Avoiding Utility Strikes

Toolbox 4: Working near overhead powerlines – transcript

Welcome to SafeWork SA's toolbox series on avoiding utility strikes. This series is all about avoiding utility strikes while digging or working near overhead powerlines. This is the fourth episode – Working near overhead powerlines. This toolbox outlines the safe approach limits for people and minimum safe clearance distances for machinery when working near overhead powerlines.

Dangers of working near power lines

Before starting work, careful planning and preparation is essential to ensure work is done safely.

There are many hazards associated with working near overhead powerlines, including electrical lead-in to your property. Electricity can be extremely dangerous and can flash over a gap.

Working 'near' is where there is a reasonable possibility of coming within an unsafe distance to a powerline.

A person or piece of machinery can be some distance from a powerline and still be in danger.

There is a real risk that a person can be electrocuted directly or through objects being held.

Working near overhead powerlines can introduce many high-risk construction work activities.

Powerlines swing in wind and sag due to heat. This movement must be allowed for in any safe clearance distance.

A documented Safe Work Method Statement will need to be developed for those activities identifying site specific hazards and the appropriate risk controls.

The Safe Work Method Statement must also describe how the control measures are to be implemented, monitored, and reviewed, and should include what actions are required in the event contact is made.

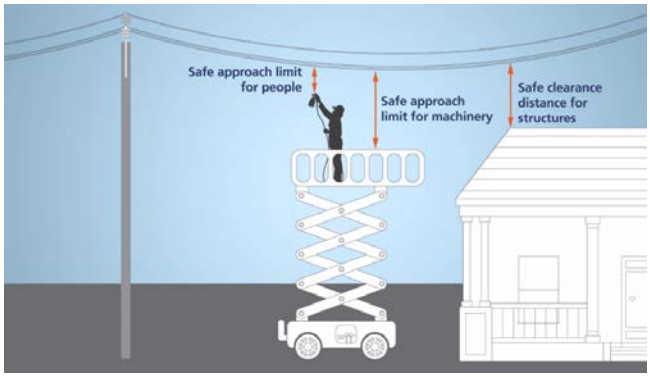
The prescribed safe clearance distances are covered by law and must be adhered to at all times.

Any breach of these distances can result in severe injuries and even death.

Safe approach limits for people

Safe clearance distances differ for people, machinery and structures.

There are safe approach limits that must be maintained by people working near power lines.



Prescribed distances are dependent on the voltage of the powerline. Low voltage is anything under 1000 volts, and high voltage is anything over 1000 volts.

Ensure the voltage is correctly identified.

The minimum safe approach limit is measured from the closest powerline to the closest part of the person. This includes clothing worn or tools being held.

For example, working near a 240 volt power line, a person's approach limit, including an object held, can be no closer than 3 metres.

If you need to work closer than 3 metres then a Safe Work Method Statement will need to be implemented.

As the diagram shows, you can work as close as 1 metre to a power line as long as the movement of tools, materials, and structures are taken into account.

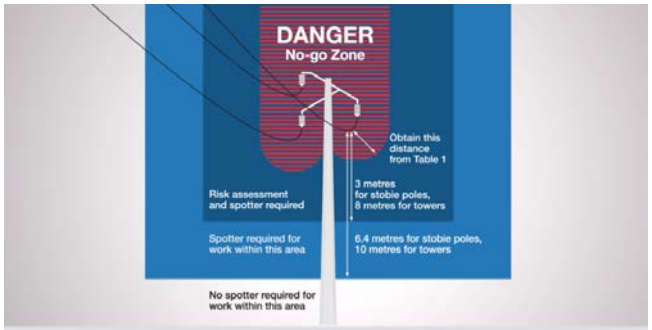
Remember the higher the voltage, the greater the approach limits.

Safe clearance distances for machinery

Safe operating distances from powerlines are different again for machinery, such as cranes, excavators or elevating work platforms.

Safe clearance distances depend on whether the work is done with or without a person spotting the activity.

No machinery must come within 6.4 metres of a stobie pole, or 10 metres from a tower without a spotter and additional control measures.



Source: Working Safely Near Overhead Powerlines, Office of the Technical Regulator, May 2015

Again, as with people, safe clearance distances depend on the voltage of the powerline.

For example, for an 11 KV powerline with a spotter in place, you can work between 6.4 metres and 3 metres to a powerline.

If you need to work machinery closer than minimum safe clearance distances, contact the technical regulator for advice on authorisations required.

A Safe Work Method Statement will also need to be implemented, based on a risk assessment and any advice given.

The minimum safe clearance distance to powerlines is measured from the part of the machinery, including its load that is closest to the powerline wire.

To work to the prescribed distances, you must be able to show that you have allowed for any likely movement of both the powerline and the machinery, including operator error.

The safe clearance distances are absolute and cannot be breached at any time. Any breach of the clearance puts you and others in immediate danger of electric shock.

Risk assessment & additional safety requirements

So, to recap, in order to operate machinery to minimum safe clearance distances, you are required by law to meet the following safety requirements:

Identify the line voltage, determine if it's high or low. High voltage power lines are those of more than 1,000 volts of electricity.

Complete a documented Safe Work Method Statement, based on a risk assessment.

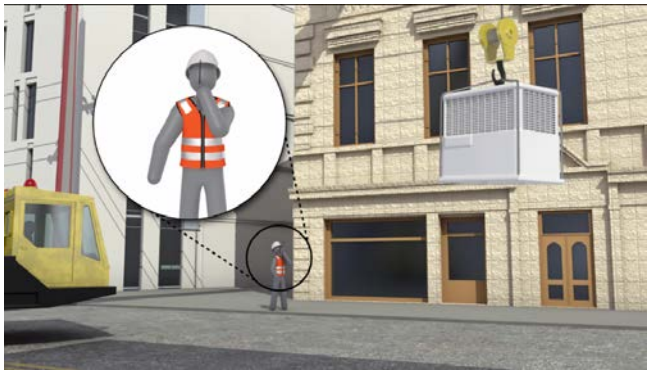
If you need to work closer than minimum safe clearance distances, seek authorisation and confirm with SA Power Networks before commencing; and

Comply with any conditions specified by SA Power Networks or the Technical Regulator.

Get a spotter to carry out spotting duties at all times.

Spotter

A spotter must be a competent person qualified by experience, training, or both. Their sole duty is to observe and warn against unsafe machinery distance from power lines, including the lifting attachments and the load. The spotter must have clear line of sign and be able communicate with the operator effectively.

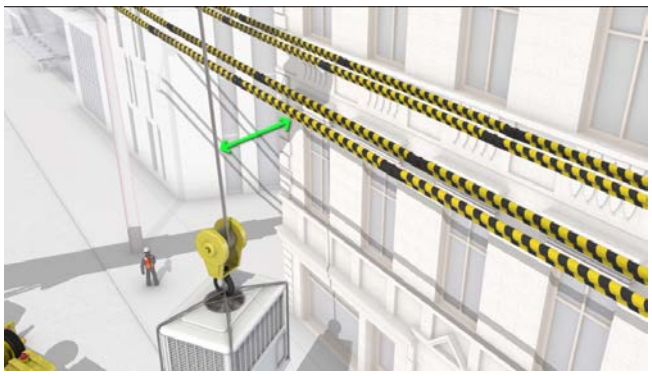


It is important that a spotter does not undertake other tasks whilst spotting.

Tiger tails

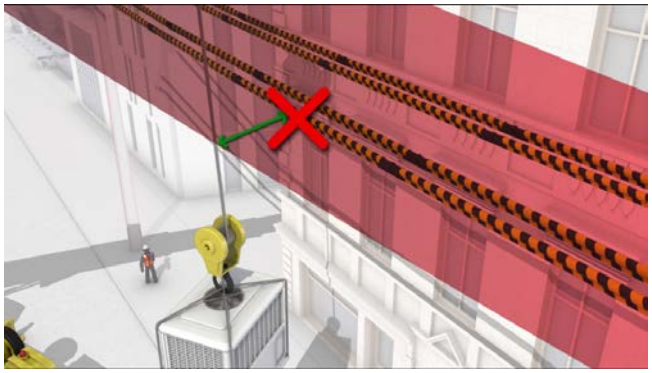
Consider visibility of power lines when undertaking your risk assessment.

Tiger tails are visual indicators that can only be used on low voltage lines. They don't insulate lines, as some might think. They help operators of machinery and workers identify distance and perspective of the line.



When working, operating machinery or erecting scaffolds near overhead powerlines, it is recommended that you contact SA Power Networks to install 'tiger tails' on the closest low voltage lines.

When using tiger tails on powerlines, you must still maintain legal clearance distances at all times.



Network access permit

If the safe clearance distance cannot be maintained, you will need to apply for a network access permit from SA Power Networks (allow at least 28 business days to process).

On receipt of the network access permit, you will need to sign and retain it until your operation is completed.

The permit will ensure the powerlines will be controlled in an isolated or protected state until the permit is returned.

The permit has conditions that must be clearly understood before you sign it.

Summary

So in summary, remember, electricity can be extremely dangerous; any breach of legal safe clearance distances with power lines can result in severe injuries and even death.

Builders, contractors and workers are reminded to:

- identify any overhead powerlines that will be a hazard and reduce the risks, so far as is reasonably practicable
- maintain legal safe clearances to overhead powerlines
- complete a documented Safe Work Method Statement, based on a risk assessment
- use a spotter if operating machinery, and
- if a permit to isolate electricity or place it in a protected state is issued, comply with all the permit's requirements.

Additional information on minimum safe clearance distances to structures, including scaffolds, is covered in toolbox 5 of the series.

More information

For further information on work health and safety matters, visit the SafeWork SA website at safework.sa.gov.au or call 1300 365 255.

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