

DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison Rd
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

Engel North #3

21-15s-18w Ellis,KS

Start Date: 2017.07.22 @ 19:10:45

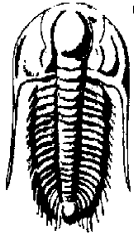
End Date: 2017.07.23 @ 01:21:54

Job Ticket #: 63003 DST #: 1

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

Printed: 2017.07.24 @ 14:48:47

TDI, Inc
21-15s-18w Ellis, KS
Engel North #3
DST # 1
LKC A-D
2017.07.22



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI, Inc
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
 Job Ticket: 63003 **DST#: 1**
 Test Start: 2017.07.22 @ 19:10:45

GENERAL INFORMATION:

Formation: **LKC A-D**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:48:10
 Time Test Ended: 01:21:54
 Interval: **3321.00 ft (KB) To 3370.00 ft (KB) (TVD)**
 Total Depth: 3370.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ray Schwager
 Unit No: 77
 Reference Elevations: 2037.00 ft (KB)
 2027.00 ft (CF)
 KB to GR/CF: 10.00 ft

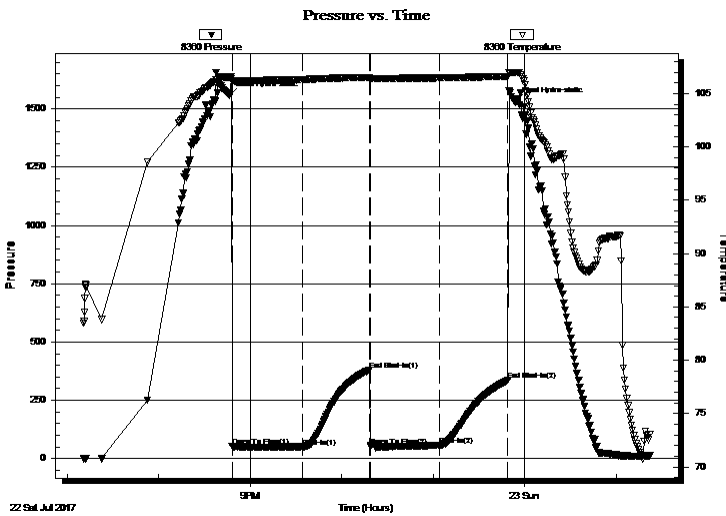
Serial #: 8360

Inside

Press@RunDepth: 57.41 psig @ 3334.00 ft (KB)
 Start Date: 2017.07.22 End Date: 2017.07.23
 Start Time: 19:10:45 End Time: 01:21:54
 Capacity: 8000.00 psig
 Last Calib.: 2017.07.23
 Time On Btm: 2017.07.22 @ 20:46:25
 Time Off Btm: 2017.07.22 @ 23:53:39

TEST COMMENT: 45-IFP-w k to a gd bl 1/2" to 9" bl
 45-ISIP-no bl bk
 45-FFP-w k to a fr bl surface to 5" bl
 45-FSIP-no bl bk

PRESSURE SUMMARY



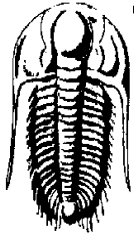
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1558.79	106.55	Initial Hydro-static
2	52.29	106.10	Open To Flow (1)
48	50.85	106.32	Shut-In(1)
92	380.72	106.51	End Shut-In(1)
93	54.42	106.42	Open To Flow (2)
138	57.41	106.47	Shut-In(2)
183	335.51	106.60	End Shut-In(2)
188	1530.98	106.98	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	260' GIP	0.00
30.00	O&GCM 20%G20%O60%M	0.42
20.00	O&GCM 10%G30%O60%M	0.28

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc
1310 Bison Rd
Hays KS 67601-9696
ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
Job Ticket: 63003 **DST#: 1**
Test Start: 2017.07.22 @ 19:10:45

Tool Information

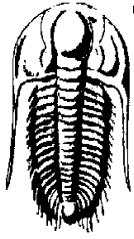
Drill Pipe:	Length: 3328.00 ft	Diameter: 3.80 inches	Volume: 46.68 bbl	Tool Weight:	2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 46.68 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	46000.00 lb
Depth to Top Packer:	3321.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	49.00 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
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Change Over Sub	1.00			3301.00	
Shut In Tool	5.00			3306.00	
Hydraulic tool	5.00			3311.00	
Packer	5.00			3316.00	21.00 Bottom Of Top Packer
Packer	5.00			3321.00	
Stubb	1.00			3322.00	
Perforations	12.00			3334.00	
Recorder	0.00	8360	Inside	3334.00	
Recorder	0.00	6751	Outside	3334.00	
Blank Spacing	33.00			3367.00	
Bullnose	3.00			3370.00	49.00 Bottom Packers & Anchor

Total Tool Length: 70.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
 Job Ticket: 63003
 Test Start: 2017.07.22 @ 19:10:45

DST#: 1

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: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.37 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3400.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

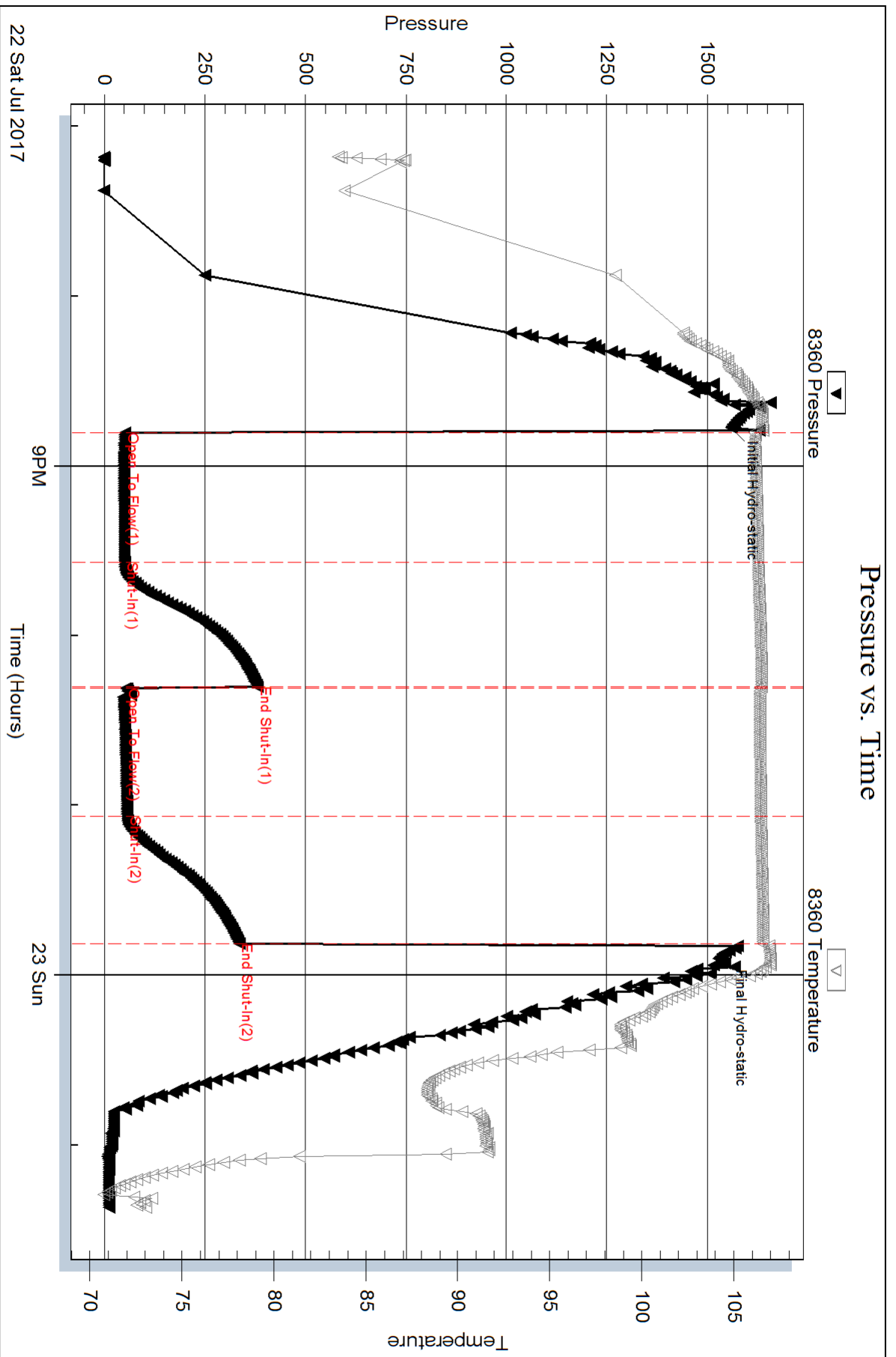
Length ft	Description	Volume bbl
0.00	260' GIP	0.000
30.00	O&GCM 20%G20%O60%M	0.421
20.00	O&GCM 10%G30%O60%M	0.281

Total Length: 50.00 ft Total Volume: 0.702 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:

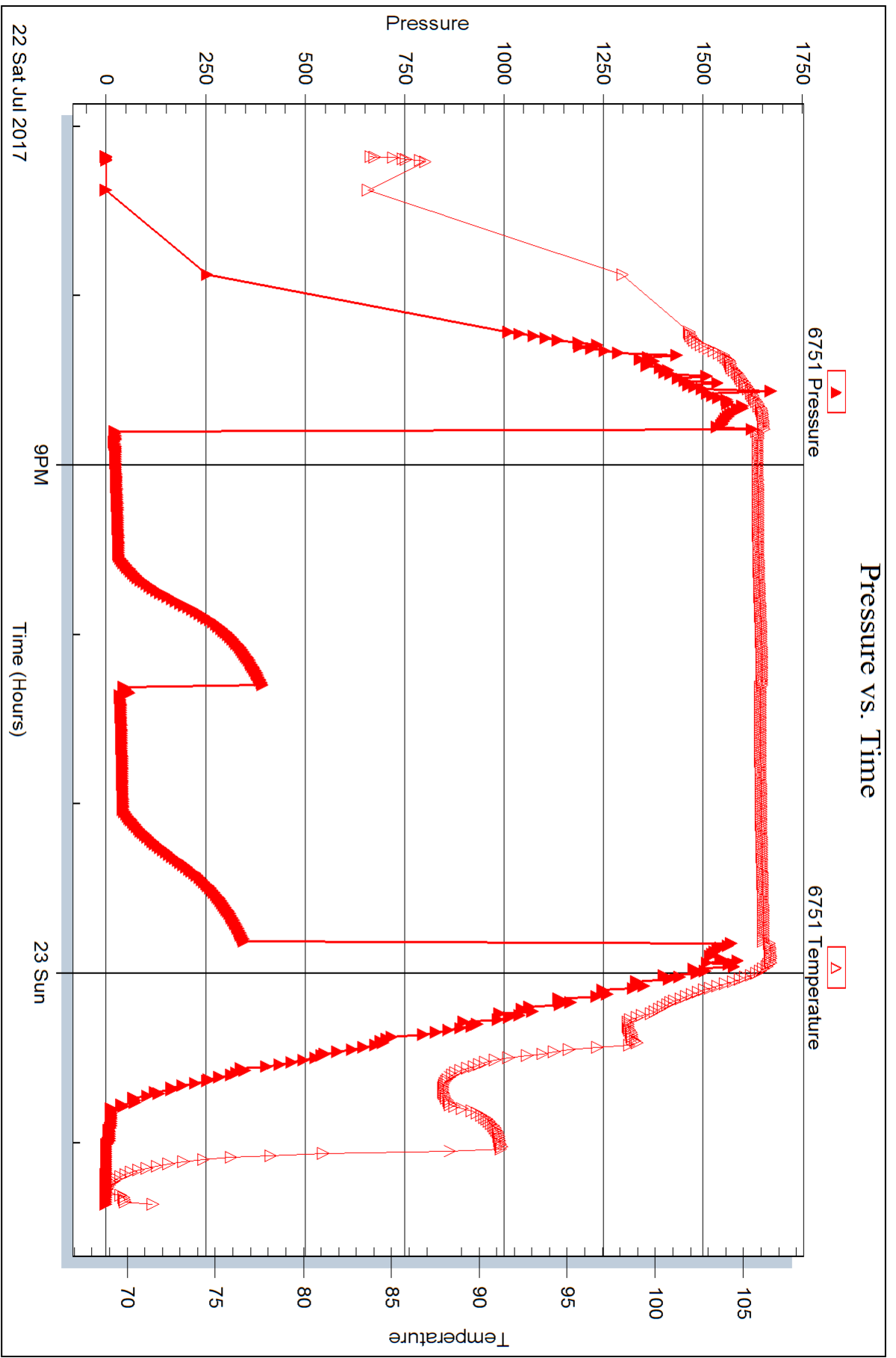


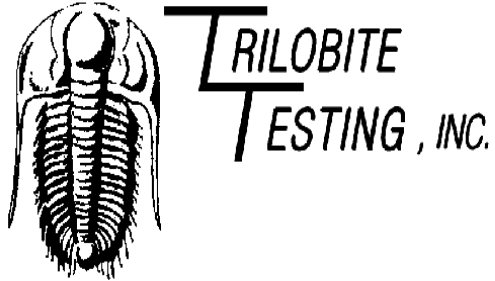
Serial #: 6751

Outside TDI, Inc

Engel North #3

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison Rd
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

Engel North #3

21-15s-18w Ellis,KS

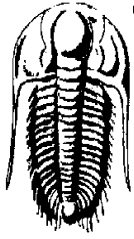
Start Date: 2017.07.23 @ 19:20:21

End Date: 2017.07.23 @ 23:35:46

Job Ticket #: 63004 DST #: 2

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

Printed: 2017.07.24 @ 14:48:22



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI, Inc
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
 Job Ticket: 63004 **DST#: 2**
 Test Start: 2017.07.23 @ 19:20:21

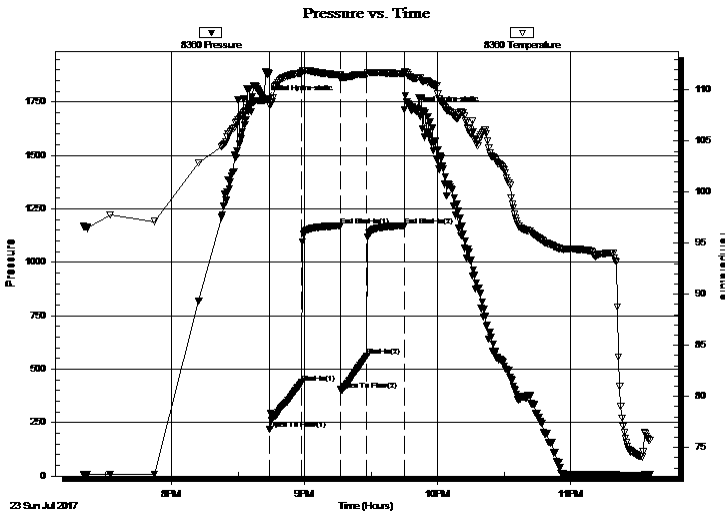
GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:44:16
 Time Test Ended: 23:35:46
 Interval: **3590.00 ft (KB) To 3640.00 ft (KB) (TVD)**
 Total Depth: 3640.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ray Schwager
 Unit No: 77
 Reference Elevations: 2037.00 ft (KB)
 2027.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8360 Inside
 Press@RunDepth: 560.39 psig @ 3604.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.07.23 End Date: 2017.07.23 Last Calib.: 2017.07.23
 Start Time: 19:20:21 End Time: 23:35:46 Time On Btm: 2017.07.23 @ 20:41:46
 Time Off Btm: 2017.07.23 @ 21:48:16

TEST COMMENT: 15-IFP-BOB in 2 min
 15-ISIP-no bl bk
 15-FFP-BOB in 2 min
 15-FSIP-no bl bk

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1763.48	109.00	Initial Hydro-static
3	218.33	108.51	Open To Flow (1)
17	436.86	111.65	Shut-In(1)
35	1171.55	111.46	End Shut-In(1)
35	403.76	111.12	Open To Flow (2)
47	560.39	111.54	Shut-In(2)
63	1171.30	111.57	End Shut-In(2)
67	1710.46	111.19	Final Hydro-static

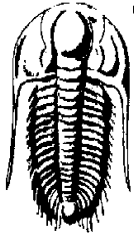
Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud	0.42
1054.00	Water	14.78

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc
1310 Bison Rd
Hays KS 67601-9696
ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
Job Ticket: 63004 **DST#: 2**
Test Start: 2017.07.23 @ 19:20:21

Tool Information

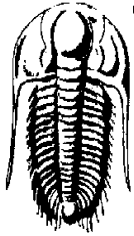
Drill Pipe:	Length: 3584.00 ft	Diameter: 3.80 inches	Volume: 50.27 bbl	Tool Weight:	2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 50.27 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	3590.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	50.00 ft				
Tool Length:	71.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3570.00	
Shut In Tool	5.00			3575.00	
Hydraulic tool	5.00			3580.00	
Packer	5.00			3585.00	21.00 Bottom Of Top Packer
Packer	5.00			3590.00	
Stubb	1.00			3591.00	
Perforations	13.00			3604.00	
Recorder	0.00	8360	Inside	3604.00	
Recorder	0.00	8678	Outside	3604.00	
Blank Spacing	33.00			3637.00	
Bullnose	3.00			3640.00	50.00 Bottom Packers & Anchor

Total Tool Length: 71.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

21-15s-18w Ellis,KS
Engel North #3
 Job Ticket: 63004
 Test Start: 2017.07.23 @ 19:20:21

DST#: 2

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:	30000 ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4800.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

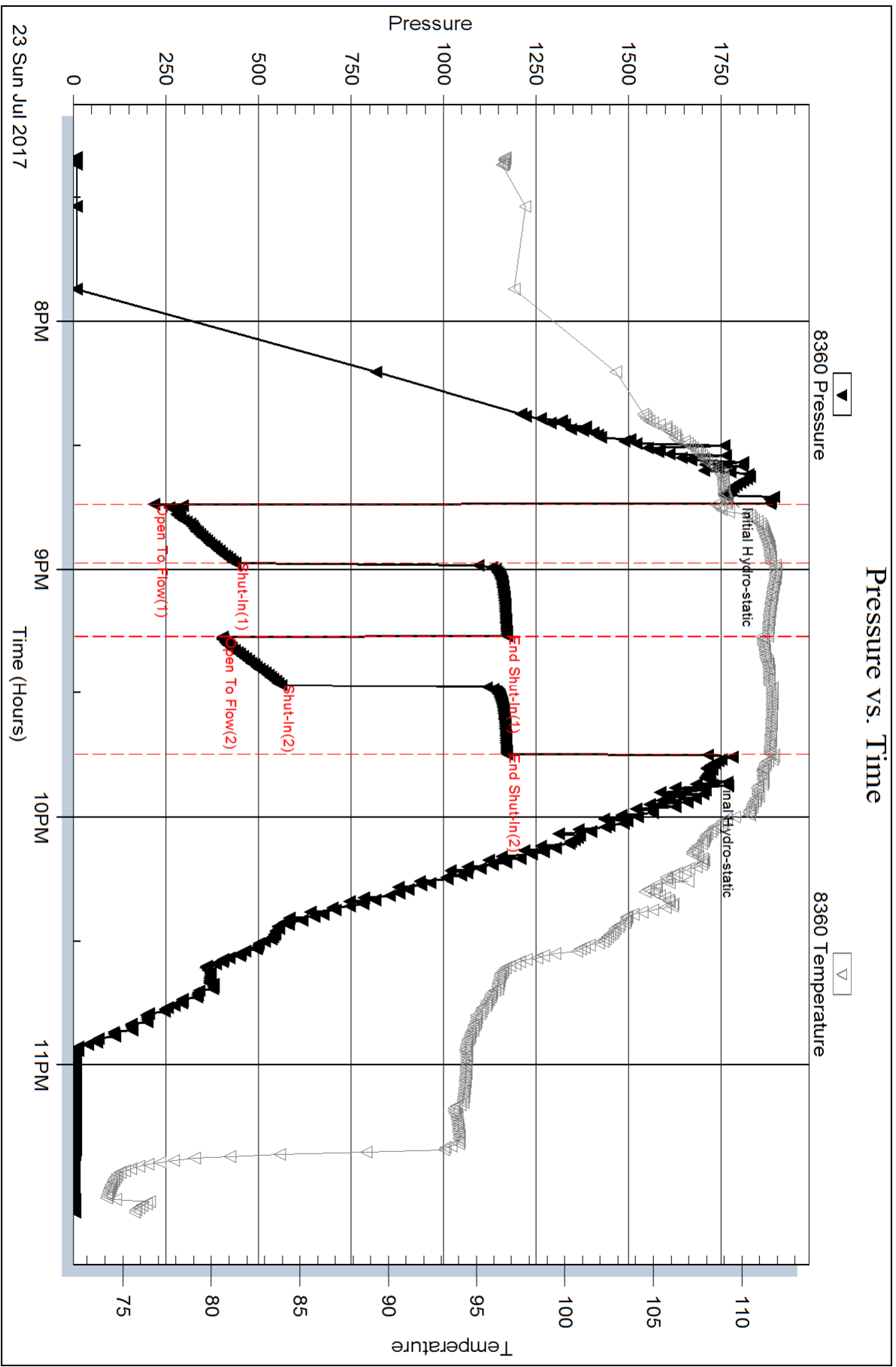
Length ft	Description	Volume bbl
30.00	Mud	0.421
1054.00	Water	14.785

Total Length: 1084.00 ft Total Volume: 15.206 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW .21@75F

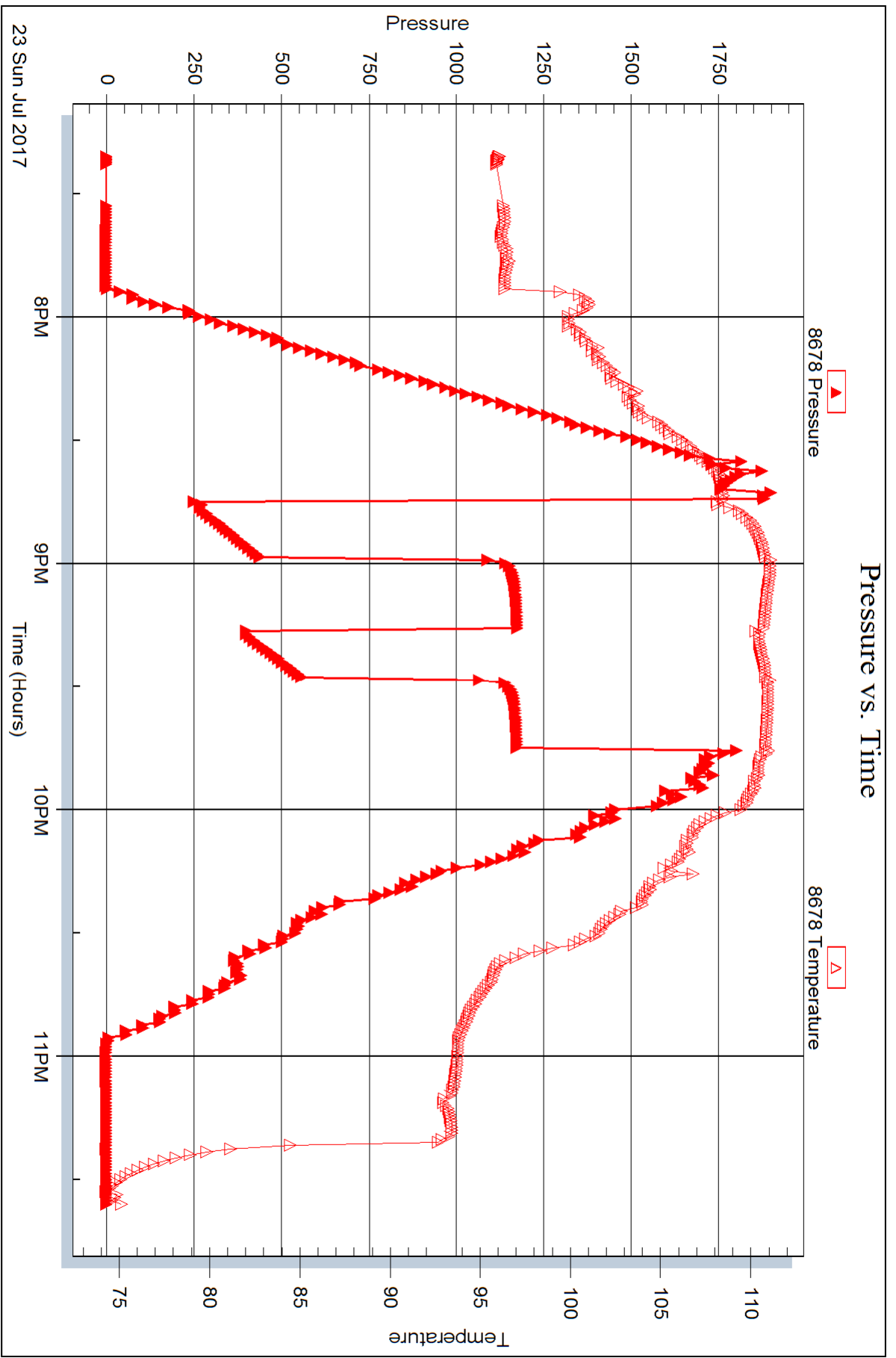


Serial #: 8678

Outside TDI, Inc

Engel North #3

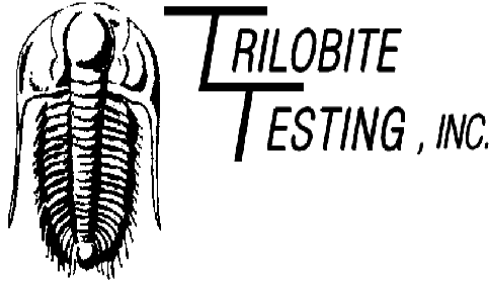
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63004

Printed: 2017.07.24 @ 14:48:23



DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison Rd
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

Engel North #3

21-15s-18w Ellis,KS

Start Date: 2017.07.24 @ 03:41:03

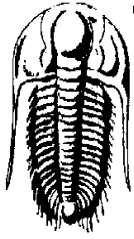
End Date: 2017.07.24 @ 09:55:42

Job Ticket #: 63005 DST #: 3

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

Printed: 2017.07.24 @ 14:47:57

TDI, Inc
21-15s-18w Ellis, KS
Engel North #3
DST # 3
LKC H-J
2017.07.24



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI, Inc
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
 Job Ticket: 63005 **DST#: 3**
 Test Start: 2017.07.24 @ 03:41:03

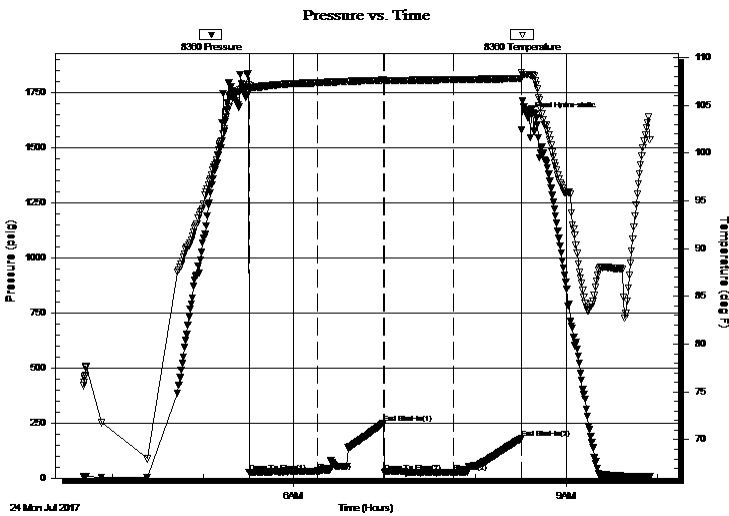
GENERAL INFORMATION:

Formation: **LKC H-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:30:28
 Time Test Ended: 09:55:42
 Interval: **3420.00 ft (KB) To 3506.00 ft (KB) (TVD)**
 Total Depth: 3641.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Reset)
 Tester: Ray Schwager
 Unit No: 77
 Reference Elevations: 2037.00 ft (KB)
 2027.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8360 Inside
 Press@RunDepth: 25.27 psig @ 3424.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.07.24 End Date: 2017.07.24 Last Calib.: 2017.07.24
 Start Time: 03:41:03 End Time: 09:55:42 Time On Btm: 2017.07.24 @ 05:28:13
 Time Off Btm: 2017.07.24 @ 08:34:42

TEST COMMENT: 45-IFP-w k bl thru-out 1/2" to 1 1/2" bl
 45-ISIP-no bl
 45-FFP-no bl
 45-FSIP-no bl

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1730.82	106.82	Initial Hydro-static
3	25.22	106.74	Open To Flow (1)
48	33.36	107.36	Shut-In(1)
91	249.22	107.61	End Shut-In(1)
92	27.57	107.54	Open To Flow (2)
138	25.27	107.67	Shut-In(2)
182	180.07	107.77	End Shut-In(2)
187	1640.03	108.17	Final Hydro-static

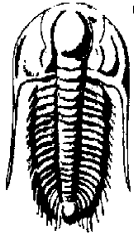
Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud	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

TDI, Inc
1310 Bison Rd
Hays KS 67601-9696
ATTN: Tom Denning, Herb D

21-15s-18w Ellis, KS
Engel North #3
Job Ticket: 63005 **DST#: 3**
Test Start: 2017.07.24 @ 03:41:03

Tool Information

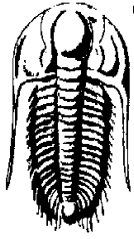
Drill Pipe:	Length: 3421.00 ft	Diameter: 3.80 inches	Volume: 47.99 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 47.99 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3420.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	3506.00 ft			
Interval between Packers:	86.00 ft			
Tool Length:	245.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3400.00	
Shut In Tool	5.00			3405.00	
Hydraulic tool	5.00			3410.00	
Packer	5.00			3415.00	21.00 Bottom Of Top Packer
Packer	5.00			3420.00	
Stubb	1.00			3421.00	
Perforations	3.00			3424.00	
Recorder	0.00	8360	Inside	3424.00	
Recorder	0.00	6751	Outside	3424.00	
Blank Spacing	65.00			3489.00	
Perforations	13.00			3502.00	
Blank Off Sub	1.00			3503.00	
Blank Spacing	3.00			3506.00	86.00 Tool Interval
Packer	5.00			3511.00	
Stubb	1.00			3512.00	
Perforations	2.00			3514.00	
Recorder	0.00	8678	Below	3514.00	
Blank Spacing	127.00			3641.00	
Bullnose	3.00			3644.00	138.00 Bottom Packers & Anchor

Total Tool Length: 245.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

21-15s-18w Ellis,KS
Engel North #3
 Job Ticket: 63005
 Test Start: 2017.07.24 @ 03:41:03

DST#: 3

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.79 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4800.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

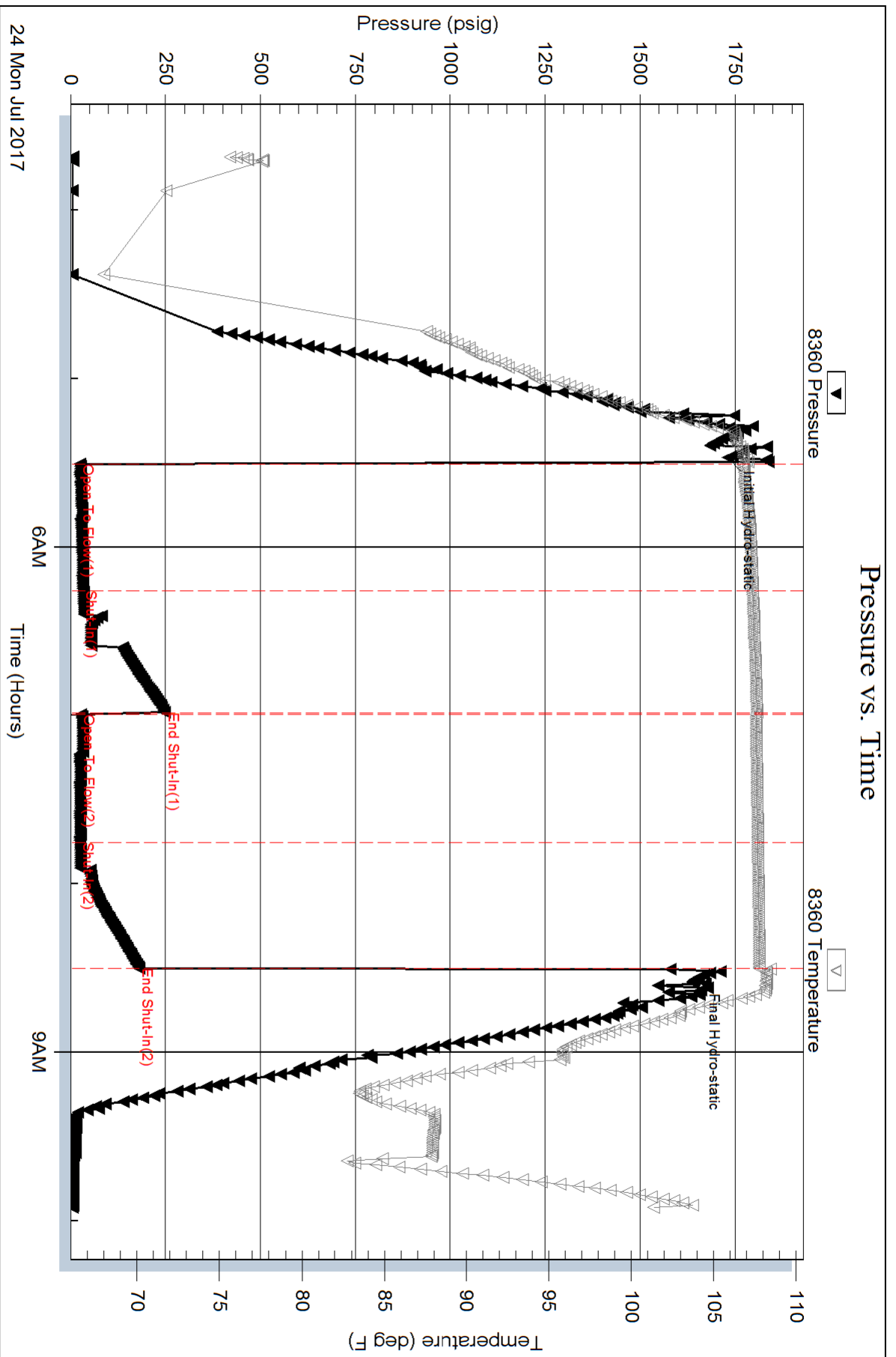
Length ft	Description	Volume bbl
20.00	Mud	0.281

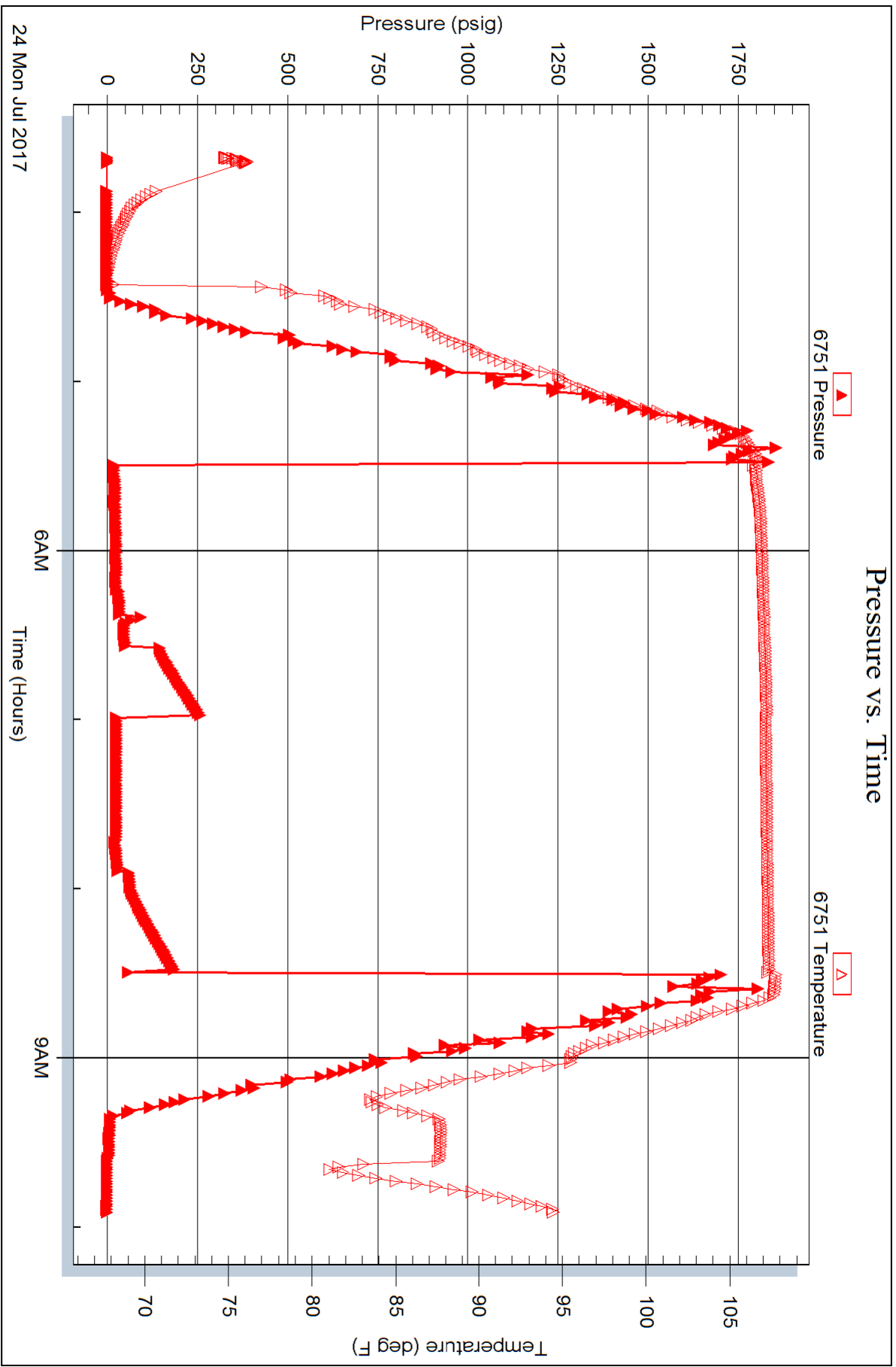
Total Length: 20.00 ft Total Volume: 0.281 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:



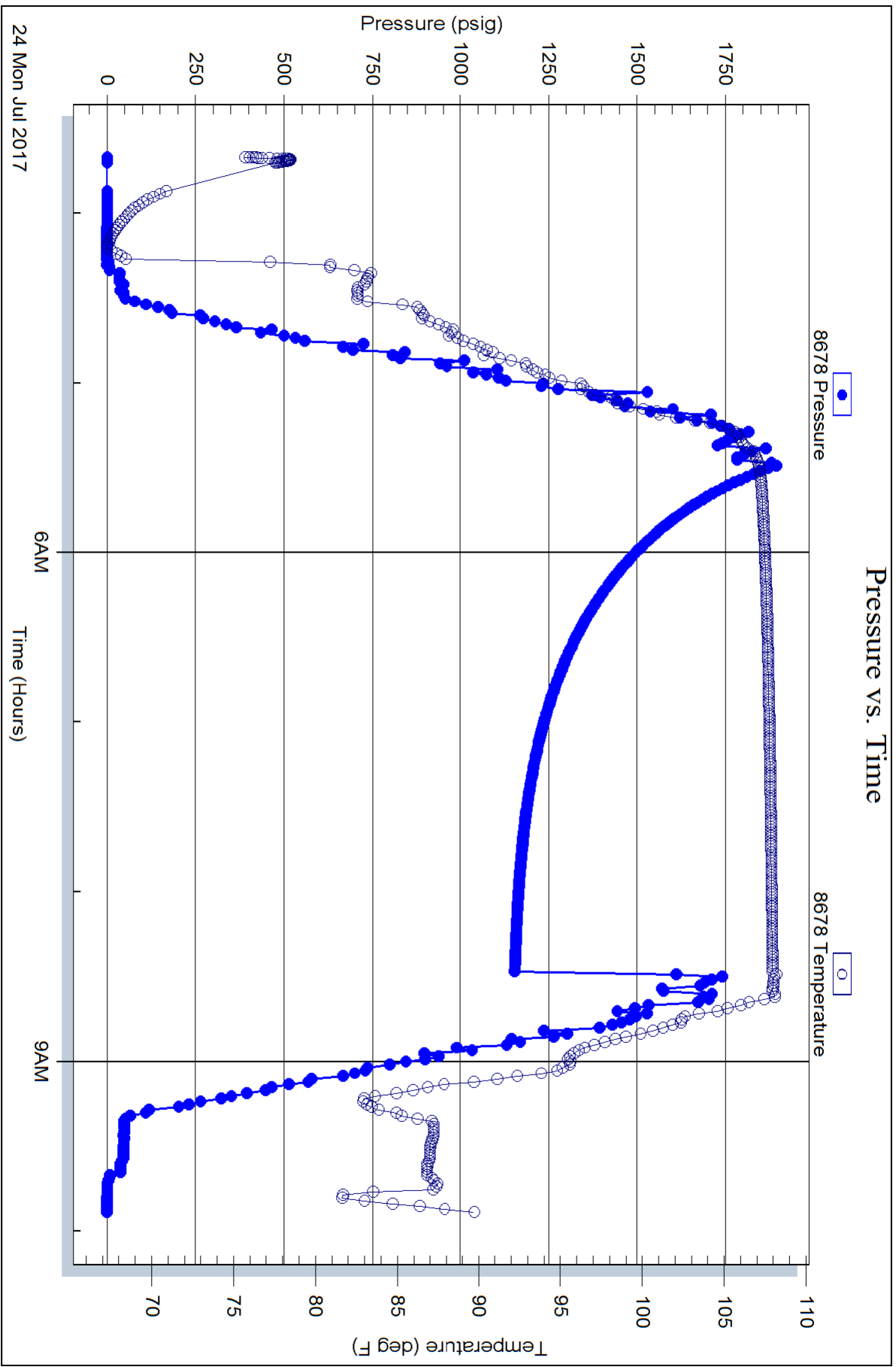


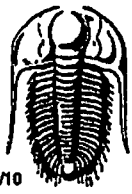
Serial #: 8678

Below (Stratall)ep

Engel North #3

DST Test Number: 3





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63003

Well Name & No. Engel North #3 Test No. 1 Date 7-22-17
 Company TOT, Inc Elevation 2037 KB 2027 GL
 Address 1310 Bison Rd Hays, Ks 67601-9696
 Co. Rep / Geo. Herb Deines Rlg. Southwindrig 1
 Location: Sec. 21 Twp. 15^s Rge. 18^w Co. ELLIS State Ks

Interval Tested 3321-3370 Zone Tested LKC A-0
 Anchor Length 49 Drill Pipe Run 3328 Mud Wt. 8.8
 Top Packer Depth 3316 Drill Collars Run - Vis 53
 Bottom Packer Depth 3321 Wt. Pipe Run - WL 6.4
 Total Depth 3370 Chlorides 3400 ppm System LCM 2#
 Blow Description TFP - WEAK TO A GOOD BLOW 1/2" TO 9" BLOW
TSIP - NO BLOW
FFP - WEAK TO A FAIR BLOW SURFACE TO 5" BLOW
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>260</u>	<u>GIP</u>				
<u>30</u>	<u>0+6CM</u>	<u>20</u>	<u>20</u>	<u>60</u>	<u>60</u>
<u>20</u>	<u>0+6CM</u>	<u>10</u>	<u>30</u>	<u>60</u>	<u>60</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

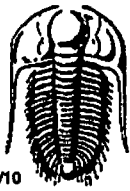
Rec Total 50 BHT 106 Gravity - API RW - @ - F Chlorides - ppm
 (A) Initial Hydrostatic 1558 Test 1050 T-On Location 1805
 (B) First Initial Flow 52 Jars _____ T-Started 1910
 (C) First Final Flow 50 Safety Joint _____ T-Open 2050
 (D) Initial Shut-In 380 Circ Sub _____ T-Pulled 2350
 (E) Second Initial Flow 54 Hourly Standby _____ T-Out 0121
 (F) Second Final Flow 57 Mileage 26 RT 19.50 Comments _____
 (G) Final Shut-In 335 Sampler _____
 (H) Final Hydrostatic 1530 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1069.50
 Sub Total 1069.50
 Sub Total 0
 Total 1069.50
 MP/DST Disc't _____

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

Approved By _____

Our Representative

RAY SCHWAGER Thank you



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63004

Well Name & No. Engel North #3 Test No. 2 Date 7-23-17
 Company TOI, Inc Elevation 2037 KB 2027 GL
 Address 1310 Bison Rd Hays, Ks 67601-9696
 Co. Rep / Geo. Herb Deines Rig Southwind rig
 Location: Sec. 21 Twp. 15^s Rge. 18^w Co. Ellis State K

Interval Tested 3590-3640 Zone Tested Arbuckle
 Anchor Length 50 Drill Pipe Run 3584 Mud Wt. 9.3
 Top Packer Depth 3585 Drill Collars Run - Vis 50
 Bottom Packer Depth 3590 Wt. Pipe Run - WL 6.8
 Total Depth 3640 Chlorides 4800 ppm System LCM 1#

Blow Description TFP - BOBIN 2min
ISIP. NO BLOW
FFP - BOBIN 2min
FSTP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>36</u>	<u>Mud</u>				
<u>1054</u>	<u>Water</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1084 BHT 111 Gravity - API RW .21 @ 75° F Chlorides 30000 ppm

(A) Initial Hydrostatic 1763
 (B) First Initial Flow 218
 (C) First Final Flow 436
 (D) Initial Shut-In 1171
 (E) Second Initial Flow 403
 (F) Second Final Flow 360
 (G) Final Shut-In 1171
 (H) Final Hydrostatic 1710

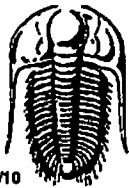
Test 1050
 Jars _____
 Safety Joint _____
 Circ Sub _____
 Hourly Standby _____
 Mileage 26 RT 19.50
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1069.50

T-On Location 1825
 T-Started 1920
 T-Open 2045
 T-Pulled 2145
 T-Out 2335
 Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1069.50
 MP/DST Disc't _____

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

Approved By _____

Our Representative
Ray Schwager
 Thank you



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63005

Well Name & No. Engel North #3 Test No. 3 Date 7-24-12
 Company TOI, Inc Elevation 2037 KB 2027 GL
 Address 1310 Bison Rd. Hays, Ks 67601-9696
 Co. Rep / Geo. Herb Deines Rig Southwind rig 1
 Location: Sec. 21 Twp. 15^s Rge. 18^w Co. Ellis State Ks

Interval Tested 3420-3506 Zone Tested H-J LKC
 Anchor Length 86 Drill Pipe Run 3421 Mud Wt. 9.3
 Top Packer Depth 3420-3415 Drill Collars Run - Vis 50
 Bottom Packer Depth 3506 Wt. Pipe Run - WL 6.8
 Total Depth 3641 Chlorides 4800 ppm System LCM 1#

Blow Description IFP - Weak Blow They-out 1/2" To 1/2" Blow
ISTP - NO Blow
FFP - NO Blow
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Mud</u>				
_____	_____				
_____	_____				
_____	_____				
_____	_____				

Rec Total 20 BHT 107 Gravity - API RW - @ - °F Chlorides - ppm

- (A) Initial Hydrostatic 1730
- (B) First Initial Flow 25
- (C) First Final Flow 33
- (D) Initial Shut-In 249
- (E) Second Initial Flow 27
- (F) Second Final Flow 25
- (G) Final Shut-In 180
- (H) Final Hydrostatic 1640

- Test 1050
- Jars _____
- Safety Joint _____
- Circ Sub _____
- Hourly Standby _____
- Mileage 26 RT 19.50
- Sampler _____
- Straddle 600
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____
- Sub Total 1669.50

- T-On Location 0305
- T-Started 0340
- T-Open 0525
- T-Pulled 0825
- T-Out 0955
- Comments _____
- Ruined Shale Packer _____
- Ruined Packer _____
- Extra Copies _____
- Sub Total 0
- Total 1669.50
- MP/DST Disc't _____

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

Approved By _____ Our Representative Ray Schwager *THANK YOU*