

Portable Pressure Washer Failure

Potential Serious Injury or Fatality Incident

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Introduction

- **Have you ever had an electrical incident at your site where everything appears normal at first but wasn't?**
 - **Electrical power is either there or it isn't, right?**
 - **As long as it starts when I turn it on and stops when I turn it off everything is good, right?**
 - **If things weren't right in an electrical circuit the breaker would trip, right?**

Outline

- 1. McClean Lake Operation**
- 2. Incident**
- 3. Incident Cause**
- 4. Corrective Actions**
- 5. Closing**

01

McClellan Lake Operation



McClellan Lake Operation





02

The Incident

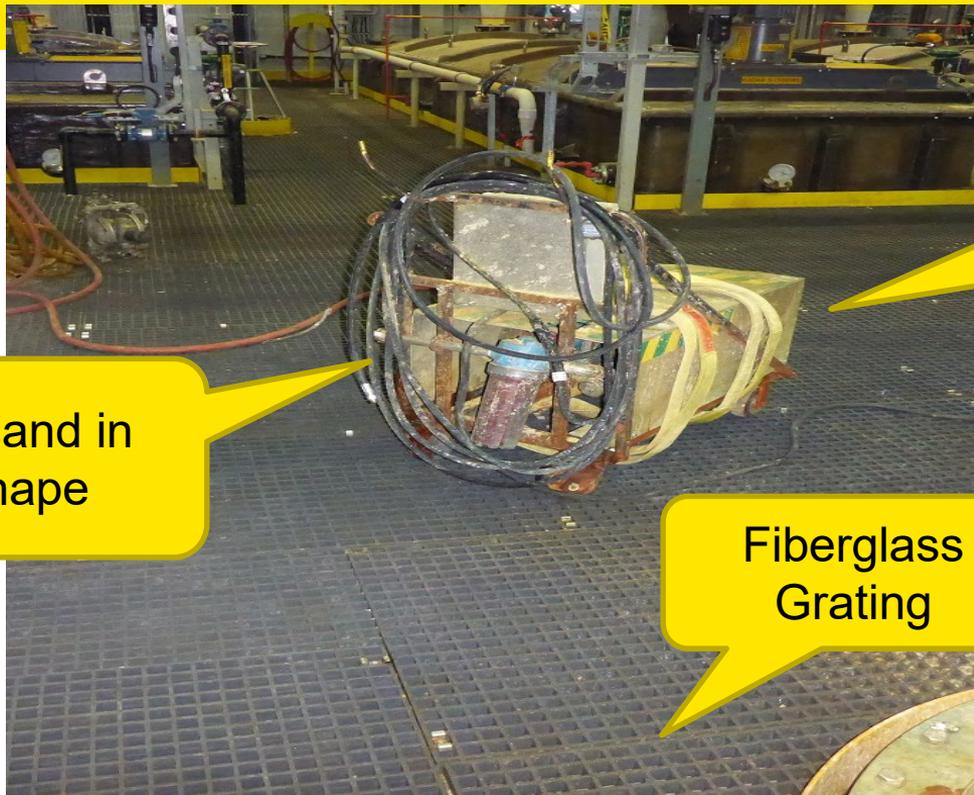


Solvent Extraction Building

- **This incident happened during a summer Shutdown in 2019**
- **It occurred in one of our Solvent Extraction Plants**
- **Occurred during a routine cleaning exercise**



Portable Pressure Washer



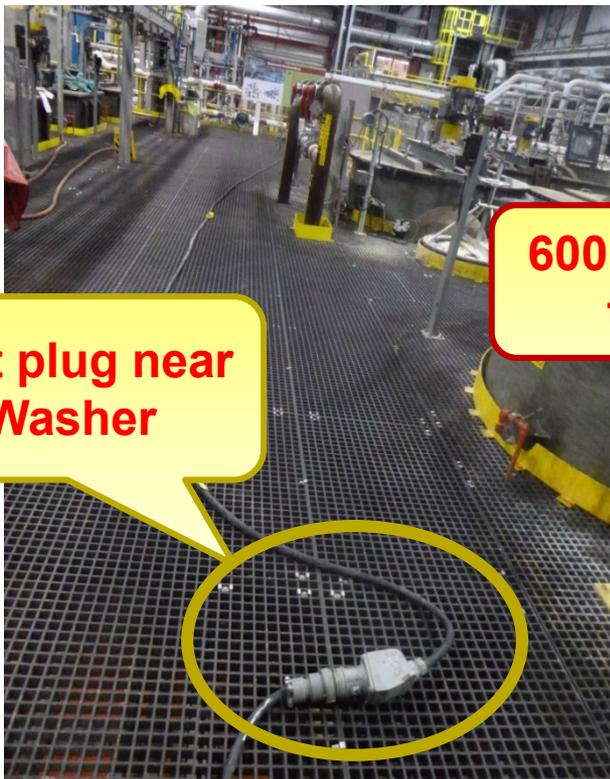
Portable Pressure
Washer
600 Volt

Well used and in
rough shape

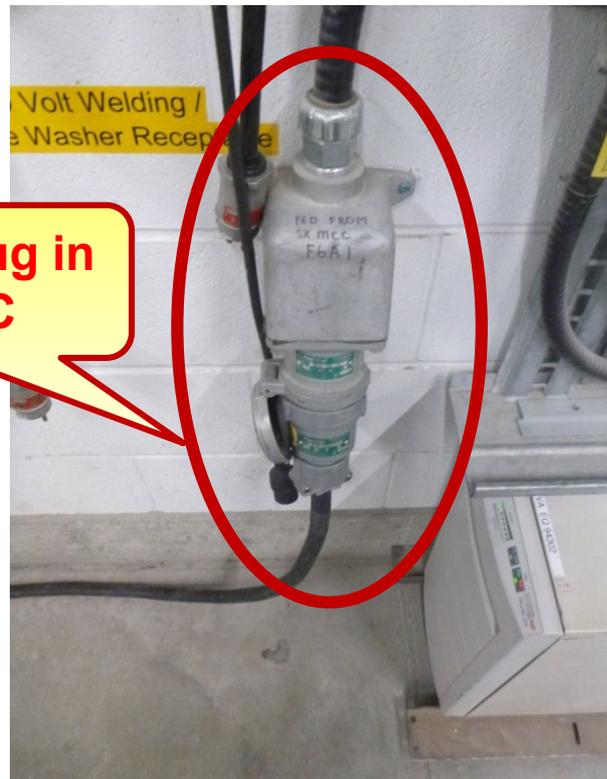
Fiberglass
Grating

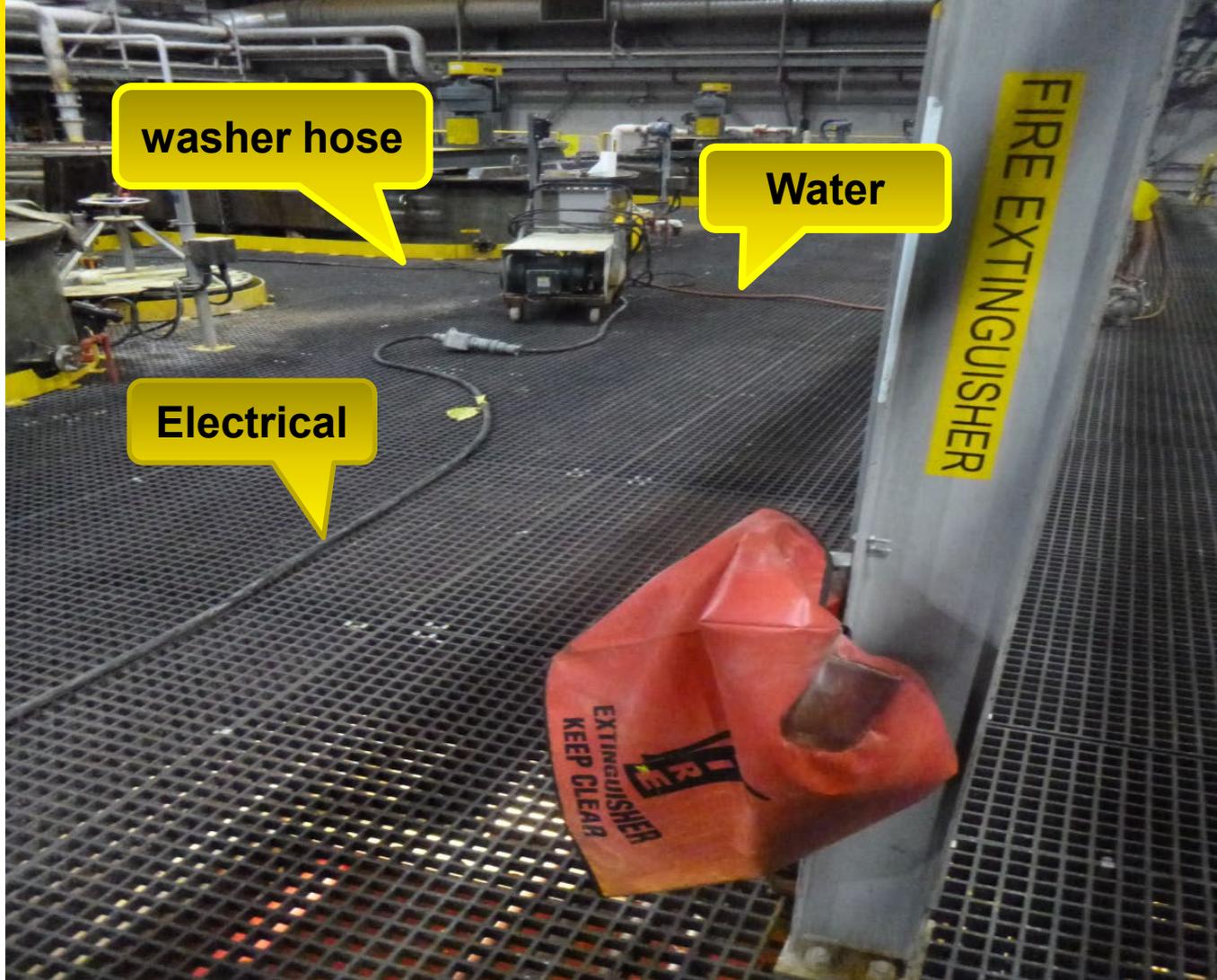
Connecting Services

600 Volt plug near
the Washer



600 Volt plug in
the MCC





washer hose

Water

Electrical

FIRE EXTINGUISHER



The Fire

- The washer was not running electrically and hadn't been started yet
- Operator heard a static noise like snapping
- Discovered the pressure washer water hose was on fire
- It was a small localized flame about 2 inches high



03

Incident Cause



The investigation



- The pressure washer water hose has an internal steel braid for pressure and strength
- Through rough service and wear and tear the rubber covering can be come damaged
- In this incident the rubber was gouged and deep enough to expose the steel braiding

The Investigation

- The green ground wire had come loose in the welding plug cable on the pressure washer
- This wire moved over to one of the “powered” lugs and made connection
- The ground wire was now powered or “hot” and carrying voltage to the pressure washer frame, housing, guard, etc.



Ground wire free from grounding lug

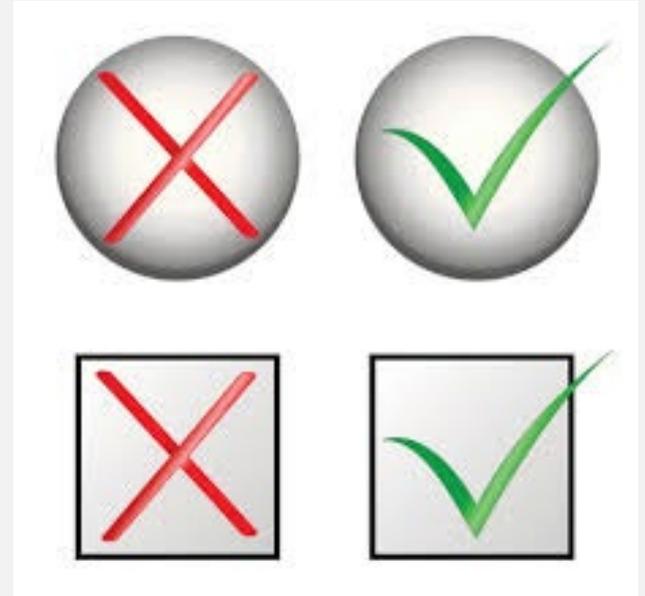
The investigation

- The operator was wearing Non-conductive electrical hazard rated rubber boots
- Latex gloves were also worn but are not electrically rated and would give little or no protection to electrical shock



04

Corrective Actions





Corrective actions

- **Immediately inspect all other high voltage portable equipment for a similar condition**
- **Examined current preventative maintenance plans for this types of equipment – found to be deficient**
- **Initiate a quarterly preventative maintenance plan that not only examines the physical condition but also check the wire condition and continuity**
- **Record or log the inspections in the maintenance management system to track the history of inspections and repairs**

Engineered Solution

- Ground sensing devices could be used in the equipment, such as a Startco ground fault trip device.
- Other devices can be installed in the motor control center such as ground fault breakers or GFI's



Corrective actions

- Where 600 Volt portable equipment is being used frequently, consider installing a local visible disconnect
- This allows for a lockable positive disconnect close to the area of work
- Eliminates long extension cords and would have provided a quick safe means to disconnect the power source in this case.



05

Closing





- Electricity is everywhere in our workplace, it's hidden. You can't see it. But if not properly managed it can hurt someone severely or even kill them.
- Electrical systems and equipment need to be inspected regularly for physical damage and internal wiring as well.
- It is essential that all electrical equipment is grounded properly. The path of least resistance must always remain in the circuit itself.
- If you are unsure of the grounding, ask to have it checked. The electrician will know what to do!



Questions?

● Thank You!

- Check us out on social media



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