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*See Instructions On Reverse Side

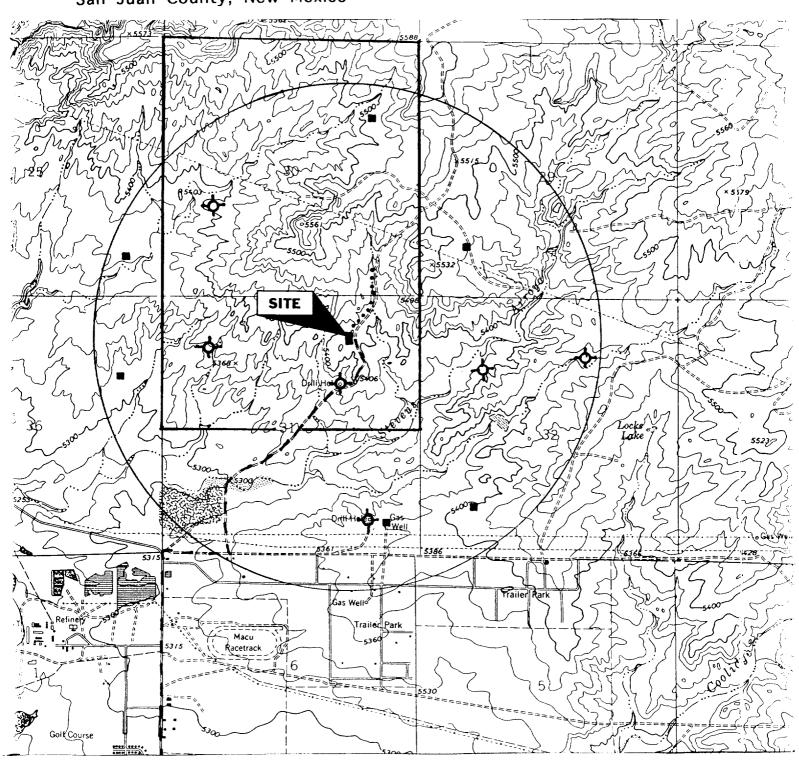
State of New Mexico Energy. Minerals & Mining Resources Department

OL CONSERVATION DIVISION 2040 South Pacheco Santa Fe. NM 87505

MENDED REPORT

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Richardson Operating Co. WF Federal 31 #1 809' FNL & 1395' FEL Sec. 31, T. 30 N., R. 14 W. San Juan County, New Mexico



PROPOSED WELL: PIPELINE ROUTE: •••••

EXISTING WELL: EXISTING ROAD: - - -

P&A WELL:

LEASE:



Richardson Operating Co. WF Federal 31 #1 809' FNL & 1395' FEL Sec. 31, T. 30 N., R. 14 W. San Juan County, New Mexico

Drilling Program

1. ESTIMATED FORMATION TOPS

Formation Name	GL Depth	KB Depth	Subsea Elevation
Kirtland Sh	000'	5'	+5,360'
Fruitland Fm	510'	515'	+4,850'
Pictured Cliffs Ss	760'	765'	+4,600'
Total Depth (TD)*	1,000'	1,005'	+4,360'

^{*} all elevations reflect the ungraded ground level of 5,360'

2. NOTABLE ZONES

<u>Gas Zones</u>	Water Zones	<u>Coal Zones</u>
Fruitland Fm (510')	Fruitland Fm (510')	Fruitland Fm (510)
Pictured Cliffs (760')		

Water zones will be protected with casing, cement, and weighted mud. Fresh water encountered during drilling will be recorded by depth, cased, and cemented. Oil and gas shows will be tested for commercial potential based on the well site geologist's recommendations.

3. PRESSURE CONTROL

The drilling contract has not yet been awarded, thus the exact BOP model to be used is not yet known. (A typical 2,000 psi model is on PAGE 3.) Double ram or annular system with a rotating head will be used. All ram preventers and related equipment will be hydraulically tested at nipple up and after any use under pressure to 1000 psi.



Richardson Operating Co. WF Federal 31 #1 809' FNL & 1395' FEL Sec. 31, T. 30 N., R. 14 W. San Juan County, New Mexico

Blind rams will be hydraulically activated and checked for operational readiness each time pipe is pulled out of the hole. All checks of the BOP stack and equipment will be noted on the daily drilling report. BOP equipment will include a kelly cock, floor safety valve, and choke manifold all rated to 2000 psi. Maximum expected pressure is \approx 400 psi.

4. CASING & CEMENT

Hole Size	<u>o.D.</u>	Weight (lb/ft)	Grade	<u>Age</u>	GL Setting Depth
8-3/4"	7"	20	K-55	New	120'
6-1/4"	4-1/2"	10.5	K-55	New	1,000'

Surface casing will be cemented to surface with ≈ 36 cu. ft. (≈ 30 sx) Class B + 2% CaCl₂. Volume is based on 100% excess, yield of 1.18 cu. ft./sk, and slurry weight of 15.6 PPG. WOC = 12 hours. Pressure test surface casing to 600 psi for 30 minutes.

Production casing hole will first be cleaned of rock chips by circulating at least 150% of hole volume with mud to the surface. Thirty barrels of water will next be circulated. Lead with ≈ 105 cu. ft. (≈ 51 sx) of Class B with 2% metasilicate (yield = 2.06 cu. ft./sk, slurry weight = 12.5 PPG). Tail with ≈ 80 cu. ft. (≈ 68 sx) of Class B with 2% CaCl₂ (yield = 1.18 cu. ft./sk, slurry weight = 15.6 PPG). Total cement volume is ≈ 185 cu. ft. based on 75% excess and circulating to surface.

Production casing will have 4-1/2" cement guide shoe and self fill float collar. Float will be placed one joint above the shoe. Four centralizers will be spaced on every other joint starting above the shoe. Four turbolizers will be placed on every other joint starting from the top of the well.

