

WORLDWIDE EXPLORATION CONSULTANTS INC.

DRILLING PROGRAM

FEDERAL 33 WELL NO. 1

660' FSL, 1650' FEL, SECTION 33, T20N, R4W

SANDOVAL COUNTY, NEW MEXICO

I. Estimated Formation Tops 6760' (Est.) 6772' KB

<u>Formation</u>	<u>Depth</u>
Cliffhouse	650'
Point Lookout	2430'
Mancos	2550'
Gallup	3365'
Greenhorn	4355'
Dakota	4595'
Morrison	4750'
Entrada	5630'
Carmel	5880'
Total Depth	5900'

II. Potential Problems

1. Lost circulation in Gallup.
2. Bad roads in inclement weather.
3. Long water haul.

III. Drilling Procedure

1. Move in and rig up rotary tools.
2. Drill 13 $\frac{1}{4}$ " hole to  $\pm$  200'.
3. Run 9 5/8", 36# surface casing.
4. Cement with 200 sacks class "B", 2% CaCl.
5. Wait on cement minimum of 12 hours. Nipple up while waiting on cement. Test BOP to 500 psi for 30 minutes.
6. Drill cement and float with water. Displace water from hole with mud. Drill 8 3/4" hole to 8' below the top of the Entrada.

III. Drilling Program (continued from page 1)

7. Test the Entrada interval.
8. Drill to total depth. Penetrate 20' of Carmel.
9. Run open hole logs as specified.
10. a. If productive, run 7" casing and cement as specified. Amounts to be determined from caliper log.  
b. If non-productive, P & A after obtaining approvals.
11. Move out rotary rig, clean location and move in completion unit.

IV. Casing and Float Equipment

<u>String</u>	<u>Depth</u>	<u>Amount</u>	<u>Size</u>	<u>Weight/Ft.</u>	<u>Grade</u>	<u>Joint</u>
Surface	0- 200	200'	9 5/8"	36#	K-55	ST&C
Production	0- 40	40'	7"	23#	K-55	ST&C
Production	40-3500	3460'	7"	20#	K-55	ST&C
Production	3500-5900	2400'	7"	23#	K-55	ST&C

1. Surface-----To be equipped with guide shoe, float collar and two centralizers.
2. Production--To be equipped with guide shoe, differential fill-up collar and cement stage tool above the Gallup. Centralizers to be installed and alternate collars from the shoe to 150 feet above the pay zone and above and below the stage tool. Cement baskets are to be installed below the stage tool. (If lost circulation is experienced an external casing packer is to be considered).

V. Cementing Program

1. Surface-----200 sacks Class "B" cement, 2% CaCl (100% excess).
2. Production--Two-stage using 65-35 Pozmix, 6% gel, with 10# Gilsonite per sack. Tailed in with 100 sacks Class "B" cement with 10% salt for first stage and 50 sacks Class "B", 10% salt for the second stage. Volume of cement to be based upon the claiper log.

VI. Deviation

1° per 100', maximum of 5°. Maximum 500' interval.

VII. Mud Program

1. Surface 0'-200' - Drill this portion with lime treated slurry with sufficient viscosity to clean hole and run casing.
2. Production 200'-6682' - Drill with low solids non-dispersed mud: Wt. 8.5-9.2, Vis. 38-42, Fl 8-10, pH 9+.

VIII. Logging Program

1. Dual Induction Laterolog: Surface casing to Total Depth. 2" scale correlation and 5" logarithmic scale.
2. Compensated Neutron - Formation Density: Surface casing to Total Depth (GR to Surface).

IX. Samples

1. 30' from surface to 4300'.
2. 10' from 4300' to Total Depth  
or as specified by well site geologist.

NOTE: Label each sack with well name and depth taken. Store in a cool dry place (Geologist may instruct crew to log samples).

X. Drill Stem Test

Test all significant shows (as specified by wellsite Geologist). Test Entrada interval Preflow 15 min., Initial Shut In 30 min., Flow Period 60 min., Final Shut In 120 min.

XI. Coring

None anticipated.

XII. Blowout Preventer

1. 10" 900 lb. Series (3000 psi working pressure) double, hydraulically operated, with pipe and blind rams.
2. Choke manifold with pressure rating equal to blowout preventer.

XIII. Special Notes

1. Keep accurate measurement of drill pipe. Strap pipe prior to coring, logging or drill stem testing.
2. Have full opening floor valve with drill pipe thread always available.

# BIT PROGRAM

<u>NO.</u>	<u>SIZE</u>	<u>MAKE</u>	<u>TYPE</u>	<u>DEPTH IN</u>	<u>DEPTH OUT</u>	<u>FOOTAGE</u>	<u>WEIGHT</u>	<u>RPM</u>
1.	13 1/4"	HTC	OSC-3	0'	200'	200'	A11	120
2.	8 3/4"	HTC	OSC-3	200'	1500'	1300'	45	80
3.	8 3/4"	SEC	S-3	1500'	2500'	1000'	35/45	80
4.	8 3/4"	STC	DGT	2500'	3350'	850'	35/45	80
5.	8 3/4"	HTC	J-22	3350'	4500'	1150'	40	40/45
6.	8 3/4"	STC	F-3	4500'	5638'	1138'	40	40
7.	8 3/4"	STC	H7TG	5638'	5900'	262'	45	60