



DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co., Inc.**

111 W 10th
Hays, KS 67601

ATTN: Jason T. Alm

Kramer Unit 'B #1-24

24-5s-37w Cheyenne KS

Start Date: 2019.10.15 @ 05:44:00

End Date: 2019.10.15 @ 12:32:00

Job Ticket #: 65590 DST #: 1

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

Printed: 2019.10.17 @ 11:35:31



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co., Inc.

24-5s-37w Cheyenne KS

111 W 10th
Hays, KS 67601

Kramer Unit 'B' #1-24

ATTN: Jason T. Alm

Job Ticket: 65590

DST#: 1

Test Start: 2019.10.15 @ 05:44:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:17:00

Time Test Ended: 12:32:00

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 4273.00 ft (KB) To 4353.00 ft (KB) (TVD)

Reference Elevations: 3261.00 ft (KB)

Total Depth: 4353.00 ft (KB) (TVD)

3253.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8652 Outside

Press@RunDepth: 24.77 psig @ 4274.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.15

End Date:

2019.10.15

Last Calib.:

2019.10.15

Start Time:

05:44:05

End Time:

12:31:59

Time On Btm:

2019.10.15 @ 08:16:45

Time Off Btm:

2019.10.15 @ 10:51:30

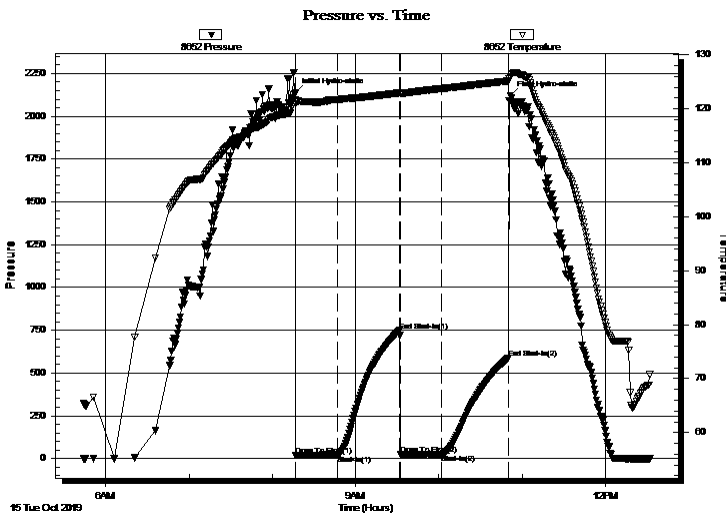
TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1" at 10 min., stayed at 1" till close

45 - IS: No blow back

30 - FF: No blow

45 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2135.46	121.62	Initial Hydro-static
1	18.97	121.02	Open To Flow (1)
31	21.19	121.70	Shut-In(1)
75	746.86	122.95	End Shut-In(1)
76	22.62	122.82	Open To Flow (2)
105	24.77	123.73	Shut-In(2)
154	586.53	125.15	End Shut-In(2)
155	2121.31	125.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud w /trace oil 100% m	0.07

Gas Rates

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



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DRILL STEM TEST REPORT

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24-5s-37w Cheyenne KS

111 W 10th
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Job Ticket: 65590

DST#: 1

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Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:17:00

Time Test Ended: 12:32:00

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 4273.00 ft (KB) To 4353.00 ft (KB) (TVD)

Total Depth: 4353.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3261.00 ft (KB)

3253.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 6625

Inside

Press@RunDepth: psig @ 4274.00 ft (KB)

Start Date: 2019.10.15

End Date:

2019.10.15

Capacity: 8000.00 psig

Last Calib.:

2019.10.15

Start Time: 05:44:05

End Time:

12:32:29

Time On Btm:

Time Off Btm:

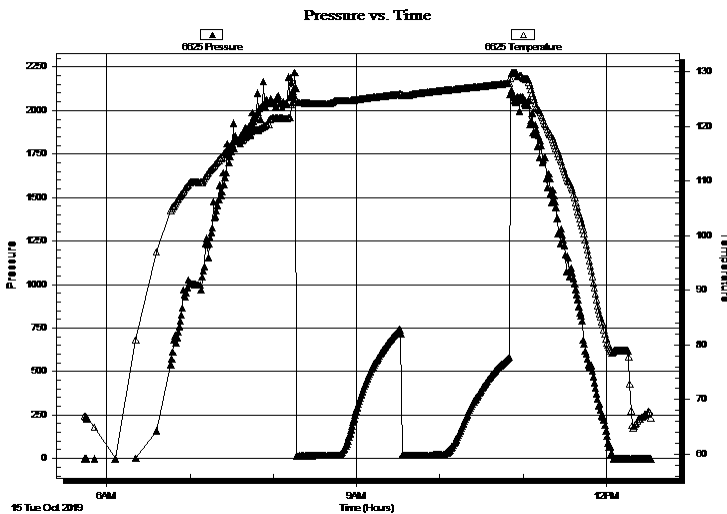
TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1" at 10 min., stayed at 1" till close

45 - IS: No blow back

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PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud w /trace oil 100%m	0.07

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Downing Nelson Oil Co., Inc.

24-5s-37w Cheyenne KS

111 W 10th
Hays, KS 67601

Kramer Unit 'B #1-24

Job Ticket: 65590

DST#: 1

ATTN: Jason T. Alm

Test Start: 2019.10.15 @ 05:44:00

Tool Information

Drill Pipe:	Length: 4248.00 ft	Diameter: 3.80 inches	Volume: 59.59 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: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 59.74 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4273.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	80.00 ft			
Tool Length:	101.00 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			4253.00	
Shut In Tool	5.00			4258.00	
Hydraulic tool	5.00			4263.00	
Packer	5.00			4268.00	21.00 Bottom Of Top Packer
Packer	5.00			4273.00	
Stubb	1.00			4274.00	
Recorder	0.00	6625	Inside	4274.00	
Recorder	0.00	8652	Outside	4274.00	
Perforations	10.00			4284.00	
Blank Spacing	65.00			4349.00	
Perforations	1.00			4350.00	
Bullnose	3.00			4353.00	80.00 Bottom Packers & Anchor

Total Tool Length: 101.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co., Inc.

24-5s-37w Cheyenne KS

111 W 10th
Hays, KS 67601

Kramer Unit 'B #1-24

Job Ticket: 65590

DST#: 1

ATTN: Jason T. Alm

Test Start: 2019.10.15 @ 05:44:00

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: 54.00 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: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
15.00	Mud w /trace oil 100%m	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

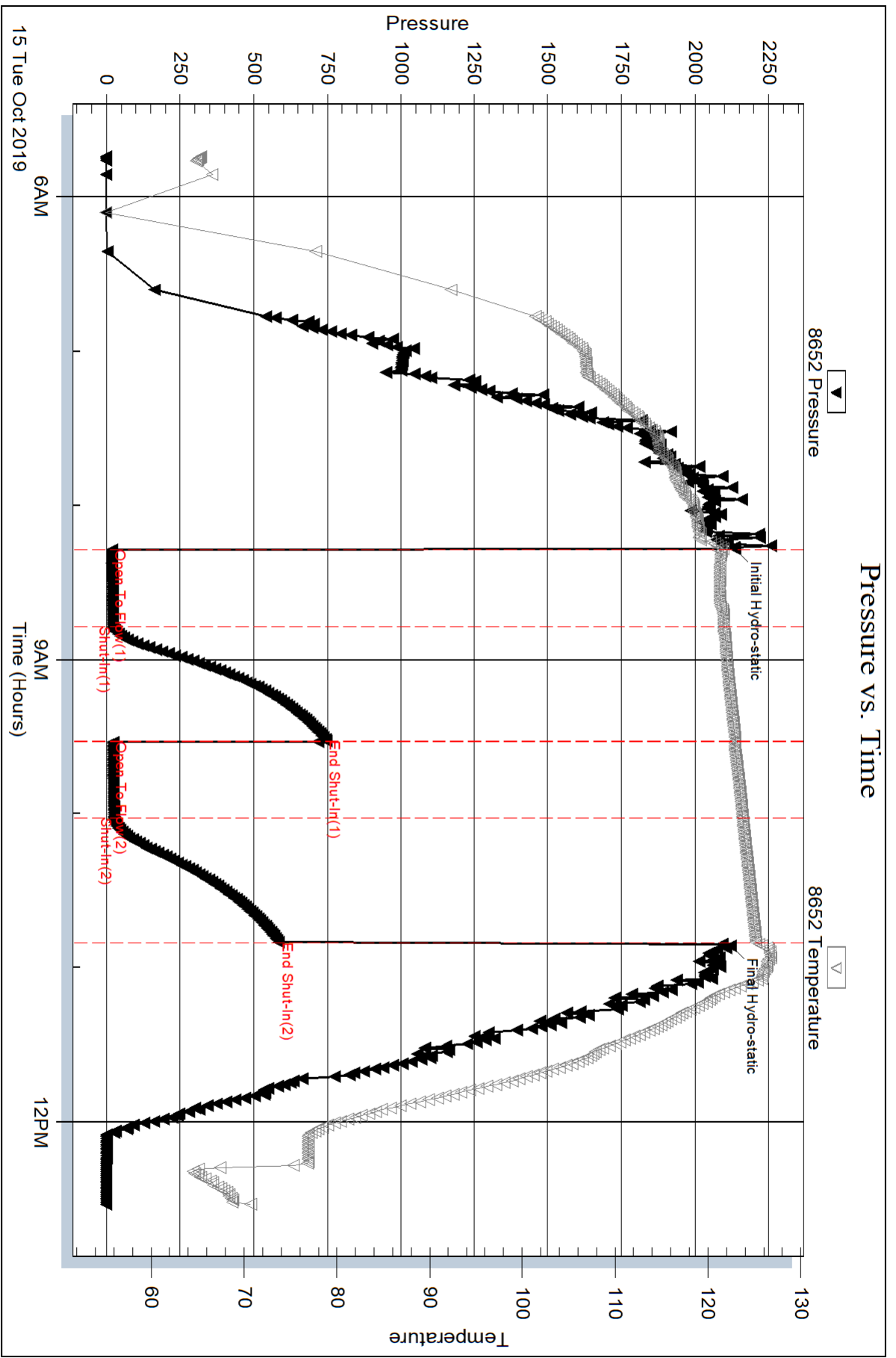
Recovery Comments:

Serial #: 8652

Outside Downing Nelson Oil Co., Inc.

Kramer Unit B #1-24

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 65590

Printed: 2019.10.17 @ 11:35:32

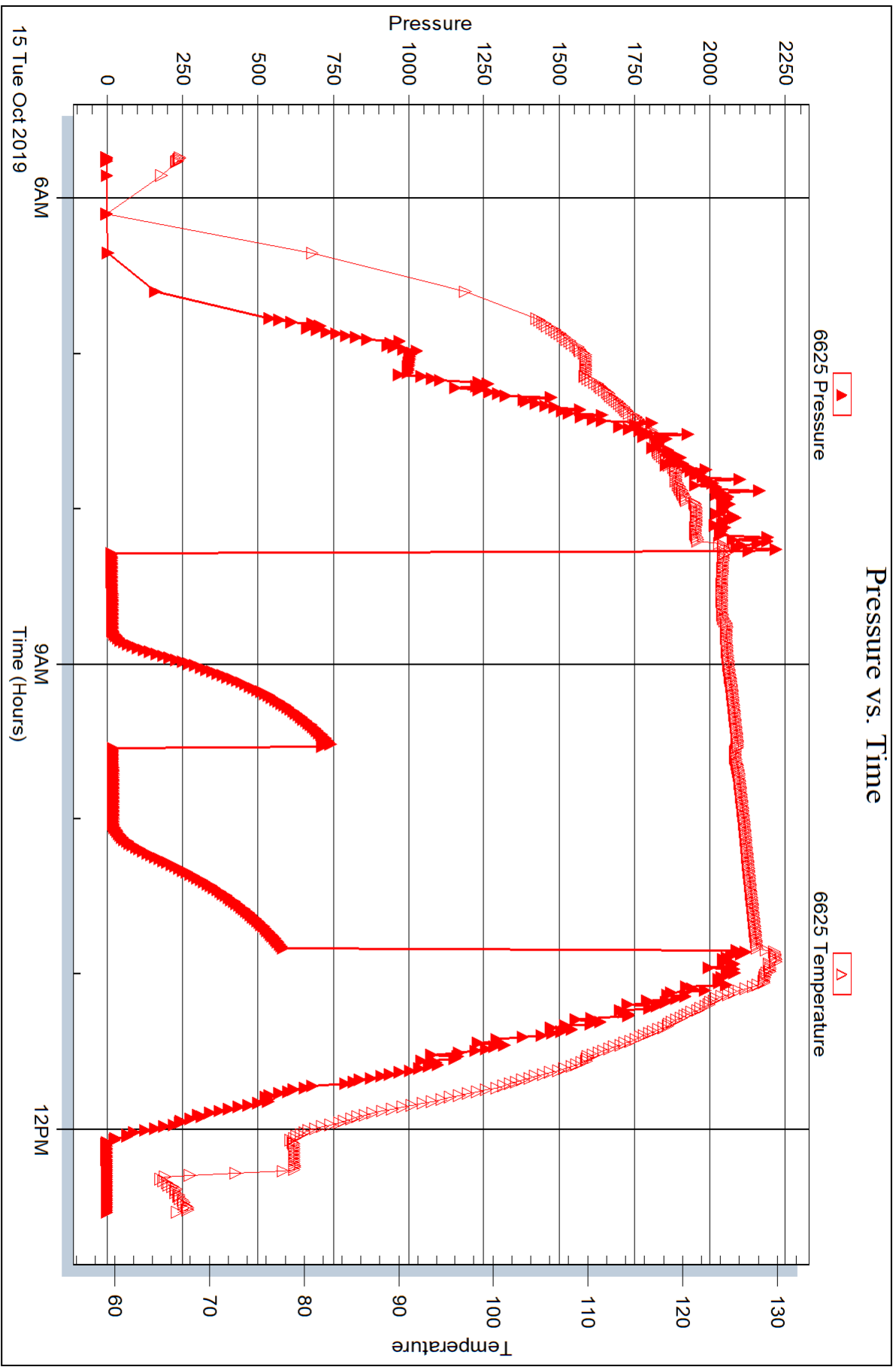
Serial #: 6625

Inside

Downing Nelson Oil Co., Inc.

Kramer Unit B #1-24

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Downing Nelson Oil Co., Inc.**

111 W 10th
Hays, KS 67601

ATTN: Jason T. Alm

Kramer Unit 'B #1-24

24-5s-37w Cheyenne KS

Start Date: 2019.10.16 @ 10:10:00

End Date: 2019.10.16 @ 16:23:30

Job Ticket #: 65591 DST #: 2

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

Printed: 2019.10.17 @ 11:32:03



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Downing Nelson Oil Co., Inc.

24-5s-37w Cheyenne KS

111 W 10th
Hays, KS 67601

Kramer Unit 'B' #1-24

ATTN: Jason T. Alm

Job Ticket: 65591

DST#: 2

Test Start: 2019.10.16 @ 10:10:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:21:45

Time Test Ended: 16:23:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4518.00 ft (KB) To 4560.00 ft (KB) (TVD)

Reference Elevations: 3261.00 ft (KB)

Total Depth: 4560.00 ft (KB) (TVD)

3253.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8652 Outside

Press@RunDepth: 38.12 psig @ 4519.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.16

End Date: 2019.10.16

Last Calib.: 2019.10.16

Start Time: 10:10:05

End Time: 16:23:29

Time On Btm: 2019.10.16 @ 12:21:30

Time Off Btm: 2019.10.16 @ 14:33:15

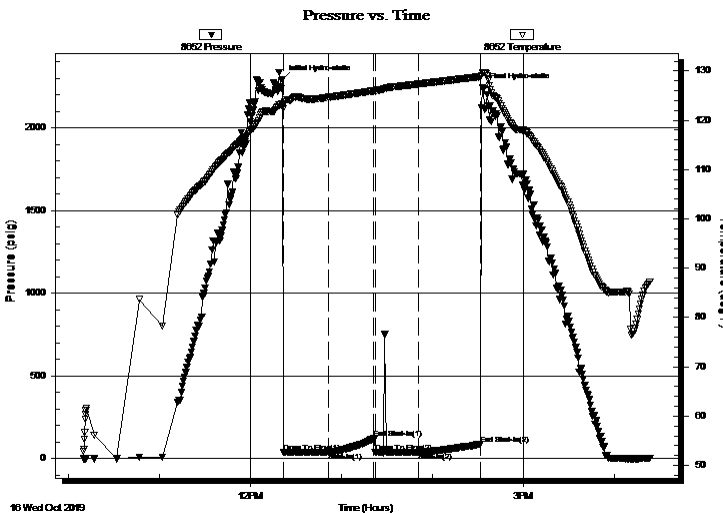
TEST COMMENT: 30 - IF: 2" Surge blow at open, built slightly, then died back to 2" again

30 - IS: No blow back

30 - FF: No blow, flushed tool, surge then no blow

30 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2292.85	123.39	Initial Hydro-static
1	36.49	122.39	Open To Flow (1)
31	37.05	124.68	Shut-In(1)
60	120.36	125.98	End Shut-In(1)
61	37.28	125.98	Open To Flow (2)
90	38.12	127.35	Shut-In(2)
131	86.82	128.84	End Shut-In(2)
132	2241.54	129.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	Mud 100%	0.35

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Downing Nelson Oil Co., Inc.

111 W 10th
Hays, KS 67601

ATTN: Jason T. Alm

24-5s-37w Cheyenne KS

Kramer Unit 'B #1-24

Job Ticket: 65591 **DST#: 2**

Test Start: 2019.10.16 @ 10:10:00

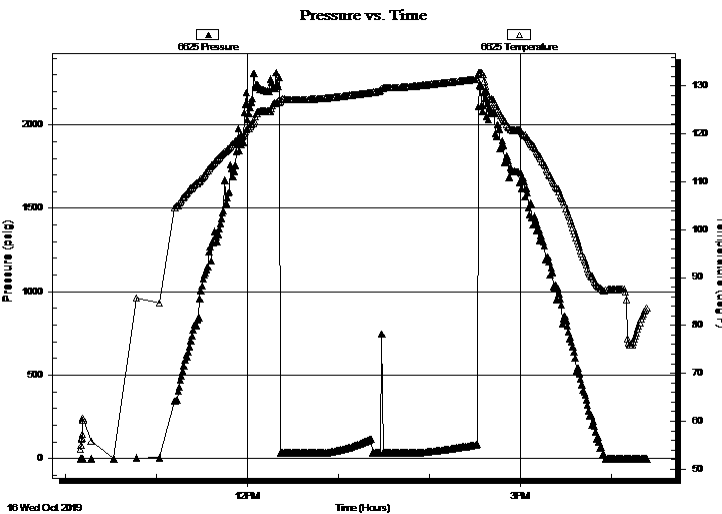
GENERAL INFORMATION:

Formation: Pawnee	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock: ft (KB)	Tester: James Winder
Time Tool Opened: 12:21:45	Unit No: 83
Time Test Ended: 16:23:30	
Interval: 4518.00 ft (KB) To 4560.00 ft (KB) (TVD)	Reference Elevations: 3261.00 ft (KB)
Total Depth: 4560.00 ft (KB) (TVD)	3253.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair
	KB to GR/CF: 8.00 ft

Serial #: 6625 **Inside**

Press@RunDepth: psig @ 4519.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2019.10.16 End Date: 2019.10.16	Last Calib.: 2019.10.16
Start Time: 10:10:05 End Time: 16:23:59	Time On Btm:
	Time Off Btm:

TEST COMMENT: 30 - IF: 2" Surge blow at open, built slightly, then died back to 2" again
 30 - IS: No blow back
 30 - FF: No blow , flushed tool, surge then no blow
 30 - FS: No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
45.00	Mud 100%	0.35

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 Co., Inc.

24-5s-37w Cheyenne KS

111 W 10th
Hays, KS 67601

Kramer Unit 'B #1-24

Job Ticket: 65591

DST#: 2

ATTN: Jason T. Alm

Test Start: 2019.10.16 @ 10:10:00

Tool Information

Drill Pipe:	Length: 4500.00 ft	Diameter: 3.80 inches	Volume: 63.12 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: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	75000.00 lb
			<u>Total Volume: 63.27 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4518.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	42.00 ft				
Tool Length:	63.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: tool chased 5' to bottom at open, mud down around 5' - 2" surge blow at open

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4498.00	
Shut In Tool	5.00			4503.00	
Hydraulic tool	5.00			4508.00	
Packer	5.00			4513.00	21.00 Bottom Of Top Packer
Packer	5.00			4518.00	
Stubb	1.00			4519.00	
Recorder	0.00	6625	Inside	4519.00	
Recorder	0.00	8652	Outside	4519.00	
Perforations	5.00			4524.00	
Blank Spacing	33.00			4557.00	
Bullnose	3.00			4560.00	42.00 Bottom Packers & Anchor

Total Tool Length: 63.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Downing Nelson Oil Co., Inc.

24-5s-37w Cheyenne KS

111 W 10th
Hays, KS 67601

Kramer Unit 'B' #1-24

Job Ticket: 65591

DST#: 2

ATTN: Jason T. Alm

Test Start: 2019.10.16 @ 10:10:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 750.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	Mud 100%	0.349

Total Length: 45.00 ft Total Volume: 0.349 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

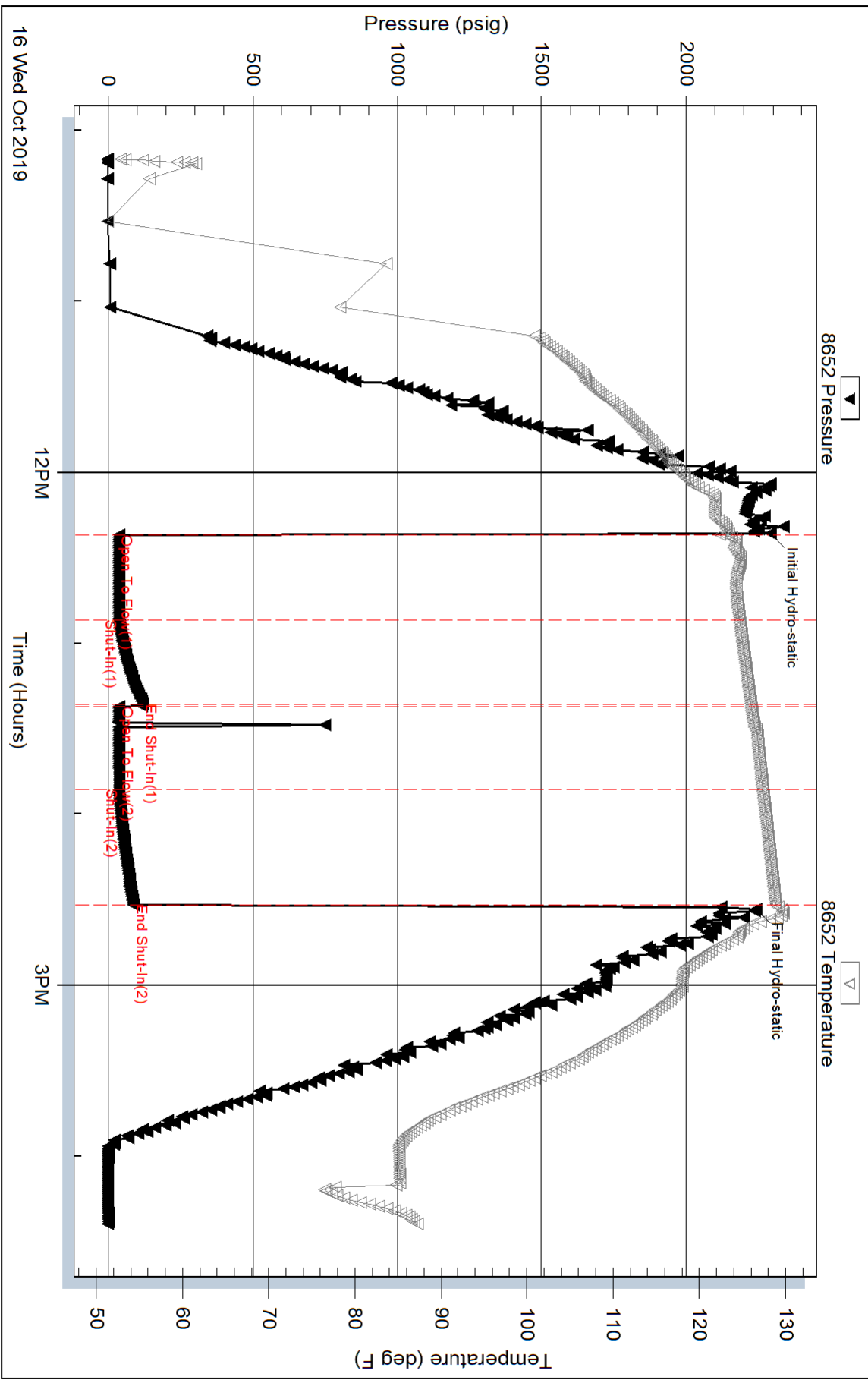
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



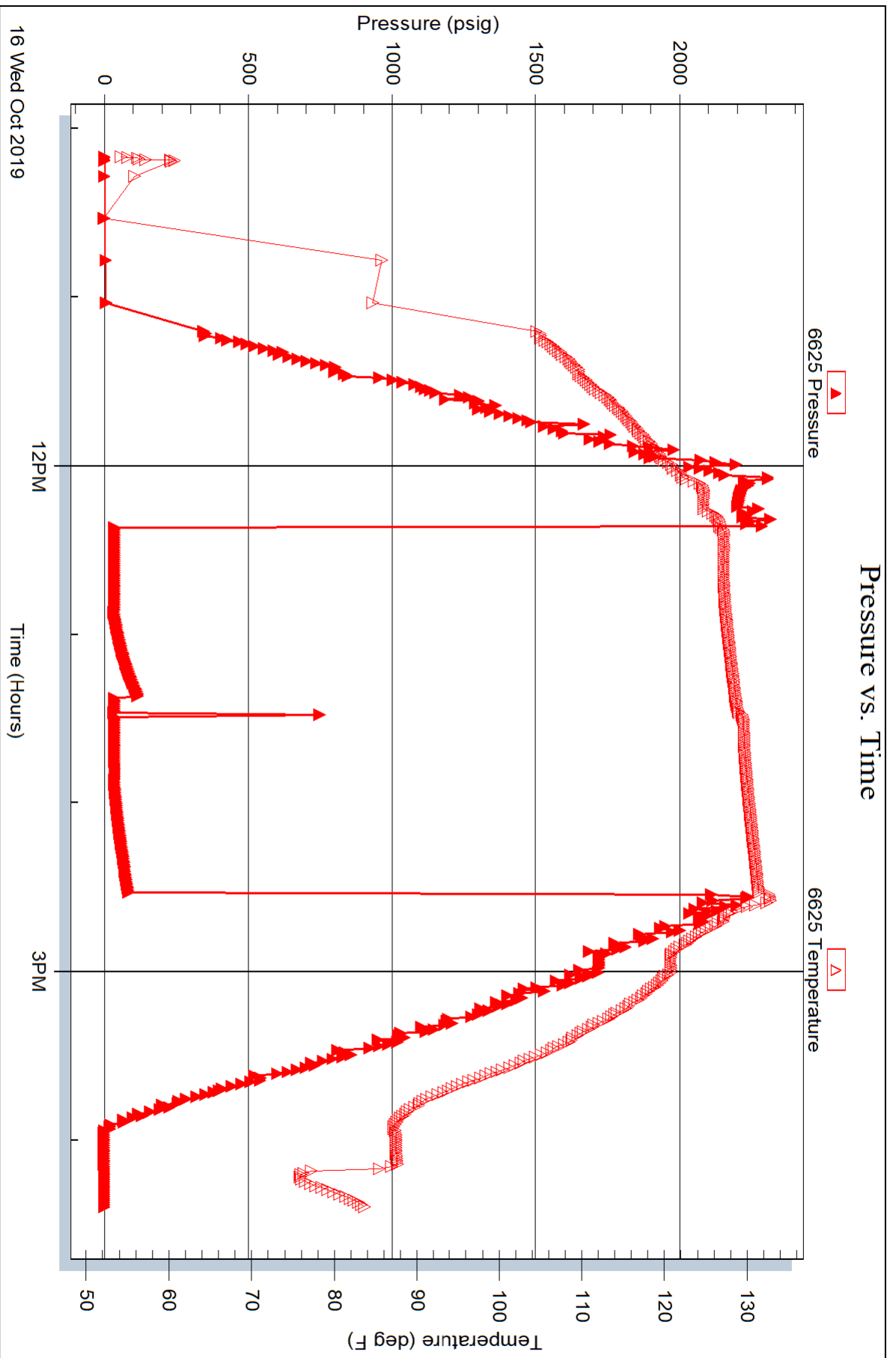
Serial #: 6625

Inside

Dow n/ing Nelson Oil Co., Inc.

Kramer Unit B #1-24

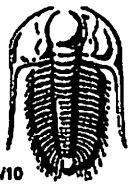
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 65591

Printed: 2019.10.17 @ 11:32:04



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65590

Well Name & No. Kramer Unit 'B' #1-24 Test No. 1 Date 10-15-19
 Company Downing Nelson Oil Co. Inc Elevation 3261 KB 3253 GL
 Address 111 W. 10th Hays, KS 67601
 Co. Rep / Geo. Jason Alm Rig Discovery #4
 Location: Sec. 24 Twp 5s Rge. 37w Co. Cheyenne State KS

Interval Tested 4273 - 4353 Zone Tested LKC "H-J"
 Anchor Length 80 Drill Pipe Run 4248 Mud Wt. 9.2
 Top Packer Depth 4268 Drill Collars Run 31 Vis 54
 Bottom Packer Depth 4273 Wt. Pipe Run - WL 7.6
 Total Depth 4353 Chlorides 500 ppm System LCM 3 1/2
 Blow Description IF: 1/4" Blow at open, built to 1" at 10 min., stayed at 1" till close
ISI: No blowback
FF: No blow
FSD: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>Mud w/trace oil</u>	<u>trace</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	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 125 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2135 Test 1300 T-On Location 3:45
 (B) First Initial Flow 19 Jars _____ T-Started 5:44
 (C) First Final Flow 21 Safety Joint _____ T-Open 8:17
 (D) Initial Shut-In 747 Circ Sub _____ T-Pulled 10:50
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 12:30
 (F) Second Final Flow 25 Mileage 124 RT 124 Comments _____
 (G) Final Shut-In 587 Sampler _____
 (H) Final Hydrostatic 2121 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

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

Sub Total 1424 MP/DST Disc't _____

Approved By _____

Our Representative James Woods

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. 65591

Well Name & No. Kramer Unit 'B' #1-24 Test No. 2 Date 10-16-19
 Company Downing Nelson Oil Co. Inc Elevation 3261 KB 3253 GL
 Address 111 W 10th Hays KS 67601
 Co. Rep / Geo. Jason Alm Rig Discovery #4
 Location: Sec. 24 Twp 5S Rge. 37w Co. Cheyenne State KS

Interval Tested 4518 - 4560 Zone Tested Pawnee
 Anchor Length 42 Drill Pipe Run 4500 Mud Wt. 9.5
 Top Packer Depth 4513 Drill Collars Run 31 Vis 51
 Bottom Packer Depth 4518 Wt. Pipe Run - WL 8.0
 Total Depth 4560 Chlorides 750 ppm System LCM 3
 Blow Description IF: 2" surge blow at open, built slightly then died back to 2"
ISI: No blowback
FF: No blow, Flushed tool, surge then No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>Mud</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	Feet of	%gas	%oil	%water	%mud

Rec Total 45 BHT 129 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2293 Test 1300 T-On Location 9:45
 (B) First Initial Flow 36 Jars _____ T-Started 10:10
 (C) First Final Flow 37 Safety Joint _____ T-Open 12:21
 (D) Initial Shut-In 120 Circ Sub _____ T-Pulled 14:31
 (E) Second Initial Flow 37 Hourly Standby _____ T-Out 16:20
 (F) Second Final Flow 38 Mileage 124RTx2 248 Comments Tool chased 5'-6'
 (G) Final Shut-In 87 Sampler _____ to bottom @ open, mud down
 (H) Final Hydrostatic 2242 Straddle _____ 5 5/8" - 2" surge blow at open
 Shale Packer _____ Tools loaded 16:45 1 1/2
 Extra Packer _____ Ruined Shale Packer _____
 Extra Recorder _____ Ruined Packer _____
 Day Standby _____ Extra Copies _____
 Accessibility _____ Sub Total 0
 Sub Total 1548 Total 1548
 MP/DST Disc't _____

Approved By _____ Our Representative James Winkler
 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.