Møte – Sikkerhetsforum 16.02.2017
Sam Samuelsen – Chairman Drilling Managers Forum

Drilling Manager Forum

Responsibility

- Drilling and Well operations
- Well incidents
- Well Integrity
- Plug and Abandonment.

Network - Work groups

- Well Integrity Forum (WIF)
- Plug and Abandonment Forum (PAF)
- Well Incident Task Force (WITF)
- Ad hoc work groups

Well Control Focus (monthly meetings)

Agenda - Thursday September 22nd 2016 @ 10:00 – 14:30 hrs.

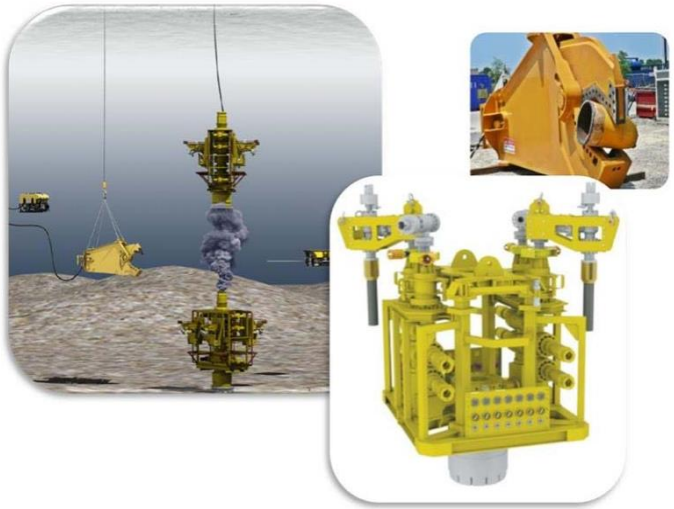
1.	10:00-10:10	Safety brief and Approval of agenda
2.	10:10-10:15	MoM 18.08.2016 – Approval and status
3.	10:15-10:40	Case presentation/ company presentation
4.0	10:40-10:50	Well Control Incidents/ Well Incidents
5.0	10:50-11:00	Safety alerts/Lesson learned
6.0	11:00-11:30	Drilling/well control issues related to shallow reservoirs Barents Sea
	11:30-12:30	Lunch
7.0	12:30-13:00	Guidance on calculating blowout rates and duration for use in environmental risk analysis
8.0	13:00-13:10	Task Force Capping and containment
9.0	13:10-13:15	Revised mandate for DMF
10.0	13:15-13:20	DMF Meeting schedule for 2017
11.0	13:20-13:40	Guideline 082 – further process
12.0	13:40-14:30	AOB

Well Control Focus

Final report from work group Capping, completed January 2017

NOROG –

NCS WELLS CAPPING STATUS REPORT 2016



Updated guidance for calculating blowout rates and duration, completed January 2017

Norsk olje&gass

Guidance on calculating blowout rates and duration for use in environmental risk analyses

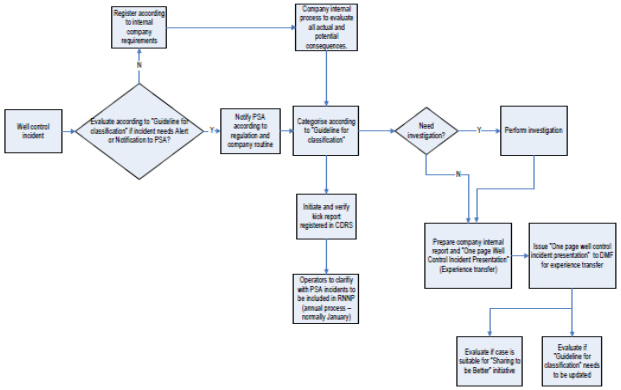
Translated and updated version

Well Control Focus

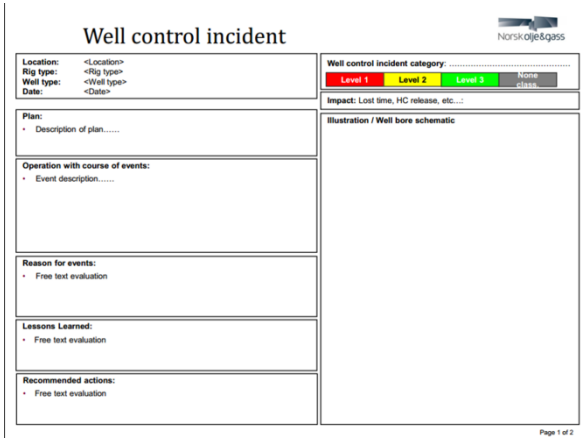
Review of well control incidents 2016

Common guidelines

[135 –Norwegian Oil and Gas Recommended guidelines for classification and categorization of well control incidents and well integrity incidents]



Level 1- Red Critical well control incidents	1. **Blowout**	1. Blowout to environment or facility including underground blow out. Failure of primary and secondary barriers that can be handled by relief well drilling, capping or handled on the installation
	2. **High HC influx rate**	2. Failure of primary well barrier. Activation of the secondary well barrier in critical kill operations with high risk of blowout.
	3. **High rate shallow gas flow**	3. Shallow gas incident with unsuccessful kill operation. Gas flowing to seabed or installation.
	4. **High rate shallow water flow**	4. Shallow water flow influencing stability of an installation (jack-up, fixed installation or template)
Level 2 – Yellow Serious well control incidents	1. **Medium HC influx rate**	1. Influx above kick margin, but possible to regain barrier with standard kill procedure.
	2. **Fluid barrier lost**	2. Loss situation without being able to maintain the hydrostatic pressure in the well and closure of BOP with pressure underneath.
	3. **Medium rate shallow gas flow**	3. Shallow gas incident with kill operations. Gas handled on installation.
Level 3 – Green Regular well control incidents	1. **Low HC or water influx rate**	1. Influx below kick margin, and successfully regained barrier with standard kill procedure without degrading well integrity.
	2. **Low rate shallow gas flow**	2. Shallow gas incident with kill operations. No gas handled on installation (riser-less operation)
	3. **Low rate shallow water flow**	3. Shallow water flow incident.
Level 4 - Non Classified (NC)	1. **Uncontrolled non-continuous gas/water migration in well – with all barriers in place**	1. Typical when releasing a barrier element with gas/water trapped below and adequate procedures not initiated



Well control incident

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Location: <Location>
Rig type: <Rig type>
Well type: <Well type>
Date: <Date>

Well control incident category:
Level 1 | Level 2 | Level 3 | None data

Impact: Lost time, HC release, etc...:

Plan:
- Description of plan.....

Illustration / Well bore schematic

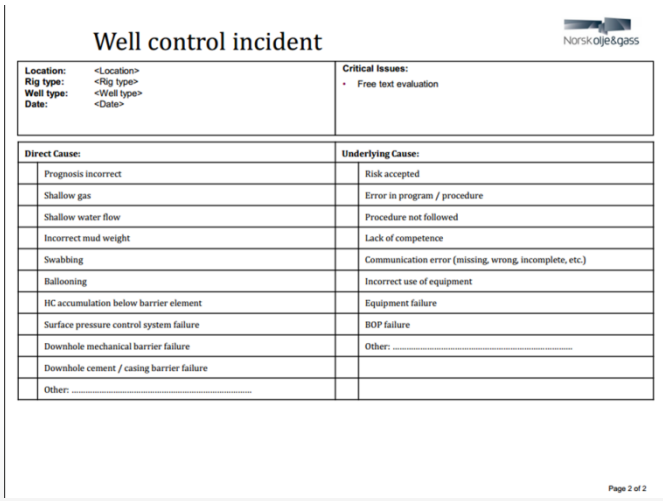
Operation with course of events:
- Event description.....

Reason for events:
- Free text evaluation

Lessons Learned:
- Free text evaluation

Recommended actions:
- Free text evaluation

Page 1 of 2



Well control incident

Norsk olje&gass

Location: <Location>
Rig type: <Rig type>
Well type: <Well type>
Date: <Date>

Critical Issues:
- Free text evaluation

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

Common guidelines

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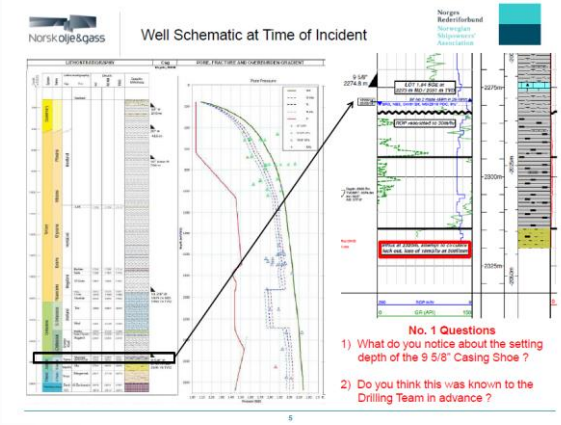
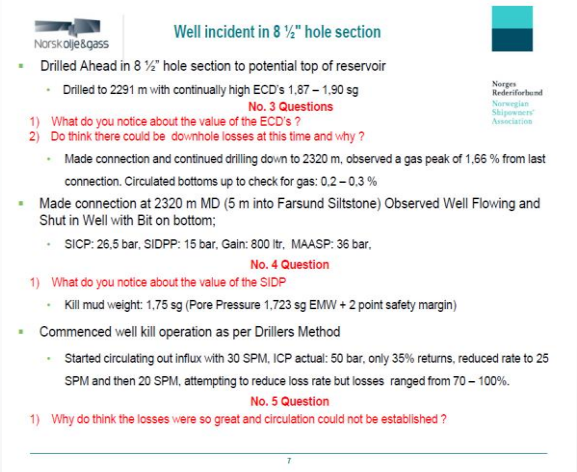
117 Recommended guidelines for Well Integrity

Sharing to be better



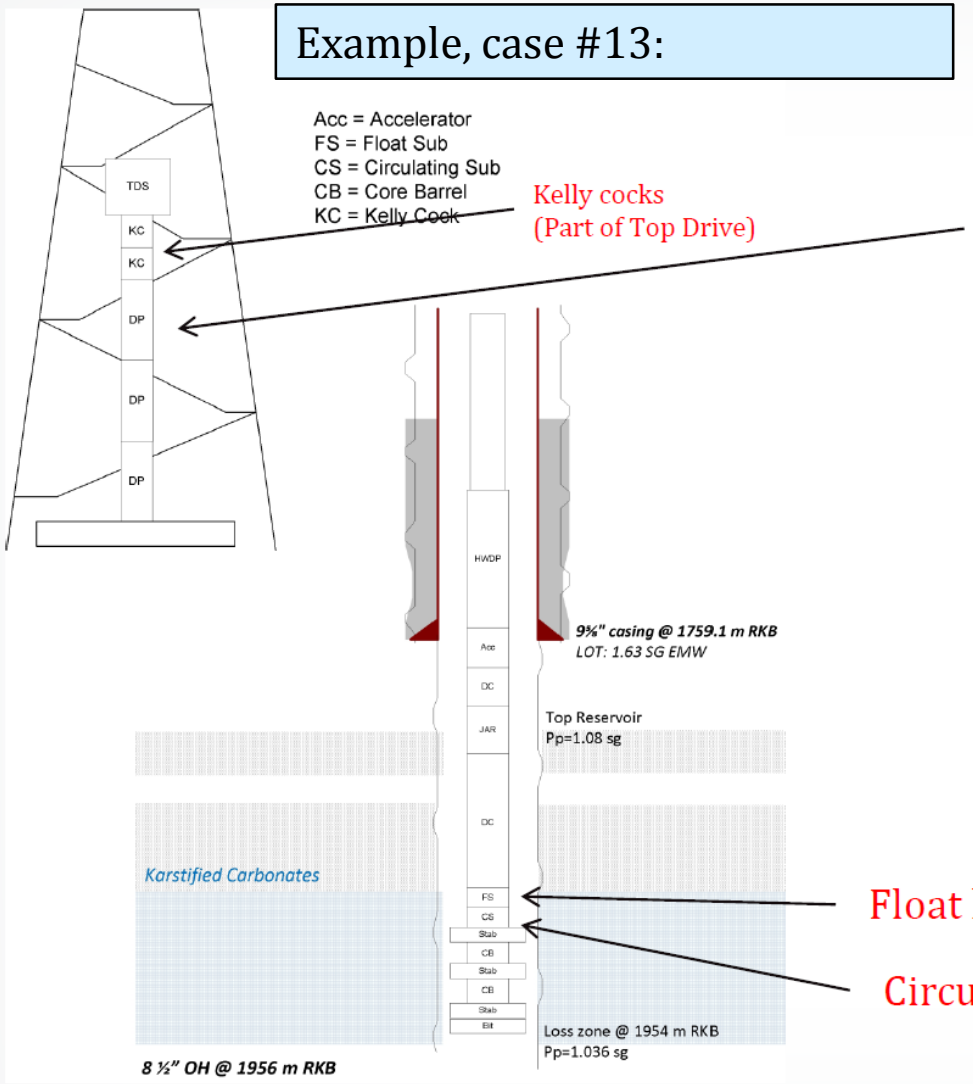


A joint efforts by Norwegian Oil and Gas and NSA (Norwegian Shipowners Association) establishing a task force with focus on reducing well incidents.

Communicate actual well control incidents that have recently occurred on the NCS so lessons are shared and understood.

A number of case histories are available and has been circulated to all installations.

Example, case #13:



Question 2: do you see any shortcomings with the top stand with pressure on Drill string and annulus?

Float leaking (non-ported flapper type)

Circulating sub opened

«Sharing to be better»

Norges Rederiforbund
Norwegian Shipowners' Association

Norsk olje&gass

Sharing to be better #1, Well control incident in 9,5 inch section

Sharing to be better #2, Well control incident in 8,5 inch section

Sharing to be better #3, Shallow gas incident

Sharing to be better #4, Gas influx from shale

Sharing to be better #5, Well control incident - Completion

Sharing to be better #6, Well control incident – pulling tie-back string

Sharing to be better # 7, Drilling 8,5 inch reservoir section, HPHT

Sharing to be better #8, Incident – Drilling of reservoir section

Sharing to be better #9, Shallow gas incident

Sharing to be better #10, Incident - Work-over operations

Sharing to be better #11, Well control incident in 8,5 inch section

Sharing to be better #12, Swabbed kick from shallow reservoir

Sharing to be better #13, Total mud loss followed by kick from a semisubmersible drilling unit in "karstified carbonates"

Sharing to be better #14, Well control incident during plugging

Sharing to be better #15, Well controll incident during completion operations

Share to be better

If one fails, we will all suffer