Overview of the event in Germany (study tour to DVGW) in April 2014, the main findings and recommendations

Doctor V.E. Petrenko
Regional Workshop in Tbilisi on Gas Infrastructure and European standard EN 1594, 2015
Aim of the presentation

The purpose of this presentation is to recall the content of the study trip to DVGW.

The following slides offer a fundamental idea of the technical regulation and standardisation in the German gas sector.

More detail on the materials of the trip can be found in the presentations available at the INOGATE Partner Countries.
Brief overview of DVGW

Detlef Yagodzinski / Hiltrud Shulken
DVGW, Bonn 09.04.2014
• Purpose and objectives of the association
• Technical and technical/scientific support of gas and water supply sectors, with a focus on safety, hygiene and environmental protection
  – The association also assumes responsibility in other areas of the energy sector in relation to these objectives
• Non-profit association enjoys economic independence and political impartiality.
• DVGW’s activities reduce the burden on the state.
• The association does not represent commercial interests
DVGW – Membership structure

- DSOs, water supply companies: 1903
- Producers: 1386
- Authorities, institutions, organizations: 252
- Individual members: 9942

Total membership: 13,483
Areas of activity

- Safety
- Environmental protection
- Hygiene
System of technical self-regulation

Parliament
- defines
- General protection goals

Industry
- formulates
- Generally accepted technology rules

General provisions
- is related to
Establishment of technical regulations and standards in Germany

Standardisation of products

Normenausschuss Gastechnik (NAGas)
German Institute for Standardisation of gas

Functional standardisation
Deutsche Vereinigung des Gas- und Wasserfaches e.V. - German Industrial Association of Gas and Water

Set of technical rules of DVGW
Structure of Committees: Natural gas

**Gas supply**
- TC Gas transmission
- TC Compressor stations
- TC Gas distribution
- TC Gas installations
- TC Metering and measurement of gas
- TC Gas valves
- TC Materials and welding
- TC Dispatching
- TC UGSF
- TC External corrosion

**Gas use**
- TC Gas fuels
- TC Use of gas in households, commerce and industry
- TC CNG and gas-fuelled transport
- TC Gas installations
- TC Components and auxiliary supplies
- TC DVGW/DVFG Liquefied petroleum gas
- DVGW represents the interests of NAGas in DIN

**From production to use**
DVGW’s standardisation process

DVGW Technical Committee (TC), including experts from all bodies of the gas and water industry

Drafting the first "yellow" version

Experts can submit comments to DVGW during 3 months

TC considers comments and revises the yellow version

DVGW’s Executive Committee approves

"White" version

If a revision is needed, the procedure is repeated
DVGW’s Codes of practice: Safety, Hygiene, Environment

- Practical work in the gas and water industry is based on DVGW’s the code of practice.
- Codes of practice of DVGW offer companies the security they require for planning and reliable legal framework.
- Codes of practice of DVGW are recognized as generally accepted rules of technology and as the latest standard in the Energy Law and the Regulation on drinking water.
European membership and/or co-operation on natural gas

Members:
Austria, ÖVGW
Bosnia and Herzegovina, IGT
Hungary, authorities
Latvia, Latvijas Gaze
Poland, Stilbos
Romania, ANRE
Russia, associations
Slovakia, SGOA
Slovenia, DIZ GPZ
Switzerland, SVGW

Active cooperation
Albania, METE
Croatia, companies / authorities
Czech Republic, CGA
Macedonia, GAMA + authorities
Serbia, Srbjagas
Estonia, Eestii Gaasiliit
Coordinating Committee of South-East Europe (Bosnia, Serbia, Slovenia, Macedonia)
INOGLATE

- International co-operation is mainly covered through participation of IGU and ISO.
Implementation of technical rules of DVGW in relation to European standards
Study visit within the project INOGATE, 09-11 April 2014

Certified Engineer Detlef Yagodzinski, DVGW, Bonn
Introduction of the European functional standards at the national level

CEN / TR 13737-1 Guidelines for the implementation of functional standards - Prepared by CEN / TC 234 Gas infrastructure - Part 1: General provisions

Definition of the term "Functional standardisation"

Functional standards determine the function of technically complex systems, the value of the function: "work or activity aimed at doing something." Functional standards for gas infrastructure therefore cover many activities related to the creation of systems of gas infrastructure, and their proper operation and maintenance. Therefore, the term "functional" refers broadly to all technical and operational measures required to ensure that the system of gas infrastructure fulfill its purpose, i.e., to ensure a safe, continuous and reliable supply of gas to consumers.
Implementation of the European functional standards at the national level


"This standard specifies the general basic principles of the gas infrastructure. Users of this standard should be aware that the CEN member countries may have more detailed national standards and / or regulations. This standard is designed for use in conjunction with these national standards and / or codes of practice…

In the event of conflicts in terms of stricter requirements in the national legislation / regulation compared to the requirements of this standard, national legislation / regulation has precedence…”
Introduction of the European functional standards at the national level

Scope:
This part of the Technical Report outlines for each relevant country:

- relevant national legislation / regulatory documents in the field of gas infrastructure,
- relevant national standards and / or codes of practice,
- stricter national requirements, if any
- national authorities as sources of additional information

(Each CEN member is individually responsible for the contents of the national pages.)
DVGW's role in the context of the legal framework in Germany

Detlef Yagodzinski / Hiltrud Shulken
DVGW, Bonn, 09.04.2014
1. DVGW's role in the legislative context

2. DVGW's role in technical safety

3. DVGW as a competent partner for the authorities

4. DVGW - cooperation at the national and EU level
Concept of Germany’s energy policy

- Power supply is usually the responsibility of the private sector;
- Companies are privately owned;
- Companies are structured in line with European standards for a common market of gas and electricity, respectively (2009/73/EC, 2009/74/EC and the relevant Regulations);
- Companies operate under their own responsibility;
- Energy is a key factor in economic and social life, so it is necessary to carry out state supervision and enforce legislation explicitly.
Concept of Germany’s gas market

**Gas network operator**

- 17 transmission system operators (TSO)
- ~ 30 operators of regional networks (TSO/RNO)
- ~ 700 operators of local networks (RNO)

**Network customers**

- Producer
- Importer
- Trader
- Exporter
- UGSF operator
- Industrial consumer
- End user
Concept of Germany’s supervisory authorities in the energy sector

Federal Ministry of Economics and Technology (BMWi)

Energy bodies on the government-level + federal level (16) ➔ Technical security

Energy Regulatory Office (BNetzA) ➔ Energy market regulation

➢ Responsibilities distributed under the Energy Law in Germany (2005)
Regulatory framework in general

- **European directives**
  - Individually at the national level

- **European Regulations**
  - 1:1 implemented at the national level

- **Responsibility of the state**

- **Publicly available**

- **Not publicly available**

- **Laws**

- **Decrees**

- **Standards**
  - Codes of Practice
  - Consortium standards

- **Internal rules of the company**

- **Level of detail**

- **Flexibility**
Germany’s regulatory framework in gas

European Directive on the common market of gas (2009/73/EC) etc.

Law on the energy industry in Germany (2005)
Separate law on gas and electricity distribution

Decrees of Germany on:
- High pressure gas pipelines (GasHDrlGV)
- Access to gas network (GasNZV)
- Tariffs for access to the gas network (GasNEV)
- Incentive regulation (ARegV)
- Connection of consumer gas installations (NDAV)
- .......
Legislation, technical regulations and standards

Law on Germany's energy sector
Separate law on the distribution of gas and electricity

Relevant decrees

DVGW / DIN NAGas
Technical Regulations

Standardisation of products
DIN-Standards
EN-Standards

Functional standardisation
EN-Standards
Codes of Practice
Technical guidelines
Recommendations
Practical application of DVGW technical regulations in gas transportation

Inogate | 10.4.2014 | Essen
Contents

- Overview of OGE, OGE pipeline system in Germany
- Integrity Management System
- Design of pipelines and safety philosophy
- Pipeline Integrity Management System
- Corrosion management
- Hydrostatic testing and leak testing
- Methods for tube inspection
- Study of defects and failures
- Troubleshooting and repair methods
- Conclusions
# Integrity Management System

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<th>ISO 14001</th>
<th>OHSAS 18001</th>
<th>DVGW G 1000</th>
<th>Integrity Management System (HSEQ)</th>
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- □ Management System is introduced by Open Grid Europe (PIMS, IMMeR → PRMS)
- ■ Integrity Management System is introduced by Open Grid Europe and certified by an independent external body
Design, construction and operation of gas pipelines

Essen, April 10, 2014
Contents

1. Introduction
2. Fundamentals / Rules and Regulations
3. Design
4. Construction
5. Operating / Safety
6. Photograph
Main gas pipelines (surface) in Germany

Pressure: > 16 bar (currently up to 100 bar)

Diameters: Dy 100 (4") to Dy 1400 (56")

Temperature: -10 °C to +60 °C

Length: from several kilometers to several hundred kilometers
Procedure / Terms and plans for pipeline projects

Duration of the project:
Project start - Commissioning: approx. 3.5 yrs
Project start - End: approximately 4.5 yrs (incl. recovery)
Legal framework

2) Fundamentals / Rules and Regulations

- **Law**
  - EnWG (on energy sector)

- **Regulations**
  - GasHDrltg-VO (Regulation of high pressure gas pipelines)

- **Technical rules**
  - DVGW codes of practice, standards DIN-EN, ISO

- **Companies’ internal instructions**
  - Instructions of OGE, management
§ 49 Requirements to electricity generation facilities

(1) Technical security of energy facilities, compliance with generally accepted standards of technology must be ensured.

(2) There must be compliance with generally accepted standards of technology at enterprises for generation, transmission and distribution:
1. Electricity: technical rules of the Association of Electrical Engineers,
2. Gas: technical rules of the German Association for Gas and Water (DVGW)

are complied with.
§ 3 General requirements

§ 5 Notification and prohibitions on pipeline projects
  § 5 (1): Notifying the authorities for at least 8 weeks prior to the start of construction

§ 6 Commissioning, prohibition
  § 6 (1): Preliminary certification (after construction, prior to commissioning)
  § 6 (2): Final Act (after completion of all tests)

§ 8 Monitoring
Thank you for your attention!

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