

## NICKEL REFINERY HAC & STATIC ELECTRICITY REVIEW

Static electricity is a common and often harmless phenomenon, however, electrostatic discharges in hazardous areas can easily ignite explosive atmospheres. This is particularly true of hydrogen, which can be ignited by a spark with as little as 0.019mJ of energy. Electrostatic discharge from a person can have energy of 60mJ – more than enough to cause ignition.

### THE CHALLENGE

Workers on a newly built nickel refinery in Western Australia reported frequent static shocks. Given the plant contained hydrogen IIC hazardous areas, the operator was understandably concerned.

Inlex was engaged to provide engineering services to identify the cause of the static electricity and to provide recommendations to eliminate it. The scope of work also included a hazardous area classification (HAC) review to encompass additions to the plant.

### OUR APPROACH

Our experienced technicians visited site to conduct a survey to assist our engineering team in identifying the cause of the static electricity. Inlex engineers reviewed hazardous area classification and as-built drawings to revise the extent of zoned areas.

### OUR SOLUTION

We conducted a full review of the site, including construction materials, earthing, PPE, site activities, and weather conditions. A report with recommendations to eliminate electrostatic discharges was provided to the operator. Recommendations included anti-static clothing and discharging stations for personnel and the replacement of GRP grating with conductive or dissipative material.

Revised hazardous area classification drawings and report was provided to the client.

### THE RESULTS

Since implementing our recommendations, no further static discharges have been reported at the site, providing our client with a safe environment and peace of mind. Our HAC review ensured that equipment installed in hazardous areas was of appropriate EPL, gas group and T-class, ensuring safety and compliance.



### STATISTICS

**0.019mJ**

ENERGY REQUIRED TO  
IGNITE HYDROGEN

**60mJ**

ENERGY FROM ELECTROSTATIC  
DISCHARGE FROM A PERSON