

# **Mud Master Drilling Fluid Services Tapered Monobore Horizontal**

# Surge Energy H7 Provost 15-15-39-2 W4



Formations	mSS	MD	TVD	H <sub>2</sub> S		
Formations	m	m	m	%		
Formation Tops and Estimated Depths						
SURFACE CASING	-	105m	105m			
Lea Park		160m	160m			
BGWP		283m	283m			
Colorado		422m	422m			
КОР		483m	483m			
Second White Specks		533m	533m			
Base Fish Scales		576m	574m			
Viking		622m	614m			
Viking Sandstone		629m	620m			
Joli Fou		650m	636m			
Colony		708m	674m			
McLaren		736m	688m			
Mud Up +/-		741m				
Sparky Coal		830m	720m	0.41		
Sparky SS		834m	721m	0.41		
Sparky B		847m	724m	0.41		
Sparky C		897m	731m	0.41		
Heel		923m	732m	0.41		
Total Depth HZ		1869m	732m	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 case 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:

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.



#### 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 presure. 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 - ±105 m	311 mm
Aud System:			
Density		<ul> <li>Surface Hole has been drilled and</li> </ul>	d Preset.
is (Drilling)			
Vis (Case)			
PV			
ΥP			
Gels			
Jeis			
TOP HOLE		105 - ±741 m MD	200 mm
	Floc Water - OP-T-Cor	**	200 mm
TOP HOLE Mud System:	Floc Water - OP-T-Cor 1000 - 1010 kg/m <sup>3</sup>	**	
TOP HOLE		n CS-3001	tanks thoroughly.
TOP HOLE Mud System: Density	1000 - 1010 kg/m³	n CS-3001  • Dump all surface mud and clean	tanks thoroughly.
TOP HOLE  Mud System:  Density  Vis  Calcium	1000 - 1010 kg/m³ 28 - 29 s/L	n CS-3001  • Dump all surface mud and clean • Drill out shoe with water, reducin	tanks thoroughly. ng excess cement ph
TOP HOLE Mud System: Density Vis	1000 - 1010 kg/m <sup>3</sup> 28 - 29 s/L 400 - 600 mg/L	n CS-3001  Dump all surface mud and clean Drill out shoe with water, reducir with Sulphamic acid if needed.	tanks thoroughly. ng excess cement ph
TOP HOLE  Mud System:  Density  Vis  Calcium  Inhibition	1000 - 1010 kg/m³ 28 - 29 s/L 400 - 600 mg/L 1.0 L/m³	<ul> <li>Dump all surface mud and clean</li> <li>Drill out shoe with water, reducing with Sulphamic acid if needed.</li> <li>Maintain Ca<sup>2+</sup> ion at &gt;400 mg/L with sulphamic acid if needed.</li> </ul>	tanks thoroughly. ng excess cement ph vith Envirofloc

	Mud System:	Clay Free Polymer
l	Density	1040 - 1120 kg/m³
	Vis (Drilling)	45 - 60 s/L
	PV	10 - 20 mPa.s
	YP	3 - 18 Pa
	Gels	2 - 6 / 4 - 12
	pН	9.5 (10.5)
	Fluid Loss	< 6.0 cm <sup>3</sup>
	Inhibition	If Necessary
ı		

±741 - 923 m MD Mud up at ±750 mMD.

• Initial mud up will be with Polyxan and UltraPac LV/R as required at a 1:1:1 ratio.

Op-T-Con CS-3001 as offsetting wells show the upper formations can be susceptible to clays and shale

- · If necessary maintain Op-T-Con CS-3001 concentrations for mud section at 1.0 L/m3 for effective shale mitigation.
- Run solids control equipment as req'd.
- Control fluid loss at < 6.0 cm³ with additions of . Lignite and UltraPac LV at a 1:1 ratio
- Use Polyxan as required for improved hole cleaning in the build section and to assist in raising Vis/YP to ensure good hole cleaning.
- Maintain pH at 8.5 9.5 with pHix 14 or Caustic Soda /Caustic Potash and Lignite. (If required raise pH to 10.5 if H2S is encountered in Sparky) .

HORIZONTAL SECTION ±923 - 1869m MD (TD)

Mud System:	Clay Free Polyme
Density	1040 - 1120 kg/m
Vis (Drilling)	45 - 55 s/L
PV	10 - 20 mPa.s
ΥP	3 - 18 Pa
Gels	2 - 6 / 4 - 12
pН	9.5 (10.5)
Fluid Loss	< 5.0 cm <sup>3</sup>
Inhibition	If Necessary

- Continue with Clay Free Polymer system.
- · Control density as low as possible while drilling the HZ section to help prevent torque and drag.
- Maintain Vis as required with UltraPac LV, Polyxan and UltraPac R as required at a 1:1:1 ratio.
- Maintain fluid loss at < 5.0 cm3.
- Maintain pH at 8.5 9.5 with pHix14 or Caustic Soda and Lignite. (If required raise pH to 10.5 if H2S is encountered)
- . 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**

Brian Mielke Provost Ph: 780-753-0374

#### Warehouse and Trucking (24hrs)

Formula Powell Blackfalds, Alberta Ph: 403-885-5151

