



## TECHNICAL CONDITIONS

for works and activities in objects, hazardous spaces,  
protective and safety zones  
and in the vicinity of lines and networks administered by RWE Gas Storage, s.r.o.

Print No.:

Intended for:

Date of Assignment:

	Drawn-up by:	Reviewed by:	Approved by: Head of Asset Operation
Name:	Horký Jiří	Ing. Zaňát Josef	Ing. Blažej Radim
Signature:			
Date:			

## Table of Content:

1.	Purpose	4
2.	Terminology	4
2.1.	Abbreviations and Symbols	4
2.2.	Terms and Definitions	5
3	Scope of Applicability	7
4	Responsibility and Powers	7
5.	Technical Conditions for Works and Activities	8
5.1	General Provisions	8
5.2	Special Provisions	10
5.3	Instructions for earthworks execution within protective zones, objects, in the vicinity of PTN RWE TGN and in protective zones of telecommunication lines	12
5.4	Lifting of Objects	13
5.5	Instructions for Insulation Repairs	13
5.6	Instructions for Work on Electrical Equipment	14
5.6.1	Rules for works, securing, and transfer of workplace on LV equipment.	14
5.6.2	Equipment commissioning	15
5.7	Instructions for works in premises with explosion hazard, protective zones, and in premises with increased fire hazard.	15
5.8	Instructions for works with open fire pursuant to Regulation No. 87/2000 Coll.	16
6.	References	16
7.	Appendices	17

## 1. PURPOSE:

This document details and specifies the technical and safety conditions stipulated by both general legal and technical regulations applicable to works and activities performed in hazardous spaces, objects, protective and safety zones of RWE GS, and in the vicinity of the own telecommunication network relating to execution of works and activities while assuring maximum safety of all involved persons and safety of all affected equipment.

RWE GS performs mining activities ZZZK on underground gas storages. As a part of these activities, RWE GS operates gas equipment and its own telecommunication network.

## 2 TERMINOLOGY

### 2.1 ABBREVIATIONS AND SYMBOLS

OSH	Occupational Safety and Health.
SZ	Safety zone.
CE	Mark on an equipment proving its compliance with EU standards.
ČBÚ	Czech mining office
DMV (LEL, UEG)	Lower explosion limit of gas.
DK	Metallic long-distance telecommunication cable.
DOK	Long-distance fibre cable.
PPE	Personal protective equipment.
OP DK+DOK	Protective zone of long distance metallic and fibre line.
OZO	Responsible employee of the customer.
OZP	Responsible employee of the UGS operator.
OZZ	Responsible employee of the contractor.
IF	Fire protection.
RWE GS	RWE Gas Storage, s.r.o., (Business ID No. 278 92 077)
ZONE	Area with explosion hazard.
ZZZK	Special intervention into the earth crust
TR	Technical conditions for works and activities in objects, hazardous spaces, protective and safety zones and in the vicinity of networks and lines administered by RWE GS
PTN	Proprietary telecommunication network.

## 2.2 TERMS AND DEFINITIONS:

Hazardous premises of RWE GS (premises subject to these technical conditions) comprise:

- protective zones of gas equipment, including equipment or systems assuring management, securing, and transmission of information about activities of individual equipment and of the gas system as whole (Section 2 (2-b)) and Section 68 of Act No. 458/2000 Coll., as amended, (in particular Act No. 158/2009 Coll., dated May 7, 2009),
- premises classified as "hazardous" pursuant to the provisions of ČSN EN 60079-10 and Section 81 of ČBÚ Regulation No. 239/98 Coll., i.e., in an explosive atmosphere is or can be present; dimensions and sizes of hazardous premises are specified in operational documentation.
- protected areas (proximity) of electrical equipment (ČSN EN 50110-1, as amended and subsequently corrected),
- premises where activities with increased and high fire hazard are carried out, including premises where such activities are carried out temporarily, for example during equipment maintenance or repairs (Section 4 of Act No. 133/1985 Coll., as amended),

Hazardous space is a limited space determined as a specific place for work on gas equipment within the safety zone pursuant to the provisions of Section 69 of Act No. 458/2000 Coll., as amended, if persons or property (objects, vegetation, forests, etc.) are located within. In this case, it is necessary that unauthorized persons leave the hazardous space and other persons who can not leave, as well as property owners, are notified of the works in advance and are informed in advance about possible risks, signals in the event of any threat, and with protection methods equally as in the event of other hazardous spaces of RWE GS.

Hazardous premises subject to these technical conditions can comprise even other premises designated as hazardous in a contract for work, minutes on workplace handover, or in any other binding document.

Note: It is prohibited to use mobile telephones, radio transmitters and other equipment except those of "EX" design in the premises classified as hazardous pursuant to the provisions of ČSN EN 60079-10 (as amended and subsequently corrected).

**Safety zone (SZ)** Pursuant to the provisions of Section 69 (2) of Act No. 458/2000 Coll., as amended, the space is delimited by horizontal distance from the ground plan of the gas equipment measured perpendicularly to its perimeter. SZ are determined to prevent or mitigate effects of possible gas equipment accidents and to protect lives, health, and property of persons. Size of the safety zone is defined in amendment to the Energy Act (158/2009 Coll.) Underground storages (from fencing) except separately located wells 250 m, for VHP pipelines as follows: up to DN 100 80 m, between DN 100 and DN 500 120 m, over DN 500 160 m.

UGS wells from their orifice with pressure below 100 bar - 80 m, with pressure over 100 bar - 150 m.

**Lower explosion limit** Lower limit of gas concentration in air (indicated as volume percentage), during which the mixture of gas and air starts to explode (designated as DMV, SMV, LEL or UEG). Pursuant to the provisions of ČSN EN 61779-1 as amended and subsequently corrected.

**Environment** Characteristics of the surroundings (space or its part) determined by the surroundings as such or by objects, equipment, etc. located therein.

**Non-explosive equipment** Electrical equipment, which can be permanently installed or used without need for special fire-safety regulations in the area with explosion hazard in the hazardous space (designated as "EX", "E EX").

Object of RWE GS	Part of the storage system up to the section valve of the transmission system, transfer and regulation station of RWE DS, central area with the technology, collection centers, and UGS wells.
Gas equipment outage	Condition of a technological equipment within operating area of UGS, which reduces or resets the available capacity of UGS.
Protective zone	Pursuant to the provisions of Section 68 (2) of Act No. 458/2000 Coll., as amended, is a continuous space in direct vicinity of gas equipment delimited by vertical planes situated in horizontal distance from its perimeter, and intended for securing its safe and reliable operation.
DK + DOK protective zone	Protective zone of a long distance metallic or optical telecommunication cable pursuant to the provisions of Section 102 of Act No. 127/2005 Coll., on electronic communications, as amended.
Fixed closure	Method of electrical equipment securing for use in hazardous space (designated with "d").
Authorized employee	Managing employee (employee of RWE GS) authorized in writing by head of UGS operation to issue (sign) "Order" for work on live electrical equipment, "B" order, order for work with increased hazard, etc.
Workplace	All premises and locations where employees are working, and which are subject to direct and/or indirect supervision by the employer.
Permanent supervision	Continuous monitoring of work activities carried by employees and condition of the workplace, when the appointed employee may not leave the employees and may not do anything else except the supervision (see Section 14 (2) of Regulation No. 239/98 Coll.)
Size of DK+DOK PZ	Determined pursuant to the provisions of Section 102 (2) of Act No. 127/2005 Coll., as amended, and corresponds to 1.5 meters to the side from outer lines.
Proprietary telecommunication network	Network intended for management, metering, securing, and automation of gas system operation and for transmission of information for IT and computing equipment operation pursuant to the provisions of Act No. 458/2000 Coll., as amended, Section 58, (1)(c), and Section 60 (1)(a).
Secure design	Method of electrical equipment securing for use in hazardous space (designated with "e")
Zone 0	Area with high explosion hazard – areas with permanent or frequent occurrence of hazardous concentration of flammable gases, i.e., concentrations exceeding 50 % of the lower explosion limit; this space is designated as "SNV 3" or "Zone O",
Zone 1	Area with increased explosion hazard – areas where hazardous concentration of flammable gases can occur even under normal operating conditions, however, its permanent or frequent occurrence is not expected; this space is designated as "SNV 2" or "Zone 1",
Zone 2	Area with explosion hazard – areas where hazardous concentration of flammable gases can occur only for a short time or under abnormal operating conditions; this space is designated as "SNV 1" or "Zone 2",
Protective space	Pursuant to the provisions of Section 81 (1)(d) of ČBÚ Regulation No. 239/98 Coll., as amended, specified wherever hazardous concentrations of flammable gases can form only for a short time and under exceptional or

unusual operating conditions or situations, for example in the event of a technological equipment accident.

### 3 SCOPE OF APPLICATION

Technical and safety conditions pursuant to the provisions of Item 1 (hereinafter referred to only as the "TC") are binding for all employees of RWE GS within the scope of work assignment and job description, as well as for employees of external organizations and for natural persons performing works on the groundwork of contractual or other relationships.

In individual especially justified cases, mainly in unforeseen or for any other reason occurring non-standard situations, the head of UGS operation (general superintendent) can permit a temporary exception from these TC – such exception being subject of approval by the operations manager.

A prerequisite for permitting the exception shall be the determination and implementation of such alternative measures, which will in given situation ensure maximal level of safety for RWE GS employees and other persons, as well as protection of objects and other facilities.

TC shall be also binding for the employees of other companies within the RWE CZ group.

### 4 RESPONSIBILITY AND POWERS

- 4.1 Employees assigned to the particular action shall be responsible for compliance with the TC:
- responsible employee of the customer (OZO) – in the event of capital projects (for example construction of new equipment),
  - responsible employee of the operator (OZP) – in the event of operation related projects (for example repairs of existing equipment),
  - responsible employee of the contractor or supplier (OZZ),
- 4.2 All involved employees of the contractor (supplier) must be demonstrably trained in safety and fire regulations, regime measures, relevant part of the emergency plan, these TC, and must be aware of the risks relating to performed activities. This awareness will be established by OZO or OZP.
- 4.3 Operating documentation must be prepared for works with increased hazard, including works in hazardous premises; this documentation will specify the procedure and sequence or parallel execution of work operations, conditions for safe execution of the work (for example management assurance), endangered areas, means and instrumentation for occupational and operational safety assurance. Operating documentation is approved by UGS general superintendent.
- operational documentation comprises the work order and operational or technological procedure. responsibility for correctness of the work order and/or working or technological procedure, where fire safety and occupational health and safety conditions must be also stipulated, shall be borne by the author of such documentation – authorized employee,
  - the persons involved must be informed about the work order, work procedure, or technological procedure, and about risks resulting from or relating to the activities on the particular equipment, workplace, or space no later than prior to the commencement with the works. Appointed works manager will be responsible for providing this information.
  - in case of construction and/or erection works performed by contractors or in the case of works requested by the UGS general superintendent, the equipment and/or workplace will be officially transferred between OZP or OZO and OZZ. From the moment of workplace handover, OZZ shall be responsible for compliance with all provisions of the TC, specified safety and fire measures, and for compliance with working or technological procedures. This does not foreclose the possibility of action verification by RWE GS.
  - in the event of any complications, the OZZ will request necessary assistance through OZP.
- 4.4 Opinions and positions within the meaning of Act No. 458/2000 Coll., as amended (the Energy Act), regarding individual actions of external entities interfering with protective or

safety zones of objects and facilities of RWE GS and the vicinity of the proprietary telecommunication network shall be drawn-up on behalf of RWE GS by the authorized representative of the organization (possibly in cooperation with other professional departments of RWE GS and UGS operation). Implementation of the conditions stipulated in the RWE GS' opinion (locating the underground equipment, professional supervision, etc.) shall be ensured for the applicant by individual UGS operations after handover from RWE GS Prague. Central registration of all opinions and positions on behalf of RWE GS is maintained and processed by appointed employee of RWE GS in Prague. If any work is carried out in protective or safety zone of RWE GS by an external entity without written opinion of RWE GS, the responsible employee of the particular UGS operation will issue "Record on Intervention into Protective/Safety Zone of RWE GS", discontinue further works, and order negotiation of application with RWE GS in Prague.

- 4.5 Supporting documents for opinion presentation and positions pursuant to the provisions of Act No. 458/2000 Coll., as amended, regarding individual actions considered in centers and in central areas of UGS will be drawn-up by relevant UGS operations on behalf of RWE GS; the earlier shall also verify compliance with the conditions of the opinion.
- 4.6 Opinions and positions pursuant to the provisions of Act No. 127/2005 Coll., on electronic communications, as amended, regarding individual actions of external entities interfering with the protective zone of DK and DOK on behalf of RWE GS shall be drawn-up by appointed person of UGS operation. Should an applicant ask only for issue of supporting documents for preparation of a next phase of design documentation, the opinions and positions pursuant to the provisions of Act No. 127/2005 Coll., on electronic communications, as amended, regarding individual actions of external entities interfering with the protective zone of DK and DOK shall be drawn-up by RWE GS in Prague.

## 5 TECHNICAL CONDITIONS FOR WORKS AND ACTIVITIES:

### 5.1 GENERAL PROVISIONS

- 5.1.1 Employees and contractors carrying out the works in hazardous premises, in objects of RWE GS, in protective and safety zones, or in the vicinity of PTN must comply in particular with relevant provisions of the following regulations:
- a) Act No. 458/2000 Coll., as amended, (Energy Act)
  - b) Act No. 61/1988 Coll. on mining activities, explosives and the state mining administration, as amended
  - c) Act No. 262/2006 Coll., Labor Code, as amended
  - d) Act No. 309/2006 Coll., on further conditions relating to occupational and health safety assurance, as amended
  - e) Government Decree No. 591/2006 Coll., as amended, on more detailed minimal requirements on occupational and health safety at construction sites,
  - f) ČBÚ Regulation No. 239/1998 Coll., as amended, on occupational health and safety and operating safety during crude oil and natural gas production and treatment and during boring, geophysical, works, and on amendment to certain regulations relating to occupational and health safety and operational safety assurance during mining activities and activities carried out using mining methods (subject to ČBÚ supervision),
  - g) ČBÚ Regulation No. 74/2002 Coll. on reserved electrical equipment;
  - h) ČBÚ Regulation No. 75/2002 Coll. on operating safety of electrical technical equipment used in mining activities and activities carried out by mining methods.
  - i) ČBÚ Regulation No. 202/1995 Coll., on requirements regarding occupational health and safety assurance during operation and work on electrical equipment in mining activities and activities carried out by mining methods
  - j) ČBÚ Regulation No. 392/2003 Coll., as amended, on technical equipment operating safety and on requirements regarding dedicated technical pressure, lifting, and gas equipment during mining activities and activities carried out using mining methods.



- k) Act No. 127/2005 Coll. on electronic communications, as amended,
  - l) Regulation No. 87/2000 Coll. determining the conditions of fire safety during welding and heating of bitumen in melting vessels
  - m) Technical rules for gas industry (TPG) registered at the Economic Chamber of the Czech Republic (for example TPG 905 01, "Basic requirements on gas equipment operational safety")
- 5.1.2 The contractor (supplier) shall appoint its responsible employees who shall be in contact with OZO or OZP with the aim of identifying operative solutions for issues encountered during works execution.
  - 5.1.3 For works which interfere with or might endanger operation of the RWE GS' gas system, it is necessary to draw-up and approve a technical-organizational project assurance (TOZA) or an implementing design approved by the operation general superintendent.
  - 5.1.4 Construction and/or erection works within the protective zone of the gas pipeline, in objects of RWE GS and in the vicinity of PTN RWE GS must be negotiated with the UGS operator (customer), who will determine necessary conditions, issue written permit, and arrange for supervision (if specified or required with regard to the situation).
  - 5.1.5 Authorized managing employees and safety technician will be authorized and obliged to immediately discontinue any and all works should they find that the regulations and conditions applicable to such works are not complied with, or should they find any circumstances posing threat to health, lives, or safety of employees.
  - 5.1.6 Construction and erection works must be managed by responsible appointed representative of the contractor.
  - 5.1.7 It is necessary to respect the local signage and to use specified PPE (hard hats, etc.) in objects of RWE GS. Movement around the areas is allowed over dedicated paths only.
  - 5.1.8 Entry barriers and existing fencing may not be damaged between the times of workplace acceptance and returning. Should temporary removal of these access prevention measures become necessary, the organization requesting the removal shall ensure security guard for the agreed temporary period of time and it will agree the method of removal and securing with OZP.
  - 5.1.9 Any usage of open fire in objects of RWE GS without a special permit is strictly prohibited (see Section 5.8).
  - 5.1.10 Employees of contractors (suppliers) are prohibited to carry out any manipulation with UGS technological equipment unless such works are covered by issued work permit.
  - 5.1.11 Movement of all vehicles must take place exclusively out of the gas pipeline axis. Should there be any need to cross an operated pipeline PTN cables, and/or telecommunication lines, it is strictly necessary to consolidate the area for example with road panels or with another suitable way approved by the operator. Movement of vehicles and mechanisms outside paved roads must be approved by the operator who will specify potential further conditions.
  - 5.1.12 The entire workplace must be put into proper condition after works completion (cleanup, etc.).
  - 5.1.13 Any and each damage to any equipment shall be immediately reported to the operator or to the customer. Damage must be recorded (written record is required), stipulating the method and party responsible for relevant measures and repairs. The record will be issued by relevant UGS operation.
  - 5.1.14 Each and every damage of telecommunication lines and equipment of RWE GS shall be immediately reported to the operator. A record must be drawn-up on any damage.
  - 5.1.15 It is prohibited to bring any alcoholic beverages and/or any other addictive substances into the premises and/or workplaces and to consume such substances during work.
  - 5.1.16 Smoking outside premises stipulated by the operator is prohibited in objects and workplaces, even in cases when open fire usage for works and activities is possible according to relevant issued order.
  - 5.1.17 PPE usage in hazardous premises, objects, and in protective zones of RWE GS shall be governed by relevant internal regulations of RWE GS.
  - 5.1.18 Used PPE must be of approved type (compliance statement for relevant supplied PPE and risk), with valid usage term, with necessary protective characteristics, and in usable condition.
  - 5.1.19 When working and performing activities in RWE GS' objects, equipment, and technological units, during works in heights and in excavations, all employees shall be obliged to use a

hard hat (except welders and their assistants using welders' helmets); hearing protection shall be used in noisy environments.

- 5.1.20 When works are performed in the premises with explosion hazard, any PPE used (in particular clothing and shoes) must be of such type, which will prevent initiation of hazardous atmosphere (compliance statement must be provided, PPE must be CE designated).
- 5.1.21 During the works in premises with explosion hazard, when the integrity of the gas equipment is compromised, both employees and contractors must be (as a minimum) equipped with antistatic working clothing with reduced flammability and with antistatic working shoes.
- 5.1.22 Other PPE will be determined by analysis of risks of the performed works.
- 5.1.23 Usage of appropriate PPE by superiors shall be determined and checked by relevant managers within the scope of their powers.

## 5.2 SPECIAL PROVISIONS:

As regards other internal regulations and orders prepared in relation to state or industry regulations, the following provisions must be observed by supplier organizations performing the works:

- 5.2.1. All employees of supplier organizations (contractors) working in the premises of RWE GS shall be recorded and their list must be deposited at the gate house of the particular object (facility). When working or performing any kind of activities within the objects of RWE GS, all employees must be visibly designated with logo of their employer.
- 5.2.2. Before commencing with the works, the contractors must be informed about the following in required extent
  - determination of access routes and premises for contractor's activities
  - prohibited activities.
  - requirements on equipment and usage of PPE.
  - measures to be taken in the event of work injury, means, organization, and assurance of first aid.
  - activities in the case of an extraordinary situation – accident (emergency plan), instructions regarding fire fighting and evacuation of persons,
  - meaning of signals used,
  - conditions for works and activities at workplaces under the responsibility of RWE GS with regard to contractor's activities
  - other previously unspecified information required for contractor's activities
  - risks at RWE GS' workplaces
- 5.2.3. Obligations of employees of external employers -
  - at the entry into the central area, they must prove their identity and report entry (arrival) to the responsible employee of RWE GS and to the inspection service; the same must be reported during works completion and leaving the workplace
    - due to
      - evidence of persons present within company premises
      - avoiding entry of unauthorized persons to company premises
  - not to commence the works without approved work order and/or construction site transfer (for example objects without permanent attendance)
  - when entering to unattended workplaces, it is necessary to inform the inspection service in the control room; the same must be reported upon work termination and leaving the workplace
  - respect the safety designation and signals
  - use hard hat and hearing protection PPE at specified places and workplaces
  - in case of an accident or other extraordinary event, and/or upon evacuation announcement, proceed according to the instructions of accident liquidation manager (rescue master) and provide personal and/or material assistance upon request

- report any identified defects and shortcomings to relevant responsible employee of RWE GS
- report a work injury incurred or witnessed to relevant responsible employee of RWE GS and to cooperate upon identification of its causes and circumstances
- respect the instructions and commands of the employee in charge with coordination of measures towards safety and health protection assurance
- stay only at the workplaces where works are to be performed and on access routes to such workplaces
- maintain order at the workplace during the works; restore the proper conditions of the workplace after the work is completed
- observe the prohibition to bring in and consume alcoholic beverages or other addictive drugs at the workplaces of RWE GS
- observe the prohibition of smoking and use of open fire without a special order
- observe the prohibition of manipulation with technological equipment (unless included in the scope of activity)
- observe the prohibition of photographing and filming without a special written permit

- 5.2.4. Identified breach of OHS regulations, fire protection regulations, these TC, or breach of the stipulated conditions by contractors can constitute reason for interruption or discontinuation of works or for contract termination.
- 5.2.5. For all agreed works (area of work) of the contractors, it is necessary to specify in writing (by an agreement, in construction log, operating documentation, work or technological procedure, or work order) specific limiting conditions and measures for safe execution of the works.
- 5.2.6. Whenever there are employees of multiple contractors present at the site, the customer shall be obliged to appoint a necessary number of occupational health and safety coordinators for the site. If the obligation of the coordinator is not stipulated by Act No. 309/2006 Coll., the obligation of OHS coordination is stipulated only by the Labor Act pursuant to the provisions of Section 14. Operation and health safety related measures and the procedures of their assurance pursuant to the provisions of Section 101 (3) of Labor Code shall be coordinated by employees of RWE GS.
- 5.2.7. It is prohibited to carry out any earthworks without prior verification of underground lines and equipment position (cables, gas pipelines, earthling elements, etc.) in all premises of RWE GS. Earth works must be carried out pursuant to the provisions of Section 5.3. Delimitation of underground lines and equipment shall be ensured by OZP together with OZP RWE GS. Before commencing with the works, all relevant employees of the contractor (supplier) and operator must be demonstrably informed about this condition.
- 5.2.8. When working with chemical substances and flammable materials, OZZ shall be responsible for compliance with relevant safety regulations and decrees stipulated by valid legislation. Upon completion of works with these substances, OZZ shall ensure that these substances are deposited and disposed of in accordance with valid regulations.
- 5.2.9. Any contractor, activities of which shall result in waste formation, shall be responsible for ecological disposal of such waste.
- 5.2.10. Entry of vehicles into RWE GS operating areas will be handled by UGS operation manager. Vehicles can drive only over permitted routes and may not exceed permitted speed. It is important to maintain the roads clear for heavy fire fighting equipment.
- 5.2.11. Contractor's (supplier's) workplaces, which have not been transferred to the UGS operator so far, have to be provided with lockable entrances or gates, which will enable fire fighting with heavy equipment in the event of necessity.

- 5.2.12. All equipment in operation shall have to be provided with alert tables and, in the event of any manipulation with such equipment, also with tables indicating real up-to-date condition.
- 5.3 INSTRUCTIONS FOR EARTHWORKS EXECUTION WITHIN PROTECTIVE ZONE, OBJECTS OF RWE GS, IN THE VICINITY OF PTN RWE GS AND IN PROTECTIVE ZONES OF TELECOMMUNICATION LINES ADMINISTERED BY RWE GS:
- 5.3.1. In order to prevent damage to underground equipment, it is absolutely necessary to mark out all underground equipment in the area of interest before commencement with any earthworks and location of such equipment must be demonstrably communicated to all involved personnel of the operator, maintenance, and contractor.
- 5.3.2. In the distance greater than 10 meters from the gas pipeline ground plan, earth works can be carried out without operator's supervision (except blasting works – blasting is possible only with a special written permit issued by the gas equipment operator).
- 5.3.3. In the distance smaller than 10 meters from the gas pipeline or accessories ground plan, it is possible to carry out the works under contractor's (supplier's) supervision only, with the possibility of additional inspection by the operator. Mechanization can be used up to the minimal distance "a" from the gas pipeline surface as specified in Appendix No. 1. This minimum distance for use of mechanization has been determined by RWE GS as follows:
- in case of pressurized pipeline: "a" = 30 cm from the gas pipeline surface
  - in case of pipeline without pressure: "a" = 10 cm from the gas pipeline surface
- a) Pipeline axis "o" will be marked out and its coverage "k" will be determined,
- b) Arable land will be removed – "zone A1" manually to the depth of 2b (above the pipeline),
- c) Pit A2 to uncover a part of the pipeline will be excavated manually,
- d) Distance "b" permitted for the specified mechanisms will be measured (to be carried out by the operator),
- e) Soil excavation along the pipeline "zone C" shall be performed in parallel with the pipeline axis. Machine operator may not move the shovel above the pipeline. Machine operator must have a clear view in the direction of the works and the supervising person must be in his field of view. Whenever conditions require so, radio or loudspeaker telephone must be used as the connection between the supervising person and the machine operator.
- f) If the machine's longitudinal axis is situated perpendicularly to the pipeline, its distance from the pipeline must be such that the maximal extended position of the shovel reaches the permitted minimal distance. Excavation works with mechanisms must be performed only in the direction away from the pipeline, not in the opposite direction.
- g) Mechanisms used can move in the area above the pipeline with specified coverage provided that the soil has a sufficient bearing capacity; should there be any risk of sinking, the wheels or crawler track must be supported either by a timber board or by another corresponding way. A sunk machine is not allowed to recover itself – it must be recovered by another machine standing outside of the gas pipeline axis. Machines are allowed to turn only out of the area above the gas pipeline. All machine works must be carried out to avoid damage to the pipeline in operation and/or its insulation.
- h) Works performed in "zone B" are always done manually,
- i) Pneumatic hammers can be used for disintegration of harder soils below the pipeline; however, any damage to the gas equipment must be avoided.
- 5.3.4. Conditions for work execution in the distance lower than 1 meter from the pipeline ground plan must be negotiated. Such condition shall be agreed by the contractor (supplier) and operator (customer). Works can take place only under permanent supervision of the contractor (supplier). Crews and machine teams will be informed about the measures under which the work can be performed.

Operator's (customer's) representative shall have the right and obligation to stop the works whenever he/she ascertains that the principles and conditions agreed for such works are not complied with or if he/she identifies circumstances threatening the operational safety.

- 5.3.5. No equipment may be used in the distance smaller than 1.5 m to each side from the route of PTN RWE GS and telecommunication lines of RWE Interní služby, s.r.o.
- 5.3.6. Exposed cables, pipelines, and other equipment must be secured against damage and change of position that might cause damage to them for the entire period of their exposure.
- 5.3.7. Building excavations and ditches must be executed in accordance with relevant regulations, properly marked, and secured against fall of persons or soil collapse (method of excavation securing must be in accordance with Government Decree No. 591/2006 Coll., and ČSN 73 3050)
- 5.3.8. Before backfilling the excavation, the contractor (supplier) shall be obliged to invite OZP to inspect the equipment for damage and to verify that the insulation of the entire exposed equipment corresponds to the provisions of Section 5.5. below. Before backfilling the PTN and telecommunication lines, the contractor shall be obliged to invite OZP of RWE Interní služby, s.r.o. to inspect the equipment. If an excavation is backfilled without operator's (customer's) consent, new excavation at the costs of the contractor (supplier) can be requested.
- 5.3.9. Backfilling with mechanisms is possible, however, the machine must be always located outside the area above the gas pipeline, PTN, and telecommunication line and its shovel must remain in the distance of 2 meters from the gas pipeline surface or in the distance of 1.5 m from the telecommunication line.
- 5.3.10. Whenever the excavated soil contains stones or frozen lumps of soil that might damage the telecommunication line and/or insulation, the equipment must be first protected against damage (gravel pack, geotextile) and then backfilled.
- 5.3.11. Concrete setting works with concrete mixer vehicles is possible, however, the nearest axle of the vehicle will be no less than 3 meters away from the edge of the pipeline.

#### 5.4. LIFTING OF OBJECTS:

- 5.4.1. When objects are lifted, the stabilization feet of the truck crane must be more than 3 meters away from the gas pipeline surface.
- 5.4.2. Suspended objects may not be moved above the gas equipment of RWE GS. Exception to this rule are the situations when the object lifting forms part of the work procedure (fittings replacement, installation of shaped pieces, insertion of adaptors, installation of weighting saddles, etc.). The smallest distance of the suspended object from the equipment equals double the height of the object above the terrain and the minimal distance between the object and equipment is 2 meters.
- 5.4.3. Whenever any of the operating mechanisms is located on unpaved surface above the pipeline or telecommunication line, it is necessary to increase the earth coverage of the pipeline or telecommunication line and to strengthen the surface by panels or by a different appropriate measure.

#### 5.5. INSTRUCTIONS FOR INSULATION REPAIRS:

- 5.5.1. Insulation repairs shall be governed by technological procedures for insulation works at construction sites and during the maintenance of systems owned by RWE GS and for painting of steel pipelines, fittings, valves, and structures.
- 5.5.2. After the character of insulation defect is identified, the faulty insulation must be removed down to the core metal and degree of pipeline material corrosion will be determined. The

results obtained by representatives of RWE GS and contractor shall be continuously recorded in the construction log.

In the event of in-depth corrosion damage, the insulation will not be repaired. Instead, the parties shall carry out an official measurement, assessment, and they shall record the findings including the repair method determination, drawing, and surveying of the defect location into an official record. Official measurement is ensured by OZO or OZP.

- 5.5.3. Insulation works can be carried-out only by the personnel trained in insulation job, who have obtained an insulator's certificate based on successfully passed exams.

## 5.6. INSTRUCTIONS FOR WORK ON ELECTRICAL EQUIPMENT:

- a) Any and all works on electrical equipment and in its vicinity must be carried out in accordance with "Safety regulations for operation and work on electrical equipment", ČSN EN 50110-1 (as amended and subsequently corrected), and other valid standards and regulations (Regulation No. 202/1995 Coll., 74/2002 Coll., 75/2002 Coll. 239/1998 Coll., as amended)
- b) Persons assigned for work on electrical equipment or in its vicinity must be trained in first aid provision in the event of injuries or burns caused by electric current.
- c) "B" order must be issued for all works on HV equipment and in its vicinity. Order "B" is issued and signed by person with relevant qualification.
- d) "B" orders are recorded by an employee appointed by UGS general superintendent.
- e) "B" order issue will not be required only for equipment which has not been powered yet and where there is no HV line in its vicinity.
- f) Person responsible for electrical equipment or work manager must ensure that the employees doing the work will be informed about the course of the works before commencing with the work. Before work commencement, the work manager must inform the person responsible for electrical equipment about the type, place, and importance of the work carried out on the electrical equipment. Written information will be preferred, mainly if the work is complicated. Only the person responsible for electrical equipment can give consent with work commencement to the work manager. This requirement must be followed even in the event of work interruption and termination.

### 5.6.1. Rules for works, securing, and transfer of workplace on LV equipment.

- a) All works under voltage - "lv" require "PPNN" order
- b) Equipment operator will switch off and disconnect the equipment. The equipment on which or near which the work should be carried out shall be disconnected from all possible power sources. At places, where the equipment is switched off/on, it is necessary to post safety signs pursuant to ČSN ISO 3864, as amended and subsequently corrected, and pursuant to the provisions of Government Regulation No. 11/2002 Coll., which determines the appearance and location of the signs, as amended. If the work is carried out on equipment protected with current fuses, the plug fuses and heads must be stored safely after removal. Possible electrical charge (for example from cable lines or from condensers) will be removed. For outdoor LV lines, the conductors must be short-circuited with earthing at the workplace.
- c) Equipment operator shall safely and reliably verify (for example using a suitable circuit tester) that the part of the equipment, where the works should be carried out, is without voltage on all poles, phases, and supply lines.
- d) Depending on the local conditions, the equipment operator shall determine relevant measures preventing personnel from entry into areas with live parts by mistake (for example using fencing, path designation, signs, etc.).
- e) Having secured the workplace, the person responsible for the workplace securing together with the work manager will confirm that all safety measures at the workplace have been adopted. Operator's responsible employee together with the work manager shall draw-up a record on workplace delivery and acceptance in power-less condition.

- f) The delivery and acceptance record will be valid for one business day. The next day, the workplace delivery and acceptance must be re-confirmed by operator's responsible employee and by the work manager.
- g) Works in the vicinity or in parallel with "HV" shall be fully subject to the provisions of ČSN EN 50110-1, as subsequently amended and corrected.

#### 5.6.2. Equipment commissioning

- a) All persons involved must be withdrawn after work completion. All tools, equipment, and instruments used during the work must be removed. Then, the power connection procedure can commence.
- b) All earthing and safety equipment and/or apparatuses must be removed from the workplace. All locks and/or other instruments used to prevent repeated activation, as well as all designations used for the work must be removed.
- c) Once the equipment commissioning procedure has commenced, the equipment must be considered live.
- d) Once the work manager believes that the electrical equipment is ready for power supply restoration, the equipment must be verified by the employee responsible for electrical equipment, who will confirm that the work has been completed and that the electrical equipment can be commissioned.

#### 5.7. INSTRUCTIONS FOR WORKS IN PREMISES WITH EXPLOSION HAZARD, PROTECTIVE ZONES, AND IN PREMISES WITH INCREASED FIRE HAZARD:

- 5.7.1. All works in premises with explosion hazard and with increased fire hazard must be subject to written limiting conditions and measures aimed at OHS and FP assurance.
- 5.7.2. Maintenance and repairs of gas equipment and machinery, works on electrical equipment, gas leakage elimination, usage of initiation sources, including works with open fire, must be subject to operational documentation, working or technological procedure and/or order for work with increased hazard (Annex No. 4). This documentation must comprise necessary prerequisites specified in Section 8.3.1.4 of TPG 905 01 and 10.5 of TPG 925 01.
- 5.7.3. Work order is issued by relevant UGS operation employee
- 5.7.4. Environment properties must be continuously checked during the entire period of works execution. When working on gas equipment or on possible initiation sources, portable gas detectors must be used. These detectors must comply with the following conditions:
  - must be equipped with light and acoustic signaling,
  - must signal exceeding the level of flammable gas concentration 10% LEL,
  - must be equipped with light and possibly also with sound signalization to confirm that the equipment is in operation,
  - must be equipped with light and sound signaling of battery level decrease activated not less than 10 minutes before the battery becomes completely discharged,
  - must have a valid calibration record confirming their inspection and accuracy,
  - must be verified with gas that can occur at the workplace and form explosive mixture (mostly the natural gas in RWE GS),
  - equipment delivered after July 1, 2003 must be designated with CE mark proving their compliance with EU standards,
- 5.7.5. Gas detector operators must be demonstrably made familiar about the operating manual and its maintenance
- 5.7.6. Upon the first limit of flammable gas concentration, i.e., 10% of LEL is signaled, or if a fault or low battery is signaled by any flammable gas detector, the work manager will ensure that all workers interrupt the work, and secure the electrical equipment and other possible initiation sources against possible initiation (inflammation) of flammable (explosive) mixture,

- 5.7.7. After the flammable gas concentration over 40% of LEL is signaled, the work manager will ensure that all employees leave the workplace,
- 5.7.8. Further works may continue after thorough ventilation of the workplace or lowering of the gas concentration below 10% of LEL.
- 5.8. INSTRUCTIONS FOR WORKS WITH OPEN FIRE PURSUANT TO REGULATION NO. 87/2000 COLL.:
- 5.8.1 Works with open fire pursuant to the provisions of Regulation No. 87/2000 Coll., in the premises with explosion hazard and with increased fire hazard are fully subject to Section No. 5.7. Works may be performed only with order for work with increased hazard (Annex No. 5).
- 5.8.2 In other premises and at other GS workplaces, works with open fire may be carried out only with welding order, which will comprise all particulars specified in Regulation No. 87/2000 Coll. (Annex No. 6). Should the works require any special fire safety measures, it is necessary to complete full welding order (i.e., including subsequent fire supervision over the workplace for the minimum of 8 hours). If the works with open fire do not require any special fire safety measures, the welding order will not specify the obligation of subsequent fire supervision.
- 5.8.3 Welding order does not have to be issued for specified permanent welding workplaces.
- 5.8.4 Order for work with open fire must be issued by authorized GS employee upon request of responsible employee of the contractor. Maximum order validity shall be 120 hours.
- 5.8.5 If the order for work with open fire is issued, it is possible to carry out only those works, which are expressly stipulated in such order. It is prohibited to use open fire for any other works.
- 5.8.6 Before any work with open fire is permitted, fire hazard at the workplace must be first assessed at all times, considering the location, space, object, or technology. Fire safety conditions and fire protection measures are determined by person qualified in the area of fire protection.
- 5.8.7 Fire protection (observing the fire safety conditions, fire-safety measures, etc.) represents the necessary part of every work. Therefore, the responsibility for its assurance also stays with the contractor performing the works.
- 5.8.8 Beginning and termination of works with open fire must be reported to the inspection service in the control room.

## 6 REFERENCES:

- Act No. 61/1988 Coll., on mining activities, explosives and the State mining administration, as amended
- Act No. 133/1985 Coll. fire protection;
- Act No. 127/2005 Coll. on electronic communications and on amendment to some related acts;
- Act No. 356/2003 Coll. on chemical substances and chemical preparations and on an amendment to some other acts, as amended;
- Act No. 458/2000 Coll. on Business Conditions and Public Administration in the Energy Sectors and on Amendment to Other Laws (Energy Act);
- Act No. 158/2009 Coll. which amends Act No. 458/2000 Coll., on Business Conditions and Public Administration in the Energy Sectors and on Amendment to Other Laws (Energy Act), as amended;
- Act No. 309/2006 Coll. on further conditions relating to occupational and health safety assurance, as amended;










Government Regulation No. 494/2001 Coll.	stipulating methods of filing, reporting and sending records on accidents and authorities and institutions to which shall a work accident be reported and a record on accident sent
Government Regulation No. 495/2001 Coll.	stipulating a scope and more accurate terms of assigning personal protection working resources, washing, purifying and disinfecting resources
Government Regulation No. 591/2006 Coll.	on further minimum requirements on safety and health protection for work on construction sites;
ČBÚ Regulation No. 74/2002 Coll.	on reserved electrical equipment;
ČBÚ Regulation No. 75/2002 Coll.	on operating safety of electrical technical equipment used in mining activities and activities carried out by mining methods;
ČBÚ Regulation No. 392/2003 Coll.	on technical equipment operating safety and on requirements regarding dedicated technical pressure, lifting, and gas equipment during mining activities and activities carried out using mining methods;
Ministry of Interior Regulation No. 87/2000 Coll.	conditions of fire safety during welding and heating of bitumen in melting vessels;
Ministry of Interior Regulation No. 246/2001 Coll.	on Determining the Requirements for Fire Safety a Performance of State Fire Surveillance (regulation on fire prevention)
ČSN EN 61779-1	Electrical equipment for detection and measurement of flammable gases – Part 1: General requirements and test methods;
ČSN EN 60079-10	Electrical equipment for explosive gas atmospheres – Part 10: Determination of hazardous spaces;
Technical Rules TPG – G 905 01	Basic Safety Requirements for Operating Gas Facilities;
Technical Rules TPG – G 925 01	Safety and health protection in gas industry when working in environments with explosion hazard;

The above-mentioned list of legislative documents means the valid versions of these documents!

#### ANNEXES:

The following annexes are recommended for use in order to ensure that the works are performed in accordance with the requirements specified in these conditions

No. 1	Zones for excavations during pipeline defect repairs	 Příloha1_Zóny pro výkopové práce.doc
No. 2	“BPPN” order	 Příloha2_Příkaz_BPP N.doc
No. 3	“PPNN” order	 Příloha3_Příkaz_PPN N.doc
No. 4	Order for works with increased hazard (M)	 příloha č.4.příkazMdoc.doc
No. 5	Order for works with increased hazard (S)	 příloha č. 5 příkazS.doc
No. 6	Instruction for works with open fire (pursuant to Regulation No. 87/2000 Coll.)	
	 příloha č. 6 příkaz 87.doc	
No. 7	Transfer record on equipment securing	 příloha7 Př protokol.doc