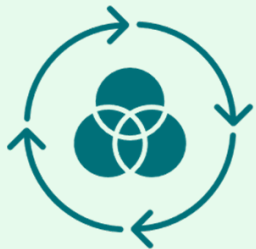


Action

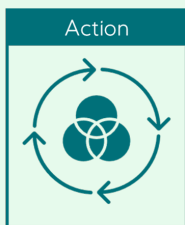


EQUINOR SSU LEARNING PANEL

CROSS EQUINOR LEARNING FROM SERIOUS WORK ACCIDENT AT HEIMDAL NOVEMBER 2019
SYNERGI 1601310 – LEARNING PACKAGE #2 - OCTOBER 2020

DPN solutions and specified actions for all relevant Business Areas to enable global, organizational learning and prevent repeat incidents across the company.

EXTERNAL VERSION FOR SHARING OUTSIDE EQUINOR
Internal links deactivated



EQUINOR SSU LEARNING PANEL

CROSS EQUINOR LEARNING FROM SERIOUS WORK ACCIDENT AT HEIMDAL NOVEMBER 2019
 SYNERGI 1601310 – LEARNING PACKAGE #2 - OCTOBER 2020

WHAT this is ABOUT

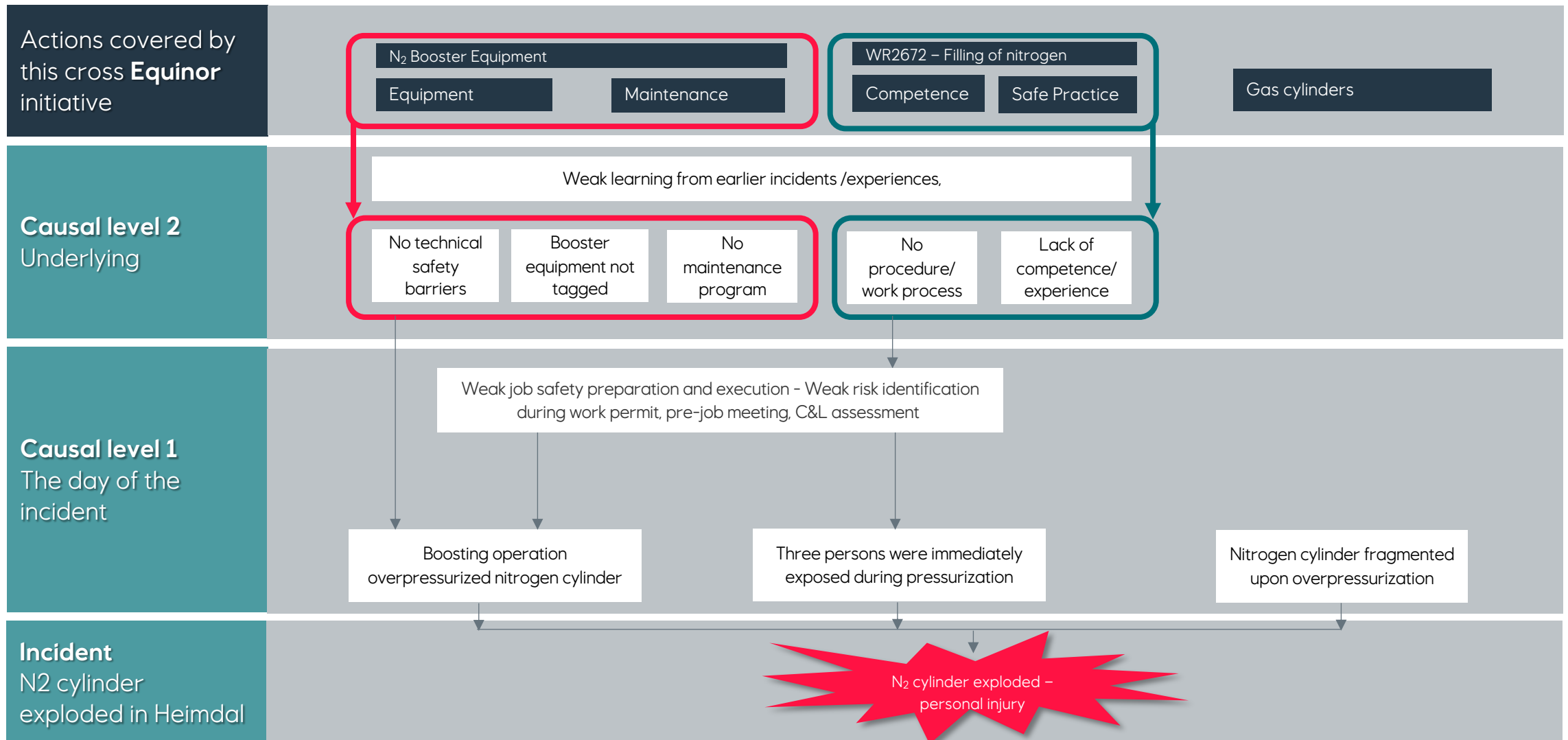
In November 2019 there was a serious work accident at the DPN Heimdal platform in the North Sea. Two employees were seriously injured when a nitrogen cylinder exploded during pressurization. The investigation of the incident has revealed weakness in barriers against overpressurization. Based on investigation of the incident, DPN has developed solutions to prevent similar incidents.

WHAT you need to DO

- Review the shared material and consider relevance for your Business Area or Cluster
- Review and implement the relevant actions specified in this document
- Document the implementation of actions in Synergi

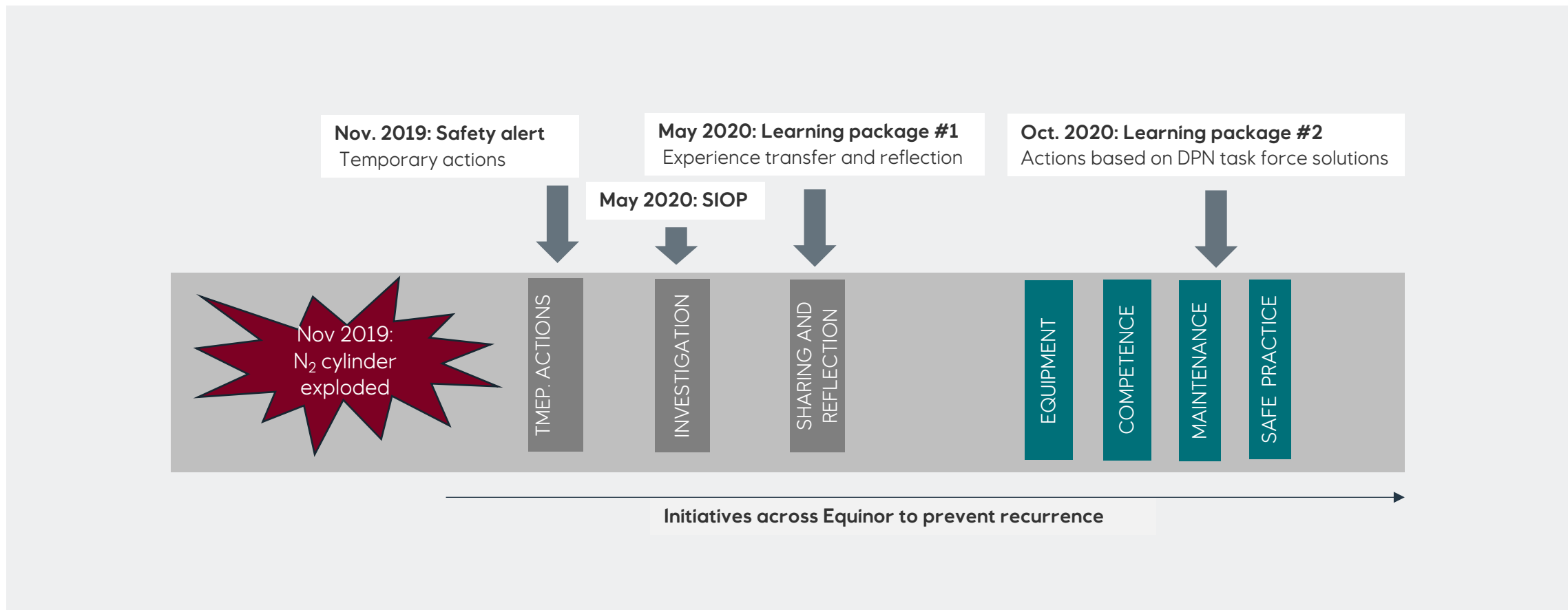
Synergi 1601310	Learning Package #1	Safety Investigation One pager	DPN Sharepoint	External version
Link	Link	Link	Link	Will be made available at alwaysafe.no

Simplified overview of causes and actions from the incident at Heimdal



Initiatives across Equinor to prevent recurrence of the Heimdal incident

Target group: All business units and relevant discipline personnel involved in the task of nitrogen pressurization and use of booster pumps



CONTENT

- Introduction to the Equinor SSU Learning Panel
- Solutions developed by DPN
- Actions
- How to document the closing of the actions



The Equinor SSU Learning Panel

Mandate to initiate sustainable, organizational learning measures across the company based on experience from safety and security incidents.






Provide a good basis for understanding, deciding and implementing actions in the Business Areas.

The Business Areas shall decide, implement and document actions according to their responsibilities.






Learning Panel	<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #800000; color: white; text-align: center;">Present learning initiative to FMT for information</div> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #800000; color: white; text-align: center;">Distribute learning package to Learning Panel BA rep</div> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #800000; color: white; text-align: center;">Collect info from BAs and log the closing of actions</div> </div>
Business Area	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #333366; color: white; text-align: center;">Present learning package to BA MC through VP SSU</div> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #333366; color: white; text-align: center;">Distribute learning package to end receivers</div> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #333366; color: white; text-align: center;">Ensure actions are followed up and closed with quality</div> </div>
Asset	<div style="border: 1px solid black; border-radius: 15px; padding: 5px; background-color: #008080; color: white; text-align: center; margin: 0 auto; width: 80%;">Implement actions and document the closing of actions in Synergi</div>

We share lessons for learning
You make sure the learning happens






SOLUTIONS DEVELOPED BY DPN

<p>N₂ BOOSTER EQUIPMENT</p> 	<p>Desired result: Nitrogen booster equipment equipped with safety barriers to prevent overpressurization</p>	<p>Solution developed by DPN:</p> <ul style="list-style-type: none"> • Requirements for safety functions in nitrogen booster equipment specified in WR2672 • Recommended design with safety barriers according to new requirements • Frame contracts established with three suppliers
<p>N₂ BOOSTER EQUIPMENT MAINTENANCE</p> 	<p>Desired result: Nitrogen booster equipment with tag, associated documentation and unit maintenance program.</p>	<p>Solution developed by DPN: LINK to description Implement tag for all nitrogen booster equipment and establish maintenance program with 12 months interval:</p> <ul style="list-style-type: none"> • Functional test and calibrate safety valves and pressure indicators • Overhaul the pump unit • General condition control of all components in accordance with the supplier's recommendation
<p>SAFE PRACTICE</p> 	<p>Desired result: Competence requirements and safe work practice description implemented.</p>	<p>Solution developed by DPN WR2672 "Filling of nitrogen with or without the use of gas booster pump" is made available for adoption</p>
<p>COMPETENCE</p> 	<p>Desired result: All personnel operating N₂ booster equipment has necessary, verified competence</p>	<p>Solution developed by DPN:</p> <ul style="list-style-type: none"> • Competence requirements for personnel performing N₂ filling is presented in WR2672 • E-learning is under development (estimated finished January 2021) • Competence role is available in CAMS- "Nitrogen filling with or without the use of booster pump" • Competence role to be assigned to relevant personnel
<p>GAS CYLINDERS</p> 	<p>Desired result: Gas cylinders are being inspected and recertified according to applicable regulations</p>	<p>Solution developed by DPN: LINK to detailed description</p> <ul style="list-style-type: none"> • Norwegian regulations related to pressure cylinders have been clarified by Petroleum Safety Authority • All gas cylinders will be mapped • Based on cost-benefit evaluation it shall be decided whether cylinders shall be owned or rented • For owned gas cylinders, dedicated maintenance concepts will be established – one for transportable cylinders and one for non-transportable.

WHAT YOU NEED TO DO – BUSINESS AREA/ CLUSTER ACTIONS (to be documented in Synergi)

<p>N₂ BOOSTER EQUIPMENT</p> 	<p>Business Area / Business Cluster Actions</p>	<p>Closing criteria – when you can document</p>
<p>N₂ BOOSTER EQUIPMENT MAINTENANCE</p> 	<p>Adopt WR2672 Filling of nitrogen with and without the use of booster pump.</p>	<p>WR adopted as is, or adopted with necessary local adjustments. Competence roles have been assigned to relevant personnel.</p>
<p>SAFE PRACTICE</p> 	<p>Clarify regulations outside Norway related to the maintenance and certification of gas cylinders. Ensure this forms the basis for relevant maintenance concepts for gas cylinders</p>	<p>Description of relevant regulations established. Any maintenance concepts for owned or rented cylinders are based on relevant regulations.</p>
<p>COMPETENCE</p> 	<p>Share this learning material with relevant contractors/ suppliers in relevant fora</p>	<p>Solutions and actions are presented to relevant contractors/ suppliers</p>
<p>GAS CYLINDERS</p> 	<p>Plan for “check-and-act” – activities to follow up the effect of implemented actions.</p>	<p>Plan for “check-and act” activities has been established.</p>

WHAT YOU NEED TO DO – ASSET LEVEL ACTIONS (to be documented in Synergi)

N ₂ BOOSTER EQUIPMENT	Asset Level Actions	Closing Criteria – when you can document
	<p>Action 1: Modify/ replace N₂ booster equipment that does not meet requirements for overpressure protection in WR2672</p> <ul style="list-style-type: none"> Map N₂ pumps owned by Equinor and contractors that do not meet requirements for overpressure protection. Decide modification or changeout of equipment with shortcomings and document the conclusion – ref. Recommended design with safety barriers according to new requirements Perform modification according to requirements in WR2672 	<ul style="list-style-type: none"> All relevant N₂ booster equipment has been mapped and evaluated wrt. overpressure protection All N₂ booster equipment with shortcomings has been modified according to requirements
<p>N₂ BOOSTER EQUIPMENT MAINTENANCE</p> 	<p>Action 2: Establish maintenance program for N₂ booster equipment</p> <ul style="list-style-type: none"> Ensure nitrogen booster equipment is tagged and that maintenance program is established – ref. DPN recommended maintenance 	<ul style="list-style-type: none"> Maintenance program for all N₂ booster equipment is implemented in the maintenance management system (SAP or other maintenance management system) Include reference to relevant M5 notification in Synergi
<p>SAFE PRACTICE</p> 	<p>Action 3: Ensure gas cylinders are inspected/ recertified</p> <ul style="list-style-type: none"> Map gas cylinders- register which are designed as transportable and not Decide whether cylinders shall be owned or rented Establish inspection and recertification program for owned cylinders Ensure rental company control/ follow up of certification dates 	<ul style="list-style-type: none"> All gas cylinders are mapped and decision is made on what cylinders to own and what cylinders to rent All owned cylinders are connected to a program for inspection and recertification It is ensured that rental company has control of certification dates
<p>COMPETENCE</p> 	<p>Action 4: Consider the DPN solutions also for similar use of booster pumps for other purposes</p>	<ul style="list-style-type: none"> Relevant applications considered and any identified actions implemented
<p>GAS CYLINDERS</p> 		

How to document the closing of actions from this lesson

