

Elevations:

KB @ 4271'
DF @ 4270'
GL @ 4258.3' (Permanent Datum @ 12.7' AGL)

Casing: 13 $\frac{3}{8}$ ", 48 #/Ft Surface Casing set @ 388' with 400 sx of Regular Cement containing 2% CaCl₂. Circulated cement to surface. (3/3/67 & Form C-103)

8 $\frac{5}{8}$ ", 24 & 32 #/Ft, J-55 Intermediate Casing set @ 3850' with 350 sx of Regular Cement containing 2% CaCl₂. (3/8/67)
[2230' – 24 #/Ft, J-55 & 1632' – 32 #/Ft, J-55]

5 $\frac{1}{2}$ " Production Casing set @ 10,240' as follows:

2 jts.	- 5 $\frac{1}{2}$ ", 20 #/Ft, N-80, LT&C Casing	[65.50']
68 jts.	- 5 $\frac{1}{2}$ ", 17 #/Ft, N-80, LT&C Casing	[2,189.66']
43 jts.	- 5 $\frac{1}{2}$ ", 17 #/Ft, J-55, LT&C Casing	[1,390.87']
31 jts.	- 5 $\frac{1}{2}$ ", 15.5 #/Ft, J-55, ST&C Casing	[998.19']
26 jts.	- 5 $\frac{1}{2}$ ", 17 #/Ft, N-80, LT&C Casing	[815.50']
31 jts.	- 5 $\frac{1}{2}$ ", 17 #/Ft, J-55, ST&C Casing	[1,012.96']
94 jts.	- 5 $\frac{1}{2}$ ", 17 #/Ft, N-80, LT&C Casing	[3,048.91']
20 jts.	- 5 $\frac{1}{2}$ ", 20 #/Ft, N-80, LT&C Casing	[636.05']
1	- 5 $\frac{1}{2}$ " Float Collar	[1.65']
1 jt.	- 5 $\frac{1}{2}$ ", 20 #/Ft, N-80, LT&C Casing	[25.27']
1	- 5 $\frac{1}{2}$ " Float Shoe	[0.83']

TOTAL **10,185.39'**

Cement with 332 sx of Incor Cement containing 2% Gel, 8 #/sk NaCl & $\frac{3}{4}$ % CFR-2. (4/9/67)

Tubing: 182 Jts. - 2 $\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE Tubing w/S.N. @ 4708'. (11/14/91)

TOC:	7,800'	(Temperature Survey – 4/8/67)
PBTD:	9,900'	(Tubing Tag – 11/5/91)
OPBTD:	10,210'	(Temperature Survey – 4/8/67)
TD:	10,240'	(Drilling Report – 4/8/67)

Cisco Perforations

Perf 9094' – 9099' w/2 JSPF with $\frac{1}{2}$ " Holes	[7/21/70]
Perf 9229' – 9231' w/2 JSPF with $\frac{1}{2}$ " Holes	[7/21/70]
Perf 9296' – 9301' w/2 JSPF with $\frac{1}{2}$ " Holes	[7/21/70]
Perf 9306' – 9310' w/2 JSPF with $\frac{1}{2}$ " Holes	[7/21/70]

Canyon Perforations

Perf 9358' – 9364' w/2 JSPF with $\frac{1}{2}$ " Holes	[7/21/70]
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Strawn Perforations

Perf 9745' – 9756' w/2 SPI & $\frac{1}{2}$ " holes	[5/29/67]
Perf 9839', 9840', 9849', 9863', 9864', 9871', 9882', 9912', 9913', 9926', 9929' & 9932' w/2 SPI & $\frac{1}{2}$ " holes.	[4/12/67]

Workover Procedure

PHASE #1: Determine PBTD

- 1) Dig pit or set frac tank to handle fluids in case flowing conditions are encountered. MIRU WSU. Vent annular and tubing pressure to the atmosphere.
- 2) ND WH. NU BOP's. MIRU Tuboscope. TOOH and scan ≈ 182 jts. - $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE tubing. Stand the yellow band tubing in the derrick. LD the blue, green and red band tubing in singles and separate piles.
- 3) Set up circulating pit, pump and power swivel. TIH with a bit and the $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE yellow band tubing standing in the derrick. Connect the $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE yellow band tubing in the derrick with the additional $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE yellow band tubing purchased for the future use on the State "K" N° 2. Mark the top of the yellow band section. TIH for the final 4200' with blue band tubing picked up in singles from the ground. If insufficient blue band tubing is available, make up the difference with yellow band tubing. Run this "make up" yellow band tubing below the blue band section.
[NOTE: The State "K" N° 2 will eventually have its tubing electronically scanned from the hole and could utilize this $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE yellow band tubing to replace the bad joints in its string. It appears that the current string in the State "K" N° 2 is J-55 material, however.]
- 4) Complete TIH with a $4\frac{1}{2}$ " used bit with port plugs removed on the tubing string to PBTD @ 9900'. If a depth of 9465' could not be reached, skip to Step #9. Otherwise, proceed to Step #5.

PHASE #2: Plug & Isolate Lower Zones

- 5) MIRU transports loaded with 210 Bbls. of heavy drilling mud. Circulate the hole as necessary with heavy drilling mud to clean the hole prior to cementing the Strawn, Canyon and Cisco.
- 6) MIRU Cementers, a tank truck with 70 BFW and a transport loaded with 120 Bbls. of heavy mud. Preflush with 10 BM down the tubing. Follow with 150 sx of Class "H" Cement [4.3 GFW/Sk]. Displace with 49.40 BM [2075 GM] to form a balanced plug.
- 7) Immediately, TOOH with 4200' of the $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE blue band tubing. Stand the tubing in the derrick. Allow 3 – 4 hours for the cement to set or SDON.
[NOTE: At this depth, thickening time will be less than 1 hour without retarding the cement. Any pumping time (≈ 11 minutes @ 8 BPM pumping rate) must be subtracted from this time.]
- 8) If the lower section of the tubing should be caught by the setting cement, contact the Oklahoma City Office to make arrangements for chemical cutting the tubing string, leaving the yellow band section and bit in place. Otherwise, skip to Step #10.
- 9) If a reduction in casing inner diameter is encountered below 4800', attempt to tag bottom by TIH using a perforated sub with a bull plug screwed in the bottom collar, a S.N. and the $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE tubing as specified in Steps #5 - #8, above. Otherwise, contact the Oklahoma City Office for other alternatives.
- 10) TIH with the $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE blue band tubing standing in the derrick. Tag PBTD as required by the State of New Mexico. Record the tagging depth.
[NOTE: The tagging depth is expected between 8535' and 8830'. This large variation is a result of whether the cement falls to the OPBTD @ 10,210' or stays where initially spotted @ 9900'. The PBTD tag must be above 8994'. An excess of 18 sx of cement is used.]

PHASE #3: Plug & Isolate Casing Below the San Andres

- 11) TOOH, standing the tubing in the derrick, with the $2\frac{7}{8}$ ", 6.5 #/Ft, N-80, 8th, EUE blue band tubing to just below 5804'. RU Cementers.
- 12) Preflush with 10 BM down the tubing. Follow with 35 sx of Class "H" Cement [4.3 GFW/Sk]. Displace with 31.82 BM [1336 GM] to form a balanced plug from 5804' to 5530'. RDMO Cementers, transports and tank trucks.