

Well: Wagner 11-65 11-1H
Zone of Interest: Niobrara
Legal Description (SHL): Section 11-7N-62W, Weld County
Legal Description (BHL): Section 11-7N-62W, Weld County

1.0) Summary of Operations

- 1.1 Drill 12-1/4" surface hole to section TD at 800'.
- 1.2 Set 9-5/8" 40# J-55 casing at approximately 800' and cement with Lead and Tail as shown in section 2.51. Cement will be circulated to surface.
- 1.3 Install 11" x 5,000 psi BOP and test as required
- 1.4 Drill 8-3/4" vertical to KOP
- 1.5 Kick off and drill 8-3/4" curve at 10 deg/100' to end of curve (see directional plan)
- 1.6 Set 7", 26#, N-80 intermediate casing at end of curve and cement with TOC as shown in section 2.52 below
- 1.7 Drill 6-1/8" hole laterally to TD (see attached directional plan)
- 1.8 Acquire shuttle logs
- 1.9 Set 4-1/2" production liner from KOP to well TD. Hang liner and cement 4-1/2" liner as shown in section 2.5.3.
- 1.10 Suspend well and move drilling rig out in preparation for well completion

2.0 CASING AND CEMENTING PROGRAM

2.1 **The proposed casing program will be as follows:**

<u>Purpose</u>	<u>Interval</u>		<u>Hole Size</u>	<u>Casing Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Thread</u>	<u>Condition</u>
	<u>From</u>	<u>To</u>	<u>(")</u>	<u>(")</u>	<u>Lbs/Ft</u>			
Surface	0	800	12 1/4	9 5/8	36	J-55	LTC	New
Intermediate	0	8440	8 3/4	7	26	N-80	LTC	New
Production	7537	11860	6 1/8	4 1/2	11.6	P-110	LTC	New

2.2 **Casing design subject to revision based on geologic conditions encountered.**

2.3 **Casing Safety Factors:**

Interval	Casing	Burst	Collapse	Axial
Surface	9 5/8	2.61	3.49	3.28
Intermediate	7	1.44	1.35	1.54
Production	4 1/2	1.75	2.32	2.55

2.4 **Centralizer Program**

Casing	9 5/8	7	4 1/2
# of Bow-type spring centralizer	5	49	8

2.5 **Cement Program**

<u>Surface Casing</u>	<u>Slurry Volume</u>			<u>Yield</u>	<u>Mix H2O</u>	<u>Weight</u>	<u>TOC</u>
	<u>% Excess</u>	<u>(BBLs)</u>	<u>(Sacks)</u>	<u>(cuft/sk)</u>	<u>(GPS)</u>	<u>(PPG)</u>	
Lead Slurry	80%	60	115	2.95	17.88	11.50	0
Tail Slurry	80%	26	125	1.15	4.96	15.80	

	Lead	Tail
Surface Casing with TOC at surface	Rockies LT 0.2 % Versaset (Additive Material) 0.2 % D-AIR 3000 (Additive Material) 0.125 lbm/sk Poly-E-Flake (Additive Material) 0.25 lbm/sk Kwik Seal (Additive Material)	Premium Cement, 94 lbm/sk Premium Cement (Cement) 1 % Calcium Chloride, Pellet (Accelerator) 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)

2.52	Intermediate Casing	Slurry Volume			Yield	Mix H2O	Weight	TOC
		% Excess	(BBLs)	(Sacks)	(cuft/sk)	(GPS)	(PPG)	
	Lead Slurry	30%	235	522	2.53	16.37	11.40	600'
	Tail Slurry	30%	56	210	1.49	6.17	13.50	

	Lead	Tail
Intermediate Casing Cment	50/50 Poz Premium 2 % Bentonite (Light Weight Additive) 5 lbm/sk Silicalite Compacted (Light Weight Additive) 0.5 % Versaset (Thixotropic Additive) 0.5 % Econolite (Cement Material) 0.6 % HR-7 (Retarder) 0.5 % D-AIR 3000 (Defoamer) 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)	Poz Type I-II 50/50 1 % Bentonite (Light Weight Additive) 3 lbm/sk Silicalite Compacted (Additive Material) 3 % Microbond HT (Additive Material) 0.2 % Halad(R)-322 (Low Fluid Loss Control) 0.4 % Halad(R)-344 (Low Fluid Loss Control) 0.3 % HR-5 (Retarder)

2.53	ProductionLiner	Slurry Volume			Yield	Mix H2O	Weight	TOC
		% Excess	(BBLs)	(Sacks)	(cuft/sk)	(GPS)	(PPG)	
	Slurry	20%	87	372	1.31	5.80	14.20	7537

The cement must achieve a compressive strength of at least 500 psi at the shoe prior to casing test and drilling out

3 **MUD PROGRAM**

<u>Purpose</u>	<u>Interval</u>		<u>Hole Size</u>	<u>Mud Type</u>	<u>Mud Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>	<u>pH</u>
	<u>From</u>	<u>To</u>	<u>(")</u>	<u>(")</u>	<u>Lbs/Ft</u>			
Surface	0	800	12 1/4	WBM	8.4 – 8.8	28 – 32	N/C	9
Intermediate	800	8,440	8 3/4	WBM	8.8 – 9.0	35 – 46	4 – 6	9
Production	8,440	11,860	6 1/8	WBM	9.0 - 9.4	36 – 46	4 – 6	9