

**SUPERIOR TESTERS**  
RR #1, Box 295B, Great Bend, Kansas

Date 11-16-85 Location 26-20<sup>s</sup> 16<sup>w</sup> Elevation \_\_\_\_\_ County Pawnee

Company Thunderbird Drilling, Inc. Number of Copies \_\_\_\_\_

Address P.O. Box 18407 Wichita, Kansas 67218

Charts Mailed to P.O. Box 18407 Wichita, Kansas 67218

Invoice Mailed to P.O. Box 18407 Wichita, Kansas 67218

Lease Clutter Well No. #1 Formation Tested Arkuchle Test No. #1

Depth 3764' Tested from 3713' to 3764' Packer Size 6<sup>3</sup>/<sub>4</sub> Anchor Length 51'

Top Packer Depth 3708' ft. Bottom Packer Depth 3713' ft. Dual Packers yes

Tool Joint Size 4<sup>1</sup>/<sub>2</sub> F.H. Tool Size 5<sup>1</sup>/<sub>2</sub> O.D. Hole Size 7<sup>7</sup>/<sub>8</sub> Did Packer Hold yes

Drilling Contractor T-Bird Rig #1

Length Drill Pipe 3126' I.D. Drill Pipe 3.80 Tool Joint Size 4<sup>1</sup>/<sub>2</sub> F.H.

Length Weight Pipe 566' I.D. Weight Pipe 2.75 Tool Joint Size 4<sup>1</sup>/<sub>2</sub> X.H.

Length Drill Collars None I.D. Drill Collars \_\_\_\_\_ Tool Joint Size \_\_\_\_\_

Tool Open I.F.P. from 12:15 Am to 12:45 Am 30 min

Tool Closed I.C.I.P. from 12:45 Am to 1:30 Am 45 min

Tool Open F.F.P. from 1:30 Am to 2:30 Am 60 min

Tool Closed F.C.I.P. from 2:30 Am to 3:15 Am 45 min

from [B] 63 P.S.I. to [C] 74 P.S.I.  
[D] \_\_\_\_\_ 1194 P.S.I.  
from [E] 95 P.S.I. to [F] 138 P.S.I.  
[G] \_\_\_\_\_ 1173 P.S.I.

Initial Hydrostatic Pressure [A] 2172 P.S.I. Final Hydrostatic Pressure [H] 2151 P.S.I. Maximum Temp 110° °F

Initial Blow weaks to fair Blow - Building slowly 6" into water

Final Blow weaks to fair Blow - Building slowly 8" into water

Gas to Surface None Min. Oil to Surface None Min. Mut Weight 10' Viscosity 41

Gas Guaged None

Recovery 210' water at mud

65% mud - 35% water

Remarks \_\_\_\_\_

Extra Equipment-Jars None Safety Joint None Extra Packer None Straddle None Hook Wall None

Top Recorder No. 3875 Clock no. 8968 Depth 3758' Clr. Sub \_\_\_\_\_ Sampler None

Bottom Recorder No. 2186 Clock No. 23915 Depth 3761' Chlorides - plts 70000 D.S.T. 63000

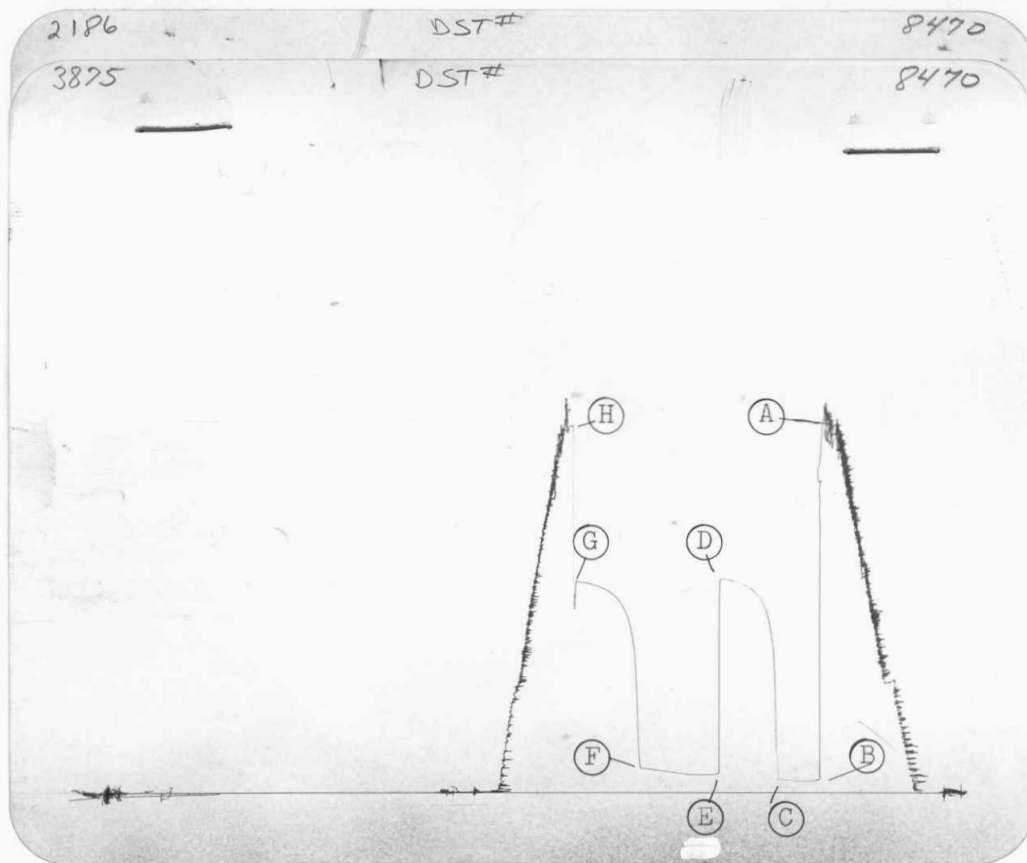
Price of Job \$550.00

Tool Operator Juan Suppes

Approved By \_\_\_\_\_

SUPERIOR TESTERS, INC. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND TO THE PROPERTY OR PERSONEL OF THE ONE FOR WHOM A TEST IS MADE, OF FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Ticket N° 8470



POINT	PRESSURE		P.S.I.
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	2172	2044	P.S.I.
(B) First Initial Flow Pressure .....	63	71	P.S.I.
(C) First Final Flow Pressure .....	74	68	P.S.I.
(D) Initial Closed-in Pressure .....	1194	1184	P.S.I.
(E) Second Initial Flow Pressure .....	95	108	P.S.I.
(F) Second Final Flow Pressure .....	138	132	P.S.I.
(G) Final Closed-in Pressure .....	1173	1171	P.S.I.
(H) Final Hydrostatic Mud .....	2151	2030	P.S.I.

SUPERIOR TESTERS ENTERPRISES, INC.

WELL IDENTIFICATION DATA

COMPANY : THUNDERBIRD DRILLING                      WELL NAME : CLUTTER #1  
ADDRESS : BOX 18407, WICHITA, KS                    LOCATION : 26-20S-16W  
STATE & COUNTY : KANSAS, PAWNEE                    FIELD :  
ELEV.(GR) :                      (KB) :                      TEST DATE : 11-16-85

EQUIPMENT AND HOLE DATA

FORMATION TESTED : ARBUCKLE                      DRILL PIPE LENGTH(ft) : 3126  
TEST INT. KB : 3713                      to 3764                      DRILL PIPE O.D.(in) : 3.82  
ANCHOR LENGTH(ft) : 51                      WEIGHT PIPE LENGTH(ft) : 566  
TYPE OF TEST : Conventional                      WEIGHT PIPE ID : 2.75  
TOTAL DEPTH(ft-kg) : 3764                      DRILL COLLAR LENGTH(ft) : NONE  
MAIN HOLE SIZE(in) : 7 7/8                      DRILL COLLAR I.D.(in) : 2.259  
MUD WEIGHT : 10.1                      TOP PACKER DEPTH(kb) : 3708  
MUD VISCOSITY : 41                      BOTTOM PACKER DEPTH(kb) : 3713  
MUD CHLORIDES : 70000                      DUAL PACKERS : YES  
SURFACE CHOKE : 3/4                      PACKER SIZE(in) : 6 3/4  
BOTTOM CHOKE(in) : 3/4                      PACKER HOLD : Yes  
TOOL SIZE(O.D.) : 5 1/2                      TOOL PLUG : No  
TOOL JOINT SIZE(F.H.) : 4 1/2                      REVERSED OUT : No  
RESERVOIR TEMPERATURE(F) : 110                      TEST TICKET NUMBER : 8470

EXTRA EQUIPMENT :

ELEMENT SERIAL NO. : 3875  
RANGE :                      0 - 4225                      CLOCK RANGE : 12 HOURS  
CAL. EDU. : 1060.93 \* Defl. +                      4.92

SURFACE BLOW

1st Opening :                      WEAK TO FAIR-BUILT SLOWLY 6" INTO WATER  
2nd Opening :                      WEAK TO FAIR-BUILT SLOWLY 8" INTO WATER

RECOVERY

Recovered 210 feet of WATER CUT MUD

REMARKS :

WITNESSED BY :                      TOOL OPERATOR : IVAN SUPPES

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES, INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : THUNDERBIRD DRILLING  
 DATE OF TEST : 11-16-85  
 DEPTH : 3758.0

WELL NAME : CLUTTER #1  
 LOCATION : 26-20S-16W  
 SERIAL NO. : 3875

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:1					
Depth : 3758.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.918	2039.79	4.71	2044.49
-00:15 1ST FLOW	0.0	.067	76.00	-4.42	71.58
- 0:19	4.0	.062	70.70	-4.46	66.24
- 0:24	9.0	.060	68.57	-4.47	64.10
- 0:28	13.0	.060	68.57	-4.47	64.10
- 0:32	17.0	.060	68.57	-4.47	64.10
- 0:36	21.0	.061	69.64	-4.46	65.17
- 0:41	26.0	.062	70.70	-4.46	66.24
- 0:45	30.0	.064	72.82	-4.44	68.38
-00:45 END FLOW	0.0	.064	72.82	-4.44	68.38
- 0:48	3.0	.563	602.22	-.73	601.50
- 0:51	6.0	.842	898.22	1.35	899.57
- 0:54	9.0	.930	991.59	2.00	993.59
- 0:56	11.0	.982	1046.75	2.18	1048.94
- 0:59	14.0	1.013	1079.64	2.27	1081.91
- 1:02	17.0	1.037	1105.10	2.34	1107.45
- 1:05	20.0	1.057	1126.32	2.40	1128.72
- 1:08	23.0	1.070	1140.12	2.44	1142.55
- 1:11	26.0	1.080	1150.72	2.47	1153.19
- 1:14	29.0	1.089	1160.27	2.49	1162.77
- 1:16	31.0	1.095	1166.64	2.51	1169.15
- 1:19	34.0	1.100	1171.94	2.52	1174.47
- 1:22	37.0	1.105	1177.25	2.54	1179.79
- 1:25	40.0	1.109	1181.49	2.55	1184.04
- 1:28	43.0	1.109	1181.49	2.55	1184.04
-01:28 1ST SHUT-IN	0.0	1.109	1181.49	2.55	1184.04
-01:28 2ND FLOW	0.0	.102	113.13	-4.16	108.97
- 1:32	4.0	.094	104.65	-4.22	100.43
- 1:37	9.0	.094	104.65	-4.22	100.43
- 1:41	13.0	.094	104.65	-4.22	100.43
- 1:45	17.0	.094	104.65	-4.22	100.43
- 1:49	21.0	.094	104.65	-4.22	100.43
- 1:54	26.0	.096	106.77	-4.20	102.56
- 1:58	30.0	.097	107.83	-4.20	103.63
- 2:02	34.0	.103	114.19	-4.15	110.04
- 2:07	39.0	.108	119.50	-4.11	115.38
- 2:11	43.0	.112	123.74	-4.08	119.66
- 2:15	47.0	.116	127.99	-4.05	123.93
- 2:20	52.0	.120	132.23	-4.03	128.21
- 2:24	56.0	.124	136.47	-4.00	132.48

SUPERIOR TESTERS ENTERPRISES, INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : THUNDERBIRD DRILLING  
 DATE OF TEST : 11-16-85  
 DEPTH : 3758.0

WELL NAME : CLUTTER #1  
 LOCATION : 26-206-16W  
 SERIAL NO. : 3875

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:1					
- 2:25	57.0	.124	136.47	-4.00	132.48
-02:25 END FLOW	0.0	.124	136.47	-4.00	132.48
- 2:28	3.0	.575	614.95	-.64	614.32
- 2:31	6.0	.793	846.24	.98	847.22
- 2:34	9.0	.887	945.97	1.68	947.65
- 2:36	11.0	.945	1007.50	2.08	1009.57
- 2:39	14.0	.979	1043.57	2.17	1045.74
- 2:42	17.0	1.007	1073.28	2.25	1075.53
- 2:45	20.0	1.028	1095.56	2.32	1097.87
- 2:48	23.0	1.042	1110.41	2.36	1112.77
- 2:51	26.0	1.054	1123.14	2.39	1125.53
- 2:54	29.0	1.064	1133.75	2.42	1136.17
- 2:56	31.0	1.072	1142.24	2.44	1144.68
- 2:59	34.0	1.078	1148.60	2.46	1151.06
- 3:02	37.0	1.084	1154.97	2.48	1157.45
- 3:05	40.0	1.089	1160.27	2.49	1162.77
- 3:08	43.0	1.092	1163.46	2.50	1165.96
- 3:11	46.0	1.096	1167.70	2.51	1170.21
- 3:13	48.0	1.097	1168.76	2.52	1171.28
-03:13 2ND SHUT-IN	0.0	1.097	1168.76	2.52	1171.28
-2ND HYDROSTATIC	0.0	1.905	2025.99	4.73	2030.72

SUPERIOR TESTERS ENTERPRISES, INC.

DATA SUMMARY

COMPANY : THUNDERBIRD DRILLING  
DATE OF TEST : 11-16-85

WELL NAME : CLUTTER #1  
LOCATION : 26-20S-16W

RECOVERY INFORMATION

LIQUID RECOVERY

Total Fluid Recovered : 210

Recovered 210 feet of WATER CUT MUD

GAS RECOVERY

Measured With :

Riser :

Time (min.)

(

Reading

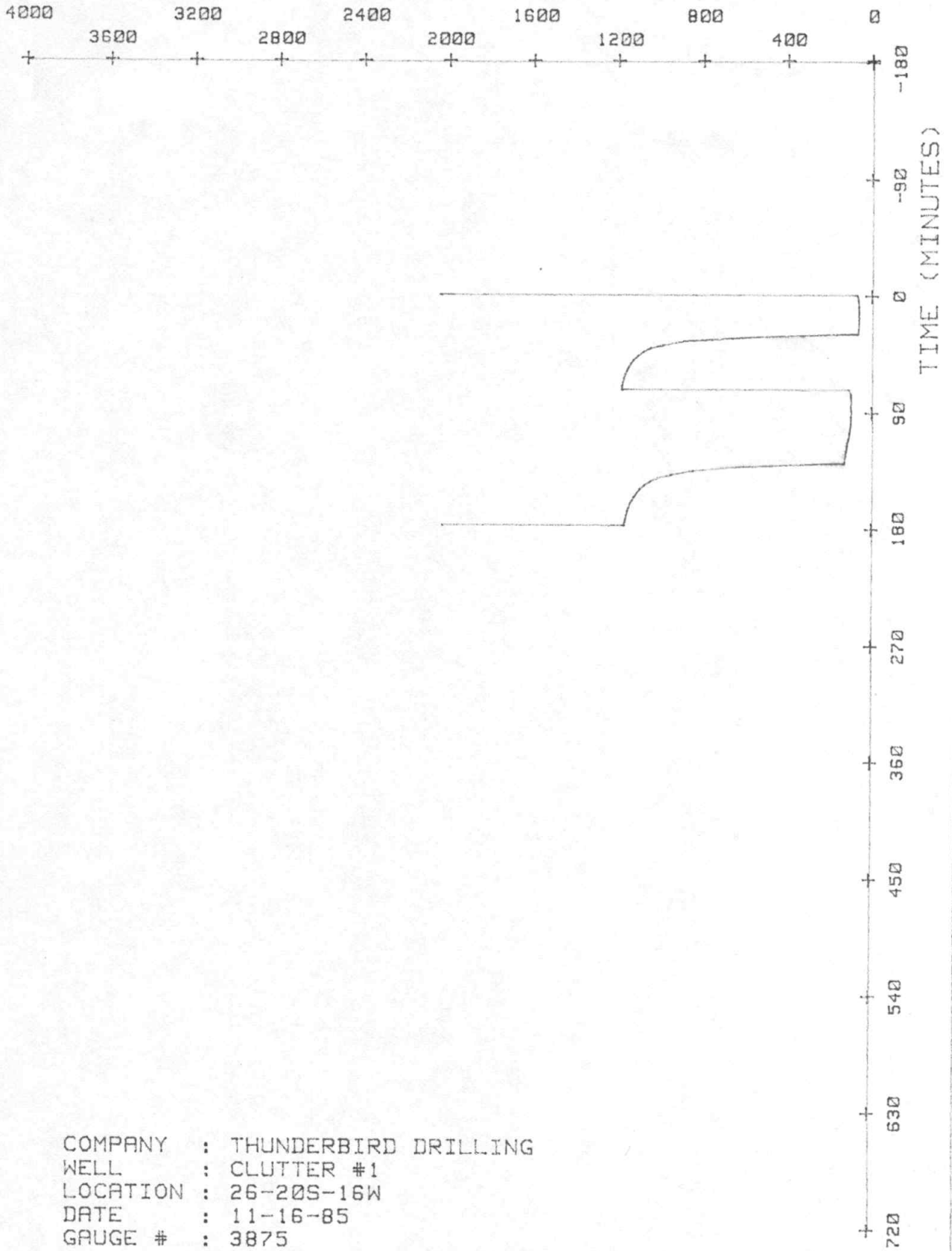
) Surface Choke (in.)

Cubic feet/day

FLUID PROPERTIES

	Viscosity (cp)	Compressibility (psi <sup>-1</sup> )	Fore Space Saturation
Oil			
Gas			
Water			

PRESSURE ( P S I G )

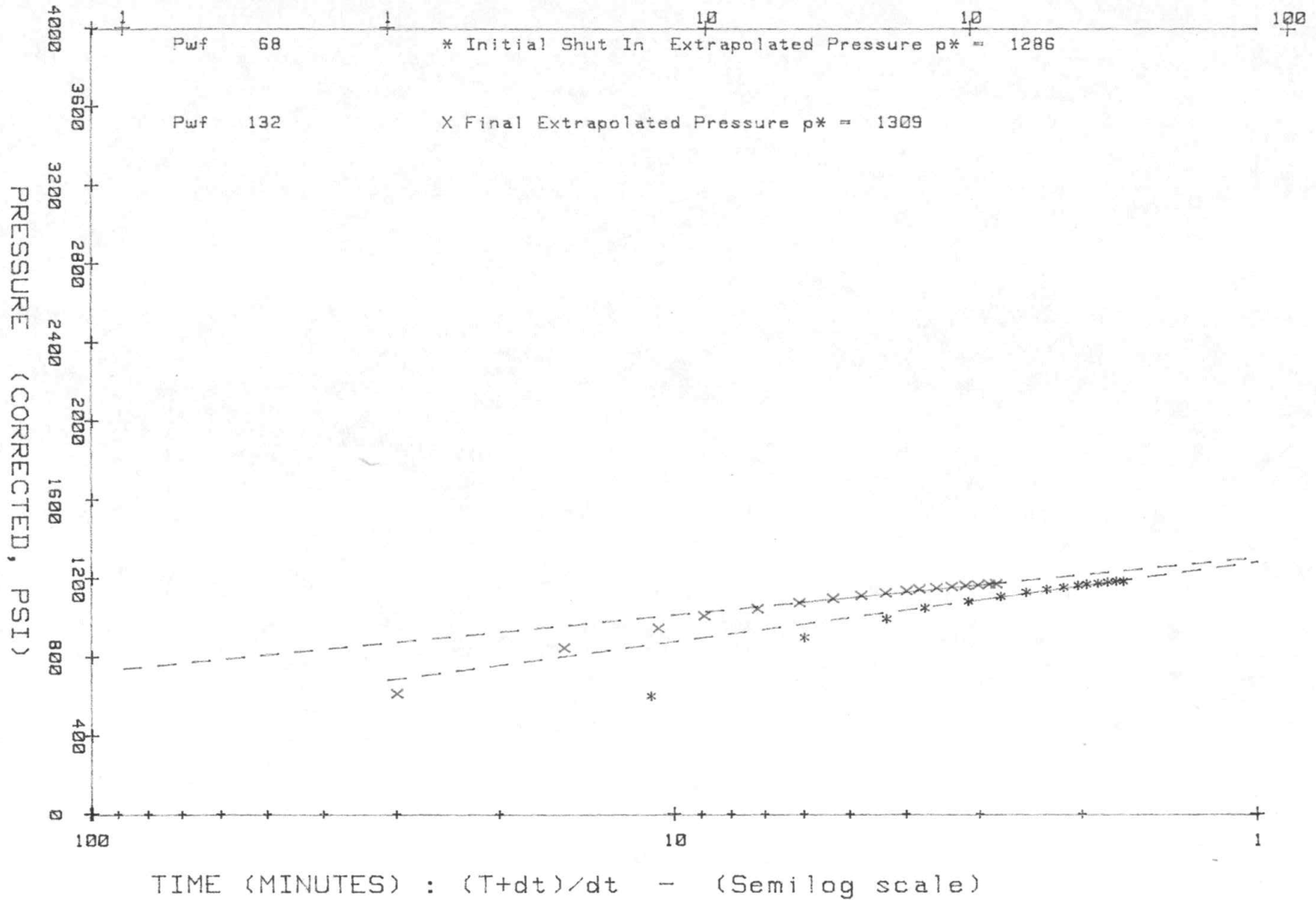


COMPANY : THUNDERBIRD DRILLING  
WELL : CLUTTER #1  
LOCATION : 26-20S-16W  
DATE : 11-16-85  
GAUGE # : 3875

LOCATION : 26-20S-16W

DATE : 11-16-85

GAUGE # : 3875



SUPERIOR TESTERS ENTERPRISES, INC.

HORNER ANALYSIS

COMPANY : THUNDERBIRD DRILLING  
 WELL NAME : CLUTTER #1  
 LOCATION : 26-20S-16W  
 STATE & COUNTY : KANSAS, PAWNEE  
 DATE OF TEST : 11-16-85  
 TEST INT. KB : 3713 to 3764  
 TOTAL INTERVAL (ft) K.B. : 51.00  
 ELEV. (GR) : (KB) :  
 FIELD :

ELEMENT SERIAL NO. : 3875  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG
Refer. depth :	3758.0 ft-kb		
-00:45 END FLOW	0.00	0.00	68.38
	3.00	11.00	601.50
	6.00	6.00	899.57
	9.00	4.33	993.59
	11.00	3.73	1049.15
	14.00	3.14	1082.26
	17.00	2.76	1107.91
	20.00	2.50	1129.27
	23.00	2.30	1143.16
	26.00	2.15	1153.85
	29.00	2.03	1163.46
	31.00	1.97	1169.87
	34.00	1.88	1175.21
	37.00	1.81	1180.56
	40.00	1.75	1184.83
	43.00	1.70	1184.83
-01:28 1ST SHUT-IN	0.00	0.00	1184.83

INTERPRETATION BY : SUPERIOR TESTERS INC.

SUPERIOR TESTERS ENTERPRISES, INC.

DATA SUMMARY

COMPANY : THUNDERBIRD DRILLING      WELL NAME : CLUTTER #1  
DATE OF TEST : 11-16-85              LOCATION : 26-20S-16W  
DST. NO : 1                              SHUT-IN PERIOD : 1

INTERPRETIVE DATA              (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	1286.00
Slope of Build-up Curve (psi/log cycle): .....	402.80
Effective Producing Time (min): .....	30.00

INTERPRETATION BY : SUPERIOR TESTERS INC.

SUPERIOR TESTERS ENTERPRISES, INC.

HORNER ANALYSIS

COMPANY : THUNDERBIRD DRILLING  
 WELL NAME : CLUTTER #1  
 LOCATION : 26-20S-16W  
 STATE & COUNTY : KANSAS, PAWNEE  
 DATE OF TEST : 11-16-85  
 TEST INT. KB : 3713 to 3764  
 TOTAL INTERVAL (ft) K.B. : 51.00  
 ELEV.(GR) : (KB) :  
 FIELD :

ELEMENT SERIAL NO. : 3875  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG	-----
Refer. depth :	3758.0 ft-kb			
-02:25 END FLOW	0.00	0.00	132.48	
	3.00	30.00	614.32	
	6.00	15.50	847.22	
	9.00	10.67	947.65	
	11.00	8.91	1009.62	
	14.00	7.21	1045.94	
	17.00	6.12	1075.85	
	20.00	5.35	1098.29	
	23.00	4.78	1113.25	
	26.00	4.35	1126.07	
	29.00	4.00	1136.75	
	31.00	3.81	1145.30	
	34.00	3.56	1151.71	
	37.00	3.35	1158.12	
	40.00	3.18	1163.46	
	43.00	3.02	1166.67	
	46.00	2.89	1170.94	
	48.00	2.81	1172.01	
-03:13 2ND SHUT-IN	0.00	0.00	1172.01	

INTERPRETATION BY : SUPERIOR TESTERS INC.

SUPERIOR TESTERS ENTERPRISES, INC.

DATA SUMMARY

COMPANY : THUNDERBIRD DRILLING                      WELL NAME : CLUTTER #1  
DATE OF TEST : 11-16-85                              LOCATION : 26-20S-16W  
DST. NO : 1    SHUT-IN PERIOD : 2

INTERPRETIVE DATA                      (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 1309.00  
Slope of Build-up Curve (psi/log cycle): ..... 290.22  
Effective Producing Time (min): ..... 87.00

INTERPRETATION BY : SUPERIOR TESTERS INC.

## DATA SUMMARY

COMPANY : THUNDERBIRD DRILLING                      WELL NAME : CLUTTER #1  
 DATE OF TEST : 11-16-85                              LOCATION : 26-20S-16W  
 DST. NO : 1    SHUT-IN PERIOD : 2

## INTERPRETIVE DATA                      (OIL)

## TRANSMISSIBILITY

Oil (md.ft/cp): ..... 0.00  
 Gas (md.ft/cp): ..... 0.00

## EFFECTIVE PERMEABILITY

Oil (md): ..... 0.00  
 Gas (md): ..... 0.00

TOTAL MOBILITY (md/cp): ..... 0.00

TOTAL COMPRESSIBILITY (psi<sup>-1</sup>): ..... 0.00E+00

ESTIMATED DAMAGE RATIO: ..... .88

CALCULATED DAMAGE RATIO: ..... 0.00

Reservoir Temperature (F): ..... 110.00

Formation Porosity : ..... 0.00

Formation Thickness (ft): ..... 10.00

Wellbore Radius (in): ..... 3.94

Reservoir Compressibility (psi<sup>-1</sup>): ..... 0.00E+00

Calculated Skin Factor : ..... 0.00

PRODUCTION WITH DAMAGE REMOVED (bbl/D): ..... 0.00

PRODUCTIVITY INDEX (bbl/psi): ..... 0.00

Final Flow Pressure (psi): ..... 132.48

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 0.00

Total Flowing Time (min): ..... 87.00

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 1309.00

Slope of Build-up Curve (psi/log cycle): ..... 290.22

Effective Producing Time (min): ..... 87.00

INTERPRETATION BY : SUPERIOR TESTERS INC.