HIGH PLAINS
WIRELINE SERVICES, INC.

P.O. Box 981
Perryton, Texas 79070
Phone 806-435-7195

SUBSURFACE PRESSURE SURVEY

Company Slawson Oil Producers Test Date October 5, 1987
Lease ELLIS #1-31 Well No. Field Wildcat
Section 31 Block T31S Survey R40W County Morton State Kansas
Producing Formation Upper Morrow Measurements Are From KB @ 6'
Elevation
Shut-In Time 792 Hrs.
Shut-In Tubing Pressure 502#
Shut-In Casing Pressure —
Tubing Size 2 3/8" Set at 4944'
Packer Set at 4944'
Perforations 5032' - 5042'
Top of Oil None Approx.
Top of Water None Approx.
Temperature at 5050 ft 118 F.
Date of Last Test N/A
Shut-In Time, Last Test N/A
Pressure at Datum, Last Test N/A

Depth	Time	Pressure	Δ P	Δ D	Gradient
0'	10:15A	507.1	---	---	---
1500'	10:19	531.3	24.2	1500	.016
3000'	10:23	555.6	24.3	1500	.016
4500'	10:26	579.3	23.7	1500	.016
4837'	10:28	584.4	5.1	337	.015
4937'	10:30	585.9	1.5	100	.015
5037'	10:32A	587.9	2.0	100	.020

INSTRUMENT DATA
Element RPG-3
No. 38999 Range 0-1000 psi
Clock Amerada
No. A22096 Range 3 Hrs.
Calibration Date June 15, 1987

Remarks:
Check T.D. at perfs are clear.
Ran to 5050'

Operator Danny Fowler

W - 7210

Welex
A Halliburton Company

HUBER

DATA SHEET FOR LOG ANALYSIS

COMPANY	D.C. SLAWSON		BIT SIZE	7 7/8"	
WELL	ELLIS No. 1-31		RM	2.9 @ 93	°F
FIELD	KINSLER EXT.		RMF	1.63 @ 93	°F
LOCATION	N/2 SW/4E - SEC. 31 - T31S - R40W		RMC	2.58 @ 93	°F
COUNTY	MORTON	STATE KS	DATE	7-20-87	
FORMATION	UPPER MORROW "C"		BY	BEE	

DEPTH	ϕ_D	ϕ_N	ϕ_{XP}	R_T	R_{WI}	S_W	REMARKS
5028-30	21%	32%	26.5%	11	.045	21%	
30-32	19%	19%	19%	25		20% *	
32-34	27%	21%	25%	35		13% *	$S_W = \left(\frac{.62 \times R_W}{\phi^{2.15} R_T}\right)^{1/2}$
34-36	28%	18%	24.6%	50		11% *	
36-38	27%	17%	23.6%	52		11% *	
38-40	20%	14%	18%	40		17% *	
40-42	18%	14%	16.6%	17		30% *	NEP = 12'
42-44	13%	05	13%	7		57%	AVG. ϕ = 21%
44-46	16%	05	13%	5		67%	AVG. S_W = 47%
46-48	18%	05	18%	4.5		50%	
48-50	15%	05	15%	4.5		61%	

$N_p = \frac{7758(1-.17)(.21)(12')(80)(.15)}{3.0} = 64,900$ BO & 486,750 MCFG (GOR = 7500:1)

$T_c = 370.63$ °R — Z @ 600 psi = 0.983

$P_c = 657.65$ PSIA — Z @ 150 psi = 0.980

$G_p = 43560(1-S_W)(\phi)(NEP)(DA)(B_{gi})(EF) =$ 225 MMCF ON 80 ACRES

$= (43560)(1-.17)(.21)(12)(160)(40.89)(.76) =$ 453,019,806 SCF ON 160 ACRES

→ 906,000 MCF ON 320 ACRES

1,812 MMCF ON 640 ACRES

$\frac{42.89 - 9.6}{42.89} = 0.76$

2.3 MMCF (CAOF)

25% = 700 MCFD

BBLS. OF HYDROCARBONS IN PLACE PER ACRE-FOOT = 7758 X Φ (1 - SW).

(SLAWSON) FLWIS 1-31

47 6840

KE 20 YEARS BY MONTHS X 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

MCF/M

1 9 8 7 6 5 4 3 2 1000 9 8 7 6 5 4 3 2 100 9 8 7 6 5 4 3 2 10

Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.	Mar. June Sept. Dec.
19 87.	19 88.	19 89	19 90	19 91	19 92	19 93	19 94	19 95	19 96	19 97	19 98	19 99	19	19	19	19	19	19	19	19

1 9 8 7 6 5 4 3 2 1 9 8 7 6 5 4 3 2 1 9 8 7 6 5 4 3 2 1