

QUANAH PETROLEUM, INC.

DRILLING OPERATIONS PLAN

HAY FEDERAL B WELL NO. 1

SECTION 9, T26S, R27E

1980 FSL 1980 FWL

ELEVATION: 3274.3 G. L.

1. Geologic Name of Surface: Castile

Salt	1300	Brushy Canyon	4035
Salt (Base)	1870	Bone Spring	5750
Delaware Lime	2050	Third Bone Spring	8470
Delaware Sand	2100	Wolfcamp Shale	8760
Cherry Canyon	2970		

2. Estimated Tops of Important Geologic Markers.

Salt	1300	Brushy Canyon	4035
Salt (Base)	1870	Bone Spring	5750
Delaware Lime	2050	Third Bone Spring	8470
Delaware Sand	2100	Wolfcamp Shale	8760
Cherry Canyon	2970		

3. Estimated Tops of Anticipated Water, Oil, Gas or other Mineral Bearing Formations.

Delaware Sand	2100 (oil)	Bone Spring	5750 (oil)
Cherry Canyon	2970 (oil)	Third Bone Spring Sand	8470 (oil)
Brushy Canyon	4035 (oil)	Wolfcamp Shale	8760 (oil)

4a. The Proposed Casing Program.

Hole Size	Casing O.D.	Grade	Weight	Setting Depth	New or Used
14-3/4"	11-3/4"	As available		500'	New
11"	8-5/8"	K-55	24#	2400'	New
7-7/8"	4-1/2"	K-55	11.6#	1000'	New
7-7/8"	4-1/2"	K-55	10.5#	6200'	New
7-7/8"	4-1/2"	K-55	11.6#	8500'	New

4b. Cementing Program, Including Types, Amounts and Additives.

The 11-3/4" casing will be cemented to surface with 200 sacks of Class C cement with 2% CaCl₂ - W.O.C. time, 8 hours.

The 8-5/8" casing will be cemented to surface with approximately 650 sacks of Class C cement with 4% gel; 1/4 lb/bbl. floccle and 2% CaCl₂, tailed by 200 C with 2% CaCl₂ - W.O.C. time, 12 hours.

The 4-1/2" production casing will be cemented with 450 sacks 50/50 Pox-Mix H with 10% salt, tailed with 200 sacks Class H.