Barrier management through Technical Integrity Management Programme (TIMP)

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Statoil DPN SSU OS
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DPNs Roadmap for Safety & Sustainability 2015+

Risk management
We prevent injuries and major accidents
We understand what might go wrong and execute the correct mitigating measures

Compliance and Leadership
We use Compliance and Leadership to ensure quality & learning in everything we do
We have "hands-on" operational leadership and we work together to ensure added value for Statoil

Improve with suppliers
We have a common understanding of risk
We have one safety and sustainability culture which takes us forward to a common goal
We learn from each other

Efficient barriers
We know the barrier status and perform necessary improvements
We have the right competence in the right place
We actively use governing documentation

Security
We secure personnel, facilities and information
We strengthen our awareness and knowledge of security

Sustainability
We have a positive impact on society
We continuously reduce environmental risks at our facilities.
We have proactive energy management

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Statoil
Risk management

Goals:
We prevent injuries and major accidents
We understand what might go wrong and execute the correct mitigating measures

Structural Measures
• We see and understand the total risk picture
• We ensure that change management, barrier status and sustainability are included in the risk management process
• We use best practice and tools to strengthen risk understanding, risk management and learning

Culture building
• We actively use risk management in the change processes
• Management is hands-on for high risk tasks
• We actively use governing documentation to reduce risk
Efficient barriers

Goals:
We know the barrier status and perform necessary improvements
We have the right competence in the right place
We actively use governing documentation

Structural measures
• We establish barrier strategies for all DPN installations
• We have reliable barriers to manage working environment risk
• We ensure technical integrity
• We establish a system for regular requalification of personnel who work on HC systems

Culture building
• We use barrier status tools, e.g. TIMP* and IWIT* for risk management at all installations
• We improve our knowledge of the local Total Risk Analysis (TRA) and simplify it for use in daily risk management
• We strengthen the use of «Pre-job talk»

* System for following up and managing technical integrity for systems, facilities and wells
Plant Integrity vs. Technical Integrity

**Plant Integrity:**
Plant integrity shall be managed and documented throughout the lifetime of the plant. Plant integrity covers the condition of technical, organisational and operational barriers.

**Technical Integrity:**
A system’s or equipment’s ability to ensure functionality and containment when and as required in accordance with design specifications, regulations and internal requirements.
Technical Integrity Management Programme - TIMP
Visualization of technical integrity management program

- Technical Integrity Management Program - TIMP
  - “The purpose of this program is to establish a holistic and standardized approach on risk of failures. By connecting tools, competence and people to a best practice work process, we can evaluate risk and, when necessary, initiate risk reducing actions in order to achieve a desired risk level.”

- Technical Integrity Management Portal
  - “Retrieve relevant data for the integrity of the plants. I.e. integrate with the systems that contain the indicator data and retrieve the data into the SAP Business Warehouse.”
  - “Present the relevant data for the integrity of the plants and offer a user-interface where users can evaluate indicators and do risk assessments on a System-, PS- (performance standard) or Plant level.”
<table>
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<tr>
<th>PS</th>
<th>Barriers</th>
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<td>Containment</td>
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<td>Natural ventilation and HVAC</td>
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<td>Escape, Evacuation and Rescue (EER)</td>
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<td>Gas detection</td>
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<td>Layout Design Principles and Explosion Barriers</td>
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<td>Emergency Shut Down (ESD)</td>
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<td>Offshore Cranes</td>
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<td>Ballast Water and Position Keeping</td>
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<td>Ship Collision Barriers</td>
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<td>Emergency Power and Lighting</td>
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<td>Human Machine Interface &amp; Alarm Management</td>
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<td>Process Safety</td>
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<td>IT Security</td>
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TIMP - Technical Integrity Management Program

Competence

Work process

Assessment methodology

Technical Integrity Management Portal
Information sources

Key

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<td>SAP</td>
<td>Maintenance Administration system</td>
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<td>Synergi</td>
<td>HSE incident reporting</td>
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<td>QRA</td>
<td>Quantitative Risk Assessment</td>
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<tr>
<td>STID</td>
<td>Technical Information</td>
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<tr>
<td>SAMS</td>
<td>Audit management and reporting system</td>
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TIMP – Model for technical integrity management

A portal visualises the status of technical barriers

Overall technical integrity of the plant is assessed and documented

Technical integrity is assessed on equipment, system and barrier level

Indicators form a basis for technical assessment
GL0313 Guideline for TIMP evaluation

1 Objective, target group and provision

2 Guidelines
   2.1 General guidelines
   2.2 Indicator evaluation
   2.3 System- and PS-evaluation
   2.4 Annual review of the barrier function integrity
   2.5 Plant status evaluation
   2.6 Grade setting

3 Additional information
   3.1 Definitions and abbreviations
   3.2 Changes from previous version
   3.3 References

App A QC of the SAP A10 report
   A1 Correct consequence classification (Hidden Failure & Catalogue Profile)
   A2 Maintenance programme to test the relevant Hidden Failure
   A3 M2-notifications linked to correct functional location and codes

App B Criteria for evaluating structure indicators
The introduction of TIMP has given us a holistic and standardized approach to visualize and follow-up technical integrity.

- TIMP work process
- TIMP test portal
- TIMP support in Services@Statoil
- TIMP courses, Learn@Statoil

TIMP user guidelines - uPerform

Indikatorevaluering Systemevaluering PS-evaluering

Tips

Did you know that each indicator has a detailed definition? This is available from a link in the in the assess indicator window.

Visste du at hver indikator har en detaljert definisjon? Denne er tilgjengelig fra en link i skjermbildet der du gjør indikatorevalueringene.
Technical State Indicators

- M1 notifications
- A10-reports
- M5 notifications
- TTS-findings
- Backlog CM (M2)
- Backlog PM
- Inspections
- Synergi-reports
- Information on technical state
  - Dispensation
  - Other issues safety
  - Other issues production
A10–05 - Gas detectors

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### Analyse

![Graph showing performance over time]

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Det er gjennomført full TIMP gjennomgang for november/december 2012. Alle systemer og PS'er er gjennomgått og vurdert.

Evaluering:

04.10.2012

TT-rapporten har vært et viktig underlag i forbindelse med TIMP vurdering og karakterisering, og som det framgår er det avdekket en del nye forhold.

EØS Emergency Shutdown System (PS 4) (Ready for Plant Evaluation) Evaluated by/on: 23.01.2013

Endre karakteren fra D til C siden ingen av akkumulatorne levere olje over stempelt. Alle EØS-ene har nå fullt operative N2 banker som fungerer slik de skal.

Det som gjensvarer å bytte akkumulator for 27-ESV-003 og 27-ESV-006 så snart de er kommet, men leseakkumulatorene som er montert nå fungerer tilfredsstillende.

Løsakumulatorne er et av tilfellerne som er vurderet for å ivareta integriteten til anlegget.

System: 84 - NØD STRØM (Ready for Plant Evaluation) Evaluated by/on: 1501.2013

Karakter settes til D

Nødgeneratoren har ikke nok kapasitet til forhold til last. At varmekabel og 1 stikkluftkompressor er utkoblet ved nødgeneratorfrikk. Ref. not 40471620.

Koraktig tiltak: HVAC er prioriter foran luftkompressor og varmekabel på brannvann.

Lengsiktig tiltak:

Skifte ut nødgenerator;


Feilrate på nødlys ligger på 7,1%, men akseptbetreret er maks 5%. FY program for nødlys er endret fra 12M til 5W (funksjonstest).
Barrier management and Value creation

**Assessment methodology**

- Information through indicators form the basis for technical assessment
- Discipline evaluations transformed to basis for management decisions

**Competence**

- Improved competence on risk and barriers
- More than 1700 key personnel trained

**Work process**

- Standardised approach for following up technical integrity
- Clarified roles and responsibilities
- Reduced workload through simplification (automated data collection)
- Holistic overview of technical integrity as basis for prioritisation of risk reducing measures

**Technical Integrity Management Portal (TIMP)**
TIMP - conclusions

• Understanding and awareness of barrier functions have increased significantly

• The facility is able to prioritize its efforts better, both with respect to safety and productivity.

• Standardised approach for following up technical integrity.

• The work process with aggregation of information, combined with expert judgment, is in itself an important strengthening of safety culture and awareness.

• The TIMP portal visualizes the information as a leading indicator of the technical status of the facility. The information is transparent and well documented.

• TIMP also facilitates experience and knowledge transfer

• Easier reporting. (Authorities, Partners, Gassco, upper management etc.)

• Continuous overview of technical integrity for each plant enables increased predictability.
There's never been a better time for good ideas.

Thank you for your attention!