ISO31000 - Risk Management with implementation in Statoil

Morten Sørum
Seniorrådgiver Sikkerhet - Statoil
History

• ISO and IEC standards have included risk management requirements for many years across all disciplines
• In 1999 “Guide73: Risk Management – Vocabulary” were issued for those writing standards
• 15.11.2009 a suit of documents were issued
  – Main document “ISO31000: Risk Management – Principles and guideline”
  – A new and more comprehensive version “Guide73: Risk Management – Vocabulary”
Hva er risiko?
If she hasn't.... she will soon
What is risk? - Definition

• Effect of uncertainty on objectives
  – NOTE 1 An effect is a deviation from the expected — positive and/or negative.
  – NOTE 2 Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).
  – NOTE 3 Risk is often characterized by reference to potential events (2.17) and consequences (2.18), or a combination of these.
  – NOTE 4 Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood (2.19) of occurrence.
  – NOTE 5 Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.
Statoil HSE Risk Management as part of the management system

- Safety
- Environmental management
- Health and Hygiene
- Working environment
- Security
- Emergency response
- HSE management
ISO - Principles for managing risk
Gives guidelines and promotes uniformity, but emphasizes the need for purpose built RM

- a) Creates value
- b) Integral part of organizational processes
- c) Part of decision making
- d) Explicitly addresses uncertainty
- e) Systematic, structured and timely
- f) Based on the best available information
- g) Tailored
- h) Takes human and cultural factors into account
- i) Transparent and inclusive
- j) Dynamic, iterative and responsive to change
- k) Facilitates continual improvement and enhancement of the organization

Document structure
1. Scope
2. References
3. Terms and definitions
4. RM Principles
5. RM Framework
6. RM Process
Annex
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Annex
ISO31000 - Process

1. Communication and consultation
2. Establishing the context
   1. Establishing the external context
   2. Establishing the internal context
   3. Establishing the context of the risk management process
   4. Defining risk criteria
3. Risk assessment
   1. Risk identification
   2. Risk analysis
   3. Risk evaluation
4. Risk treatment
   1. Selection of risk treatment options
   2. Preparing and implementing risk treatment plans
5. Monitoring and review
6. Recording the risk management process
ISO - Risk Management Process diagram

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Annex
Statoil - Risk Management Process

- Same process used for HSE Risk Management
- Now uses process modelling for all work
  - Requirements or sub processes are found by clicking each box
- Communication, consultation, monitoring is then sub-processes on some places in the work flow
ISO - Framework

5.1 General
5.2 Mandate and commitment
5.3 Design of framework for managing risk
   5.3.1 Understanding of the organization and its context
   5.3.2 Establishing Risk management policy
   5.3.3 Accountability
   5.3.4 Integration into organizational processes
   5.3.5 Resources
   5.3.6 Establishing internal communication and reporting mechanisms
   5.3.7 Establishing external communication and reporting mechanisms
5.4 Implementing risk management
   5.4.1 Implementing the framework for managing risk
   5.4.2 Implementing the risk management process
5.5 Monitoring and review of the framework
5.6 Continual improvement of the framework
Checklists for aspects to be considered when establishing context

Lists internal requirements that are valid company wide

Specifies scales and matrices as guidance, points to examples of risk tolerance criteria
Context defines objectives, external and internal parameters to be taken into account, sets the scope and risk criteria; examples of external context:

- Cultural, political, legal, regulatory, financial, technological, economic, natural and competitive
- Environment, whether international, national, regional or local;
  - key drivers and trends having impact on the objectives of the organization; and
  - relationships with and perceptions and values of external stakeholders.
<table>
<thead>
<tr>
<th>Category</th>
<th>People's health and safety</th>
<th>Environment</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 / Catastrophic</td>
<td>- Large scale fatalities (&gt;20), majority of an installation/plant and/or several fatalities for neighbours</td>
<td>- Adverse permanent impacts on key ecosystem functions and services in larger natural habitats (e.g. restitution time &gt;10 years) - Adverse impact on globally threatened species. Adverse impact on protected areas of international importance or other areas (non-protected) of international biodiversity value</td>
<td>Category 7 and 8 together are often denoted “Major accidents”</td>
</tr>
<tr>
<td>7 / Major</td>
<td>Several workforce fatalities (4 - 20), larger parts of an installation/plant and/or fatalities for neighbours. Fatalities include work related illness with significant life shortening effects.</td>
<td>- Adverse long term impact ecologically valuable natural habitats (e.g. restitution time 3 - 10 years) - Adverse impact on threatened species on a national level - Adverse impact on protected areas of national importance</td>
<td></td>
</tr>
<tr>
<td>6 / Severe</td>
<td>- 1-3 fatalities on workforce - Serious injury/illness on 3rd party - 1-3 Serious, work related illness or exposure resulting in significant life shortening effects/ fatalities</td>
<td>- Adverse medium term impacts on ecologically valuable natural habitats, or long term impacts on a significant part of such habitats (e.g. restitution time 1 - 3 years) - Adverse medium to long term impact on the population on one or more species - Adverse impact on protected areas of regional importance</td>
<td></td>
</tr>
<tr>
<td>5 / Serious</td>
<td>Serious injury or work related illness with absence from work, restricted work or permanent health effects. High level of medical treatment, serious functional impairment.</td>
<td>- Adverse short term impact on the population of one or more species - Adverse short term impact on natural habitats (e.g. restitution time &lt; 1 years) - Adverse impact on protected areas of local importance</td>
<td></td>
</tr>
<tr>
<td>4 / Moderate</td>
<td>Other injury or work related illness that result in brief absence or restricted/substitute work or some functional impairment. Medically manageable.</td>
<td>- Very limited impacts on natural habitats - Very limited impact on population level or impact on key species on individual organism levels</td>
<td></td>
</tr>
<tr>
<td>3 / Minor</td>
<td>Medical treatment, injury or work related illness with need for treatment or with temporary health effect</td>
<td>- No impacts on natural habitats</td>
<td></td>
</tr>
<tr>
<td>2 / Negligible</td>
<td>First aid injury or work related illness/effect with limited or no impact on health</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
Risk diagram for HSE events – Corporate level
HSE risk matrix, basic guideline

This applies to evaluation of single hazards, sources or scenarios, occurring during normal/repeated operational and maintenance tasks. For risk assessment of a total facility including all risk contributors, the matrix is not suitable and other criteria will be needed. Also, for specific, non-recurring activities, separate criteria are indicated on the last page.

![HSE risk matrix](image)
Risikostyringen gjennomføres ved forenklet modell med krav i andre prosesser som trigger

Kravene legges inn i prosesser med behov for risikostyring. Kravene tar brukeren til HSE prosesser.

- Risikoeier skal vurdere behovet for å gjennomføre en risikoanalyse for det planlagte arbeid. Risikoeier kan velge blant følgende risikostyringsverktøy:
  - Sikker Jobb Analyse (SJA): Nivå 1 – analyse basert på oppgavespesifikke sjekklister.
  - Forenklet Risk Management prosess: Nivå 2 – prosessmodellert risikoanalyse som inkluderer gjenomgang av rammebetingelser, utført av flere roller.
  - Link til Forenklet RM prosess
  - HSE risk management: Nivå 3 - Omfattende risikoanalyse, som består av fem delprosesser – basert på corporate risk management prosess.
  - Link til HSE risk management prosess

Kravene linkes mot HSE prosessene, og det er en kasse for CHSE risikostyringsverktøykasse.

- HSE risk management 2266
- Forenklet risk managament

- OMM risikostyring
  - SJA

- Fagspesifikke sjekklister vil finnes i SJA, og driftes av fagmiljøene.
Bruker jobber med en prosess som krever at det gjennomføres en form for risikovurdering:

Krav:
Gjennomfør en risikovurdering av den/de planlagte prosessen/er ved å bruke en av de følgende risikostyringsverktøy:

- HSE Risk Management
- Forenklet risk management
- Sikker Jobb Analyse

Informasjon:
Valg av risikostyringsverktøy avhenger av planleggingshorisont og aktiviteten(e)s natur. Følg den beslutsningsmodellen nedenfor for å identifisere korrekt verktøy.

Beslutsningsmodell...
HSE risk matrix, One of a kind operation

<table>
<thead>
<tr>
<th>Impact category</th>
<th>1: &lt;0,01%</th>
<th>2: 0,01% - 0,1%</th>
<th>3: 0,1% - 1%</th>
<th>4: 1% - 5%</th>
<th>5: 5% - 25%</th>
<th>6: 25% - 50%</th>
<th>7: 50% - 75%</th>
<th>8: &gt;75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability / operation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>
Attributes of enhanced risk management

• Key outcomes
  – The organization has a current, correct and comprehensive understanding of its risks.
  – The organization's risks are within its risk criteria.

• Continual improvement
• Full accountability for risks
• Application of risk management in all decision making
• Continual communications
• Full integration in the organization's governance structure
Identify and analyse risk

- Systematic run through of operation or system
- Checklists are available
- Involve HSE professional when needed, they shall know the total process
- Involve users, those who know the operations or systems
Example - Risk assessment Integration

F = Finance
S = Safety
W = Working environment
P = Personnel

F1: Efficiency increase
F2: Standardisation
F3: Implementation plans not well coordinated
F4: Large control span, "Hands on", "Snorre A measure"
F5, W5, S5: Offer 58+ with no new recruiting, lack of competence and capacity

S1: Errors due to frustration, major accident
S2: Major accident due to “too much at same time”
S3: Major accident due to lack of maintenance backlog (manageable), capacity on critical tasks
S4: Emergency preparedness, roles to be defined
S5: Errors due to frustration, work accident
W1: Errors due to frustration, work accident
W2: Work accident due to “too much at same time”, incl stress and psychosocial effects
W5: Work accident due to “too much at same time”, incl stress and psychosocial effects

P1: Personnel may rotate between installations, flexibility
P2: Loss of platform relationship, personnel rotation
P3: Massive opposition from employees, worsened working environment
Summary

• Almost consensus on the text world wide
• Norwegian translation soon
• Good principles, but not easy to always meet
• Checking compliance to all requirements would damage the process
• Risk, context, risk identification and the risk monitoring is new for many
• Large number of definitions that should be adhered to also in regulations and company practices
• The model is useful
Thank you

ISO31000 - Risk Management

Morten Sørum
Senior Advisor Safety, CSO CHSE SAS
m: +47 99160508
e: moso@statoil.com
www.statoil.com