Experience of operation of electronic database of full-text standards HAMMER in PJSC "Ukrtransgaz"

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Abstract

In the article, the mechanism of effective normative document provisioning is comprehensively studied, statistical studies on the use of various NDs types in the Company are analyzed; the indicators of the priority use of NDs are analyzed; development and improvement trends of the regulatory base for gas transmission industry of Ukraine following the abolition of the standards of the former USSR and the introduction of modern European and international standards in Ukraine are highlighted. The aim of this study is to represent the results of implementation of an electronic data-retrieval system of full-text operating normative documents in PJSC "Ukrtransgaz", emphasizing on the necessity of upgrading the existing normative documents. The paper demonstrates a relatively new approach to management of standards necessary for operation of a big service provider in the gas supply sector of Ukraine.

Keywords: *data base management system, electronic database, gas supply system, standard.*

Public joint-stock company "Ukrtransgaz" is a full-cycle organizational and technical production structure, carrying out all technological processes associated with transmission and storage of natural gas. All activities of the Company are regulated by normative documents (ND) on several levels, in particular:

1) regulatory acts (RAs) on issues of technical regulation, which include Laws and Codes of Ukraine, Presidential Decrees, Technical Regulations and other RAs of the Cabinet of Ministers of Ukraine, RA on Labour Protection (RALP), Fire Safety RA (FSRA), Sanitary rules and regulations, etc.;

2) national and industry-specific building codes, which are by laws of a technical nature;

3) standards of different levels of reception:

national standards of Ukraine;

standards of the Ministry of Energy of Ukraine;

standards of Naftogaz of Ukraine;

standards and other regulations of PJSC "Ukrtransgaz" [4].

Reliable, safe and efficient operation of an enterprise like PJSC "Ukrtransgaz" is impossible without a modern regulatory framework that would correspond to the current legislation of Ukraine, state of the art and requirements of the national NDs, in particular, those harmonized with international and European ones [3].

Taking into account the large number of employees and the fact that the numerous facilities of PJSC "Ukrtransgaz" are significantly diffused across the geography of the country (about 21,000 employees, geographically working almost all over Ukraine), the issues of regulatory provision of the Company's specialists are of top priority and are critical for the operation of such a strategically important enterprise as PJSC "Ukrtransgaz ".

In the article, on the example of PJSC "Ukrtransgaz", the mechanism of effective normative document provisioning has been comprehensively studied to support the Company's specialists at all levels by means of introduction and use of the computer-aided full-text system of normative documents (HAMMER system); statistical studies on the use of various ND types in the Company have been analyzed; indicators of the priority use of ND were analyzed, development and improvement trends of the regulatory base for gas transmission industry of Ukraine, taking into account the abolition of the standards of the former USSR and the introduction of modern European and international standards in Ukraine were highlighted. The study is based on works [5–7], in which approaches are given to establishing a modern regulatory framework for gas

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main transmission and underground storage as an element of a single regulatory field for the oil and gas complex.

The issue of regulatory support is extremely important for successful operation of any enterprise or company [8]. This is especially important for such a strategically important enterprise as PJSC "Ukrtransgaz", which supports the energy security of our country.

Currently, there are only two options available to solve this issue.

1) to provide all employees of the Company with paper or electronic copies of the necessary ND for their production activities;

2) to introduce an electronic information retrieval system of full-text operating ND, which would be accessible for all employees of the Company by use of modern computer technologies.

As practice and experience show, the first solution to the problem of providing copies of necessary NDs is not effective for a number of reasons: firstly, it requires considerable effort and a large number of personnel for printing, marking and taking account of the required NDs and mailing them to the specialists; secondly, the NDs often have changes, new versions of documents are issued, and considerable efforts are required to update them.

Much more effective and modern is the second option, which is to implement automated information retrieval systems (AIRS) of full-text NDs, thanks to which documents in the database are kept up-to-date and actualized real time.

Today, several specialized AIRS-s are developed and implemented in Ukraine; each of them covers a certain business process or a certain type of documents, including:

professional normative legal library named "Normative^{TM}PRO", which is the most complete of them and contains tens of thousands of NDs related to the oil and gas complex, labour protection, occupational health, fire safety, construction, etc. [10];

informational and legal support system named "LIGA:LAW". Its primary purpose is to provide informational and legal support for large enterprises; it contains current NRAs and other NDs by the central executive bodies of Ukraine on various issues [9];

information and reference system named "BUDSTANDART", which covers about 17 000 NDs related to the construction industry and the industry of building materials [2];

electronic library of normative and regulatory documents named "Budinform", which contains about 10,000 NDs in the field of design and architecture [1].

However, none of these systems covers the entire field of operation of PJSC "Ukrtransgaz" (including its branches) in terms of the structure and contents of their databases (DBs). They also contain large numbers of NDs that are not necessary for the operation of the Company. These two circumstances make the search of required documents much more complicated.

These systems are too generic and universal, they can be used by many enterprises with different types of business activity, but they do not fully meet the requirements of PJSC "Ukrtransgaz". In particular, they do not have the possibility to independently maintain and fill in the databases by the internal NDs of the Company, which would correspond to the types of business activity of PJSC "Ukrtransgaz".

Moreover, as a part of cooperation on standardization with German concern "E.ON", the employees of PJSC "Ukrtransgaz" got acquainted with the regulatory system of the concern, specifically, with the NormA system (see Fig. 1). This system has allowed the whole concern E.ON to abandon the paper workflow of standards and switch to electronic management of NDs.

Thus, as modern computer technologies became an essential part of Company's operation, an urgent need arose to develop, implement, and improve a very own and unique full-text information system for existing NDs – and that would allow for improvement and modernization of the gas transmission system (GTS) of Ukraine.

That is why in 2003 at SC "Ukrtransgaz" (the predecessor of PJSC "Ukrtransgaz") a decision was made to develop and implement a convenient AIRS that would have a DB to cover all the NDs used by the executive office of SC "Ukrtransgaz" and the regional specialists (including the workers of production facilities) and would meet all the requirements of the GTS personnel. And it was the HAMMER system that eventually became such an information system for up-to-date full-text electronic NDs on the gas transmission sector and, effectively, a digital stock of NDs.

Stages of development and implementation of the HAMMER system in PJSC "Ukrtransgaz" are described in detail in [2].

Today, the HAMMER system is a comprehensive information retrieval system for full-text NDs, which fully meets the need of the specialists of PJSC "Ukrtransgaz" for NRAs and other NDs (including standards) at all levels. The system is implemented in the executive office, in departments for main gas pipelines (DMGP-s) and other branches, as well as at the level of the production departments of main gas pipelines (PDMGP), production departments for underground gas storage (PDUGS) and other subdivisions. The HAMMER system has been in operation since 2005, and today it is an informational cornerstone of legal and regulatory support of the Company. This is due to the fact that it has connection to both the paper distribution fund of the NDs of PJSC "Ukrtransgaz" and "The List of existing NDs for design, construction, operation and maintenance of facilities Gas transmission system of Ukraine", which is regularly published and distributed across the entire Company and subdivisions thereof.

The system's software consists of the following subsystems:

admin's software;

users' software that has a network version and a local version (the home screen of the system);

software tool to log the work of users;

software tool to update system versions.

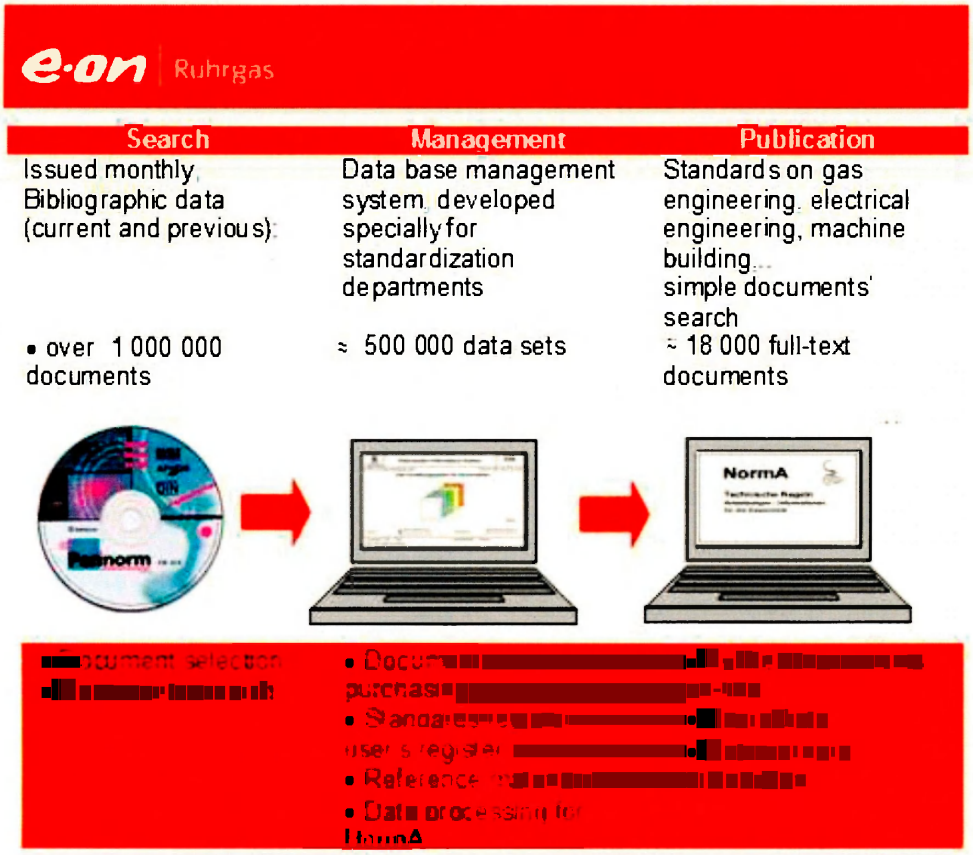

Figure 1 – Concept E.ON system of regulatory support

Table 1 – Distribution of users of the HAMMER system in the subdivisions of PJSC "Ukrtransgaz" according to the data system users' logging software

Subdivision of PJSC "Ukrtransgaz"	Total number of staff	Number of HAMMER users
The PJSC "Ukrtransgaz" executive office	558	117
DMGP "Kyivtransgas" (administration and subdivisions)	3538	453
DMGP "Lvivtransgas" (administration and subdivisions)	2631	309
DMGP "Prykarpattransgas" (administration and subdivisions)	2761	387
DMGP "Kharkivtransgas" (administration and subdivisions)	3925	733
DMGP "Cherkasytransgas" (administration and subdivisions)	2171	311
NPC "Techdiagas" (Kyiv, Kharkiv, local diagnostic sites)	373	146
Administration "Ukrgastechzvyazok"	940	60
PRTE "Ukrgasenergoservice"	977	45
CMC "Ukegasprombud"	1981	41
R&D Institute for Gas Transportation	104	43
Agrogas	513	5
Administration on construction and reconstruction of GTS	21	6
Total:	20493	2656
Note. The total number of users of the system does not perfectly add up, for a reason. First, Hammer_Stat software provides information only about users who are connected to the corporate network. Second, over time structural changes in departments may occur, computers of some users may be relocated, etc.		

As of January 1, 2017 the HAMMER system has 2656 users. The distribution of users by subdivisions of PJSC "Ukrtransgaz" is shown in Table 1. As the table shows, most users of the HAMMER system are employed at DMGPs, at SPC "Techdiagaz" and at the R&D Institute for Gas Transportation. As a matter of fact, these subdivisions hold the majority of the engineering, technical and scientific resources of the Company.

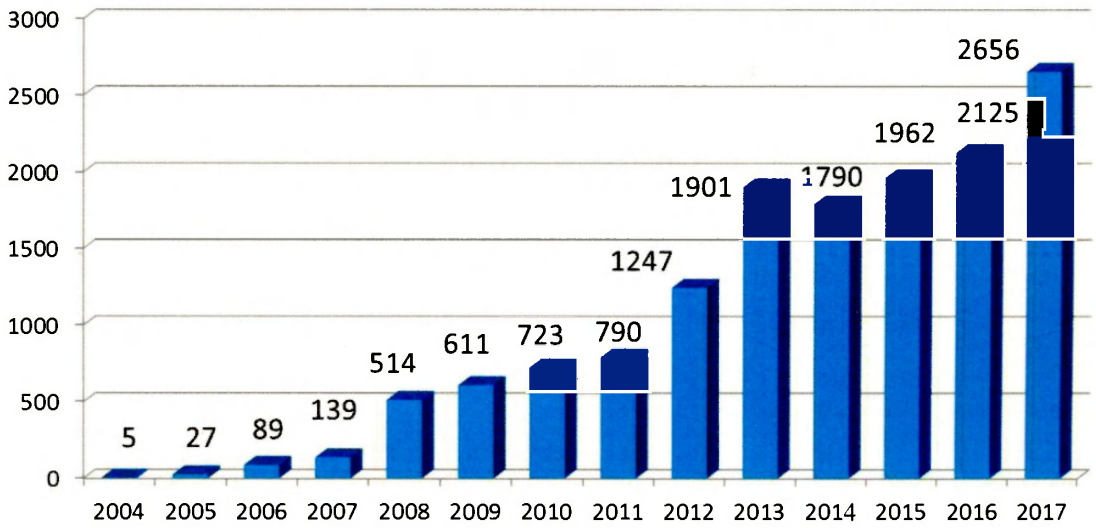

Figure 2 – The number of users of the HAMMER system in 2005–2017

Table 2 – Distribution of NDs in DB according to the activity areas

DB chapter	Chapter title (thematic classifier)	Number of NDs
1	Normative and legal acts	821
2	Design, major construction, reconstruction and technical re-equipment	1123
3	Operation of electrical equipment and transmission lines	642
4	Resource savings, energy saving, accounting and valuation of FPR and material resources	165
5	Operation of motor vehicles and special equipment	291
6	Operation of main gas pipelines CS, LP, UGS, GDS)	420
7	Welding	206
8	Corrosion protection and diagnostics of corrosion of buildings	138
9	Technical diagnostics, reliability and industrial safety of GTS facilities	1071
10	Metrology and gas measurement	419
11	Operation of automation, telemech and SAC	244
12	Operation of communication and signalling equipment	241
13	Labour protection, technical supervision and fire safety	1053
14	Environmental protection	202
15	Organization and management of enterprises, marketing and logistics	102
16	Standardization, certification, licensing and quality management systems	231
17	Scientific and technical activities	61
18	Terminology	210
19	Hydrocarbon raw materials and products	135
20	National classifiers	22
Note. NDs can belong to multiple chapters		

It is interesting to study the trend of how the HAMMER has been developing since 2004 – which is when the software system was created and gradually started to implement. Fig. 2 shows how the number of users of the HAMMER system changed in time, year by year.

As Fig. 2 shows, statistically there is a steady growth in the number of users of this system in PJSC "Ukrtransgaz", in spite of a general descending trend in the number of staff (from more than 28,000 employees as of 2004 to about 21,000 employees as of 2017). This once again illustrates significant value that the system provides for the users and shows how critical the system is for efficient and reliable operation of the Ukrainian GTS.

The subject index of the HAMMER system is built according to types of business activity of PJSC "Ukrtransgaz", and it corresponds to the structure of "The List of existing NDs for design, construction, operation and maintenance of facilities Gas transmission system of Ukraine". The distribution of NDs in the database as of 01.07.2017 by the headings of the thematic classifier is given in Table. 2.

Table 3 – Analysis of regulatory system of PJSC "Ukrtransgaz" (based on 2017/02/01)

Valid NDs, totally (incl. partly valid, valid temporarily and with not set validity) (not including those, being in force but not valid)	**6928** **(33; 986; 69)** **(231)**
RA of Ukraine (incl. laws, codes, orders of the President, ND of the CMU, NDs of the CGB, registered in the Ministry of Justice of Ukraine)	**819**
Standards of various levels of adoption (incl. DSTU, GOST, CS SEV, RST, ISTU, OST, SOU, STK, STP)	**4491** **(3194; 951...)**
Construction norms (incl. DBN, SNR with guide books, VBN, GBN, ONTP, VNTP, VSN)	**234** **(70; 59; 30; 6...)**
Documents of PJSC "Ukrtransgaz" (SC "Ukrtransgaz") (incl. standards, provisions, practices, NVR, ONP, instructions, procedures)	**648**
NDs of the former USSR (incl. GOST, NDs of OS, OST, SNR, VSN, VNTP, etc.)	**1405 (20.3 %)**

The most important issue is to define the NDs that are most demanded among the subdivisions of PJSC "Ukrtransgaz". This allows for identification of the documents that are of top priority for effective operation of the GTS.

Considering the high cost of technical standards drafting, their relatively quick aging, and the likelihood of changes in the legislative and regulatory framework on technical regulation and standardization of the national and industry-grade levels, it is extremely important to predict the needs for drafting new NDs or amending existing ones, as with proper pre-made decisions considerable funds for the formation of an effective system of standards will be saved, being able to meet the needs of the gas transport industry.

This issue is even more important now that the Program of Activities of the Cabinet of Ministers of Ukraine (CMU) is effective, approved by the Resolution of the Cabinet of Ministers on December 9, 2014 No. 695 and ratified by the Decree of the Verkhovna Rada of Ukraine on December 11, 2014 No. 26-VIII. The Program aims at adoption of national standards harmonized with EU standards and abolition of the standards of the former USSR on the territory of Ukraine (GOST standards, developed before 1992 including, and DSTU GOST, which are identical to GOST standards). In addition, the Strategy for evolution of the technical regulation system for the period until 2020, approved by the CMU Order No. 844-r of August 19, 2015, also aims to adoption of European standards as national standards of Ukraine and to simultaneous abolition of GOST standards, in order to adopt the relevant European technical regulations.

Table 3 gives the analysis of the regulatory support of PJSC "Ukrtransgaz" as of 01.02.2017.

As Table 3 demonstrates, about 20.3% (1405 ND) of the whole regulatory framework used by the specialists of PJSC "Ukrtransgaz" may be cancelled, 977 standards of which are GOST standards, adopted before 1992. This poses rather complicated task for the standardization service of PJSC "Ukrtransgaz". We consider this task as step-by-step adoption and introduction of modern European and international requirements aimed to replace outdated GOST standards as obsolete from a certain date by the relevant orders of the National Standardization Authority (SC "UkrNDNC").

Therefore, at the PJSC "Ukrtransgaz", using the software of HAMMER system, the intensity of using the ND according to the headings of the thematic classifier during 2015, 2016 and 1 half-year of 2017 was analysed. The intensity of using the NDs according the headings of the thematic classifier by years is shown in Table. 4.

According to the results of the study, the mostly used among specialists of PJSC "Ukrtransgaz" are NDs from the following sections:

operation of main gas pipelines (CS, LP, UGS, GDS);

technical diagnostics, reliability and industrial safety of GTS facilities;

labour protection, technical supervision and fire safety.

Therefore, these are the documents that need to be given the most attention in terms of actualization and development and introduction of new NDs. Those sections have the following structure:

6 OPERATION OF MAIN GAS PIPELINES

6.1 Pipelines with branches and loupes

6.2 Gas distribution stations

6.3 compressor stations

6.4 Underground gas storage

9 TECHNICAL DIAGNOSTICS, RELIABILITY AND SAFETY OF GTS FACILITIES

9.1 Technical diagnostics and reliability

9.2 Industrial safety

13 LABOUR PROTECTION, TECHNICAL SUPERVISION AND FIRE SAFETY

13.1 Labour protection

13.2 Fire safety

13.3 Civil protection

Somehow less used, but also extremely necessary for the operation of the GTS, are the NDs from the sections "Design, Capital Construction ...", "Metrology and Gas Measurement" etc.

Table 4 – Intensity of use of NDs by the directions of activity (the headings of the thematic classifier)

DB chapter	Chapter title (heading of the thematic classifier)	2015	2016	2017 (1 half-year)
1	Normative legal acts	557	1088	804
2	Design, capital construction, reconstruction and technical re-equipment	4687	4894	3768
3	Operation of electrical equipment and transmission lines	2560	2617	1800
4	Resource saving, energy saving, accounting and valuation of FPR and material resources	1865	1882	1110
5	Operation of motor vehicles and special equipment	719	831	436
6	Operation of main gas pipelines CS, LP, UGS, GDS)	10878	11580	6514
7	Welding	723	804	501
8	Corrosion protection and diagnostics of corrosion of buildings	1641	1879	1125
9	Technical diagnostics, reliability and industrial safety of GTS facilities	10408	11729	7817
10	Metrology and gas measurement	3030	3128	2095
11	Operation of automation, telemech and SAC	1765	1764	1189
12	Operation of communication and signalling equipment	1039	1008	539
13	Labour protection, technical supervision and fire safety	12753	13725	9885
14	Environmental protection	1958	2162	1436
15	Organization and management of enterprises, marketing and logistics	988	1177	895
16	Standardization, certification, licensing and quality management systems	1756	2097	1573
17	Scientific and technical activities	145	144	95
18	Terminology	390	370	206
19	Hydrocarbon raw materials and products	627	687	362
20	State classifiers	5	37	31

Within the study, intensity of the documents usage from the mostly used chapters during 2015, 2016 and the first half of 2017 was completed.

According to the results of the analysis, ratings have been formed around the total array of NDs used by PJSC "Ukrtransgaz". As an example, the Table 5 shows the top 30 documents, which are basic and mostly used in the activities of specialists of PJSC "Ukrtransgaz".

Table 4 demonstrates that most important topics in line with basic occupation of the company staff are following: the fundamental standard SOU 49.5-30019801-115: 2014 "Rules of technical operation of main gas pipelines", which establishes the basic requirements for the operation of main gas pipelines, compressor stations, underground gas storage, gas distribution and gas measuring stations. It should also be noted that among 30 NDs, which are intensively used by experts, there were included some outdated, but they are extremely necessary for safe and continuous operation of PJSC "Ukrtransgaz":

SNR 2.05.06-85 "Main pipelines";

a number of standards and NDs adopted by PJSC "Ukrtransgaz":

1) Instruction of the SC "Ukrtransgaz" dated from18/06/18, No. 134 "Instruction on air pollution control of explosive items";

2) CS 320.30019801.050–2002 "Instruction on the procedure for receiving, transporting, storing and using the odorant at the facilities of PJSC "Ukrtransgaz";

3) CS 320.30019801.074-2003 "Labour protection: Procedure for obtaining from suppliers, transportation, storage, release and use of methanol at the facilities of PJSC "Ukrtransgaz";

4) SOU 60.3-30019801-007: 2004 "Main gas pipelines: Non-destructive control during capital repairs".

These documents became morally and physically outdated long time ago and will be subject to revision and replacement in the closest future. If we carry out a more in-depth analysis of the most used NDs, then the list of such standards will also include:

GOST 5542-87 "Flammable natural gases for industrial and municipal purposes. Technical conditions";

GOST 8732–78 "Seamless steel hot-dip galvanized pipes;

GOST 12.1.005–88 "System of work safety standards. General sanitary and hygienic requirements for air in the working zone";

GOST 14202–69 "Pipelines of industrial enterprises: identification, warning signs and marking plates";

GOST 20295–85 "Steel welded steel pipes for main gas pipelines - Technical specifications".

Table 5 – Intensity of the NDs' use within the period of 2015-2017

#	ND notation and title	ND usage during 2015–2017, no of times
1	SOU 49.5-30019801-115:2014 Rules of technical operation of main gas pipelines	2240
2	SOU 49.5-30019801-121:2014 Labour protection. Procedure for admission of third-party employees to perform works (tasks) at the facilities of PJSC "Ukrtransgaz"	1572
3	NRALP 60.3-1.01-10 Rules for safe operation of main gas pipelines	1356
4	SOU 49.5-30019801-101:2012 Labour protection. Fireworks. Instruction	1226
5	Instruction of SC "Ukrtransgaz" from 09.09.2008 # 340 Instruction on safe performance of gas dangerous works at the facilities of PJSC "Ukrtransgaz"	1194
6	SOU 60.3-30019801-049:2007 Labour protection. Regulations on training of employees of PJSC "Ukrtransgaz"	1156
7	NRALP 0.00-1.20-98 Safety rules for gas supply systems in Ukraine; NRALP 0.00-1.76-15 Safety rules for gas supply systems of Ukraine (valid from 07.07.2015)	1144
8	SOU 60.3-30019801-056:2008 Fire safety rules at facilities of the gas supply system of PJSC "Ukrtransgaz"	1106
9	REIE Rules for the installation of electrical installations (all 7 sections)	1093
10	NRALP 0.00-1.07-94 Rules for the construction and safe operation of pressure vessels; NRALP 0.00-1.59-87 Rules for the construction and safe operation of pressure vessels	880
11	SOU 60.3-30019801-071:2009 System of labour protection management in SC "Ukrtransgaz"	880
12	NAPB A.01.001-2004 Rules of fire safety in Ukraine; NAPB A.01.001 Rules of fire safety in Ukraine (Valid from: 10.04.2015)	753
13	SOU 60.3-30019801-100:2012 Natural gas flammable. Determination of the volume of natural gas consumption for production and technological needs during its transportation by gas transportation system and operation of underground gas storage facilities. Calculation procedure	748
14	DBN A.3.1-5–2009 Management, organization and technology. Organization of construction production; Guide to DBN A.3.1-5-96; DBN A.3.1-5: 2016 Organization of Construction Production (Valid from: 01.01.2017)	703
15	CS 320.30019801.050–2002 Instruction on the procedure for receiving, transporting, storing and using the odorant at the facilities of PJSC "Ukrtransgaz"	682
16	PDGT 01:2013 Quality control systems, environmental management, safety management and energy management. Documentation management	671
17	SOU 49.5-30019801-113:2013 Safety Management System. Departmental control	598
18	NRALP 0.00-4.12-05 Typical regulations on the procedure for conducting training and verification of knowledge on occupational safety issues	594
19	SNR 2.05.06-85 Main pipelines	557
20	SOU 60.3-30019801-086:2010 Main pipelines. Premises, buildings and exterior installations. Fire Security. Categories and classes of zones	528
21	NRALP 40.1-1.21-98 Rules of safe operation of electrical installations of consumers	525
22	CS 320.30019801.074–2003 Occupational Health. Procedure for obtaining from suppliers, transportation, storage, release and use of methanol at the facilities of PJSC "Ukrtransgaz"	505
23	SOU 60.3-30019801-084:2010 Occupational Health. Special training for key occupations. Programs	500
24	NRALP 40.1-1.32-01 Rules of structure of electrical installations. Electrical equipment of special installations	499
25	SOU-N MFE 60.3.006:2005 Rules for safely executing of works in security zones of main and inter-industrial pipelines	495
26	DBN A.3.2-2-2009 (NRALP 45.2-7.02-12) System of safety standards. Labour protection and industrial safety in construction. Substantive provisions	489

Continue of Table 5

#	ND notation and title	ND usage during 2015–2017, no of times
27	NRALP 0.00-1.71-13 Rules of labour protection when working with tools and devices	484
28	CS 320.30019801.063–2002 Main and technological gas pipelines. Elements of gas pipelines. Ultrasound control; SOU 60.3-30019801-007:2004 Main gas pipelines. Non-destructive control over capital repairs; SOU 60.3-30019801-031:2005 Main gas pipelines. Welding quality control (partly) SOU 49.5-30019801-136:2017 Main gas pipelines. Testing. Non-destructive and destructive control (Valid from: 20/04/2017)	464
29	Instruction of SC "Ukrtransgaz" dated from 2001.06.18 No. 134 Instruction on air pollution control of explosive items	462
30	Regulations of the Ministry of Fuel and Energy of Ukraine dated from 25.07.2006 No. 258 (RTOEI) Rules of technical operation of electrical installations of consumers	460

These GOSTs are valid in Ukraine until January 1, 2019 – they will be rejected according to a number of orders issued by SE "UkrNDNC" without relevant replacement.

Also, the list of the most used NDs has included such documents, which can only be conventionally called valid, due to their moral aging and inconsistency with the current legislation and the national regulatory framework. These are the following documents:

VSN 012-88 / Minneftegasstroy USSR "Construction of main and industrial pipelines - Part I - Part II";

VSN 006-89 / Minneftegasstroy USSR "Construction of main and industrial pipelines. Welding";

VSN 008-88 / Minneftegasstroy USSR "Construction of trunk and industrial pipelines. Corrosion and thermal insulation (in the part of main pipelines)".

We have to say that at national level there are no solution on dealing with such type of documents and we believe some approach in line with EU practice has to be established.

Conclusion

The modern methods of normative support of activity of the gas transmission industry of Ukraine were analyzed in the article. Harmonization with EU norms and standard is now a single trend in this area in Ukraine.

A significant amount of NDs are being actively used in the gas supply industry, and the structure of these NDs corresponds to the basic processes of operation of the GTS of Ukraine. The age, category and scope of these standards vary widely.

PJSC "Ukrtransgaz" has developed and implemented at all levels of data-base called HAMMER, which is an effective information tool for normative support for key staff of PJSC "Ukrtransgaz".

The intensity of the standards' usage according to the operational position of staff (e.g. headings of the thematic classifier of the HAMMER system database) during 2015, 2016 and 1 half-year of 2017 for further planning of the work of the standardization service of PJSC "Ukrtransgaz" was analysed.

The list of the most ranked documents on the whole massive of the ND used by PJSC "Ukrtransgaz" is structured and analysed in detail, and the priority directions in updating and development of new modern NDs for the needs of specialists are defined.

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Досвід використання електронної інформаційно-пошукової системи повнотекстових чинних нормативних документів HAMMER у ПАТ «Укртрансгаз»

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Комплексно досліджено механізм ефективного забезпечення нормативними документами (НД) фахівців Товариства на всіх рівнях його роботи шляхом упровадження і використання автоматизованої повнотекстової системи нормативних документів HAMMER. Наведено статистичні дослідження використання різних видів НД у виробничій діяльності Товариства, проаналізовано показники пріоритетності використання НД. Зазначено напрями розвитку та удосконалення нормативної бази газотранспортної галузі України у зв'язку зі скасуванням стандартів колишнього СРСР та запровадженням в Україні сучасних європейських та міжнародних стандартів. Наведено результати впровадження та використання електронної інформаційно-пошукової системи повнотекстових чинних нормативних документів HAMMER у ПАТ «Укртрансгаз», зважаючи на необхідність оновлення та актуалізації нормативних документів. Результати роботи демонструють новий підхід до управління стандартами, необхідними для роботи великого постачальника послуг у секторі газопостачання України.

Ключові слова: *електронна інформаційно-пошукова система, система газопостачання, система керування базою даних, стандарт.*