

**DRILLING PLAN
WEXPRO COMPANY
ACE UNIT WELL NO. 15
MOFFAT COUNTY, COLORADO**

1. SURFACE FORMATION, ESTIMATED TOPS AND WATER, OIL, GAS OR MINERAL BEARING FORMATIONS:

Wasatch	-	Surface
Wasatch (A-4-G)	-	4,518'
Fort Union	-	5,307
Allen 8 Sand	-	6,178' - gas - major objective
Allen 9 Sand	-	6,739' - gas - major objective
Allen 11 Sand	-	7,030' - gas - major objective
Allen 10 Sand	-	7,979' - gas - major objective
Allen 6 Sand	-	8,147' - gas - major objective
Total Depth	-	9,160'

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and adequately protected.

2. PRESSURE CONTROL EQUIPMENT: (see attached diagram) Operator's minimum specifications for pressure control equipment require an 11-inch 3000 psi double gate hydraulically operated blowout preventer and an 11-inch 3000 psi annular preventer. BOP equipment will be tested to its rated working pressure or 70-percent of the internal yield of the surface casing. The annular preventer will be tested at 50-percent of its rated working pressure. NOTE: The surface casing will be pressure tested to a minimum of 1500 psi. BOP's will be checked daily as to mechanical operating condition and will be tested by rig equipment after each string of casing is run. All ram type preventers will have hand wheels which will be operative and accessible at the time the preventers are installed. Accumulator will include both electric and air power source (see attached diagram).

AUXILIARY EQUIPMENT:

- a) Manually operated kelly cock
- b) No floats at bit
- c) Monitoring of mud system will be visual
- d) Full opening floor valves in the full open position, capable of fitting all drill stem connections manually operated

3. CASING PROGRAM:

Size		Top	Bottom	Weight	Grade	Thread	Condition
Hole	Casing						
12-1/4"	9-5/8"	sfc	690'	47 & 36	K55	LT&C	New
7-7/8"	4-1/2"	sfc'	9,160'	13.5	P110	LT&C	New

Casing Strengths:				Collapse	Burst	Tensile (minimum)
9-5/8"	36 lb.	K55	LTC	2,020 psi	3,520 psi	423,000 lb.
4-1/2"	13.5 lb.	P110	LTC	10,670 psi	12,410 psi	338,000 lb.

Area Fracture Gradient: 0.750 psi/foot

CEMENTING PROGRAMS: (See Attached Details)

9-5/8" Surface Casing: 452 cubic feet Class G with 2% CaCl₂ and 1/4% cello flake (only if lost circulation is encountered).

4-1/2" Production Casing: 1.) Lead Slurry: 1822 cubic feet Light 50/50 Poz/G with retarder, reducer and fluid loss additive. Volume to be calculated from logs to bring cement from 5,100 ft to surface with 10% excess.
2.) Tail Slurry: 1595 cubic feet 35/65 Poz-G with retarder, reducer and fluid loss additive. Volume to be calculated from caliper logs to bring tail cement from TD to 5,100' with 10% excess.

4. MUD PROGRAM:

- 1) Surface hole drilled and cased with Rat-Hole rig.
- 2) Surface casing will be drilled out 10 feet and formation tested to 10.0 ppg mud equivalent.
- 3) Fresh water with gel and polymer sweeps as necessary. Mud weight of 10.0 ppg to be accomplished by 5,000 feet to total depth, if needed.
 - A. Mud weight 9.0 - 10.0 ppg
 - B. Viscosity 35 - 45 cp
 - C. PH 10
 - D. Water Loss 7-8
 - E. Type Fresh water and dispersed mud

Sufficient mud materials to maintain mud properties, control lost circulation and to contain blowout will be available at the wellsite.

No chrome constituent additives will be used in the mud system on Federal, State and Indian lands without prior BLM/State approval to ensure adequate protection of fresh water aquifers.

5. LOGGING:

DIL-SFL-GR: Total depth to surface casing.
BHC-Sonic-GR: Total depth to surface casing
FDC-CNL-GR-Cal: Total depth to surface casing.
Cement/Bore Hole Profile Log: Total depth to surface casing.

TESTING: None.

CORING: None.

6. ABNORMAL PRESSURE AND TEMPERATURE: A BHT of 187⁰ F. Possible depletion from 2,800' to TD.

7. ANTICIPATED STARTING DATE: Upon Approval

DURATION OF OPERATION: 20 days

ACE UNIT NO. 14 - CEMENT DESIGN

SURFACE CASING:

CASING:	9-5/8", 36#, K-55	0.4340 cu.ft./lin.ft	
ANNULUS:	12-1/4" (Guage Hole)	0.3132 cu.ft./lin.ft	
EXCESS:		100%	
CEMENT YIELD:	CLASS "G" NEAT	1.15 cu.ft./sack	15.2 ppg
	TAIL	1.15 cu.ft./sack	
TOTAL DEPTH		690 Feet	
TOP OF TAIL		0 Feet	(Surface)
TOP OF LEAD		0 Feet	(Surface)

LEAD SLURRY				CU.FT		
ANN	0 TO	0	0.3132	0.00		
ANN EXCESS			100%	0.00		
				0.00	0 SACKS	0 CU.FT.

TAIL SLURRY				CU.FT		
CSG	690 TO	645	0.4340	19.53		
ANN	690 TO	0	0.3132	216.108		
ANN EXCESS			100%	216.108		
				451.746	393 SACKS	452 CU.FT.
				DISPLACEMENT	49.9 BBLs	

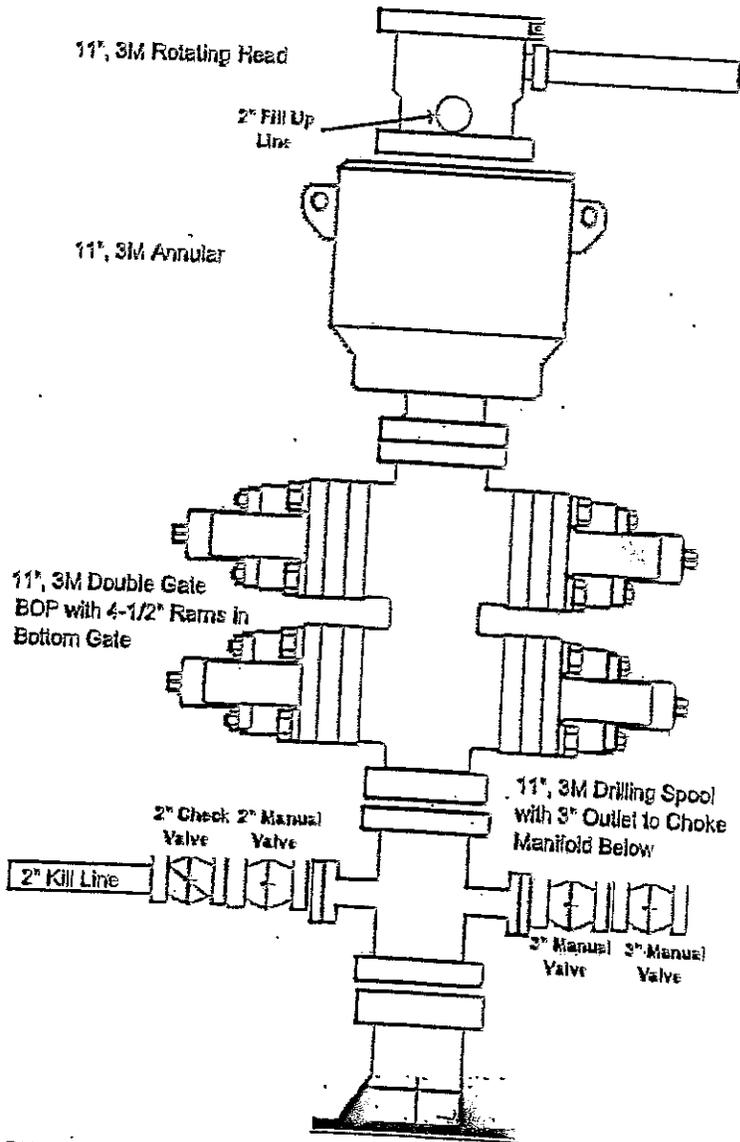
PRODUCTION CASING:

CASING:	4-1/2", 13.5#, P-110	0.0838 cu.ft./lin.ft	
ANNULUS:	9-1/4" (From Open Hole Logs)	0.3562 cu.ft./lin.ft	
EXCESS:		10%	
CEMENT YIELD:	LEAD	2.83 cu.ft./sack	11.3 ppg
	TAIL	1.27 cu.ft./sack	15.2 ppg
TOTAL DEPTH		8,885 Feet	
TOP OF TAIL		5,100 Feet	(Top of Ft. Union)
TOP OF LEAD		450 Feet	

LEAD SLURRY				CU.FT		
ANN	5100 TO	450	0.3562	1656.33		
ANN EXCESS			10%	165.63		
				1821.96	644 SACKS	1822 CU.FT.

TAIL SLURRY				CU.FT		
CSG	8,885 TO	8,840	0.0838	3.771		
ANN	8,885 TO	5,100	0.3562	1348.22		
ANN EXCESS			10%	134.82		
				1486.81	1171 SACKS	1487 CU.FT.
				DISPLACEMENT	131.9 BBLs	

3,000 psi BOP Minimum Requirements



3M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY
 46B12 Federal Register / Vol. 53, No. 223 / Friday, November 18, 1988 / Rules and Regulations

