

Steel Manufacturing

INTRODUCTION

A steel producer in Mississippi found that installing Grace Permanent Electrical Safety Devices® (PESDs) eliminated the potential for user error when deenergizing a detachable crane magnet that had caused two incidents in the past; one resulting in lost time injury.

This particular crane is a smaller one for moving things in and out of a maintenance area. The magnet is DC. One of the things inherent to DC is it pulls an arc. What happens is if you turn the remote off, the current can still go through, which may result in an arc flash occurrence. The Voltage Indicator light is on if the DC is still flowing which indicates that you need to turn the remote back on and cut power to the magnet.

The power stays on to the cables. If you lose your battery on the remote control, you do not want the magnet turning off and dropping the load. If the remote on the crane loses communication, it just stays in the last state. Different than other safety devices which go back to last save state, but not the case in cranes where it goes to the last state it was in.

INCIDENT DESCRIPTION

On at least two separate incidents, a steel producer in Mississippi using crane magnet connectors have been either connected or disconnected while energized. In one incident, this resulted in only a slight shock and a near miss reporting. The other incident resulted in an arc flash that caused a lost time injury due to 2nd and 3rd degree burns.

ROOT CAUSE

The root cause of these incidents was the failure to recognize that the magnet cables were energized. The cranes have indicator lights on the bridge indicating power to the magnet. However, due to circumstances; could be hard to see or the employee just forgets to check.



The U.S. Department of Labor reported an average of 2,370 non-fatal electrical injuries per year due to electric shock and or electrical burns. Grace PESDs® help to identify all possible sources of electrical supply to specific equipment, such as the magnetic crane shown above.



Voltage is the common denominator in an electrical accident or an arc flash; no voltage presence means no accidental arc flash occurrence. At Grace, our mission has always been to ensure that every electrical worker returns home safely to their families and loved ones. We are always striving for ways to improve the workplace electrical safety standards beyond compliance by developing innovative products and solutions that minimize the risk of electrical exposure. In the case of this steel producer, they chose to go beyond what is required by NFPA 70E & OSHA safety standards to ensure the highest level of safety for their workers by putting them at absolute minimum risk with Grace PESDs®.

CORRECTIVE ACTION

The addition of Voltage Indication at the connection point of the cables will give an added level of safety awareness. Adding a Permanent Electrical Safety Device (PESD), such as the model R-3W Voltage Indicator; a couple of feet above the connectors will provide a visual indicator at eye level. The R-3W LEDs will blink when energized and none when off.