

INCIDENTS AND SCENARIOS

CASE STUDIES

1

The following examples illustrate the risk management process and combine the practical information in the *General guide for working in the vicinity of overhead and underground electric lines*.

Case 1. Incident – mobile crane operations

A mobile crane came into contact with 132,000 volt overhead electric lines adjacent to a workplace. The crane driver had slewed the boom of the crane towards the overhead electric lines resulting in the lifting chains swinging outwards, making contact with the electric line. The crane sustained extensive damage to the tyres, lifting rope and its electrical system.

Contributing factors included failure to:

- maintain relevant approach distance to the electric lines and consider the possibility of the lifting chains swinging towards the overhead electric lines when the crane was operated
- do a risk assessment of the workplace
- use suitable risk control measures for the work, and
- use a safety observer to observe the crane operations near the electric lines.

Case 2. Setting up a mobile concrete pump

A project manager uses concrete pumps regularly. An important part of setting up concrete pumping equipment is to consider the vicinity of overhead electric lines in the risk management process.

To eliminate or minimise risks the project manager:

- identified the no go zone minimum clearance distance for the concrete placement boom after talking with his contractors and the Electricity Supply Authority. He allowed for sway and sag of the lines and documented this in a risk assessment
- ensured the pump could be set up on solid ground to prevent inadvertent movement of booms entering no go zones
- ensured a safety observer watched while pump operators set up and they kept the pipes away from no go zones and parallel to the ground where possible, and
- ensured a safety observer watched to warn the operator if the placement boom approached the no go zone.

Case 3. Incident – scaffolding work

A worker died and three apprentice roof plumbers were injured when attempting to move an 8.9 metre high aluminium scaffold at a construction site. The workers were moving the mobile scaffold over soft sand when the castor wheels located at the base of the scaffold sank into the sand causing it to fall and make contact with 33,000 volt overhead electric lines located adjacent to the construction site.

Contributing factors included failure to:

- do a risk assessment of the site and identify and consider the ground conditions at the site, and
- use suitable control measures for the work.

Case 4. Incident – farm machinery

A farmer operating a harvester on his own property was fatally electrocuted when the raised delivery chute contacted 11,000 volt overhead electric lines. The farmer was aware of the electric lines and had previously warned others to stay clear.

Contributing factors included failure to:

- maintain relevant approach distance to the electric lines, and
- do a risk assessment and use suitable control measures to ensure no go zones were enforced.

Case 5. Incident – irrigation pipes on a rural property

A farmer working in a field was fatally electrocuted when he raised a metal irrigation pipe into 22,000 volt overhead electric lines while trying to shake out the vermin blocking the pipe.

Contributing factors included failure to:

- identify the risk of raising objects into the overhead electric lines when the height was known, and
- do a risk assessment of the site and use suitable control measures.

Case 6. Rural workplace – cane haulage

A cane farmer attended a safety conference and heard about electric line safety. The need for cane haul out and harvesting contractors to manage the risks around overhead electric lines was emphasised. The farmer had also attended a training program that provided him with the knowledge to manage the risk by introducing control measures for crane haulage activities at their designated rail siding delivery point.

To eliminate or minimise risks the farmer:

- did a risk assessment and identified electric lines near the delivery point and the possibility of cane haulers entering the no go zone when lifting their bins
- implemented a designated bin lift and tip point and erected a sign instructing ‘Bins not to be lifted before this point’, and
- contacted the [Electricity Supply Authority](#) who installed flag markers on the electric lines crossing near the cane delivery point to make them more visible to operators.

Case 7. Incident – tip truck operation

A tip truck contacted an 11,000 volt overhead electric line causing it to break and fall to the ground hitting a worker. The tip truck was delivering a load of granulated bitumen to the workplace when the tip tray of the truck was raised upwards into the overhead electric lines.

Contributing factors included failure to:

- plan the work and identify the overhead electric lines
- maintain the relevant approach distance to the overhead electric lines and consider the height of the raised tray when the load was dumped at the workplace
- do a risk assessment of the workplace and use suitable control measures for the work, and
- use a safety observer to watch the truck operations near the overhead electric lines.

Case 8. Safety observer for a crane working near electric lines

Kevin's sign company occasionally manufactures and installs tall advertising signs by the roadside near overhead electric lines. Kevin is aware of managing the risk of overhead electric lines and he had a consultant assist in preparing and documenting a risk management manual. In Kevin's workshop, work is about to start on the design and construction of a new sign for a shopping centre. The company's safe work procedures are applied at the start of each new job. Kevin needs to visit the site to check some dimensions and carry out a risk assessment.

As part of the company's written safe work procedures Kevin:

- visited the site and identified the overhead electric lines
- contacted the Electricity Supply Authority who gave him information about the electric lines to allow him to assess no go zone distances and when to use a safety observer
- discussed his requirements with his crane contractor who also visited the workplace. Kevin used this crane operator as he had their safe work procedures and he can check each operator's qualifications
- gave clear instructions on the day of the sign's installation to the crane operator and safety observer, and
- ensured the dogger who assisted on the day was trained and knew his responsibilities. He took on the safety observer role, had radio communication with the crane operator, and was in a position to clearly see the job and stop it at any time.

Case 9. Work on a rural property - flashover

A 17 year old rural worker was fatally electrocuted due to a flashover when a steel flagpole came into close proximity with an 11 kV overhead electric line above the entrance to a rural property. The worker was attempting to erect the 5.2 m flagpole at the main entrance gate to the property.

Contributing factors included failure to:

- identify the overhead electric lines, and
- use suitable control measures.