

Ute Mountain Ute #109

Technical Plan

1. Geologic Tops

Surface bedrock formation is Cliff House.

Formation	Top		Fluid
	MD (FT)	TVD (FT)	
MENEFEE	398	398	No Fluids
POINT LOOKOUT	498	498	No Fluids
MANCOS	1240	1240	No Fluids
UPPER GALLUP	2408	2408	No Fluids
GREENHORN	2859	2859	No Fluids
GRANEROS	2915	2915	No Fluids
TWO WELLS	2957	2957	Gas/Water
PAGUATE	3220	3220	Gas/Water
UPPER CUBERO	3234	3234	Gas/Water
LOWERCUBERO	3234	3234	Gas/Water
ENCINAL	3291	3291	Gas/Water
BURRO CANYON	3472	3472	Water
MORRISON	3563	3563	Water
BLUFF SANDSTONE	4306	4306	Water
TODILTO	4446	4446	Water
ENTRADA	4459	4459	Water
CHINLE	5006	5006	No Fluids
SHINARUMP	5650	5650	Water
MOENKOPI	5733	5733	No Fluids
DEHELLY	5779	5779	Water
CUTLER	5821	5821	Water
RICO	7475	7475	Water
HONAKER TRAIL	7776	7776	Gas/Water
ISMAY	8727	8727	Gas
DESERT CREEK	8915	8915	Gas

2. Pressure control equipment – See attached diagram

- Total Depth = 9,015 ft TVD.
- Original Bottom Hole Pressure = 3,866 psi (estimated by reservoir engineer). Current estimated BHP = 1700 psi due to depletion.
- Minimum BOP Working Pressure = 3,866 psi – (3,866 ft * 0.23 psi/ft) = 2,975 psi
- Well will be drilled with 3,000 psi BOPE stack.

3. Complete information on the drilling equipment, casing and cementing program

Proposed Casing And Cementing Program

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Size of Hole	Size of Casing	Wt./Foot	Setting Depth (MD)	Quantity of Cement
(Surface) 12-1/4"	9-5/8"	36#, J-55, LT&C, New	0' - 1400'	Cement to surface with 677 cu.ft, volume includes 50% excess in open hole, to consist of 677 cu.ft (542 sks) Type III cement + 0.25 lbs/sack Cello Flake + 58.9% Fresh Water mixed at 15.20 ppg. Compressive strength is 1200 psi after 8 hours.
(Production) 7-7/8"	5-1/2'	17#, L-80, LTC/BTC, New	0'- 9015' Stage Tool +/- 7500'	Cement to 2457', 500' above the Two Wells Fm. in two stages, in the first stage , pump 321 cu.ft volume, includes 20% excess in open hole, to consist of a Scavenger : 52 cu.ft (17 sks) Premium Lite High Strength FM + 0.25 lbs/sack Cello Flake + 0.3% bwoc CD-32 + 6.25 lbs/sack LCM-1 + 1.0% bwoc FL-52 + 180.6% Fresh Water mixed at 11.00 ppg. Tail slurry : 269 cu.ft (136 sks) Premium Lite High Strength FM + 0.25 lbs/sack Cello Flake + 0.3% bwoc CD-32 + 6.25 lbs/sack LCM-1 + 1.0% bwoc FL-52 + 97.5% Fresh Water mixed at 12.50 ppg. Slurries are extended to achieve stated densities and may include various additives to control seepage. TOC for tail: near 7,800' MD to ensure good cement around production zone. Second stage , (20% excess in open hole) Scavenger : 52 cu.ft (17 sks) Premium Lite High Strength FM + 0.25 lbs/sack Cello Flake + 0.3% bwoc CD-32 + 6.25 lbs/sack LCM-1 + 1.0% bwoc FL-52 + 180.6% Fresh Water mixed at 11.00 ppg. Lead : pump 997 cu.ft (504 sks) of Premium Lite High Strength FM + 0.25 lbs/sack Cello Flake + 0.3% bwoc CD-32 + 6.25 lbs/sack LCM-1 + 1.0% bwoc FL-52 + 97.5% Fresh Water mixed at 12.50 ppg

4. Information on Mud System

Mud Program				
Interval	Mud Type	Weight (ppg)	Water/Fluid Loss	Additives
Surface	Gel/Water	Air or 8.3 - 9.2	No Control	Gel

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Production	LSND	8.4-9.5	Some control	Polymer and LCM as required.
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5. Testing, Logging, Coring -

- Logs at production section: Platform Express (triple combo) from TD to surface casing.
- Mudlogging: from 100' above Greenhorn (2662 ft MD/TVD) to final TD at 9,730 ft TD
- Coring: No coring is planned

6. Expected BHP, abnormal temperatures and pressures, and hazards -

- No over-pressured intervals expected
- Require H2S contingent drilling plan. (Attached H2S Contingency Plan)
- Not expecting lost circulation. The offset wells (Ute Mountain Ute #50 and Ute Mountain Ute #51) do not have lost circulation trouble reported. Attached are the operation summaries for these wells.

UTE MOUNTAIN UTE #50

Surface Location: 1800 FNL; 1850 FWL. Drilled on March, 1998

Ground Elevation: 6,231 ft RT Elevation: 6,231 ft Rig Elevation: 14 ft

Mud Drill Surface Shoe: 385 ft Production Shoe: 8690 ft

Big A 54 drilled 12 1/4" surface hole to 389 ft. Ran 8 5/8" 24#/ft, K-55 casing to 385 ft. Cemented w/ 57.3 bbls of class B Lead cement, returns 8 bbls of cement to surface. No problem reported. Drilled production hole w/ 7 7/8" insert bit from 389' to 3475'. POOH to change bit and found lost cone in hole. It fished cone with magnet and junk sub. Continued drilling (Mud logger comments only Barker Dome well that has been this gassy in cutler, no new formation tops in last 24 hrs). POOH to change bit. Drilled to 7815 ft. POOH for new bit. Continued drilling to TD at 8692 ft. Attempt to run open hole log. Hit tight spot at 2524 ft and 2533, had to work tools free. POOH and R/D loggers. TIH w/clean assy, worked through bridges, raised vis to 80. finished TIH to cond mud. Ran open hole. TIH to clean hole. Ran 5 1/2" 17#/ft, L-80, LTC casing and set shoe at 8690 ft. No losses reported. Cemented In two stages, circulated 20 bbls in first stage and 195 bbls in second stage.

Note: There were two trips to clean hole due to logs tools hit tight spot at 2479' in first trip, 2524' second trip and stuck it at 2533' for reactive shale from 2400 ft to 2600 ft. No lost circulation trouble reported.

UTE MOUNTAIN UTE #51

Surface Location: 1,500 FSL; 2,270 FWL. Drilled on May, 1998

Ground Elevation: 6,884 ft RT Elevation: 6,898 ft Rig Elevation: 14 ft

Mud Drill Surface Shoe: 8 5/8" at 1,436 ft Production Shoe: 5 1/2" at 9,601 ft

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Cemented w/ 229 bbls of class G lead cement, returns 100 bbls of cement to surface. No problem reported. Drilled production hole w/ 7 7/8" insert bit from 1436' to 2301'. POOH for plugged bit. Continued drilling 4115'. POOH to change bit. Drilled to 6038 ft. POOH for new bit. Continued drilling to 7904 ft. POOH twice more for new bit and continued drilling to TD at 9602 ft. Attempt to run open hole log and stuck at 9447'. Recover all logging tool. TIH w/clean assy. Ran 5 1/2" 17#/ft, L-80, LTC casing and set shoe at 9601 ft. No losses reported. Cemented in two stages. Circulated 60 bbls in first stage and 93 bbls in second stage.

7. Other information –

This well will be drilled vertical to TD.