

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KOCH 'B' #1 Test No. 1 Date 6/9/93
Company ABERCROMBIE DRILLING INC Zone KC I&J
Address 801 UNION CNTR WICHITA KS 67202 Elevation 3118
Co. Rep./Geo. STEVE FRANKAMP Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay _____
Location: Sec. 9 Twp. 12S Rge. 33W Co. LOGAN State KS

Interval Tested <u>4253-4306</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>53</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>469</u>
Top Packer Depth <u>4248</u>	Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth <u>4253</u>	Mud Wt. <u>8.9</u> lb/Gal.
Total Depth <u>4306</u>	Viscosity <u>44</u> Filtrate <u>10.8</u>

Tool Open @ 8:47 AM Initial Blow SURFACE BLOW TO 9 1/2" IN 30 MINUTES

Final Blow GOOD BLOW OFF BOTTOM IN 35 MINUTES
1/2" BLOW ON FINAL SHUT-IN

Recovery - Total Feet 412 Flush Tool? NO

Rec. <u>80</u>	Feet of <u>GAS IN PIPE</u>
Rec. <u>40</u>	Feet of <u>CLEAN OIL</u>
Rec. <u>372</u>	Feet of <u>SLIGHTLY OIL MUD CUT WATER 2%OIL/78%WATER/20%MUD</u>
Rec. _____	Feet of _____
Rec. _____	Feet of _____

BHT 105 °F Gravity 39 °API 90 °F Corrected Gravity 36 °API
RW 0.19 °F Chlorides 34000 ppm Recovery Chlorides 3500 ppm System

(A) Initial Hydrostatic Mud 2012.2 PSI AK1 Recorder No. 13337 Range 3975

(B) First Initial Flow Pressure 54.9 PSI (depth) 4258 w / Clock No. 27566

(C) First Final Flow Pressure 105.8 PSI AK1 Recorder No. 10332 Range 4050

(D) Initial Shut-in Pressure 1298.4 PSI (depth) 4301 w / Clock No. 25826

(E) Second Initial Flow Pressure 113.8 PSI AK1 Recorder No. _____ Range _____

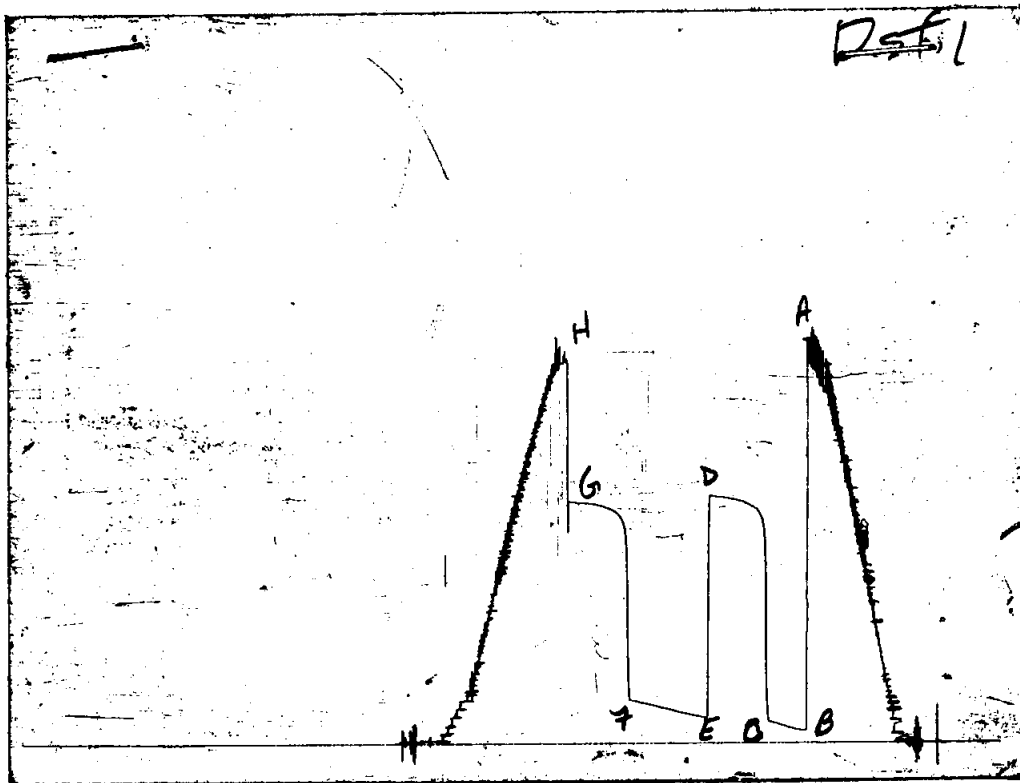
(F) Second Final Flow Pressure 195.7 PSI (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1245.4 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 1987.2 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative MARK HERSKOWITZ

CHART PAGE



This is an actual photograph of recorder chart

FIELD
READING

OFFICE
READING

(A) INITIAL HYDROSTATIC MUD	2002	2012.2
(B) FIRST INITIAL FLOW PRESSURE	49	54.9
(C) FIRST FINAL FLOW PRESSURE	98	105.8
(D) INITIAL CLOSED-IN PRESSURE	1284	1298.4
(E) SECOND INITIAL FLOW PRESSURE	108	113.8
(F) SECOND FINAL FLOW PRESSURE	187	195.7
(G) FINAL CLOSED-IN PRESSURE	1234	1245.4
(H) FINAL HYDROSTATIC MUD	1972	1987.2

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5391

Well Name & No. <u>Koch 13 1st</u>	Test No. <u>1</u>	Date <u>6-9-93</u>
Company <u>ABERCOMBIE DRILLING</u>	Zone Tested <u>NC I+J</u>	
Address <u>150 N Main St #801 Wichita</u>	Elevation <u>3118 X 13</u>	
Co. Rep./Geo. <u>STEVE FRANKAMP</u>	cont. <u>ALA Rig 8</u>	Est. Ft. of Pay _____
Location: Sec. <u>9</u> Twp. <u>12</u> Rge. <u>33W</u>	Co. <u>Logan</u>	State <u>KS</u>
No. of Copies _____	Distribution Sheet _____	Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested <u>4253 - 4306</u>	Drill Pipe Size <u>4 1/2 X 4</u>
Anchor Length <u>33</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>4248</u>	Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
Bottom Packer Depth <u>4253</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>469</u>
Total Depth <u>4306</u>	Drill Collar — 2.25 Ft. Run _____
Mud Wt. <u>8.9</u> LCM — _____ lb/gal.	Viscosity <u>44</u> Filtrate <u>10.8</u>
Tool Open @ <u>8:47 AM</u>	Initial Blow <u>SKRT 9 1/2" IN 30 MIN</u>

Final Blow Good Blow OFF Bottom 35 MIN
1/2" Blow ON Final Shut In

Recovery — Total Feet <u>412</u>	Feet of Gas in Pipe <u>80</u>	Flush Tool? _____
Rec. <u>40</u> Feet Of <u>C.O.I</u>	%gas <u>100</u> %oil _____ %water _____ %mud _____	
Rec. <u>372</u> Feet Of <u>SOMC WATER</u>	%gas <u>2</u> %oil <u>78</u> %water <u>20</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>105</u> °F Gravity <u>39</u> °API @ <u>90</u> °F Corrected Gravity <u>36</u> °API
RW <u>0.19</u> @ <u>75</u> °F Chlorides <u>3400</u> ppm Recovery Chlorides <u>35</u> ppm System
(A) Initial Hydrostatic Mud <u>2002</u> PSI Ak1 Recorder No. <u>13337</u> Range <u>3974</u>
(B) First Initial Flow Pressure <u>49</u> PSI @ (depth) <u>4258</u> w/Clock No. <u>27546</u>
(C) First Final Flow Pressure <u>98</u> PSI AK1 Recorder No. <u>10332</u> Range <u>4050</u>
(D) Initial Shut-In Pressure <u>1284</u> PSI @ (depth) <u>4301</u> w/Clock No. <u>25825</u>
(E) Second Initial Flow Pressure <u>108</u> PSI AK1 Recorder No. _____ Range _____
(F) Second Final Flow Pressure <u>187</u> PSI @ (depth) _____ w/Clock No. _____
(G) Final Shut-In Pressure <u>1234</u> PSI Initial Opening <u>30</u> Test <u>✓</u> <u>600</u>
(H) Final Hydrostatic Mud <u>1972</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>45</u>	Straddle _____
	Circ. Sub <u>✓ NC</u>
	Sampler _____
	Extra Packer _____
	Other <u>1000</u>

Approved By Steve Frankamp
 Our Representative Mark Henderson

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KOCH 'B' #1 Test No. 2 Date 6/9/93
Company ABERCROMBIE DRILLING INC Zone KC_K
Address 801 UNION CNTR WICHITA KS 67202 Elevation 3118
Co. Rep./Geo. STEVE FRANKAMP Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay _____
Location: Sec. 9 Twp. 12S Rge. 33W Co. LOGAN State KS

Interval Tested <u>4302-4326</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>24</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>469</u>
Top Packer Depth <u>4297</u>	Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth <u>4302</u>	Mud Wt. <u>8.9</u> lb/Gal.
Total Depth <u>4326</u>	Viscosity <u>44</u> Filtrate <u>11.2</u>

Tool Open 10:30 ^{Initial Blow} GOOD BLOW SURFACE BLOW TO 8" IN 30 MINUTES

Final Blow SURFACE BLOW TO 6 1/2" IN 60 MINUTES

Recovery - Total Feet 217 Flush Tool? NO

Rec. <u>217</u>	Feet of <u>MUD CUT WATER 90%WATER/10%MUD</u>
Rec. _____	Feet of <u>TRACE OF OIL IN RECOVERY</u>
Rec. _____	Feet of _____
Rec. _____	Feet of _____
Rec. _____	Feet of _____

BHT 113 °F Gravity _____ °API _____ °F Corrected Gravity _____ °API
RW 0.21 °F Chlorides 29000 ppm Recovery Chlorides 5000 ppm System

(A) Initial Hydrostatic Mud 2097.1 PSI AK1 Recorder No. 13337 Range 3975

(B) First Initial Flow Pressure 34.9 PSI (depth) 4304 w / Clock No. 27566

(C) First Final Flow Pressure 58.9 PSI AK1 Recorder No. 10332 Range 4050

(D) Initial Shut-in Pressure 1135.4 PSI (depth) 4321 w / Clock No. 25826

(E) Second Initial Flow Pressure 65.9 PSI AK1 Recorder No. _____ Range _____

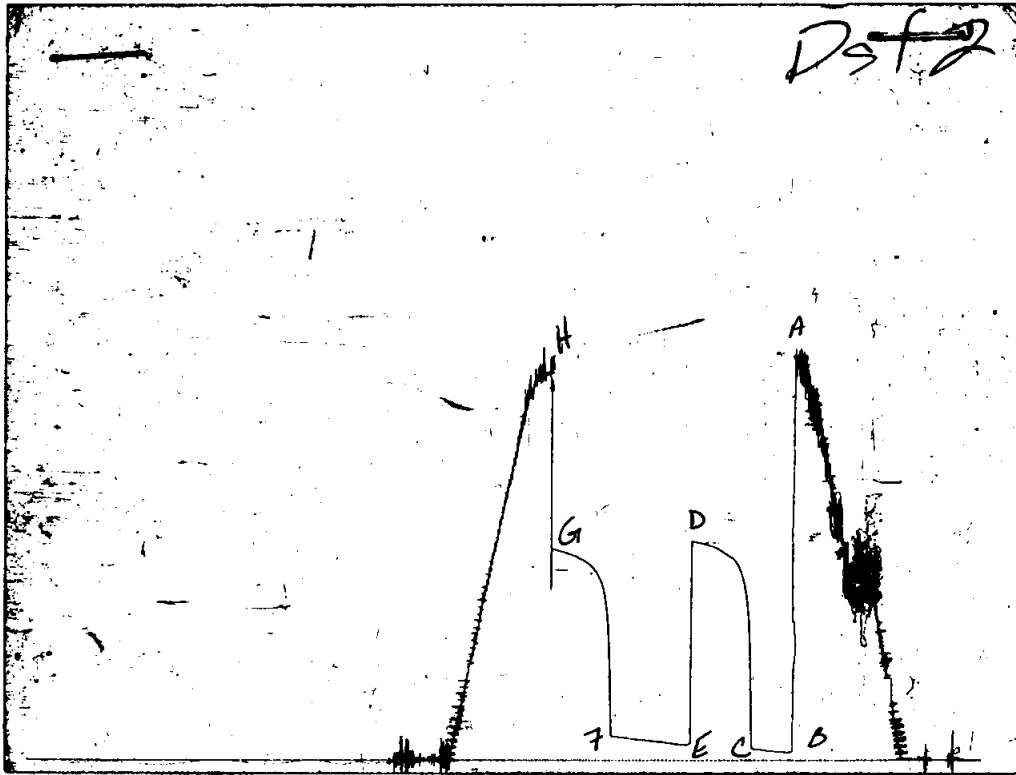
(F) Second Final Flow Pressure 106.8 PSI (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1089.4 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2054.1 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative MARK HERSKOWITZ

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2090	2097.1
(B) FIRST INITIAL FLOW PRESSURE	29	34.9
(C) FIRST FINAL FLOW PRESSURE	49	58.9
(D) INITIAL CLOSED-IN PRESSURE	1124	1135.4
(E) SECOND INITIAL FLOW PRESSURE	59	65.9
(F) SECOND FINAL FLOW PRESSURE	98	106.8
(G) FINAL CLOSED-IN PRESSURE	1084	1089.4
(H) FINAL HYDROSTATIC MUD	2041	2054.1

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5392

Well Name & No. <u>Rock B. 1 #</u>	Test No. <u>2</u>	Date <u>6-9-93</u>
Company <u>ABERCROMBIE DRILLING</u>	Zone Tested <u>KS</u>	<u>K</u>
Address <u>150 N MAIN ST #801 WICHITA</u>	Elevation <u>3118</u>	<u>KB</u>
Co. Rep./Geo. <u>STEVE FRANKAMP</u>	Cont. <u>A. H. A. Big 8</u>	Est. Ft. of Pay
Location: Sec. <u>9</u>	Twp. <u>12</u>	Rge. <u>33W</u>
Co. <u>Logan</u>	State <u>KS</u>	
No. of Copies	Distribution Sheet	Yes No Turnkey Yes No Evaluation

Interval Tested <u>4302 - 4326</u>	Drill Pipe Size <u>4 1/2 XH</u>
Anchor Length <u>24</u>	Top Choke — 1" Bottom Choke — 3/4"
Top Packer Depth <u>4397</u>	Hole Size — 77/8" Rubber Size — 63/4"
Bottom Packer Depth <u>4302</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>469</u>
Total Depth <u>4326</u>	Drill Collar — 2.25 Ft. Run
Mud Wt. <u>8.9</u> <u>LCM</u> — lb/gal.	Viscosity <u>44</u> Filtrate <u>11.2</u>
Tool Open @ <u>10:30 PM</u>	Initial Blow <u>Good Blow Sur to 8' IN 30 MIN</u>

Final Blow Sur to 6 1/2 IN 60 MIN

Recovery — Total Feet <u>217</u>	Feet of Gas in Pipe	Flush Tool? <u>—</u>
Rec. <u>217</u>	Feet Of <u>MUD C WATER</u>	%gas <u>TR</u> %oil <u>90</u> %water <u>10</u> %mud
Rec.	Feet Of	%gas %oil %water %mud
Rec.	Feet Of <u>TR OF OIL</u>	%gas %oil %water %mud
Rec.	Feet Of <u>IN RECOVERY</u>	%gas %oil %water %mud
Rec.	Feet Of	%gas %oil %water %mud

BHT <u>113</u>	°F Gravity	°API @	°F Corrected Gravity	°API
RW <u>0.21</u> @ <u>79</u>	°F Chlorides <u>2900</u>	ppm Recovery	Chlorides <u>5000</u>	ppm System
(A) Initial Hydrostatic Mud <u>2090</u>	PSI	AK1 Recorder No. <u>13387</u>	Range <u>3975</u>	
(B) First Initial Flow Pressure <u>29</u>	PSI	@ (depth) <u>4304</u>	w/Clock No. <u>27566</u>	
(C) First Final Flow Pressure <u>49</u>	PSI	AK1 Recorder No. <u>10332</u>	Range <u>4050</u>	
(D) Initial Shut-In Pressure <u>1124</u>	PSI	@ (depth) <u>4321</u>	w/Clock No. <u>25825</u>	
(E) Second Initial Flow Pressure <u>59</u>	PSI	AK1 Recorder No.	Range	
(F) Second Final Flow Pressure <u>98</u>	PSI	@ (depth)	w/Clock No.	
(G) Final Shut-In Pressure <u>1084</u>	PSI	Initial Opening <u>30</u>	Test <u>✓</u> <u>600</u>	
(H) Final Hydrostatic Mud <u>2041</u>	PSI	Initial Shut-In <u>45</u>	Jars	

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Final Flow <u>40</u>	Safety Joint
Final Shut-In <u>45</u>	Straddle
	Circ. Sub <u>✓ NC</u>
	Sampler
	Extra Packer
	Other

Approved By [Signature]
Our Representative [Signature]

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KOCH 'B' #1 Test No. 3 Date 6/11/93
Company ABERCROMBIE DRILLING INC Zone JOHNSON
Address 801 UNION CNTR WICHITA KS 67202 Elevation 3118
Co. Rep./Geo. STEVE FRANKAMP Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay _____
Location: Sec. 9 Twp. 12S Rge. 33W Co. LOGAN State KS

Interval Tested 4603-4644 Drill Pipe Size 4.5" XH
Anchor Length 41 Wt. Pipe I.D. - 2.7 Ft. Run 469
Top Packer Depth 4598 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4603 Mud Wt. 9.2 lb/Gal.
Total Depth 4644 Viscosity 50 Filtrate 10.4

Tool Open @ 10:30 AM Initial Blow SURFACE BLOW BUILT TO 6 1/2" IN 30 MINUTES

Final Blow GOOD BLOW - SURFACE TO BOTTOM OF BUCKET IN 45 MINUTES

Recovery - Total Feet 70 Flush Tool? NO

Rec. 365 Feet of GAS IN PIPE
Rec. 60 Feet of CLEAN GASSY OIL 1%GAS/99%OIL
Rec. 10 Feet of OIL CUT MUD 30%OIL/70%MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 118 °F Gravity 31 °API @ 80 °F Corrected Gravity 29 °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 6000 ppm System

(A) Initial Hydrostatic Mud 2375.9 PSI AK1 Recorder No. 13337 Range 3975

(B) First Initial Flow Pressure 47.5 PSI @ (depth) 4605 w / Clock No. 27566

(C) First Final Flow Pressure 51.6 PSI AK1 Recorder No. 10332 Range 4050

(D) Initial Shut-in Pressure 958.2 PSI @ (depth) 4639 w / Clock No. 25826

(E) Second Initial Flow Pressure 51.6 PSI AK1 Recorder No. _____ Range _____

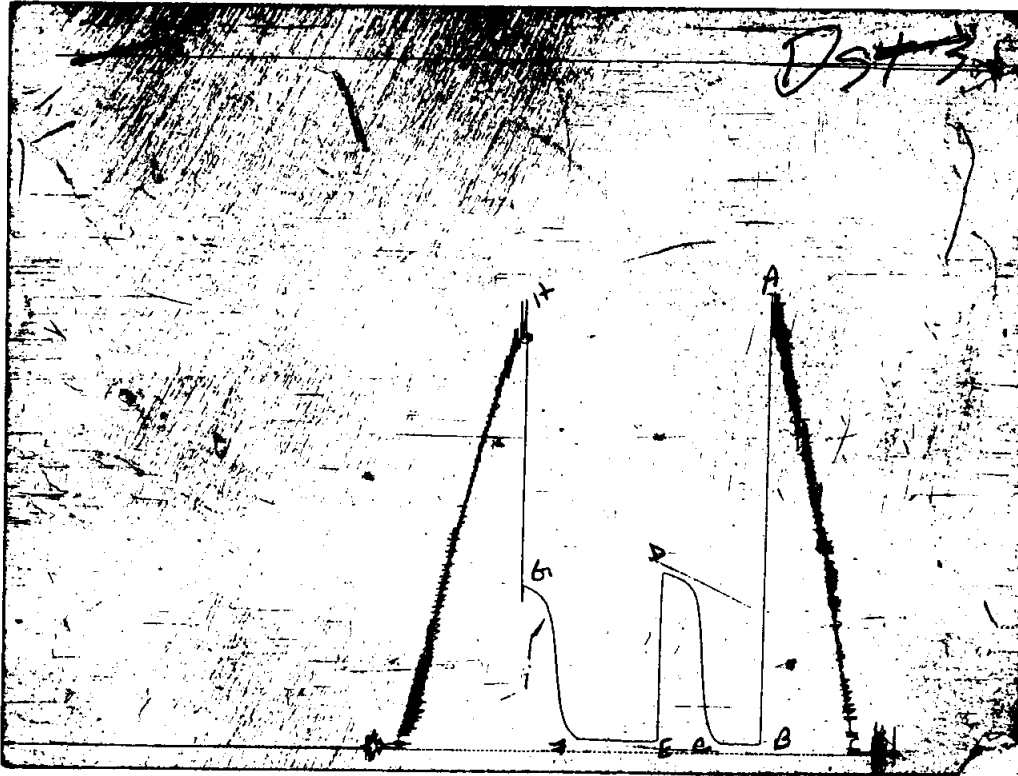
(F) Second Final Flow Pressure 70.8 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 873.9 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2325.9 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative MARK HERSKOWITZ

CHART PAGE



This is an actual photograph of recorder chart

FIELD
READING

OFFICE
READING

(A) INITIAL HYDROSTATIC MUD	2367	2375.9
(B) FIRST INITIAL FLOW PRESSURE	29	47.5
(C) FIRST FINAL FLOW PRESSURE	39	51.6
(D) INITIAL CLOSED-IN PRESSURE	926	958.2
(E) SECOND INITIAL FLOW PRESSURE	36	51.6
(F) SECOND FINAL FLOW PRESSURE	49	70.8
(G) FINAL CLOSED-IN PRESSURE	857	873.9
(H) FINAL HYDROSTATIC MUD	2318	2325.9

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

ABERCROMBIE DRILLING INC

KOCH 'B' #1

DST 3

9

12S

33W

LOGAN KS

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*****
ELEVATION:          3118 KB      EST. PAY          4 FT
DATUM:              -1522      ZONE TESTED:     JOHNSON .
TEST INTERVAL:      4603-4644    TIME INTERVALS:  30-45-60-45
RECORDER DEPTH:     4639      VISCOSITY:       9.87 CP
BOTTOM HOLE TEMP:   118      HOLE SIZE:       7.875 IN
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*****
CUBIC FEET OF GAS IN PIPE:      14
TOTAL FEET OF RECOVERY:        70.00 CORRECTED PIPE FILLUP:      184.375
TOTAL BARRELS OF RECOVERY:      0.49 CORR. BARRELS OF RECOVERY:    1.288 BBL
BARRELS IN DRILL PIPE:          0.00 API GRAVITY:                29
BARRELS IN WEIGHT PIPE:         0.49 FLUID GRADIENT:             0.384
BARRELS IN DRILL COLLARS:       0.00
GAS OIL RATIO:                 29.07 CU.FT/BBL
BUBBLE POINT PRESSURE:          207
UNCORRECTED INITIAL PRODUCTION:                                7.84 BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:            20.61 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:       11.550
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*****
INITIAL SLOPE          490.42 PSI/CYCL FINAL SLOPE          319.81 PSI/CYCLE
INITIAL P*            1067.00 PSI      FINAL P*            1032.95 PSI
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*****
TRANSMISSIBILITY                                10.48 (MD.-FT./CP.)
PERMEABILITY                                25.86 (MD.)
INDICATED FLOW CAPACITY                    103.43 (MD.FT)
PRODUCTIVITY INDEX                          0.01 (BARREL/DAY/PSI)
DAMAGE RATIO                              0.55
RADIUS OF INVESTIGATION                    48.24 (FT,)
POTENTIOMETRIC SURFACE                    874.41 (FT.)
DRAWDOWN FACTOR                          3.191 (%)
*****
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INITIAL FLOW

RECORDE 10332

DST # 3

TIME(MIN) PRESSURE <>PRESSURE

3	47.5	47.5
6	47.5	0.0
9	47.5	0.0
12	47.5	0.0
15	47.5	0.0
18	47.5	0.0
21	47.5	0.0
24	47.5	0.0
27	49.5	2.0
30	51.6	2.1

FINAL FLOW

RECORDE 10332

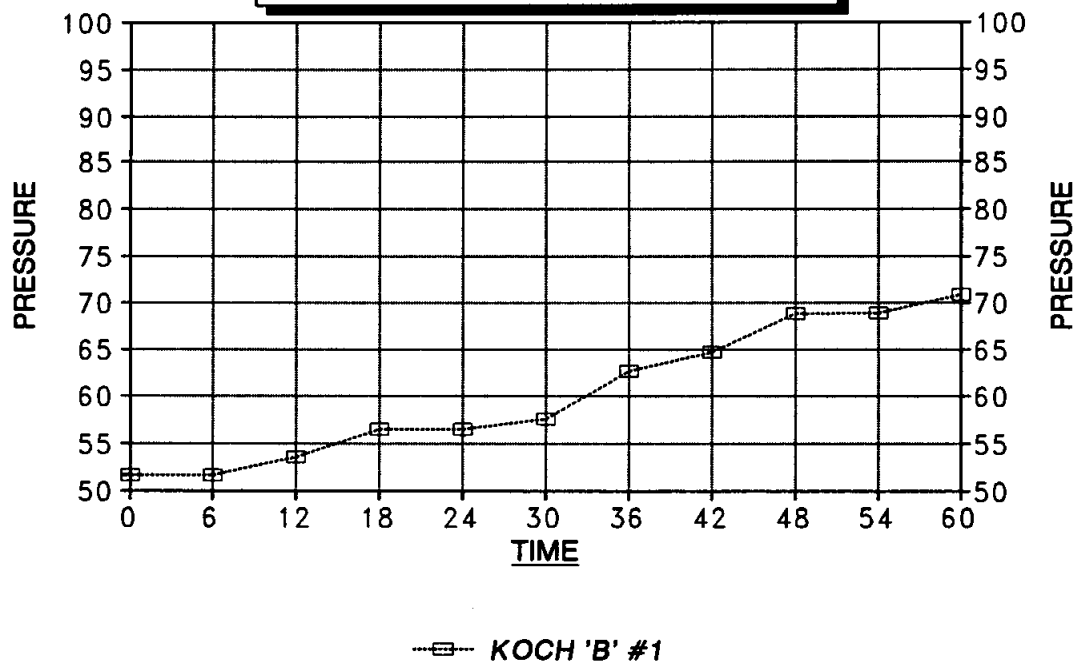
DST # 3

TIME(MIN) PRESSURE <> PRESSURE

0	51.6	51.6
6	51.6	0.0
12	53.6	2.0
18	56.6	3.0
24	56.6	0.0
30	57.6	1.0
36	62.7	5.1
42	64.7	2.0
48	68.8	4.1
54	68.9	0.1
60	70.8	1.9

DELTA T DELTA P

FINAL FLOW / DST #3



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

11.550

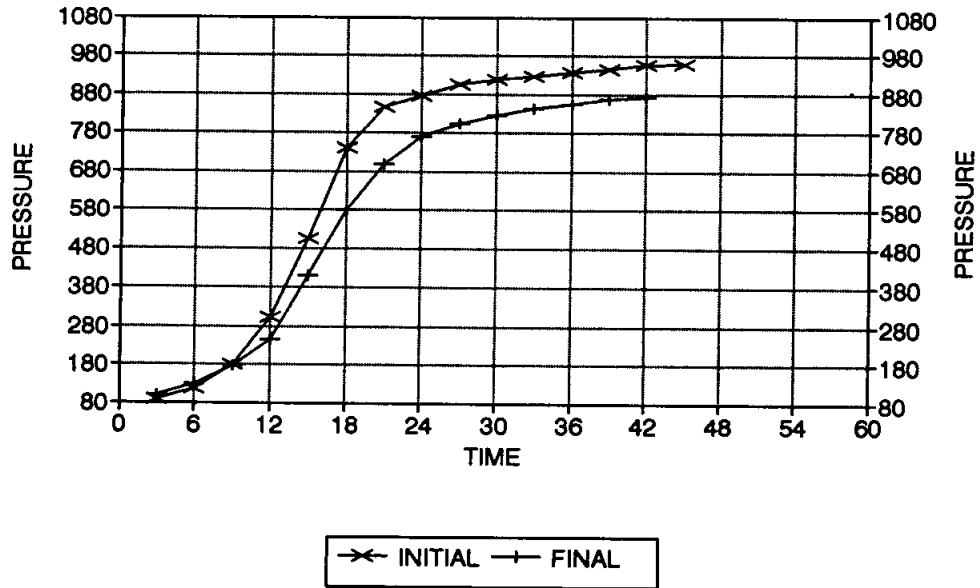
KOCH 'B' #1
INITIAL

		DST #3 SHUTIN			
30	INITIAL FLOW TIME		SLOPE	490.4	PSI/CYCLE
			P*	1067.00	PSI
			Log	<>	
	TIME(MIN)	Pws (psi)	Horn T	PRESSURE	Horn T
	3	88.1	1.041	88.1	11
	6	115.3	0.778	27.2	6
	9	181.1	0.637	65.8	4
	12	303.6	0.544	122.5	4
	15	506.1	0.477	202.5	3
	18	740.8	0.426	234.7	3
	21	846.5	0.385	105.7	2
	24	877.1	0.352	30.6	2
	27	905.4	0.325	28.3	2
	30	919.7	0.301	14.3	2
	33	927.8	0.281	8.1	2
X	36	937.9	0.263	10.1	2
	39	946.1	0.248	8.2	2
	42	956.2	0.234	10.1	2
X	45	958.2	0.222	2.0	2

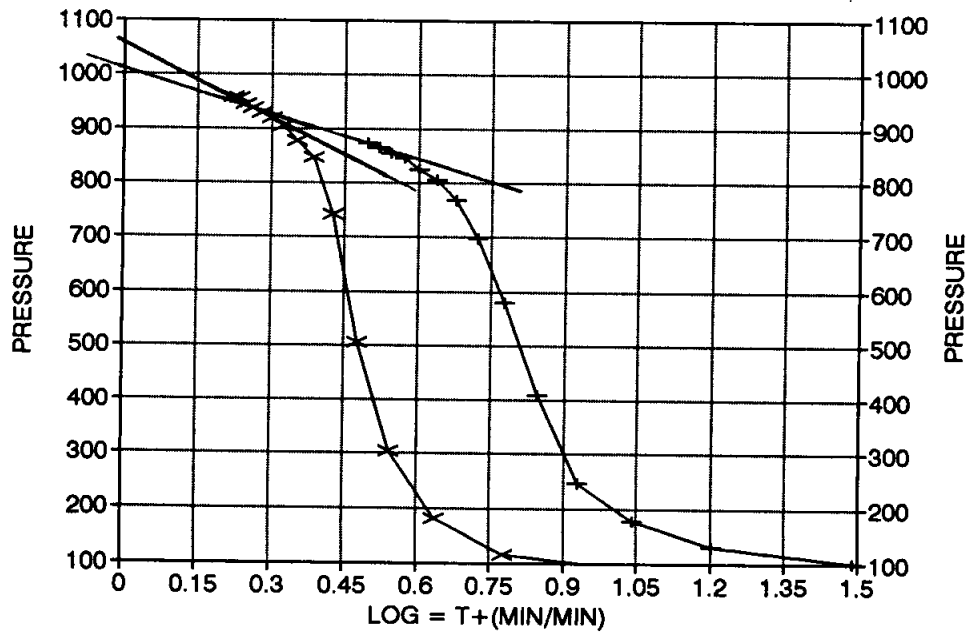
KOCH 'B' #1
FINAL

		DST #3 SHUTIN			
90	TOTAL FLOW TIME		SLOPE	319.8	PSI/CYCLE
			P*	1033.0	PSI
			Log	<>	
		Pws (psi)	Horn T	PRESSURE	Horn T
	3	100.2	1.491	100.2	31
	6	130.5	1.204	30.3	16
	9	177.1	1.041	46.6	11
	12	245.9	0.929	68.8	9
	15	409.9	0.845	164.0	7
	18	580.2	0.778	170.3	6
	21	698.1	0.723	117.9	5
	24	768.2	0.677	70.1	5
	27	804.8	0.637	36.6	4
	30	824.1	0.602	19.3	4
	33	844.5	0.571	20.4	4
	36	855.6	0.544	11.1	4
X	39	866.8	0.520	11.2	3
X	42	873.9	0.497	7.1	3

KOCH 'B' #1 / DST #3 DELTA T DELTA P

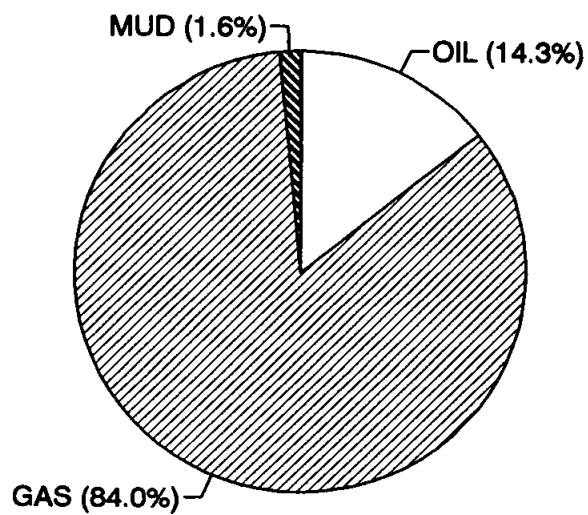


HORNER PLOT



CALCULATED RECOVERY ANALYSIS						WEIGHT PIPE			
DST #	3		TICKET #			5393			
SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	WATER %	FEET	MUD %	FEET
1	365	100	365		0		0		0
2	60	1	0.6	99	59.4		0		0
3	10		0	30	3		0	70	7
4			0		0		0		0
5			0		0		0		0
TOTAL	435	84.05	365.6	14.344828	62.4	0	0	1.6092	7

			HRS OPEN	BBL/DAY
BBL OIL=	0.4368	*	1.5	6.9888
BBL WATER=	0	*		0
BBL MUD=	0.049			
BBL GAS=	2.5592			



TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5393

Well Name & No. <u>Rock B 1st</u>	Test No. <u>3</u>	Date <u>6-11-93</u>
Company <u>ABERCROMBIE DRILLING</u>	Zone Tested <u>JOHNSON</u>	
Address <u>150 N MAIN ST E 800 W IOWA</u>	Elevation <u>3118</u>	<u>KB</u>
Co. Rep./Geo. <u>STEVE FRANKAMP</u>	Cont. <u>ALA. Rig 8</u>	Est. Ft. of Pay
Location: Sec. <u>9</u> Twp. <u>12</u> Rge. <u>33w</u>	Co. <u>LOGAN</u>	State <u>KS</u>
No. of Copies	Distribution Sheet	Yes No Turnkey Yes No Evaluation

Interval Tested <u>4603-4644</u>	Drill Pipe Size <u>4 1/2 XH</u>
Anchor Length <u>41</u>	Top Choke — 1" Bottom Choke — 3/4"
Top Packer Depth <u>4598</u>	Hole Size — 7 7/8" Rubber Size — 6 3/4"
Bottom Packer Depth <u>4603</u>	Wt. Pipe I.D. — 2.7 Ft. Run <u>469</u>
Total Depth <u>4644</u>	Drill Collar — 2.25 Ft. Run
Mud Wt. <u>9.2</u> <u>LCM</u> <u>0</u> lb/gal.	Viscosity <u>50</u> Filtrate <u>10.4</u>
Tool Open @ <u>10:30 AM</u>	Initial Blow <u>SUR to 6 1/2" IN 30 MIN</u>

Final Blow Good Blow SUR to Bottom in 45 MIN

Recovery — Total Feet <u>70</u>	Feet of Gas In Pipe <u>365</u>	Flush Tool? <u>—</u>
Rec. <u>60</u> Feet Of <u>C.G. Oil</u>	1 %gas <u>99</u> %oil	%water %mud
Rec. <u>10</u> Feet Of <u>Oil C Mud</u>	%gas <u>30</u> %oil	%water <u>70</u> %mud
Rec. Feet Of	%gas %oil	%water %mud
Rec. Feet Of	%gas %oil	%water %mud
Rec. Feet Of	%gas %oil	%water %mud

BHT 118 °F Gravity 31 °API @ 80 °F Corrected Gravity 29 °API

RW @ °F Chlorides ppm Recovery Chlorides 6000 ppm System

(A) Initial Hydrostatic Mud 2367 PSI AK1 Recorder No. 13337 Range 3975

(B) First Initial Flow Pressure 29 PSI @ (depth) 4605 w/Clock No. 27555

(C) First Final Flow Pressure 39 PSI AK1 Recorder No. 10332 Range 4050

(D) Initial Shut-In Pressure 926 PSI @ (depth) 4639 w/Clock No. 25825

(E) Second Initial Flow Pressure 34 PSI AK1 Recorder No. Range

(F) Second Final Flow Pressure 49 PSI @ (depth) w/Clock No.

(G) Final Shut-In Pressure 857 PSI Initial Opening 30 Test ✓ 600

(H) Final Hydrostatic Mud 2318 PSI Initial Shut-In 45 Jars

Final Flow 60 Safety Joint

Final Shut-In 45 Straddle

Circ. Sub ✓ NC

Sampler

Extra Packer

Other aval 50

Approved By Steve Frankamp

Our Representative Mark H. Hensley

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.

1	0.047	47.57411
2	0.049	49.59805
3	0.051	51.62203
4		0
5	0.051	51.62203
6	0.051	51.62203
7	0.053	53.64607
8	0.056	56.68208
9	0.056	56.68208
10	0.057	57.69407
11	0.062	62.75408
12	0.064	64.77813
13	0.068	68.8262
14	0.069	69.83821
15	0.07	70.85021

1	0.087	88.05716
2	0.114	115.3887
3	0.179	181.1736
4	0.3	303.64
5	0.5	506.1
6	0.731	740.8474
7	0.835	846.5407
8	0.865	877.0267
9	0.893	905.4848
10	0.907	919.705
11	0.915	927.8251
12	0.925	937.9754
13	0.933	946.0959
14	0.94	953.2014
15	0.945	958.2768
16		0
17	0.099	100.2074
18	0.129	130.5688
19	0.175	177.1248
20	0.243	245.9507
21	0.405	409.9218
22	0.573	580.2695
23	0.689	698.1659
24	0.758	768.2864
25	0.794	804.8801
26	0.813	824.1875
27	0.833	844.5085
28	0.844	855.686
29	0.855	866.8642
30	0.862	873.9779

WELL NAME Kach. DST # 3 RECORDER # 10332

INIT. HYD. MUD.			FINAL HYD. MUD		
INITIAL FLOW	INITIAL SHUTIN		FINAL FLOW	FINAL SHUTIN	
MINUTES <u>30</u>	MINUTES <u>45</u>		MINUTES <u>60</u>	MINUTES <u>45</u>	
INTERVAL	INTERVAL		INTERVAL <u>60</u>	INTERVAL	
<u>.047</u>	<u>—</u>		1 <u>.051</u>		
<u>.047</u>	<u>.087</u>		2 <u>.051</u>		<u>.099</u>
<u>.047</u>	<u>.114</u>		3 <u>.053</u>		<u>.129</u>
<u>.047</u>	<u>.179</u>		4 <u>.056</u>		<u>.175</u>
<u>.047</u>	<u>.300</u>		5 <u>.056</u>		<u>.243</u>
<u>.047</u>	<u>.500</u>		6 <u>.057</u>		<u>.405</u>
<u>.047</u>	<u>.731</u>		7 <u>.062</u>		<u>.573</u>
<u>.047</u>	<u>.835</u>		8 <u>.064</u>		<u>.689</u>
<u>.047</u>	<u>.865</u>		9 <u>.068</u>		<u>.758</u>
<u>.047</u>	<u>.893</u>		10 <u>.069</u>		<u>.794</u>
<u>.049</u>	<u>.907</u>		11 <u>.070</u>		<u>.813</u>
<u>.051</u>	<u>.915</u>		12		<u>.833</u>
	<u>.925</u>		13		<u>.844</u>
	<u>.933</u>		14		<u>.855</u>
	<u>.940</u>		15		<u>.862</u>
	<u>.945</u>	<u>958</u>	16		<u>873.9</u>
			17		
			18		
			19		
			20 <u>.064</u>		
			21		
			22		
			23		
			24		
			25		
			26		
			27		