



DRILL STEM TEST REPORT

Prepared For: **Raney Oil Co., Inc.**

4665 Bauer Brook Court
Lawrence, KS 66049-9013

ATTN: Thomas Raney/Roger M

Pray #4

31-33S-6E Cowley,KS

Start Date: 2019.04.11 @ 22:20:00

End Date: 2019.04.12 @ 04:53:39

Job Ticket #: 63941 DST #: 1

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

Printed: 2019.04.18 @ 16:02:28



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Raney Oil Co., Inc.

31-33S-6E Cowley, KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63941

DST#: 1

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.11 @ 22:20:00

GENERAL INFORMATION:

Formation: **Dodd Creek Sand**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:08:20
 Time Test Ended: 04:53:39
 Interval: **2423.00 ft (KB) To 2473.00 ft (KB) (TVD)**
 Total Depth: 2473.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jimmy Ricketts
 Unit No: 80
 Reference Elevations: 1272.00 ft (KB)
 1259.00 ft (CF)
 KB to GR/CF: 13.00 ft

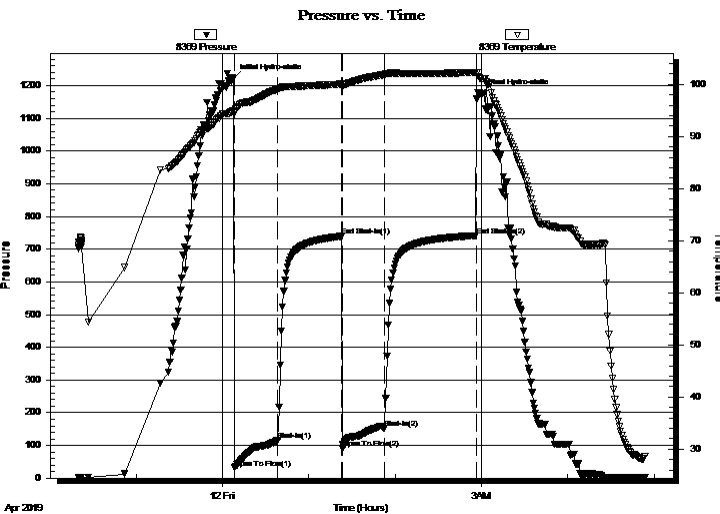
Serial #: 8369

Outside

Press@RunDepth: 153.28 psig @ 2424.00 ft (KB)
 Start Date: 2019.04.11 End Date: 2019.04.12
 Start Time: 22:20:01 End Time: 04:53:40

Capacity: 8000.00 psig
 Last Calib.: 1899.12.30
 Time On Btm: 2019.04.12 @ 00:07:30
 Time Off Btm: 2019.04.12 @ 02:59:39

TEST COMMENT: IF - BOB in 11 minutes Built to 65"
 IS - 2 1/2" blow back
 FF - BOB immediately built to 180"
 FS - BOB Built to 35"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1222.14	94.94	Initial Hydro-static
1	31.02	94.61	Open To Flow (1)
31	115.09	99.11	Shut-In(1)
76	739.30	100.04	End Shut-In(1)
77	91.03	99.90	Open To Flow (2)
106	153.28	101.91	Shut-In(2)
169	740.93	102.31	End Shut-In(2)
173	1175.27	101.11	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
245.00	GOSMCW 1%G 1%O 87%W 7 11%M	1.77
95.00	GSOSWCM 9%G 7%O 7% W & 77%M	1.33
0.00	TS - VSOMCW 4%O 68%W & 28%M	0.00

Gas Rates

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



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DRILL STEM TEST REPORT

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63941

DST#: 1

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.11 @ 22:20:00

GENERAL INFORMATION:

Formation: **Dodd Creek Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:08:20

Time Test Ended: 04:53:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Jimmy Ricketts

Unit No: 80

Interval: 2423.00 ft (KB) To 2473.00 ft (KB) (TVD)

Reference Elevations: 1272.00 ft (KB)

Total Depth: 2473.00 ft (KB) (TVD)

1259.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 13.00 ft

Serial #: 8846

Inside

Press@RunDepth: psig @ 2424.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.04.11 End Date: 2019.04.12

Last Calib.: 1899.12.30

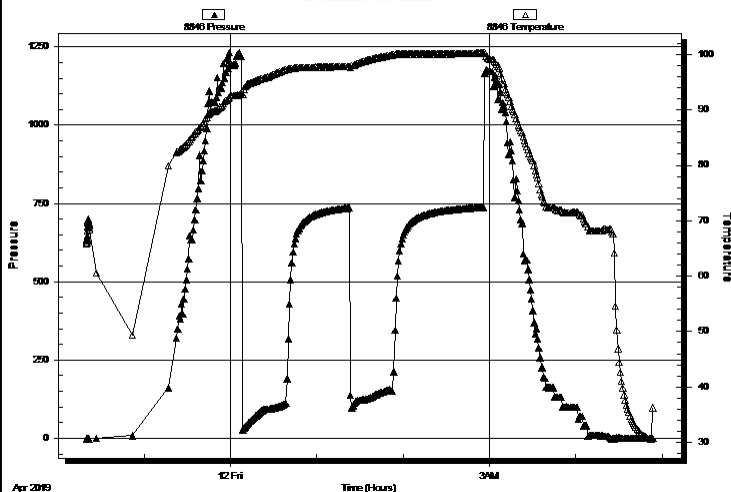
Start Time: 22:20:01 End Time: 04:53:50

Time On Btm:

Time Off Btm:

TEST COMMENT: IF - BOB in 11 minutes Built to 65"
IS - 2 1/2" blow back
FF - BOB immediately built to 180"
FS - BOB Built to 35"

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
245.00	GOSMCW 1%G 1%O 87%W 7 11%M	1.77
95.00	GSOSWCM 9%G 7%O 7% W & 77%M	1.33
0.00	TS - VSOMCW 4%O 68%W & 28%M	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63941

DST#: 1

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.11 @ 22:20:00

Tool Information

Drill Pipe:	Length: 2219.00 ft	Diameter: 3.80 inches	Volume: 31.13 bbl	Tool Weight: 2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 21000.00 lb
Drill Collar:	Length: 183.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 53000.00 lb
			<u>Total Volume: 32.03 bbl</u>	Tool Chased 4.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	2423.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	78.00 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			2396.00	
Shut In Tool	5.00			2401.00	
Hydraulic tool	5.00			2406.00	
Jars	5.00			2411.00	
Safety Joint	3.00			2414.00	
Packer	5.00			2419.00	28.00 Bottom Of Top Packer
Packer	4.00			2423.00	
Stubb	1.00			2424.00	
Recorder	0.00	8369	Outside	2424.00	
Recorder	0.00	8846	Inside	2424.00	
Perforations	10.00			2434.00	
Change Over Sub	0.50			2434.50	
Blank Spacing	31.00			2465.50	
Change Over Sub	0.50			2466.00	
Perforations	2.00			2468.00	
Bullnose	5.00			2473.00	50.00 Bottom Packers & Anchor
Total Tool Length:	78.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63941

DST#: 1

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.11 @ 22:20:00

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:

125000 ppm

Viscosity: 43.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
245.00	GOSMCW 1%G 1%O 87%W 7 11%M	1.770
95.00	GSOSWCM 9%G 7%O 7% W & 77%M	1.333
0.00	TS - VSOMCW 4%O 68%W & 28%M	0.000

Total Length: 340.00 ft

Total Volume: 3.103 bbl

Num Fluid Samples: 0

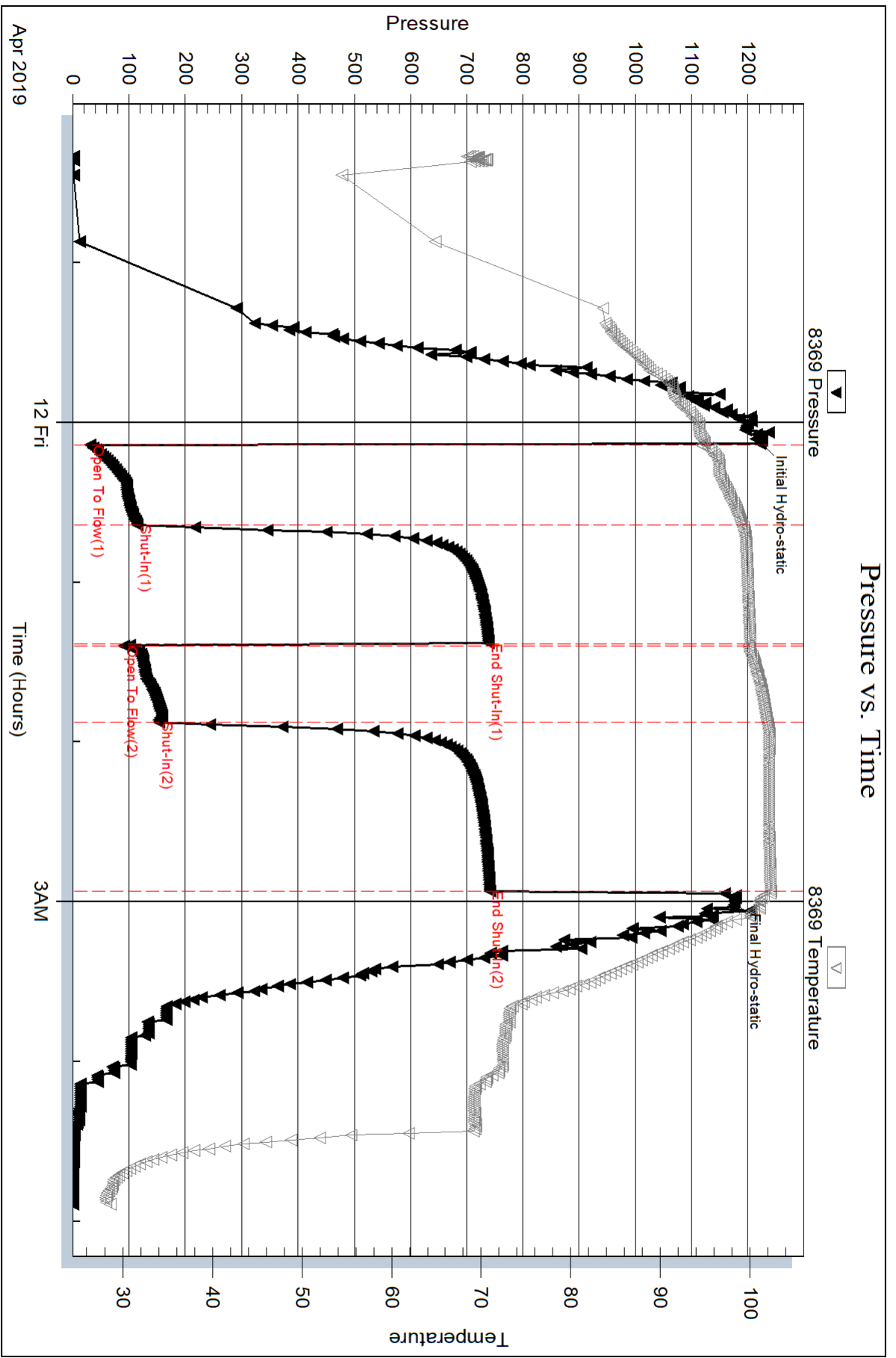
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



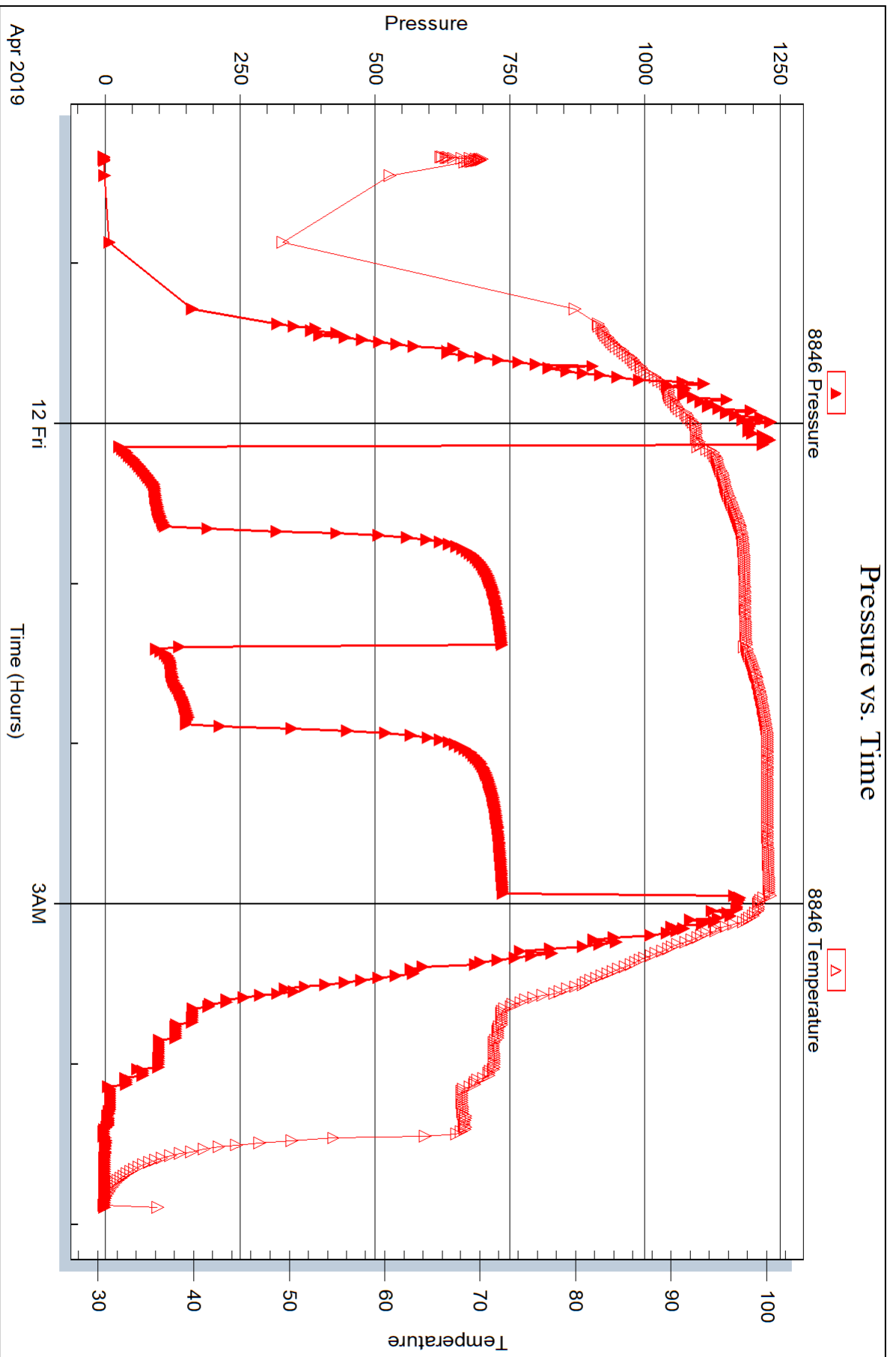
Serial #: 8846

Inside

Raney Oil Co., Inc.

Play #4

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Raney Oil Co., Inc.**

4665 Bauer Brook Court
Lawrence, KS 66049-9013

ATTN: Thomas Raney/Roger M

Pray #4

31-33S-6E Cowley,KS

Start Date: 2019.04.13 @ 12:07:00

End Date: 2019.04.13 @ 19:36:09

Job Ticket #: 63942 DST #: 2

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

Printed: 2019.04.18 @ 16:00:09



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Raney Oil Co., Inc.

31-33S-6E Cowley, KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63942

DST#: 2

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.13 @ 12:07:00

GENERAL INFORMATION:

Formation: **Mississippian**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:50:20

Time Test Ended: 19:36:09

Test Type: Conventional Bottom Hole (Initial)

Tester: Jimmy Ricketts

Unit No: 80

Interval: 2787.00 ft (KB) To 3210.00 ft (KB) (TVD)

Reference Elevations: 1272.00 ft (KB)

Total Depth: 3210.00 ft (KB) (TVD)

1259.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 13.00 ft

Serial #: 8369 Outside

Press@RunDepth: 317.86 psig @ 3173.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.04.13

End Date:

2019.04.13

Last Calib.:

2019.04.13

Start Time: 12:07:01

End Time:

19:36:10

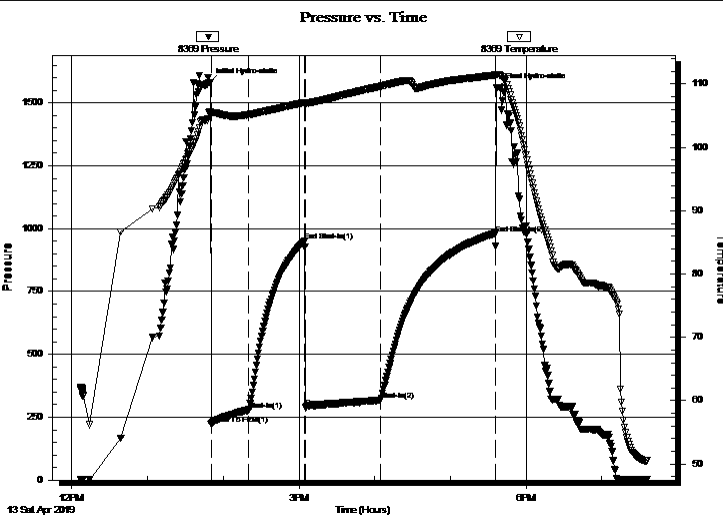
Time On Btm:

2019.04.13 @ 13:49:10

Time Off Btm:

2019.04.13 @ 17:37:39

TEST COMMENT: IF - Weak blow building to 11"
FF - BOB in 22 min Built to 35"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1581.22	105.55	Initial Hydro-static
2	223.29	105.22	Open To Flow (1)
32	278.36	105.16	Shut-In(1)
76	949.43	107.09	End Shut-In(1)
77	288.41	106.89	Open To Flow (2)
136	317.86	109.65	Shut-In(2)
227	980.69	111.41	End Shut-In(2)
229	1561.18	111.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
230.00	GVSOCM 2%G 4%O & 94%M	1.56
0.00	TS - GVSOCM 7%G 3%O & 90%M	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63942

DST#: 2

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.13 @ 12:07:00

Tool Information

Drill Pipe:	Length: 2591.00 ft	Diameter: 3.80 inches	Volume: 36.34 bbl	Tool Weight: 2800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 183.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 37.24 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	2787.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	423.00 ft			
Tool Length:	451.00 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			2760.00	
Shut In Tool	5.00			2765.00	
Hydraulic tool	5.00			2770.00	
Jars	5.00			2775.00	
Safety Joint	3.00			2778.00	
Packer	5.00			2783.00	28.00 Bottom Of Top Packer
Packer	4.00			2787.00	
Stubb	1.00			2788.00	
Perforations	8.00			2796.00	
Change Over Sub	0.50			2796.50	
Blank Spacing	376.00			3172.50	
Change Over Sub	0.50			3173.00	
Recorder	0.00	8369	Outside	3173.00	
Recorder	0.00	8846	Inside	3173.00	
Perforations	32.00			3205.00	
Bullnose	5.00			3210.00	423.00 Bottom Packers & Anchor
Total Tool Length:	451.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63942

DST#: 2

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.13 @ 12:07:00

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: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
230.00	GVSOCM 2%G 4%O & 94%M	1.559
0.00	TS - GVSOCM 7%G 3%O & 90%M	0.000

Total Length: 230.00 ft Total Volume: 1.559 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

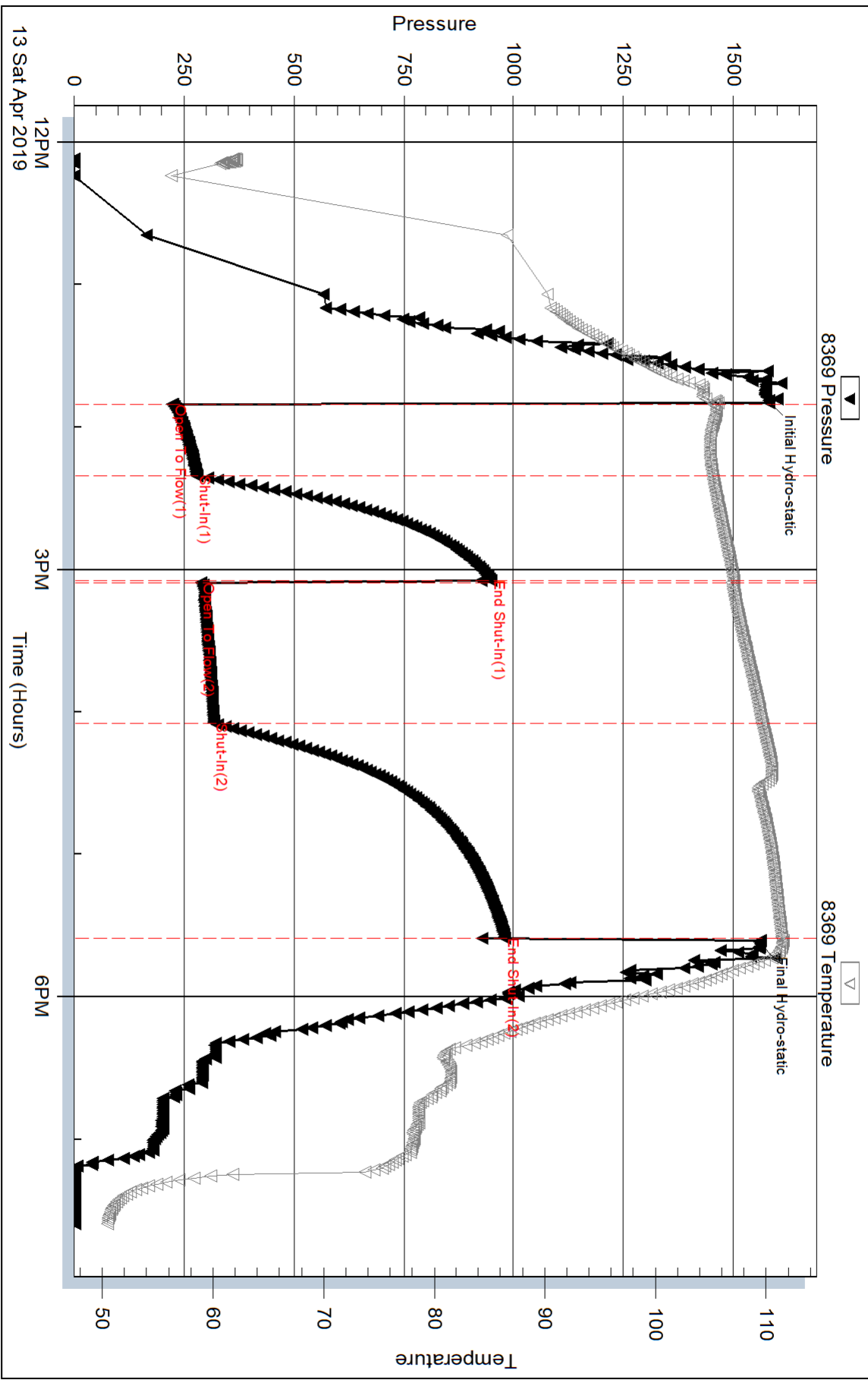
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



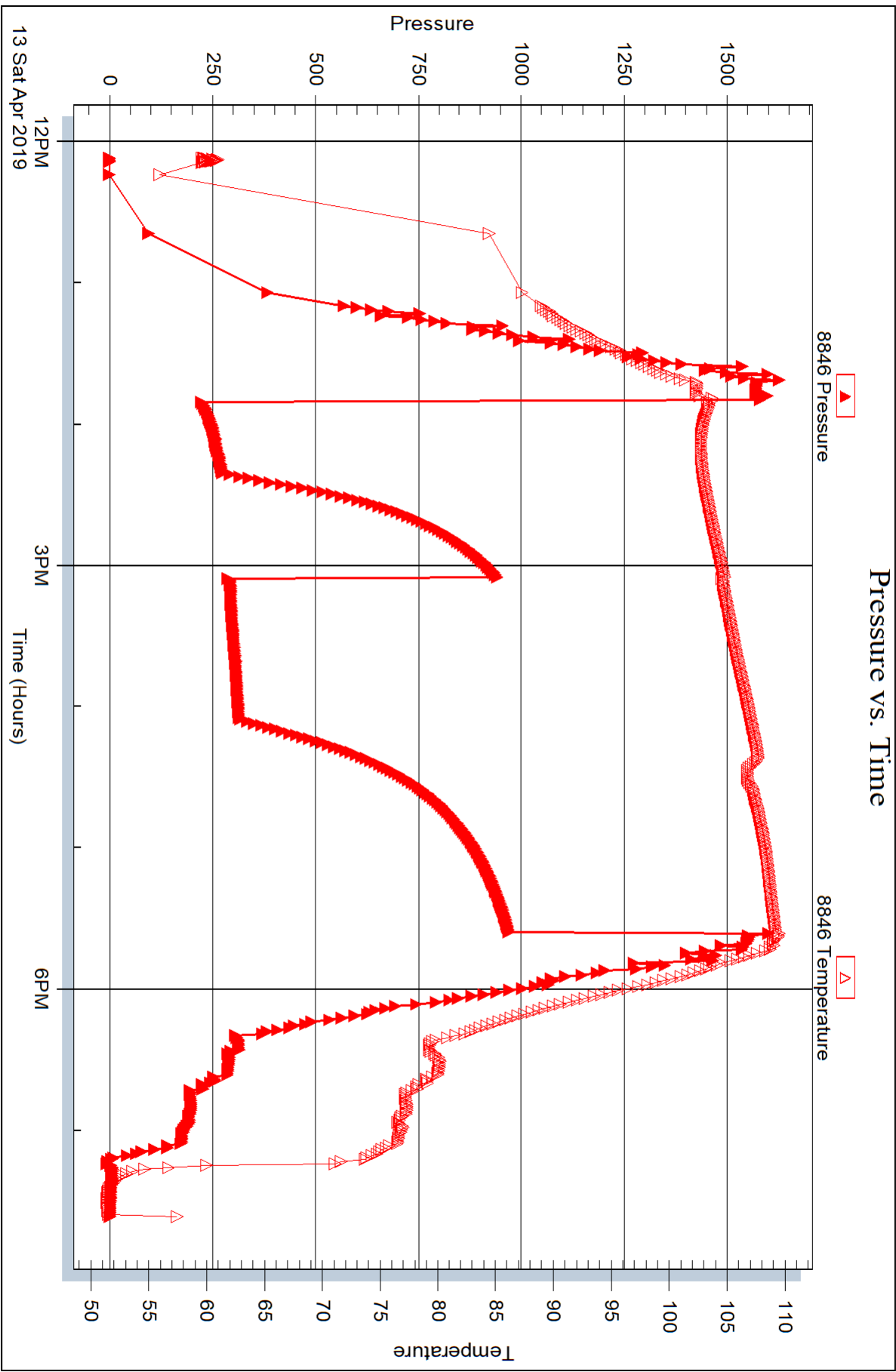
Serial #: 8846

Inside

Raney Oil Co., Inc.

Play #4

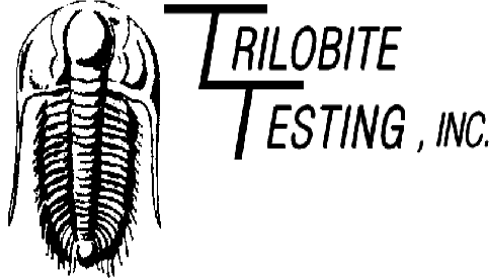
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63942

Printed: 2019.04.18 @ 16:00:10



DRILL STEM TEST REPORT

Prepared For: **Raney Oil Co., Inc.**

4665 Bauer Brook Court
Lawrence, KS 66049-9013

ATTN: Thomas Raney/Roger M

Pray #4

31-33S-6E Cowley,KS

Start Date: 2019.04.14 @ 12:35:00

End Date: 2019.04.14 @ 20:52:50

Job Ticket #: 63943 DST #: 3

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

Printed: 2019.04.18 @ 15:59:27



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Raney Oil Co., Inc.
 4665 Bauer Brook Court
 Lawrence, KS 66049-9013
 ATTN: Thomas Raney/Roger M

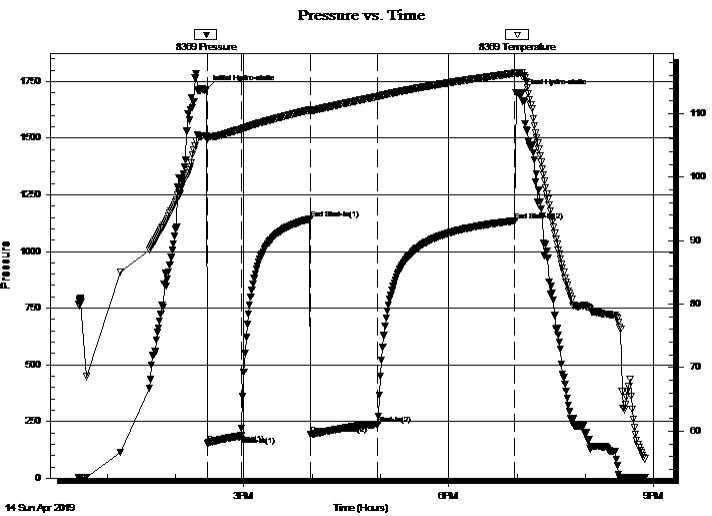
31-33S-6E Cowley, KS
Pray #4
 Job Ticket: 63943 **DST#: 3**
 Test Start: 2019.04.14 @ 12:35:00

GENERAL INFORMATION:

Formation: **Lower Mississippian**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:28:10
 Time Test Ended: 20:52:50
 Interval: **3212.00 ft (KB) To 3510.00 ft (KB) (TVD)**
 Total Depth: 3510.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jimmy Ricketts
 Unit No: 80
 Reference Elevations: 1272.00 ft (KB)
 1259.00 ft (CF)
 KB to GR/CF: 13.00 ft

Serial #: 8369 Outside
 Press@RunDepth: 236.78 psig @ 3213.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.14 End Date: 2019.04.14 Last Calib.: 2019.04.14
 Start Time: 12:35:01 End Time: 20:52:50 Time On Btm: 2019.04.14 @ 14:26:50
 Time Off Btm: 2019.04.14 @ 19:02:00

TEST COMMENT: IF - Weak blow building to 5"
 FF Weak blow building to 5"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1713.14	106.55	Initial Hydro-static
2	154.77	105.85	Open To Flow (1)
31	187.11	107.56	Shut-In(1)
92	1143.48	110.60	End Shut-In(1)
92	191.83	110.35	Open To Flow (2)
151	236.78	112.69	Shut-In(2)
272	1135.10	116.37	End Shut-In(2)
276	1697.48	116.41	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	Mud cut Water 89%W 11%M	0.59
75.00	Drilling Mud 100%M	0.48
0.00	TS - HMCW 52%W & 48%M	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Raney Oil Co., Inc.

31-33S-6E Cowley, KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63943

DST#: 3

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.14 @ 12:35:00

Tool Information

Drill Pipe:	Length: 3032.00 ft	Diameter: 3.80 inches	Volume: 42.53 bbl	Tool Weight: 2800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 183.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 73000.00 lb
			<u>Total Volume: 43.43 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3212.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	298.00 ft			
Tool Length:	326.00 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			3185.00	
Shut In Tool	5.00			3190.00	
Hydraulic tool	5.00			3195.00	
Jars	5.00			3200.00	
Safety Joint	3.00			3203.00	
Packer	5.00			3208.00	28.00 Bottom Of Top Packer
Packer	4.00			3212.00	
Stubb	1.00			3213.00	
Recorder	0.00	8369	Outside	3213.00	
Recorder	0.00	8846	Inside	3213.00	
Perforations	8.00			3221.00	
Change Over Sub	0.50			3221.50	
Blank Spacing	251.00			3472.50	
Change Over Sub	0.50			3473.00	
Perforations	32.00			3505.00	
Bullnose	5.00			3510.00	298.00 Bottom Packers & Anchor
Total Tool Length:	326.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63943

DST#: 3

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.14 @ 12:35:00

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:

41000 ppm

Viscosity: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	Mud cut Water 89%W 11%M	0.590
75.00	Drilling Mud 100%M	0.478
0.00	TS - HMCW 52%W & 48%M	0.000

Total Length: 195.00 ft

Total Volume: 1.068 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

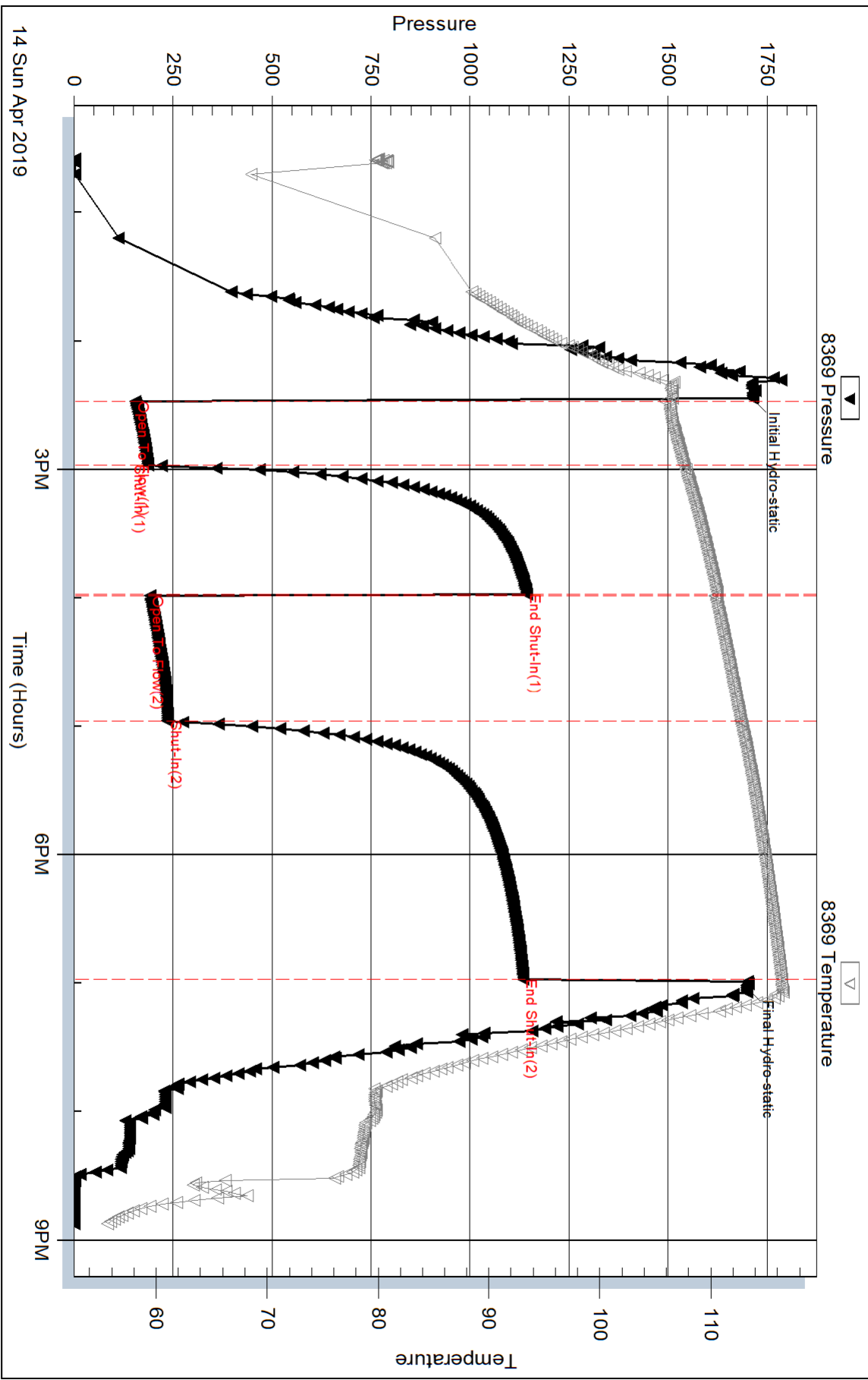
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



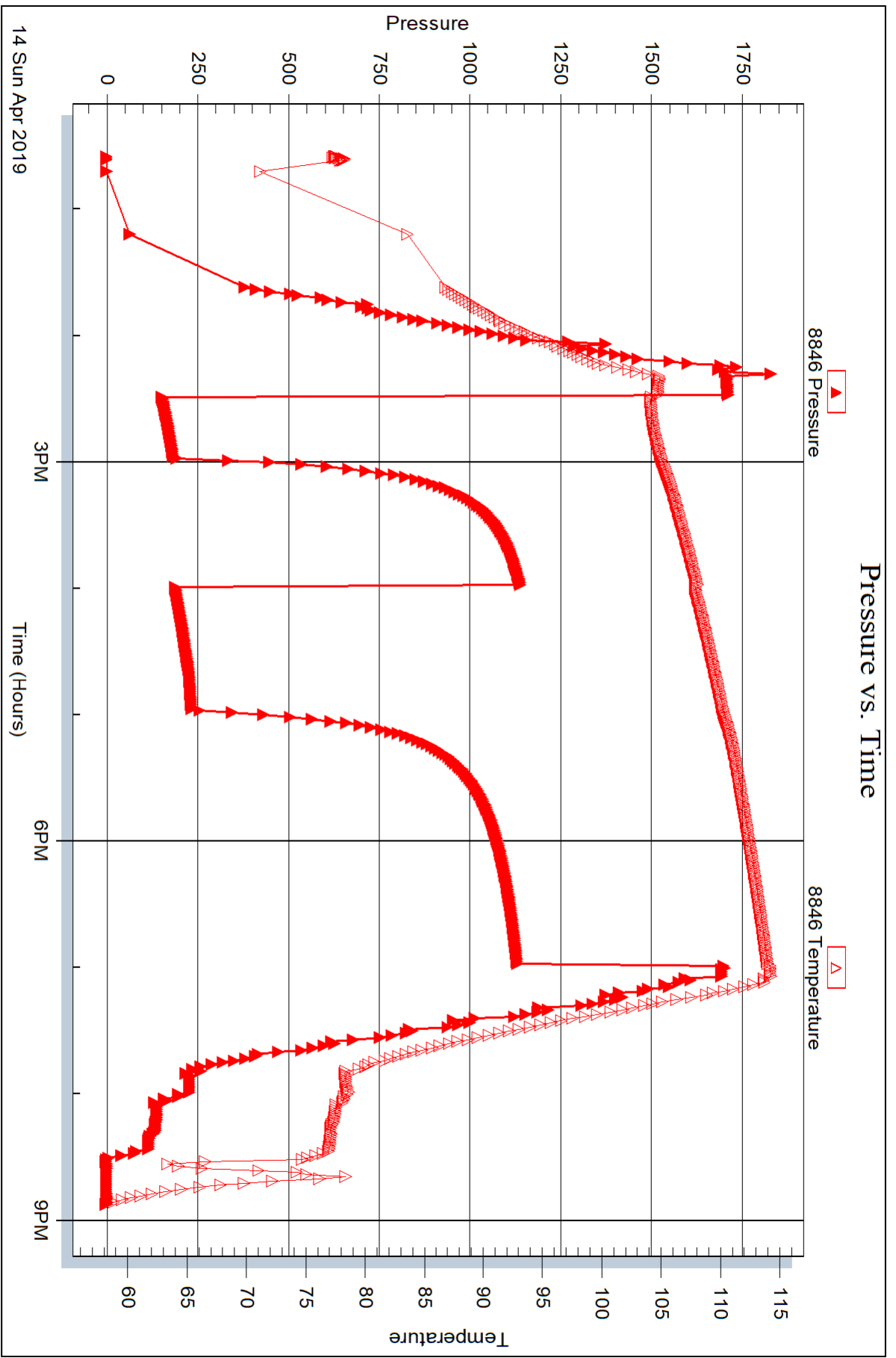
Serial #: 8846

Inside

Raney Oil Co., Inc.

Play #4

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63943

Printed: 2019.04.18 @ 15:59:28



DRILL STEM TEST REPORT

Prepared For: **Raney Oil Co., Inc.**

4665 Bauer Brook Court
Lawrence, KS 66049-9013

ATTN: Thomas Raney/Roger M

Pray #4

31-33S-6E Cowley,KS

Start Date: 2019.04.15 @ 09:20:00

End Date: 2019.04.15 @ 14:57:39

Job Ticket #: 63944 DST #: 4

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

Printed: 2019.04.18 @ 15:35:23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Raney Oil Co., Inc.

31-33S-6E Cowley, KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63944

DST#: 4

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.15 @ 09:20:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:09:40

Time Test Ended: 14:57:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Jimmy Ricketts

Unit No: 80

Interval: 3477.00 ft (KB) To 3542.00 ft (KB) (TVD)

Reference Elevations: 1272.00 ft (KB)

Total Depth: 3542.00 ft (KB) (TVD)

1259.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 13.00 ft

Serial #: 8369 Outside

Press@RunDepth: 59.98 psig @ 3478.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.04.15 End Date: 2019.04.15

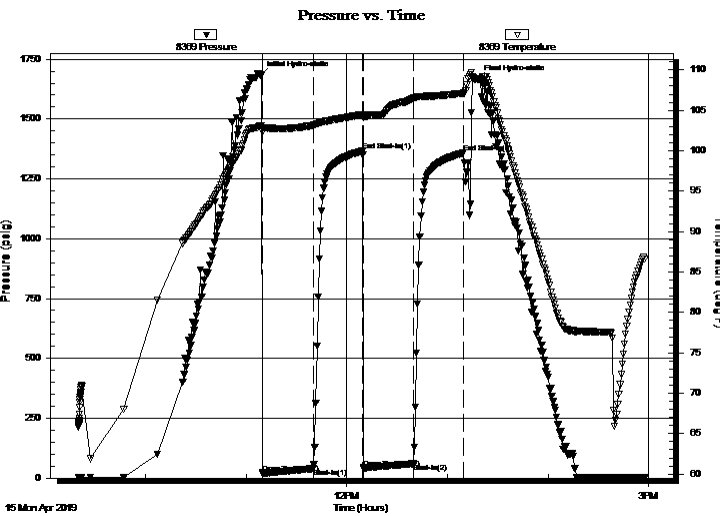
Last Calib.: 1899.12.30

Start Time: 09:20:01 End Time: 14:57:40

Time On Btm: 2019.04.15 @ 11:08:10

Time Off Btm: 2019.04.15 @ 13:17:30

TEST COMMENT: IF - Weak blow building to 2 inches during initial flow period.
FF - Weak blow building to 2 inches during final flow period.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1682.75	103.10	Initial Hydro-static
2	19.85	102.70	Open To Flow (1)
32	40.26	103.12	Shut-In(1)
62	1365.73	104.49	End Shut-In(1)
62	42.24	104.07	Open To Flow (2)
92	59.98	106.52	Shut-In(2)
122	1357.75	107.12	End Shut-In(2)
130	1666.04	108.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
75.00	Drilling Mud 100%M	0.37
0.00	TS - Drilling Mud 100% M	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Raney Oil Co., Inc.

31-33S-6E Cowley, KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63944

DST#: 4

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.15 @ 09:20:00

Tool Information

Drill Pipe:	Length: 3282.00 ft	Diameter: 3.80 inches	Volume: 46.04 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 183.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 102000.0 lb
			<u>Total Volume: 46.94 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3477.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	93.00 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			3450.00	
Shut In Tool	5.00			3455.00	
Hydraulic tool	5.00			3460.00	
Jars	5.00			3465.00	
Safety Joint	3.00			3468.00	
Packer	5.00			3473.00	28.00 Bottom Of Top Packer
Packer	4.00			3477.00	
Stubb	1.00			3478.00	
Recorder	0.00	8369	Outside	3478.00	
Recorder	0.00	8846	Inside	3478.00	
Perforations	26.00			3504.00	
Change Over Sub	0.50			3504.50	
Blank Spacing	31.00			3535.50	
Change Over Sub	0.50			3536.00	
Perforations	1.00			3537.00	
Bullnose	5.00			3542.00	65.00 Bottom Packers & Anchor
Total Tool Length:	93.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Raney Oil Co., Inc.

31-33S-6E Cowley,KS

4665 Bauer Brook Court
Lawrence, KS 66049-9013

Pray #4

Job Ticket: 63944

DST#: 4

ATTN: Thomas Raney/Roger M

Test Start: 2019.04.15 @ 09:20:00

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:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
75.00	Drilling Mud 100%M	0.369
0.00	TS - Drilling Mud 100% M	0.000

Total Length: 75.00 ft Total Volume: 0.369 bbl

Num Fluid Samples: 0

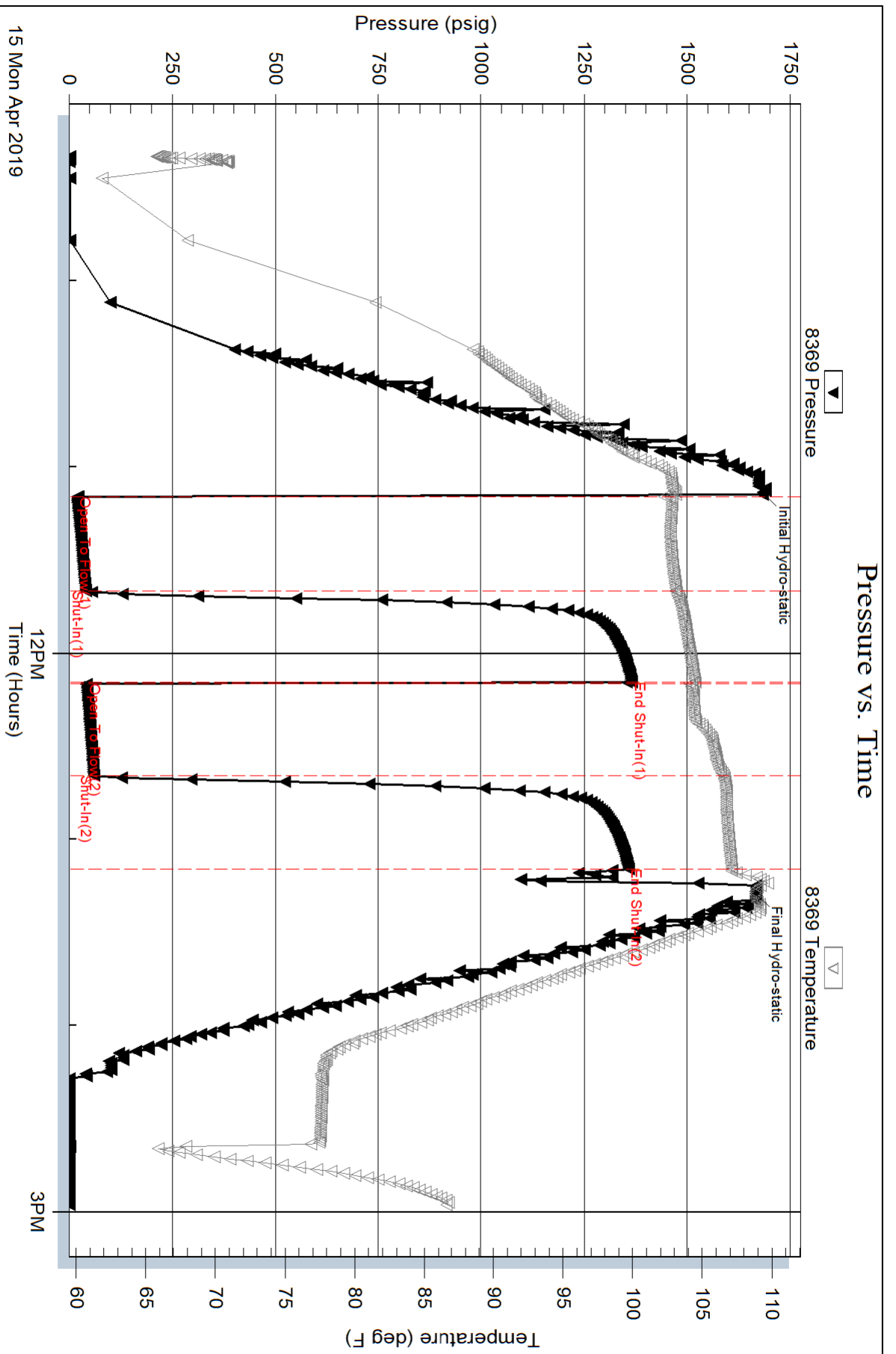
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



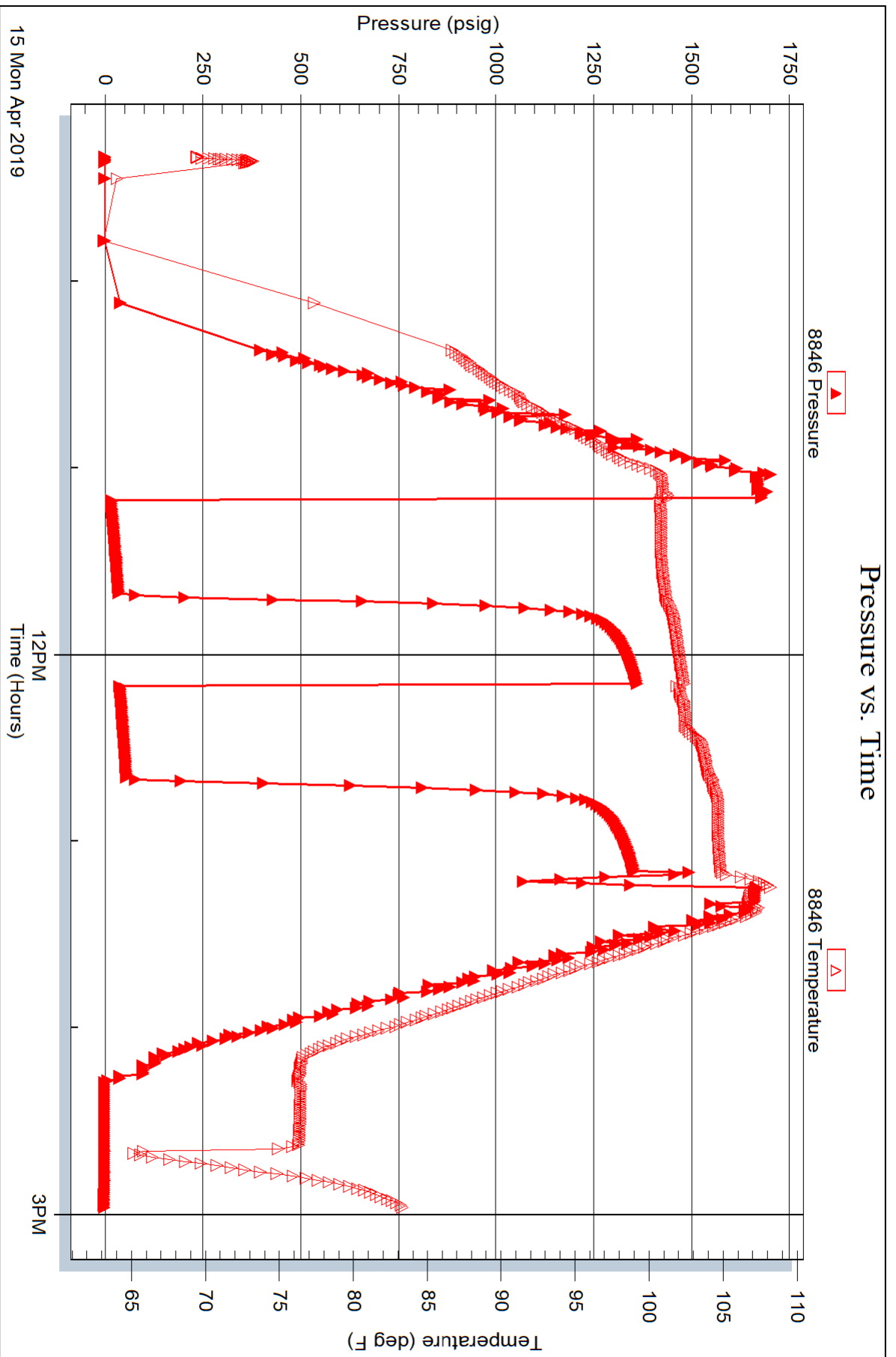
Serial #: 8846

Inside

Raney Oil Co., Inc.

Play #4

DST Test Number: 4





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63941

Well Name & No. Pray #4 Test No. 1 Date 4-12-19
 Company Raney Oil, Co., Inc. Elevation 1272 KB 1259 GL
 Address 4665 Bayer Brook Court, Lawrence, Ks. 66049-9013
 Co. Rep / Geo. Thomas Raney / Roger Martin Rig Duke Drilling #7
 Location: Sec. 31 Twp 33 S Rge. G E Co. Cowley State Ks

Interval Tested 2423-2473 Zone Tested Padd Creek Sand
 Anchor Length 50' Drill Pipe Run 2219 Mud Wt. 9.3
 Top Packer Depth 2418 Drill Collars Run 183 Vis 43
 Bottom Packer Depth 2423 Wt. Pipe Run 0 WL 7.2
 Total Depth ~~2470~~ 2473 Chlorides 1100 ppm System LCM

Blow Description IF-weak blow building to strong blow 11 min into FFP continuing to build to 65 inches, TS- 2 1/2 inch blow back during FFP
EF-Strong blow throughout FFP, continuing to build to 185 inches
FS-Strong blow back during FFP

Rec	Feet of	%gas	%oil	%water	%mud
<u>245</u>	<u>605 new</u>	<u>1</u>	<u>1</u>	<u>87</u>	<u>11</u>
<u>95</u>	<u>6505 new</u>	<u>9</u>	<u>7</u>	<u>7</u>	<u>77</u>
<u>TS</u>	<u>6505 new</u>	<u></u>	<u>4</u>	<u>68</u>	<u>28</u>

Rec Total 335 BHT 102 Gravity API RW 0.144 @ 34.2 F Chlorides 125,000 ppm

(A) Initial Hydrostatic <u>1222</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>2040</u>
(B) First Initial Flow <u>31</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2220</u>
(C) First Final Flow <u>115</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0008</u>
(D) Initial Shut-In <u>739</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>0256</u>
(E) Second Initial Flow <u>91</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0445</u>
(F) Second Final Flow <u>153</u>	<input checked="" type="checkbox"/> Mileage <u>284rt</u> <u>RT 140</u>	Comments
(G) Final Shut-In <u>741</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1175</u>	<input type="checkbox"/> Straddle	

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 63

Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1809
 MP/DST Disc't

Sub Total 1809

Approved By _____ Our Representative Jimmy Roberts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63942

Well Name & No. Pray #4 Test No. 2 Date 4-13-19
 Company Raney Oil Co., Inc. Elevation 1272 KB 1259 GL
 Address 4665 Bauer Brook Court, Lawrence, Ks. 66049-9013
 Co. Rep / Geo. Thomas Raney / Roger Martin Rig Duke Drilling #7
 Location: Sec. 31 Twp 33S Rge. 6E Co. Cowley State KS

Interval Tested 2787-3210 Zone Tested Mississippian
 Anchor Length 423' Drill Pipe Run 2591 Mud Wt. 9.3
 Top Packer Depth 2782 Drill Collars Run 183 Vis 54
 Bottom Packer Depth 2787 Wt. Pipe Run 0 WL 7.2
 Total Depth 3210 Chlorides 1700 ppm System LCM
 Blow Description IF-weak blow building to 11 inches IFF
FF-weak blow building to strong blow 22 mins. into FFP
continuing to build to 30 inches.

Rec	Feet of	%gas	%oil	%water	%mud
<u>230</u>	<u>GVSO CM</u>	<u>2</u>	<u>4</u>	<u>94</u>	
<u>TS</u>	<u>GVSO CM</u>	<u>7</u>	<u>3</u>	<u>90</u>	

Rec Total 230 BHT 111 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1581</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>1100</u>
(B) First Initial Flow <u>223</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1207</u>
(C) First Final Flow <u>278</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1350</u>
(D) Initial Shut-In <u>949</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>1735</u>
(E) Second Initial Flow <u>288</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>1920</u>
(F) Second Final Flow <u>318</u>	<input checked="" type="checkbox"/> Mileage <u>140</u> <u>RT 140</u>	Comments _____
(G) Final Shut-In <u>981</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>1561</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	Sub Total <u>0</u>
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1665</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility _____	
	Sub Total <u>1665</u>	

Approved By Roger Martin Our Representative Jimmy Dicketh
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63943

Well Name & No. Pray #4 Test No. 3 Date 4-14-19
 Company Raney Oil Co., Inc. Elevation 1272 KB 1259 GL
 Address 4665 Bauer Brook Court, Lawrence, KS. 66049-9013
 Co. Rep / Geo. Thomas Raney / Roger Martin Rig Duke Drilling #7
 Location: Sec. 31 Twp 33 S Rge. 6 E Co. Cowley State KS

Interval Tested 3212 - 3510 Zone Tested Mississippian Lower
 Anchor Length 298' Drill Pipe Run 3032 Mud Wt. 9.2
 Top Packer Depth 3207 Drill Collars Run 183 Vis 45
 Bottom Packer Depth 3212 Wt. Pipe Run 0 WL 7.2
 Total Depth 3516 Chlorides 1800 ppm System LCM
 Blow Description IF - weak blow building to 5 inches IFP
FF - weak blow building to 5 inches FFP

Rec	Feet of	%gas	%oil	%water	%mud
120	MCOW			89	11
75	Drilling mud				100
TS	Heavy mud cut water			52	48

Rec Total 195 BHT 116 Gravity _____ API RW 0.211 @ 58.8° F Chlorides 41,000 ppm

(A) Initial Hydrostatic <u>1713</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>1200</u>
(B) First Initial Flow <u>155</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1235</u>
(C) First Final Flow <u>187</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1428</u>
(D) Initial Shut-In <u>1143</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>1858</u>
(E) Second Initial Flow <u>192</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>2030</u>
(F) Second Final Flow <u>237</u>	<input checked="" type="checkbox"/> Mileage <u>140</u> <u>RT 140</u>	Comments _____
(G) Final Shut-In <u>1135</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1697</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>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>120</u>	<input type="checkbox"/> Day Standby _____	Total <u>1665</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1665</u>	

Approved By Roger Martin Our Representative Jimmy Richerts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63944

Well Name & No. Prqy #4 Test No. 4 Date 4-15-19
 Company Raney Oil Co., Inc. Elevation 1272 KB 1259 GL
 Address 4665 Bauer Brook Court, Lawrence, KS 66049-9013
 Co. Rep / Geo. Thomas Raney / Roger Martin Rig Duke drilling #7
 Location: Sec. 31 Twp 33 S Rge. 6 E Co. Cowley State KS.

Interval Tested 3477 - 3542 Zone Tested Ar-buckle
 Anchor Length 65' Drill Pipe Run 3282 Mud Wt. 9.3
 Top Packer Depth 3472 Drill Collars Run 183 Vis 49
 Bottom Packer Depth 3477 Wt. Pipe Run 0 WL 7.2
 Total Depth 3542 Chlorides 1600 ppm System LCM
 Blow Description IF-Weak blow building to 2 inches IFP
FF-Weak blow building to 2 inches FFP

Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>Drilling Mud</u>			<u>100%</u>	
<u>TS</u>	<u>Drilling Mud</u>			<u>100%</u>	

Rec Total 75 BHT 109 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1683 Test 1200 T-On Location Yes
 (B) First Initial Flow 20 Jars 250 T-Started 0920
 (C) First Final Flow 40 Safety Joint 75 T-Open 1110
 (D) Initial Shut-In 1366 Circ Sub _____ T-Pulled 1310
 (E) Second Initial Flow 42 Hourly Standby _____ T-Out 1500
 (F) Second Final Flow 60 Mileage None Comments _____
 (G) Final Shut-In 1358 Sampler _____
 (H) Final Hydrostatic 1666 Straddle _____
 Ruined Shale Packer _____
 Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Copies _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1525 Sub Total 1525
 Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30
 Sub Total 0
 Total 1525
 MP/DST Disc't _____

Approved By Roger Martin Our Representative Jimmy Dickert
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