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SW SW 36-33S-46W

Permit 78-1233

From: Pat Brotherton

Rock Springs, Wyoming

To: T. M. Colson

API 05-009-6219

February 19, 1979

Tentative Plan to Drill
Williams No. 1-36
Campo Area
Baca County, Colorado

This well will be drilled to total depth by _____ Drilling Company. One work order has been originated for the drilling and completion of this well, namely, _____, Drill Williams No. 1-36, Campo Area, located in the _____, Baca County, Colorado. An 8-3/4-inch hole will be drilled to a total depth of 3750 feet and 5-1/2-inch O.D. casing run, if production is encountered. The well will be drilled to test the Fortuna Sand. Surface elevation is at _____ feet.

1. Drill 12-1/4-inch hole to approximately 500 feet KBM.
2. Drill a pilot 7-7/8-inch hole to 2000 feet. If lost circulation is not encountered down to 2000 feet, 500 feet of 8-5/8-inch O.D. casing will be run and this hole will be drilled to total depth with a 7-7/8-inch bit. If lost circulation is encountered, 2000 feet of 8-5/8-inch O.D. casing will be run and the hole will be drilled to total depth with a 7-7/8-inch bit. The remainder of this plan is written assuming it is required to run only 500 feet of 8-5/8-inch O.D. surface casing.
3. Run and cement approximately 500 feet of 8-5/8-inch O.D., 24-pound, K-55, 8 round thread, ST&C casing. The casing will be cemented with 350 sacks of regular Type "G" cement which represents theoretical requirements plus 100 percent excess cement for 8-5/8-inch O.D. casing in 12-1/4-inch hole with cement returned to surface. Cement will be treated with five percent of Dowell D43A or 3 percent calcium chloride. Plan on leaving a 10-foot cement plug in the bottom of the casing after displacement is completed. Floating equipment will consist of a Halliburton or Dowell guide shoe. The top and bottom of all casing collars and the guide shoe will be spot welded in the field. The bottom of the surface casing should be landed in such a manner that

DVR	✓
FJP	✓
HHM	✓
JAM	✓
JJD	✓
RDS	
COM	

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the top of the 10-inch 3000 psi casing flange will be at ground level. A cellar three feet deep will be required. Prior to cementing, circulate 60 barrels of mud. Capacity of the 8-5/8-inch O.D., 24-pound casing is 32 barrels.

4. After a WOC time of 6 hours, remove the landing joint and wash off casing collar. Install a NSCo. 10-inch 3000 psi regular duty casing flange tapped for 8-5/8-inch O.D., 8 round thread casing. Install a 2-inch extra heavy nipple, 6-inches long, and Demco ball valve. (2000 psi WOG, 4000 psi test) on one side outlet of the casing flange and a 2-inch extra heavy bull plug in the opposite side. Install adequate blowout preventers and finish nipping up. After a WOC time of 12 hours, pressure test surface casing, all preventer rams, and Kelly-cock to 1000 psi for 15 minutes using rig pump and drilling mud. The burst pressure rating for 8-5/8-inch O.D., 24-pound, K-55, 8 round thread, ST&C casing is 2950 psi.
5. Drill 7-7/8-inch hole to the total depth of 3750 feet or to such depth as the Geological Department may recommend. A mud de-sander will be used from under the surface casing to total depth to remove all undesirable solids from the mud system and to keep the mud weight to a minimum. A one man logging unit will be used from surface casing to total depth. Catch 20 foot samples from surface casing to 3500 feet and 10 foot samples from 3500 feet to total depth. Some side wall coring may be done at the discretion of the well site geologist.
- Anticipated tops are as follows:

	<u>Approximate Depth</u> <u>(feet KBM)</u>
Ogallala	Surface
Stone Corral	1,879
Neva	2,991
Topeka	3,301
Fortuna	3,644
Lansing	3,735
Total Depth	3,750

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Objective Reservoir: Fortuna Sand

Other Possible Producing Zones: Porous carbonate zones of the Topeka and Lansing.

6. Run dual induction laterolog (DIL) and compensated formation density neutron with gamma ray and caliper from surface casing to total depth. Run crossplot "F" curve. Logs are to be taped and a tension curve recorded on logs from pad devices.
7. Assume commercial quantities of gas and/or oil are present as indicated by log analysis. Go into hole with 7-7/8-inch bit and drill pipe to total depth to condition mud prior to running production casing. Pull bit laying down drill pipe and drill collars.
8. Run 5-1/2-inch O.D. casing as outlined in Item No. I, General Information, through the deepest producing zone as indicated by log analysis. A Halliburton or Dowell circulating differential fillup float collar and guide shoe will be run as floating equipment. Cement casing with 50-50 Pozmix "A" cement. Bring cement top behind the 5-1/2-inch O.D. casing 1000 feet above the uppermost producing zone. Circulate 150 barrels of drilling mud prior to beginning cementing operations. Capacity of the 5-1/2-inch O.D. casing is approximately 89 barrels. Cement requirements will be based on actual hole size as determined by the caliper portion of the sonic log. Rotate casing while circulating, mixing, and displacing cement. Displace cement with water.
9. Immediately after cementing operations are completed, land the 5-1/2-inch O.D. casing with full weight of casing on slips in the 10-inch 3000 psi casing flange and record indicator weight. Install a NSCo. 10-inch 3000 psi by 6-inch 3000 psi tubing spool. Pressure test primary and secondary seals to 2500 psi for 5 minutes. Minimum collapse pressure for 5-1/2-inch O.D., 15.5-pound, K-55, 8 round thread, LT&C casing is 4040 psi. Install a steel plate on the 6-inch 3000 psi tubing spool flange.

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10. Release drilling rig and move off location.
11. Install deadmen anchors and test to 20,000 pounds. Move in and rig up a completion rig.
12. Install a 6-inch 5000 psi hydraulically operated double gate preventer with blind rams on bottom and 2-7/8-inch casing rams on top.
13. After a WOC time of at least 50 hours, rig up Go International and run bond log and perforating formation control log from plugged back depth to top of cement behind the 5-1/2-inch O.D. casing.
14. After a WOC time of at least 56 hours, pick up and run a 4-3/8-inch bit on 2-7/8-inch O.D., 6.5-pound, J-55, 8 round thread, EUE tubing to check plugged back depth.
15. Using Halliburton pump truck and water, pressure test casing and tubing rams to 4000 psi for 15 minutes. The minimum internal yield for 5-1/2-inch O.D., 15.5-pound, J-55 casing is 4810 psi and the wellhead has a working pressure of 3000 psi with a test pressure of 6000 psi. Pull tubing and pressure test casing and blind rams to 4000 psi for 15 minutes.
16. A tentative plan to complete the well will be issued after results of the above items have been evaluated.

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GENERAL INFORMATION

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- I. The following tubular goods have been assigned to the well.

<u>Description</u>	<u>Approximate Gross Measurement (feet)</u>	<u>Availability</u>
	<u>Surface Casing</u>	
8-5/8-inch O.D., 24-pound, K-55, 8 round thread, ST&C casing	2,200	Warehouse Stock
	<u>Production Casing</u>	
5-1/2-inch O.D., 15.5-pound, K-55, 8 round thread, LT&C casing	4,000	Warehouse Stock
	<u>Production Tubing</u>	
2-7/8-inch O.D., 6.5-pound, J-55, 8 round thread EUE	4,000	Warehouse Stock

- II. All ram type preventers will have hand wheels installed and operative at the time the preventers are installed.

III. Well Responsibility: John B. Green

IV. Well Classification: Wexpro JEA Type Code-02

- V. Area is under-pressured so care should be used in selecting a drilling fluid. BHT expected-110°F. No H2S in area. Stone Corral formation is composed of anhydrite.