



DRILL STEM TEST REPORT

Prepared For: **Arcadian Resources, LLC**

PO Box 816
Hays, KS 67601

ATTN: Patrick Deenihan

Liam #1-19

19-8S-32W Thomas,KS

Start Date: 2019.01.03 @ 00:36:31

End Date: 2019.01.03 @ 16:51:36

Job Ticket #: 65023 DST #: 1

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

Printed: 2019.01.07 @ 14:53:25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65023

DST#: 1

ATTN: Patrick Deenihan

Test Start: 2019.01.03 @ 00:36:31

GENERAL INFORMATION:

Formation: **Altamont A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:29:36

Time Test Ended: 16:51:36

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan Lonsdale

Unit No: 73

Interval: **4392.00 ft (KB) To 4415.00 ft (KB) (TVD)**

Reference Elevations: 3120.00 ft (KB)

Total Depth: 4415.00 ft (KB) (TVD)

3111.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 8700 Outside

Press@RunDepth: 22.66 psig @ 4393.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.03

End Date:

2019.01.03

Last Calib.:

2019.01.03

Start Time:

00:36:32

End Time:

16:51:36

Time On Btm:

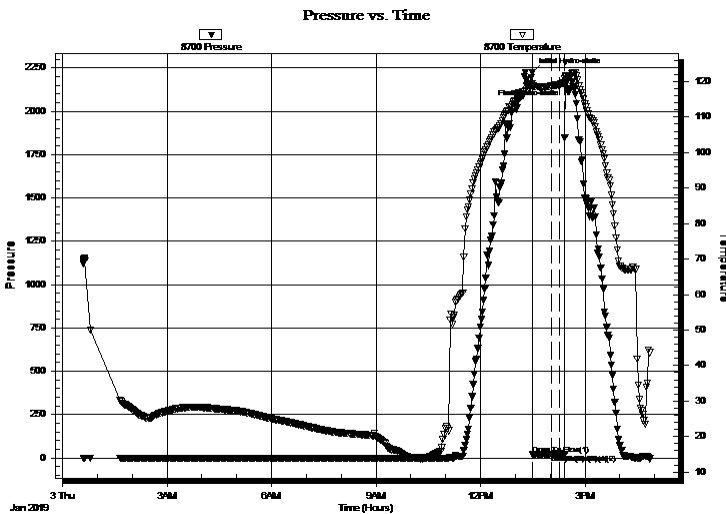
2019.01.03 @ 13:29:06

Time Off Btm:

2019.01.03 @ 14:26:36

TEST COMMENT: 30- IF- Slowly built to 1.31"
15- IS- No blow
10- FF- No blow . Pulled tool

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2222.48	119.34	Initial Hydro-static
1	20.22	118.53	Open To Flow (1)
33	22.66	118.74	Shut-In(1)
46	23.53	119.19	End Shut-In(1)
47	22.16	119.20	Open To Flow (2)
56	21.35	119.58	Shut-In(2)
58	2173.49	121.42	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	M	0.04

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65023

DST#: 1

ATTN: Patrick Deenihan

Test Start: 2019.01.03 @ 00:36:31

Tool Information

Drill Pipe:	Length: 4369.00 ft	Diameter: 3.82 inches	Volume: 61.93 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 66000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4392.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	54.00 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			4362.00	
Shut In Tool	5.00			4367.00	
Hydraulic tool	5.00			4372.00	
Jars	5.00			4377.00	
Gap Sub	3.00			4380.00	
Safety Joint	3.00			4383.00	
Packer	5.00			4388.00	31.00 Bottom Of Top Packer
Packer	4.00			4392.00	
Stubb	1.00			4393.00	
Recorder	0.00	6771	Inside	4393.00	
Recorder	0.00	8700	Outside	4393.00	
Perforations	19.00			4412.00	
Bullnose	3.00			4415.00	23.00 Bottom Packers & Anchor

Total Tool Length: 54.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65023

DST#: 1

ATTN: Patrick Deenihan

Test Start: 2019.01.03 @ 00:36:31

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: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	M	0.043

Total Length: 3.00 ft Total Volume: 0.043 bbl

Num Fluid Samples: 0

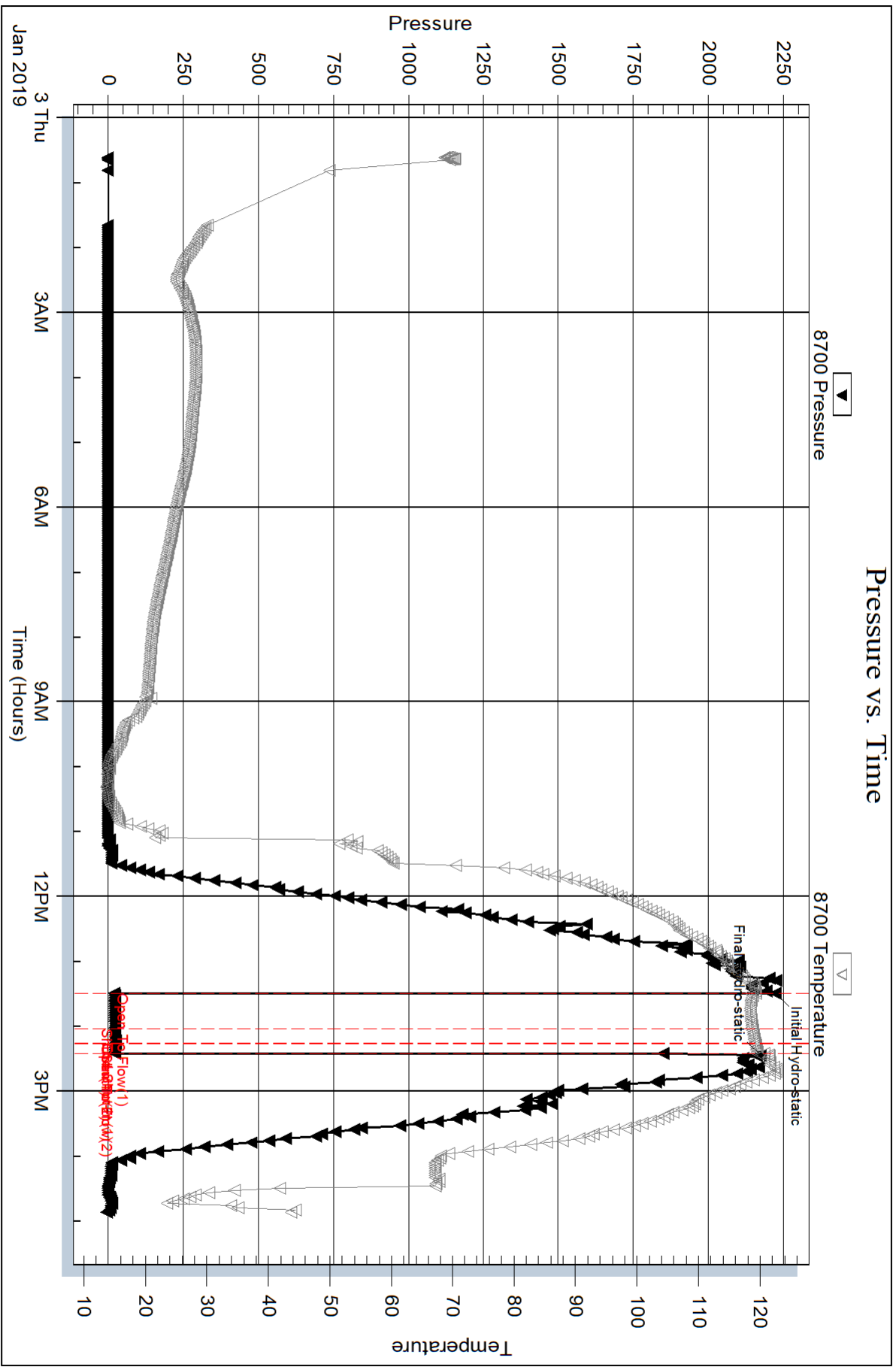
Num Gas Bombs: 0

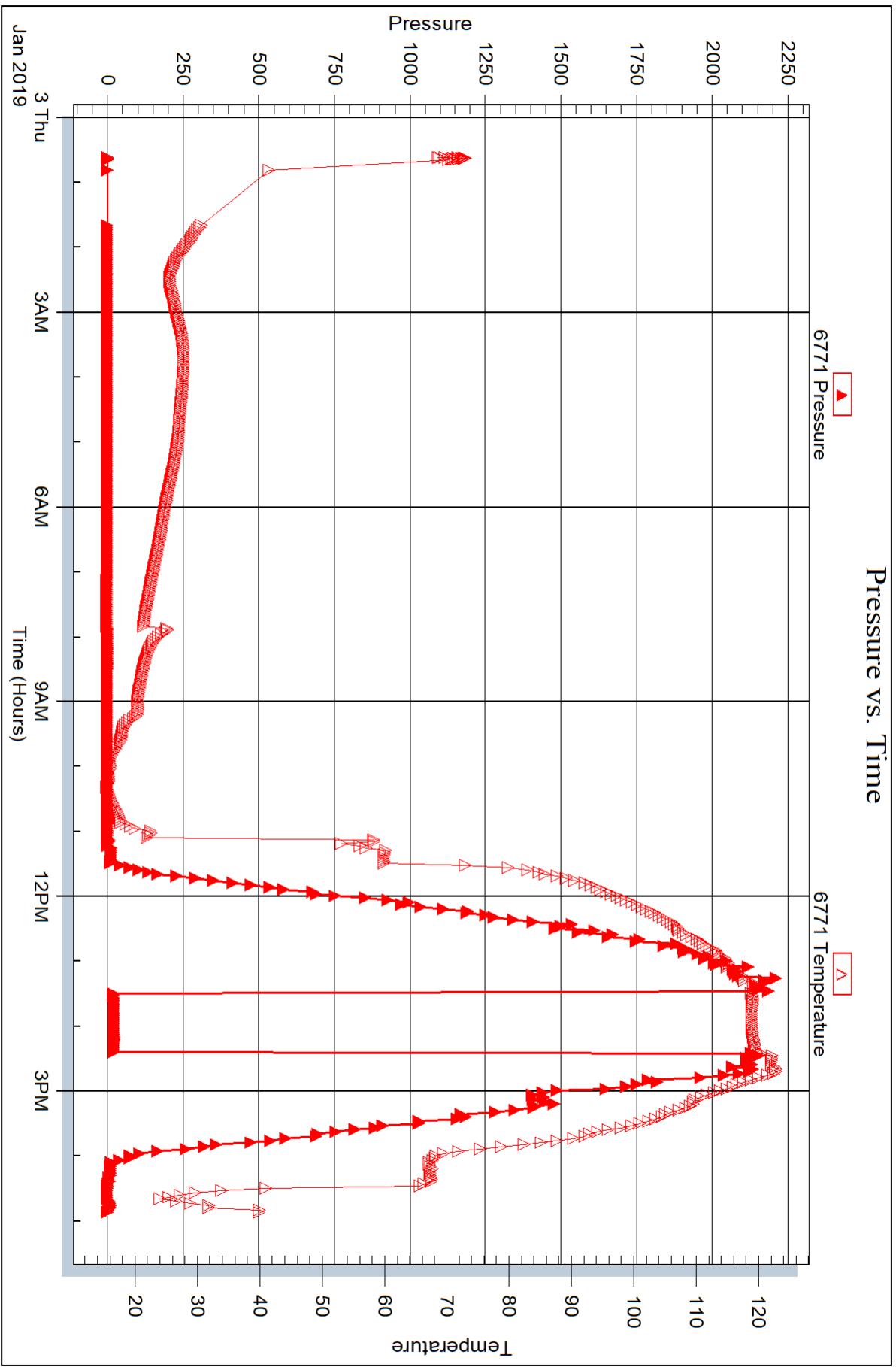
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Arcadian Resources, LLC**

PO Box 816
Hays, KS 67601

ATTN: Patrick Deenihan

Liam #1-19

19-8S-32W Thomas,KS

Start Date: 2019.01.03 @ 19:35:13

End Date: 2019.01.04 @ 03:11:04

Job Ticket #: 65024 DST #: 2

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

Printed: 2019.01.07 @ 14:49:00



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65024

DST#: 2

ATTN: Patrick Deenihan

Test Start: 2019.01.03 @ 19:35:13

GENERAL INFORMATION:

Formation: **Altamont B - C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:14:04

Time Test Ended: 03:11:04

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 73

Interval: 4423.00 ft (KB) To 4466.00 ft (KB) (TVD)

Reference Elevations: 3120.00 ft (KB)

Total Depth: 4466.00 ft (KB) (TVD)

3111.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 8700 Outside

Press@RunDepth: 23.28 psig @ 4424.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.03

End Date:

2019.01.04

Last Calib.:

2019.01.04

Start Time:

19:35:14

End Time:

03:11:04

Time On Btm:

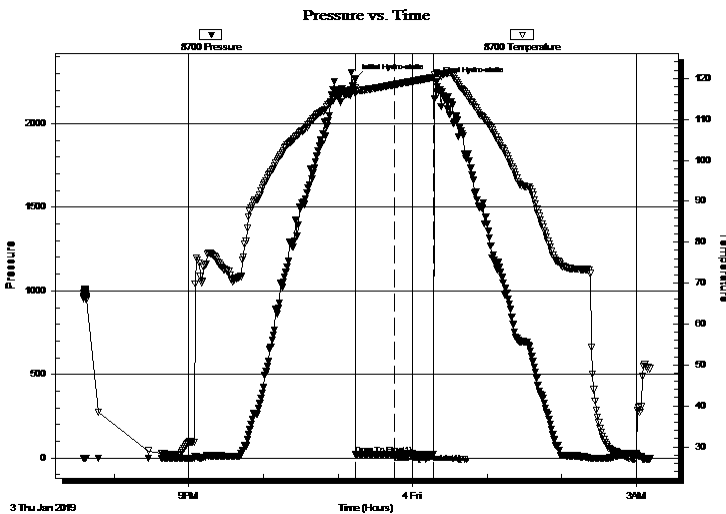
2019.01.03 @ 23:13:49

Time Off Btm:

2019.01.04 @ 00:19:19

TEST COMMENT: 30- IF- Slowly built to 1.03"
15- IS- No blow
15- FF- No blow . Pulled tool

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2266.37	117.65	Initial Hydro-static
1	20.69	116.36	Open To Flow (1)
32	23.28	118.48	Shut-In(1)
46	26.35	119.28	End Shut-In(1)
47	23.39	119.30	Open To Flow (2)
64	23.93	120.22	Shut-In(2)
66	2248.24	121.23	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	M	0.03

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65024

DST#: 2

ATTN: Patrick Deenihan

Test Start: 2019.01.03 @ 19:35:13

Tool Information

Drill Pipe:	Length: 4399.00 ft	Diameter: 3.82 inches	Volume: 62.36 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	2.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	4423.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	43.00 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			4398.00	
Shut In Tool	5.00			4403.00	
Hydraulic tool	5.00			4408.00	
Gap Sub	3.00			4411.00	
Safety Joint	3.00			4414.00	
Packer	5.00			4419.00	26.00 Bottom Of Top Packer
Packer	4.00			4423.00	
Stubb	1.00			4424.00	
Recorder	0.00	6771	Inside	4424.00	
Recorder	0.00	8700	Outside	4424.00	
Perforations	6.00			4430.00	
Change Over Sub	1.00			4431.00	
Drill Pipe	31.00			4462.00	
Change Over Sub	1.00			4463.00	
Bullnose	3.00			4466.00	43.00 Bottom Packers & Anchor

Total Tool Length: 69.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65024

DST#: 2

ATTN: Patrick Deenihan

Test Start: 2019.01.03 @ 19:35:13

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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 750.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	M	0.028

Total Length: 2.00 ft Total Volume: 0.028 bbl

Num Fluid Samples: 0

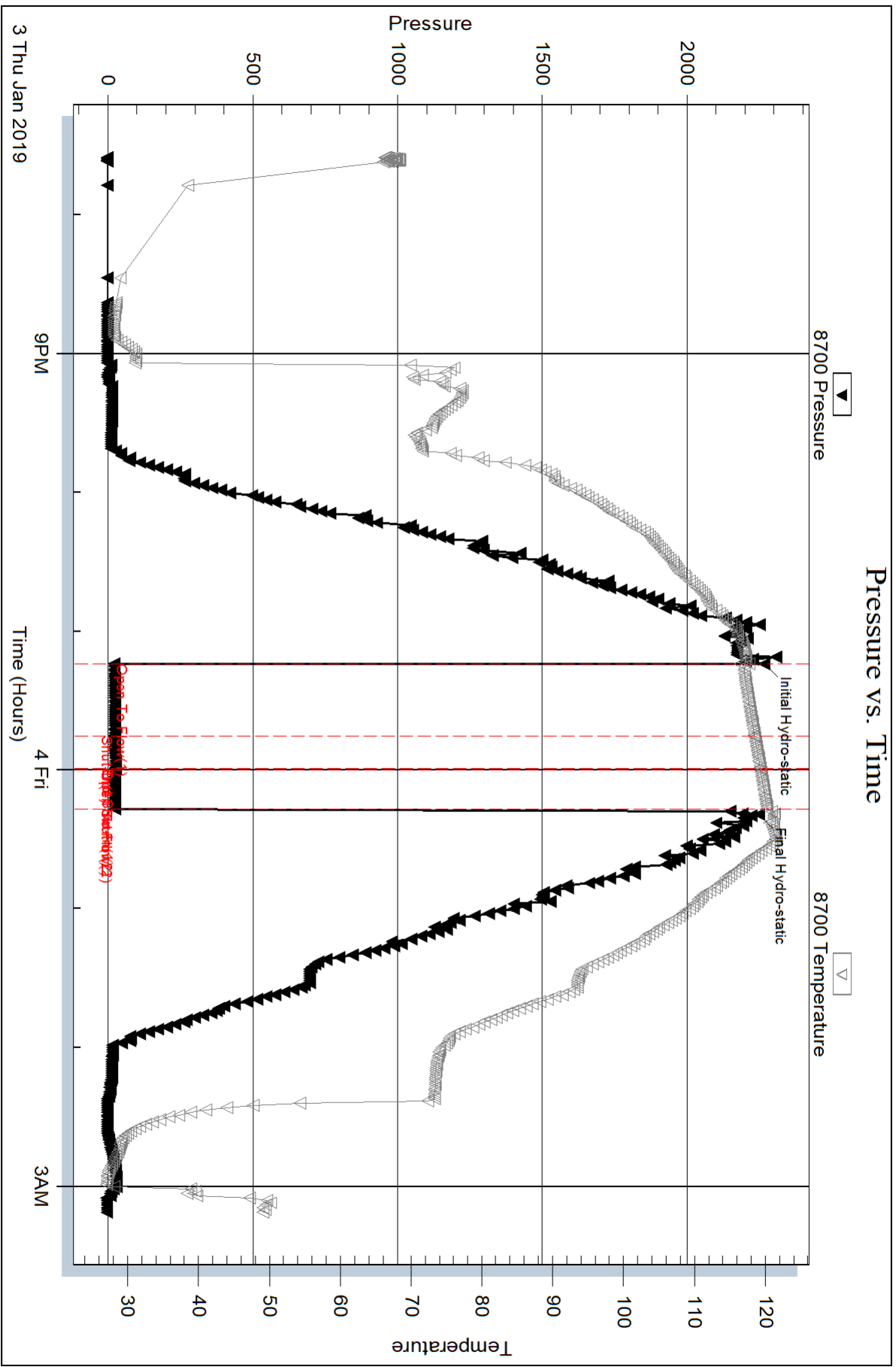
Num Gas Bombs: 0

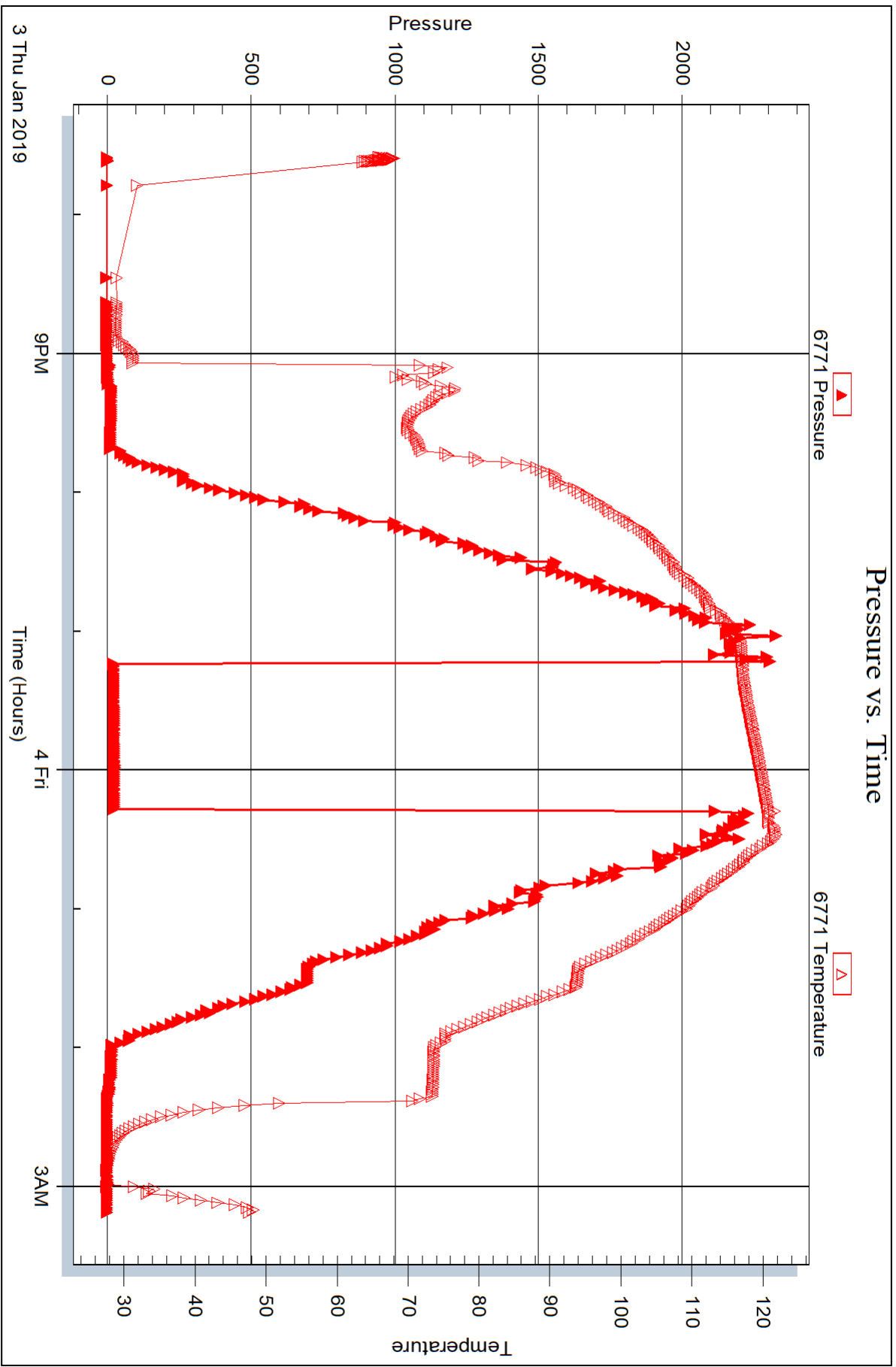
Serial #:

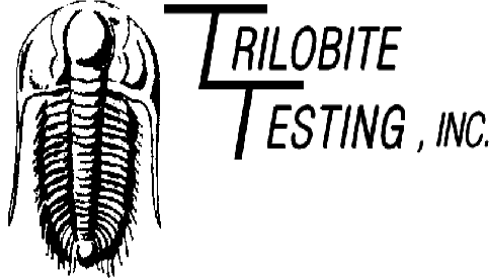
Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Arcadian Resources, LLC**

PO Box 816
Hays, KS 67601

ATTN: Patrick Deenihan

Liam #1-19

19-8S-32W Thomas,KS

Start Date: 2019.01.04 @ 11:59:47

End Date: 2019.01.04 @ 20:01:38

Job Ticket #: 65025 DST #: 3

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

Printed: 2019.01.07 @ 14:48:29



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65025

DST#: 3

ATTN: Patrick Deenihan

Test Start: 2019.01.04 @ 11:59:47

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:15:08

Time Test Ended: 20:01:38

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 73

Interval: 4472.00 ft (KB) To 4516.00 ft (KB) (TVD)

Reference Elevations: 3120.00 ft (KB)

Total Depth: 4516.00 ft (KB) (TVD)

3111.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 8700 Outside

Press@RunDepth: 20.14 psig @ 4473.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.04

End Date:

2019.01.04

Last Calib.:

2019.01.04

Start Time: 11:59:48

End Time:

20:01:38

Time On Btm:

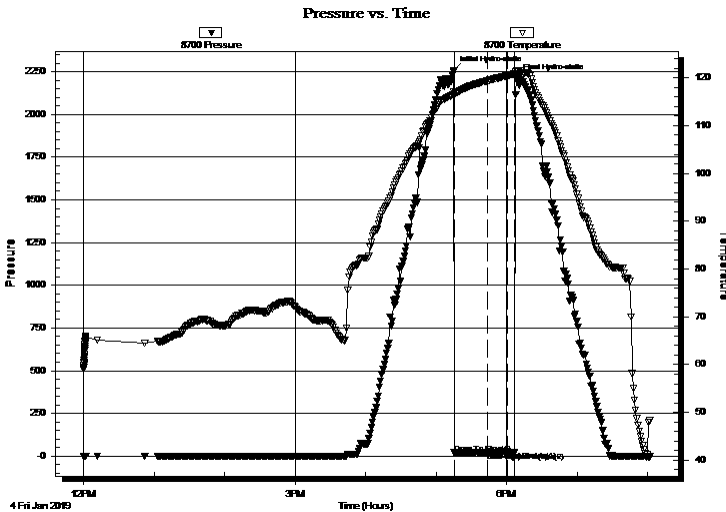
2019.01.04 @ 17:14:53

Time Off Btm:

2019.01.04 @ 18:07:53

TEST COMMENT: 30- IF- Weak blow 0.16"
15- IS- No blow
05- FF- No blow . Pulled tool

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2257.39	117.15	Initial Hydro-static
1	19.12	116.33	Open To Flow (1)
29	20.14	119.41	Shut-In(1)
46	25.56	120.46	End Shut-In(1)
46	19.35	120.48	Open To Flow (2)
52	19.82	120.80	Shut-In(2)
53	2212.21	121.31	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	M	0.03

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65025

DST#: 3

ATTN: Patrick Deenihan

Test Start: 2019.01.04 @ 11:59:47

Tool Information

Drill Pipe:	Length: 4461.00 ft	Diameter: 3.82 inches	Volume: 63.24 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 57000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4472.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	70.00 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			4447.00	
Shut In Tool	5.00			4452.00	
Hydraulic tool	5.00			4457.00	
Gap Sub	3.00			4460.00	
Safety Joint	3.00			4463.00	
Packer	5.00			4468.00	26.00 Bottom Of Top Packer
Packer	4.00			4472.00	
Stubb	1.00			4473.00	
Recorder	0.00	6771	Inside	4473.00	
Recorder	0.00	8700	Outside	4473.00	
Perforations	7.00			4480.00	
Change Over Sub	1.00			4481.00	
Drill Pipe	31.00			4512.00	
Change Over Sub	1.00			4513.00	
Bullnose	3.00			4516.00	44.00 Bottom Packers & Anchor

Total Tool Length: 70.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65025

DST#: 3

ATTN: Patrick Deenihan

Test Start: 2019.01.04 @ 11:59:47

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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	M	0.028

Total Length: 2.00 ft Total Volume: 0.028 bbl

Num Fluid Samples: 0

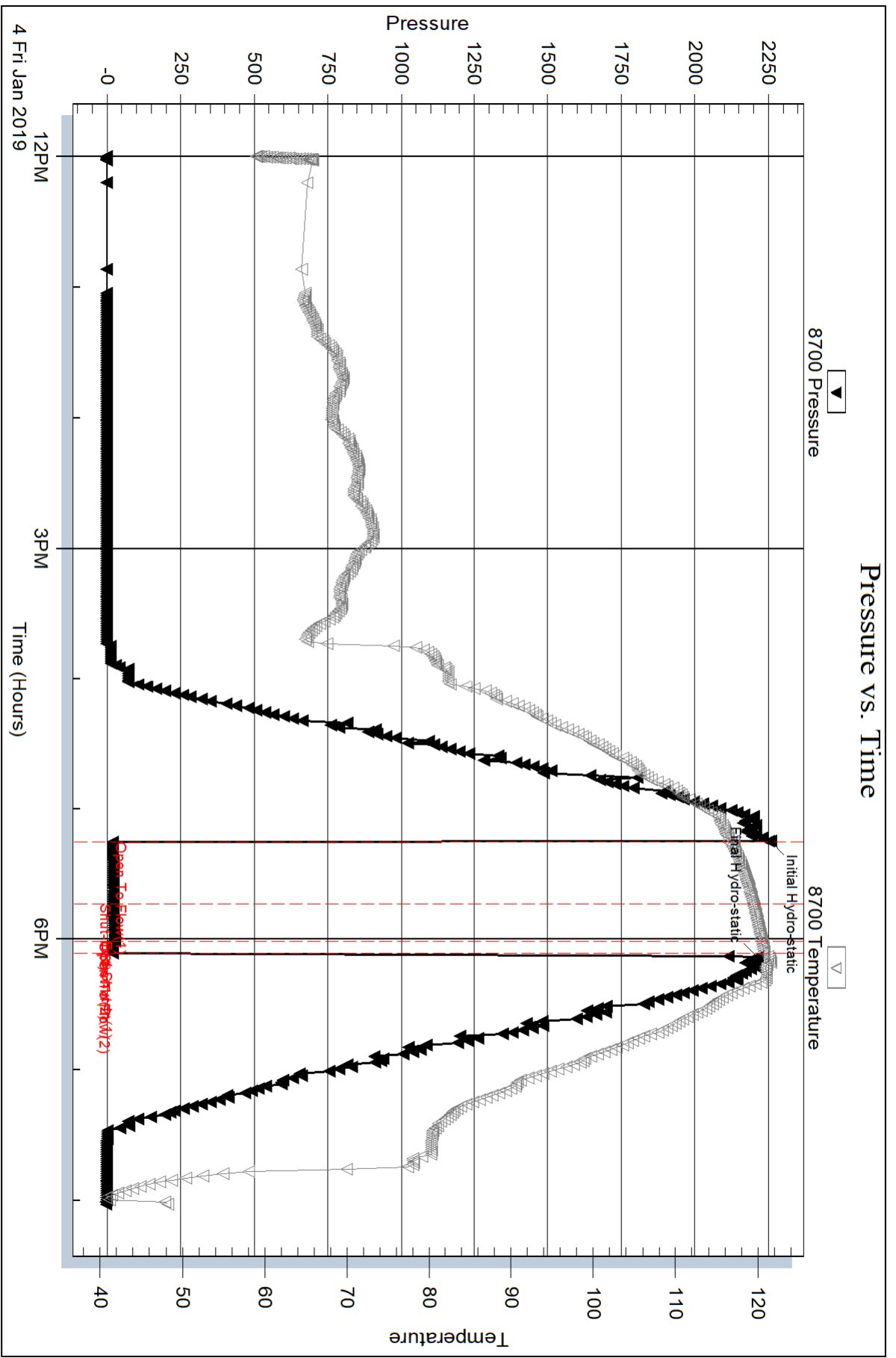
Num Gas Bombs: 0

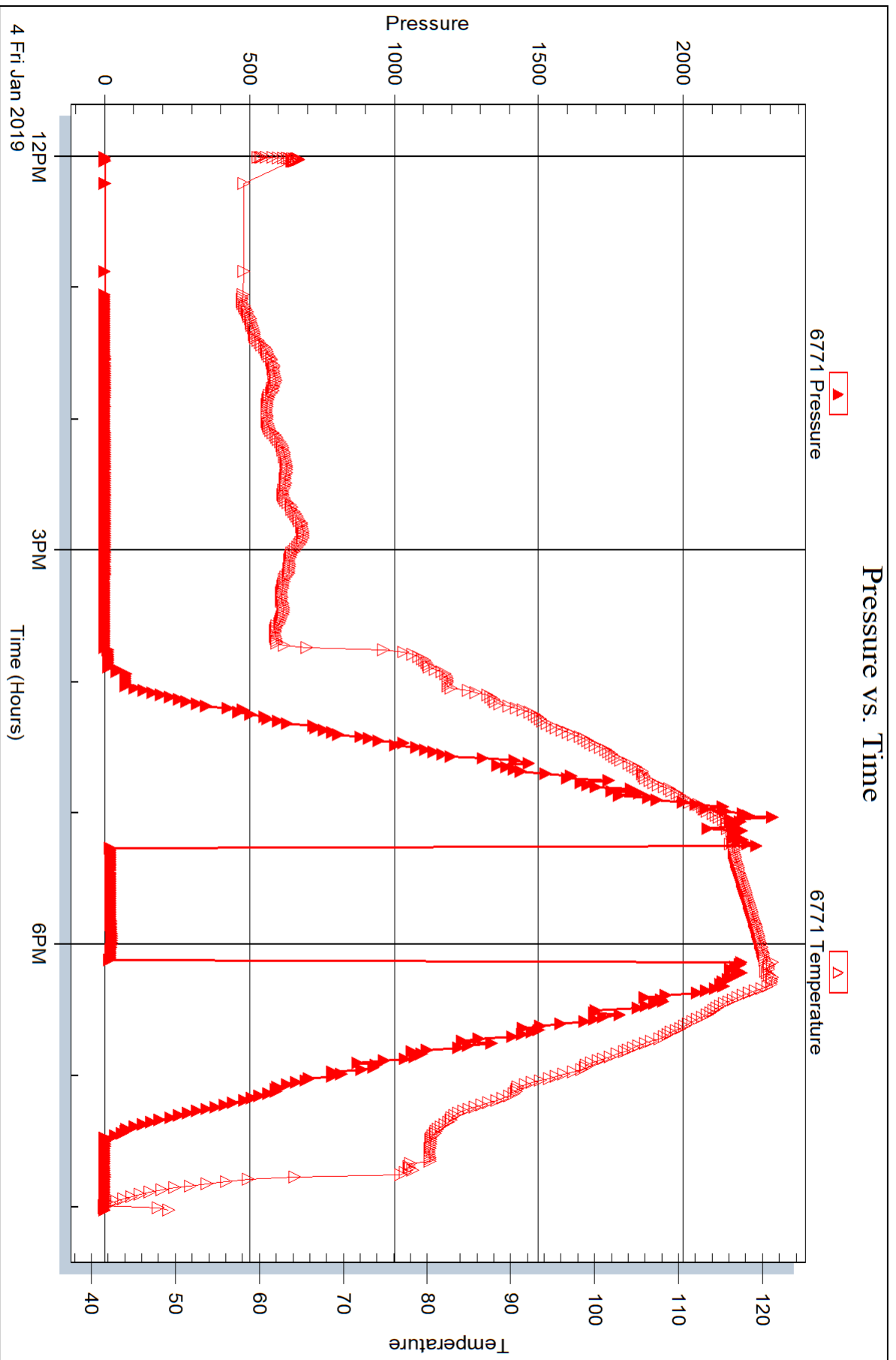
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Arcadian Resources, LLC**

PO Box 816
Hays, KS 67601

ATTN: Patrick Deenihan

Liam #1-19

19-8S-32W Thomas,KS

Start Date: 2019.01.06 @ 02:22:35

End Date: 2019.01.06 @ 10:23:41

Job Ticket #: 65501 DST #: 4

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

Printed: 2019.01.07 @ 14:47:53



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65501

DST#: 4

ATTN: Patrick Deenihan

Test Start: 2019.01.06 @ 02:22:35

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:22:26

Time Test Ended: 10:23:41

Test Type: Conventional Straddle (Reset)

Tester: Brannan Lonsdale

Unit No: 73

Interval: 4561.00 ft (KB) To 4617.00 ft (KB) (TVD)

Reference Elevations: 3120.00 ft (KB)

Total Depth: 4724.00 ft (KB) (TVD)

3111.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 6771 Inside

Press@RunDepth: 53.33 psig @ 4562.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.06

End Date:

2019.01.06

Last Calib.:

2019.01.06

Start Time:

02:22:36

End Time:

10:23:41

Time On Btm:

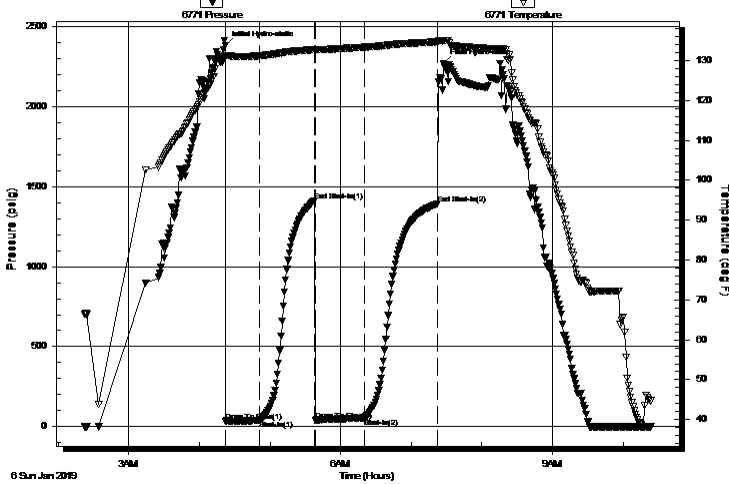
2019.01.06 @ 04:22:11

Time Off Btm:

2019.01.06 @ 07:27:11

TEST COMMENT: 30- IF- Slow ly built to 10.69"
45- IS- No blow
45- FF- Slow ly built to 18.00"
60- FSI- No blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2382.74	131.32	Initial Hydro-static
1	32.67	130.75	Open To Flow (1)
29	38.66	131.17	Shut-In(1)
76	1414.06	132.73	End Shut-In(1)
77	39.45	132.71	Open To Flow (2)
118	53.33	133.32	Shut-In(2)
181	1393.97	134.68	End Shut-In(2)
185	2272.16	134.96	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	MCO, 30%M 70%O	0.85
30.00	CGO, 20%G 80%O	0.43
0.00	280' GIP	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65501

DST#: 4

ATTN: Patrick Deenihan

Test Start: 2019.01.06 @ 02:22:35

Tool Information

Drill Pipe:	Length: 4556.00 ft	Diameter: 3.82 inches	Volume: 64.58 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4561.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	4617.00 ft			
Interval between Packers:	56.00 ft			
Tool Length:	183.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Change Over Sub	1.00			4542.00	
Shut In Tool	5.00			4547.00	
Hydraulic tool	5.00			4552.00	
Packer	5.00			4557.00	20.00 Bottom Of Top Packer
Packer	4.00			4561.00	
Stubb	1.00			4562.00	
Recorder	0.00	6771	Inside	4562.00	
Recorder	0.00	8700	Outside	4562.00	
Perforations	3.00			4565.00	
Change Over Sub	1.00			4566.00	
Drill Pipe	31.00			4597.00	
Change Over Sub	1.00			4598.00	
Safety Joint	15.00			4613.00	
Blank Off Sub	1.00			4614.00	
Blank Spacing	3.00			4617.00	56.00 Tool Interval
Packer	1.00			4618.00	
Stubb	1.00			4619.00	
Perforations	7.00			4626.00	
Change Over Sub	1.00			4627.00	
Recorder	0.00	8367	Below	4627.00	
Drill Pipe	93.00			4720.00	
Change Over Sub	1.00			4721.00	
Bullnose	3.00			4724.00	107.00 Bottom Packers & Anchor
Total Tool Length:	183.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Arcadian Resources, LLC

19-8S-32W Thomas,KS

PO Box 816
Hays, KS 67601

Liam #1-19

Job Ticket: 65501

DST#: 4

ATTN: Patrick Deenihan

Test Start: 2019.01.06 @ 02:22:35

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

24 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	MCO, 30%M 70%O	0.851
30.00	CGO, 20%G 80%O	0.425
0.00	280' GIP	0.000

Total Length: 90.00 ft Total Volume: 1.276 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

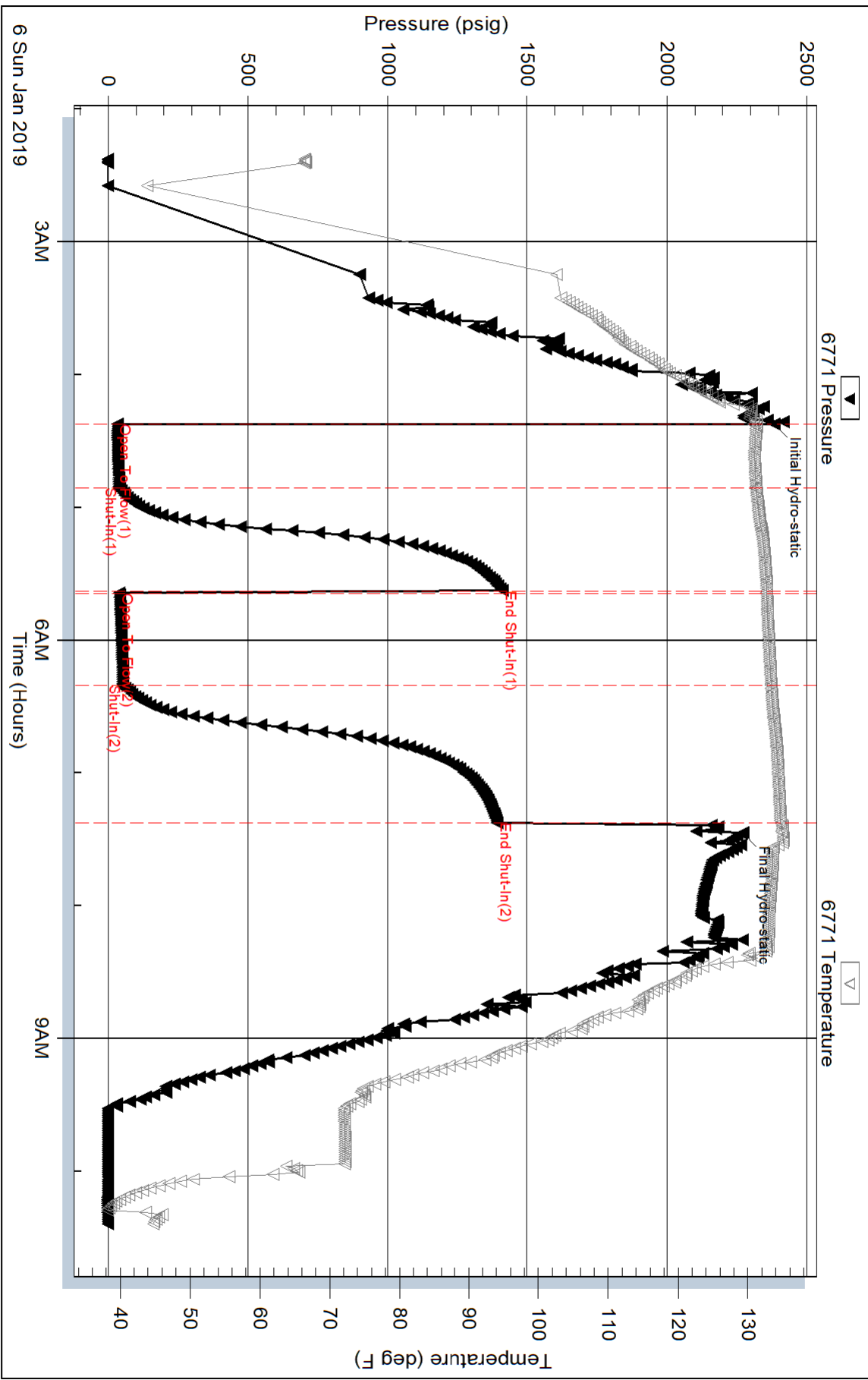
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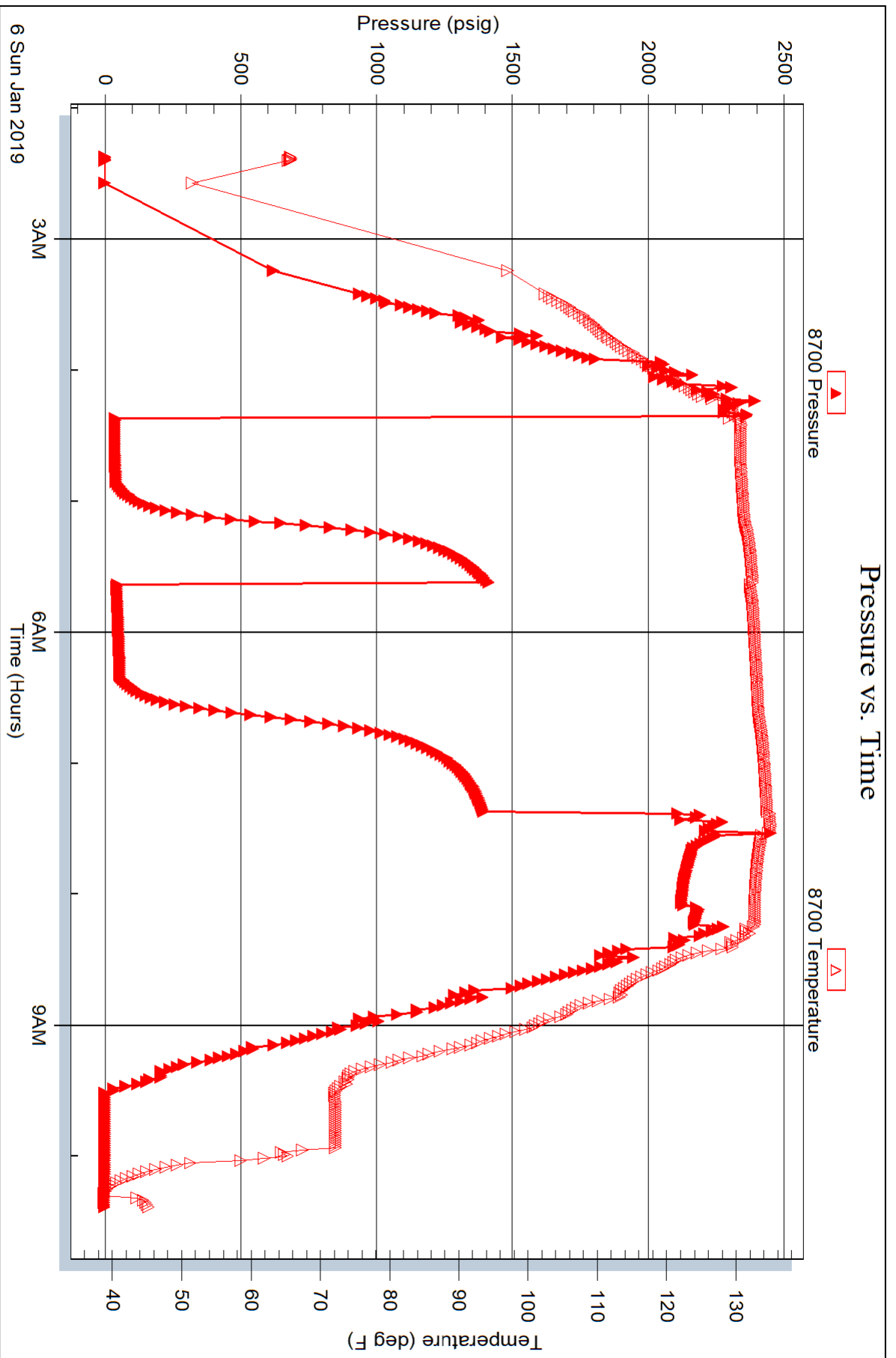
Laboratory Name:

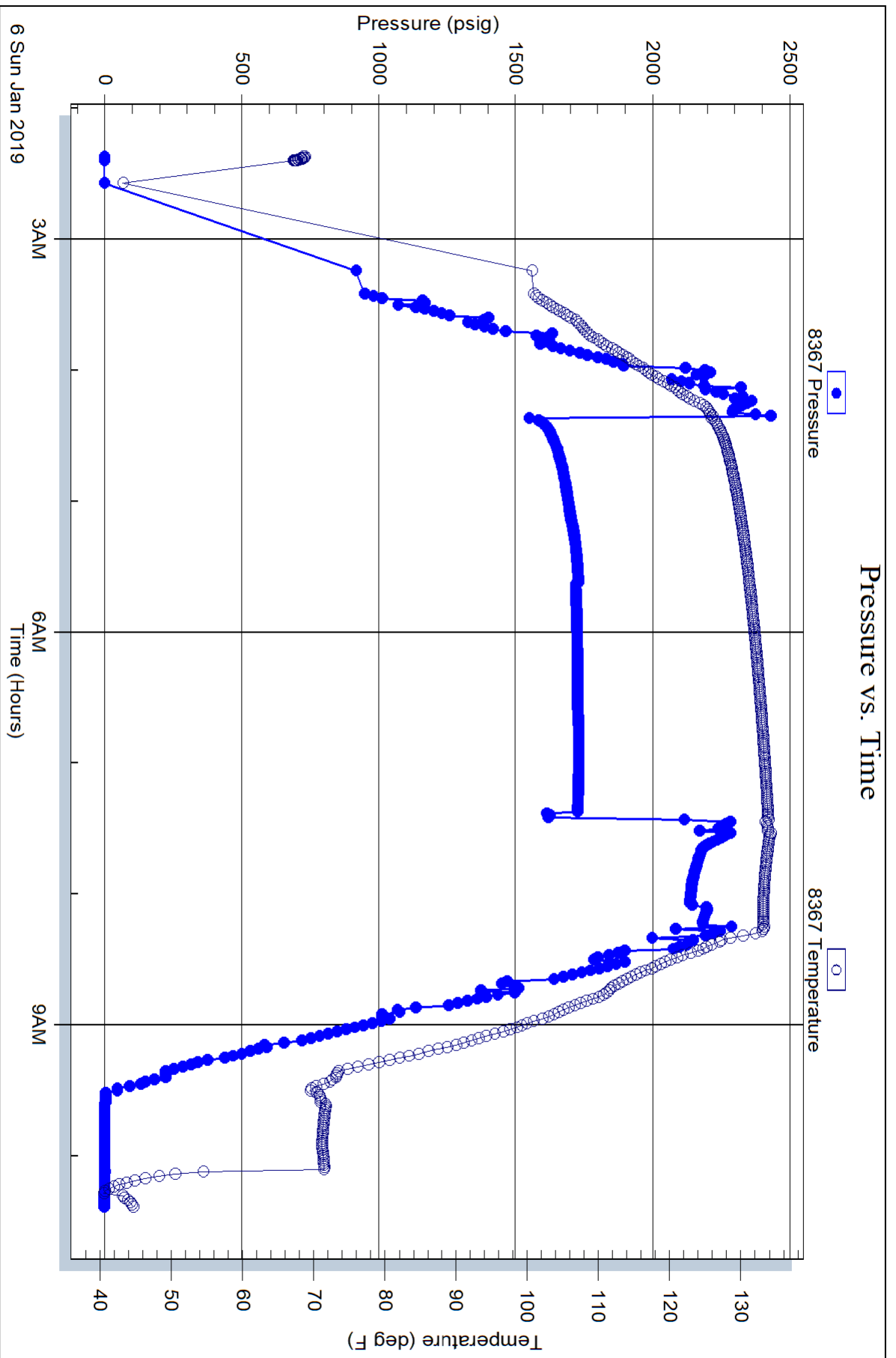
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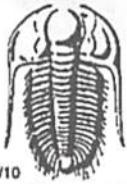
Recovery Comments:

Pressure vs. Time









TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65023

4/10

Well Name & No. Liam # 1-19 Test No. 1 Date 1/3/19
 Company Aradian Resources, LLC Elevation 3120 KB 311 GL
 Address PO Box 816 Hays, KS 67601
 Co. Rep / Geo. Patrick Deenihan Rig Duke 4
 Location: Sec. 19 Twp 8 S Rge. 32 Wco. Thomas State KS

Interval Tested 4392-4415 Zone Tested Altamont A
 Anchor Length 23' Drill Pipe Run 4369 Mud Wt. 9.3
 Top Packer Depth 4387 Drill Collars Run --- Vis 64
 Bottom Packer Depth 4392 Wt. Pipe Run --- WL 8.0
 Total Depth 4415 Chlorides 500 ppm System LCM 4 1/2
 Blow Description IF - slowly built to 1.31"
ISF - No blow
FF - No blow, pulled tool
FST -

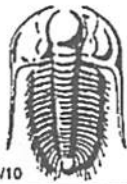
Rec	Feet of	%gas	%oil	%water	%mud
3	M				

Rec Total 3' BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2222</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>1/2 1548</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0037 1625</u>
(C) First Final Flow <u>23</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0518</u>
(D) Initial Shut-In <u>24</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>0613</u>
(E) Second Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Hourly Standby _____	T-Out <u>0840</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>212 RT + 18</u>	Comments <u>Pulled tight</u>
(G) Final Shut-In _____	<input type="checkbox"/> Sampler <u>98rt + 18</u>	<u>Went to town.</u>
(H) Final Hydrostatic <u>2173</u>	<input type="checkbox"/> Straddle _____	<input checked="" type="checkbox"/> EM Tool <u>350</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>10</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In _____	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>2191</u>
	Sub Total <u>2191</u>	MP/DST Disc't _____

Approved By _____ Our Representative Brian Lonsdale

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65024

Well Name & No. Liam #1-19 Test No. 2 Date 1/3/19
 Company Arcadian Resources, LLC Elevation 3120 KB 3111 GL
 Address PO Box 816 Hays, KS 67601
 Co. Rep / Geo. Dick Deenihan Rig Duke 4
 Location: Sec. 19 Twp 8 S Rge. 32 W Co. Thomas State KS

Interval Tested 4423-4466 Zone Tested Attainment BTC
 Anchor Length 43' Drill Pipe Run 4399 Mud Wt. 9.4
 Top Packer Depth 4418 Drill Collars Run --- Vis 63
 Bottom Packer Depth 4423 Wt. Pipe Run --- WL 8.0
 Total Depth 4466 Chlorides 250 ppm System LCM 4#

Blow Description IF - Slowly built to 1.03"
ISF - No flow
FF - No flow, pulled tool
FSI -

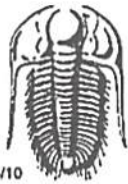
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>M</u>				

Rec Total 2' BHT 120° Gravity --- API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic <u>2266</u>	<input checked="" type="checkbox"/> Test 1150	T-On Location <u>1913</u>
(B) First Initial Flow <u>21</u>	<input type="checkbox"/> Jars	T-Started <u>1935</u>
(C) First Final Flow <u>23</u>	<input type="checkbox"/> Safety Joint	T-Open <u>2313</u>
(D) Initial Shut-In <u>26</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1/4</u> <u>0013</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0311</u>
(F) Second Final Flow <u>24</u>	<input checked="" type="checkbox"/> Mileage <u>212 RT</u> 98	Comments
(G) Final Shut-In	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2248</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350</u>
Initial Open <u>80</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1848</u>
	Sub Total <u>1848</u>	MP/DST Disc't

Approved By _____ Our Representative Brannan Lousdale

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65025

Well Name & No. Liam #1-19 Test No. 3 Date 1/4/19
 Company Arcadian Resources, LLC Elevation 3120 KB 3111 GL
 Address PO Box 816 Hays, KS 67601
 Co. Rep / Geo. Patrick Deenihan Rig Duke 4
 Location: Sec. 19 Twp 8 S Rge. 32 W Co. Thomas State KS

Interval Tested 4472-4516 Zone Tested Pawnee
 Anchor Length 44' Drill Pipe Run 4461 Mud Wt. 9.4
 Top Packer Depth 4467 Drill Collars Run --- Vls 56
 Bottom Packer Depth 4472 Wt. Pipe Run --- WL 7.6
 Total Depth 4516 Chlorides 500 ppm System LCM 3#
 Blow Description IF - Weak blow 0.16"
ISF - No blow
FF - No blow. Pulled tool
FSF -

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>NA</u>				

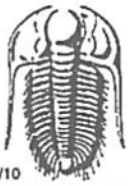
Rec Total 2 BHT 121° Gravity --- API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic <u>2257</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>1140</u>
(B) First Initial Flow <u>19</u>	<input type="checkbox"/> Jars <u>---</u>	T-Started <u>1200</u>
(C) First Final Flow <u>20</u>	<input type="checkbox"/> Safety Joint <u>---</u>	T-Open <u>1715</u>
(D) Initial Shut-In <u>26</u>	<input type="checkbox"/> Circ Sub <u>---</u>	T-Pulled <u>1805</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby <u>---</u>	T-Out <u>2002</u>
(F) Second Final Flow <u>20</u>	<input checked="" type="checkbox"/> Mileage <u>212 RT + 18</u>	Comments <u>Tools loaded</u>
(G) Final Shut-In <u>---</u>	<input type="checkbox"/> Sampler <u>98 x 2</u>	<u>1/5 @ 1030</u>
(H) Final Hydrostatic <u>2212</u>	<input type="checkbox"/> Straddle <u>---</u>	<u>3 night motel stay</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input checked="" type="checkbox"/> EM Tool <u>350</u>
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer <u>---</u>	<input type="checkbox"/> Ruined Shale Packer <u>---</u>
Final Flow <u>05</u>	<input type="checkbox"/> Extra Recorder <u>---</u>	<input type="checkbox"/> Ruined Packer <u>---</u>
Final Shut-In <u>---</u>	<input type="checkbox"/> Day Standby <u>---</u>	<input type="checkbox"/> Extra Copies <u>---</u>
	<input type="checkbox"/> Accessibility <u>---</u>	Sub Total <u>0</u>
	Sub Total <u>1946</u>	Total <u>1946</u>
		MP/DST Disc't <u>---</u>

Approved By _____

Our Representative Brannan Lonsdale

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65501

Well Name & No. Liam #1-19 Test No. 4 Date 1/6/19
 Company Arcadian Resources LLC Elevation 3120 KB 3111 GL
 Address PO Box 816 Hays, KS 67601
 Co. Rep / Geo. Patrick Deenihan Rig Duke 4
 Location: Sec. 19 Twp 8 S Rge. 32 W Co. Thomas State KS

Interval Tested 4561-4617 Zone Tested Cherokee
 Anchor Length 56' tail: 107' Drill Pipe Run 4556 Mud Wt. 9.4
 Top Packer Depth 4556-4561 Drill Collars Run — Vis 63
 Bottom Packer Depth 4617 Wt. Pipe Run — WL 8.0
 Total Depth 4724 Chlorides 500 ppm System LCM 2 1/2"
 Blow Description IF - Stubby built to 10.69"
ISF - No Blow
FF - Stubby built to 18.00"
FSF - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>MCO</u>	<u>70</u>	<u>—</u>	<u>30</u>	<u>—</u>
<u>30</u>	<u>CGO</u>	<u>20</u>	<u>80</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>280' CJP</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Rec Total 90' BHT 135° Gravity 24 API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>2383</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>0045</u>
(B) First Initial Flow <u>33</u>	<input type="checkbox"/> Jars <u>—</u>	T-Started <u>0221</u>
(C) First Final Flow <u>39</u>	<input type="checkbox"/> Safety Joint <u>—</u>	T-Open <u>0421</u>
(D) Initial Shut-In <u>1414</u>	<input type="checkbox"/> Circ Sub <u>—</u>	T-Pulled <u>0721</u>
(E) Second Initial Flow <u>39</u>	<input type="checkbox"/> Hourly Standby <u>—</u>	T-Out <u>1023</u>
(F) Second Final Flow <u>53</u>	<input checked="" type="checkbox"/> Mileage <u>212 BT</u> 98	Comments <u>—</u>
(G) Final Shut-In <u>1394</u>	<input type="checkbox"/> Sampler <u>—</u>	<input type="checkbox"/> EM Tool <u>—</u>
(H) Final Hydrostatic <u>2272</u>	<input checked="" type="checkbox"/> Straddle <u>600</u>	<input type="checkbox"/> Ruined Shale Packer <u>—</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer <u>—</u>
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer <u>—</u>	<input type="checkbox"/> Extra Copies <u>—</u>
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder <u>—</u>	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby <u>—</u>	Total <u>2098</u>
	<input type="checkbox"/> Accessibility <u>—</u>	MP/DST Disc't <u>—</u>
	Sub Total <u>2098</u>	

Approved By _____

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