

Fault in high voltage equipment

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A serious fault was discovered in high voltage (-5600V) equipment; the fault caused sparks to be observed across the high voltage terminals.

What happened?

Portable seismic survey “sparker” equipment was mobilised on a vessel. During initial tests of equipment, a spark was observed on the -5600V high voltage terminals.

The issue was not reported to the bridge, nor was a near miss or incident report submitted. There was a delay of four weeks between when the incident happened and when it was officially reported.

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What were the causes?

Preliminary investigation revealed that:

- This issue presents if the terminals are loose. They were tightened but the issue persisted.
- The incorrect washer type was used on the high voltage terminals. The manufacturer recommends conical spring washers. Standard split spring washers were used instead on the terminals. Also, a specific brass flat washer is recommended by manufacturer.
- After servicing by the manufacturer and feeding back the details of the fault observed, the manufacturer confirmed the bolts on the high voltage terminals were not threaded all the way to base of bolt. As a result, if incorrect thickness washers were being used this would not allow the terminals to be fully tightened.
- Three days had been planned for training. Owing to delays caused by poor weather only three hours was available for training – there was *perceived* pressure to get the job done in a rushed way.

IOGP Life Saving Rules:



Bypassing safety controls

Recommendations

- Ensure crew working with high voltage systems are trained and competent to work on the respective type of system.
- Ensure crew are familiar with risk assessments and safe systems of work for the type of equipment they are working with.
- When a safety issue presents on a high voltage system “STOP WORK”, isolate the power and report it to the appropriate authority.
- Report and investigate in a timely way: the delay in reporting this incident led to issues during the investigation. Crew could not remember the detail due to extended period of time. Immediate investigation post-incident is extremely important to ensure accurate information can be collated on what happened from all witnesses.

Members may wish to refer to:

- IMCA *Be prepared to work safely* short video on [Electrical Hazards](#)
- IMCA HSS016 [Guidance on the investigation and reporting of incidents](#)
- IMCA HSS031, M217 [Offshore vessel high voltage safety](#)
- IMCA R005 [Guidance on safety procedures for isolation of ROV high voltage equipment \(above 1 kV\)](#)
- IMCA C010 [High voltage training: A syllabus for training offshore workers involved with high voltage equipment](#)

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