

CHENEY TESTING COMPANY, INC.

P. O. Box 367

HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company	Ritchie Exploration Inc.	Test No.	1
Well Name & Number	Metcalf Farms #1	Zone Tested	Oreed
Company Address	125 N. Market-Suite #1000, Wichita, Ks.	Date	5-25-87
Company Rep.	Bob Mathiesen	Tester	Gary Hartwell
Contractor	Murfin Drilling Co. Rig #2	Elevation	2470 K.B.
Location: Sec. 28 Twp. 1S Rge. 27W Co.	Decatur State Kansas	Est. Feet of Pay	

Recorder No. 13363 Type AK-1 Range 3800 PSI

Recorder Depth 3167 Clock # 23859

(A) Initial Hydrostatic Mud 1705 PSI

(B) First Initial Flow Pressure 97 PSI

(C) First Final Flow Pressure 65 PSI

(D) Initial Shut-in Pressure 1008 PSI

(E) Second Initial Flow Pressure 65 PSI

(F) Second Final Flow Pressure 65 PSI

(G) Final Shut-in Pressure 932 PSI

(H) Final Hydrostatic Mud 1683 PSI

Temperature 96°

Mud Weight 9.4 Viscosity 40

Fluid Loss 8

Interval Tested 3113-3173

Anchor Length 60'

Top Packer Depth 3108

Bottom Packer Depth 3113

Total Depth 3173

Drill Pipe Size 4 1/2" X.H.

COLLARS

Wt. Pipe I. D. 2.25 Ft. Run 485

Recovery-Total Feet 80

Recovered 80 Feet Of Mud.

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Extra Equipment

Recorder No. 10290 Type AK-1 Range 4250 PSI

Recorder Depth 3170 Clock # 25561

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"

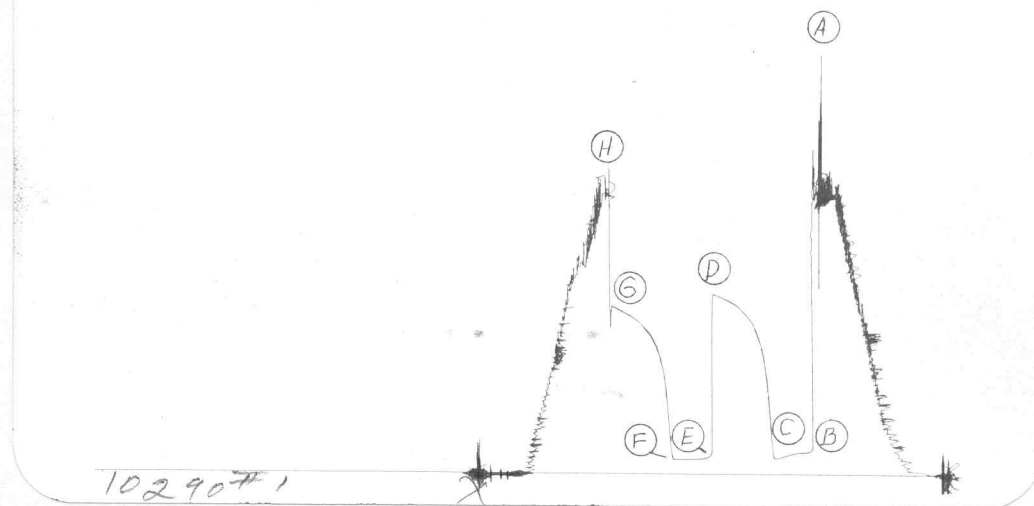
Tool Open @ 12:14 P.M.

Blow Remarks Weak Blow Slightly Buiding to 1 1/2" - 1st Open.

Weak 1/2" Blow. 2nd Open.

Worked Tool 8-10' to Bottom.

Price of Job \$300.00



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1705	PSI
(B) First Initial Flow Pressure	97	PSI
(C) First Final Flow Pressure	65	PSI
(D) Initial Closed-in Pressure	1008	PSI
(E) Second Initial Flow Pressure	65	PSI
(F) Second Final Flow Pressure	65	PSI
(G) Final Closed-in Pressure	932	PSI
(H) Final Hydrostatic Mud	1638	PSI

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DRILL-STEM TEST DATA

Company	Ritchie Exploration Co., Inc.	Test No.	2
Well Name & Number	Metcalf Farms #1	Zone Tested	Kansas City "A-D"
Company Address	125 N. Market - #1000, Wichita, Kansas	Date	5-26-87
Company Rep.	Bob Mathiesen	Tester	Gary Hartwell
Contractor	Murfin Drilling Rigs #2	Elevation	2470 K.B.
Location: Sec. 28 Twp. 1S Rge. 27W Co. Decatur State Ks.		Est. Feet of Pay	

Recorder No. 13363 Type AK-1 Range 3800 PSI

Recorder Depth 3177 Clock # 23859

(A) Initial Hydrostatic Mud 1662 PSI

(B) First Initial Flow Pressure 54 PSI

(C) First Final Flow Pressure 65 PSI

(D) Initial Shut-in Pressure 1062 PSI

(E) Second Initial Flow Pressure 108 PSI

(F) Second Final Flow Pressure 119 PSI

(G) Final Shut-in Pressure 1042 PSI

(H) Final Hydrostatic Mud 1662 PSI

Temperature 96

Mud Weight 9.6 Viscosity 46

Fluid Loss 9.0

Interval Tested 3141-3236

Anchor Length 95'

Top Packer Depth 3136

Bottom Packer Depth 3141

Total Depth 3236

Drill Pipe Size 4 1/2 EX.H.

Wt. Pipe l. D. collars 2.25 Ft. Run 425

Recovery-Total Feet 230'

Recovered 60 Feet Of Oil spot mud

Recovered 50 Feet Of Oil Cut mud (40% Oil 60% Mud)

Recovered 60 Feet Of Oil Cut wtry mud (25% Oil 20% Wtr. 55% Mud)

Recovered 60 Feet Of Oil Cut mud (5% Oil 95% Mud)

Recovered Feet Of

Recovered Feet Of

Extra Equipment

Recorder No. 10290 Type AK-1 Range 4250 PSI

Recorder Depth 3173 Clock # 25561

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 @ 4:12 A.M.

Blow Remarks Fair building blow 7" 1st open
6" blow second open

R.W. 1.85 @ 70° Chlorides 3,000 P.P.M.

Price of Job \$300.00

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

FOR: RITCHIE EXPLORATION
METCALF FARMS #1
28-1S-27W
DECATUR CO., KS.

DST # 2
FORMATION: KANSAS CITY
ELEVATION: 2470 KB

TEST PARAMETERS

TEST INTERVAL: 3141 - 3236
TIME INTERVAL: 30 - 45 - 30 - 45
INITIAL FLOW PRESS: 47.8- 86.0
FINAL FLOW PRESS: 129.1- 142.4
SHUT-IN PRESS(I-F):1099.3-1079.3
BOTTOM HOLE TEMPERATURE: 96
TOTAL FEET OF RECOVERY: 230

EST PAY: 4
VISCOSITY OF FLUID: 5
HOLE SIZE: 7.875
D.C. CAPACITY:0.00492
W.P. CAPACITY:0.00000
D.P. CAPACITY:0.01402
TOTAL BARRELS RECOVERY: 1.1305

EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI): 1180
SLOPE (PSI-CYCLE): 384 POINTS USED: 5

EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI): 1190
SLOPE (PSI-CYCLE): 310 POINTS USED: 3

CALCULATIONS

PRODUCTION POTENTIAL (B/D)	: 27.13
TRANSMISSIBILITY (MD-FT/CP)	: 14.23
EFFECTIVE PERMEABILITY (MD)	: 17.79
PRODUCTIVITY INDEX (B/D/PSI)	: 0.0161
DAMAGE RATIO	: 0.618
APPROXIMATE RADIUS OF INVESTIGATION (FT)	: 32.7
DRAWDOWN FACTOR (%)	: -0.847
POTENTIOMETRIC SURFACE (FT)	: 1993.61

INITIAL SHUT-IN

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RECORDER NO: 13363 DEPTH: 3236 FT.
INITIAL FLOW TIME (T): 30 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(PSIG)
0	0.000	86.0
5	0.845	522.9
10	0.602	914.8
15	0.477	976.0
20	0.398	1025.7
25	0.342	1051.5
30	0.301	1072.6
35	0.269	1082.1
40	0.243	1090.7
45	0.222	1099.3

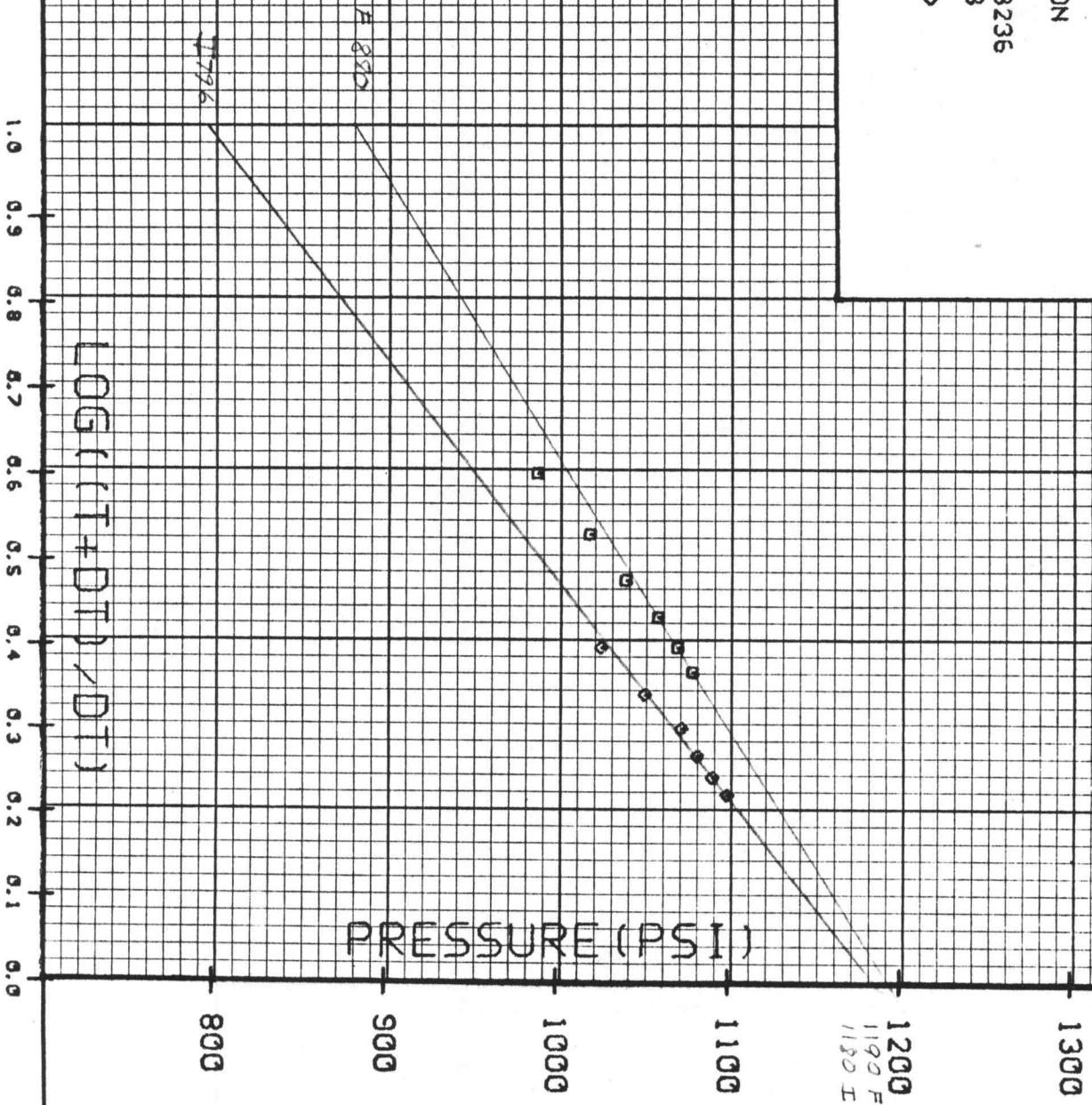
FINAL SHUT-IN

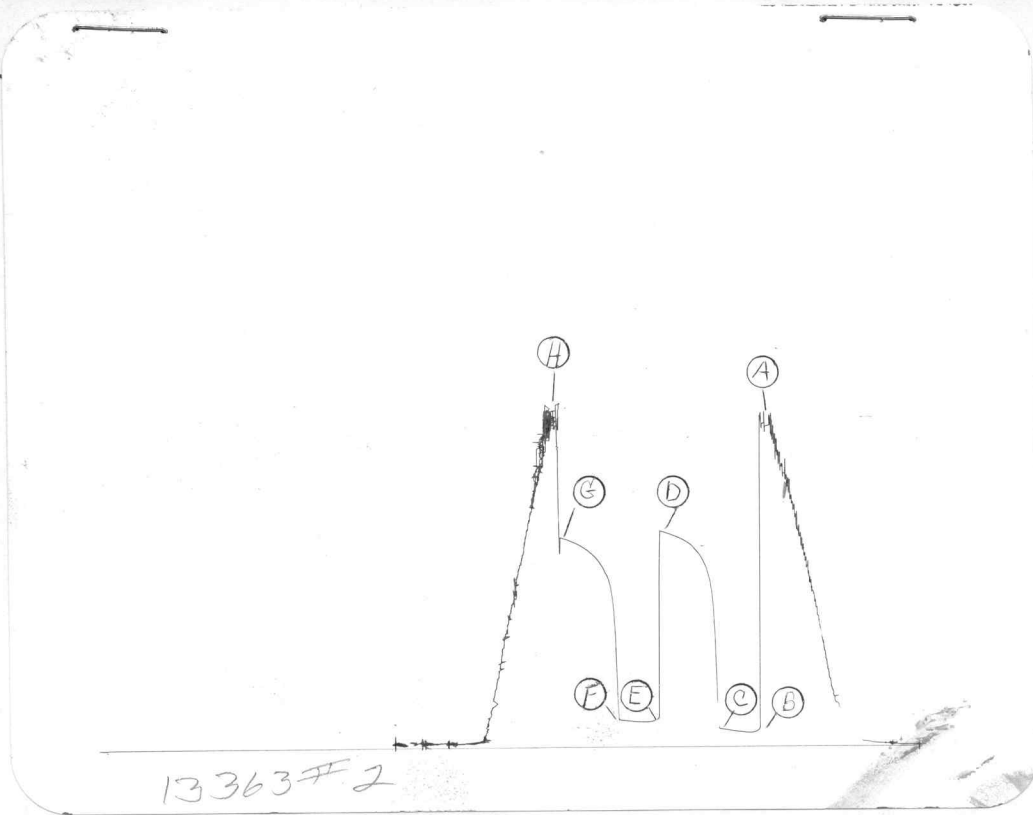
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RECORDER NO: 13363 DEPTH: 3236 FT.
TOTAL FLOW TIME: 60 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(PSIG)
0	0.000	142.4
5	1.114	717.0
10	0.845	877.6
15	0.699	950.2
20	0.602	988.4
25	0.531	1019.0
30	0.477	1040.1
35	0.434	1059.2
40	0.398	1070.7
45	0.368	1079.3

HORNER PLOT
 RITCHIE EXPLORATION
 METCAL FARRIS #1
 DST # 2 DEPTH: 3236
 RECORDER NO. 13363
 INITIAL SHUT-IN: $\diamond$
 FINAL SHUT-IN: $\square$





This is an actual photograph of recorder chart.

POINT	PRESSURE		
	Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1662	1875	PSI
(B) First Initial Flow Pressure	54	47.8	PSI
(C) First Final Flow Pressure	65	86.0	PSI
(D) Initial Closed-in Pressure	1062	1099.3	PSI
(E) Second Initial Flow Pressure	108	129.1	PSI
(F) Second Final Flow Pressure	119	142.4	PSI
(G) Final Closed-in Pressure	1042	1079.3	PSI
(H) Final Hydrostatic Mud	1662	1939	PSI

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DRILL-STEM TEST DATA

Company	Ritchie Exploration	Test No.	3
Well Name & Number	Metcalf Farms #1	Zone Tested	K.C. "G"
Company Address	Wichita, Kan.	Date	5-26-87
Company Rep.	Bob Mathieson	Tester	Gary Hartwell
Contractor	Murfin Drlg. Co. #2	Elevation	2470 K.B.
Location: Sec. 28 Twp. 1 Rge. 27 Co. Decatur State Kan		Est. Feet of Pay	

Recorder No. 13363 Type AK-1 Range 3800 PSI

Recorder Depth 3304 Clock # 23859

(A) Initial Hydrostatic Mud 1769 PSI

(B) First Initial Flow Pressure 86 PSI

(C) First Final Flow Pressure 86 PSI

(D) Initial Shut-in Pressure 119 PSI

(E) Second Initial Flow Pressure 86 PSI

(F) Second Final Flow Pressure 86 PSI

(G) Final Shut-in Pressure 108 PSI

(H) Final Hydrostatic Mud 1758 PSI

Temperature 100°

Mud Weight 9.5 Viscosity 43

Fluid Loss 9.2

Interval Tested 3234-3310

Anchor Length 76'

Top Packer Depth -

Bottom Packer Depth 3234

Total Depth 3310

Drill Pipe Size 4½ EX.H.

Wt. Pipe I. D. collars 2.25 Ft. Run 485

Recovery-Total Feet 62'

Recovered 62 Feet Of Mud

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Extra Equipment

Recorder No. 10290 Type AK-1 Range 4250 PSI

Recorder Depth 3307 Clock # 25561

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

Initial Shut-in 30 Mins.

Flow Period 30 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"

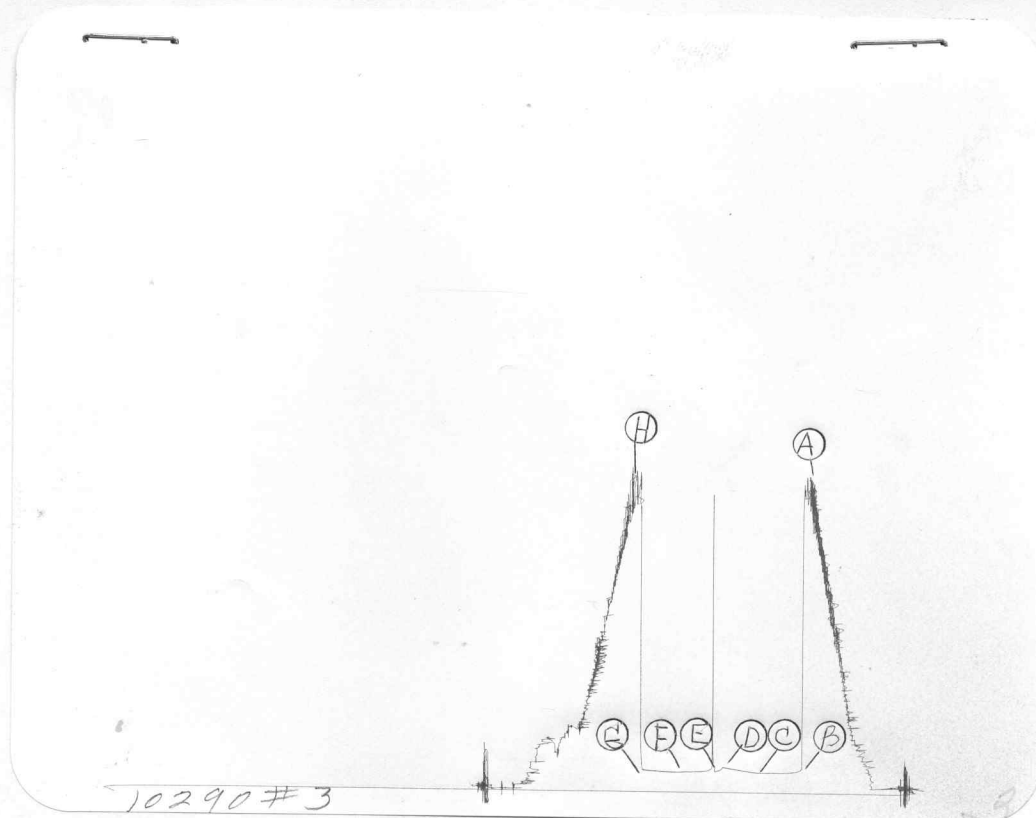
Tool Open @ 7:50 P.M.

Blow Remarks Weak 1/8" blow, died in 20 min. 1st open

No blow flush tool, good surge, no blow on second open.

Lost 15' - 20' fluid in hole when tool opened.

Price of Job \$300.00



This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1769	PSI
(B) First Initial Flow Pressure	86	PSI
(C) First Final Flow Pressure	86	PSI
(D) Initial Closed-in Pressure	119	PSI
(E) Second Initial Flow Pressure	86	PSI
(F) Second Final Flow Pressure	86	PSI
(G) Final Closed-in Pressure	108	PSI
(H) Final Hydrostatic Mud	1758	PSI

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HILL CITY, KANSAS 67642

DRILL-STEM TEST DATA

Company	Ritchie Exploration	Test No.	4
Well Name & Number	Metcalf Farms #1	Zone Tested	K.C. "J - L"
Company Address	Wichita, Kan.	Date	5-27-87
Company Rep.	Bob Mathieson	Tester	Gary Hartwell
Contractor	Murfin Drlg. Co. #2	Elevation	2470 K.B.
Location: Sec. 28 Twp. 1 Rge. 27 Co. Decatur State Kan.		Est. Feet of Pay	

Recorder No. 13363 Type AK-1 Range 3800 PSI

Recorder Depth 3379 Clock # 23859

(A) Initial Hydrostatic Mud 1779 PSI

(B) First Initial Flow Pressure 76 PSI

(C) First Final Flow Pressure 76 PSI

(D) Initial Shut-in Pressure 489 PSI

(E) Second Initial Flow Pressure 86 PSI

(F) Second Final Flow Pressure 86 PSI

(G) Final Shut-in Pressure 184 PSI

(H) Final Hydrostatic Mud 1779 PSI

Temperature 100°

Mud Weight 9.4 Viscosity 44

Fluid Loss 8.8

Interval Tested 3305-3386

Anchor Length 80'

Top Packer Depth 3300

Bottom Packer Depth 3305

Total Depth 3385

Drill Pipe Size 4½ EX.H.

Wt. Pipe I. D. collars 2.25 Ft. Run 485

Recovery-Total Feet 80'

Recovered 10 Feet Of Oil 36 Gravity

Recovered 10 Feet Of O.C.M. 20% OIL 80% MUD

Recovered 60 Feet Of O.C.M. 2% OIL 98% MUD

Recovered Feet Of R.W. 1.93 @ 78° Chlorides 2,800

Recovered Feet Of

Recovered Feet Of

Extra Equipment Price of Job \$300.00

Recorder No. 10290 Type AK-1 Range 4250 PSI

Recorder Depth 3382 Clock # 25561

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

Initial Shut-in 30 Mins.

Flow Period 30 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 @ 1:00 P.M.

Blow Remarks Weak ½" blow first open.

Weak ¼" blow second open.

Lost 5' fluid in hole when tool opened.

Pit Mud Chlorides 1,300

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

FOR: RITCHIE EXPLORATION
METCALF FARMS #1
28-1S-27W
DECATUR CO., KS.

DST # 4
FORMATION: KANSAS CITY
ELEVATION: 2470 KB

TEST PARAMETERS

TEST INTERVAL: 3305 - 3385	EST PAY: 5
TIME INTERVAL: 30 - 30 - 30 - 30	VISCOSITY OF FLUID: 5
INITIAL FLOW PRESS: 77.3- 77.3	HOLE SIZE: 7.875
FINAL FLOW PRESS: 89.0- 89.0	D.C. CAPACITY: 0.00492
SHUT-IN PRESS(I-F): 477.8- 174.8	W.P. CAPACITY: 0.00000
BOTTOM HOLE TEMPERATURE: 100	D.P. CAPACITY: 0.01402
TOTAL FEET OF RECOVERY: 80	TOTAL BARRELS RECOVERY: 0.3932

EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI): 1020
SLOPE (PSI-CYCLE): 1820 POINTS USED: 3

EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI): 380
SLOPE (PSI-CYCLE): 415 POINTS USED: 3

CALCULATIONS

PRODUCTION POTENTIAL (B/D)	: 9.44
TRANSMISSIBILITY (MD-FT/CP)	: 3.70
EFFECTIVE PERMEABILITY (MD)	: 3.70
PRODUCTIVITY INDEX (B/D/PSI)	: 0.0042
DAMAGE RATIO	: 0.128
APPROXIMATE RADIUS OF INVESTIGATION (FT)	: 14.9
DRAWDOWN FACTOR (%)	: 62.745
POTENTIOMETRIC SURFACE (FT)	: -33.78

INITIAL SHUT-IN

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RECORDER NO: 10290 DEPTH: 3385 FT.
INITIAL FLOW TIME (T): 30 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)
0	0.000	77.3
5	0.845	89.0
10	0.602	127.1
15	0.477	203.4
20	0.398	301.9
25	0.342	393.0
30	0.301	477.8

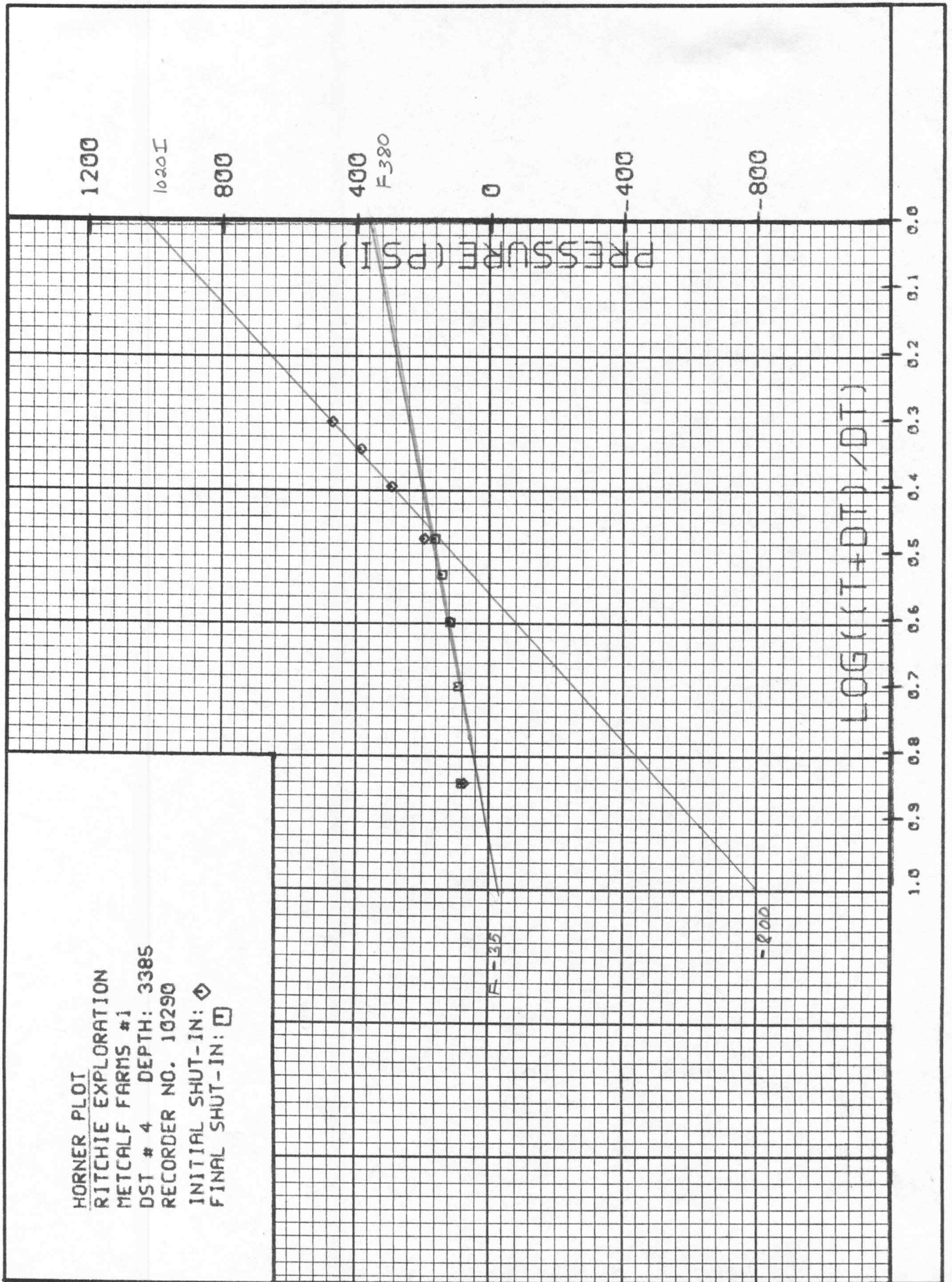
FINAL SHUT-IN

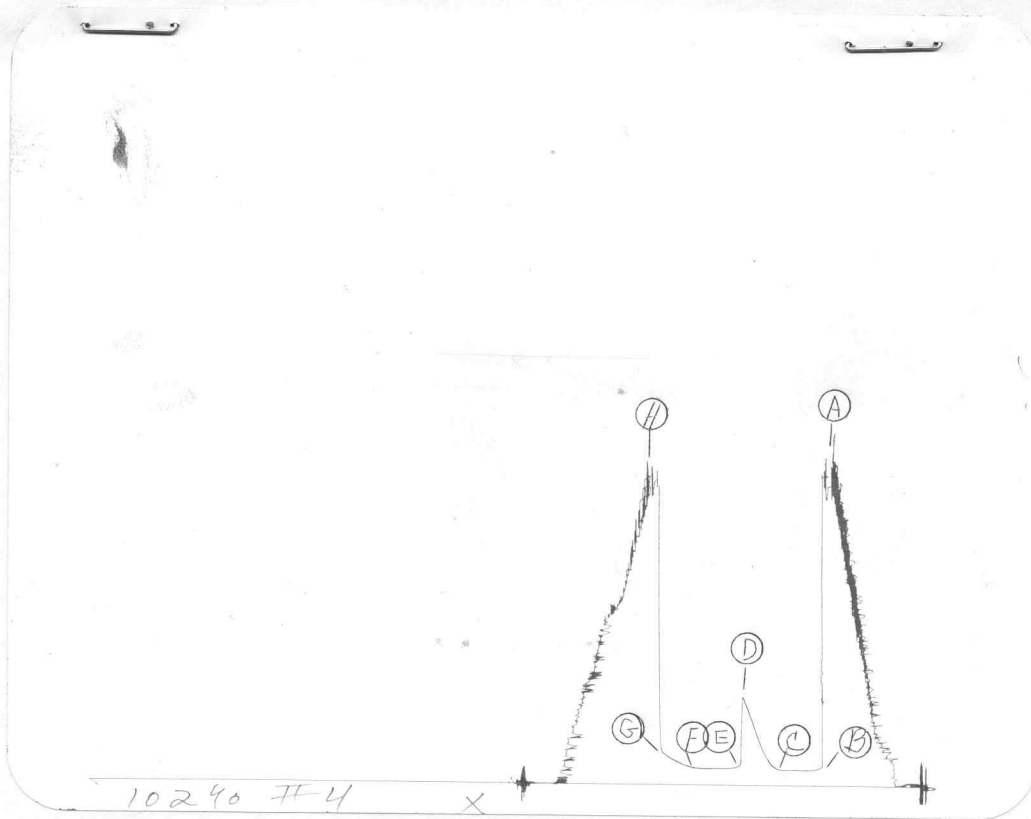
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RECORDER NO: 10290 DEPTH: 3385 FT.
TOTAL FLOW TIME: 60 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)
0	0.000	89.0
5	1.114	91.1
10	0.845	97.5
15	0.699	104.9
20	0.602	128.2
25	0.531	151.5
30	0.477	174.8

HORNER PLOT
 RITCHIE EXPLORATION
 METCALF FARMS #1
 DST # 4 DEPTH: 3385
 RECORDER NO. 10290
 INITIAL SHUT-IN: $\diamond$
 FINAL SHUT-IN: $\square$





This is an actual photograph of recorder chart.

POINT	PRESSURE	
	Field Reading	Office Reading
(A) Initial Hydrostatic Mud	1779	1773.3 PSI
(B) First Initial Flow Pressure	76	77.3 PSI
(C) First Final Flow Pressure	76	77.3 PSI
(D) Initial Closed-in Pressure	489	477.8 PSI
(E) Second Initial Flow Pressure	86	89.0 PSI
(F) Second Final Flow Pressure	86	89.0 PSI
(G) Final Closed-in Pressure	184	174.8 PSI
(H) Final Hydrostatic Mud	1779	1705.5 PSI

LEASE AND WELL NO.