

CHENEY TESTING COMPANY

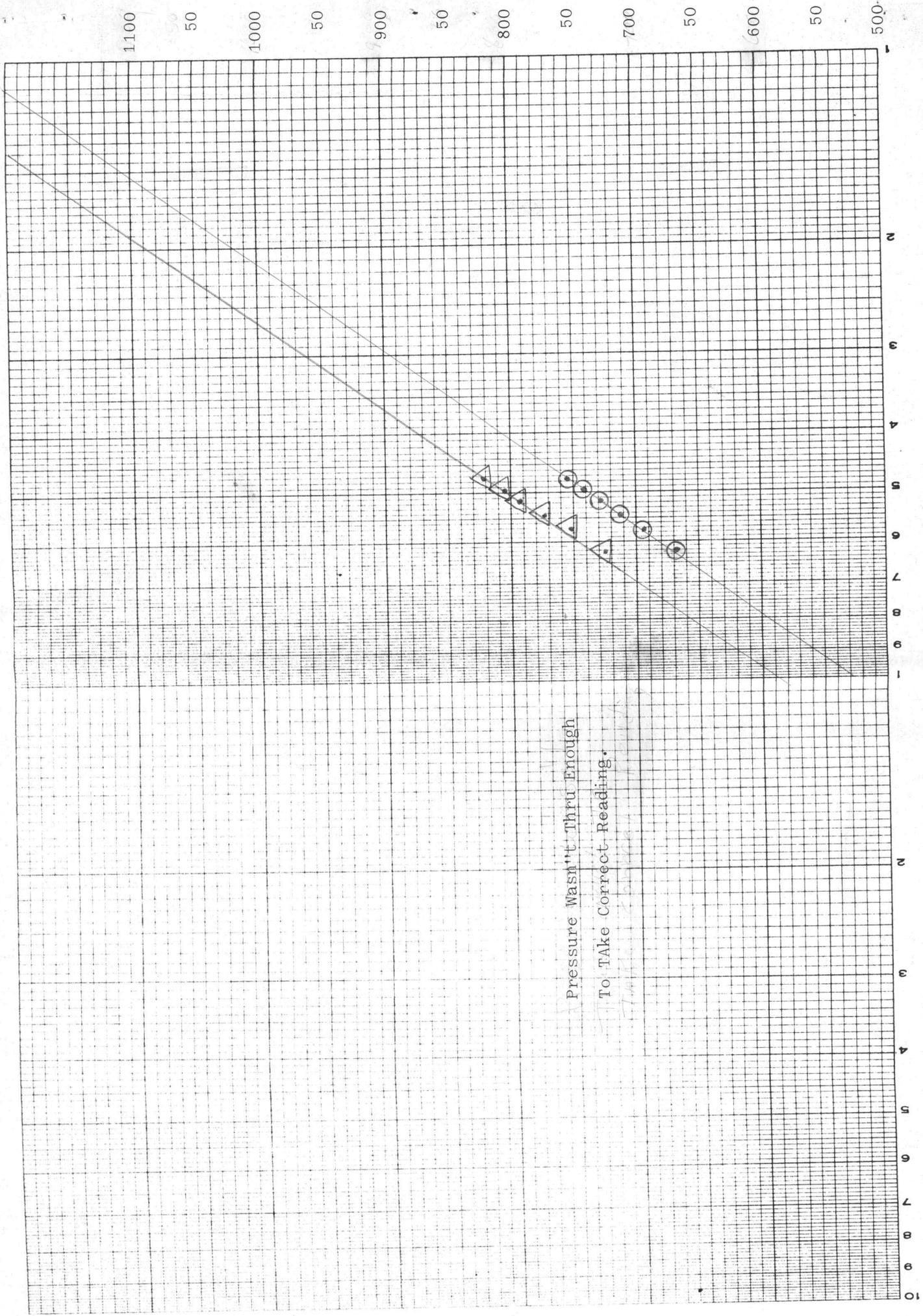
Pressure Data

Date 7-19-80 Test Ticket No. 2553
 Recorder No. 11090 Capacity 4125 Location 3315 Ft.
 Clock No. 10413 Elevation 2490 K.B. Well Temperature 108 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1683</u> P.S.I.	Open Tool	<u>3:10</u> P M	<u>-</u>
B First Initial Flow Pressure	<u>70</u> P.S.I.	First Flow Pressure	<u>30</u> Mins.	<u>30</u> Mins.
C First Final Flow Pressure	<u>79</u> P.S.I.	Initial Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
D Initial Closed-in Pressure	<u>1053</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>104</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
F Second Final Flow Pressure	<u>154</u> P.S.I.			
G Final Closed-in Pressure	<u>1014</u> P.S.I.			
H Final Hydrostatic Mud	<u>1657</u> P.S.I.			

PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In			
	Breakdown: <u>6</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>9</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>12</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>9</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.			
	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1	<u>70</u>	<u>0</u>	<u>79</u>	<u>0</u>	<u>104</u>	<u>0</u>	<u>154</u>
P 2	<u>70</u>	<u>5</u>	<u>701</u>	<u>5</u>	<u>104</u>	<u>5</u>	<u>672</u>
P 3	<u>71</u>	<u>10</u>	<u>893</u>	<u>10</u>	<u>114</u>	<u>10</u>	<u>848</u>
P 4	<u>72</u>	<u>15</u>	<u>954</u>	<u>15</u>	<u>118</u>	<u>15</u>	<u>909</u>
P 5	<u>74</u>	<u>20</u>	<u>989</u>	<u>20</u>	<u>121</u>	<u>20</u>	<u>940</u>
P 6	<u>76</u>	<u>25</u>	<u>1010</u>	<u>25</u>	<u>125</u>	<u>25</u>	<u>965</u>
P 7	<u>79</u>	<u>30</u>	<u>1028</u>	<u>30</u>	<u>133</u>	<u>30</u>	<u>981</u>
P 8		<u>35</u>	<u>1039</u>	<u>35</u>	<u>137</u>	<u>35</u>	<u>995</u>
P 9		<u>40</u>	<u>1046</u>	<u>40</u>	<u>144</u>	<u>40</u>	<u>1005</u>
P10		<u>45</u>	<u>1053</u>	<u>45</u>	<u>148</u>	<u>45</u>	<u>1014</u>
P11				<u>50</u>	<u>152</u>		
P12				<u>55</u>	<u>153</u>		
P13				<u>60</u>	<u>154</u>		
P14							
P15							
P16							
P17							
P18							
P19							
P20							



Pressure wasn't Thru Enough
To Take Correct Reading.

STAINLESS STEEL

CHENEY TESTING CO.

FIELD EVALUATIONS

Ticket No. 2556

Date 7-22-80

To Abercrombie Drlg. Inc.
801 Union Center
Wichita, Kansas

These calculations are based upon information furnished by you and taken from drill stem test pressure charts and are furnished for your information. In furnishing such calculations and evaluations, Cheney Testing Co. is merely expressing its opinion. You agree that The Testing Company makes no warranty as to the accuracy of such calculations or opinions and the Testing Company shall not be liable for any loss or damage, whether due to negligence or otherwise in connection with such calculations and opinions.

We Give Below Results of Drill Stem Evaluation

Lease Cozad C-#1 Sec. 1 Twp. 1S Rge. 26W

County Decatur Test Interval 3399-3432

FINAL

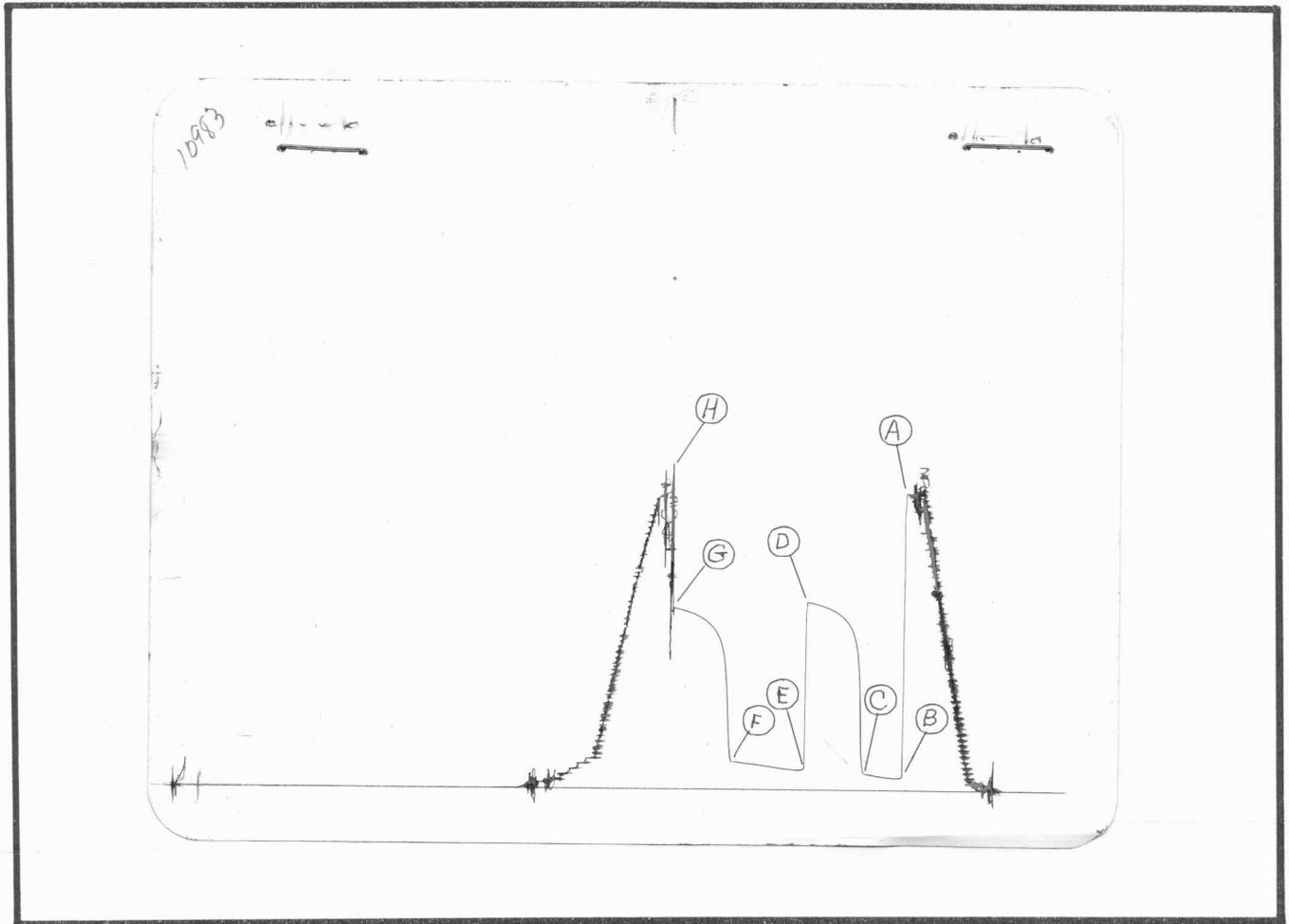
P.S.I. Slope Cycle
$$M = \frac{P_{isi} - P_{fsi}}{\text{Log} \frac{T + t}{t}}$$
 13.6

Damage Ratio
$$DR = .183 \frac{P_s - P_f}{M}$$
 55

Production
$$Q = \frac{1440 R}{t}$$
 7.25 Bbls./Hr.
173.76 Bbls./Day

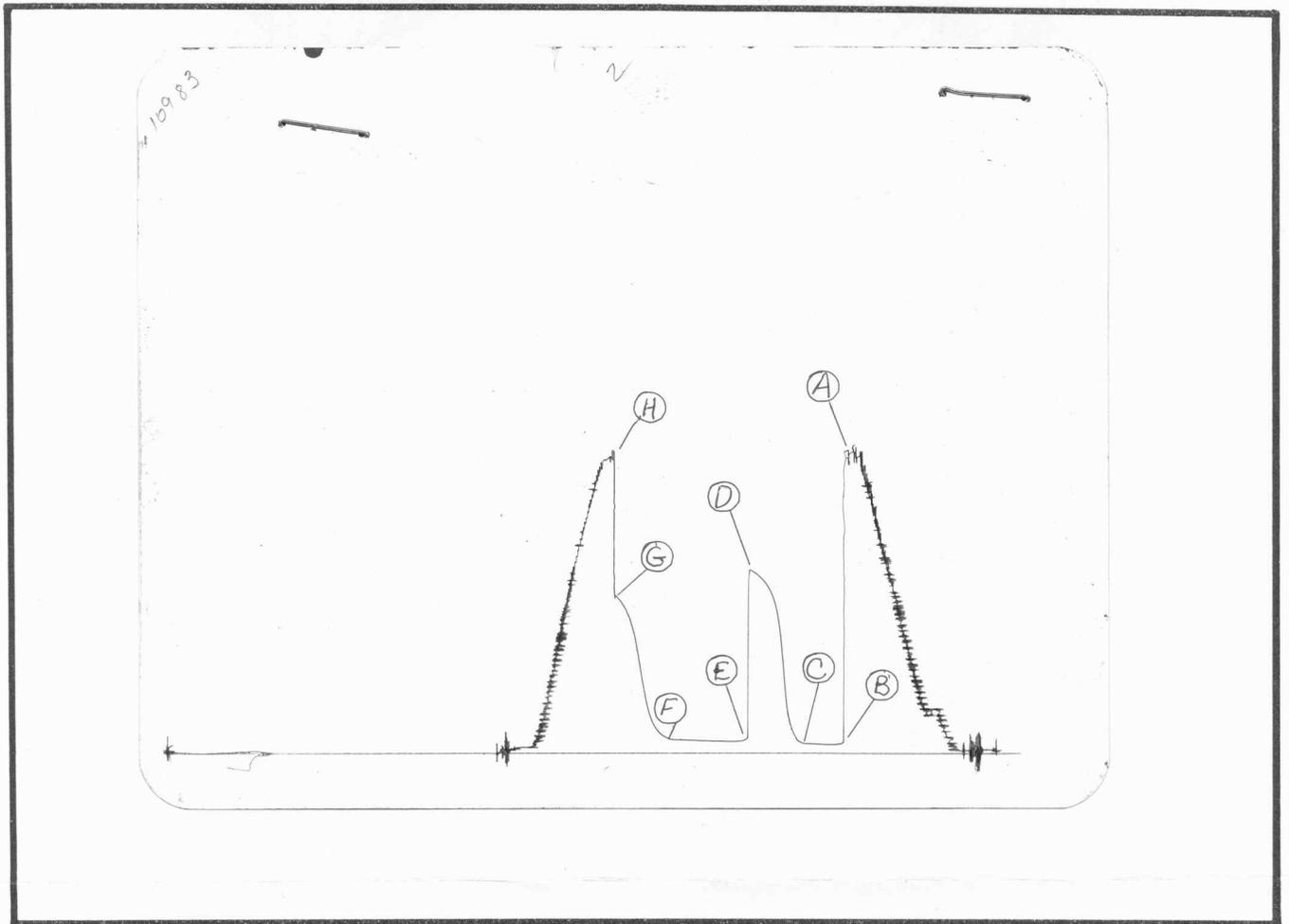
Effective Pay
$$K_1 = \frac{Kh}{hl}$$
 1900 Md. Ft.

Theoretical Potential With Damage Removed
$$Q_1 = Q DR$$
 173.76 Bbls./Day



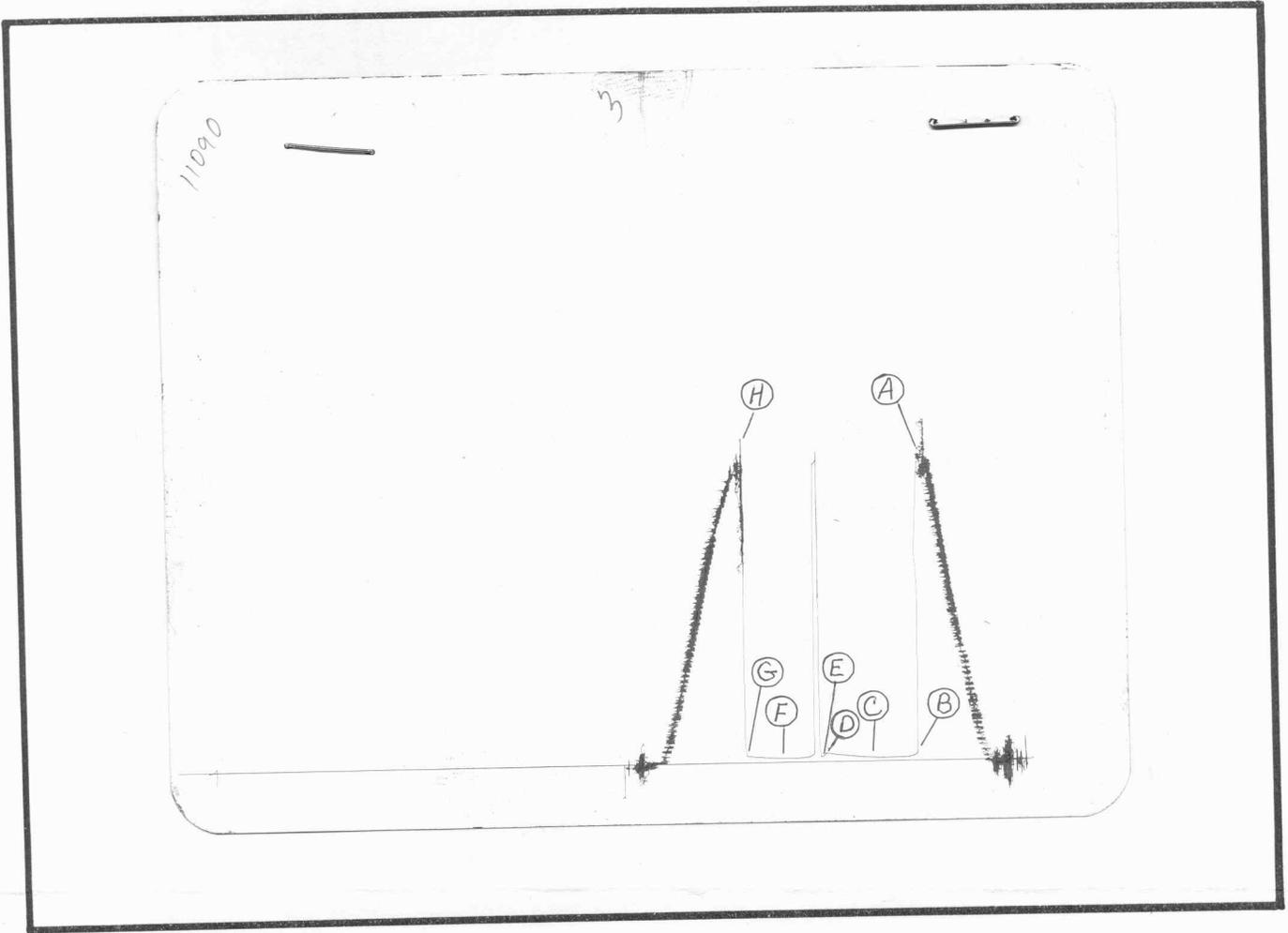
This is an actual photograph of recorder chart.

POINT	PRESSURE		
	Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1681	1683	PSI
(B) First Initial Flow Pressure	71	70	PSI
(C) First Final Flow Pressure	91	79	PSI
(D) Initial Closed-in Pressure	1043	1053	PSI
(E) Second Initial Flow Pressure	104	104	PSI
(F) Second Final Flow Pressure	143	154	PSI
(G) Final Closed-in Pressure	1012	1014	PSI
(H) Final Hydrostatic Mud	1670	1657	PSI



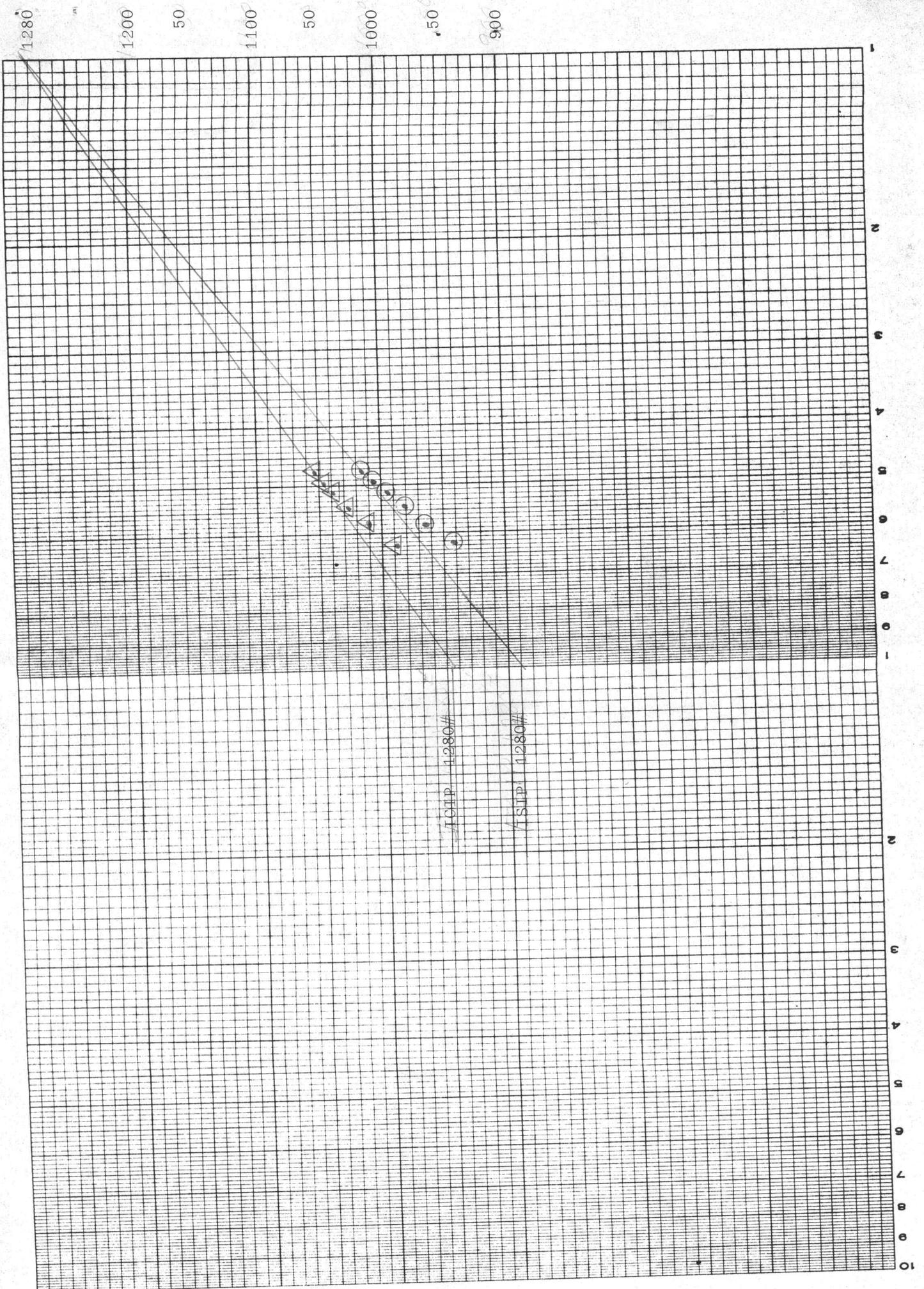
This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1701	PSI
(B) First Initial Flow Pressure	51	PSI
(C) First Final Flow Pressure	51	PSI
(D) Initial Closed-in Pressure	1022	PSI
(E) Second Initial Flow Pressure	61	PSI
(F) Second Final Flow Pressure	71	PSI
(G) Final Closed-in Pressure	86.8	PSI
(H) Final Hydrostatic Mud	1691	PSI



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1751	PSI
(B) First Initial Flow Pressure	20	PSI
(C) First Final Flow Pressure	20	PSI
(D) Initial Closed-in Pressure	50	PSI
(E) Second Initial Flow Pressure	20	PSI
(F) Second Final Flow Pressure	20	PSI
(G) Final Closed-in Pressure	41	PSI
(H) Final Hydrostatic Mud	1740	PSI



CHENEY TESTING COMPANY

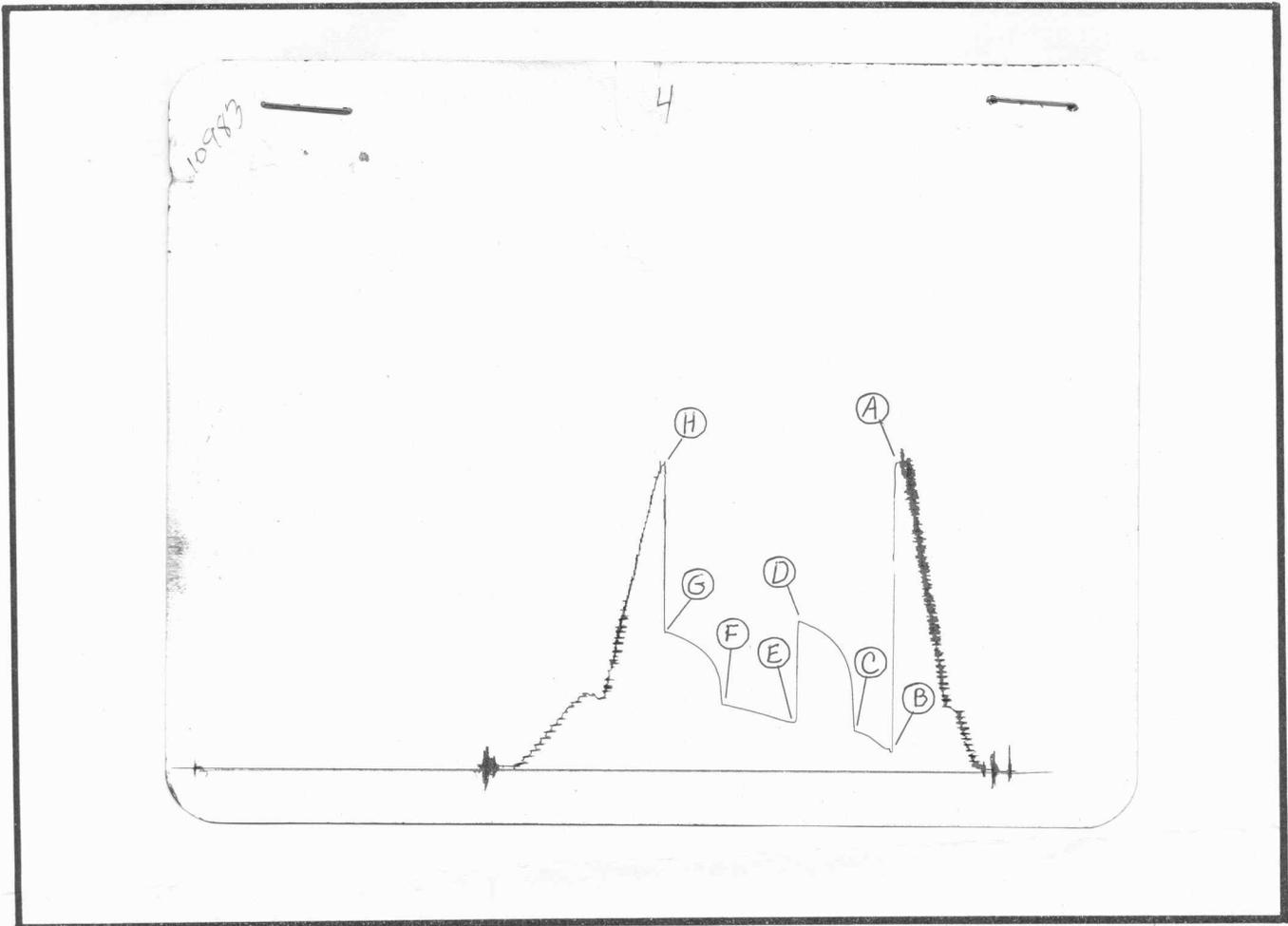
Pressure Data

Date 7-21-80 Recorder No. 11090 Capacity 4125 Test Ticket No. 2556
 Clock No. 10413 Elevation 2490 K.B. Location 3429 Ft. Well Temperature 104 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	1752	P.S.I.	7:40 AM	-
B First Initial Flow Pressure	90	P.S.I.	30 Mins.	- Mins.
C First Final Flow Pressure	207	P.S.I.	45 Mins.	- Mins.
D Initial Closed-in Pressure	820	P.S.I.	60 Mins.	- Mins.
E Second Initial Flow Pressure	246	P.S.I.	45 Mins.	- Mins.
F Second Final Flow Pressure	345	P.S.I.		
G Final Closed-in Pressure	755	P.S.I.		
H Final Hydrostatic Mud	1743	P.S.I.		

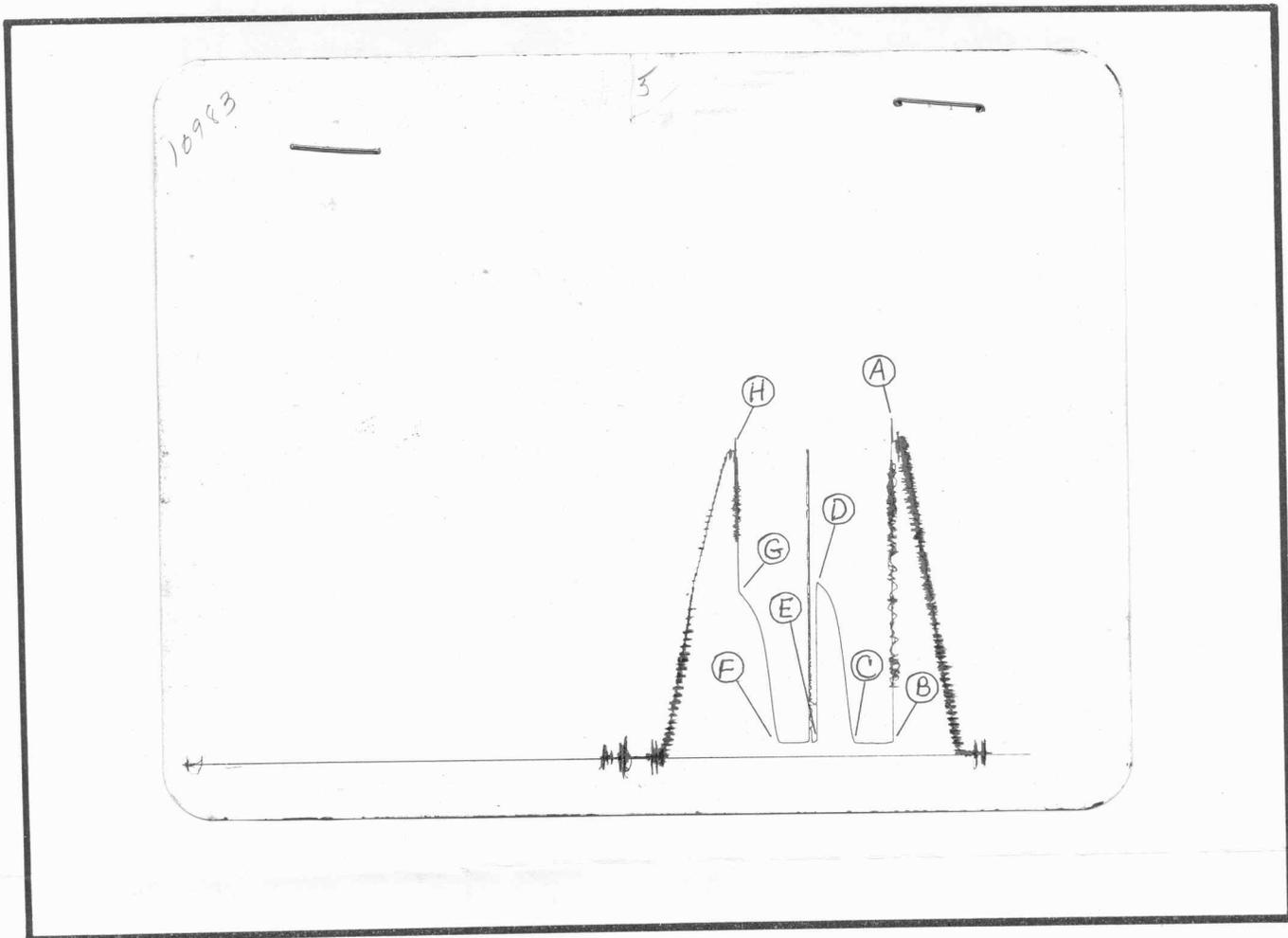
PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In			
	Breakdown: <u>6</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>9</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>12</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>9</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.			
	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	90	0	107	0	246	0	345
P 2 5	104	5	551	5	250	5	549
P 3 10	127	10	635	10	257	10	604
P 4 15	154	15	687	15	265	15	641
P 5 20	179	20	724	20	278	20	668
P 6 25	196	25	751	25	288	25	691
P 7 30	207	30	773	30	297	30	711
		35	792	35	308	35	728
		40	805	40	316	40	741
		45	820	45	325	45	755
				50	333		
				55	339		
				60	345		



This is an actual photograph of recorder chart.

POINT	PRESSURE		PSI
	Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1742	1752	PSI
(B) First Initial Flow Pressure	104	90	PSI
(C) First Final Flow Pressure	224	207	PSI
(D) Initial Closed-in Pressure	838	820	PSI
(E) Second Initial Flow Pressure	265	246	PSI
(F) Second Final Flow Pressure	367	345	PSI
(G) Final Closed-in Pressure	776	755	PSI
(H) Final Hydrostatic Mud	1732	1743	PSI



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1783	PSI
(B) First Initial Flow Pressure	71	PSI
(C) First Final Flow Pressure	71	PSI
(D) Initial Closed-in Pressure	981	PSI
(E) Second Initial Flow Pressure	71	PSI
(F) Second Final Flow Pressure	71	PSI
(G) Final Closed-in Pressure	920	PSI
(H) Final Hydrostatic Mud	1773	PSI

CHENEY TESTING COMPANY

P. O. BOX 3 HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company	Abercrombie Drlg. Inc.	Test No.	6
Well Name & Number	Cozad C #1	Zone Tested	Regan Sand
Company Address	Wichita, Kansas	Date	7-22-80
Comp. Rep.	Bill Darrow	Tester	Huck Smith
Contractor	Abercrombie Drlg. Inc.	Elevation	2490 K.B.
Location: Sec. 1 Twp. 1 Rge. 26W Co. Decatur State Ks.		Est. Feet of Pay	

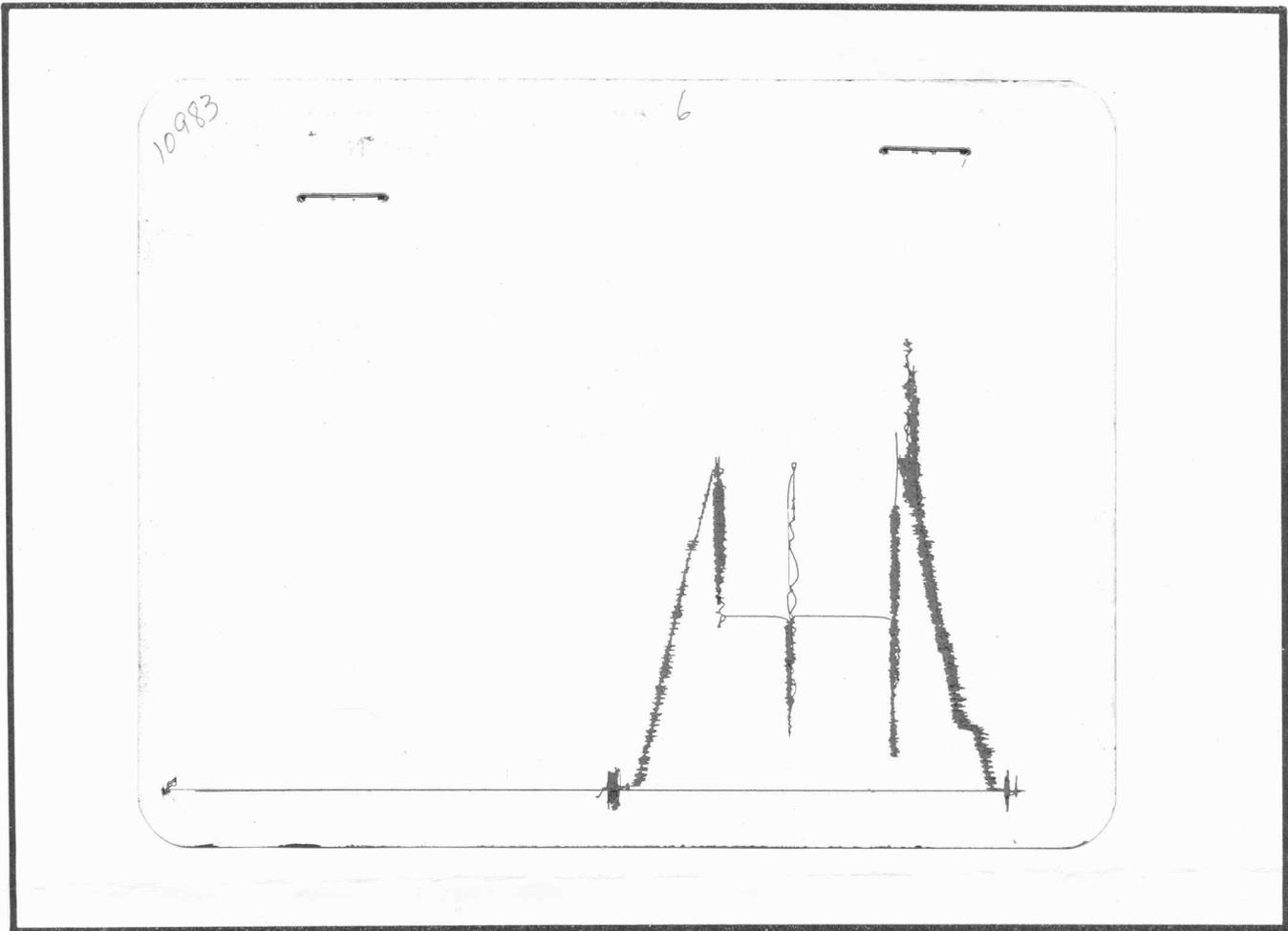
Recorder No. 10983 Type AK-1 Range 4100 PSI
 Recorder Depth 3596
 (A) Initial Hydrostatic Mud _____ PSI
 (B) First Initial Flow Pressure _____ PSI
 (C) First Final Flow Pressure _____ PSI
 (D) Initial Closed-in Pressure _____ PSI
 (E) Second Initial Flow Pressure _____ PSI
 (F) Second Final Flow Pressure _____ PSI
 (G) Final Closed-in Pressure _____ PSI
 (H) Final Hydrostatic Mud _____ PSI
 Temperature _____
 Mud Weight 9.5 Viscosity 43
 Fluid Loss 8.0
 Interval Tested 3583-3602
 Anchor Length 19
 Top Packer Depth 3578
 Bottom Packer Depth 3583
 Total Depth 3602
 Drill Pipe Size 4 1/2 X.H.
 Wt. Pipe I. D. 2.7 Ft. Run 470
 Recovery—Total Feet 75'
 Recovered 75 Feet Of Mud.
 Recovered _____ Feet Of _____
 Recovered _____ Feet Of _____
 Recovered _____ Feet Of _____
 Extra Equipment _____ Mis Run - Tool Plugged. Price of Job \$300.00

Recorder No. 11090 Type AK-1 Range 11090 PSI
 Recorder Depth 3599
 Tool Open Before I. S. I. 30 Mins.
 Initial Shut-in 45 Mins.
 Flow Period 30 Mins.
 Final Shut-in 30 Mins.
 Surface Choke Size 1"
 Bottom Choke Size 3/4"
 Main Hole Size 7 7/8"
 Rubber Size 6 3/4"
 Tool Open @ 5:25 P.M.
 Blow Weak Blow Died In 20 Minutes.

Remarks _____

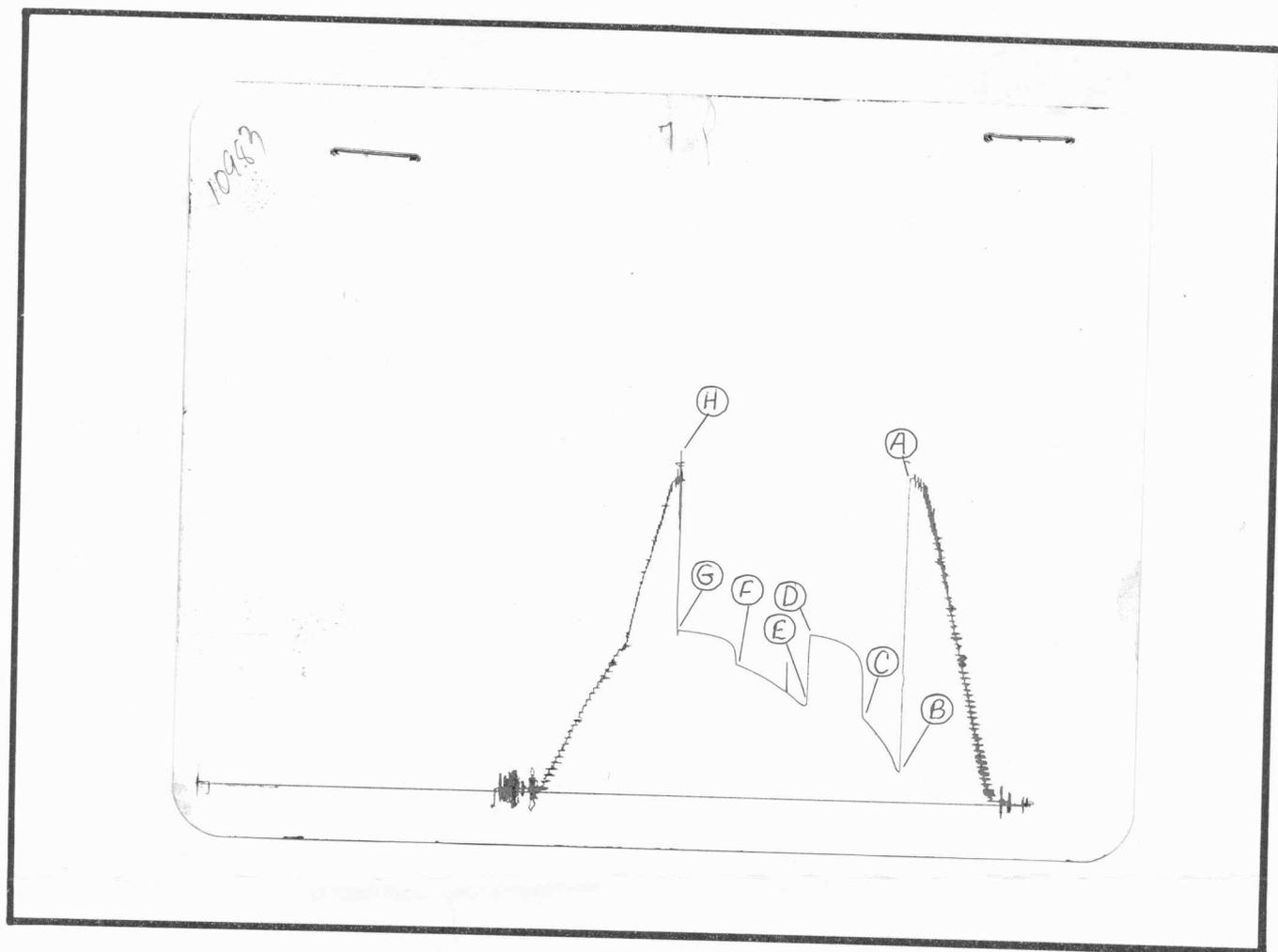
 Flushed Tool
 Slid 8' To Bottom

 Drill Collar I. D. _____ Ft. Run _____



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



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1825	PSI
(B) First Initial Flow Pressure	153	PSI
(C) First Final Flow Pressure	448	PSI
(D) Initial Closed-in Pressure	920	PSI
(E) Second Initial Flow Pressure	510	PSI
(F) Second Final Flow Pressure	735	PSI
(G) Final Closed-in Pressure	920	PSI
(H) Final Hydrostatic Mud	1814	PSI