

# SAFETY ALERT

## Overhead Cable Avoidance for Short Duration Work

### Introduction

The Safety and Engineering Bulletin has been produced in response to recent overhead cable strikes, specifically by Lorry Loaders. Two recent incidents have occurred which resulted in LV overhead cable damage but luckily no injury to any person involved.

Every Year in the UK on average, two people are killed and many more are injured when mechanical plant and machinery comes into contact or close proximity to overhead electrical services.

This Safety and Engineering Bulletin has been produced for anyone who is involved with the use of mobile plant and equipment (such as Lorry Loaders, Tipper Lorries, Excavators, etc.) for short duration work in the location of overhead services, longer duration work **MUST** be planned so not to affect the overhead cables or adequate precautions implemented.

Where possible teams should consider when excavating, the location of spoil and proximity of overhead cables. The spoil should be sited away from overhead cables to allow safe collection by the lorry loader.



### Preventing Overhead Cable Incidents

The law requires that work may be carried out in close proximity to live overhead lines only when there is no alternative and only when the risks are acceptable and can be properly controlled.

### **Before Starting Work**

- Overhead lines can easily be seen, so before you set up your vehicle or plant always:

#### **Stop And Look Up!**

- If you are working at night, or in conditions of poor visibility, you should use spotlights or a torch to carefully check that there are no overhead services within your vehicles reach.
- If you are in any doubt about whether the lines in question are power or telephone (this is a very common mistake) - always assume that they are power lines and are live.

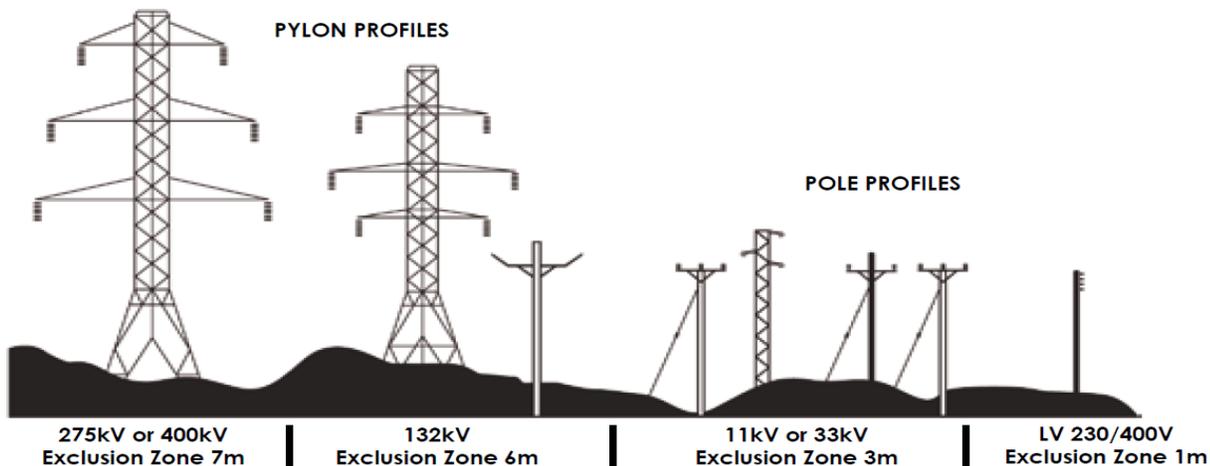
### Exclusion Zones

Overhead power lines are not normally insulated and so contact can result in serious or fatal injuries. Electricity at high voltages can also jump gaps with no warning whatsoever, so it is also dangerous to let your plant approach too close to a line.

The distance that electricity can jump depends on the voltage of the line. The higher the voltage, the further you must stay away from the line and any other equipment that may be fitted to the pole or pylon, this distance is called the **Exclusion Zone**.

The minimum extent of these **Exclusion Zones** varies according to the voltage of the line, as follows:

- **Low-Voltage line – 1 m**
- **11 kV and 33 kV lines – 3 m**
- **132 kV line – 6 m**
- **275 kV and 400 kV lines – 7 m**



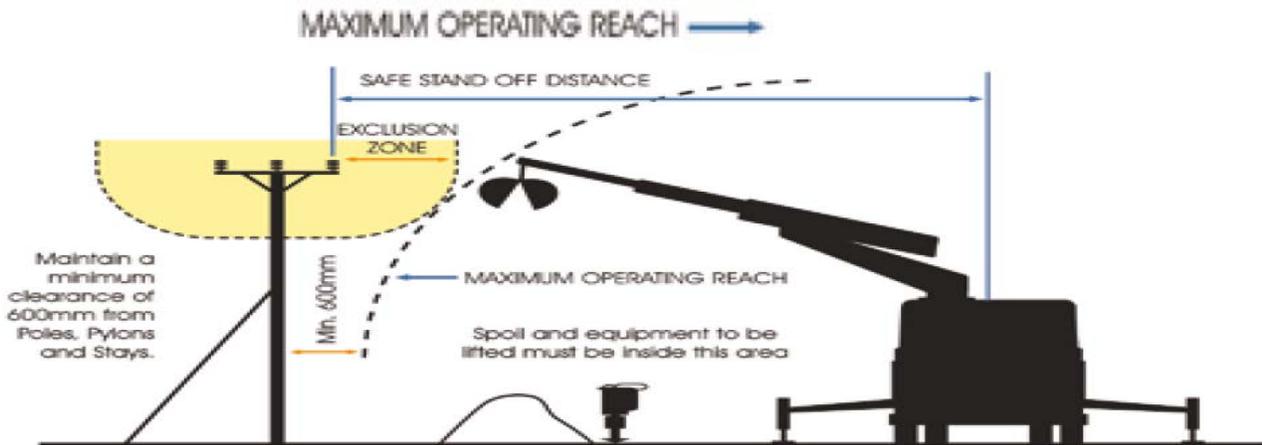
*Please note that these are absolute minimum distances that should under no circumstances be infringed. If you do-it could prove fatal.*

- Under no circumstances must any part of plant or equipment be able to encroach within these zones. Allow for uncertainty in measuring the distances and for the possibility of unexpected movement of the equipment due, for example, to wind conditions.

### Safe Stand-Off Distances

If there are overhead services in the vicinity of your work the best way to make sure you stay out of the **Exclusion Zone** is to position your vehicle at a **Safe Stand off Distance** so that, even when fully extended, no part of it can accidentally reach inside the **Exclusion Zone**.

This **Safe Stand-off Distance** can be calculated by adding the **Exclusion Zone** distance for the appropriate voltage of the line to the **Maximum Operating Reach** (for **Maximum Operating Reach** refer to vehicle/plant radius charts) of your vehicle.



If you cannot achieve a **Safe Stand off Distance**, consider moving your vehicle to a safer location, it may make your job a bit more difficult, but if it means you stay away from the **Exclusion Zone**- it will be safer.

The next best option would be to consider using smaller plant with a Maximum Operating Reach that cannot enter the **Exclusion Zone**.

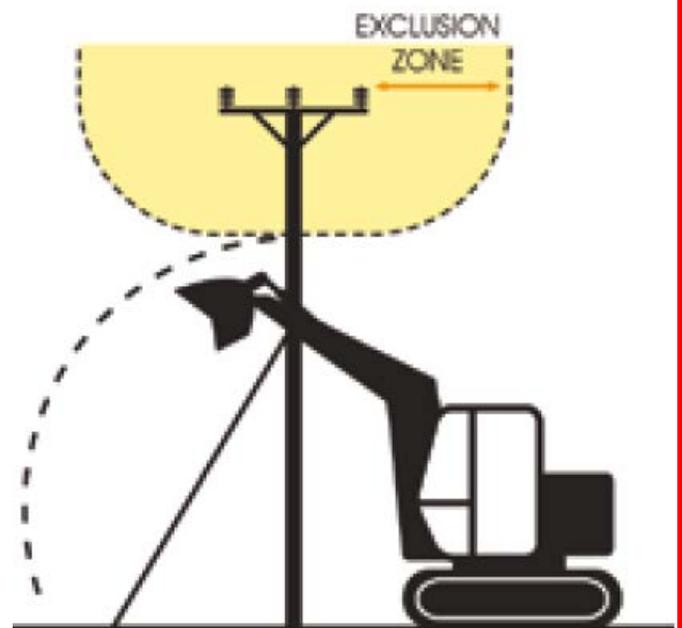
You may not be able to achieve either of these, so, as a last resort, if you cannot avoid operating large items of plant (e.g. excavators, cranes) in the vicinity of lines, you should make sure the plant/vehicle is fitted with restraints to ensure that the **Exclusion Zone** cannot be entered. These restraints may be electrical or hydraulic systems fitted to the plant/vehicle, or mechanical devices such as chains.

Where the vehicle is going to operate within its maximum operating reach near overhead cables, a banks man must assist the operator to avoid entering the exclusion zone.

The plant operator should endeavour to position themselves to ensure a clear line of site, in addition where possible on site the best practice approach is to utilise a banks man.

If there is no way of lifting the spoil without entering the exclusion zone the waste must be manually moved to a safe location before being collected by the lorry loader.

As well as staying away from the lines or equipment, you should also stay at least 600mm away from any part of poles, pylons and stay wires.



**Emergency procedures**

If someone or something comes into contact with an overhead line, it is important that everyone involved knows what action to take to reduce the risk of anyone sustaining an electric shock or burn injuries. Key points are:

- Never touch the overhead line's wires.
- Assume that the wires are live, even if they are not arcing or sparking, or if they otherwise appear to be dead.
- Remember that, even if lines are dead, they may be switched back on either automatically after a few seconds or remotely after a few minutes or even hours if the line's owner is not aware that their line has been damaged.
- If you are in contact with, or close to, a damaged wire, move away as quickly as possible and stay away until the line's owner advises that the situation has been made safe.
- If you are in a vehicle that has touched a wire, either stay in the vehicle or, if you need to get out (risk of fire), jump out of it as far as you can.
- Do not touch the vehicle while standing on the ground.
- Do not return to the vehicle until it has been confirmed that it is safe to do so.
- In the event of an injury raise the alarm and contact the emergency services.

**Whatever the circumstances contact your local electricity company immediately in the event of an overhead service strike.**

***FINALLY....***Please, always remember that electricity overhead lines can be very dangerous – the general rule is **Stay Away and Stay Safe.**

**Guidance**

Further guidance can be found within the following documents, for copies of these documents or any advice and guidance contact your regional HSE advisor.

WWU Overhead HV Cable Method Statement

GS6 – Avoidance of Danger from Overhead Lines

CPA – Safe use of Lorry Loaders

Lookout Lookup – The Safe Use of Mechanical Plant in the Vicinity of Electricity Overhead Lines

**Further Information**

For further information contact the Director of Operations

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