CHENEY TESTING CO.

DRILL STEM TEST REPORT

COMPANY A. SCOTT RITCHIE

LEASE AND WELL NO. MCCOY #1

SEC. 2 TWP. 20s RGE. 19w

TEST NO. 1 DATE 7-30-85

NOMENCLATURE

b	=	Approximate Radius of Investigation	Feet
b^1	=	Approximate Radius of Investigation (Net Pay Zone h^1)	Feet
D.R.	=	Damage Ratio	——
El	=	Elevation	Feet
GD	=	B.T. Gauge Depth (From Surface Reference)	Feet
h	=	Interval Tested	Feet
h^1	=	Net Pay Thickness	Feet
K	=	Permeability	md
K^1	=	Permeability (From Net Pay Zone h^1)	md
m	=	Slope Extrapolated Pressure Plot (Psi^2/cycle Gas)	psi/cycle
OF^1	=	Maximum Indicated Flow Rate	MCF/D
OF^2	=	Minimum Indicated Flow Rate	MCF/D
OF^3	=	Theoretical Open Flow Potential with/Damage Removed Max.	MCF/D
OF^4	=	Theoretical Open Flow Potential with/Damage Removed Min.	MCF/D
P^S	=	Extrapolated Static Pressure	Psig.
P^F	=	Final Flow Pressure	Psig.
P^{OT}	=	Potentiometric Surface (Fresh Water*)	Feet
Q	=	Average Adjusted Production Rate During Test	bbls/day
Q^1	=	Theoretical Production w/Damage Removed	bbls/day
Q^g	=	Measured Gas Production Rate	MCF/D
R	=	Corrected Recovery	bbls
r^w	=	Radius of Well Bore	Feet
t	=	Flow Time	Minutes
t^o	=	Total Flow Time	Minutes
T	=	Temperature Rankine	°R
Z	=	Compressibility Factor	——
u	=	Viscosity Gas or Liquid	CP
Log	=	Common Log	

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.

CHENEY TESTING COMPANY, INC.

P. O. Box 367 HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company A. Scott Ritchie	Test No. 1
Well Name & Number McCoy #1	Zone Tested Altamont
Company Address 125 N. Market, Suite 950, Wichita, Ks	Date 7-30-85
Company Rep. Leah Ann Kasten	Tester Gary Pevoteaux
Contractor White & Ellis	Elevation 2835
Location: Sec. 2 Twp. 20s Rge. 29w Co Lane State Ks.	Est. Feet of Pay

Recorder No. 13638 Type AK-1 Range 4675 PSI
Recorder Depth 4490 Clock # 30420

(A) Initial Hydrostatic Mud 2321 PSI
(B) First Initial Flow Pressure 31 PSI
(C) First Final Flow Pressure 41 PSI
(D) Initial Shut-in Pressure 743 PSI
(E) Second Initial Flow Pressure 47 PSI
(F) Second Final Flow Pressure 57 PSI
(G) Final Shut-in Pressure 724 PSI
(H) Final Hydrostatic Mud 2298 PSI

Temperature 128°
Mud Weight 9.6 Viscosity 48
Fluid Loss 11.8
Interval Tested 4469-4493
Anchor Length 24
Top Packer Depth 4464
Bottom Packer Depth 4469
Total Depth 4493
Drill Pipe Size 4½" XH
Wt. Pipe I. D. Ft. Run
Recovery-Total Feet 95

Recorder No. 13639 Type AK-1 Range 4675 PSI
Recorder Depth 4485 Clock # 19127
Tool Open Before I.S.I. 45 Mins.
Initial Shut-in 60 Mins.
Flow Period 45 Mins.
Final Shut-in 60 Mins.
Top Choke Size 1" Hole Size 7 7/8"
Bottom Choke Size 3/4" Rubber Size 6 3/4"
Tool Open @ 1:15 A.M.
Blow Remarks
1st Open- Weak to Fair Blow, 6" after 45 Minutes
2nd Open- Weak Blow, 4" after 45 Minutes.
Mud Chlorides- 8,000 PPM
Recovery Chlorides- 6,500 PPM

Drill Collars I.D. 2.70, Ft. Run-180

Recovered 145 Feet Of Gas in Pipe
Recovered 30 Feet Of Clean Oil Gravity 32 @ 60°F.
Recovered 65 Feet Of Muddy Oil (Mud 45%/ Oil 55%)
Recovered Feet Of Clean oil at top of tool
Recovered Feet Of
Recovered Feet Of

Extra Equipment Price of Job 675.00

MILLER PRINTERS, INC.
Great Bend, Kansas

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

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FOR: A. SCOTT RITCHIE
MCCOY #1
SEC: 2-20S-29W
LANE COUNTY KANSAS

DST # 1
FORMATION: ALTAMONT
ELEVATION: 2835 KB

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TEST PARAMETERS

TEST INTERVAL: 4469 - 4493
TIME INTERVAL: 45 - 60 - 45 - 60
INITIAL FLOW PRESS: 33.3- 44.8
FINAL FLOW PRESS: 55.1- 63.1
SHUT-IN PRESS(I-F): 743.6- 720.6
BOTTOM HOLE TEMPERATURE: 128
TOTAL FEET OF RECOVERY: 95

EST PAY: 10
VISCOSITY OF FLUID: 5.5
HOLE SIZE: 7.875
D.C. CAPACITY:0.00708
W.P. CAPACITY:0.00000
D.P. CAPACITY:0.01402
TOTAL BARRELS RECOVERY: 0.6724

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EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI): 755
SLOPE (PSI-CYCLE): 55 POINTS USED: 5

EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI): 735
SLOPE (PSI-CYCLE): 42 POINTS USED: 4

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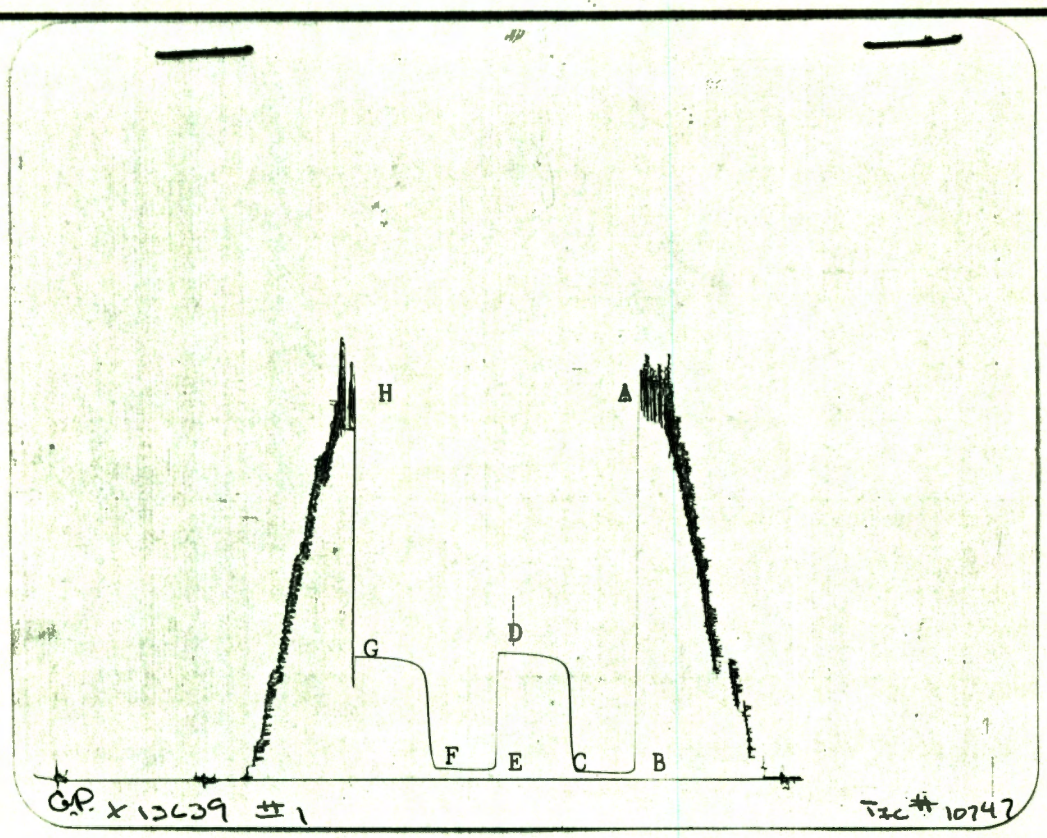
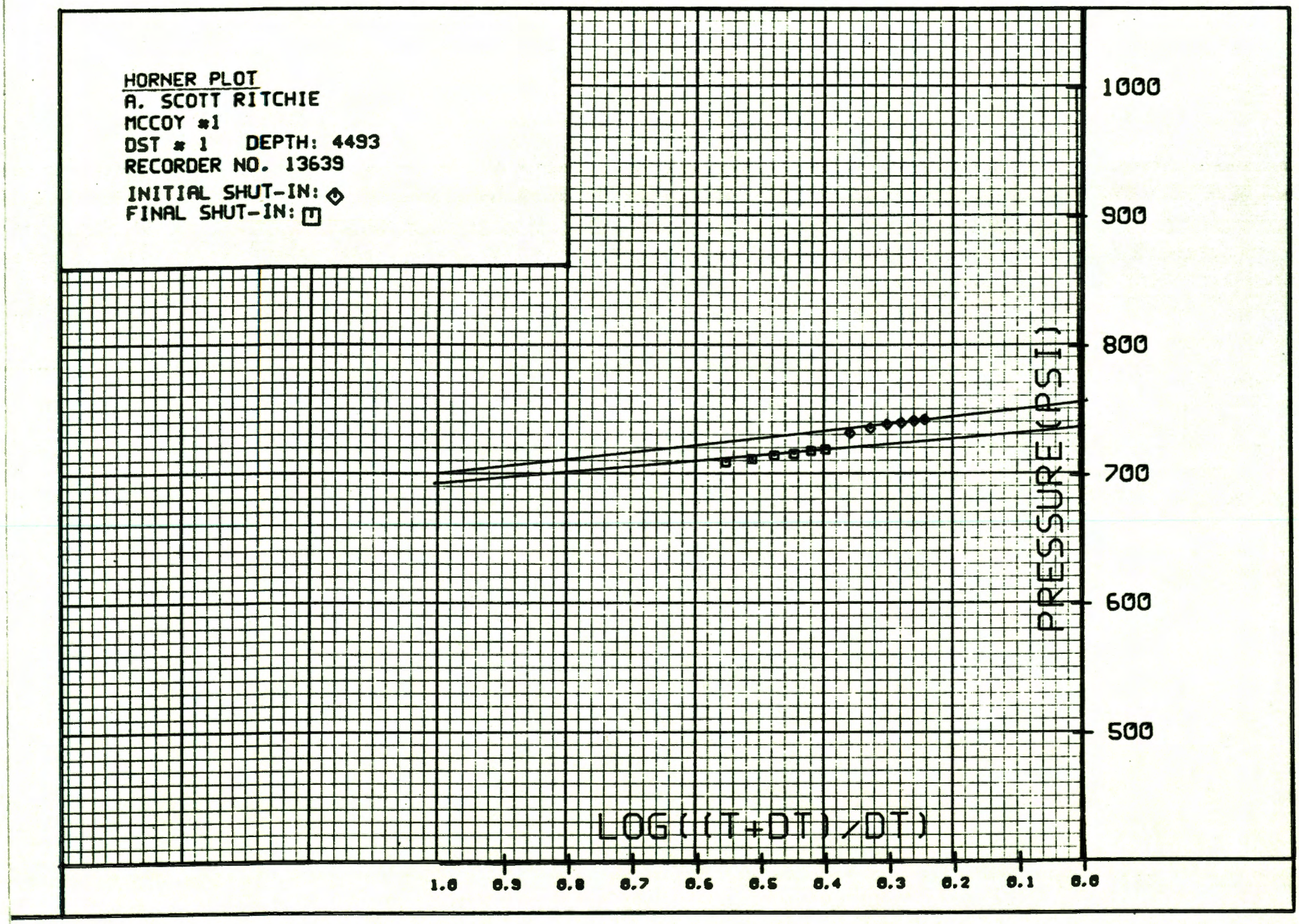
CALCULATIONS

AVERAGE PRODUCTION RATE (B/D)	: 10.76
TRANSMISSIBILITY (MD-FT/CP)	: 41.65
PERMEABILITY (MD)	: 22.91
PRODUCTIVITY INDEX (B/D/PSI)	: 0.0471
DAMAGE RATIO	: 2.608
APPROXIMATE RADIUS OF INVESTIGATION (FT)	: 45.4
DRAWDOWN FACTOR (%)	: 2.649
POTENTIOMETRIC SURFACE (FT)	: 46.46



This is an actual photograph of recorder chart.

POINT		PRESSURE Field Reading	Office Reading	
(A)	Initial Hydrostatic Mud	2321	2316	PSI
(B)	First Initial Flow Pressure	31	33.3	PSI
(C)	First Final Flow Pressure	41	44.8	PSI
(D)	Initial Closed-in Pressure	743	743.6	PSI
(E)	Second Initial Flow Pressure	47	55.1	PSI
(F)	Second Final Flow Pressure	57	63.1	PSI
(G)	Final Closed-in Pressure	724	720.6	PSI
(H)	Final Hydrostatic Mud	2298	2293	PSI


HORNER PLOT
A. SCOTT RITCHIE
MCCOY #1
DST # 1 DEPTH: 4493
RECORDER NO. 13639
INITIAL SHUT-IN:
FINAL SHUT-IN:
1000
900
800
700
600
500
PRESSURE (PSI)
LOG((T+DT)/DT)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

INITIAL SHUT-IN

RECORDER NO: 13639 DEPTH: 4493 FT.
INITIAL FLOW TIME (T): 45 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(PSIG)
0	0.000	44.8
5	1.000	308.7
10	0.740	673.6
15	0.602	701.1
20	0.512	714.9
25	0.447	724.1
30	0.398	729.8
35	0.359	733.2
40	0.327	736.7
45	0.301	740.1
50	0.279	741.3
55	0.260	742.4
60	0.243	743.6

FINAL SHUT-IN

RECORDER NO: 13639 DEPTH: 4493 FT.
TOTAL FLOW TIME: 90 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(PSIG)
0	0.000	63.1
5	1.279	541.6
10	1.000	659.8
15	0.845	683.9
20	0.740	694.2
25	0.663	702.3
30	0.602	706.8
35	0.553	711.4
40	0.512	713.7
45	0.477	716.0
50	0.447	717.2
55	0.421	719.5
60	0.398	720.6

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	McCoy #1	Zone Tested	Johnson
Company Address	125 N. Market, Suite 950, Wichita, Ks	Date	7-31-85
Company Rep.	Leah Ann Kasten	Tester	Gary Pevoteaux
Contractor	White & Ellis Drilling, Inc.	Elevation	2835
Location: Sec. 2	Twp. 20s Rge. 29w Co. Lane State Ks	Est. Feet of Pay	

Recorder No. 13639 / 13638= Type AK-1 Range 4675 / 4675 PSI

Recorder Depth 4460 / 4655 Clock # 30420 / 19127

(A) Initial Hydrostatic Mud 2356 PSI

(B) First Initial Flow Pressure 34 PSI

(C) First Final Flow Pressure 57 PSI

(D) Initial Shut-in Pressure 956 PSI

(E) Second Initial Flow Pressure 68 PSI

(F) Second Final Flow Pressure 82 PSI

(G) Final Shut-in Pressure 841 PSI

(H) Final Hydrostatic Mud 2333 PSI

Temperature 131°

Mud Weight 9.5 Viscosity 43

Fluid Loss 14.0

Interval Tested 4609-4667

Anchor Length 58

Top Packer Depth 4604 & 4609

Bottom Packer Depth 4667

Total Depth 4710

Drill Pipe Size 4½" XH

Wt. Pipe I. D. ____ Ft. Run ____

Recovery-Total Feet 135

Recorder No. 13636 Type AK-1 Range 6075 PSI

Recorder Depth 4707 Clock # 19133

Tool Open Before I.S.I. 45 Mins.

Initial Shut-in 60 Mins.

Flow Period 45 Mins.

Final Shut-in 60 Mins.

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

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

Tool Open @ 6:15 P.M.

Blow Remarks

1st Open- Weak to Fair Blow, 7" After 45 Minutes.

2nd Open Weak To Fair Blow, 8" after 45 Minutes.

Hit 2 or 3 Severe Bridges Going in Hole

Mud Chlorides: 6,000 PPM

Recovery Chlorides: 5,200 PPM

Drill Collars I.D. 2.25= Ft. Run 360

Recovered 245 Feet Of Gas in Pipe

Recovered 35 Feet Of Gassy Clean Oil (gas 3%) Gravity 32 @ 60° F.

Recovered 40 Feet Of Gassy Mud Cut Oil (Gas 10%/ Mud 15%/ Oil 75%)

Recovered 60 Feet Of Heavy Oil & Gassy Cut Mud (Gas 20%/ Oil 25%/ Mud 55%)

Recovered ____ Feet Of Clean Oil at Top of Tool

Recovered ____ Feet Of ____

Extra Equipment Extra Packer Straddle Price of Job 1100.00

MILLER PRINTERS, INC.
Great Bend, Kansas

CARACTERISTICS

FROM DST DATA

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FOR: A. SCOTT RITCHIE
MCCOY #1 — DST # 2
SEC: 2-20S-29W — FORMATION: JOHNSON
LANE COUNTY KANSAS — ELEVATION: 2835 KB

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TEST PARAMETERS

TEST INTERVAL: 4609 - 4667	EST PAY: 10
TIME INTERVAL: 45 - 60 - 45 - 60	VISCOSITY OF FLUID: 5.5
INITIAL FLOW PRESS: 51.6- 70.0	HOLE SIZE: 7.875
FINAL FLOW PRESS: 82.6- 96.4	D.C. CAPACITY:0.00492
SHUT-IN PRESS(I-F): 979.9- 877.8	W.P. CAPACITY:0.00000
BOTTOM HOLE TEMPERATURE: 131	D.P. CAPACITY:0.01402
TOTAL FEET OF RECOVERY: 135	TOTAL BARRELS RECOVERY: 0.6636

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EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI): 1210
SLOPE (PSI-CYCLE): 956 POINTS USED: 5

EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI): 1210
SLOPE (PSI-CYCLE): 850 POINTS USED: 2

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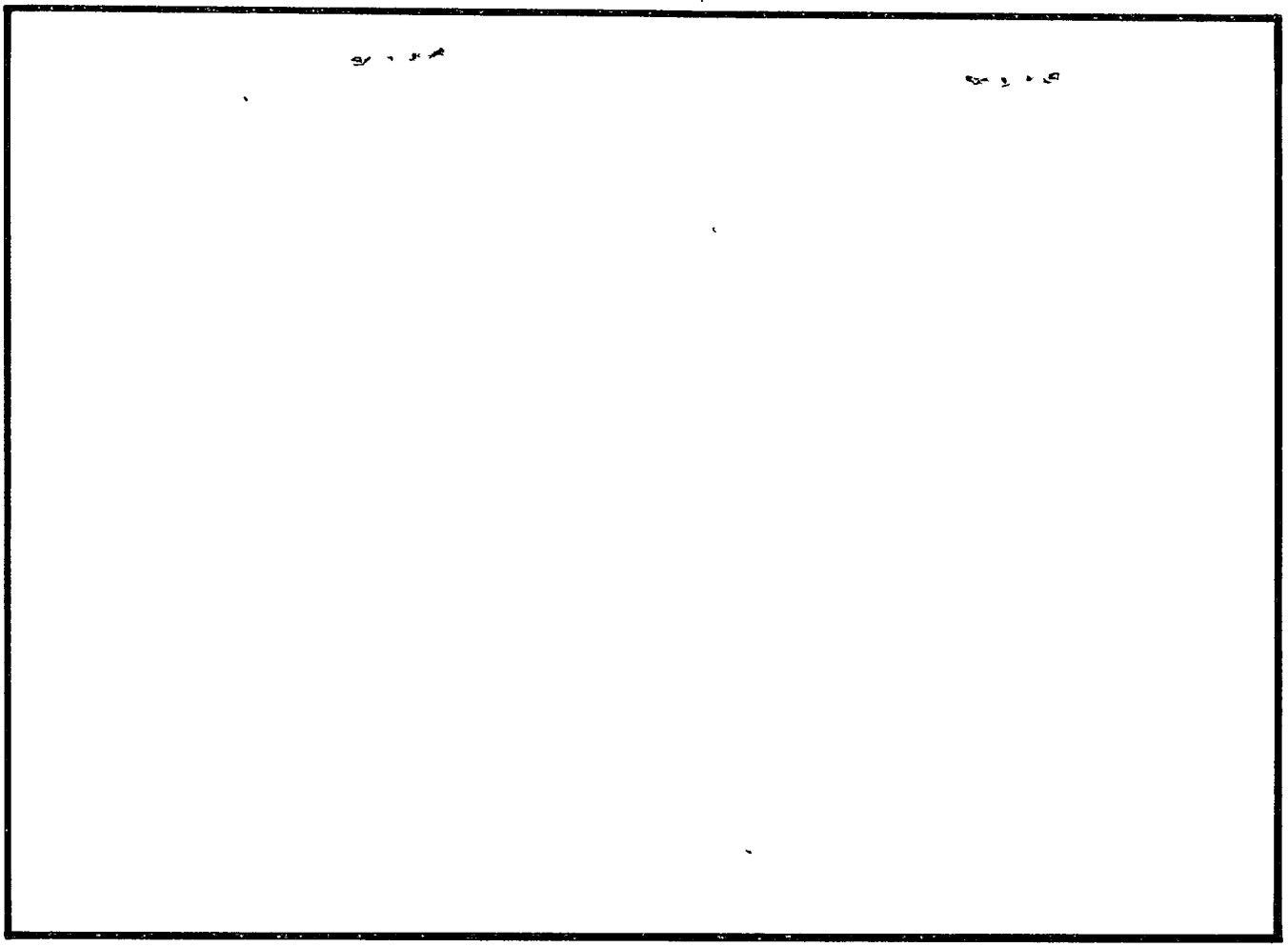
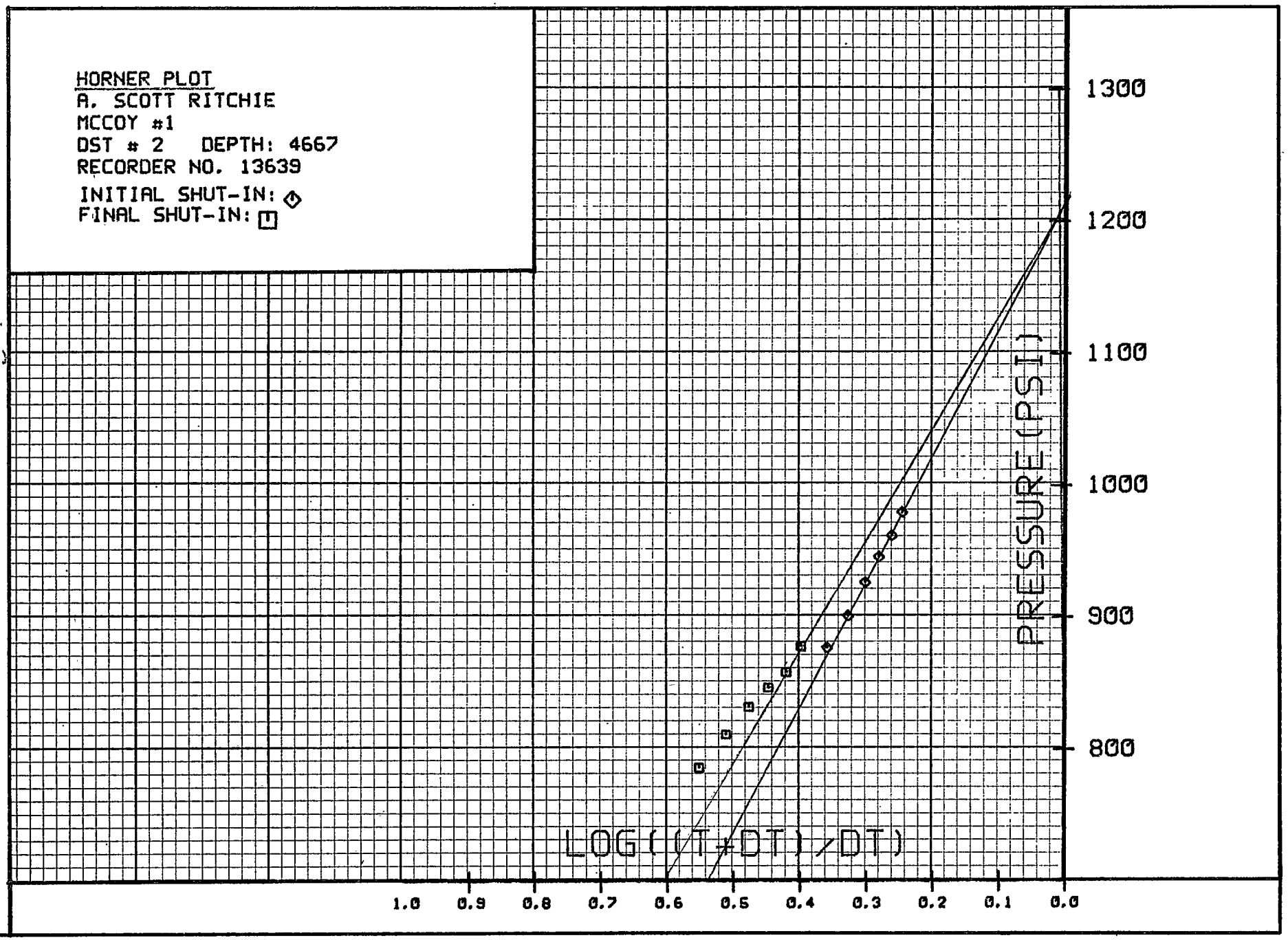
CALCULATIONS

AVERAGE PRODUCTION RATE (B/D)	: 10.62
TRANSMISSIBILITY (MD-FT/CP)	: 2.03
PERMEABILITY (MD)	: 1.12
PRODUCTIVITY INDEX (B/D/PSI)	: 0.0023
DAMAGE RATIO	: 0.214
APPROXIMATE RADIUS OF INVESTIGATION (FT)	: 10.0
DRAWDOWN FACTOR (%)	: 0.000
POTENTIOMETRIC SURFACE (FT)	: 973.99



This is an actual photograph of recorder chart.

POINT		PRESSURE Field Reading	Office Reading	
(A)	Initial Hydrostatic Mud	2356	2351	PSI
(B)	First Initial Flow Pressure	34	51.6	PSI
(C)	First Final Flow Pressure	57	70.0	PSI
(D)	Initial Closed-in Pressure	956	979.9	PSI
(E)	Second Initial Flow Pressure	68	82.6	PSI
(F)	Second Final Flow Pressure	82	96.4	PSI
(G)	Final Closed-in Pressure	841	877.8	PSI
(H)	Final Hydrostatic Mud	2333	2328	PSI


HORNER PLOT
A. SCOTT RITCHIE
MCCOY #1
DST # 2 DEPTH: 4667
RECORDER NO. 13639
INITIAL SHUT-IN:
FINAL SHUT-IN:
1300
1200
1100
1000
900
800
PRESSURE (PSI)
LOG ((T+DT)/DT)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

INITIAL SHUT-IN

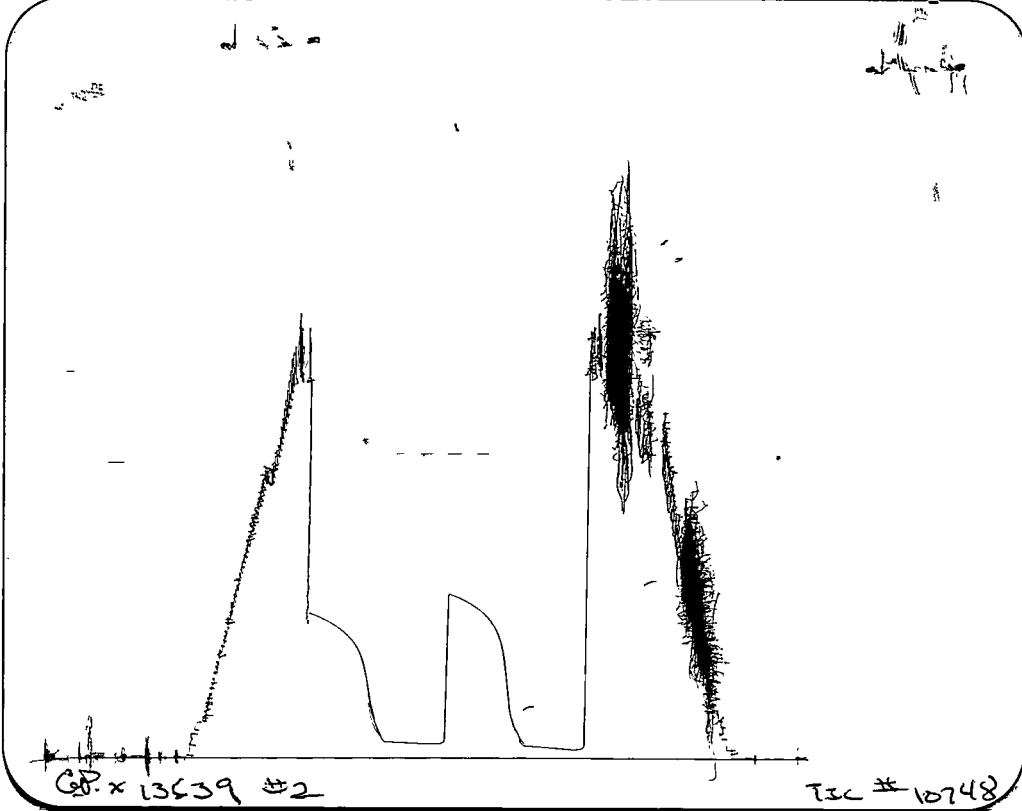
RECORDER NO: 13639 DEPTH: 4667 FT.
INITIAL FLOW TIME (T): 45 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(PSIG)
0	0.000	70.0
5	1.000	90.7
10	0.740	162.9
15	0.602	293.8
20	0.512	636.8
25	0.447	772.2
30	0.398	834.2
35	0.359	876.7
40	0.327	900.8
45	0.301	926.0
50	0.279	945.5
55	0.260	961.6
60	0.243	979.9

FINAL SHUT-IN

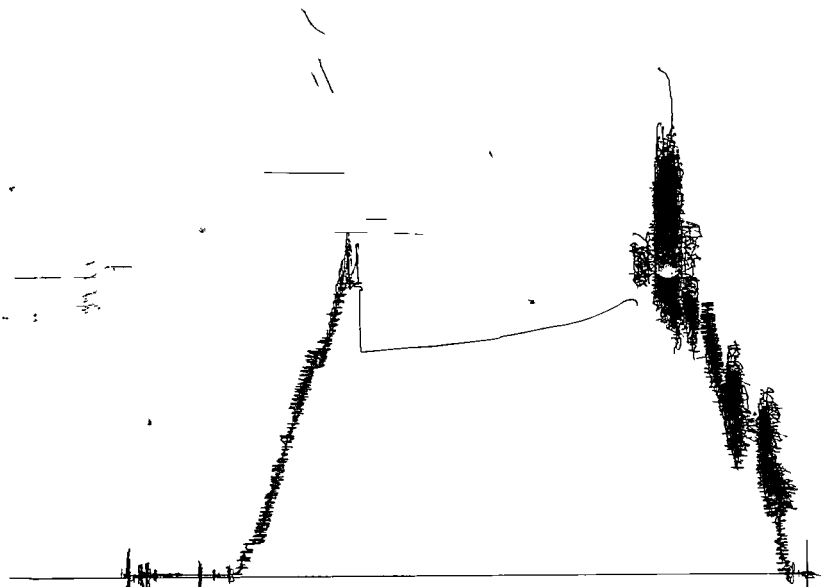
RECORDER NO: 13639 DEPTH: 4667 FT.
TOTAL FLOW TIME: 90 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(PSIG)
0	0.000	96.4
5	1.279	167.5
10	1.000	314.4
15	0.845	564.6
20	0.740	669.0
25	0.663	717.2
30	0.602	757.3
35	0.553	786.0
40	0.512	811.3
45	0.477	831.9
50	0.447	846.8
55	0.421	858.3
60	0.398	877.8



GP. x 13539 #2

TIC # 10748



#2 13636 TAILPIPE

TIC #10748