Application for Permit to Drill Government "AB" No. 4

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December 14, 1976

- 6. Proposed total depth is 11,300'.
- 7. Estimated tops of important geologic markers:

Bone Springs	4870
Dean	8280
Wolfcamp	8580
Canyon	9610
Strawn	10015
Atoka	10490
Morrow	10710
Chester	11240
TD	11300

8. Estimated depths at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

Α.	Primary	objective	(top)	Morrow SS	10710
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Β.	Secondary	objectives	(top)	Wolfcamp	8580
	•	-		Canyon	9610
				Strawn	10015
				Atoka	10490

9. The proposed casing program is as follows:

Surface:	13-3/8" OD 48# H40 ST&C new casing
Intermediate:	8-5/8" OD 24# and 32# K55 ST&C new casing
Production:	5-1/2" OD 17# and 20# N80 LT&C new casing

- 10. Casing setting depth and cementing program:
  - A. 13-3/8" OD surface casing set at 600'. Cement with 300 sacks Class C, 4% gel, 12# Gilsonite and 1/4# Flocele/ sack with 2% CaCl followed by 200 sacks Class C with 2% CaCl.
  - B. 8-5/8" OD intermediate casing set at 3000'. Cement with 300 sacks Halliburton Thick Set Class C with 10# Gilsonite and 1/2# Flocele per sack and 3% CaCl followed by 800 sacks Halliburton Lite with 5# Gilsonite and 1/4# Flocele per sack followed by 200 sacks Class C with 2% CaCl.
  - C. 5-1/2" OD production casing set at 11300'. Cement with 720 sacks Class H with 0.6 CFR-2 and 5# KCL per sack. Bring cement back to 8200'.