

Gas Standards and Safety

Information Sheet

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A GUIDE TO THE USE OF TRENCHLESS TECHNIQUES WHEN INSTALLING GAS CONSUMER PIPING SYSTEMS

A guidance document for contractors who intend to use trenchless techniques for the installation of plastic gas consumer piping systems not exceeding 200 kPa gas supply pressure.

This guide provides information and sets out the acceptable minimum requirements for installing consumer piping systems using trenchless techniques.

WHAT IS TRENCHLESS TECHNOLOGY?

In the past, trenches have generally been the only way to install underground services. As technology has evolved, so too has the way in which underground services can be installed. Trenchless techniques can now be used for the installation of underground services. However, like all work activities the risks associated with using trenchless technologies need to be identified and eliminated, isolated or controlled.

Trenchless techniques may include:

- guided and unguided thrusting using ramming
- solid displacement and press boring equipment
- dry or fluid boring with or without pilot rods and twist drills.

Arguably the most common type of trenchless technique used in the gas industry today is the last technique listed above, which is generally referred to as Horizontal Directional Drilling or HDD.

HAZARDS

Prior to commencing any trenchless activity you should analyse any site-specific risks associated with the activity to identify any hazards. You should have procedures in place to remove, isolate or control any hazards that are identified.

Some of the hazards to consider are:

- Above and below ground electrical power cables that could cause serious injury or electrocution
- Water, oil, petroleum, air, gas or any other fluid pipes which could transport asphyxiating, toxic, flammable and/or explosive gases or liquids
- Fibre optic cables which carry laser light signals, which could cause serious eye damage

- Telecommunication cables
- Sewage and stormwater lines – these services pose a unique hazard when using trenchless technology. If these assets are not correctly identified prior to construction a gas line could intersect a sewage or stormwater line. Often this is not detected until subsequent maintenance or repair activity on the sewage or stormwater line is performed. This could result in a gas leak or explosion.
- Traffic and pedestrians

PLANNING

Planning is often overlooked, however, it is the most important aspect of completing work safely.

It is imperative for you to identify all hazards before the work is undertaken. Prior to construction, you should thoroughly evaluate the job site for any indications of possible underground hazards. To assist you to identify any underground services, you should contact all of the infrastructure asset owners and the 'Dial Before You Dig' service.

While it's important that you don't limit your planning to the guidance provided in this information sheet, the following are just a few examples of what you should consider:

- Electrical transformers and turrets need to be identified by qualified owner representatives to determine the number, orientation, and depth of lines entering the box. Earth grids should also be checked
- Manholes in the area should be inspected, without entry, to determine the type of infrastructure. Infrastructure owners should be contacted to determine the location and direction of flow and grade. This information can be used to project the depth of the asset prior to using trenchless installation techniques
- Cables and wires attached to poles should be considered live and the owner's representatives contacted
- Water and gas authorities should be contacted to confirm the locations and depths of their infrastructure
- Buildings should be checked to determine if they have electrical wires or other services that may not be marked on any plans
- Outdoor gas appliances, lighting etc. should be identified and services located and confirmed
- Depressions in the landscape or obvious changes in vegetation may indicate previous excavations and should be investigated
- Road repairs may indicate the presence of recently installed or repaired assets
- Marker signs or vent pipes may indicate other underground hazards
- Maximum pull back forces allowable for the material being installed should be considered
- Ground conditions should be checked, including the likelihood of rocks or other objects with the potential to damage the pipe during pull back

CONSTRUCTION

All underground consumer piping installed using trenchless methods must comply with AS/NZS 5601.1 Gas installations. Part 1: General installations.

IDENTIFICATION

When underground piping is installed using trenchless methods, a continuous insulated single core tracer wire along the pipe, terminating above ground at each riser, needs to be installed. Tracer wires should not be electrically connected to a source of electrical current for which they are not designed. 'As Built' drawings need to be recorded and passed on to all relevant parties. Above ground markers such as sign posts and pavers should also be considered.

QUALIFICATIONS / COMPETENCIES

Any person who is involved in operating plant or equipment, supervising or planning works should have undertaken appropriate training relevant to their level of responsibility. This competency-based training should only be delivered by registered training organisations.

REFERENCES

Horizontal Direction Drilling – Good Practices Guideline HDD Consortium, May 2001
AS/NZS 5601.1 Gas Installations
AS/NZS 4645.3 Gas Distribution networks Part 3; Plastic pipe systems

ADDITIONAL INFORMATION

For more information contact:

Consumer, Building and Occupational Services Gas Standards and Safety unit

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Australasian Society for Trenchless Technology

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