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TECHNICAL ASSOCIATION
OF THE EUROPEAN NATURAL GAS INDUSTRY

Ministry of Industry and Trade








Technical Diagnostic and Risk Management of gas Transmission Pipelines Questionnaire preliminary results

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Scope and objective of the questionnaire

Scope: Gas Transmission Pipelines with MOP > 16 bar (EN 1594)

Objective: create an overview of the measures put in place by Transmission System Operator (TSOs) to ensure pipelines safety

Target : Marcogaz members + UN – ECE members

Answers received & analyzed: **11** answers from Marcogaz members, **1** answer from non – Marcogaz members

Structure of the questionnaire

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Section 2 : Risk management

- SMS (Safety management Systems)
- PIMS (Pipeline Integrity management Systems)
- Internal Emergency Plans,
- standards used for operating the grid,
- risk assessment (deterministic versus probabilistic) and risk analysis,
- incidents database

Section 3: Technical diagnostics, preventive maintenance

- IT systems for maintenance management
- on-condition maintenance
- cathodic protection
- piggability
- internal inspection,
- third party prevention,
- gas leakages

Preliminary results

Do TSOs have implemented a safety management system (SMS) to develop and maintain the integrity of pipelines?

Answer: **91 %** have an SMS in place

Do TSOs have developed and implemented a Pipeline Integrity Management System for a gas transportation system?

Answer: **84%** have a PIMS in place

Do TSOs have elaborated and regularly Updated an internal Emergency Plan for a gas transportation system?

Answer: **100 %** of TSOs have and Internal Emergency Plan

Preliminary results

Question: Technical Standards used for operation of the transportation system:

Answer: EN 1594 : **75%**

Other standards used: **ASME**, **national standards/ regulation**, **EN 12007**

Question: Does TSOs use Deterministic or probabilistic approach to risk assessment?

Answer: both approaches are used. Probabilistic approach is rarely used to cover all the grid but mostly for special studies or circumstances.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1594

March 2000

ICS 23.040.01; 75.200

English version

Gas supply systems - Pipelines for maximum operating pressure over 16 bar - Functional requirements

Systèmes d'alimentation en gaz - Canalisations pour pression maximale de service supérieure à 16 bar - Prescriptions fonctionnelles

Gasversorgungssysteme - Rohrleitungen für einen maximal zulässigen Betriebsdruck über 16 bar - Funktionale Anforderungen

This European Standard was approved by CEN on 21 October 1999.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Preliminary results

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- **Question: Does a database exist for monitoring incident and emergency situations on high pressure pipelines?**

- Answers: in form of a national database = 27%, as EGIG member company = 64 %

EGIG= European Gas Pipeline Incident data Group

Members: 12 among the biggest gas companies in EU

Collects stats on **122.000 km** of pipelines each year

Total exposure of **2.77 million Km x yr**

Public report published each 3 years (next one issued end of 2008)

Web-site for more info : www.egig.nl

EGIG incidents versus time
6th report 1970 - 2004

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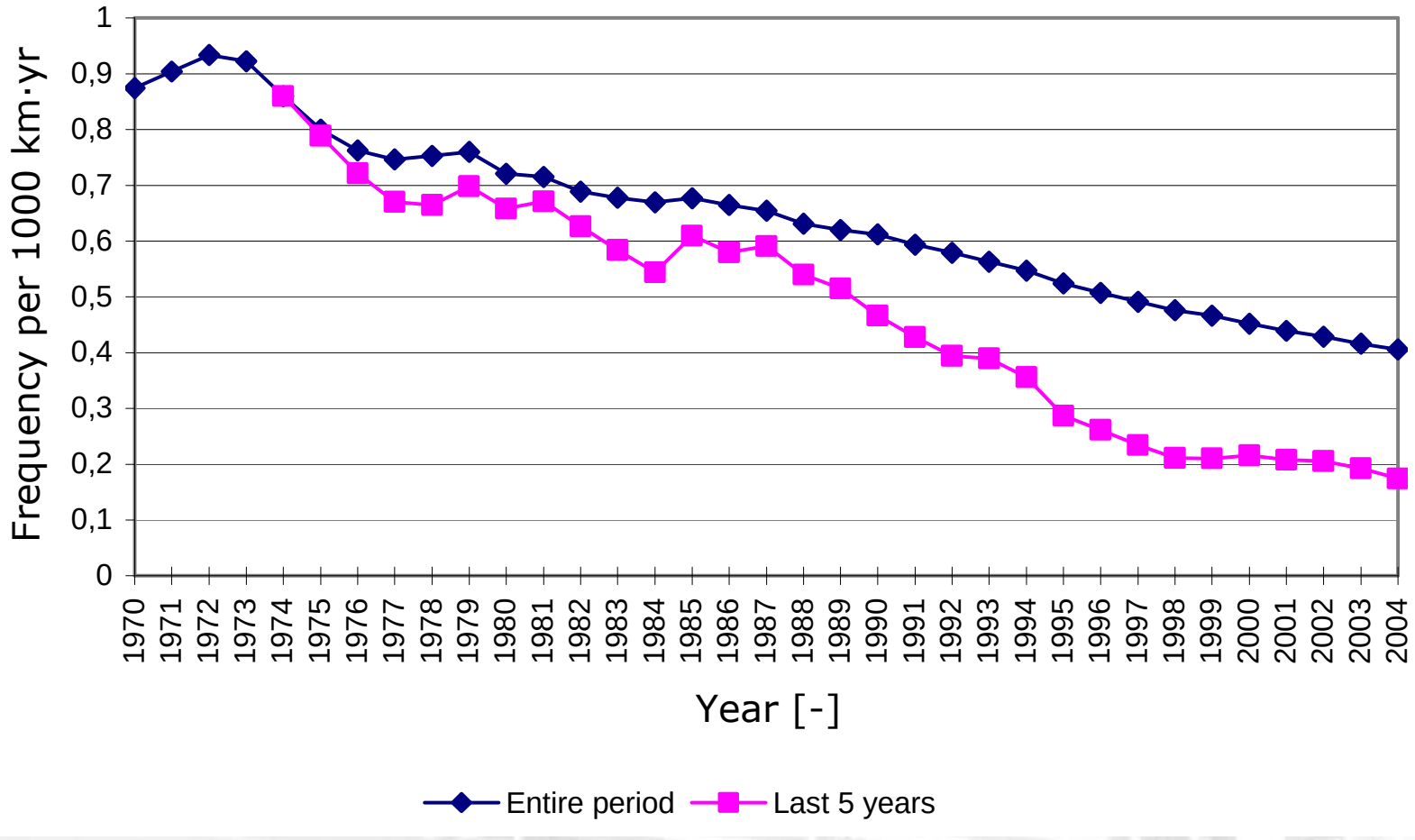

Preliminary results

Question: Have TSOs introduced an IT system for maintenance management?

Answer: **75%** have SAP in place

Question : have TSOs implemented a condition based maintenance on selected parts of transmission system?

Answer: 66% have implemented a condition based maintenance, 25 not answered

Preliminary results

Question: are transmission pipelines cathodically protected on 100% of their length?

Answer: 100% answered yes

Question: Does TSO check external coating of pipelines?

Answer: 100 % answered yes

Internal Inspection by PIGS

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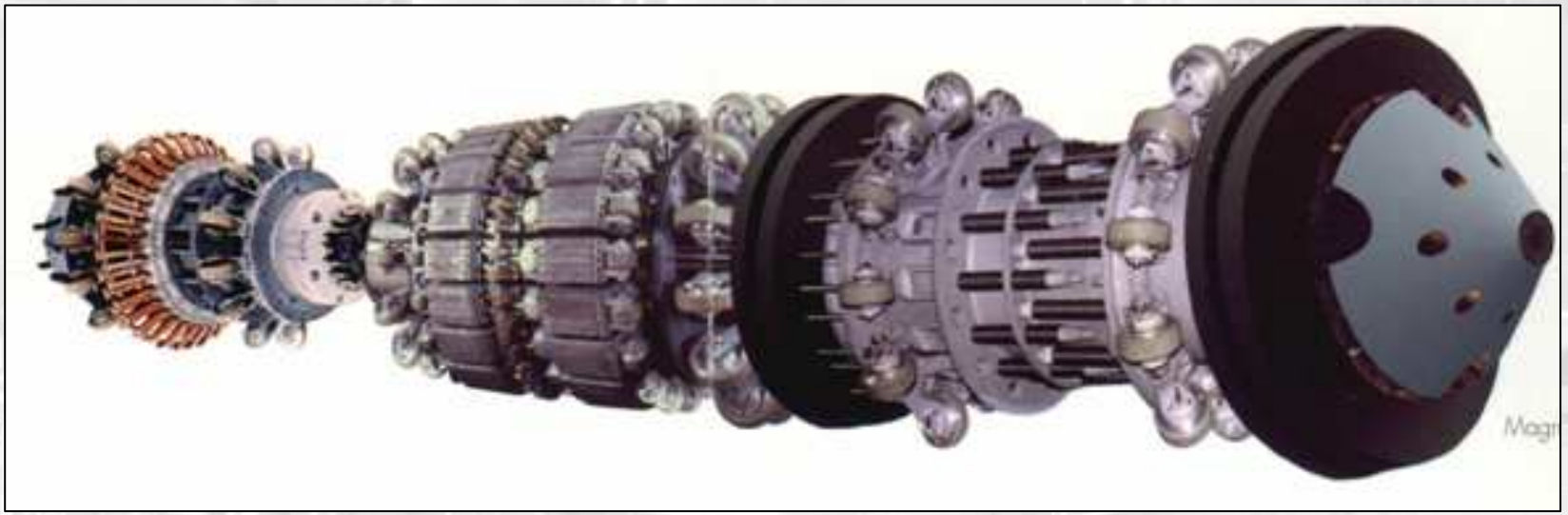
Question: are gas transmission pipelines piggable?

Answer: 100 % answered yes



Conclusion: pipeline integrity is checked in the whole extension

Preliminary results

Does TSOs use the internal pipeline inspection?

Answer: 100 % make internal inspection during commissioning, in 5-10 years time or case by case

Conclusion: pipelines are checked and protected , both externally and internally, in 100% of the cases.

Third party Interference prevention and mitigation

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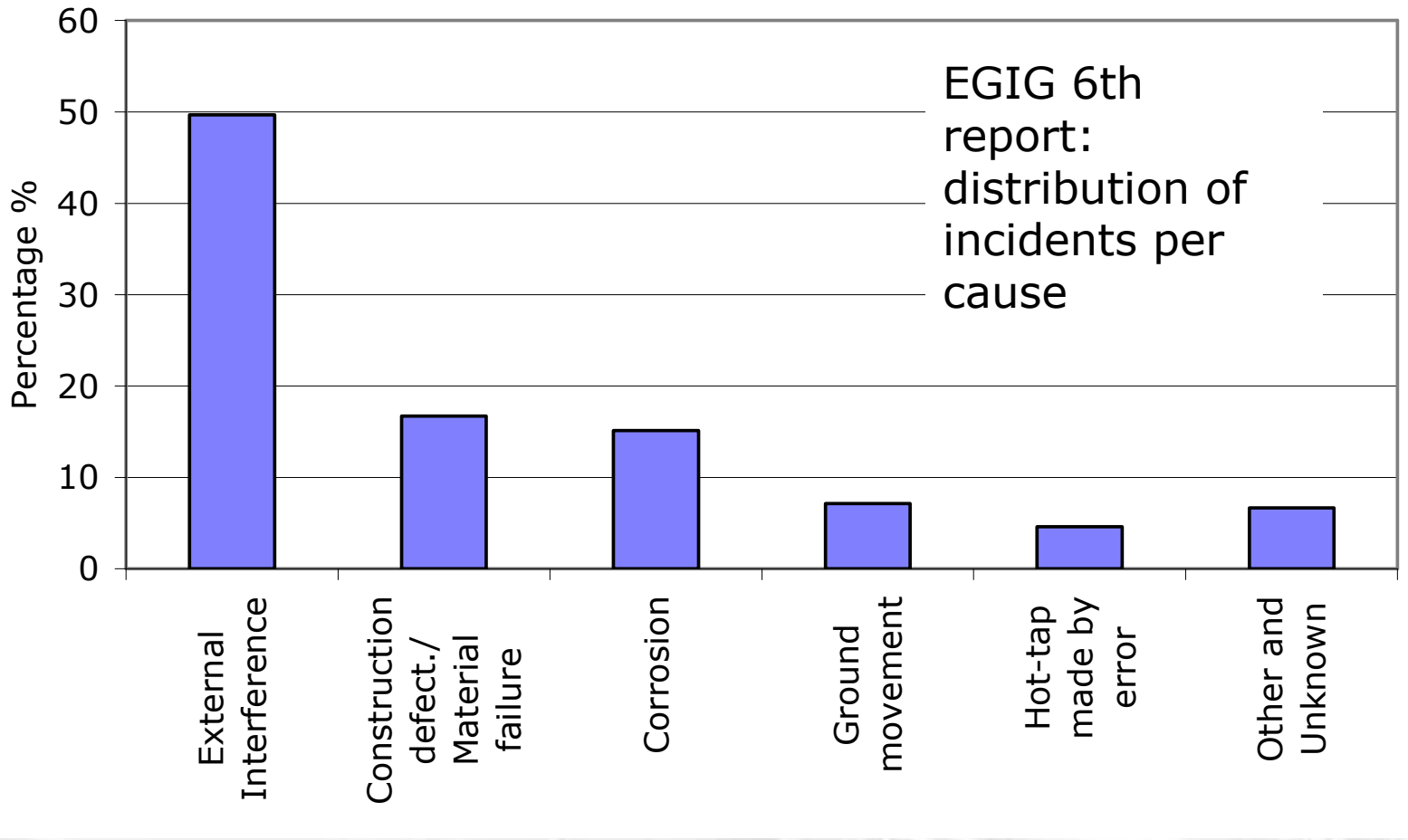
TPI currently represents the biggest threat for pipelines



Methods to tackle TPI

- By establishing protective zones : 75% of TSOs
- By specifying minimum distance from pipelines using risk assessment: 33% of TSOs
- By air or vantage points : 67%
- By other technical means: Concrete slabs, warning tapes, acoustic methods…

Pressure tests

Question: does the TSO carry out pressure/stress tests?

Answer: during construction= 82 % of TSO carries out the pressure test, 9% not answered

Periodically: 91 % answer NO

To increase pressure or lifetime = 9% of TSOs carry out

Conclusion: the answers clearly show that pressure tests can only be done during the construction phase. It's almost impossible to carry out such test during operations

End of the presentation

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Thank you very much for your attention!!

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