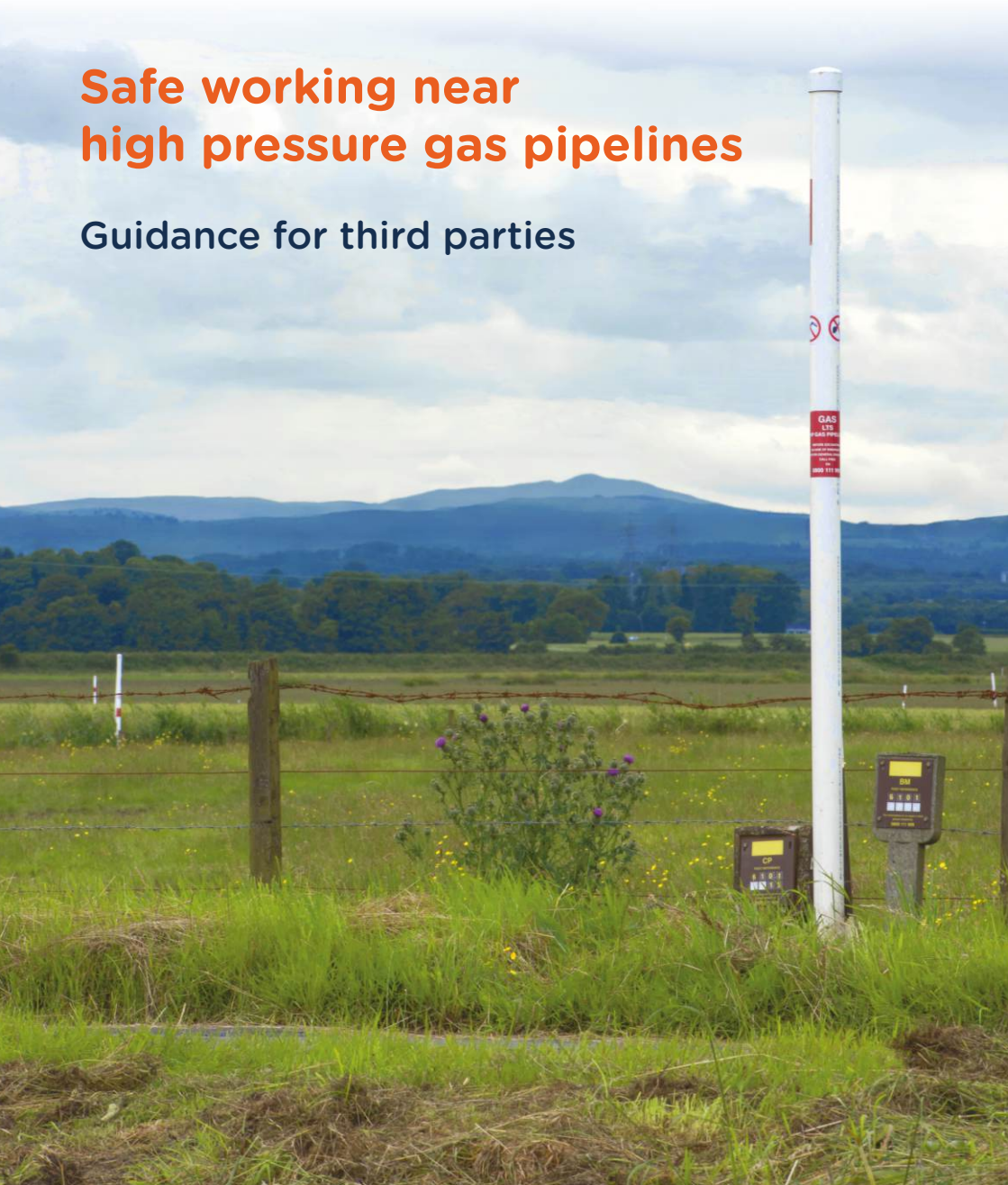
SGN

Your gas. Our network.

Safe working near high pressure gas pipelines

Guidance for third parties



SGN
Caution
Underground Gas Pipe
Hand Dig Only
Gas Escapes
0800-111-999

No:

Legal duties

Pipeline Safety Regulations 1996, regulation 15 states:

'No person shall cause such damage to a pipeline as may give rise to a danger to persons.'

The Health and Safety Executive (HSE) will investigate any incident of damage to a high pressure pipeline. High pressure gas pipelines are defined as Major Accident Hazard Pipelines and it is a criminal offence to damage them.

The HSE guidance document HSG47 'Avoiding danger from underground services' highlights the dangers of working near underground services. The document also places a requirement on all contractors to contact the relevant utility and service providers when work is planned in the vicinity and to adhere to the specific requirement of the pipeline operator when working near pipelines.

Damage to pipelines can result in fatal or severe injury. Adhering to the specific guidance provided by SGN and liaising with SGN's representatives throughout will ensure safe working near pipelines.

Application of SGN/WI/SW/2

Our procedure for safe working in the vicinity of high pressure pipelines is SGN/WI/SW/2, this procedure applies to all excavation work in the vicinity of our high pressure pipelines. The preferred method for excavating in the vicinity of high pressure pipelines is to hand dig. This is to protect all workers in the area from the consequences of any potential excavator strike and to ensure the continued integrity of the pipeline.

There are scenarios in which mechanical excavators can be permitted but approval to use such plant can only be given by one of our Authorising Engineers and is subject to a detailed site-specific risk assessment and method statement detailing each aspect of the works. For any mechanical excavator use in the vicinity of the pipeline, or for the use of any powered hand tools an SGN Permit to Work must be issued.

For any mechanical excavation in the hazard zones an SGN SW/2 Technician **must** be on site to monitor the works at all times. No mechanical excavation is permitted in the hazard zone (see page 4) without the SGN SW/2 Technician being present. Hand excavated trial holes must be completed to prove depth and location of the pipeline prior to any works commencing.

Hazard and danger zones

The hazard and danger zones are established and marked out on site by the SGN SW/2 Technician. These zones are established to protect the pipeline from any unintended damage. Encroaching on these zones can result in damage to a pipeline which can lead to fatal injury.

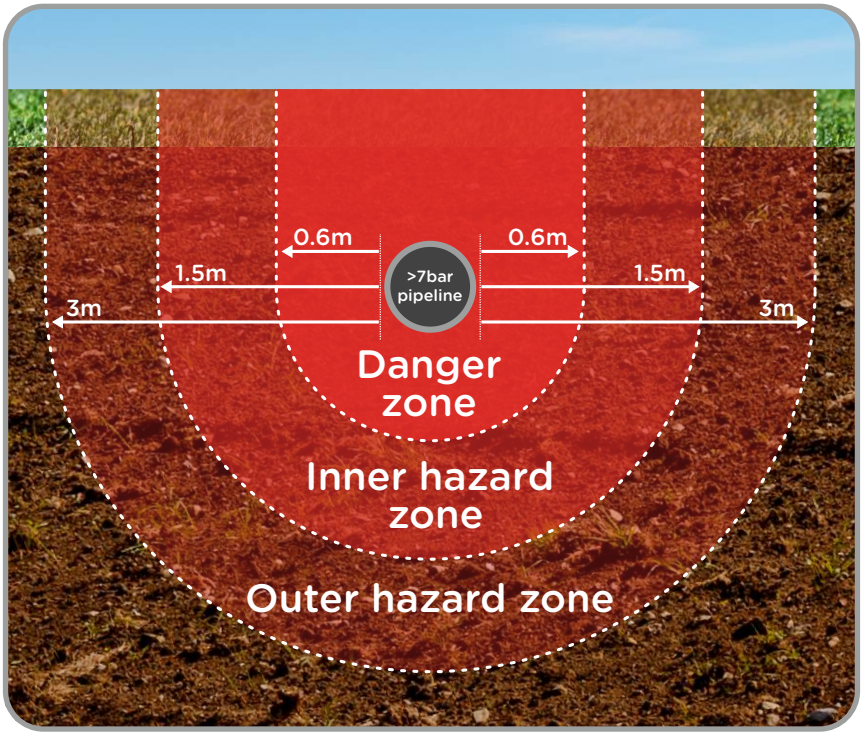


Figure 1. Cross section example hazard and danger zones

The SGN SW/2 Technician will explain these markings and zones to the controller of works (on site) to ensure they are understood prior to planning the works and confirm them to the Nominated Responsible Person/team leader on site before any work begins.

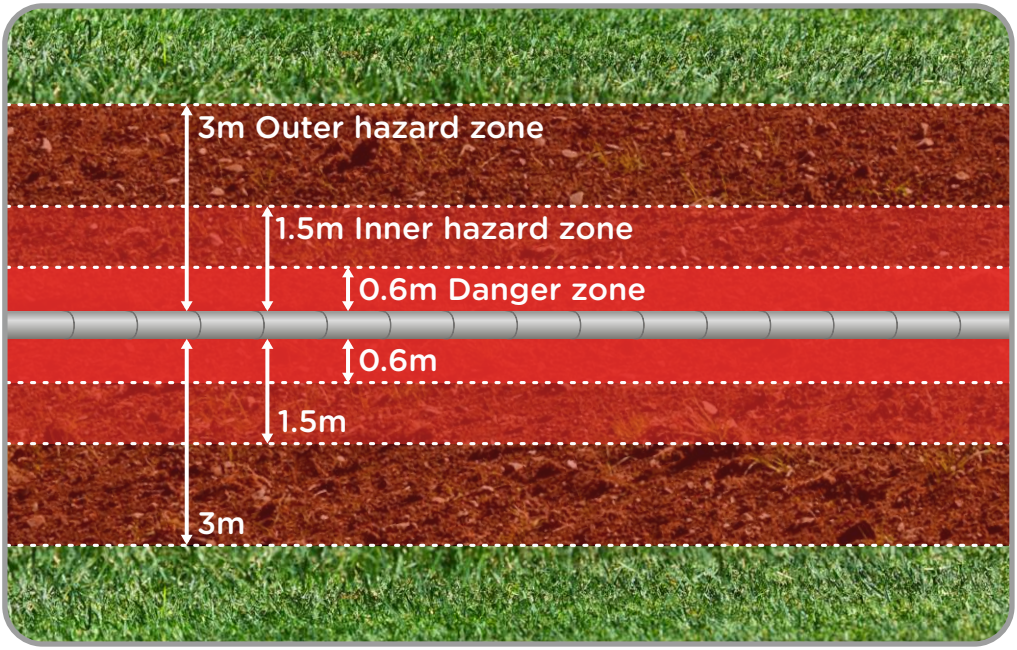


Figure 2. Aerial example of hazard and danger zones

Roles and responsibilities

Who's who and who's responsible for what:

- **SGN SW/2 Technician**
- **Authorising Engineer**
- **Controller of the works**
- **Nominated Responsible Person**

SGN SW/2 Technician

The SGN SW/2 Technician is SGN's representative and primary point of contact on site for anyone planning work near Major Accident Hazard Pipelines, the SGN SW/2 Technician's responsibilities include:

- liaising with those undertaking the works
- ensuring all pipeline records and plans have been obtained
- locating and marking the pipeline
- establishing the 'hazard zones' and 'danger zone'
- monitoring activities in the hazard and danger zones
- stopping the work if the pipeline is at risk

The SGN SW/2 Technician **must** be on site to monitor works during any of the following activities:

- all works requiring a Permit to Work
- excavation of trial holes
- top soil stripping
- use of mechanical excavators in the hazard zones
- use of powered hand tools in the inner hazard zone and danger zone
- use of vacuum excavators in the hazard and danger zones
- use of trenchless technologies in the hazard and danger zones

Authorising Engineer

- an Authorising Engineer is a highly trained and competent engineer, registered on SGN's Safe Control of Operations system, with authority to issue a Permit to Work for activities in proximity to high pressure assets
- reviews risk assessments and method statements for the planned works

Authorising Engineer cont.

- confirms the Nominated Responsible Person fully understands the method statement and Permit to Work
- issues Permit to Work to the Nominated Responsible Person on site
- **cannot authorise** mechanical excavation in the danger zone
- briefs the Nominated Responsible Person and SGN SW/2 Technician on the permitted methods of working
- **must** authorise any change to the method statement or Permit to Work

Controller of works

Representative from the principal contractor or main contractor with overall responsibility for the safe delivery of the planned works, the controller of works responsibilities include:

- providing the method statements to SGN for agreement for the planned works
- ensuring all operatives involved understand the method statements
- ensuring all operatives [including machine operators] are suitably competent and experienced for the roles they are carrying out
- ensuring suitable arrangements are in place for supervision and monitoring of the works (in addition to the role of the SGN SW/2 Technician), including works undertaken by sub-contractors
- nominating a suitable Nominated Responsible Person (if a Permit to Work is required)

Nominated Responsible Person

The Nominated Responsible Person is put forward as the representative of the third party, and approved by SGN, to receive the Permit to Work for the planned activities and with the following responsibilities:

- briefing all workers and machine operators on the safe working practices
- **must** be on site at all times while work is carried out
- **must** be in direct control of the workers and machine operators
- **must** ensure the SGN Permit to Work and agreed method statement is complied with
- **must** ensure SGN's SW/2 procedure is complied with
- **does not** have any authority to deviate or change the agreed method of working

Fittings and standpipes

High pressure gas pipelines have various fittings and connection points which are particularly vulnerable to damage. These fittings protrude from the pipeline and mechanical excavators **must not** be used within a 1.5m radius of fittings and standpipes.

Fittings and standpipes **must** only be excavated by hand excavation. A Permit to Work is required if **powered hand tools** need to be used.

Hand dug trial holes **must** be undertaken to locate and confirm the position of fittings and standpipes if a mechanical excavator is to be used within the hazard zones. An SGN SW/2 Technician **must** be on site when trial holes are dug or when any excavation work is being undertaken near to fittings and standpipes, even if a Permit to Work has been issued.

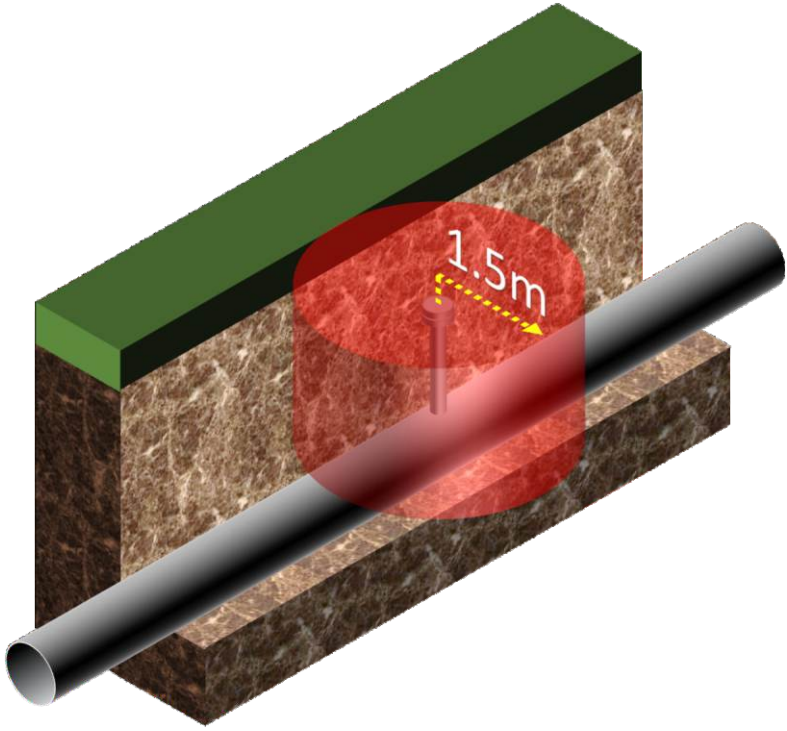


Figure 3. Minimum proximity to fittings

Permits to Work

A Permit to Work is an essential control measure for high risk activities. An SGN Permit to Work is required for the following activities:

- mechanical excavation inside the hazard zones - including backfilling
- use of powered hand tools inside the inner hazard zone and danger zone, including vibro-tampers for backfilling
- use of vacuum excavators in the hazard and danger zones
- any 'trenchless techniques' within, through or under the hazard zones
- any 'hot works' ie welding, cutting, burning within the easement
- highways surface removal in the hazard and danger zones

A Permit to Work **must** be issued:

- on site where the activity will be undertaken
- by an SGN SCO registered Authorising Engineer competent in SW/2 activities
- to the Nominated Responsible Person
- with reference to a site specific method statement

The Authorising Engineer will brief the Nominated Responsible Person and the SGN SW/2 Technician on the Permit to Work and the specific requirements of the works. The SGN SW/2 Technician and Nominated Responsible Person **must** then ensure that all those involved in the works have a clear understanding of their role and responsibilities for the duration of the work.

Pipeline location

The SGN SW/2 Technician will locate and mark the pipeline route and associated zones. Markers will be placed at 3m intervals, at all bends and extend 15m in all directions from the planned excavations site.

The SGN SW/2 Technician will regularly monitor and maintain pipeline markers, especially during the course of longer duration works or works where markers or ground paint are more likely to be disturbed.

If pipeline markers are disturbed the SGN SW/2 Technician **must** be consulted to re-establish the markers in the correct location.

Trial holes

Trial holes are used to confirm the location and depth of a pipeline. If a mechanical excavator is to be used in the hazard zones, trial holes excavations **must** be carried out. All trial holes must be hand excavated. It is the responsibility of the SGN Authorising Engineer to decide how many trial holes are required. All indicated direction and depth changes **must** all be investigated and confirmed with trial holes. All trial holes **must** be monitored by an SGN SW/2 Technician.

If the planned works are outside the hazard zones, trial holes may still be required, it is the decision of the SGN SW/2 Technician to assess the need for trial holes outside the hazard zones.

Site-specific risk assessments

All risk assessments for work near a Major Accident Hazard Pipeline must be site-specific and **must** take into account the following:

- the proximity of the planned works to the pipeline
- the size and types of powered machines
- the activity to be undertaken in close proximity to the pipeline

Risk assessments **must** be regularly reviewed and amended accordingly if:

- site conditions change
- the activity changes
- the operatives involved or the mechanical plant changes
- the works are of long duration

Specific activities

Powered hand tools

A Permit to Work is required when using powered hand tools in the inner hazard zone or the danger zone.

The permissible proximity to the pipe will be specified by the Authorising Engineer.

Top soil stripping

- SGN SW/2 Technician **must** be on site
- applies only to work site areas not discrete excavations
- **must not** be undertaken within 3.0m of fittings/standpipes - the position of these **must** be confirmed by hand excavation
- toothless buckets **must** be used
- Permit to Work is required if a depth greater than 250mm is to be removed

Mechanical excavation

- no mechanical excavation is permitted within the danger zone, with the exception of top soil stripping
- a Permit to Work is required for all mechanical excavation in the hazard zones
- the SGN SW/2 Technician **must** be on site when used in the hazard zones
- **must not** be authorised for use within 1.5m of fittings and standpipes
- **must not** reach over or across the pipeline
- **must not** pull towards the pipeline
- **must** use toothless buckets
- use minimum sized buckets
- a banksman **must** be used at all times

Mechanical assistance

Mechanical assistance is when an excavator is used to assist in removing previously excavated spoil ie hand digging and placing the material into the excavator bucket. This is to aid in excavating without allowing the excavator to intrusively remove spoil. Mechanical assistance can be permitted subject to the following requirements:

- the SGN SW/2 Technician **must** be on site to monitor all works
- a Permit to Work is required within the hazard zones
- the machine **must not** lift over the pipe
- **must not** be used near fittings and standpipes

Vacuum excavators

Vacuum excavators can be used to assist in excavating near Major Accident Hazard Pipelines subject to the following conditions:

- a Permit to Work is required within the hazard and danger zones
- the position and depth of the pipeline **must** first be confirmed hand excavated trial holes
- toothed hoses **must not** be used unless authorised by SGN

Backfilling

The SGN SW/2 Technician **must** be present for all backfilling activities. If any backfilling is carried out without the SGN SW/2 Technician present the pipe must be re-excavated to check for damage.

All backfilling operations must be fully detailed in the method statement for the works, specifically the sequence of works and the plant types to be used. Compaction plant can pose a risk to pipeline integrity and as such a minimum of 600mm of hand placed and hand packed material must be in place prior to any plant being introduced. Only lightweight compaction plant can be used initially, until a total of 900mm of evenly compacted material is in place over the pipeline. The proximity distances are measured from the top most part of the pipeline, including any fittings or connections.

A Permit to Work is required for backfilling works that involve any of the following:

- mechanical excavators assisting in the hazard and danger zones
- hand operated vibro-tampers in the inner hazard and danger zones
- vibrating rollers in the hazard and danger zones
- any lifting operations ie lifting of plant or materials into the excavation

Damage to pipelines

Any damage to a high pressure pipeline or the pipeline coating can affect its integrity and can result in immediate or delayed failure, potentially causing severe or fatal injury.

All damage to a pipeline or a pipeline coating, however minor, **must** be reported to SGN via the SGN Gas Control room (0845 073 7953) **immediately.**

All work on site should **stop immediately** and the work area **must** be evacuated. **No one must approach the site and no one must attempt to stop the leak.**

Contact details

SGN SW/2 _____
Technician name

SGN SW/2 _____
Technician phone number

Gas emergency number: 0800 111 999

Booklet no:

Appendix A

Date _____

I/We (Third party) _____

Hereby acknowledge receipt of the SGN document 'Safe working near high pressure gas pipelines - Guidance for third parties.'

I/we confirm that we have read and understood the terms of the document and understand that non-compliance may result in damage to the pipeline in contravention of the Pipeline Safety Regulations 1996.

I/we confirm that we will contact SGN prior to any works commencing in the vicinity of a pipeline in order to plan and agree working and restrictions.

I/we hereby undertake to comply with all restrictions and advice provided by SGN prior to, during and following all planned works and to keep SGN advised of any changes, alterations or amendments to the planned works.

Signed (Third party)

_____

Full name of signatory (please print)

_____

Address _____

_____

_____

_____

_____

Witness signature

_____

Full name of witness (please print)

_____

Address _____

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Place of signing _____

No:

SGN064N-HP (10/16)