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TECHNICAL ASSOCIATION
OF THE EUROPEAN NATURAL GAS INDUSTRY

GAS TRANSMISSION PIPELINE SAFETY

OCTOBER 2014

Background

Since the 1960's high pressure gas pipelines have been used to transport natural gas across Europe. The length of the European gas transmission network now exceeds 230,000 km[1]. The transportation of large amounts gas through high pressure pipelines has been demonstrated to be a safe mode of energy transportation with insignificant impact on the environment.

The primary objective of the pipeline operators is to make capacity available to gas shippers in order that gas can be transported to end consumers whilst also ensuring that pipeline incidents or accidents are avoided. The integrity of pipelines is a major responsibility of the pipeline operators. The pipeline operators share the desire to avoid damage or harm to the public, properties and the environment whilst also ensuring the continuity of gas supplies throughout the Continent.

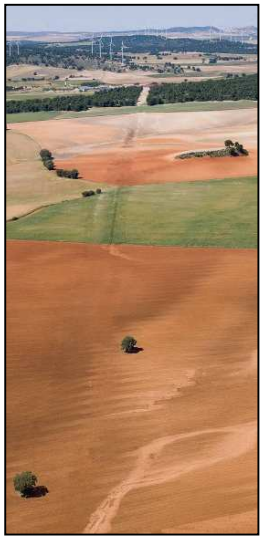
Although legal approaches may differ among European Member States due to cultural, historical and geographical factors, the common aim amongst all pipeline operators is to construct, operate and maintain safe pipelines.

Pipeline operators attempt to minimise the likelihood of incident by adoption of high quality technical specifications and standards as well as integrated Safety Management Systems (SMS). The impact of any accident is also mitigated by ensuring that both the authorities and the pipeline operators have adequate emergency plans in place.

[1] *Year 2012; Source MARCOGAZ statistics.*

Data collected by EGIG (The European Gas Pipeline Incident data Group[2]) shows that third party interference with pipelines is the main cause of pipeline failure. Pipeline operators protect against this mode of failure through pipeline design supplemented by robust safety management procedures that are applied during the operation of the pipeline. Pipeline operators also have notification procedures in place for work carried out by third parties in the vicinity of the pipeline.

Exchange between all stakeholder groups, including individuals and contractors, with involved authorities, is necessary to identify best practices for continuous improvement.



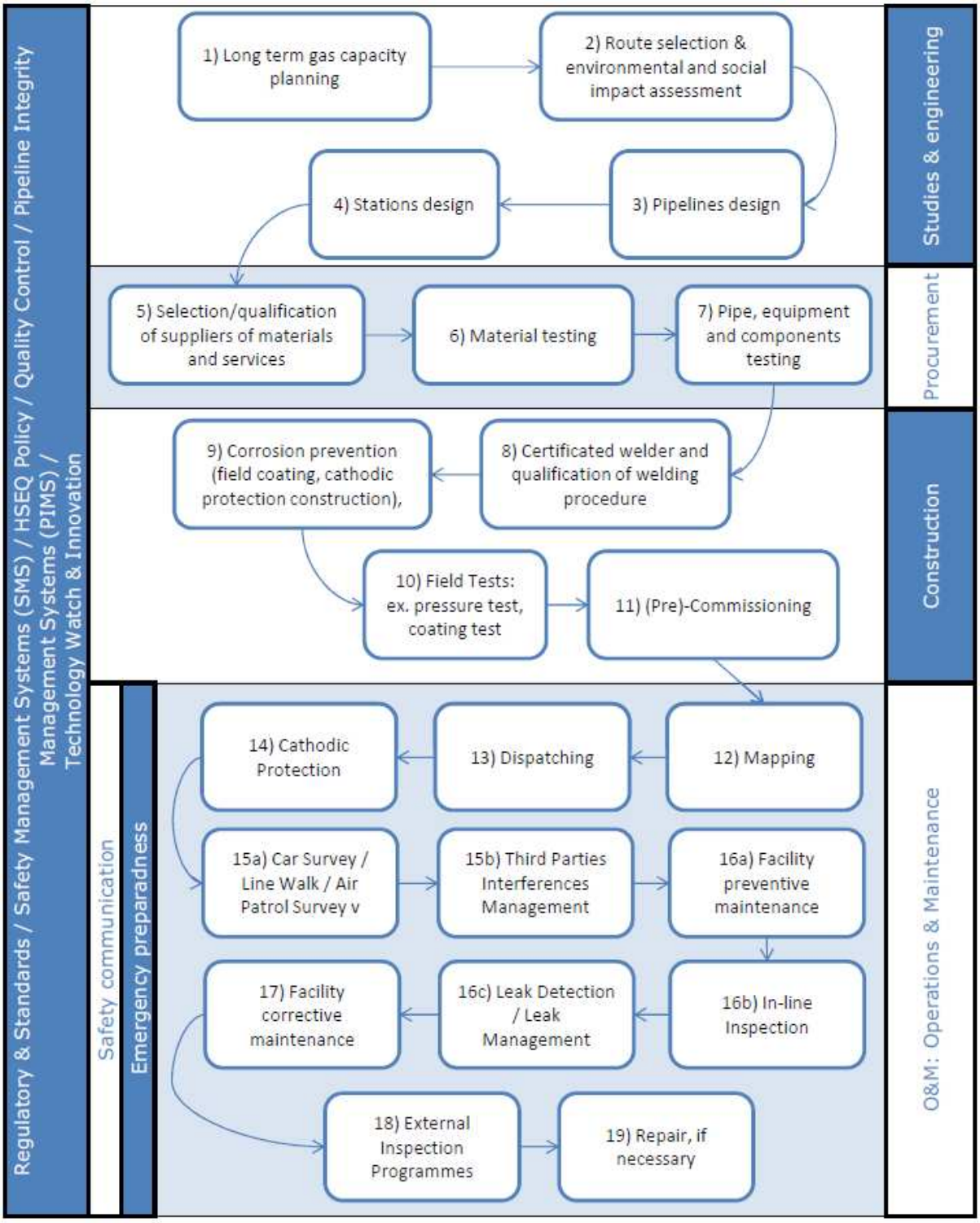
National legislation also needs to play a key part in ensuring that any third party work in the vicinity of the pipeline is notified to the pipeline operator and is managed and controlled in line with the pipeline operator's requirements.

The most recent EGIG statistics show a continuing downward trend in the frequency of incidents caused by external interference. This downward trend demonstrates that the measures introduced by the Gas Industry are successful.

The design, construction and maintenance of gas pipelines are carried out using mainly functional European standards drafted through CEN (CEN/TC234 Gas Infrastructure). These standards cover all the aspects of the pipeline's lifecycle and include requirements for the safety management of the pipeline system.

[2] *www.egig.eu*

Various mechanisms are used during the life cycle of a pipeline to reduce the risk of pipeline failure:



Conclusions

In order to keep improving the safety of natural gas networks in an effective way, MARCOGAZ believes that the following key conclusions and recommendations must be clearly understood:

Technical self regulation has proved to be very efficient in improving the safety performance of European Gas Pipeline Operators;

Pipeline safety can be further improved by **addressing third party interference, the development of advanced inspection tools and using the latest technology of performance monitoring by SCADA systems**. Although Gas Pipeline Operators can contribute to tackling the problem of third party interference, a large part of the activities occurring in the vicinity of pipelines are outside of their control. The focus of any new legislation should therefore be on improving awareness of buried utility infrastructure and controlling the competence of the individuals carrying out excavation work in the vicinity of high-pressure pipelines.

Rather than introducing additional safety legislation for gas pipeline operators, further improvements in pipeline integrity are best facilitated by pipeline operators adopting an appropriate **Safety Management System (SMS)** including **Pipeline Integrity Management Systems (PIMS**). These systems are based on a "*Plan-Do-Check-Act*" approach which promotes a continuous improvement in pipeline safety. This improvement in performance will apply to both preventive measures and mitigation measures such as emergency procedures.

Continuous **research and development and innovation** are key elements to ensuring that the gas industry can continue to maintain high levels of safety for its infrastructure.

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Technical Association of the European Natural Gas Industry

27 Member Organisations in 21 countries

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Created in 1968, MARCOGAZ is the Technical Association of the European Natural Gas Industry. It has developed over the years an efficient reputation with the official bodies in the European Union and other industry partners.

- MARCOGAZ chief mission is to serve its Members as the European window for any technical issue regarding natural gas.
- As the representative organisation of the European Natural Gas Industry, it aims at monitoring and taking influence when needed on European technical regulation, standardisation and certification with respect to safety and integrity of gas systems and equipment and rational use of gas.
- Environment, Health and Safety issues related to natural gas systems and utilisation are also of paramount importance for MARCOGAZ