



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Garth Unit #1

S22-6S-20W Rooks,KS

Start Date: 2017.05.02 @ 06:20:00

End Date: 2017.05.02 @ 12:05:00

Job Ticket #: 63207 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.05.05 @ 09:23:19



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

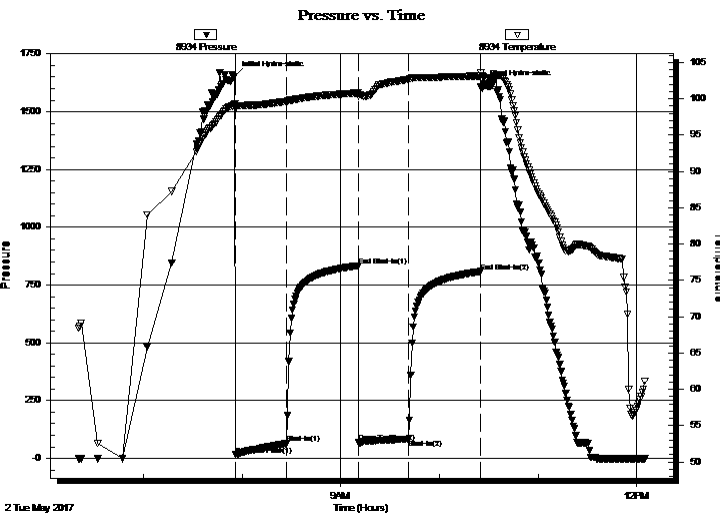
S22-6S-20W Rooks, KS
Garth Unit #1
 Job Ticket: 63207 **DST#: 1**
 Test Start: 2017.05.02 @ 06:20:00

GENERAL INFORMATION:

Formation: **Toronto - LKC "A"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 07:55:45 Tester: Spencer J. Staab
 Time Test Ended: 12:05:00 Unit No: 84
 Interval: **3370.00 ft (KB) To 3430.00 ft (KB) (TVD)** Reference Elevations: 2174.00 ft (KB)
 Total Depth: 3430.00 ft (KB) (TVD) 2169.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 83.70 psig @ 3377.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.05.02 End Date: 2017.05.02 Last Calib.: 2017.05.02
 Start Time: 06:20:15 End Time: 12:05:00 Time On Btm: 2017.05.02 @ 07:55:30
 Time Off Btm: 2017.05.02 @ 10:27:00

TEST COMMENT: 30-IF-Fair Blow ; Built from a surface to 5"
 45-ISI-No Blow Back
 30-FF-Weak Blow ; at 3 minutes built from a surface to 3"
 45-FSI-No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1654.34	99.27	Initial Hydro-static
1	15.03	98.57	Open To Flow (1)
32	63.76	99.61	Shut-In(1)
75	831.17	100.80	End Shut-In(1)
76	68.64	100.34	Open To Flow (2)
106	83.70	102.66	Shut-In(2)
150	808.32	103.11	End Shut-In(2)
152	1619.47	102.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
160.00	WM 10%W 90%M	1.14

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63207

DST#: 1

ATTN: Jeff Lawler

Test Start: 2017.05.02 @ 06:20:00

Tool Information

Drill Pipe:	Length: 3238.00 ft	Diameter: 3.80 inches	Volume: 45.42 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	51000.00 lb
			<u>Total Volume:</u>	Tool Chased	2.00 ft
			- bbl	String Weight: Initial	43000.00 lb
Drill Pipe Above KB:	9.00 ft			Final	43000.00 lb
Depth to Top Packer:	3370.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	60.00 ft				
Tool Length:	80.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3351.00	
Shut In Tool	5.00			3356.00	
Hydraulic tool	5.00			3361.00	
Packer	5.00			3366.00	20.00 Bottom Of Top Packer
Packer	4.00			3370.00	
Stubb	1.00			3371.00	
Perforations	5.00			3376.00	
Change Over Sub	1.00			3377.00	
Recorder	0.00	9120	Inside	3377.00	
Recorder	0.00	8934	Inside	3377.00	
Drill Pipe	32.00			3409.00	
Change Over Sub	1.00			3410.00	
Perforations	16.00			3426.00	
Bullnose	4.00			3430.00	60.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

S22-6S-20W Rooks,KS
Garth Unit #1
Job Ticket: 63207 **DST#: 1**
Test Start: 2017.05.02 @ 06:20:00

Mud and Cushion Information

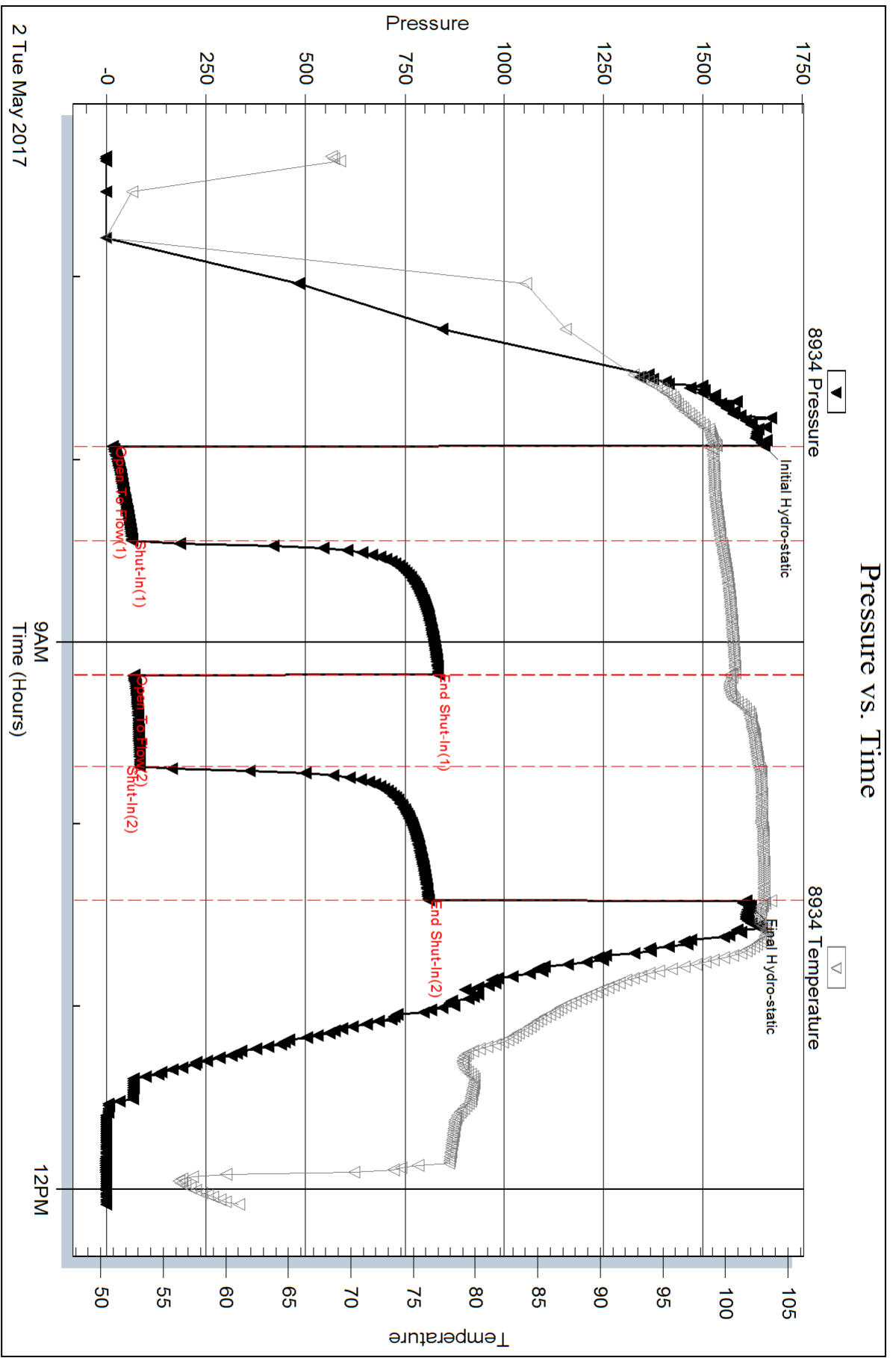
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	25500 ppm
Viscosity: 62.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.79 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1250.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
160.00	WM 10%W 90%M	1.142

Total Length: 160.00 ft Total Volume: 1.142 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: 1# LCM
 RW=.307@ 60 degrees



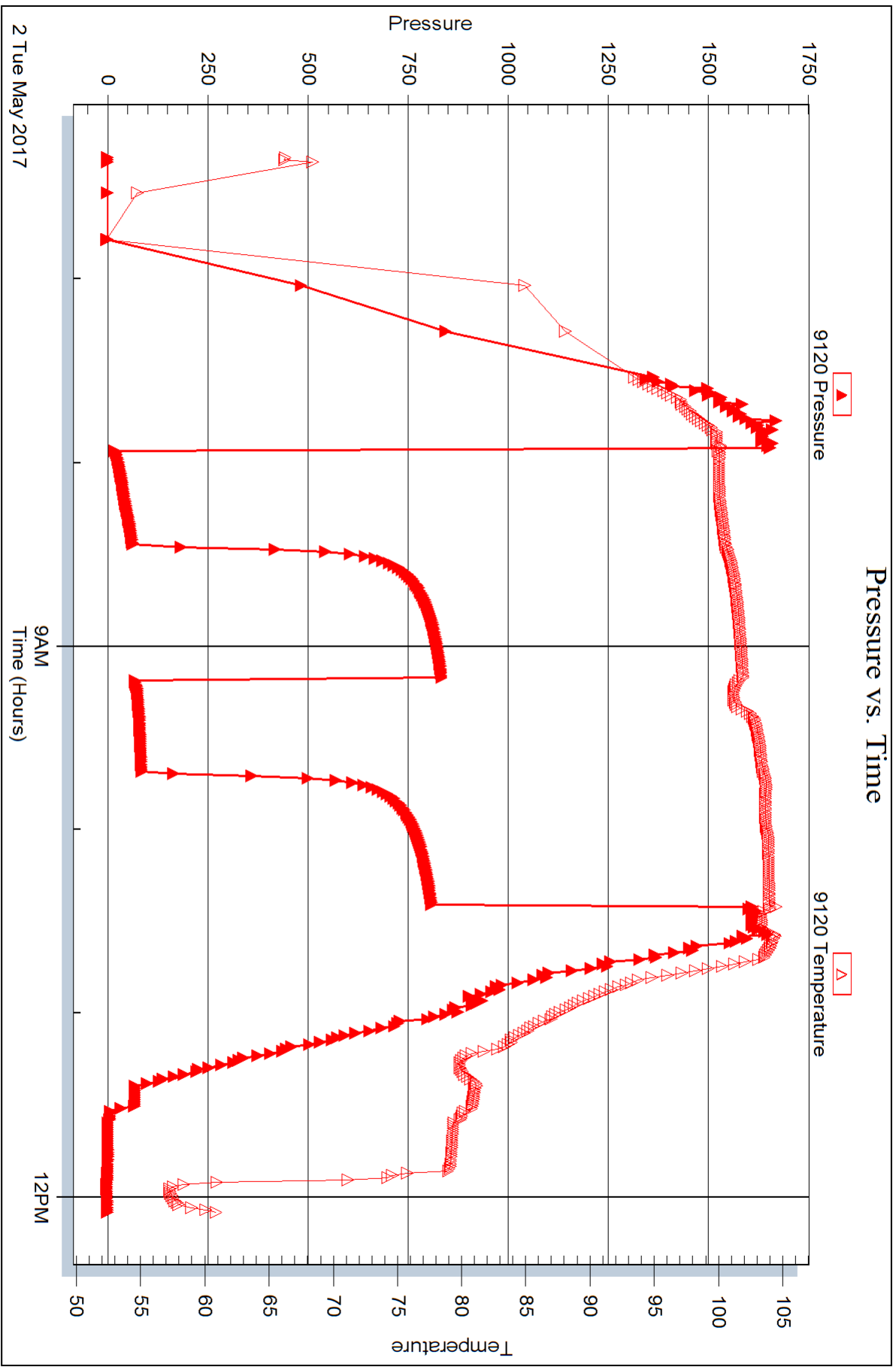
Serial #: 9120

Inside

Jaspar Co

Garth Unit #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63207

Printed: 2017.05.05 @ 09:23:20



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Garth Unit #1

S22-6S-20W Rooks,KS

Start Date: 2017.05.02 @ 19:44:00

End Date: 2017.05.03 @ 01:29:00

Job Ticket #: 63208 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.05.05 @ 09:22:38

Jaspar Co
S22-6S-20W Rooks,KS
Garth Unit #1
DST # 2
LKC "C-D"
2017.05.02



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63208

DST#: 2

Test Start: 2017.05.02 @ 19:44:00

GENERAL INFORMATION:

Formation: **LKC "C-D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:37:15
 Time Test Ended: 01:29:00
 Interval: **3432.00 ft (KB) To 3476.00 ft (KB) (TVD)**
 Total Depth: 3476.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2174.00 ft (KB)
 2169.00 ft (CF)
 KB to GR/CF: 5.00 ft

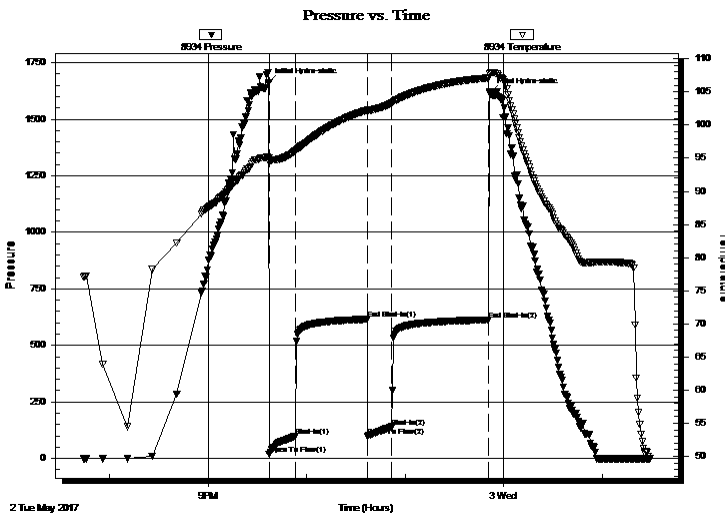
Serial #: 8934

Inside

Press@RunDepth: 139.22 psig @ 3439.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.05.02 End Date: 2017.05.03 Last Calib.: 2017.05.03
 Start Time: 19:44:15 End Time: 01:29:00 Time On Btm: 2017.05.02 @ 21:37:00
 Time Off Btm: 2017.05.02 @ 23:51:45

TEST COMMENT: 15-IF-Strong Blow ; Built from 1/2" to BOB in 12 mins
 45-ISI-No Blow Back
 15-FF-Strong Blow ; Built from surface to 9&1/2"
 60-FSI-No Blow Back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1661.69	95.06	Initial Hydro-static
1	18.79	94.39	Open To Flow (1)
16	97.57	96.04	Shut-In(1)
60	615.26	102.26	End Shut-In(1)
61	99.27	102.04	Open To Flow (2)
75	139.22	103.32	Shut-In(2)
134	611.23	107.11	End Shut-In(2)
135	1619.60	107.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
270.00	MW 30%M 70%W	2.69

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co

S22-6S-20W Rooks, KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63208

DST#: 2

ATTN: Jeff Lawler

Test Start: 2017.05.02 @ 19:44:00

Tool Information

Drill Pipe:	Length: 3300.00 ft	Diameter: 3.80 inches	Volume: 46.29 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	48000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial	43000.00 lb
Depth to Top Packer:	3432.00 ft			Final	43000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	44.00 ft				
Tool Length:	64.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3413.00	
Shut In Tool	5.00			3418.00	
Hydraulic tool	5.00			3423.00	
Packer	5.00			3428.00	20.00 Bottom Of Top Packer
Packer	4.00			3432.00	
Stubb	1.00			3433.00	
Perforations	5.00			3438.00	
Change Over Sub	1.00			3439.00	
Recorder	0.00	9120	Inside	3439.00	
Recorder	0.00	8934	Inside	3439.00	
Drill Pipe	31.00			3470.00	
Change Over Sub	1.00			3471.00	
Perforations	1.00			3472.00	
Bullnose	4.00			3476.00	44.00 Bottom Packers & Anchor

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63208

DST#: 2

ATTN: Jeff Lawler

Test Start: 2017.05.02 @ 19:44:00

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:

72500 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1250.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
270.00	MW 30%M 70%W	2.685

Total Length: 270.00 ft Total Volume: 2.685 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1&1/2 # LCM

RW=.170@45degrees

Serial #: 8934

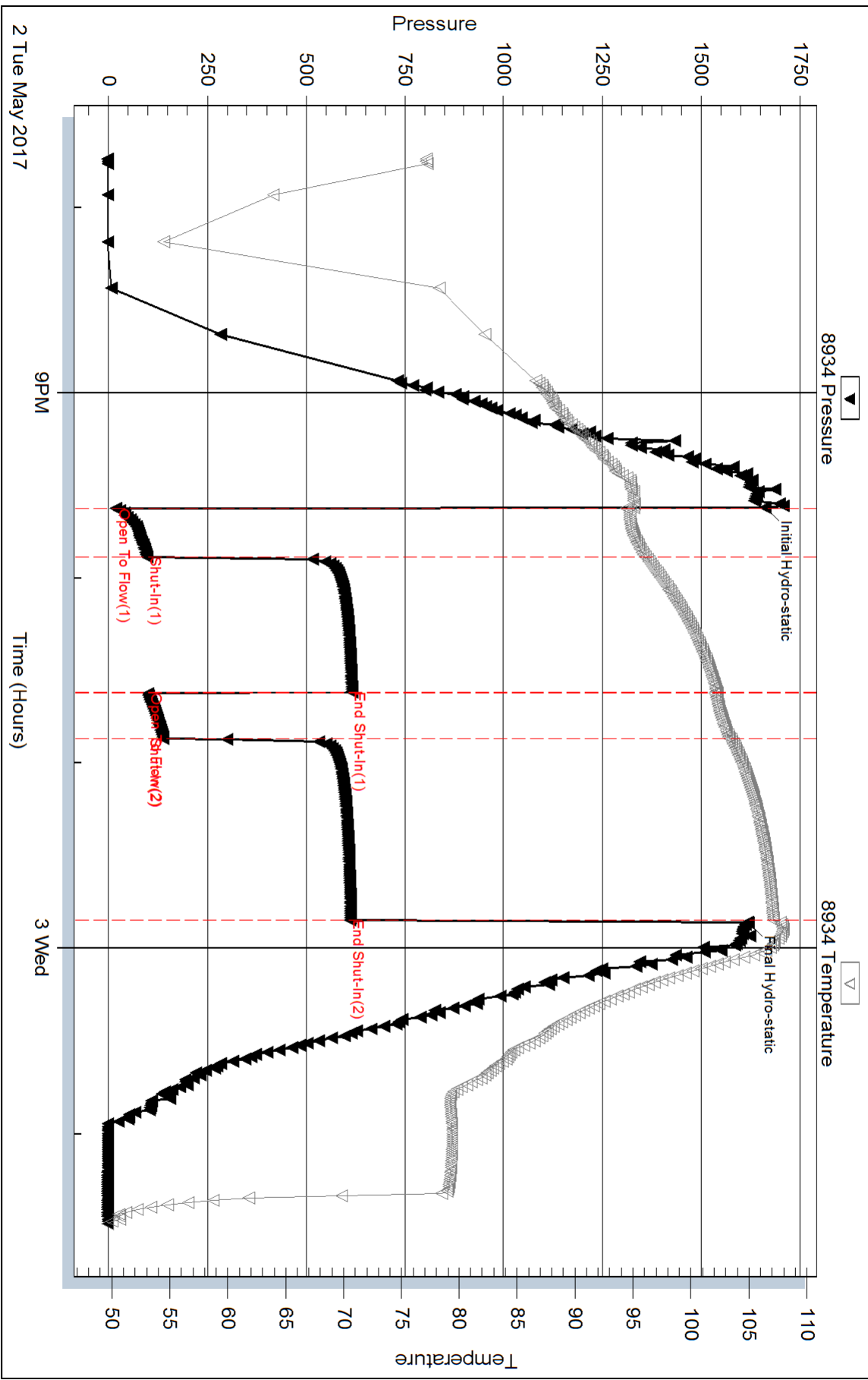
Inside

Jaspar Co

Garth Unit #1

DST Test Number: 2

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 63208

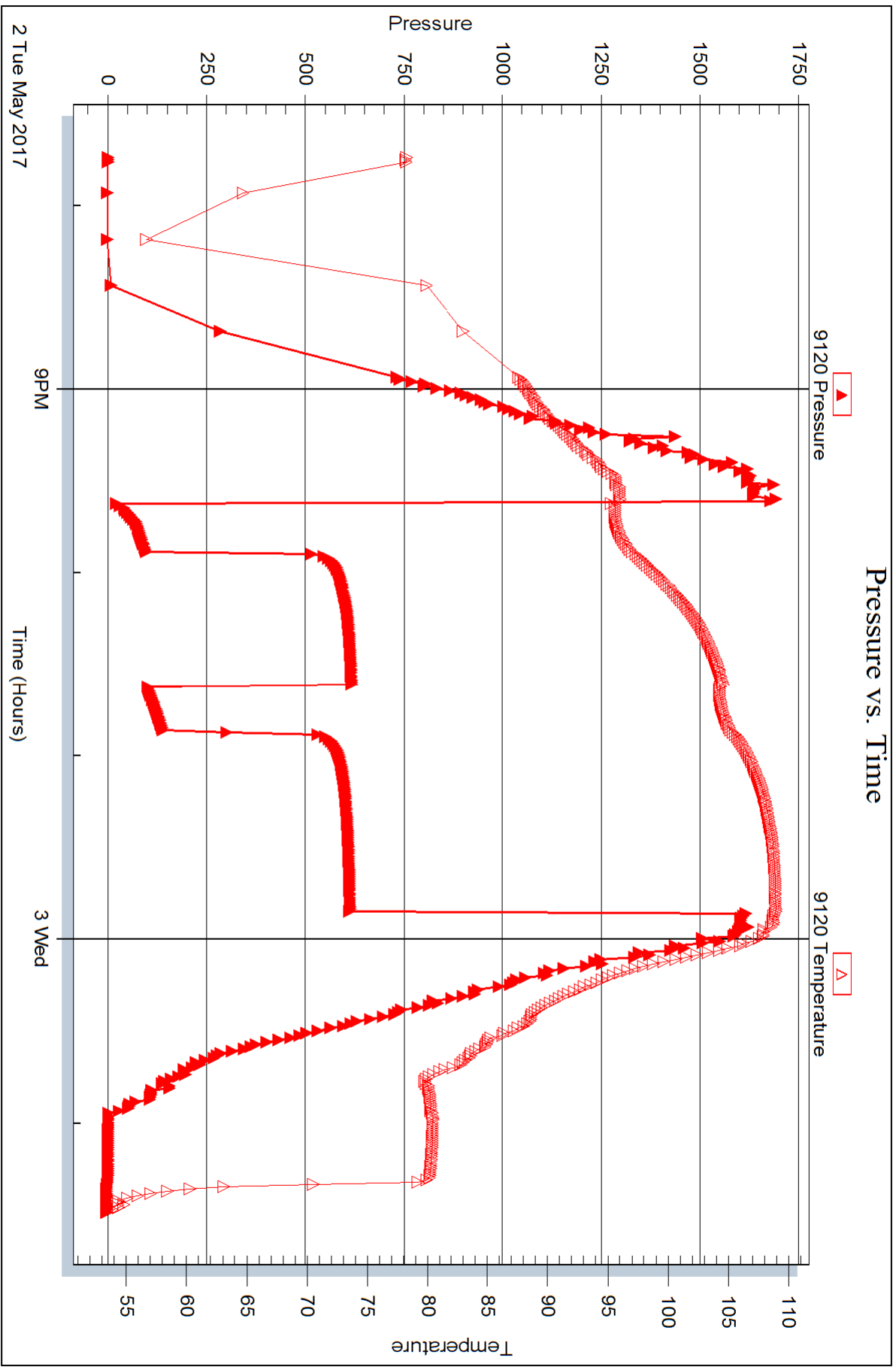
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Serial #: 9120

Inside Jasper Co

Garth Unit #1

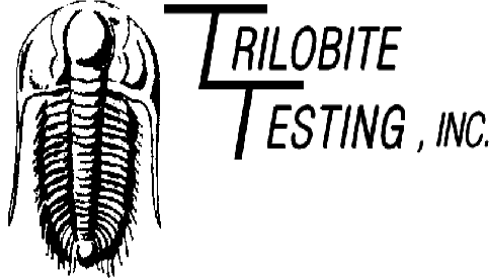
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63208

Printed: 2017.05.05 @ 09:22:39



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Garth Unit #1

S22-6S-20W Rooks,KS

Start Date: 2017.05.03 @ 07:44:00

End Date: 2017.05.03 @ 13:23:15

Job Ticket #: 63209 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.05.05 @ 09:14:13

Jaspar Co
S22-6S-20W Rooks,KS
Garth Unit #1
DST # 3
LKC "E-F"
2017.05.03



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63209

DST#: 3

Test Start: 2017.05.03 @ 07:44:00

GENERAL INFORMATION:

Formation: **LKC "E-F"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:35:45
 Time Test Ended: 13:23:15
 Interval: **3476.00 ft (KB) To 3500.00 ft (KB) (TVD)**
 Total Depth: 3500.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2174.00 ft (KB)
 2169.00 ft (CF)
 KB to GR/CF: 5.00 ft

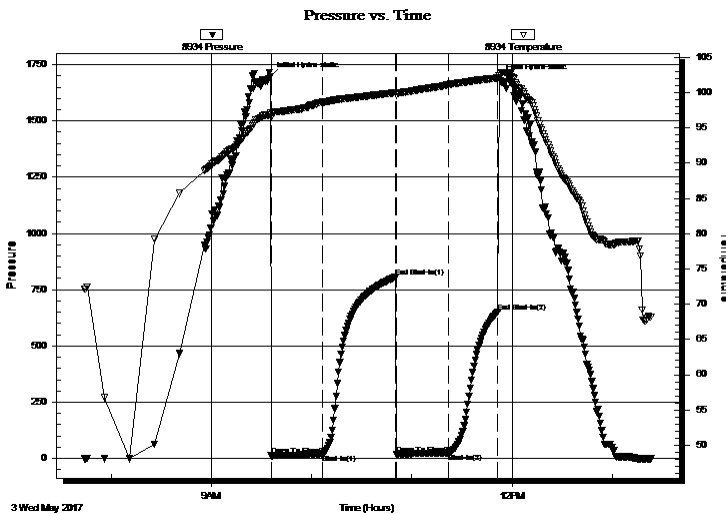
Serial #: 8934

Outside

Press@RunDepth: 23.44 psig @ 3477.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.05.03 End Date: 2017.05.03 Last Calib.: 2017.05.03
 Start Time: 07:44:15 End Time: 13:23:15 Time On Btm: 2017.05.03 @ 09:35:30
 Time Off Btm: 2017.05.03 @ 11:52:15

TEST COMMENT: 30-IF-Very Weak Blow ; Built from a surface to 1"
 45-ISI-No Blow Back
 30-FF-No Blow
 30-FSI-No Blow Back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1696.74	97.07	Initial Hydro-static
1	11.79	96.44	Open To Flow (1)
31	19.64	98.65	Shut-In(1)
75	805.02	99.99	End Shut-In(1)
76	18.91	99.66	Open To Flow (2)
107	23.44	101.13	Shut-In(2)
136	651.47	102.07	End Shut-In(2)
137	1690.07	102.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM 5% O 95%M	0.10

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

S22-6S-20W Rooks, KS
Garth Unit #1
Job Ticket: 63209 **DST#: 3**
Test Start: 2017.05.03 @ 07:44:00

Tool Information

Drill Pipe:	Length: 3364.00 ft	Diameter: 3.80 inches	Volume: 47.19 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	61000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
			- bbl	String Weight: Initial	42000.00 lb
Drill Pipe Above KB:	29.00 ft			Final	42000.00 lb
Depth to Top Packer:	3476.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	24.00 ft				
Tool Length:	44.00 ft				
Number of Packers:	1	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			3457.00	
Shut In Tool	5.00			3462.00	
Hydraulic tool	5.00			3467.00	
Packer	5.00			3472.00	20.00 Bottom Of Top Packer
Packer	4.00			3476.00	
Stubb	1.00			3477.00	
Recorder	0.00	9120	Inside	3477.00	
Recorder	0.00	8934	Outside	3477.00	
Perforations	19.00			3496.00	
Bullnose	4.00			3500.00	24.00 Bottom Packers & Anchor
Total Tool Length:	44.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63209

DST#: 3

ATTN: Jeff Lawler

Test Start: 2017.05.03 @ 07:44:00

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: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1250.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	OCM 5% O 95%M	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

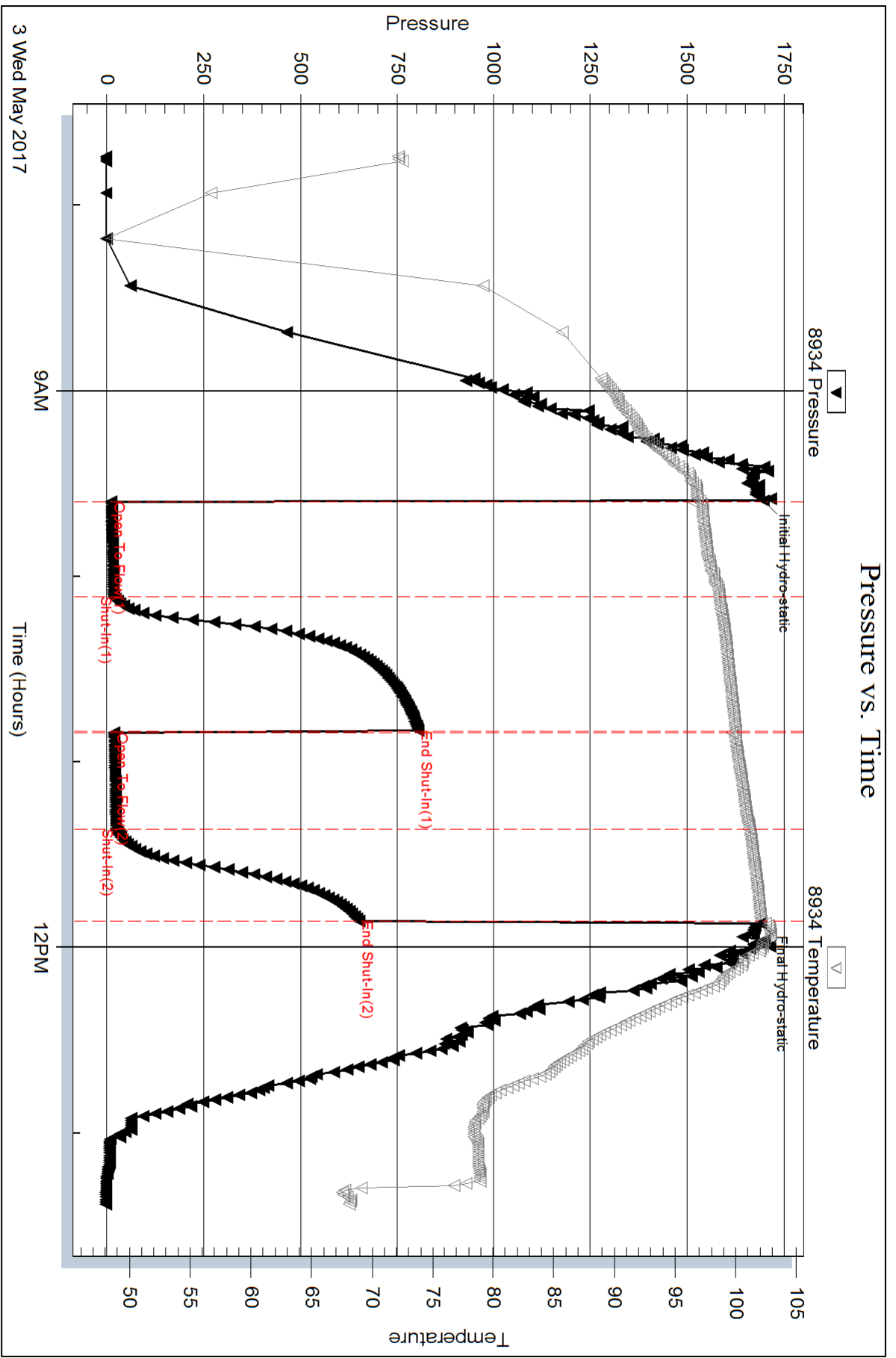
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1&1/2# LCM

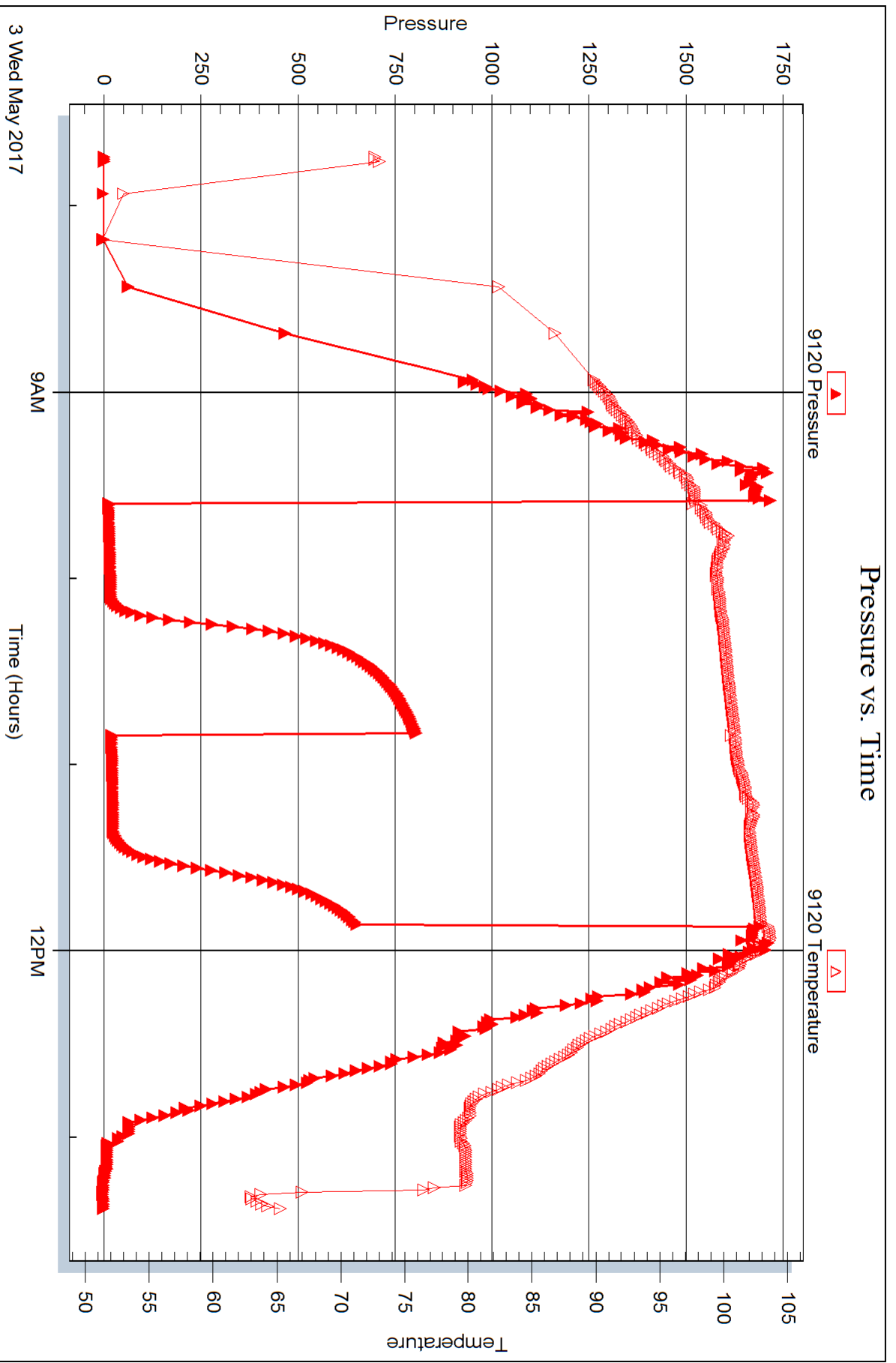


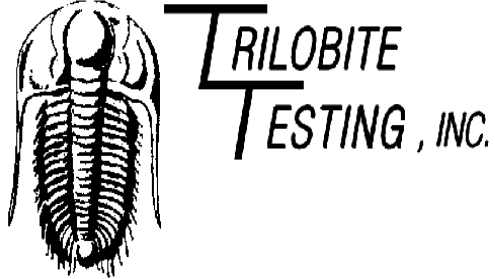
Serial #: 9120

Inside Jasper Co

Garth Unit #1

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Garth Unit #1

S22-6S-20W Rooks,KS

Start Date: 2017.05.03 @ 22:27:00

End Date: 2017.05.04 @ 04:13:00

Job Ticket #: 63210 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.05.05 @ 09:13:49

Jaspar Co
S22-6S-20W Rooks,KS
Garth Unit #1
DST # 4
LKC "H-I"
2017.05.03



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63210

DST#: 4

Test Start: 2017.05.03 @ 22:27:00

GENERAL INFORMATION:

Formation: **LKC "H-I"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:01:45
 Time Test Ended: 04:13:00
 Interval: **3524.00 ft (KB) To 3572.00 ft (KB) (TVD)**
 Total Depth: 3572.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2174.00 ft (KB)
 2169.00 ft (CF)
 KB to GR/CF: 5.00 ft

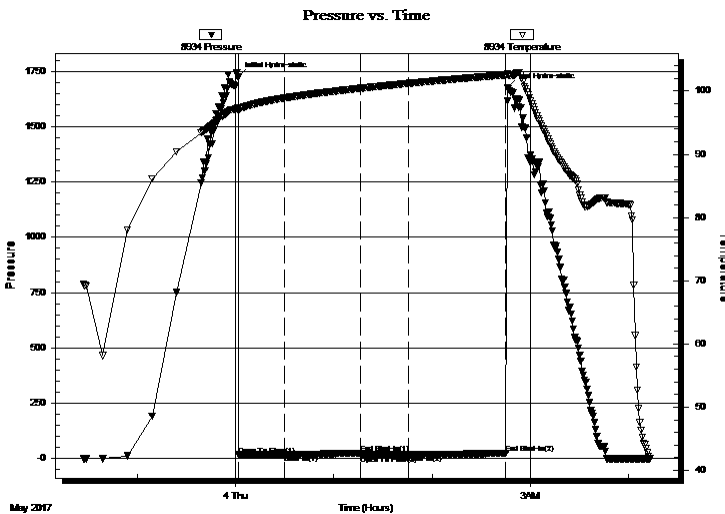
Serial #: 8934

Inside

Press@RunDepth: 16.79 psig @ 3535.00 ft (KB)
 Start Date: 2017.05.03 End Date: 2017.05.04
 Start Time: 22:27:15 End Time: 04:13:00
 Capacity: 8000.00 psig
 Last Calib.: 2017.05.04
 Time On Btm: 2017.05.04 @ 00:01:30
 Time Off Btm: 2017.05.04 @ 02:46:00

TEST COMMENT: 30-IF-Very Weak Blow ; Built from a surface to 1/2"
 45-ISI-No Blow Back
 30-FF-No Blow
 60-FSI-No Blow Back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1724.74	97.39	Initial Hydro-static
1	15.73	96.85	Open To Flow (1)
29	16.50	98.92	Shut-In(1)
75	24.18	100.45	End Shut-In(1)
75	15.79	100.46	Open To Flow (2)
104	16.79	101.22	Shut-In(2)
164	23.09	102.57	End Shut-In(2)
165	1676.58	102.59	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w /scum oil 100%M	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63210

DST#: 4

ATTN: Jeff Lawler

Test Start: 2017.05.03 @ 22:27:00

Tool Information

Drill Pipe:	Length: 3398.00 ft	Diameter: 3.80 inches	Volume: 47.67 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	51000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3524.00 ft			Final	42000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	48.00 ft				
Tool Length:	68.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3505.00	
Shut In Tool	5.00			3510.00	
Hydraulic tool	5.00			3515.00	
Packer	5.00			3520.00	20.00 Bottom Of Top Packer
Packer	4.00			3524.00	
Stubb	1.00			3525.00	
Perforations	9.00			3534.00	
Change Over Sub	1.00			3535.00	
Recorder	0.00	9120	Inside	3535.00	
Recorder	0.00	8934	Inside	3535.00	
Drill Pipe	32.00			3567.00	
Change Over Sub	1.00			3568.00	
Bullnose	4.00			3572.00	48.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63210

DST#: 4

ATTN: Jeff Lawler

Test Start: 2017.05.03 @ 22:27:00

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: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1250.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud w /scum oil 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

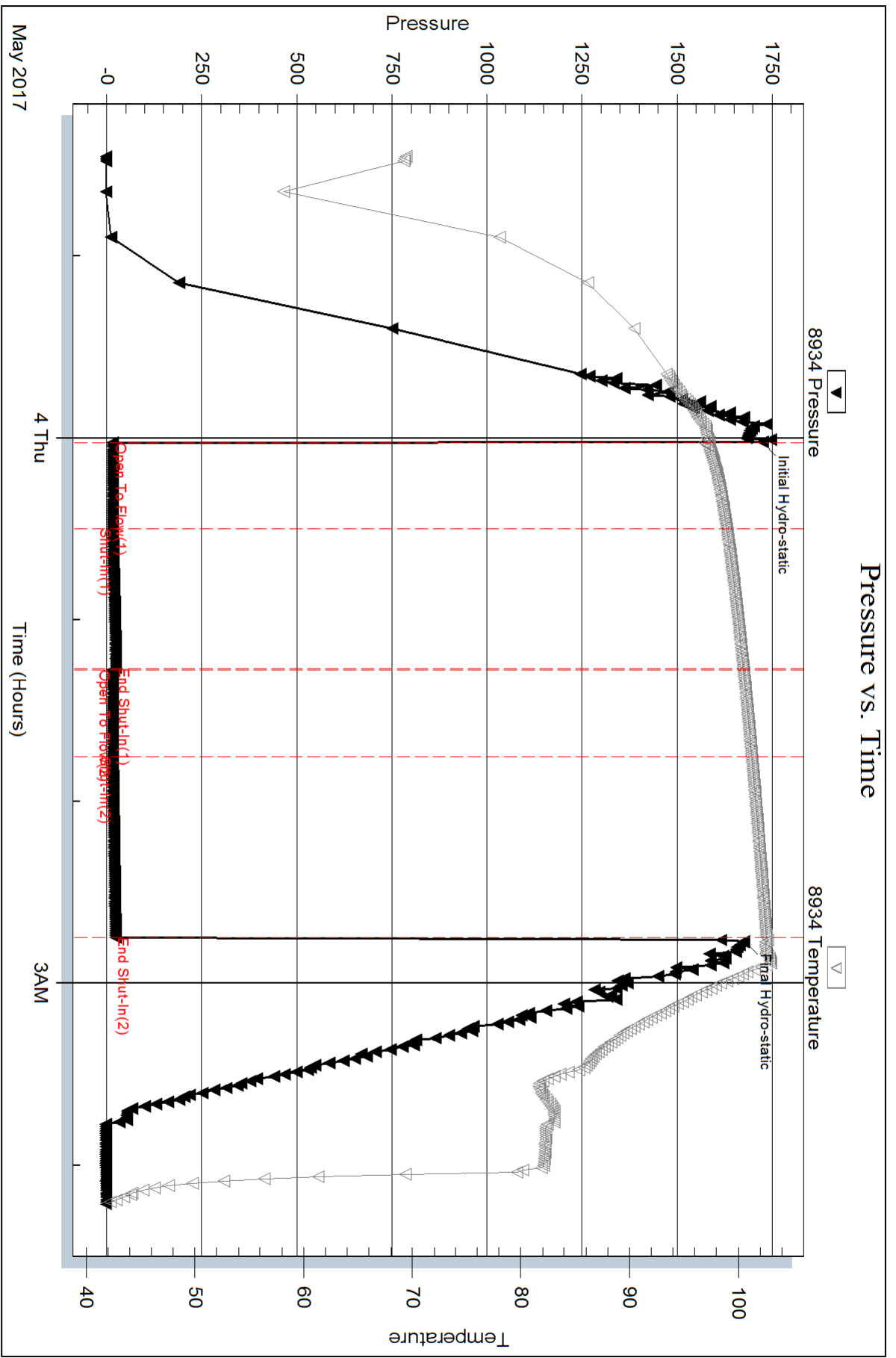
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1&1/2# LCM

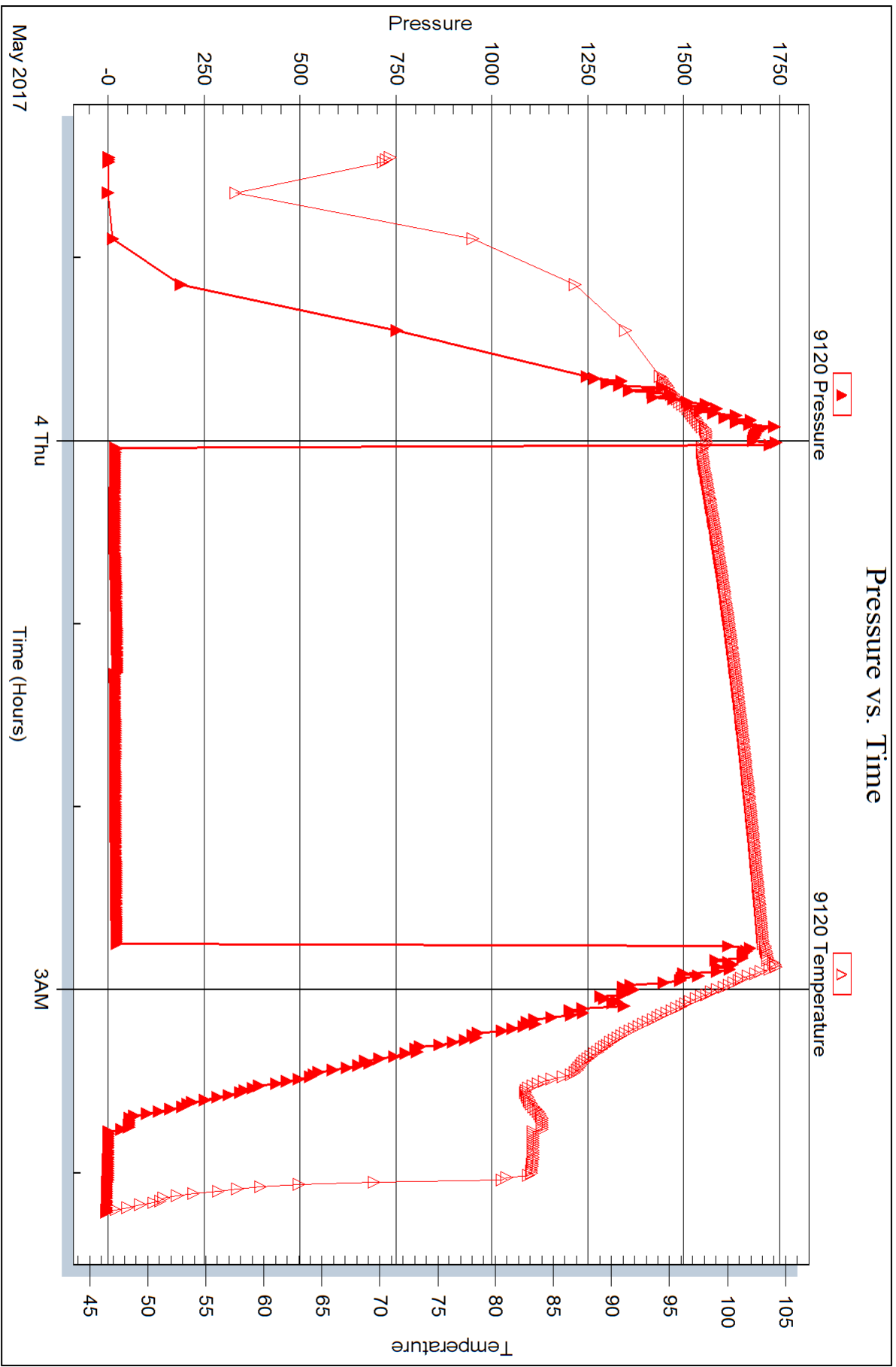


Serial #: 9120

Inside Jasper Co

Garth Unit #1

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Garth Unit #1

S22-6S-20W Rooks,KS

Start Date: 2017.05.04 @ 18:03:35

End Date: 2017.05.05 @ 00:46:05

Job Ticket #: 63207 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.05.05 @ 09:12:54

Jaspar Co
S22-6S-20W Rooks,KS
Garth Unit #1
DST # 5
Conglomerate
2017.05.04



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

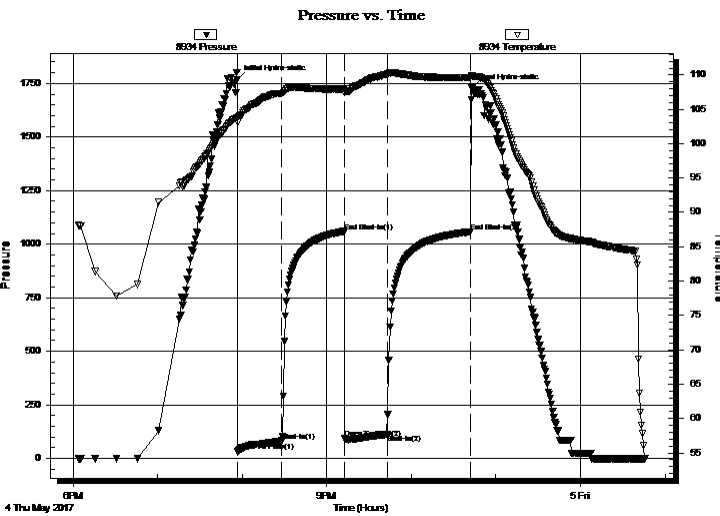
S22-6S-20W Rooks, KS
Garth Unit #1
 Job Ticket: 63207 **DST#: 5**
 Test Start: 2017.05.04 @ 18:03:35

GENERAL INFORMATION:

Formation: **Conglomerate**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:56:50
 Time Test Ended: 00:46:05
 Interval: **3610.00 ft (KB) To 3654.00 ft (KB) (TVD)**
 Total Depth: 3654.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2174.00 ft (KB)
 2169.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 111.70 psig @ 3617.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.05.04 End Date: 2017.05.05 Last Calib.: 2017.05.04
 Start Time: 18:03:50 End Time: 00:46:05 Time On Btm: 2017.05.04 @ 19:56:20
 Time Off Btm: 2017.05.04 @ 22:42:50

TEST COMMENT: 30 IFP - BOB in 20 min
 45 ISI - Weak surface blow back built to 1/4" Died in 20 min
 30 FFP - BOB in 23 min
 60 FSI - Surface blow back built to 1 1/4" died back to 1/2"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1768.06	103.82	Initial Hydro-static
1	32.30	103.14	Open To Flow (1)
32	81.98	107.30	Shut-In(1)
76	1056.55	107.95	End Shut-In(1)
77	92.36	107.42	Open To Flow (2)
107	111.70	110.01	Shut-In(2)
166	1057.52	109.60	End Shut-In(2)
167	1727.71	109.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	OCWM 10%O 25%W 65%M	0.59
80.00	OCM 30%O 70%M	1.11
20.00	MCO 80%O 20%M	0.28
20.00	SMCO 95%O 5%M	0.28

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63207

DST#: 5

ATTN: Jeff Lawler

Test Start: 2017.05.04 @ 18:03:35

Tool Information

Drill Pipe:	Length: 3480.00 ft	Diameter: 3.80 inches	Volume: 48.82 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	lb
			<u>Total Volume: 49.42 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial	lb
Depth to Top Packer:	3610.00 ft			Final	lb
Depth to Bottom Packer:	ft				
Interval between Packers:	44.00 ft				
Tool Length:	64.00 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			3591.00	
Shut In Tool	5.00			3596.00	
Hydraulic tool	5.00			3601.00	
Packer	5.00			3606.00	20.00 Bottom Of Top Packer
Packer	4.00			3610.00	
Stubb	1.00			3611.00	
Perforations	5.00			3616.00	
Change Over Sub	1.00			3617.00	
Recorder	0.00	9120	Inside	3617.00	
Recorder	0.00	8934	Inside	3617.00	
Drill Pipe	32.00			3649.00	
Change Over Sub	1.00			3650.00	
Bullnose	4.00			3654.00	44.00 Bottom Packers & Anchor

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

S22-6S-20W Rooks,KS

PO Box 1120
Hays KS 67601

Garth Unit #1

Job Ticket: 63207

DST#: 5

ATTN: Jeff Lawler

Test Start: 2017.05.04 @ 18:03:35

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

44000 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1250.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	OCWM 10%O 25%W 65%M	0.590
80.00	OCM 30%O 70%M	1.113
20.00	MCO 80%O 20%M	0.281
20.00	SMCO 95%O 5%M	0.281

Total Length: 240.00 ft

Total Volume: 2.265 bbl

Num Fluid Samples: 0

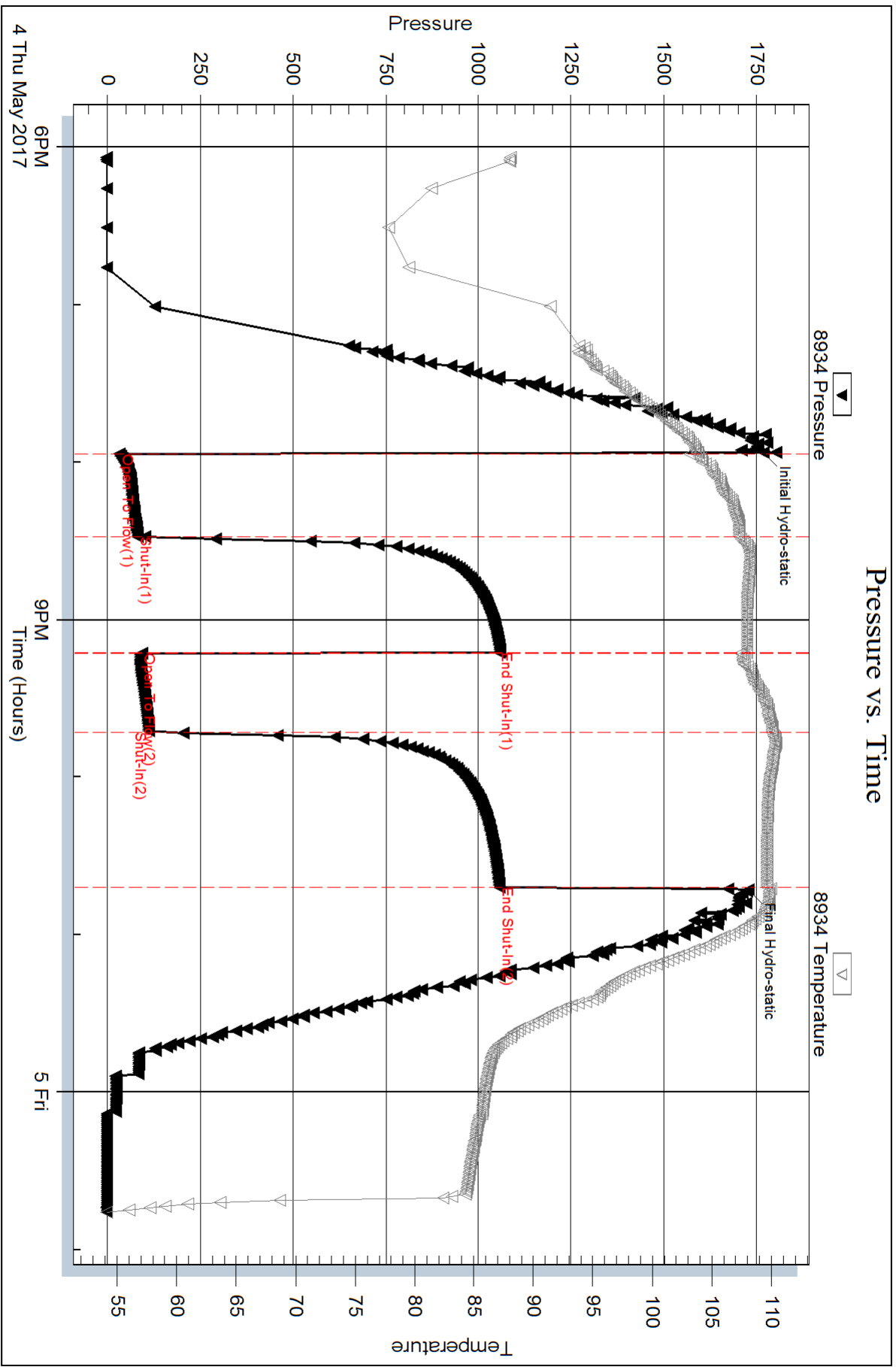
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Rw .235 @ 50

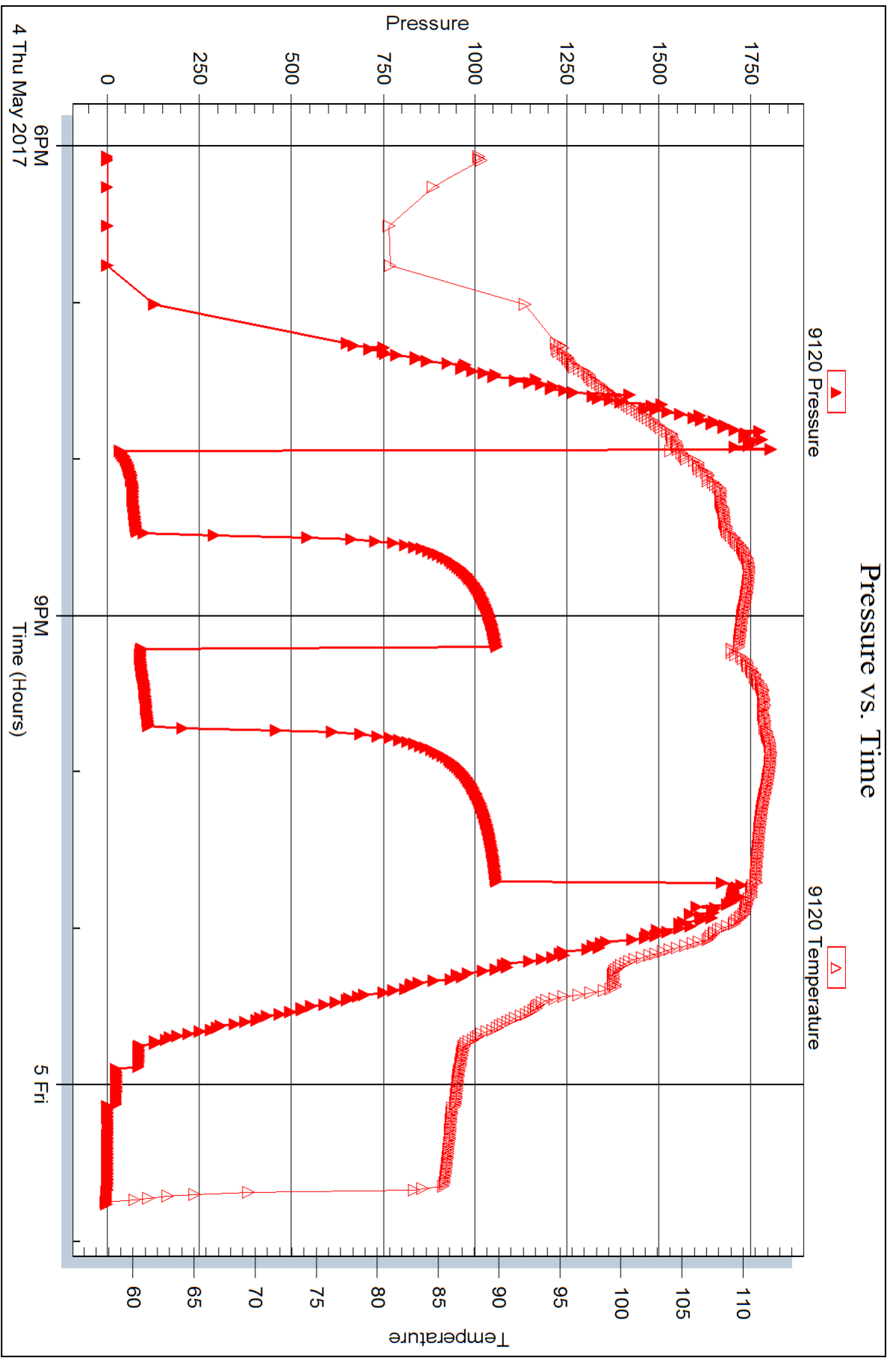


Serial #: 9120

Inside Jasper Co

Garth Unit #1

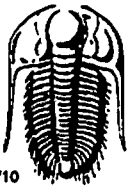
DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 63207

Printed: 2017.05.05 @ 09:12:56



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63207

Well Name & No. Earth Unit #1 Test No. 1 Date 05/02/2017
 Company Jasper Co Elevation 2174 KB 2169 GL
 Address PO BOX 1120 Hays, Ks 67601
 Co. Rep / Geo. Jeff Lawler Rig 2W2 #8
 Location: Sec. 22 Twp. 6S Rge. 20W Co. Rooks State Ks

Interval Tested 3370' - 3430' Zone Tested Taronto - LMC "a"
 Anchor Length 60' Drill Pipe Run 3238' Mud Wt. 8.7
 Top Packer Depth 3365' Drill Collars Run 121' Vis 62
 Bottom Packer Depth 3370' Wt. Pipe Run — WL 6.8
 Total Depth 3430' Chlorides 1250 ppm System LCM 1#

Blow Description 17 - Fair Blow; Built from a surface to 5"
ISD - No Blow Back
77 - Weak Blow; at 3 mins built from a surface to 3"
ISD - No Blow Back

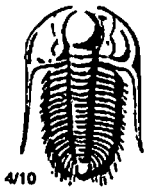
Rec	Feet of	%gas	%oil	%water	%mud
<u>160</u>	<u>W/M</u>		<u>10</u>	<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 160' BHT 103° Gravity — API RW 307 @ 60 ° F Chlorides 25,500 ppm

(A) Initial Hydrostatic 1654 Test 1050 T-On Location 04:15
 (B) First Initial Flow 15 Jars _____ T-Started 06:20
 (C) First Final Flow 63 Safety Joint _____ T-Open 07:55
 (D) Initial Shut-In 831 Circ Sub _____ T-Pulled 10:25
 (E) Second Initial Flow 68 Hourly Standby _____ T-Out 12:03
 (F) Second Final Flow 83 Mileage 128 RT 96 Comments had to wait on cat
 (G) Final Shut-In 808 Sampler _____ to get to cat walk; tool
 (H) Final Hydrostatic 1619 Straddle _____ slid 2 ft
 Ruined Shale Packer _____
 Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Copies _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1146 Sub Total 0
 Total 1146 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Jacob Thanks!
 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.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63208

Well Name & No. Earth Unit #1 Test No. 2 Date 05/02/2017
 Company Jasper Co Elevation 2174 KB 2169 GL
 Address PO BOX 1120 Hays KS 67601
 Co. Rep / Geo. Jeff Lawler Rig 9W9W #8
 Location: Sec. 22 Twp. 6s Rge. 20w Co. Rooks State KS

Interval Tested 3432' - 3476' Zone Tested LKC "C+D"
 Anchor Length 44' Drill Pipe Run 3300' Mud Wt. 9
 Top Packer Depth 3427' Drill Collars Run 121' Vis 50
 Bottom Packer Depth 3432' Wt. Pipe Run - WL 7.2
 Total Depth 3476' Chlorides 1250 ppm System LCM 1.5#

Blow Description 77- Strong Blow; Build from 1/2" to BOB in 12 minutes
75D- No Blow Back
77- Strong Blow; Build from a surface to 9 1/2"
75D- No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>270'</u>	<u>MW</u>			<u>70</u>	<u>30</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 270' BHT 107° Gravity - API RW 170 @ 45 °F Chlorides 72,500 ppm

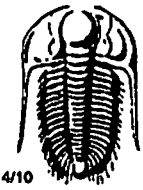
(A) Initial Hydrostatic 1661 Test 1050 T-On Location 19:08
 (B) First Initial Flow 18 Jars _____ T-Started 19:44
 (C) First Final Flow 97 Safety Joint _____ T-Open 21:36
 (D) Initial Shut-In 615 Circ Sub _____ T-Pulled 23:51
 (E) Second Initial Flow 99 Hourly Standby _____ T-Out: 01:27 05/03/2017
 (F) Second Final Flow 139 Mileage 128 R7 96 Comments _____
 (G) Final Shut-In 611 Sampler _____
 (H) Final Hydrostatic 1619 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1146
 Accessibility _____ MP/DST Disc't _____

Initial Open 15
 Initial Shut-In 45
 Final Flow 15
 Final Shut-In 60

Sub Total 1146

Approved By _____ Our Representative Spencer J. Anab Thank-you!
 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.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63209

Well Name & No. North Unit #1 Test No. 3 Date 05/03/2017
 Company Jasper Co Elevation 2174 KB 2169 GL
 Address PO BOX 1120 Hays KS 67601
 Co. Rep / Geo. Jeff Lawler Rig WW #8
 Location: Sec. 22 Twp. 6S Rge. 20W Co. Rooks State KS

Interval Tested 3476' - 3500' Zone Tested LKC "E-7"
 Anchor Length 24' Drill Pipe Run 3364' Mud Wt. 9.2
 Top Packer Depth 3471' Drill Collars Run 121' Vis 48
 Bottom Packer Depth 3476' Wt. Pipe Run - WL 7.6
 Total Depth 3500' Chlorides 1250 ppm System LCM 1.5#

Blow Description 7- Very Weak Blow; Built from a surface to 1"

55- No Blow Back
77- No Blow
75D- No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>OCM</u>	<u>5</u>		<u>95</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 20' BHT 102° Gravity - API RW - @ - ° F Chlorides - ppm

- (A) Initial Hydrostatic 1696
- (B) First Initial Flow 11
- (C) First Final Flow 19
- (D) Initial Shut-In 805
- (E) Second Initial Flow 18
- (F) Second Final Flow 23
- (G) Final Shut-In 651
- (H) Final Hydrostatic 1690

- Test 1050
- Jars
- Safety Joint
- Circ Sub
- Hourly Standby
- Mileage 128R7 96
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1146

T-On Location 07:09
 T-Started 07:44
 T-Open 09:35
 T-Pulled 11:50
 T-Out 13:22

Comments _____
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total .0
 Total 1146
 MP/DST Disc't _____

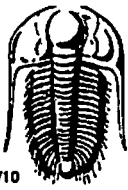
Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 30

Approved By _____

Our Representative Spencer J. Neal Thanks!

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.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63210

Well Name & No. North Unit #1 Test No. 4 Date 05/03/2017
 Company Jasper Co. Elevation 2174 KB 2169 GL
 Address PO Box 1120 Hays KS 67601
 Co. Rep / Geo. Jeff Lawler Rig 209W#8
 Location: Sec. 22 Twp. 6s Rge. 20w Co. Rooks State Ks

Interval Tested 3524' - 3572' Zone Tested LKC "H-D"
 Anchor Length 48' Drill Pipe Run 3398' Mud Wt. 9.2
 Top Packer Depth 3519' Drill Collars Run 121' Vis 48
 Bottom Packer Depth 3524' Wt. Pipe Run - WL 7.6
 Total Depth 3572' Chlorides 1,250 ppm System LCM 1.5#

Blow Description 77- Very Weak Blow; Built from a surface to 1/2"

75D- No Blow Back

77- No Blow

78D- No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud w/ some oil</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5' BHT 103° Gravity - API RW - @ - F Chlorides - ppm

- (A) Initial Hydrostatic 1724
- (B) First Initial Flow 15
- (C) First Final Flow 16
- (D) Initial Shut-In 24
- (E) Second Initial Flow 15
- (F) Second Final Flow 16
- (G) Final Shut-In 23
- (H) Final Hydrostatic 1676

- Test 1050
- Jars
- Safety Joint
- Circ Sub
- Hourly Standby
- Mileage 12827 96
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility

T-On Location 22:00
 T-Started 22:27
 T-Open 00:00 05/04/2017
 T-Pulled 02:45
 T-Out 04:11

Comments _____
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1146
 MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 60

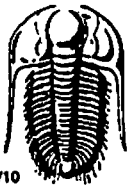
Sub Total 1146

Approved By _____

Our Representative Spencer J. Stahl Thanks!

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.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63211

Well Name & No. North Unit #1 Test No. 5 Date 05/04/2017
 Company Jasper Co Elevation 2174 KB 2169 GL
 Address PO Box 1120 Hays Ks 67601
 Co. Rep / Geo. Jeff Lawler Rig WW#8
 Location: Sec. 22 Twp. 6S Rge. 20W Co. Rooks State Ks

Interval Tested 3610' - 3654' Zone Tested Conglomerate Sand
 Anchor Length 44' Drill Pipe Run 3493' Mud Wt. 9.2
 Top Packer Depth 3605' Drill Collars Run 121' Vis 51
 Bottom Packer Depth 3610' Wt. Pipe Run - WL 6.8
 Total Depth 3654' Chlorides 1500 ppm System LCM 1.5#

Blow Description 7- Strong Blow; Built from surface to BOB in 20 minutes
DSD Weak Blow; Built from surface to 1/4"; died 20 minutes in
77- Strong Blow; Built from surface to BOB in 23 minutes
78D- Weak Blow; Built from surface to 1 1/4"; died back to 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>MCO</u>	<u>95</u>	<u>5</u>	<u>5</u>	<u>5</u>
<u>20'</u>	<u>MCO</u>	<u>80</u>	<u>20</u>	<u>20</u>	<u>20</u>
<u>80'</u>	<u>OCM</u>	<u>30</u>	<u>70</u>	<u>70</u>	<u>70</u>
<u>120'</u>	<u>OWCM</u>	<u>10</u>	<u>25</u>	<u>65</u>	<u>65</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 240' BHT 109° Gravity 27° API RW 235 @ 50° F Chlorides 44,000 ppm

(A) Initial Hydrostatic 1772 Test 1050 T-On Location 17:12
 (B) First Initial Flow 32 Jars _____ T-Started 18:03
 (C) First Final Flow 81 Safety Joint _____ T-Open 19:56
 (D) Initial Shut-In 1056 Circ Sub _____ T-Pulled 22:41
 (E) Second Initial Flow 92 Hourly Standby _____ T-Out 00:44
 (F) Second Final Flow 111 Mileage 128 RT 96 Comments _____
 (G) Final Shut-In 1057 Sampler _____
 (H) Final Hydrostatic 1727 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30 Shale Packer _____
 Initial Shut-In 45 Extra Packer _____
 Final Flow 30 Extra Recorder _____
 Final Shut-In 60 Day Standby _____
 Accessibility _____
 Sub Total 1146 Total 1146 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Jacob Thank-you!
 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.

785-259-0056