

Designers should have foreseen a bad place to stand

A worker was trying to dislodge material that was stuck in a concrete-pump's boom when the blockage suddenly came loose. The freed concrete knocked him to the ground from the 6-ft-high platform on which he'd been working.

The blockage that came free consisted of approximately 20 lb of concrete. Simply knocking the worker to the ground may not have required much force, depending on whether the impact caught him unawares and where the concrete hit him. However, some concrete was propelled as far as 20 ft from the accident site, indicating it had significant force behind it.

The section of pipe through which the worker was trying to access the blockage was nearly vertical. When no concrete initially came out, he assumed the section was empty. However, friction between the concrete and pipe can lead to concrete hanging up anywhere along the pipe.

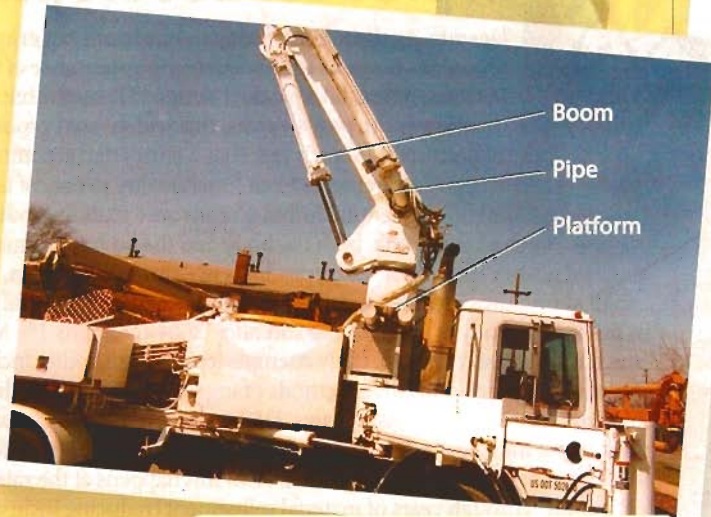
The formation of a blockage in the pipe and the erroneous assumption that a pipe section is empty are both reasonably foreseeable in concrete-boom operations. In fact, such hazards are well known and frequently discussed at concrete-industry safety seminars. However, the manufacturer did not provide any warnings or instructions regarding removing blockages, either on the machine or in the operator manual. The manufacturer or company operating the equipment should have given workers documented safe procedures for identifying, locating, and removing blockages.

Another factor in the accident was the platform on which the worker was standing. Steel decking covering two 5-in.-diameter pipes directly below a section of the concrete-carrying pipe created a natural place to stand. However, it did not have any features to keep a worker from falling.

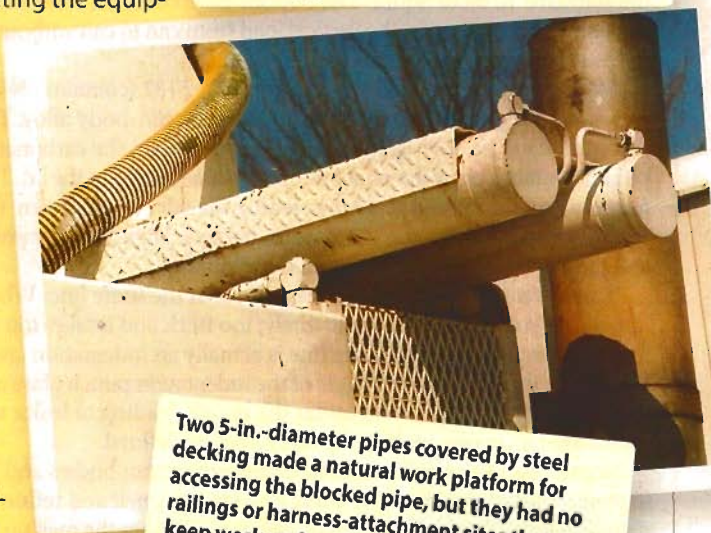
OSHA requires that all work platforms 4 ft or more from the ground have 42-in.-high protective railings and 4-in.-high toeboards or a provision for attaching fall-protection harnesses. No such safeguards were present.

Space or operational constraints may have prevented the manufacturer from placing railings and toeboards around the platform. In that case, the manufacturer should have prevented the space from being used as a platform. This could be done by making the pipe cover an A-frame shape instead of horizontal. The manufacturer should also have placed warnings on and near the surface alerting workers that the area was not a safe work platform. **MD**

This month's safety violation comes from the files of Lanny Berke, a registered professional engineer and Certified Safety Professional involved in forensic engineering since 1972. Got a safety violation to share? Send your images and explanations to leland.teschler@penton.com.



The boom pumps concrete from a remote location to the deposition site. Concrete can get hung up in the pipe and create a blockage that must be carefully removed, especially when workers are dealing with a nearly vertical section of the pipe. A worker was knocked from a platform to the ground 6 ft below when a blockage suddenly broke free from the pipe.



Two 5-in.-diameter pipes covered by steel decking made a natural work platform for accessing the blocked pipe, but they had no railings or harness-attachment sites that could keep workers from falling. If the manufacturer couldn't add such safety measures, it should have configured the pipe cover so a worker couldn't stand on it.

Edited by Jessica Shapiro