MONTHLY ELECTRICAL INCIDENTS

ASP Manufacturing

March 2023

Date: 12/03/2023
Location: Coke Ovens
Reference: I2264365

A person received an electric shock after repositioning an EWP. The operator was not aware an outrigger had been driven onto a 240V electrical extension lead. Soon after this occurred, the operator received an electric shock to their hand when they picked up an aluminium plank inside the EWP which contacted the battery heat shield. RCD protection then operated.

It has been determined that the EWP frame had voltage on it from the outrigger contact with the damaged extension lead. The lead is used to power a fan mounted on the EWP which is used to keep the crew inside the oven cool.

As per Electrical Safety Manual 1.4.13 electrical extension leads may be subject to damage if not installed or used correctly. Leads must be protected against crush damage, pinch points and cuts. Extension leads may not be suitable for some environments or tasks. Battery powered tools and equipment or other means of removing LV power will reduce electrical risks.

RCDs quickly disconnect the supply to minimise harm, they do not prevent electric shock. RCDs are essential for work with LV leads and portable appliances and require regular inspection and testing to ensure reliable operation.

The man cooling fan secured to the hand rail of the EWP bucket fed by 240V extension lead.

The outrigger leg of the EWP. When driven down to stabilise the EWP the foot has crushed the extension lead and explosion the conductors.

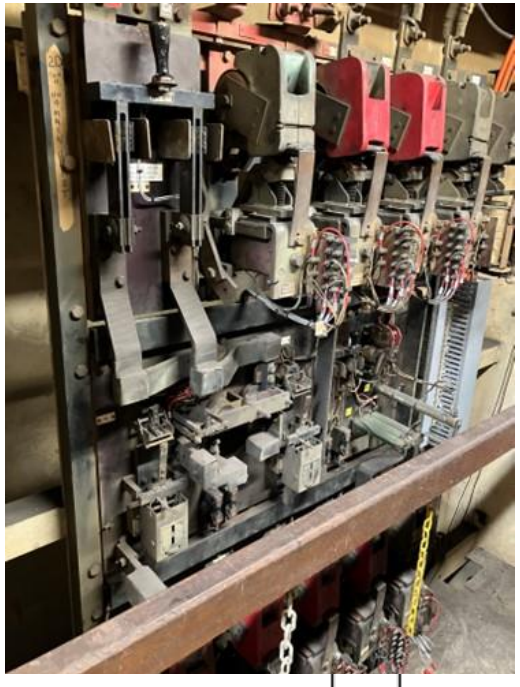
Date: 13/03/2023
Location: BOS
Reference: I2264599

An electrician received an Electric Shock while commissioning the Main Hoist current feedback to new PLC I/O. A wiring error was first identified with the control power connections to a signal isolator, the 24 Vdc supply was isolated and the wiring corrected. A decision was then made to calibrate the signal isolator by disconnecting current feedback wiring from the Main Hoist shunt to the signal isolator and connecting a milli volt injection unit. The 230 Vdc Main Hoist circuit was not isolated and the electrician received a shock after touching wiring from the shunt.

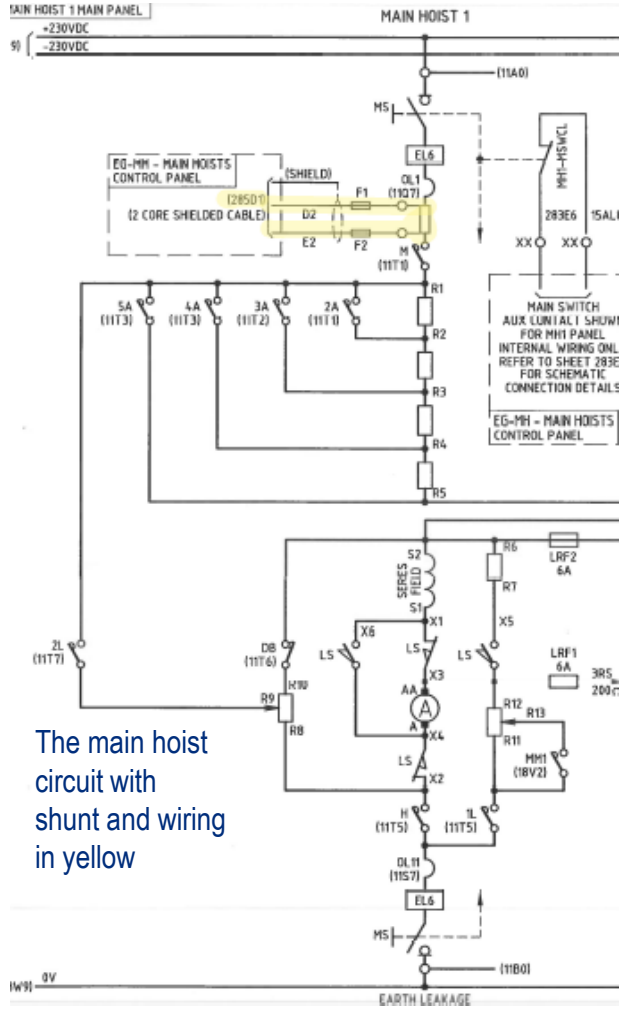
Testing and fault finding may place individuals in close proximity to hazards, job steps must be carefully planned and reviewed before proceeding. Prepare and follow a JSEA. Before disconnecting any wiring stop and Take Two to understand the task, perform Test Before You Touch and isolate ensure wiring is safe to work on. Refer to Electrical Safety Manual section 1.4.3.9.

The signal isolator.
Shunt wiring is on terminals 13 and 14

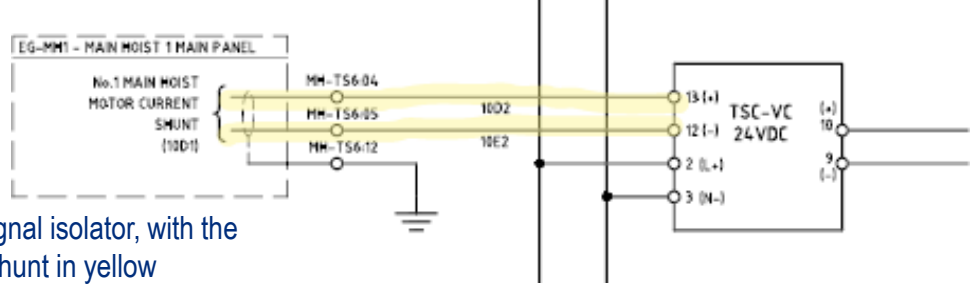
The DC shunt rated at 1000amps



The Main Hoist DC flat back panel



The main hoist circuit with shunt and wiring in yellow



The wiring for the signal isolator, with the wiring going to the shunt in yellow

Date: 29/03/2023
Location: Shipping
Reference: I2274009

A plumber drilling a hole close to the ground with a double insulated 240V ac rotary hammer drill has received an Electric shock to the left hand. When the plumber has commenced the drilling the portable RCD unit tripped as well as the upstream RCD breaker. The plumber has stopped work and checked the drill and lead for any sign of damaged as to the cause of the RCD trip. Finding no cause for the trip the plumber has reset the two RCD breakers and restarted work. This time with one hand on the trigger and the other hand on the base of the drill touching the ground the plumber has received the shock through wet gloves. The RCD breakers did not trip on this occasion. An investigation has found in the drilling process the base of the drill is either touching or sitting in a puddle of water. This has compromised the double insulation integrity of the drill allowing moisture to enter the drill through vents at the base, with the plumber providing an earth path when hand touched this wet area.

Always ensure portable 240V ac electrical equipment is kept in good working order, is not used in presence or near wet and damp situations, where the IP or insulation integrity is compromised. Reduce or eliminate the risk by using battery powered tools and equipment

The rotary hammer drill

A close up of the base of the drill.
Note all the moist dirt build up inside the slots.
Some of the slots are vent hole which have allowed moisture to enter the drill

The area being drilled close to the ground.
The pool of water and wet soil which the base of the drill has touched.

Date: 10/03/2023
Location: HSM
Reference: I2263920

High voltage electricians were investigating a 33kV cable fault when a transformer fed from this cable caught fire. The cable in question had an earth fault in an underground position and at the time the electricians were using a process which involves 'thumping' the cable with a HV signal to locating the site of the fault. Unfortunately this action has caused an arcing fault in the oil filled link box between the cable termination box and the transformer windings. This arcing fault has cause the oil to catch fire burning the wiring and CTs within the box. Fortunately the cable box insulators and transformer were not damaged by this fire.

Inside the link box after the fire, with the cabling and CTs destroyed

The 33kV to 1200V drive transformer enclosure, with fire coming from the link box on the 33kV side

Date: 7/03/2023
Location: HCPD
Reference: I2261753

During an audit in a warehouse recently taken over by the HCPD operations a 500amp CFS unit was found damaged with exposed energised conductors. The CFS unit has been hit with some force believed to be the tines of a fork lift as there was product in the vicinity. The top of the door of the CFS has been bent open to expose a 100mm gap. Inside there is copper busbar and fuses which are energised and easily accessible.

As per Electrical Safety Manual 1.4.2.3 all removable covers or doors of high fault level low voltage equipment should be suitable secured to prevent accidental or inadvertent access.

The damaged CFS unit , with door bent open and hinges sheared off

The inside view of the CFS unit through the 100mm opening. The exposed busbar and fuses are energised

Date: 17/03/2023
Location: BOS – Switchroom B-18
Reference: I2267293

A motor cable was found to have been damaged by wood screws after removing boards installed for protection as part of work to install a new air conditioning system. The work required making penetrations in brickwork above a cable rack, temporary barriers were installed for protection before penetration work commenced. The screws used to construct the barrier were longer than the board depth, resulting in damage to the sheath of an out of service 415V cable.

Work in close proximity to energised electrical equipment introduces the risk of electric shock or arc blast. Precautions must be taken to address the hazards and protect the safety and integrity of the electrical installation. Always check the position of cables before drilling or penetrating into a hard surface or structure and use the appropriate fastening equipment for the task.

Two screws on the outside of the cable rack show the extent of penetration beyond the plyboard surface.

A section of ablative coating penetrated and damaged by the wood screw.

Minor damage to the cable sheath evident after removal of the ablative coating.