

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

JUL 26

CONFIDENTIAL

Well Name RIEDEL #15 Test No. 1 Date 5/29/93
Company MURFIN DRILLING CO INC Zone LKC A-B
Address 250 N WATER SWT #300 WICHITA KS 67202 Elevation 2290
Co. Rep./Geo. CURTIS COVEY Cont. MURFIN #3 Est. Ft. of Pay 3
Location: Sec. 31 Twp. 13S Rge. 19W Co. ELLIS State KS

Interval Tested <u>3520-3614</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>94</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>478</u>
Top Packer Depth <u>3515</u>	Drill Collar - 2.25 Ft. Run <u>322</u>
Bottom Packer Depth <u>3520</u>	Mud Wt. <u>9.5</u> lb/Gal.
Total Depth <u>3614</u>	Viscosity <u>38</u> Filtrate <u>8.4</u>

Tool Open @ 2:10 PM Initial Blow WEAK-BUILDING TO 5" FAIR BLOW

Final Blow WEAK-BUILDING TO 1"

Recovery - Total Feet 270 Flush Tool? NO

Rec. <u>270</u>	Feet of <u>WATERY MUD 20%WATER/80%MUD</u>
Rec. _____	Feet of _____
Rec. _____	Feet of _____
Rec. _____	Feet of _____
Rec. _____	Feet of _____

BHT 108 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.17 @ 80 °F Chlorides 40,000 ppm Recovery Chlorides 41,000 ppm System

(A) Initial Hydrostatic Mud 1925.3 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 54.2 PSI @ (depth) 3524 w / Clock No. 27567

(C) First Final Flow Pressure 102.6 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 415.6 PSI @ (depth) 3610 w / Clock No. 8376

(E) Second Initial Flow Pressure 136.2 PSI AK1 Recorder No. _____ Range _____

(F) Second Final Flow Pressure 185.2 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 419.2 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 1834.2 PSI Initial Shut-in 45 Final Shut-in 90

RELEASED

SEP 6 1994

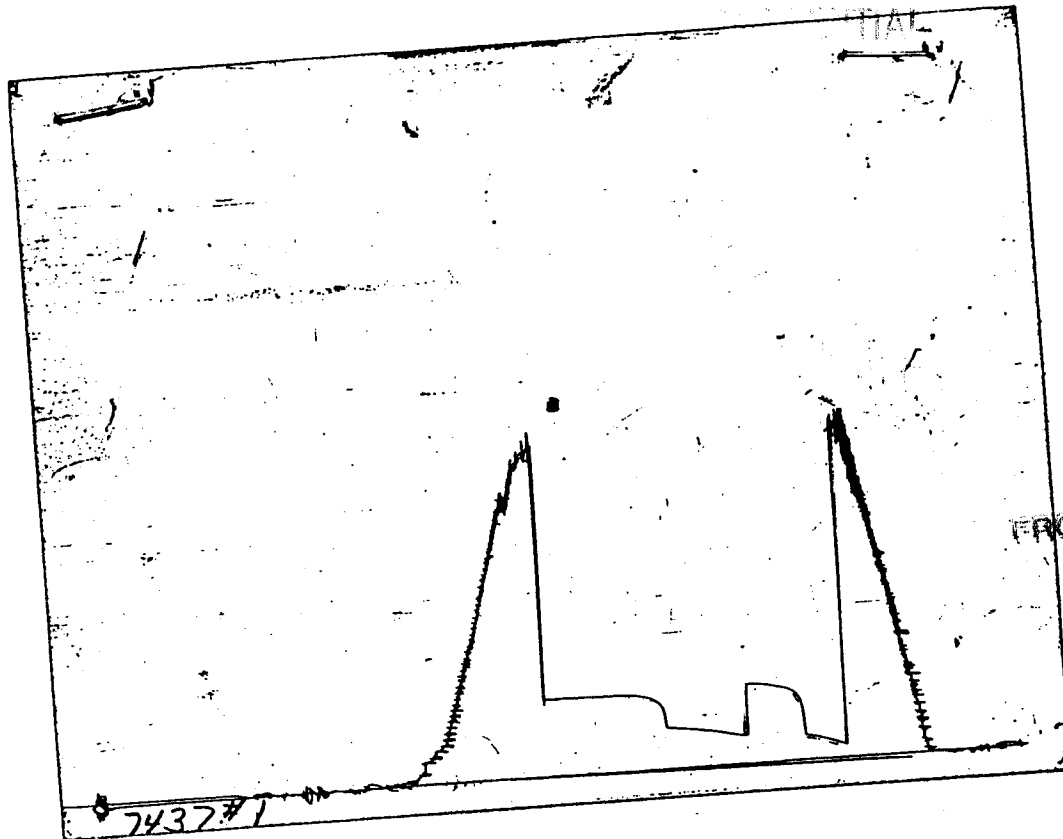
FROM CONFIDENTIAL

Our Representative DAN BANGLE

CHART PAGE

JUL 2 5

CONFIDENTIAL



RELEASED

6 1994

FROM CONFIDENTIAL

This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1936	1925.3
(B) FIRST INITIAL FLOW PRESSURE	59	54.2
(C) FIRST FINAL FLOW PRESSURE	118	102.6
(D) INITIAL CLOSED-IN PRESSURE	403	415.6
(E) SECOND INITIAL FLOW PRESSURE	127	136.2
(F) SECOND FINAL FLOW PRESSURE	196	185.2
(G) FINAL CLOSED-IN PRESSURE	403	419.2
(H) FINAL HYDROSTATIC MUD	1826	1834.2

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

JUL 2 6

Test Ticket

5682

Well Name & No. Riedel #15 Test No. 1 Date 5-29-93
 Company Murfin Drilling Co. Inc. Zone Tested A-B L.K.C.
 Address 250 N. WTR, Wichita, Ks. 67202 Elevation 2290 K.B.
 Co. Rep./Geo. Kurtis Covey Cont. Murfin #3 Est. Ft. of Pay _____
 Location: Sec. 31 Twp. 13 Rge. 19 Co. Ellis State Ks.
 No. of Copies _____ Distribution Sheet _____ Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested 3520 - 3614 Drill Pipe Size 4.5 XH
 Anchor Length 94 Top Choke — 1" _____ Bottom Choke — 1/4" _____
 Top Packer Depth 3515 Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
 Bottom Packer Depth 3520 Wt. Pipe I.D. — 2.7 Ft. Run 478'
 Total Depth 3614 Drill Collar — 2.25 Ft. Run 382' 322'
 Mud Wt. 9.5 lb/gal. Viscosity 38 Filtrate 8.4
 Tool Open @ 2:10 p.m. Initial Blow Weak-building to 5" fair blow

Final Blow Weak-building to 1"

Recovery — Total Feet	Feet of Gas In Pipe	Flush Tool?
ec. <u>270</u>	Feet Of <u>Wtry Mud</u>	%gas _____ %oil <u>20</u> %water <u>80</u> %mud _____
Rec. _____	Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____
ec. _____	Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____
Rec. _____	Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____
ec. _____	Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____

HT 108 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
 RW 117 @ 80 °F Chlorides 49,000 ppm Recovery Chlorides 41,000 ppm System

(A) Initial Hydrostatic Mud 1826 PSI AK1 Recorder No. 13754 Range 4000
 (B) First Initial Flow Pressure 59 PSI @ (depth) 3524 W/Clock No. 27567
 (C) First Final Flow Pressure 118 PSI AK1 Recorder No. 2437 Range 4200
 (D) Initial Shut-In Pressure 403 PSI @ (depth) 3610 W/Clock No. 8376
 (E) Second Initial Flow Pressure 127 PSI AK1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 196 PSI @ (depth) _____ W/Clock No. _____
 (G) Final Shut-In Pressure 403 PSI Initial Opening 30 Test _____
 (H) Final Hydrostatic Mud 1826 PSI Initial Shut-In 45 Jars _____

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Approved By [Signature] Final Flow 60 Safety Joint _____
 Our Representative Dan Ransfe Final Shut-In 90 Straddle RELEASED
 Sampler SEP 6 1994
 Extra Packer _____
 other FROM CONFIDENTIAL

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

JUL 2 5

Drill-Stem Test Data

CONFIDENTIAL

Well Name RIEDEL #15 Test No. 2 Date 5/30/93
Company MURFIN DRILLING CO INC Zone H-I-J
Address 250 N WATER SWT #300 WICHITA KS 67202 Elevation 2290
O. Rep./Geo. CURTIS COVEY Cont. MURFIN #3 Est. Ft. of Pay 3
Location: Sec. 31 Twp. 13S Rge. 19W Co. ELLIS State KS

Interval Tested 3720-3772 Drill Pipe Size 4.5" XH
Hour Length 52 Wt. Pipe I.D. - 2.7 Ft. Run 478
Packer Depth 3715 Drill Collar - 2.25 Ft. Run 270
Bottom Packer Depth 3720 Mud Wt. 9.6 lb/Gal.
Total Depth 3772 Viscosity 42 Filtrate 8

Well Open @ 10:15 PM Initial Blow WEAK - BUILDING TO STRONG - BOTTOM OF BUCKET IN 30 MIN

Initial Blow WEAK - BUILDING TO STRONG - BOTTOM OF BUCKET IN 15 MINUTES

Recovery - Total Feet 362 Flush Tool? NO

Feet of	Log Description
<u>504</u>	<u>GAS IN PIPE</u>
<u>62</u>	<u>GASSY MUD 20%GAS/80%MUD</u>
<u>180</u>	<u>SLIGHTLY OIL CUT GASSY MUD 20%GAS/3%OIL/77%MUD</u>
<u>60</u>	<u>GASSY FROTHY MUD CUT OIL 50%GAS/40%OIL/10%MUD</u>
<u>60</u>	<u>GASSY FROTHY MUD CUT OIL 40%GAS/50%OIL/10%MUD</u>

API 111 °F Gravity _____ °API @ _____ °F Corrected Gravity 32 °API
API _____ °F Chlorides _____ ppm Recovery Chlorides 36000 ppm System

Initial Hydrostatic Mud 2049.3 PSI AK1 Recorder No. 13754 Range 4000

First Initial Flow Pressure 44.2 PSI @ (depth) 3724 w / Clock No. 27567

First Final Flow Pressure 95.4 PSI AK1 Recorder No. 7437 Range 4200

Initial Shut-in Pressure 521.7 PSI @ (depth) 3768 w / Clock No. 8376

Second Initial Flow Pressure 118.1 PSI AK1 Recorder No. RELEASED Range _____

Second Final Flow Pressure 163.3 PSI @ (depth) SEP 6 1994 w / Clock No. _____

Final Shut-in Pressure 515.8 PSI Initial Opening 30 Final Flow 60

Final Hydrostatic Mud 1967.2 PSI Initial Shut-in 45 Final Shut-in 90

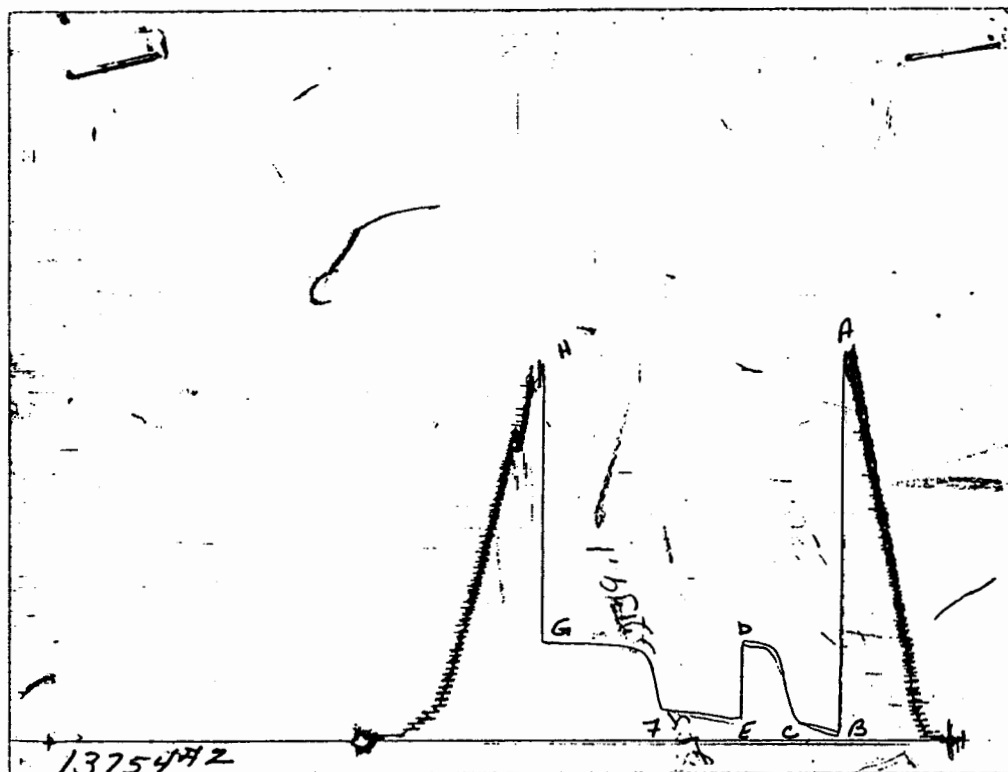
Representative DAN BANGLE

CHART PAGE

COPY 7

JUL 2 5

CONFIDENTIAL



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2046	2049.3
(B) FIRST INITIAL FLOW PRESSURE	49	44.2
(C) FIRST FINAL FLOW PRESSURE	98	95.4
(D) INITIAL CLOSED-IN PRESSURE	521	521.7
(E) SECOND INITIAL FLOW PRESSURE	118	118.1
(F) SECOND FINAL FLOW PRESSURE	157	163.3
(G) FINAL CLOSED-IN PRESSURE	521	515.8
(H) FINAL HYDROSTATIC MUD	1966	1967.2

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

CONFIDENTIAL JUL 2 6

COMPUTER OIL EVALUATION BY TRILOBITE TESTING, L.L.C.

MURFIN DRILLING CO INC

RIEDEL #15

DST 2

31

13S

19W

ELLIS KS

ELEVATION: 2290 KB EST. PAY 3 FT
DATUM: -1435 ZONE TESTED: H-I-J
TEST INTERVAL: 3720-3772 TIME INTERVALS: 30-45-60-90
RECORDER DEPTH: 3724 VISCOSITY: 8.86 CP
BOTTOM HOLE TEMP: 111 HOLE SIZE: 7.875 IN

CUBIC FEET OF GAS IN PIPE: 24
TOTAL FEET OF RECOVERY: 362.00 CORRECTED PIPE FILLUP: 435.467
TOTAL BARRELS OF RECOVERY: 1.96 CORR. BARRELS OF RECOVERY: 2.475 BBL
BARRELS IN DRILL PIPE: 0.00 API GRAVITY: 32
BARRELS IN WEIGHT PIPE: 0.64 FLUID GRADIENT: 0.375
BARRELS IN DRILL COLLARS: 1.32
GAS OIL RATIO: 12.46 CU.FT/BBL
BUBBLE POINT PRESSURE: 116
UNCORRECTED INITIAL PRODUCTION: 31.43 BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE: 39.60 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE: 14.772

INITIAL SLOPE 129.58839 PSI/CYCL FINAL SLOPE 75.5038518 PSI/CYCLE
INITIAL P* 553.81 PSI FINAL P* 538.528924 PSI

TRANSMISSIBILITY 85.29 (MD.-FT./CP.)
PERMEABILITY 251.87 (MD.)
INDICATED FLOW CAPACITY 755.61 (MD.FT)
PRODUCTIVITY INDEX 0.10 (BARREL/DAY/PSI)
DAMAGE RATIO 0.91
RADIUS OF INVESTIGATION 150.56 (FT.)
POTENTIOMETRIC SURFACE -185.15 (FT.)
DRAWDOWN FACTOR 2.759 (%)

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

JUL 2 6

INITIAL FLOW

RECORDER #13754

DST # 2

TIME(MIN)	PRESSURE	<>PRESSURE
3	44.2	44.2
6	50.1	5.9
9	58.1	8.0
12	62.9	4.8
15	68.9	6.0
18	73.8	4.9
21	78.7	4.9
24	82.6	3.9
27	85.6	3.0
30	89.5	3.9
33	95.4	5.9

FINAL FLOW

RECORDER #13754

DST # 2

TIME(MIN)	PRESSURE	<> PRESSURE
3	118.1	118.1
6	118.1	0.0
9	118.1	0.0
12	124.1	6.0
15	127.9	3.8
18	130.9	3.0
21	134.8	3.9
24	137.7	2.9
27	140.7	3.0
30	143.7	3.0
33	145.6	1.9
36	146.6	1.0
39	148.6	2.0
42	150.5	1.9
45	151.5	1.0
48	154.5	3.0
51	156.4	1.9
54	157.4	1.0
57	160.4	3.0
60	163.3	2.9

RELEASED

SEP 6 1994

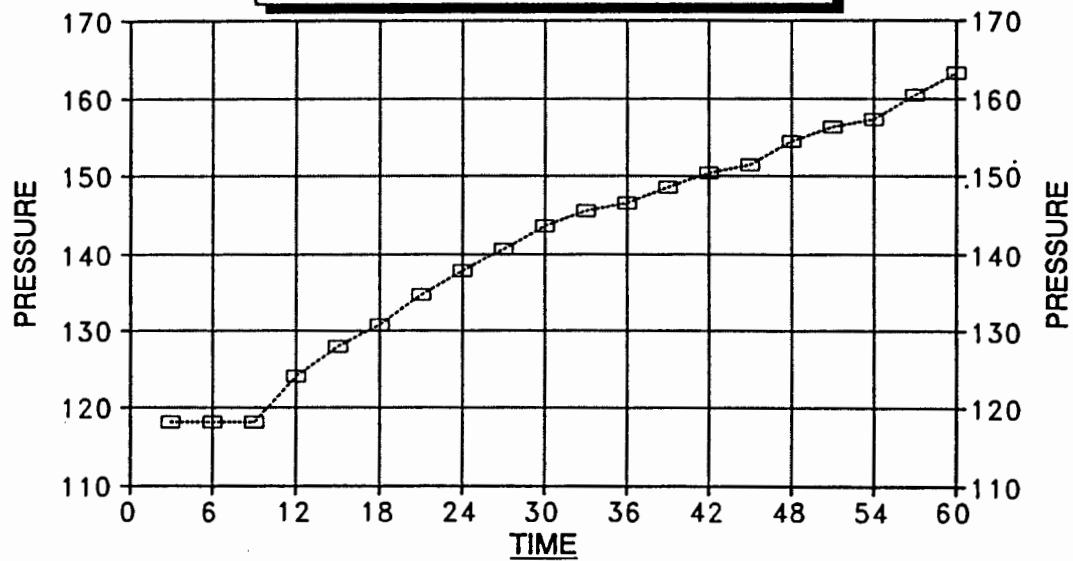
FROM CONFIDENTIAL

JUL 2 6

CONFIDENTIAL

DELTA T DELTA P

FINAL FLOW / DST #2



—■— RIEDEL #15

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

14.772

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

RIEDEL #15
INITIAL

DST #2
SHUTIN
30 INITIAL FLOW TIME

SLOPE 129.6 PSI/CYCLE
P* 553.81 PSI

Log <>

TIME(MIN) Pws (psi) Horn T PRESSURE Horn T

3 152.5 1.041 152.5 11
6 208.6 0.778 56.1 6
9 292.3 0.637 83.7 4
12 395.6 0.544 103.3 4
15 455.7 0.477 60.1 3
18 484.2 0.426 28.5 3
21 496.1 0.385 11.9 2
24 502.9 0.352 6.8 2
27 508.9 0.325 6.0 2
X 30 514.8 0.301 5.9 2
33 518.7 0.281 3.9 2
36 519.7 0.263 1.0 2
X 39 521.7 0.248 2.0 2

RIEDEL #15
FINAL

DST #2
SHUTIN
90 TOTAL FLOW TIME

SLOPE 75.5 PSI/CYCLE
P* 538.5 PSI

Log <>

Pws (psi) Horn T PRESSURE Horn T

6 334.6 1.204 334.6 16
12 438.9 0.929 104.3 9
18 473.4 0.778 34.5 6
24 487.2 0.677 13.8 5
30 494.1 0.602 6.9 4
36 498.1 0.544 4.0 4
X 42 502.1 0.497 4.0 3
48 503.9 0.459 1.8 3
54 505.9 0.426 2.0 3
60 507.9 0.398 2.0 3
66 509.9 0.374 2.0 2
72 509.9 0.352 0.0 2
78 510.8 0.333 0.9 2
84 513.8 0.316 3.0 2
X 90 515.8 0.301 2.0 2

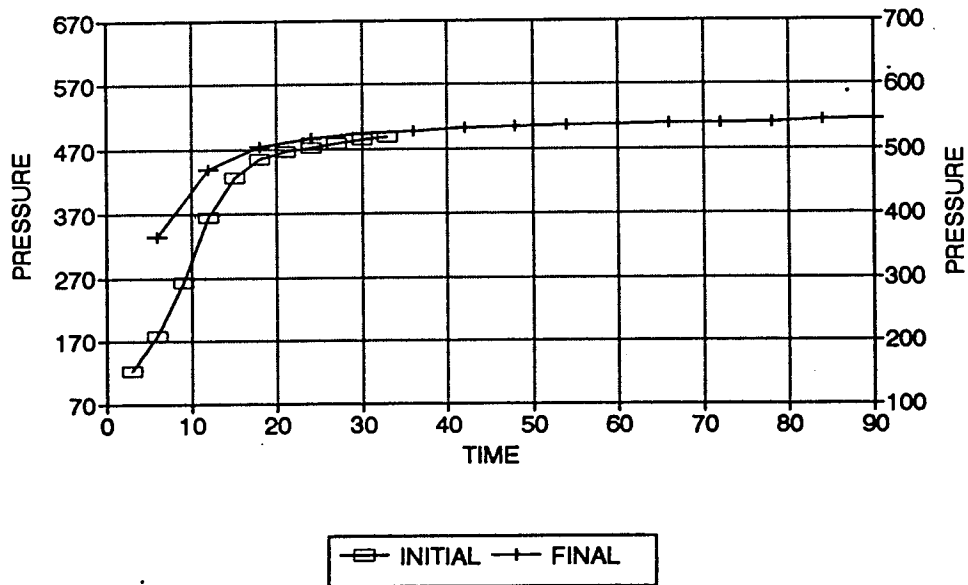
RELEASED

SEP 6 1994

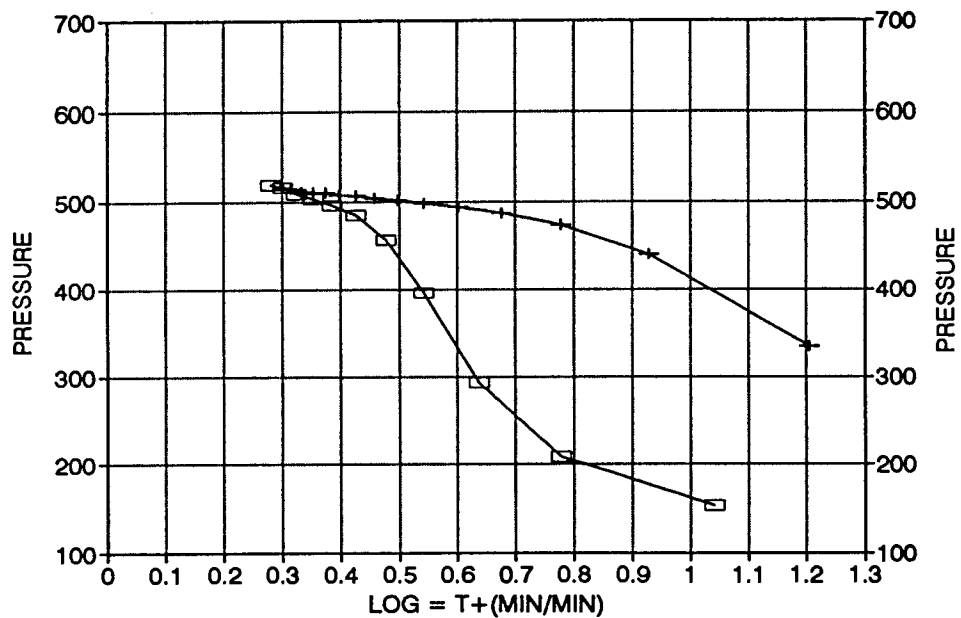
FROM CONFIDENTIAL

CONFIDENTIAL
JUL 2 6
CONFIDENTIAL

RIEDEL #15/DST #2 DELTA T DELTA P



HORNER PLOT



RELEASED

SEP 6 1994

FROM CONFIDENTIAL

CALCULATED RECOVERY ANALYSIS

100
JUL 2 6
CONFIDENTIAL

DST

2

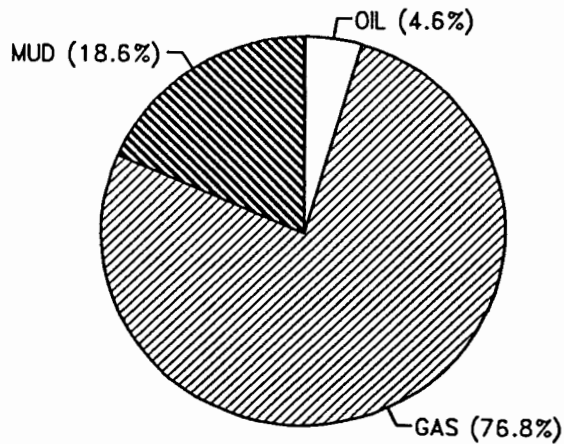
TICKET #

5683

SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	%	WATER FEET	%	MUD FEET
DRILL 1	118	100	118		0		0		0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	386	100	386		0		0		0
PIPE 2	62	20	12.4		0		0	80	49.6
3	30	20	6	3	0.9		0	77	23.1
4			0		0		0		0
DRILL 1	150	20	30	3	4.5		0	77	115.5
COLLAR 2	60	50	30	40	24		0	10	6
3	60	40	24	50	30		0	10	6
4			0		0		0		0
5			0		0		0		0
TOTAL	866		606.4		59.4		0		200.2

HRS OPEN BBL/DAY

BBL OIL= 0.292365 * 1.5 4.67784
 BBL WATER= 0 * 0
 BBL MUD= 1.190535
 BBL GAS = 4.91952



RELEASED

SEP 6 1994

FROM CONFIDENTIAL

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

JUL 2 5

Test Ticket

No 5683

Well Name & No. Riedel #15 Test No. 2 Date 5-30-93
 Company Murfin Drilling Co. Inc. Zone Tested H-I-I L.K.C.
 Address _____ Elevation 2290 K.B.
 Co. Rep./Geo. Kurtis Covey Cont. Murfin #3 Est. Ft. of Pay 3
 Location: Sec. 31 Twp. 13 Rge. 19 Co. Ellis State Ks.
 No. of Copies 15 Distribution Sheet _____ Yes _____ No Turnkey _____ Yes _____ No X Evaluation

Interval Tested 3720-3772 Drill Pipe Size 4.5 XH
 Anchor Length 52 Top Choke — 1" _____ Bottom Choke — 1/4" _____
 Top Packer Depth 3715 Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
 Bottom Packer Depth 3720 Wt. Pipe I.D. — 2.7 Ft. Run 478
 Total Depth 3772 Drill Collar — 2.25 Ft. Run 270

Mud Wt. 9.6 lb/gal. Viscosity 42 Filtrate 8
 Time to Open @ 10:15 p.m. Initial Blow Weak - building to strong - B.O.B. in 30 min.
 Final Blow Weak - building to strong - B.O.B. in 15 min.

Recovery — Total Feet 362 Feet of Gas In Pipe 504 Flush Tool? _____
 Rec. 62 Feet Of Gsy Mud 20% gas %oil %water 80% mud
 Rec. 180 Feet Of Silt/400 Gsy M 20% gas 3 %oil %water 77 %mud
 Rec. 60 Feet Of Gsy Frothy M.C.O 50% gas 40%oil %water 10 %mud
 Rec. 60 Feet Of Gsy Frothy M.C.O 40% gas 50%oil %water 10 %mud

IT 111 °F Gravity _____ °API @ _____ °F Corrected Gravity 32 °API
 RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 36,000 ppm System
 Initial Hydrostatic Mud 2046 PSI Ak1 Recorder No. 13254 Range 4000
 (A) First Initial Flow Pressure 49 PSI @ (depth) 3724 w/Clock No. 27567
 (C) First Final Flow Pressure 98 PSI AK1 Recorder No. 7437 Range 4200
 (I) Initial Shut-In Pressure 521 PSI @ (depth) 3768 w/Clock No. 8376
 (E) Second Initial Flow Pressure 118 PSI AK1 Recorder No. _____ Range _____
 Second Final Flow Pressure 157 PSI @ (depth) _____ w/Clock No. _____
 (D) Final Shut-In Pressure 521 PSI Initial Opening 30 Test _____
 (H) Final Hydrostatic Mud 1966 PSI Initial Shut-In 45 Jars _____

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.
 Approved By [Signature]
 Test Representative [Signature]
 Final Flow 60 Safety Joint RELEASED
 Final Shut-In 90 Straddle _____
 Circ. Sub SEP 6 1994
 Sampler _____
 Extra Packer FROM CONFIDENTIAL
 Other _____

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

JUL 26 1993

CONFIDENTIAL

Well Name RIEDEL #15 Test No. 3 Date 5/31/93
Company MURFIN DRILLING CO INC Zone LKC K-L
Address 250 N WATER SWT #300 WICHITA KS 67202 Elevation 2290
Rep./Geo. CURTIS COVEY Cont. MURFIN #3 Est. Ft. of Pay 3
Location: Sec. 31 Twp. 13S Rge. 19W Co. ELLIS State KS

Interval Tested	<u>3778-3824</u>	Drill Pipe Size	<u>4.5" XH</u>
Tool Length	<u>46</u>	Wt. Pipe I.D. - 2.7 Ft. Run	<u>478</u>
Packer Depth	<u>3773</u>	Drill Collar - 2.25 Ft. Run	<u>270</u>
Bottom Packer Depth	<u>3778</u>	Mud Wt.	<u>9.7</u> lb/Gal.
Interval Depth	<u>3824</u>	Viscosity	<u>42</u>
		Filtrate	<u>7.2</u>

Time of Open @ 4:00 PM Initial Blow WEAK-DIED IN 15 MINUTES

Initial Blow NO BLOW

Recovery - Total Feet 15 Flush Tool? NO

<u>15</u>	Feet of	<u>DRILLING MUD</u>
	Feet of	
	Feet of	
	Feet of	
	Feet of	

Temperature 111 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
Viscosity @ _____ °F Chlorides _____ ppm Recovery Chlorides 37,000 ppm System

Initial Hydrostatic Mud 2085.1 PSI AK1 Recorder No. 13754 Range 4000

First Initial Flow Pressure 39.4 PSI @ (depth) 3782 w / Clock No. 27567

First Final Flow Pressure 34.8 PSI AK1 Recorder No. 7437 Range 4200

Initial Shut-in Pressure 54.2 PSI @ (depth) 3820 w / Clock No. 8376

Second Initial Flow Pressure 16.8 PSI AK1 Recorder No. _____ Range _____

Second Final Flow Pressure 34.7 PSI @ (depth) _____ w / Clock No. _____

Final Shut-in Pressure 51.9 PSI Initial Opening 30 Final Flow 30

Final Hydrostatic Mud 2014.2 PSI Initial Shut-in 45 Final Shut-in 45

Representative DAN BANGLE

RELEASED

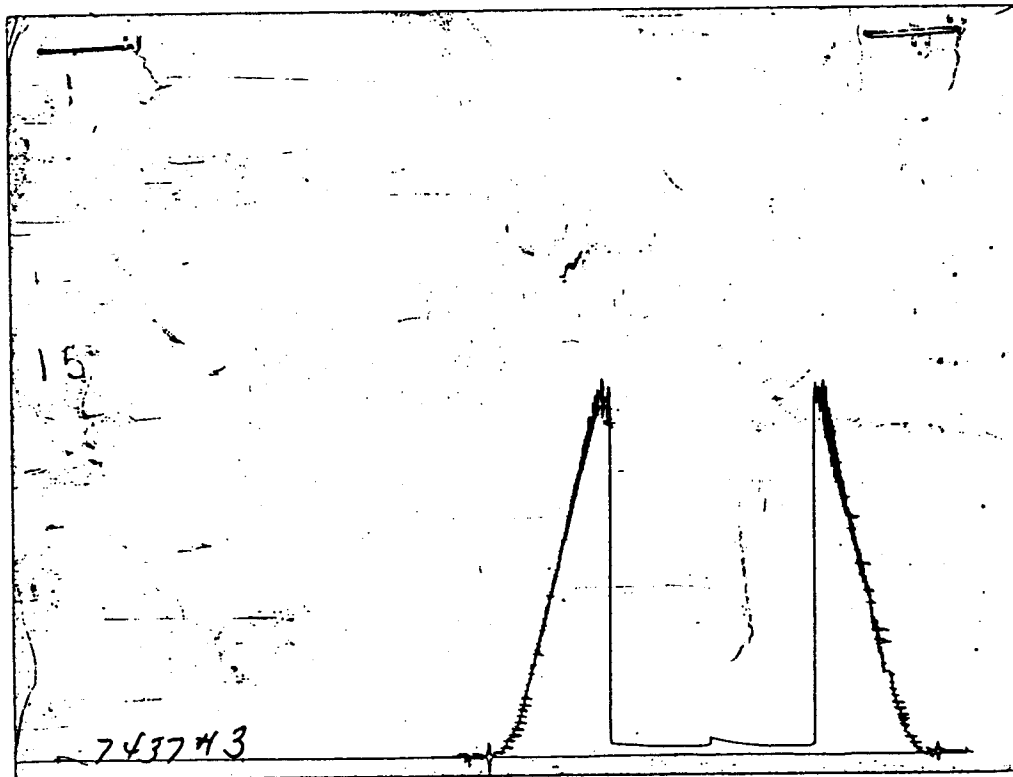
SEP 6 1994

FROM CONFIDENTIAL

CHART PAGE

JUL 2 6

CONFIDENTIAL



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2076	2085.1
(B) FIRST INITIAL FLOW PRESSURE	29	39.4
(C) FIRST FINAL FLOW PRESSURE	29	34.8
(D) INITIAL CLOSED-IN PRESSURE	68	54.2
(E) SECOND INITIAL FLOW PRESSURE	29	16.8
(F) SECOND FINAL FLOW PRESSURE	29	34.7
(G) FINAL CLOSED-IN PRESSURE	39	51.9
(H) FINAL HYDROSTATIC MUD	2026	2014.2

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

JUL 26

Test Ticket

No 5684

Well Name & No. Riedel #15 Test No. 3 Date 5-31-93
 Company Murfin Drilling Co. Inc. Zone Tested K-L L.K.C.
 Address _____ Elevation 2290 K.B.
 Co. Rep./Geo. Curtis Covey Cont. Murfin #3 Est. Ft. of Pay _____
 Location: Sec. 31 Twp. 13 Rge. 19 Co. Ellis State Ks.
 No. of Copies _____ Distribution Sheet _____ Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested 3778-3824 Drill Pipe Size 4.5 XH
 Anchor Length 46 Top Choke — 1" _____ Bottom Choke — 1/4" _____
 Top Packer Depth 3773 Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
 Bottom Packer Depth 3778 Wt. Pipe I.D. — 2.7 Ft. Run 478
 Total Depth 3824 Drill Collar — 2.25 Ft. Run 270
 Mud Wt. 9.7 lb/gal. Viscosity 42 Filtrate 7.2
 Pool Open @ 4:00 p.m. Initial Blow Weak - Died in 15 min.

Final Blow No blow.

Recovery — Total Feet 15 Feet of Gas In Pipe _____ Flush Tool? _____
 Sec. 15 Feet Of D-m. %gas _____ %oil _____ %water 100 %mud _____
 Rec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud _____
 Sec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud _____
 Rec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud _____
 Rec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud _____

HT 111 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 37,000 ppm System

(A) Initial Hydrostatic Mud 2076 PSI AK1 Recorder No. 13754 Range 4000
 (B) First Initial Flow Pressure 29 PSI @ (depth) 3782 w/Clock No. 22567
 (C) First Final Flow Pressure 29 PSI AK1 Recorder No. 7437 Range 4200
 (D) Initial Shut-In Pressure 68 PSI @ (depth) 3820 w/Clock No. 8376
 (E) Second Initial Flow Pressure 29 PSI AK1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 29 PSI @ (depth) _____ w/Clock No. _____
 (G) Final Shut-In Pressure 39 PSI Initial Opening 30 Test _____
 (H) Final Hydrostatic Mud 2026 PSI Initial Shut-In 45 Jars _____

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Final Flow 30 Safety Joint RELEASED

Final Shut-In 45 Straddle _____

Circ. Sub SEP 6 1994

Sampler _____

Extra Packer CONFIDENTIAL

Other _____

Approved By _____

Our Representative Don Banoffe

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

JUL 2 6

Drill-Stem Test Data

Well Name RIEDEL #15 Test No. 4 Date 6/1/93
Company MURFIN DRILLING CO INC Zone ARBUCKLE
Address 250 N WATER SWT #300 WICHITA KS 67202 Elevation 2290
Dr. Rep./Geo. CURTIS COVEY Cont. MURFIN #3 Est. Ft. of Pay 4
Location: Sec. 31 Twp. 13S Rge. 19W Co. ELLIS State KS

Interval Tested	<u>3870-3907</u>	Drill Pipe Size	<u>4.5" XH</u>
Shoe Length	<u>37</u>	Wt. Pipe I.D. - 2.7 Ft. Run	<u>478</u>
Top Packer Depth	<u>3865</u>	Drill Collar - 2.25 Ft. Run	<u>270</u>
Bottom Packer Depth	<u>3870</u>	Mud Wt.	<u>9.8</u> lb/Gal.
Total Depth	<u>3907</u>	Viscosity	<u>45</u> Filtrate <u>8</u>

Well Open @ 12:01 PM Initial Blow STRONG-BOTTOM OF BUCKET IN 5 MINUTES

Initial Blow STRONG-BOTTOM OF BUCKET IN 6 MINUTES

Recovery - Total Feet 1099 Flush Tool? NO

<u>449</u>	Feet of	<u>GAS IN PIPE</u>
<u>541</u>	Feet of	<u>CLEAN GASSY OIL</u>
<u>372</u>	Feet of	<u>MUD CUT GASSY OIL 30%GAS/60%OIL/10%MUD</u>
<u>186</u>	Feet of	<u>MUD CUT GASSY OIL 10%GAS/80%OIL/10%MUD</u>
	Feet of	

HT 120 °F Gravity _____ °API @ _____ °F Corrected Gravity 35 °API
@ _____ °F Chlorides _____ ppm Recovery Chlorides 35000 ppm System

A) Initial Hydrostatic Mud 2126.8 PSI AK1 Recorder No. 13754 Range 4000

First Initial Flow Pressure 100.3 PSI @ (depth) 3874 w / Clock No. 27567

First Final Flow Pressure 267.7 PSI AK1 Recorder No. 7437 Range 4200

B) Initial Shut-in Pressure 793.4 PSI @ (depth) 3903 w / Clock No. 8376

C) Second Initial Flow Pressure 311.0 PSI AK1 Recorder No. RELEASED Range _____

Second Final Flow Pressure 388.7 PSI @ (depth) SEP 6 1994 w / Clock No. _____

Final Shut-in Pressure 799.4 PSI Initial Opening FROM CONFIDENTIAL Final Flow 60

D) Final Hydrostatic Mud 2063.8 PSI Initial Shut-in 45 Final Shut-in 90

Dr Representative DAN BANGLE

CHART PAGE

JUL 2 6

CONFIDENTIAL



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING	
(A) INITIAL HYDROSTATIC MUD	2117	2126.8	
(B) FIRST INITIAL FLOW PRESSURE	78	100.3	
(C) FIRST FINAL FLOW PRESSURE	255	267.7	
(D) INITIAL CLOSED-IN PRESSURE	778	793.4	
(E) SECOND INITIAL FLOW PRESSURE	295	311	
(F) SECOND FINAL FLOW PRESSURE	374	388.7	RELEASED
(G) FINAL CLOSED-IN PRESSURE	788	799.4	SFP 6 1994
(H) FINAL HYDROSTATIC MUD	2056	2063.8	FROM CONFIDENTIAL

JUL 1 6

CONFIDENTIAL

COMPUTER OIL EVALUATION BY TRILOBITE TESTING, L.L.C.

MURFIN DRILLING CO INC

RIEDEL #15

DST 4

31 13S 19W ELLIS KS

 ELEVATION: 2290 KB EST. PAY 4 FT
 DATUM: -1585 ZONE TESTED: ARBUCKLE
 TEST INTERVAL: 3870-3907 TIME INTERVALS: 30-45-60-90
 RECORDER DEPTH: 3874 VISCOSITY: 6.73 CP
 BOTTOM HOLE TEMP: 120 HOLE SIZE: 7.875 IN

CUBIC FEET OF GAS IN PIPE: 36
 TOTAL FEET OF RECOVERY: 1099.00 CORRECTED PIPE FILLUP: 1056.250
 TOTAL BARRELS OF RECOVERY: 9.66 CORR. BARRELS OF RECOVERY: 8.619 BBL
 BARRELS IN DRILL PIPE: 4.99 API GRAVITY: 35
 BARRELS IN WEIGHT PIPE: 3.35 FLUID GRADIENT: 0.368
 BARRELS IN DRILL COLLARS: 1.32
 GAS OIL RATIO: 3.71 CU.FT/BBL
 BUBBLE POINT PRESSURE: 38
 UNCORRECTED INITIAL PRODUCTION: 154.52 BBL
 INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE: 137.91 BBL/DAY
 INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE: 76.231

INITIAL SLOPE 584.7 PSI/CYCL FINAL SLOPE 439 PSI/CYCLE
 INITIAL P* 923.12 PSI FINAL P* 925.5 PSI

TRANSMISSIBILITY 51.08 (MD.-FT./CP.)
 PERMEABILITY 85.89 (MD.)
 INDICATED FLOW CAPACITY 343.57 (MD.FT)
 PRODUCTIVITY INDEX 0.06 (BARREL/DAY/PSI)
 DAMAGE RATIO 0.22
 RADIUS OF INVESTIGATION 87.92 (FT.)
 POTENTIOMETRIC SURFACE 562.23 (FT.)
 DRAWDOWN FACTOR -0.258 (%)
 THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE 0.00
 THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE 0.00

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

INITIAL FLOW

RECORDER #13754

DST # 4

TIME(MIN)	PRESSURE	<>PRESSURE
3	100.3	100.3
6	126.9	26.6
9	150.5	23.6
12	170.2	19.7
15	191.9	21.7
18	210.6	18.7
21	229.3	18.7
24	242.1	12.8
27	256.8	14.7
30	267.7	10.9

FINAL FLOW

RECORDER #13754

DST # 4

TIME(MIN)	PRESSURE	<> PRESSURE
3	311.0	311.0
6	312.9	1.9
9	315.9	3.0
12	319.8	3.9
15	328.7	8.9
18	332.6	3.9
21	338.5	5.9
24	344.4	5.9
27	349.4	5.0
30	354.3	4.9
33	358.2	3.9
36	362.2	4.0
39	365.1	2.9
42	368.1	3.0
45	369.1	1.0
48	374.1	5.0
51	375.1	1.0
54	376.9	1.8
57	376.9	0.0
60	384.8	7.9
63	388.7	3.9

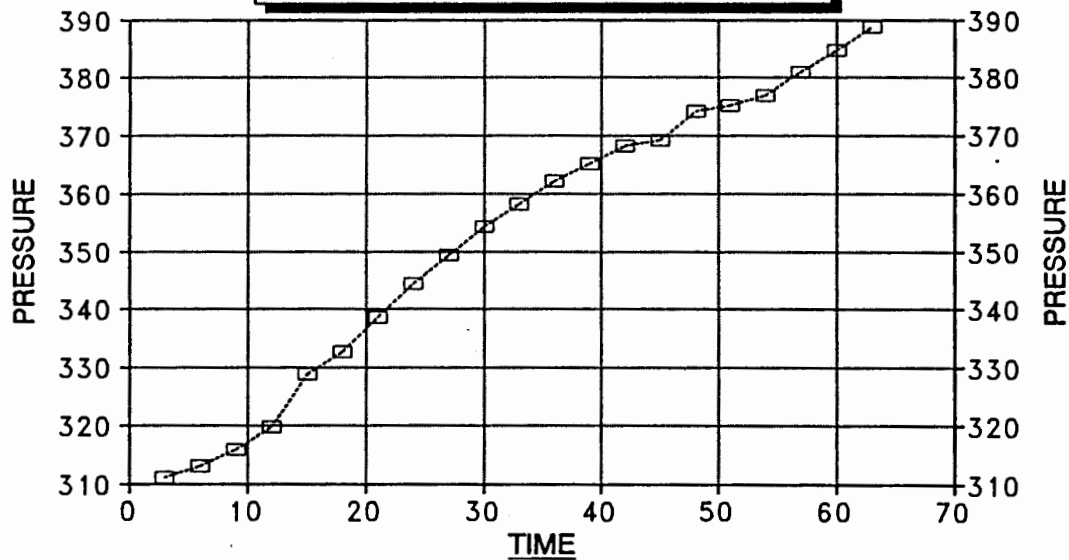
RELEASED

SEP 6 1994

FROM CONFIDENTIAL

DELTA T DELTA P

FINAL FLOW / DST #4



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

76.231

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

KCC
JUL 2 6
CONFIDENTIAL

RIEDEL #15
INITIAL

DST #4 SHUTIN 30 INITIAL FLOW TIME		SLOPE p*		PSI/CYCLE PSI
TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
3	593.8	1.041	593.8	11
6	622.5	0.778	28.7	6
9	643.2	0.637	20.7	4
12	659.1	0.544	15.9	4
15	676.8	0.477	17.7	3
18	692.6	0.426	15.8	3
21	710.4	0.385	17.8	2
24	721.3	0.352	10.9	2
27	735.1	0.325	13.8	2
30	747.1	0.301	12.0	2
33	758.8	0.281	11.7	2
36	769.7	0.263	10.9	2
39	779.6	0.248	9.9	2
42	787.5	0.234	7.9	2
45	793.4	0.222	5.9	2

RIEDEL #15
FINAL

DST #4 SHUTIN 90 TOTAL FLOW TIME		SLOPE p*		PSI/CYCLE PSI
	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
6	516.8	1.204	516.8	16
12	554.3	0.929	37.5	9
18	583.9	0.778	29.6	6
24	608.6	0.677	24.7	5
30	632.3	0.602	23.7	4
36	649.1	0.544	16.8	4
42	670.9	0.497	21.8	3
48	688.7	0.459	17.8	3
54	709.4	0.426	20.7	3
60	727.2	0.398	17.8	3
66	743.1	0.374	15.9	2
72	754.9	0.352	11.8	2
78	766.7	0.333	11.8	2
84	781.6	0.316	14.9	2
90	790.5	0.301	8.9	2
96	799.4	0.287	8.9	2

RELEASED

SEP 6 1994

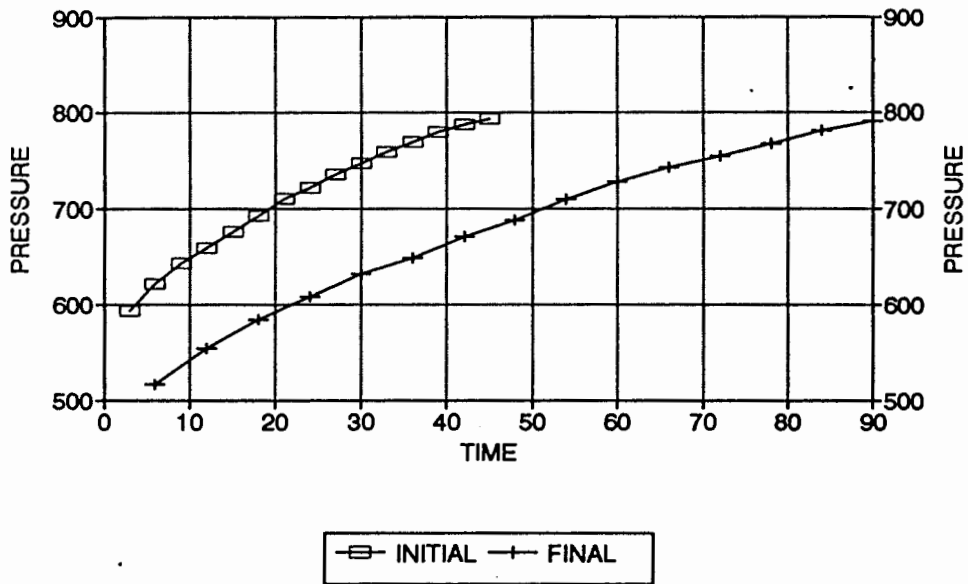
FROM CONFIDENTIAL

KCC

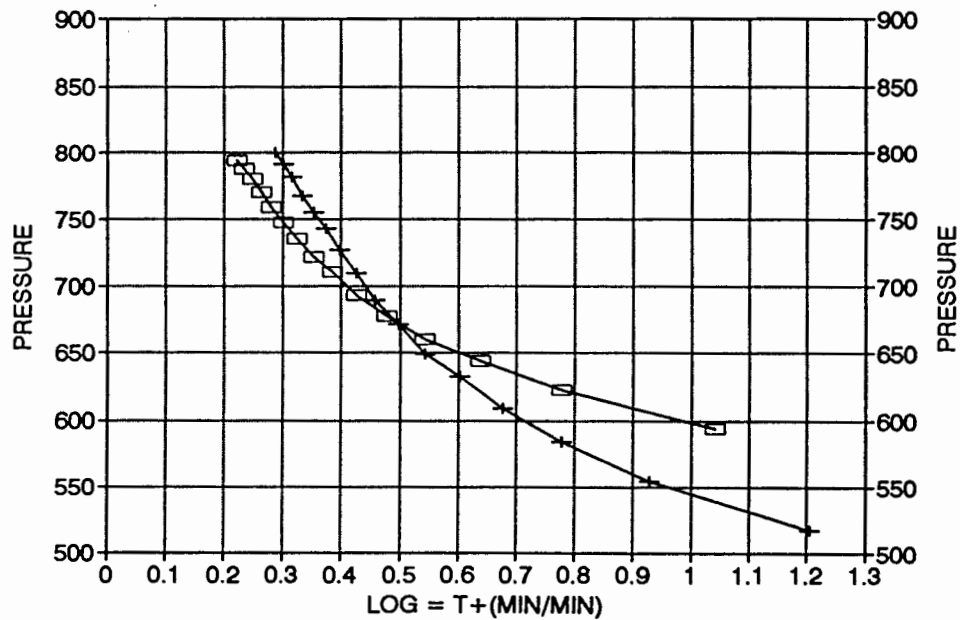
JUL 26

CONFIDENTIAL

RIEDEL #15 DELTA T DELTA P



HORNER PLOT



RELEASED

SEP 6 1994

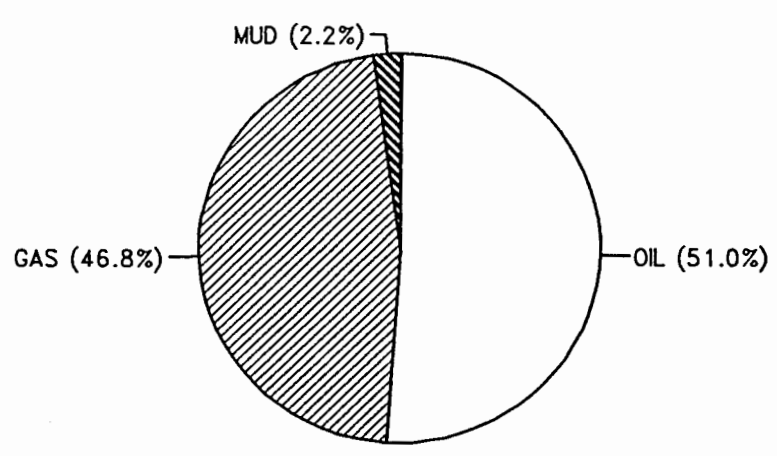
FROM CONFIDENTIAL

CALCULATED RECOVERY ANALYSIS

DST 4 TICKET # 5685

SAMPLE #	TOTAL FEET	GAS		OIL		WATER		MUD	
		%	FEET	%	FEET	%	FEET	%	FEET
DRILL 1	449	100	449		0		0		0
PIPE 2	351	5	17.55	95	333.45		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	190	5	9.5	95	180.5		0		0
PIPE 2	288	30	86.4	60	172.8		0	10	28.8
3			0		0		0		0
4			0		0		0		0
DRILL 1	84	30	25.2	60	50.4		0	10	8.4
COLLAR 2	186	10	18.6	80	148.8		0	10	18.6
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	1548		606.25		885.95		0		55.8

			HRS OPEN	BBL/DAY
BBL OIL=	8.188847	*	1.5	131.02155
BBL WATER=	0	*		0
BBL MUD=	0.35667			
BBL GAS =	7.519823			



RELEASED
SEP 6 1994
FROM CONFIDENTIAL

TRILOBITE TESTING L.L.C. KCC

P.O. Box 362 • Hays, Kansas 67601

JUL 2 6

Test Ticket

CONFIDENTIAL 5685

Well Name & No. <u>Riedel #15</u>	Test No. <u>4</u>	Date <u>6-1-93</u>
Company <u>Murfin Drilling Co. Inc.</u>	Zone Tested <u>Arbuckle</u>	
Address _____	Elevation <u>2290 K.B.</u>	
Co. Rep./Geo. <u>Curtis Covey</u>	cont. <u>Murfin #3</u>	Est. Ft. of Pay <u>4</u>
Location: Sec. <u>31</u>	Twp. <u>13</u>	Rge. <u>19</u>
Co. <u>Ellis</u>	State <u>Ks.</u>	
No. of Copies _____	Distribution Sheet _____	Yes _____ No <u>X</u> Evaluation

Interval Tested 3820 - 3907 Drill Pipe Size 4.5 XH
 Anchor Length 37 Top Choke — 1" Bottom Choke — 1/4"
 Top Packer Depth 3865 Hole Size — 7 7/8" Rubber Size — 6 3/4"
 Bottom Packer Depth 3820 Wt. Pipe I.D. — 2.7 Ft. Run 478
 Total Depth 3907 Drill Collar — 2.25 Ft. Run 270
 Mud Wt. 9.8 lb/gal. Viscosity 45 Filtrate 8
 Tool Open @ 12:01 p.m. Initial Blow Strong - B.O.B. in 5 min.

Final Blow Strong - B.O.B. in 6 min.

Recovery — Total Feet	Feet of Gas in Pipe	Flush Tool?
Rec. <u>541</u> Feet Of <u>CGGYO</u>	%gas %oil %water %mud	
Rec. <u>372</u> Feet Of <u>MC GAYO</u>	<u>30%</u> gas <u>60%</u> oil %water <u>10%</u> mud	
Rec. <u>186</u> Feet Of <u>MC GAYO</u>	<u>10%</u> gas <u>80%</u> oil %water <u>10%</u> mud	
Rec. _____ Feet Of _____	%gas %oil %water %mud	
Rec. _____ Feet Of _____	%gas %oil %water %mud	

BHT 120 °F Gravity _____ °API @ _____ °F Corrected Gravity 35 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 35,000 ppm System

(A) Initial Hydrostatic Mud 2117 PSI Ak1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 78 PSI @ (depth) 3874 w/Clock No. 27567

(C) First Final Flow Pressure 255 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-In Pressure 778 PSI @ (depth) 3903 w/Clock No. 8376

(E) Second Initial Flow Pressure 295 PSI AK1 Recorder No. _____ Range _____

(F) Second Final Flow Pressure 374 PSI @ (depth) _____ w/Clock No. _____

(G) Final Shut-In Pressure 788 PSI Initial Opening 30 Test _____

(H) Final Hydrostatic Mud 2056 PSI Initial Shut-In 45 Jars _____

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Final Flow 60 Safety Joint _____

Final Shut-In 90 Straddle _____

Circ. Sub RELEASED

Sampler SEP 6 1994

Extra Packer _____

Other FROM CONFIDENTIAL

Approved By _____

Our Representative Dan Banquet

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

KCC

JUL 26

CONFIDENTIAL

Well Name RIEDEL #15 Test No. 5 Date 6/2/93
 Company MURFIN DRILLING CO INC Zone ARBUCKLE
 Address 250 N WATER SWT #300 WICHITA KS 67202 Elevation 2290
 Dr. Rep./Geo. CURTIS COVEY Cont. MURFIN #3 Est. Ft. of Pay 3
 Location: Sec. 31 Twp. 13S Rge. 19W Co. ELLIS State KS

Interval Tested <u>3906-3917</u>	Drill Pipe Size <u>4.5" XH</u>
Shoe Length <u>11</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>478</u>
Packer Depth <u>3901</u>	Drill Collar - 2.25 Ft. Run <u>270</u>
Bottom Packer Depth <u>3906</u>	Mud Wt. <u>9.8</u> lb/Gal.
Total Depth <u>3917</u>	Viscosity <u>45</u> Filtrate <u>8</u>

Well Open @ 3:15 AM Initial Blow WEAK-BUILDING TO STRONG-- BOTTOM OF BUCKET IN 17 MINUTES
 Final Blow WEAK-BUILDING TO STRONG--BOTTOM OF BUCKET IN 25 MINUTES

Recovery - Total Feet 896 Flush Tool? NO

<u>62</u>	Feet of <u>GAS IN PIPE</u>
<u>90</u>	Feet of <u>MUD CUT GASSY OIL 10%GAS/80%OIL/10%MUD</u>
<u>372</u>	Feet of <u>MUD CUT GASSY OIL 10%GAS/60%OIL/30%MUD</u>
<u>310</u>	Feet of <u>WATER & MUD CUT GASSY OIL 10%GAS/60%OIL/20%H2O/10%MUD</u>
<u>124</u>	Feet of <u>SLIGHTLY OIL CUT WATER 6%OIL/94%WATER</u>

Temp 122 °F Gravity _____ °API @ _____ °F Corrected Gravity 36 °API
 W 0.4 @ 80 °F Chlorides 27000 ppm Recovery Chlorides 35000 ppm System

Initial Hydrostatic Mud 2174.6 PSI AK1 Recorder No. 13754 Range 4000

First Initial Flow Pressure 55.1 PSI @ (depth) 3610 w / Clock No. 27567

First Final Flow Pressure 164.3 PSI AK1 Recorder No. 7437 Range 4200

Initial Shut-in Pressure 1159.9 PSI @ (depth) 3613 w / Clock No. 8376

Second Initial Flow Pressure 203.7 PSI AK1 Recorder No. RELEASED Range _____

Second Final Flow Pressure 349.4 PSI @ (depth) SEP 6 1994 w / Clock No. _____

Final Shut-in Pressure 1164.9 PSI Initial Opening FROM CONFIDENTIAL 30 Final Flow 60

Final Hydrostatic Mud 2136.4 PSI Initial Shut-in 45 Final Shut-in 90

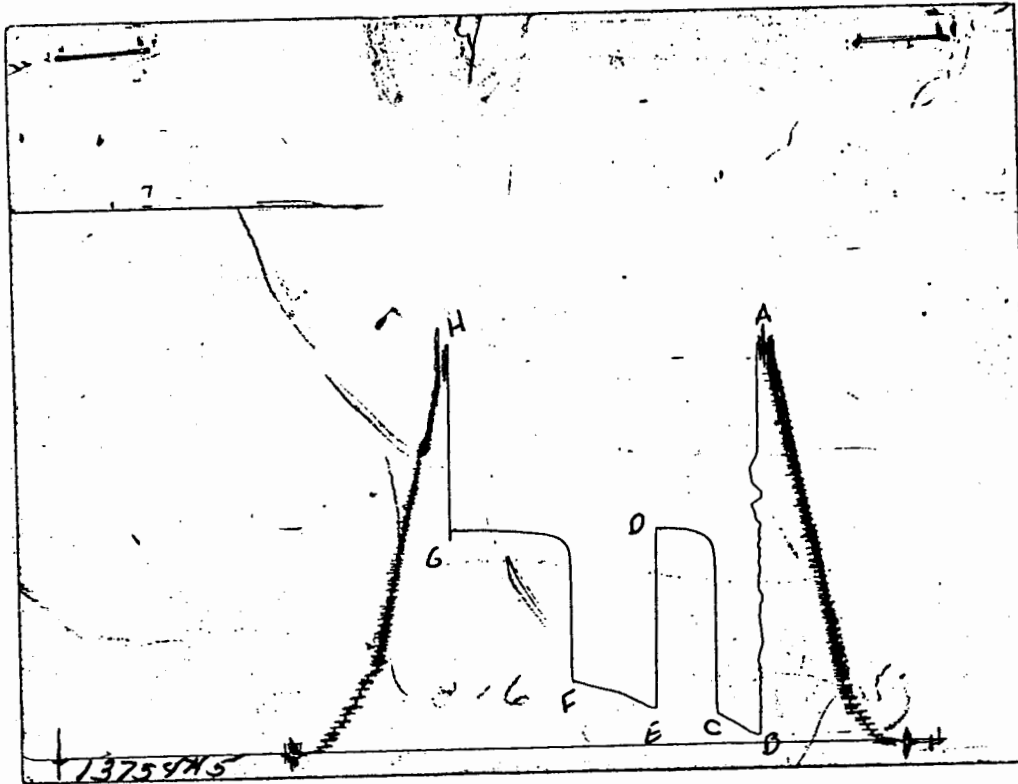
Representative DAN BANGLE

CHART PAGE

KCC

JUL 2 6

CONFIDENTIAL



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING	
(A) INITIAL HYDROSTATIC MUD	2168	2174.6	
(B) FIRST INITIAL FLOW PRESSURE	39	55.1	
(C) FIRST FINAL FLOW PRESSURE	157	164.3	
(D) INITIAL CLOSED-IN PRESSURE	1146	1159.9	
(E) SECOND INITIAL FLOW PRESSURE	196	203.7	
(F) SECOND FINAL FLOW PRESSURE	344	349.4	RELEASED
(G) FINAL CLOSED-IN PRESSURE	1156	1164.9	SEP 6 1994
(H) FINAL HYDROSTATIC MUD	2127	2136.4	FROM CONFIDENTIAL

KCC

JUL 2 6

CONFIDENTIAL

COMPUTER OIL EVALUATION BY TRILOBITE TESTING, L.L.C.

MURFIN DRILLING CO INC

RIEDEL #15

DST 5

31

13S

19W

ELLIS KS

ELEVATION:	2290	KB	EST. PAY	3	FT
DATUM:	-1321		ZONE TESTED:	ARBUCKLE	
TEST INTERVAL:	3906-3917		TIME INTERVALS:	30-45-60-90	
RECORDER DEPTH:	3610		VISCOSITY:	7.64	CP
BOTTOM HOLE TEMP:	122		HOLE SIZE:	7.875	IN

CUBIC FEET OF GAS IN PIPE:	5			
TOTAL FEET OF RECOVERY:	896.00	CORRECTED PIPE FILLUP:	954.645	
TOTAL BARRELS OF RECOVERY:	6.77	CORR. BARRELS OF RECOVERY:	8.619	BBL
BARRELS IN DRILL PIPE:	2.10	API GRAVITY:	36	
BARRELS IN WEIGHT PIPE:	3.35	FLUID GRADIENT:	0.366	
BARRELS IN DRILL COLLARS:	1.32			
GAS OIL RATIO:	0.73	CU.FT/BBL		
BUBBLE POINT PRESSURE:	9			
UNCORRECTED INITIAL PRODUCTION:			108.33	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			137.91	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			76.231	

INITIAL SLOPE	126.29253	PSI/CYCL	FINAL SLOPE	23.1645157	PSI/CYCLE
INITIAL P*	1187.92	PSI	FINAL P*	1171.55382	PSI

TRANSMISSIBILITY	968.05	(MD.-FT./CP.)
PERMEABILITY	2464.27	(MD.)
INDICATED FLOW CAPACITY	7392.81	(MD.FT)
PRODUCTIVITY INDEX	1.09	(BARREL/DAY/PSI)
DAMAGE RATIO	6.50	
RADIUS OF INVESTIGATION	470.94	(FT,)
POTENTIOMETRIC SURFACE	1396.83	(FT.)
DRAWDOWN FACTOR	1.378	(%)
THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE	895.74	
THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE	495.12	

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

INITIAL FLOW

RECORDER #13754

DST # 5

KCC

JUL 2 6

CONFIDENTIAL

TIME(MIN)	PRESSURE	<>PRESSURE
3	55.1	55.1
6	58.1	3.0
9	58.1	0.0
12	62.9	4.8
15	67.9	5.0
18	82.6	14.7
21	94.4	11.8
24	107.2	12.8
27	120.1	12.9
30	131.8	11.7
33	139.7	7.9
36	152.5	12.8
39	164.3	11.8

FINAL FLOW

RECORDER #13754

DST # 5

TIME(MIN)	PRESSURE	<> PRESSURE
3	203.7	203.7
6	206.6	2.9
9	214.5	7.9
12	225.3	10.8
15	235.2	9.9
18	245.1	9.9
21	252.9	7.8
24	263.7	10.8
27	275.5	11.8
30	282.4	6.9
33	289.3	6.9
36	294.2	4.9
39	299.2	5.0
42	302.1	2.9
45	309.1	7.0
48	313.9	4.8
51	324.8	10.9
54	330.7	5.9
57	337.6	6.9
60	343.5	5.9
63	349.4	5.9

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

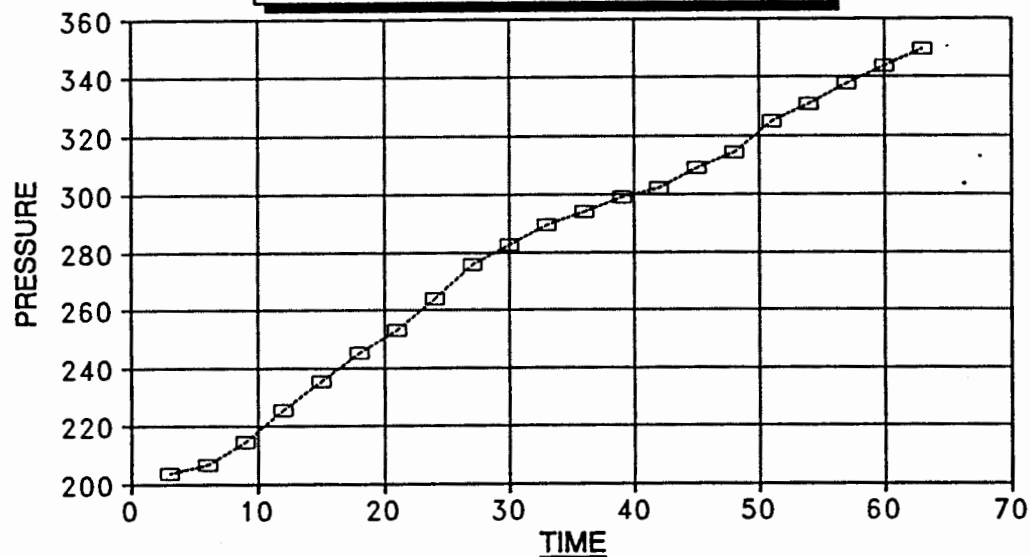
KCC

JUL 2 6

CONFIDENTIAL

DELTA T DELTA P

FINAL FLOW / DST #5



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

62.033

RELEASED

SEP 6 1994

FROM CONFIDENTIAL

RIEDEL #15
INITIAL

DST #5
SHUTIN
30 INITIAL FLOW TIME

SLOPE 126.3 PSI/CYCLE
P* 1187.92 PSI

JUL 2 6

Log <>
TIME(MIN) Pws (psi) Horn T PRESSURE Horn T

3 271.6 1.041 271.6 11
6 1061.1 0.778 789.5 6
9 1096.9 0.637 35.8 4
12 1111.9 0.544 15.0 4
15 1122.9 0.477 11.0 3
18 1128.9 0.426 6.0 3
21 1137.9 0.385 9.0 2
24 1143.9 0.352 6.0 2
27 1148.9 0.325 5.0 2
X 30 1149.9 0.301 1.0 2
33 1150.9 0.281 1.0 2
36 1153.9 0.263 3.0 2
39 1157.9 0.248 4.0 2
42 1158.9 0.234 1.0 2
X 45 1159.9 0.222 1.0 2

CONFIDENTIAL

RIEDEL #15
FINAL

DST #5
SHUTIN
90 TOTAL FLOW TIME

SLOPE 23.2 PSI/CYCLE
P* 1171.6 PSI

Log <>
Pws (psi) Horn T PRESSURE Horn T

6 1067.1 1.204 1067.1 16
12 1107.9 0.929 40.8 9
18 1123.9 0.778 16.0 6
24 1133.9 0.677 10.0 5
30 1138.9 0.602 5.0 4
36 1143.9 0.544 5.0 4
42 1147.9 0.497 4.0 3
48 1151.9 0.459 4.0 3
54 1155.9 0.426 4.0 3
60 1158.9 0.398 3.0 3
X 66 1162.9 0.374 4.0 2
72 1164.9 0.352 2.0 2
78 1164.9 0.333 0.0 2
84 1164.9 0.316 0.0 2
90 1164.9 0.301 0.0 2
X 96 1164.9 0.287 0.0 2

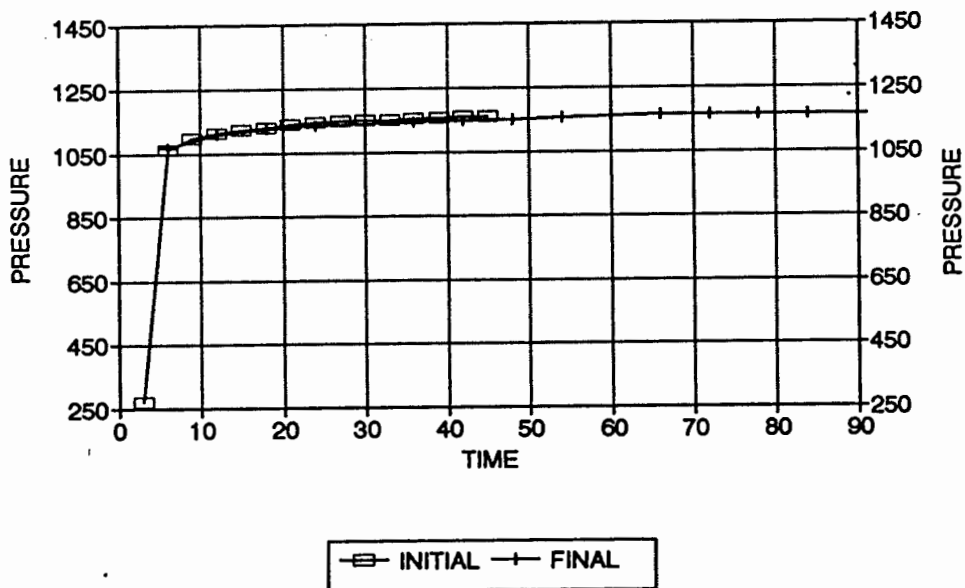
RELEASED

SEP 6 1994

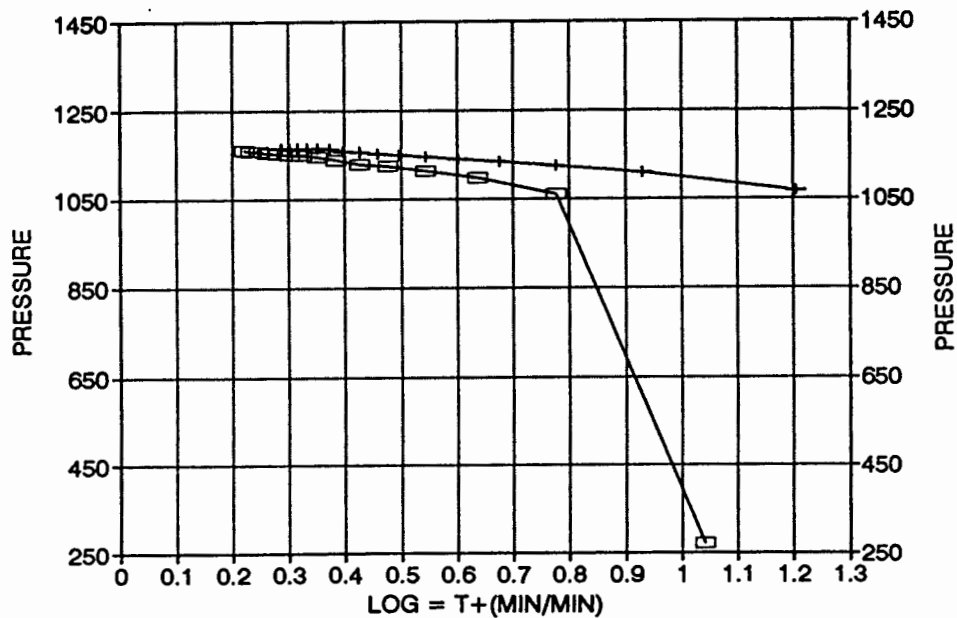
FROM CONFIDENTIAL

KCC
JUL 2 6
CONFIDENTIAL

RIEDEL #15 DELTA T DELTA P



HORNER PLOT



RELEASED

SEP 6 1994

FROM CONFIDENTIAL

KCC

JUL 26

CALCULATED RECOVERY ANALYSIS

CONFIDENTIAL

DST

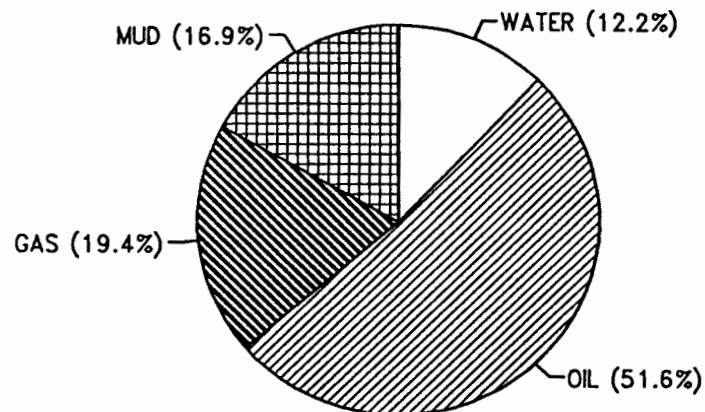
5

TICKET #

5686

SAMPLE	TOTAL	GAS		OIL		WATER		MUD	
#	FEET	%	FEET	%	FEET	%	FEET	%	FEET
DRILL 1	62	100	62		0		0		0
PIPE 2	90	10	9	80	72		0	10	9
3	58	10	5.8	60	34.8		0	30	17.4
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	314	10	31.4	60	188.4		0	30	94.2
PIPE 2	164	10	16.4	60	98.4	20	32.8	10	16.4
3			0		0		0		0
4			0		0		0		0
DRILL 1	146	10	14.6	60	87.6	20	29.2	10	14.6
COLLAR 2	124		0	6	7.44	94	116.56		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	958		139.2		488.64		178.56		151.6

		HRS OPEN	BBL/DAY
BBL OIL=	3.9910416	*	1.5
BBL WATER=	0.9423664	*	15.077862
BBL MUD=	1.309482		
BBL GAS =	1.49809		



RELEASED

SEP 6 1994

FROM CONFIDENTIAL

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

KCC

JUL 2 6

Test Ticket

CONFIDENTIAL No 5686

Well Name & No. <u>Riedel #15</u>	Test No. <u>5</u>	Date <u>6-2-93</u>
Company <u>Murfin Drilling Co. Inc.</u>	Zone Tested <u>Arbuckle</u>	
Address _____	Elevation <u>2290 K.B.</u>	
Co. Rep./Geo. <u>Curtis Covey</u>	Cont. <u>Murfin #3</u>	Est. Ft. of Pay <u>3</u>
Location: Sec. <u>31</u>	Twp. <u>13</u>	Rge. <u>19</u>
Co. <u>Ellis</u>	State <u>Ks.</u>	
No. of Copies _____	Distribution Sheet _____	Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested <u>3906-3917</u>	Drill Pipe Size <u>4.5 X H</u>
Anchor Length <u>11</u>	Top Choke — 1" _____ Bottom Choke — 1/4" _____
Top Packer Depth <u>3901</u>	Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
Bottom Packer Depth <u>3906</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>478</u>
Total Depth <u>3917</u>	Drill Collar — 2.25 Ft. Run <u>270</u>
Mud Wt. <u>9.8</u> lb/gal.	Viscosity <u>45</u> Filtrate <u>8</u>
Tool Open @ <u>3:15 a.m.</u> Initial Blow <u>Weak-building to strong B.O.B. in 17 min.</u>	
Final Blow <u>Weak-building to strong B.O.B. in 25 min.</u>	

Recovery — Total Feet <u>896</u>	Feet of Gas in Pipe <u>62</u>	Flush Tool? _____
Rec. <u>90</u> Feet Of <u>MC Gsyo</u>	<u>10</u> % gas <u>80</u> % oil	% water <u>10</u> % mud
Rec. <u>372</u> Feet Of <u>MC Gsyo</u>	<u>10</u> % gas <u>60</u> % oil	% water <u>30</u> % mud
Rec. <u>310</u> Feet Of <u>WTR & MC Gsyo</u>	<u>10</u> % gas <u>60</u> % oil	<u>20</u> % water <u>10</u> % mud
Rec. <u>124</u> Feet Of <u>50% OCW</u>	% gas <u>6</u> % oil <u>94</u> % water	% mud _____
Rec. _____ Feet Of _____	% gas _____ % oil _____	% water _____ % mud _____

BHT <u>122</u> °F	Gravity _____ °API @ _____ °F	Corrected Gravity <u>36</u> °API
RW <u>1.40</u> @ <u>80</u> °F	Chlorides <u>27,000</u> ppm	Recovery Chlorides <u>35,000</u> ppm System
(A) Initial Hydrostatic Mud <u>2168</u> PSI	Ak1 Recorder No. <u>13754</u>	Range <u>4000</u>
(B) First Initial Flow Pressure <u>39</u> PSI	@ (depth) <u>3610</u>	w/Clock No. <u>27567</u>
(C) First Final Flow Pressure <u>157</u> PSI	Ak1 Recorder No. <u>7437</u>	Range <u>4200</u>
(D) Initial Shut-In Pressure <u>1146</u> PSI	@ (depth) <u>3613</u>	w/Clock No. <u>8376</u>
(E) Second Initial Flow Pressure <u>196</u> PSI	Ak1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>344</u> PSI	@ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>1156</u> PSI	Initial Opening <u>36</u>	Test _____
(H) Final Hydrostatic Mud <u>2127</u> PSI	Initial Shut-In <u>45</u>	Jars _____

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Final Flow <u>60</u>	Safety Joint _____
Final Shut-In <u>90</u>	Straddle <u>RELEASED</u>
Circ. Sub _____	Sampler <u>SFP</u> <u>6</u> 1994
Extra Packer _____	FROM CONFIDENTIAL
Other _____	

Approved By _____

Our Representative Dan Ransple

KCC

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

JUL 26

CONFIDENTIAL

Test Ticket

COPY

No 5687

Well Name & No. <u>Riedel #15</u>	Test No. <u>6</u>	Date <u>6-2-93</u>
Company <u>Murfin Drilling Co. Inc.</u>	Zone Tested <u>Arbuckle</u>	
Address _____	Elevation <u>2290 K.B</u>	
Co. Rep./Geo. <u>Curtis Covey</u>	Cont. <u>Murfin #3</u>	Est. Ft. of Pay _____
Location: Sec. <u>31</u>	Twp. <u>13</u>	Rge. <u>19</u>
Co. <u>Ellis</u>	State <u>Ks.</u>	
No. of Copies _____	Distribution Sheet _____	Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested 3916 - 3927 Drill Pipe Size 4.5 XH
 Anchor Length 11 Top Choke — 1" Bottom Choke — 3/4"
 Top Packer Depth 3911 Hole Size — 7 7/8" Rubber Size — 6 3/4"
 Bottom Packer Depth 3916 Wt. Pipe I.D. — 2.7 Ft. Run 478
 Total Depth 3927 Drill Collar — 2.25 Ft. Run 270
 Mud Wt. 9.8 lb/gal. Viscosity 43 Filtrate 8.8
 Tool Open @ 5:35 p.m. Initial Blow Weak - building to B.O.B in 7 min.

Final Blow Weak - building to B.O.B in 11 min.

Recovery — Total Feet	Feet of Gas In Pipe	Flush Tool?
Rec. <u>392</u> Feet Of <u>Silly O.C. WTR.</u>	%gas <u>4</u> %oil <u>96</u> %water _____ %mud _____	
Rec. <u>360</u> Feet Of <u>Silly O.C. WTR.</u>	%gas <u>2</u> %oil <u>98</u> %water _____ %mud _____	
Rec. <u>390</u> Feet Of <u>Silly O.C. WTR.</u>	%gas <u>1</u> %oil <u>99</u> %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	

BHT 123 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW .40 @ 84 °F Chlorides 29,000 ppm Recovery Chlorides 36,000 ppm System

(A) Initial Hydrostatic Mud 2127 PSI Ak1 Recorder No. 13754 Range 4000
 (B) First Initial Flow Pressure 49 PSI @ (depth) 3920 w/Clock No. 27567
 (C) First Final Flow Pressure 305 PSI AK1 Recorder No. 7437 Range 4200
 (D) Initial Shut-In Pressure 1136 PSI @ (depth) 3923 w/Clock No. 8376
 (E) Second Initial Flow Pressure 344 PSI AK1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 501 PSI @ (depth) _____ w/Clock No. _____
 (G) Final Shut-In Pressure 1156 PSI Initial Opening 30 Test _____
 (H) Final Hydrostatic Mud 2087 PSI Initial Shut-In 45 Jars _____

Final Flow 60 Safety Joint _____

Final Shut-In 80 Straddle RELEASED

Circ. Sub _____

Sampler SEP 6 1994

Extra Packer _____
 FROM CONFIDENTIAL
 Other _____

Approved By [Signature]

Our Representative [Signature]

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

KCC

JUL 26

CONFIDENTIAL

Drill-Stem Test Data

Well Name RIEDEL #15 Test No. 6 Date 6/2/93
Company MURFIN DRILLING CO INC Zone ARBUCKLE
Address 250 N WATER SWT #300 WICHITA KS 67202 Elevation 2290
Co. Rep./Geo. CURTIS COVEY Cont. MURFIN #3 Est. Ft. of Pay KS
Location: Sec. 31 Twp. 13S Rge. 19W Co. ELLIS State KS

Interval Tested	<u>3916-3927</u>	Drill Pipe Size	<u>4.5" XH</u>
Anchor Length	<u>11</u>	Wt. Pipe I.D. - 2.7 Ft. Run	<u>478</u>
Top Packer Depth	<u>3911</u>	Drill Collar - 2.25 Ft. Run	<u>270</u>
Bottom Packer Depth	<u>3916</u>	Mud Wt.	<u>9.8</u> lb/Gal.
Total Depth	<u>3927</u>	Viscosity	<u>43</u>
		Filtrate	<u>8.8</u>

Tool Open @ 5:35 PM Initial Blow WEAK-BUILDING TO BOTTOM OF BUCKET IN 7 MINUTES

Final Blow WEAK-BUILDING TO BOTTOM OF BUCKET IN 11 MINUTES

Recovery - Total Feet 1142 Flush Tool? NO

Rec. <u>392</u>	Feet of	<u>SLIGHTLY OIL CUT WATER 4%OIL/96%WATER</u>
Rec. <u>360</u>	Feet of	<u>SLIGHTLY OIL CUT WATER 2%OIL/98%WATER</u>
Rec. <u>390</u>	Feet of	<u>SLIGHTLY OIL CUT WATER 1%OIL/99%WATER</u>
Rec. _____	Feet of	_____
Rec. _____	Feet of	_____

BHT 123 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.4 @ 84 °F Chlorides 29000 ppm Recovery Chlorides 36000 ppm System

(A) Initial Hydrostatic Mud 2135.8 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 34.9 PSI @ (depth) 3920 w / Clock No. 27567

(C) First Final Flow Pressure 315.9 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 1149.5 PSI @ (depth) 3923 w / Clock No. 8376

(E) Second Initial Flow Pressure 359.4 PSI AK1 Recorder No. RELEASED Range _____

(F) Second Final Flow Pressure 498.2 PSI @ (depth) SEP 6 1994 w / Clock No. _____

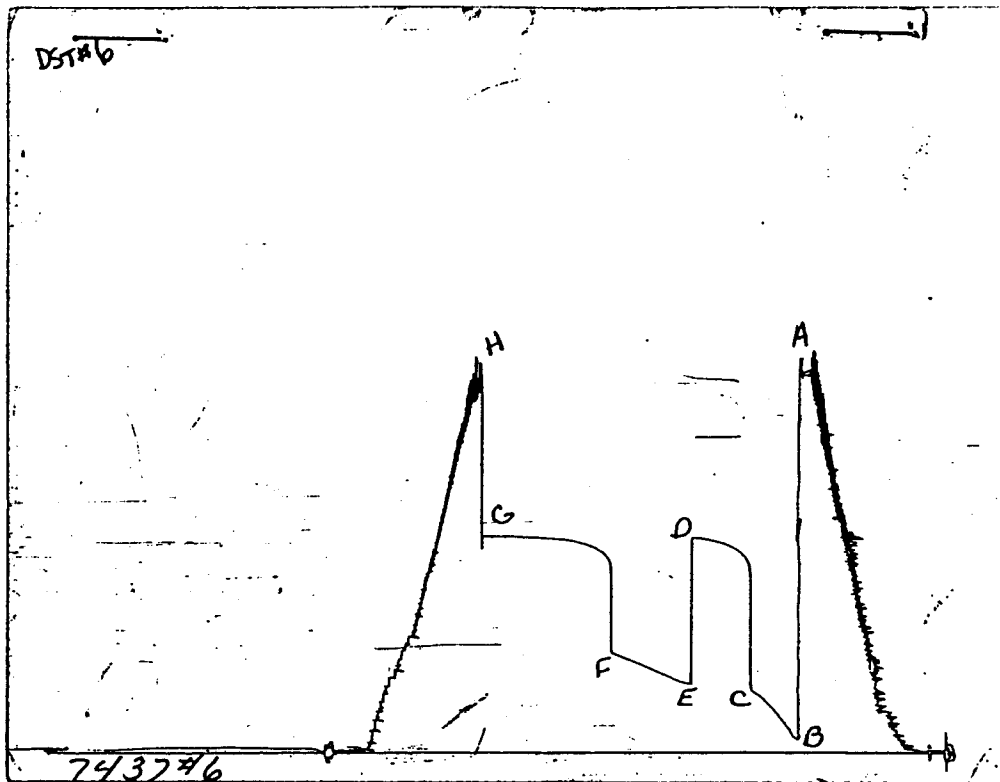
(G) Final Shut-in Pressure 1169.2 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2081.9 PSI Initial Shut-in 45 Final Shut-in 90

Our Representative DAN BANGLE

JUL 2 6

CONFIDENTIAL



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2127	2135.8
(B) FIRST INITIAL FLOW PRESSURE	49	34.9
(C) FIRST FINAL FLOW PRESSURE	305	315.9
(D) INITIAL CLOSED-IN PRESSURE	1136	1149.5
(E) SECOND INITIAL FLOW PRESSURE	344	359.4
(F) SECOND FINAL FLOW PRESSURE	501	498.2
(G) FINAL CLOSED-IN PRESSURE	1156	1169.2
(H) FINAL HYDROSTATIC MUD	2087	2081.9

RELEASED

SEP 6 1994

FROM CONFIDENTIAL