TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

11-10S-26W
NW-SW-NE
API 15-179-20,917

Drill-Stem Test Data

Well Name & No. #3 Bittel'E' Test No. 1 Date 2/28/88

Company Petroleum Incorporated Zone Tested Toronto LKC"A"

Address 301 N. Main #900 Wichita, KS 67202-1508 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks

Interval Tested 3809-3861 Drill Pipe Size 4½"X.H.

Anchor Length 52 Top Choke — 1"

Top Packer Depth 3804 Bottom Choke — ¾"

Bottom Packer Depth 3809 Hole Size — 7⅞"

Total Depth 3861 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 573

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.1 lb./gal. Viscosity 43 Filtrate 8.0

Tool Open @ 1:03P.M. Initial Blow weak ½" blow building to 2"

Final Blow weak surface blow building to 3"

Recovery — Total Feet 100 Flush Tool?

Rec. 40 Feet of oil specked mud 5% oil 95% mud

Rec. 60 Feet of slightly oil specked watery mud<5% oil 15% water 85%

Rec. Feet of

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 120 °F Gravity °API @ °F Corrected Gravity °API

RW .310 @ 62.9 °F Chlorides 25,000 ppm Recovery Clorides 4000 ppm System

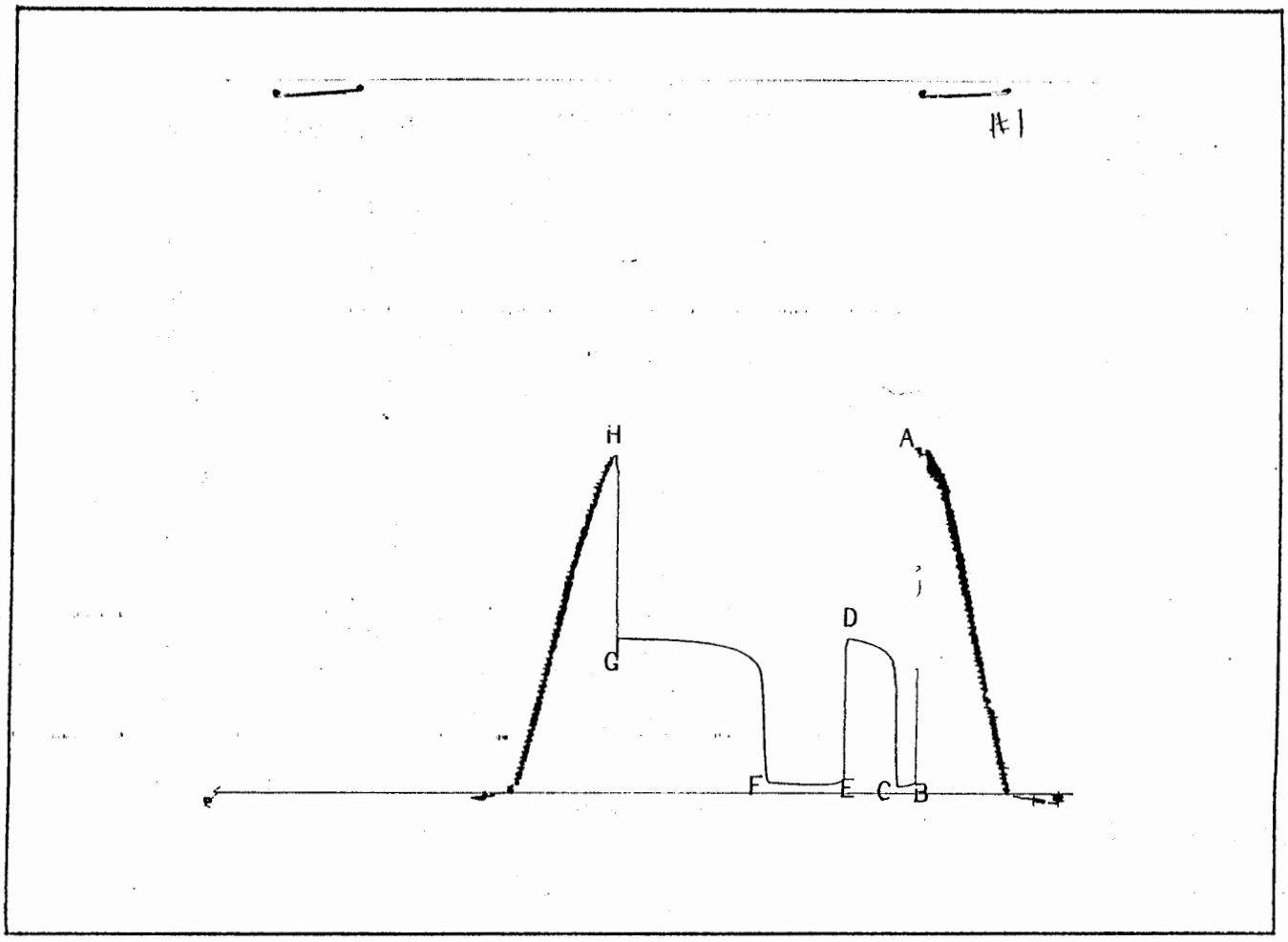
(A) Initial Hydrostatic Mud 1899.4 PSI	AK1 Recorder No. 13337	Range 3975
(B) First Initial Flow Pressure 54 PSI	@ (depth) 3860	w/Clock No. 25813
(C) First Final Flow Pressure 61.2 PSI	AK1 Recorder No. 13223	Range 4150
(D) Initial Shut-In Pressure 899 PSI	@ (depth) 3855	w/Clock No. 26191
(E) Second Initial Flow Pressure 72.6 PSI	Initial Opening 15	RECEIVED
(F) Second Final Flow Pressure 102.7 PSI	Initial Shut-In 40	
(G) Final Shut-In Pressure 892.7 PSI	Final Flow 60	MAR - 9 '88
(H) Final Hydrostatic Mud 1869.3 PSI	Final Shut-In 120	GREAT BEND

Our Representative Paul Simpson

Division Office 450

TOTAL PRICE ..... $

Printcraft Printers - Hays, KS



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1890	1899.4	PSI
(B) First Initial Flow Pressure	41	54	PSI
(C) First Final Flow Pressure	52	61.2	PSI
(D) Initial Closed-in Pressure	894	899	PSI
(E) Second Initial Flow Pressure	62	72.6	PSI
(F) Second Final Flow Pressure	93	102.7	PSI
(G) Final Closed-in Pressure	883	892.7	PSI
(H) Final Hydrostatic Mud	1859	1869.3	PSI

TRILOBITE TESTING COMPANY

P. O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 1090

Well Name & No. #3 Bittel E Test No. 1 Date 2/28/88

Company Petroleum Inc Zone Tested Toronto LKC

Address 301 N Main #900 Wichita Ks 67202-1508 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10S Rge. 26W Co. Sheridan State Ks

Interval Tested 3809 - 3861 Drill Pipe Size 4½ XH

Anchor Length 52 Top Choke — 1"

Top Packer Depth 3804 Bottom Choke — ¾"

Bottom Packer Depth 3809 Hole Size — 7⅞"

Total Depth 3861 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 573

Drill Collar — 2.25 Ft. Run

Mud Wt. 9+ lb./gal. Viscosity 43 Filtrate 8°

Tool Open @ 11:03 PM Initial Blow weak ½" blow building to 2"

Final Blow weak surface blow - building to 3"

Recovery — Total Feet 100 Flush Tool?

Rec. 40 Feet of SOSM 5% oil 95% mud

Rec. 60 Feet of SL. OS WM <5% oil 15% water 85% mud

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 120 °F Gravity °API @ °F Corrected Gravity °API

RW .310 @ 62.4 °F Chlorides 25,000 ppm Recovery Chlorides 4000 ppm System

(A) Initial Hydrostatic Mud 1890 PSI AK1 Recorder No. 13337 Range 3975

(B) First Initial Flow Pressure 41 PSI @ (depth) 3800 w/Clock No. 25813

(C) First Final Flow Pressure 52 PSI AK1 Recorder No. 13223 Range 4150

(D) Initial Shut-In Pressure 894 PSI @ (depth) 3855 w/Clock No. 26191

(E) Second Initial Flow Pressure 62 PSI Initial Opening 15

(F) Second Final Flow Pressure 93 PSI Initial Shut-In 40

(G) Final Shut-In Pressure 883 PSI Final Flow 60

(H) Final Hydrostatic Mud 1859 PSI Final Shut-In 120

Approved by Kenneth M. Dean

Our Representative Paul Simpson

Test ..... $ 400

Extra Equip. 50

Extra Equip .....

TOTAL PRICE ..... $ 450

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

11-10S-26W
NW-SW-NE
API 15-179-20,917

Well Name & No. Bittel "E" #3 Test No. 2 Date 2/29/88

Company Petroleum Incorporated Zone Tested LKC "B"

Address 300 N. Main #900 Wichita, KS 67202-1508 Elevation 2593

Co. Rep./Geo. Kwnneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26s Co. Sheridan State KS

Interval Tested 3866-3886 Drill Pipe Size 4½ X.H.

Anchor Length 20 Top Choke — 1"

Top Packer Depth 3861 Bottom Choke — ¾"

Bottom Packer Depth 3866 Hole Size — 7⅞"

Total Depth 3886 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.2 lb./gal. Viscosity 40 Filtrate 8

Tool Open @ 3:53 A.M. Initial Blow ½" blow building to 3"

Final Blow very weak surface blow building to 2½"

Recovery — Total Feet 55 Flush Tool?

Rec. 10 Feet of gas in pipe

Rec. 15 Feet of free oil

Rec. 40 Feet of slightly oil cut mud 10% oil 90% mud

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 121 °F Gravity °API @ °F Corrected Gravity °API

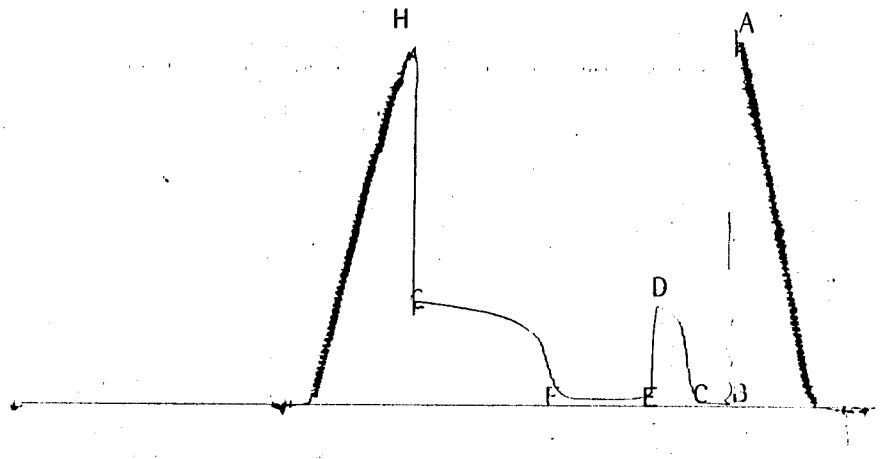
RW @ °F Chlorides ppm Recovery Clorides ppm System

(A) Initial Hydrostatic Mud	1972 PSI	AK1 Recorder No.	13387	Range	3975
(B) First Initial Flow Pressure	20.8 PSI	@ (depth)	3885	w/Clock No.	25813
(C) First Final Flow Pressure	27 PSI	AK1 Recorder No.	13223	Range	4150
(D) Initial Shut-in Pressure	557.3 PSI	@ (depth)	3880	w/Clock No.	25814
(E) Second Initial Flow Pressure	44.6 PSI	Initial Opening	15		
(F) Second Final Flow Pressure	49.8 PSI	Initial Shut-in	40		
(G) Final Shut-in Pressure	556.3 PSI	Final Flow	60		
(H) Final Hydrostatic Mud	1902.3 PSI	Final Shut-in	120		

Our Representative Paul Simpson TOTAL PRICE..... $ 450

Printcraft Printers - Hays, KS

13337 DST 2



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1900	1972	PSI
(B) First Initial Flow Pressure	21	20.8	PSI
(C) First Final Flow Pressure	31	27	PSI
(D) Initial Closed-in Pressure	560	557.3	PSI
(E) Second Initial Flow Pressure	52	44.6	PSI
(F) Second Final Flow Pressure	62	49.8	PSI
(G) Final Closed-in Pressure	560	556.3	PSI
(H) Final Hydrostatic Mud	1871	1902.3	PSI

INITIAL SHUT-IN BUILDUP
DST #2

RECORDER # 13223
INITIAL FLOW TIME (MIN.): 15

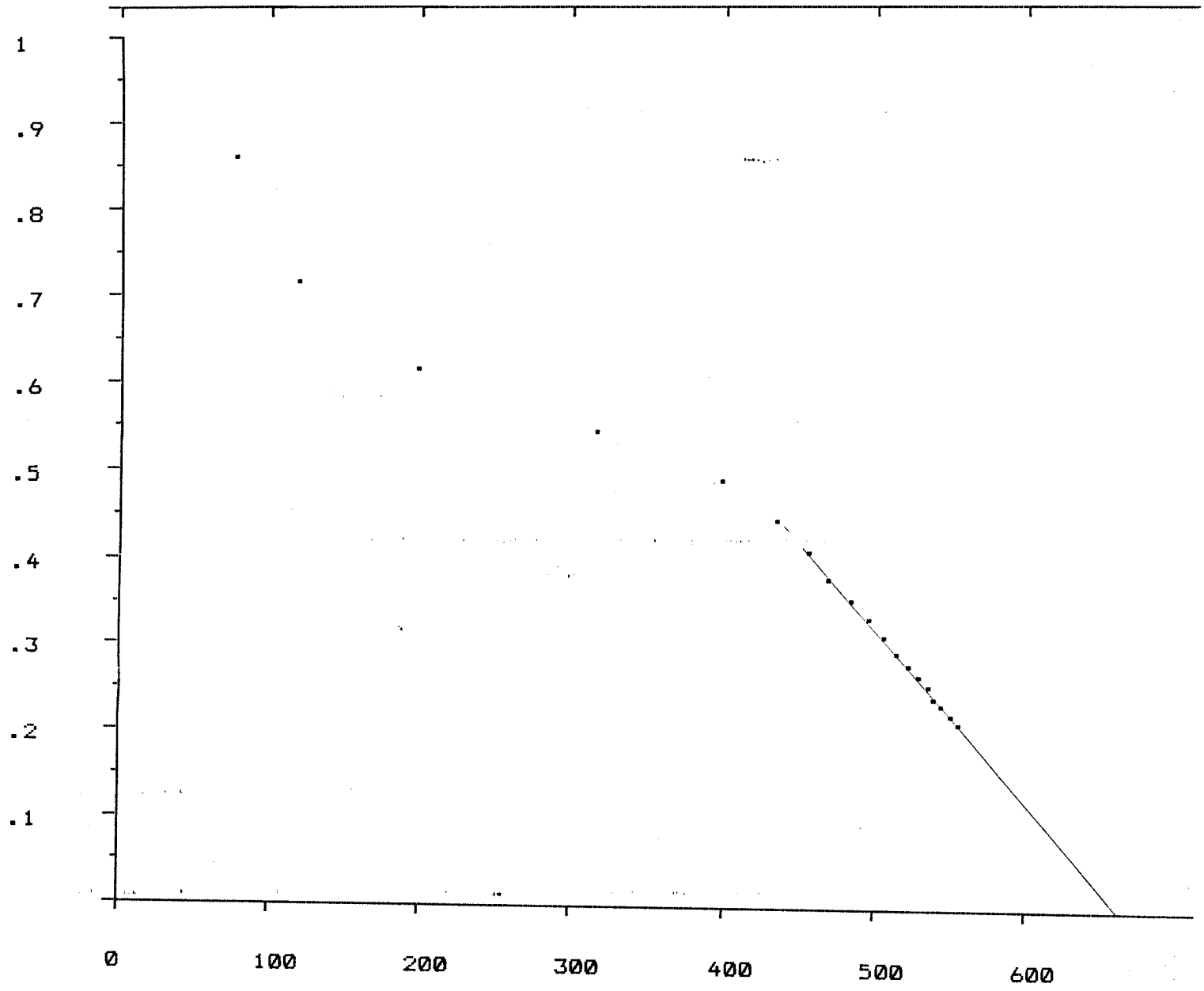
MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	27	27
3	.778011	29.1	2.1
6	.54397	32.1	3
9	.425892	41.5	9.4
12	.352119	64.3	22.8
15	.300976	110	45.7
18	.263194	205.4	95.4
21	.234041	341.3	135.9
24	.210815	425.3	84
27	.191851	479.3	54
30	.17606	504.2	24.9
33	.162698	524	19.8
36	.15124	537.5	13.5
39	.141304	547.4	9.9
42	.132602	557.3	9.9

FINAL SHUT-IN BUILDUP
DST #2

RECORDER # 13223
TOTAL FLOW TIME (MIN.): 75

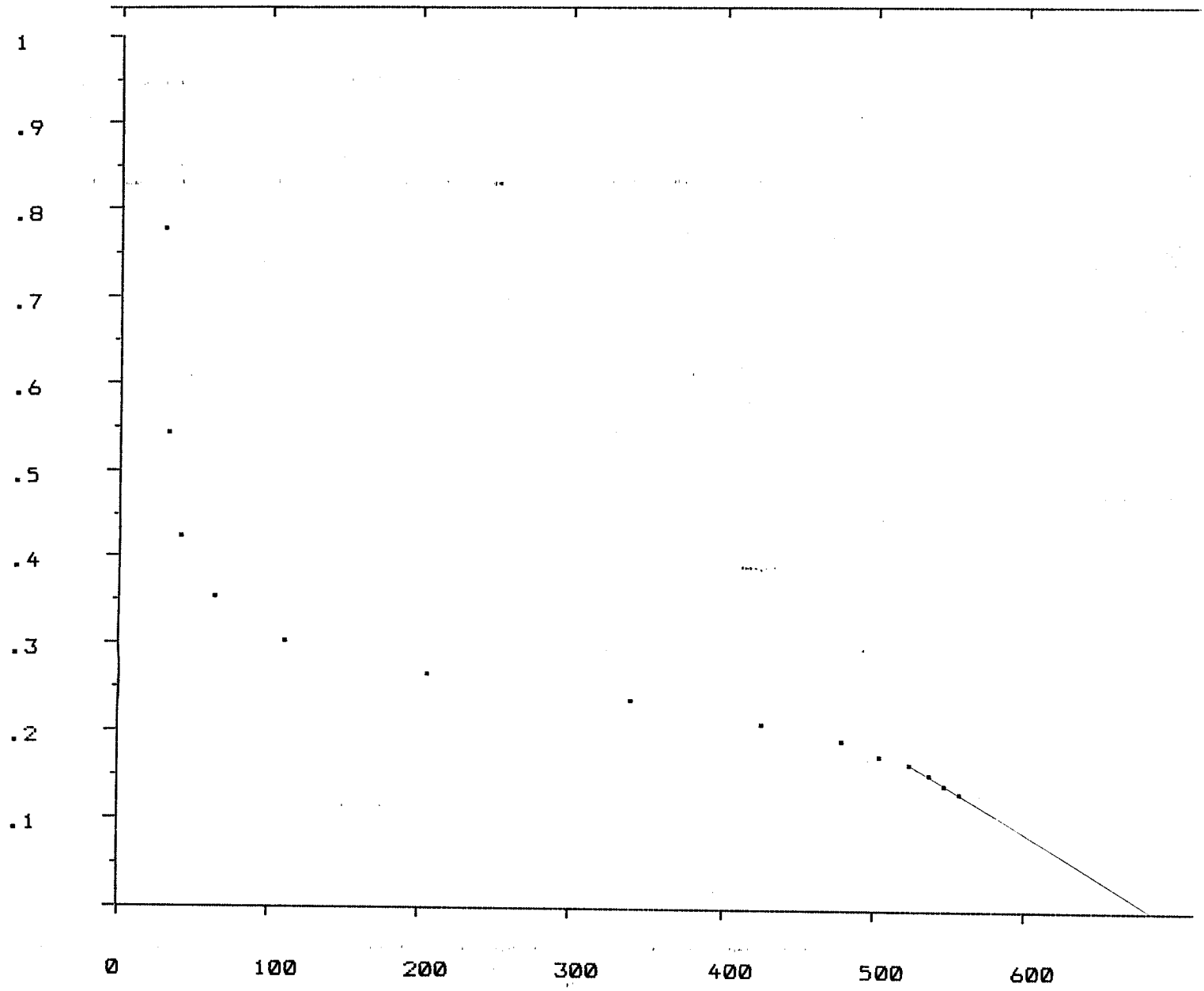
MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	49.8	49.8
6	1.13013	53.9	4.1
12	.860183	75.7	21.8
18	.713082	118.3	42.6
24	.615313	198.1	79.8
30	.54397	315.3	117.2
36	.488932	398.3	83
42	.444856	433.6	35.3
48	.40859	456.4	22.8
54	.378128	469.9	13.5
60	.352119	483.4	13.5
66	.329616	495.9	12.5
72	.309929	506.3	10.4
78	.292544	513.5	7.2
84	.277068	522.9	9.4
90	.263194	529.2	6.3
96	.25068	535.4	6.2
102	.23933	539.8	4.4
108	.228986	544.8	5
114	.219517	550	5.2
120	.210815	556.3	6.3

DST#2
FINAL SHUT-IN
HORNER PLOT
PRESSURE



STATIC PRESSURE 666.409
SLOPE 522.301
POINTS USED 14

DST#2
INITIAL SHUT-IN
HORNER PLOT
PRESSURE



STATIC PRESSURE 703.705
SLOPE 1104.09
POINTS USED 4

4 copies

TRILOBITE TESTING COMPANY

P. O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 1091

Well Name & No. Bittel 'E' #3 Test No. 2 Date 2/29/88

Company Petroleum Inc Zone Tested LKC 'B'

Address 301 N Main #900 Wichita Ks 67202 1508 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks

Interval Tested 3866 - 3886 Drill Pipe Size 4½ XH

Anchor Length 20 Top Choke — 1"

Top Packer Depth 3861 Bottom Choke — ¾"

Bottom Packer Depth 3866 Hole Size — 7⅞"

Total Depth 3886 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.2 lb./gal. Viscosity 40 Filtrate 8

Tool Open @ 3:53AM Initial Blow ½" blow building to 3"

Final Blow vl weak surface blow building to 2½"

Recovery — Total Feet 55 Flush Tool?

Rec. 10 Feet of GIP

Rec. 15 Feet of free oil

Rec. 40 Feet of SOCM 10% oil 90% wtr

Rec. Feet of

Rec. Feet of

BHT 121 °F Gravity °API @ °F Corrected Gravity °API

RW @ °F Chlorides ppm Recovery Chlorides ppm System

(A) Initial Hydrostatic Mud	1960 PSI	AK1 Recorder No.	13337	Range	3975
(B) First Initial Flow Pressure	21 PSI	@ (depth)	3885	w/Clock No.	25813
(C) First Final Flow Pressure	31 PSI	AK1 Recorder No.	13273	Range	4150
(D) Initial Shut-In Pressure	560 PSI	@ (depth)	3880	w/Clock No.	25814
(E) Second Initial Flow Pressure	52 PSI	Initial Opening	15		
(F) Second Final Flow Pressure	62 PSI	Initial Shut-In	40		
(G) Final Shut-In Pressure	560 PSI	Final Flow	60		
(H) Final Hydrostatic Mud	1871 PSI	Final Shut-In	120		

Approved by Kenneth Dean

Our Representative Paul Simpson

Test	$ 400
Extra Equip.	50
Extra Equip	
TOTAL PRICE	$ 450

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

11-10S-26W
NW-SW-NE

Drill-Stem Test Data

API 15-179-20,917

Well Name & No. Bittel "E" #3 Test No. 3 Date 2/29/88

Company Petroleum Inc. Zone Tested LKC "D"

Address 300 N. Main #900 Wichita, KS 67202-1508 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State KS

Interval Tested 3886-3902 Drill Pipe Size 4½" X.H.

Anchor Length 16 Top Choke — 1"

Top Packer Depth 3881 Bottom Choke — ¾"

Bottom Packer Depth 3886 Hole Size — 7⅞"

Total Depth 3902 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.2 lb./gal. Viscosity 40 Filtrate 8

Tool Open @ 10:21 Initial Blow weak 1/8" blow building to ½"

Final Blow no blow

Recovery — Total Feet 5 Flush Tool?

Rec. 5 Feet of slightly oil specked mud

Rec. Feet of

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 118 °F Gravity °API @ °F Corrected Gravity °API

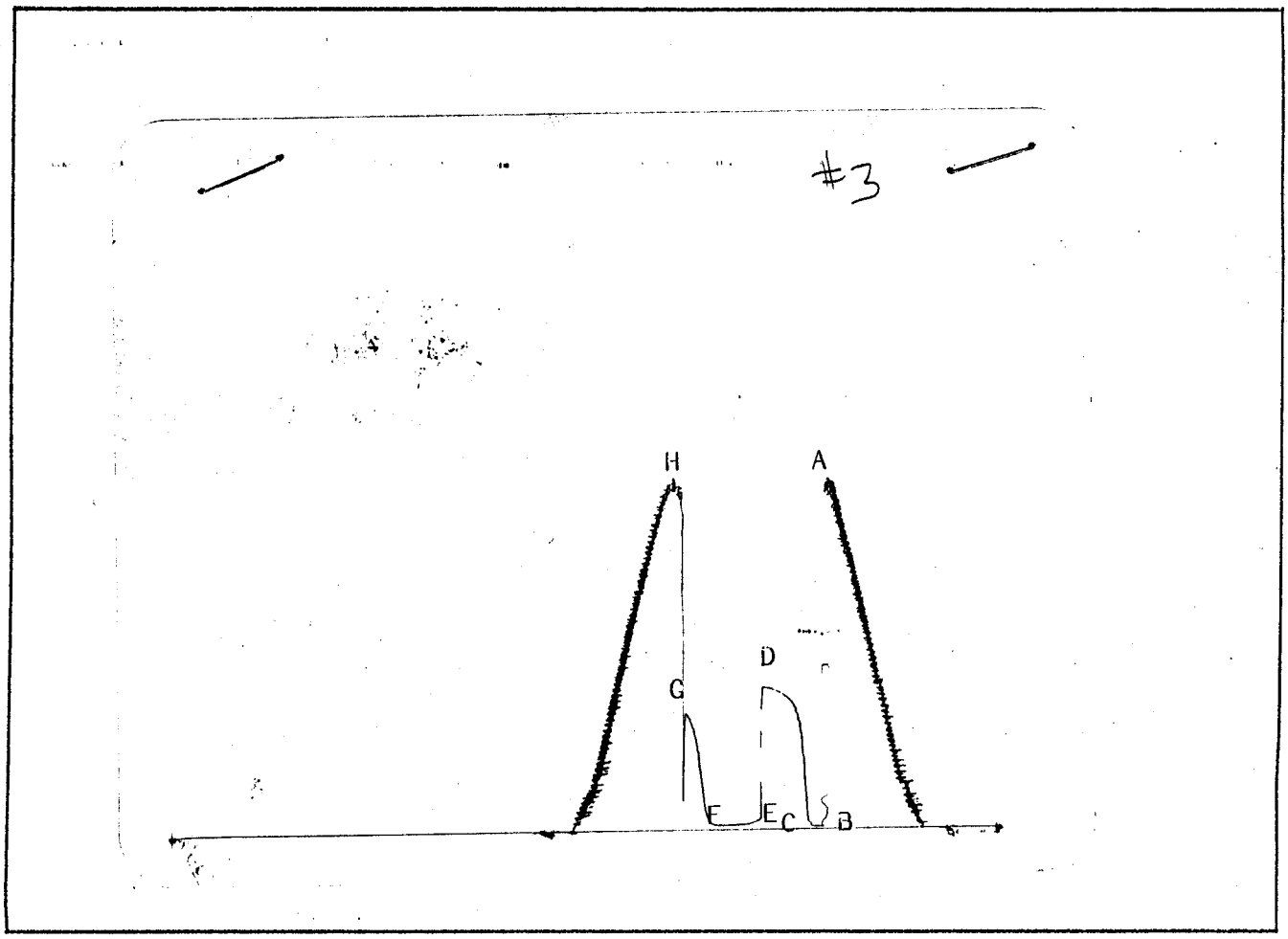
RW @ °F Chlorides ppm Recovery Clorides ppm System

(A) Initial Hydrostatic Mud	1923.2 PSI	AK1 Recorder No. 13337	Range 3975
(B) First Initial Flow Pressure	20.8 PSI	@ (depth) 3901	w/Clock No. 25813
(C) First Final Flow Pressure	23.9 PSI	AK1 Recorder No. 13223	Range 4150
(D) Initial Shut-in Pressure	810.4 PSI	@ (depth) 3886	w/Clock No. 25814
(E) Second Initial Flow Pressure	31.1 PSI	Initial Opening	10
(F) Second Final Flow Pressure	31.1 PSI	Initial Shut-in	40
(G) Final Shut-in Pressure	643.8 PSI	Final Flow	30
(H) Final Hydrostatic Mud	1910.8 PSI	Final Shut-in	30

Our Representative Paul Simpson

TOTAL PRICE..... $ 450.00

Printcraft Printers - Hays, KS



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1910	1923,2	PSI
(B) First Initial Flow Pressure	10	20.8	PSI
(C) First Final Flow Pressure	21	23.9	PSI
(D) Initial Closed-in Pressure	800	810.4	PSI
(E) Second Initial Flow Pressure	21	31.1	PSI
(F) Second Final Flow Pressure	21	31.1	PSI
(G) Final Closed-in Pressure	664	643.8	PSI
(H) Final Hydrostatic Mud	1890	1910.8	PSI

INITIAL SHUT-IN BUILDUP
DST #3

RECORDER # 13223
INITIAL FLOW TIME (MIN.): 10

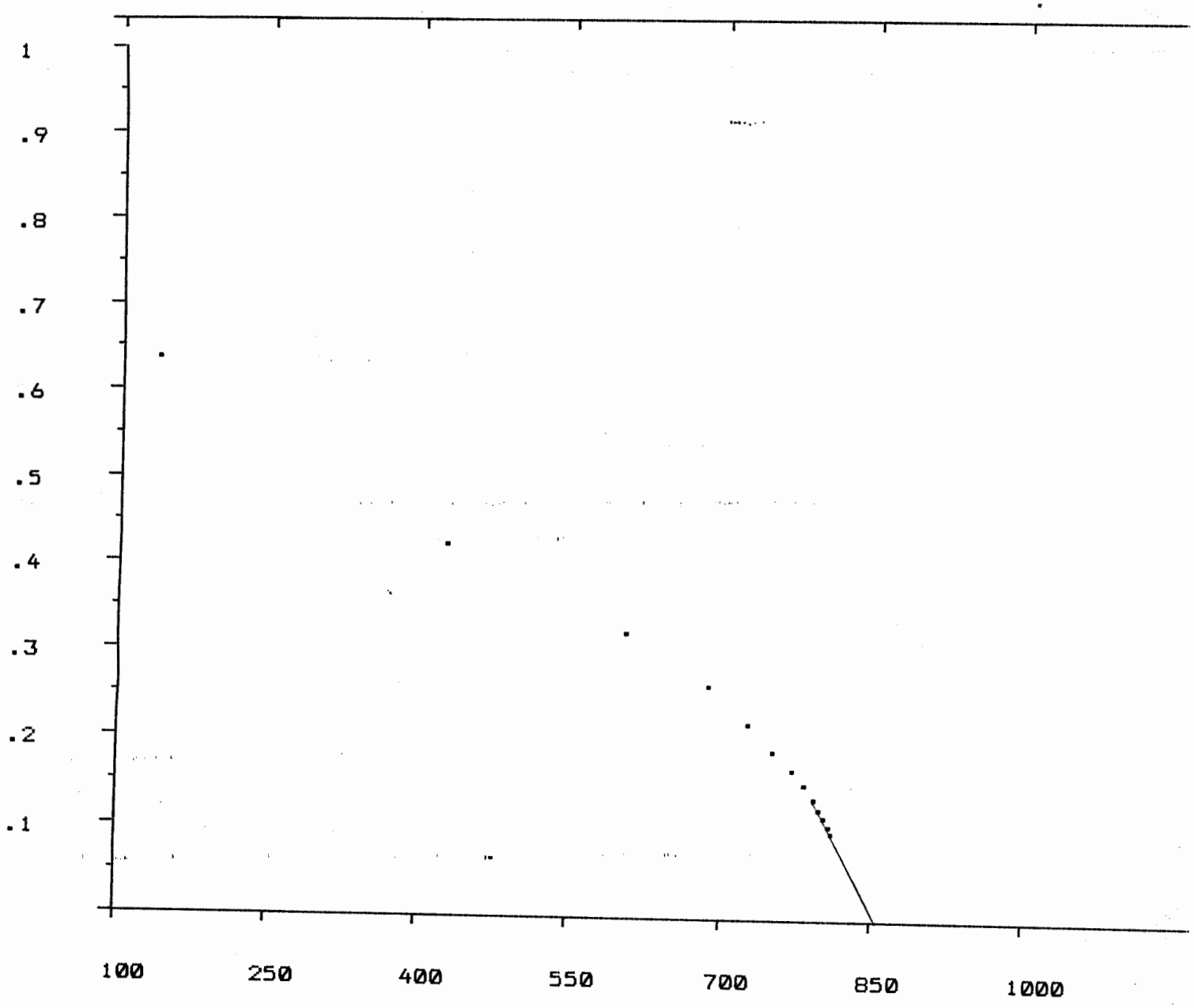
MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	23.9	23.9
3	.636707	135.9	112
6	.425892	425.3	289.4
9	.324453	607.3	182
12	.263194	686.5	79.2
15	.221809	726	39.5
18	.191851	751	25
21	.169112	770.8	19.8
24	.15124	784.4	13.6
27	.136813	792.7	8.3
30	.124916	798	5.3
33	.114934	804.2	6.2
36	.106436	808.3	4.1
39	.0991136	810.4	2.1

FINAL SHUT-IN BUILDUP
DST #3

RECORDER # 13223
TOTAL FLOW TIME (MIN.): 40

MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	31.1	31.1
3	1.15614	31.1	0
6	.884447	32.2	1.1
9	.735821	35.3	3.1
12	.636707	52.9	17.6
15	.56417	110	57.1
18	.508064	235.5	125.5
21	.463027	396.3	160.8
24	.425892	506.3	110
27	.39464	595.8	89.5
30	.36791	643.8	48

DST#3
INITIAL SHUT-IN
HORNER PLOT
PRESSURE



STATIC PRESSURE 855.89
SLOPE 458.968
POINTS USED 5

TRILOBITE TESTING COMPANY

P. O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 1092

Well Name & No. Bittel 'E' #3 Test No. J Date 2/24/88

Company Petroleum Inc Zone Tested LKC 'D'

Address 301 N Main #900 Wichita Ks 67202-1508 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks

Interval Tested 3886-3902 Drill Pipe Size 4½ XH

Anchor Length 16 Top Choke — 1"

Top Packer Depth 3881 Bottom Choke — ¾"

Bottom Packer Depth 3886 Hole Size — 7⅞"

Total Depth 3902 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.2 lb./gal. Viscosity 40 Filtrate 8

Tool Open @ 10:21 Initial Blow weak ⅛" building to ½"

Final Blow no blow

Recovery — Total Feet 5 Flush Tool?

Rec. 5 Feet of sl oil spotted mud

Rec. Feet of

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 118 °F Gravity °API @ °F Corrected Gravity °API

RW @ °F Chlorides ppm Recovery Chlorides ppm System

(A) Initial Hydrostatic Mud 1910 PSI AK1 Recorder No. 13337 Range 3975

(B) First Initial Flow Pressure 10 PSI @ (depth) 3901 w/Clock No. 25413

(C) First Final Flow Pressure 21 PSI AK1 Recorder No. 13273 Range 4150

(D) Initial Shut-In Pressure 800 PSI @ (depth) 3886 w/Clock No. 25814

(E) Second Initial Flow Pressure 21 PSI Initial Opening 10

(F) Second Final Flow Pressure 21 PSI Initial Shut-In 40

(G) Final Shut-In Pressure 664 PSI Final Flow 30

(H) Final Hydrostatic Mud 1890 PSI Final Shut-In 30

Approved by Kenneth Dean

Our Representative Paul Simpson

Test ..... $ 400

Extra Equip 50

Extra Equip .....

TOTAL PRICE ..... $ 450

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

11 - 10S - 26W
NW - SW - NE
API 15-179-20,917

Drill-Stem Test Data

Well Name & No. Bittel 'E' #3 Test No. 4 Date 3-1-88

Company Petroleum Inc. Zone Tested LKC E

Address 300 N. Main #900 Wichita, Ks. 67202 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombir #8 Est. Ft. of Pay 6

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks.

Interval Tested 3910 - 3938 Drill Pipe Size 4½" XH

Anchor Length 28 Top Choke — 1"

Top Packer Depth 3905 Bottom Choke — ¾"

Bottom Packer Depth 3910 Hole Size — 7⅞"

Total Depth 3938 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.3 lb./gal. Viscosity 45 Filtrate 8.8

Tool Open @ 11:14 a.m. Initial Blow strong blow built to bottom af bucket in 2 minut

(weak surface blow back)

Final Blow 1" blow building to bottom af bucket in 4 minutes

(blow back built to bottom of bucket in 40 minutes)

Recovery — Total Feet 1420 Flush Tool?

Rec. 320 Feet of gas in pipe

Rec. 70 Feet of clean gassy oil

Rec. 180 Feet of gassy oil cut muddy water 7% gas, 18% oil, 55% water, 2 m

Rec. 390 Feet of gassy oil cut muddy water 20% oil, 55% water, 8% mud

Rec. 780 Feet of oilspecked water

BHT 123 °F Gravity 39 °API @ 70 °F Corrected Gravity 38 °API

RW .100 @ 71.3 °F Chlorides 77,000 ppm Recovery Clorides 4000 ppm System

(A) Initial Hydrostatic Mud 1906.2 PSI AK1 Recorder No. 13849 Range 4375

(B) First Initial Flow Pressure 158.1 PSI @ (depth) 3937 w/Clock No. 25813

(C) First Final Flow Pressure 268.8 PSI AK1 Recorder No. 13337 Range 3975

(D) Initial Shut-In Pressure 934.2 PSI @ (depth) 3932 w/Clock No. 25814

(E) Second Initial Flow Pressure 360.7 PSI Initial Opening 10

(F) Second Final Flow Pressure 592.3 PSI Initial Shut-In 40

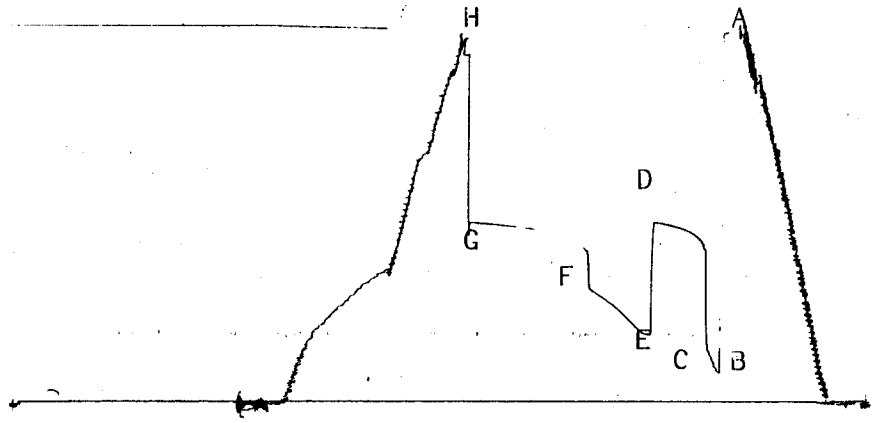
(G) Final Shut-In Pressure 930.3 PSI Final Flow 45

(H) Final Hydrostatic Mud 1877.9 PSI Final Shut-In 90

Our Representative Paul Simpson TOTAL PRICE ..... $ 450.00

Printcraft Printers - Hays, KS

#4 1333



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1904	1906.2	PSI
(B) First Initial Flow Pressure	148	158.1	PSI
(C) First Final Flow Pressure	257	268.8	PSI
(D) Initial Closed-in Pressure	916	934.2	PSI
(E) Second Initial Flow Pressure	346	360.7	PSI
(F) Second Final Flow Pressure	583	592.3	PSI
(G) Final Closed-in Pressure	916	930.3	PSI
(H) Final Hydrostatic Mud	1865	1877.9	PSI

COMPUTER EVALUATION BY TRILOBITE TESTING
PETROLEUM INCORPORATED
REPORT FOR DST#4 FOR THE BITTEL 'E' #3
SEC 11 10S 26W SHERIDAN KS

TEST PARAMETERS

ELEVATION:	2593 KB	EST. PAY:	6 FT
DATUM:	-1340	ZONE TESTED:	LANSING E
TEST INTERVAL:	3910-3938	TIME INTERVALS:	10-40-45-90
RECORDER DEPTH:	3932	VISCOSITY:	1 CP
BOTTOM HOLE TEMP:	123	HOLE SIZE:	7.875 IN

CALCULATIONS

CUBIC FEET OF GAS IN PIPE: 25.5486

TOTAL FEET OF RECOVERY: 1420
BARRELS IN DRILL PIPE: 11.60352
BARRELS IN WEIGHT PIPE: 4.228
GAS OIL RATIO: 1.61378 CU.FT./BBL
TOTAL BARRELS OF RECOVERY: 15.8315
UNCORR. INIT. PROD.: 414.497 BBL/DA
API GRAVITY: 1
FLUID GRADIENT: .45
CORRECTED PIPE FILLUP: 1316.22
CORR. BARRELS OF RECOVERY: 14.3526 B
L
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE: 375.777 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE 237.202

INITIAL SHUT-IN VALUES:
THEORETICAL STATIC PRESSURE 967.251
SLOPE 398.448

FINAL SHUT-IN VALUES
THEORETICAL STATIC PRESSURE 971.188
SLOPE 197.444

TRANSMISSIBILITY	309.462 (MD.-FT./CP.)
PERMEABILITY	51.577 (MD.)
INDICATED FLOW CAPACITY	309.462 (MD.FT)
PRODUCTIVITY INDEX	.349692 (BARRELS/DAY/PSI)
DAMAGE RATIO	.35117
RADIUS OF INVESTIGATION	53.261 (FT.)
POTENTIOMETRIC SURFACE	913.185 (FT.)
DRAWDOWN FACTOR	-.40703 (%)

INITIAL FLOW

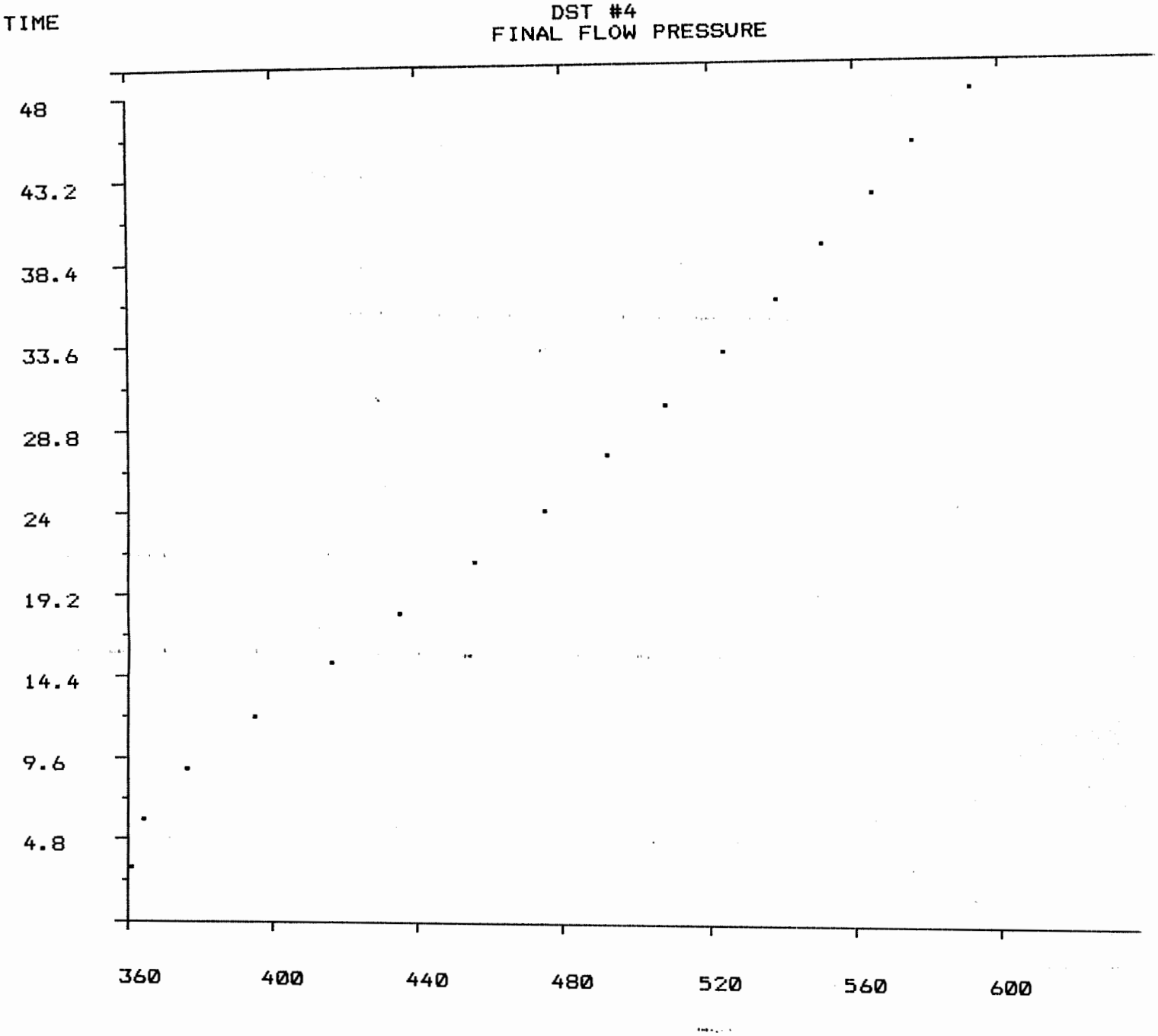
RECORDER # 13337
DST #4

DT(MIN)	PRESSURE	<> PRESSURE
0	158.1	158.1
3	176.9	18.8
6	223.3	46.4
9	268.8	45.5

FINAL FLOW

RECORDER # 13337
DST #4

DT(MIN)	PRESSURE	<> PRESSURE
0	360.7	360.7
3	360.7	0
6	364.6	3.9
9	376.5	11.9
12	395.3	18.8
15	416	20.7
18	434.8	18.8
21	455.5	20.7
24	475.3	19.8
27	492.1	16.8
30	507.9	15.8
33	523.6	15.7
36	538.3	14.7
39	551.1	12.8
42	564.8	13.7
45	576.6	11.8
48	592.3	15.7



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE 237.202 BBL/DAY

INITIAL SHUT-IN BUILDUP
DST #4

RECORDER # 13337
INITIAL FLOW TIME (MIN.): 10

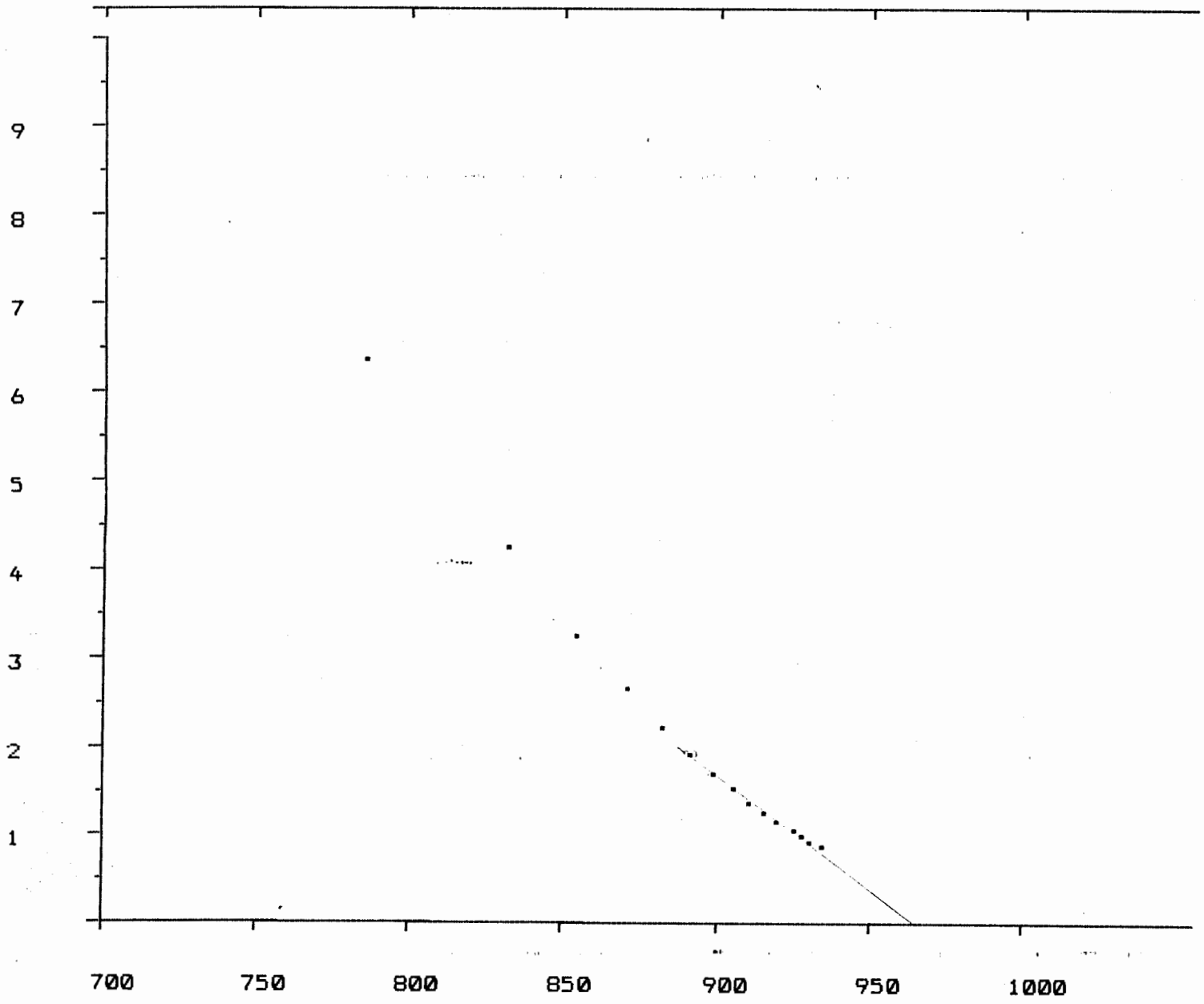
MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	268.8	268.8
3	.636707	785.8	517
6	.425892	832	46.2
9	.324453	854.6	22.6
12	.263194	871.3	16.7
15	.221809	882.1	10.8
18	.191851	891	8.9
21	.169112	898.8	7.8
24	.15124	905.7	6.9
27	.136813	910.6	4.9
30	.124916	915.5	4.9
33	.114934	919.4	3.9
36	.106436	925.3	5.9
39	.0991136	928.3	3
42	.0927373	930.3	2
45	.0871345	934.2	3.9

FINAL SHUT-IN BUILDUP
DST #4

RECORDER # 13337
TOTAL FLOW TIME (MIN.): 55

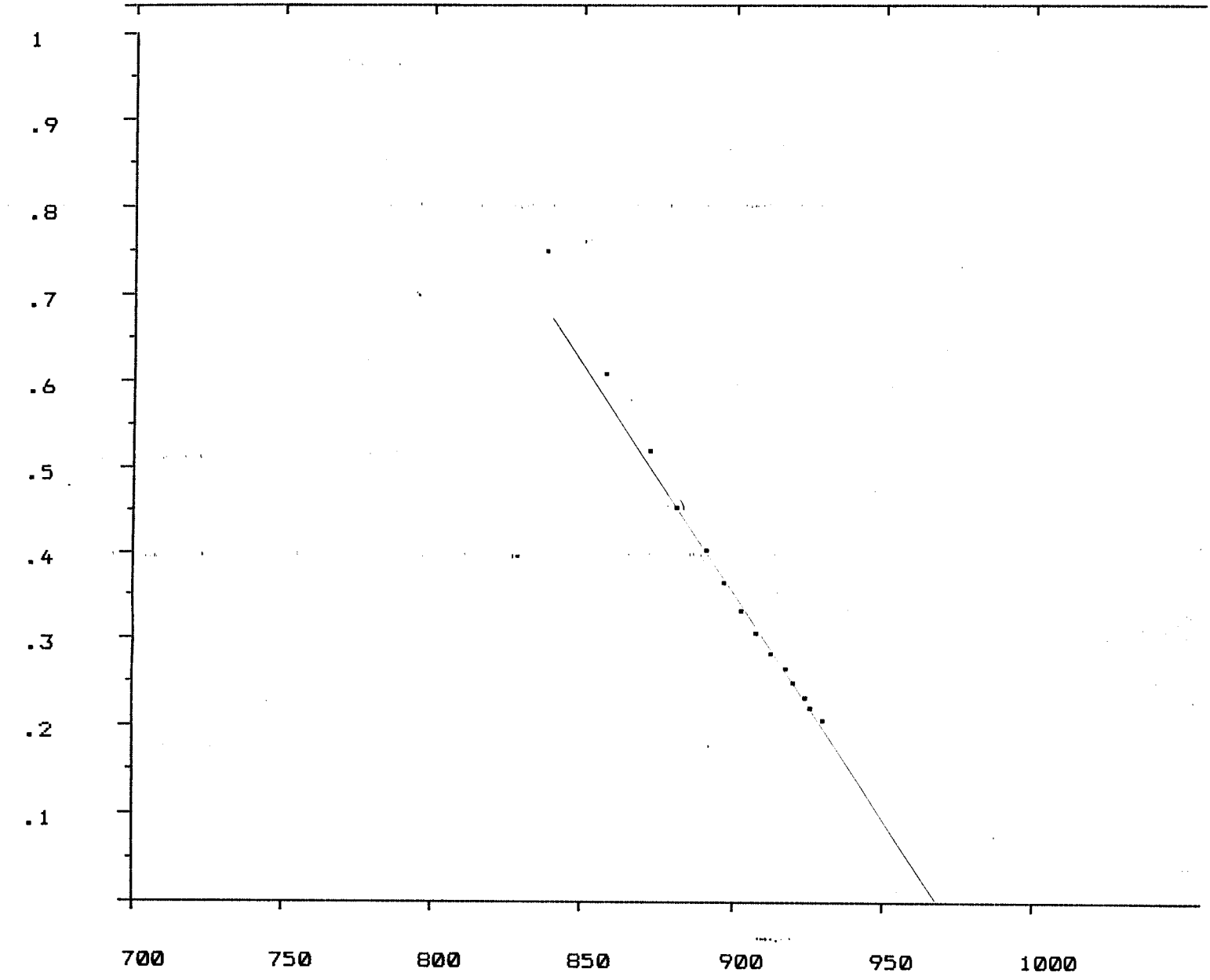
MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	592.3	592.3
6	1.007	806.5	214.2
12	.746759	837.9	31.4
18	.607941	857.6	19.7
24	.517323	872.3	14.7
30	.452216	881.1	8.8
36	.402666	891	9.9
42	.363457	896.9	5.9
48	.331536	902.8	5.9
54	.304978	907.6	4.8
60	.282496	912.6	5
66	.263194	917.5	4.9
72	.246427	920.4	2.9
78	.231715	924.4	4
84	.218696	926.3	1.9
90	.207088	930.3	4

DST#4
INITIAL SHUT-IN
HORNER PLOT
PRESSURE



ATIC PRESSURE 967.251
)PE 398.448
INTS USED 10

DST#4
FINAL SHUT-IN
HORNER PLOT
PRESSURE



STATIC PRESSURE 971.188
PE
D 14

STATIC PRESSURE 971.188
SLOPE 197.444
POINTS USED 14

2:19

TRILOBITE TESTING COMPANY

P. O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 1093

Well Name & No. Bittel 'E' #3 Test No. 4 Date 3/1/88

Company Petroleum Inc Zone Tested LKC G

Address 301 N Main #900 Wichita Ks 67202-1508 Elevation 2593

Co. Rep./Geo. Keneth Dean Cont. Abercrombie #8 Est. Ft. of Pay 6

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks

Interval Tested 3910-3938 Drill Pipe Size 4½ XH

Anchor Length 28 Top Choke — 1"

Top Packer Depth 3905 Bottom Choke — ¾"

Bottom Packer Depth 3910 Hole Size — 7⅞"

Total Depth 3938 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.3 lb./gal. Viscosity 45 Filtrate 8.8

Tool Open @ 11:14 AM Initial Blow strong blow built to bottom of bucket in 2 minutes (weak surface blow back)

Final Blow 1" blow building to bottom of bucket in 4 minutes (blow back build to bottom of bucket in 40 minutes)

Recovery — Total Feet 1420 Flush Tool?

Rec. 320 Feet of GIP

Rec. 70 Feet of clean gassy oil

Rec. 180 Feet of Gsy OCMW 7% gas 18% oil 55% H_2O 20% Mud

Rec. 390 Feet of Gsy OCMW 20% oil 55% H_2O 8% Mud

Rec. 780 Feet of oil specked water

BHT 123 °F Gravity 39 °API @ 70 °F Corrected Gravity 38 °API

RW .100 @ 71.3 °F Chlorides 77,000 ppm Recovery Chlorides 4000 ppm System

(A) Initial Hydrostatic Mud 1904 PSI AK1 Recorder No. 13549 Range 4375

(B) First Initial Flow Pressure 148 PSI @ (depth) 3937 w/Clock No. 25813

(C) First Final Flow Pressure 257 PSI AK1 Recorder No. 13337 Range 3975

(D) Initial Shut-In Pressure 916 PSI @ (depth) 3932 w/Clock No. 25814

(E) Second Initial Flow Pressure 346 PSI Initial Opening 10

(F) Second Final Flow Pressure 583 PSI Initial Shut-In 40

(G) Final Shut-In Pressure 916 PSI Final Flow 45

(H) Final Hydrostatic Mud 1865 PSI Final Shut-In 90

Test $ 400

Approved by Kenneth Dean

Extra Equip 50

Extra Equip

Our Representative Paul Simpson

TOTAL PRICE $ 450

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

11 - 10S - 26W
NW - SW - NE
API 15 - 179 - 20,917

Drill-Stem Test Data

Well Name & No. Bittel 'E' #3 Test No. 5 Date 3-2-88

Company Petroleum Inc. Zone Tested LKC H

Address 300 N. Main #900 Wichita, Ks. 67202 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks.

Interval Tested 3967 - 3996 Drill Pipe Size 4½" XH

Anchor Length 29 Top Choke — 1"

Top Packer Depth 3962 Bottom Choke — ¾"

Bottom Packer Depth 3967 Hole Size — 7⅞"

Total Depth 3996 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.4 lb./gal. Viscosity 45 Filtrate 8.8

Tool Open @ 7:55 a.m. Initial Blow weak ½" blow building to 1½"

Final Blow very weak surface blow building to 3"

Recovery — Total Feet 60 Flush Tool?

Rec. 30 Feet of gas in pipe

Rec. 2 Feet of free oil

Rec. 58 Feet of slightly oil cut mud 10% oil, 90% mud

Rec. Feet of

Rec. Feet of

BHT 120 °F Gravity °API @ °F Corrected Gravity °API

RW @ °F Chlorides ppm Recovery Clorides ppm System

(A) Initial Hydrostatic Mud 1938.4 PSI AK1 Recorder No. 13849 Range 4375

(B) First Initial Flow Pressure 39.5 PSI @ (depth) 3995 w/Clock No. 25813

(C) First Final Flow Pressure 39.5 PSI AK1 Recorder No. 13337 Range 3975

(D) Initial Shut-in Pressure 917.5 PSI @ (depth) 3990 w/Clock No. 25814

(E) Second Initial Flow Pressure 52.4 PSI Initial Opening 10

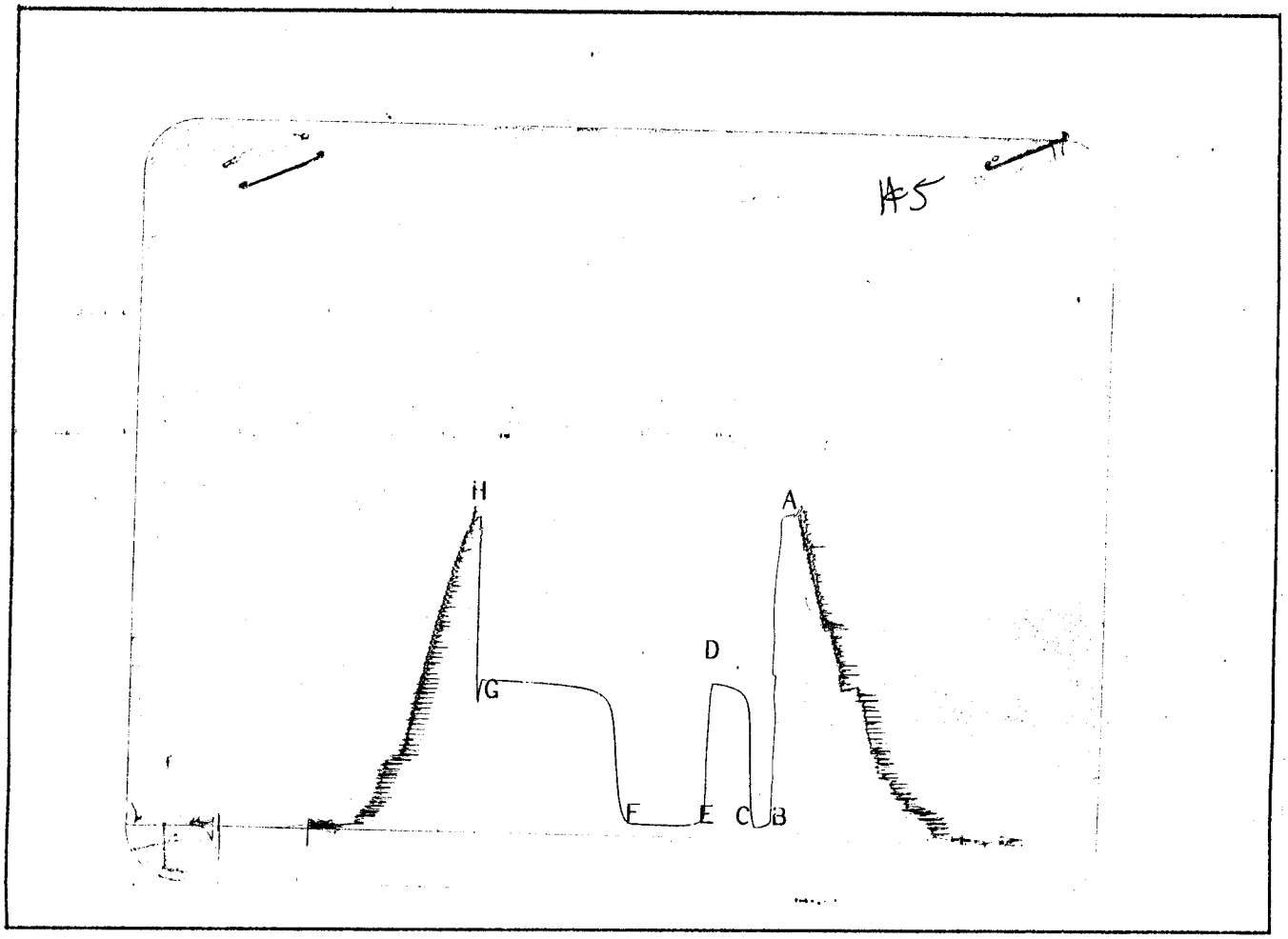
(F) Second Final Flow Pressure 55.3 PSI Initial Shut-in 40

(G) Final Shut-in Pressure 906.7 PSI Final Flow 60

(H) Final Hydrostatic Mud 1931.6 PSI Final Shut-in 120

Our Representative Paul (Simpson TOTAL PRICE ..... $ 450.00

Printcraft Printers - Hays, KS



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1972	1938.4	PSI
(B) First Initial Flow Pressure	49	39.5	PSI
(C) First Final Flow Pressure	49	39.5	PSI
(D) Initial Closed-in Pressure	926	917.5	PSI
(E) Second Initial Flow Pressure	59	52.4	PSI
(F) Second Final Flow Pressure	59	55.3	PSI
(G) Final Closed-in Pressure	916	906.7	PSI
(H) Final Hydrostatic Mud	1934	1931.6	PSI

INITIAL SHUT-IN BUILDUP
DST #5

RECORDER # 13337
INITIAL FLOW TIME (MIN.): 10

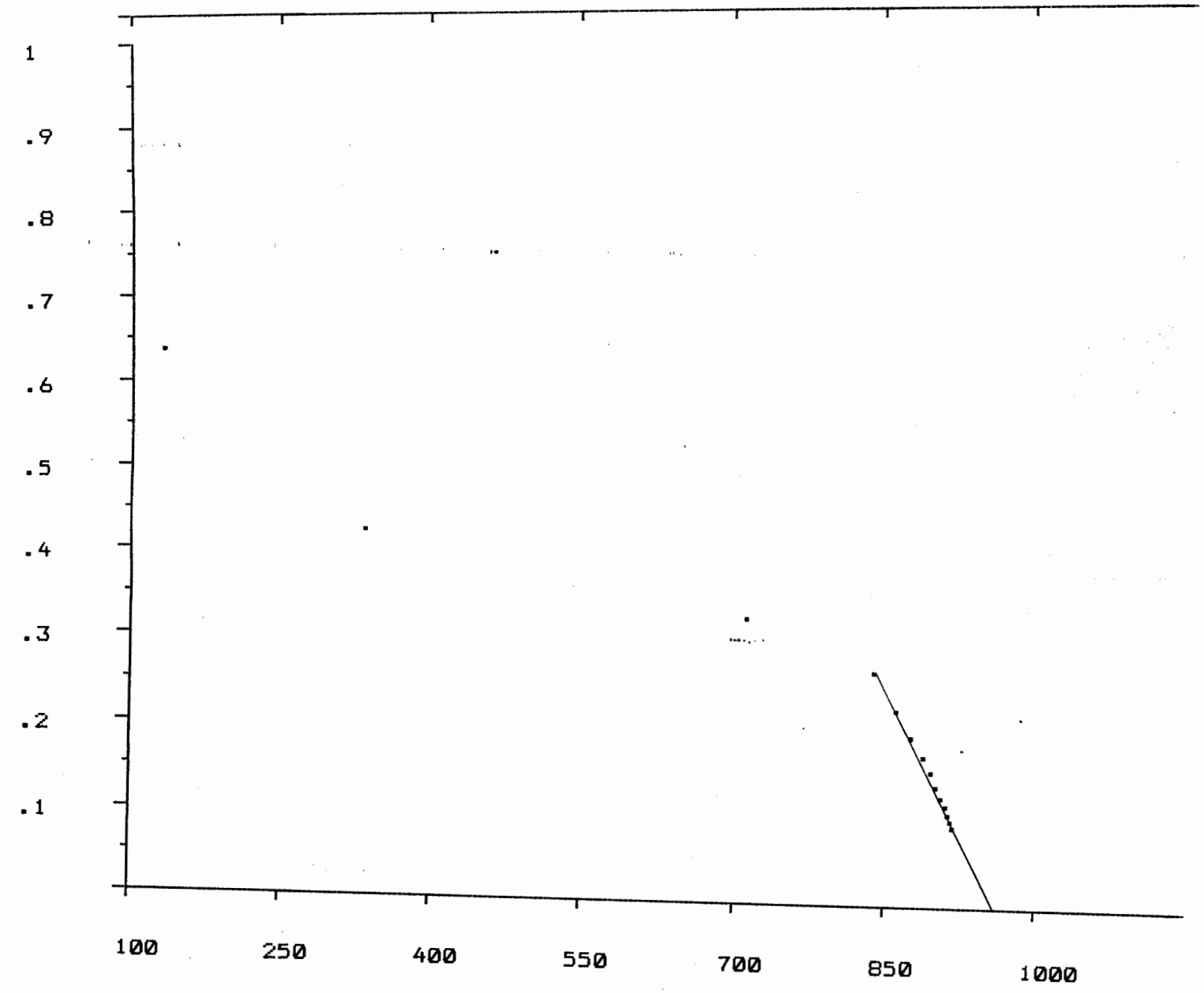
MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	39.5	39.5
3	.636707	131.4	91.9
6	.425892	333	201.6
9	.324453	710.2	377.2
12	.263194	837.9	127.7
15	.221809	861.1	23.2
18	.191851	877.2	16.1
21	.169112	888	10.8
24	.15124	895.9	7.9
27	.136813	901.8	5.9
30	.124916	906.7	4.9
33	.114934	910.6	3.9
36	.106436	912.6	2
39	.0991136	915.5	2.9
42	.0927373	917.5	2

FINAL SHUT-IN BUILDUP
DST #5

RECORDER # 13337
TOTAL FLOW TIME (MIN.): 70

MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	55.3	55.3
6	1.10246	115.6	60.3
12	.834482	357.7	242.1
18	.689086	786.8	429.1
24	.59281	805.5	18.7
30	.522785	839.9	34.4
36	.468919	855.6	15.7
42	.425892	866.4	10.8
48	.39057	872.3	5.9
54	.360963	877.2	4.9
60	.335732	882.1	4.9
66	.313938	886.1	4
72	.294903	890	3.9
78	.278117	894.9	4.9
84	.263194	895.9	1
90	.249832	897.8	1.9
96	.237794	899.8	2
102	.226887	901.8	2
108	.216957	902.8	1
114	.207876	903.7	.9
120	.199536	905.7	2
126	.191851	906.7	1

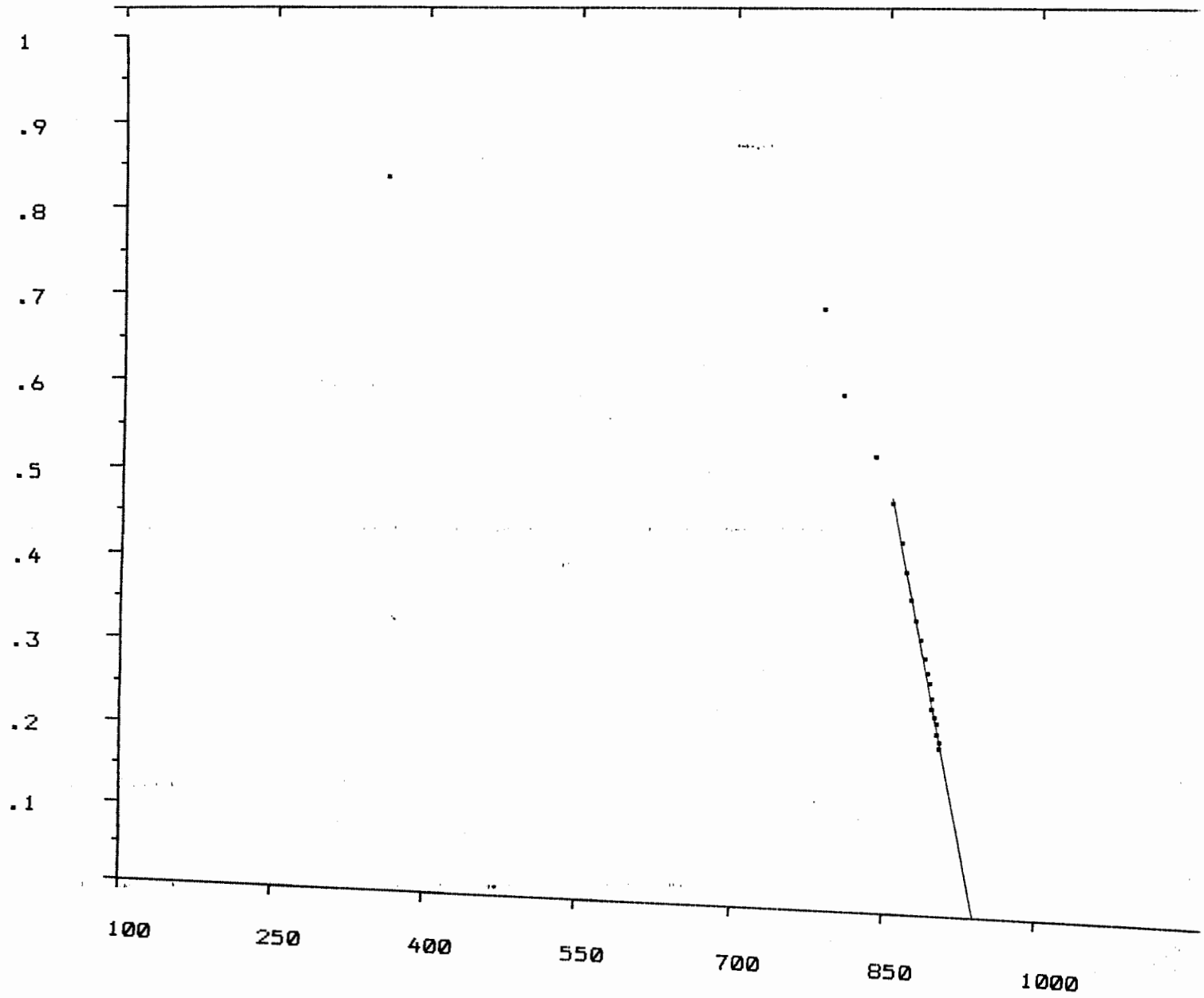
DST#5
INITIAL SHUT-IN
HORNER PLOT
PRESSURE



STATIC PRESSURE 956.186
SLOPE 417.158
POINTS USED 11

DST#5
FINAL SHUT-IN
HORNER PLOT
PRESSURE

LOG(T+MIN/MIN)



STATIC PRESSURE 941.209
SLOPE 179.875
POINTS USED 17

TRILOBITE TESTING COMPANY

P. O. Box 362 • Hays, Kansas 67601

TEST TICKET

No 1094

Well Name & No. Bittel 'E' #3 Test No. 5 Date 3/2/88

Company Petroleum Inc Zone Tested LKC H

Address 301 N Main #900 Wichita Ks 67202-1508 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks

Interval Tested 3967 - 3996 Drill Pipe Size 4½ XH

Anchor Length 29 Top Choke — 1"

Top Packer Depth 3962 Bottom Choke — ¾"

Bottom Packer Depth 3967 Hole Size — 7⅞"

Total Depth 3996 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.4 lb./gal. Viscosity 45 Filtrate 8.8

Tool Open @ 7:55 AM Initial Blow weak ½" blow building to 1½

Final Blow very weak surface blow building to 3"

Recovery — Total Feet 60 Flush Tool?

Rec. 30 Feet of GIP

Rec. 2 Feet of FO

Rec. 58 Feet of SOCM 10% oil 90% mud

Rec. Feet of

Rec. Feet of

BHT 120 °F Gravity °API @ °F Corrected Gravity °API

RW @ °F Chlorides ppm Recovery Chlorides ppm System

(A) Initial Hydrostatic Mud	1972 PSI	AK1 Recorder No.	13549	Range	4375
(B) First Initial Flow Pressure	49 PSI	@ (depth)	3995	w/Clock No.	25513
(C) First Final Flow Pressure	49 PSI	AK1 Recorder No.	13337	Range	3975
(D) Initial Shut-In Pressure	926 PSI	@ (depth)	3990	w/Clock No.	25514
(E) Second Initial Flow Pressure	59 PSI	Initial Opening	10		
(F) Second Final Flow Pressure	59 PSI	Initial Shut-In	40		
(G) Final Shut-In Pressure	916 PSI	Final Flow	60		
(H) Final Hydrostatic Mud	1934 PSI	Final Shut-In	120		

Approved by Kenneth Dean

Our Representative Paul Simpson

Test	$ 400
Extra Equip	50
Extra Equip	
TOTAL PRICE	$ 450

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

11-10S-26W
NW-SW-NE
API 15-179-20,917

Drill-Stem Test Data

Well Name & No. Bittel 'E' #3 Test No. 6 Date 3-388

Company Petroleum Inc. Zone Tested LKC K

Address 300 N. Main #900 Wichita, Ks. 67202 Elevation 2593

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks.

Interval Tested 4038 - 4060 Drill Pipe Size 4½" XH

Anchor Length 22 Top Choke — 1"

Top Packer Depth 4033 Bottom Choke — ¾"

Bottom Packer Depth 4038 Hole Size — 7⅞"

Total Depth 4060 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.4 lb./gal. Viscosity 45 Filtrate 8.8

Tool Open @ 2:01 a.m. Initial Blow ½" blow building to 4"

Final Blow ¼" blow building to bottom of bucket in 40 minutes

Recovery — Total Feet 250 Flush Tool?

Rec. 1 Feet of free oil

Rec. 9 Feet of slightly oil cut mud 10% oil, 90% mud

Rec. 240 Feet of oil specked water

Rec. Feet of

Rec. Feet of

BHT 122 °F Gravity °API @ °F Corrected Gravity °API

RW .18 @ 53.9 °F Chlorides 55,000 ppm Recovery Clorides 4000 ppm System

(A) Initial Hydrostatic Mud 1970.5 PSI AK1 Recorder No. 13849 Range 4375

(B) First Initial Flow Pressure 19.6 PSI @ (depth) 4059 w/Clock No. 25813

(C) First Final Flow Pressure 35.7 PSI AK1 Recorder No. 13337 Range 3975

(D) Initial Shut-In Pressure 912.3 PSI @ (depth) 4054 w/Clock No. 26191

(E) Second Initial Flow Pressure 60.1 PSI Initial Opening 10

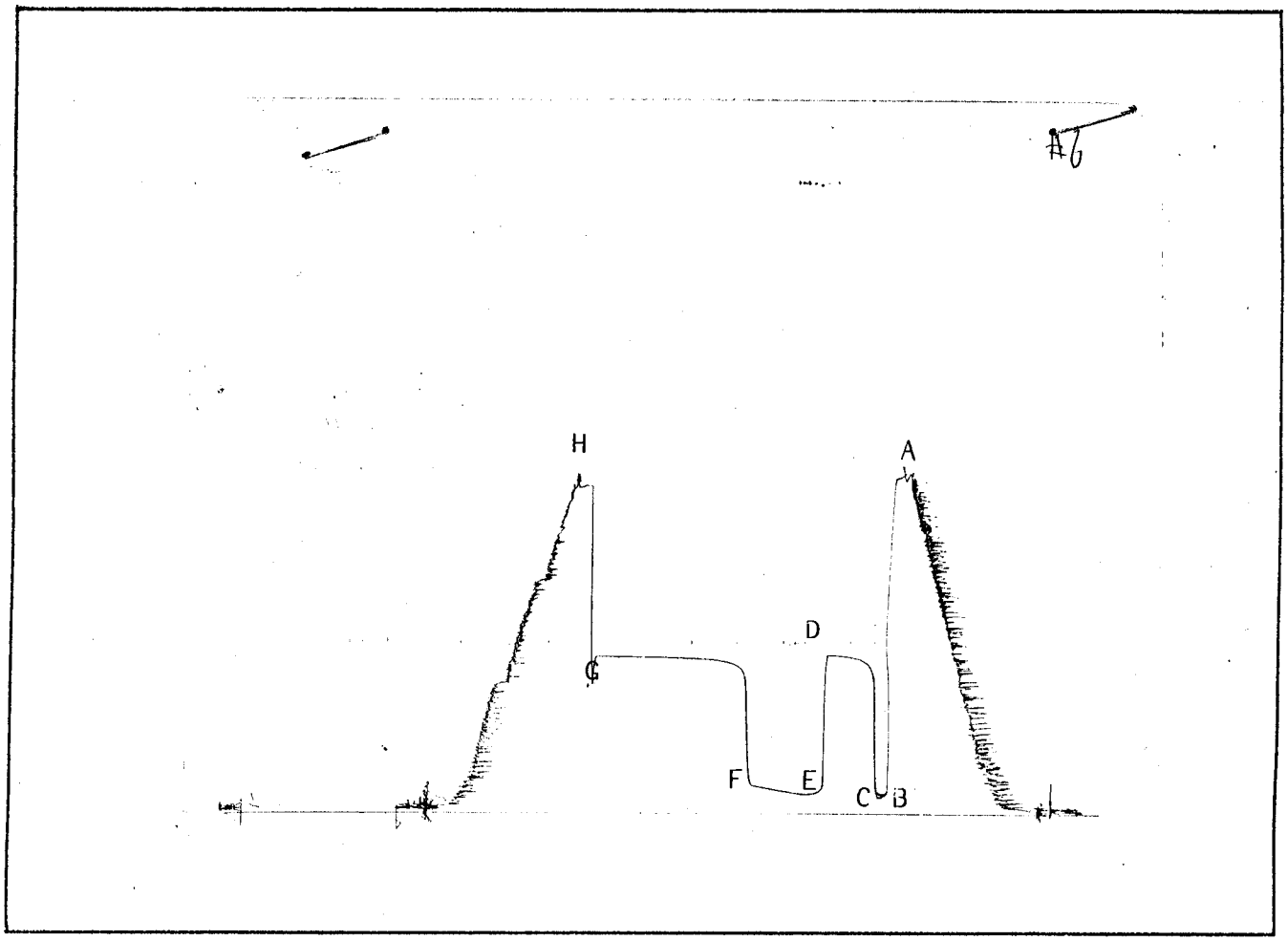
(F) Second Final Flow Pressure 130.2 PSI Initial Shut-In 40

(G) Final Shut-In Pressure 910.3 PSI Final Flow 60

(H) Final Hydrostatic Mud 1960.5 PSI Final Shut-In 120

Our Representative Paul Simpson TOTAL PRICE ..... $ 450.00

Printcraft Printers - Hays, KS



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1963	1970.5	PSI
(B) First Initial Flow Pressure	20	19.6	PSI
(C) First Final Flow Pressure	40	35.7	PSI
(D) Initial Closed-in Pressure	917	912.3	PSI
(E) Second Initial Flow Pressure	59	60.1	PSI
(F) Second Final Flow Pressure	128	130.2	PSI
(G) Final Closed-in Pressure	907	910.3	PSI
(H) Final Hydrostatic Mud	1943	1960.5	PSI

TRILOBITE TESTING COMPANY

P. O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 1095

Well Name & No. Bittel 'E' #3 Test No. 6 Date 3/3/88

Company Petroleum Inc Zone Tested LKC 'K'

Address 300 N Main #900 Wichita Ks 67202-1508 Elevation 2543

Co. Rep./Geo. Kenneth Dean Cont. Abercrombie #8 Est. Ft. of Pay

Location: Sec. 11 Twp. 10s Rge. 26w Co. Sheridan State Ks

Interval Tested 4038 - 4060 Drill Pipe Size 4½ XH

Anchor Length 22 Top Choke — 1"

Top Packer Depth 4033 Bottom Choke — ¾"

Bottom Packer Depth 4038 Hole Size — 7⅞"

Total Depth 4060 Rubber Size — 6¾"

Wt. Pipe I.D. — 2.7 Ft. Run 604

Drill Collar — 2.25 Ft. Run

Mud Wt. 9¼ lb./gal. Viscosity 45 Filtrate 8.8

Tool Open @ 2:10 AM Initial Blow ½" blow building to 4"

Final Blow ¼" blow building to bottom of bucket in 40 minutes

Recovery — Total Feet 250 Flush Tool?

Rec. 1 Feet of FO

Rec. 9 Feet of SOCM 10% oil 90% Mud

Rec. 240 Feet of OSW

Rec. Feet of

Rec. Feet of

BHT 122 °F Gravity °API @ °F Corrected Gravity °API

RW .18 @ 53.9 °F Chlorides 55,000 ppm Recovery Chlorides 4000 ppm System

(A) Initial Hydrostatic Mud 1963 PSI AK1 Recorder No. 13849 Range 4375

(B) First Initial Flow Pressure 20 PSI @ (depth) 4059 w/Clock No. 25813

(C) First Final Flow Pressure 40 PSI AK1 Recorder No. 13337 Range 3975

(D) Initial Shut-In Pressure 917 PSI @ (depth) 4054 w/Clock No. 26191

(E) Second Initial Flow Pressure 59 PSI Initial Opening 10

(F) Second Final Flow Pressure 128 PSI Initial Shut-In 40

(G) Final Shut-In Pressure 907 PSI Final Flow 60

(H) Final Hydrostatic Mud 1943 PSI Final Shut-In 120

Approved by Kenneth Dean

Our Representative Paul Simpson

Test ..... $ 400

Extra Equip 50

Extra Equip .....

TOTAL PRICE ..... $ 450

Printcraft Printers - Hays, KS