

1. PURPOSE

This procedure is intended to assist East Gippsland Water (EGW) to meet its Occupational Health and Safety obligations when conducting work near overhead or underground assets and covers the requirements of Energy Safe Victoria and WorkSafe Victoria. This procedure provides a uniform safety approach for EGW staff and contractors when working near both overhead and underground assets and has been developed to conform to the WorkSafe Victoria Framework for Undertaking Work Near Overhead and Underground Assets.

2. APPROVAL

Managing Director

3. DEFINITIONS:

Access Authority: any form of authorisation which allows work on or near an asset which is issued by a representative of the Asset Owner to an individual, allowing work to be conducted in accordance with the conditions specified on the Authority.

Asset: an overhead cable network or an underground water/drainage/sewerage, electricity, gas or communications network.

Asset Owner: the owner of an asset or the provider of a utility service.

Aerial service Line: the final span or section of an overhead electrical service running from a power pole to the point of supply for a customer.

Awareness training: a regime endorsed by the USC which provides an individual with an appropriate awareness level of hazards posed by utility assets including the risks associated with utility services at a worksite.

Cable/s: a wire, conductor or form of material designed for carrying electric current or communications signals.

Competent: a person who has completed appropriate training, possesses appropriate skills and is authorised to perform a specific task (or tasks).

Deemed to Comply: a process described in this guide governing activities near utility services which is accepted as complying with relevant legislation, regulations or rules.

Driver: the person responsible for direct operation of any vehicle in transit mode.

Earthmoving Machinery: as defined in the OH&S Regulations - 2007. "Means plant used to excavate, load, transport, compact or spread earth, overburden, rubble, spoil, aggregate or similar material, but does not include a tractor, industrial lift truck, or a vehicle designed to be used primarily as a means of transport on public roads".

Elevating Work Platform (EWP): a vehicle mounted boom-type mechanical device that is primarily used to support a work platform in an elevated position. The control of the platform position may involve luffing, (raising) telescoping and slewing actions.

Envelope: the space encapsulating a plant item and its load, including attachments such as rotating/flashing lights or radio aerials and is categorised as:

Design: the space encapsulating all possible movements of the plant and any load attached under maximum reach.

Operating: the space occupied by any part of an item of plant or its load when operating on a specific task at a worksite.

Transit: the area encompassing the normal height and width of a vehicle or plant when travelling to or from a worksite.

Excavating: the movement or placement of soil or other surface materials by removing, boring or forcing objects into the ground or earth surface.

Hazard: a source of potential harm or a situation with a potential to cause loss.

High Voltage or HV: a nominal voltage exceeding 1000 volts (1kV).

Insulated: separated from adjoining conducting material by a non-conducting material to mitigate the danger of electric shock.

Inspector: an individual authorised under the *OH&S Act 2004*.

Low Voltage or LV: a nominal voltage exceeding 50 volts but not exceeding 1000 volts.

Near: a distance from an asset as follows:

Overhead electrical assets: a distance of 6.4 metres from overhead cables at voltages up to 66kV and 10 metres in the case of voltages greater than 66kV.

Underground assets: a distance of 2 metres from any underground asset and 3 metres from any underground assets registered under the *Pipelines Act* or an underground electrical cable with an in-service voltage greater than 66kV.

Outside Near: Distance greater than those defined in **Near**.

Inside Near: Distance less than those defined in **Near**.

Operation Mode: Where booms and extensions of plant items are being operated above transit mode.

Operator: the individual in control of a piece of plant or equipment at a workplace.

Permission: where the Asset Owner or their representative has granted approval for the undertaking of a task or series of tasks near their assets. This approval may be subject to

workplace safety and network or asset requirement provisions on the individual seeking to undertake the work.

Permit or Permit to Work (PTW): an authority issued by an electricity Asset Owner, refer to definition of Access Authority (above) which allows work in the Permit Zone.

Permit conditions: permission conditions stipulated by an asset owner.

PPE: refers to Personal Protective Equipment.

Plant: any machinery, equipment or appliance including any component, fitting or accessory in relation to plant and defined as plant under the *OH&S Plant Regulations (1995)* with the specific exclusion of hand tools or endorsed devices used to locate and or maintain clearances from underground assets.

Plant operator: see 'Operator'.

Pressurised: a constrained flow of a substance in pipeline which may be of varying diameters and thicknesses, the flow of which may or may not be directly controlled by an asset owner.

Practicable: has the meaning defined in the *Occupational Health & Safety Act 2004*.

Risk: the likelihood of injury or illness or disease arising from exposure to or contact with overhead or underground services.

Safe: not posing an unacceptable risk to life, health or property.

Safe systems of work: work practices in which the health and safety risks to employees have been controlled so far as practicable.

Spotter: a competent person who undertakes the task of observing and warning against unsafe approach to overhead and underground assets. A spotter for overhead electrical cables shall have successfully completed an endorsed training course and possess an authority from EnergySafe Victoria to perform spotting duties. (*Note: a spotter 'ticket' is issued for specific item(s) of plant, which is/are annotated on the ticket.*)

Spotter Zone: means the area adjacent to overhead assets (power lines) on poles anywhere within 3 to 6.4m to each side, and 8 to 10m on Tower Lines, and at or within 500 mm of an underground asset (mechanical plant) or 3m of an asset registered under the *Pipelines Act*.

Step Potential: means the potential electrical difference between any two (2) points, which can be touched simultaneously by a person.

Supervisor: a representative of the principal for a worksite, who has the delegated responsibility for a task or range of tasks being undertaken at the worksite.

Tracking of Plant: Walking plant under a power line. If plant needs to be tracked under a power line it must have all the telescopic components (eg. Excavator boom, crane boom, etc.) tucked away to their lowest point. A spotter is not required if the transit mode height of the plant item is not within 3m of the power line.

Transit Mode: All booms/extensions of plant items are folded down to their lowest point.

Work: an undertaking at a worksite involving plant and equipment other than hand-held equipment or tools.

Works:

Planned or Programmed: any work which has followed the normal planning process prior to work commencing, i.e. where the worksite has been physically inspected and assessed in advance of the work crew arriving on site.

Unplanned: any urgent works where there has not been a reasonable opportunity to follow normal planning processes prior to work commencing. This includes works where the supervisor has not physically inspected the work place or where a work crew has come across a scope of work requiring action during the normal course of their duties.

4. RESPONSIBILITIES

- 4.1 The Manager Business Risk and Compliance (through the OHS Officer) is to:
- undertake regular review of this SOP;
 - maintain field staff training records and arrange relevant electrical safety or spotter training for field staff as required; and
 - program and conduct random audits of EGW staff and contractors with regard to this SOP.
- 4.2 Depot superintendents are to:
- ensure that EGW staff follow the requirements of this procedure;
 - ensure that only trained and competent staff perform duties associated with electrical spotting duties
 - ensure that copies of or completed Forms 048 are maintained for at least 12 months;
 - where required, obtain permissions and/or permits from Asset Owners; and
 - ensure all signage and other relevant equipment is in good order by arranging periodic inspections.
- 4.3 Operations staff and contractors are to:
- follow the instructions contained in this SOP;
 - only perform tasks for which they are trained and competent;
 - report any faulty or defective signage or other equipment to their supervisor; and
 - complete Form 048 and return it to their depot for retention.
- 4.4 Contract managers are to ensure that contract documents adequately reflect the requirements of this SOP (or equivalent) wherever contractors are to work near overhead or underground services. MBRC is to be consulted for advice as required.

5. PROCEDURE

The procedures dealing with working near overhead or underground services are detailed in Appendices 1 to 3.

6. TRAINING

All supervisors and relevant staff will be trained in regard to this SOP. In addition, to accord with EnergySafe Victoria requirements, all staff who are/will be employed as electrical spotters will complete relevant training conducted by a Registered Training Organisation accredited under the Australian Qualifications Framework. Refresher training will be conducted every three years following receipt of an initial training certificate.

7. REFERENCES

- Occupational Health and Safety Act 2004
- Occupational Health and Safety Regulations 2007
- Electricity Safety Act 1998;
- Electricity Safety (Network Asset); Regulations 1999;
- Electricity Safety (Installations) Regulations 1999;
- Gas Safety Act 1997
- Telecommunications Act 1997
- WorkSafe Victoria Framework for Undertaking Work Near Overhead and Underground Assets
- EGW SOP 104 – OHS Incident Reporting and Investigation

8. REFERENCED FORMS AND WORKS INSTRUCTIONS

- Form 048 - Field Work Hazard Identification and Control Checklist

9. RISK MANAGEMENT

This SOP forms an integral part of East Gippsland Water's Risk Management Program.

Appendices:

1. Procedure for Working Near Overhead Services
2. Procedure for Working Near Underground Services
3. Other Requirements (Common to Both Overhead and Underground Services)
4. Emergency Procedures

Appendix 1

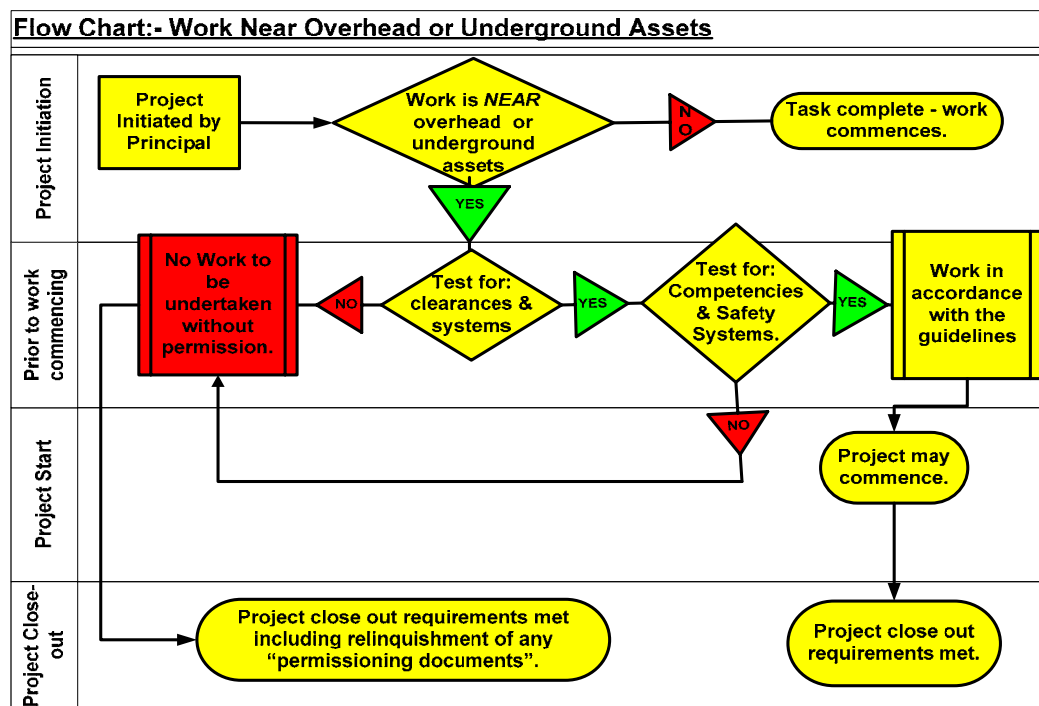
PROCEDURES FOR WORKING NEAR OVERHEAD SERVICES

1. INTRODUCTION - WHAT DO WE NEED TO KNOW BEFORE STARTING WORK?

Before starting work you must determine:

1. What your scope of work is;
2. If you are working near overhead **and/or** underground services;
3. If in undertaking this work, you will encroach into the No Go Zone clearances surrounding these services (see Appendix 1 Section 3).

(This means that you must consider what work you are going to do and how you will do it at the planning stage of a project see flowchart below.)



Note: Permission must be granted from the Asset Owner.

2. PROCEDURE

2.1 Where works are required to be completed by EGW employees or contractors in the vicinity of powerlines the following must be safely determined:

- The height of any overhead services at the work site.

The height of a power line is best determined using the SupaRule cable height meter, located in each depot.

Note: the height of overhead power lines can vary depending on weather conditions.

- The design envelope of any plant or equipment and any loads being slung during works.

Design envelope may be obtained from plant manuals, or may need to be measured at maximum reach. For EGW plant - the design envelope should be annotated inside the cabin of the plant.

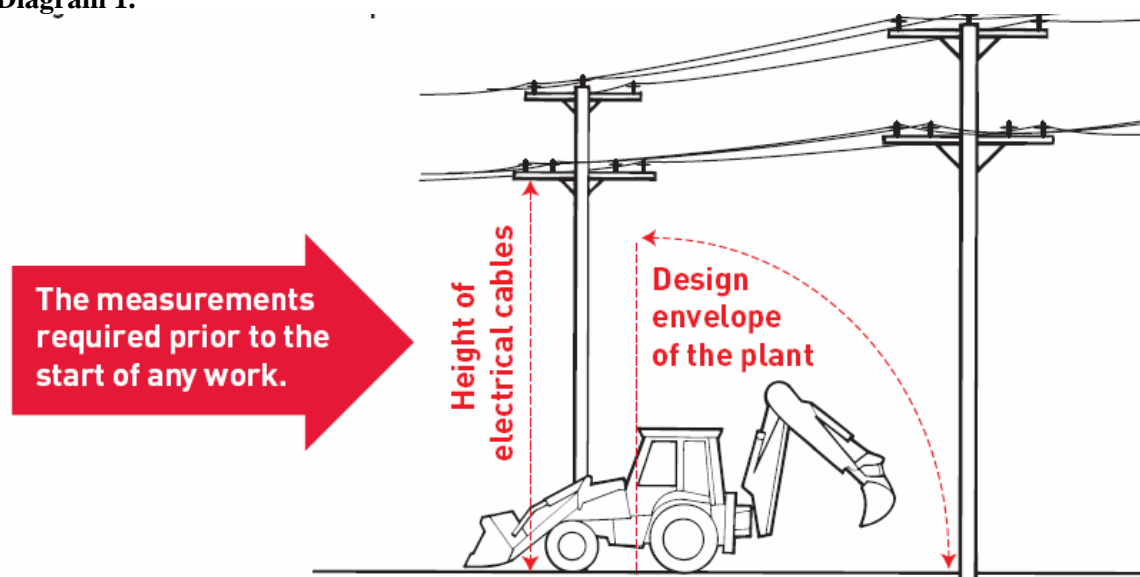
- Both must be documented on the Work Site Hazard Identification and Control Checklist (Form 048).

See Diagram 1 below.

2.2 Subtract the design envelope from height of the overhead service(s) and check this figure against the clearances listed in Section 3.

2.3 To determine what risk controls (including permission) are required to safely operate in the vicinity of overhead services check the requirements of Section 3.

Diagram 1.



3. SUMMARY OF NO GO ZONE REQUIREMENTS

3.1 NO GO ZONE

The area surrounding overhead power lines on poles anywhere above or within 3m to the side and below the power line.

If you intend operating inside **6.4m** of a power line and the design envelope of your machine can reach within **2m** of the power line, you **must seek permission from the asset owner, have a Trained Spotter and Safe Systems of Work.**

If you intend operating inside **6.4m** of a power line and the design envelope of your machine can reach within **3m** of the power line, but not closer than **2m** you **must have a Trained Spotter and Safe Systems of Work.**

If you intend to operate outside **6.4m** of a power line and the design envelope can reach the power line you can complete the task with Safe Systems of Work.

3.2 BETWEEN 3.0 AND 6.4 METRES OF POWER LINES – SPOTTER ZONE

The Spotters key role is to observe and warn the operator against unsafe approach of machine or load to power line.

If you intend operating inside 6.4m of a power line but your design envelope cannot reach closer than 3m of the power line you only require **Safe Systems of Work. You do not require a Spotter.**

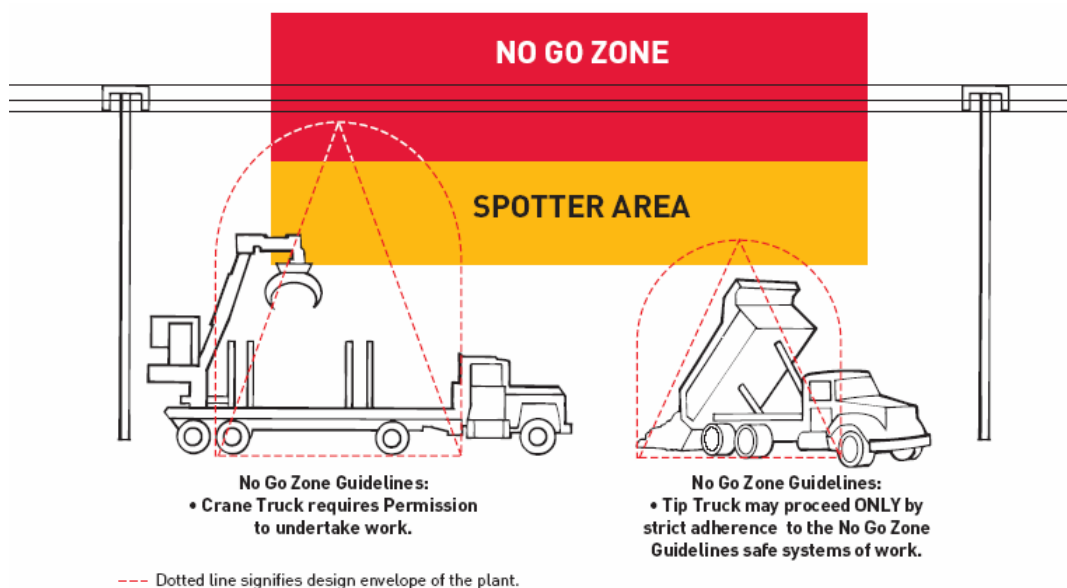
3.3 BEYOND 6.4 METRES – OPEN AREA

Unrestricted Access. If your design envelope can reach within 6.4m of a power line you require **Safe Systems of Work.**

All other cases have Unrestricted Access.

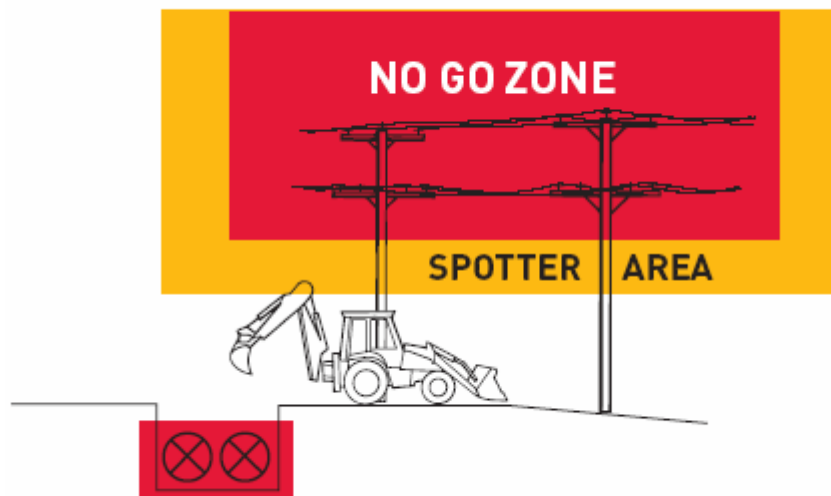
Diagram 2:

The diagram below shows two examples of the above information



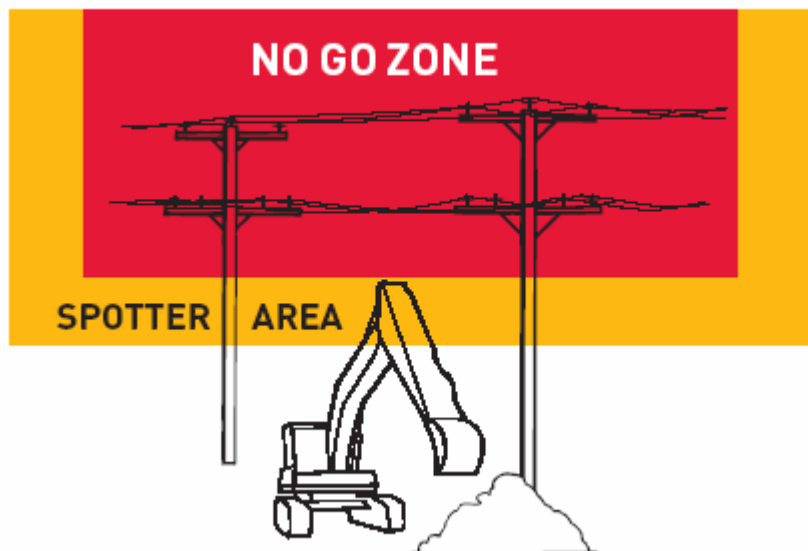
Three examples providing further guidance of Table B requirements

Example 1:



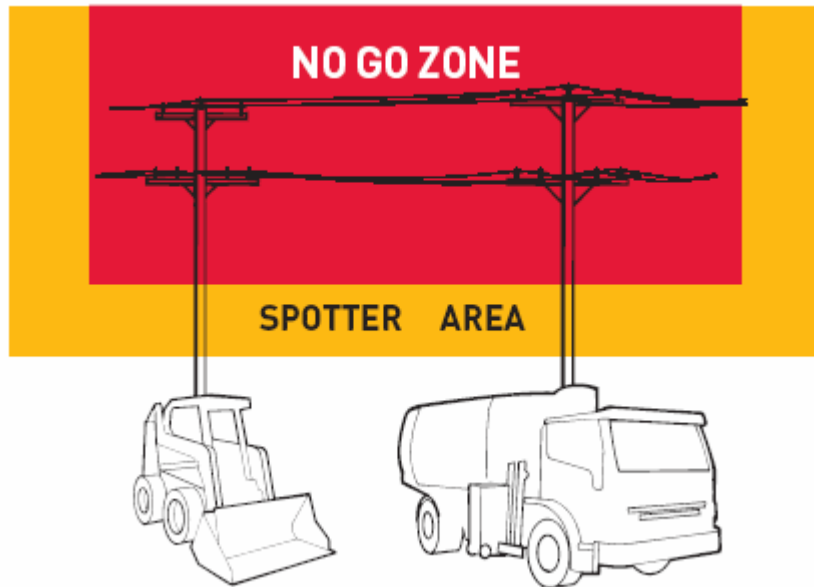
Plant whose design envelope (in the case of Overhead Electrical Cables) or their operating envelope (in the case of Underground Services) is outside of table A must be controlled by Safe Systems of Work including the use of a spotter, but does not require “permission”) from the Asset Owner.

Example 2:



Plant including Excavators, Cranes (including vehicle mounted cranes), EWP's, Tipper Trucks and Concrete Placing Booms whose design envelope is inside the No Go Zone (NGZ) and may contact overhead assets must be controlled by safe systems of work, spotter and permit to work.

Example 3:



Plant operating in the spotter zone where the design envelope of the plant cannot encroach on the clearances in table A, the plant must be controlled by safe systems of work but does not require “permission”.

Appendix 2

PROCEDURES FOR WORKING NEAR UNDERGROUND SERVICES

1. PROCEDURE

1.1 When undertaking excavation works, seek information on any underground services which may be located at the worksite. This can be done by requesting information from:

- The asset owners. Most utility companies are members of the ‘**Dial Before You Dig**’ service and provide this referral service at no cost. For asset owners not registered with this service, you will need to contact them directly or through their service provider. Most asset owners will provide the utility plans without cost, unless the scope of work is reasonably complex.
- Customers/farmers if works are completed on private properties. Check switchboards for locality maps.

1.2 Alternatively, services may be located using a cable locator operated by a competent person.

2. Summary of WorkSafe ‘Table B’ Requirements (Underground Services)

2.1 The location of underground assets may be proved carefully by hand or other suitable non-destructive methods. This should only be undertaken after obtaining information on the location of any underground services, except where the asset owner prohibits any excavation without a location of the assets on site.

2.2 If working with plant ‘near’ an underground service, and following the No Go Zone guidance material, you may work no closer to the asset than (see Diagram on page 12):
300 mm for individuals; and 500 mm for plant or equipment, or 3000 mm in the case of any underground assets registered under the Pipelines Act or an electricity cable with an in-service voltage greater than 66kV.

2.3 For principal assets requiring significant integrity of the material surrounding the asset, greater clearances may be required. Information regarding these clearances can be obtained with the initial asset location enquiry.

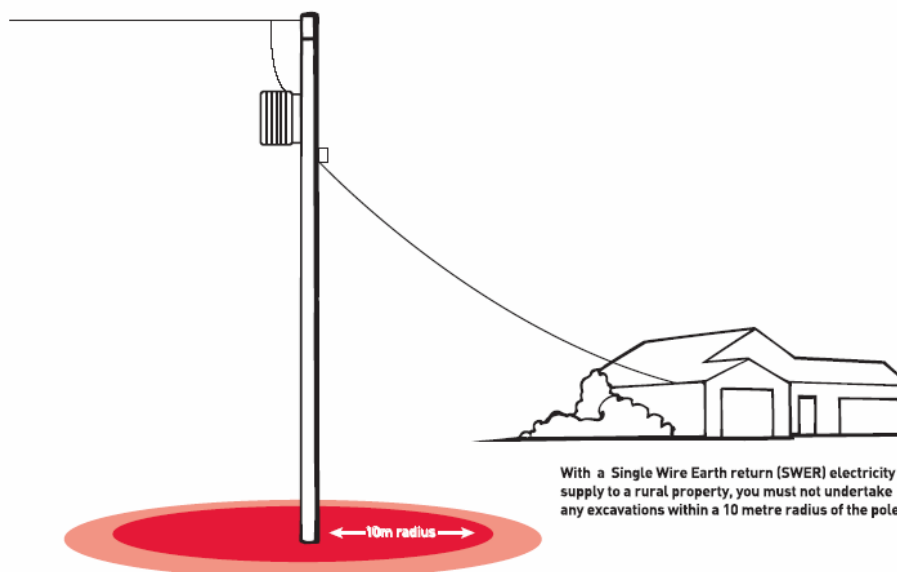
Diagram 3:



3. Single Wire Earth Return or SWER Electricity Systems

3.1 No excavation work shall be undertaken within a 10 metre radius of a pole with a SWER transformer mounted on it (see Diagram 6).

For further information regarding work near SWER systems, contact SP AUSNET.



Appendix 3

**OTHER REQUIREMENTS (COMMON TO BOTH OVERHEAD
AND UNDERGROUND SERVICES)**

1. Spotter Requirements

1.1 To act as a spotter a person must:

- have a current Level 2 First Aid Certificate and hold a current Cardio Pulmonary Resuscitation / Expired Air Resuscitation (CPR/EAR) certificate (included on a confined space entry ticket),
- hold a certificate of competency in the operation of the plant to be spotted for, or to have been assessed by an external assessor as having the required level of understanding of the operation of the particular item of plant.
- have undertaken a Spotter training course with the last three years and hold an appropriate Spotters Ticket issued by EnergySafe Victoria. (*Note: a spotter 'ticket' is issued for specific item(s) of plant, which is/are annotated on the ticket.*)

1.2 A trained Dogman / Rigger may act as a spotter for any type of plant (without holding a ticket or demonstrate competence and experience for that piece of plant), subject to compliance with items 1, 2 and 3 above.

1.3 Form 048 (Field Work Hazard Identification and Control Checklist) is to be completed for all field work. Sections 1 and 2 cover working near overhead and underground services respectively.

1.4 All spotters must wear Australian Standard approved Hi-visibility clothing (Shirt, Vest or Jacket).

1.5 Persons who undertake the duties of a spotter for overhead electrical cables shall have completed an endorsed Spotter training program, and be endorsed to 'spot' for the plant in use. Persons undertaking spotter duties for underground assets must be competent to undertake the work. While performing the spotter role, this is to be the sole duty.

1.6 Where the provisions of this SOP require the use of a spotter, the specific work practices shall include the following:

- The *spotter* shall be dedicated to this task at ALL times when an operator is at the controls of the plant item or where the engine/power source is operating.
- The spotter is to be positioned so as to monitor the distance between the operating plant and any asset, including the provision of immediate and direct notice/warning to an operator (ie hand signals, whistle, air horn, hand held two-way communications etc) should the plant or its load start to encroach the prescribed clearance to the asset.
- The name of the spotter is to be listed on the Form 048 completed for the task.

2. Communication Systems

- 2.1 Communications systems must be appropriate for the worksite and the type of work being undertaken.
- 2.2 The system/s must provide for emergency response.
- 2.3 Where the scope of work and the worksite require communication between spotter or safety observer and the operator, a voice communication system is preferable or alternatively, a visual, audible (air horn), radio or buzzer system could be used.
- 2.4 Where an operator platform is fitted, suitable communication devices are to be installed.

3. Safe Systems of Work

- 3.1 A competent Person should undertake the development of a safe system of work (Safe Work Procedure) near over head and underground assets. Development of this system should take into consideration:
 - The type and location of infrastructure, plant and equipment to be utilised.
 - Timing and duration of the scope of work.
 - Designated loading/unloading areas.
 - The permanent or temporary relocation of any infrastructure or assets on or near the worksite.
 - How the principal wishes to construct any building, temporary hoarding, erection of scaffolding or bracing.
 - The relationship to any affected utility services.
 - Competencies of personnel involved.
 - What permission is required?
- 3.2 A detailed plan for the safe system of work should contain:
 - Any additional information attached or added as appendices.
 - A record of services supplying the construction or building site with details of the assets in the vicinity of the worksite.
 - Who is to undertake the work and the type of plant and equipment used?
 - Communication processes and methods.

4. Training

- 4.1 There must be a suitably trained person on site at all times when work is being completed near overhead or underground assets. In most cases this will be the supervisor. This person will be competent in identifying and preparing safe systems of work for overhead and underground services for compliance with the No Go Zone framework. When work is required near overhead and underground assets, only a competent person or an individual under the supervision of a competent person shall undertake the work.

5. First Aid

- 5.1 A first aid kit must be available for a worksite, and shall be maintained and regularly inspected. First aid kits are to contain materials as appropriate to the worksite.

6. Technical Guidance for Plant & Equipment

- 6.1 Operation and maintenance manuals for plant and equipment must be supplied and conform to the current version of the *Occupational Health & Safety Plant Regulations* or *Occupational Health & Safety Regulations 2007* (once introduced).

7. Look Up and Live Stickers

- 7.1 All EGW and Contract Back Hoes, Excavators, Tipper Trucks, and Vehicle Mounted Cranes (VMC) must have a Look Up and Live sticker posted in a visible position in the cabin or at the controls in the case of a Truck Mounted Crane.

8. Traversing/Travelling/Tracking under Powerlines in “non operation” mode

- 8.1 All EGW Back Hoes, Excavators, Tipper Trucks, Truck Mounted Cranes (TMC) can Travel under overhead services if the following is completed:
- All booms/extensions are folded down to their lowest point “transit mode”;
 - The highest point of the plant item is at least 3 metres from the line;
 - It is documented in the HRA&C or Safe Work Procedure for the task.

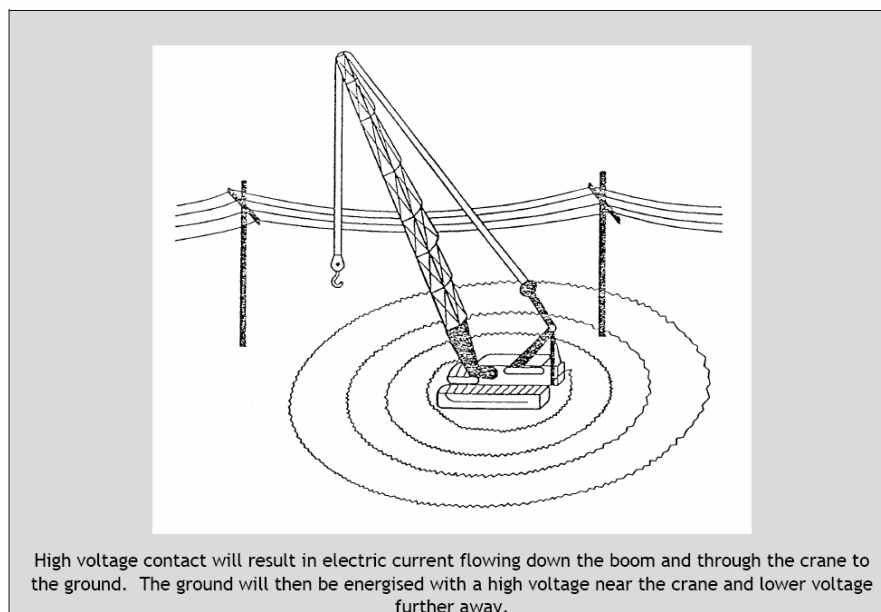
Appendix 4

EMERGENCY PROCEDURES

1. Emergency Procedures (Contact or Arcing with Overhead or Underground Assets)

1.1 Should contact be made with an overhead or underground asset or arcing occurs between a cable and an item of plant and/or employee, the following actions shall be taken:

- All work should cease immediately.
- Operator (or Driver) should remain inside cabin. If it is essential to leave the cab or operator's station due to fire or other life threatening reasons, jump clear of the equipment. Do not touch the equipment and ground at the same time. When moving away from the equipment, the operator should hop slowly, shuffle or jump away from the plant (with feet together) until at least 10 m from the nearest part of the plant item. **Do not Run.**
- **If you fall to the ground**, roll clear. Do not try to get up by pushing off with your hands as the electricity may pass through the arms and legs in contact with the ground causing you to possibly receive an electric shock.
- Warn all other personnel / public to keep 10 m clear from equipment. Do not touch any part of the equipment or load or victim(s) and do not attempt to approach or re-enter the vehicle until the relevant authorities have determined the site is safe.
- Call for emergency assistance on 000 at the earliest opportunity and advise of the situation and await for help.
- Facilitate First Aid treatment and seek medical aid as required without placing yourself in danger.
- Await verification by the power company that the power has been turned off.
- Initiate the emergency management plan.



2. Contact or Damage to Gas Assets

2.1 Should an incident occur involving Gas assets, the following actions should be taken:

- All work should cease immediately.
- Operator is to shut down the plant or equipment UNLESS this process may provide an ignition source for any escaping gas.
- Do not attempt to use any instrument which may provide an ignition source near the gas escape. This may include mobile phones, two way radios, etc.
- Do not attempt to approach or re-enter the vehicle until the relevant authorities have determined the site is safe.
- It is essential to leave the cab or operator station, trench or enclosure and maintain an exclusion perimeter due to the risk of explosion or fire.
- Warn all other personnel / public to keep clear from the worksite and equipment.
- Facilitate First Aid treatment and seek medical aid as required.
- Advise the OHS Unit and request they immediately notify the relevant authorities, including the relevant Gas Distribution Company.
- Initiate the emergency management plan.

3. Incident Reporting

3.1 All incidents involving overhead or underground services must be reported immediately to the supervisor who will initiate reporting action in accordance with EGW SOP 104 – OHS Incident Reporting and Investigation. The OHS Officer or Manager Business Risk and Compliance will notify EnergySafe Victoria and WorkSafe Victoria immediately via telephone and written notification within 5 days using the relevant documentation.