

CROW FLAT 29 FEDERAL COM #2

DRILLING PLAN

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4. Casing Program

<u>INTERVALS</u>	<u>LENGTH</u>	<u>CASING</u>	<u>BURST</u> PSI (DF)	<u>COLLAPSE</u> PSI (DF)	<u>TENSION</u> LBS (DF)	<u>TORQUE</u> FT-LBS (DF)
<u>Surface</u> 0 - 500'	500'	13 3/8" 48# H-40 STC	1730	740 (2.96)	322M (13.4)	3220
<u>Intermediate</u> 0 - 2000'	2000'	8 5/8" 32# J-55 STC	3930 (1.85)	2530 (2.53)	372M (5.81)	4020
<u>Production</u> 0 - 1000'	1000'	5 1/2" 17# L-80 LTC	7740 (1.71)	5673 (12)	338M (2.54)	3410
1000' - 6900'	5900'	5 1/2" 15.5# J-55 LTC	4810 (1.18)	3926 (1.2)	217M (1.87)	2390
6900' - 9800'	2900'	5 1/2" 17# L-80 LTC	7740 (6.06)	6290 (1.39)	338M (13.72)	3410

Cementing Program

<u>HOLE SIZE</u>	<u>DEPTH</u>	<u>CEMENT</u>	<u>YIELD</u> CF/SX	<u>% EXCESS</u>	<u>TOC</u>	<u>WOC</u> HRS
<u>Surface</u> 17 1/2"	500'	Lead: 250 sxs lite + 2% CACL2 + 1/4#/sx celloflk (12.7#/gal) Tail: 200 sxs Cl "C" + 2% CaCl2 + 1/4#/sx celloflk (14.8#/gal)	1.88 1.35	100	Surf.	18
<u>Intermediate</u> 12 1/4"	2000'	Lead: 350 sxs lite + 5% + 1/4#/sx celloflk (12.7#/gal) Tail: 200 sxs Cl "C" + 2% CaCl2 + 1/4#/sx celloflk (14.8#/gal)	2.1 1.35	100	Surf.	12
<u>Production</u> 7 7/8"	9800'	Lead: 650 sx Class H w/3% KCl + 1% FL-25 + .1% sodium metasilicate + 5#/sx gilsonite + 1/4#/sx celloflake + .003 gal/sx FP-13L	1.6	30	7000'	24

The cement volumes for the 5 1/2" casing will be revised pending the caliper measurement from the open hole logs.

5. Minimum Specifications for Pressure Control