

Freeport-McMoRan Safford Mine

Fatal Accident: April 9, 2016

Overview

- April 9, 2016 Bryan Ortiz, Hydromet Electrowinning Operator, age 25 was seriously injured when he was electrocuted by an energized flange
- He was informed to prime a pump
- Found incapacitated kneeling in electrolyte solution

Overview

- His head was contacting an energized flange
- Ortiz died of his injuries on April 10, 2016



Information

Read the sections entitled “Description of Accident” and “Discussion” on pages 3-7 of the Accident Investigation report.

Information

- What is the maximum output for each rectifier in the circuit?
- Is the system grounded?
- What safety precautions were used?
- In your opinion, was the Personal Protective Equipment that Ortiz was wearing adequate for the task he was performing?

Accident Cause

What was the cause
of the accident?

MSHA Root Cause

Management failed to ensure that the stainless steel endcaps on the HDPE electrolyte return lines were not electrified when the rectifier circuits were energized.

Corrective Actions: Management has placed insulating covers over metal flange fittings and provided a fence around the area to prevent accidental contact.

MSHA Root Cause

Management failed to provide adequate personal protective equipment for electrical hazards.

Corrective Action: Management developed and trained employees in new procedures for persons entering the fenced containment area around the electrolyte piping. Dielectrically-rated rubber boots and gloves are required to be worn when in the containment area.

Accident Prevention

What could have prevented this accident?

Accident Prevention

Outline proper
procedure for
performing this task

MSHA Best Practices

- Establish and discuss safe work procedures that include hazard analysis before beginning work. Identify and control all hazards associated with the work to be performed and use methods to properly protect persons.
- Train all persons to understand the hazards associated with working near energized electrical conductors.
- Use properly rated Personal Protective Equipment (PPE) including Arc Flash Protections such as a hood, gloves, shirt and pants.

MSHA Best Practices

- Ensure that all electrical systems are safely designed and properly installed and that all metal enclosing or encasing electrical circuits are grounded or provided with equivalent protection.
- Provide equipment grounding conductors, with a sufficiently low impedance to limit the voltage to ground, for metal enclosures. Use a properly rated meter to identify any stray electrical currents which may be present.
- Lock Out, Tag Out and Try: Place your lock and tag on the disconnecting device and test for power.