

DRILL STEM TEST REPORT

Prepared For: **HK&W Oil Co**

PO Box 1851
Salina Ks 67402-1851

ATTN: Brad Hutchison

28-15S-12W Russell

Karlene #8

Start Date: 2004.01.18 @ 10:55:43

End Date: 2004.01.18 @ 16:58:12

Job Ticket #: 17590 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

HK&W Oil Co

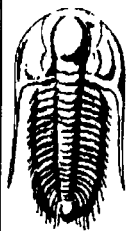
Karlene #8

28-15S-12W Russell

DST # 1

L-KC

2004.01.18



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

HK&W Oil Co

PO Box 1851
Salina Ks 67402-1851

ATTN: Brad Hutchison

Karlene #8

28-15S-12W Russell

Job Ticket: 17590

DST#: 1

Test Start: 2004.01.18 @ 10:55:43

GENERAL INFORMATION:

Formation: **L-KC**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:28:57

Time Test Ended: 16:58:12

Test Type: Conventional Bottom Hole

Tester: Jack Fox

Unit No: 19

Interval: **3058.00 ft (KB) To 3090.00 ft (KB) (TVD)**

Total Depth: 3090.00 ft (KB) (TVD)

Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 1781.00 ft (KB)

1776.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6672 Inside

Press@RunDepth: 18.85 psig @ 3059.01 ft (KB)

Start Date: 2004.01.18

End Date: 2004.01.18

Start Time: 10:55:43

End Time: 16:58:12

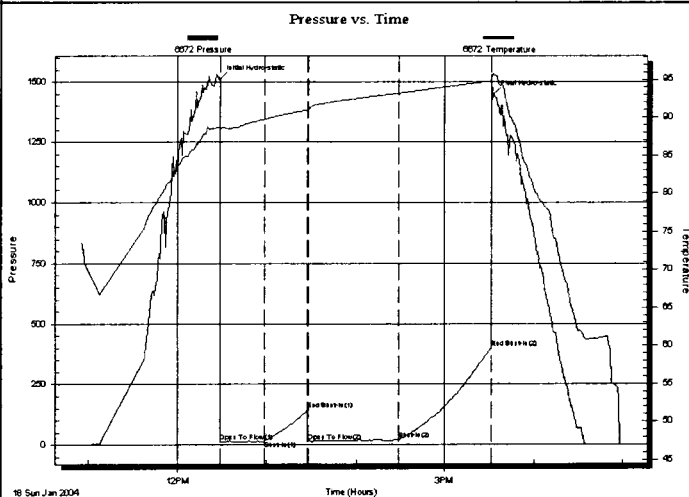
Capacity: 7000.00 psig

Last Calib.: 2002.12.03

Time On Btm: 2004.01.18 @ 12:28:42

Time Off Btm: 2004.01.18 @ 15:32:42

TEST COMMENT: IF Weak blow @ surface building to 7" below surface
FF Weak blow @ surface building to BOB in 28 mn



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1513.49	88.57	Initial Hydro-static
1	11.42	88.30	Open To Flow (1)
30	15.51	89.71	Shut-In(1)
59	142.18	90.95	End Shut-In(1)
59	13.15	90.92	Open To Flow (2)
120	18.85	93.19	Shut-In(2)
183	400.70	94.76	End Shut-In(2)
184	1450.25	95.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	260 GIP	0.00
20.00	Oil specked Mud	0.28

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
--	----------------	-----------------	------------------



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

HK&W Oil Co

Karlene #8

PO Box 1851
Salina Ks 67402-1851

28-15S-12W Russell

Job Ticket: 17590

DST#: 1

ATTN: Brad Hutchison

Test Start: 2004.01.18 @ 10:55:43

Tool Information

Drill Pipe:	Length:	3040.00 ft	Diameter:	3.80 inches	Volume:	42.64 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight to Pull Loose:	45000.00 lb
					<u>Total Volume:</u>	<u>42.64 bbl</u>	Tool Chased	3.00 ft
Drill Pipe Above KB:	1.00 ft						String Weight: Initial	35000.00 lb
Depth to Top Packer:	3058.00 ft						Final	36000.00 lb
Depth to Bottom Packer:	ft							
Interval between Packers:	32.02 ft							
Tool Length:	51.02 ft							
Number of Packers:	2	Diameter:	6.75 inches					
Tool Comments:								

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			3044.00	
Hydraulic tool	5.00			3049.00	
Packer	5.00			3054.00	19.00 Bottom Of Top Packer
Packer	4.00			3058.00	
Stubb	1.00			3059.00	
Recorder	0.01	6672	Inside	3059.01	
Perforations	28.00			3087.01	
Recorder	0.01	10991	Outside	3087.02	
Bullnose	3.00			3090.02	32.02 Bottom Packers & Anchor
Total Tool Length:	51.02				



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

HK&W Oil Co

Karlene #8

PO Box 1851
Salina Ks 67402-1851

28-15S-12W Russell

Job Ticket: 17590

DST#: 1

ATTN: Brad Hutchison

Test Start: 2004.01.18 @ 10:55:43

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbl

Water Loss: in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	260 GIP	0.000
20.00	Oil specked Mud	0.281

Total Length: 20.00 ft Total Volume: 0.281 bbl

Num Fluid Samples: 0

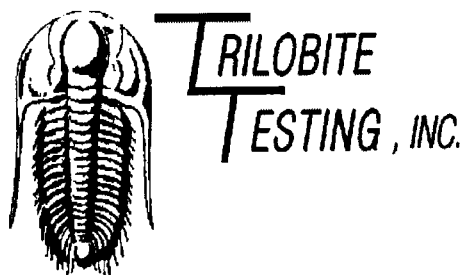
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



DRILL STEM TEST REPORT

Prepared For: **HK&W Oil Co**

PO Box 1851
Salina Ks 67402-1851

ATTN: Brad Hutchison

28-15S-12W Russell

Karlene #8

Start Date: 2004.01.19 @ 08:16:16

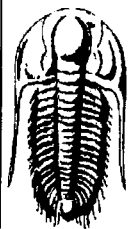
End Date: 2004.01.19 @ 15:14:01

Job Ticket #: 17591 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

HK&W Oil Co

PO Box 1851
Salina Ks 67402-1851

ATTN: Brad Hutchison

Karlene #8

28-15S-12W Russell

Job Ticket: 17591

DST#: 2

Test Start: 2004.01.19 @ 08:16:16

GENERAL INFORMATION:

Formation: **Arbuckel**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:10:01

Time Test Ended: 15:14:01

Test Type: Conventional Bottom Hole

Tester: Darren L. Amerine

Unit No: 19

Interval: **3194.00 ft (KB) To 3225.00 ft (KB) (TVD)**

Total Depth: 3225.00 ft (KB) (TVD)

Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 1781.00 ft (KB)

1776.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6625

Inside

Press@RunDepth: 422.59 psig @ 3196.00 ft (KB)

Start Date: 2004.01.19

End Date: 2004.01.19

Start Time: 08:16:21

End Time: 15:14:00

Capacity: 7000.00 psig

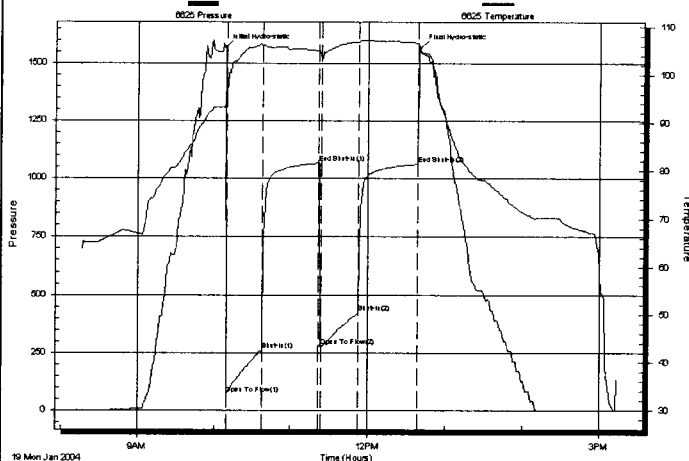
Last Calib.: 2004.01.19

Time On Btm: 2004.01.19 @ 10:08:31

Time Off Btm: 2004.01.19 @ 12:40:31

TEST COMMENT: IF: Strong blow b.o.b in 2-1/4 mins.
IS: Bled down for 5 mins. slight surface blow back 1/4" in H2O bucket.
FF: Fair blow built to b.o.b in 3 mins.
FS: Bled down for 2 mins. built back to weak surface b

Pressure vs. Time



PRESSURE SUMMARY

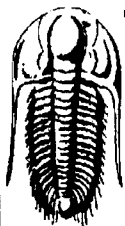
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1567.43	93.08	Initial Hydro-static
2	70.77	96.03	Open To Flow (1)
29	262.84	106.15	Shut-In (1)
74	1066.91	104.93	End Shut-In (1)
76	276.18	103.58	Open To Flow (2)
105	422.59	106.80	Shut-In (2)
151	1062.62	106.59	End Shut-In (2)
152	1563.72	104.84	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	120' gip	0.00
90.00	MCSW 10% mud 90% water	1.26
955.00	SMCGO 10% gas 5% mud 85% oil	13.40

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
--	----------------	-----------------	------------------



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

HK&W Oil Co

Karlene #8

PO Box 1851
Salina Ks 67402-1851

28-15S-12W Russell

Job Ticket: 17591

DST#: 2

ATTN: Brad Hutchison

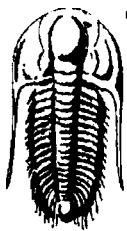
Test Start: 2004.01.19 @ 08:16:16

Tool Information

Drill Pipe:	Length: 3196.00 ft	Diameter: 3.80 inches	Volume: 44.83 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 44.83 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3194.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.00 ft			
Tool Length:	52.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3174.00	
Shut In Tool	5.00			3179.00	
Hydraulic tool	5.00			3184.00	
Packer	5.00			3189.00	21.00 Bottom Of Top Packer
Packer	5.00			3194.00	
Stubb	2.00			3196.00	
Recorder	0.00	6625	Inside	3196.00	
Anchor	26.00			3222.00	
Recorder	0.00	10991	Outside	3222.00	
Bullnose	3.00			3225.00	31.00 Bottom Packers & Anchor
Total Tool Length:	52.00				



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

HK&W Oil Co

Karlene #8

PO Box 1851
Salina Ks 67402-1851

28-15S-12W Russell

Job Ticket: 17591

DST#: 2

ATTN: Brad Hutchison

Test Start: 2004.01.19 @ 08:16:16

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity: 100000 ppm

Viscosity: 44.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: 1.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 0.32 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	120'gip	0.000
90.00	MCSW 10%mud 90%water	1.262
955.00	SMCGO 10%gas 5%mud 85%oil	13.396

Total Length: 1045.00 ft Total Volume: 14.658 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .13@70degrees=100000

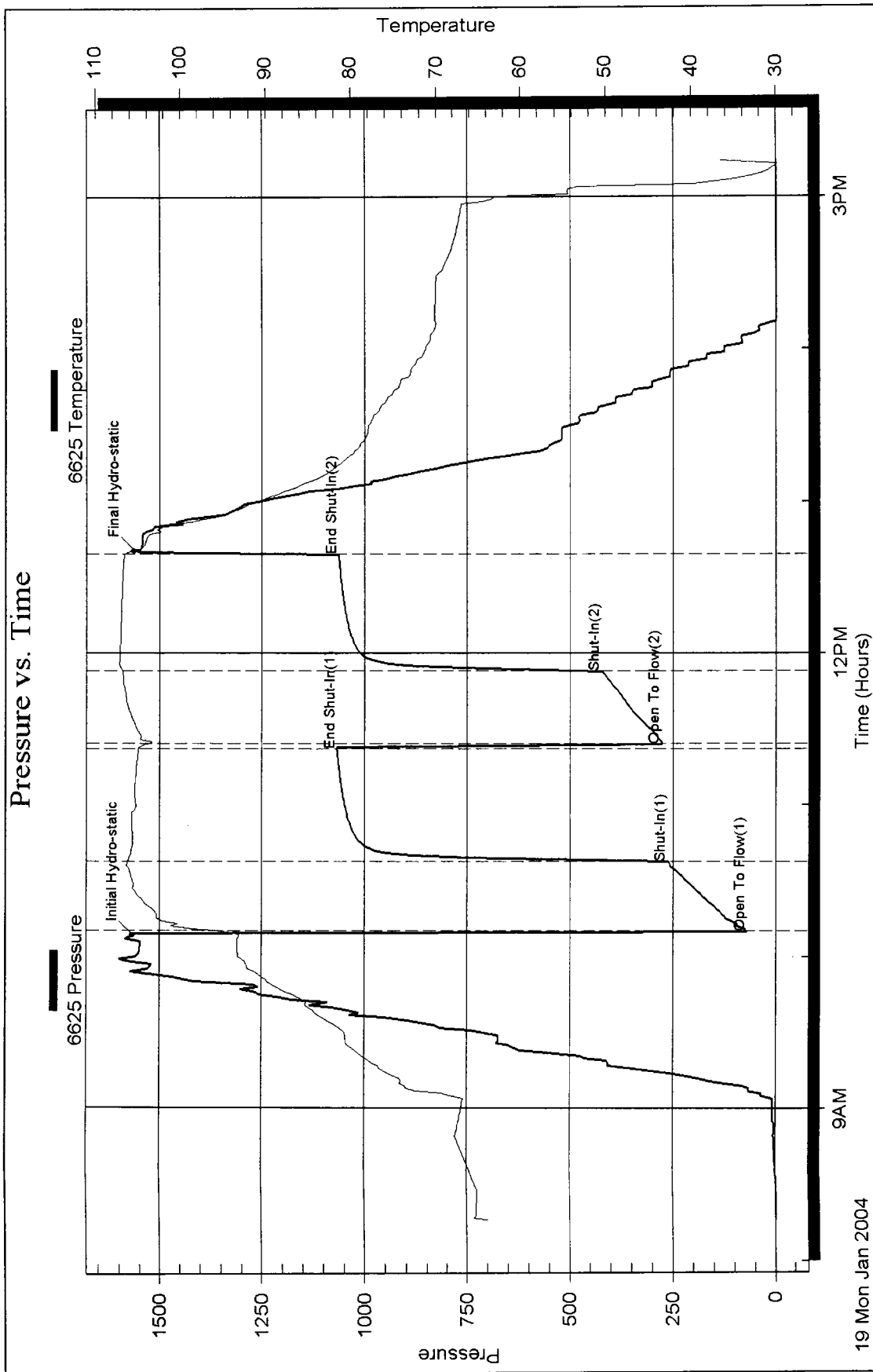
Serial #: 6625

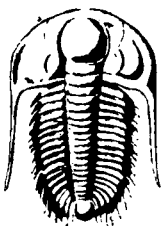
Inside

HK&W Oil Co

28-15S-12W Russell

DST Test Number: 2





TRILOBITE TESTING INC.

P.O. Box 362 • Hays, Kansas 67601

INV
6/2/12

No 17590

12/02

Test Ticket

Well Name & No. HAYES W Carlene ⁸	Test No. 1	Date 1-18-04
Company HKE W Oil Co	Zone Tested L-KC "H"	
Address PO Box 1851 Salina KS 67402-1851	Elevation 1781	KB 1776 GL
Co. Rep / Geo. Brand Hutchinson	Cont. Bonfeldt Dely	Est. Ft. of Pay _____ Por. _____ %
Location: Sec. 28 Twp. 15S Rge. 12W Co. Russell	State KS	
No. of Copies _____	Disbtribution Sheet (Y, N) _____	Turnkey (Y, N) _____ Evaluation (Y, N) _____

Interval Tested 3058 - 3090	Initial Str Wt./Lbs. 35,000	Unseated Str Wt./Lbs. 36,000
Anchor Length 32	Wt. Set Lbs. 25,000	Wt. Pulled Loose/Lbs. 45,000
Top Packer Depth 3053	Tool Weight 2000	
Bottom Packer Depth 3058	Hole Size 7 7/8"	Rubber Size 6 3/4"
Total Depth 3090	Wt. Pipe Run _____	Drill Collar Run _____
Mud Wt. 9.9 LCM Vis. 48 WL _____	Drill Pipe Size 4.5 x 14	Ft. Run 3040
Blow Description IF Weak blow @ surface building to 7" below surface FF Weak blow @ surface building to 30 B 28 MN		

Recovery - Total Feet _____	GIP 260	Ft. in DC _____	Ft. in DP 260
Rec. 20	Feet of oil speckled mud		
Rec. _____	Feet of _____		
Rec. _____	Feet of _____		
Rec. _____	Feet of _____		
Rec. _____	Feet of _____		
BHT 94	*F Gravity _____	*API D @ _____	*F Corrected Gravity _____ *API _____
RW _____ @ _____	*F Chlorides _____	ppm Recovery _____	Chlorides _____ ppm System _____

	AK-1	Alpine			
(A) Initial Hydrostatic Mud	1513	PSI	Recorder No. 6672	Test _____	
(B) First Initial Flow Pressure	11	PSI	(depth) 3059	Elec. Rec. _____	
(C) First Final Flow Pressure	15	PSI	Recorder No. 10941	Jars _____	
(D) Initial Shut-In Pressure	142	PSI	(depth) 3089	Safety Jt. _____	
(E) Second Initial Flow Pressure	13	PSI	Recorder No. _____	Circ Sub _____	
(F) Second Final Flow Pressure	18	PSI	(depth) _____	Sampler _____	
(G) Final Shut-In Pressure	400	PSI	Initial Opening 30	Straddle _____	
(Q) Final Hydrostatic Mud	1450	PSI	Initial Shut-In 30	Ext. Packer _____	

TRILOBITE TESTING INC. 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.

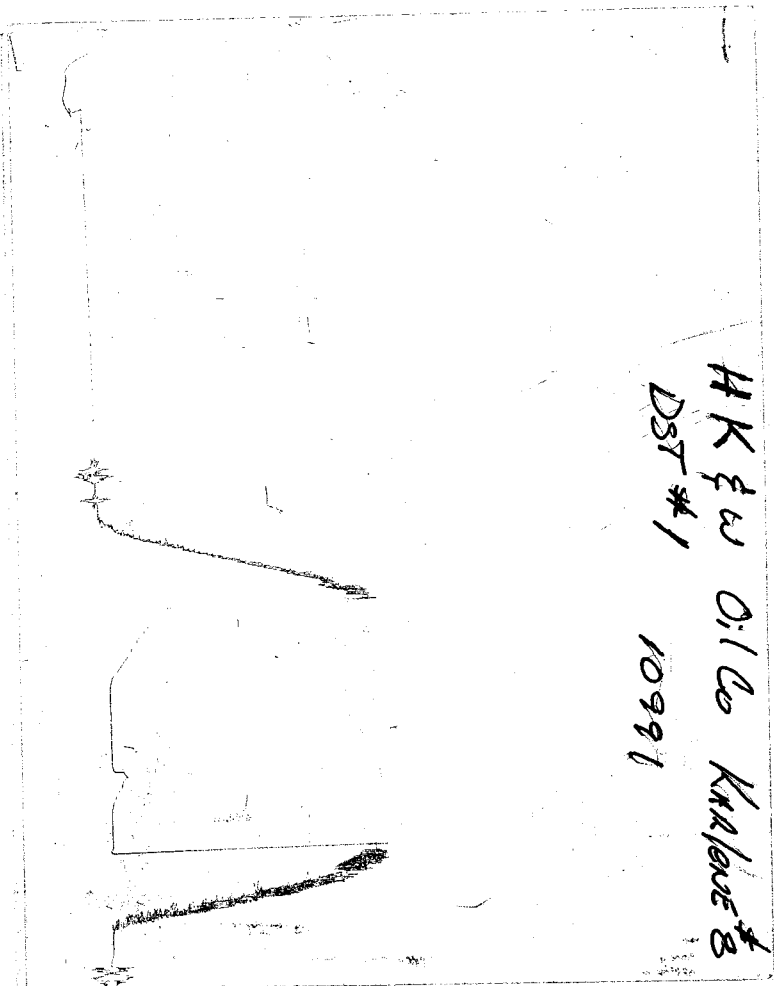
Approved By [Signature]
Our Representative Thanks [Signature]

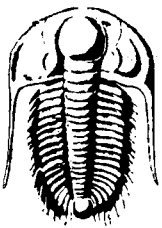
Final Flow	60
Final Shut-In	60
T-On Location	6:00
T-Started	10:55
T-Open	12:28
T-Pulled	15:28
T-Out	16:58

Shale Packer	_____
Mileage 481 - 1 way	_____
Sub Total:	931.60
Std. By 3hrs	90
Other	_____
Total:	1021.60

CHART PAGE

This is a photocopy of the actual AK-1 recorder chart





TRILOBITE TESTING INC.

P.O. Box 362 • Hays, Kansas 67601

No 17591

12/02

Test Ticket

Well Name & No. <u>KARLENE #8</u>	Test No. <u>2</u>	Date <u>1-19-04</u>
Company <u>HK & W Oil Co</u>	Zone Tested <u>Arpuckel</u>	
Address <u>P.O. Box 1851 Salina Ks 67402-1851</u>	Elevation <u>1781</u>	KB <u>1776</u> GL
Co. Rep / Geo. <u>Brend Hutchison</u>	Cont. <u>Vonfeldt Delg</u>	Est. Ft. of Pay _____ Por. _____ %
Location: Sec. <u>28</u>	Twp. <u>15S</u>	Rge. <u>12W</u> Co. <u>Russel, Co</u> State <u>Ks</u>
No. of Copies <u>5</u>	Disbtribution Sheet (Y, N) <u>—</u>	Turnkey (Y, N) _____ Evaluation (Y, N) <u>—</u>

Interval Tested <u>3194 - 3225</u>	Initial Str Wt./Lbs. <u>38,000</u>	Unseated Str Wt/Lbs. <u>42,000</u>
Anchor Length <u>31</u>	Wt. Set Lbs. <u>20,000</u>	Wt. Pulled Loose/Lbs. <u>45,000</u>
Top Packer Depth <u>3189</u>	Tool Weight <u>2100</u>	
Bottom Packer Depth <u>3194</u>	Hole Size <u>7 7/8"</u>	Rubber Size <u>6 3/4"</u> <u>N/A</u>
Total Depth <u>3225</u>	Wt. Pipe Run <u>N/A</u>	Drill Collar Run <u>N/A</u>
Mud Wt. <u>9.2</u> LCM <u>18"</u> Vis. <u>44</u> WL <u>8.0</u>	Drill Pipe Size <u>4.5 x H</u>	Ft. Run <u>3196'</u>

Blow Description IF: Strong blow b.o.p in 2 1/4 mins.
TST: Bled down for 5 mins. Right surface blow back "8" in 1/20 bucket.
FF: Fair blow b.o.p in 3 mins.
FST: Bled down for 2 mins. built back to weak surface blow

Recovery - Total Feet <u>1045</u>	GIP <u>120'</u>	Ft. in DC <u>N/A</u>	Ft. in DP <u>1045</u>
Rec. <u>955'</u>	Feet of <u>SMC 60 108 Gas 58 Mud 858 oil</u>		
Rec. <u>90'</u>	Feet of <u>MCSW 108 Mud 908 Salt Water</u>		
Rec. <u>120'</u>	Feet of <u>62P</u>		
Rec. _____	Feet of _____		
Rec. _____	Feet of _____		
BHT <u>107°</u>	*F Gravity <u>41</u>	*API D @ <u>70°</u>	*F Corrected Gravity _____ *API
RW <u>13</u> @ <u>70</u> *F	Chlorides <u>10000</u> ppm	Recovery _____	Chlorides <u>6000</u> ppm System

	AK-1	Alpine			
(A) Initial Hydrostatic Mud	<u>1567</u>	PSI	Recorder No. <u>6625</u>	Test <u>X</u>	
(B) First Initial Flow Pressure	<u>71</u>	PSI	(depth) <u>3196'</u>	Elec. Rec. <u>X</u>	
(C) First Final Flow Pressure	<u>263</u>	PSI	Recorder No. <u>10991</u>	Jars _____	
(D) Initial Shut-In Pressure	<u>1067</u>	PSI	(depth) <u>3222'</u>	Safety Jt. _____	
(E) Second Initial Flow Pressure	<u>276</u>	PSI	Recorder No. _____	Circ Sub _____	
(F) Second Final Flow Pressure	<u>423</u>	PSI	(depth) _____	Sampler _____	
(G) Final Shut-In Pressure	<u>1063</u>	PSI	Initial Opening _____	Straddle _____	
(Q) Final Hydrostatic Mud	<u>1564</u>	PSI	Initial Shut-In _____	Ext. Packer _____	

TRILOBITE TESTING INC. SHALL NOT BE LIABLE FOR DAMAGEE 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]

Our Representative Thank Jack L. Danner

Final Flow _____	Shale Packer _____
Final Shut-In _____	Mileage <u>481 way</u>
T-On Location <u>6:45</u>	Sub Total: <u>931.60</u>
T-Started <u>12:39</u>	Std. By <u>4 hr</u> <u>120.00</u>
T-Open <u>14:30</u>	Other <u>45.10</u>
T-Pulled <u>1700</u>	Total: <u>1096.60</u>
T-Out <u>1945</u>	

CHART PAGE

This is a photocopy of the actual AK-1 recorder chart

