

**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Downing Nelson**

Box 372
Hays KS 67601

ATTN: Ron / Al

21-13s 21w Trego KS

Sauer 1-21

Start Date: 2004.01.04 @ 13:50:15

End Date: 2004.01.04 @ 19:42:45

Job Ticket #: 18422 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Downing Nelson

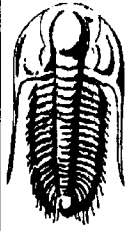
Sauer 1-21

21-13s 21w Trego KS

DST # 1

Lansing A-D

2004.01.04



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson

Sauer 1-21

Box 372
Hays KS 67601

21-13s 21w Trego KS

Job Ticket: 18422

DST#: 1

ATTN: Ron / Al

Test Start: 2004.01.04 @ 13:50:15

GENERAL INFORMATION:

Formation: **Lansing A-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:46:15

Time Test Ended: 19:42:45

Test Type: Conventional Bottom Hole

Tester: Paul Simpson

Unit No: 21

Interval: **3573.00 ft (KB) To 3650.00 ft (KB) (TVD)**

Reference Elevations: 2241.00 ft (KB)

Total Depth: 3650.00 ft (KB) (TVD)

2233.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 8.00 ft

Serial #: 6770

Inside

Press@RunDepth: 18.17 psig @ 3575.01 ft (KB)

Capacity: 7000.00 psig

Start Date: 2004.01.04

End Date:

2004.01.04

Last Calib.: 2003.06.12

Start Time: 13:50:15

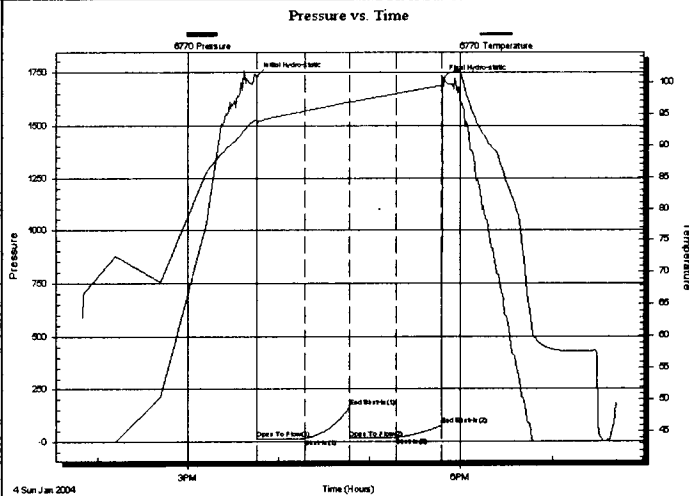
End Time:

19:42:45

Time On Btm: 2004.01.04 @ 15:46:00

Time Off Btm: 2004.01.04 @ 17:48:15

TEST COMMENT: ff- weak .5 blow decreasing to surface blow
FF- weak surface blow - died in 20 minutes
30-30-30-30



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1731.15	94.14	Initial Hydro-static
1	14.60	93.20	Open To Flow (1)
32	15.82	95.43	Shut-In(1)
61	163.33	96.86	End Shut-In(1)
62	16.77	96.81	Open To Flow (2)
92	18.17	98.18	Shut-In(2)
122	76.90	99.45	End Shut-In(2)
123	1720.17	100.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	socm 3% oil 97% mud	0.07
1.00	oil	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson

Sauer 1-21

Box 372
Hays KS 67601

21-13s 21w Trego KS

Job Ticket: 18422

DST#: 1

ATTN: Ron / Al

Test Start: 2004.01.04 @ 13:50:15

Tool Information

Drill Pipe:	Length: 3541.00 ft	Diameter: 3.80 inches	Volume: 49.67 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 49.82 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3573.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	78.02 ft			
Tool Length:	99.02 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			3553.00	
Shut In Tool	5.00			3558.00	
Hydraulic tool	5.00			3563.00	
Packer	5.00			3568.00	21.00 Bottom Of Top Packer
Packer	5.00			3573.00	
Stubb	1.00			3574.00	
Perforations	1.00			3575.00	
Recorder	0.01	6770	Inside	3575.01	
Change Over Sub	1.00			3576.01	
Blank Spacing	61.00			3637.01	
Change Over Sub	1.00			3638.01	
Recorder	0.01	13254	Outside	3638.02	
Perforations	10.00			3648.02	
Bullnose	3.00			3651.02	78.02 Bottom Packers & Anchor

Total Tool Length: 99.02



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson

Sauer 1-21

Box 372
Hays KS 67601

21-13s 21w Trego KS

Job Ticket: 18422

DST#: 1

ATTN: Ron / AI

Test Start: 2004.01.04 @ 13:50:15

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: 47.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.77 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
15.00	socm 3% oil 97% mud	0.074
1.00	oil	0.005

Total Length: 16.00 ft Total Volume: 0.079 bbl

Num Fluid Samples: 0

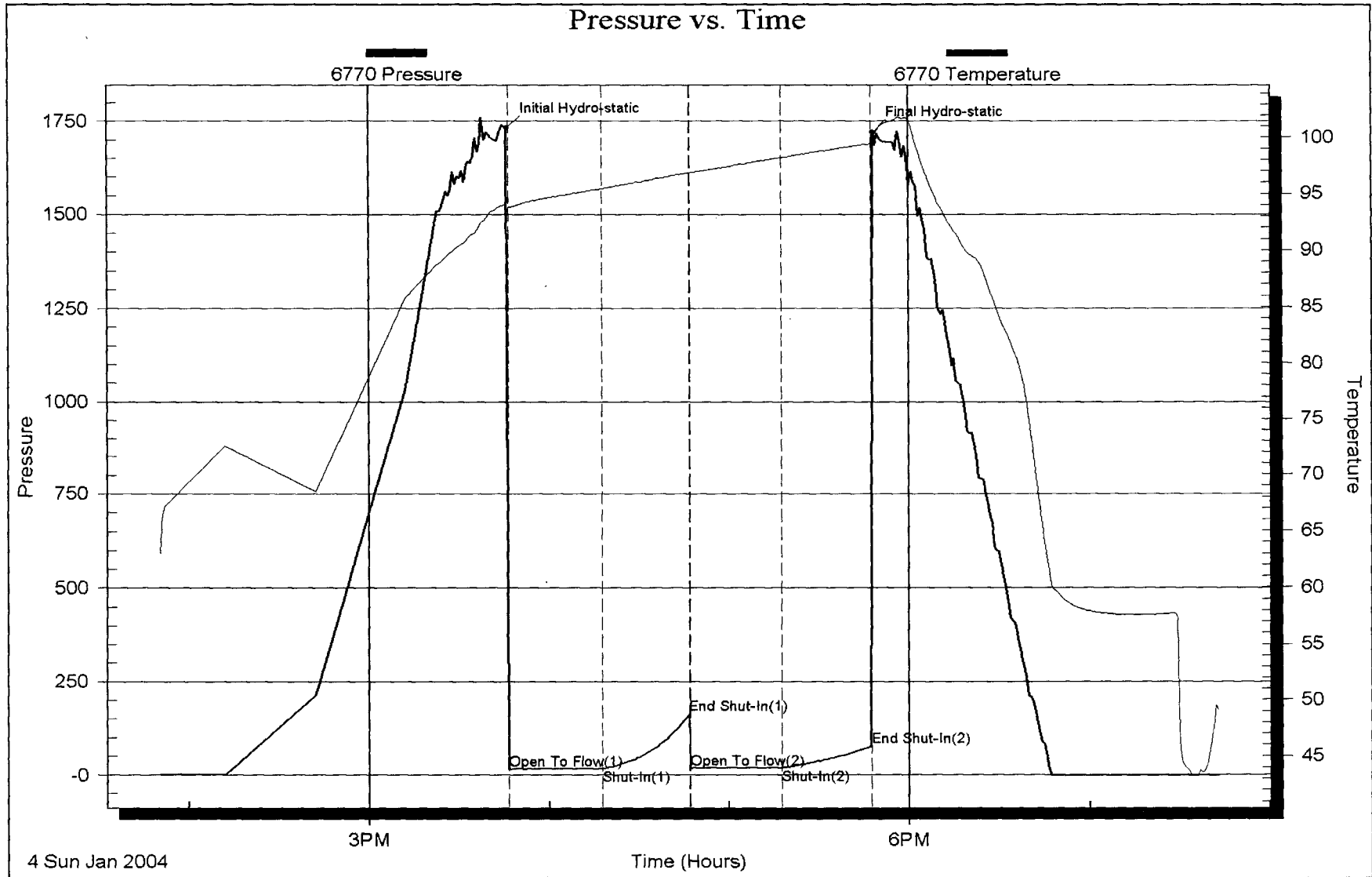
Num Gas Bombs: 0

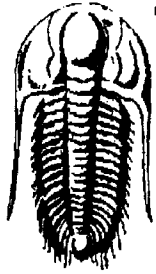
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Downing Nelson**

Box 372
Hays KS 67601

ATTN: Ron / Al

21-13s 21w Trego KS

Sauer 1-21

Start Date: 2004.01.05 @ 20:31:01

End Date: 2004.01.06 @ 04:19:46

Job Ticket #: 18423 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Downing Nelson

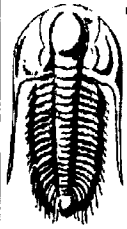
Sauer 1-21

21-13s 21w Trego KS

DST # 2

Marmaton

2004.01.05



**TRIOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Dowling Nelson

Sauer 1-21

Box 372
Hays KS 67601

21-13s 21w Trego KS

Job Ticket: 18423 DST#: 2

ATTN: Ron / Al

Test Start: 2004.01.05 @ 20:31:01

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:22:31

Time Test Ended: 04:19:46

Test Type: Conventional Bottom Hole

Tester: Paul Simpson

Unit No: 21

Interval: **3917.00 ft (KB) To 3960.00 ft (KB) (TVD)**

Total Depth: 3650.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2241.00 ft (KB)

2233.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 6770

Inside

Press@RunDepth: 233.57 psig @ 3919.01 ft (KB)

Start Date: 2004.01.05

End Date: 2004.01.06

Start Time: 20:31:16

End Time: 04:19:46

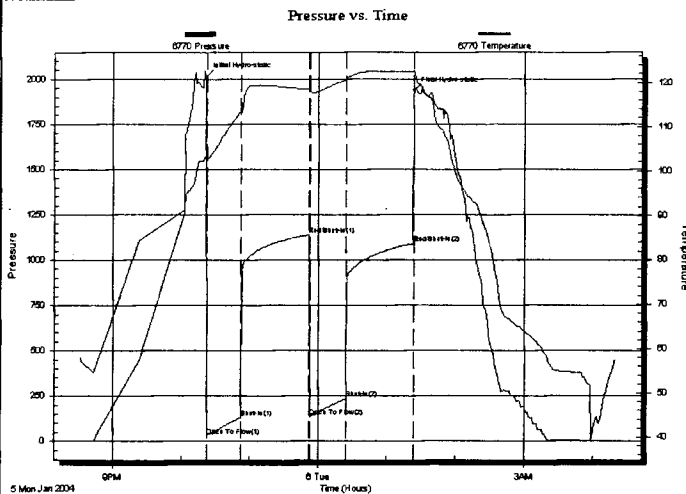
Capacity: 7000.00 psig

Last Calib.: 2003.07.20

Time On Btm: 2004.01.05 @ 22:22:01

Time Off Btm: 2004.01.06 @ 01:23:46

TEST COMMENT: IF- 1" blow building to bottom of bucket in 5 minutes
 IS- 6" blow
 FF- fair to strong blow, bottom of bucket in 5 minutes



PRESSURE SUMMARY

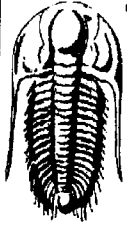
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2014.43	103.27	Initial Hydro-static
1	28.29	102.74	Open To Flow (1)
30	131.01	113.42	Shut-In (1)
91	1138.50	118.50	End Shut-In (1)
91	136.65	118.08	Open To Flow (2)
122	233.57	120.60	Shut-In (2)
182	1089.19	122.45	End Shut-In (2)
182	1936.26	122.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Gas and Oil cut Mud 20%g 60%O 20%M0.56	0.56
530.00	51 - Gas cut Oil 10%g 90%O	7.43
0.00	560' Gas in pipe	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson

Sauer 1-21

Box 372
Hays KS 67601

21-13s 21w Trego KS

Job Ticket: 18423 **DST#: 2**

ATTN: Ron / AI

Test Start: 2004.01.05 @ 20:31:01

Tool Information

Drill Pipe:	Length: 3880.00 ft	Diameter: 3.80 inches	Volume: 54.43 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 42000.00 lb
			<u>Total Volume: 54.58 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 41000.00 lb
Depth to Top Packer:	3917.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	43.02 ft			
Tool Length:	64.02 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			3897.00	
Shut In Tool	5.00			3902.00	
Hydraulic tool	5.00			3907.00	
Packer	5.00			3912.00	21.00 Bottom Of Top Packer
Packer	5.00			3917.00	
Stubb	1.00			3918.00	
Perforations	1.00			3919.00	
Recorder	0.01	6770	Inside	3919.01	
Change Over Sub	1.00			3920.01	
Blank Spacing	31.00			3951.01	
Change Over Sub	1.00			3952.01	
Perforations	5.00			3957.01	
Recorder	0.01	13254	Outside	3957.02	
Bullnose	3.00			3960.02	43.02 Bottom Packers & Anchor

Total Tool Length: 64.02



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson

Sauer 1-21

Box 372
Hays KS 67601

21-13s 21w Trego KS

Job Ticket: 18423 **DST#: 2**

ATTN: Ron / AI

Test Start: 2004.01.05 @ 20:31:01

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 38 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl	
Water Loss: 9.38 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

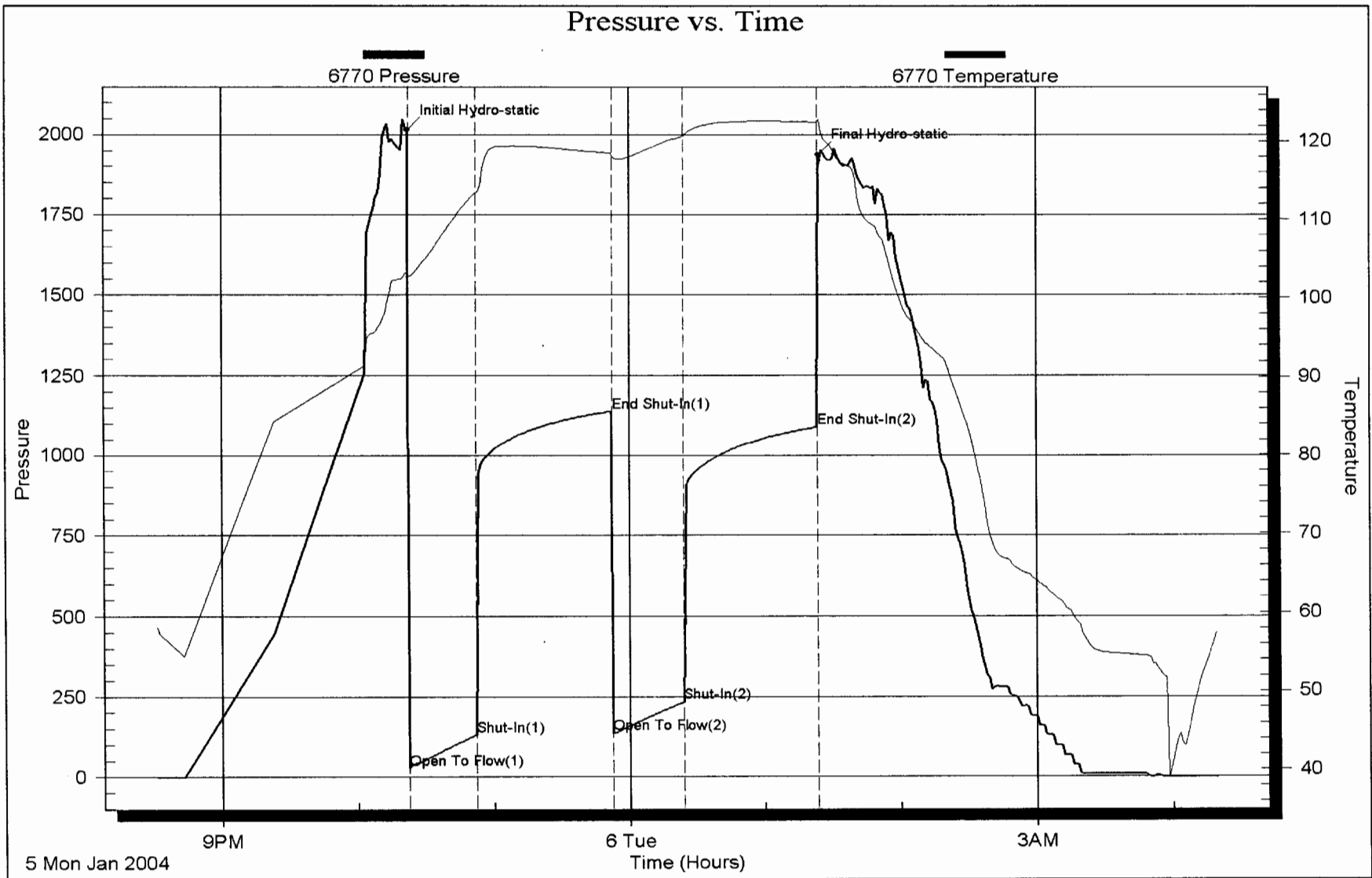
Length ft	Description	Volume bbl
60.00	Gas and Oil cut Mud 20%g 60%O 20%M	0.559
530.00	51 - Gas cut Oil 10%g 90%O	7.435
0.00	560' Gas in pipe	0.000

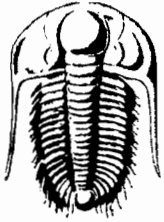
Total Length: 590.00 ft Total Volume: 7.994 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:





TRILOBITE TESTING INC.

P.O. Box 362 • Hays, Kansas 67601

INV
6/1/11

No 18422

05/03

Test Ticket

Well Name & No. <u>Saw 1-21</u>	Test No. <u>1</u>	Date <u>1-4-2009</u>
Company <u>Downing Nelson Oil Company</u>	Zone Tested <u>LKC A-D</u>	
Address <u>Box 332 Hays KS 67601</u>	Elevation <u>2241</u>	KB <u>2233</u> GL
Co. Rep / Geo. <u>Ron Nelson</u>	Cont. <u>Discovery #2</u>	Est. Ft. of Pay _____ Por. _____ %
Location: Sec. <u>21</u> Twp. <u>13s</u> Rge. <u>21w</u> Co. <u>Trigo</u> State <u>KS</u>		
No. of Copies _____	Disbtribution Sheet (Y, N) _____	Turnkey (Y, N) _____ Evaluation (Y, N) _____

Interval Tested <u>3573-3650</u>	Initial Str Wt./Lbs. <u>39,000</u>	Unseated Str Wt/Lbs. _____
Anchor Length <u>77</u>	Wt. Set Lbs. <u>20,000</u>	Wt. Pulled Loose/Lbs. _____
Top Packer Depth <u>3568</u>	Tool Weight <u>2200</u>	
Bottom Packer Depth <u>3573</u>	Hole Size <u>7 7/8"</u>	Rubber Size <u>6 3/4"</u>
Total Depth <u>3650</u>	Wt. Pipe Run _____	Drill Collar Run <u>31</u>
Mud Wt. <u>8.8</u> LCM _____ Vis. <u>47</u> WL <u>810</u>	Drill Pipe Size <u>4 1/2 IH</u>	Ft. Run <u>5544</u>
Blow Description <u>weak 1/2" blow - decreasing to surface</u>		

Recovery - Total Feet <u>15</u>	GIP _____	Ft. in DC <u>15</u>	Ft. in DP _____
Rec. <u>15</u> Feet of <u>SOCM</u>	%gas <u>3</u>	%oil _____	%water <u>97</u> %mud _____
Rec. _____ Feet of <u>SOCM</u>	%gas _____	%oil _____	%water _____ %mud _____
Rec. <u>1</u> Feet of <u>oil</u>	%gas _____	%oil _____	%water _____ %mud _____
Rec. _____ Feet of _____	%gas _____	%oil _____	%water _____ %mud _____
Rec. <u>99</u> Feet of _____	%gas _____	%oil _____	%water _____ %mud _____
BHT <u>99</u> °F Gravity _____	°API D @ _____	°F Corrected Gravity _____	°API _____
RW _____ @ _____ °F	Chlorides _____ ppm	Recovery _____	Chlorides _____ ppm System

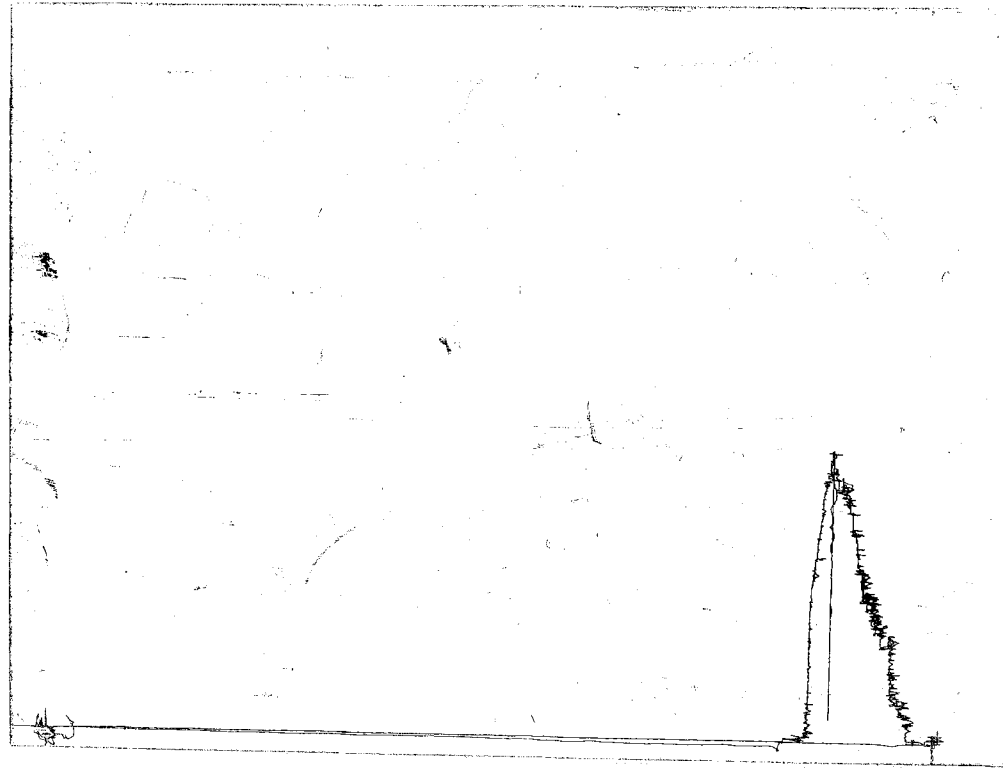
(A) Initial Hydrostatic Mud	AK-1 <u>1731</u> PSI	Alpine _____	Recorder No. <u>6770</u>	Test <u>V</u>
(B) First Initial Flow Pressure	<u>15</u> PSI		(depth) <u>3575</u>	Elec. Rec. <u>X</u>
(C) First Final Flow Pressure	<u>16</u> PSI		Recorder No. <u>13254</u>	Jars _____
(D) Initial Shut-In Pressure	<u>163</u> PSI		(depth) <u>36037</u>	Safety Jt. _____
(E) Second Initial Flow Pressure	<u>17</u> PSI		Recorder No. _____	Circ Sub _____
(F) Second Final Flow Pressure	<u>18</u> PSI		(depth) _____	Sampler _____
(G) Final Shut-In Pressure	<u>77</u> PSI	Initial Opening		Straddle _____
(Q) Final Hydrostatic Mud	<u>1720</u> PSI	Initial Shut-In _____		Ext. Packer _____
		Final Flow _____		Shale Packer _____
		Final Shut-In _____		Mileage <u>26</u>
		T-On Location <u>1130</u>		Sub Total: _____
		T-Started <u>1350</u>		Std. By _____
		T-Open <u>1547</u>		Other _____
		T-Pulled <u>1748</u>		Total: _____

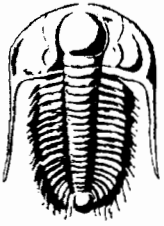
TRILOBITE TESTING INC. SHALL NOT BE LIABLE FOR DAMAGED OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST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

Approved By _____

CHART PAGE

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





TRILOBITE TESTING INC.

P.O. Box 362 • Hays, Kansas 67601

N^o 18423

05/03

Test Ticket

Well Name & No. Sauer 1-21 Test No. 2 Date 1-5-04
 Company D NOC Zone Tested Momaton
 Address _____ Elevation _____ KB _____ GL _____
 Co. Rep / Geo. _____ Cont. Discovery #2 Est. Ft. of Pay _____ Por. _____ %
 Location: Sec. 21 Twp. 13S Rge. 21W Co. Jrego State IL
 No. of Copies _____ Distribution Sheet (Y, N) _____ Turnkey (Y, N) _____ Evaluation (Y, N) _____

Interval Tested 3917-3960 Initial Str Wt./Lbs. 41,000 Unseated Str Wt./Lbs. 42,000
 Anchor Length 43 Wt. Set Lbs. 20,000 Wt. Pulled Loose/Lbs. 42,000
 Top Packer Depth 3912 Tool Weight 2000
 Bottom Packer Depth 3917 Hole Size 7 7/8" Rubber Size 6 3/4"
 Total Depth 3960 Wt. Pipe Run _____ Drill Collar Run 31
 Mud Wt. 9.3 LCM _____ Vis. 54 WL 9.4 Drill Pipe Size 4 1/2 XH Ft. Run 3880

Blow Description IF - strong blow - bottom of bucket in 5 minutes
PSI - blow built to 6"
SS - 5" blow build to bottom of bucket in 5 minutes
FST - blow built to 3"

Recovery - Total Feet	GIP	Ft. in DC	Ft. in DP
<u>60</u>	<u>560</u>	<u>31</u>	<u>529</u>
Rec. <u>530</u>	Feet of <u>clean oil</u>	<u>20</u> %gas <u>60</u> %oil	<u>20</u> %water %mud
Rec. _____	Feet of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____	Feet of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____	Feet of _____	%gas _____ %oil _____	%water _____ %mud _____
BHT <u>122</u>	°F Gravity <u>38</u>	°API D @ <u>60</u>	°F Corrected Gravity <u>38</u> °API _____
RW _____	@ _____ °F Chlorides _____	ppm Recovery _____	Chlorides _____ ppm System _____

(A) Initial Hydrostatic Mud	AK-1	Alpine	PSI	Recorder No.	Test
(B) First Initial Flow Pressure	<u>249</u>	<u>28</u>	PSI	<u>6770</u>	<u>4</u>
(C) First Final Flow Pressure	<u>131</u>	<u>1138</u>	PSI	<u>3919</u>	<u>X</u>
(D) Initial Shut-In Pressure	<u>137</u>	<u>1138</u>	PSI	<u>13254</u>	Jars _____
(E) Second Initial Flow Pressure	<u>137</u>	<u>1138</u>	PSI	<u>3957</u>	Safety Jt. _____
(F) Second Final Flow Pressure	<u>234</u>	<u>1084</u>	PSI		Circ Sub _____
(G) Final Shut-In Pressure	<u>1936</u>	<u>1936</u>	PSI	<u>30</u>	Sampler _____
(Q) Final Hydrostatic Mud			PSI	<u>60</u>	Straddle _____
				<u>30</u>	Ext. Packer _____
				<u>60</u>	Shale Packer _____
				<u>1900</u>	Mileage <u>26</u>
				<u>2031</u>	Sub Total: _____
				<u>2222</u>	Std. By _____
				<u>0122</u>	Other _____
					Total: _____

TRILOBITE TESTING INC. SHALL NOT BE LIABLE FOR DAMAGED 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]

CHART PAGE

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

