

The Explanatory Notes to the Questionnaire

**DIAGNOSTICS OF GAS TRANSMISSION LINES AND RISK
MANAGEMENT**

prepared by the delegation of the Czech Republic for Working Party on Gas
Ad Hoc Group of Experts, 26 January 2006

Understandings to Part I. of the Questionnaire

I. Situation in Identification – characteristic of gas pipelines

That identification concerns the all transit – transport (transmission) high- pressure systems (equal or above 16 bars) operated by transmission system operators (below TSO) and who are responsible for transit and transport.

Please, complete the form:

I. 1. Country:

I. 2. TSO: commercial name / registered in the territory of: _____

I. 3. Domicile of TSO : _____

I. 4. The name of a main pipeline (if exist): _____

I. 5. Prevailing running (course) location of pipelines
underground (yes/no) _____
undersea (yes/no) _____

I. 6. Identification of the TSO's system: through the writing down of the relevant points of delivery of gas as transfer stations equipped by a measuring facilities. An internal settlement of the TSO's system, including off-takes (including branches) is not recorded (like black box). It is up to TSO if complete the sum of the all off-takes projected gas flow capacity.

NOTE: The all relevant points – (**transfer stations below TS only**) are marked from the point of view TSO's as

- a) Input XXXX : in the case that gas flows from TS to the TSO's s system**
- b) Output XXXX : in the case that gas flows from TSO's system to TS**
- c) In the case of bi-directional flow write down as Input/Output with writing down of both projected capacity.**
- d) The end mark (in or out – see enclosed scheme- example)**
"in" transfer station is placed in the territory of the county, where TSO is registered (seated)
"out" in the case that TS is placed in the territory of the other country.

I. 7. Definitions and recording of transfer stations (below only abbreviation TS) (see enclosed scheme as example)

1. Cross Border TS should be always written down as the very important TS for declaration of gas flow in the diverse regimes.
(Input CB in/or out, Output CB in/or out, Input/Output CB in/or out)
2. TS that connects TSO's system with an adjacent transportation system of the other TSO.
(Input Conn in/or out, Output Conn in/or out, Input/Output Conn in/or out)
3. TS as a first TS connecting the TSO's system with Upstream pipelines (within an extraction area).
(Input Upstream in/ or out, less probable Output Upstream in/ or out and less probable combination Input/Output Upstream in/ or out)
4. TS located at an area of Terminal where is connected with TSO's systems.
(Input Terminal in/ or out - in the case of a connection with evaporating facilities,
Output Terminal in/ or out – a less probable case when TS is connected with liquefied station at an area of Terminal)
5. TS interconnecting the TSO's system directly with the source or gas production facilities
(Input Source in/ or out)
6. TS at the Collector interconnecting TSO's system with Collector is meant as a physical collector, where more than one TSO's systems are connected (also as a HUB for business)
(Input Collector in/ or out, Output Collector in/ or out, Input/Output Collector in/ or out)
7. TS interconnecting a storage (underground, etc.) with TSO's system
(Output/Input storage in/ or out when the variants Input Storage in/ or out and Output Storage in/ or out are less probable.

Explanation to the part II and III of the Questionnaire

Questions in the Questionnaire	Commentaries	Example of the answer
3.1 Does TSO keep a systematic overview of the equipment and parts of pipelines, damage to which can immediately endanger the transportation of natural gas? What pieces of equipment are included in the overview?	The question is about the existence of a systematic approach to the selection and dealing with parts of gas transmission system that are considered to be critical for transmission, environment and safety.	y/n; text e.g. Pipeline Integrity System, Critical metering stations
3.1.1. Pipeline system	e.g. pipelines in High Consequence Areas	y/n
3.1.2. Compressor station	Selected CS	y/n
3.1.3. Transfer stations	Border Metering Stations	y/n
3.1.4. Metering stations	Inland Metering Stations	y/n
3.1.5. Underground gas storage facilities	Important Gas Storages in case they are able to be connected to the Transmission System	y/n
3.2. Which executive body approves the elaboration of Emergency Plans in your country?	The authority and its role (approve, submit to, ...)	e.g. Regulator, Ministry, Safety Authority,...)
3.3. Does TSO have a methodology processed for identification and assessment of risks?	Written procedure	y/n; the methodology is a part of TSO Risk Management
3.4. Is the elaboration of a Safety Report compulsory by law?		y/n; e.g. No, The Safety Report is elaborated by TSO for the internal usage.
3.5. Specify the author/body of the safety report and who approves it.	TSO submits	
3.6. Is Risk Analysis part of the		
3.6.1. Safety Report		y/n;
3.6.2. Emergency Plan		y/n;
3.6.3. Inspection and Maintenance Plan	Is it a part of Planning Process?	y/n;
3.7. What method does TSO use to assess risks?	Is it used generally or only in the critical areas?	choose one of three following options
3.7.1. No systematic assessment	No assessment or only if applicable, e.g. after a serious incident	y/n
3.7.2. Systematic qualitative assessment, usually by means of an expert estimate and division into classes and categories	e.g. HAZOP	y/n
3.7.3. Systematic quantitative assessment, detailed numerical risk assessment.	e.g. FTA, ETA	y/n
3.8. Does TSO have available stand-by capacities (material resources and special equipment) for work with natural gas under pressure? How do they work?	e.g. hot tapping provided by internal maintenance people or by contractor	text
3.9. Is the transportation system operated by TSO drawn in the Geographical Information System and to what extent? Are areas of increased risk identified there?	Is GIS used for Transmission System documentation?	y/n; 100% of pipelines in GIS
3.10. Are employees of the operator and supplier organizations systematically informed and trained about risks of the operation? In what form?	Is Risk Management connected with training of employees, and maintenance contractors, and subcontractors	y/n; text

Questions	Commentaries	Example of the answer
3.11. Is information about risk elimination measures requested by the competent public administration body? In what form?	Does TSO obligatory report to the competent public administration body?	Yearly report to national Regulator
3.12. What methods does TSO use to eliminate risks in areas with increased risk (describe):	e.g. Pipeline sections with high level of Risk of the Third Party Interference	y/n
3.12.1. Increased frequency of inspections	e.g. Increased frequency of aerial inspection	50% increase of frequency
3.12.2. Additional inspection methods	e.g. Monitoring of construction activity within the protective zone	
3.12.3. On-line monitoring systems	e.g. on the acoustics principle	
3.12.4. Other, specify what type	Legislative measures	
3.13. Has TSO introduced a risk management information system?	Are Risk data available in connection with other TSO IS?	
3.13.1. Is this IS linked to the Geographical Information System?	e.g. protection areas, ...	
3.13.2. Is this IS linked to the IS of operation and maintenance control?	e.g. SAP PM, IS-U, ...	
3.14. Who operates the IS (specify) on gas transportation to and from neighbouring countries?		
3.14.1. TSO		
3.14.2. Market operator		
3.14.3. Another organization, specify which.		
4.1. Does any special national legislation exist in the area of breakdown prevention and risk management in transportation and storage of natural gas? Specify.	Name such legislation or the special standards	y/n
4.2. Is documentation of safety and reliability of the transportation system a binding condition for granting a licence for operating the transportation system?	If a legal or physical person applying for the granting of licence is obliged to submit under a special Law a documentation as e.g. the safety report demonstrating safety management relating to the concerned facilities.	y/n
4.3. Does the legislation include a requirement for obligatory insurance of the transportation system against consequences of a breakdown?	If there is such requirement name the Law or other compulsory document related to	y/n
4.4. Does your legislation deal with responsibilities and competences of TSO in the sphere of solving risks and states of emergency. Through what legal act?	If yes, name such Act	y/n
4.5. What legal form is used by the state to ensure safety of gas transportation across its territory?	Assign a form (provisions under Law, agreement with state authority etc.) Are the obligatory duties of operator (TSO) laid down generally or in detail	text
4.5.1. Legislative		
4.5.2. Contractual		
4.6. Does the legislation distinguish between multinational transportation (transit) across the territory of your state and the intrastate transportation?	Is there an unambiguous definition of transit and transport within concerned legislation? Name the legislation. (Law, etc.)	y/n

4.7. Do you find it suitable for the state to conclude contracts with respective transportation companies on ensuring reliability and safety of transportation?		y/n
4.8. Does the state have a monitoring system based on valid legislation the task of which is to distinguish imports, transit and exports of natural gas?	If yes, name the concerning Laws related to mentioned activities (for example customs Law, Commercial Law etc.)	y/n
4.9. Specify the body that is authorized to execute the function in 4.8. by the legislation of your state?	Specify the body and its function within the above specified Law or a different obligatory legislation	text
5.1 Has TSO implemented a system for planning and evaluation of preventive maintenance?		y/n
5.2 Has TSO introduced an information system for maintenance management?		
5.3 Does the maintenance IS contain automatic planning of prescribed inspections and tests?		y/n
5.4 Has TSO introduced minimum standards for the operation of the transportation system		
5.4.1 in maintenance	for what activities ?	y/n
5.4.2 in operation		y/n
5.4.3 in states of emergency		y/n
Specify the basic technical standard (e.g. EN 1594) or legislative document.		text
5.5 Does TSO carry out systematic regular inspections of the technical condition of specified/ selected technical facilities of the transportation system? In accordance with what rules?		
5.6 To what extent is cathode protection of the pipeline used? (specify %)		
5.7 Does TSO continuously monitor parts of pipelines where the stray current often occurs and those with an increased risk of corrosion?		
5.8 How often is stray current measured and by what method(s)?		
5.9 Does TSO check the pipeline system by using internal inspection?		
5.9.1 To what extent?		100% pipelines, cca every 7 years, 20% has been inspected twice
5.9.2 By what method(s)?	MFL, TFI, ...	
5.10 Does TSO check the external insulation of the pipeline system of the transportation system?		
5.10.1 To what extent?	what pipeline sections	Pipelines older than 30 years
5.10.2 By what method(s) and how often?	Pearson; DCWG/ one-time basis, regularly	Pearson, 5 years
5.11 What methods does TSO use to protect the transportation system against interventions of protective zones	Prevention against Third Party Interference	

5.11.1 Protective zones	Is there given the border of protected area along the pipeline? Is it set only by fix distance from pipeline or Risk Assessment methods are used?	fix distances according to pipeline dimension and MAOP
5.11.2 By air? How often?	Are regular aerial inspections of transmission pipelines carried out?	on monthly basis
5.11.3 With other technical means (specify)	Land planning, obligatory approval for any construction activity within pipelines etc.	
5.12 Does TSO carry out pressure tests – stress-tests? To what extent?		new pipelines, pipeline regeneration
5.13 What is the normal method of securing the missing capacity of transportation due to planned repairs or stress tests?		
5.13.1 Spare capacity of a parallel line		
5.13.2 Bypass		
5.13.3 In other ways – alternative transportation through gas pipelines of another TSO (specify)		
5.14 Does TSO use RCM procedures (Reliability Centred Maintenance)? In what facilities of the transportation system?	RCM is relatively new approach to maintenance. Are elements of RCM used in your maintenance management system?	e.g. pilot project on compressor station
5.15 Are there automatic protection systems in the transportation system that close the pipeline at the nearest points in case of damage?	Please enter average distance between such valves and % of	y, 25 km, 100% of insulation valves at transmission pipelines
5.16 Does the transportation system have a standby capacity to ensure safety and reliability of gas transportation? Specify the standby capacity volume in %		
- in summer – average day		
- in winter – the day with maximum consumption.		
5.17 Which parts of the transportation system are continuously monitored for the possible gas leakage? Specify.	ground objects like regulation stations, compressor stations, pipeline sections.	e.g. acoustics monitoring in areas of high risks along pipeline
5.18 Does TSO monitor the sulphur content in natural gas and the impact on the material? In what way?		y/n
5.19 Are there binding standards for the design, implementation and safe operation of the pipelines of the transportation system? Specify	e.g. EN 1594, if other please enter main differences.	
5.20 What methods are used to determine the qualifications of supplier companies capable of carrying out special work (assembly, welding, etc.)?	Does TSO have a quality management system involving quality of the contractors (services and material) and subcontractors.	
5.20.1 ISO certification		Internal procedures based on ISO 9001:2000 scheme
5.20.2 National certification system		
5.20.3 Other.		
5.21 Are there supervisory bodies required by law whose duty is to supervise the operational safety of the gas transportation system? Specify	Health and Safety, Environmental and other authorities, Regulator, etc.	text – list of bodies

Explanatory scheme

