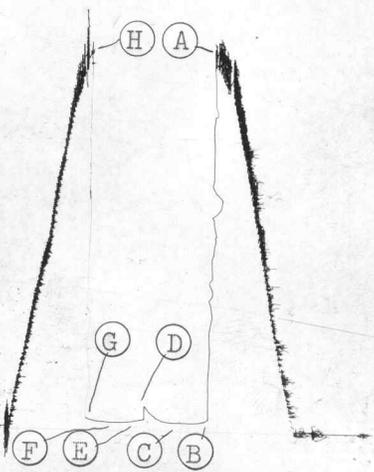
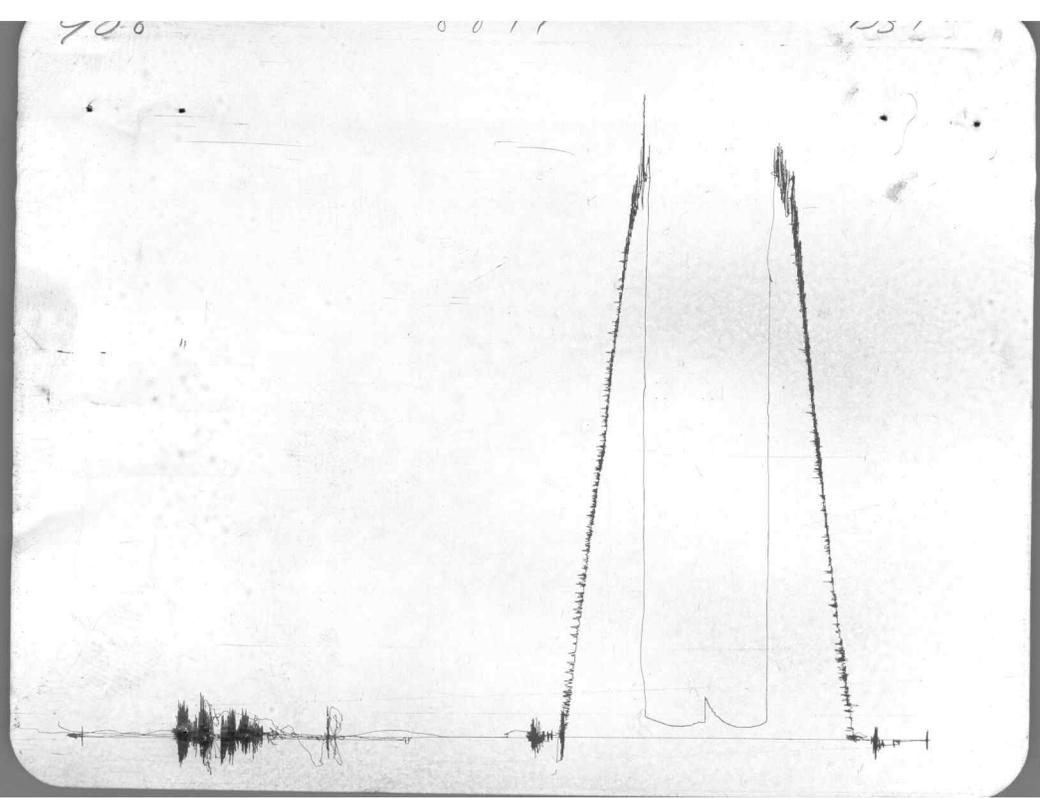


1087

1087

D.S.T. 4



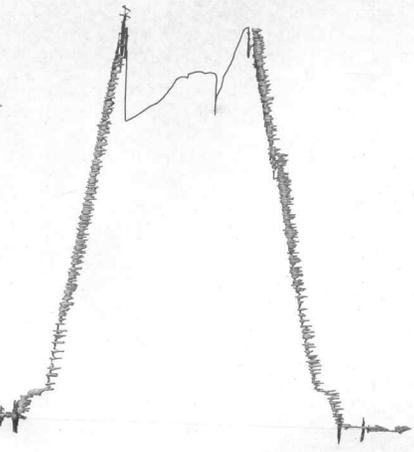


10460

V.S.P.

11088

LOWER
BLANKED-OFF
RECORDER



SUPERIOR TESTERS ENTERPRISES INC.

WELL IDENTIFICATION DATA

COMPANY : THUNDERBIRD DRILLING INC. WELL NAME : WILLSON "F" #1
ADDRESS : P.O. BOX 780407, WICHITA LOCATION : NW-SW-SE 23-17-19
STATE & COUNTY : KANSAS, RUSH FIELD :
ELEV. (GR) : 2159 (KB) : 2164 TEST DATE : 9-10-1987

EQUIPMENT AND HOLE DATA

FORMATION TESTED : ARBUCKLE DRILL PIPE LENGTH(ft) : 3090
TEST INT. KB : 3856 to 3903 DRILL PIPE O.D.(in) : 3.82
ANCHOR LENGTH(ft) : 47 WEIGHT PIPE LENGTH(ft) : 744
TYPE OF TEST : Conventional WEIGHT PIPE ID : 2.75
TOTAL DEPTH(ft-kg) : 3936 DRILL COLLAR LENGTH(ft) :
MAIN HOLE SIZE(in) : 7 7/8 DRILL COLLAR I.D.(in) : 2.259
MUD WEIGHT : 10.1+ TOP PACKER DEPTH(kb) : 3851 & 3856
MUD VISCOSITY : 48 BOTTOM PACKER DEPTH(kb) : 3903
MUD CHLORIDES : 64000 DUAL PACKERS :
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) : 111 TEST TICKET NUMBER : 10459

EXTRA EQUIPMENT : -EXTRA PACKER
-STRADDLE

ELEMENT SERIAL NO. : 11087
RANGE : 0 - 4350 CLOCK RANGE : 12 HOURS
CAL. EQU. : 1094.24 * Defl. + 5.06

SURFACE BLOW

1st Opening : WEAK BLOW FOR 6 MIN. AND DIED
2nd Opening : NO BLOW

RECOVERY

Recovered 5 feet of MUD

REMARKS :

WITNESSED BY : STEVE PARKER TOOL OPERATOR : GENE BUDIG

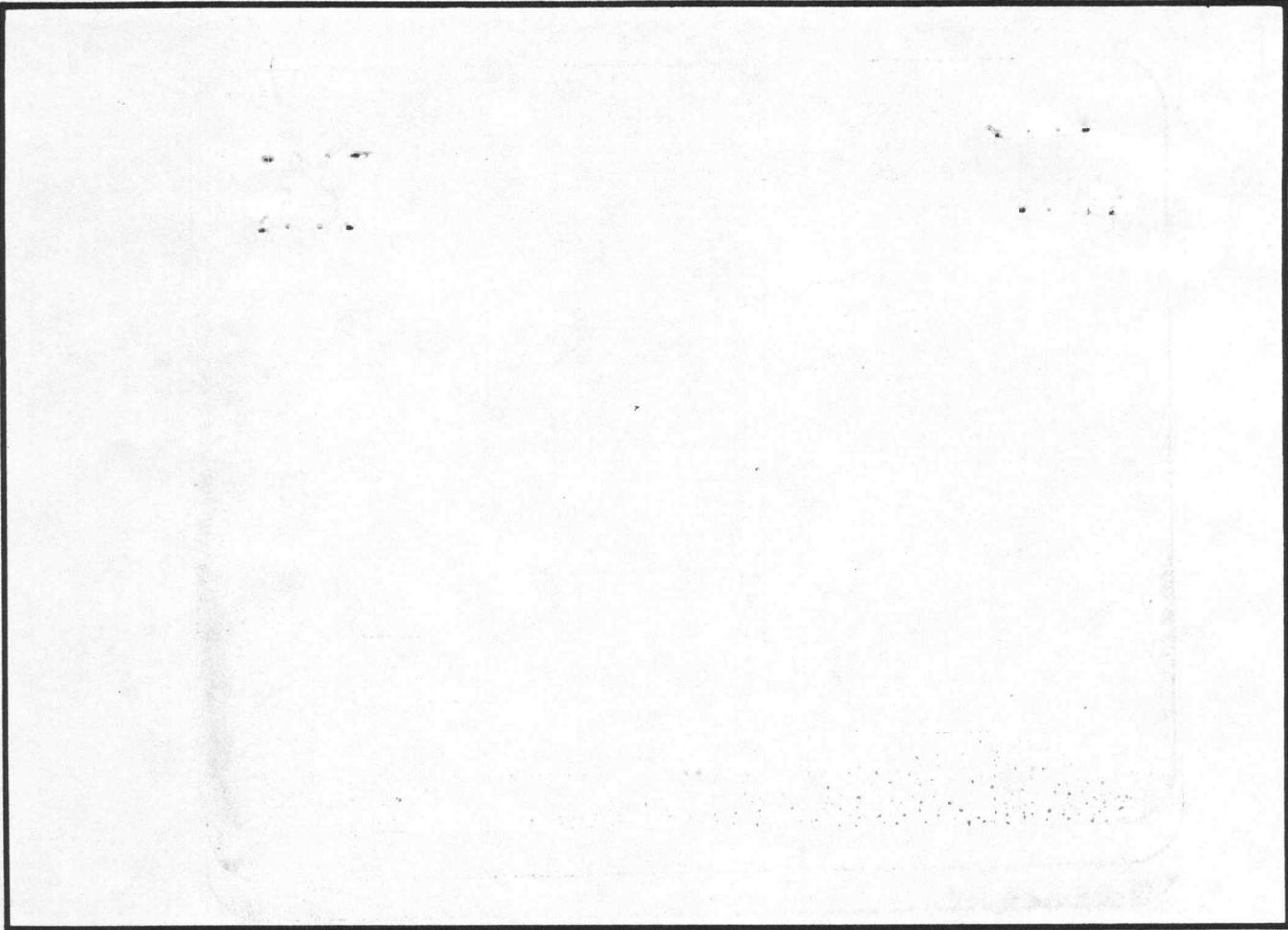
INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : THUNDERBIRD DRILLING INC. WELL NAME : WILLSON "F" #1
 DATE OF TEST : 9-10-1987 LOCATION : NW-SW-SE 23-17-19
 DEPTH : 3860.0 SERIAL NO. : 11087

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:1					
Depth : 3860.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.971	2161.80	5.23	2167.03
-3:00 1ST FLOW	0.0	.064	75.09	-4.61	70.48
- 3:05	5.0	.048	57.58	-4.72	52.86
- 3:10	10.0	.044	53.21	-4.75	48.46
- 3:15	15.0	.044	53.21	-4.75	48.46
-3:15 END FLOW	0.0	.044	53.21	-4.75	48.46
- 3:20	5.0	.044	53.21	-4.75	48.46
- 3:25	10.0	.045	54.30	-4.74	49.56
- 3:30	15.0	.047	56.49	-4.73	51.76
- 3:35	20.0	.054	64.15	-4.68	59.47
- 3:40	25.0	.076	88.22	-4.52	83.70
- 3:45	30.0	.111	126.52	-4.27	122.25
- 3:47	32.0	.129	146.22	-4.15	142.07
-3:47 1ST SHUT-IN	0.0	.129	146.22	-4.15	142.07
-3:47 2ND FLOW	0.0	.056	66.34	-4.66	61.67
- 3:52	5.0	.054	64.15	-4.68	59.47
- 3:57	10.0	.047	56.49	-4.73	51.76
- 4:02	15.0	.044	53.21	-4.75	48.46
-4:02 END FLOW	0.0	.044	53.21	-4.75	48.46
- 4:07	5.0	.044	53.21	-4.75	48.46
- 4:12	10.0	.044	53.21	-4.75	48.46
- 4:17	15.0	.045	54.30	-4.74	49.56
- 4:22	20.0	.049	58.68	-4.71	53.96
- 4:27	25.0	.056	66.34	-4.66	61.67
- 4:30	28.0	.065	76.19	-4.60	71.59
-4:30 2ND SHUT-IN	0.0	.065	76.19	-4.60	71.59
- 4:30	0.0	1.960	2149.77	5.26	2155.02
-2ND HYDROSTATIC	0.0	1.959	2148.67	5.26	2153.93



POINT	PRESSURE		
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	<u>2176</u>	<u>2167</u>	P.S.I.
(B) First Initial Flow Pressure	<u>44</u>	<u>70</u>	P.S.I.
(C) First Final Flow Pressure	<u>44</u>	<u>48</u>	P.S.I.
(D) Initial Closed-in Pressure	<u>121</u>	<u>142</u>	P.S.I.
(E) Second Initial Flow Pressure	<u>44</u>	<u>61</u>	P.S.I.
(F) Second Final Flow Pressure	<u>44</u>	<u>48</u>	P.S.I.
(G) Final Closed-in Pressure	<u>66</u>	<u>71</u>	P.S.I.
(H) Final Hydrostatic Mud	<u>2209</u>	<u>2153</u>	P.S.I.

Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

Date September 10-1987 Location NW-SW-SE 23-17-19 Elevation 2164 K.B. County Rush

Company Thunderbird Drilling Inc. Number of Copies 5

Charts Mailed to P.O. Box 780407 Wichita Kansas 67278

Drilling Contractor Drilling Oil Inc.

Length Drill Pipe 3090 I.D. Drill Pipe 3.80 Tool Joint Size 4 1/2" F.H.

Length Weight Pipe 744 I.D. Weight Pipe 2.75 Tool Joint Size 4 1/2" F.H.

Length Drill Collars NONE I.D. Drill Collars NONE Tool Joint Size NONE

Top Packer Depth 3851 & 3856 Bottom Packer Depth 3903 Number of Packers 3 Packer Size 634

TESTED FROM 3856 TO 3903 ANCHOR LENGTH 47 TOTAL DEPTH 3936 Hole Size 7 1/8

LEASE & WELL NO. Wilson "F" #1 FORMATION TESTED Arbuckle TEST NO. 1

Mud Weight 10.4 Viscosity 48 Water Loss 10.4 Chlorides - Pits 64000 D.S.T. _____

Maximum Temp. 111 °F Initial Hydrostatic Pressure (A) 2176 P.S.I. Final Hydrostatic Pressure (H) 2209 P.S.I.

Tool Open I.F.P. from 3:00 A.M. to 3:15 A.M. 15 min

Tool Closed I.C.I.P. from 3:15 A.M. to 3:45 A.M. 30 min

Tool Open F.F.P. from 3:45 A.M. to 4:00 A.M. 15 min

Tool Closed F.C.I.P. from 4:00 A.M. to 4:30 A.M. 30 min

Initial Blow WEAK blow for 6 min. & died

Final Blow no blow

Total Feet Recovered 5

Feet of	Gravity of Oil	Corrected	% Gas	% Oil	% Mud	% Water
<u>5</u> Feet of <u>mud</u>						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						
_____ Feet of _____						

from [B] 44 P.S.I. to [C] 44 P.S.I.
[D] 121 P.S.I.
from [E] 44 P.S.I. to [F] 44 P.S.I.
[G] 66 P.S.I.

Remarks _____

Extra Equipment - Jars NONE Safety Joint NONE Extra Packer 3rd 150.00 Straddle 9200.00 Hook Wall NONE

Top Recorder No. 11087 Clock No. 47441 Depth 3860 Cir. Sub NONE Sampler NONE

Bottom Recorder No. 11088 Clock No. 47442 Depth 3933 Insurance NONE

Price of Job 9785.00 + 750.00

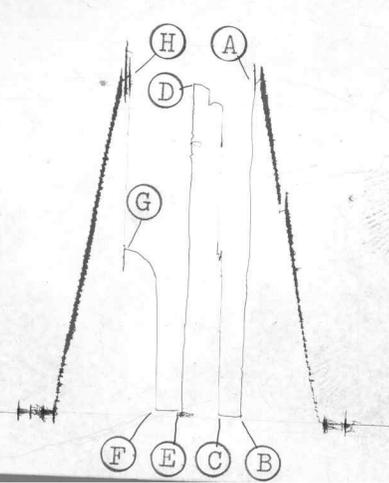
Tool Operator Hene Rudin

Approved By Steve O. Parker

NO 10459

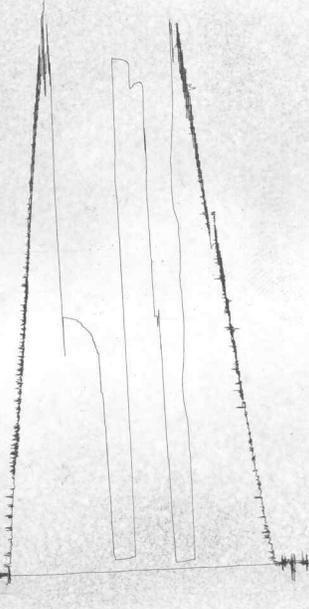
Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to the property or personnel of the one for whom a test is made, of for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

11087



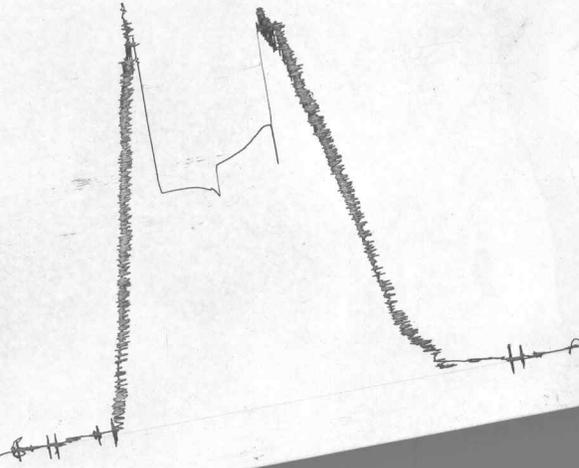
906

D-5.7



10454

11088



SUPERIOR TESTERS ENTERPRISES INC.

WELL IDENTIFICATION DATA

COMPANY : THUNDERBIRD DRILLING INC. WELL NAME : WILLSON "F" #1
ADDRESS : P.O. BOX 780407, WICHITA LOCATION : NW-SW-SE 23-17-19
STATE & COUNTY : KANSAS, RUSH FIELD :
ELEV. (GR) : 2159 (KB) : 2164 TEST DATE : 9-10-1987

EQUIPMENT AND HOLE DATA

FORMATION TESTED : KANSAS CITY DRILL PIPE LENGTH(ft) : 3051
TEST INT. KB : 3534 to 3564 DRILL PIPE O.D. (in) : 3.82
ANCHOR LENGTH(ft) : 30 WEIGHT PIPE LENGTH(ft) : 462
TYPE OF TEST : Conventional WEIGHT PIPE ID : 2.75
TOTAL DEPTH(ft-kb) : 3936 DRILL COLLAR LENGTH(ft) :
MAIN HOLE SIZE(in) : 7 7/8 DRILL COLLAR I.D. (in) : 2.259
MUD WEIGHT : 10.1+ TOP PACKER DEPTH(kb) : 3529 & 3534
MUD VISCOSITY : 48 BOTTOM PACKER DEPTH(kb) : 3564
MUD CHLORIDES : 64000 DUAL PACKERS : THREE
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) : 107 TEST TICKET NUMBER : 10460

EXTRA EQUIPMENT : -EXTRA PACKER
-STRADDLE

ELEMENT SERIAL NO. : 11087
RANGE : 0 - 4350 CLOCK RANGE : 12 HOURS
CAL. EQU. : 1094.24 * Defl. + 5.06

SURFACE BLOW

1st Opening : WEAK BLOW DIED IN 5 MIN.
2nd Opening : NO BLOW

RECOVERY

Recovered 10 feet of MUD

REMARKS :

TOOL SLID DURING 1ST SHUT-IN INVALID SHUT-IN PRESSURE

WITNESSED BY : STEVE PARKER TOOL OPERATOR : GENE BUDIG

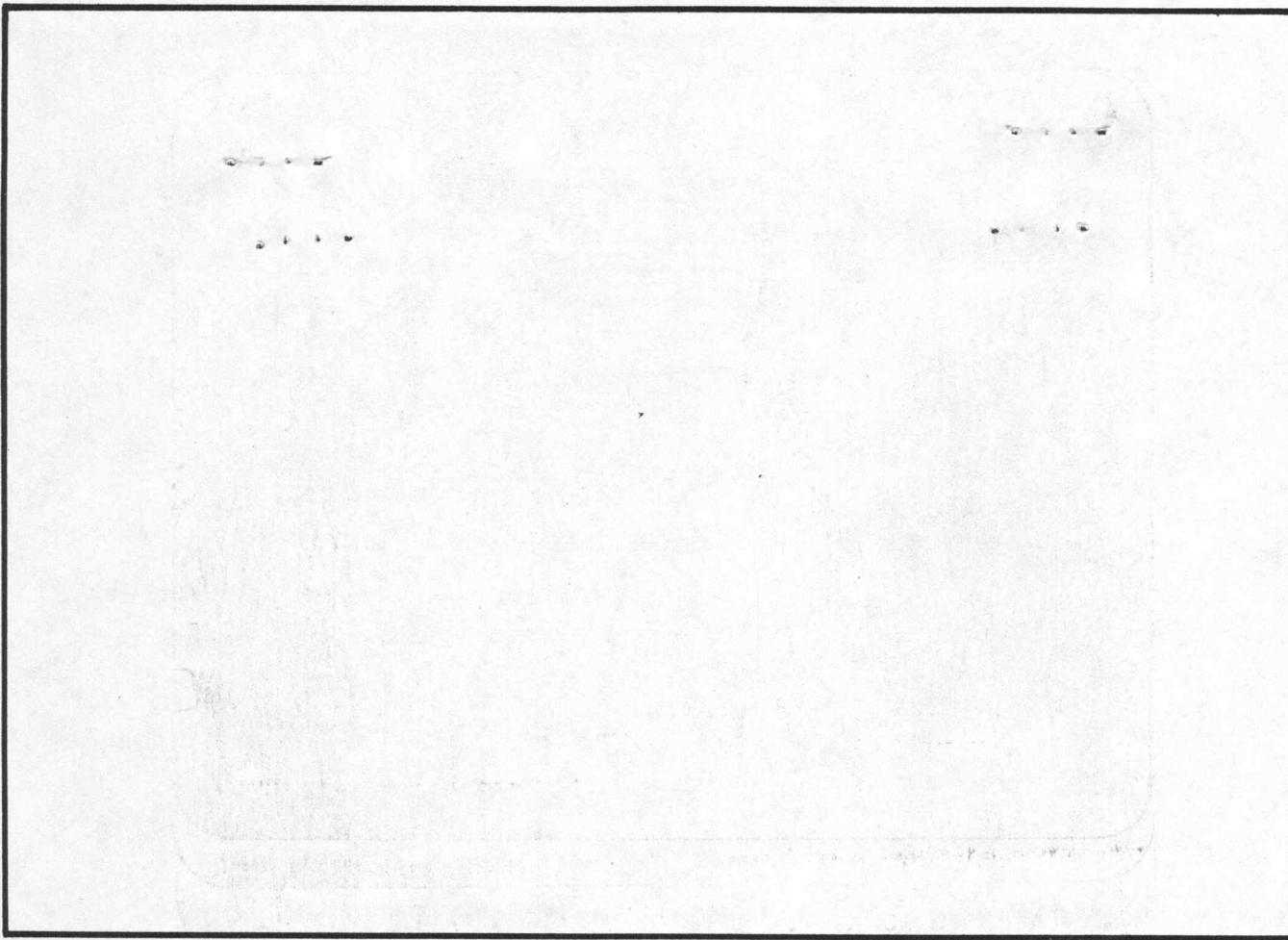
INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : THUNDERBIRD DRILLING INC. WELL NAME : WILLSON "F" #1
 DATE OF TEST : 9-10-1987 LOCATION : NW-SW-SE 23-17-19
 DEPTH : 3539.0 SERIAL NO. : 11087

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			CALC	CORR	CORRECTED
TEST NO.:2					
Depth : 3539.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.765	1936.39	5.37	1941.76
-7:15 1ST FLOW	0.0	.010	16.00	-4.99	11.01
- 7:20	5.0	.012	18.19	-4.98	13.22
- 7:25	10.0	.012	18.19	-4.98	13.22
- 7:31	16.0	.016	22.57	-4.95	17.62
-7:31 END FLOW	0.0	.016	22.57	-4.95	17.62
-2ND FLOW	27.1	.032	40.08	-4.83	35.24
- 8:03	32.0	.032	40.08	-4.83	35.24
- 8:08	37.0	.032	40.08	-4.83	35.24
- 8:13	42.0	.032	40.08	-4.83	35.24
- 8:17	46.0	.032	40.08	-4.83	35.24
-8:17 END FLOW	0.0	.032	40.08	-4.83	35.24
- 8:20	3.0	.621	684.58	-.66	683.92
- 8:23	6.0	.758	834.49	.31	834.80
- 8:26	9.0	.797	877.17	.59	877.75
- 8:29	12.0	.816	897.96	.72	898.68
- 8:32	15.0	.832	915.47	.83	916.30
- 8:35	18.0	.850	935.16	.96	936.12
- 8:38	21.0	.861	947.20	1.04	948.24
- 8:41	24.0	.865	951.58	1.07	952.64
- 8:43	26.0	.869	955.95	1.10	957.05
- 8:45	28.0	.872	959.24	1.12	960.35
-8:45 2ND SHUT-IN	0.0	.872	959.24	1.12	960.35
-2ND HYDROSTATIC	0.0	1.750	1919.98	5.30	1925.27



POINT	PRESSURE		
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	<u>1957</u>	<u>1941</u>	P.S.I.
(B) First Initial Flow Pressure	<u>22</u>	<u>11</u>	P.S.I.
(C) First Final Flow Pressure	<u>22</u>	<u>17</u>	P.S.I.
(D) Initial Closed-in Pressure	<u>INVALID</u>		P.S.I.
(E) Second Initial Flow Pressure	<u>33</u>	<u>35</u>	P.S.I.
(F) Second Final Flow Pressure	<u>33</u>	<u>35</u>	P.S.I.
(G) Final Closed-in Pressure	<u>958</u>	<u>952</u>	P.S.I.
(H) Final Hydrostatic Mud	<u>1924</u>	<u>1925</u>	P.S.I.

Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

Date September 10-1987 Location NW-SW-SE 23-17-19 Elevation 2164.8 County Rush

Company Thunderbird Drilling Inc. Number of Copies 5

Charts Mailed to P.O. Box 780407 Wichita Kansas 67278

Drilling Contractor Drilling Oil Inc.

Length Drill Pipe 3051 I.D. Drill Pipe 3.80 Tool Joint Size 4 1/2" F.H.

Length Weight Pipe 462 I.D. Weight Pipe 2.75 Tool Joint Size 4 1/2" F.H.

Length Drill Collars NONE I.D. Drill Collars NONE Tool Joint Size NONE

Top Packer Depth 3529 & 3534 Bottom Packer Depth 3564 Number of Packers 3 Packer Size 6 3/4

TESTED FROM 3534 TO 3564 ANCHOR LENGTH 30 TOTAL DEPTH 3936 Hole Size 7 7/8

LEASE & WELL NO. Wilson "F" #1 FORMATION TESTED KANSAS CITY TEST NO. 2

Mud Weight 10.4 Viscosity 48 Water Loss 10.4 Chlorides - Pits 64000 D.S.T. _____

Maximum Temp. 107 °F Initial Hydrostatic Pressure (A) 1957 P.S.I. Final Hydrostatic Pressure (H) 1924 P.S.I.

Tool Open I.F.P. from 7:15 A m to 7:30 A m 15 min

Tool Closed I.C.I.P. from 7:30 A m to 8:00 A m 30 min

Tool Open F.F.P. from 8:00 A m to 8:15 A m 15 min

Tool Closed F.C.I.P. from 8:15 A m to 8:45 A m 30 min

Initial Blow WEAK blow died in 5 min.

Final Blow no blow

Total Feet Recovered 10 Gravity of Oil _____ Corrected _____

Feet of	% Gas	% Oil	% Mud	% Water
<u>10</u> Feet of <u>MUD</u>				
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water
_____ Feet of _____	% Gas	% Oil	% Mud	% Water

from [B] 22 P.S.I. to [C] 22 P.S.I.
[D] SEE REMARKS P.S.I.
from [E] 33 P.S.I. to [F] 33 P.S.I.
[G] 958 P.S.I.

Remarks Tool slid during 1st shut-in Invalid shut-in pressure

Extra Equipment - Jars NONE Safety Joint NONE Extra Packer 3rd \$150.00 Straddle \$200.00 Hook Wall NONE

Top Recorder No. 11087 Clock No. 47441 Depth 3539 Cir. Sub NONE Sampler NONE

Bottom Recorder No. 11088 Clock No. 47442 Depth 3933 Insurance NONE

Price of Job \$750.00

Tool Operator Kene Budig

Approved By [Signature]

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No 10460