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# 135 – Norwegian Oil and Gas Recommended guidelines for Classification and categorization of well control incidents and well integrity incidents

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*Final*

## PREFACE

This guideline is supported by Norwegian Oil and Gas Association's (Norwegian Oil and Gas) Drilling Managers Forum and by Norwegian Oil and Gas' Operations Committee. Further it has been approved by Norwegian Oil and Gas' general director.

Responsible manager in Norwegian Oil and Gas is Manager Drilling who can be contacted via +47 51 84 65 00 (switchboard).

The guideline has been prepared with a broad participation from competent parties in the Norwegian petroleum industry, and is owned by the Norwegian petroleum industry, as represented by Norwegian Oil and Gas Association. Norwegian Oil and Gas is responsible for administration of this guideline.

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## 1 INTRODUCTION

### 1.1 Purpose

#### **Objective**

The purpose of this document is to provide a guide for:

- Categorization and classification of well control incidents.
- Classification of well integrity incidents in the operational and production phases.
- Correct evaluation and alerting, notification and reporting to the authorities.
- Learning and experience transfer from well incidents.

Please note that any incident or leakage downstream the wellhead or XT valves is not covered by this guideline and not defined as a well integrity incident, even if the incident may lead to a temporarily leak from the well to the environment (e.g., leakage from flowline).

#### **Target group**

The following are considered target groups for this guideline:

- All parties involved in categorization and classification of well control incidents.
- All parties involved in alerting, notifying, reporting, and following up well control incidents towards the authorities.
- All parties involved in alerting, notifying, reporting, and following up well integrity incidents towards the authorities.

#### **Flowchart handling and reporting a well control incident.**

The flowchart in Appendix A ([App A](#)) should be used to ensure that all steps in the reporting and experience transfer process for a well control incident is fulfilled.

### 1.2 Terminology

Definitions and abbreviations

#### **Definitions**

##### **Well control incident**

A well control incident is in drilling & completion and live well intervention defined as a failure of barrier(s) or failure to activate barrier(s), resulting in an unintentional<sup>1</sup> flow of formation fluid –

- i) into the well
- ii) into another formation or
- iii) to the external environment.

<sup>1</sup>) A planned flow is not a well control incident (for instance DST, mini-DST etc.)

### **Well integrity incident**

A well integrity incident is defined as a failure of barrier(s) or failure to activate barrier(s), resulting in an unintentional flow, leak, or release of fluids to the environment, other formations, or adjacent systems.

### **Drilling and Completion operation**

Drilling, completion, or work-over activity.

### **Well Intervention operation**

Well intervention operation is well servicing operations conducted within a completed wellbore.

### **Abbreviations**

BOP	Blow Out Preventer
CDRS	Common Data Reporting System (NPD/PSA database)
DMF	Drilling Managers Forum
DST	Drill Stem Test
DHSV	Down Hole Safety Valve
D&W	Drilling & Well
HC	Hydrocarbons
HMV	Hydraulic Master Valve
MMV	Manual Master Valve
NCS	Norwegian Continental Shelf
Norwegian Oil and Gas	Norwegian Oil and Gas Association
PSA	Petroleum Safety Authority
RNNP	Risk level Norwegian Petroleum industry
TH	Tubing Hanger
TTAC	Tubing to annulus communication
WH	Wellhead
XT	Christmas Tree

## 2 GUIDELINE WELL CONTROL INCIDENTS

The matrix in [App B](#) shall be used to classify the seriousness of a well control incident.

The matrix defines the criticality of a loss of barrier(s). It does not include an evaluation of the potential consequences of a well control incident – this shall be assessed separately and according to the company's internal incident evaluation process. This process should be in accordance with § 29 in the Management Regulations.

In [App C](#) are listed examples of classifications of incidents according to App B.

There is one matrix for drilling and completion operations and one matrix for well intervention operations.

### 2.1 Description of the matrix

#### 2.1.1 Drilling and completion colour codes

The matrix's left column is organized according to criticality into four colour coded categories:

- Red – Critical well control incidents
- Yellow – Serious well control incidents
- Green – Regular well control incidents
- Grey – Non classified incidents

Red incidents; graded 1 – 4:

Grade 1: Blowout.

Grade 2: High HC influx rate

Grade 3: High-rate Shallow gas flow

Grade 4: High-rate Shallow water flow.

Yellow incidents; graded 1 - 3:

Grade 1: Medium HC influx, volume > kick tolerance that can be handled with kill procedures.

Grade 2: Loss of fluid barrier requiring closure of BOP.

Grade 3: Medium rate shallow gas flow to seabed or diverted on installation.

Green incidents; graded 1 - 3:

Grade 1: Low HC or water influx, volume < kick tolerance that can be handled with well control procedures.

Grade 2: Low-rate shallow gas with no gas on the installation.

Grade 3: Low-rate shallow water flow.

Grey incidents; incidents such as non-continuous HC migration and loss of primary or secondary barrier without an influx into the well.

## 2.1.2 Well intervention – colour codes

The matrix's left column is organized according to criticality into four colour coded categories:

- Red – Critical well control incidents
- Yellow – Serious well control incidents
- Green – Regular well control incidents
- Grey – Non-classified incidents

Red incidents; graded 1 - 2

Grade 1: Blowout.

Grade 2: Loss of primary and secondary barriers

Yellow incidents; graded 1 - 2

Grade 1: Failure of primary well barrier. Activation of secondary barrier with no other redundant barrier elements available.

Grade 2: Failure of primary well barrier. Activation of secondary barrier with other redundant barrier elements available.

Green incidents; graded 1

Grade 1: Temporary degraded well barrier element that requires activation of a secondary well barrier to enable re-establishment of degraded barrier element.

Grey incidents cover non-classified incidents, such as non-continuous HC migration and loss of primary or secondary barrier without an influx into the well.

## 2.1.3 Alert and notification to Authorities

The Drilling & Completion and Intervention columns are divided into 3 colours: tan, blue and grey.

Incidents on tan background require an Alert to PSA.

Incidents on blue background require a Notification to PSA.

Incidents on grey background should, depending on potential, be reported in accordance with Management Regulations § 29.

Form: [Confirmation of alert/notification to Petroleum Safety Authority](#)

## 2.1.4 Guidance and examples

The column "Guidance" provided additional information and description of the classification level topics.

In addition each level is provided with "Examples" in Appendix C", see [App C](#) to assist in the categorization of an incident.

### 3 ONE PAGE WELL CONTROL INCIDENT PRESENTATION

Appendix D, ([App D](#)), is a “One page well control incident presentation” template. The intention is to have a standard format for presenting well control incidents for learning and experience transfer.

### 4 GUIDELINE WELL INTEGRITY INCIDENTS

The matrix presented in Appendix E ([App E](#)) is a guide for classifying seriousness of a well integrity incident.

The matrix in App E shall be used to classify the seriousness of a well integrity incident. The matrix defines the criticality of a loss of barrier(s). It does not include an evaluation of the potential consequences of a well integrity incident. This shall be assessed separately and according to the company's internal evaluation process.

#### 4.1 Description of matrix

##### 4.1.1 Colour codes for Level and Consequence classification

The matrix's left column is organized according to criticality into four colour coded categories:

- Red - Critical well integrity incidents
- Yellow - Serious well integrity incidents
- Green - Medium well integrity incidents
- Grey - Minor/non-classified well integrity incidents

Red incidents; graded 1 - 2

Yellow incidents; graded 1

Green incidents; graded 1 - 2

Grey incidents cover non-classified incidents

The Well Integrity columns are divided into 3 colours: tan, blue and grey.

Incidents on tan background require an Alert to PSA.

Incidents on blue background require a Notification to PSA.

Incidents on grey background should, depending on potential, be reported in accordance with Management Regulations § 29.

The middle column (Grade) of the matrix details the basics for grading within each seriousness level.

The right-hand column (Guidance) of the matrix describes different scenarios in each seriousness level to evaluate if one should alert or notify the PSA.

Form: [Confirmation of alert/notification to Petroleum Safety Authority](#)



## 4.1.2 Principles for Classification of well integrity incidents

The division of the different levels in the reporting matrix is based on unacceptable leak rates used for topside risk assessment. The top three levels are reportable.

The 4<sup>th</sup> level is included to give guidance to operators regarding the cut off for reporting of less severe incidents for use in internal reporting systems.

Dual-barrier failure without containment loss (i.e. no direct leak to atmosphere) is defined as a notifiable incident.

Well incidents should be assessed for their learning potential and their value for experience transfer. The learning potential and experience transfer should be facilitated by creating a One Pager.

## 4.1.3 Internal reporting

Each company should align their requirements for internal reporting, investigation and experience transfer based on the consequence classification in this guideline.

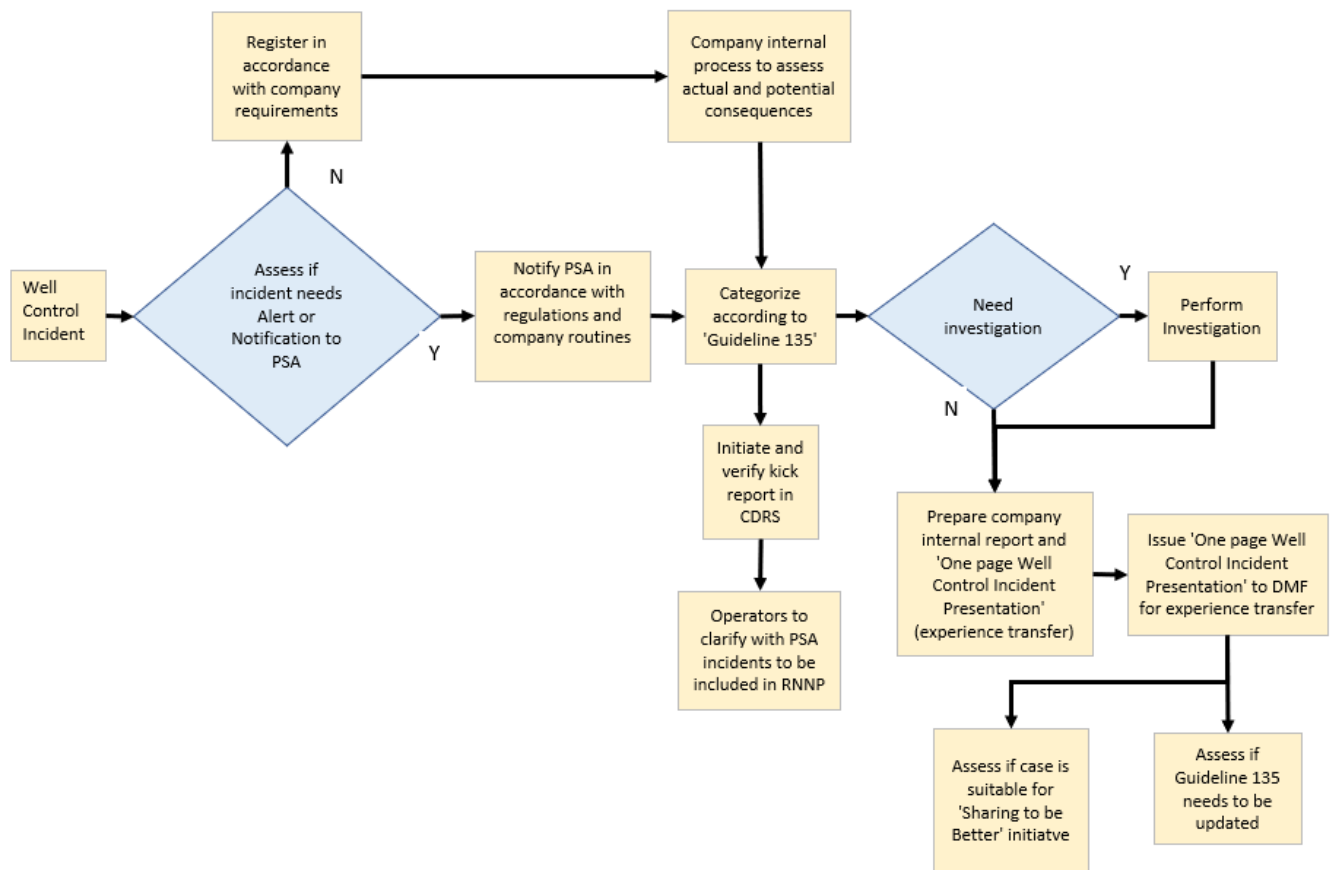
# 5 ONE PAGE WELL INTEGRITY INCIDENT PRESENTATION

Appendix F ([App F](#) Template for one page well integrity incident presentation) is a “one page well integrity incident presentation” template.

The intention is to have a standard format for presenting well integrity incidents for experience transfer within WIF/DMF.

## 6 APPENDIX

### App A Flowchart for process of reporting and experience transfer of well control incidents.



App B Categorisation and classification matrix for well control incidents

**Matrix for categorization and classification of well control incidents  
Drilling and Completion operations**

Level 1- Red Critical well control incidents	1. <b>Blowout</b>	1. Blowout to environment or facility including underground blow out. Failure or malfunction of primary and secondary barriers.
	2. <b>High HC influx volume/rate</b>	2. Failure of primary well barrier. Successful activation of the secondary well barrier. Critical kill operations with high risk of blowout.
	3. <b>High-rate shallow gas flow</b>	3. Shallow gas incident with unsuccessful kill operation. Gas flowing to seabed or installation (diverter), until all gas is released.
	4. <b>High-rate shallow water flow</b>	4. Shallow water flow influencing stability of an installation (jack-up, fixed installation or template)
Level 2 – Yellow Serious well control incidents	1. <b>Medium HC influx volume/rate</b>	1. Influx volume above design criteria for kick margin, but possible to regain barrier with standard kill procedure.
	2. <b>Total Fluid barrier lost</b>	2. Loss situation without being able to maintain the hydrostatic pressure in the well.
	3. <b>Medium rate shallow gas flow</b>	3. Shallow gas incident with kill operations or gas handled on installation by diverter.
Level 3 – Green Regular well control incidents	1. <b>Low HC or water influx volume/rate</b>	1. Influx volume below design criteria for kick margin, and successfully regained barrier with standard kill procedure without degrading well integrity.
	2. <b>Low-rate shallow gas flow</b>	2. Shallow gas incident with kill operations. No gas handled on installation (riser-less operation)
	3. <b>Low-rate shallow water flow</b>	3. Shallow water flow incident.
Level 4 - Non-Classified (NC)	1. <b>Non-continuous gas/water migration in well - with all barriers in place</b>	1. Release of a barrier element with contained volume of gas/water trapped below or behind casing.
	2. <b>Loss of primary or secondary barrier without influx into the well.</b>	2. Incidents where a barrier is compromised but no influx has occurred.

Tan = Alert to PSA according to management regulation

*Blue = Notification to PSA according to management regulation*  
*Grey = Alert or Notification to PSA, depending on potential, in accordance with Management Regulations § 29*

**Matrix for categorization and classification of well control incidents  
Well intervention operations.**

Degree of seriousness	Well intervention	Guidance
Level 1- Red Critical well control incidents	<b>1. Blowout</b>	1. Blowout to environment or facility. Failure of primary and secondary barriers that can be handled by relief well drilling, capping or handled on the installation.
	<b>2. Failure of primary and secondary barriers</b>	2. Well control equipment damaged from external loads or non-shearable item stuck across BOP and safety head. Well flowing to surroundings. Well killed or well capped on location.
Level 2 – Yellow Serious well control incidents	<b>1. Failure of primary well barrier. Activation of secondary well barrier – no other redundant barrier elements available.</b>	1. Well secured by closing one single valve (safety head or XT valve). String blocking other valves preventing redundant barrier element.
	<b>2. Failure of primary well barrier. Activation of secondary well barrier – other redundant barrier elements available</b>	2. Well secured by closing one single valve (safety head or XT valve). Additional valve(s) available to act as redundant barrier element.
Level 3 – Green Regular well control incidents	<b>1. Temporary reduction of well barrier element function</b>	1. Failure of one well barrier element. Activation of redundant well barrier elements and reestablishment of well barrier element within primary barrier. Secondary barrier intact.
Level 4 – Non-Classified (NC)	<b>1. Very small leak, no activation of BOP necessary.</b>	1. Very small leak, able to pull out of hole and close normal lubricator valves to repair leak. Two barriers intact.
	<b>2. Loss of primary or secondary barrier without influx into the well.</b>	2. Incidents where a barrier is compromised but no influx has occurred.

*Tan = Alert to PSA according to management regulation*  
*Blue = Notification to PSA according to management regulation*  
*Grey = Alert or Notification to PSA depending on potential in accordance with Management Regulations § 29*

Form: [Confirmation of alert/notification to Petroleum Safety Authority](#)

App C Examples of well control incidents

Drilling and Completion

No.	1. Blowout
D1.1 - 01	Blowout where the installation is evacuated and blowout handled from remote location or another vessel (relief well, capping, etc.)

D1.1 - 02	Underground blowout breaching to seabed.
D1.1 - 03	Blowout breaches seabed but well killed from installation
<b>2. High HC influx rate</b>	
D1.2 - 01	High influx volume (significantly above design criteria on kick margin) and shear ram activated, i.e. in ultimate stage.
D1.2 - 02	Shut in pressure exceeding casing burst pressure or well control equipment working pressure whichever is less.
D1.2 - 03	Loss of surface well control components leading to closing of shear seal ram as only option.
D1.2 - 04	Shear seal ram closed due to internal blowout inside drill pipe (failure to close IBOP/install FOSV)
D1.2 - 05	Riser evacuated to surface, loss of primary well barrier. BOP activated and influx contained by secondary barrier, well killed from installation.
<b>3. High-rate Shallow gas flow</b>	
D1.3 - 01	Fixed installation or jack-up where gas blows to installation.
D1.3 - 02	Floater where gas through sea is coming up to the installation.
D1.3 - 03	Gas in such magnitude that instability of rig is experienced
D1.3 - 04	Jack up where gas breaches out on seabed threatening stability of installation
D1.3 - 05	Long term diverting of gas with high potential for failure of diverting system.
D1.3 - 06	Large OD top hole section riser less with gas flowing and unable to kill.
<b>4. High-rate shallow water flow</b>	
D1.4 - 01	Shallow water flow incident under a jack up or a fixed installation - no threat to installation/template
<b>1. Medium HC influx rate</b>	
D2.1 - 01	Medium/high influx volume (above design criteria on kick margin) but kick circulated out using conventional kill method. Note: Also valid for medium/high influx volume in sections designed with infinite kick margin.
D2.1 - 02	Underground blowout not breaching to seabed
<b>2. Total Fluid barrier lost</b>	
D2.2 - 01	Sagging of mud resulting underbalanced situation - (influx volume > kick margin) Handled using conventional kill methods.
D2.2 - 02	Loss situation without being able to maintain the hydrostatic pressure in the well and closure of BOP with pressure underneath.
<b>3. Medium rate Shallow gas flow</b>	
D2.3 - 01	Large OD top hole section riser less with gas flowing and able to kill
D2.3 - 02	Shallow gas diverted on installation.
<b>1. Low HC or water influx rate</b>	
D3.1 - 01	Small HC kick volume (below design criteria on kick margin) handled using conventional kill methods.
D3.1 - 02	Water kick handled using conventional kill methods.
D3.1 - 03	Sagging of mud resulting underbalanced situation - (influx volume < kick margin) Handled using conventional kill methods.
<b>2. Low-rate shallow gas</b>	
D3.2 - 01	Shallow gas incident with kill operations. No gas handled on installation (riser-less operation).
<b>3. Low-rate Shallow water flow</b>	
D3.3 - 01	Shallow water flow incident with no risk for stability of installation.
D3.3 - 02	Shallow water flow left flowing. Re-spud new location.
<b>Non-classified incidents</b>	
D4.1 - 01	Circulation of mud with high drilled gas content with closed BOP as precautionary measure, but without applying additional backpressure.
D4.1 - 02	Circulate and increase mud weight due to increasing gas trend without closing BOP.
D4.1 - 03	Shallow gas bubbles from top hole section.
D4.1 - 04	Released gas after cutting or perforation of casing string - no continuous flow
D4.1 - 05	Released gas after releasing downhole plugs/packers without having an underbalanced situation in the well.
D4.1 - 06	Lost mud returning into wellbore (ballooning).
D4.1 - 07	Release of Nitrogen after a foam cement operation.
D4.1 - 08	Release gas during pulling of cores


<b>D4.2 - 01</b>	Total losses leading to underbalance, but no influx recorded (lost primary barrier, but no influx)
<b>D4.2 - 02</b>	BOP control lost or functions not available (lost secondary barrier, but no influx).
<b>D4.2 - 03</b>	Temporary P&A with failed shallow plug, but deep plug functional (lost secondary barrier, but no influx).
<b>D4.2 - 04</b>	Unplanned LMRP disconnect without permeable zones present (lost primary barrier if no riser margin, but no influx)


### Well Intervention

No.	Blowout
<b>I1.1 - 01</b>	Non-shearable item stuck across BOP, leakage above BOP – not able to close any BOP rams – DHSV not available – installation decided to be evacuated.
<b>I1.1 - 02</b>	Well control equipment damaged from external loads – not able to operate equipment – well flowing to surroundings – installation decided to be evacuated.
	<b>Failure of primary and secondary barriers</b>
<b>I1.2 - 01</b>	Non-shearable item stuck across BOP, leakage above BOP – not able to close any BOP rams – DHSV not available – non-essential personnel evacuated - well killed or well capped with assistance from well control service company.
<b>I1.2 - 02</b>	Well control equipment damaged from external loads – not able to operate equipment – well flowing to surroundings – well killed with mud or well capped with assistance from well control service company.
	<b>Failure of primary well barrier. Activation of secondary well barrier – no other redundant barrier elements available</b>
<b>I2.1 - 01</b>	Leak below safety head and well secured by cutting string and close other valves.
<b>I2.1 - 02</b>	Well secured by cutting string using safety head. String blocking other valves (not possible to achieve double block).
	<b>Failure of primary well barrier. Activation of secondary barriers other redundant barrier elements available</b>
<b>I2.2 - 01</b>	Leak between safety head and BOP. Well secured by cutting string using safety head. Other valves available after cutting – double block achieved.
<b>I2.2 - 02</b>	Leak in or above BOP, BOP failed, safety head activated to cut string, valves below closed to provide double block.
	<b>Temporary degraded well barrier element functions</b>
<b>I3.1 - 01</b>	Necessary to close BOP to repair leak above BOP.
<b>I3.1 - 02</b>	Pressure containing stuffing box, grease injection head or strippers redressed to repair leak.
<b>I3.1 - 03</b>	Barrier compromised in well without flow potential.
	<b>Non-classified incidents</b>
<b>NCI - 01</b>	Very small leak, able to pull out of hole and close normal lubricating valves to repair leak. Two barriers intact.

## App D    Template for one page well control incident presentation

See example below\*

<h1>Well control incident</h1>						
<b>Location:</b> <Location> <b>Rig type:</b> <Rig type> <b>Well type:</b> <Well type> <b>Date:</b> <Date>	<b>Well control incident category:</b> ..... <table border="1" style="width: 100%;"><tr><td style="background-color: red; color: white; text-align: center;">Level 1</td><td style="background-color: yellow; text-align: center;">Level 2</td><td style="background-color: green; text-align: center;">Level 3</td><td style="background-color: gray; text-align: center;">None class.</td></tr></table>		Level 1	Level 2	Level 3	None class.
Level 1	Level 2	Level 3	None class.			
<b>Plan:</b> <ul style="list-style-type: none"><li>Description of plan.....</li></ul>		<b>Impact:</b> Lost time, HC release, etc....				
<b>Operation with course of events:</b> <ul style="list-style-type: none"><li>Event description.....</li></ul>		<b>Illustration / Well bore schematic</b>				
<b>Reason for events:</b> <ul style="list-style-type: none"><li>Free text evaluation</li></ul>						
<b>Lessons Learned:</b> <ul style="list-style-type: none"><li>Free text evaluation</li></ul>						
<b>Recommended actions:</b> <ul style="list-style-type: none"><li>Free text evaluation</li></ul>						



## Well control incident

<b>Location:</b> <Location> <b>Rig type:</b> <Rig type> <b>Well type:</b> <Well type> <b>Date:</b> <Date>	<b>Critical Issues:</b> <ul style="list-style-type: none"> <li>Free text evaluation</li> </ul>
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Direct Cause:	Underlying Cause:
Prognosis incorrect	Risk accepted
Shallow gas	Error in program / procedure
Shallow water flow	Procedure not followed
Incorrect mud weight	Lack of competence
Swabbing	Communication error (missing, wrong, incomplete, etc.)
Ballooning	Incorrect use of equipment
HC accumulation below barrier element	Equipment failure
Surface pressure control system failure	BOP failure
Downhole mechanical barrier failure	Other: .....
Downhole cement / casing barrier failure	
Other: .....	

Page 2 of 2

Example of Well control incident category:

\*Typical examples:

Medium risk HC influx - Drilling & Completion - (Yellow):

Influx volume (above design criteria for kick margin) but possible to regain barrier with standard kill procedure – To be reported as **D2.1 - 01**.

Temporary reduction of well barrier function – Well Intervention – (Green):

Necessary to close BOP to repair leak above BOP – To be reported as **I3.1 - 01**



App E    Categorization and classification matrix for well integrity incidents

**Matrix for categorization and classification of well integrity incidents  
For wells in operation / production**

<b>Seriousness level</b>	<b>Grade</b>	<b>Guidance</b>
<b>LEVEL 1 – Red:</b>  Critical well integrity incidents with high risk for personnel, environment, and facility	<b>GRADE 1:</b>  - Rate > 10 kg/s or amount of > 100 kg HC gas immediate release  - Volume > 500 m3 crude	- Barrier failure with major HC release to external environment.  - Crossflow with major release to external environment.  - Critical threat to installation and personnel.  - External leak from well resulting in mobilization of emergency preparedness team.
	<b>GRADE 2:</b>  - Rate 1-10 kg/s or amount of 10-100 kg HC gas immediate release  - Volume > 50 m3 crude	
<b>LEVEL 2 – Yellow:</b>  Serious well integrity incidents	<b>GRADE 1:</b>  - Rate 0,1-1 kg/s or amount of 1-10 kg HC gas immediate release  - Volume > 1m3 crude oil	- Barrier failure with HC release to external environment.  - Crossflow with release to external environment.  - Serious threat to installation and personnel.  - External leak from well resulting in mobilization of emergency preparedness team.
<b>LEVEL 3 – Green:</b>  Medium well integrity incidents	<b>GRADE 1:</b>  - Rate 0,006 - 0.1 kg/s or amount < 1kg HC gas immediate release  - Volume > 0.01m3 crude oil leak to external environment	- Barrier failure with limited HC release to external environment.  - Uncontrolled crossflow between formations due to well barrier failure(s).  - Potential threat to installation and personnel.
	<b>GRADE 2:</b>  - Dual barrier failure - no loss of containment to external environment.	
<b>LEVEL 4 – Minor well integrity incidents:</b>	<b>GRADE 1:</b>  Rate < 0.006 kg/s (API RP14B)	- Negligible threat to installation and personnel
	<b>GRADE 2:</b>  Single barrier failure - no loss of containment.	


**Tan** background = **Alert to PSA** according to management regulation §29

**Blue** background = **Notification to PSA** according to management regulation §29

**Grey** background = Alert or Notification, depending on potential, in accordance with Management Regulations § 29

Form: [Confirmation of alert/notification to Petroleum Safety Authority](#)

## App F      Template for one page well integrity incident presentation

		<h1>Well Integrity incident</h1>		<table border="1"> <tr> <th colspan="4">Incident category</th> </tr> <tr> <td style="background-color: red;">Level 1</td> <td style="background-color: yellow;">Level 2</td> <td style="background-color: green;">Level 3</td> <td style="background-color: grey;">Level 4</td> </tr> </table>				Incident category				Level 1	Level 2	Level 3	Level 4						
Incident category																					
Level 1	Level 2	Level 3	Level 4																		
<table border="1"> <tr> <th>Location</th> <td></td> <th>Main issue</th> <td><i>Select from table</i></td> </tr> <tr> <th>Well type</th> <td><i>Producer/injector etc.</i></td> <th rowspan="3">Issue keywords</th> <td><i>Select from table</i></td> </tr> <tr> <th>Installation</th> <td><i>Subsea/Platform</i></td> <td><i>Select from table</i></td> </tr> <tr> <th>Date</th> <td><i>Feb. 2021</i></td> <td><i>Select from table</i></td> </tr> </table>	Location		Main issue	<i>Select from table</i>	Well type	<i>Producer/injector etc.</i>	Issue keywords	<i>Select from table</i>	Installation	<i>Subsea/Platform</i>	<i>Select from table</i>	Date	<i>Feb. 2021</i>	<i>Select from table</i>	<div style="border: 1px solid black; padding: 5px;"> <p><b>Background:</b></p> <ul style="list-style-type: none"> <li>• <i>Include important elements in detection and immediate assessments/actions</i></li> <li>• <i>Include any other relevant integrity issues</i></li> </ul> </div>			<div style="border: 1px solid black; padding: 5px;"> <p><b>Illustration/well bore schematic</b></p> </div>			
Location		Main issue	<i>Select from table</i>																		
Well type	<i>Producer/injector etc.</i>	Issue keywords	<i>Select from table</i>																		
Installation	<i>Subsea/Platform</i>		<i>Select from table</i>																		
Date	<i>Feb. 2021</i>		<i>Select from table</i>																		
<div style="border: 1px solid black; padding: 5px;"> <p><b>Well integrity assessment conclusion:</b></p> <ul style="list-style-type: none"> <li>• <i>What were the immediate and root causes from the investigation?</i></li> <li>• <i>Were there other relevant problems identified?</i></li> <li>• <i>117 reporting code</i></li> </ul> </div>																					
<div style="border: 1px solid black; padding: 5px;"> <p><b>Mitigating actions / well risk:</b></p> <ul style="list-style-type: none"> <li>• <i>Key mitigating long term actions</i></li> </ul> </div>																					
<div style="border: 1px solid black; padding: 5px;"> <p><b>Lessons learned / operational adjustments:</b></p> <ul style="list-style-type: none"> <li>• <i>Any important lessons learned or operational adjustments on the installation/field due to failure</i></li> </ul> </div>																					

Main issue	<u>Issue keyword</u>	
Valve failure	ASV	DHSV
External leak	XT	WH
Tubing leak	Seals	Packer
Annulus leak	GLV	Testing
Overpressure	Monitoring	Hydraulics
Other	Corrosion	Erosion
	Temperature	Burst
	Control Line	Collapse
	Cement	Formation
	Fatigue	Lifetime
	Maloperation	Compatibility
	Instrumentation	

## 7 HIGHLIGHTING CHANGES

Changes made:

General – Focus on reporting requirements and reference to Management Regulations § 29.

1.1 Purpose – focus on learning and experience transfer from well incidents.

2.1.1 Drilling and completion colour codes – change to definition of Grey incidents.

2.1.2 Well intervention colour codes – Change to definition of Grey incidents.

3. One Page Well Control Incident Presentation – Focus on learning.

4.1.2 Principles for classification of well incidents – Focus on learning and creation of a One Pager for incidents with learning potential.

Appendix A – New Flowchart for process of reporting and experience transfer of well control incidents. No change in details.

Appendix B – Extension of Non-classified Drilling and Completion incidents

Appendix B - Extension of Non-classified Well Intervention incidents

Appendix C – Extension of examples for non-classified incidents

Appendix F: Revised Template for one page well integrity incident presentation