Barrier management through Technical Integrity Management Programme (TIMP)

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- Technical Integrity Program
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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

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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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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

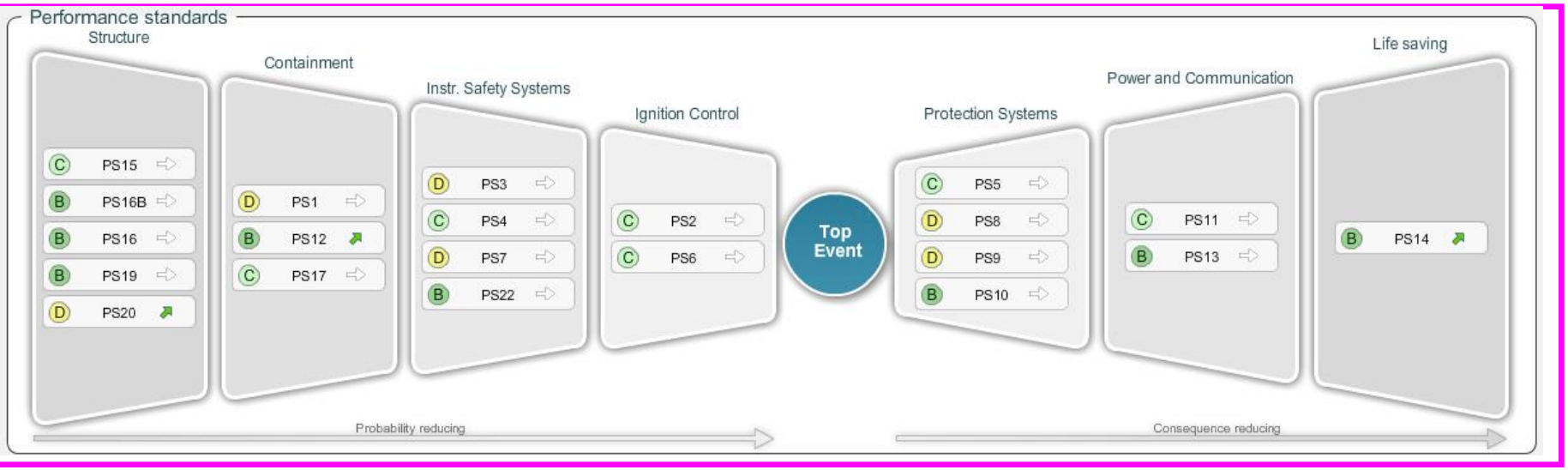
Plant Integrity:

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



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Visualization of technical integrity management program

- Technincal 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."*

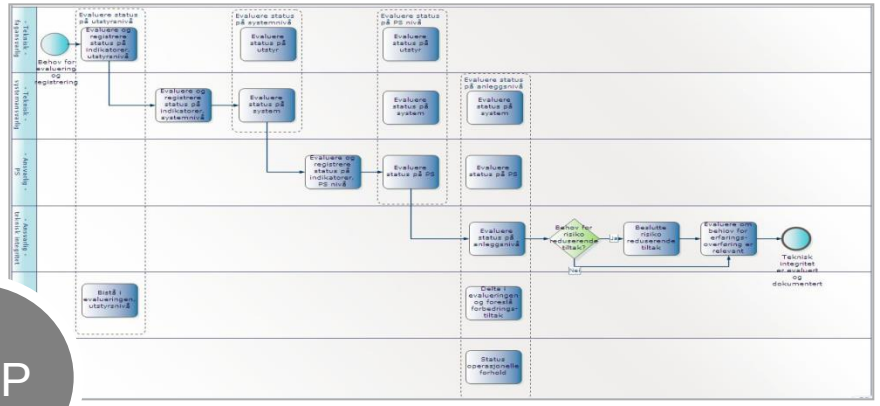
Performance Standards - Technical Barriers
TR 1055 & TR 2237

PS	Barriers	PS	Barriers
1	Containment	13	Alarm and Communication System for use in Emergency Situations
2	Natural ventilation and HVAC	14	Escape, Evacuation and Rescue (EER)
3	Gas detection	15	Layout Design Principles and Explosion Barriers
4	Emergency Shut Down (ESD)	16	Offshore Cranes
5	Open drain	16B	Drilling Hoisting System
6	Ignition Source Control	17	Well Integrity
7	Fire Detection	18	Ballast Water and Position Keeping
8	Emergency Depressurisation and Flare/Vent system	19	Ship Collision Barriers
9	Active Fire Protection	20	Structural Integrity
10	Passive Fire Protection	21	Transportation control centre (not included)
11	Emergency Power and Lighting	22	Human Machine Interface & Alarm Management
12	Process Safety	23	IT Security

TIMP - Technical Integrity Management Program

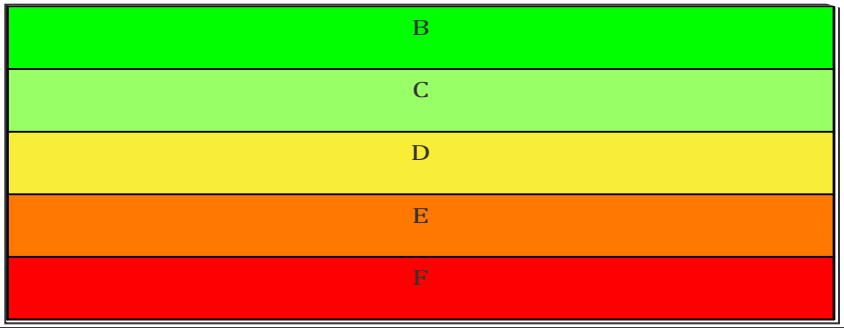
Competence

Work process

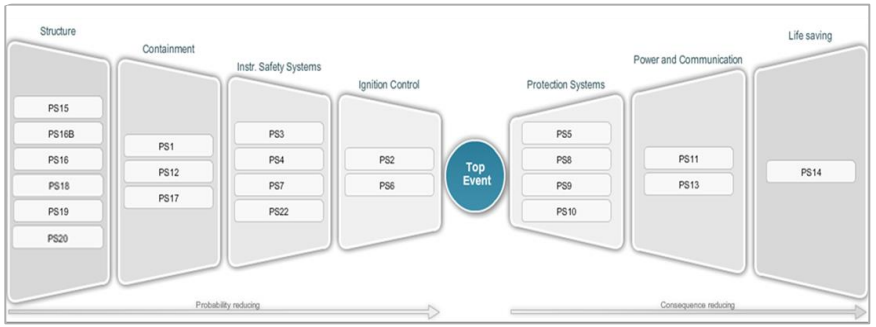


TIMP

Assessment methodology



Technical Integrity Management Portal



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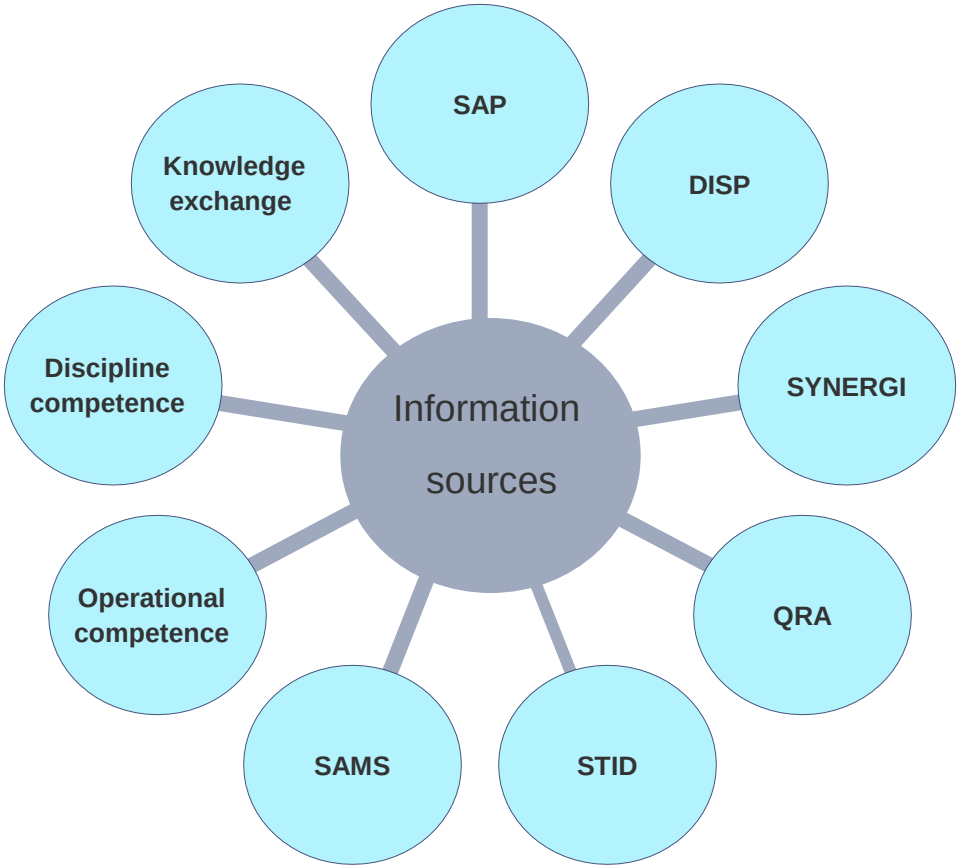
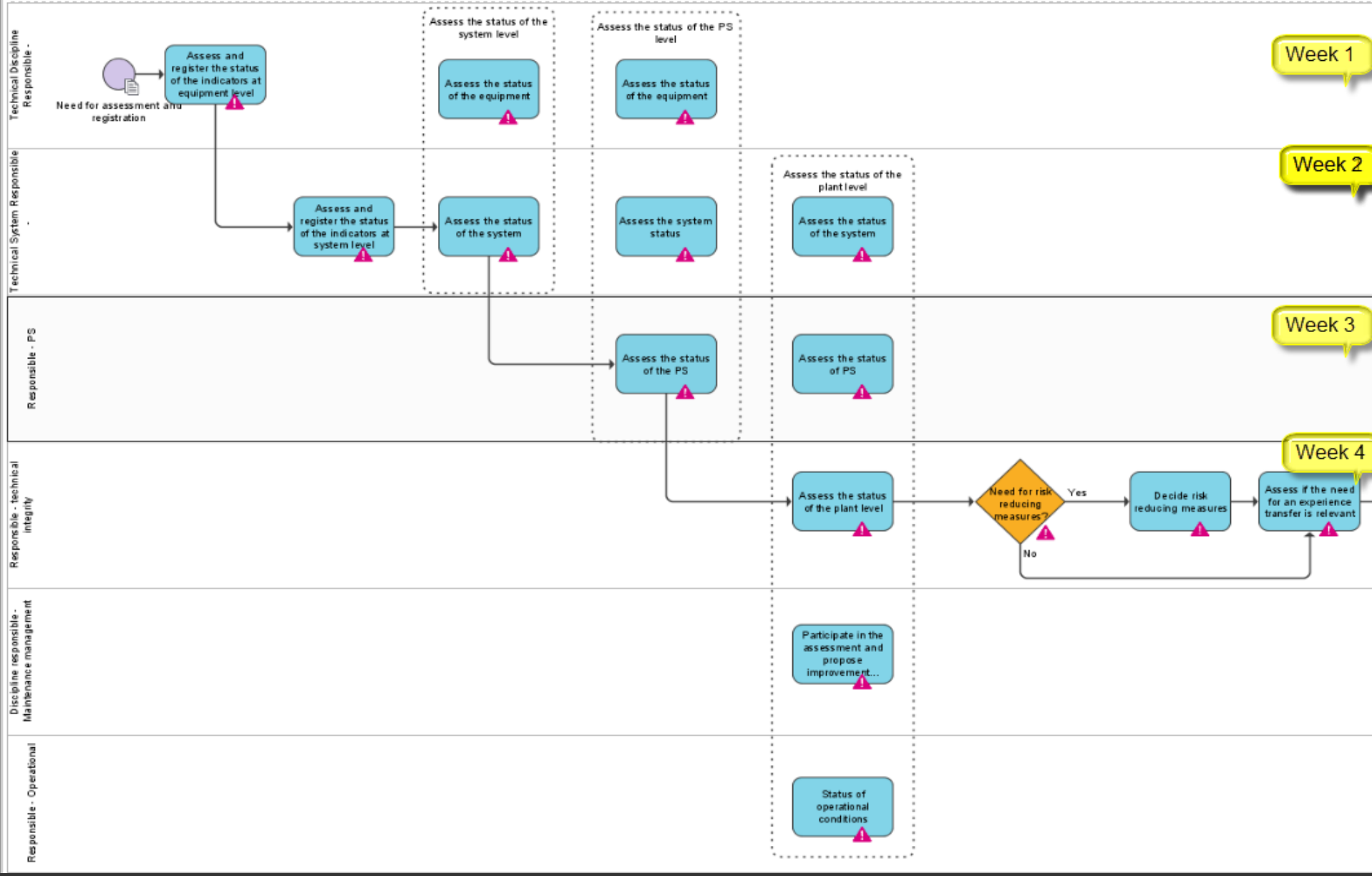
Information sources

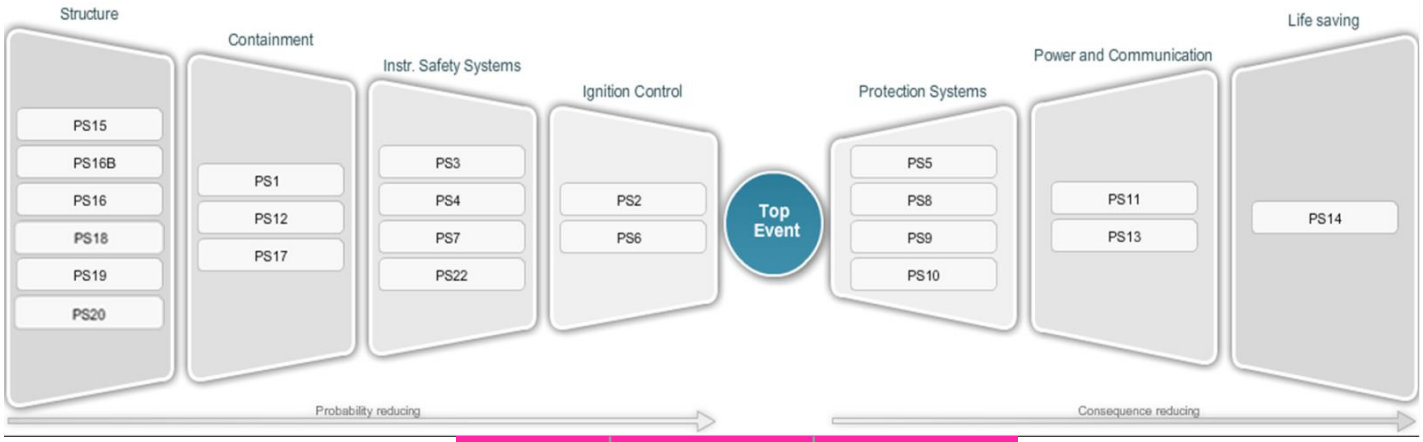


Key	
SAP	Maintenance Administration system
DISP	Dispensation systenm
Synergi	HSE incident reporting
QRA	Quantitative Risk Assessment
STID	Technical Information
SAMS	Audit management and reporting system


Technical Discipline Responsible -
Technical System Responsible -
Responsible - PS
Responsible - technical integrity
Discipline responsible - Maintenance management
Responsible - Operational
Week 1
Week 2
Week 3
Week 4
Need for assessment and registration
Assess and register the status of the indicators at equipment level
Assess the status of the system level
Assess the status of the equipment
Assess the status of the PS level
Assess the status of the equipment
Assess and register the status of the indicators at system level
Assess the status of the system
Assess the system status
Assess the status of the plant level
Assess the status of the system
Assess the status of the PS
Assess the status of PS
Assess the status of the plant level
Need for risk reducing measures?
Yes
No
Decide risk reducing measures
Assess if the need for an experience transfer is relevant
Participate in the assessment and propose improvement...
Status of operational conditions

TIMP – Model for technical integrity management

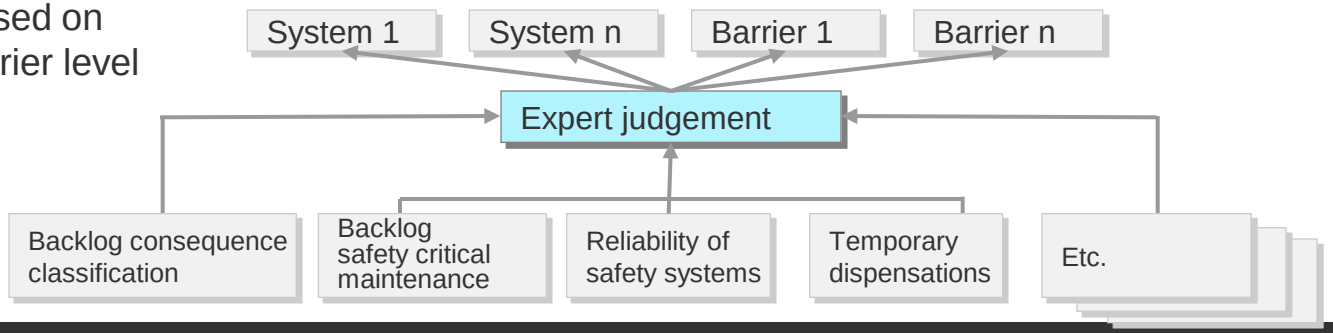
A portal visualises the status of technical barriers



Overall technical integrity of the plant is assessed and documented

System	Safety	Production
System 1	B	C
System 2	E	D
System n	B	B

Technical integrity is assessed on equipment, system and barrier level



Indicators form a basis for technical assessment

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GL0313 Guideline for TIMP evaluation

Guideline for TIMP evaluation

Operation and maintenance (OM)
Guideline, GL0313, Final Ver. 1.01, valid from 2015-02-13

Owner: Process owner - Operation and Maintenance

Validity area: DPN/All/On- and offshore; MPR/All/On- and offshore; DPI/All/On- and offshore

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Technical Integrity Management Portal

Administration | HSE Search | Search

Select plant

Select report

Document library | Links

- 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.

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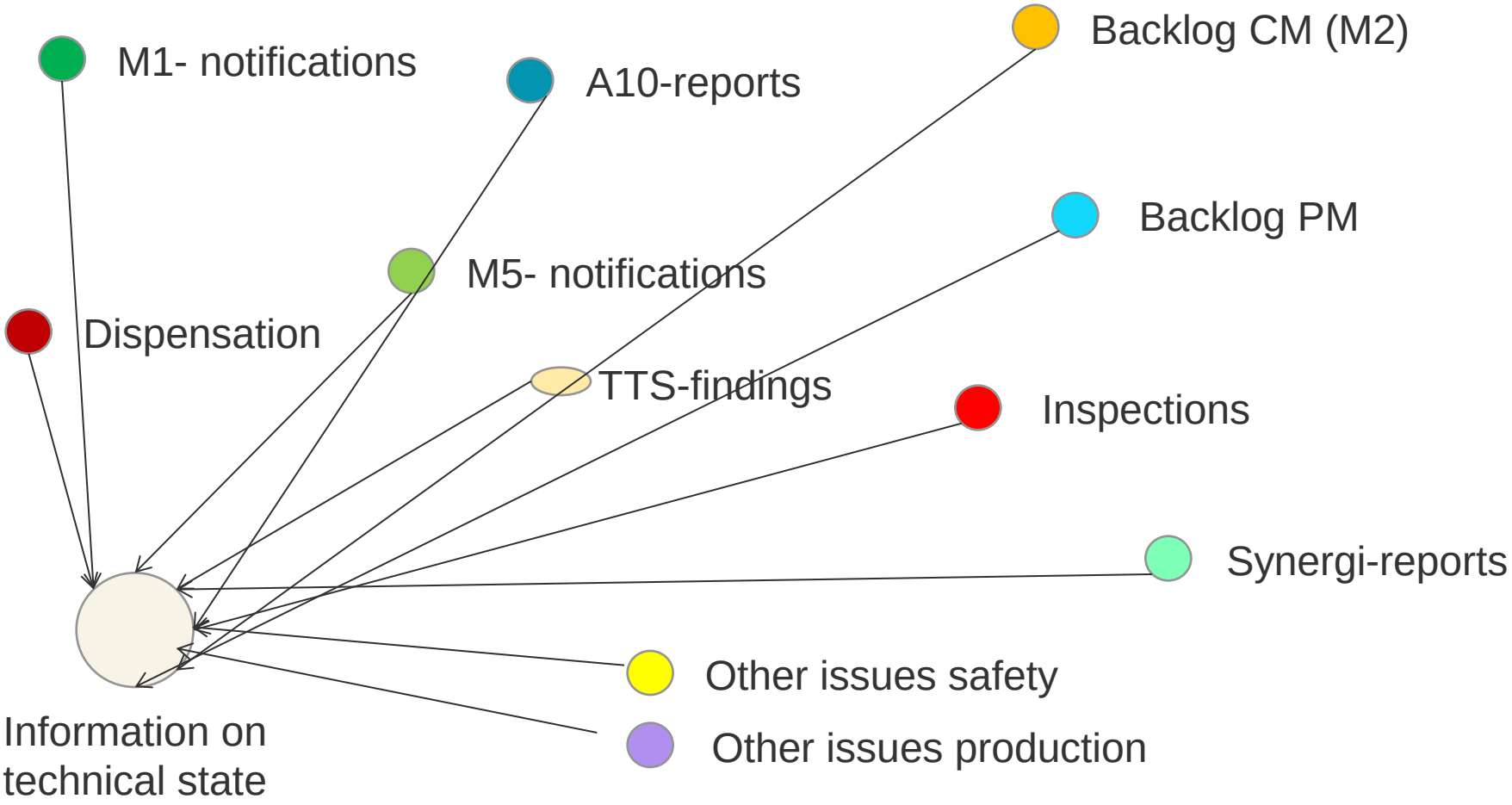
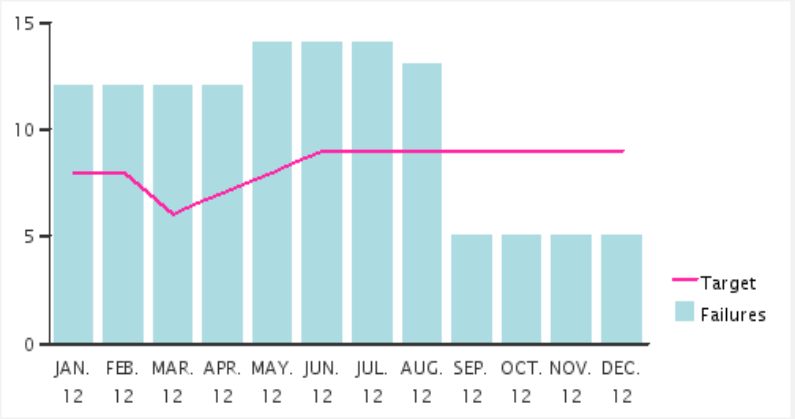
Technical State Indicators



A10-05 – Gas detectors

No. of functional locations	No. of tests last 12 months	No. of safety critical failures previous month	No. of safety critical failures last 12 months	Target
611	937	0	5	9

Analyse



View: WORKING | Print Version | Export | New | Copy evaluation | Edit | Delete | Set Ready for Plant Evaluation | Set historic | Cancel

Score	Status	Date	Changed by	Comment	System	PS
	Active;Draft;Ready for Plant Evaluation					
D	Ready for Plant Evaluation	13.01.2013		I hovedsak ingen endring siden forrige evaluering. 1. Det er fortsatt en del katalytiske detektorer ombord som vi har dårlig driftserfaring med, noe A10 rapporten beviser. Av rapporterte sikkerhetskritiskefeil angår 3 av 5 katalytiskedetektorer. Den siste rapporteringen gjelder H2S detektor (P31-DG106) som ikke har nådd sine respektive alarmgrenser ved test. Sensor er blitt byttet og er nå ok. Testet 932 av 611 tag siste 12 måneder. 2. Karakter D beholdes på grunn av antall katalytiskedetektorer ombord 3. B&G prosjektet har skiftet majoriteten av de katalytiske detektorene. De katalystisk detektorene ifm. HVAC byttes av Elektro robustgjøringsprosjektet. Utskiftning av alle katalytiske detektorer i boretårnet var tidligere med i scopet til boretårn-prosjektet. Men nå ser det ut som det kun blir utskiftning av katalytiske detektorer i de områdene hvor prosjektet skal oppgradere.	70	PS3
D	Active	13.11.2012		I hovedsak ingen endring siden forrige evaluering. 1. Det er fortsatt en del katalytiske detektorer ombord som vi har dårlig driftserfaring med, noe A10 rapporten beviser. Av	70	PS3

Plant | Discipline | System | Performance standard

Platform | Technical Safety | Choose system | Choose performance standard

Choose discipline
Automation
Cranes and Lifting
Drilling and Well
Electro
Field instrument
Fiscal Metering
HVAC
Maintenanc Managemt.
Pipe lines

Indicator overview | Assess indi | Responsible

View: [Standard View] | Prir

Indicator	Name			Value	Target	Status	Trend	Score	Evaluated
A10-10	Deluge valves		2	0,0	0,0			B	07.01.2013
A10-12	Deluge nozzles		2	0,0	1,0			B	07.01.2013
A10-23	Fire water pump unit		2	0,0	1,0			B	07.01.2013
A10-29	Foam(AFFF) mixture		2	0,0	0,0			B	07.01.2013
A10-34	Water mist system, function	S	31.12.2012	0,0	0,0			B	07.01.2013
A10-35	Sprinkler Valves	S	31.12.2012	0,0	0,0			B	07.01.2013
A10-47	Fire water monitor -oscillating function	S	31.12.2012	0,0	0,0			B	08.01.2013
PM-COCM	Containment Backlog CM	S	26.01.2013	0,0				B	17.01.2013
PM-COPM	Containment Backlog PM	S	26.01.2013	17,0				C	16.01.2013
PM-OWP	Production critical corr. maint. tot.	P	26.01.2013	58,0				C	16.01.2013
PM-OWS	Safety critical corr. maint. tot.	S	26.01.2013	31,0				C	16.01.2013
PM-PMBP	Backlog PM on Production Crit. Equipment	P	26.01.2013	27,0				C	16.01.2013
PM-PMBS	Backlog PM on Safety Critical Equipment	S	26.01.2013	15,0				C	16.01.2013
QM-OM5P	Backlog doc. update Production (M5)	P	31.12.2012	25,0				B	16.01.2013
QM-OM5S	Backlog doc. update Safety (M5)	S	31.12.2012	14,0				C	16.01.2013
SYN-01	Tech. related Incidents from Synergi	S	31.12.2012	9,0				C	17.01.2013
TI-OTHP	Other Issues - Production	P	27.01.2013	0,0					
TI-OTHS	Other Issues - Safety	S	27.01.2013	0,0					

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Plant status

Evaluated by/on: 10.12.2012

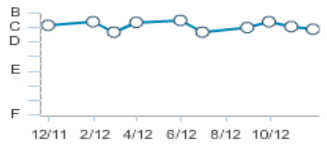
New | Activate all

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

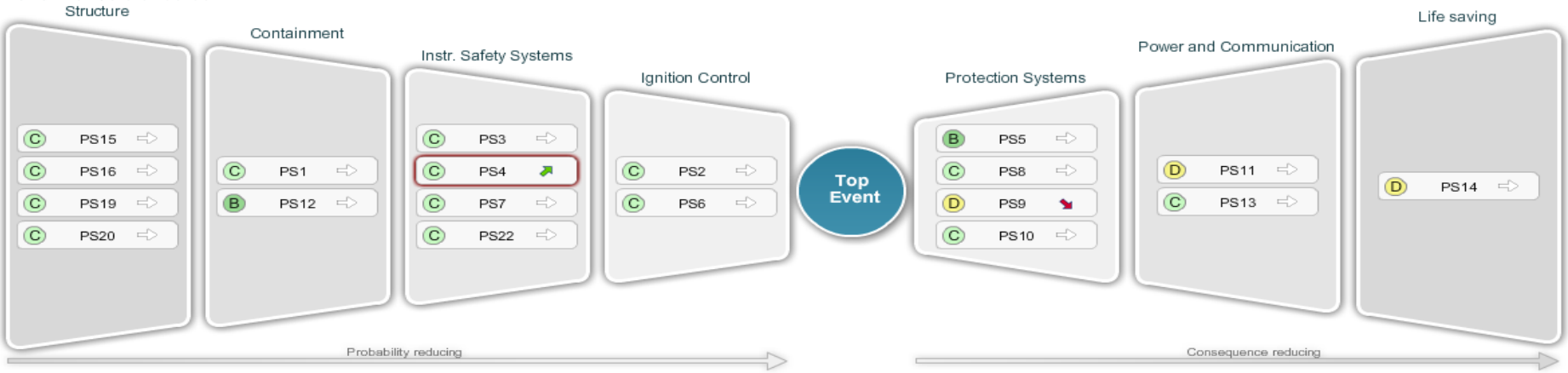
Evaluering:
04.10.2012.

TTS-rapporten har vært et viktig underlag i forbindelse med TIMP vurdering og karaktersetting, og som det fremgår er det avdekket en del nye forhold.

Plant status trend - last 12 months



Performance standards



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

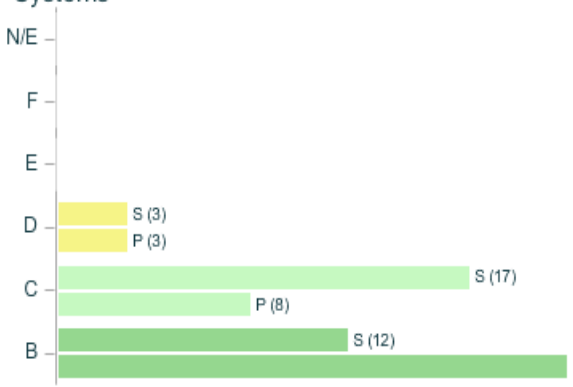
Endrer karakteren fra D til C siden ingen av akkumulatorene lekker olje over stempel.
Alle ESV'ene har nå fullt operative N2 banker som fungerer slik de skal.

Det som gjenstår er å bytte akkumulatorer for 27-ESV-003 og 27-ESV-006 så snart de er kommet, men leieakkumulatorene som er montert nå fungerer tilfredsstillende.

Leieakkumulatorene er et av tiltakene som er iverksatt for å ivareta integriteten til anlegget.

PS trend - last 12 months

Systems



System	Safety	Trend	Plant
71 - BRANNVANN	D	⇨	Platforr
76 - LIVREDNING	D	⇨	Platforr
84 - NØD STRØM	D	⇨	Platforr

System: 84 - NØD STRØM (Ready for Plant Evaluation)

Evaluated by/on: 15.01.2013

Karakter settes til D
Nødgeneratoren har ikke nok kapasitet i forhold til last. All varmekabel og 1 stk luftkompressor er utkoblet ved nødgeneratordrift. Ref. not 40471620.

Kortsiktig tiltak: HVAC er prioritert foran luftkompressor og varmekabel på brannvann.

Langsiktig tiltak:
Skifte ut nødgenerator:
Det er planlagt nytt nødstrømsaggregat til 2012/13. Ref. not 40471620.

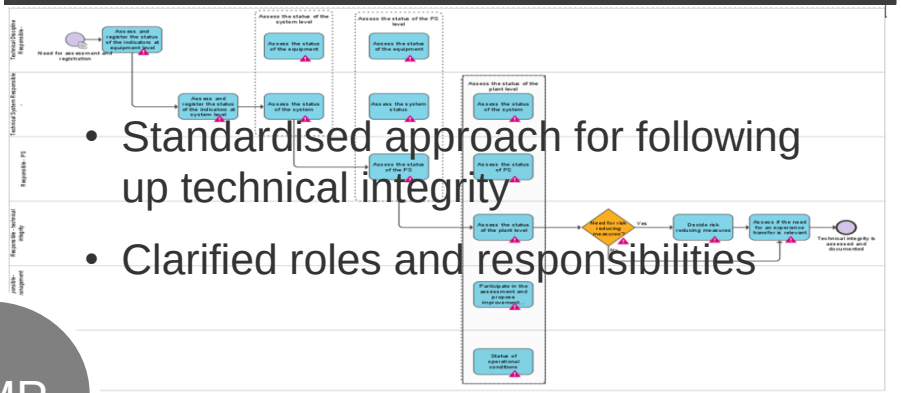
Feilrate på nødlys ligger på7,1%, men akseptkriteriet er maks 5%. FV program for nødlys er endret fra 12M til 6M (funksjonstest).

Barrier management and Value creation

Competence

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

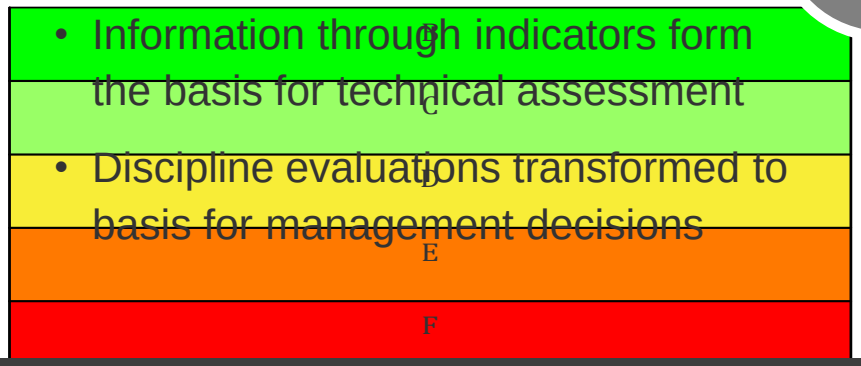
Work process



- Standardised approach for following up technical integrity
- Clarified roles and responsibilities

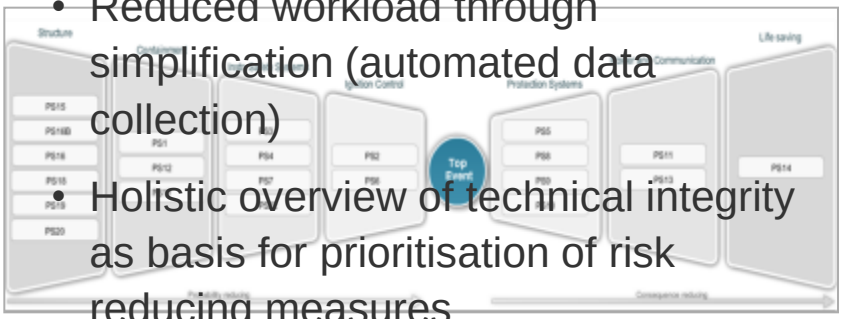
TIMP

Assessment methodology



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

Technical Integrity Management Portal



- Reduced workload through simplification (automated data collection)
- Holistic overview of technical integrity as basis for prioritisation of risk reducing measures

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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!

Presentation title

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