INTERNATIONAL CONFERENCE ON RISK ASSESSMENT AND MANAGEMENT

Standards for management of technical risks and their applications

VNIINMASH,
Dr. Vyacheslav Popov,
Head of Department

Geneva, 2009
STANDARDS AND RISK ASSESSMENT

RISK FACTORS INFLUENCING ON PRODUCT

Stages of life cycle

Risk Assessment

Development (Update)

Political

Economic

Financial

Legal

Technical

Reliability

Environmental

Marketing

Human

Project

Manufacturing

Operation

Dismantling

Project Risk Assessment

Manufacturing Risk Assessment

Operational Risk Assessment

Dismantling Risk Assessment

Standard and/or Regulations
MODEL OF TECHNICAL REGULATION

Risk Assessment

Technical Regulations (TR)

Objects of Technical Regulation

TR Compliance Assessment for Objects

National Standards and/or Codes of Practices used for TR compliance assessment

Other documents used for TR compliance assessment

TR Compliance

No

Yes

Products prevented from entry into the Market

Products allowed into the Market

Assessment carried out by Governmental Watchdogs (Supervisory Authorities) and Accredited Certification Bodies and Test Labs (Centers)

Register of National Standards and/or Codes of Practices

TR compliance assessed via:
- Confirmation of Conformity;
- Governmental Monitoring (Supervision);
- Tests;
- Registration;
- Commissioning of Object
IDENTIFYING FREQUENCY OF HAZARD EXPOSURES AND GRAVITY OF EFFECTS

Carrying out Risk Assessment

Safety Requirements Identification in standards (ISO/IEC Guidelines 51, GOSTR R 51898)

Application of international and national standards in the development of TR safety requirements; The national standards may indicate TR requirements.

Identification of Safety Requirements and Compliance Assessment Forms in the TR

Harmonization of Technical Regulations and Standards
CLASSIFIER OF RISK ASSESSMENT DOCUMENTS

Federal Law «On Technical Regulation»
Federal Law «On Industrial Safety»

GOST R 51897-2002
GOST R 51898-2002
GOST R ISO 12100-1-2007

Regulations «On Safety of Machinery and Equipment»
Regulations «On Fire Safety Requirements»
Regulations «On Lift Safety»

Draft Regulations «On Safety of Low-Voltage Installations»

GOST 27.310
GOST R 51901.1
GOST R 51901.11
GOST R 51901.13

GOST R IEC 61160
Guidelines RD 03-418-01

Methods for Defining Fire Risk Parameter Values

GOST R ISO 12100-2
GOST R 51344
GOST R 51338
GOST R ISO 14971

R 50.1.066-2009
GOST R 51609
GOST R 51309

GOST R IEC 61508
VNIIS Recommendations

GOST R ISO/TS 14798
GOST R ISO/IEC 17799

GOST R ISO 15265

Multi-sectors documents
Safety of machinery
Electro technical
Medical
Safety of Lifts
Production
IT
A majority of Risk Assessment Documents are developed on the basis of international standards

Harmonized National Standards provide:
- a consistent and clear-cut basis highlighting technologies and best practices in relevant areas including, inter alia, terminology, classifications, assessment methods, risk values, and best management practices;
- cutting-edge knowledge formalized by the area-specific prominent experts and based on international consensus resulting from a balance of interests representing technologic, economic and public interests in a vast majority of countries.
As the national standards and other documents in risk assessment are adopted, agreement has been reached on several issues, namely:

- Terminology used;
- Practical Application of Risk Management (incl. risk assessment);
- Organizational Structure of Risk Management;
- Risk Management Objective;
- Hazardous Exposure Frequency;
- Gravity of Effects;
- Risk Profiles
## RISK ASSESSMENT DOCUMENTS FOR TR APPLICATION

<table>
<thead>
<tr>
<th>TR «On Safety of Low-Voltage Installations»</th>
<th>TR «On Fire Safety Requirements»</th>
</tr>
</thead>
<tbody>
<tr>
<td>The recommendations are used to grade low-voltage installations by harm infliction risk. The recommendations define methods to assess harm infliction from low-voltage installations and classify it into one of risk groups.</td>
<td>The methods specify common requirements to define and calculate fire risk parameter values (requirements to fire risk evaluation, defining of fire exposure frequency, assessment of fire hazard effects, etc.).</td>
</tr>
</tbody>
</table>
## EXAMPLES OF RISK ASSESSMENT REQUIREMENTS IN TECHNICAL REGULATIONS

<table>
<thead>
<tr>
<th>TR «On Safety of Machinery and Equipment»</th>
<th>TR «On Fire Safety Requirements»</th>
<th>TR «On Lift Safety»</th>
</tr>
</thead>
</table>
| • For the identified types of hazard, risk is assessed by calculation, experiment, expert appraisal or examination of operation of similar machinery and/or equipment. The risk assessment methods may be specified by the technical regulations for relevant types of machinery and equipment, by national standards and codes of practices;  
• The tolerable risk for the machinery and/or equipment is computed and established at the design stage;  
• The manufacturer assesses the risk for the machinery and/or equipment prior to its release in the Russian Federation and after repair has been carried out, its value may not be higher than tolerable. | • Fire risk assessments are part of the Fire or Industrial Safety Declaration;  
• Individual fire risk in buildings may not be higher than $10^{-6}$/year;  
• Individual fire risk resulting from hazardous effects of fire at an industrial site for people in a near-by residential area may not be higher than $10^{-6}$/year;  
• Social fire risk resulting from hazardous effects of fire at an industrial site for people in a near-by residential area may not be higher than $10^{-7}$/year. | • To make sure the lift is safe, facilities should be available to alleviate the risk of maintenance personnel falling over from the operational platform and/or cabin roof;  
• To meet safety requirements of the regulations whilst technical solutions, other than those specified by the regulations or national standards and/or codes of practices, are implemented, those technical solutions are risk-assessed, with the submitted calculations, drawings, results of the tests due to be verified. |
Register Form
(Annex B, Rules PR 50.1.025-2007)

Register of National Standards and (or) Codes of Practices, the voluntary application of which ensures the compliance with the Technical Regulations

<table>
<thead>
<tr>
<th>Number, Designation and Description of National Standard or Code of Practices</th>
<th>Confirmed Requirements of National Standard or Code of Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

1 Description of Homogenous Object of Technical Regulation
(Russian Classifier of Products code under General Russian Classifier 005-93 XX XX00)

1. GOST R … Section …; article. …
2. GOST R … Standard in whole
3 Code of Practices … Code of Practices in whole
4. …… …

2 Description of Homogenous Object of Technical Regulation
(Russian Classifier of Products code under General Russian Classifier 005-93 XX XX00)

1. GOST R … Standard in whole
2. … …
Thank for attention!

VNIINMASH
123007, Moskva., st. Shenogina, 4,
Tel./fax: +7 (499) 256-45-14,
e-mail: 115@gost.ru