

Phone  
(303) 839-8080



# Drill Stem Testers, Inc.

Denver Center Bldg.  
1776 Lincoln St., Suite 408  
Denver, CO 80203

Contractor Gear Drlg.

Rig No. 1

Spot NE-SW

Sec. 28

Twp. 9N

Rng. 53W

Field Wildcat

County Logan

State Colorado

Elevation 4180' KB

Formation "D" Sand

On Location @ --

Surface Choke 1"

Bottom Choke 3/4"

Hole Size 7 7/8"

Core Hole Size --

DP Size & Wt. 4 1/2"XH 16.60

Wt. Pipe --

I.D. of DC 2.25"

Length of DC 368'

Total Depth 4848'

Type Test Conventional

Interval 4841-4848'

Off Location @ --

Mud Type Chemical-Gel

Weight 9.3

Viscosity 59

Water Loss --

Filter Cake --

Resistivity 4.5 @ 70 of  
1200 Ppm. NaCl

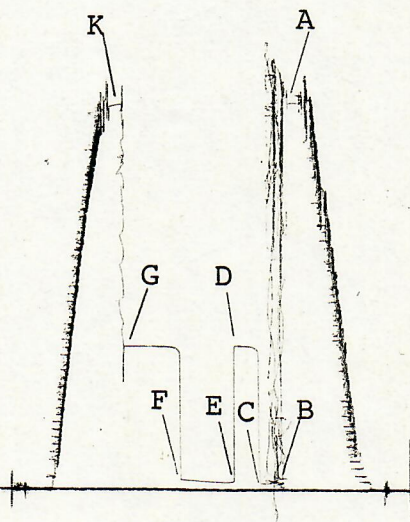
B.H.T. 152 of

Co. Rep. James Terwilliger

Tester TJ Rittenhouse

	REPORTED	CORRECTED	
Opened Tool @	<u>4:05</u>	<u>am</u>	hrs.
Flow No. 1	<u>15</u>	<u>16</u>	min.
Shut-in No. 1	<u>30</u>	<u>30</u>	min.
Flow No. 2	<u>60</u>	<u>62</u>	min.
Shut-in No. 2	<u>60</u>	<u>65</u>	min.
Flow No. 3	<u>--</u>		min.
Shut-in No. 3	<u>--</u>		min.

Recorder Type	<u>Kuster AK-1</u>
No. <u>11039</u>	Cap. <u>5125</u> psi
Depth	<u>4820</u> feet
Inside	X Outside
Clock No. <u>--</u>	Hr. <u>18</u>
Initial Hydrostatic	A <u>2529</u>
Final Hydrostatic	K <u>2517</u>
Initial Flow	B <u>42</u>
Final Initial Flow	C <u>32</u>
Initial Shut-in	D <u>942</u>
Second Initial Flow	E <u>51</u>
Second Final Flow	F <u>63</u>
Second Shut-in	G <u>940</u>
Third Initial Flow	H <u>--</u>
Third Final Flow	I <u>--</u>
Third Shut-in	J <u>--</u>



Pipe Recovery: 90' Total fluid  
10' Drilling mud = .05 bbls  
80' Mud cut water = .39 bbls  
Top Sample RW - 1.5 @ 70°F = 3900 ppm NaCl  
Bottom Sample RW 1.0 @ 70°F = 6000 ppm NaCl

## Surface Blow:

1st Flow: Tool opened with a slight blow, decreased to no blow in 3 minutes and remained throughout flow period.

2nd Flow: Tool opened with a slight blow, decreased to no blow in 2 minutes and remained throughout flow period.

Operator PETROLEUM, INC.  
Ticket No. 1076

Well Name & No. CROW #1  
Date 12-27-84

DST No. 2  
Interval 4841-4848'

# Drill Stem Testers, Inc.

PETROLEUM, INC.

Operator

CROW #1

Well Name and No.

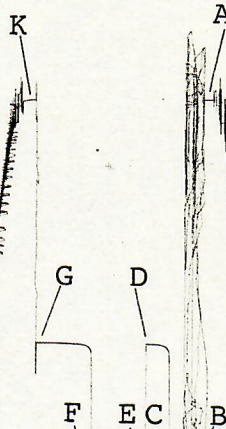
2

DST No.

Recorder Type Kuster AK-1  
 No. 11038 Cap. 5075 psi  
 Depth 4815 feet  
 Inside X Outside

Clock No. 26318 Hr. 18

Initial Hydrostatic A 2528  
 Final Hydrostatic K 2518  
 Initial Flow B 52  
 Final Initial Flow C 39  
 Initial Shut-in D 945  
 Second Initial Flow E 53  
 Second Final Flow F 66  
 Second Shut-in G 944  
 Third Initial Flow H --  
 Third Final Flow I --  
 Third Shut-in J --



Recorder Type \_\_\_\_\_  
 No. \_\_\_\_\_ Cap. \_\_\_\_\_ psi  
 Depth \_\_\_\_\_ feet  
 Inside \_\_\_\_\_ Outside \_\_\_\_\_

Clock No. \_\_\_\_\_ Hr. \_\_\_\_\_

Initial Hydrostatic A \_\_\_\_\_  
 Final Hydrostatic K \_\_\_\_\_  
 Initial Flow B \_\_\_\_\_  
 Final Initial Flow C \_\_\_\_\_  
 Initial Shut-in D \_\_\_\_\_  
 Second Initial Flow E \_\_\_\_\_  
 Second Final Flow F \_\_\_\_\_  
 Second Shut-in G \_\_\_\_\_  
 Third Initial Flow H \_\_\_\_\_  
 Third Final Flow I \_\_\_\_\_  
 Third Shut-in J \_\_\_\_\_

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CROW #1

Well Name and No.

2

DST No.

This pressure chart analysis has been made on the basis of the liquid recovery, the Horner Extrapolation method, and the Horner equations applicable to liquid recovery tests.

The pressure extrapolation plot for the initial shut-in build-up curve indicates a maximum reservoir pressure of 949 PSI, at the recorder depth of 4820 feet. The pressure extrapolation plot for the final shut-in build-up curve indicates a maximum reservoir pressure of 945 PSI.

The average Production Rate of 8.1 bbls./day, which was used in this analysis has been calculated on the basis of the total liquid recovery of 0.44 barrels, and the total flowing time of 79 minutes.

The calculated Damage Ratio of 12.50, indicates that significant well-bore damage was present at the time of this drillstem formation test. The Damage Ratio implies that the production rate should have been 12.50 times greater than that which occurred if well-bore damage had not been present.

The evaluation criteria used in this drillstem formation test analysis system provide indications that the results obtained should be reliable within reasonable limits relative to the assumptions that have been made.

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CROW #1

Well Name and No.

2

DST No.

## TEST PARAMETERS

DRILLPIPE CAPACITY	.0142 bbl/Ft	BOTTOM HOLE TEMP	152.0 Deg F
DRILLCOLLAR CAPACITY	.0049 bbl/Ft	HOLE SIZE	7.875 in.
DRILLPIPE RECOVERY	0.0 Ft	PAY THICKNESS	7'
DRILLCOLLAR RECOVERY	90.0 Ft	VISCOSITY (EST.)	.43 cp
RECORDER NUMBER	11039	1st FLOW TIME	15.8 min
RECORDER DEPTH	4820 Ft	1st SHUT-IN TIME	30.1 min
ELEVATION (KB)	4180 Ft	2nd FLOW TIME	62.6 min
DATUM	-640 Ft	2nd SHUT-IN TIME	65.1 min

## CALCULATIONS

EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI) .....	949.0
SLOPE (PSI/LOG CYCLE) .....	38.3
NUMBER OF POINTS USED .....	14

EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI) .....	945.0
SLOPE (PSI/LOG CYCLE) .....	12.9
NUMBER OF POINTS USED .....	15

AVERAGE PRODUCTION RATE (BARRELS/DAY) .....	8.1
TRANSMISSIBILITY (MD.-FT./CP.) .....	101.93
AVERAGE EFFECTIVE PERMEABILITY (MD.) .....	6.26
FLOW CAPACITY (MD.-FT.) .....	43.83
PRODUCTIVITY INDEX (BARRELS/DAY/PSI) .....	.01
DAMAGE RATIO .....	12.50
PRODUCTIVITY INDEX WITH DAMAGE REMOVED (BARRELS/DAY/PSI) .....	.11
APPROXIMATE RADIUS OF INVESTIGATION (FT.) .....	22.2
DRAWDOWN FACTOR (%) .....	.42
POTENTIOMETRIC SURFACE (FT.) .....	1542.4

# Drill Stem Testers, Inc.

## INCREMENTAL READING DATA

PETROLEUM, INC.

Operator

CROW #1

Well Name and No.

2

DST No.

RECORDER NO. 11039

DEPTH 4820 Ft.

-----  
INITIAL SHUT-IN  
INITIAL FLOW TIME: T = 16

dt min	(T+dt/dt) min	PRESSURE PSIG
0	0.00	32
1	15.00	85
2	8.00	274
3	6.38	486
4	4.89	902
5	4.18	920
6	3.59	926
7	3.26	928
8	3.00	931
9	2.75	933
10	2.59	935
12	2.32	937
14	2.13	937
16	1.99	938
18	1.88	940
20	1.79	940
22	1.72	941
24	1.66	941
26	1.61	941
28	1.56	941
30	1.53	942

# Drill Stem Testers, Inc.

## INCREMENTAL READING DATA

PETROLEUM, INC.

Operator

CROW #1

Well Name and No.

2  
DST No.

RECORDER NO. 11039

DEPTH 4820 Ft.

-----  
FINAL SHUT-IN

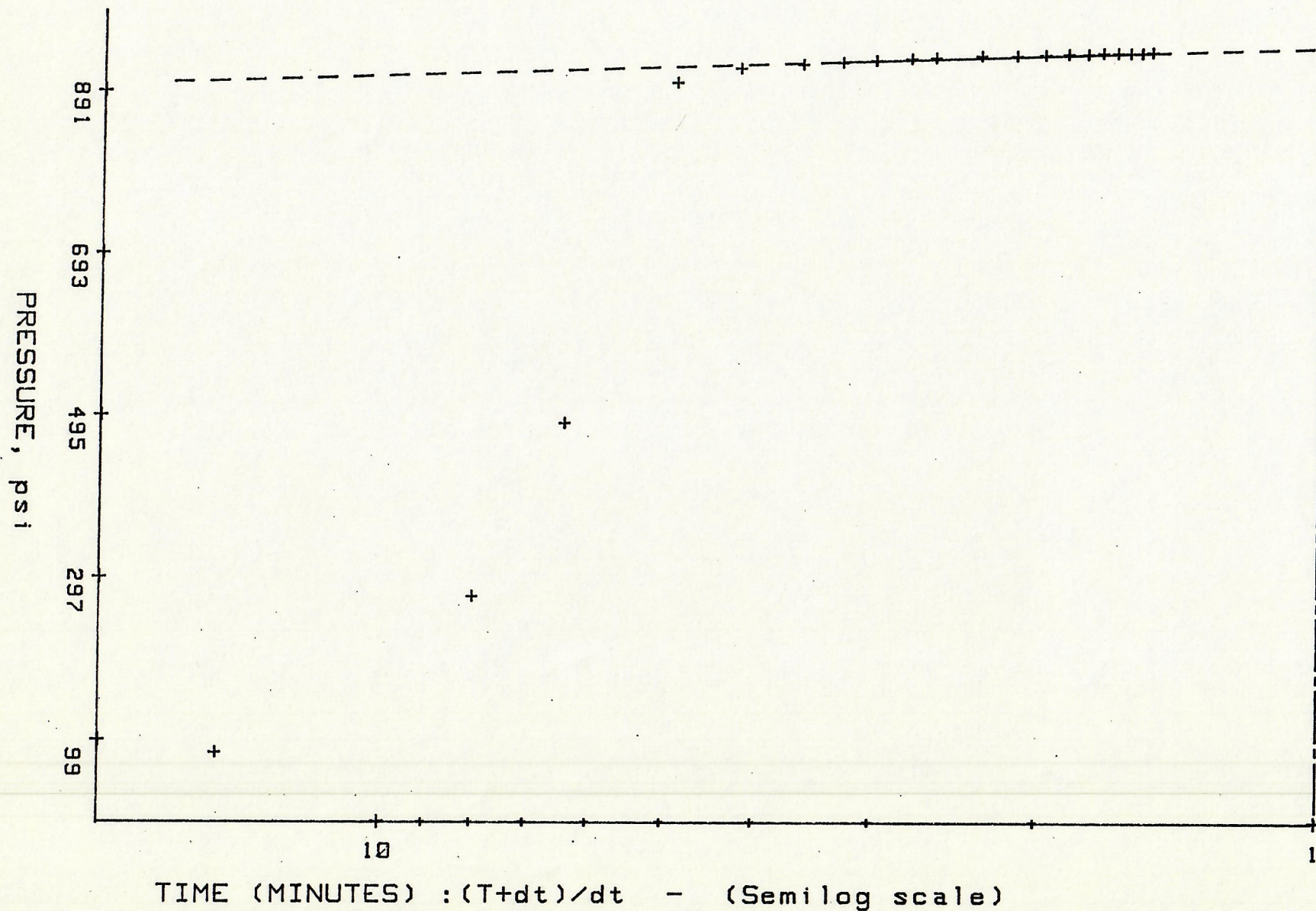
TOTAL FLOW TIME: T = 78

dt min	(T+dt/dt) min	PRESSURE PSIG
0	0.00	63
1	70.40	352
2	39.56	900
3	27.69	915
4	20.28	922
5	16.77	924
6	13.85	927
7	12.19	928
8	10.91	929
9	9.68	931
10	8.89	932
12	7.55	933
14	6.60	935
16	5.89	935
18	5.34	936
20	4.94	937
25	4.13	938
30	3.61	938
35	3.24	938
40	2.96	940
45	2.74	940
50	2.57	940
55	2.43	940
60	2.31	940
65	2.20	940

TICKET # : 1076  
RECORDER # : 11039  
DATE : 12-27-84

P\* = 949 PSI  
SLOPE = 38.29 PSI/LOG-CYCLE  
POINTS USED = 14

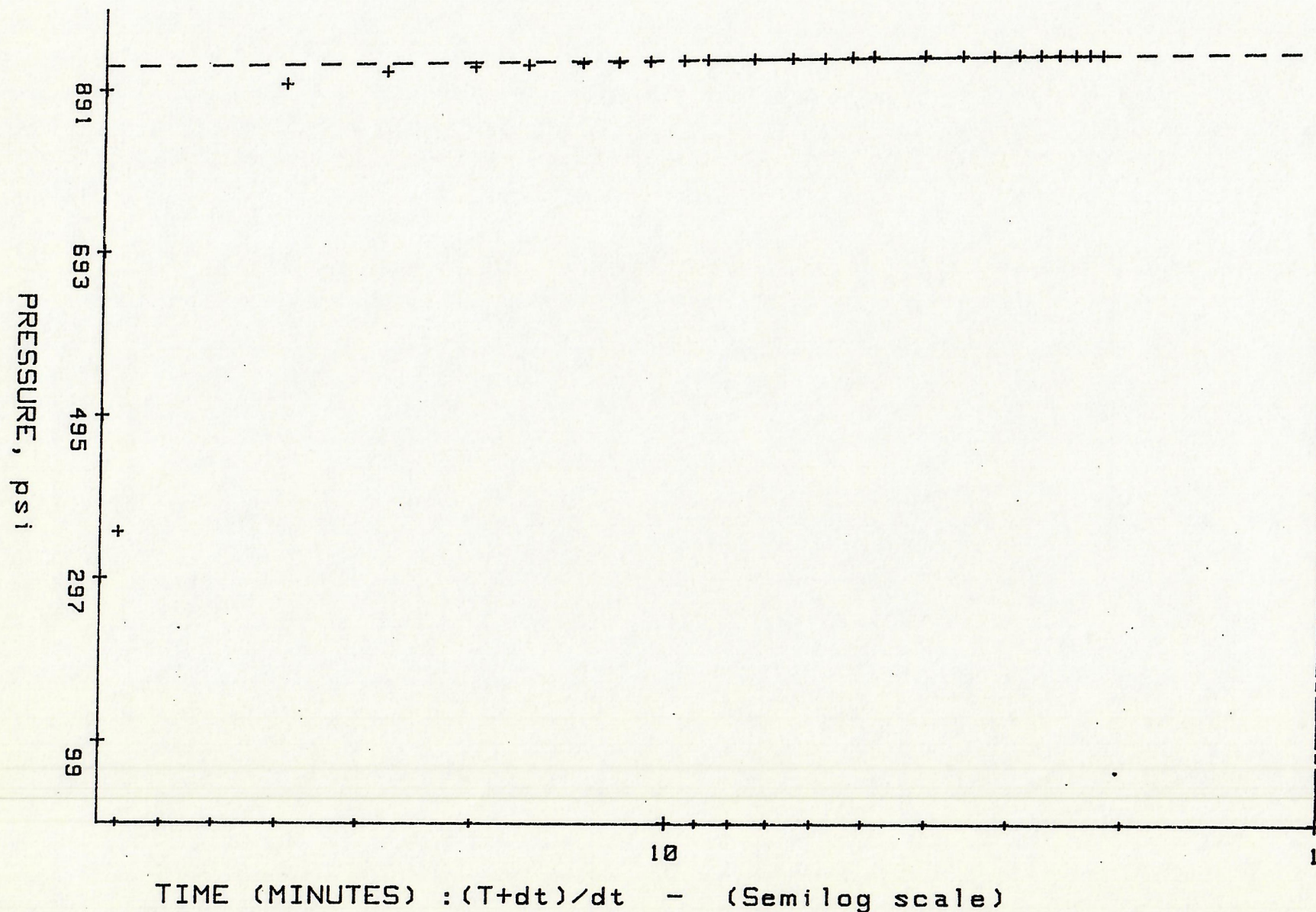
# HORNER PLOT FOR INITIAL SHUT-IN



TICKET # : 1076  
RECORDER # : 11039  
DATE : 12-27-84

P\* = 945 PSI  
SLOPE = 12.91 PSI/LOG-CYCLE  
POINTS USED = 15

# HORNER PLOT FOR FINAL SHUT-IN



LOG-LOG PLOT FOR INITIAL SHUT-IN

DELTA TIME (min)

100

10

10

+

100

+

+

DELTA PRESSURE (psi)

1000

10000

+

LOG-LOG PLOT FOR FINAL SHUT-IN

DELTA TIME (min)

100

10

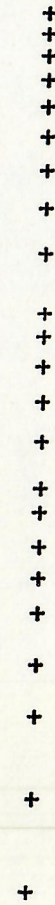
10

100

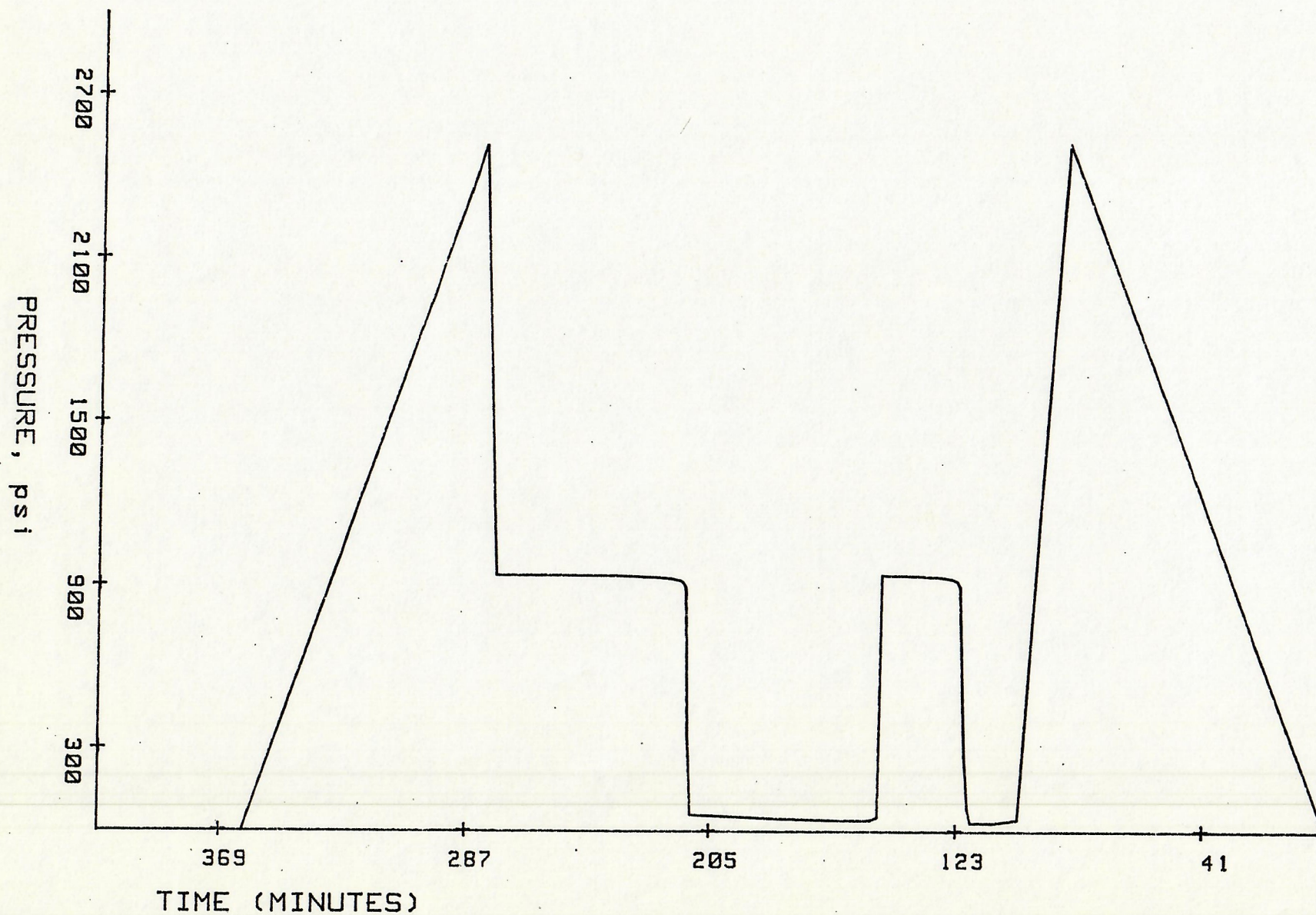
DELTA PRESSURE (psi)

1000

10000



TICKET # : 1076  
RECORDER # : 11039  
DATE : 12-27-84



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## DISTRIBUTION OF FINAL REPORTS

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Operator

CROW #1

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