

Savonburg Northeast

Nelson KW-6

December 4, 1986:

Reason for Job: To increase injection to recommended rate

Current: 68 B/D @ 490 psi

Rec.: 80 B/D

Rigged up company wash equipment and pulling unit. Ran a string of 1" 10rd pipe and small bit to 721'. Washed and circulated clean. Pulled 1" up and spotted 2 kegs acid on perfs at 675'. Displaced out of 1" and pulled pipe. Hooked up wellhead connections and worked acid back in perfs with 4 bbls. lease salt water. Hooked back up to injection. Rigged down.

December 5, 1986:

68 B/D @ 0 psi

December 6, 1986:

0 B/D @ 160 psi - meter not working

December 7, 1986:

60 B/D @ 0 psi

December 8, 1986:

21 B/D @ 80 psi

December 9, 1986:

69 B/D @ 310 psi

June 18, 1987:

Reason for Job: To clean well for P.M.T.

Broke down wellhead and backflowed. Ran string 1" to T.D. of 730'. Set down on solid bottom. Washed well clean - getting small amount of scale. Pulled 1" up to 715'. Spotted 3 carb. acid and displaced out of 1". Hooked to wellhead and worked into perfs with 2 bbls. water. Pressured up to 600 psi and shut in. Let set 3 hrs. Pumped 3 bbls. water into well at 400 psi. Pulled 1" and shut well in.

June 19, 1987: Well at 50 psi. Left well off for polymer treatment on 6-23-87.

June 20, 1987: Well on vacuum

June 23, 1987: Started 200 bbl. Profile Modification Treatment

June 23, 1987:

Mixed with 98 bbls. of city water, 200 lbs. synthetic polymer (5,500 ppm), 350 lbs. salt (10,000 ppm), 35 lbs. of calcium chloride (1,000 ppm), and 6 qts acid. As polymer solution was hydrating, the required reagents of Sodium Dicromate (6 lbs., 8 oz.) and Sodium Thiosulfate (6 lbs., 8 oz.) were prepared.

Began injection at 36 B/D at wellhead pressure 0 psi. Samples were taken and pressure monitored.

June 24, 1987:

Continued injection of polymer solution at 400 psi. Mixed daily is the required reagents of Sodium Dicromate (6 lbs. 8 oz.) and Sodium Thiosulfate (6 lbs. 8 oz.).

June 25, 1987:

Continued injection of polymer solution at 410 psi.

June 26, 1987:

After injecting a total of 95 bbls of polymer solution at 430 psi, the pump was shut down to mix up another 95 bbls. of polymer solution. Mixed with 85 bbls of city water, 200 lbs synthetic polymer (5,500 ppm), 350 lbs. salt (10,000 ppm), 35 lbs. of calcium chloride (1,000 ppm), and 7 qts. acid.

June 27, 1987:

Continued injection of polymer solution at 450 psi.

June 28, 1987:

Continued injection of polymer solution at 480 psi.

June 29, 1987:

Shut down profile modification treatment after injecting a total of 188 bbls. at 470 psi. Cleaned casing with 4 bbls. of injection water at 530 psi. No polymer has been detected at any surrounding producers. Shut in well at 530 psi.

July 7, 1987:

Began injection at 600 psi at a recommended rate of 30 B/D.

July 8, 1987:

29 bbls. @ 630 psi

October 7, 1987:

Reason for Job: To Increase Injection Current: 10 B/D @ 620 psi
Rec.: 80 B/D

Broke down wellhead - did not backflow. Rigged up and set rotary table over hole. Reamed down with bit; getting large amount of scale and polymer. Drilled hard thru perfs. Circulated clean and spotted 45 gals. 28% acid and shut in.

October 8, 1987:

Set on bottom and washed up. Very small amount of polymer. Respotted 50 gal. 28% acid at 712'. Pulled 1". Turned well on at 20 BPD.

10-9-87: 44 Bbls. @ 620 psi

10-10-87: 41 Bbls. @ 640 psi

10-11-87: 37 Bbls. @ 600 psi

March 22, 1988:

Reason for Job: To Increase Injectivity
Current: 0 B/D @ 640 psi
Rec.: 80 B/D

Ran 1" with full size mill bit. Ran to 729'. Set down on solid bottom. Washed well up. Jetted thru perf. section. Did not get much material out of well. Spotted 45 gal. 28% acid. Displaced out of casing with 2 Bbls. water at 550 psi. Shut well in.

March 23, 1988:

Circulated clean - pump into well. Seemed to take fairly well at 500 psi. Pulled 1" and put on injection.

3-24-88: 47 B/D @ 620 psi

3-25-88: 86 B/D @ 630 psi

3-26-88: 65 B/D @ 650 psi

3-27-88: 47 B/D @ 660 psi

June 20, 1988:

Reason for Job: To increase Injection. Current: 6 B/D @ 630 psi
Rec: 80 B/D

Ran wash string to 730' and circulated clean. Pulled up to 715'.
Spotted 44 gal Clorox Bleach. Displaced out of casing with 3 bbl. Shut in
for 24 hours.

Set on bottom and circulated clean. Washed out some polymer. Pulled
up to 715'. Spotted 60 gal 28% HCL and work into perfs with 3 bbl. Shut
in at 300#.

6-22-88:

39 B/D @ 600 psi

6-23-88:

23 B/D @ 600 psi

6-24-88:

37 B/D @ 610 psi

December 21, 1988:

Reason for Job: To Increase Injection Current: 5 B/D @ 640 psi
Rec: 80 B/D

Set up company coil unit. Run to T.D. with anchor and perf. nipple.
Displace 30 gal. 28% acid, pulled pipe and hooked back up to injection
system.

12-22-88:

28 Bbls. @ 640 psi

12-23-88:

26 Bbls. @ 640 psi

JUNE 13, 1989:

Reason for Job: To increase injection Current:
Rec:

Rigged up company pulling unit, washed to T.D. with 1" pipe.
Pulled up 2 joints, spotted 55 gal. of 28% acid. Pulled 1" pipe, pressured
well up with mini pump. Pushed acid back with 2 bbls. water. Well broke
down about 800 lbs. to 850 lbs.. Let set till next day. Hooked back up
to injection. Well taking at plant pressure 650, about 30 bbls. a day.

~~September~~
October 28, 1989:

Set up Russell Petroleum coil acid unit. Ran tubing down to
perforations and washed well clean with injection system water.
Spotted 55 gallons 28% HCL acid with acid pump. Pulled tubing and
hooked well to injection system. Washed with approx. 30 gallons of
injection water. Shut-in and turned back on the next day.

August 27, 1990: Current: 1 B/D @ 650 PSI
Rec.: 80 B/D

Set up company pulling unit and ran 1" pipe to bottom. Washed well clean using approximately 20 bbls. water, getting up scale and polymer. Pulled 1" pipe up 75' and spotted 55 gallons 28% acid. Pulled rest of pipe and hooked back up to injection system.

October 12, 1990: Current: 0 B/D @ 560 PSI
Rec.: 80 B/D

Set up company coil tubing unit. Ran to T.D. and spotted 55 gallons 28% acid. Pulled tubing. Let set overnight and turned back on the following morning.

October 25, 1990:

Added perforations, two holes per 1½ feet: 658'-669', 676'-685' and 692'-701'.
Top wireline

November 13, 1990:

Set up company coiled tubing unit. Ran tubing and washed clean using approximately 25 bbls. of injection water. Spotted 75 gallons 28% acid on perforations and pulled coiled tubing. Let acid wash on well for 12-16 hrs. before turning back on to injection system.

December 6, 1990:

Using Consolidated pump truck, pumped 100 gallons 15% acid down well and followed with five bbls. water. Pressured up on well and pumped back into perforations. Never went over 800 lbs. pressure in pumping water.

October 23, 1991:

Rigged up Company pulling unit and ran down 2 7/8" tubing with 1" pipe. Washed clean to bottom of 730 ; recovering iron sulfide, scale and approx. one gallon of polymer. Pulled up three joints of 1" pipe and spotted 55 gallons 28% acid on perforations. Pulled remainder of 1" and hooked back up to injection system. Pushed acid back with 30 gallons injection fluid and let set overnight. Resumed recommended injectoin rate next morning.

*To Abilene
10/13/91*

September 25, 1992:

Rigged up Company coiled tubing unit. Ran to bottom and spotted 55 gallons 28% acid on perforations. Pulled coiled tubing and hooked back up to injection system. Resumed at normal injection rate.

April 23, 1993:

Rigged up Company pulling unit and ran down with string of 1" pipe to bottom of 730', washing up iron sulfide and scale. Washed clean; pulled up 75' and spotted 50 gallons of 28% acid on perforations. Pulled remainder of pipe and hooked back up to injection system.

April 28, 1993:

53 bbls. @ 560 lbs.

April 30, 1993:

50 bbls. @ 560 lbs.

September 29, 1993:

Rigged up Company coiled tubing unit. Ran coil tubing to bottom. Washed clean using Nelson injection fluid. Spotted 50 gallons 28% acid on perforations. Pulled tubing. Hooked back up to injection system and resumed normal injection rate.

May 24, 1994:

Set up Company pulling unit. Ran string of 1" pipe to bottom of 730'. Washed well clean with Company pump truck, recovering mostly iron sulfide and scale. Raised pipe to 711' and spotted 55 gallons 15% acid with one quart surfactant on perforations. Pulled pipe. Hooked onto pump truck and pushed acid into perforations. Shut-in overnight. Turned back on next morning. Caught and retained bottom-hole sample.

To Abilero, Jeff, Weaver 6-10-94

October 25, 1995:

Using J & K, Inc., ran MIT. KCC representative Tom Welsh was present; well passed.

November 21, 1995:

Treated well with coil tubing unit and 50 gallons 28% HCl acid, two gallons ESA-96, two gallons ESA-91, and one-half gallon ESA-50.

September 26, 1996:

Ran steel measuring line. T.D. @ 682'. Well will require washing.

October 3 & 4, 1996:

Rigged up Company wash equipment and pulling unit. Tallied 750' of 1"10RD for wash string. Ran 1" and jet bit to 675'. Attached wash head. Started washing and hit solid bridge at 682'. Spudded fairly hard at start and for additional ten feet. Broke through bridge and washed to 700'. Retained wash samples from 700'. Samples started out as fine, black iron sulfide, and started showing small amount of crosslinked polymer.

Made connection and washed to T.D., 730'. Washed clean from bottom. Retained samples. Washed out fair amount of black, foul-smelling chunks of crosslink polymer and small amount of light brown scale.

Pulled up to 711' and dropped ball for jetting procedure. Jetted lower perforations from 711' up to 675' with 15 barrels of lease salt water containing the following chemicals: one gallon Goldtreat, one gallon ESA-96, one-half gallon ESA-50. Retained samples of jetted water; had small show of polymer and light-colored scale.

Spotted 40 gallons 28% acid with two gallons ESA-96, two gallons ESA-91, and one-half gallon ESA-50 at bottom of perforations. Displaced acid out of 1" with one barrel of water. Hooked head up to annulus and pushed acid into formation. Well broke down at 800 lbs. Treated at 750 lbs. at one barrel per minute rate and 550 lbs. at one barrel per three minute rate. Shut-in pressure was 450 lbs. Let well sit overnight.

Repeated treatment on October 4, 1996, using 50 gallons 28% acid with two gallons ESA-96, two gallons ESA-91, and one-half gallon ESA-50. Treatment was same as above. Pressured to 650 lbs. Well took at 550 lbs. with slow rate, one barrel per three minutes. Used six bbls. each treatment to displace acid. Pulled 1" and put well back on injection.

*Distributed to the world
10-9-96*

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Perfs: 657'-670', 675'-686', 691'-702', 707'-711'

October 7, 1997:

Shut well in at 2:30 p.m. for temperature log.

October 9, 1997:

Using Cornish Wireline, ran temperature log. Tagged bottom at 686' (high bottom). The log indicates formations being influenced by water injection from 610'-662'. The greatest influence from water entry is indicated between 640' and 662'. The cage of the temperature tool was filled with heavy black material, apparently crosslinked polymer. Placed well back on injection, awaiting cleanout.

November 4, 1997:

Tallied 750' 1" 10RD pipe for wash string. Spotted at location. Rigged up Company pulling unit. Ran 650' pipe and jet bit. Shut down to fix main line oil leak.

November 5, 1997:

Moved Company wash equipment and pulling unit back on well. While washing, ran 1" and bit to T.D. of 730'. Washed well clean. Retained sample of wash water. Had large chunks of black crosslink polymer and some black fines.

Pulled up to 711' and dropped ball for jetting procedure. Jetted lower perforations from 711' up to 675' with 12 barrels of water containing one gallon Goldtreat, one gallon ESA-96, and one-half gallon ESA-50. Kept samples of jetted water. Got more crosslink polymer and some light brown scale.

Set bottom of pipe at 711'. Installed stuffing box. Spotted 100 gallons 28% acid with four gallons ESA-96, four gallons ESA-91 and one gallon ESA-50 at bottom of perforations.

Displaced acid out of 1" with one barrel of water. Shut 1" in, hooked wash head to annulus and pushed acid into formation. Well broke down at 800 lbs. Treated at 600 lbs. and a rate of one barrel per minute. Displaced acid into formation with eight barrels of field salt water. Shut well in at 500 lbs. Left wash string in hole so acid on formation would not be disturbed.

November 6, 1997:

Pulled wash string and placed well on injection.

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April 24, 1998:

Ran steel measuring line to T.D. of 722'.

Using coil tubing unit, acidized with 50 gallons 28% acid, one gallon Goldtreat, one gallon ESA-96, one quart ESA-91, one pint ESA-50.

April 28, 1998:

Repeated above treatment.

April 29, 1998:

41 bbls. @ 630 PSI

April 30, 1998:

42 bbls. @ 670 PSI

May 1, 1998:

42 bbls. @ 670 PSI

November 6, 1998:

Using Company coil tubing unit, ran to bottom. Spotted with 50 gallons 28% acid, one gallon Goldtreat, one gallon ESA-96, one quart ESA-91, one pint ESA-50. Pulled coil tubing. Hooked up to Company pump truck and pushed back acid with four barrels injection water. Shut-in over weekend.

November 9, 1998:

Repeated above treatment: Hooked up to injection system and resumed normal rate.

November 10, 1998:

45 bbls. @ 620 PSI

November 11, 1998:

45 bbls. @ 620 PSI

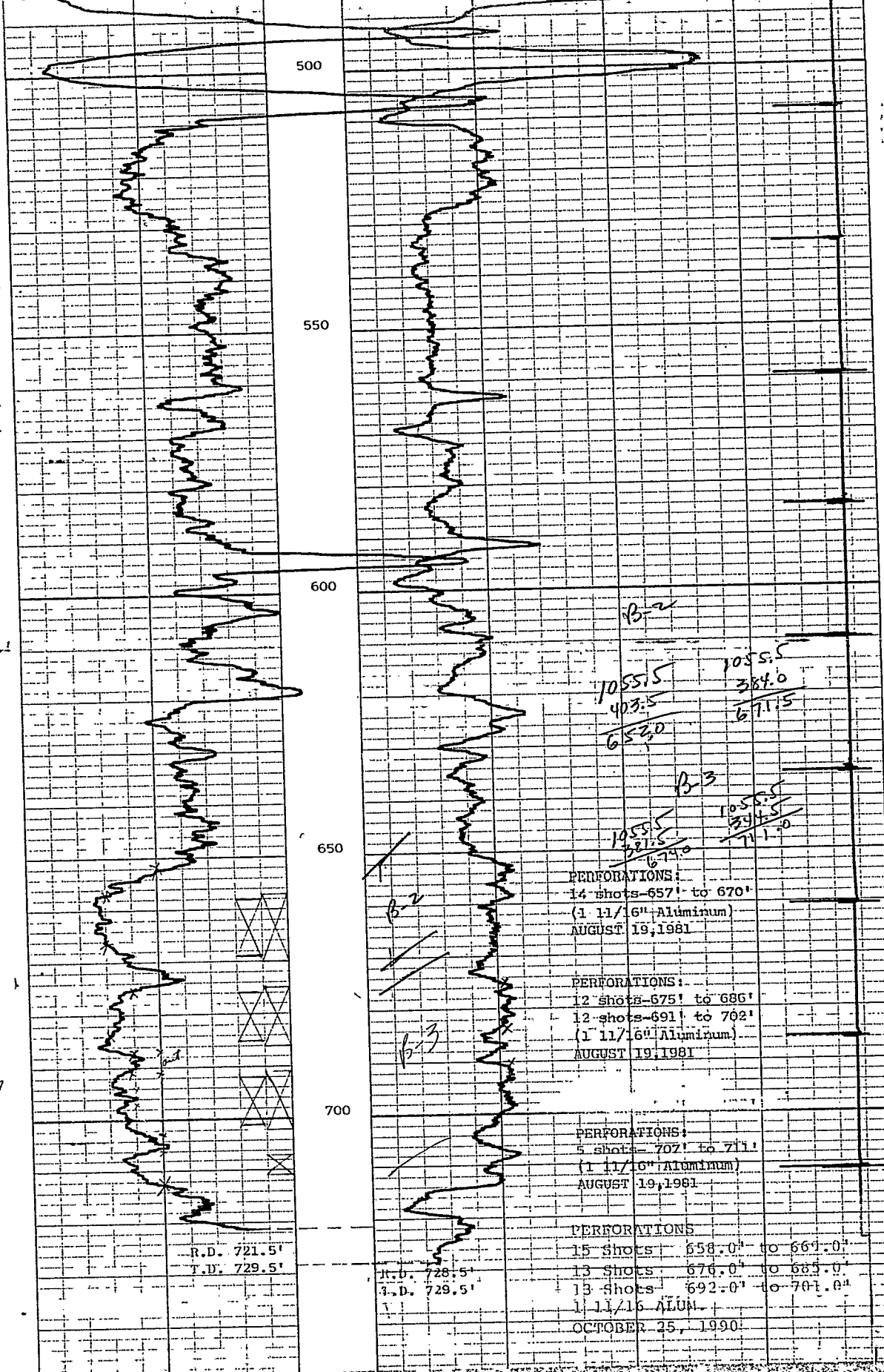
November 12, 1998:

39 bbls. @ 630 PSI

November 13, 1998:

39 bbls. @ 630 PSI

39
-7



B-2

1055.5	1055.5
403.5	384.0
652.0	671.5

B-3

1055.5	1055.5
381.5	394.5
674.0	711.0

PERFORATIONS:
14 shots-657' to 670'
(1 11/16" Aluminum)
AUGUST 19, 1981

PERFORATIONS:
12 shots-675' to 686'
12 shots-691' to 702'
(1 11/16" Aluminum)
AUGUST 19, 1981

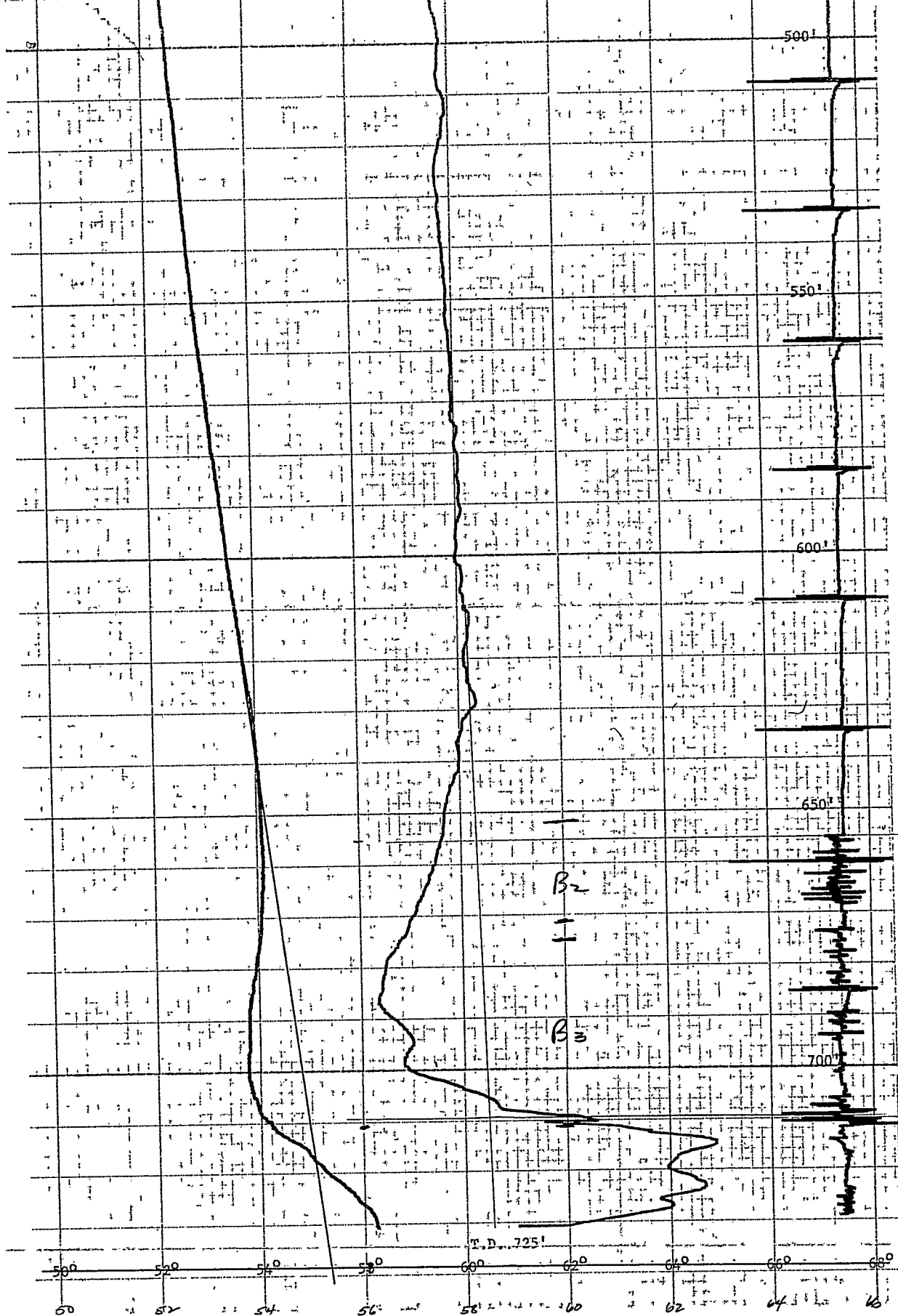
PERFORATIONS:
5 shots-707' to 711'
(1 11/16" Aluminum)
AUGUST 19, 1981

PERFORATIONS:
15 Shots-658.0' to 661.0'
13 Shots-676.0' to 685.0'
13 Shots-692.0' to 701.0'
1 11/16 ALUM.
OCTOBER 25, 1990

R.D. 721.5'
T.D. 729.5'

R.D. 728.5'
T.D. 729.5'

NELSON # 3
K-L-1 (JAMES E. RUSSELL PETROLEUM, INC.)
ALLEN COUNTY, KANSAS
AUGUST 7, 1981
8-7-81 GN.
8-19-81 PERE.
10-25-90 PERE. (JAMES E. RUSSELL)
29-263-51E



NELSON NO. KW-6
 JAMES E. RUSSELL PETROLEUM, INC.
 ALLEN COUNTY, KANSAS
 JULY 6, 1983

7-6-83 TEMP SURVEY

21-26S-21E