May 4, 1984
Fri.

T.D. 6590'. Moving rig off location. Ran Welex Induction-Electrical and Compensated Dual Nuetron-Density logs with gamma ray and caliper curves. to 6576'. Went in hole, circulated, came out laying down drill pipe and collars. Ran 163 joints(6596.02') 4½", 11.6 lb., K-55, L,T & C, 8-rnd casing, set at 6588'. Had 18 centralizers set through Dakota/Gallup interval, float collar at 6545', DV stage tool at 4525'. Cemented casing in two stages with Dowell. First stage-500 sks.(645 cu.ft.) Class H 50/50 pozmix cement with 2% gel, 10% salt, 0.6% D-60; full circulation throughout, plug down at 2:05 a.m. 5/4. Second stage-600 sks. Class B 65/35 pozmix cement with 12% gel and 100 sks. same with 2% CaCl2 and ¼ lb/sk. cellophane flakes for total of 1,618 cu. ft. cement). Plug down at 6:00a.m., 5/4/'84. Will run temp. survey at 6:00 p.m. today. Waiting on completion tools.

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May 10, 1984
Thur.

Rigged up Drake Well Service rig. Installed B.O.P. Picked up 3 7/8" bit, casing scraper and bit sub on 2 3/8", 4.7 lb., EUE tubing. Ran in hole and tagged cement at 4515' Drilled cement 4515-4525' and stage tool 4525-4527'. Continued in hole and tagged lower cement at 6530'. Shut in for night.

May 11, 1984
Fri.

Circulated casing with 2% KCl water. Pulled tubing and ran Welex casing bond log twice, second time under 900 lb. pressure. Adequate bond indicated opposite zones to be perforated. cement top at 5160'

Perforated Dakota ss. 6434 to 6442' and 6456 to 6474'(Density)with 2 shots/ft. using 3 1/8" cased gun. Tested casing to 3500 psi before perforating. Picked up Baker retreivable packer and seating nipple on 2 3/8" tubing, ran to 6495'. Dowell spotted 200 gal. 15% HCl acid. Pulled packer to 6173'. Reversed 5 bbls. fluid from annulus. Set packer and broke Dakota perfs at 1600 psi. Pumped 1,000 gal. 15% HCl acid with 1 gal/1,000 friction reducer and 40 7/8" rubber balls down tubing. Achieved 4 bpm rate at 3500 psi and got ball action. ISIP 1300 psi, remained constant 5 min. Released tubing pressure to atmosphere and rigged up to swab. Shut down for night.

May 12, 1984
Sat.

Checked initial fluid level at surface. Commenced swabbing operations. Swabbed 16 times in 10 hrs. recovering load water (61 bbls.) and 24 bbls formation water. Final fluid recovery rate 4 bbl/hr. Final recovery fluid had chlorides of 22,000 mg/l, $SO_4$ of 4,400 mg/l and a pH of 6.5 (non-acidic), indicating formation water as make-up water had only 60 chlorides, 3125 $SO_4$. Had gas to surface throughout swabbing at rate too small to measure (est. 5-10 MCFPD), did not increase. Plan to run cement plug and perforate Graneros section. Shut down for night and weekend.

May 13, 1984

Shut down for Sunday

May 14, 1984 Mon.

Opened tubing to atmosphere with small amount of gas, blew down immediately. Unseated packer and tripped out of hole. Welex ran Halliburton "Speed-E-Line" bridging plug to 6420' and set. Ran wire line dump bailer and spotted 3.2 cu.ft. Class B cement on top of plug from 6420 to 6385'. Pressure tested plug to 3500 psi prior to dumping bailer.Perforated Graneros ss. interval 6320 to 6328' with two shots/ft. Dowell broke down perfs at 2400 psi down casing and established a 3½ bbl/min.rate at 1800 psi with KCl water. Perforated top Graneros ss. 6269 to 6281' (Density log measurements) with two shots/ft. Shut down for night.

May 15, 1984 Tues.

Acidized Graneros perfs 6269-81' and 6320-28' with 1,000 gal. 15% HCl acid containing 1 gal/1,000 gal. N.E. agent and carrying 60 1.1 sp. grav., 7/8" ball sealers. Obtained near ball-out at 24 BPM rate at 3,000 psi. Welex ran junk basket to 6350' and recovered 23 balls (ten with perf marks). Dowell sand/water fractured Graneros perfs with 50,000 gal. 2% KCl water containing 2½ lb/1,000 gal. friction reducer and 30,000 lbs. 40/60 sand as follows:

| | |
|---|---|
| 15,000 gal. pad | 30 BPM @ 3000 psi |
| 10,000 gal. w/ ½lb. sand | 30 BPM @ 3050 psi |
| 25,000 gal. w/ 1 lb. sand | 30 BPM @ 3050 psi |
| 4,074 gal. flush | 28 BPM @ 3200 psi |

ISIP 2600 psi, decreasing to 2200 psi in 15 min. Total sand= 30,000 lb. 40/60; total load fluid to recover 1,505 bbls. Opened well to atmosphere in 30 min. and flowed under restriction to pits.

May 16, 1984 Wed.

At 7:00 a.m. well was flowing small amount of frac water and oil. Picked up Baker retreivable packer on 2 3/8" tubing with 2 jts. tail-pipe. Ran in hole and checked casing free of sand to 6232'. Set packer at 6203' and began swabbing. Swabbed well 22 times in 7½ hrs. recovering an estimated 78 bbls fluid. Final recovery rate est. 5 bbls/hr.of frac water, 10-20% oil cut, very gassy but not trying to flow after swab runs. Final fluid level at 5500' Shut well in for night.

May 24, 1984 Thur.

Wilson Service pulled bottom-hole pressure bomb and ran fluid gradient. Checked tubing pressure at 140 psi. Pressure bomb failed to operate properly. Released packer at 6203' and pulled tubing and packer out of hole. Welex ran Baker retrievable bridging plug on wireline and set at 5580'. Pressure tested casing to 3500 psi, held O.K. Dumped 6 gal. sand on top of bridging plug with dump bailer. Welex perforated lower Gallup Fm. from 5528 to 5536' with 2 shots/ft. Dowell broke perforations down at 1800 psi and established a 3 BPM rate at 1300 psi; ISIP 600 psi. Welex continued perforating 5442 to 5458' (16 holes) and 5406 to 5414' (8 holes). Dowell pumped down casing 1000 gal. 15% HCl acid with 45 ball sealers. Established 34 BPM rate at 3100 psi. Got good ball action, but did not ball out completely. Welex ran wireline junk basket and recovered 28 balls. Dowell sand/water fraced lower Gallup

2% KCl water with 2½ lb. friction-reducer and 1 gal./1,000 gal. surfactant and carrying 70,000 lb. 20/40 sand as follows:

| | |
|---|---|
| 15,000 gal. pad | 45 BPM @ 2200psi |
| 15,000 gal.w/ 1 lb/gal sand | 45 BPM @ 2000 psi |
| 15,000 gal w/ 2 lb/gal sand | 45 BPM @ 1800 psi |
| 8,333 gal w/ 3 lb/gal sand | 45 BPM @ 1750 psi |
| 3519 gal flush | 45 BPM @ 2000 psi |

ISIP 750 psi, decreasing to 700 psi in 15 min. Shut well in for night.

May 25, 1984 Fri. Checked 11 hr. SIPC at 600 psi. Ran Baker tubing retrievable bridging plug on Welex wireline and set at 5390'. Pressure tested plug and casing to 3500 psi, held O.K. Spotted 6 gal. sand on plug with dump bailer. Perforated upper Gallup Fm. from 5359 to 5366' (7 shots) using 3 1/8" cased gun. Dowell broke down perfs down casing at 2000 psi. established 9 BPM rate at 2900 psi, ISIP 800 psi. Continued perforating upper Gallup from 5336 to 5343' (7 shots), 5326 to 5333' (7 shots), 5308 to 5314' (6 shots), 5206 to 5216' (10 shots), 5180 to 5184' (4 shots). Acidized perfs down casing with 1000 gal. 15% HCl acid containing 60 ball sealers. Achieved 50 BPM rate at 2800 psi, obtained near ball-out. Welex ran wireline junk basket and recovered 60 balls. Dowell sand/water fraced upper Gallup perfs 5180 to 5366' (gross) with 66,540 gal. 2% KCl water containing 1 gal/1,000 gal. surfactant and carrying 80,835 lbs. 20/40 sand as follows:

| | |
|---|---|
| 15,000 gal. pad | 53 BPM @ 2100 psi |
| 15,000 gal w/ 1 lb/gal sand | 53 BPM @ 2000 psi |
| 11,340 gal w/ 2 lb/gal sand | 50 BPM @ 2600 psi |
| 25,200 gal w/ 1½ lb/gal sand | 50 BPM @ 2650 psi |
| 3,486 gal flush | 50 BPM @ 2750 psi |

ISIP 800 psi, decreasing to 700 psi in 15 min. Shut well in for night.

May 26, 1984 Sat. Checked 17 hr. SIPC at 600 psi. Allowed frac water to return to pits at approx. 1 BPM rate. Watched flow for 6 hrs with no sand returns. Left well open to pits for weekend.

May 27, 1984 Sun. Well flowing frac water to pits

May 28, 1984 Mon. Well flowing frac water to pits.

May 29, 1984 Tues. Well dead on arrival. Went in hole with Baker retrieving head on 2 3/8" tubing and tagged sand at 5178'. Reverse circulated hole and cleaned out to Bridging plug at 5390'. Circulated ½ hr. to clean up hole and released and recovered bridging plug. Ran in hole with 1 jt. 2 3/8" tbg with 2 3/8" standard seating nipple on top, followed by 165 jts. 2 3/8" tubing. Landed at 5170'. Rigged up to swab well. Fluid level at surface. Ran swab 6 times with fluid staying at surface. Recovered approx. 95 bbl. frac fluid with trace of sand. Shut

Mon. psi. Opened tubing to flow to 400 bbl. frac tank. Flowed gas and oil for 20 min. and died. Recovered 5 bbls. oil. Began swabbing, fluid level at 800' Made 10 runs to seating nipple. Recovered approx. 80 bbls. frac water with 5% oil cut. Ran down hole with tubing and tagged sand 12' off top of bridging plug at 5580'. Put on Baker retrieving head and tripped into hole and tagged sand. Loaded hole with 75 bbls. KCl water and cleaned out hole. Latched onto Bridging plug, released and pulled out of hole. Perfs took approx. 80 bbls. fluid during clean-out. Shut well in for night.

June 5, 1984
Tues. Checked 14 hr. SIPC at 250 psi. Bled pressure off and prep to run production tubing. Ran tubing string as follows:

| | |
|---|---|
| Kelly bushing 12 ft. | |
| 159 jts., 2 3/8", 4.7 lb., EUE tubing (5,126.32') | 5138.32' |
| 1 2 3/8"X 4½" tubing anchor (2.7') | 5141.02 |
| 2 jts. 2 3/8" tbg. (64.97') | 5205.99 |
| 1 2 3/8" standard seat. nipple (1.1') | 5207.09 |
| 1 2 3/8" perforated sub (4.0') | 5211.09 |
| 1 jt. 2 3/8" tbg. mud anchor (32.42') | 5243.51 |
| 1 2 3/8" Bull plug (0.49') | 5244.00 |
| Bottom of production assembly | 5244' |

On bottom, set tbg. anchor and landed doughnut with 10,000 lbs. in tension. Total weight on tubing hanger 30,000 lbs.Installed wellhead with flow tee and Radigan. Picked up 2"X1¼"X16' BHD rod pump with a 2'X3/4" sub on top. Checked pump action O.K. Tripped in hole with pump and 154 3/4" X 25' rods, topped off with 52 7/8"X 25' rods/ Seated pump in seating nipple. Spaced out at surface with one 8'X 7/8" and 6'X 7/8" subs. Pressure tested pump and tubing to 250 psi, held O.K. Checked pump action, O.K. Clamped and hung off polish rod 12" off bottom. Shut well in and rigged down and released Drake Well Service rig. Note: ran total of 206 rods plus one 8' and one 6' sub with 2' sub on top of polish rod; ran 162 jts. 2 3/8" tubing