RCVD FEB 22 '13
OIL CONS. DIV.
DIST. 3

LOGOS OPERATING, LLC.
OPERATIONS PLAN
NCRA 7A

30-039-31181

Note: This procedure will be adjusted on site based on actual conditions.

I. Location: 1181' FNL & 666' FEL
Sec 16, T24N, R6W
Sandoval County, NM

Date: February 18, 2013

Field: Devils Fork Gallup / Mesaverde
Surface: State
Minerals: State

Elev: GL 6,695.6'

II. Geology: Surface formation _ Nacimiento

A. Formation Tops	Depths
Ojo Alamo	1,681'
Kirtland	1,896'
Pictured Cliffs	2,266'
Lewis	2,336'
Chacra	2,696'
Cliff House	3,776'
Menefee	3,866'
Point Lookout	4,486'
Mancos	4,616'
Niobrara A	5,536'
Niobrara B	5,586'
Niobrara C	5,596'
Carlisle	6,246'
Total Depth	6,396'

Estimated depths of anticipated water, oil, gas, and other mineral bearing formations which are expected to be encountered:

Water and gas - 1,681', 1,896', 2,266', 2,336', 2,696'
Water, gas, and oil - 3,776', 4,486', 5,536', and 5,586'

B. Logging Program: Induction/GR and density/neutron logs from TD to the surface casing point. Mud logs will be run from below the surface casing to TD. No DST's or cores are planned for this well. Cased hole GR/CCl and CBL logs will be run from PBTD to surface.

C. No over pressured zones are expected in this well. No H_2S zones will be penetrated in this well. Max. BHP = 2,770 psig. Lost circulation zones may be encountered in the Mesa Verde group and Niobrara sections.

III. Drilling

A. Contractor:

B. Mud Program:

The surface hole will be drilled with a fresh water mud.

The production hole will be drilled with a fresh water mud and will use bentonite to increase the viscosity. The weighting material will be drill solids or if conditions dictate, barite. The maximum mud weight expected is 9.2 ppg. The water loss will be controlled to a 6 - 8 cc/30 min. and loss circulation will be controlled with cedar fiber, paper, etc.

The Cliff House, Menefee, and Point Lookout, Mancos, and Niobrara formations will all be considered for completion in this well. A completion procedure will be developed after evaluating the wireline and mud logs.

C. Minimum Blowout Control Specifications:

Double ram type 2000 psi working pressure BOP with a rotating head. See the attached Exhibit #1 for details on the BOP equipment. All ram type preventers and related equipment will be hydraulically tested at nipple-up to 250 psi (Low) for 5 minutes and 1,500 psi (High) for 10 minutes. All tests and inspections will be recorded in the daily drilling tour book.

The 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. The BOP equipment will include a kelly cock, floor safety valve, and choke manifold all rated to 2000 psi.

IV. Materials

A. Casing Program:

Hole Size	Depth	Casing Size	Wt. & Grade
12-1/4"	320'	8-5/8"	32# J-55
7-7/8"	6,396'	5-1/2"	15.5# J-55

B. Float Equipment:

a) Surface Casing: Notched collar, aluminum insert float in the first collar, and 3 centralizers on the bottom 3 joints.

b) Production Casing: Production Casing: 5-1/2" cement float shoe and self-fill insert float collar. Place float one joint above shoe. **Place DV tool at 4,667'**. Place ten centralizers spaced every other joint above the shoe, two turbolizers on the collars below the DV tool and two turbolizers above the DV tool. Place five turbolizers every third joint from the top of the well.

V. Cementing:

Note: Cement volumes will be adjusted based on actual conditions.

Surface casing: 8-5/8" - Use 225 sx (266 cu. ft.) of Type V with 2% $CaCl_2$ and ¼ #/sk celloflake (Yield = 1.18 cu. ft./sk; slurry weight = 15.6 PPG). 100% excess to circulate cement to surface. WOC 12 hours. Pressure test surface casing to 1500 psi.

Production Casing: 5-1/2" - Before cementing circulate hole with at least 1-1/2 hole volumes of mud. Precede cement with 30 bbls of fresh water. **1st Stage: Lead** with 260 sx (458 cu.ft.) of Cl "B" 65/35 poz with 6% gel, 1% $CaCl_2$, 4% phenoseal, and ¼ #/sx celloflake (Yield = 1.76 cu. ft./sk; slurry weight = 12.8 PPG). **Tail** with 100 sx (146 cu.ft.) of Cl "B" 50/50 poz with 0.15% dispersant, 1% $CaCl_2$ and ¼#/sk. celloflake. (Yield = 1.46 cu. ft./sk; slurry weight = 13.0 PPG). **2nd Stage:** Precede cement with 20 bbls of water. **Lead** with 600 sx (1056 cu.ft) Cl "B" 65/35 poz with 6% gel, 1% $CaCl_2$, and ¼ #/sx celloflake (Yield = 1.76 cu. ft./sk; slurry weight = 12.8 PPG). **Tail** with 100 sx (146 cu.ft.) of Cl "B" 50/50 poz with 0.15% dispersant, 1% $CaCl_2$ and ¼#/sk. celloflake. (Yield = 1.46 cu. ft./sk; slurry weight = 13.0 PPG). Total cement volume is 1806 cu.ft. (50% excess to hole volume to circulate cement to surface).

Jay Paul McWilliams, Engineer