

**Proposed Changes to APD
Lance Oil & Gas Company
WF Federal 20 #4
1175' FNL & 1905' FWL
Section 20, T30N, R14W, NMPM
San Juan County, New Mexico**

FROM:

CASING AND CEMENTING PROGRAM:

<u>Hole Size</u>	<u>O.D.</u>	<u>Weight (lb/ft)</u>	<u>Grade</u>	<u>Age</u>	<u>GL Setting Depth</u>
8 3/4"	7"	20	J-55	New	120'
6 1/4"	4 1/2"	10.5	J-55	New	1300'

Surface casing will be cemented to surface with ≈ 36 cu.ft. (≈ 30 sx) Class B + 2% CaCl. 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 drilling fluid to surface. Thirty barrels of fresh water will then be circulated. Lead with ≈ 135 cu.ft. (≈ 65 sx) Class B with 2% metasilicate (yield = 2.06 cu.ft./sk, slurry weight = 12.5 ppg). Tail in with ≈ 100 cu.ft. (≈ 85 sx) Class B with 2% CaCl (yield = 1.18 cu.ft./sk, weight = 15.6 ppg). Total cement volume is ≈ 235 cu.ft. based on 100% 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. Six centralizers will be spaced every other joint starting above the shoe. Six turbolizers will be placed every other joint starting from the top of the well.

TO:

CASING AND CEMENTING PROGRAM:

<u>Hole Size</u>	<u>O.D.</u>	<u>Weight (lb/ft)</u>	<u>Grade</u>	<u>Age</u>	<u>GL Setting Depth</u>
12 1/4"	8 5/8"	24	J-55	New	120'
7 7/8"	5 1/2"	15.5	J-55	New	1300'

Surface casing will be cemented to surface with ≈ 120 cu.ft. (≈ 100 sx) Howco Type II. Volume is based on 100% excess, yield of 1.20 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 drilling fluid to surface. Thirty barrels of fresh water will then be circulated. Lead with ≈ 273 cu.ft. (≈ 150 sx) Howco TX1 Lightweight (yield = 1.82 cu.ft./sk, slurry weight = 12.0 ppg). Tail in with ≈ 90 cu.ft. (≈ 70 sx) Howco TX 1 Lightweight (yield = 1.29 cu.ft./sk, weight = 13.5 ppg). Total cement volume is ≈ 363 cu.ft. based on 50% excess and circulating to surface.

Production casing will have 5 1/2" cement guide shoe and self fill float collar. Float will be placed one joint above the shoe. Six centralizers will be spaced every other joint starting above the shoe. Six turbolizers will be placed every other joint starting from the top of the well.