

# Superior Testers Enterprises, Inc.

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

(316) 792-6902

Date 2 28 88 Location 31 19 10 Elevation 1269' County Rice

Company TOM KAT LTD Number of Copies 5

Charts Mailed to PO Box 1477 Great Bend, KS 67530

Drilling Contractor DVIRF Drilling

Length Drill Pipe 2103 I.D. Drill Pipe 380 Tool Joint Size 4 3/4"

Length Weight Pipe 745 I.D. Weight Pipe 275 Tool Joint Size 4 1/2"

Length Drill Collars - I.D. Drill Collars - Tool Joint Size -

Top Packer Depth 2842 Bottom Packer Depth 2848 Number of Packers Four Packer Size 8

TESTED FROM 2848 TO 3010 ANCHOR LENGTH 162 TOTAL DEPTH 3010 Hole Size 8 1/2"

LEASE & WELL NO. D. Knop #2 FORMATION TESTED Marion to Dayton TEST NO. 2

Mud Weight 93 Viscosity 46 Water Loss 26 Chlorides - Pits None D.S.T. -

Maximum Temp. 109 °F Initial Hydrostatic Pressure (A) 1481 P.S.I. Final Hydrostatic Pressure (H) 1472 P.S.I.

Tool Open I.F.P. from 400 m to 430 m 30 min

Tool Closed I.C.I.P. from 430 m to 530 m 60 min

Tool Open F.F.P. from 530 m to 600 m 30 min

Tool Closed F.C.I.P. from 600 m to 700 m 60 min

Initial Blow Four builds during 20 min test

Final Blow Bottom of Slug 5"

Total Feet Recovered 720' Gas Imp 180' Oil cut mud Gravity of Oil - Corrected -

60 Feet of Slightly gas oil cut mud 2 % Gas 2 % Oil 96 % Mud 0 % Water

60 Feet of oil & gas cut mud 19 % Gas 32 % Oil 45 % Mud 4 % Water

60 Feet of oil & gas cut mud 9 % Gas 24 % Oil 70 % Mud 9 % Water

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

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Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

Remarks \_\_\_\_\_

Extra Equipment - Jars - Safety Joint - Extra Packer - Straddle - Hook Wall -

Top Recorder No. 5465 Clock No. 2793 Depth 3010 Cir. Sub - Sampler -

Bottom Recorder No. 13208 Clock No. 12038 Depth 3010 Insurance -

Price of Job \_\_\_\_\_

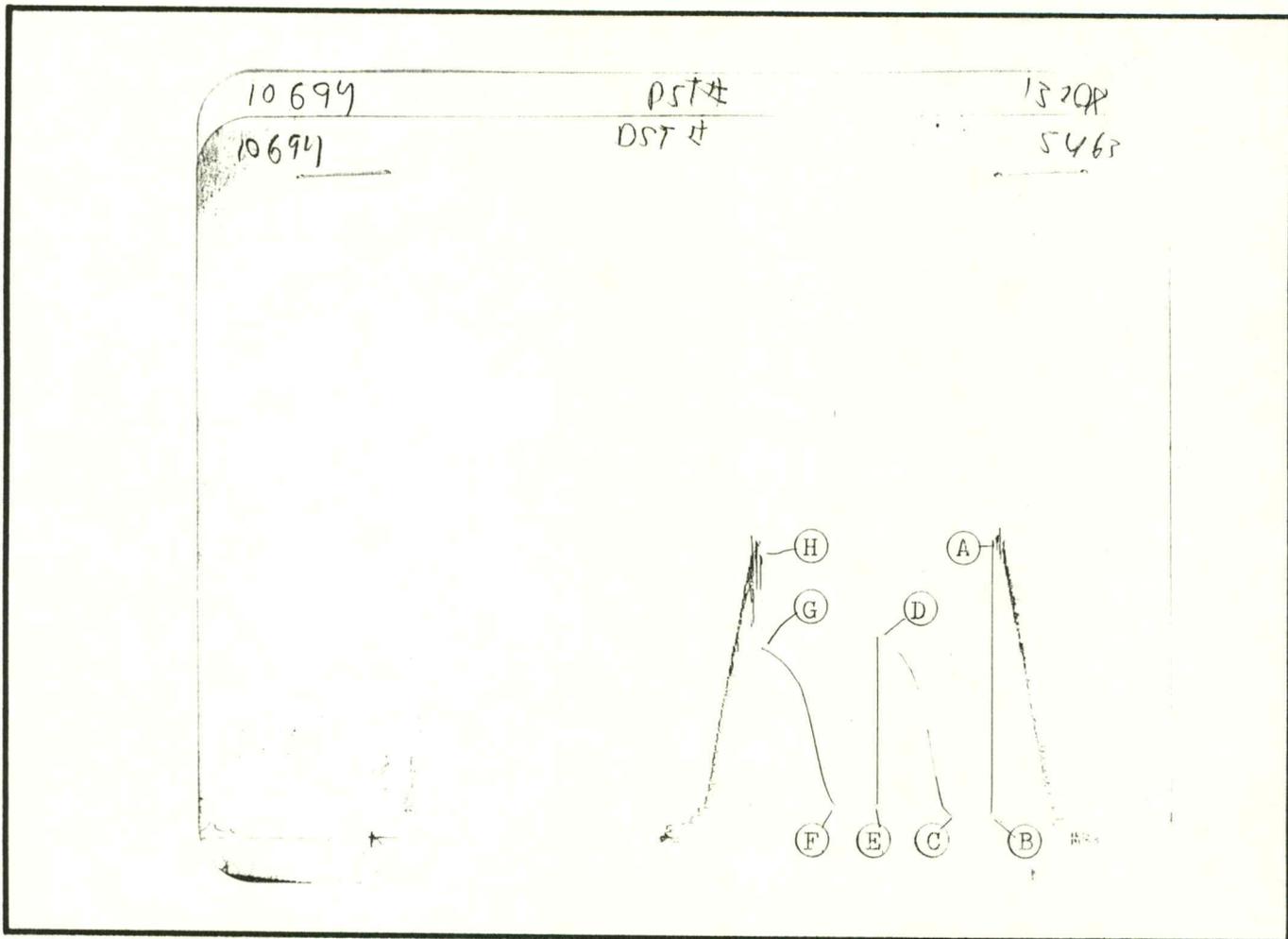
Tool Operator PAUL STEVENSON

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

**№ 10694**

from [B] 129 P.S.I. to [C] 119 P.S.I.  
 [D] 1007 P.S.I.  
 from [E] 166 P.S.I. to [F] 156 P.S.I.  
 [G] 952 P.S.I.

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, or 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.



This is an actual photograph of recorder chart.

POINT	PRESSURE		P.S.I.
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	<u>1481</u>	<u>1475</u>	P.S.I.
(B) First Initial Flow Pressure .....	<u>129</u>	<u>130</u>	P.S.I.
(C) First Final Flow Pressure .....	<u>119</u>	<u>114</u>	P.S.I.
(D) Initial Closed-in Pressure .....	<u>1007</u>	<u>1007</u>	P.S.I.
(E) Second Initial Flow Pressure .....	<u>166</u>	<u>171</u>	P.S.I.
(F) Second Final Flow Pressure .....	<u>156</u>	<u>159</u>	P.S.I.
(G) Final Closed-in Pressure .....	<u>952</u>	<u>947</u>	P.S.I.
(H) Final Hydrostatic Mud .....	<u>1472</u>	<u>1467</u>	P.S.I.

SUPERIOR TESTERS ENTERPRISES INC.

WELL IDENTIFICATION DATA

COMPANY : TOMKAT LTD WELL NAME : D. KNOP#2  
ADDRESS : P.O.BOX 1477 GREAT BEND LOCATION : 31-19-10  
STATE & COUNTY : KANSAS,RICE FIELD :  
ELEV.(GR) : 1764 (KB) : 1769 TEST DATE : 2-28-1988

EQUIPMENT AND HOLE DATA

FORMATION TESTED : TORONTO & DOUGLAS DRILL PIPE LENGTH(ft) : 2103  
TEST INT. KB : 2848 to 3010 DRILL PIPE O.D.(in) : 3.82  
ANCHOR LENGTH(ft) : 162 WEIGHT PIPE LENGTH(ft) : 745  
TYPE OF TEST : Conventional WEIGHT PIPE ID : 2.75  
TOTAL DEPTH(ft-kg) : 3010 DRILL COLLAR LENGTH(ft) :  
MAIN HOLE SIZE(in) : 7 7/8 DRILL COLLAR I.D.(in) : 2.259  
MUD WEIGHT : 9.3 TOP PACKER DEPTH(kb) : 2842  
MUD VISCOSITY : 46 BOTTOM PACKER DEPTH(kb) : 2848  
MUD CHLORIDES : 4000 DUAL PACKERS :  
SURFACE CHOKE : 3/4 PACKER SIZE(in) : 8 1/4  
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) : 109 TEST TICKET NUMBER : 10694

EXTRA EQUIPMENT :

ELEMENT SERIAL NO. : 5463  
RANGE : 0 - 3650 CLOCK RANGE : 12 HOURS  
CAL. EQU. : 922.07 \* Defl. - 2.47

SURFACE BLOW

1st Opening : FAIR BLOW-BOTTOM OF THE BUCKET IN 2 MIN.  
2nd Opening : FAIR BLOW-BOTTOM OF THE BUCKET IN 5 MIN.

RECOVERY

Recovered 720 feet of GAS IN THE PIPE  
Recovered 180 feet of OIL CUT MUD

REMARKS :

WITNESSED BY : DAN DEBOER

TOOL OPERATOR : PAT STEVENSON

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

# SUPERIOR TESTERS ENTERPRISES INC.

## SUBSURFACE PRESSURE MEASUREMENTS

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COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-28-1988  
 DEPTH : 3004.0

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SERIAL NO. : 5463

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.: 2					
Depth : 3004.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.605	1477.46	-2.36	1475.09
-4:00 1ST FLOW	0.0	.142	128.47	1.81	130.28
- 4:05	5.0	.127	114.64	1.88	116.51
- 4:10	10.0	.124	111.87	1.89	113.76
- 4:15	15.0	.124	111.87	1.89	113.76
- 4:20	20.0	.123	110.95	1.90	112.84
- 4:25	25.0	.124	111.87	1.89	113.76
- 4:30	30.0	.125	112.79	1.89	114.68
-4:30 END FLOW	0.0	.125	112.79	1.89	114.68
- 4:33	3.0	.137	123.86	1.83	125.69
- 4:36	6.0	.152	137.69	1.76	139.45
- 4:39	9.0	.205	186.56	1.52	188.07
- 4:42	12.0	.277	252.95	1.18	254.13
- 4:45	15.0	.400	366.36	.61	366.97
- 4:48	18.0	.517	474.24	.07	474.31
- 4:51	21.0	.644	591.35	-.52	590.83
- 4:54	24.0	.759	697.38	-1.05	696.33
- 4:57	27.0	.806	740.72	-1.27	739.45
- 5:00	30.0	.863	793.28	-1.54	791.74
- 5:03	33.0	.915	841.23	-1.78	839.45
- 5:06	36.0	.951	874.42	-1.94	872.48
- 5:09	39.0	.984	904.85	-2.10	902.75
- 5:12	42.0	1.009	927.90	-2.21	925.69
- 5:15	45.0	1.030	947.27	-2.31	944.95
- 5:18	48.0	1.049	964.78	-2.40	962.39
- 5:21	51.0	1.064	978.62	-2.47	976.15
- 5:24	54.0	1.076	989.68	-2.52	987.16
- 5:27	57.0	1.089	1001.67	-2.59	999.08
- 5:29	59.0	1.098	1009.97	-2.59	1007.38
-5:29 1ST SHUT-IN	0.0	1.098	1009.97	-2.59	1007.38
-5:29 2ND FLOW	0.0	.187	169.96	1.60	171.56
- 5:34	5.0	.173	157.05	1.66	158.72
- 5:39	10.0	.170	154.29	1.68	155.96
- 5:44	15.0	.170	154.29	1.68	155.96
- 5:49	20.0	.170	154.29	1.68	155.96
- 5:54	25.0	.172	156.13	1.67	157.80
- 5:59	30.0	.174	157.97	1.66	159.63
-5:59 END FLOW	0.0	.174	157.97	1.66	159.63
- 6:02	3.0	.184	167.19	1.61	168.81
- 6:05	6.0	.216	196.70	1.46	198.17

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-28-1988  
 DEPTH : 3004.0

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SERIAL NO. : 5463

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO. : 2					
- 6:08	9.0	.267	243.73	1.23	244.95
- 6:11	12.0	.328	299.97	.95	300.92
- 6:14	15.0	.414	379.27	.55	379.82
- 6:17	18.0	.514	471.48	.08	471.56
- 6:20	21.0	.611	560.92	-.37	560.55
- 6:23	24.0	.704	646.67	-.80	645.87
- 6:26	27.0	.771	708.45	-1.11	707.34
- 6:29	30.0	.834	766.54	-1.40	765.14
- 6:32	33.0	.868	797.89	-1.56	796.33
- 6:35	36.0	.900	827.40	-1.71	825.69
- 6:38	39.0	.923	848.60	-1.82	846.79
- 6:41	42.0	.949	872.58	-1.94	870.64
- 6:44	45.0	.970	891.94	-2.03	889.91
- 6:47	48.0	.986	906.69	-2.11	904.59
- 6:50	51.0	1.000	919.60	-2.17	917.43
- 6:53	54.0	1.017	935.28	-2.25	933.03
- 6:56	57.0	1.028	945.42	-2.30	943.12
- 6:58	59.0	1.033	950.03	-2.33	947.71
- 5:59	0.0	1.033	950.03	-2.33	947.71
-6:58 2ND SHUT-IN	0.0	1.033	950.03	-2.33	947.71
-2ND HYDROSTATIC	0.0	1.597	1470.08	-2.37	1467.71

CALCULATED RECOVERY ANALYSIS

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DST Number: 2

Test ticket number: 10694

Sample #	Total Feet	***** Gas ***** %	***** Gas ***** Feet	***** Oil ***** %	***** Oil ***** Feet	***** Mud ***** %	***** Mud ***** Feet
1	60	2.00	1.20	2.00	1.20	96.00	57.60
2	60	19.00	11.40	32.00	19.20	45.00	27.00
3	60	9.00	5.40	21.00	12.60	70.00	42.00
TOTAL	180	10.00	18.00	18.33	33.00	70.33	126.60

Sample #	Total Feet	***** WATER ***** %	***** WATER ***** Feet	Chlorides (ppm)	Resistivity (ohms)	Temperature (deg)
1	60	0.00	0.00	0.00	0.00	0.00
2	60	4.00	2.40	0.00	0.00	0.00
3	60	0.00	0.00	0.00	0.00	0.00
TOTAL	180	1.33	2.40			

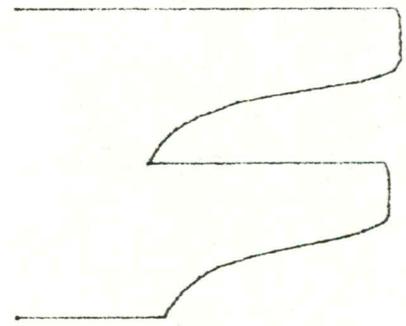
INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

PRESSURE ( P S I G )

4000 3600 3200 2800 2400 2000 1600 1200 800 400 0

-180 -90 0 90 180 270 360 450 540 630 720

TIME (MINUTES)

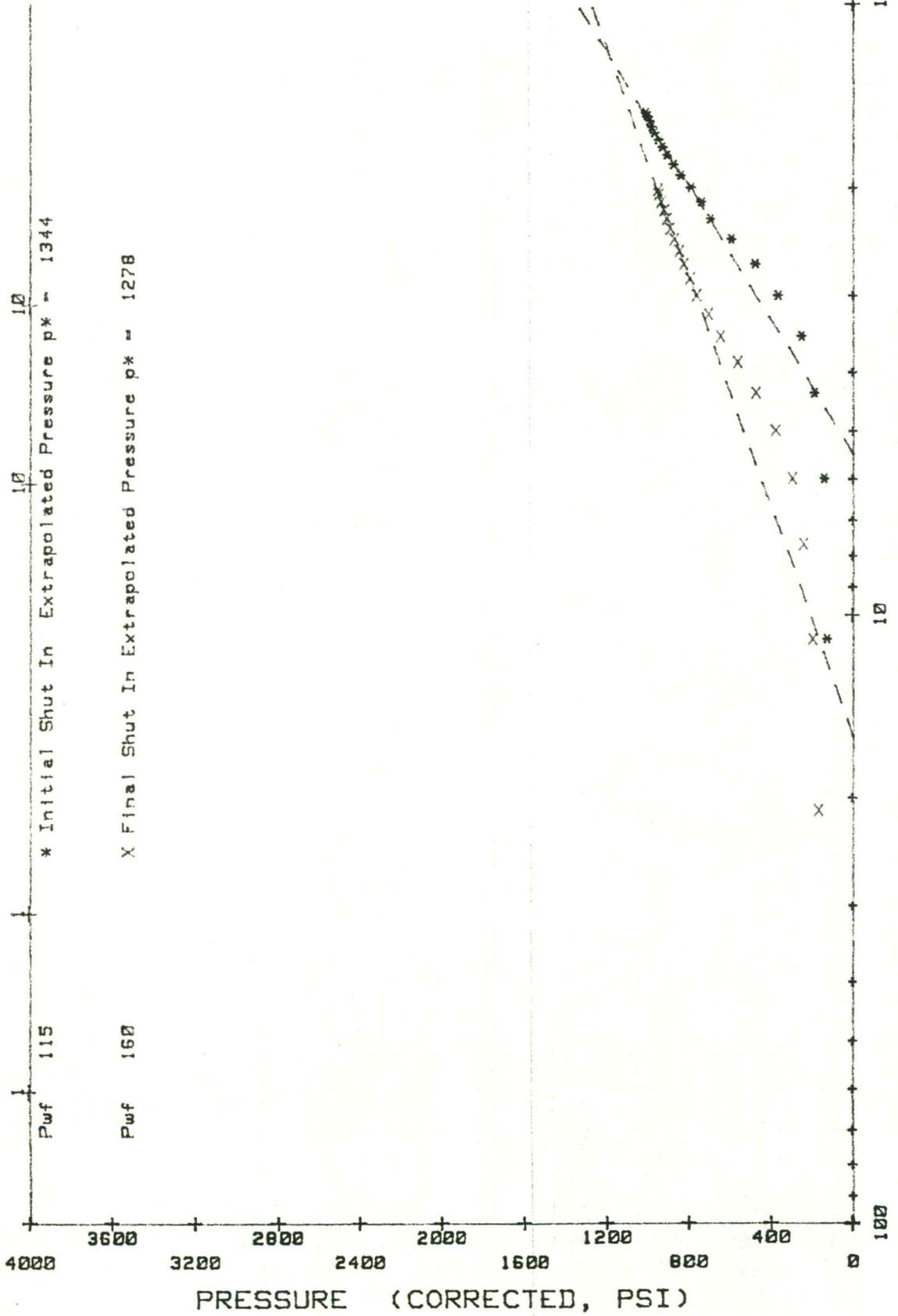


COMPANY : TOMKAT LTD  
WELL : D. KNOP#2  
LOCATION : 31-19-10  
DATE : 2-28-1988  
GAUGE # : 5463

GAUGE # : 5463

DATE : 2-28-1988

LOCATION : 31-19-10



SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : TOMKAT LTD  
DATE OF TEST : 2-28-1988  
DST. NO : 2

WELL NAME : D. KNOP#2  
LOCATION : 31-19-10  
SHUT-IN PERIOD : 1

INTERPRETIVE DATA (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	1344.00
Slope of Build-up Curve (psi/log cycle): .....	1823.06
Effective Producing Time (min): .....	30.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : TOMKAT LTD  
 WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 STATE & COUNTY : KANSAS, RICE  
 DATE OF TEST : 2-28-1988  
 TEST INT. KB : 2848 to 3010  
 TOTAL INTERVAL (ft) K.B. : 162.00  
 ELEV. (GR) : 1764 (KB) : 1769  
 FIELD :

ELEMENT SERIAL NO. : 5463  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG -----
Refer. depth :	3004.0 ft-kb		
-4:30 END FLOW	0.00	0.00	114.68
	3.00	11.00	125.69
	6.00	6.00	139.45
	9.00	4.33	188.07
	12.00	3.50	254.13
	15.00	3.00	366.97
	18.00	2.67	474.31
	21.00	2.43	590.83
	24.00	2.25	696.33
	27.00	2.11	739.45
	30.00	2.00	791.74
	33.00	1.91	839.45
	36.00	1.83	872.48
	39.00	1.77	902.75
	42.00	1.71	925.69
	45.00	1.67	944.95
	48.00	1.63	962.39
	51.00	1.59	976.15
	54.00	1.56	987.16
	57.00	1.53	999.08
	59.00	1.51	1007.34
-5:29 1ST SHUT-IN	0.00	0.00	1007.34

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : TOMKAT LTD  
 WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 STATE & COUNTY : KANSAS,RICE  
 DATE OF TEST : 2-28-1988  
 TEST INT. KB : 2848 to 3010  
 TOTAL INTERVAL (ft) K.B. : 162.00  
 ELEV.(GR) : 1764 (KB) : 1769  
 FIELD :

ELEMENT SERIAL NO. : 5463  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG	-----
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Refer. depth : 3004.0 ft-kb

-5:59 END FLOW	0.00	0.00	159.63	
	3.00	21.00	168.81	
	6.00	11.00	198.17	
	9.00	7.67	244.95	
	12.00	6.00	300.92	
	15.00	5.00	379.82	
	18.00	4.33	471.56	
	21.00	3.86	560.55	
	24.00	3.50	645.87	
	27.00	3.22	707.34	
	30.00	3.00	765.14	
	33.00	2.82	796.33	
	36.00	2.67	825.69	
	39.00	2.54	846.79	
	42.00	2.43	870.64	
	45.00	2.33	889.91	
	48.00	2.25	904.59	
	51.00	2.18	917.43	
	54.00	2.11	933.03	
	57.00	2.05	943.12	
	59.00	2.02	947.71	
	0.00	0.00	947.71	
-6:58 2ND SHUT-IN	0.00	0.00	947.71	

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

D A T A S U M M A R Y

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-28-1988  
 DST. NO : 1

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SHUT-IN PERIOD : 2

INTERPRETIVE DATA (OIL)

TRANSMISSIBILITY

Oil (md.ft/cp): ..... .1  
 Gas (md.ft/cp): ..... 0.

EFFECTIVE PERMEABILITY

Oil (md): ..... .1  
 Gas (md): ..... 0.

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

TOTAL COMPRESSIBILITY (psi<sup>-1</sup>): ..... 8.17E-06

ESTIMATED DAMAGE RATIO: ..... .

CALCULATED DAMAGE RATIO: ..... .

Reservoir Temperature (F): ..... 109.

Formation Porosity : ..... .

Formation Thickness (ft): ..... 10.

Wellbore Radius (in): ..... 4.

Reservoir Compressibility (psi<sup>-1</sup>): ..... 4.80E-07

Calculated Skin Factor : ..... -1.

PRODUCTION WITH DAMAGE REMOVED (bbl/D): ..... 5.

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

Final Flow Pressure (psi): ..... 160.

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 8.

Total Flowing Time (min): ..... 60.

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 1278.

Slope of Build-up Curve (psi/log cycle): ..... 1065.

Effective Producing Time (min): ..... 60.

# Superior Testers Enterprises, Inc.

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

(316) 792-6902

Date 2 28 77 Location 31-19-10 Elevation 1765' County Osage

Company TOM CAT LTD Number of Copies 3

Charts Mailed to Po Box 1477 Great Bend, Mo 67530

Drilling Contractor DVRS Drilling

Length Drill Pipe 2129 I.D. Drill Pipe 380 Tool Joint Size 4 1/2 FH

Length Weight Pipe 911 I.D. Weight Pipe 275 Tool Joint Size 4 1/2 FH

Length Drill Collars — I.D. Drill Collars — Tool Joint Size —

Top Packer Depth 2979 Bottom Packer Depth 2984 Number of Packers 140 Packer Size 8

TESTED FROM 2984 TO 3040 ANCHOR LENGTH 56 TOTAL DEPTH 3040 Hole Size 8 3/4

LEASE & WELL NO. 0 KNDP 2 FORMATION TESTED K TEST NO. 3

Mud Weight 9.1 Viscosity 46 Water Loss 2.6 Chlorides - Pits 4000 D.S.T. —

Maximum Temp. — °F Initial Hydrostatic Pressure (A) 1529 P.S.I. Final Hydrostatic Pressure (H) 1790 P.S.I.

Tool Open I.F.P. from 530 m to 600 m 30 min

Tool Closed I.C.I.P. from 600 m to 700 m 60 min

Tool Open F.F.P. from 700 m to 730 m 30 min

Tool Closed F.C.I.P. from 730 m to 780 m 60 min

Initial Blow Strong Blow off Bottom, gas to surface 3 1/2  
11 11 11 11

Final Blow —

Total Feet Recovered 270 Thin Grassy mud Gravity of Oil — Corrected —

Feet of	% Gas	% Oil	% Mud	% Water
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—

Remarks —

Extra Equipment - Jars — Safety Joint — Extra Packer — Straddle — Hook Wall —

Top Recorder No. 5417 Clock No. 21911 Depth 3037 Cir. Sub — Sampler —

Bottom Recorder No. 9208 Clock No. 12057 Depth 3037 Insurance —

Price of Job —

Tool Operator John Slaw

Approved By —

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, or 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.

No 10695

# Superior Testers Enterprises, Inc.

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

(316) 792-6902

## GAS FLOW REPORT

Date 2 28 88 Ticket # 10695 Company TOMCAT LTD  
 Well Name and No 0 KNOP 2 DST No. 3 Interval Tested 2984-3040  
 County Rice State Kr Sec. 31 Twp. 7S Rg. 10

Time Gauge Pre-Flow	Time Gauge in Min.	Inches of Water on Orifice Well Tester	Inches of Mercury on Orifice Well Tester	P.S.I. on Orifice Well Tester	P.S.I. on Pitot Tester	Choke Size	Gas Rate MCF
PRE FLOW							
540	10	29.				2"	768,000
550	20	32				2"	802,000
600	30	32				2"	802,000

Time Gauge Pre-Flow	Time Gauge in Min.	Inches of Water on Orifice Well Tester	Inches of Mercury on Orifice Well Tester	P.S.I. on Orifice Well Tester	P.S.I. on Pitot Tester	Choke Size	Gas Rate MCF
SECOND FLOW							
710	10	32				2"	802,000
720	20	32+				2"	802,000 +
730	30	32+				2"	802,000 +

## GAS BOTTLE

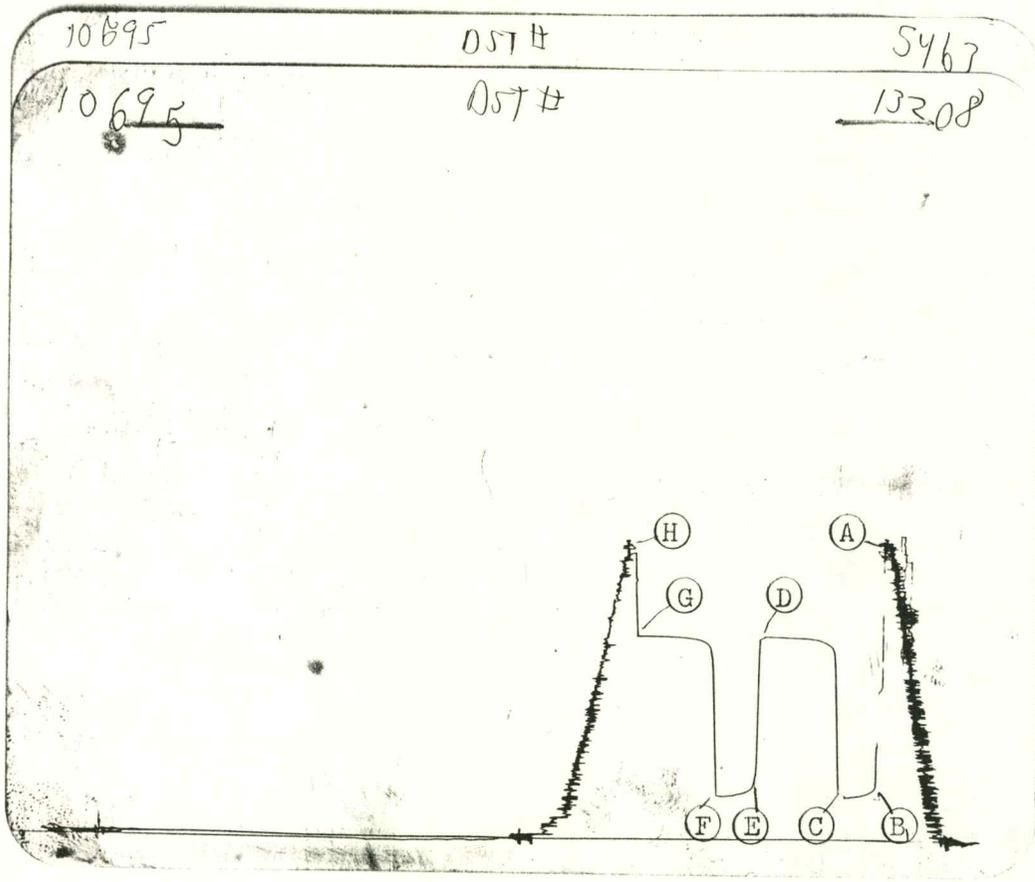
Serial No. B Date Bottle Filled 2 28 88 Date to be Invoiced \_\_\_\_\_ Test Ticket # 10695

Requisition and Provisions for high pressure steel gas bottles. Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to property or personnel of the one whom gas bottle is filled or for any loss suffered or sustained directly or indirectly through the use of these bottles. By signing of this ticket showing receipt of a gas testing bottle, the undersigned agrees for himself and as agent for operator, to return this bottle to Superior Testers Enterprises, Inc. within thirty (30) days free of charge or be invoiced in the amount of \$125.00 (total charge). Should valve or seal plug be missing or damaged beyond repair, operator shall be invoiced for repairs at our invoiced price.

All charges subject to 1½% per month, equal to 18% interest per annum after 30 days from date of invoice. Any expense incurred for collection will be added to the original amount.

COMPANY'S NAME \_\_\_\_\_

Authorized by [Signature]



This is an actual photograph of recorder chart.

POINT	PRESSURE		P.S.I.
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	<u>1529</u>	<u>1484</u>	P.S.I.
(B) First Initial Flow Pressure .....	<u>256</u>	<u>266</u>	P.S.I.
(C) First Final Flow Pressure .....	<u>207</u>	<u>240</u>	P.S.I.
(D) Initial Closed-in Pressure .....	<u>1033</u>	<u>1031</u>	P.S.I.
(E) Second Initial Flow Pressure .....	<u>256</u>	<u>353</u>	P.S.I.
(F) Second Final Flow Pressure .....	<u>217</u>	<u>219</u>	P.S.I.
(G) Final Closed-in Pressure .....	<u>1033</u>	<u>1029</u>	P.S.I.
(H) Final Hydrostatic Mud .....	<u>1490</u>	<u>1447</u>	P.S.I.

SUPERIOR TESTERS ENTERPRISES INC.

WELL IDENTIFICATION DATA

COMPANY : TOMKAT LTD WELL NAME : D. KNOP#2  
ADDRESS : P.O.BOX 1477 GREAT BEND LOCATION : 31-19-10  
STATE & COUNTY : KANSAS,RICE FIELD :  
ELEV.(GR) : 1764 (KB) : 1769 TEST DATE : 2-28-1988

EQUIPMENT AND HOLE DATA

FORMATION TESTED : KANSAS CITY DRILL PIPE LENGTH(ft) : 2103  
TEST INT. KB : 2984 to 3040 DRILL PIPE O.D.(in) : 3.82  
ANCHOR LENGTH(ft) : 56 WEIGHT PIPE LENGTH(ft) : 911  
TYPE OF TEST : Conventional WEIGHT PIPE ID : 2.75  
TOTAL DEPTH(ft-kg) : 3040 DRILL COLLAR LENGTH(ft) :  
MAIN HOLE SIZE(in) : 7 7/8 DRILL COLLAR I.D.(in) : 2.259  
MUD WEIGHT : 9.1 TOP PACKER DEPTH(kb) : 2979  
MUD VISCOSITY : 46 BOTTOM PACKER DEPTH(kb) : 2984  
MUD CHLORIDES : 4000 DUAL PACKERS :  
SURFACE CHOKE : 3/4 PACKER SIZE(in) : 8 1/4  
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) : 0 TEST TICKET NUMBER : 10695

EXTRA EQUIPMENT :

ELEMENT SERIAL NO. : 13208  
RANGE : 0 - 3925 CLOCK RANGE : 12 HOURS  
CAL. EQU. : 985.43 \* Defl. - 1.97

SURFACE BLOW

1st Opening : STRONG BLOW-GAS TO SURFACE IN 3 MIN.  
2nd Opening : STRONG BLOW

RECOVERY

Recovered 240 feet of THIN GASSY MUD

REMARKS :

GAS TO SURFACE IN 3 MINUTES-MAX.GAUGED 802000

WITNESSED BY : DAN DEBOER

TOOL OPERATOR : PAT STEVENSON

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

# SUPERIOR TESTERS ENTERPRISES INC.

## SUBSURFACE PRESSURE MEASUREMENTS

---

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-28-1988  
 DEPTH : 3034.0

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SERIAL NO. : 13208

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:3					
Depth : 3034.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.511	1487.01	-2.67	1484.34
-5:30 1ST FLOW	0.0	.271	265.08	1.65	266.73
- 5:35	5.0	.245	239.46	1.68	241.14
- 5:40	10.0	.230	224.68	1.70	226.38
- 5:45	15.0	.225	219.75	1.71	221.46
- 5:50	20.0	.219	213.84	1.71	215.55
- 5:53	23.0	.219	213.84	1.71	215.55
- 5:55	25.0	.234	228.62	1.70	230.31
- 5:57	27.0	.244	238.47	1.68	240.16
-5:57 END FLOW	0.0	.244	238.47	1.68	240.16
- 6:00	3.0	.919	903.64	.89	904.53
- 6:03	6.0	1.000	983.46	.79	984.25
- 6:06	9.0	1.014	997.25	.78	998.03
- 6:09	12.0	1.023	1006.12	.73	1006.85
- 6:12	15.0	1.031	1014.01	.67	1014.68
- 6:15	18.0	1.035	1017.95	.64	1018.59
- 6:18	21.0	1.036	1018.93	.64	1019.57
- 6:21	24.0	1.039	1021.89	.62	1022.50
- 6:24	27.0	1.040	1022.87	.61	1023.48
- 6:27	30.0	1.040	1022.87	.61	1023.48
- 6:30	33.0	1.040	1022.87	.61	1023.48
- 6:33	36.0	1.042	1024.85	.59	1025.44
- 6:36	39.0	1.042	1024.85	.59	1025.44
- 6:39	42.0	1.044	1026.82	.58	1027.40
- 6:42	45.0	1.044	1026.82	.58	1027.40
- 6:45	48.0	1.046	1028.79	.57	1029.35
- 6:48	51.0	1.046	1028.79	.57	1029.35
- 6:51	54.0	1.047	1029.77	.56	1030.33
- 6:54	57.0	1.048	1030.76	.55	1031.31
- 6:57	60.0	1.048	1030.76	.55	1031.31
-6:57 1ST SHUT-IN	0.0	1.048	1030.76	.55	1031.31
-6:57 2ND FLOW	0.0	.359	351.80	1.55	353.35
- 7:02	5.0	.256	250.30	1.67	251.97
- 7:07	10.0	.247	241.43	1.68	243.11
- 7:12	15.0	.230	224.68	1.70	226.38
- 7:17	20.0	.224	218.77	1.71	220.47
- 7:22	25.0	.222	216.79	1.71	218.50
- 7:26	29.0	.223	217.78	1.71	219.49
-7:26 END FLOW	0.0	.223	217.78	1.71	219.49
- 7:29	3.0	.907	891.81	.90	892.72

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-28-1988  
 DEPTH : 3034.0

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SERIAL NO. : 13208

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:3					
- 7:32	6.0	1.003	986.41	.79	987.20
- 7:35	9.0	1.017	1000.21	.77	1000.98
- 7:38	12.0	1.026	1009.08	.71	1009.78
- 7:41	15.0	1.031	1014.01	.67	1014.68
- 7:44	18.0	1.035	1017.95	.64	1018.59
- 7:47	21.0	1.037	1019.92	.63	1020.55
- 7:50	24.0	1.038	1020.90	.62	1021.53
- 7:53	27.0	1.040	1022.87	.61	1023.48
- 7:56	30.0	1.041	1023.86	.60	1024.46
- 7:59	33.0	1.042	1024.85	.59	1025.44
- 8:02	36.0	1.043	1025.83	.59	1026.42
- 8:05	39.0	1.043	1025.83	.59	1026.42
- 8:08	42.0	1.044	1026.82	.58	1027.40
- 8:11	45.0	1.044	1026.82	.58	1027.40
- 8:14	48.0	1.044	1026.82	.58	1027.40
- 8:17	51.0	1.046	1028.79	.57	1029.35
- 8:20	54.0	1.046	1028.79	.57	1029.35
- 8:23	57.0	1.046	1028.79	.57	1029.35
- 8:25	59.0	1.046	1028.79	.57	1029.35
-8:25 2ND SUT-IN	0.0	1.046	1028.79	.57	1029.35
- 7:26	0.0	1.474	1450.55	-2.41	1448.14
-2ND HYDROSTATIC	0.0	1.473	1449.56	-2.40	1447.16

# SUPERIOR TESTERS ENTERPRISES INC.

## DATA SUMMARY

COMPANY : TOMKAT LTD  
DATE OF TEST : 2-28-1988

WELL NAME : D. KNOP#2  
LOCATION : 31-19-10

### RECOVERY INFORMATION

LIQUID RECOVERY Total Fluid Recovered :

Recovered 240 feet of THIN GASSY MUD

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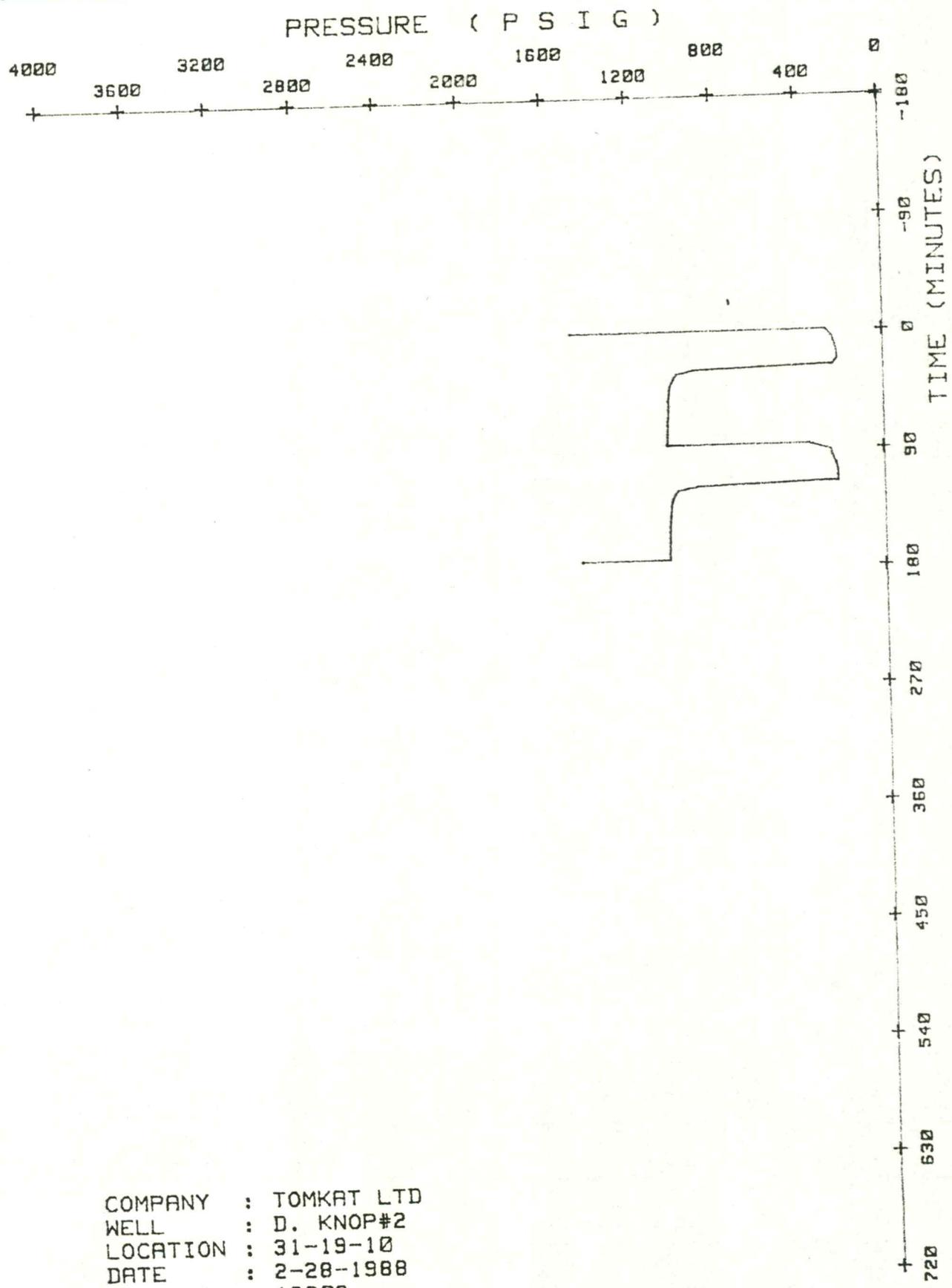
GAS RECOVERY Measured With : ORFICE TESTER Riser : 2 INCH  
(INCHES OF WATER )

Time (min.)	Reading	Surface Choke (in.)	Cubic feet/day
5:40	29.00	2.00	768000
5:50	32.00	2.00	802000
6:00	32.00	2.00	802000
7:10	32.00	2.00	802000
7:20	32.00	2.00	802000
7:30	32.00	2.00	802000

---

### FLUID PROPERTIES

	Viscosity (cp)	Compressibility (psi <sup>-1</sup> )	Pore Space Saturation
Oil			
Gas	.2	9.2E-6	100
Water			

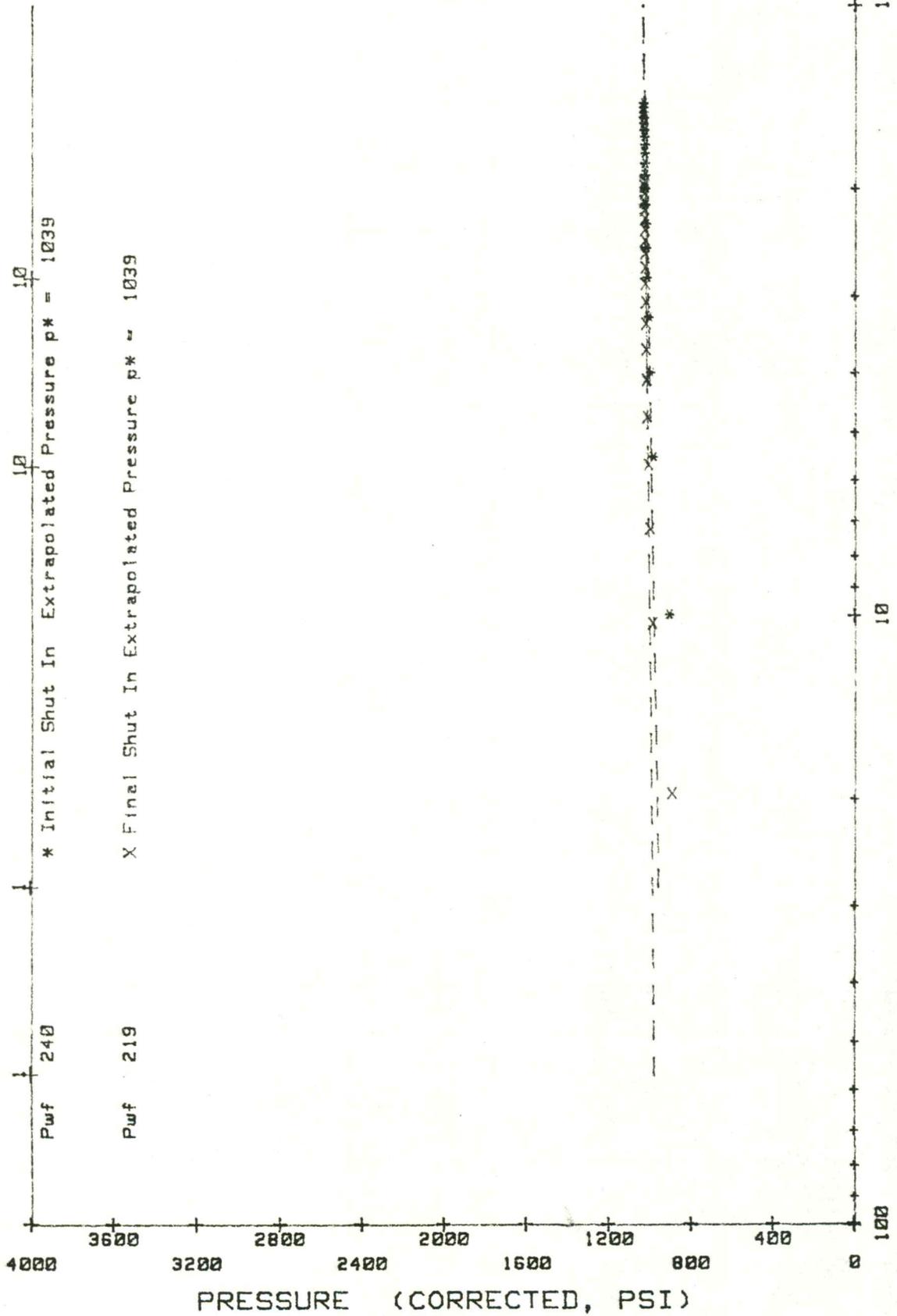


COMPANY : TOMKAT LTD  
 WELL : D. KNOP#2  
 LOCATION : 31-19-10  
 DATE : 2-28-1988  
 GAUGE # : 13208

LOCATION : 31-19-10

DATE : 2-28-1988

GAUGE # : 13208



Pwf 240

Pwf 219

\* Initial Shut In Extrapolated Pressure p\* = 1039

X Final Shut In Extrapolated Pressure p\* = 1039

PRESSURE (CORRECTED, PSI)

TIME (MINUTES) : (T+dt)/dt - (Semilog scale)

SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : TOMKAT LTD  
DATE OF TEST : 2-28-1988  
DST. NO : 3

WELL NAME : D. KNOP#2  
LOCATION : 31-19-10  
SHUT-IN PERIOD : 1

INTERPRETIVE DATA (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	1039.00
Slope of Build-up Curve (psi/log cycle): .....	54.31
Effective Producing Time (min): .....	27.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : TOMKAT LTD  
 WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 STATE & COUNTY : KANSAS,RICE  
 DATE OF TEST : 2-28-1988  
 TEST INT. KB : 2984 to 3040  
 TOTAL INTERVAL (ft) K.B. : 56.00  
 ELEV.(GR) : 1764 (KB) : 1769  
 FIELD :

ELEMENT SERIAL NO. : 13208  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG -----
Refer. depth :	3034.0 ft-kb		
-5:57 END FLOW	0.00	0.00	240.16
	3.00	10.00	904.53
	6.00	5.50	984.25
	9.00	4.00	998.03
	12.00	3.25	1006.89
	15.00	2.80	1014.76
	18.00	2.50	1018.70
	21.00	2.29	1019.69
	24.00	2.13	1022.64
	27.00	2.00	1023.62
	30.00	1.90	1023.62
	33.00	1.82	1023.62
	36.00	1.75	1025.59
	39.00	1.69	1025.59
	42.00	1.64	1027.56
	45.00	1.60	1027.56
	48.00	1.56	1029.53
	51.00	1.53	1029.53
	54.00	1.50	1030.51
	57.00	1.47	1031.50
	60.00	1.45	1031.50
-6:57 1ST SHUT-IN	0.00	0.00	1031.50

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : TOMKAT LTD  
 WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 STATE & COUNTY : KANSAS, RICE  
 DATE OF TEST : 2-28-1988  
 TEST INT. KB : 2984 to 3040  
 TOTAL INTERVAL (ft) K.B. : 56.00  
 ELEV. (GR) : 1764 (KB) : 1769  
 FIELD :

ELEMENT SERIAL NO. : 13208  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG -----
Refer. depth :	3034.0 ft-kb		
-7:26 END FLOW	0.00	0.00	219.49
	3.00	19.67	892.72
	6.00	10.33	987.20
	9.00	7.22	1000.98
	12.00	5.67	1009.84
	15.00	4.73	1014.76
	18.00	4.11	1018.70
	21.00	3.67	1020.67
	24.00	3.33	1021.65
	27.00	3.07	1023.62
	30.00	2.87	1024.61
	33.00	2.70	1025.59
	36.00	2.56	1026.57
	39.00	2.44	1026.57
	42.00	2.33	1027.56
	45.00	2.24	1027.56
	48.00	2.17	1027.56
	51.00	2.10	1029.53
	54.00	2.04	1029.53
	57.00	1.98	1029.53
	59.00	1.95	1029.53
-8:25 2ND SUT-IN	0.00	0.00	1029.53
	0.00	0.00	1450.79

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

# SUPERIOR TESTERS ENTERPRISES INC.

## DATA SUMMARY

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-28-1988  
 DST. NO : 3

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SHUT-IN PERIOD : 2

### INTERPRETIVE DATA (GAS)

#### TRANSMISSIBILITY

Oil (md.ft/cp): .....	0.0
Gas (md.ft/cp): .....	9550.3

#### EFFECTIVE PERMEABILITY

Oil (md): .....	0.0
Gas (md): .....	162.3

TOTAL MOBILITY (md/cp): .....	811.7
-------------------------------	-------

TOTAL COMPRESSIBILITY (psi <sup>-1</sup> ): .....	9.20E-04
---	----------

ESTIMATED DAMAGE RATIO: .....	3.7
-------------------------------	-----

CALCULATED DAMAGE RATIO: .....	3.7
--------------------------------	-----

Reservoir Temperature (F): .....	0.00
Formation Porosity: .....	.18
Formation Thickness (ft): .....	10.00
Wellbore Radius (in): .....	4.38
Reservoir Compressibility (psi <sup>-1</sup> ): .....	4.80E-07
Calculated Skin Factor: .....	13.82

PRODUCTION WITH DAMAGE REMOVED (MCF/D): .....	3038.20
---	---------

PRODUCTIVITY INDEX (MCF/psi): .....	.98
-------------------------------------	-----

Final Flow Pressure (psi): .....	219.00
----------------------------------	--------

APPROXIMATE RADIUS OF INVESTIGATION (ft): .....	69.02
---	-------

Total Flowing Time (min): .....	56.00
---------------------------------	-------

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	1038.67
--	---------

Slope of Build-up Curve (psi/log cycle): .....	63190.56
--	----------

Effective Producing Time (min): .....	56.00
---------------------------------------	-------

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

# Superior Testers Enterprises, Inc.

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

(316) 792-6902

Date 2 29 88 Location 31 15 10 Elevation 1769<sup>ft</sup> County Rice

Company JDMCAT LTD Number of Copies 5

Charts Mailed to PO Box 1477 Great Bend KS 67530

Drilling Contractor Duck Drilling

Length Drill Pipe 2369 I.D. Drill Pipe 380 Tool Joint Size 4 1/2 FH

Length Weight Pipe 911 I.D. Weight Pipe 2.75 Tool Joint Size 4 1/2 FH

Length Drill Collars - I.D. Drill Collars - Tool Joint Size -

Top Packer Depth 3231 Bottom Packer Depth 3236 Number of Packers Two Packer Size 8 1/2

TESTED FROM 3236 TO 3280 ANCHOR LENGTH 44 TOTAL DEPTH 3280 Hole Size 8 3/4

LEASE & WELL NO. D Knop FORMATION TESTED Arg TEST NO. 4

Mud Weight 92 Viscosity 50 Water Loss 7.2 Chlorides - Pits 5000 D.S.T. -

Maximum Temp. 112 °F Initial Hydrostatic Pressure (A) 1617 P.S.I. Final Hydrostatic Pressure (H) 1598 P.S.I.

Tool Open I.F.P. from 530 m to 600 m 30 min

Tool Closed I.C.I.P. from 600 m to 700 m 60 min

Tool Open F.F.P. from 700 m to 730 m 30 min

Tool Closed F.C.I.P. from 730 m to 830 m 60 min

Initial Blow Fair Building Bottom Bucket 2"

Final Blow Fair Building Bottom Bucket 2"

Total Feet Recovered 1450 GAS IN PIP 1550 CLEAN Gassy oil Gravity of Oil 45 Corrected

360 Feet of CLEAN Gassy oil 16% Gas 82% Oil 0% Mud 0% Water

340 Feet of Gassy mud 80% Gas 5% Oil 15% Mud 0% Water

050 Feet of CLEAN Gassy oil 22% Gas 78% Oil 0% Mud 0% 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

Remarks \_\_\_\_\_

Extra Equipment - Jars - Safety Joint - Extra Packer - Straddle - Hook Wall -

Top Recorder No. 5463 Clock No. 27912 Depth 3274 Cir. Sub - Sampler -

Bottom Recorder No. 13208 Clock No. 12058 Depth 3277 Insurance -

Price of Job \_\_\_\_\_

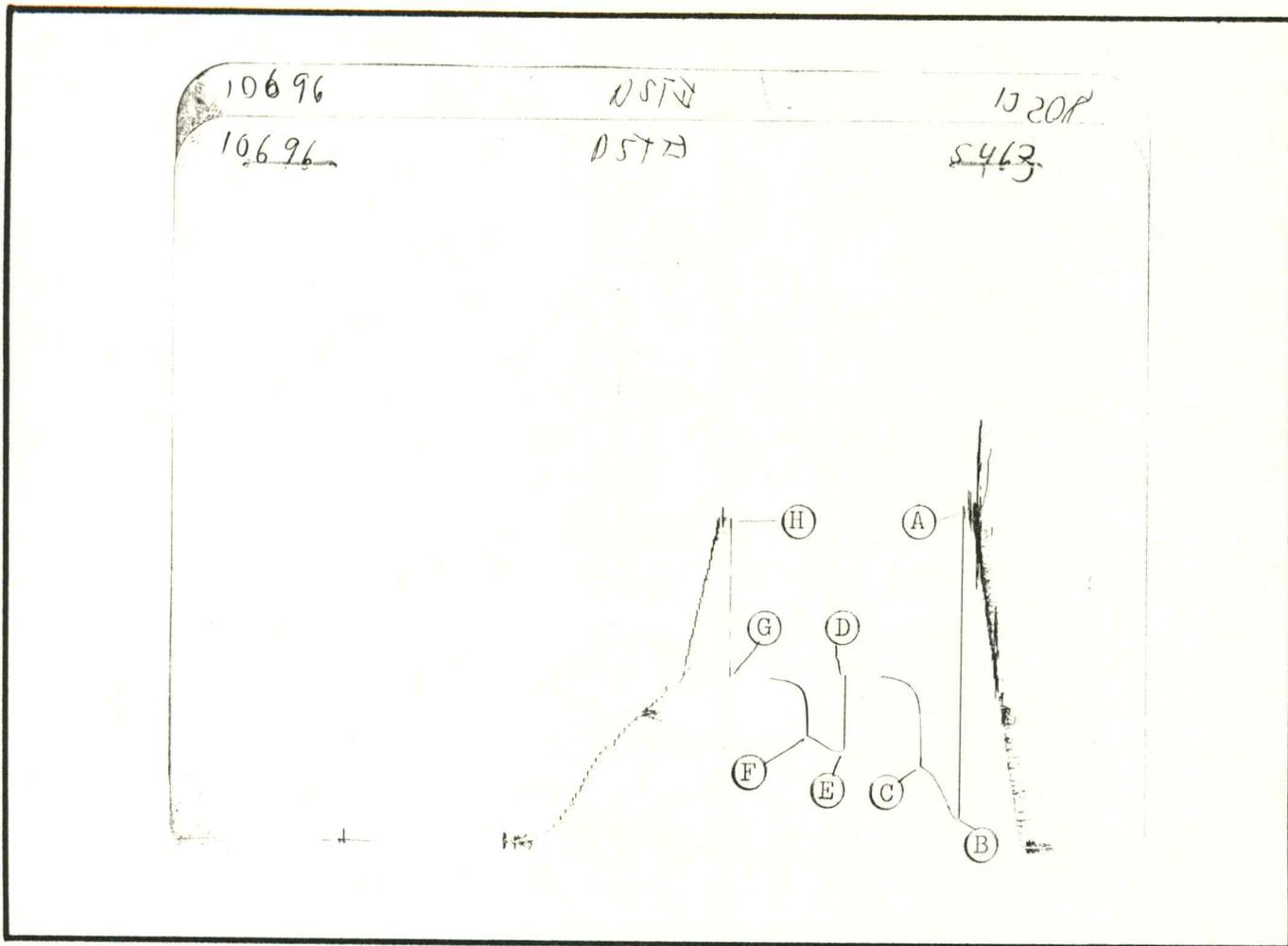
Tool Operator PAT STEVENSON

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

NO 10696

from [B] <u>146</u> P.S.I. to [C] <u>393</u> P.S.I.
[D] <u>862</u> P.S.I.
from [E] <u>476</u> P.S.I. to [F] <u>549</u> P.S.I.
[G] <u>843</u> P.S.I.

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, or 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.



This is an actual photograph of recorder chart.

POINT	PRESSURE		
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	<u>1617</u>	<u>1681</u>	P.S.I.
(B) First Initial Flow Pressure .....	<u>146</u>	<u>141</u>	P.S.I.
(C) First Final Flow Pressure .....	<u>393</u>	<u>402</u>	P.S.I.
(D) Initial Closed-in Pressure .....	<u>862</u>	<u>854</u>	P.S.I.
(E) Second Initial Flow Pressure .....	<u>476</u>	<u>469</u>	P.S.I.
(F) Second Final Flow Pressure .....	<u>549</u>	<u>548</u>	P.S.I.
(G) Final Closed-in Pressure .....	<u>843</u>	<u>837</u>	P.S.I.
(H) Final Hydrostatic Mud .....	<u>1598</u>	<u>1625</u>	P.S.I.

# SUPERIOR TESTERS ENTERPRISES INC.

## WELL IDENTIFICATION DATA

COMPANY : TOMKAT LTD  
ADDRESS : P.O.BOX 1477 GREAT BEND  
STATE & COUNTY : KANSAS, RICE  
ELEV.(GR) : 1764 (KB) : 1769  
WELL NAME : D. KNOP#2  
LOCATION : 31-19-10  
FIELD :  
TEST DATE : 2-29-1988

## EQUIPMENT AND HOLE DATA

FORMATION TESTED : ARBUCKLE  
TEST INT. KB : 3236 to 3280  
ANCHOR LENGTH(ft) : 44  
TYPE OF TEST : Conventional  
TOTAL DEPTH(ft-kg) : 3280  
MAIN HOLE SIZE(in) : 7 7/8  
MUD WEIGHT : 9.2  
MUD VISCOSITY : 50  
MUD CHLORIDES : 5000  
SURFACE CHOKE : 3/4  
BOTTOM CHOKE(in) : 3/4  
TOOL SIZE(O.D.) : 5 1/2  
TOOL JOINT SIZE(F.H.) : 4 1/2  
RESERVOIR TEMPERATURE(F) : 112  
DRILL PIPE LENGTH(ft) : 2103  
DRILL PIPE O.D.(in) : 3.82  
WEIGHT PIPE LENGTH(ft) : 911  
WEIGHT PIPE ID : 2.75  
DRILL COLLAR LENGTH(ft) :  
DRILL COLLAR I.D.(in) : 2.259  
TOP PACKER DEPTH(kb) : 3231  
BOTTOM PACKER DEPTH(kb) : 3236  
DUAL PACKERS :  
PACKER SIZE(in) : 8 1/4  
PACKER HOLD : Yes  
TOOL PLUG : No  
REVERSED OUT : No  
TEST TICKET NUMBER : 10696

EXTRA EQUIPMENT :

ELEMENT SERIAL NO. : 5463  
RANGE : 0 - 3650  
CAL. EQU. : 922.07 \* Defl. - 2.47  
CLOCK RANGE : 12 HOURS

## SURFACE BLOW

1st Opening : FAIR BLOW-BOTTOM OF THE BUCKET IN 2 MIN.  
2nd Opening : FAIR BLOW-BOTTOM OF THE BUCKET IN 2 MIN.

## RECOVERY

Recovered 1450 feet of GAS IN THE PIPE  
Recovered 1550 feet of CLEAN GASSY OIL

REMARKS :

WITNESSED BY : DAN DEBOER

TOOL OPERATOR : PAT STEVENSON

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

# SUPERIOR TESTERS ENTERPRISES INC.

## SUBSURFACE PRESSURE MEASUREMENTS

---

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-29-1988  
 DEPTH : 3274.0

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SERIAL NO. : 5463

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	----- CORRECTED
TEST NO.:4					
Depth : 3274.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.829	1684.00	-2.27	1681.73
- 0:00	0.0	.155	140.45	1.75	142.20
-5:30 1ST FLOW	0.0	.154	139.53	1.75	141.28
- 5:35	5.0	.170	154.29	1.68	155.96
- 5:40	10.0	.254	231.74	1.29	233.03
- 5:45	15.0	.318	290.75	.99	291.74
- 5:50	20.0	.378	346.08	.71	346.79
- 5:55	25.0	.413	378.35	.55	378.90
- 6:00	30.0	.440	403.24	.43	403.67
- 5:30	0.0	.440	403.24	.43	403.67
-6:00 END FLOW	0.0	.439	402.32	.43	402.75
- 6:03	3.0	.803	737.96	-1.26	736.70
- 6:06	6.0	.850	781.29	-1.48	779.82
- 6:09	9.0	.875	804.34	-1.59	802.75
- 6:12	12.0	.889	817.25	-1.66	815.60
- 6:15	15.0	.898	825.55	-1.70	823.85
- 6:18	18.0	.907	833.85	-1.74	832.11
- 6:21	21.0	.913	839.38	-1.77	837.61
- 6:24	24.0	.917	843.07	-1.79	841.28
- 6:27	27.0	.921	846.76	-1.81	844.95
- 6:30	30.0	.923	848.60	-1.82	846.79
- 6:33	33.0	.923	848.60	-1.82	846.79
- 6:36	36.0	.925	850.45	-1.82	848.62
- 6:39	39.0	.926	851.37	-1.83	849.54
- 6:42	42.0	.928	853.21	-1.84	851.38
- 6:45	45.0	.928	853.21	-1.84	851.38
- 6:48	48.0	.929	854.14	-1.84	852.29
- 6:51	51.0	.930	855.06	-1.85	853.21
- 6:54	54.0	.931	855.98	-1.85	854.13
- 6:57	57.0	.931	855.98	-1.85	854.13
- 7:00	60.0	.931	855.98	-1.85	854.13
-7:00 1ST SHUT-IN	0.0	.931	855.98	-1.85	854.13
-7:00 2ND FLOW	0.0	.512	469.63	.09	469.72
- 7:05	5.0	.515	472.40	.08	472.48
- 7:10	10.0	.525	481.62	.03	481.65
- 7:15	15.0	.542	497.30	-.05	497.25
- 7:20	20.0	.566	519.43	-.16	519.27
- 7:25	25.0	.583	535.10	-.24	534.86
- 7:29	29.0	.598	548.93	-.31	548.62
-7:29 END FLOW	0.0	.598	548.93	-.31	548.62

# SUPERIOR TESTERS ENTERPRISES INC.

## SUBSURFACE PRESSURE MEASUREMENTS

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COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-29-1988  
 DEPTH : 3274.0

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SERIAL NO. : 5463

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.: 4					
- 7:32	3.0	.835	767.46	-1.41	766.06
- 7:35	6.0	.861	791.44	-1.53	789.91
- 7:38	9.0	.873	802.50	-1.58	800.92
- 7:41	12.0	.884	812.64	-1.63	811.01
- 7:44	15.0	.891	819.10	-1.67	817.43
- 7:47	18.0	.895	822.79	-1.69	821.10
- 7:50	21.0	.899	826.47	-1.70	824.77
- 7:53	24.0	.903	830.16	-1.72	828.44
- 7:56	27.0	.907	833.85	-1.74	832.11
- 7:59	30.0	.908	834.77	-1.75	833.03
- 8:02	33.0	.909	835.70	-1.75	833.94
- 8:05	36.0	.911	837.54	-1.76	835.78
- 8:08	39.0	.912	838.46	-1.76	836.70
- 8:11	42.0	.913	839.38	-1.77	837.61
- 8:14	45.0	.913	839.38	-1.77	837.61
- 8:17	48.0	.913	839.38	-1.77	837.61
- 8:20	51.0	.913	839.38	-1.77	837.61
- 8:23	54.0	.913	839.38	-1.77	837.61
- 8:26	57.0	.913	839.38	-1.77	837.61
- 8:29	60.0	.913	839.38	-1.77	837.61
-8:29 2ND SHUT-IN	0.0	.913	839.38	-1.77	837.61
-2ND HYDROSTATIC	0.0	1.768	1627.75	-2.29	1625.46

CALCULATED RECOVERY ANALYSIS

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Number: 4

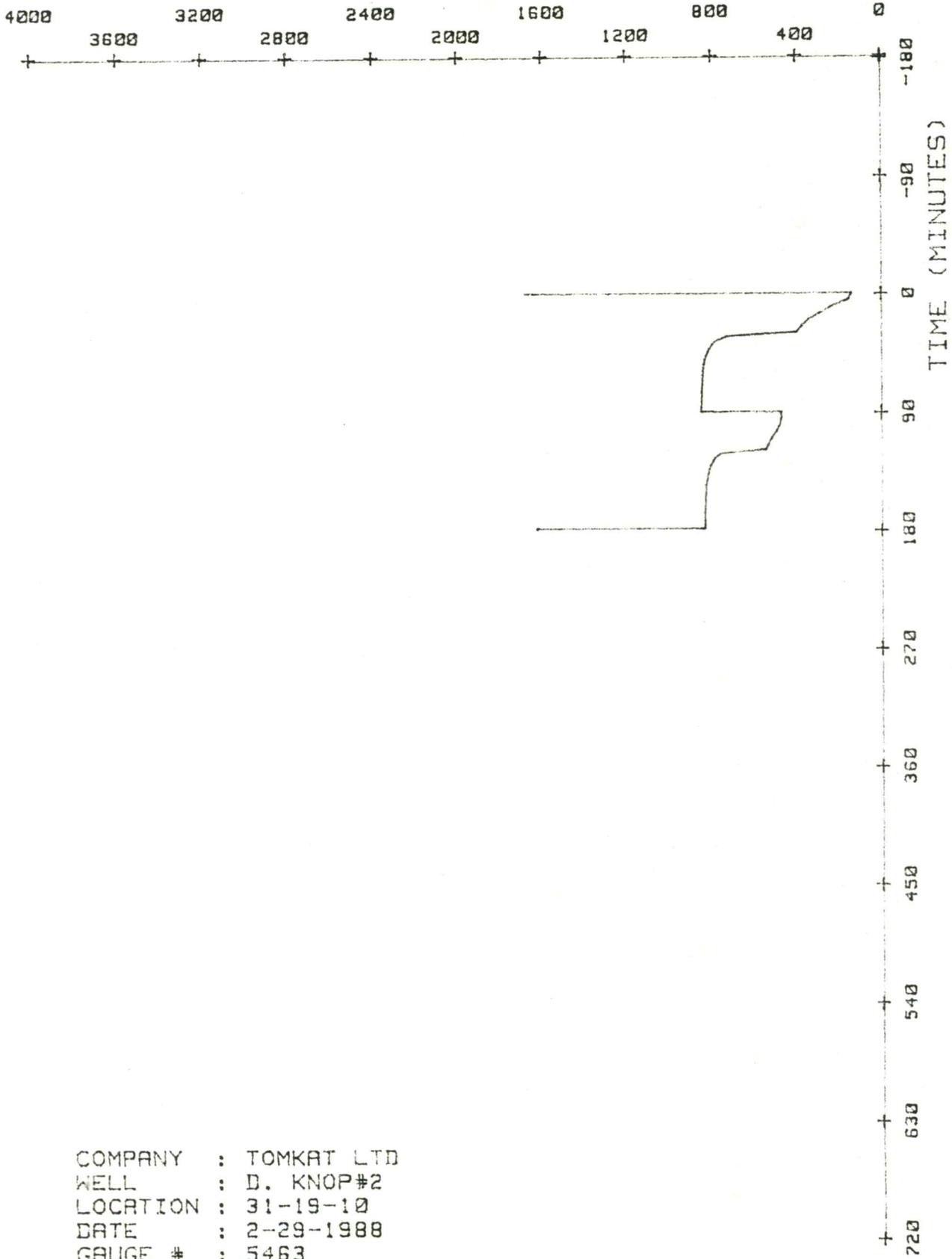
Test ticket number: 10696

le #	Total Feet	***** Gas ****		***** Oil ****		***** Mud ****	
		%	Feet	%	Feet	%	Feet
1	1450	100.00	1450.00	0.00	0.00	0.00	0.00
2	360	16.00	57.60	82.00	295.20	0.00	0.00
3	240	80.00	192.00	5.00	12.00	15.00	36.00
4	1050	22.00	231.00	78.00	819.00	0.00	0.00
iL	3100	62.28	1930.60	36.33	1126.20	1.16	36.00

le #	Total Feet	**** WATER ****		Chlorides (ppm)	Resistivity (ohms)	Temperature (deg)
		%	Feet			
1	1450	0.00	0.00	0.00	0.00	0.00
2	360	0.00	0.00	0.00	0.00	0.00
3	240	0.00	0.00	0.00	0.00	0.00
4	1050	0.00	0.00	0.00	0.00	0.00
iL	3100	0.00	0.00			

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

PRESSURE ( P S I G )

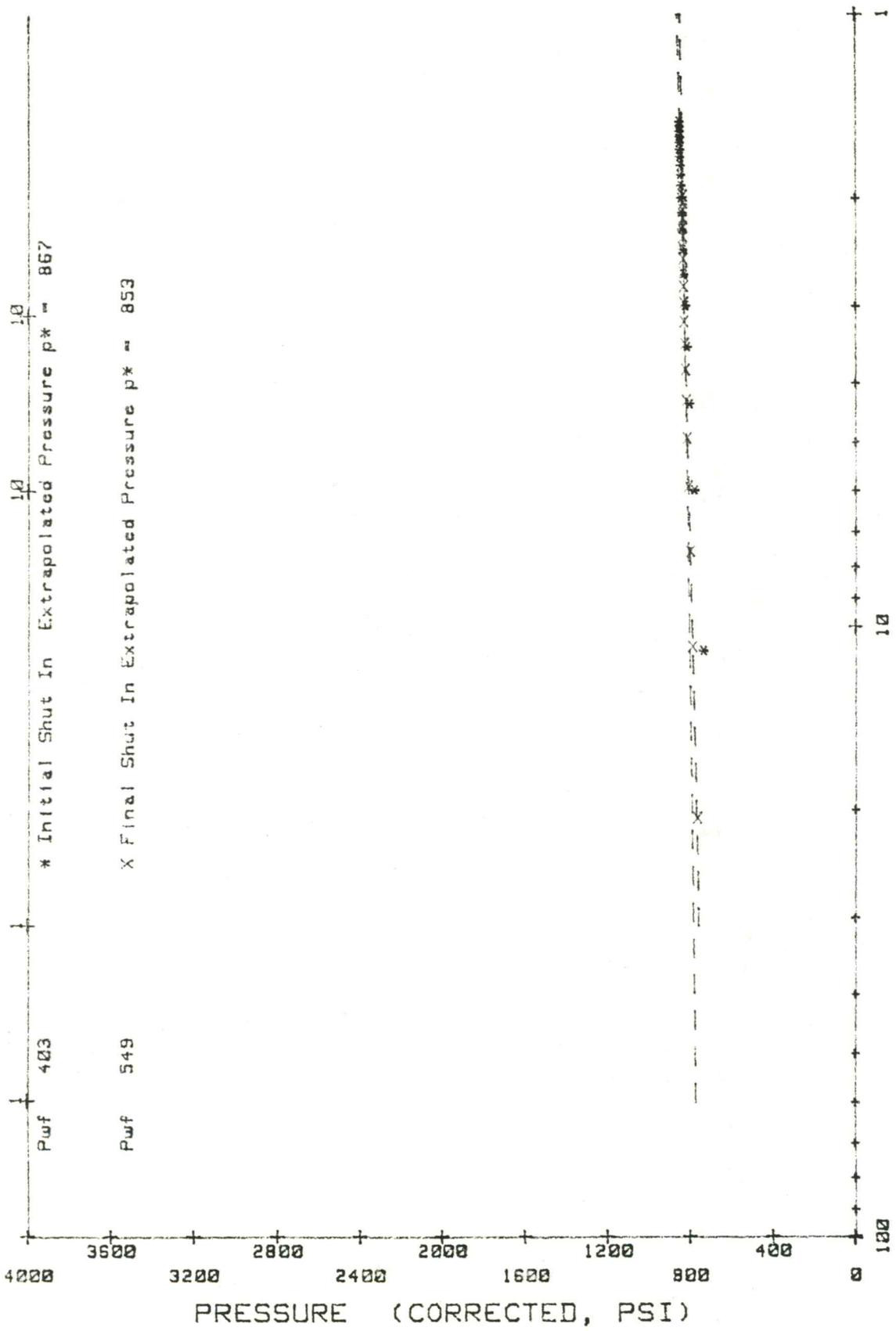


COMPANY : TOMKAT LTD  
WELL : D. KNOP#2  
LOCATION : 31-19-10  
DATE : 2-29-1988  
GAUGE # : 5463

LOCATION : 31-19-10

DATE : 2-29-1988

GAUGE # : 5463



SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : TOMKAT LTD  
DATE OF TEST : 2-29-1988  
DST. NO : 4

WELL NAME : D. KNOF#2  
LOCATION : 31-19-10  
SHUT-IN PERIOD : 1

INTERPRETIVE DATA (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	867.00
Slope of Build-up Curve (psi/log cycle): .....	72.74
Effective Producing Time (min): .....	30.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : TOMKAT LTD  
 WELL NAME : D. KNOP#2  
 WELL ID : 31-19-10  
 STATE & COUNTY : KANSAS, RICE  
 DATE OF TEST : 2-29-1988  
 START INT. KB : 3236 to 3280  
 TIME INTERVAL (ft) K.B. : 44.00  
 DEPTH (GR) : 1764 (KB) : 1769  
 WELL ID :

INSTRUMENT SERIAL NO. : 5463  
 TEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG	-----
Well depth :	3274.0	ft-kb		
NO END FLOW	0.00	0.00	402.75	
	3.00	11.00	736.70	
	6.00	6.00	779.82	
	9.00	4.33	802.75	
	12.00	3.50	815.60	
	15.00	3.00	823.85	
	18.00	2.67	832.11	
	21.00	2.43	837.61	
	24.00	2.25	841.28	
	27.00	2.11	844.95	
	30.00	2.00	846.79	
	33.00	1.91	846.79	
	36.00	1.83	848.62	
	39.00	1.77	849.54	
	42.00	1.71	851.38	
	45.00	1.67	851.38	
	48.00	1.63	852.29	
	51.00	1.59	853.21	
	54.00	1.56	854.13	
	57.00	1.53	854.13	
	60.00	1.50	854.13	
NO 1ST SHUT-IN	0.00	0.00	854.13	

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : TOMKAT LTD  
 WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 STATE & COUNTY : KANSAS, RICE  
 DATE OF TEST : 2-29-1988  
 START INT. KB : 3236 to 3280  
 TEST INTERVAL (ft) K.B. : 44.00  
 EV. (GR) : 1764 (KB) : 1769  
 ELD :

ELEMENT SERIAL NO. : 5463  
 TEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG
Per. depth :	3274.0 ft-kb		
29 END FLOW	0.00	0.00	548.62
	3.00	20.67	766.06
	6.00	10.83	789.91
	9.00	7.56	800.92
	12.00	5.92	811.01
	15.00	4.93	817.43
	18.00	4.28	821.10
	21.00	3.81	824.77
	24.00	3.46	828.44
	27.00	3.19	832.11
	30.00	2.97	833.03
	33.00	2.79	833.94
	36.00	2.64	835.78
	39.00	2.51	836.70
	42.00	2.40	837.61
	45.00	2.31	837.61
	48.00	2.23	837.61
	51.00	2.16	837.61
	54.00	2.09	837.61
	57.00	2.04	837.61
	60.00	1.98	837.61
29 2ND SHUT-IN	0.00	0.00	837.61

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : TOMKAT LTD  
 DATE OF TEST : 2-29-1988  
 DST. NO : 4

WELL NAME : D. KNOP#2  
 LOCATION : 31-19-10  
 SHUT-IN PERIOD : 2

INTERPRETIVE DATA (OIL)

TRANSMISSIBILITY

Oil (md.ft/cp): ..... 977.59  
 Gas (md.ft/cp): ..... 0.00

EFFECTIVE PERMEABILITY

Oil (md): ..... 86.03  
 Gas (md): ..... 0.00

TOTAL MOBILITY (md/cp): ..... 107.53

TOTAL COMPRESSIBILITY (psi<sup>-1</sup>): ..... 8.56E-06

ESTIMATED DAMAGE RATIO: ..... 1.53

CALCULATED DAMAGE RATIO: ..... 1.23

Reservoir Temperature (F): ..... 112.00

Formation Porosity : ..... .18

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

Wellbore Radius (in): ..... 4.38

Reservoir Compressibility (psi<sup>-1</sup>): ..... 4.80E-07

Calculated Skin Factor : ..... 1.46

PRODUCTION WITH DAMAGE REMOVED (bbl/D): ..... 333.35

PRODUCTIVITY INDEX (bbl/psi): ..... .89

Final Flow Pressure (psi): ..... 549.00

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 267.45

Total Flowing Time (min): ..... 59.00

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 853.00

Slope of Build-up Curve (psi/log cycle): ..... 45.01

Effective Producing Time (min): ..... 59.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.