



## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Co. Inc**

1700 N Waterfront Pkwy  
Bldg 1200  
Wichita, KS 67206

ATTN: Kevin Kessler

### **Schwartzkopf #1-33**

### **33-15s-23w Trego,KS**

Start Date: 2013.08.23 @ 13:57:00

End Date: 2013.08.23 @ 23:47:15

Job Ticket #: 54427                      DST #: 1

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.08.26 @ 15:24:55

Mull Drilling Co. Inc  
33-15s-23w Trego,KS  
Schwartzkopf #1-33  
DST # 1  
Ft. Scott  
2013.08.23



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mull Drilling Co. Inc  
 1700 N Waterfront Pkw y  
 Bldg 1200  
 Wichita, KS 67206  
 ATTN: Kevin Kessler

**33-15s-23w Trego, KS**  
**Schwartzkopf #1-33**  
 Job Ticket: 54427 **DST#: 1**  
 Test Start: 2013.08.23 @ 13:57:00

## GENERAL INFORMATION:

Formation: **Ft. Scott**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 19:16:30  
 Time Test Ended: 23:47:15  
 Interval: **4330.00 ft (KB) To 4400.00 ft (KB) (TVD)**  
 Total Depth: 4400.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Brannan L  
 Unit No: 70  
 Reference Elevations: 2479.00 ft (KB)  
 2468.00 ft (CF)  
 KB to GR/CF: 11.00 ft

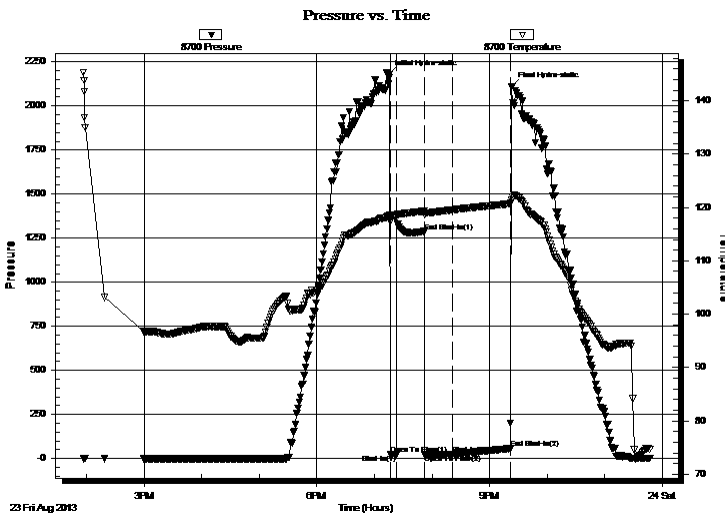
## Serial #: 8700

**Outside**

Press @ Run Depth: 26.19 psig @ 4332.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.08.23 End Date: 2013.08.23 Last Calib.: 2013.08.23  
 Start Time: 13:57:05 End Time: 23:47:15 Time On Btm: 2013.08.23 @ 19:15:00  
 Time Off Btm: 2013.08.23 @ 21:23:00

TEST COMMENT: 05- IF- Weak surface blow  
 30- IS- No blow  
 30- FF- No blow  
 60- FSI- No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2177.74	118.39	Initial Hydro-static
2	22.58	117.34	Open To Flow (1)
8	21.69	118.26	Shut-In(1)
38	1288.04	119.33	End Shut-In(1)
38	24.43	118.74	Open To Flow (2)
66	26.19	119.54	Shut-In(2)
127	56.02	120.69	End Shut-In(2)
128	2111.90	121.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	M, 100%M	0.02

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mull Drilling Co. Inc  
1700 N Waterfront Pkwy  
Bldg 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**33-15s-23w Trego,KS**  
**Schwartzkopf #1-33**  
Job Ticket: 54427      **DST#: 1**  
Test Start: 2013.08.23 @ 13:57:00

**Tool Information**

Drill Pipe:	Length: 4285.00 ft	Diameter: 3.80 inches	Volume: 60.11 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	75000.00 lb
Depth to Top Packer:	4330.00 ft			Final	75000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	70.00 ft				
Tool Length:	98.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			4303.00	
Shut In Tool	5.00			4308.00	
Hydraulic tool	5.00			4313.00	
Jars	5.00			4318.00	
Safety Joint	2.00			4320.00	
Packer	5.00			4325.00	28.00      Bottom Of Top Packer
Packer	5.00			4330.00	
Stubb	1.00			4331.00	
Perforations	1.00			4332.00	
Recorder	0.00	8369	Inside	4332.00	
Recorder	0.00	8700	Outside	4332.00	
Change Over Sub	1.00			4333.00	
Drill Pipe	63.00			4396.00	
Change Over Sub	1.00			4397.00	
Bullnose	3.00			4400.00	70.00      Bottom Packers & Anchor

**Total Tool Length: 98.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mull Drilling Co. Inc

**33-15s-23w Trego,KS**

1700 N Waterfront Pkwy  
Bldg 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Schwartzkopf #1-33**

Job Ticket: 54427

**DST#: 1**

Test Start: 2013.08.23 @ 13:57:00

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	M, 100%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

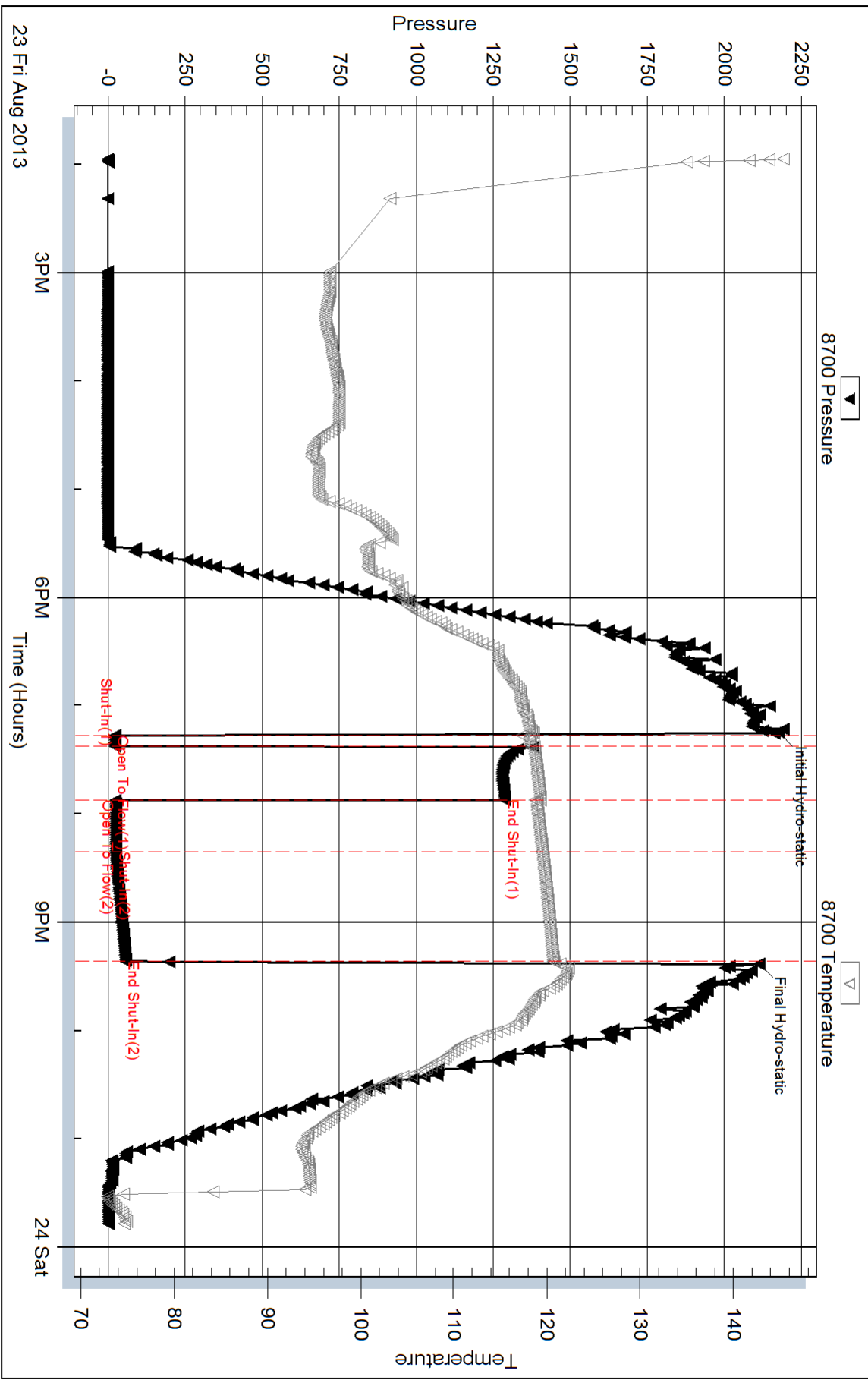
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



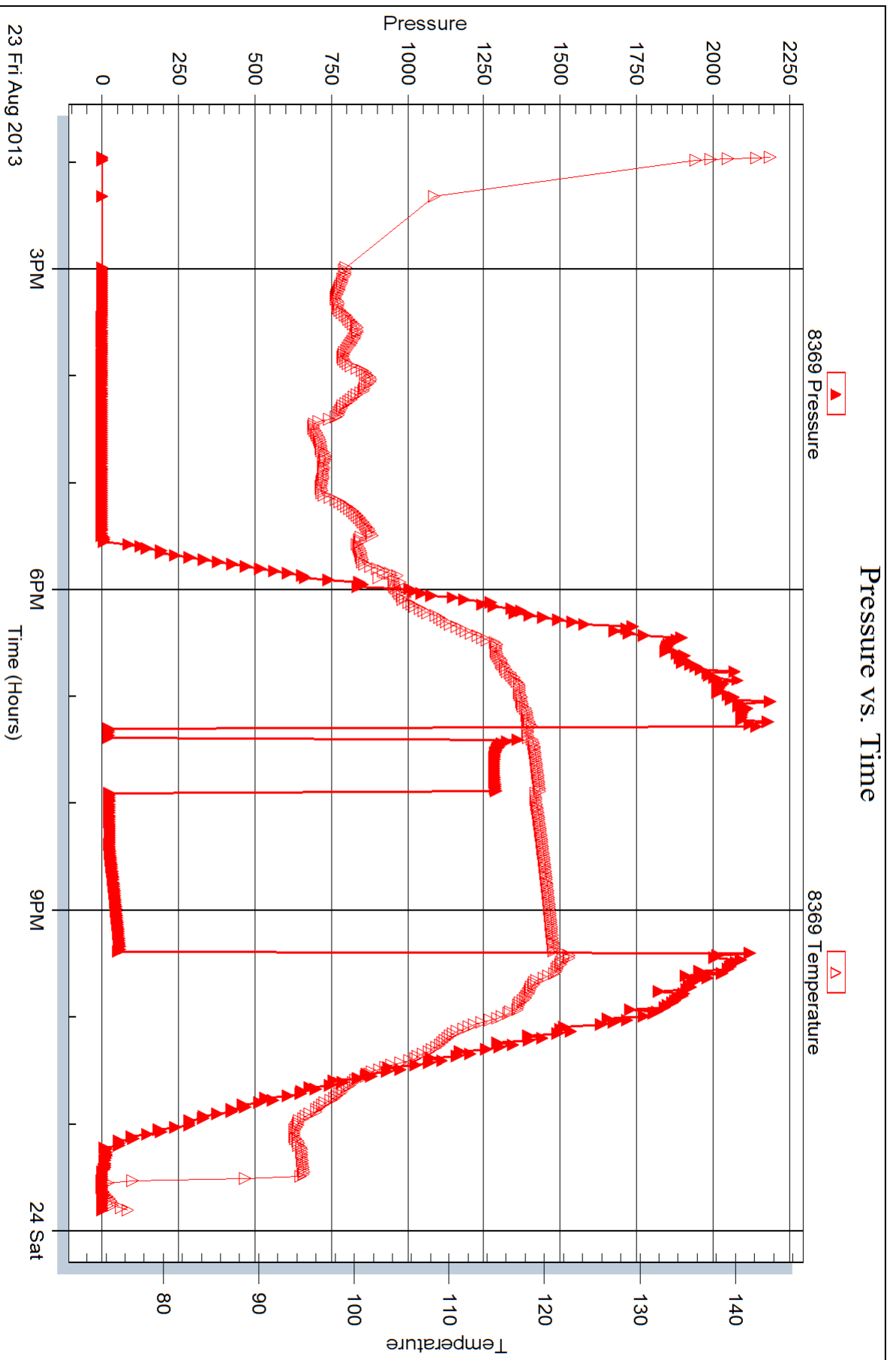
Serial #: 8369

Inside

Mull Drilling Co. Inc

Schw artzkopf #1-33

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Mull Drilling Co. Inc**

1700 N Waterfront Pkwy  
Bldg 1200  
Wichita, KS 67206

ATTN: Kevin Kessler

### **Schwartzkopf #1-33**

### **33-15s-23w Trego,KS**

Start Date: 2013.08.24 @ 09:04:06

End Date: 2013.08.24 @ 18:49:21

Job Ticket #: 54428                      DST #: 2

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.08.26 @ 15:25:54





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mull Drilling Co. Inc  
 1700 N Waterfront Pkw y  
 Bldg 1200  
 Wichita, KS 67206  
 ATTN: Kevin Kessler

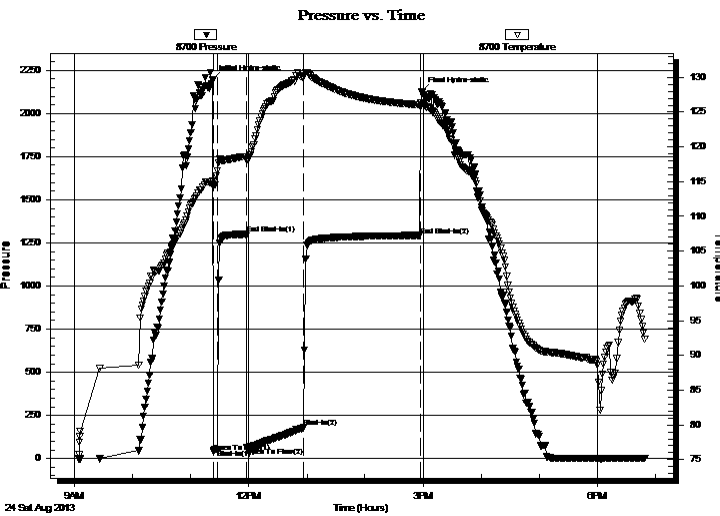
**33-15s-23w Trego, KS**  
**Schwartzkopf #1-33**  
 Job Ticket: 54428 **DST#: 2**  
 Test Start: 2013.08.24 @ 09:04:06

## GENERAL INFORMATION:

Formation: **Cherokee Sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 11:23:06  
 Time Test Ended: 18:49:21  
 Interval: **4380.00 ft (KB) To 4435.00 ft (KB) (TVD)**  
 Total Depth: 4435.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brannan L  
 Unit No: 70  
 Reference Elevations: 2479.00 ft (KB)  
 2468.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8700 Outside**  
 Press @ Run Depth: 179.09 psig @ 4399.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.08.24 End Date: 2013.08.24 Last Calib.: 2013.08.24  
 Start Time: 09:04:11 End Time: 18:49:21 Time On Btm: 2013.08.24 @ 11:22:51  
 Time Off Btm: 2013.08.24 @ 14:58:36

TEST COMMENT: 05- IF- 3 1/2"  
 30- IS- No blow  
 60- FF- BOB 12 mins  
 120- FS- 1/2" blow that died after 60 min



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2197.00	115.04	Initial Hydro-static
1	39.52	114.23	Open To Flow (1)
5	55.34	116.58	Shut-In(1)
35	1300.62	118.60	End Shut-In(1)
35	64.10	118.14	Open To Flow (2)
94	179.09	130.01	Shut-In(2)
214	1293.77	126.05	End Shut-In(2)
216	2127.71	126.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
190.00	GO, 15%G 85%O	2.40
220.00	GMCO, 15%G 25%M 60%O	3.09
0.00	245 GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mull Drilling Co. Inc  
1700 N Waterfront Pkwy  
Bldg 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**33-15s-23w Trego,KS**  
**Schwartzkopf #1-33**  
Job Ticket: 54428 **DST#: 2**  
Test Start: 2013.08.24 @ 09:04:06

## Tool Information

Drill Pipe:	Length: 4348.00 ft	Diameter: 3.80 inches	Volume: 60.99 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 71000.00 lb
Depth to Top Packer:	4380.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	83.00 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			4353.00	
Shut In Tool	5.00			4358.00	
Hydraulic tool	5.00			4363.00	
Jars	5.00			4368.00	
Safety Joint	2.00			4370.00	
Packer	5.00			4375.00	28.00 Bottom Of Top Packer
Packer	5.00			4380.00	
Stubb	1.00			4381.00	
Perforations	18.00			4399.00	
Recorder	0.00	8369	Inside	4399.00	
Recorder	0.00	8700	Outside	4399.00	
Change Over Sub	1.00			4400.00	
Drill Pipe	31.00			4431.00	
Change Over Sub	1.00			4432.00	
Bullnose	3.00			4435.00	55.00 Bottom Packers & Anchor

**Total Tool Length: 83.00**



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mull Drilling Co. Inc

**33-15s-23w Trego,KS**

1700 N Waterfront Pkwy  
Bldg 1200  
Wichita, KS 67206  
ATTN: Kevin Kessler

**Schwartzkopf #1-33**

Job Ticket: 54428

**DST#: 2**

Test Start: 2013.08.24 @ 09:04:06

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in<sup>3</sup>

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 bbbl
190.00	GO, 15%G 85%O	2.401
220.00	GMCO, 15%G 25%M 60%O	3.086
0.00	245 GIP	0.000

Total Length: 410.00 ft      Total Volume: 5.487 bbl

Num Fluid Samples: 0

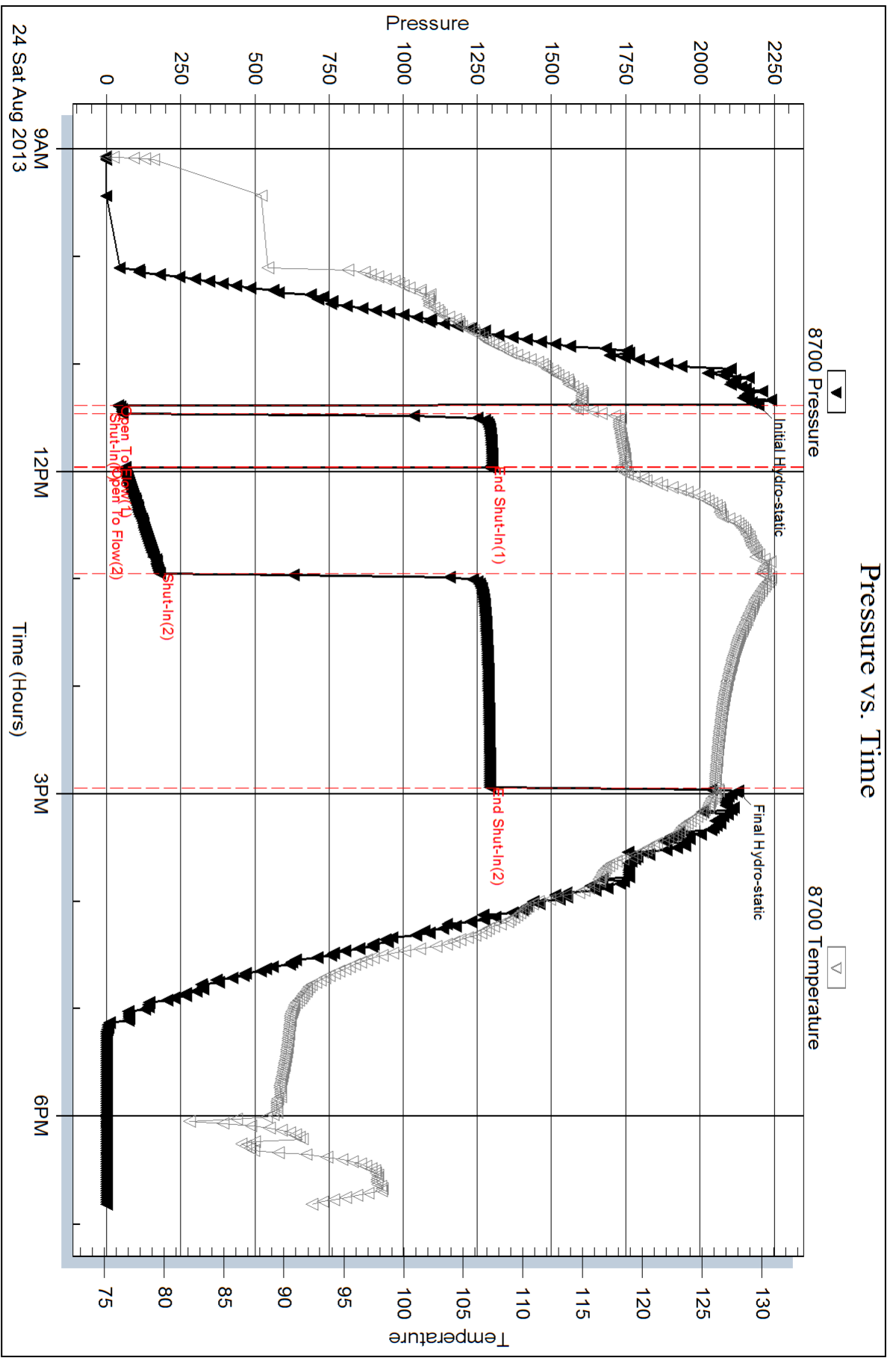
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



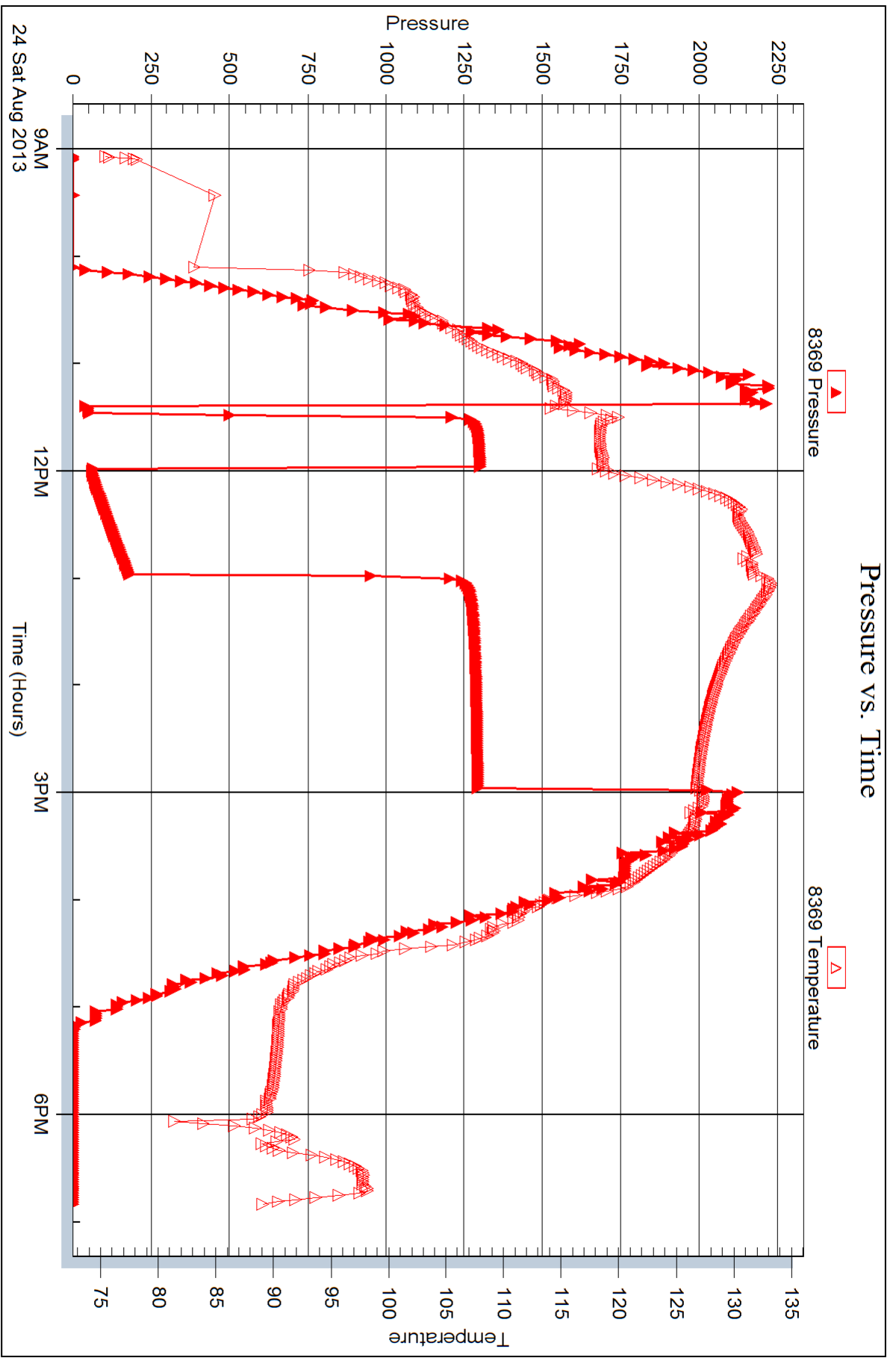
Serial #: 8369

Inside

Mull Drilling Co. Inc

Schw artzkopf #1-33

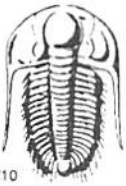
DST Test Number: 2



Triobite Testing, Inc

Ref. No: 54428

Printed: 2013.08.26 @ 15:25:55



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54427

Well Name & No. ~~111~~ Schwartzkopf 1-33 Test No. 1 Date 8/23/13  
 Company MWH Drilling Co. Inc Elevation 2479 KB 2468 GL  
 Address 1700 N Waterfront Pkwy, Bldg 1200 Wichita, KS 67206  
 Co. Rep / Geo. Kevin Kessler Rig Duke 10  
 Location: Sec. 33 Twp. 15 Rge. 23 Co. Trego State KS

Interval Tested 4330-4400 Zone Tested Ft. Scott  
 Anchor Length 70 Drill Pipe Run 4285 Mud Wt. 9.2  
 Top Packer Depth 4325 Drill Collars Run 29 Vis 50  
 Bottom Packer Depth 4330 Wt. Pipe Run WL 8.0  
 Total Depth 4400 Chlorides 2000 ppm System LCM 1#

Blow Description IF - Weak surface blow  
 ISI - No blow  
 FF - No blow  
 FSI - No blow

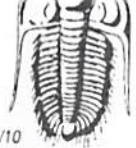
Rec	Feet of	%gas	%oil	%water	%mud
5	M			100	

Rec Total 5' BHT 121° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2178	<input checked="" type="checkbox"/> Test 1250	T-On Location 1215
(B) First Initial Flow 23	<input checked="" type="checkbox"/> Jars 250	T-Started 1357
(C) First Final Flow 22	<input checked="" type="checkbox"/> Safety Joint 75	T-Open 1917
(D) Initial Shut-In 1288	<input type="checkbox"/> Circ Sub _____	T-Pulled 2122
(E) Second Initial Flow 24	<input type="checkbox"/> Hourly Standby _____	T-Out 2349
(F) Second Final Flow 26	<input checked="" type="checkbox"/> Mileage 116 RT 179.80	Comments _____
(G) Final Shut-In 56	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic 2112	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Open 5	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In 30	<input type="checkbox"/> Extra Recorder _____	Sub Total 0
Final Flow 30	<input type="checkbox"/> Day Standby _____	Total 1754.80
Final Shut-In 60	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total 1754.80	

Approved By \_\_\_\_\_ Our Representative Brannan L

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. 54428

Well Name & No. Schwartzkopf 1-33 Test No. 2 Date 8/24/13  
 Company Mull Drilling Co. Inc Elevation 2479 KB 2468 GL  
 Address 1700 N Waterfront Pkwy, Bldg 1200 Wichita, KS 67206  
 Co. Rep / Geo. Kevin Kessler Rig Duke 10  
 Location: Sec. 33 Twp. 15 Rge. 23 Co. Trego State KS

Interval Tested 4380-4435 Zone Tested Cherokee Sand  
 Anchor Length 55' Drill Pipe Run 4348 Mud Wt. 9.2  
 Top Packer Depth 4375 Drill Collars Run 29 Vis 50  
 Bottom Packer Depth 4380 Wt. Pipe Run \_\_\_\_\_ WL 8.0  
 Total Depth 4435 Chlorides 1800 ppm System LCM 1#

Blow Description IF-3 1/2"  
ISI - No blow  
FF - BOB 2 mins  
FSI - 1/2" blow that died after 1 hour

Rec	Feet of	%gas	%oil	%water	%mud
<u>190</u>	<u>90</u>	<u>15</u>	<u>85</u>		
<u>220</u>	<u>GMCO</u>	<u>15</u>	<u>60</u>		<u>25</u>
<u>245</u>	<u>GIP</u>	<u>100</u>			
____	____	____	____	____	____
____	____	____	____	____	____

Rec Total 410' BHT 126° Gravity 35 API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2197  Test 1250 T-On Location 0839  
 (B) First Initial Flow 40  Jars 250 T-Started 0904  
 (C) First Final Flow 55  Safety Joint 75 T-Open 1123  
 (D) Initial Shut-In 1301  Circ Sub \_\_\_\_\_ T-Pulled 1458  
 (E) Second Initial Flow 64  Hourly Standby \_\_\_\_\_ T-Out 1851  
 (F) Second Final Flow 179  Mileage 116 RT x2 359.60 Comments \_\_\_\_\_  
 (G) Final Shut-In 1294  Sampler \_\_\_\_\_ loaded tools 8/25 1:15  
 (H) Final Hydrostatic 2128  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1934.60  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1934.60

Initial Open 5  
 Initial Shut-In 30  
 Final Flow 60  
 Final Shut-In 120

Approved By \_\_\_\_\_ Our Representative Brannan L

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