



DRILL STEM TEST REPORT

Prepared For: **H & C Oil Operating Inc**

PO Box 86
Plainville KS 67663-0086

ATTN: Jason T Alm

18-9s-24w Graham,KS

Keith-Henry Unit #18-1

Start Date: 2015.07.04 @ 23:05:00

End Date: 2015.07.05 @ 05:10:00

Job Ticket #: 62391 DST #: 1

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

Printed: 2015.07.06 @ 14:42:21

H & C Oil Operating Inc

Keith-Henry Unit #18-1

18-9s-24w Graham,KS

DST # 1

LKC " C & D "

2015.07.04



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

H & C Oil Operating Inc
PO Box 86
Plainville KS 67663-0086
ATTN: Jason T Alm

Keith-Henry Unit #18-1
18-9s-24w Graham,KS
Job Ticket: 62391 **DST#: 1**
Test Start: 2015.07.04 @ 23:05:00

GENERAL INFORMATION:

Formation: **LKC " C & D "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:22:00
Time Test Ended: 05:10:00
Interval: **3858.00 ft (KB) To 3905.00 ft (KB) (TVD)**
Total Depth: 3905.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Jim Svaty
Unit No: 76
Reference Elevations: 2493.00 ft (KB)
2486.00 ft (CF)
KB to GR/CF: 7.00 ft

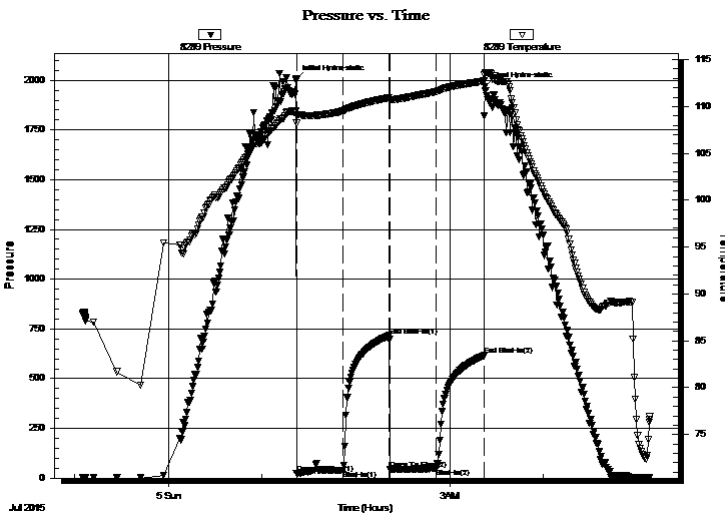
Serial #: 8289

Inside

Press@RunDepth: 48.69 psig @ 3870.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2015.07.04 End Date: 2015.07.05 Last Calib.: 2015.07.05
Start Time: 23:05:02 End Time: 05:08:07 Time On Btm: 2015.07.05 @ 01:21:45
Time Off Btm: 2015.07.05 @ 03:22:45

TEST COMMENT: 30-IS- Surface Blow Building to 2 1/2" 1" in 7 min. -- 2" in 21 min.
30-IS- No Blow
30-FF- Surface Blow in 6 min. No Build
30-FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2002.00	109.51	Initial Hydro-static
1	25.43	108.23	Open To Flow (1)
30	40.16	109.51	Shut-In(1)
60	716.17	110.95	End Shut-In(1)
60	44.32	110.70	Open To Flow (2)
90	48.69	111.58	Shut-In(2)
121	616.39	112.70	End Shut-In(2)
121	1968.87	113.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
64.00	WCM 50%w 50%m Oil Specks	0.62

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

H & C Oil Operating Inc

PO Box 86
Plainville KS 67663-0086

ATTN: Jason T Alm

Keith-Henry Unit #18-1

18-9s-24w Graham,KS

Job Ticket: 62391 **DST#: 1**

Test Start: 2015.07.04 @ 23:05:00

GENERAL INFORMATION:

Formation: **LKC " C & D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:22:00

Time Test Ended: 05:10:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jim Svaty

Unit No: 76

Interval: 3858.00 ft (KB) To 3905.00 ft (KB) (TVD)

Total Depth: 3905.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2493.00 ft (KB)

2486.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 6668 Outside

Press@RunDepth: psig @ 3870.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.07.04

End Date:

2015.07.05

Last Calib.:

2015.07.05

Start Time: 23:05:02

End Time:

05:09:45

Time On Btm:

Time Off Btm:

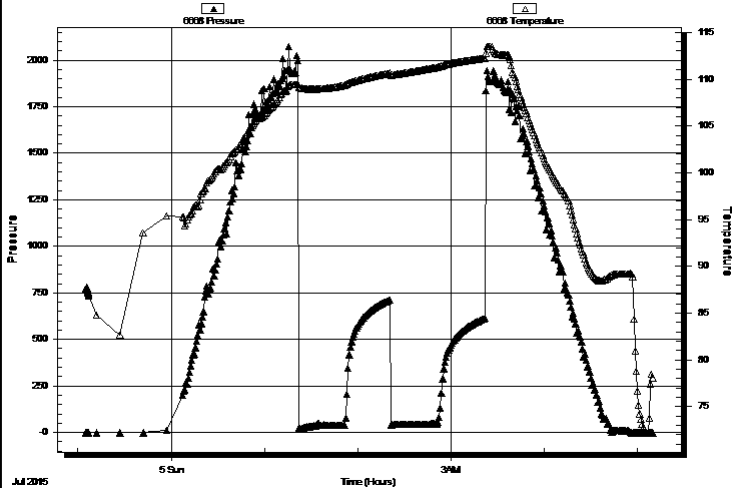
TEST COMMENT: 30-IF- Surface Blow Building to 2 1/2" 1" in 7 min. -- 2" in 21 min.

30-ISI- No Blow

30-FF- Surface Blow in 6 min. No Build

30-FSI- No Blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
64.00	WCM 50%w 50%m Oil Specks	0.62

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

H & C Oil Operating Inc
 PO Box 86
 Plainville KS 67663-0086
 ATTN: Jason T Alm

Keith-Henry Unit #18-1
18-9s-24w Graham,KS
 Job Ticket: 62391 **DST#: 1**
 Test Start: 2015.07.04 @ 23:05:00

Tool Information

Drill Pipe:	Length: 3830.00 ft	Diameter: 3.80 inches	Volume: 53.72 bbl	Tool Weight: 2500.00 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: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 53.87 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3858.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	47.00 ft			
Tool Length:	68.00 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			3838.00	
Shut In Tool	5.00			3843.00	
Hydraulic tool	5.00			3848.00	
Packer	5.00			3853.00	21.00 Bottom Of Top Packer
Packer	5.00			3858.00	
Stubb	1.00			3859.00	
Perforations	10.00			3869.00	
Change Over Sub	1.00			3870.00	
Recorder	0.00	8289	Inside	3870.00	
Recorder	0.00	6668	Outside	3870.00	
Blank Spacing	31.00			3901.00	
Change Over Sub	1.00			3902.00	
Bullnose	3.00			3905.00	47.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

H & C Oil Operating Inc
 PO Box 86
 Plainville KS 67663-0086
 ATTN: Jason T Alm

Keith-Henry Unit #18-1
18-9s-24w Graham,KS
 Job Ticket: 62391 **DST#: 1**
 Test Start: 2015.07.04 @ 23:05:00

Mud and Cushion Information

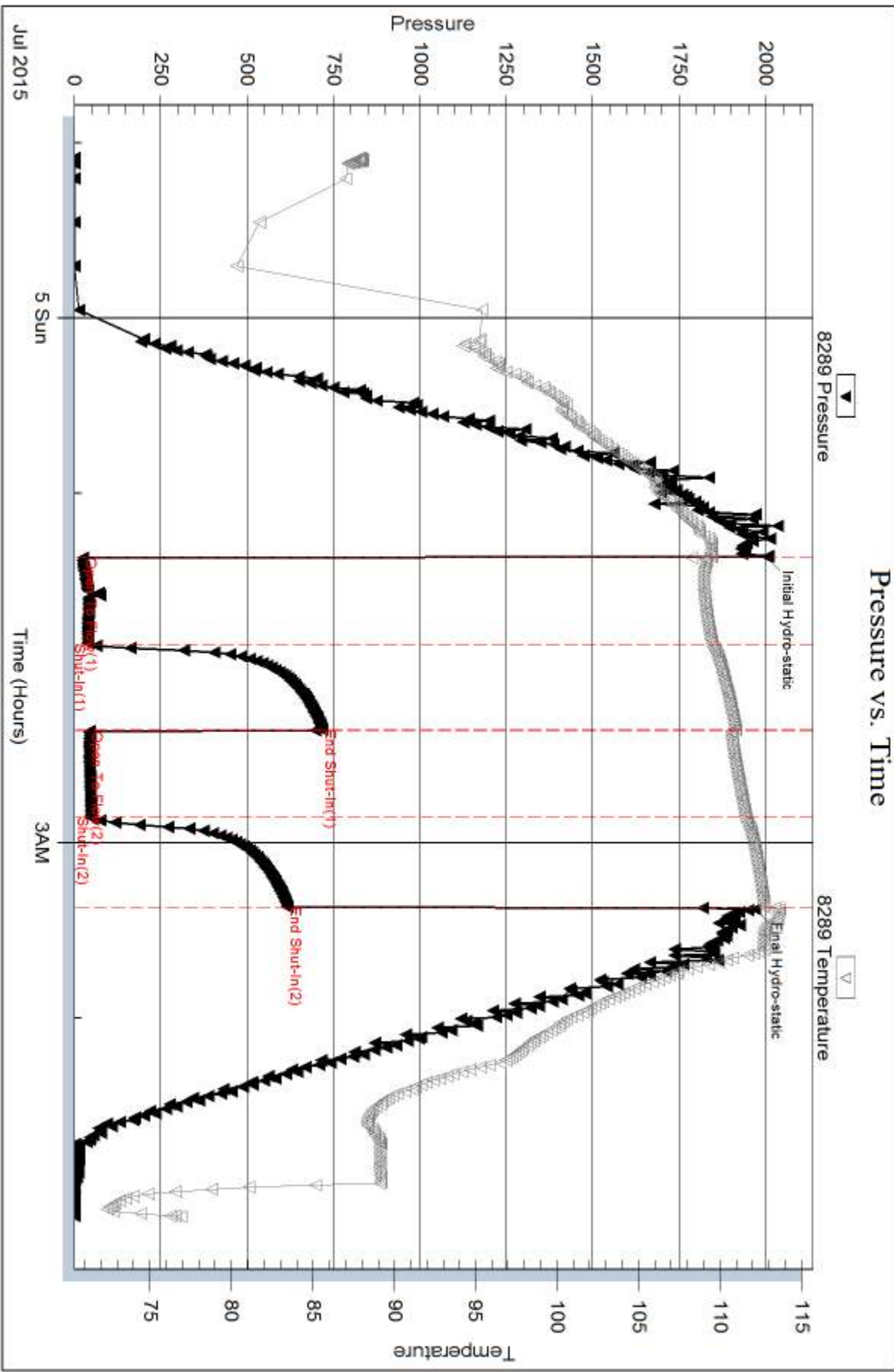
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	25000 ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.96 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1200.00 ppm			
Filter Cake: 4.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
64.00	WCM 50%w 50%m Oil Specks	0.624

Total Length: 64.00 ft Total Volume: 0.624 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: .264 @ 74

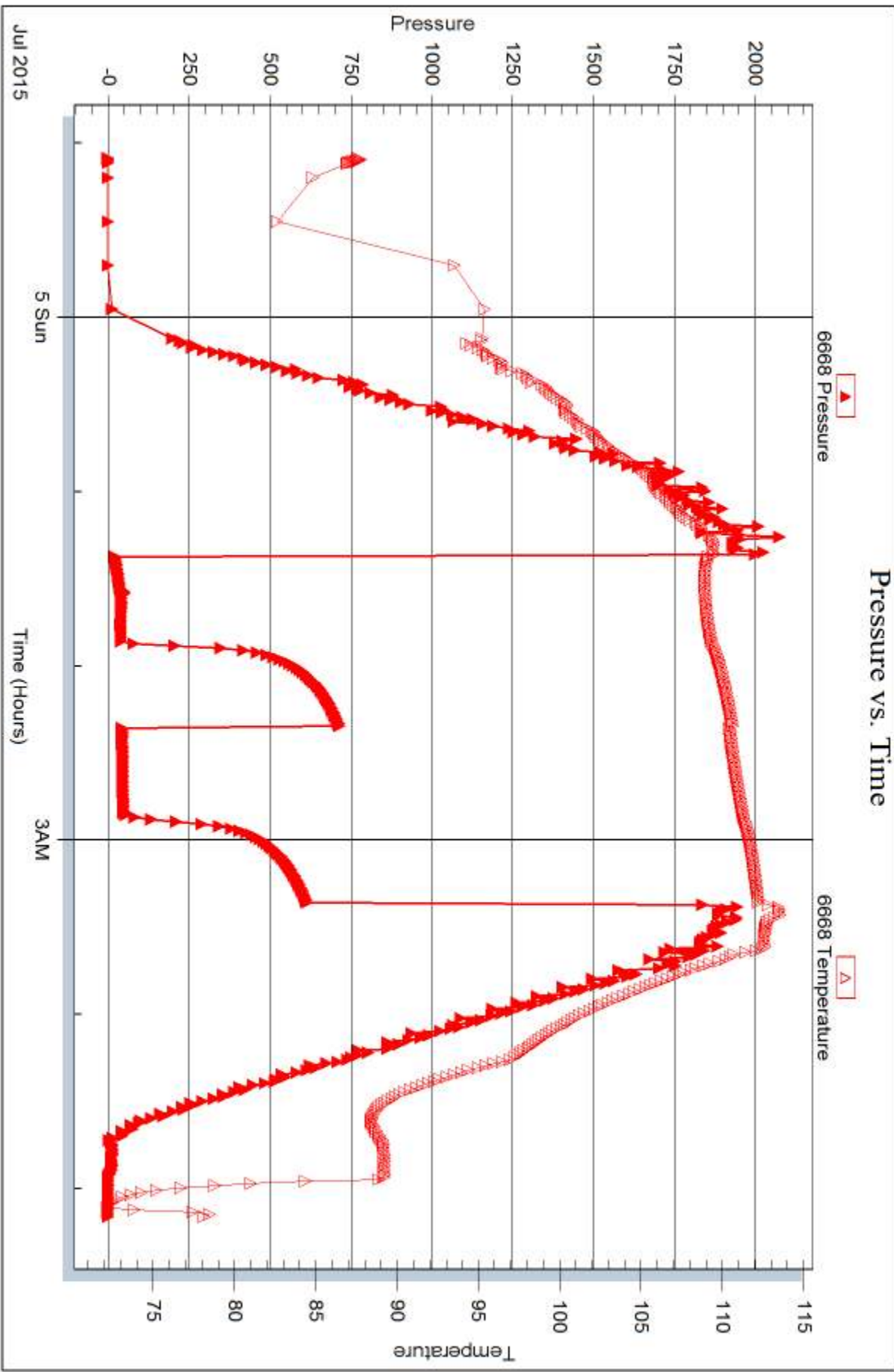


Serial #: 6668

Outside H & C Oil Operating Inc

18-95-24w Graham,KS

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 62391

Printed: 2015.07.06 @ 14:42:22



DRILL STEM TEST REPORT

Prepared For: **H & C Oil Operating Inc**

PO Box 86
Plainville KS 67663-0086

ATTN: Jason T Alm

18-9s-24w Graham,KS

Keith-Henry Unit #18-1

Start Date: 2015.07.05 @ 18:43:00

End Date: 2015.07.06 @ 00:43:00

Job Ticket #: 62392 DST #: 2

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

Printed: 2015.07.06 @ 14:40:41



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

H & C Oil Operating Inc
PO Box 86
Plainville KS 67663-0086
ATTN: Jason T Alm

Keith-Henry Unit #18-1
18-9s-24w Graham,KS
Job Ticket: 62392 **DST#: 2**
Test Start: 2015.07.05 @ 18:43:00

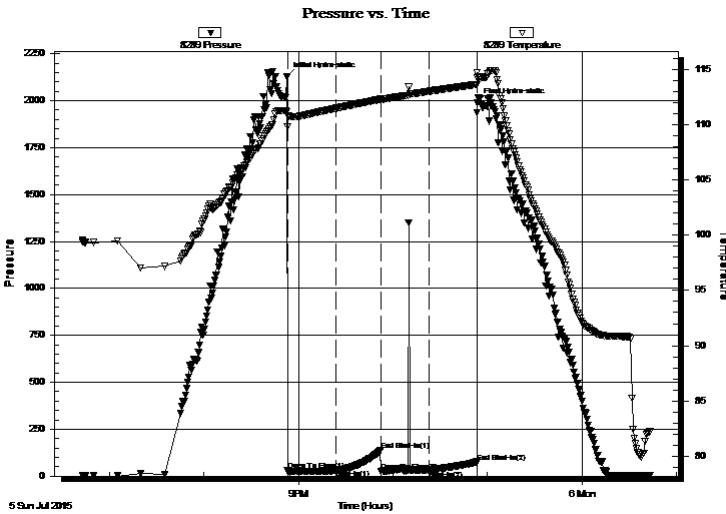
GENERAL INFORMATION:

Formation: **LKC " J & K "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:53:00
Time Test Ended: 00:43:00
Interval: **4004.00 ft (KB) To 4050.00 ft (KB) (TVD)**
Total Depth: 4050.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2493.00 ft (KB)
2486.00 ft (CF)
KB to GR/CF: 7.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Jim Svaty
Unit No: 76

Serial #: 8289 Inside
Press@RunDepth: 33.46 psig @ 4015.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2015.07.05 End Date: 2015.07.06 Last Calib.: 2015.07.06
Start Time: 18:43:02 End Time: 00:43:15 Time On Btm: 2015.07.05 @ 20:52:45
Time Off Btm: 2015.07.05 @ 22:53:45

TEST COMMENT: 30-IF- Weak Surface Blow Died in 15 min.
30-ISI- No Blow
30-FF- No Blow - Flushed Good Surge - No Blow
30-FSI- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2126.58	111.15	Initial Hydro-static
1	31.90	109.78	Open To Flow (1)
31	33.93	111.46	Shut-In(1)
60	137.96	112.28	End Shut-In(1)
60	27.18	112.23	Open To Flow (2)
90	33.46	112.99	Shut-In(2)
121	75.92	113.62	End Shut-In(2)
121	1990.78	114.19	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
4.00	Mud 100%	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

H & C Oil Operating Inc
PO Box 86
Plainville KS 67663-0086
ATTN: Jason T Alm

Keith-Henry Unit #18-1

18-9s-24w Graham, KS

Job Ticket: 62392 **DST#: 2**
Test Start: 2015.07.05 @ 18:43:00

GENERAL INFORMATION:

Formation: **LKC "J & K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:53:00

Time Test Ended: 00:43:00

Interval: **4004.00 ft (KB) To 4050.00 ft (KB) (TVD)**

Total Depth: 4050.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 76

Reference Elevations: 2493.00 ft (KB)

2486.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 6668

Outside

Press@RunDepth: psig @ 4015.00 ft (KB)

Start Date: 2015.07.05

End Date:

2015.07.06

Start Time: 18:43:02

End Time:

00:43:00

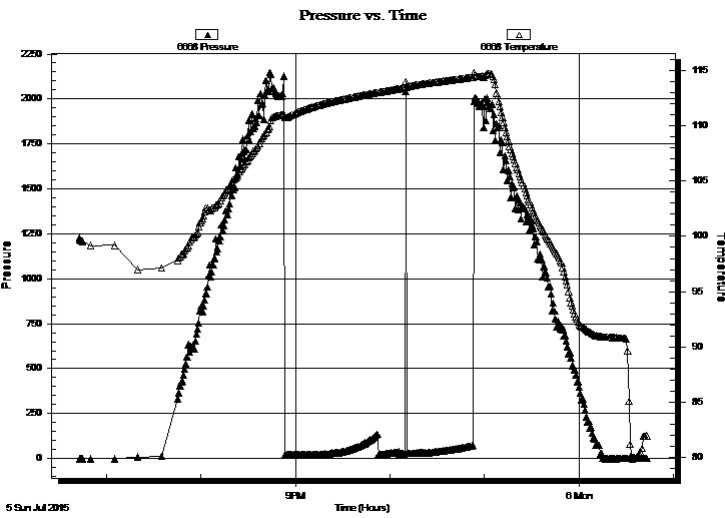
Capacity: 8000.00 psig

Last Calib.: 2015.07.06

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF- Weak Surface Blow Died in 15 min.
30-ISI- No Blow
30-FF- No Blow - Flushed Good Surge - No Blow
30-FSI- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
4.00	Mud 100%	0.02

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

H & C Oil Operating Inc
PO Box 86
Plainville KS 67663-0086
ATTN: Jason T Alm

Keith-Henry Unit #18-1
18-9s-24w Graham,KS
Job Ticket: 62392 **DST#: 2**
Test Start: 2015.07.05 @ 18:43:00

Tool Information

Drill Pipe:	Length: 3985.00 ft	Diameter: 3.80 inches	Volume: 55.90 bbl	Tool Weight: 2500.00 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: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 56.05 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	4004.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	67.00 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			3984.00	
Shut In Tool	5.00			3989.00	
Hydraulic tool	5.00			3994.00	
Packer	5.00			3999.00	21.00 Bottom Of Top Packer
Packer	5.00			4004.00	
Stubb	1.00			4005.00	
Perforations	9.00			4014.00	
Change Over Sub	1.00			4015.00	
Recorder	0.00	8289	Inside	4015.00	
Recorder	0.00	6668	Outside	4015.00	
Blank Spacing	31.00			4046.00	
Change Over Sub	1.00			4047.00	
Bullnose	3.00			4050.00	46.00 Bottom Packers & Anchor

Total Tool Length: 67.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

H & C Oil Operating Inc
PO Box 86
Plainville KS 67663-0086
ATTN: Jason T Alm

Keith-Henry Unit #18-1
18-9s-24w Graham,KS
Job Ticket: 62392 **DST#: 2**
Test Start: 2015.07.05 @ 18:43:00

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: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.96 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2200.00 ppm			
Filter Cake: 4.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
4.00	Mud 100%	0.020

Total Length: 4.00 ft Total Volume: 0.020 bbl
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

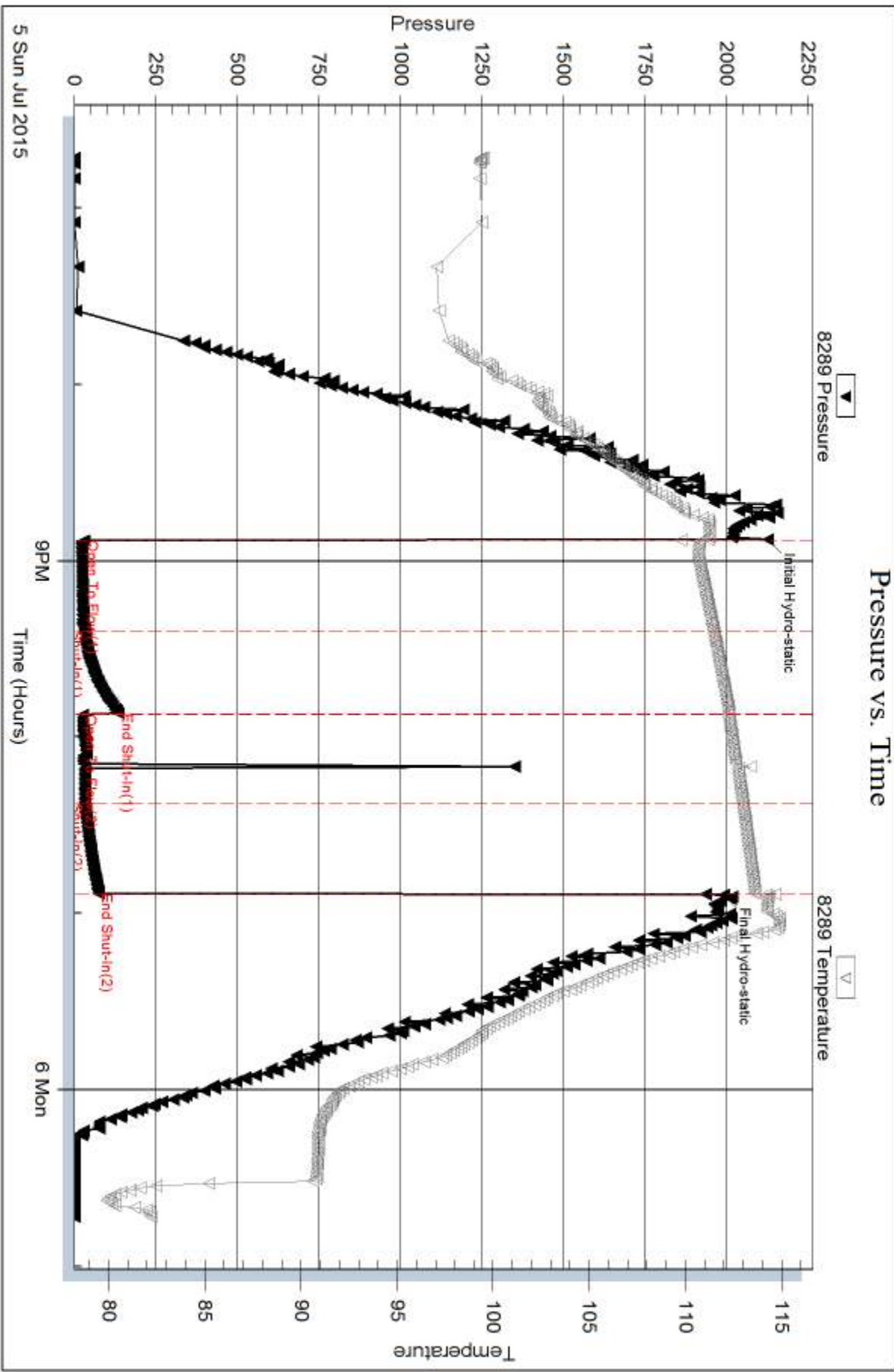
Serial #: 8289

Inside

H & C Oil Operating Inc

18-95-24w Graham,KS

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 62392

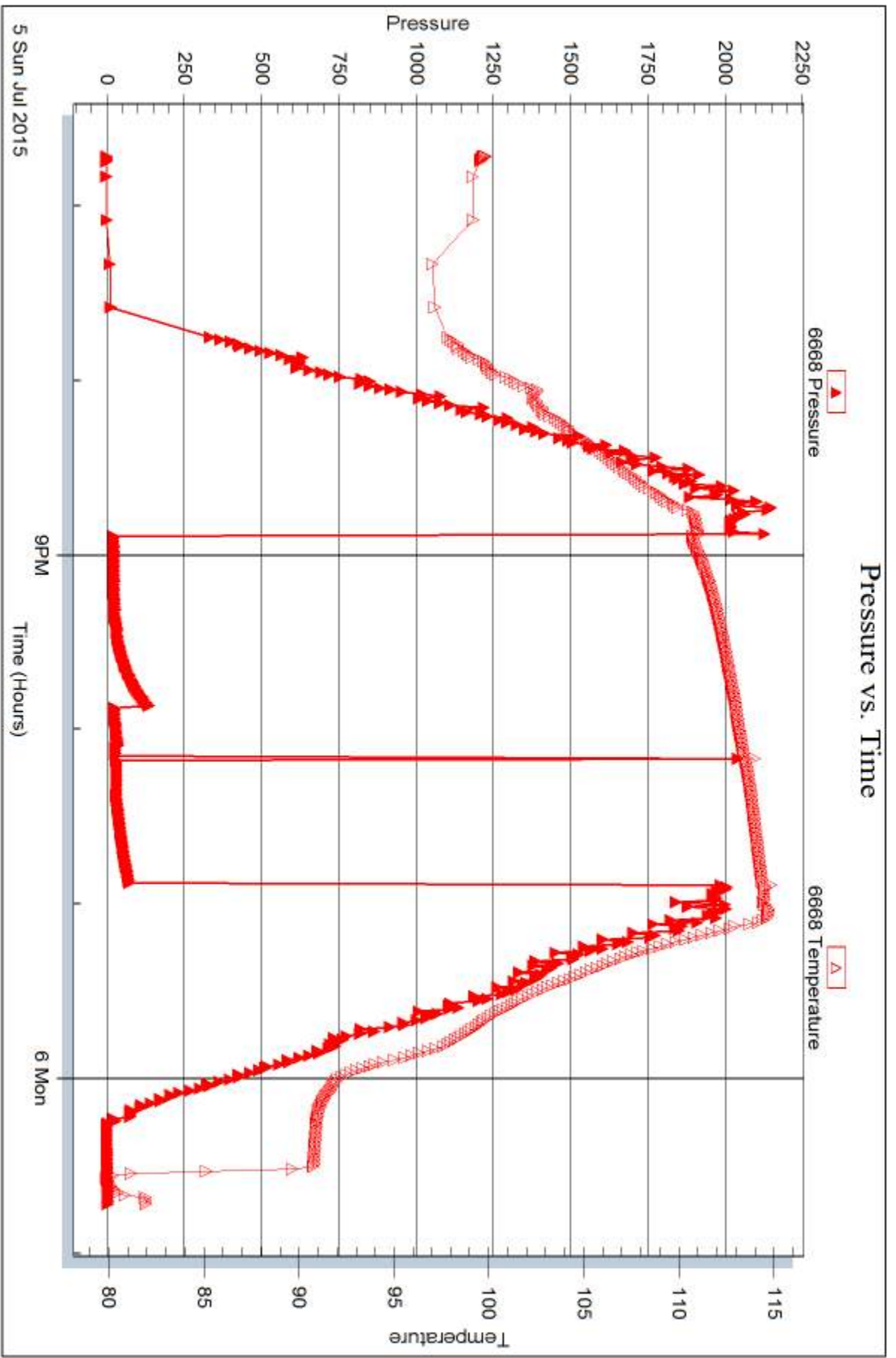
Printed: 2015.07.06 @ 14:40:44

Serial #: 6668

Outside H & C Oil Operating Inc

18-95-24w Graham,KS

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62391

Well Name & No. Keith-Henry Unit 18-1 Test No. 1 Date 7-4-15
 Company H+C Oil Operating INC. Elevation 2493 KB 2486 GL
 Address P.O. Box 86 Plainville KS 67663-0086
 Co. Rep / Geo. JASON J. Alm Rig American Eagle #2
 Location: Sec. 18 Twp. 9 S Rge. 24 W Co. Graham State KS

Interval Tested 3858-3905 Zone Tested LKC "C & D"
 Anchor Length 47 Drill Pipe Run 3830 Mud Wt. 9.4
 Top Packer Depth 3853 Drill Collars Run 30 Vis 56
 Bottom Packer Depth 3858 Wt. Pipe Run 0 WL 8.0
 Total Depth 3905 Chlorides 1200 ppm System LCM 4

Blow Description IF - Surface Blow Building to 2 1/2" (1" - 7 min) (2" - 2 min)
ISI - No Blow
FF - Surface Blow in 6 min. No Build
FSI - No Blow

Rec	Feet of	Oil Specks	%gas	%oil	%water	%mud
<u>64</u>	<u>WCM</u>	<u>Oil Specks</u>				
Rec	Feet of		%gas	%oil	%water	%mud
Rec	Feet of		%gas	%oil	%water	%mud
Rec	Feet of		%gas	%oil	%water	%mud

Rec Total 64 BHT 113 Gravity _____ API RW 264 @ 74 ° F Chlorides 25000 ppm
 (A) Initial Hydrostatic 2002 Test 1050 T-On Location 20:05
 (B) First Initial Flow 25 Jars _____ T-Started 23:05
 (C) First Final Flow 40 Safety Joint _____ T-Open 01:22
 (D) Initial Shut-In 716 Circ Sub _____ T-Pulled 03:22
 (E) Second Initial Flow 44 Hourly Standby _____ T-Out 05:10
 (F) Second Final Flow 48 Mileage 125 RT Comments _____
 (G) Final Shut-In 616 Sampler _____
 (H) Final Hydrostatic 1968 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____

Initial Open 30 Extra Packer _____
 Initial Shut-In 30 Extra Recorder _____
 Final Flow 30 Day Standby _____
 Final Shut-In 30 Accessibility _____
 Sub Total 1175

Approved By _____ Our Representative [Signature]
 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. 62392

Well Name & No. Keith-Henry Unit 18-1 Test No. 2 Date 7-5-15
 Company H+C Oil Operating Inc. Elevation 2493 KB 2486 GL
 Address P.O. Box 86 Plainville KS 67663-0086
 Co. Rep / Geo. JASON T. Alm Rig American Eagle #2
 Location: Sec. 18 Twp. 9S Rge. 24W Co. Graham State KS

Interval Tested 4004 - 4050 Zone Tested LKC "J+K"
 Anchor Length 46 Drill Pipe Run 3985 Mud Wt. 9.4
 Top Packer Depth 3999 Drill Collars Run 30 Vis 60
 Bottom Packer Depth 4004 Wt. Pipe Run 0 WL 8
 Total Depth 4050 Chlorides 2200 ppm System LCM 4

Blow Description IF- WEAK SURFACE BLOW DIED IN 15 MIN.
ISI- NO BLOW
FF- NO BLOW FLUSHED GOOD SURGE - NO BLOW
FSI- NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>4</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 4 BHT 114 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm
 (A) Initial Hydrostatic 2126 Test 1150 T-On Location 17:53
 (B) First Initial Flow 31 Jars _____ T-Started 18:43
 (C) First Final Flow 33 Safety Joint _____ T-Open 20:53
 (D) Initial Shut-In 137 Circ Sub _____ T-Pulled 22:53
 (E) Second Initial Flow 27 Hourly Standby _____ T-Out 00:43
 (F) Second Final Flow 33 Mileage 125 Comments _____
 (G) Final Shut-In 75 Sampler _____
 (H) Final Hydrostatic 1990 Straddle _____ Ruined Shale Packer _____
 Initial Open 30 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 30 Extra Packer _____ Extra Copies 0
 Final Flow 30 Extra Recorder _____ Sub Total _____
 Final Shut-In 30 Day Standby _____ Total 1275
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1275

Approved By _____ Our Representative [Signature]
 Trilobite Testing Inc. shall not be liable for damaged or 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 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.