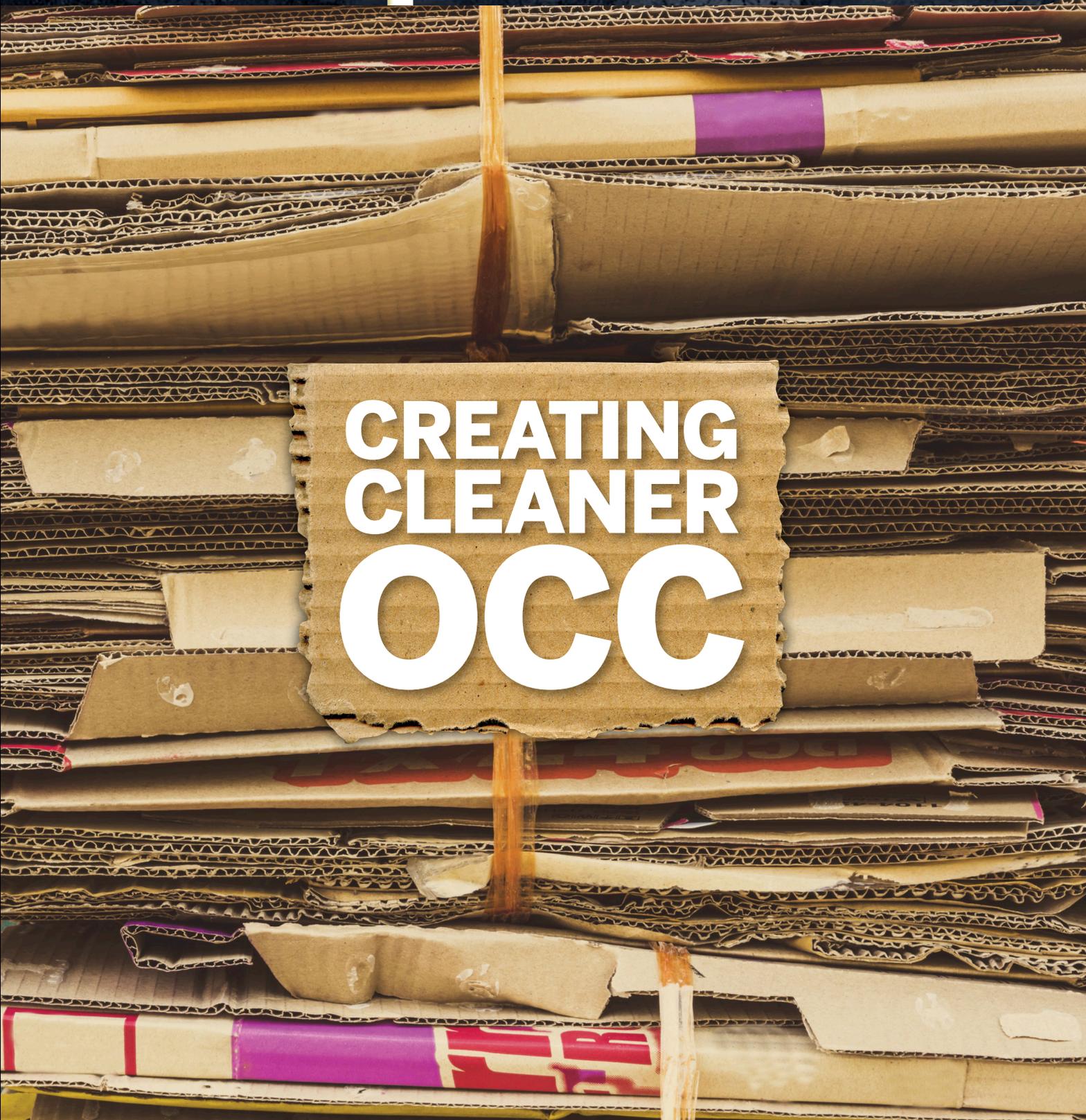


JULY / AUGUST 2015

Scrap

SAFETY SPOTLIGHT: MOBILE EQUIPMENT
THINK TANK: COPPER ALLOY CONCERNS
EQUIPMENT FOCUS: CONVEYOR ACCESSORIES
REPORT: CHINA FERROUS CONFERENCE
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ANATOMY OF A FATALITY: KENTUCKY

PERFORMING A TASK WITHOUT THE PROPER EQUIPMENT—EITHER TO COMPLETE THE TASK OR TO PROTECT HIMSELF ON THE JOB—COST THIS SCRAP WORKER HIS LIFE.

In scrap processing, resourcefulness can be as valuable as resources. So when a supervisor directed his workers to salvage the bolts from a locomotive they were scrapping, they figured out a way to get the job done. The procedure they devised was inventive, effective—and deadly.

The Kentucky Fatality Assessment and Control Evaluation Program (Lexington) looked into the death as part of its mission to investigate workplace fatalities in the state, then work with professionals in the affected industry to create a set of safety recommendations. It summarized

the fatality as follows: “Scrap processor struck by wrench and dies after makeshift torque system fails.”

In fact, the worker—a 42-year-old husband and father who had been with the company for five years—suffered two injuries: First, a large wrench hit him; second, he fell to the ground from a height of 6 feet, hitting several pieces of scrap metal on the ground next to the locomotive he was working on. Emergency medical services flew the worker to a Level 4 trauma center, where physicians placed him in an induced coma. Thirteen days later, he died from his injuries, which the report summarized as “depressed skull fracture and subarachnoid hemorrhage, severe traumatic brain injury.”

WHAT HAPPENED

The scene of the June 30, 2014, incident was a railroad track traversing a mining site in Kentucky. The employer of the deceased worker, a company established in 2007 and headquartered in another state, is a ferrous and nonferrous metal recycling company with 20 employees. The job at hand was to scrap locomotives on the track.

According to the FACE report, the supervisor that day told John (not his real name) to salvage the main bolts on the flywheel of one of the locomotives the company was scrapping. The crew had already put a lot of work into the project.

Normally, the scrap workers would remove bolts with a torch, but that method would have made the recovered bolts unusable. The next choice would have been a hydraulic wrench, which would have provided enough tension to loosen the large, heavy bolts, but they didn't have one, so John and his co-workers improvised. He wrapped one end of a 48-mm wrench with a makeshift sling—specifically, a Haul Master double



ILLUSTRATION BY PAUL TONG

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Workers had already removed the guardrail from the locomotive where the victim was working, which could have helped prevent him from falling and striking the pieces of scrap below.

polyester sling with a vertical lifting capacity of 6,400 pounds—and tied the other end to a grapple attachment on an excavator. John fit the wrench onto the first bolt. The excavator operator applied tension to the sling. Success! The bolt loosened, so John signaled the operator to lower the tension and moved the wrench to the next bolt.

This makeshift torque system worked for 40 bolts. On the 41st, John signaled the excavator operator to apply tension to the sling, then he grabbed the sling and leaned over to have a look at the bolt. Just then, the wrench slipped off the bolt, shot out, and struck him on the right side of his bare head.

Would this injury alone have killed him? Maybe, but maybe not. We'll never know, because after the wrench hit him, he fell 6 feet to the ground. There was no guardrail on the locomotive flywheel where he was working. The workers had already removed it before they started to recover the bolts. John

PHOTOGRAPHS COURTESY OF KY OSH

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To salvage rusty bolts (above), the workers created a makeshift torque system by attaching a harness to the 48-mm wrench (top) and pulling on it with a grapple attachment on an excavator. This proved to be a dangerous substitute for the hydraulic wrench they needed, investigators reported.

sustained further injuries in the fall when he struck loose scrap on the ground.

WHAT SHOULD HAVE HAPPENED

In its 2014 overview of fatalities in the scrap recycling industry, ISRI summarized the causes of John's death as "failed to use PPE, guard rail, and fall protection." In other words, if John had been wearing a hard hat and other personal protective equipment, if the guardrail had been in place, if he had used other fall protection, or if he had been given the proper tools for the job, he might still be alive today.

The FACE investigation made the following recommendations based on its analysis of this fatality.

- Employers should ensure employees use appropriate tools for the required job. When the employer instructed workers to salvage the bolts, it should have provided a hydraulic wrench to do so.



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■ Employers should ensure employees use appropriate PPE (such as hard hats) and fall protection. Although the employer required the use of PPE and provided the hard hats and safety glasses for this job, the supervisor did not enforce the use of the PPE at the worksite, and the workers did not wear it. A hard hat might have deflected the impact of the wrench on the victim's head when it struck him.

■ Employers should require guarding or ensure that employees use fall protection when they are working 4 feet or more above ground. Prior to the work they were performing at the time of the incident, the workers had removed the guardrail, and they were not using any other form of fall protection while working 6 feet above the ground. Had the railing or fall protection been in place, it could have prevented the victim from falling onto scrap metal pieces that were on the ground, possibly reducing his injuries.

■ Employers should develop and implement a comprehensive safety and health program that includes an operating procedure for removing bolts on a locomotive flywheel. Kentucky Occupational Safety and Health (Frankfort) requested the company's safety and health program, but the company did not furnish it to the KY OSH inspector. This failure left the company vulnerable to safety and health citations and fines. KY OSH requires that all businesses provide a safe work environment for their employees and establish and implement comprehensive safety and health programs and policies to instruct employees on how to work safely. ■

Kentucky FACE is a program of the Kentucky Injury Prevention and Research Center at the University of Kentucky's College of Public Health. For more information, visit www.mc.uky.edu/kiprc/projects/KOSHS.

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