

**B. Proposed Cement Program (Continued):**

<u>CASING</u>	<u>LEAD SLURRY</u>	<u>TAIL SLURRY</u>	<u>DISPLACEMENT</u>
5 1/2"	565 sacks (35:65) Poz (Fly Ash): Class C Cement + 5 lbs/sack Sodium Chloride + 0.003 gps FP-6L + 6% bwoc Bentonite + 99% Fresh Water; 1091 Vol. Cu Ft 1.93 Vol. Factor Slurry Weight (ppg) 12.7 Slurry Yield (cf/sack) 1.93 Amount of Mix Water (gps) 10.33; Amount of Mix Fluid (gps) 10.33; Estimated Pumping Time – 70 BC (HH:MM)-3:00; Free Water (mls) @ 98 Deg. F @ 90 Deg. Angle: 1.8; Fluid Loss (cc/30 min) at 1000 psi and 98 Deg. F: 950.0 Compressive Strength: 12 hrs @ 106 Deg. F (psi) 280 24 hrs @ 106 Deg. F (psi) 375 72 hrs @ 106 Deg. F (psi) 900	250 sacks Class C Cement + 3% bwow Potassium Chloride +0.2% bwoc CD-32 + 0.6% bwoc FL-62 + 0.2% bwoc Sodium Metasilicate + 56.6% Fresh Water 338 Vol. Cu Ft 1.35 Vol. Factor Slurry Weight (ppg) 14.8 Slurry Yield (cf/sack) 1.35 Amount of Mix Water (gps) 6.38; Amount of Mix Fluid(gps) 6.38; Estimated Pumping Time – 70 BC (HH:MM)-2:30; Free Water (mls) @ 98 Deg. F @ 90 Deg. Angle: 0.0; Fluid Loss (cc/30 min) at 1000 psi and 98 Deg. F: 300.0 Compressive Strength: 12 hrs @ 106 Deg. F (psi) 1200 24 hrs @ 106 Deg. F (psi) 1800 72 hrs @ 106 Deg. F (psi) 2300	100.2 bbls Fresh Water @ 8.33 ppg

5 1/2" Casing: Volume Calculations:

400 ft	x	0.1926 cf/ft	with	0% excess	=	77.0 cf
3150 ft	x	0.1733 cf/ft	with	86% excess	=	1015.4 cf
700 ft	x	0.1733 cf/ft	with	174% excess	=	332.5 cf
80 ft	x	0.1336 cf/ft	with	0% excess	=	10.7 cf (inside pipe)
TOTAL SLURRY VOLUME					=	1435.6 cf
					=	255 bbls

All slurries will be tested prior to loading to confirm thickening times and a lab report furnished to Apache. Fluid loss will be tested and reported on slurries with fluid loss additives. Lab test report will be furnished prior to pumping cement.