

CHENEY TESTING COMPANY, INC.

P. O. Box 367

HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company <u>A. Scott Ritchie</u>	Test No. <u>1</u>
Well Name & Number <u>Keith Estate #1</u>	Zone Tested <u>Lower Topeka</u>
Company Address <u>125 N. Market, Suite 300, Wichita, Ks.</u>	Date <u>10-26-85</u>
Company Rep. <u>Leah Ann Kasten</u>	Tester <u>Dell Hartwell</u>
Contractor <u>Murfin Drilling Co.</u>	Elevation <u>2320</u>
Location: Sec. <u>14</u> Twp. <u>6s</u> Rge. <u>22w</u> Co. <u>Graham</u> State <u>Ks.</u>	Est. Feet of Pay _____

Recorder No. 10983 Type AK-1 Range 4100 PSI

Recorder Depth 3507 Clock # 25829

(A) Initial Hydrostatic Mud 1742 PSI

(B) First Initial Flow Pressure 41 PSI

(C) First Final Flow Pressure 41 PSI

(D) Initial Shut-in Pressure 1156 PSI

(E) Second Initial Flow Pressure 51 PSI

(F) Second Final Flow Pressure 51 PSI

(G) Final Shut-in Pressure 1104 PSI

(H) Final Hydrostatic Mud 1732 PSI

Temperature 105°

Mud Weight 9.2 Viscosity 43

Fluid Loss 11.5

Interval Tested 3475-3515

Anchor Length 40

Top Packer Depth 3470

Bottom Packer Depth 3475

Total Depth 3515

Drill Pipe Size 4½" XH

Wt. Pipe I. D. 2.7 Ft. Run 720

Recovery-Total Feet 40

Recovered 40 Feet Of Drilling Mud

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recovered _____ Feet Of _____

Recorder No. 13277 Type AK-1 Range 4125 PSI

Recorder Depth 3510 Clock # 31206

Tool Open Before I.S.I. 30 Mins.

Initial Shut-in 45 Mins.

Flow Period 30 Mins.

Final Shut-in 45 Mins.

Top Choke Size 1" Hole Size 7 7/8"

Bottom Choke Size 3/4" Rubber Size 6 3/4"

Tool Open @ 9:20 A.M.

Blow Remarks _____

1st Open: Very Weak ½" intermediate Blow

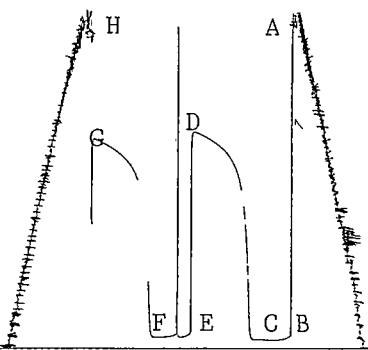
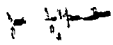
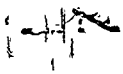
Throughout.

2nd Open: No Blow, Flushed Tool, Good

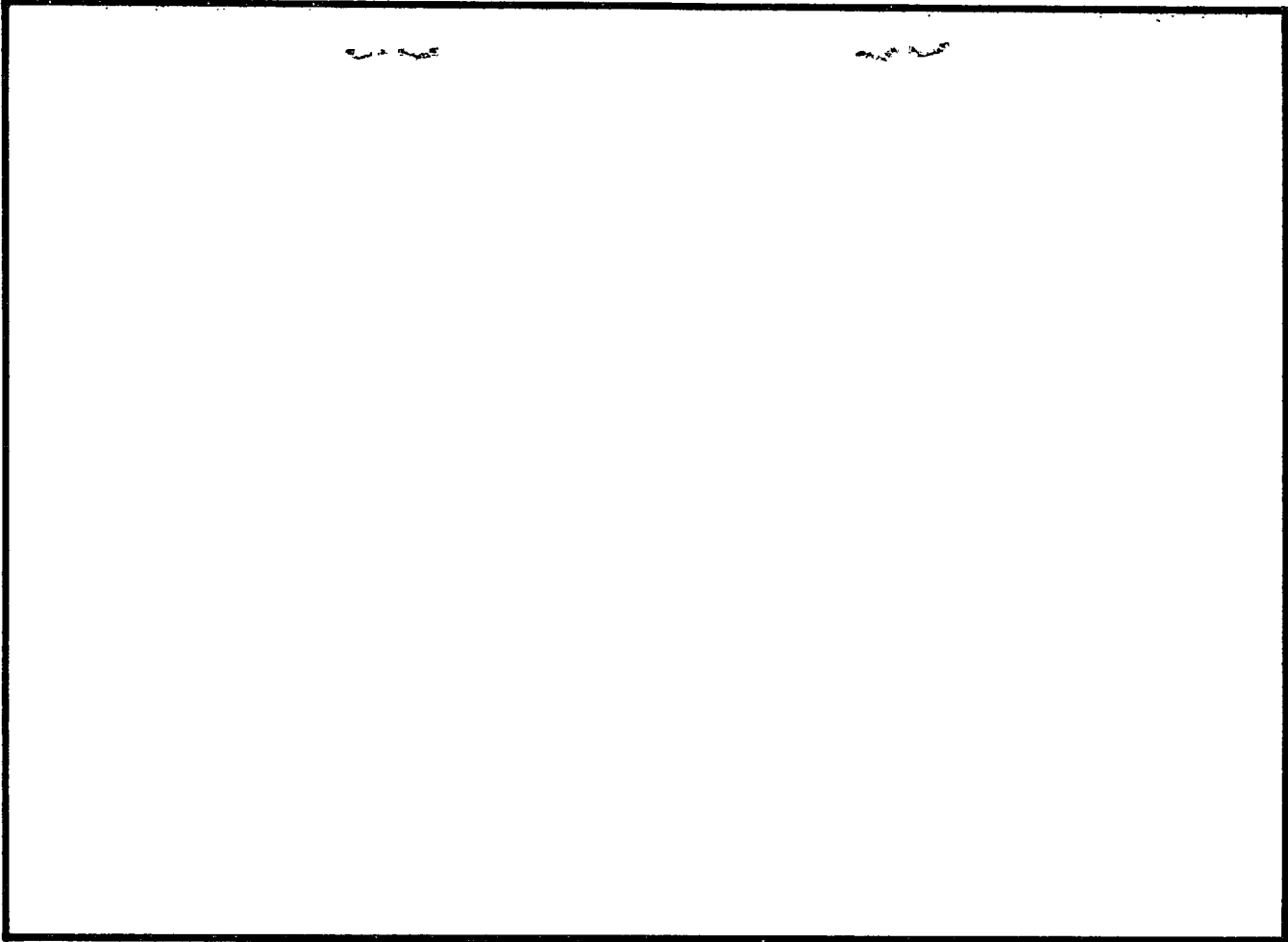
Surge, Surface Blow Throughout Open.

Drill Collars: I.D. 2.25, Ft. Run 350

Extra Equipment _____ Price of Job 550.00



10983 X #1



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1742	PSI
(B) First Initial Flow Pressure	41	PSI
(C) First Final Flow Pressure	41	PSI
(D) Initial Closed-in Pressure	1156	PSI
(E) Second Initial Flow Pressure	51	PSI
(F) Second Final Flow Pressure	51	PSI
(G) Final Closed-in Pressure	1104	PSI
(H) Final Hydrostatic Mud	1732	PSI

CHENEY TESTING COMPANY, INC.

P. O. Box 367

HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company A. Scott Ritchie	Test No. 2
Well Name & Number Keith Estate #1	Zone Tested Toronto Top
Company Address 125 N. Market, Suite 300, Wichita, Ks.	Date 10-27-85
Company Rep. Leah Ann Kasten	Tester Dell Hartwell
Contractor Murfin Drilling Co.	Elevation 2320
Location: Sec. 14 Twp. 6s Rge. 22w Co. Graham State Ks.	Est. Feet of Pay

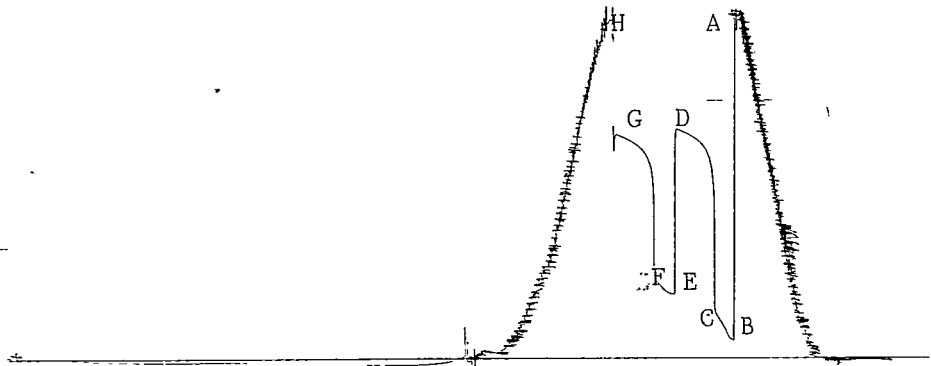
Recorder No. 10983 Type AK-1 Range 4100 PSI
 Recorder Depth 3572 Clock # 25829
 (A) Initial Hydrostatic Mud 1814 PSI
 (B) First Initial Flow Pressure 81 PSI
 (C) First Final Flow Pressure 234 PSI
 (D) Initial Shut-in Pressure 1218 PSI
 (E) Second Initial Flow Pressure 336 PSI
 (F) Second Final Flow Pressure 408 PSI
 (G) Final Shut-in Pressure 1187 PSI
 (H) Final Hydrostatic Mud 1783 PSI
 Temperature 105°
 Mud Weight 9.2 Viscosity 44
 Fluid Loss 11.5
 Interval Tested 3517-3580
 Anchor Length 63
 Top Packer Depth 3512
 Bottom Packer Depth 3517
 Total Depth 3580
 Drill Pipe Size 4½" XH
 Wt. Pipe I. D. 2.7 Ft. Run 720
 Recovery-Total Feet 870
 Recovered 30 Feet Of Watery Mud (10% Water)
 Recovered 180 Feet Of Very Heavy Mud
 Recovered 180 Feet Of Watery Mud (45% Water/ 55% Mud)
 Recovered 480 Feet Of Muddy Water (10% Mud/ 90% Water)
 Recovered _____ Feet Of Oil Spotted Throughout Recovery (Less Than 1% Oil)
 Recovered _____ Feet Of _____
 Extra Equipment _____ Price of Job 550.00

Recorder No. 13277 Type AK-1 Range 4125 PSI
 Recorder Depth 3575 Clock # 31206
 Tool Open Before I.S.I. 15 Mins.
 Initial Shut-in 30 Mins.
 Flow Period 15 Mins.
 Final Shut-in 30 Mins.
 Top Choke Size 1" Hole Size 7 7/8"
 Bottom Choke Size 3/4" Rubber Size 6 3/4"
 Tool Open @ 12:40 A.M.
 Blow Remarks _____
 1st Open: Very Strong Off Bottom of Bucket
 in 3 Minutes.
 2nd Open: Very Strong off Bottom of Bucket
 in 4 Minutes.
 Mud Chlorides: 4,000 PPM
 Recovery Chlorides: 27,000 PPM
 Resistivity: 0.24 OHM Meters @ 78.2°
 Drill Collars: I.D. 2.25, Ft. Run 350

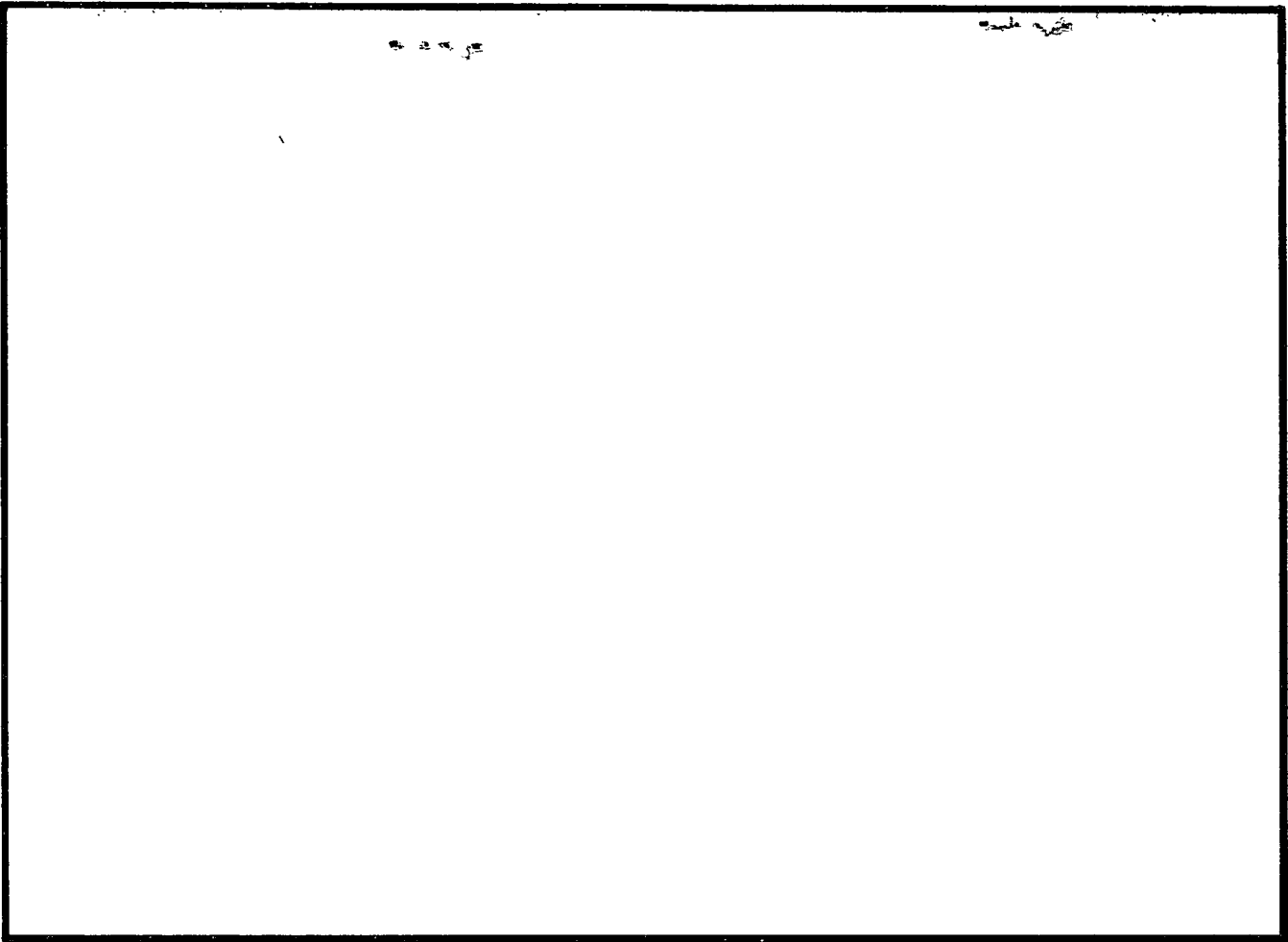
10993

10993

5



10993 x #2



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1814	PSI
(B) First Initial Flow Pressure	81	PSI
(C) First Final Flow Pressure	234	PSI
(D) Initial Closed-in Pressure	1218	PSI
(E) Second Initial Flow Pressure	336	PSI
(F) Second Final Flow Pressure	408	PSI
(G) Final Closed-in Pressure	1187	PSI
(H) Final Hydrostatic Mud	1783	PSI

CHENEY TESTING CO, INC.
CALCULATION OF FORMATION CHARACTERISTICS
FROM DST DATA

FOR: A. SCOTT RITCHIE
KEITH ESTATE #1 DST # 3
14-6S-22W FORMATION: LANSING "35' & 50' ZONES
GRAHAM COUNTY KANSAS ELEVATION: 2320 KB

TEST PARAMETERS

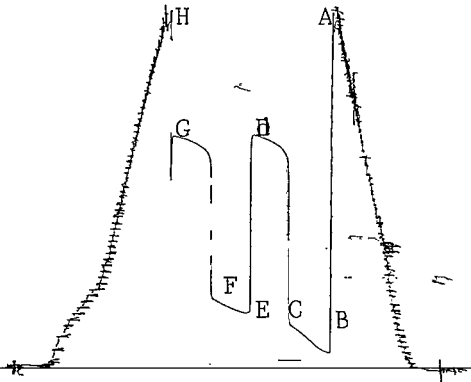
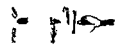
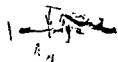
TEST INTERVAL: 3586 - 3622	EST PAY: 8
TIME INTERVAL: 30 - 30 - 30 - 30	VISCOSITY OF FLUID: 3
INITIAL FLOW PRESS: 89.2- 232.8	HOLE SIZE: 7.875
FINAL FLOW PRESS: 297.5- 371.3	D.C. CAPACITY:0.00492
SHUT-IN PRESS(I-F):1251.4-1246.2	W.P. CAPACITY:0.00708
BOTTOM HOLE TEMPERATURE: 105	D.P. CAPACITY:0.01402
TOTAL FEET OF RECOVERY: 780	TOTAL BARRELS RECOVERY: 4.7639

EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI): 1345
SLOPE (PSI-CYCLE): 360 POINTS USED: 3

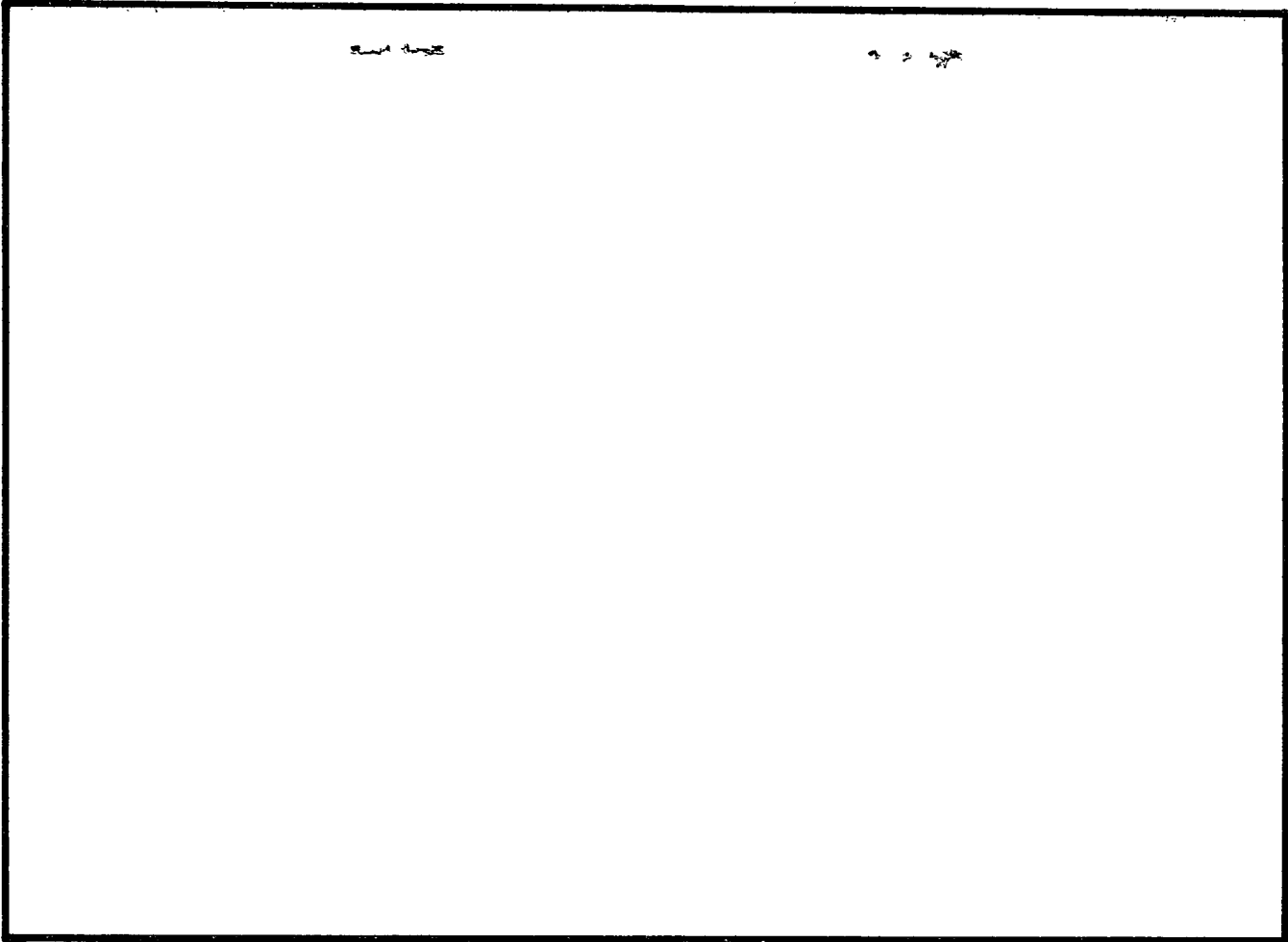
EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI): 1315
SLOPE (PSI-CYCLE): 175 POINTS USED: 4

CALCULATIONS

AVERAGE PRODUCTION RATE (B/D)	: 114.33
TRANSMISSIBILITY (MD-FT/CP)	: 106.23
PERMEABILITY (MD)	: 39.84
PRODUCTIVITY INDEX (B/D/PSI)	: 0.1200
DAMAGE RATIO	: 0.879
APPROXIMATE RADIUS OF INVESTIGATION (FT)	: 48.9
DRAWDOWN FACTOR (%)	: 2.230
POTENTIOMETRIC SURFACE (FT)	:1747.48



10983 X #3



This is an actual photograph of recorder chart.

POINT	PRESSURE		
	Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1897	1892	PSI
(B) First Initial Flow Pressure	81	89.2	PSI
(C) First Final Flow Pressure	234	232.8	PSI
(D) Initial Closed-in Pressure	1248	1251.4	PSI
(E) Second Initial Flow Pressure	285	297.5	PSI
(F) Second Final Flow Pressure	357	371.3	PSI
(G) Final Closed-in Pressure	1238	1246.2	PSI
(H) Final Hydrostatic Mud	1845	1840	PSI

HORNER PLOT

A. SCOTT RITCHIE

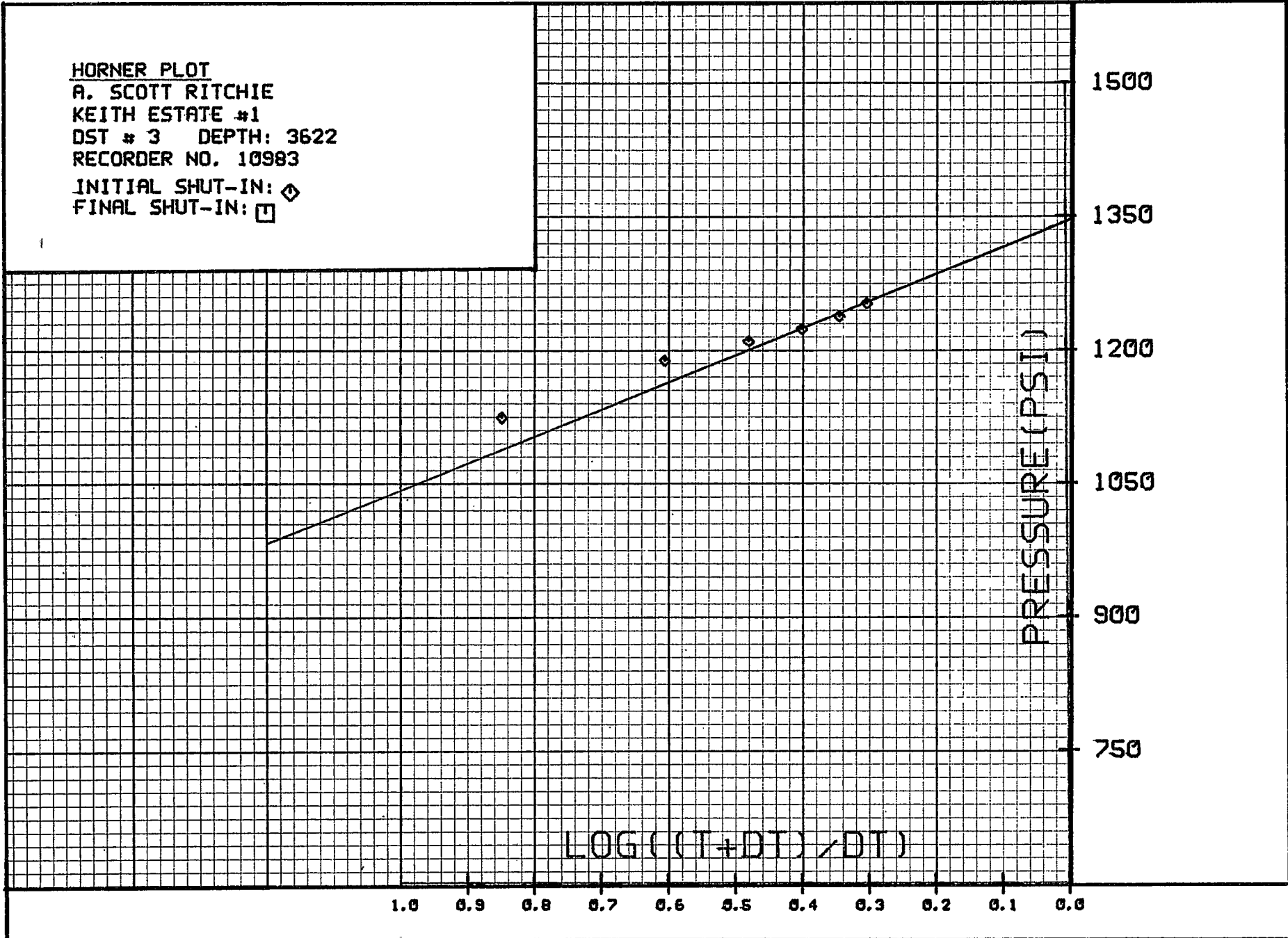
KEITH ESTATE #1

DST # 3 DEPTH: 3622

RECORDER NO. 10983

INITIAL SHUT-IN: \diamond

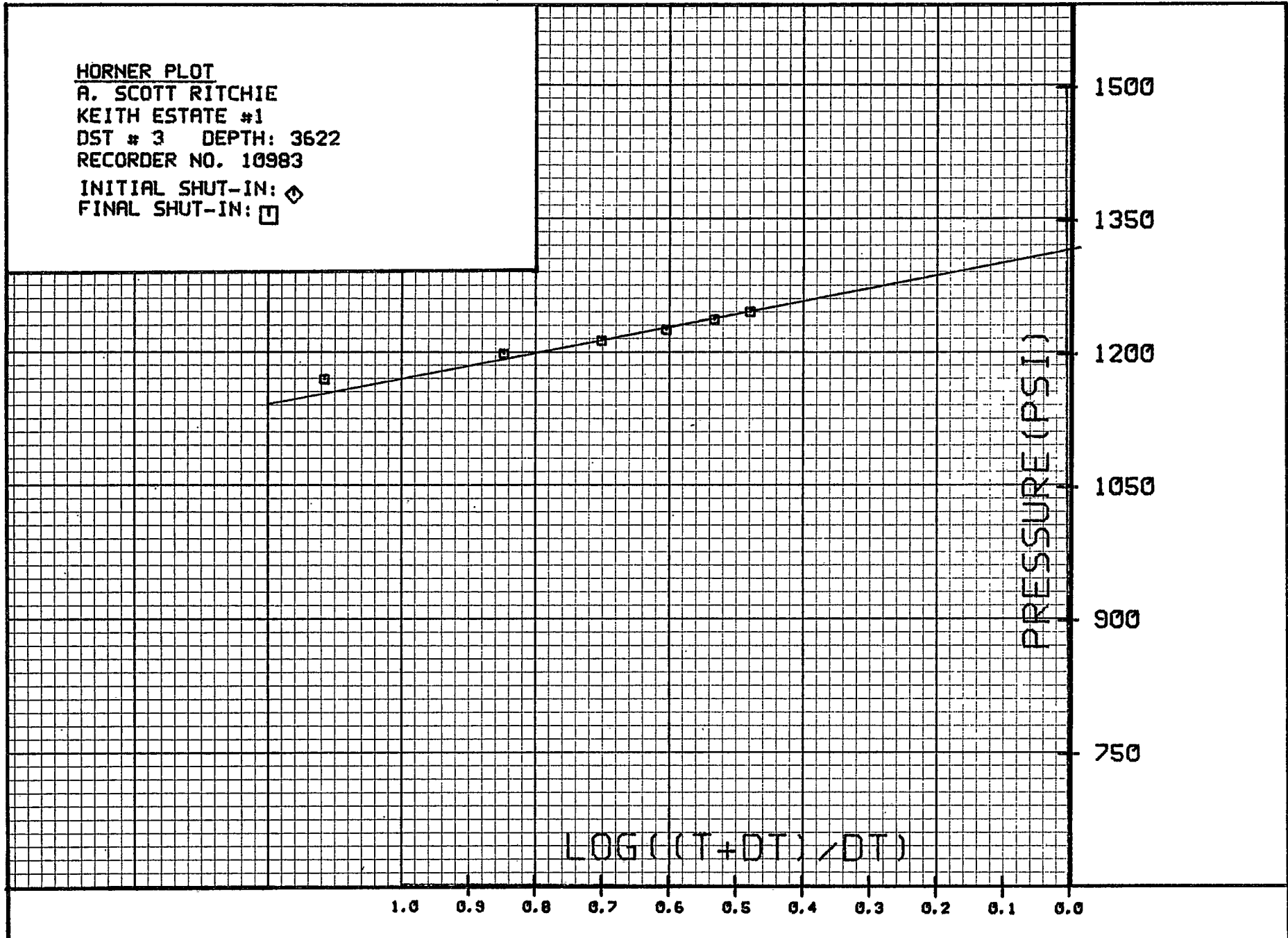
FINAL SHUT-IN: \square



HORNER PLOT

A. SCOTT RITCHIE
KEITH ESTATE #1
DST # 3 DEPTH: 3622
RECORDER NO. 10983

INITIAL SHUT-IN: \diamond
FINAL SHUT-IN: \square



INITIAL SHUT-IN

=====

RECORDER NO: 10983 DEPTH: 3622 FT.
INITIAL FLOW TIME (T): 30 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)
0	0.000	232.8
5	0.845	1123.2
10	0.602	1186.8
15	0.477	1208.3
20	0.398	1222.7
25	0.342	1237.0
30	0.301	1251.4

FINAL SHUT-IN

=====

RECORDER NO: 10983 DEPTH: 3622 FT.
TOTAL FLOW TIME: 60 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)
0	0.000	371.3
5	1.114	1168.3
10	0.845	1198.0
15	0.699	1213.4
20	0.602	1225.7
25	0.531	1237.0
30	0.477	1246.2

CHENEY TESTING COMPANY, INC.

P. O. Box 367

HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company <u>A. Scott Ritchie</u>	Test No. <u>4</u>
Well Name & Number <u>Keith Estate #1</u>	Zone Tested <u>Lansing 140'-160'-180'</u>
Company Address <u>125 N. Market, Suite 300, Wichita</u>	Date <u>10-28-85</u>
Company Rep. <u>Leah Ann Kasten</u>	Tester <u>Dell Hartwell</u>
Contractor <u>Murfin Drilling Co.</u>	Elevation <u>2320</u>
Location: Sec. <u>14</u> Twp. <u>6s</u> Rge. <u>22w</u> Co. <u>Graham State Ks.</u>	Est. Feet of Pay _____

Recorder No. 10983 Type AK-1 Range 4100 PSI
 Recorder Depth 3729 Clock # 25829
 (A) Initial Hydrostatic Mud 1886 PSI
 (B) First Initial Flow Pressure 61 PSI
 (C) First Final Flow Pressure 61 PSI
 (D) Initial Shut-in Pressure 122 PSI
 (E) Second Initial Flow Pressure 51 PSI
 (F) Second Final Flow Pressure 51 PSI
 (G) Final Shut-in Pressure 102 PSI
 (H) Final Hydrostatic Mud 1876 PSI
 Temperature 106°
 Mud Weight 9.7 Viscosity 50
 Fluid Loss 8.0
 Interval Tested 3673-3737
 Anchor Length 64
 Top Packer Depth 3668
 Bottom Packer Depth 3673
 Total Depth 3737
 Drill Pipe Size 4½" XH
 Wt. Pipe I. D. 2.7 Ft. Run 720
 Recovery-Total Feet 10

Recorder No. 13277 Type AK-1 Range 4125 PSI
 Recorder Depth 3732 Clock # 31206
 Tool Open Before I.S.I. 30 Mins.
 Initial Shut-in 45 Mins.
 Flow Period 30 Mins.
 Final Shut-in 45 Mins.
 Top Choke Size 1" Hole Size 7 7/8"
 Bottom Choke Size 3/4" Rubber Size 6 3/4"
 Tool Open @ 2:50 P.M.

Blow Remarks _____
1st Open: Very Weak Blow, Building to 1"
2nd Open: No Blow, Flushed Tool, Good Surge,
Surface Blow Died in 10 Minutes.

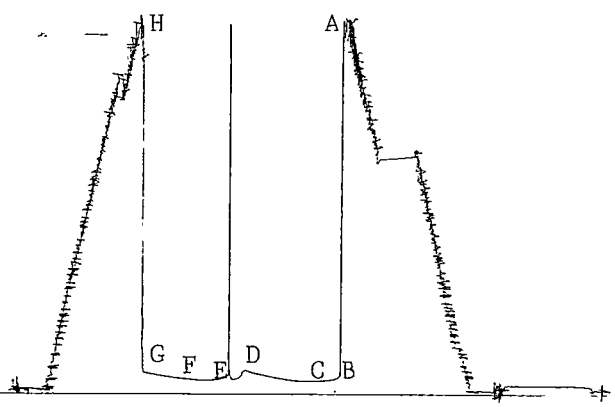
Drill Collars: I.D. 2.25, Ft. Run 350

Recovered 10 Feet Of Oil Spotted Mud (Less than 1% Oil)
 Recovered _____ Feet Of _____
 Recovered _____ Feet Of _____
 Recovered _____ Feet Of _____
 Recovered _____ Feet Of _____
 Recovered _____ Feet Of _____

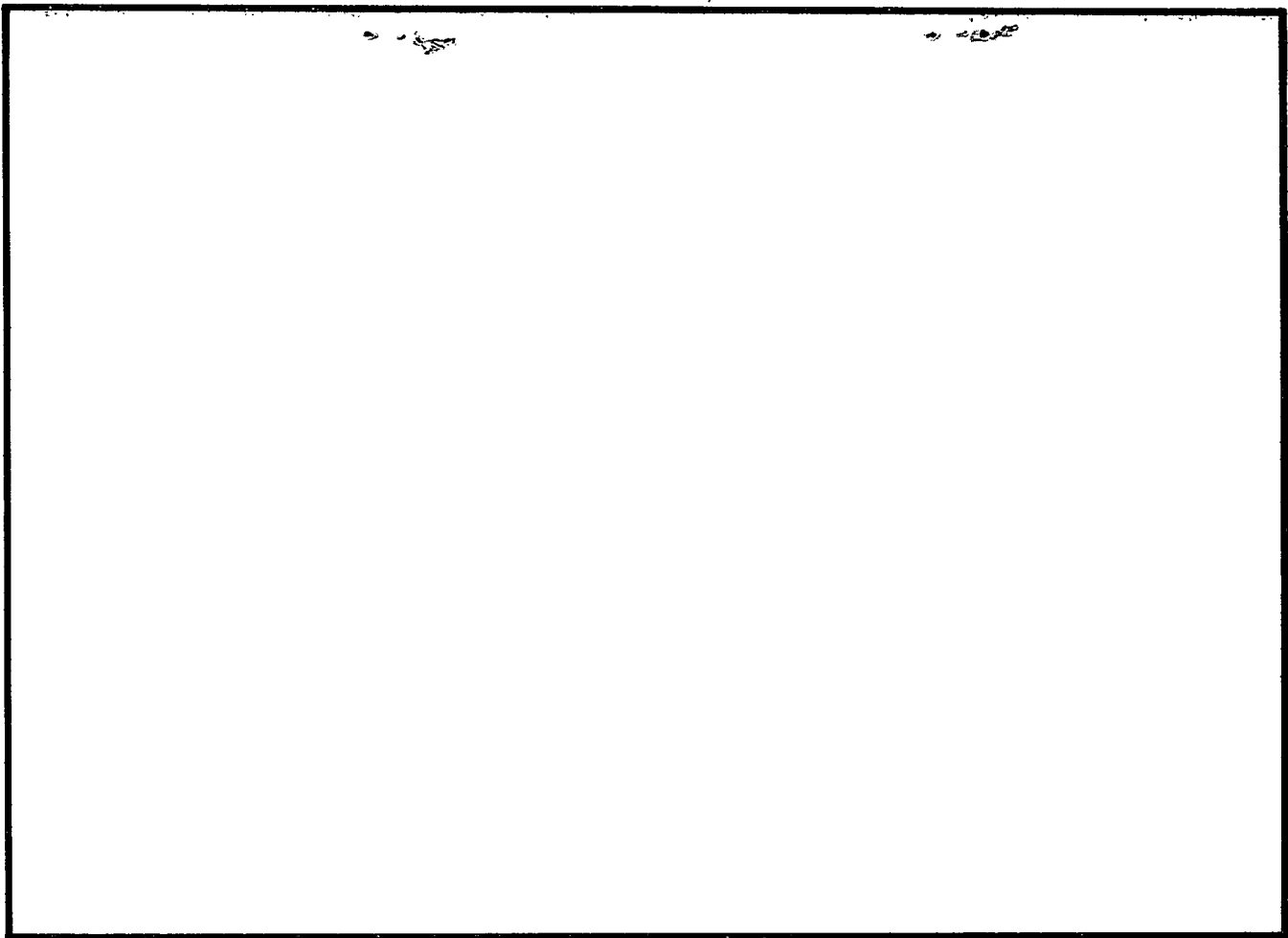
Extra Equipment _____ Price of Job 550.00

17

17

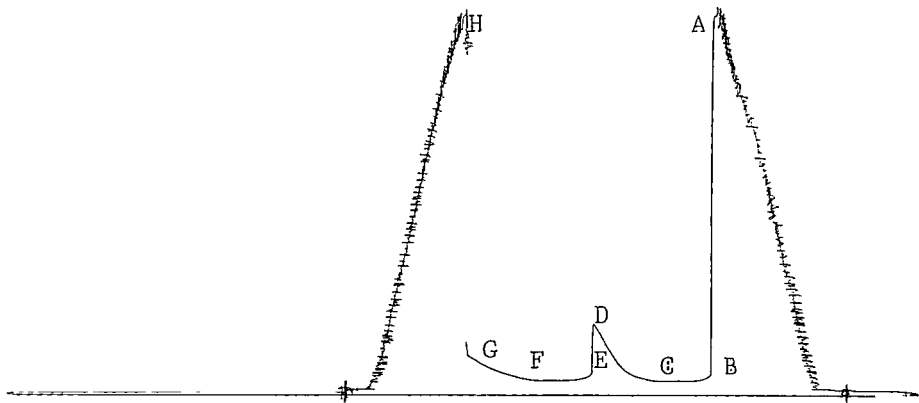


10983 x #2

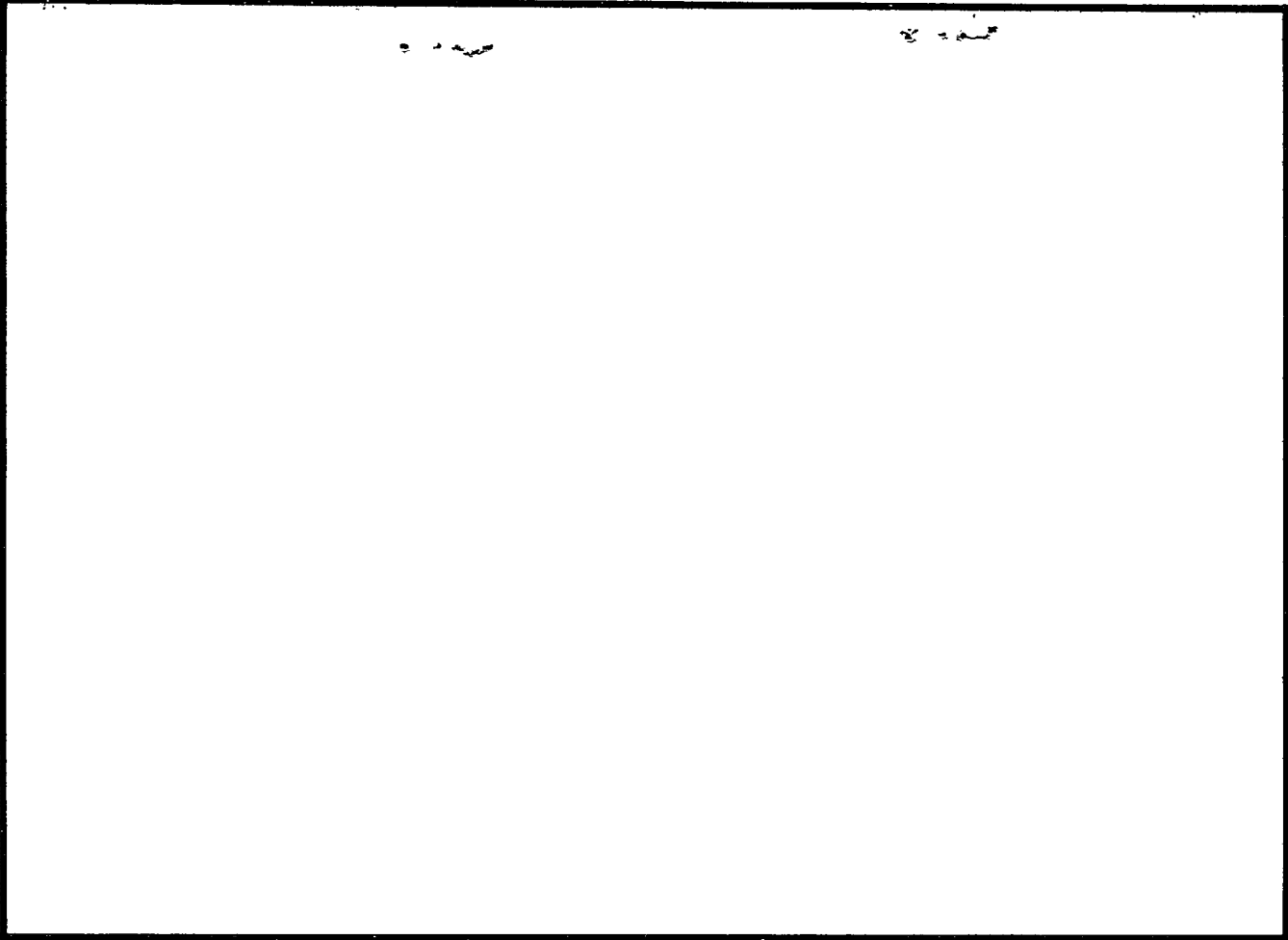


This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1886	PSI
(B) First Initial Flow Pressure	61	PSI
(C) First Final Flow Pressure	61	PSI
(D) Initial Closed-in Pressure	122	PSI
(E) Second Initial Flow Pressure	51	PSI
(F) Second Final Flow Pressure	51	PSI
(G) Final Closed-in Pressure	1022	PSI
(H) Final Hydrostatic Mud	1876	PSI



10983 x # 5



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	2000	PSI
(B) First Initial Flow Pressure	61	PSI
(C) First Final Flow Pressure	61	PSI
(D) Initial Closed-in Pressure	377	PSI
(E) Second Initial Flow Pressure	61	PSI
(F) Second Final Flow Pressure	61	PSI
(G) Final Closed-in Pressure	193	PSI
(H) Final Hydrostatic Mud	1989	PSI