



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Company**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Galen #1-30

30-20s-20w Pawnee,KS

Start Date: 2012.07.26 @ 20:31:05

End Date: 2012.07.27 @ 02:19:50

Job Ticket #: 47902 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.09 @ 11:38:11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47902

DST#: 1

ATTN: Marc Downing

Test Start: 2012.07.26 @ 20:31:05

GENERAL INFORMATION:

Formation: **Miss**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:27:50

Time Test Ended: 02:19:50

Test Type: Conventional Bottom Hole (Initial)

Tester: Andy Carreira

Unit No: 39

Interval: 4314.00 ft (KB) To 4355.00 ft (KB) (TVD)

Reference Elevations: 2200.00 ft (KB)

Total Depth: 4355.00 ft (KB) (TVD)

2192.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 60.90 psig @ 4319.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.07.26

End Date:

2012.07.27

Last Calib.:

2012.07.27

Start Time:

20:31:05

End Time:

02:19:50

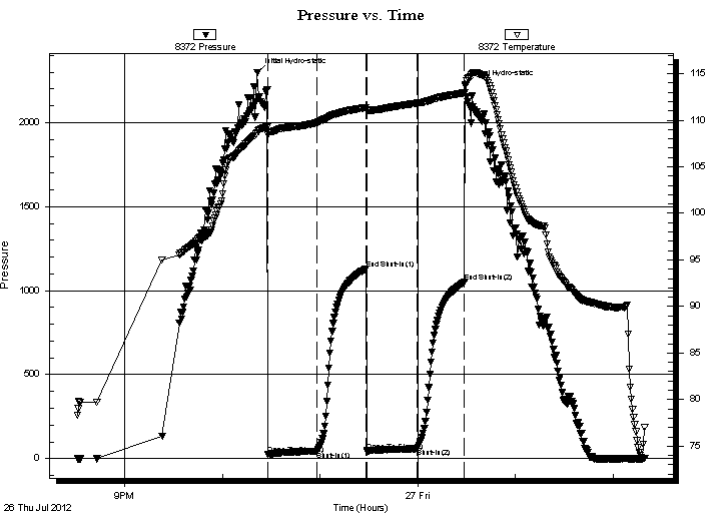
Time On Btm:

2012.07.26 @ 22:21:30

Time Off Btm:

2012.07.27 @ 00:29:30

TEST COMMENT: IF:(30min) Weak, surface blow
IS:(30min) No Return
FF:(30min) Weak, surface blow
FS:(30min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2299.20	108.67	Initial Hydro-static
7	23.77	108.40	Open To Flow (1)
37	45.44	109.75	Shut-In(1)
67	1130.28	111.36	End Shut-In(1)
68	44.74	111.04	Open To Flow (2)
99	60.90	111.83	Shut-In(2)
128	1051.46	112.93	End Shut-In(2)
128	2226.88	113.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
95.00	HOCGM g=5% o=25% m=70%	1.06

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47902

DST#: 1

ATTN: Marc Downing

Test Start: 2012.07.26 @ 20:31:05

Tool Information

Drill Pipe:	Length: 4286.00 ft	Diameter: 3.80 inches	Volume: 60.12 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 60.27 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	59000.00 lb
Depth to Top Packer:	4314.00 ft			Final	59000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	41.00 ft				
Tool Length:	69.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4287.00	
Shut In Tool	5.00			4292.00	
Hydraulic tool	5.00			4297.00	
Jars	5.00			4302.00	
Safety Joint	3.00			4305.00	
Packer	5.00			4310.00	28.00 Bottom Of Top Packer
Packer	4.00			4314.00	
Stubb	1.00			4315.00	
Perforations	3.00			4318.00	
Change Over Sub	1.00			4319.00	
Recorder	0.00	8017	Inside	4319.00	
Recorder	0.00	8372	Outside	4319.00	
Drill Pipe	31.00			4350.00	
Change Over Sub	1.00			4351.00	
Perforations	1.00			4352.00	
Bullnose	3.00			4355.00	41.00 Bottom Packers & Anchor
Total Tool Length:	69.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47902

DST#: 1

ATTN: Marc Downing

Test Start: 2012.07.26 @ 20:31:05

Mud and Cushion Information

Mud Type:		Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	54.00 sec/qt	Cushion Volume:	bbbl		
Water Loss:	10.32 in ³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4000.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
95.00	HOCGM g=5% o=25% m=70%	1.059

Total Length: 95.00 ft Total Volume: 1.059 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

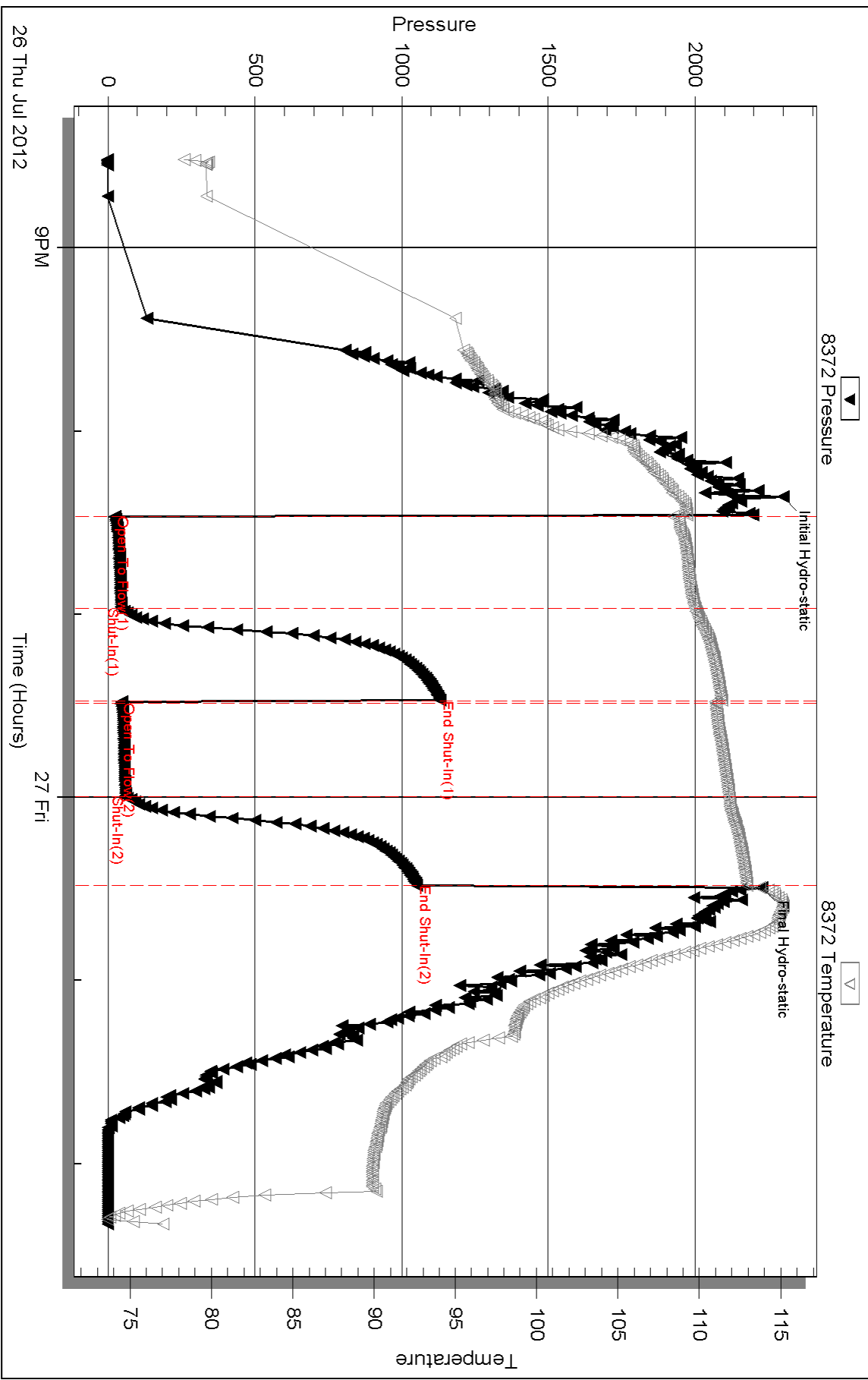
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



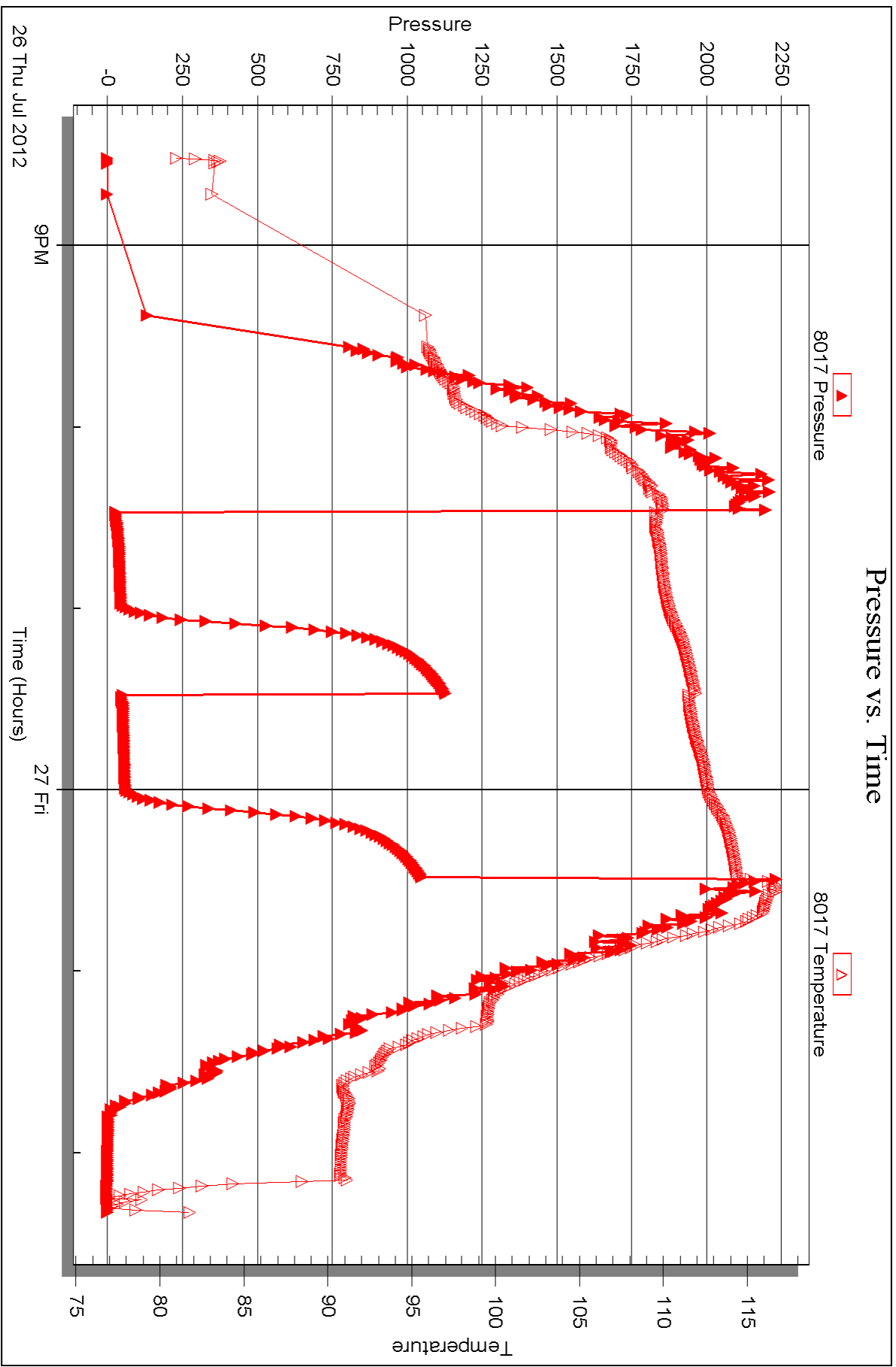
Serial #: 8017

Inside

Downing Nelson Oil Company

Galen #1-30

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Company**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Galen #1-30

30-20s-20w Pawnee,KS

Start Date: 2012.07.27 @ 08:59:05

End Date: 2012.07.27 @ 15:18:50

Job Ticket #: 47903 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.09 @ 11:37:19



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47903

DST#: 2

ATTN: Marc Downing

Test Start: 2012.07.27 @ 08:59:05

GENERAL INFORMATION:

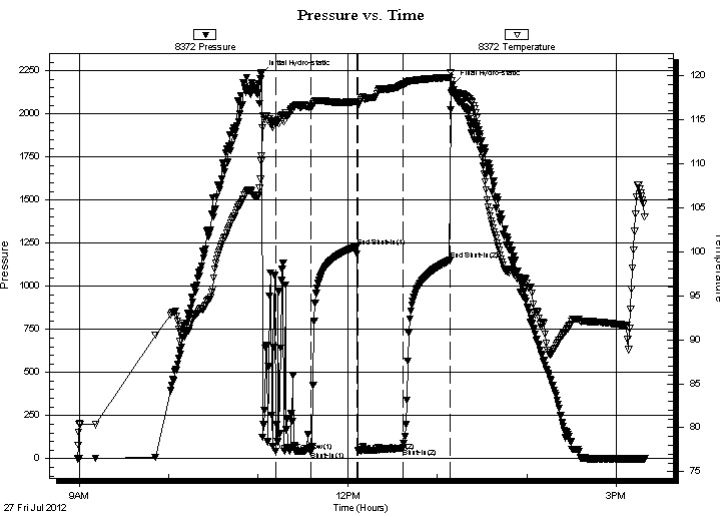
Formation: **Miss**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:11:30
 Time Test Ended: 15:18:50
 Interval: **4355.00 ft (KB) To 4365.00 ft (KB) (TVD)**
 Total Depth: 4365.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition:
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2200.00 ft (KB)
 2192.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8372

Outside

Press @ Run Depth: 60.28 psig @ 4356.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.07.27 End Date: 2012.07.27 Last Calib.: 2012.07.27
 Start Time: 08:59:05 End Time: 15:18:50 Time On Btm: 2012.07.27 @ 11:02:00
 Time Off Btm: 2012.07.27 @ 13:10:20

TEST COMMENT: IF:(30min) Weak, intermittent surface blow . Flushed, surged, surface blow .
 IS:(30min) No Return
 FF:(30min) Surface blow
 FS:(30min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2230.24	110.29	Initial Hydro-static
10	43.68	114.64	Open To Flow (1)
34	44.92	116.54	Shut-In(1)
64	1230.93	117.07	End Shut-In(1)
65	45.95	116.72	Open To Flow (2)
95	60.28	119.01	Shut-In(2)
127	1150.92	119.85	End Shut-In(2)
129	2168.59	118.21	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
110.00	HOCGM g=5% o=45% m=50%	1.27

* Recovery from multiple tests

Gas Rates

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



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Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
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Galen #1-30

Job Ticket: 47903

DST#: 2

ATTN: Marc Downing

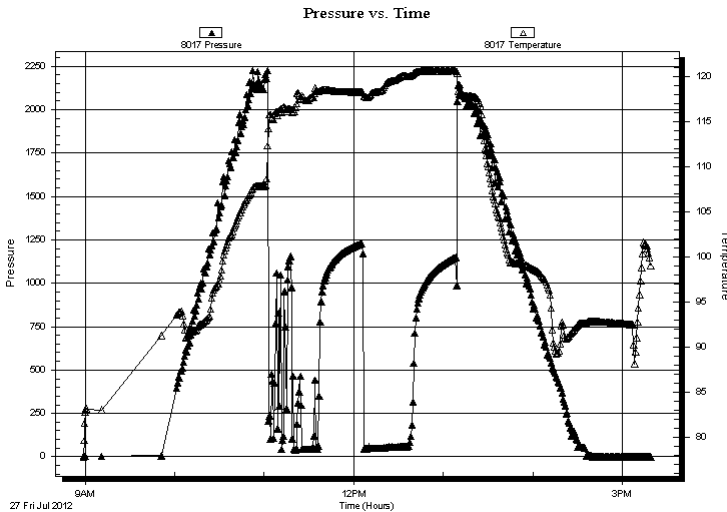
Test Start: 2012.07.27 @ 08:59:05

GENERAL INFORMATION:

Formation: **Miss**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:11:30
 Time Test Ended: 15:18:50
 Interval: **4355.00 ft (KB) To 4365.00 ft (KB) (TVD)**
 Total Depth: 4365.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition:
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2200.00 ft (KB)
 2192.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8017 **Inside**
 Press @ Run Depth: psig @ 4356.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.07.27 End Date: 2012.07.27 Last Calib.: 2012.07.27
 Start Time: 08:59:05 End Time: 15:18:50 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:(30min) Weak, intermittent surface blow . Flushed, surged, surface blow .
 IS:(30min) No Return
 FF:(30min) Surface blow
 FS:(30min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
110.00	HOCGM g=5% o=45% m=50%	1.27

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47903

DST#: 2

ATTN: Marc Downing

Test Start: 2012.07.27 @ 08:59:05

Tool Information

Drill Pipe:	Length: 4319.00 ft	Diameter: 3.80 inches	Volume: 60.58 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	22000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 60.73 bbl</u>	Tool Chased	8.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial	59000.00 lb
Depth to Top Packer:	4355.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	10.00 ft				
Tool Length:	38.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4328.00	
Shut In Tool	5.00			4333.00	
Hydraulic tool	5.00			4338.00	
Jars	5.00			4343.00	
Safety Joint	3.00			4346.00	
Packer	5.00			4351.00	28.00 Bottom Of Top Packer
Packer	4.00			4355.00	
Stubb	1.00			4356.00	
Recorder	0.00	8017	Inside	4356.00	
Recorder	0.00	8372	Outside	4356.00	
Perforations	6.00			4362.00	
Bullnose	3.00			4365.00	10.00 Bottom Packers & Anchor

Total Tool Length: 38.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47903

DST#: 2

ATTN: Marc Downing

Test Start: 2012.07.27 @ 08:59:05

Mud and Cushion Information

Mud Type:		Cushion Type:		Oil API:	deg API
Mud Weight:	10.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	60.00 sec/qt	Cushion Volume:	bbbl		
Water Loss:	10.34 in ³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	8000.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
110.00	HOCGM g=5% o=45% m=50%	1.270

Total Length: 110.00 ft Total Volume: 1.270 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

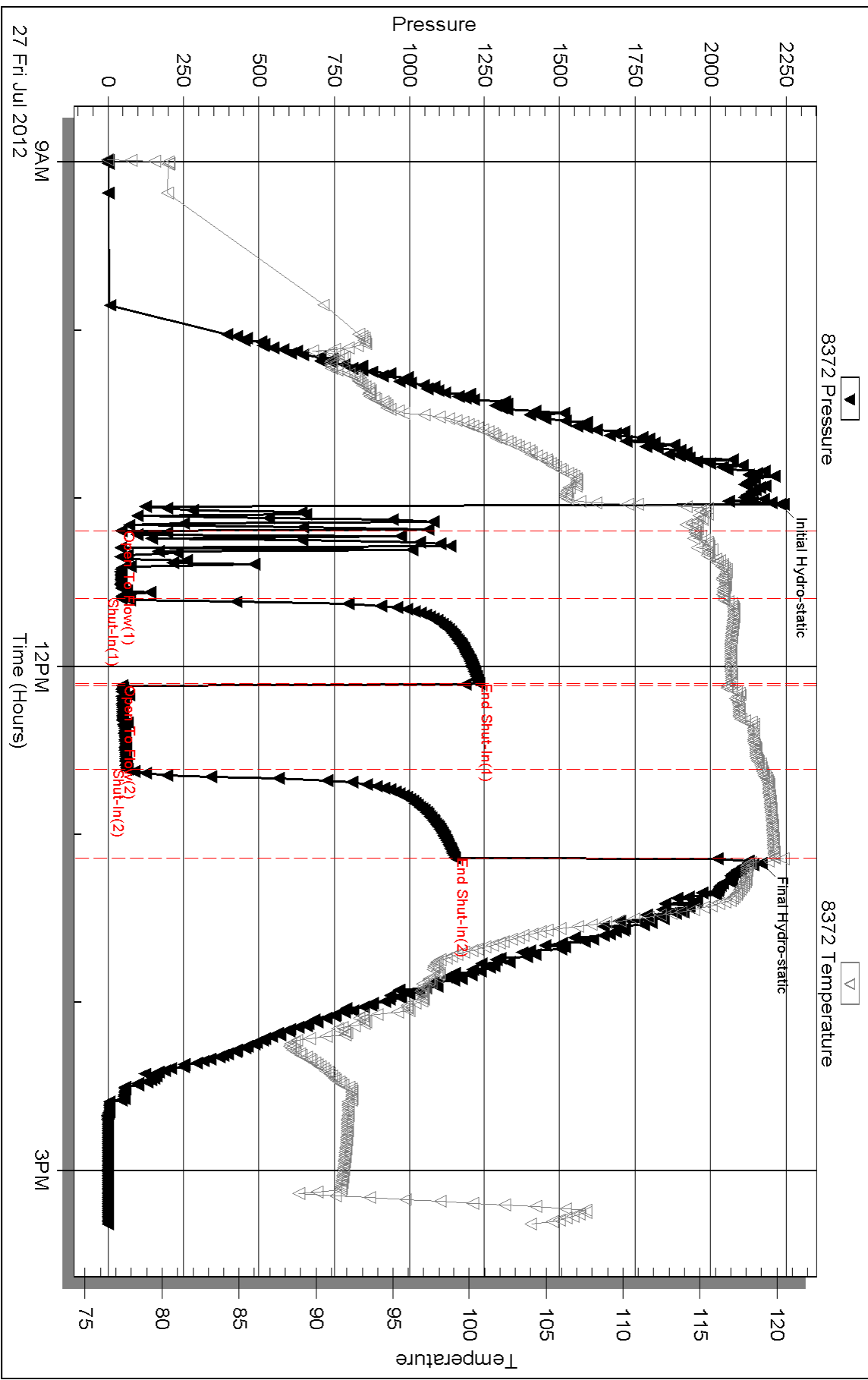
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



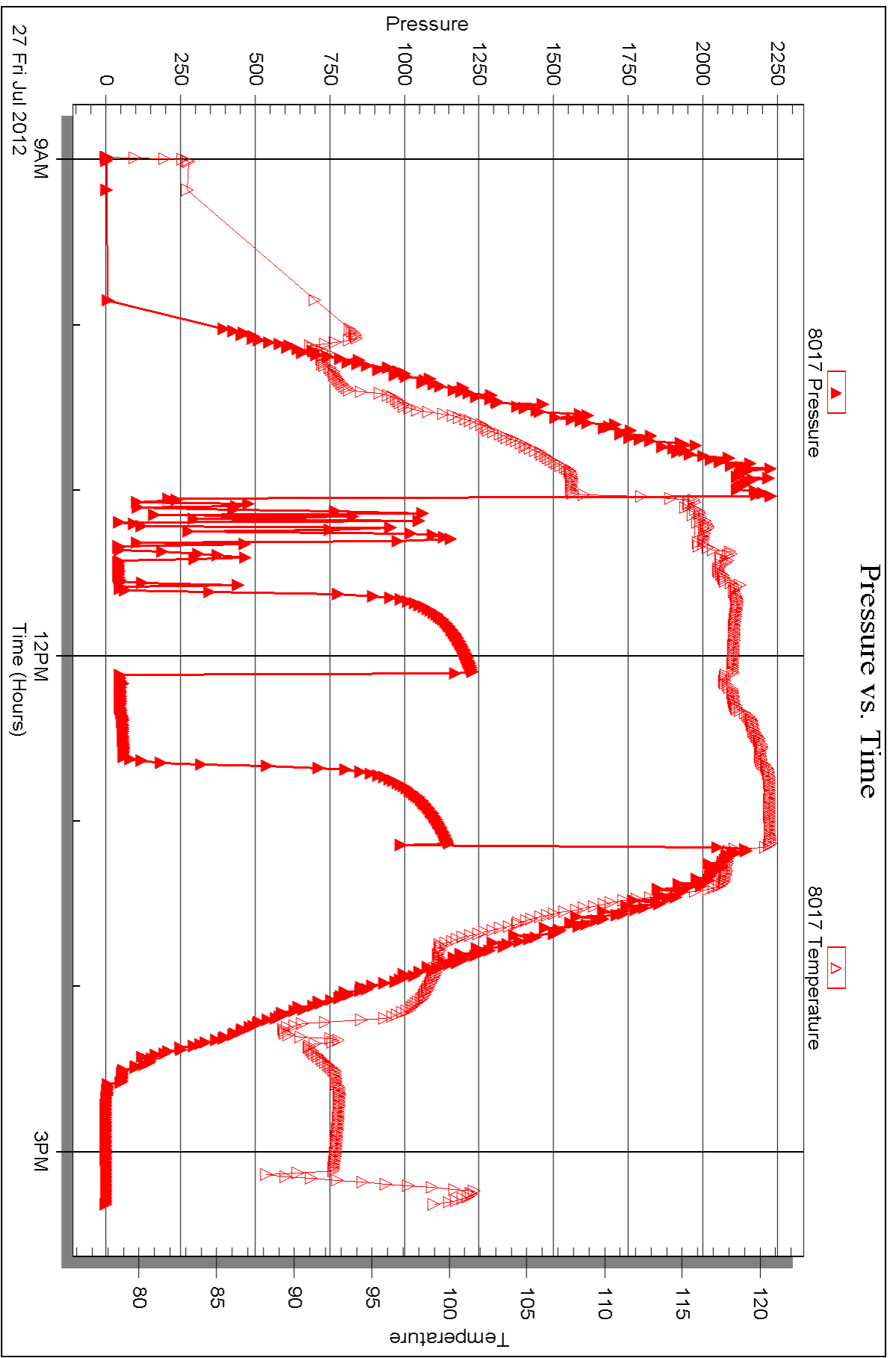
Serial #: 8017

Inside

Downing Nelson Oil Company

Galen #1-30

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 47903

Printed: 2012.08.09 @ 11:37:23



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Company**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Galen #1-30

30-20s-20w Pawnee,KS

Start Date: 2012.07.27 @ 22:22:05

End Date: 2012.07.28 @ 04:13:59

Job Ticket #: 47904 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.09 @ 11:36:19



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47904

DST#: 3

ATTN: Marc Downing

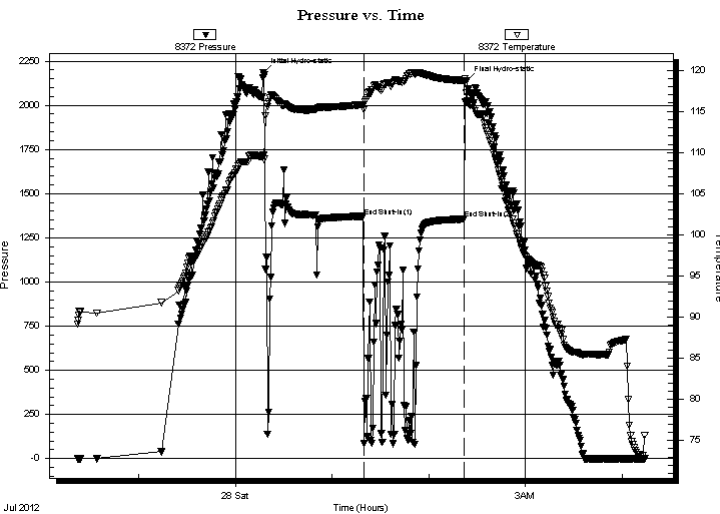
Test Start: 2012.07.27 @ 22:22:05

GENERAL INFORMATION:

Formation: **Miss**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened:
 Time Test Ended: 04:13:59
 Interval: **4358.00 ft (KB) To 4373.00 ft (KB) (TVD)**
 Total Depth: 4373.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition:
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2200.00 ft (KB)
 2192.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8372 Outside
 Press @ Run Depth: 1356.46 psig @ 4359.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.07.27 End Date: 2012.07.28 Last Calib.: 2012.07.28
 Start Time: 22:22:05 End Time: 04:13:59 Time On Btm: 2012.07.28 @ 00:17:20
 Time Off Btm: 2012.07.28 @ 02:23:40

TEST COMMENT: IF:(30min) Weak, intermittent blow, Died in 8 min. Flushed, surged, died in 2 min.
 ISl:(30min) No Return
 FF:(30min) No Blow, Flushed, Weak surge, No Blow
 FSl:(30min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2186.39	109.62	Initial Hydro-static
63	1370.54	115.83	End Shut-In(1)
125	1356.46	118.74	End Shut-In(2)
127	2140.83	116.22	Final Hydro-static

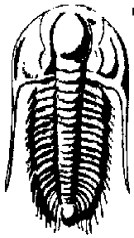
Recovery

Length (ft)	Description	Volume (bbl)
95.00	Heavy Mud	1.06

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47904

DST#: 3

ATTN: Marc Dow ning

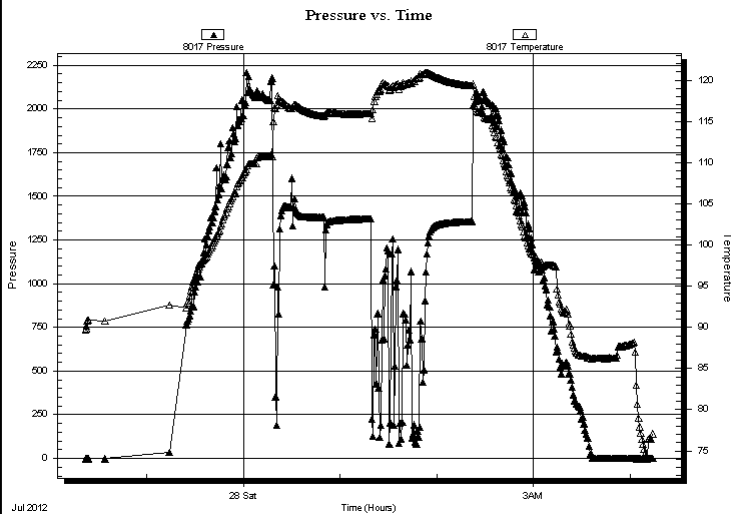
Test Start: 2012.07.27 @ 22:22:05

GENERAL INFORMATION:

Formation: **Miss**
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 Interval: **4358.00 ft (KB) To 4373.00 ft (KB) (TVD)**
 Total Depth: 4373.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition:
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2200.00 ft (KB)
 2192.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8017 **Inside**
 Press @ Run Depth: psig @ 4359.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.07.27 End Date: 2012.07.28 Last Calib.: 2012.07.28
 Start Time: 22:22:05 End Time: 04:13:59 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:(30min) Weak, intermittent blow , Died in 8 min. Flushed, surged, died in 2 min.
 IS:(30min) No Return
 FF:(30min) No Blow , Flushed, Weak surge, No Blow
 FS:(30min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
95.00	Heavy Mud	1.06

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47904

DST#: 3

ATTN: Marc Downing

Test Start: 2012.07.27 @ 22:22:05

Tool Information

Drill Pipe:	Length: 4317.00 ft	Diameter: 3.80 inches	Volume: 60.56 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	74000.00 lb
			<u>Total Volume: 60.71 bbl</u>	Tool Chased	10.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial	59000.00 lb
Depth to Top Packer:	4358.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	15.00 ft				
Tool Length:	43.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		

Tool Comments: Tool Slid 10 ft. Causing Tool to plug

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4331.00	
Shut In Tool	5.00			4336.00	
Hydraulic tool	5.00			4341.00	
Jars	5.00			4346.00	
Safety Joint	3.00			4349.00	
Packer	5.00			4354.00	28.00 Bottom Of Top Packer
Packer	4.00			4358.00	
Stubb	1.00			4359.00	
Recorder	0.00	8017	Inside	4359.00	
Recorder	0.00	8372	Outside	4359.00	
Perforations	11.00			4370.00	
Bullnose	3.00			4373.00	15.00 Bottom Packers & Anchor

Total Tool Length: 43.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company

30-20s-20w Pawnee,KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47904

DST#: 3

ATTN: Marc Downing

Test Start: 2012.07.27 @ 22:22:05

Mud and Cushion Information

Mud Type:		Cushion Type:		Oil API:	deg API
Mud Weight:	10.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	60.00 sec/qt	Cushion Volume:	bbbl		
Water Loss:	10.37 in ³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	8000.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
95.00	Heavy Mud	1.059

Total Length: 95.00 ft Total Volume: 1.059 bbl

Num Fluid Samples: 0

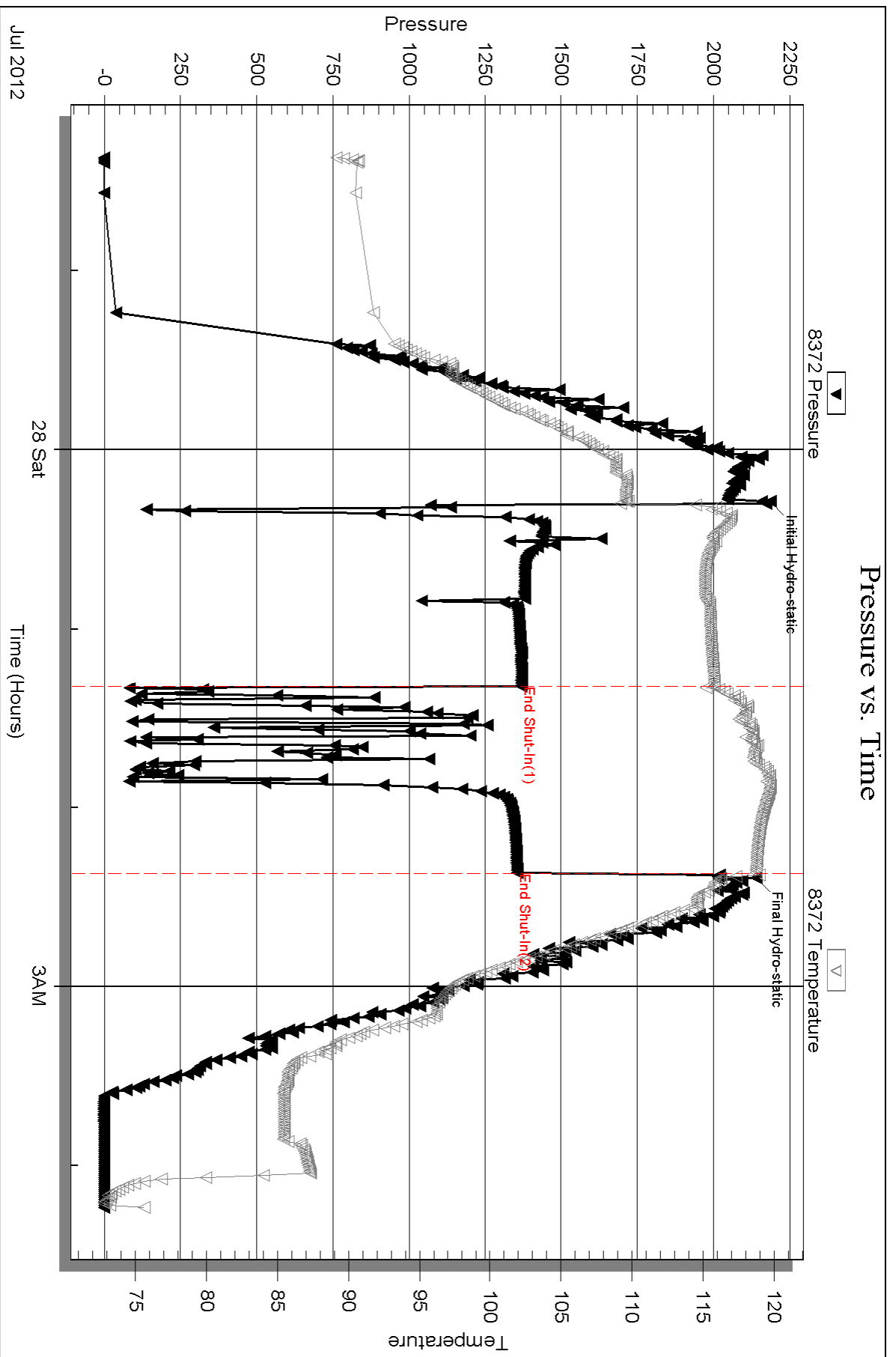
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



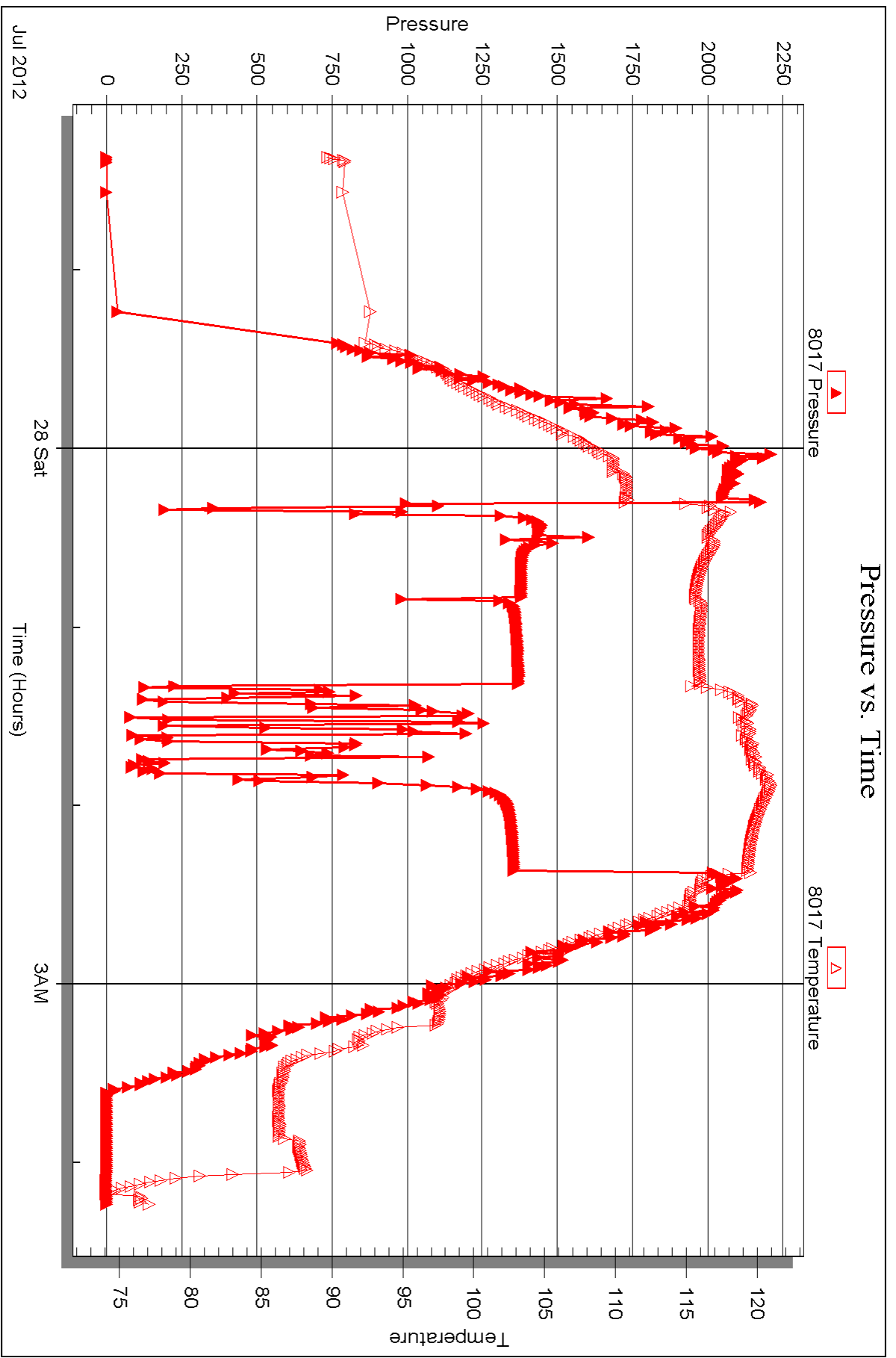
Serial #: 8017

Inside

Downing Nelson Oil Company

Galen #1-30

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 47904

Printed: 2012.08.09 @ 11:36:23



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Company**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

Galen #1-30

30-20s-20w Pawnee,KS

Start Date: 2012.07.28 @ 11:01:05

End Date: 2012.07.28 @ 19:22:20

Job Ticket #: 47905 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.08.09 @ 11:35:31



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company

30-20s-20w Pawnee,KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47905

DST#: 4

ATTN: Marc Dow ning

Test Start: 2012.07.28 @ 11:01:05

GENERAL INFORMATION:

Formation: **Miss**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:43:30

Time Test Ended: 19:22:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Andy Carreira

Unit No: 39

Interval: 4314.00 ft (KB) To 4373.00 ft (KB) (TVD)

Reference Elevations: 2200.00 ft (KB)

Total Depth: 4373.00 ft (KB) (TVD)

2192.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 213.50 psig @ 4321.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.07.28

End Date:

2012.07.28

Last Calib.:

2012.07.28

Start Time: 11:01:05

End Time:

19:22:20

Time On Btm:

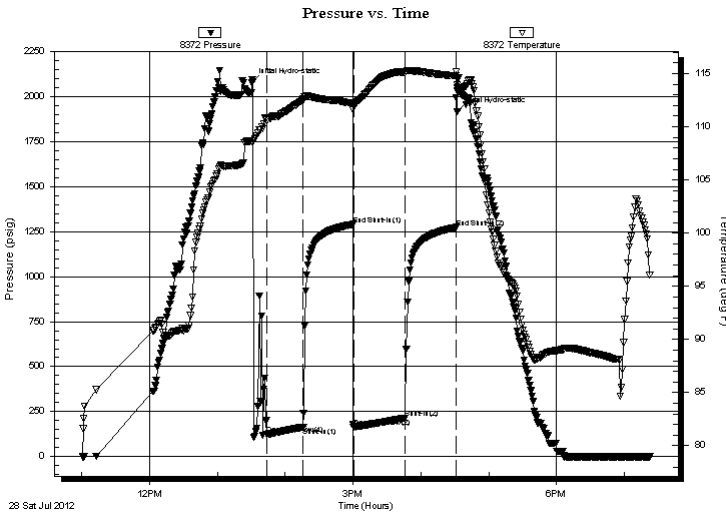
2012.07.28 @ 13:30:50

Time Off Btm:

2012.07.28 @ 16:32:20

TEST COMMENT: IF:(45min) Fair, 2.5" blow
IS:(45min) No Return
FF:(45min) Half inch blow
FS:(45min) No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2078.04	108.67	Initial Hydro-static
13	123.55	110.76	Open To Flow (1)
46	164.42	112.53	Shut-In(1)
90	1290.35	112.24	End Shut-In(1)
90	163.78	111.92	Open To Flow (2)
136	213.50	115.05	Shut-In(2)
181	1273.36	114.80	End Shut-In(2)
182	1918.93	113.68	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
410.00	OCGM g=10% o=10% m=80%	5.48

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning Nelson Oil Company

30-20s-20w Pawnee,KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47905

DST#: 4

ATTN: Marc Dow ning

Test Start: 2012.07.28 @ 11:01:05

GENERAL INFORMATION:

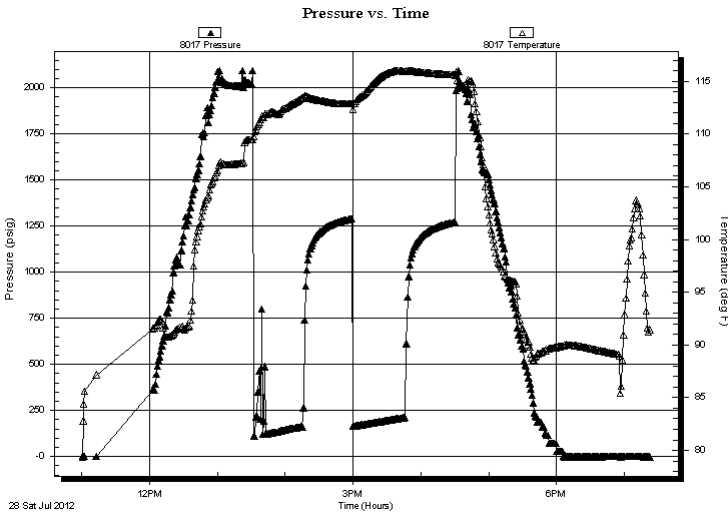
Formation: **Miss**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 13:43:30
 Time Test Ended: 19:22:20
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Interval: **4314.00 ft (KB) To 4373.00 ft (KB) (TVD)**
 Total Depth: 4373.00 ft (KB) (TVD)
 Reference Elevations: 2200.00 ft (KB)
 2192.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 KB to GR/CF: 8.00 ft

Serial #: 8017 Inside

Press @ Run Depth: psig @ 4321.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.07.28 End Date: 2012.07.28 Last Calib.: 2012.07.28
 Start Time: 11:01:05 End Time: 19:22:20 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:(45min) Fair, 2.5" blow
 IS:(45min) No Return
 FF:(45min) Half inch blow
 FS:(45min) No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
410.00	OCGM g=10% o=10% m=80%	5.48

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Company

30-20s-20w Pawnee, KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47905

DST#: 4

ATTN: Marc Downing

Test Start: 2012.07.28 @ 11:01:05

Tool Information

Drill Pipe:	Length: 4286.00 ft	Diameter: 3.80 inches	Volume: 60.12 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 60.27 bbl</u>	Tool Chased	20.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	59000.00 lb
Depth to Top Packer:	4314.00 ft			Final	61000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	59.00 ft				
Tool Length:	87.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: Slid 5ft to Bridge. Tool opened on bridge packers failed. 2nd attempt tool opened on bridge & slid 15ft to bottom. Ran test.

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4287.00	
Shut In Tool	5.00			4292.00	
Hydraulic tool	5.00			4297.00	
Jars	5.00			4302.00	
Safety Joint	3.00			4305.00	
Packer	5.00			4310.00	28.00 Bottom Of Top Packer
Packer	4.00			4314.00	
Stubb	1.00			4315.00	
Perforations	5.00			4320.00	
Change Over Sub	1.00			4321.00	
Recorder	0.00	8017	Inside	4321.00	
Recorder	0.00	8372	Outside	4321.00	
Drill Pipe	31.00			4352.00	
Change Over Sub	1.00			4353.00	
Perforations	17.00			4370.00	
Bullnose	3.00			4373.00	59.00 Bottom Packers & Anchor
Total Tool Length:	87.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Company

30-20s-20w Pawnee,KS

PO Box 1019
Hays KS 67601

Galen #1-30

Job Ticket: 47905

DST#: 4

ATTN: Marc Downing

Test Start: 2012.07.28 @ 11:01:05

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
410.00	OCCGM g=10% o=10% m=80%	5.478

Total Length: 410.00 ft Total Volume: 5.478 bbl

Num Fluid Samples: 0

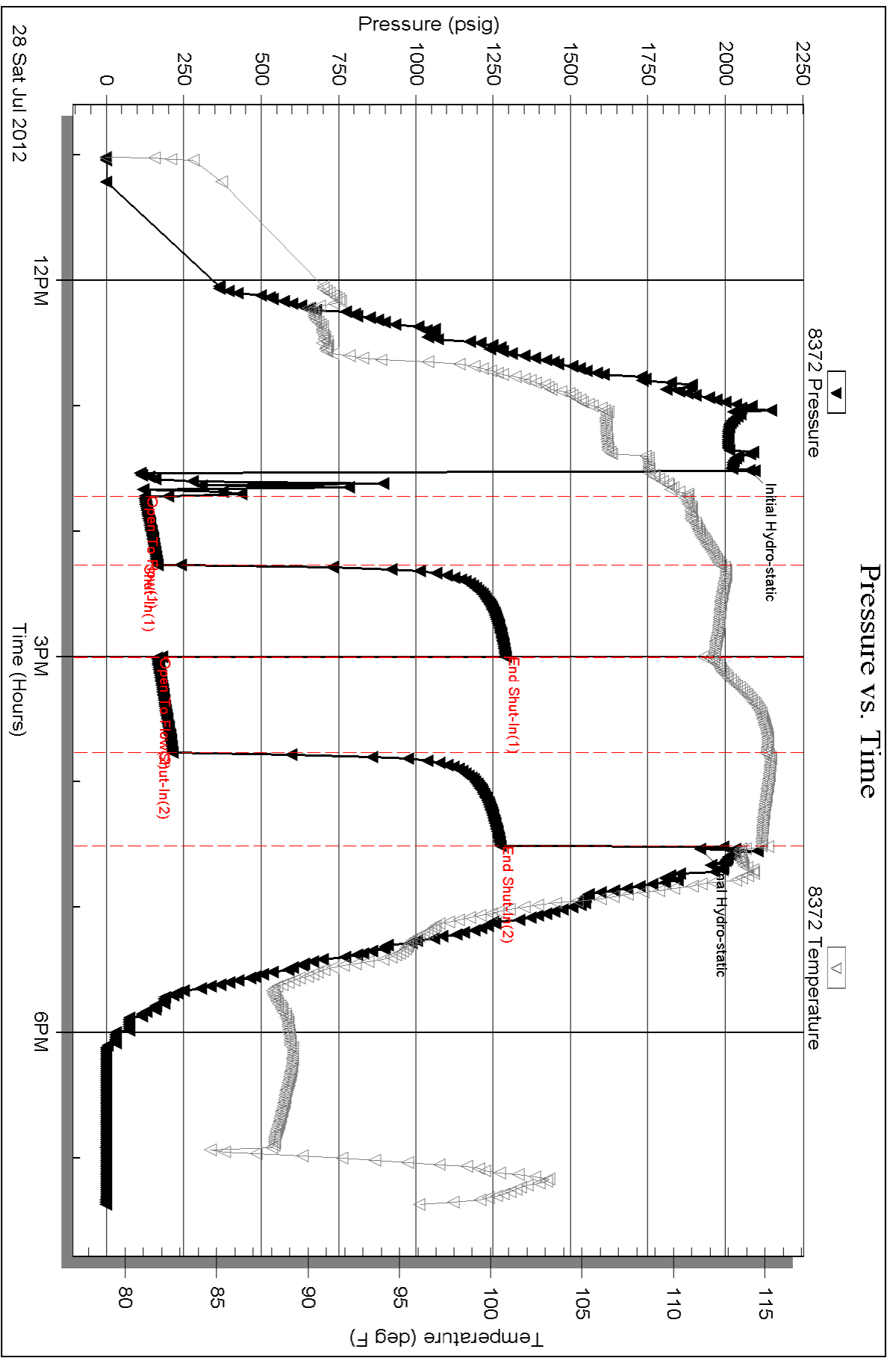
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



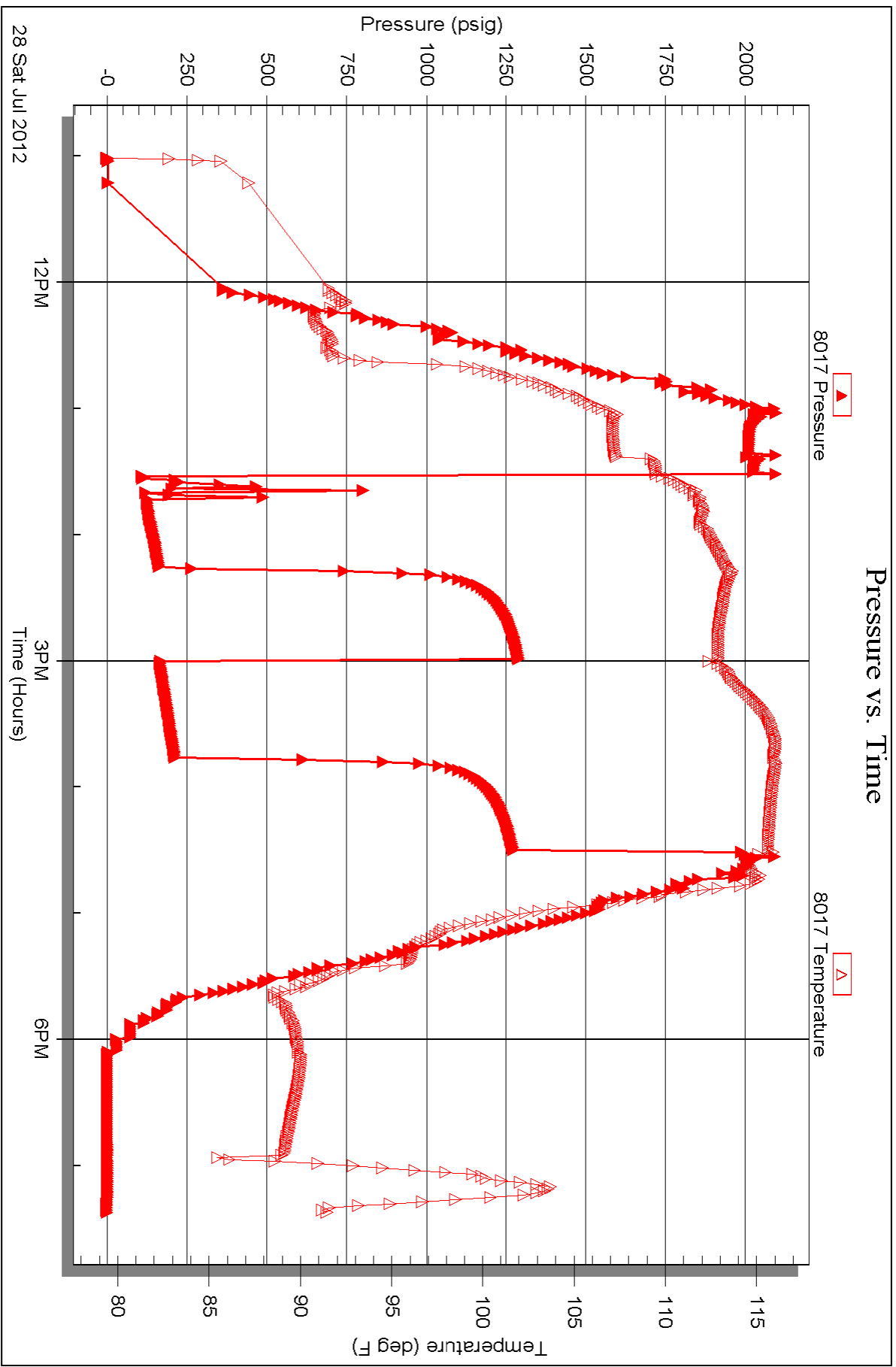
Serial #: 8017

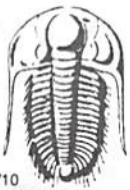
Inside

Downing Nelson Oil Company

Galen #1-30

DST Test Number: 4





TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 47902

Well Name & No. Galen 1-30 Test No. 1 Date 7-26-12
 Company DNOC Elevation 2200 KB 2192 GL
 Address PO Box 1019 Hays KS 67601
 Co. Rep / Geo. MARC DOWNING Rig DISCOVERY #4
 Location: Sec. 30 Twp. 20S Rge. 20W Co. TAWNEE State KS

Interval Tested 4314 - 4355 Zone Tested MISS
 Anchor Length 41 Drill Pipe Run 4286 Mud Wt. 9
 Top Packer Depth 4309 Drill Collars Run 30 Vis 54
 Bottom Packer Depth 4314 Wt. Pipe Run 0 WL 10.4
 Total Depth 4355 Chlorides 4000 ppm System LCM 25
 Blow Description FP: WEAK surface blow
FSB: NO RETURN
FP: WEAK surface blow
FSB: NO RETURN

Rec	Feet of	%gas	%oil	%water	%mud
<u>95</u>	<u>HOCGM</u>	<u>5</u>	<u>25</u>		<u>70</u>
Rec	Feet of	%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

Rec Total 95' BHT 112° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2299</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>18:41</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>20:31</u>
(C) First Final Flow <u>45</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>22:28</u>
(D) Initial Shut-In <u>1130</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>00:28</u>
(E) Second Initial Flow <u>44</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>02:20</u>
(F) Second Final Flow <u>60</u>	<input checked="" type="checkbox"/> Mileage <u>118RT</u> 182.90	Comments _____
(G) Final Shut-In <u>1051</u>	<input type="checkbox"/> Sampler _____	<u>Ness City</u>
(H) Final Hydrostatic <u>2226</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1757.90</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1757.90</u>	

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 47903

Well Name & No. Galen 1-30 Test No. 2 Date 7-27-12
 Company DNOC Elevation 2200 KB 2192 GL
 Address PO Box 1019 Hays KS 67601
 Co. Rep / Geo. _____ Rig DISCOVERY #4
 Location: Sec. 30 Twp. 20S Rge. 20W Co. FAWNEE State KS

Interval Tested 4355-4365 Zone Tested Miss
 Anchor Length 10 Drill Pipe Run 4319 Mud Wt. 9.5
 Top Packer Depth 4350 Drill Collars Run 30 Vis 60
 Bottom Packer Depth 4355 Wt. Pipe Run 0 WL 10.4
 Total Depth 4365 Chlorides 8000 ppm System LCM 2.5
 Blow Description FF: Weak, intermittent surface blow, Flush^{ed}, surge^{ed}, surface blow
ISF: No Return
FF: Surface blow
FSD: No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>110</u>	<u>HOCGM</u>	<u>5</u>	<u>45</u>	<u>50</u>	<u>50</u>
Rec	Feet of	%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

Rec Total 110' BHT 1190 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2230</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>08:16</u>
(B) First Initial Flow <u>43</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>08:59</u>
(C) First Final Flow <u>44</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>11:05</u>
(D) Initial Shut-In <u>1230</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>13:05</u>
(E) Second Initial Flow <u>45</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>15:19</u>
(F) Second Final Flow <u>60</u>	<input checked="" type="checkbox"/> Mileage <u>118RT</u> 182.90	Comments _____
(G) Final Shut-In <u>1150</u>	<input type="checkbox"/> Sampler	<u>Ness City</u>
(H) Final Hydrostatic <u>2168</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1757.90</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1757.90</u>	

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 47904

Well Name & No. Gal/2N 1-30 Test No. 3 Date 7-27-12
 Company DNOC Elevation 2200 KB 2192 GL
 Address PO Box 1019 Hays, Ks. 67601
 Co. Rep / Geo. MARC DOWNING Rig Discovery #4
 Location: Sec. 30 Twp. 20S Rge. 20W Co. PAWNEE State Ks

Interval Tested 4358-4373 Zone Tested MISS
 Anchor Length 15' Drill Pipe Run 4317 Mud Wt. 9.5
 Top Packer Depth 4353 Drill Collars Run 30 Vis 60
 Bottom Packer Depth 4358 Wt. Pipe Run A WL 10.4
 Total Depth 4373 Chlorides 8000 ppm System LCM 2.5

Blow Description IF: Weak intermittent blow, Died in 8 min, Flushed, surged, died in 2 min
ISI: NO Return
FF: NO Blow, Flushed, weak surge, NO blow
FSL: NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>95</u>	<u>Heavy Mud</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 95 BHT 118° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2186 Test 1050 T-On Location 21:20
 (B) First Initial Flow — Jars 250 T-Started 22:22
 (C) First Final Flow _____ Safety Joint 75 T-Open 00:20
 (D) Initial Shut-In 1370 Circ Sub _____ T-Pulled* 02:20
 (E) Second Initial Flow — Hourly Standby _____ T-Out 04:15
 (F) Second Final Flow — Mileage 118ET 182.90 Comments MISRUN - Plugged
 (G) Final Shut-In 1356 Sampler _____ Tool slid 10 ft
 (H) Final Hydrostatic 2140 Straddle _____ shut-ins invalid
 Shale Packer _____ Ruined Shale Packer Ness City
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1557.90
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Sub Total 1557.90

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

1925
13-50

NO. 47905

Well Name & No. Galen 1-30 Test No. 4 Date 7-28-12
 Company DNOC Elevation 2200 KB 2192 GL
 Address PO Box 1019 Hays KS 67601
 Co. Rep / Geo. MARC DOWNING Rig Discovery 4
 Location: Sec. 30 Twp. 20S Rge. 20W Co. PAWNEE State Ks

Interval Tested 4314-4373 Zone Tested Miss.
 Anchor Length 59 Drill Pipe Run 4286 Mud Wt. 8.7
 Top Packer Depth 4309 Drill Collars Run 30 Vis 50
 Bottom Packer Depth 4314 Wt. Pipe Run - WL 9.2
 Total Depth 4373 Chlorides 8000 ppm System LCM 2 1/2
 Blow Description IF: Fair, 2' blow
ISI: NO RETURN
FF: ~~NO~~ ~~blow~~ 1/2' blow
FSL: NO RETURN

Rec	Feet of	%gas	%oil	%water	%mud
<u>410</u>	<u>OCGM</u>	<u>10%</u>	<u>10%</u>	<u>80%</u>	<u>80%</u>
Rec	Feet of	%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

Rec Total 410' BHT 118' Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2078 Test 1250 T-On Location _____
 (B) First Initial Flow 123 Jars 250 T-Started 11:01
 (C) First Final Flow 164 Safety Joint 75 T-Open 13:30
 (D) Initial Shut-In 1290 Circ Sub _____ T-Pulled 16:30
 (E) Second Initial Flow 163 Hourly Standby _____ T-Out 19:00
 (F) Second Final Flow 213 Mileage _____ Comments stayed on loc between
 (G) Final Shut-In 1273 Sampler _____ DST 3 & 4.
 (H) Final Hydrostatic 1918 Straddle _____ Slid 20ft.
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45

Sub Total 0
 Total 1575
 MP/DST Disc't _____
 Sub Total 1575

Approved By _____ Our Representative [Signature]

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