The wire rope sling used for hoisting casings shall be replaced by a chain sling for lifting operations. A chain sling may serve the purpose better by reason of its construction of being made up of individual links which allow it to be shortened easily when not under tension, so that no undue pressure is exerted on the safety latch of the hook.

(d) Use of Guide-rope –

(i) Guide-ropes shall be used for lifting and installing of casings. One end of the guide-rope shall be tied to the lower end of the casing as it is being lifted and transferred. The other end shall be held by the rigger to assist in steadying the casing and guiding it to the mid-air position directly above the drilling rod for easier installation.

(ii) When the casing is being lifted and hung in mid-air as the rig operator is in the process of aligning it with and installing it over the drilling rod of the rig, there is the risk of accidental falling of the casing. This measure is designed to shorten the time of this part of the procedure and in turn reduce such risk.

(e) Walkie-talkie

For better communication between the rig operator and the signaler so as to enhance safety in lifting operations, walkie-talkies shall be used to supplement signals.

This content of this circular should not be regarded as exhaustive in respect of matters covered by relevant safety legislation. Contractors should formulate relevant safe working procedures and management systems according to the actual environment and operations on their own construction sites.