WORKOVER PROCEDURE

DATE: 10 January 1995

WELL & JOB: Empire Abo K-16 Drill Horizontal Extension **DRILLED:** 1959

LAST WORKOVER: May 91 changed pump **FIELD:** Empire Abo **COUNTY:** Eddy Co., NM

BY: C. U. Bird **TD:** 6,101' **PBD:** 6,089' **DATUM:** 13' KB; GL Elev 3561'; KB 3574'

	SIZE	WEIGHT	GRADE	SET @	SX CMT	TOC
CASING:						
SURFACE:	8-5/8"	24#	J55	1387'	750	surface
PROD:	5-1/2"	14#	J55	6101'	925	surface

PERFORATIONS: Squeezed Abo Perfs: 5688-5742'; 5883-5907', 6030-6080'; OPEN ABO PERFORATIONS: 6072-6086'

TUBING:SIZE: 2-3/8" **WEIGHT:** 4.7 **GRADE:** J-55 **THREAD:** EUE **JTS:** 192 **BTM'D @** 6070' **MISC:**SN @ 6033', perf sub, mud anchor, bull plug

PACKER AND MISC: (see attached)

HISTORY AND BACKGROUND: This well was drilled and completed in 1959. Abo perforations have been squeezed and deeper perforations added due to high GOR. This field has 7% H_2S.

SCOPE OF WORK: Squeeze existing perforations. Mill 60' section and log section with caliper and gamma ray. Set cement kick-off plug. Drill short radius curve. Squeeze curve with stiff polymer for gas control. Drill horizontal extension 500+'. Run completion assembly.

TARGET INFORMATION:

Casing Section:	5995'-6055'
Kickoff Point (KOP):	6025'
Azimuth:	S (180°)
Target Depth:	6070' TVD (@ end of build)
Planned Displacement:	800'
Bottom Hole Temp:	116 °F
Well API#:	300150071700
Surface Location:	Lat 32.774480, Long -104.242450 1980' FSL, 660' FEL, Sec 2, T18S, R27E, Eddy Co., NM

PROCEDURE

1. MIRU PU, pumps, pit. Install H_2S safety equipment. Pull rods and pump; warehouse same. ND tree, NU BOPE. Pull tubing, LD and warehouse. TIH with cement retainer and work string.

2. Set retainer at +/- 5990'. Test annulus to 750 psi for 30 minutes. Establish injection rate into perforations 6072-6086'. Squeeze perforations with Class C cement in accordance with injection rate and pressure. TOH with stinger. WOC as necessary. RU Auto-Drill automatic driller, shaker.

3. TIH with bit, drill out retainer and squeeze to 6085' and circulate clean. Close rams and test to 750 psi for 30 minutes. TOH with bit.

4. Build FW gel section milling mud with funnel vis of 50 and yield point of 20-25. RU ditch magnets and pit screens. TIH with section mill on work string, mill casing from 5995-6055', circulate clean.

5. RU WL, run GR/CCL/3-Arm Caliper to confirm milled section and correlate to formation. Note corrections to log depth. RD wireline.

6. TIH with open-ended work string and spot a cement plug from PBTD to 5700' using class "H" with 1% $CaCl_2$. Mix cement at 16.4 ppg. Pull tubing to 5600' and reverse out. TOH with tubing. WOC total of 24 hrs.

7. TIH with 4-3/4" bit, drill out cement plug to top of section at 5995'. If cement drills faster than 1 min/ft, WOC additional 12 hrs. TOH, LD EUE tubing.