

Ecological policy in oil-gas complexes, HSE MS implementation in oil and gas company

Kochetkova O.P.¹, Glyzina T.S.², Vazim A.A.³, Tugutova S.S.⁴

¹ Institute of Natural Resources, National Research Tomsk Polytechnic University,
30 Lenin Av., Tomsk, 634050, Russia

kochetkova@tpu.ru

² Institute of Natural Resources, National Research Tomsk Polytechnic University,
30 Lenin Av., Tomsk, 634050, Russia

gts@tpu.ru

³ Institute of Natural Resources, National Research Tomsk Polytechnic University,
30 Lenin Av., Tomsk, 634050, Russia

vazim@tpu.ru

⁴ Institute of Natural Resources, National Research Tomsk Polytechnic University,
30 Lenin Av., Tomsk, 634050, Russia

Sarana@mail.ru

Abstract. The paper considers the following issues: HSE MS international standard implementation in oil and gas industry, taking into account international practices; implementation of standards in oil and gas companies; policy in the field of environmental protection and occupational health and safety; achievement of planned indicators and targets in environmental protection and occupational health and safety.

Key words: ecological policy, audit, certification, GOST, occupational health and safety

1. Introduction

The research of economic mechanisms providing environmental safety in oil and gas industry is a topical scientific problem, which allows making scientifically reasoned decisions. These decisions contribute into development of environmentally determined economy, which is characterized by a minimal negative impact on environment and low resource intensity.

The object of the research is a complex of methods and economic management instruments for HSE MS international standard implementation in oil and gas industry, taking into account international practices.

Currently, international certification of quality systems presents a logic classification of standards. It reflects various requirements for manufacturers and suppliers, which are focused on the interests of an ultimate customer. This standard matrix is defined by the abbreviation «ISO» - International Organization



for Standardization. ISO has its efficient analogue in Russia; it is the system of standards «GOST R ISO», which appears to be a unique instrument regulating market relations in the conditions of positive competition.

The presence of certified system of environmental management system at the enterprise has become an indispensable condition for business operations on world-wide basis. This certificate provides advantages at conclusion of transactions, participating in competitions. The company becomes more competitive with this certificate, and it cultivates company's image.

2. HSE MS implementation in oil and gas companies

HSE MS implementation in oil and gas companies is necessary for a number of reasons.

Firstly, it helps to achieve and demonstrate more efficient occupational health and safety and environmental performance.

Secondly, the presence of ISO 14001 and OHSAS 18001 certificates gives to oil-gas complexes indisputable benefits.

International standards require determining the ecological policy, which is suitable for the organization.

This policy reflects the responsibilities of the top management in keeping legal and other applied requirements, pollution prevention and continual improvement.

Ecological aspects, dangers and company's risks are identified and analyzed.

Ecological aspects are the activities of the organization, its products or services, which may interact with environment.

Danger is a source, situation or action, which are able to damage a human or cause his health deterioration.

Environmental changes, negative or positive, which follow either in part or in whole from ecological aspects are defined as environmental impact. Correlation between ecological aspects and impact means that the aspect is the cause of impact.

As far as the organization has many ecological aspects and dangers, HSE specialists conduct risk assessment in order to assess efficiency of management measures in respect to the particular risk.

There are several types of major risks in oil-gas complexes: the loss of resources, personal injury, direct fire and thermal influence [9].

Being identified, legal and other requirements are divided into 2 groups. In this case, each group is divided into sections.

The first group (legal and other requirements in environment protection) contains the following sections: atmosphere air protection; water-resources conservation, soil conservation, forest conservation, conservation of mineral resources, environmental audit, damage prevention and control of environmental accidents, other impacts.

The second group (legal and other requirements in occupational health and safety) contains the following sections: documents regulating the responsibilities of the employer in OHS-system implementation and providing safe working conditions at the enterprise; documents regulating the responsibilities of the employer in control of OHS-system operation and providing safe working conditions at the enterprise; documents regulating the responsibilities of the employer in taking measures in OHS at impact of harmful and dangerous production factors on personnel health; documents regulating the responsibilities of the employee in fulfilling OHS requirements.

In oil- gas complexes operation and activity management is performed, which is connected with identified dangers and ecological aspects. It is necessary to take measures on de-risking and risk management in the field of environmental protection and occupational health safety. So, the activities connected with revealed significant ecological aspects and dangers and leading to deviations from ecological policy, ecological aims and objectives, must be performed with the methods that allow monitoring or decreasing their harmful impact.

Indexes of monitoring are connected with significant ecological aspects, dangers, planned indicators and targets.

MS noncompliance involves any failure in requirements of:

- International standard ISO 14001:2004;
- International standard OHSAS 18011:2007;
- Business procedures of MS oil and gas play;
- Regulatory legal acts and others in HSE.

Noncompliance is revealed as a result of monitoring and measurements, manufacturing inspection in the field of HSE, internal audit, external inspections, assessment of legal and other requirements correspondence in HSE, analysis of interested party references, analysis performed by top management.

The procedure of noncompliance management includes the following activities:

- Noncompliance recording;
- Report about revealed noncompliance to authorities;
- Correction implementation (prompt elimination/moderation of noncompliance sequences);
- In-depth analysis of noncompliance causes;
- Development of corrective/preventive actions for eliminating noncompliance causes and preventing their repeat, assessment of potential material and financial costs associated with their implementation;
- Fulfillment of corrective/preventive actions;
- Performance control and analysis of efficiency for corrective/preventive actions taken.

The results of commission activities in determining emergency causes are recorded officially. The commission, having investigated emergency causes, arranges distribution of materials obtained within 3 days after the end of investigation [5].

The results of commission activities in determining technological incident causes are recorded officially according to the sample specified by Association. The investigation report is signed by all the members of the commission [5].

3. Audit

Audit is the process of revealing HSE noncompliance to the requirements of international standards. Also, it is a systematic, independent and documented process of collecting and unbiased assessment of audit evidence in order to determine the level of criteria's fulfillment established in the organization [6].

In oil-gas complexes internal audit of MS is performed in accordance with the requirements of «Internal audit procedure of HSE MS in oil-gas complexes». The procedure determines the requirements and sequence of actions in internal MS audit performance in oil-gas complexes, and also it establishes forms for documents and records in internal audit [8].

Audit is performed in order to:

- Assess MS compliance to the requirements of international standards ISO 14001:2004, OHSAS 18001:2007 as well as to the requirements of MS documents in oil-gas complexes and its interrelated documents [6], [7].
- Assess MS efficiency with regard to Policy implementation in the field of environmental protection and occupational health and safety, and achievement of planned indicators and targets in environmental protection and occupational health and safety.
- Inspect efficiency of corrective /preventive actions aimed at MS improvement.

Internal audit of the first level is the internal audit in the Central Administrative Office and oil-gas complex, its arrangement and performance is carried out by auditors of Central Administrative Office.

Internal audit of the second level is the internal audit in oil-gas complex, its arrangement and performance is carried out by the department of environmental protection and occupational health and safety.

Table 1. MS internal audit check-list

MS internal audit check-list		
Standard/MS Document OHSAS 18001:2007 and ISO 14001:2004		
<i>Department</i>	<i>Audit Questions</i>	<i>Audit Findings</i>
Production properties of oil and gas, Oil & Gas Production Department № Console operator in oil and gas production	<ol style="list-style-type: none"> 1. What for HSE MS is needed for the company? 2. When has HSE MS implementation been started in LLC «TN»? 3. What actions have been taken for it? 4. Does LLC «TN» have a certificate of international standard compliance? What? 5. How staff participates in EMS implementation and its support in Association? 	<p>To achieve and demonstrate efficient OHS and environmental performance.</p> <p>It is achieved by control over activities, products and services and their impact on environment according to its ecological policy and targets.</p> <p>HSE MS implementation.</p> <p>Ecological policy establishment. Assignment of executives in HSE MS</p> <p>Working team in HSE MS is formed. Regulation on HSE MS and company standards are adopted.</p> <p>Ecological aspects, dangers and risks are indentified. The analysis is conducted and significant non-conformance is revealed. The documents are prepared: Environmental Aspect Register.</p> <p>Consolidated Register of significant ecological aspects of Association;</p> <p>Register of Association dangers;</p> <p>Consolidated Register of dangers with prohibited or significant Association risks.</p> <p>Register of legal and other requirements in the field of HSE MS is formed.</p> <p>Staff training is conducted periodically in issues of OHS, E and IS as well as instructing, internal audits and assessment</p>

		of HSE MS conformance
		Yes, it has. ISO 14001 and OHSAS 18001
		In accordance with duty regulations

4. Conclusion

In order to provide economical conversion of the country from a resource-based type to the efficient and highly technological production, it is necessary to solve two problems. The first problem is formation of permitting and monitoring environmental infrastructure (licensing and certification of environmental activities, independent environmental assessment, ecological risk insurance, environmental audit, complex statistical monitoring of environment pollution). The second one assumes changes in environment legislation aimed at forming economic incentives for the use of modern international standards.

References

- [1] Groshilin S M 2012 *A textbook. M.: GBOU VPO Pervyj MG MU im. I.M. Sechenova. Methodological and legal principles of vital activity safety.* pp. 195
- [2] Accredited certification authority SERCONS [web-site] URL: <http://www.serconsrus.ru> (21st April, 2016)
- [3] International Organization for Standards [web-site] URL: <http://www.worldico.org> (21st April, 2016)
- [4] MES of Russia Order d.d. February, 28, 2003, № 105 “About establishing requirements for preventing emergencies at potentially hazardous facilities and vital infrastructure”. In Rus.
- [5] Federal act d.d. July, 27, 2010, N 225-FZ (ed. d.d. November, 4, 2014) “About compulsory liability insurance of an owner of a hazardous facility against damage resulting from an accident at a hazardous facility”. In Rus.
- [6] ISO 14001:2004 EMS. Requirements and application guide. In Rus.
- [7] OHSAS 18001:2007 MS of occupational health and safety. Requirements.
- [8] Vazim A A, Romanyuk V B, Akhmadeev K N, Matvenko I A 2015 *IOP Conf. Ser.: Earth and Environ.* Associated petroleum gas utilization in Tomsk Oblast: energy efficiency and tax advantages. Vol. 27 pp. 1-5. <http://dx.doi.org/10.1088/1755-1315/27/1/012078>