

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name DITGES #1 Test No. 1 Date 1/29/93
Company A.L. ABERCROMBIE, INC Zone UPR CHEROKEE
Address 150 N MAIN SWT #801 WICHITA KS 67202-1383 Elevation 2274
Co. Rep./Geo. STEVE FRANKAMP Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay _____
Location: Sec. 25 Twp. 25S Rge. 21W Co. FORD State KS

Interval Tested <u>4632-4668</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>36</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>465</u>
Top Packer Depth <u>4327</u>	Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth <u>4632</u>	Mud Wt. <u>9.4</u> lb/Gal.
Total Depth <u>4668</u>	Viscosity <u>57</u> Filtrate <u>11.2</u>

Tool Open @ 7:26 PM Initial Blow WEAK 1/4" BLOW BUILDING TO 3.5"

Final Blow 1.5" BLOW BUILDING TO 5"

Recovery - Total Feet 45 Flush Tool? NO

Rec. <u>150</u>	Feet of <u>GAS IN PIPE</u>
Rec. <u>45</u>	Feet of <u>GASSY MUD W/ TRACE OIL</u>
Rec. _____	Feet of <u>GOOD SHOW OF OIL IN TOOL</u>
Rec. _____	Feet of _____
Rec. _____	Feet of _____

BHT 111 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud 2433.6 PSI AK1 Recorder No. 22150 Range 3925

(B) First Initial Flow Pressure 32.4 PSI @ (depth) 4635 w / Clock No. 26199

(C) First Final Flow Pressure 40.5 PSI AK1 Recorder No. 24174 Range 3050

(D) Initial Shut-in Pressure 113.5 PSI @ (depth) 4667 w / Clock No. 27573

(E) Second Initial Flow Pressure 45.7 PSI AK1 Recorder No. _____ Range _____

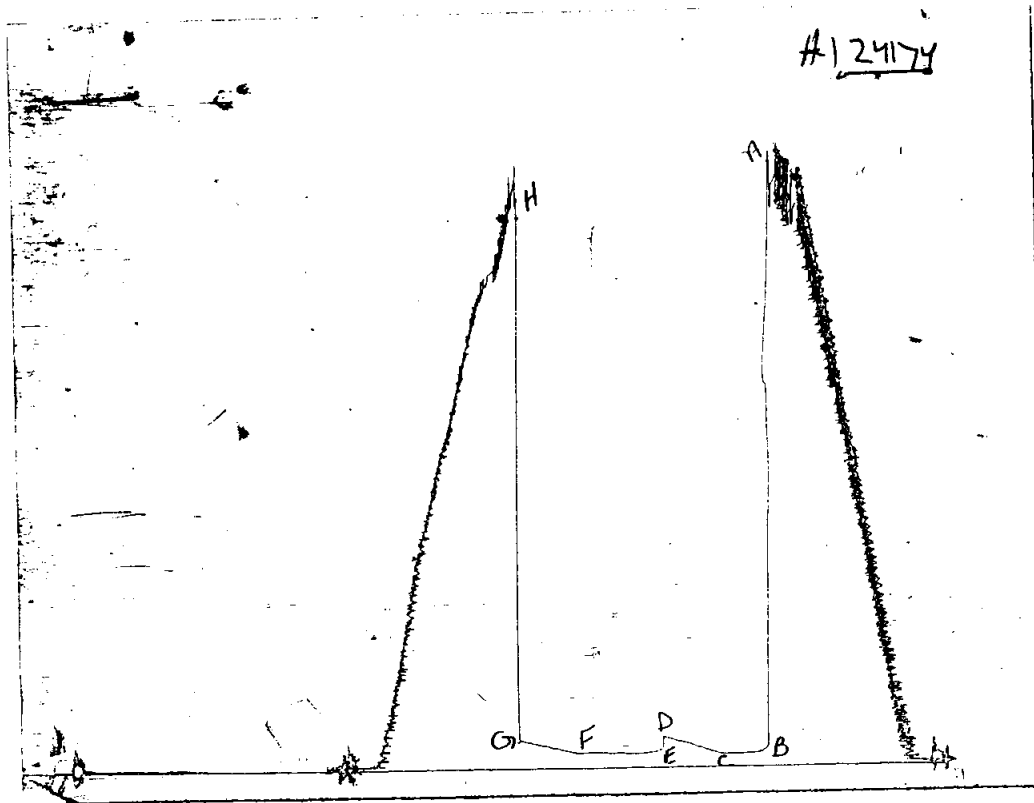
(F) Second Final Flow Pressure 53.2 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 112.4 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2396.5 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative PAUL SIMPSON

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2426	2433.6
(B) FIRST INITIAL FLOW PRESSURE	30	32.4
(C) FIRST FINAL FLOW PRESSURE	37	40.5
(D) INITIAL CLOSED-IN PRESSURE	111	113.5
(E) SECOND INITIAL FLOW PRESSURE	44	45.7
(F) SECOND FINAL FLOW PRESSURE	52	53.2
(G) FINAL CLOSED-IN PRESSURE	111	112.4
(H) FINAL HYDROSTATIC MUD	2395	2396.5

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5842

Well Name & No. <u>Wells #1</u>	Test No. <u>1</u>	Date <u>1-29-92</u>
Company <u>Abercrombie Drilling Inc</u>	Zone Tested <u>Upper Cherokee</u>	
Address <u>801 Union Center Wichita Ks 67202</u>	Elevation <u>2274</u>	
Co. Rep./Geo. <u>Steve Frankamp</u>	Cont. <u>Abercrombie #8</u>	Est. Ft. of Pay _____
Location: Sec. <u>25</u> Twp. <u>25s</u> Rge. <u>21w</u>	Co. <u>Ford</u>	State <u>Ks</u>
No. of Copies _____	Distribution Sheet _____	Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested <u>4632-4668</u>	Drill Pipe Size <u>4 1/2 XH</u>
Anchor Length <u>36</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>4627</u>	Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
Bottom Packer Depth <u>4632</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>465</u>
Total Depth <u>4668</u>	Drill Collar — 2.25 Ft. Run _____
Mud Wt. <u>9.4</u> lb/gal.	Viscosity <u>57</u> Filtrate <u>11.2</u>
Tool Open @ <u>7:26 PM</u>	Initial Blow <u>weak 'u' blow building to 3 1/2</u>
Final Blow <u>1 1/2" blow building to 5"</u>	

Recovery — Total Feet <u>45</u>	Feet of Gas in Pipe <u>150</u>	Flush Tool? _____
Rec. <u>45</u> Feet Of <u>gassy mud - tr. oil</u>	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of <u>good show of oil intd</u>	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	

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

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud <u>2426</u>	PSI AK1 Recorder No. <u>22150</u>	Range <u>3925</u>
(B) First Initial Flow Pressure <u>30</u>	PSI @ (depth) <u>4635</u>	w/Clock No. <u>26199</u>
(C) First Final Flow Pressure <u>37</u>	PSI AK1 Recorder No. <u>24174</u>	Range <u>3050</u>
(D) Initial Shut-In Pressure <u>111</u>	PSI @ (depth) <u>4667</u>	w/Clock No. <u>27573</u>
(E) Second Initial Flow Pressure <u>44</u>	PSI AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>52</u>	PSI @ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>111</u>	PSI Initial Opening <u>30</u>	Test <u>600.0</u>
(H) Final Hydrostatic Mud <u>2395</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.

Approved By Steve Frankamp

Our Representative Paul Simpson

Safety Joint _____
Straddle _____
Circ. Sub _____
Sampler _____
Extra Packer _____
Other _____

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name DITGES #1 Test No. 2 Date 1/30/93
Company A.L. ABERCROMBIE, INC Zone CHEROKEE
Address 150 N MAIN SWT #801 WICHITA KS 67202-1383 Elevation 2274
Co. Rep./Geo. STEVE FRANKAMP Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay 4
Location: Sec. 25 Twp. 25S Rge. 21W Co. FORD State KS

Interval Tested <u>4667-4698</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>31</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>434</u>
Top Packer Depth <u>4662</u>	Drill Collar - 2.25 Ft. Run <u> </u>
Bottom Packer Depth <u>4667</u>	Mud Wt. <u>9.4</u> lb/Gal.
Total Depth <u>4698</u>	Viscosity <u>46</u> Filtrate <u>13.6</u>

Tool Open @ 11:01 AM Initial Blow STRONG BLOW - BOTTOM OF BUCKET IN 30 SECONDS

Final Blow STRONG-GAUGING GAS-STRONG BLOW BACK ON SHUT IN

Recovery - Total Feet 2405 Flush Tool? NO

Rec. <u> </u>	Feet of <u>GAS TO SURFACE</u>
Rec. <u>1925</u>	Feet of <u>CLEAN GASSY OIL-30%GAS/70%OIL</u>
Rec. <u>480</u>	Feet of <u>GASSY SILTY OIL CUT MUD-10%GAS/10%OIL/80%MUD</u>
Rec. <u> </u>	Feet of <u> </u>
Rec. <u> </u>	Feet of <u> </u>

BHT 120 °F Gravity °API @ °F Corrected Gravity 39 °API
RW @ °F Chlorides ppm Recovery Chlorides ppm System

(A) Initial Hydrostatic Mud 2460.7 PSI AK1 Recorder No. 22150 Range 3925

(B) First Initial Flow Pressure 256.5 PSI @ (depth) 4670 w / Clock No. 26199

(C) First Final Flow Pressure 376.9 PSI AK1 Recorder No. 24174 Range 3050

(D) Initial Shut-in Pressure 544.9 PSI @ (depth) 4697 w / Clock No. 27573

(E) Second Initial Flow Pressure 472.2 PSI AK1 Recorder No. Range

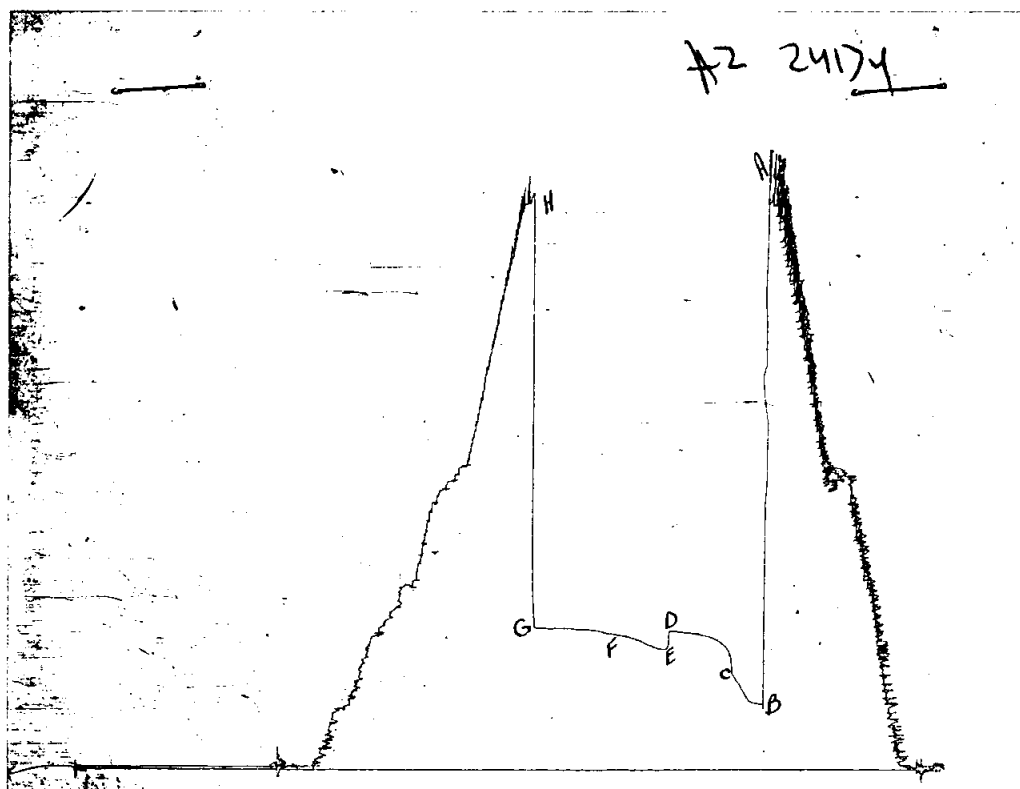
(F) Second Final Flow Pressure 535.8 PSI @ (depth) w / Clock No.

(G) Final Shut-in Pressure 555.6 PSI Initial Opening 30 Final Flow 45

(H) Final Hydrostatic Mud 2297.3 PSI Initial Shut-in 45 Final Shut-in 60

Our Representative PAUL SIMPSON

CHART PAGE



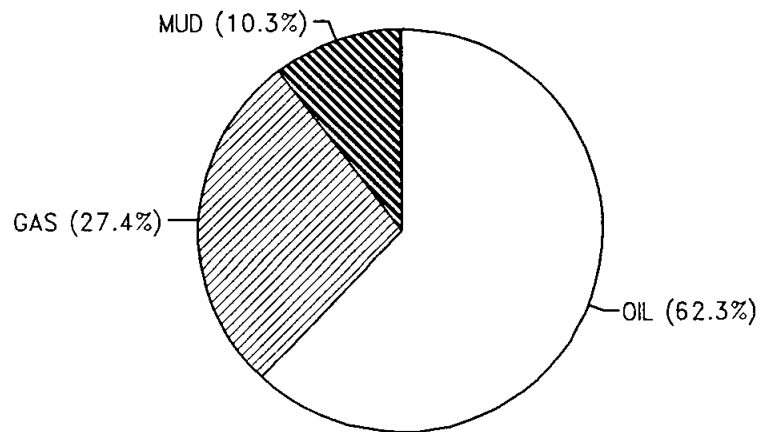
This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2458	2460.7
(B) FIRST INITIAL FLOW PRESSURE	255	256.5
(C) FIRST FINAL FLOW PRESSURE	369	376.9
(D) INITIAL CLOSED-IN PRESSURE	553	544.9
(E) SECOND INITIAL FLOW PRESSURE	476	472.2
(F) SECOND FINAL FLOW PRESSURE	537	535.8
(G) FINAL CLOSED-IN PRESSURE	553	555.6
(H) FINAL HYDROSTATIC MUD	2292	2297.3

CALCULATED RECOVERY ANALYSIS

DST #	2			TICKET #			5843		
SAMPLE	TOTAL	GAS		OIL		WATER		MUD	
#	FEET	%	FEET	%	FEET	%	FEET	%	FEET
DRILL 1	1925	30	577.5	70	1347.5	0	0	0	0
PIPE 2	46	10	4.6	10	4.6	0	0	80	36.8
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	434	10	43.4	10	43.4	0	0	80	347.2
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
DRILL 1			0		0		0		0
COLLAR 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	2405		625.5		1395.5		0		384

			HRS OPEN	BBL/DAY
BBL OIL=	19.530662	*	1.25	374.98871
BBL WATER=	0	*		0
BBL MUD=	3.231456			
BBL GAS =	8.581262			



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

A.L. ABERCROMBIE, INC DITGES #1

DST 2

25 25S 21W FORD KS

ELEVATION:	2274 KB	EST. PAY	4 FT
DATUM:	-21901	ZONE TESTED:	CHEROKEE
TEST INTERVAL:	4667-4698	TIME INTERVALS:	30-45-45-60
RECORDER DEPTH:	24174	VISCOSITY:	3.721 CP
BOTTOM HOLE TEMP:	120	HOLE SIZE:	7.875 IN

CUBIC FEET OF GAS IN PIPE:	302.08		
TOTAL FEET OF RECOVERY:	2405.00	CORRECTED PIPE FILLUP:	1492.479
TOTAL BARRELS OF RECOVERY:	31.07	CORR. BARRELS OF RECOVERY:	18.083 BBL
BARRELS IN DRILL PIPE:	28.03	API GRAVITY:	39
BARRELS IN WEIGHT PIPE:	3.04	FLUID GRADIENT:	0.359
BARRELS IN DRILL COLLARS:	0.00		
GAS OIL RATIO:	9.7240	CU.FT/BBL	
BUBBLE POINT PRESSURE:	75.171		
UNCORRECTED INITIAL PRODUCTION:			596.46 BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			347.19 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			94.176

INITIAL SLOPE	129.14 PSI/CYCLE	FINAL SLOPE	3.11 PSI/CYCLE
INITIAL P*	572 PSI	FINAL P*	557 PSI

TRANSMISSIBILITY	18149.93 (MD.-FT./CP.)
PERMEABILITY	16882.96 (MD.)
INDICATED FLOW CAPACITY	67531.82 (MD.FT)
PRODUCTIVITY INDEX	20.51 (BARRELS/DAY/PSI)
DAMAGE RATIO	1.23
RADIUS OF INVESTIGATION	1125.27 (FT,)
POTENTIOMETRIC SURFACE	-20609.02 (FT.)
DRAWDOWN FACTOR	2.698 (%)
THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE	426.83
THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE	115.78

INITIAL FLOW

RECORDER # 24174

DST # 2

TIME(MIN)	PRESSURE	<> PRESSURE
-----	-----	-----
0	256.5	256.5
3	255	-1.5
6	258	3
9	261.1	3.1
12	273.2	12.1
15	301.4	28.2
18	328.8	27.4
21	352.4	23.6
24	376.9	24.5

FINAL FLOW

RECORDER # 24174

DST # 2

TIME(MIN)	PRESSURE	<> PRESSURE
-----	-----	-----
0	472.3	472.3
3	472.3	0
6	472.3	0
9	480.7	8.4
12	486.1	5.4
15	492.2	6.1
18	500.6	8.4
21	508.3	7.7
24	512.8	4.5
27	519	6.2
30	523.6	4.6
33	527.4	3.8
36	529.7	2.3
39	532	2.3
42	533.5	1.5
45	535.8	2.3

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

A.L. ABERCROMBIE, INC DITGES #1

DST 2

25

25S

21W

FORD KS

ELEVATION:	2274	KB	EST. PAY	4	FT
DATUM:	-2424		ZONE TESTED:	CHEROKEE	
TEST INTERVAL:	4667-4698		TIME INTERVALS:	30-45-45-60	
RECORDER DEPTH:	4697		VISCOSITY:	3.776	CP
BOTTOM HOLE TEMP:	120		HOLE SIZE:	7.875	IN

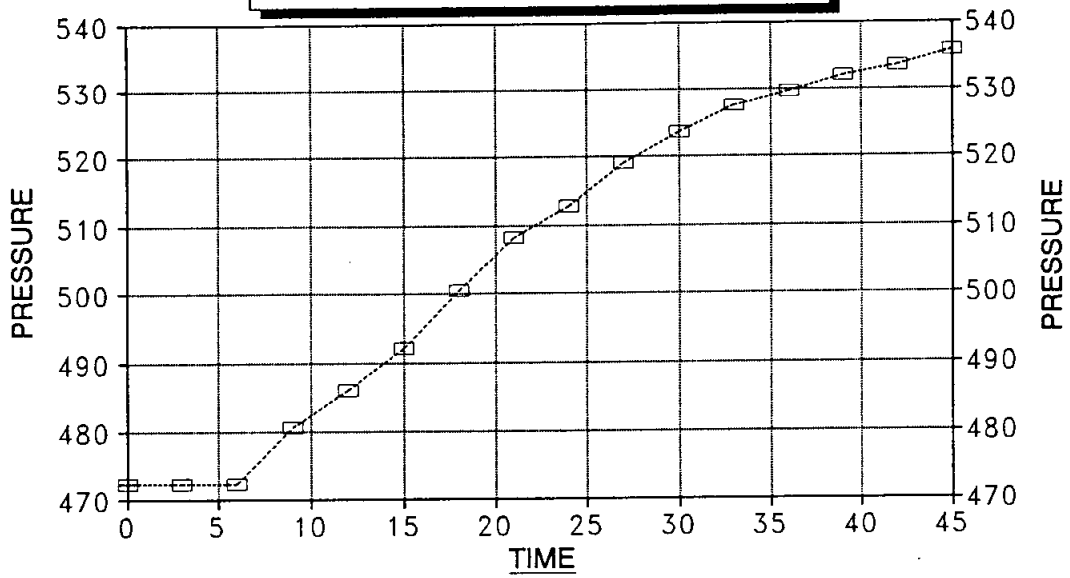
CUBIC FEET OF GAS IN PIPE:	263.02			
TOTAL FEET OF RECOVERY:	2405.00	CORRECTED PIPE FILLUP:	1492.479	
TOTAL BARRELS OF RECOVERY:	31.07	CORR. BARRELS OF RECOVERY:	18.083	BBL
BARRELS IN DRILL PIPE:	28.03	API GRAVITY:	39	
BARRELS IN WEIGHT PIPE:	3.04	FLUID GRADIENT:	0.359	
BARRELS IN DRILL COLLARS:	0.00			
GAS OIL RATIO:	8.4666	CU.FT/BBL		
BUBBLE POINT PRESSURE:	66.894			
UNCORRECTED INITIAL PRODUCTION:			596.46	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			347.19	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			94.176	

INITIAL SLOPE	129.14	PSI/CYCLE	FINAL SLOPE	3.11	PSI/CYCLE
INITIAL P*	572	PSI	FINAL P*	557	PSI

TRANSMISSIBILITY	18152.07	(MD.-FT./CP.)
PERMEABILITY	17134.30	(MD.)
INDICATED FLOW CAPACITY	68537.20	(MD.FT)
PRODUCTIVITY INDEX	20.51	(BARRELS/DAY/PSI)
DAMAGE RATIO	1.25	
RADIUS OF INVESTIGATION	1133.61	(FT,)
POTENTIOMETRIC SURFACE	-1131.32	(FT.)
DRAWDOWN FACTOR	2.622	(%)
THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE	433.10	
THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE	117.48	

DELTA T DELTA P

FINAL FLOW - DST #2



---□--- DITGES #1

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

94.176

DITGES #1
INITIAL

DST #2
SHUTIN

30 TOTAL FLOW TIME

Slope 129.14 psi/cycle
P * 572 psi

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

3	466.2	1.041	466.2	11
6	486.1	0.778	19.9	6
9	499.1	0.637	13.0	4
12	508.3	0.544	9.2	4
15	516.7	0.477	8.4	3
18	521.3	0.426	4.6	3
21	525.9	0.385	4.6	2
24	529.7	0.352	3.8	2
27	532.7	0.325	3.0	2
30	535.0	0.301	2.3	2
33	537.3	0.281	2.3	2
36	538.8	0.263	1.5	2
39	540.4	0.248	1.6	2
X 42	541.9	0.234	1.5	2
45	543.4	0.222	1.5	2
X 48	544.9	0.211	1.5	2

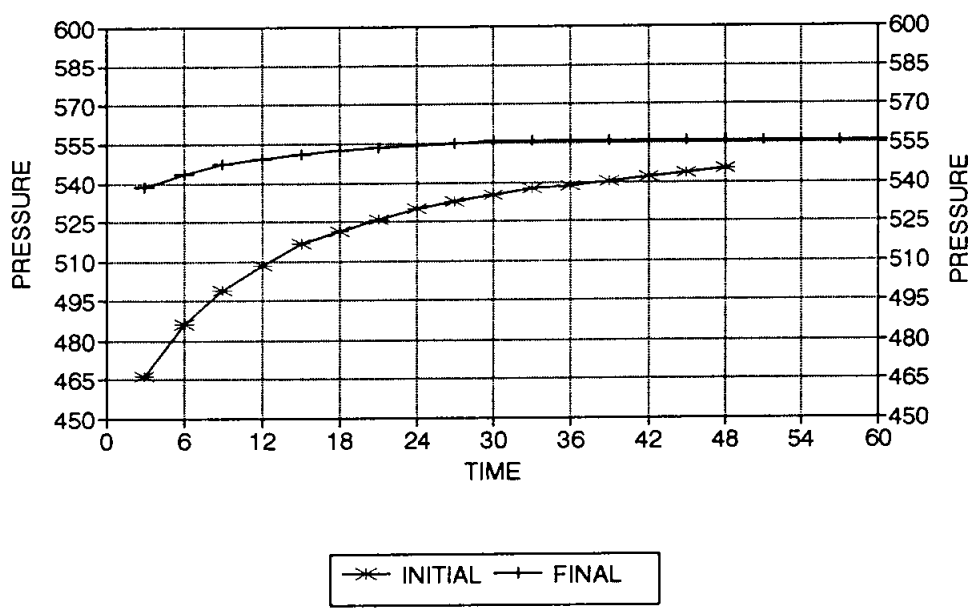
DITGES #1
FINAL

DST #2
SHUTIN
75 TOTAL FLOW TIME

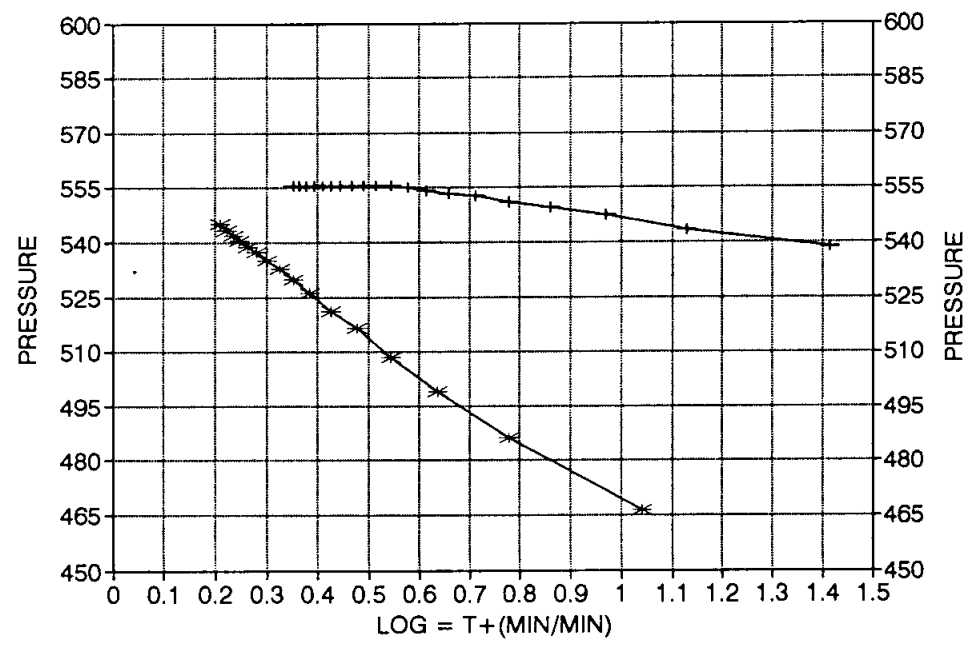
Slope 3.11 psi/cycle
P * 557 psi

		Pws (psi)	Log Horn T	<> PRESSURE	Horn T
		-----	-----	-----	-----
	3	538.8	1.415	538.8	26
	6	543.4	1.130	4.6	14
	9	547.2	0.970	3.8	9
	12	549.5	0.860	2.3	7
	15	551.1	0.778	1.6	6
	18	552.6	0.713	1.5	5
	21	553.3	0.660	0.7	5
	24	554.1	0.615	0.8	4
X	27	554.9	0.577	0.8	4
	30	555.6	0.544	0.7	4
	33	555.6	0.515	0.0	3
	36	555.6	0.489	0.0	3
	39	555.6	0.466	0.0	3
	42	555.6	0.445	0.0	3
	45	555.6	0.426	0.0	3
	48	555.6	0.409	0.0	3
	51	555.6	0.393	0.0	2
	54	555.6	0.378	0.0	2
	57	555.6	0.365	0.0	2
X	60	555.6	0.352	0.0	2

DITGES #1 / DST #2 DELTA T DELTA P



HORNER PLOT



GAS VOLUME REPORT

A.L. ABERCROMBIE, INC

DITGES #1

DST # 2

MIN	INCHES OF WATER	ORIFICE	MCF/D	MIN	PSIG	ORIFICE	MCF/D
10	40	0.25	10.6				
15	24	0.25	8.2				
20	14	0.25	6.3				
30	12	0.25	5.8				
40	10	0.25	5.3				
45	9	0.25	5.05				

Remarks: GAS TO SURFACE 25 MINUTES INITIAL FLOW - GAS BURNS



GAS VOLUME REPORT

OPERATOR

WELL NAME AND NO.

DST NO.

F.F.

Remarks:

6 TS 25 min I.f. - gas burns

Abene

WELL NAME Ditges #1 DST # 2 RECORDER # 22150-227

INIT. HYD. MUD. 2460.7 FINAL HYD. MUD 2297.3

INITIAL FLOW MINUTES <u>30</u> INTERVAL	INITIAL SHUTIN MINUTES <u>45</u> INTERVAL	FINAL FLOW MINUTES <u>45</u> INTERVAL	FINAL SHUTIN MINUTES <u>60</u> INTERVAL
.342 256.5		1 .625 472.3	
.340	.617	2 .625	.712
.344	.643	3 .629	.716
.348	.660	4 .636	.723
.364	.672	5 .643	.726
.401	.683	6 .651	.728
.437	.689	7 .662	.730
.468	.695	8 .672	.734
500 376.9	700	9 .678	.732
.647	704	10 .686	.733
.648	707	11 .692	.734
.648	710	12 .697	
	712	13 .700	
	712	14 .703	
	714	15 .705	
	716	16 X .708 535.8	
X 718	720 544.9	17	
		18	.734/ 555.6
		19	
		20	
		21	
		22	
		23	
		24	
		25	
		26	
		27	

SSD

1	0.617	466.2754
2	0.643	486.1341
3	0.66	499.1278
4	0.672	508.3043
5	0.683	516.7192
6	0.689	521.3104
7	0.695	525.9025
8	0.7	529.73
9	0.704	532.7829
10	0.707	535.0727
11	0.71	537.3627
12	0.712	538.8895
13	0.714	540.4163
14	0.716	541.9433
15	0.718	543.4703
16	0.72	544.9973

FSD

1	0.712	538.8895
2	0.718	543.4703
3	0.723	547.288
4	0.726	549.5789
5	0.728	551.1063
6	0.73	552.6337
7	0.731	553.3975
8	0.732	554.1612
9	0.733	554.925
10	0.734	555.6888



#2

IF

1	0.342	256.5795
2	0.34	255.0612
3	0.344	258.0979
4	0.348	261.1355
5	0.364	273.2941
6	0.401	301.4602
7	0.437	328.8559
8	0.468	352.4905
9	0.5	376.93

FF

1	0.625	472.3839
2	0.625	472.3839
3	0.629	475.4388
4	0.6369	481.4734 480.7
5	0.643	486.1341
6	0.651	492.2479
7	0.662	500.657
8	0.672	508.3043
9	0.678	512.8938
10	0.686	519.0147
11	0.692	523.6063
12	0.697	527.4334
13	0.7	529.73
14	0.703	532.0196
15	0.705	533.5461
16	0.708	535.836

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5843

Well Name & No. <u>Diggs #1</u>	Test No. <u>2</u>	Date <u>1-30-93</u>
Company <u>Abercrombie Drilling Inc</u>	Zone Tested <u>Cherokee</u>	
Address _____	Elevation <u>2274 KB</u>	
Co. Rep./Geo. <u>Steve Frankamp</u>	Cont. <u>Abercrombie #8</u>	Est. Ft. of Pay <u>4</u>
Location: Sec. <u>25</u> Twp. <u>25S</u> Rge. <u>21W</u>	Co. <u>Ford</u>	State <u>KS</u>
No. of Copies _____	Distribution Sheet _____	Yes _____ No _____ Turnkey _____ Yes _____ No <u>y</u> Evaluation

Interval Tested <u>4667-4698</u>	Drill Pipe Size <u>4 1/2 XH</u>
Anchor Length <u>31</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>4662</u>	Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
Bottom Packer Depth <u>4667</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>434</u>
Total Depth <u>4698</u>	Drill Collar — 2.25 Ft. Run _____
Mud Wt. <u>9.54</u> lb/gal.	Viscosity <u>46</u> Filtrate <u>13.5</u>
Tool Open @ <u>1:01 AM</u>	Initial Blow <u>strong blow - bottom of bucket in</u>
Final Blow <u>30 seconds</u>	<u>strong guaging gas - (strong blow back on both skidings)</u>

Recovery — Total Feet <u>2405</u>	Feet of Gas In Pipe <u>6-TS</u>	Flush Tool? _____
Rec. <u>1925</u> Feet Of <u>cl gas oil</u>	30 % gas 70 % oil	% water _____ % mud _____
Rec. <u>450</u> Feet Of <u>gassy sand</u>	10 % gas 10 % oil	% water <u>80</u> % mud _____
Rec. _____ Feet Of _____	% gas _____ % oil _____	% water _____ % mud _____
Rec. _____ Feet Of _____	% gas _____ % oil _____	% water _____ % mud _____
Rec. _____ Feet Of _____	% gas _____ % oil _____	% water _____ % mud _____

BHT 120 °F Gravity _____ °API @ _____ °F Corrected Gravity 37 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud <u>2458</u>	PSI AK1 Recorder No. <u>22150</u>	Range <u>3925</u>
(B) First Initial Flow Pressure <u>255</u>	PSI @ (depth) <u>4670</u>	w/Clock No. <u>26199</u>
(C) First Final Flow Pressure <u>369</u>	PSI AK1 Recorder No. <u>24174</u>	Range <u>3050</u>
(D) Initial Shut-In Pressure <u>553</u>	PSI @ (depth) <u>4697</u>	w/Clock No. <u>27573</u>
(E) Second Initial Flow Pressure <u>476</u>	PSI AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>537</u>	PSI @ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>553</u>	PSI Initial Opening <u>30</u>	Test _____
(H) Final Hydrostatic Mud <u>2292</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.

Approved By Steve Frankamp

Our Representative Paul Simpson

Final Flow 45 Safety Joint _____
 Final Shut-In 60 Straddle _____
 Circ. Sub _____
 Sampler _____
 Extra Packer _____
 Other _____
 TOTAL PRICE \$ _____

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name DITGES #1 Test No. 3 Date 1/31/93
Company A.L. ABERCROMBIE, INC Zone MISS
Address 150 N MAIN SWT #801 WICHITA KS 67202-1383 Elevation 2274
Co. Rep./Geo. STEVE FRANKAMP Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay 7
Location: Sec. 25 Twp. 25S Rge. 21W Co. FORD State KS

Interval Tested 4720-4737 Drill Pipe Size 4.5" XH
Anchor Length 17 Wt. Pipe I.D. - 2.7 Ft. Run 434
Top Packer Depth 4715 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4720 Mud Wt. 9.1 lb/Gal.
Total Depth 4737 Viscosity 55 Filtrate 12

Tool Open @ 4:52 AM Initial Blow 1.5" BLOW BUILDING TO BOTTOM OF BUCKET IN 3 MINUTES
BLOW BACK BUILT TO BOTTOM OF BUCKET IN 7 MINUTES
Final Blow 3" BLOW BUILDING TO BOTTOM OF BUCKET IN 4 MINUTES

Recovery - Total Feet 1494 Flush Tool? NO

Rec. 2206 Feet of GAS IN PIPE
Rec. 1314 Feet of CLEAN GASSY OIL-15%GAS/85%OIL
Rec. 180 Feet of SLTLY OIL CUT MUD-10%OIL/90%MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 124 °F Gravity 36 °API @ 65 °F Corrected Gravity 36 °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud 2506.3 PSI AK1 Recorder No. 22150 Range 3925

(B) First Initial Flow Pressure 84.6 PSI @ (depth) 4722 w / Clock No. 27567

(C) First Final Flow Pressure 195.9 PSI AK1 Recorder No. 24174 Range 3050

(D) Initial Shut-in Pressure 1341.0 PSI @ (depth) 4736 w / Clock No. 27573

(E) Second Initial Flow Pressure 273.2 PSI AK1 Recorder No. _____ Range _____

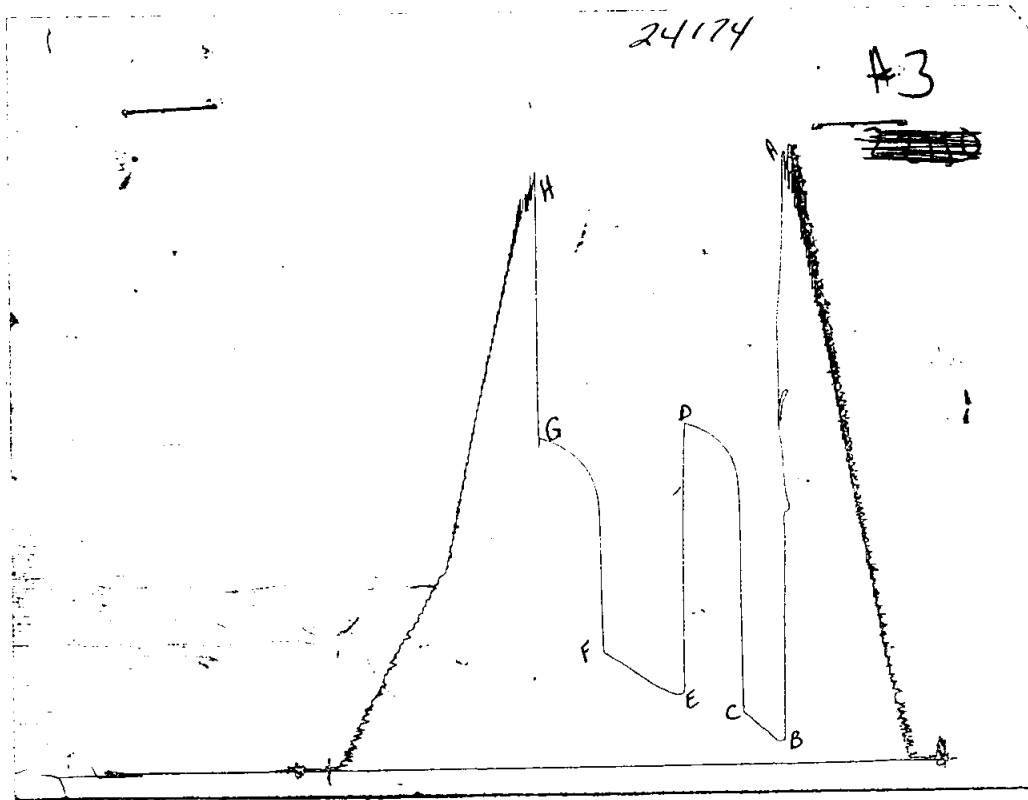
(F) Second Final Flow Pressure 444.8 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1293.5 PSI Initial Opening 30 Final Flow 6.0

(H) Final Hydrostatic Mud 2472.9 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative PAUL SIMPSON

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2502	2506.3
(B) FIRST INITIAL FLOW PRESSURE	48	84.6
(C) FIRST FINAL FLOW PRESSURE	192	195.9
(D) INITIAL CLOSED-IN PRESSURE	1342	1341
(E) SECOND INITIAL FLOW PRESSURE	239	273.2
(F) SECOND FINAL FLOW PRESSURE	431	444.8
(G) FINAL CLOSED-IN PRESSURE	1294	1293.5
(H) FINAL HYDROSTATIC MUD	2474	2472.9

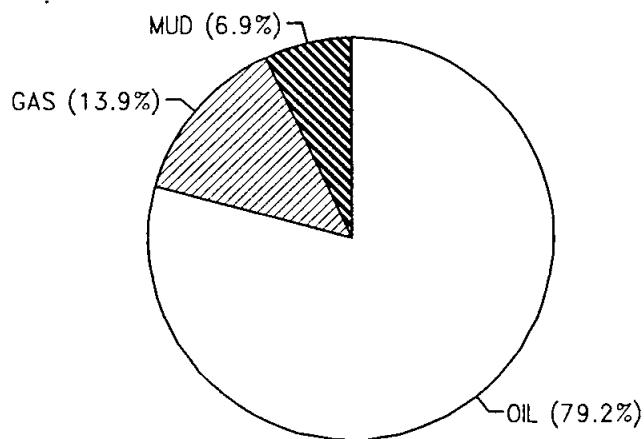
CALCULATED RECOVERY ANALYSIS

DST # 3 TICKET # 5844

SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	WATER %	FEET	MUD %	FEET
DRILL 1	1060	15	159	85	901	0	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	254	15	38.1	85	215.9	0	0	0	0
PIPE 2	180	0	0	10	18	0	0	90	162
3			0		0		0		0
4			0		0		0		0
DRILL 1			0		0		0		0
COLLAR 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	1494		197.1		1134.9		0		162

BBL OIL= 14.44952 *
 BBL WATER= 0 *
 BBL MUD= 1.2636
 BBL GAS = 2.52768

HRS OPEN 1.5
 BBL/DAY 231.19232



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

A.L. ABERCROMBIE, INC DITGES #1

DST 3

25 25S 21W FORD KS

ELEVATION:	2274	KB	EST. PAY	7	FT
DATUM:	-2463		ZONE TESTED:	MISS	
TEST INTERVAL:	4720-4737		TIME INTERVALS:	30-45-60-45	
RECORDER DEPTH:	4736		VISCOSITY:	5.879	CP
BOTTOM HOLE TEMP:	124		HOLE SIZE:	7.875	IN

CUBIC FEET OF GAS IN PIPE:	176.13			
TOTAL FEET OF RECOVERY:	1494.00	CORRECTED PIPE FILLUP:	1215.301	
TOTAL BARRELS OF RECOVERY:	18.11	CORR. BARRELS OF RECOVERY:	14.144	BBL
BARRELS IN DRILL PIPE:	15.07	API GRAVITY:	36	
BARRELS IN WEIGHT PIPE:	3.04	FLUID GRADIENT:	0.366	
BARRELS IN DRILL COLLARS:	0.00			
GAS OIL RATIO:	9.7247	CU.FT/BBL		
BUBBLE POINT PRESSURE:	84.138			
UNCORRECTED INITIAL PRODUCTION:			289.78	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			226.30	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			191.384	

INITIAL SLOPE	291.13	PSI/CYCLE	FINAL SLOPE	203.15	PSI/CYCLE
INITIAL P*	1413	PSI	FINAL P*	1390	PSI

TRANSMISSIBILITY	181.13	(MD.-FT./CP.)
PERMEABILITY	152.13	(MD.)
INDICATED FLOW CAPACITY	1064.94	(MD.FT)
PRODUCTIVITY INDEX	0.20	(BARRELS/DAY/PSI)
DAMAGE RATIO	0.85	
RADIUS OF INVESTIGATION	117.01	(FT.)
POTENTIOMETRIC SURFACE	762.40	(FT.)
DRAWDOWN FACTOR	1.607	(%)

INITIAL FLOW

RECORDER # 24174

DST # 3

TIME(MIN)	PRESSURE	<> PRESSURE
-----	-----	-----
0	84.6	84.6
3	83.1	-1.5
6	83.9	0.8
9	92.1	8.2
12	110.1	18
15	123.6	13.5
18	137.1	13.5
21	151.4	14.3
24	165.7	14.3
27	177.8	12.1
30	195.9	18.1

FINAL FLOW

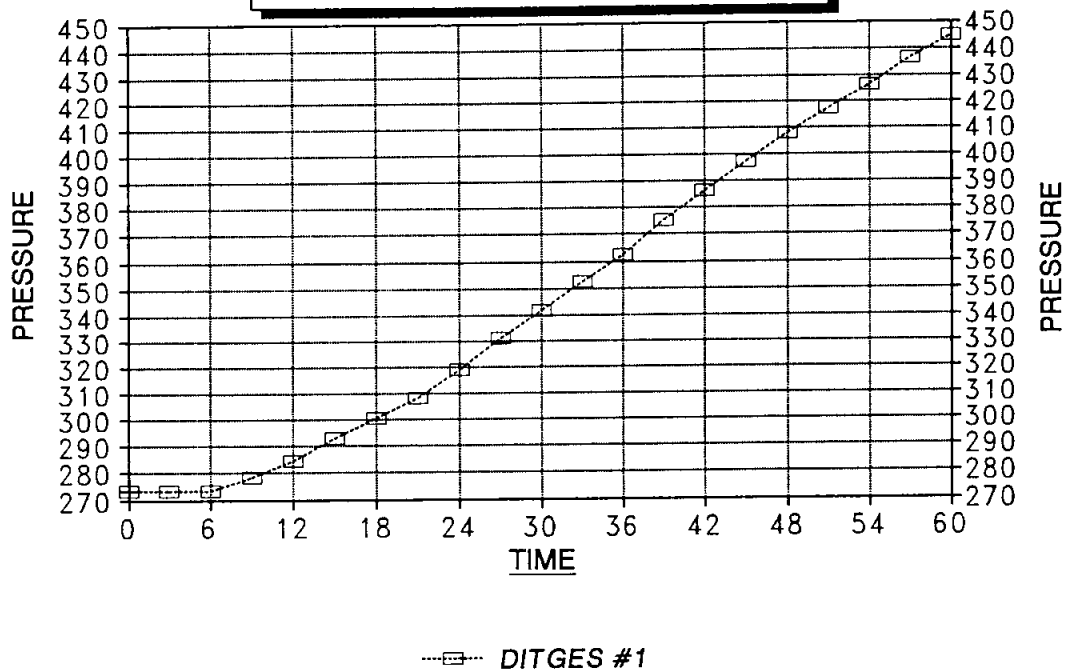
RECORDER # 24174

DST # 3

TIME(MIN)	PRESSURE	<> PRESSURE
-----	-----	-----
0	273.2	273.2
3	273.2	0
6	273.2	0
9	278.6	5.4
12	284.7	6.1
15	293	8.3
18	300.7	7.7
21	308.3	7.6
24	318.9	10.6
27	331.1	12.2
30	341.8	10.7
33	352.4	10.6
36	362.4	10
39	375.4	13
42	386.8	11.4
45	397.5	10.7
48	408.2	10.7
51	417.3	9.1
54	426.5	9.2
57	436.4	9.9
60	444.8	8.4

DELTA T DELTA P

FINAL FLOW - DST #3



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

191.384

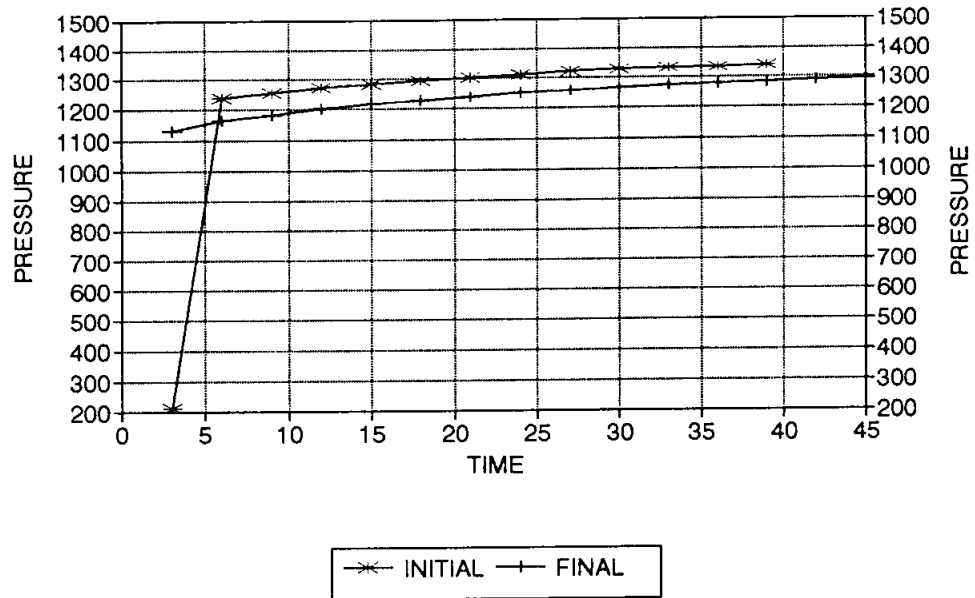
DITGES #1
INITIAL

		DST #3			
		SHUTIN			
30	TOTAL FLOW TIME		Slope	291.13	psi/cycle
			P *	1413	psi
			Log	<>	
	TIME(MIN)	Pws (psi)	Horn T	PRESSURE	Horn T
	-----	-----	-----	-----	-----
	3	211.8	1.041	211.8	11
	6	1240.0	0.778	1028.2	6
	9	1257.3	0.637	17.3	4
	12	1272.4	0.544	15.1	4
	15	1284.5	0.477	12.1	3
	18	1295.0	0.426	10.5	3
	21	1305.6	0.385	10.6	2
	24	1312.4	0.352	6.8	2
	27	1320.6	0.325	8.2	2
	30	1326.7	0.301	6.1	2
	33	1332.0	0.281	5.3	2
X	36	1336.5	0.263	4.5	2
X	39	1341.0	0.248	4.5	2

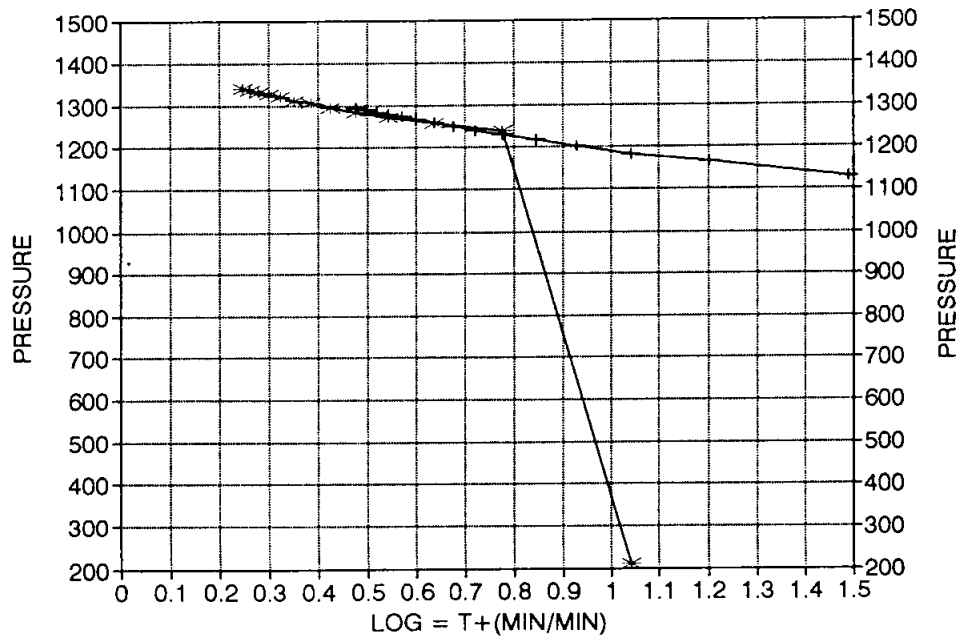
DITGES #1
FINAL

		DST #3			
		SHUTIN			
90	TOTAL FLOW TIME		Slope	203.15	psi/cycle
			P *	1390	psi
			Log	<>	
		Pws (psi)	Horn T	PRESSURE	Horn T
		-----	-----	-----	-----
	3	1129.9	1.491	1129.9	31
	6	1165.3	1.204	35.4	16
	9	1184.2	1.041	18.9	11
	12	1203.0	0.929	18.8	9
	15	1217.4	0.845	14.4	7
	18	1229.4	0.778	12.0	6
	21	1240.0	0.723	10.6	5
	24	1250.5	0.677	10.5	5
	27	1258.8	0.637	8.3	4
	30	1266.4	0.602	7.6	4
	33	1274.7	0.571	8.3	4
X	36	1279.9	0.544	5.2	4
	39	1284.5	0.520	4.6	3
	42	1290.5	0.497	6.0	3
X	45	1293.5	0.477	3.0	3

DITGES #1 / DST #3 DELTA T DELTA P



HORNER PLOT



WELL NAME Ditge? DST # 3 RECORDER # 24174
INIT. HYD. MUD. 2506.3 FINAL HYD. MUD 2472.9

INITIAL FLOW MINUTES <u>30</u> INTERVAL	INITIAL SHUTIN MINUTES <u>45</u> INTERVAL	FINAL FLOW MINUTES <u>60</u> INTERVAL	FINAL SHUTIN MINUTES <u>45</u> INTERVAL
<u>.114</u> <u>84.6</u>	<u>.283</u>	1 <u>.364</u> <u>273.2</u>	<u>—</u>
<u>.112</u>	<u>.283</u>	2 <u>"</u>	<u>1.490</u>
<u>.113</u>	<u>1.636</u>	3 <u>"</u>	<u>1.537</u>
<u>.124</u>	<u>1.636</u>	4 <u>.371</u>	<u>1.562</u>
<u>.148</u>	<u>1.659</u>	5 <u>.379</u>	<u>1.587</u>
<u>.166</u>	<u>1.679</u>	6 <u>.390</u>	<u>1.606</u>
<u>.184</u>	<u>1.695</u>	7 <u>.400</u>	<u>1.622</u>
<u>.203</u>	<u>1.709</u>	8 <u>.410</u>	<u>1.636</u>
<u>.222</u>	<u>1.723</u>	9 <u>.424</u>	<u>1.650</u>
<u>.238</u>	<u>1.732</u>	10 <u>.440</u>	<u>1.661</u>
<u>.262</u> <u>195.9</u>	<u>1.743</u>	11 <u>.454</u>	<u>1.671</u>
	<u>1.751</u>	12 <u>.468</u>	<u>1.682</u>
	<u>1.758</u>	13 <u>.481</u>	<u>1.689</u>
	<u>1.764</u>	14 <u>.498</u>	<u>1.695</u>
	<u>1.770</u> <u>1341.0</u>	15 <u>.513</u>	<u>1.703</u>
		16 <u>.527</u>	<u>1.707</u> <u>1293.5</u>
		17 <u>.541</u>	
		18 <u>.553</u>	
		19 <u>.565</u>	
		20 <u>.578</u>	
		21 <u>.589</u> <u>444.8</u>	
		22	
		23	
		24	
		25	
		26	
		27	

تدر

1	0.283	211.8516
2	1.636	1240.033
3	1.659	1257.37
4	1.679	1272.444
5	1.695	1284.502
6	1.709	1295.057
7	1.723	1305.614
8	1.732	1312.4
9	1.743	1320.693
10	1.751	1326.724
11	1.758	1332.001
12	1.764	1336.525
13	1.77	1341.048

F59

1	1.49	1129.912
2	1.537	1165.375
3	1.562	1184.232
4	1.587	1203.087
5	1.606	1217.414
6	1.622	1229.478
7	1.636	1240.033
8	1.65	1250.586
9	1.661	1258.878
10	1.671	1266.415
11	1.682	1274.705
12	1.689	1279.981
13	1.695	1284.502
14	1.703	1290.532
15	1.707	1293.549

Abene
DST #3

FF

1	0.114	84.67251
2	0.112	83.17837
3	0.113	83.9254
4	0.124	92.14787
5	0.148	110.1203
6	0.166	123.6226
7	0.184	137.1478
8	0.203	151.4472
9	0.222	165.7564
10	0.238	177.824
11	0.262	195.956

FF

1	0.364	273.2941
2	0.364	273.2941
3	0.364	273.2941
4	0.371	278.6177
5	0.379	284.705
6	0.39	293.0805
7	0.4	300.7
8	0.41	308.304
9	0.424	318.9567
10	0.44	331.1414
11	0.454	341.8118
12	0.468	352.4905
13	0.481	362.4138
14	0.498	375.4013
15	0.513	386.8396
16	0.527	397.5176
17	0.541	408.202
18	0.553	417.3652
19	0.565	426.5332
20	0.578	436.4705
21	0.589	444.8832

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5844

Well Name & No. <u>Ditges #1</u>	Test No. <u>3</u>	Date <u>1-31-93</u>
Company <u>Abercrombie Drig Inc</u>	Zone Tested <u>Miss</u>	
Address _____	Elevation <u>2274 KB</u>	
Co. Rep./Geo. <u>Steve Frankamp</u>	cont. <u>Abercrombie #8</u>	Est. Ft. of Pay <u>7</u>
Location: Sec. <u>25</u>	Twp. <u>25s</u>	Rge. <u>21w</u>
	Co. <u>Ford</u>	State <u>Ks</u>
No. of Copies _____	Distribution Sheet _____	Yes _____ No <u>✓</u> Evaluation _____

Interval Tested <u>4720-4737</u>	Drill Pipe Size <u>4 1/2 XH</u>
Anchor Length <u>17</u>	Top Choke — 1" Bottom Choke — 3/4"
Top Packer Depth <u>4715</u>	Hole Size — 77/8" Rubber Size — 63/4"
Bottom Packer Depth <u>4720</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>434</u>
Total Depth <u>4737</u>	Drill Collar — 2.25 Ft. Run _____
Mud Wt. <u>9.1</u> lb/gal.	Viscosity <u>55</u> Filtrate <u>12</u>
Tool Open @ <u>4:52 AM</u>	Initial Blow <u>1 1/2 blow building to bottom of bucket in 3 minutes</u>
	<u>(blow back built to bottom of bucket in 7 minutes)</u>
Final Blow <u>3" blow building to bottom of bucket in 4 minutes</u>	

Recovery — Total Feet <u>1494</u>	Feet of Gas in Pipe <u>2206</u>	Flush Tool? _____
Rec. <u>1314</u> Feet Of <u>cl gassy oil</u>	<u>15</u> %gas <u>85</u> %oil	%water _____ %mud _____
Rec. <u>180</u> Feet Of <u>solm</u>	%gas <u>10</u> %oil _____	%water <u>90</u> %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
BHT <u>124</u> °F Gravity <u>36</u>	°API @ <u>65</u>	°F Corrected Gravity <u>35.5</u> °API _____
RW _____ @ _____ °F Chlorides _____	ppm Recovery _____	Chlorides _____ ppm System _____
(A) Initial Hydrostatic Mud <u>2562</u>	PSI AK1 Recorder No. <u>22150</u>	Range <u>3925</u>
(B) First Initial Flow Pressure <u>48</u>	PSI @ (depth) <u>4722</u>	w/Clock No. <u>27867</u>
(C) First Final Flow Pressure <u>192</u>	PSI AK1 Recorder No. <u>24174</u>	Range <u>3050</u>
(D) Initial Shut-In Pressure <u>1342</u>	PSI @ (depth) <u>4736</u>	w/Clock No. <u>27573</u>
(E) Second Initial Flow Pressure <u>239</u>	PSI AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>431</u>	PSI @ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>1294</u>	PSI Initial Opening <u>30</u>	Test _____
(H) Final Hydrostatic Mud <u>2474</u>	PSI Initial Shut-In <u>45</u>	Jars _____

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Approved By Steve Frankamp
 Our Representative Paul Simpson

Printcraft Printers • Hays, KS

Safety Joint _____
 Straddle _____
 Circ. Sub _____
 Sampler _____
 Extra Packer _____
 Other _____
 TOTAL PRICE \$ _____