

Mud Master Drilling Fluid Services


Tapered Monobore Horizontal

Surge Energy HZ Provost 16-7-39-2 W4



Formations	mSS m	MD m	TVD m	H ₂ S %
Formation Tops and Estimated Depths				
SURFACE CASING		124m	124m	
KOP		250m	250m	
Lea Park		282m	282m	
BGWP		283m	283m	
Colorado		452m	446m	
Second White Specks		588m	572m	
Base Fish Scales		642m	620m	
Viking		699m	662m	
Mud Up +/-		741m		
Joli Fou		753m	694m	
Colony		807m	715m	
Sparky Coal		958m	757m	0.41
Sparky SS		965m	757m	0.41
Sparky B		997m	762m	0.41
Heel		1068m	767m	0.41
Total Depth HZ		2428m	767m	0.41


LOSS OF CIRC



LOSS OF CIRCULATION:

Lost circulation can be defined as moderate, high and total losses. The healing or treatment of losses depends on severity, type, formation, production zone and fluid set. Losses are commonly encountered in porous and permeable sands and gravel, vugular formations such as lime stone and natural fractures. Natural fractures can be encountered in any type of rock formation. In some cases losses may be induced by hydrostatic pressure, mud rings and sudden density increase. If losses occur please contact Mud Master for immediate assistance.

HOLE DEVIATION




HOLE DEVIATION:

Deviation problems may be experienced while drilling rocks, boulders, sand, gravel and coal. Controlled drilling may be required in some instances. In the case of a directional or horizontal well bore profile the use of mechanical or liquid torque and drag reducers may be required. See procedures for torque and drag instructions if applicable.


Mix Radiagreen , Sun Burst DP or Walnut Shells if hole drag or torque gets excessive. Consult with drilling foreman prior to mixing.

HOLE INSTABILITY



SLOUGHING HOLE:

Several types of formations can eventually slough into the well bore, causing the pipe to become stuck. Some of the causes for sloughing are fractured shales, poorly or unconsolidated sand, overpressure formations and hydratable/swelling shale. Sloughing can be detected by an increase of cuttings or cavings on the shaker(s) or increased pump pressure. Ensure fluid properties such as density, fluid loss and viscosity are adequate. In some cases a density increase may be required to stabilize the sloughing.

HOLE INTERVAL	FLUID PROPERTIES	COMMENTS AND SUGGESTIONS
SURFACE HOLE	0 - ±124 m	311 mm
Mud System:		
Density	1000 - 1010 kg/m ³	• Surface Hole has been drilled and Preset.
Vis (Drilling)	28 - 29 s/L	
Vis (Case)		
PV	400 - 600 mg/L	
YP	1.0 L/m ³	
Gels	As Needed	
TOP HOLE	124 - ±741 m MD	200 mm
Mud System: Floc Water - OP-T-Con CS-3001		
Density	1000 - 1010 kg/m ³	• Dump all surface mud and clean tanks thoroughly.
Vis	28 - 29 s/L	• Drill out shoe with water, reducing excess cement ph with Sulphamic acid if needed.
Calcium	400 - 600 mg/L	• Maintain Ca ²⁺ ion at >400 mg/L with Envirofloc and Gypsum.
Inhibition	1.0 L/m ³	• Flocculate solids with Hyperdrill AF 204 as required.
Sweeps	As Needed	• As necessary, trickle in approximately 1.0 L/m ³ of Op-T-Con CS-3001 as offsetting wells show the upper formations can be susceptible to clays and shale.
BUILD SECTION	±741 - 1068m MD	200 mm
Mud System: Clay Free Polymer		
Density	1040 - 1120 kg/m ³	• Mud up at ±741 mMD.
Vis (Drilling)	45 - 60 s/L	• Initial mud up will be with Polyxan and UltraPac LV/R as required at a 1:1:1 ratio.
PV	10 - 20 mPa.s	• If necessary maintain Op-T-Con CS-3001 concentrations for mud section at 1.0 L/m ³ for effective shale mitigation.
YP	3 - 18 Pa	• Run solids control equipment as req'd.
Gels	2 - 6 / 4 - 12	• Control fluid loss at < 6.0 cm ³ with additions of Lignite and UltraPac LV at a 1:1 ratio
pH	9.5 (10.5)	• Use Polyxan as required for improved hole cleaning in the build section and to assist in raising Vis/YP to ensure good hole cleaning.
Fluid Loss	< 6.0 cm ³	• Maintain pH at 8.5 - 9.5 with pHix 14 or Caustic Soda /Caustic Potash and Lignite.
Inhibition	If Necessary	(If required raise pH to 10.5 if H2S is encountered in Sparky) .
HORIZONTAL SECTION	±1068 - 2428m MD (TD)	159 mm
Mud System: Clay Free Polymer		
Density	1040 - 1120 kg/m ³	• Continue with Clay Free Polymer system.
Vis (Drilling)	45 - 55 s/L	• Control density as low as possible while drilling the HZ section to help prevent torque and drag.
PV	10 - 20 mPa.s	• Maintain Vis as required with UltraPac LV, Polyxan and UltraPac R as required at a 1:1:1 ratio.
YP	3 - 18 Pa	• Maintain fluid loss at < 5.0 cm ³ .
Gels	2 - 6 / 4 - 12	• Maintain pH at 8.5 - 9.5 with pHix14 or Caustic Soda and Lignite.
pH	9.5 (10.5)	(If required raise pH to 10.5 if H2S is encountered)
Fluid Loss	< 5.0 cm ³	
Inhibition	If Necessary	
• Maintain a turbulent flow rate on horizontal section for maximum hole cleaning. • If torque and drag become a problem, mix Lubricant Sun Burst DP / M&D Luquid Lube as required. Consult with drilling foreman prior to mixing.		
		
Mud Master		Warehouse and Trucking (24hrs)
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The above information was compiled from data received from a third party and does not imply any guarantees and is a statement of opinion only.

