



Overhead HV Line Strike



QSE Alert

Non-Conformity Code associated: NC201600274

This document includes information of public knowledge and its goal is to share the lessons learnt that comes from incidents or dangerous conditions and that can be of interest for the people working in the business operated by Acciona Energía.

This document could have future updated versions because of a better collection and analysis of the information, the proper improvement of the technology and proposed actions, etc... So that, it is important to consult to Acciona Energía for the up-to-date version of our Alerts.

SCOPE

- Worldwide
- All Business
- All Technologies
- Local. Country:
- Construction
- Eolic
- Solar
- Production
- Hydraulic
- High Voltage
- Thermoelectric
- Others. Specify:

FACTS

On 26 April 2016, during the construction works of an Acciona Energía Solar Plant, a tipper truck was completely burned out as the result of electric shock on the contact of the top of the tipper with one of the phases of a 23 kV overhead line. The contact occurred when the truck was moving with the tipper raised to complete unloading. The fire burned the engine compartment and the tyres as well as other combustible materials including Diesel fuel, engine oil and hydraulic fluids for steering, brakes, etc. An unspecified amount of these petroleum products was spilled on the ground during the fire, producing a local surface layer of soil contamination.



The truck driver was alerted by the noise of the electrical shock and the explosion of the tyres and jumped out of the cab immediately. He was not affected by the electrical shock or by the subsequent fire but he had to be taken to hospital for medical examination and subsequent treatment for anxiety and post-traumatic stress, with the loss of seven working days. He has made a full recovery.

During the root cause analysis that was carried out, it was concluded that:

- There was not an adequate recognition and mitigation of the hazard regarding the criticality of civil works under live overhead power lines. Site Management had identified the existing risks of this overhead line and had put in place protective measures, but not in this particular point.
- The necessary safety measures should have been:
 - Controlling the access: barriers should be erected at the correct clearance distance from the line to prevent close approach or entry by machinery.



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- Controlling the work: if work beneath live overhead power lines cannot be avoided, special working procedures and monitoring as well as permits for access to areas signposted as critical, should be provided.
- The “Tool Box,” training sessions for new personnel on site, Five Minutes for Safety meeting were not sufficiently effective.
- Procedures were not updated according to the hazards of the activities.
- Health and Safety Management Plan and other safety procedures are not well known and applied effectively.

LESSONS LEARNED

ACTIONS TO BE APPLIED IMMEDIATELY:

- Check any current work under any overhead HV line and verify the presence of a frame structure that avoids any contact. If there is not any protection system, stop the work immediately.

OTHER ACTIONS

- Implement a safety risk analysis method in the Safety Management Plan that allows the Engineering & Construction project team to detect special risks associated with the project from the preparation phase to undertaking as well as to follow the implementation of the mitigation measures regularly.
- Implement the monitoring of the implementation of these mitigation measures in the on-site audits.
- Develop a standard Engineering & Construction guideline for works below live overhead power lines.
- Reinforce the incident management, giving the site management the tools for the communication of its analysis and measures implementation.
- Reinforce the management, leadership, engagement and awareness as well as improving the training competences and abilities of the project management, in quality environment and safety.
- To develop a standard Engineering & Construction procedure for each Tool Box and guarantee the involvement of the Engineering & Construction management (on site and visitors) to make it more reliable.
- Ask users how to improve the efficiency and suitability of the Health and Safety Plan and set up a plan to improve it.