



**Guidelines for working safely in the
Close proximity of natural gas pipeline systems**

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This guideline describes measures for safe working in the vicinity of natural gas pipeline systems of TAG. The rules of technology as well as laws and standards apply to this work (e.g. ÖVGW GW 10, EN 1594 and ÖVGW G B300, G B310, G O310, G B430, TE30). Furthermore, the provisions of the Construction Work Coordination Act (BauKG), Federal Law Gazette I No. 37/1999, must be complied with in any case. The document will be revised if necessary. Contractors and consensus promoters are required to apply the latest version.



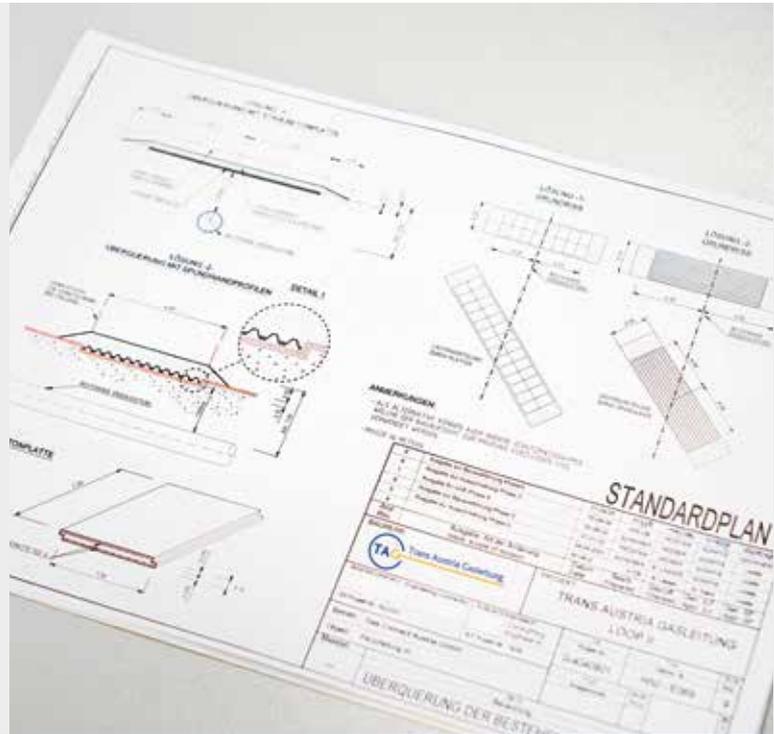
This guide is handed out to third parties who are active in the vicinity of the natural gas pipeline systems of Trans Austria Gasleitung GmbH (TAG) and the managed facilities (e.g. plants of Gas Connect Austria). It includes measures for people who plan and carry out work (engineering office, project manager, site manager, etc.) in order to avoid damage to the natural gas pipelines themselves as well as to plant components.

Any damage to a natural gas pipeline or its corrosion protection sheath could lead directly or indirectly to

serious consequences for people and the environment in the vicinity of the natural gas pipeline. It is therefore essential that the procedures set out here are followed when work is carried out in the vicinity of a natural gas pipeline installation.

If TAG is of the opinion that the work does not meet the requirements listed herein, then the local safety management supervisor of TAG is entitled to stop the work until appropriate measures have been taken.

Workflow Process



When working in the vicinity of TAG's natural gas pipeline installations, the following procedure must be followed:

1. PLANNING

Contact TAG and obtain all detailed information about the situation and the necessary planning documents, technical specifications and safety regulations.



2. FORMAL APPROVAL

Contact TAG for a formal permit to carry out the work.

Attention: The application must be submitted at least seven days before the start of the work!



3. LOCATE AND LABEL NATURAL GAS PIPELINE INSTALLATIONS

Natural gas pipeline installations must be marked by TAG pipeline supervisor before the start of the work in nature.



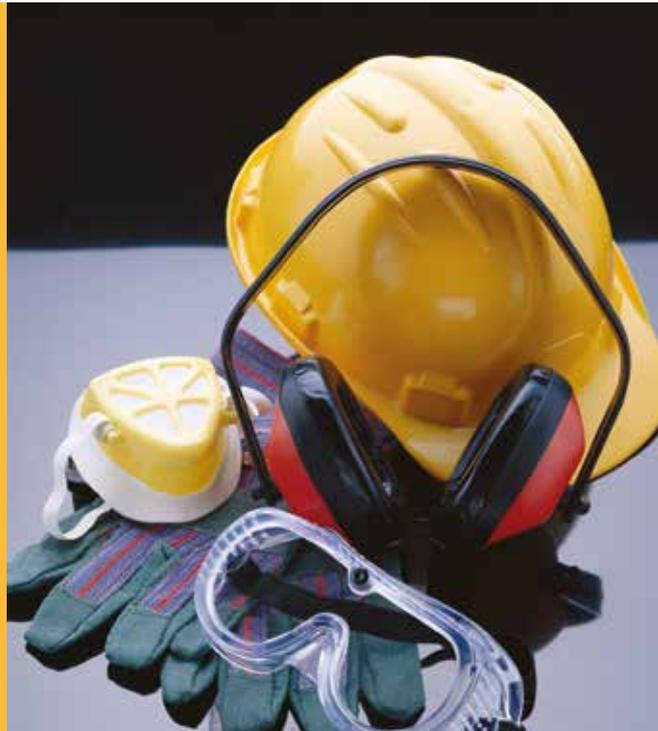
4. ON-SITE RELEASE

When work actually begins, on-site approval must be obtained.



5. COMPLETION NOTIFICATION

1. Planning



1.1 Geodata Request

Before planning begins, it is mandatory to obtain information about installations.

For information about installations from TAG, please contact the following e-mail address:
geodata@taggmbh.at

1.2 Administrative Procedures

TAG, as a resident and beneficiary, is obliged to be invited to official approval procedures.

In the course of the proceedings, TAG will issue a statement on the planned construction project.

1.3 Safety Regulations / Protective measures

All the conditions listed below are only minimum requirements and must be complied with in all circumstances.

If regulations are not complied with or if there is a risk of imminent delay, the safety-related line supervisor of TAG is entitled to stop the work.

All works commissioned by TAG (TAG Projects) are subject to specific safety regulations for contractors (document: „Safety Regulations for Contractors“) or the safety regulations agreed with the company for the project.

The storage of materials and the parking of containers, construction machinery and vehicles within the service strip – even for a short time – is not permitted.

As a matter of principle, the instructions of the supervisory authority of TAG for the protection of natural gas pipeline installations must be complied with immediately in all cases.

The applicant must verifiably secure all areas of the construction site in accordance with the applicable regulations of employee protection and the safety regulations of TAG. The purpose of the TAG pipeline supervision is to ensure the integrity of the natural gas pipeline system. ●



1.3.1 Load balancing as a protective measure

Any load distribution required to protect the natural gas pipeline during the construction work must be constructed in accordance with the standard plans available from TAG. In order to determine whether load balancers are necessary, the affected natural gas pipeline must be exposed by means of an exploratory trench in order to determine the actual depth.

1.3.2 Excavation

All construction work in the servitude strip of the natural gas pipeline may only be carried out under the safety-related pipeline supervision of TAG. The location of the service strip can be found in the respective right-of-way plan.

Excavation work in the servitude strip must be carried out according to the order of the safety-related line supervisor, if necessary also manually. In the case of earthmoving, the prescribed covers of natural gas pipelines must be complied with: at least 1.0 m, not more than 2.0 m. Mechanical digging work is permitted only with toothless excavator buckets.

1.3.2.1 Crossing of natural gas pipelines

Intersections of installations with TAG's natural gas pipelines must be avoided as far as possible.

If the need arises, a clear distance of at least 30 cm must be maintained. Crossings below 45° are to be avoided.

The width of the pipe trench must be minimized in the intersection area. Electrical wires and telecommunications cables are to be laid in a protective conduit in the crossing area of the service strip.

The stability of the natural gas pipeline and the accompanying cable must be maintained. In the case of excavations of natural gas pipelines over 8 m, support must be provided. The accompanying cable must be protected from tensile and bending stress when exposed by means of suspension. The exposed natural gas pipeline and the accompanying cable must be mechanically protected, these protective measures can be seen in the TAG standard plans.

The pipe insulation must be checked for damage. Depending on the insulation, the exposed natural gas pipeline must be tested: for bitumen insulation with at least 10 kV and for PE, PROTEGOL®, IAMSUB and shrink sleeve insulation with at least 20 kV. Any insulation faults found are to be repaired at the expense of the consensus applicant and then accepted by the safety-related line supervisor of TAG.



The crossings of the natural gas pipeline(s) must be measured in the open state and displayed in a coordinative manner.

1.3.3 Construction site traffic

Driving on and crossing the natural gas pipeline with construction vehicles for preparation or in the course of construction work or repairs is only permitted in agreement with the safety-related pipeline supervision of TAG. Construction vehicles may only drive on the route on agricultural land if the natural gas pipelines and the cable are covered with excavator mats or if a backfill is carried out to a minimum cover of 1.5 m.

1.3.4 Backfilling

Before backfilling, the exposed natural gas pipeline must be inspected by TAG and the insulation checked for damage. The backfilling of the natural gas pipeline trench must be carried out in layers of 30 cm under the supervision of TAG. The natural gas pipelines are to be embedded in fine-grained sand.

Compaction by means of vibrating devices or similar, non-static devices (deep compactor, vibratory rollers, etc.) is prohibited in bitumen-insulated

natural gas pipelines. In the case of PE-insulated natural gas pipelines, vibrating rollers ≤ 13 t may be used with a nominal amplitude of 1.0 mm, provided that a minimum distance of 1.0 m to the natural gas pipeline is maintained.

Paved surfaces adjacent to the service strip must be designed in such a way that surface water cannot seep into the said service strip. No building materials may be buried within the servitude area.

Pipeline markings (markers, clot stones, etc.) removed during the construction work must be relocated to the same locations after recultivation. Exception: A different location is expressly specified, which is to be measured coordinatively. In the case of markets with measuring points, the measuring cables must be exposed, rerouted and routed into the measuring box.

Acceptance protocols must be drawn up for proper restoration.

If the installations have been backfilled without the presence of TAG, they must be uncovered again at the expense of the consensus applicant so that proper execution can be checked.

1.3.5 Cathodic corrosion protection

The natural gas pipelines are cathodically protected against external corrosion. The planned project must not affect the cathodic protection system of the natural gas pipelines. There is a possibility that the respective gas pipes are electrically influenced. For this reason, attention must be paid to the measures of contact protection. Details can be found in the TE30 Technical Recommendation, among others. The applicant must take appropriate protective measures in coordination with TAG.

1.3.6 Special activities

This section describes arrangements for carrying out special activities in the vicinity of the natural gas pipeline. Contact TAG if you would like to carry out any of the listed activities or if you need more information about possible impacts.

The following table indicates the prescribed distance for some activities. At a minimum, these guidelines must be complied with. Exception: If the guideline values are not met, agreement must be reached with TAG (approval) and appropriate safety measures must be agreed upon (expert opinions, measurements during construction, etc.).

Activity	Distance
Pressure tests on natural gas pipelines	6 m
Pile driving	15 m
Opencast mining	100 m
Landfill	100 m
Underground mining	1.000 m
Blasting	250 m
Construction of wind turbines	total height + 10 %

1.3.6.1 Trenchless techniques

In the case of trenchless techniques, an implementation description must be submitted to TAG for approval. TAG reserves the right that these activities may only be carried out in the presence of the TAG management supervisor. Therefore, it is necessary to announce the start of work at least seven days in advance.

1.3.6.2 Change in the level of coverage

In the event of an absolute overlap of more than 2 m above the natural gas pipelines, a static proof in the form of an expert opinion from an independent civil engineer or an accredited testing body must be submitted. Furthermore, all maintenance and repair activities of the operator must be taken into account in the report.



According to ÖVGW GE100 and EN1594, the minimum cover of the natural gas pipeline must generally be 1.0 m. If the absolute cover is reduced to less than 1.0 m, an opinion from an independent expert must be submitted to the licensing authority.

1.3.6.3 Pile driving

During the felling (ramming) of sheet piles and the construction of horizontal boreholes by means of the pile driving method, the natural gas pipelines are exposed to dynamic stress due to vibrations. Since the actual load on natural gas pipelines is essentially determined by the nature of the soil and the processes and equipment used, an expert opinion must be prepared by an independent expert if the natural gas pipeline is approached to a depth of less than 15 m.

1.3.6.4 Blasting

The same conditions apply to blasting and demolition work as to point 1.3.6.3. If the natural gas pipeline is approached at a distance of less than 250 m, an expert opinion must be obtained from an independent expert.

1.3.6.5 Open pit mining

The extraction of minerals in opencast mining must be negotiated in accordance with the applicable laws (MinroG). In the case of construction projects requiring approval, an official expert must assess the effects on the natural gas pipeline during the hearing and issue an appropriate opinion. This applies to all open-cast mining activities within a radius of 100 m of the natural gas pipeline system.

The stable angle of approach must be established in accordance with the applicable standards and laws. The service limits of the natural gas pipeline are to be marked by means of viewing bars in accordance with the standard plans.

1.3.6.6 Landfill

In principle, the construction of landfills must be approved in accordance with the applicable legal requirements. An expert has to assess the effects on the natural gas pipeline and give an appropriate opinion. This applies to all landfills within a radius of up to 100 m from the natural gas pipeline system.



1.3.6.7 Construction of wind power and Photovoltaic systems

For the erection of wind turbines, an opinion of a mechanical engineering expert must be obtained at the hearing. According to ÖVGW G B430, the distance to underground gas pipelines is defined as the total height of the wind turbine + 10%. In the case of surface natural gas installations, the influencing distances between gas pipelines and wind turbines as set out in Table 2 and Table 3 shall be observed. It is not possible to fall below these distances.

For the installation of photovoltaic systems in the vicinity of a natural gas pipeline system of TAG, an opinion of an independent electrical expert must be obtained and transmitted to TAG without being asked to do so before the project is implemented.

No system components of a photovoltaic system may be installed within the service strip of the natural gas pipelines. The measures according to ÖVGW G B430 must at least be complied with. If necessary, additional measures will be specified by TAG.

1.3.6.8 Underground Mining

The mining of minerals in underground mining must be negotiated in accordance with the applicable laws (MinroG).

An expert has to assess the effects on the natural gas pipeline and give an appropriate opinion. This applies to all underground mining activities within a radius of 1,000 m from the natural gas pipeline facility.

1.3.6.9 Pressure tests

Water pressure tests on natural gas pipelines from third parties are not permitted within a distance of 6 m from the natural gas pipeline (risk of pipe burst!). Where it is not possible to comply with this distance, measures for the protection of the natural gas pipeline must be determined: together with TAG and with the help of a mechanical engineering expert.

1.3.6.10 Seismic surveys

During seismic explorations, the natural gas pipelines are exposed to dynamic vibrations. The actual load on the natural gas pipeline is essentially determined by the soil conditions as well as the processes and equipment used. In order to protect the installations, TAG must be provided with appropriate proof from an expert that the activities cannot cause any damage to the natural gas pipelines. ●

2. Formal Approval



The natural gas pipeline was laid within a service strip acquired from TAG. Normal agricultural activities do not affect the safety of the natural gas pipeline. Other work in the service of the natural gas pipeline may only be carried out with the formal consent of TAG.

This work is subject to an agreement between the Consensus Applicant and TAG as well as supervision by the TAG management supervisory authority.

Prior to commencing the work, the Consent Applicant must submit all the relevant details to TAG. These are, for example, plans, descriptions of working methods and equipment used, schedules, etc. The activities may only be carried out after formal approval by TAG.

The operation of the natural gas pipeline installations must not be hindered during the activities. Access to the natural gas pipelines must be possible at all times. ●

3. Seeking out and marking of natural gas pipelines

For activities in the servicing area of the natural gas pipeline system of TAG, the line axis and the exact location of the accompanying cable must be searched for and marked by the TAG line supervisor. If necessary, search slots must be dug manually before construction begins to determine the exact location and coverage of the natural gas pipeline and the accompanying cables. This is done at the applicant's expense and in the presence of the safety-related line supervisor of TAG.

3.1 Labelling of natural gas Pipelinesystems

All natural gas pipelines and the communication/ fiber optic cable must be clearly marked by hammered-in stakes. The search for the natural gas pipelines and the cable is carried out with pipe detectors.

At least four stakes must be driven in the direction of the natural gas pipeline for each natural gas pipeline installation. This also applies to the message cable. The outer pegs shall be labelled for each natural gas pipeline installation (yellow pegs) or communication cable (blue pegs).



If this work close to the natural gas pipeline does not begin immediately after the stakes, the correct position of these pegs must be checked by the TAG pipeline supervisor: either with a pipe detector or by re-measuring when the pegs have been measured.

3.2 Marking for large-scale projects

Large-scale projects include: projects that involve a parallel route over a length of at least 500 m with a distance of up to 10 m from the natural gas pipeline, as well as the laying of natural gas pipelines greater than DN500 or the burial of a high-voltage line greater than 1 kV or the laying of water or wastewater gas pipelines greater than DN500.

3.2.1 Marking of hazardous areas

In the case of parallel routes with the natural gas pipeline installations, the working strip must be separated from the danger zone. To do this, use red signal poles about 2 m long. These signal poles are used for the visual protection of the existing systems and are placed on the service limit as follows: every 30 m on straights, every 7 m in curves.

Working inside the danger zone

In hazardous areas where work is absolutely necessary (e.g. at crossings), boards must be placed at the beginning and at the end with the text

„ATTENTION DANGER ZONE Work prohibited without the presence of TAG line supervision“ and the contact of the responsible Competence Center.

3.2.2 Marking of crossings

Crossings over natural gas pipelines shall be marked with blue signs bearing the words „Authorised crossing“. The organisation and installation of the panels is the responsibility of third parties. In addition, the boundary must be marked with a PVC construction fence (plastic mesh fence). In other places, crossing the service strip is not permitted. In the case of permitted crossings, there must be a loadable cover of at least 1.5 m. If the overlap is smaller, the crossing must be designed with appropriate load distributors (excavator mattresses).

All safety equipment (signal poles, crossings, markings, etc.) must always be kept in proper condition or repaired in the event of damage. ●

4. On-site release



After formal approval, compliance with the TAG safety regulations for securing the natural gas pipeline system and the marking of the natural gas pipeline system in nature, the work on site may be approved by the safety-related pipeline supervision of TAG.

When carrying out the work, it is essential to follow all safety regulations and protective measures specified in the design. ●

5. Completion Notification

After completion of the work, a written notification of completion must be sent to TAG. This must include:

- As-Built documentation
(Measurement of the fixtures by geometers)
- Test certificate ●

6. Measures to be taken in the following Damage to Natural gas pipeline installations



In the event of damage to natural gas pipeline systems (even without a gas leak), the following precautions must be taken immediately:

- **Immediately shut down all equipment and machinery and eliminate all potential sources of ignition.**
- **All persons within a radius of 100 m from the Evacuate the natural gas pipeline (see guideline E-07 „Deployment in the event of an uncontrolled natural gas leak“ of the Austrian Federal Fire Brigade Association).**
- **Inform TAG via the emergency number:**
0 800 808 128
- **Do not initiate any safety and repair measures without the presence of TAG.**
- **All instructions given by TAG must be followed.**

Definitions

Servitude

Servitude are rights in rem between TAG and land-owners. They allow TAG to install, operate and maintain natural gas pipeline systems within the servitude strip. Details about the dimensions of the service strip can be obtained from TAG.

Standard Plans

Standard plans are plans that have been prepared for technical specifications and are available for inspection at TAG at any time.

PE insulation

Polyethylene insulation

ÖVGW

Austrian Association for Gas and Gas Water compartment

MinroG

Mineral Resources Act

24h-Emergency Call Center

Phone: 0 800 808 128

EMERGENCY NUMBERS IN GENERAL

- Euro Emergency Call 112
- Fire brigade 122
- Police 133
- Rescue 144

WHAT INFORMATION IS REQUIRED?

- Caller's name
- Location of the event
- What happened?



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