

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	Kopriva #1	Zone Tested	L.K.C. "D"
Company Address	125 N. Market #1000, Wichita, Kan. 67202	Date	8-3-91
Company Rep.	Kitt Noah	Tester	Gary Pevoteaux
Contractor	Murfin Drlg. Co. #3	Elevation	3186 K.B.
Location: Sec. 13 Twp. 2S Rge. 35W Co. Rawlins State Kan.		Est. Feet of Pay	

Recorder No. 13224 Type AK-1 Range 4350 PSI
 Recorder Depth 4169 Clock # 30410
 (A) Initial Hydrostatic Mud 2125 PSI
 (B) First Initial Flow Pressure 157 PSI
 (C) First Final Flow Pressure 436 PSI
 (D) Initial Shut-in Pressure 1255 PSI
 (E) Second Initial Flow Pressure 493 PSI
 (F) Second Final Flow Pressure 629 PSI
 (G) Final Shut-in Pressure 1233 PSI
 (H) Final Hydrostatic Mud 2103 PSI
 Temperature 117°
 Mud Weight 9.2 Viscosity 49
 Fluid Loss 10.4 c.c.
 Interval Tested 4108-4172
 Anchor Length 64'
 Top Packer Depth 4103
 Bottom Packer Depth 4108
 Total Depth 4172
 Drill Pipe Size 4½ EX.H.
 Wt. Pipe I. D. 2.7 Ft. Run 640
 Recovery-Total Feet 1315

Recovered 3 Feet Of Clean oil

Recovered 77 Feet Of O.C.W.M. (17% Oil 18% Wtr. 65% Mud)

Recovered 180 Feet Of O.C.M.W. (12% Oil 28% Mud 60% Wtr.)

Recovered 365 Feet Of S.O.C.M.W. (5% Oil 10% Mud 85% Wtr.)

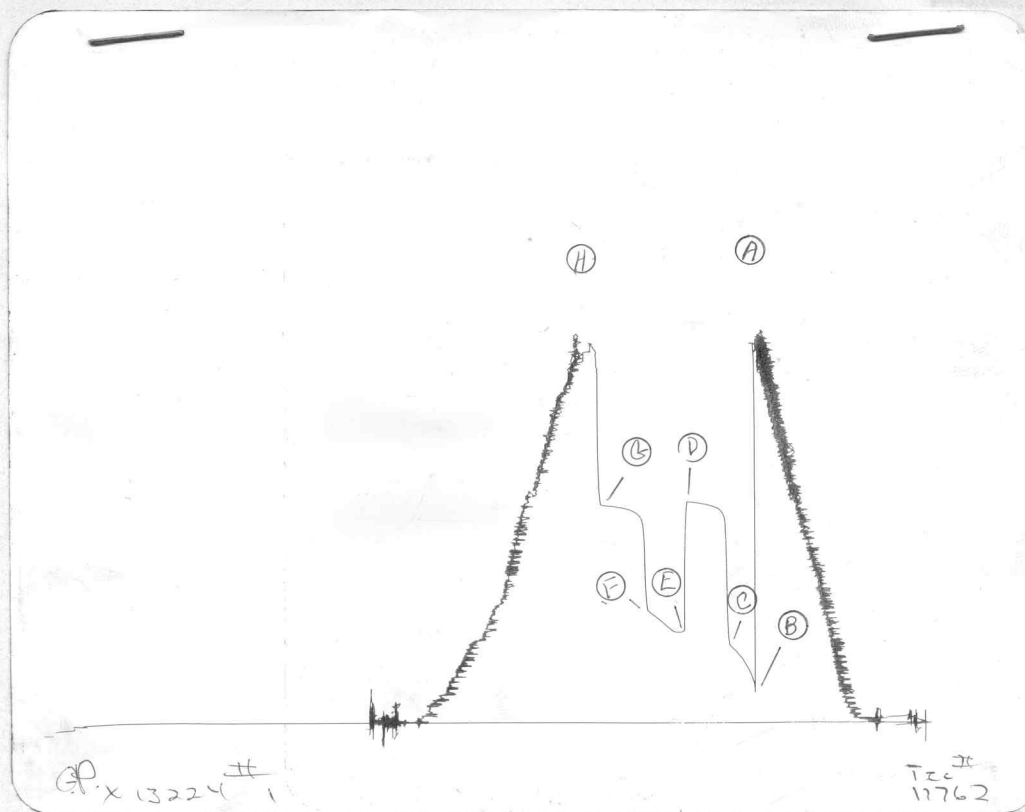
Recovered 180 Feet Of S.O.C.W. (2% Oil 98% Wtr.)

Recovered 510 Feet Of Saltwater w/oil specs-Clean oil at top of tool

Extra Equipment

Price of Job

Recorder No. 10290 Type AK-1 Range 4250 PSI
 Recorder Depth 4164 Clock # 22993
 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 @ 4:23 P.M.
 Blow Remarks 1st open; Strong blow, bottom of bucket in 5 minutes.
 2nd open; Strong blow, bottom of bucket in 5½ minutes.
 well chlorides; 500 P.P.M.
 Rec. chlorides; 31,000 P.P.M.
 Collars 2.25 - 240'



POINT	PRESSURE	
	FIELD READING	OFFICE READING
(A) Initial Hydrostatic Mud	2125	PSI
(B) First Initial Flow Pressure	157	PSI
(C) First Final Flow Pressure	436	PSI
(D) Initial Closed-in Pressure	1255	PSI
(E) Second Initial Flow Pressure	493	PSI
(F) Second Final Flow Pressure	629	PSI
(G) Final Closed-in Pressure	1233	PSI
(H) Final Hydrostatic Mud	2103	PSI

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DRILL-STEM TEST DATA

Company	Ritchie Exploration Inc.	Test No.	2
Well Name & Number	Kopriva #1	Zone Tested	L.K.C. "E-G"
Company Address	125 N. Market #1000, Wichita, Kan. 67202	Date	8-4-91
Company Rep.	Kitt Noah	Tester	Gary Pevoteaux
Contractor	Murfin Drlg. Co. #3	Elevation	3186 K.B.
Location: Sec. 13 Twp. 2S Rge. 35W Co. Rawlins State Kan.		Est. Feet of Pay	

Recorder No. 13224 Type AK-1 Range 4350 PSI

Recorder Depth 4223 Clock # 30410

(A) Initial Hydrostatic Mud 2181 PSI

(B) First Initial Flow Pressure 39 PSI

(C) First Final Flow Pressure 39 PSI

(D) Initial Shut-in Pressure 76 PSI

(E) Second Initial Flow Pressure 42 PSI

(F) Second Final Flow Pressure 43 PSI

(G) Final Shut-in Pressure 76 PSI

(H) Final Hydrostatic Mud 2109 PSI

Temperature 117°

Mud Weight 9.3 Viscosity 46

Fluid Loss 12.0 c.c.

Interval Tested 4172-4226

Anchor Length 54

Top Packer Depth 4167

Bottom Packer Depth 4172

Total Depth 4226

Drill Pipe Size 4 1/2 EX.H.

Wt. Pipe I. D. 2.7 Ft. Run 610

Recovery-Total Feet 5

Recovered 5 Feet Of S.O.C.M. (1% Oil)

Recovered Feet Of Clean oil at top of tool

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 4218 Clock # 22993

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 @ 8:52 A.M.

Blow Remarks 1st open; Weak blow 1/2" - 1/4"

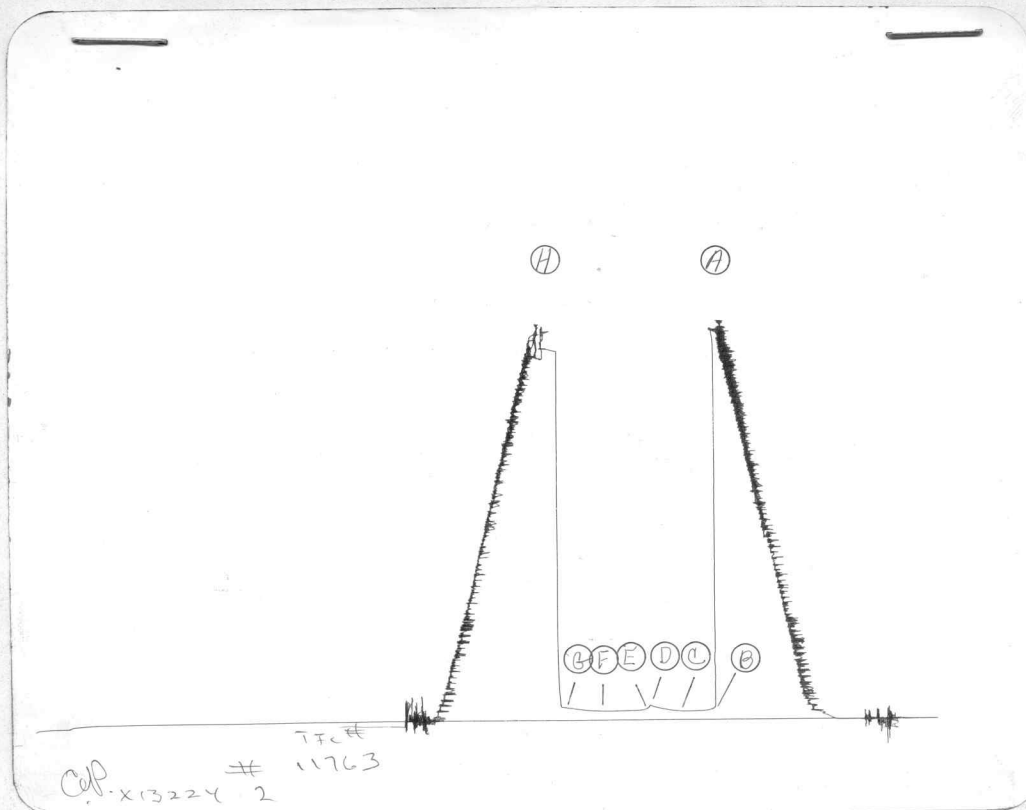
2nd open; No blow

Well chlorides; 1,000 P.P.M.

Rec. chlorides; 1,000 P.P.M.

collars 2.25 - 240'

Price of Job



POINT	PRESSURE	
	FIELD READING	OFFICE READING
(A) Initial Hydrostatic Mud	2181	PSI
(B) First Initial Flow Pressure	39	PSI
(C) First Final Flow Pressure	39	PSI
(D) Initial Closed-in Pressure	76	PSI
(E) Second Initial Flow Pressure	43	PSI
(F) Second Final Flow Pressure	43	PSI
(G) Final Closed-in Pressure	76	PSI
(H) Final Hydrostatic Mud	2109	PSI

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DRILL-STEM TEST DATA

Company	Ritchie Exploration Inc.	Test No.	3
Well Name & Number	Kopriva #1	Zone Tested	Lansing H
Company Address	125 N. Market #1000, Wichita, Kan. 67202	Date	8-5-91
Company Rep.	Kitt Noah	Tester	Gary Pevoteaux
Contractor	Murfin Drlg. Co. #3	Elevation	3186 K.B.
Location: Sec. 13 Twp. 2S Rge. 35W Co. Rawlins State Kan.	Est. Feet of Pay		

Recorder No. 13224 Type AK-1 Range 4350 PSI

Recorder Depth 4265 Clock # 30410

(A) Initial Hydrostatic Mud 2174 PSI

(B) First Initial Flow Pressure 65 PSI

(C) First Final Flow Pressure 130 PSI

(D) Initial Shut-in Pressure 1272 PSI

(E) Second Initial Flow Pressure 163 PSI

(F) Second Final Flow Pressure 213 PSI

(G) Final Shut-in Pressure 1258 PSI

(H) Final Hydrostatic Mud 2065 PSI

Temperature 120

Mud Weight 9.2 Viscosity 46

Fluid Loss 12.0 c.c.

Interval Tested 4222-4268

Anchor Length 46'

Top Packer Depth 4217

Bottom Packer Depth 4222

Total Depth 4268

Drill Pipe Size 4 1/2 EX.H.

Wt. Pipe I. D. 2.7 Ft. Run 610

Recovery-Total Feet 500' Fluid

Recovered 40 Feet Of G.I.P.

Recovered 200 Feet Of O.C.M. (15% Oil 85% Mud)

Recovered 120 Feet Of S.O.C.M. (4% Oil 96% Mud)

Recovered 120 Feet Of S.O.C.W.M. (4% Oil 16% Wtr. 80% Mud)

Recovered 60 Feet Of S.O.C.W.M. (3% Oil 32% Wtr. 65% Mud)

Recovered Feet Of Clean oil at top of tool

Extra Equipment

Recorder No. 10290 Type AK-1 Range 4250 PSI

Recorder Depth 4226 Clock # 22993

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 @ 12:26 A.M.

Blow Remarks 1st open; Fair to strong

blow, 13" in wtr. after 30 minutes.

2nd open; Fair blow, 8"-9" in wtr. after

30 min. Charts show some tool plugging

during 2nd open, but seem to clear up.

Well chlorides; 1,000 P.M.M.

Rec. chlorides; 9,000 P.P.M.

Collars 2.25 - 240'

Price of Job

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

FOR: RITCHIE EXPLORATION INC.
KOPRIVA #1
13-2S-35W
RAWLINS CO., KAN.

DST # 3
FORMATION: LANSING H
ELEVATION: 3186 KB

TEST PARAMETERS

TEST INTERVAL: 4222 - 4268
TIME INTERVAL: 30 - 35 - 30 - 35
INITIAL FLOW PRESS: 68.9- 128.2
FINAL FLOW PRESS: 114.4- 216.1
SHUT-IN PRESS(I-F):1246.8-1239.4
BOTTOM HOLE TEMPERATURE: 120
TOTAL FEET OF RECOVERY: 500

EST PAY: 4
VISCOSITY OF FLUID: 3
HOLE SIZE: 7.875
D.C. CAPACITY:0.00492
W.P. CAPACITY:0.00708
D.P. CAPACITY:0.01402
TOTAL BARRELS RECOVERY: 3.0200

EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI): 1325
SLOPE (PSI-CYCLE): 290 POINTS USED: 4

EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI): 1320
SLOPE (PSI-CYCLE): 187 POINTS USED: 4

CALCULATIONS

PRODUCTION POTENTIAL (B/D)	: 72.48
TRANSMISSIBILITY (MD-FT/CP)	: 63.02
EFFECTIVE PERMEABILITY (MD)	: 47.27
PRODUCTIVITY INDEX (B/D/PSI)	: 0.0712
DAMAGE RATIO	: 1.080
APPROXIMATE RADIUS OF INVESTIGATION (FT)	: 53.3
DRAWDOWN FACTOR (%)	: 0.377
POTENTIOMETRIC SURFACE (FT)	:1979.08

INITIAL SHUT-IN

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RECORDER NO: 10290 DEPTH: 4268 FT.
 INITIAL FLOW TIME (T): 30 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)
0	0.000	128.2
5	0.845	1072.0
10	0.602	1157.8
15	0.477	1193.9
20	0.398	1211.9
25	0.342	1225.6
30	0.301	1238.3
35	0.269	1246.8

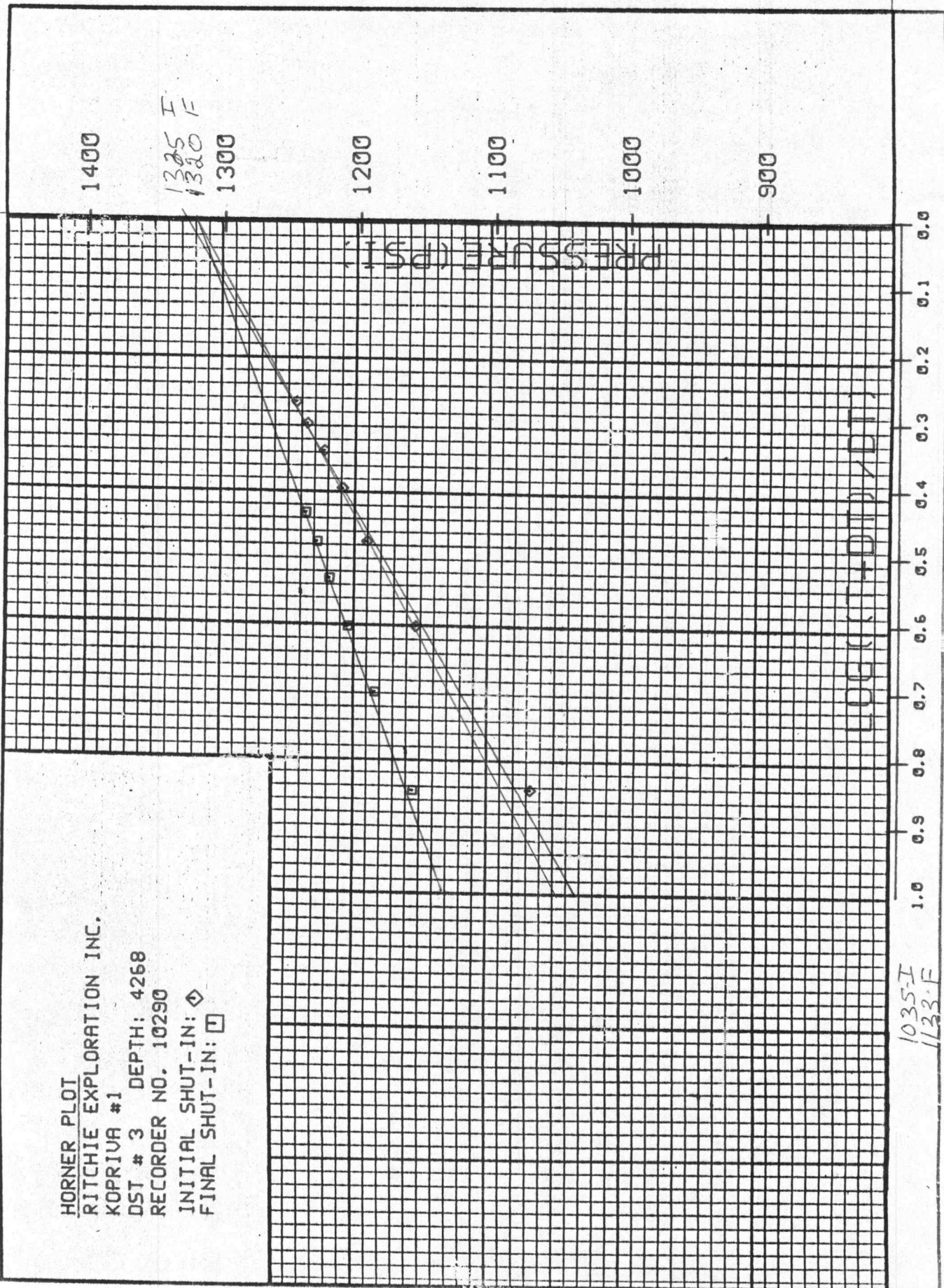
FINAL SHUT-IN

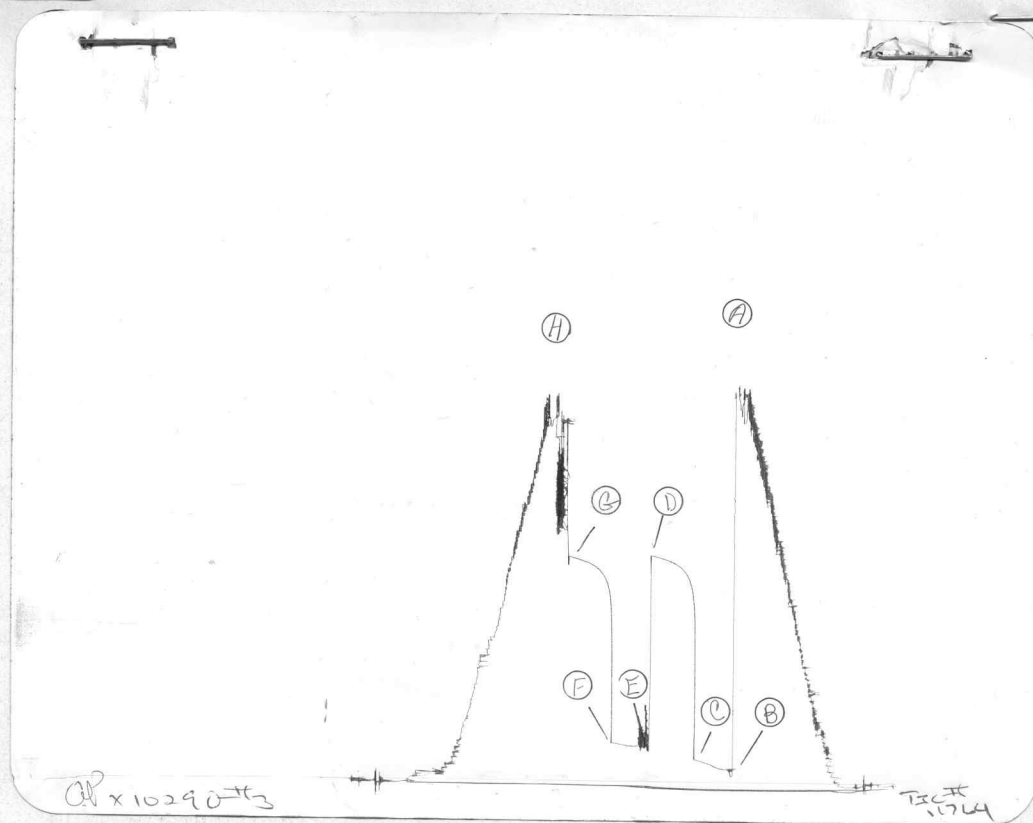
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RECORDER NO: 10290 DEPTH: 4268 FT.
 TOTAL FLOW TIME: 60 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)
0	0.000	216.1
5	1.114	1083.7
10	0.845	1158.9
15	0.699	1187.5
20	0.602	1207.6
25	0.531	1221.4
30	0.477	1230.9
35	0.434	1239.4

HORNER PLOT
 RITCHIE EXPLORATION INC.
 KOPRIVA #1
 DST # 3 DEPTH: 4268
 RECORDER NO. 10290
 INITIAL SHUT-IN: $\diamond$
 FINAL SHUT-IN: $\square$





		PRESSURE	
POINT		FIELD READING	OFFICE READING
(A)	Initial Hydrostatic Mud	2174	2156
(B)	First Initial Flow Pressure	65	68.9
(C)	First Final Flow Pressure	130	128.2
(D)	Initial Closed-in Pressure	1272	1246.8
(E)	Second Initial Flow Pressure	163	114.4
(F)	Second Final Flow Pressure	213	216.1
(G)	Final Closed-in Pressure	1258	1239.4
(H)	Final Hydrostatic Mud	2065	2025

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DRILL-STEM TEST DATA

Company	Ritchie Exploration Inc.	Test No.	4
Well Name & Number	Kopriva #1	Zone Tested	Lansing J
Company Address	125 N. Market #1000, Wichita, Kan. 67202	Date	8-5-91
Company Rep.	Kitt Noah	Tester	Gary Pevoteaux
Contractor	Murfin Drlg. Co. #3	Elevation	3186 K.B.
Location: Sec. 13 Twp. 2S Rge. 35W Co. Rawlins State Kan.		Est. Feet of Pay	

Recorder No. 13224 Type AK-1 Range 4350 PSI

Recorder Depth 4312 Clock # 30410

(A) Initial Hydrostatic Mud 2213 PSI

(B) First Initial Flow Pressure 65 PSI

(C) First Final Flow Pressure 69 PSI

(D) Initial Shut-in Pressure 251 PSI

(E) Second Initial Flow Pressure 76 PSI

(F) Second Final Flow Pressure 76 PSI

(G) Final Shut-in Pressure 152 PSI

(H) Final Hydrostatic Mud 2159 PSI

Temperature 120°

Mud Weight 9.2 Viscosity 51

Fluid Loss 11.2 c.c.

Interval Tested 4267-4315

Anchor Length 48'

Top Packer Depth 4262

Bottom Packer Depth 4267

Total Depth 4315

Drill Pipe Size 4½ EX.H.

Wt. Pipe I. D. 2.7 Ft. Run 610

Recovery-Total Feet 75

Recovered 75 Feet Of Mud w/a few oil specs

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Recovered Feet Of

Extra Equipment

Price of Job

Recorder No. 10290 Type AK-1 Range 4250 PSI

Recorder Depth 4307 Clock # 22993

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 @ 3:30 P.M.

Blow Remarks 1st open; Weak blow, 1"-1½" in wtr. and decreasing.

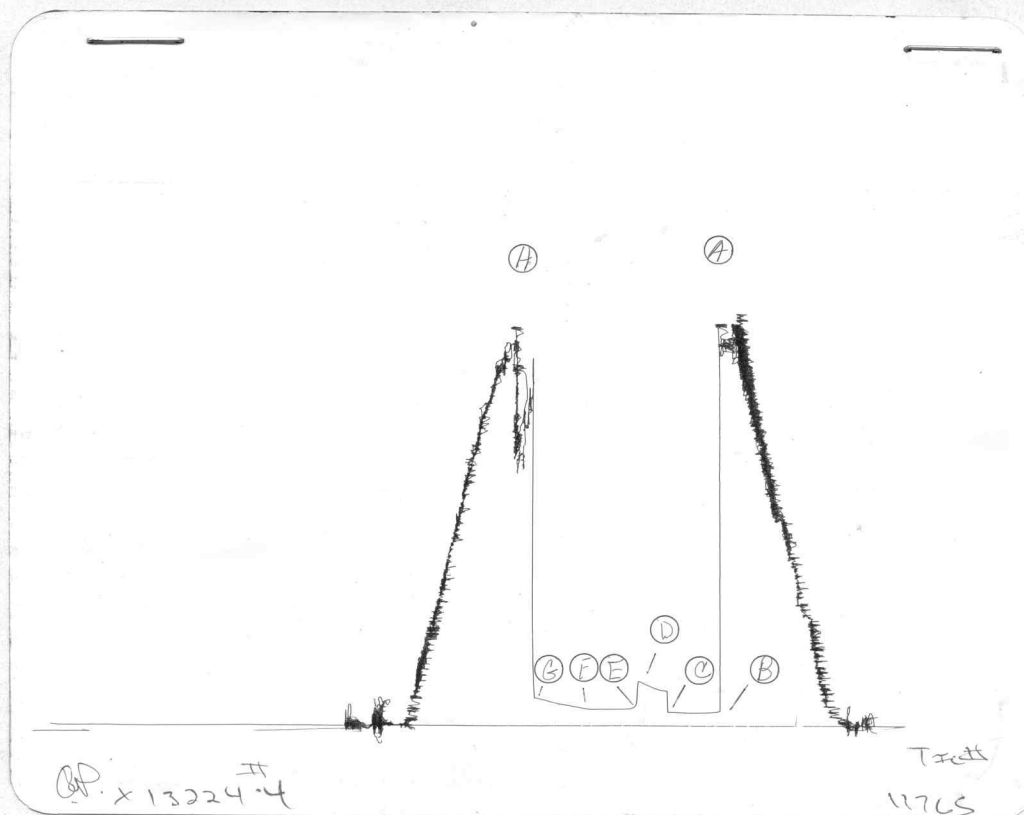
2nd open; Very weak blow, dead in 5 min.

Packers leaked slightly when raising pipe to turn in to I.S.P.I.

Well chlorides; 2,000 P.P.M.

Rec. chlorides; 2,000 P.P.M.

collars 2.25 - 240'



POINT	PRESSURE	
	FIELD READING	OFFICE READING
(A) Initial Hydrostatic Mud	2213	PSI
(B) First Initial Flow Pressure	65	PSI
(C) First Final Flow Pressure	69	PSI
(D) Initial Closed-in Pressure	251	PSI
(E) Second Initial Flow Pressure	76	PSI
(F) Second Final Flow Pressure	76	PSI
(G) Final Closed-in Pressure	152	PSI
(H) Final Hydrostatic Mud	2159	PSI