

# Well Planning Hazard Checklist

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## Purpose

To ensure minimal operational time and risk exposure to personnel, process, production and equipment.

The following operational well control procedures are to ensure secondary well control can be maintained.

If problems occur, procedures in this document, rig and well specific guidelines and other relevant documents should be followed.

## Responsibilities

It will be the responsibility of the Operators drilling representative and senior

contractor drilling personnel to ensure that others with duties relating to well control operations contained within this document are aware of their responsibilities.

## Scope

These procedures shall apply to all drilling personnel.

## Further References

Drilling contractor's and Operator's mutually agreed specific Well Control Procedures.

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# Hazard check list

## Definition

: Risk, event, likelihood, probability, circumstance, odds, occasion.

Three areas of loss exposure can be considered to where Hazards exist

<b>Waiting</b>		<b>Wellbore</b>		<b>Equipment</b>	
Waiting on weather		Shallow gas		Rig tools and equipment failure	
Waiting on spares, tools & equipment		Well control		Service company tools & eqpt failure	
Waiting on orders		Geological sidetrack Unplanned sidetrack		Twist off, lost in hole Stuck logging tools Stuck casing	
Amendment, change of program		Wellbore drag		Side-track programme	
Waiting on costs, PO's		Hole quality		Quality Assurance ( <i>tubulars, certification, test certificates.</i> )	
Waiting on People		Pore pressure prediction, monitoring		Back up, contingency, redundancy equipment	
Waiting on delivery		Hole problems.		Critical spares inventory	
Deck space management		Specific wellbore		Vibration/Fatigue drilling practices, modeling	
Supply vessel		Mud		Equipment Performance	
Helicopters		Cementing		Integrity	
		Wireline logging		Casing running/handling	
		Coring		Tubular running / handling	
		Gas (H2S, CO2)		Well control eqpt	

<b>Wellbore conditions</b>	<b>Actioned by</b>		<b>Equipment</b>	<b>Actioned by</b>	
Hole enlargement			Top drives		
Hole washout			ROV's		
Unconsolidation			Marine (anchors, DP systems etc.)		
Reactive formations			Rig floor handling eqpt		
Fracture faulted			Power generation		
Shale problems (see list)			Drillfloor eqpt		
Barite sag			Deck handling eqpt		
Press / Temp effects			Mud pumps		
Hydrates			Solids removal eqpt		
H2S / CO2			Mixing system		
Hole cleaning			Mud logging unit		
Mud contamination			Logging unit		
Reservoir/muds			MWD		
Torque & drag			LWD		
Wellbore stability			TLC		
Lost circulation			Jarring		
w/bore angle and geometry			Max O/Pulls allowed		
Balling			Max slack off casing		
Kick tolerance			Drillstring Washout		
Leak off tests			Plugged drillstring		
Pressure tests					

## Shale problems

<b>Soft firm shales</b>			
Bit balling	Mud rings	Hole drag	Erosion/washout
<b>Hard brittle shales</b>			
Hole drag	Sloughing/cavings	Pack off	Hole enlargement
<b>Borehole stability</b>			
Rock mechanics	High/low mud weights	Borehole stability charts	Pore pressure penetration
Hydration stress effects	Open hole time	Pressure fluctuations	Drilling practises
Hole cleaning (N/A)	Max mud wt	Min mud wt	Drillstring vibrations

## Abnormal formation pressures

Hydrocarbon reservoirs	Under compaction (sedimentary loading)	Aquathermal pressuring	Aquifers
Charged sands	Tectonic loading		

## Uplift loading

Salt diapirism	Mud volcanoes	Clay diagenesis	
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## Problems arising from overpressure

Lost circulation	Differential Sticking	Formation damage	Poor ROP
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## Subnormal formation pressures

Artificial production	Precipitation	Potentiometric surface	Osmosis
Temperature change	Epeirogenic movements	Formation foreshortening	Decompressional Expansion
Different oil densities			

**Miscellaneous Hazards Heading**


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