

CROW FLAT 20 FEDERAL COM # 4
DRILLING PLAN
PAGE 3

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram type preventer and a bag-type (Hydril) preventer. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams and 5 1/2" drill pipe rams. A 3000 psi WP BOP will be installed on the 13 3/8" casing and tested per order #2. This BOP will be utilized until the 8 5/8" casing is run. A 5000 psi WP BOP will be installed on the 8 5/8" surface casing and utilized continuously until total depth is reached. As per BLM Drilling Operations Order #2, prior to drilling out the 8 5/8" casing shoe, the BOP's and Hydril will be tested.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a kelly cock, floor safety valve, choke lines and choke manifold having 5000 psi WP rating.

6. Types and Characteristics of the Proposed Mud System

The well will be drilled to total depth brine with starch mud systems. Depths of systems are as follows.

<u>Depth</u>	<u>Type</u>	<u>Weight</u>	<u>Viscosity (1/sec)</u>	<u>Water Loss</u>
0' – 2000'	Fresh Water	<u>(ppg)</u>	40	<u>(cc)</u>
2000' – 5200'	Fresh Water	8.5	40	No control
5200' – 8800'	Cut Brine	8.5	35-40	No control
8800' – TD	CutBrine/Starc	9.0	38-40	No control
	h	9.2 – 9.8		6 - 10

The necessary mud products for weight addition and fluid loss control will be on location at all times.

7. Auxiliary Well Control and Monitoring Equipment

- A. A kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.