

CASING PROGRAM

Total Measured Depth (MD)	Hole Diameter	Casing Diameter	Casing Weight And Grade	Cement
0' - 40'	24"	20"	Conductor Casing	Redimix to surface
Surface 0' - 2,000'	13-1/2"	10-3/4"	K-55 40.5 lbm/ft	Lead: +/- 455 sks Swiftcem B2 Tail +/- 215 sks Swiftcem B2*
Horizontal Production 0' - 10,829'	8-1/2"	5-1/2"	HCP 110 20 lbm/ft	Lead +/- 1080 sks Expandacem**

* Cement volume calculated based on gauge hole plus 100%.

** Cement volume calculated based on gauge hole plus 35%.

Yields:	Surface:	Lead:	Swiftcem B2 =	2.42 ft ³ /sk (12.0 ppg) 14.36 gal/sk
		Tail:	Swiftcem B2 =	1.72 ft ³ /sk (13.5 ppg) 9.09 gal/sk
	Production:	Lead:	Extendacem =	1.67 ft ³ /sk (13.8 ppg) 7.75 gal/sk

PRESSURE CONTROL

- See attached blowout preventer diagram.

BOPs and choke manifold will be installed and pressure tested before drilling out of surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. BOPs will be pressure tested at least once every 30 days. Ram type preventers and related pressure control equipment will be pressure tested to related working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or 70% of the minimum internal yield of the casing, whichever is less. Annular type preventers will be pressure tested to 50% of their working pressure. All casing strings will be pressure tested to 0.22 psi/ft or 1,500 psi, whichever is greater, not to exceed 70% of the internal yield. If a 5M system or greater is used, the casing shoe will be tested by drilling 5-20' out from under the shoe and pressure tested to a maximum expected mud weight equivalent as shown in the mud program listed below.

A manual locking device (i.e. hand wheels) or automatic locking devices shall be installed on the BOP stack. Remote controls capable of both opening and closing all preventers shall be readily accessible to the driller.

The choke manifold and accumulator will meet or exceed Onshore Order No. 2 (OSO #2) standards. The BOP equipment will be tested after any repairs to the equipment. Pipe rams, blind rams and annular preventer will be activated on each trip and weekly BOP drills will be conducted with each crew. All tests, maintenance, and BOP drills will be documented on rig "tower sheets".