



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1171963  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
-----------------------------------	-----------------	---

API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1171963

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
--	---

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
----------------	-------	---------	------------	---

Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
---	--

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
--	--	---

Form	ACO1 - Well Completion
Operator	H & C Oil Operating Inc.
Well Name	Brachtenbach 2-1
Doc ID	1171963

All Electric Logs Run

Dual compensated porosity log
sonic cement bond log
microresistivity log
dual induction log











## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville KS 67663

ATTN: Marc Downing

### **Brachtenbach #2-1**

### **2-9s-23w Graham KS**

Start Date: 2013.11.13 @ 23:43:00

End Date: 2013.11.14 @ 08:56:00

Job Ticket #: 54500                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.11.19 @ 10:58:36



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

ATTN: Marc Downing

Job Ticket: 54500

**DST#: 1**

Test Start: 2013.11.13 @ 23:43:00

## GENERAL INFORMATION:

Formation: **LKC "C-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:04:00

Time Test Ended: 08:56:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 53

**Interval: 3609.00 ft (KB) To 3649.00 ft (KB) (TVD)**

Reference Elevations: 2279.00 ft (KB)

Total Depth: 3649.00 ft (KB) (TVD)

2274.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 6799**

**Inside**

Press@RunDepth: 96.97 psig @ 3646.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.13

End Date:

2013.11.14

Last Calib.: 2013.11.14

Start Time: 23:43:05

End Time:

08:56:00

Time On Btm: 2013.11.14 @ 05:03:15

Time Off Btm: 2013.11.14 @ 07:13:15

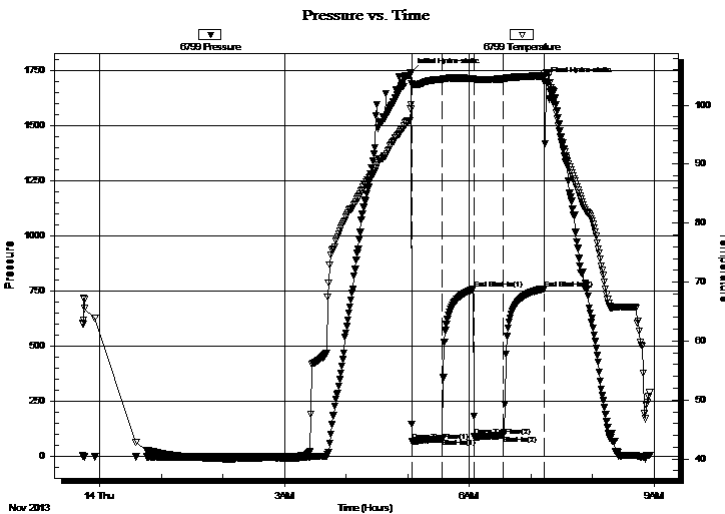
TEST COMMENT: 30 - IF- 8" blow (tool slid 20')

30 - IS- No return

30 - FF- 1 1/4" blow

30 - FS- No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1741.15	100.12	Initial Hydro-static
1	68.49	103.67	Open To Flow (1)
31	81.27	104.37	Shut-In(1)
61	758.77	104.58	End Shut-In(1)
62	91.20	104.39	Open To Flow (2)
90	96.97	104.47	Shut-In(2)
130	760.86	105.02	End Shut-In(2)
130	1700.86	105.33	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
85.00	WM - show of oil, 5%W, 95%M	0.92

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 54500 **DST#: 1**

ATTN: Marc Downing

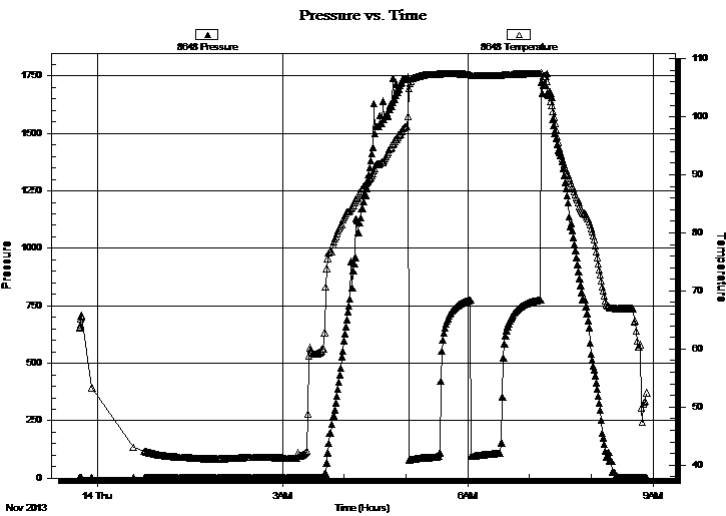
Test Start: 2013.11.13 @ 23:43:00

## GENERAL INFORMATION:

**Formation:** LKC "C-D"  
**Deviated:** No Whipstock: ft (KB)  
**Test Type:** Conventional Bottom Hole (Initial)  
**Time Tool Opened:** 05:04:00  
**Tester:** Cody Bloedorn  
**Time Test Ended:** 08:56:00  
**Unit No:** 53  
**Interval:** 3609.00 ft (KB) To 3649.00 ft (KB) (TVD)  
**Reference Elevations:** 2279.00 ft (KB)  
**Total Depth:** 3649.00 ft (KB) (TVD)  
**2274.00 ft (CF)**  
**Hole Diameter:** 7.88 inches  
**Hole Condition:** Fair  
**KB to GR/CF:** 5.00 ft

**Serial #: 8648** **Outside**  
**Press@RunDepth:** psig @ 3646.00 ft (KB) **Capacity:** 8000.00 psig  
**Start Date:** 2013.11.13 **End Date:** 2013.11.14 **Last Calib.:** 2013.11.14  
**Start Time:** 23:43:05 **End Time:** 08:54:00 **Time On Btm:**  
**Time Off Btm:**

**TEST COMMENT:** 30 - IF- 8" blow (tool slid 20')  
 30 - IS- No return  
 30 - FF- 1 1/4" blow  
 30 - FS- No return



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
85.00	WM - show of oil, 5%W, 95%M	0.92

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 54500

**DST#: 1**

ATTN: Marc Downing

Test Start: 2013.11.13 @ 23:43:00

## Tool Information

Drill Pipe:	Length: 3562.00 ft	Diameter: 3.80 inches	Volume: 49.97 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 44000.00 lb
			<u>Total Volume: 50.12 bbl</u>	Tool Chased 20.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3609.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	61.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: tool opened and chased 20'

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3589.00	
Shut In Tool	5.00			3594.00	
Hydraulic tool	5.00			3599.00	
Packer	5.00			3604.00	21.00 Bottom Of Top Packer
Packer	5.00			3609.00	
Stubb	1.00			3610.00	
Perforations	3.00			3613.00	
Change Over Sub	1.00			3614.00	
Drill Pipe	31.00			3645.00	
Change Over Sub	1.00			3646.00	
Recorder	0.00	6799	Inside	3646.00	
Recorder	0.00	8648	Outside	3646.00	
Bullnose	3.00			3649.00	40.00 Bottom Packers & Anchor

**Total Tool Length: 61.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 54500

**DST#: 1**

ATTN: Marc Downing

Test Start: 2013.11.13 @ 23:43:00

### 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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
85.00	WM- show of oil, 5%W, 95%M	0.919

Total Length: 85.00 ft      Total Volume: 0.919 bbl

Num Fluid Samples: 0

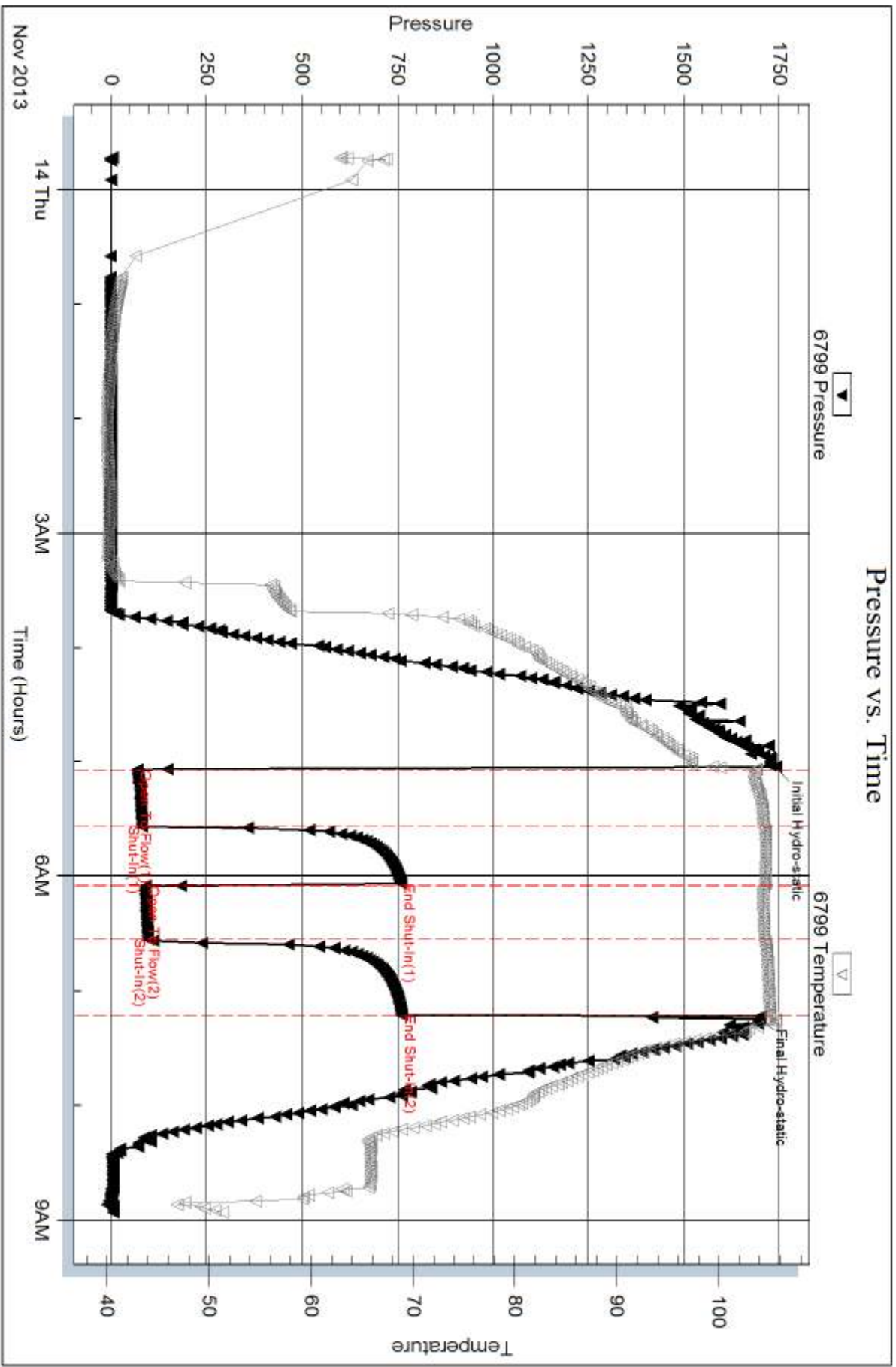
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

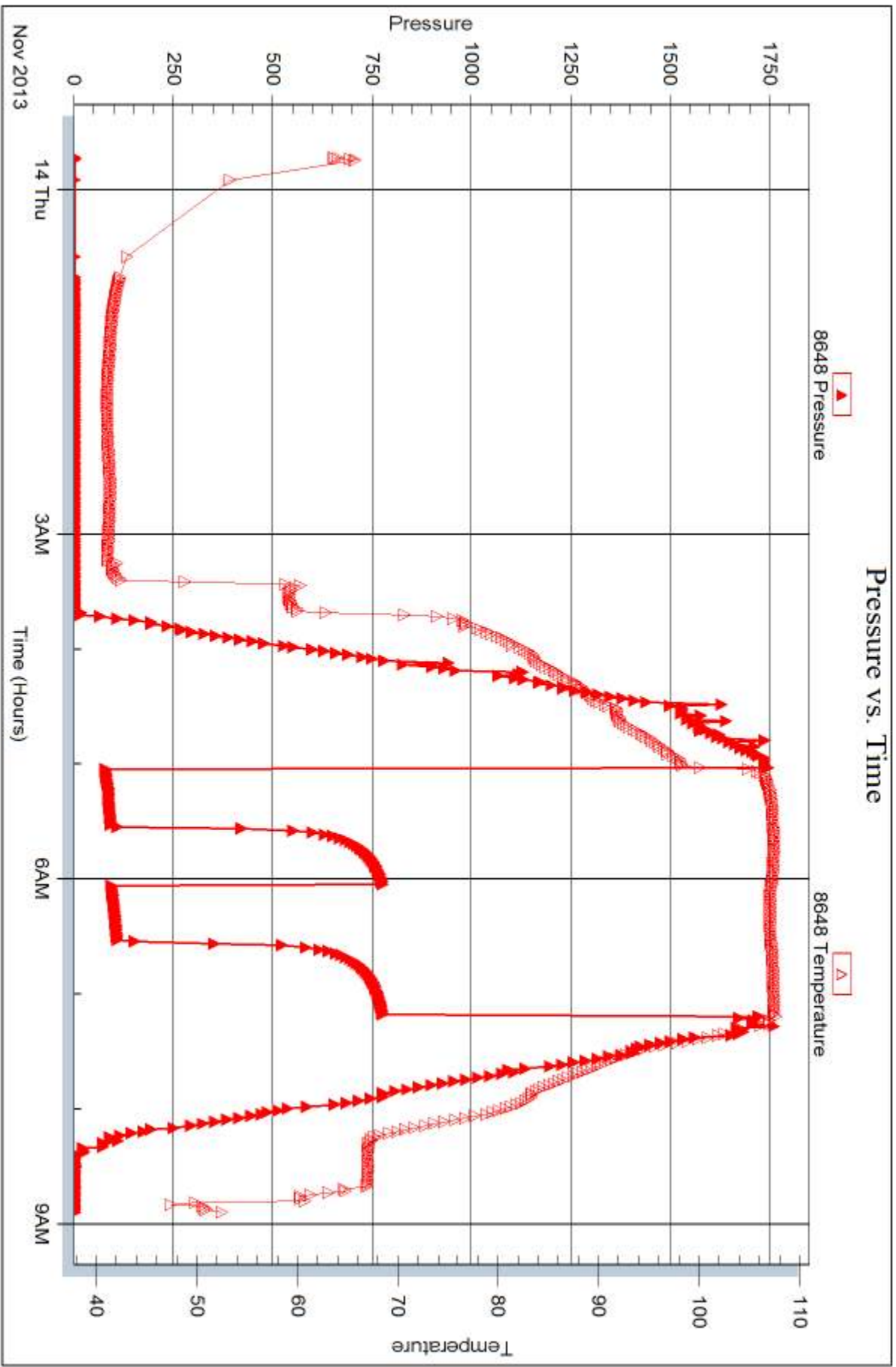


Serial #: 8648

Outside H&C Oil Operating Inc

Brachtenbach #2-1

DST Test Number: 1



Tribble Testing, Inc

Ref. No: 54500

Printed: 2013.11.19 @ 10:58:38





## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville KS 67663

ATTN: Marc Downing

### **Brachtenbach #2-1**

### **2-9s-23w Graham KS**

Start Date: 2013.11.14 @ 15:34:00

End Date: 2013.11.14 @ 23:14:15

Job Ticket #: 55351                      DST #: 2

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

Printed: 2013.11.19 @ 10:58:04

H&C Oil Operating Inc  
2-9s-23w Graham KS  
Brachtenbach #2-1  
DST # 2  
LKC "E"  
2013.11.14



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

ATTN: Marc Downing

Job Ticket: 55351

**DST#: 2**

Test Start: 2013.11.14 @ 15:34:00

## GENERAL INFORMATION:

Formation: **LKC "E"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:57:15  
 Time Test Ended: 23:14:15  
 Interval: **3609.00 ft (KB) To 3678.00 ft (KB) (TVD)**  
 Total Depth: 3678.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Cody Bloedorn  
 Unit No: 53  
 Reference Elevations: 2279.00 ft (KB)  
 2274.00 ft (CF)  
 KB to GR/CF: 5.00 ft

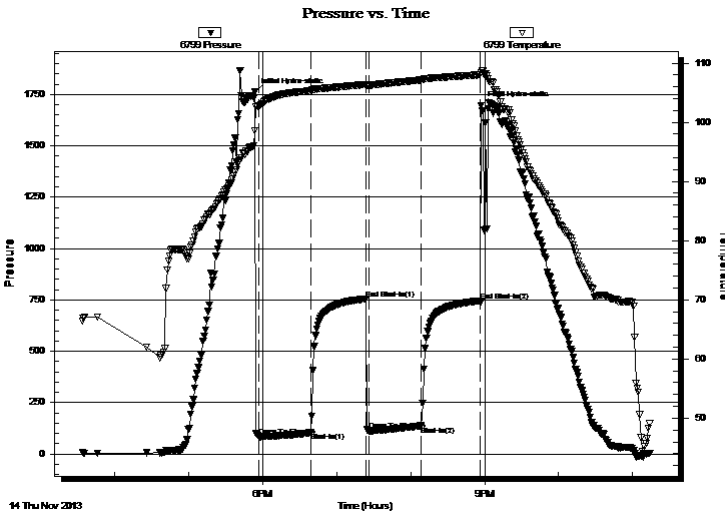
## Serial #: 6799

Inside

Press@RunDepth: 137.18 psig @ 3675.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.14 End Date: 2013.11.14 Last Calib.: 2013.11.14  
 Start Time: 15:34:05 End Time: 23:14:14 Time On Btm: 2013.11.14 @ 17:53:45  
 Time Off Btm: 2013.11.14 @ 20:57:00

TEST COMMENT: 45 - IF- 3 1/2" blow  
 45 - IS- No return  
 45 - FF- 3/4" blow  
 45 - FS- No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1760.55	98.60	Initial Hydro-static
4	84.53	102.79	Open To Flow (1)
46	103.92	105.35	Shut-In(1)
90	754.78	106.38	End Shut-In(1)
93	114.06	106.23	Open To Flow (2)
135	137.18	107.14	Shut-In(2)
183	745.23	108.02	End Shut-In(2)
184	1696.98	108.36	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	WM, show of oil, 5%W, 95%M	2.34
31.00	VSOCM, 5%O, 95%M	0.43

\* 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

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 55351

**DST#: 2**

ATTN: Marc Downing

Test Start: 2013.11.14 @ 15:34:00

## GENERAL INFORMATION:

Formation: **LKC "E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:57:15

Time Test Ended: 23:14:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Cody Bloedorn

Unit No: 53

**Interval: 3609.00 ft (KB) To 3678.00 ft (KB) (TVD)**

Reference Elevations: 2279.00 ft (KB)

Total Depth: 3678.00 ft (KB) (TVD)

2274.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8648 Outside**

Press@RunDepth: psig @ 3675.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.14 End Date: 2013.11.14

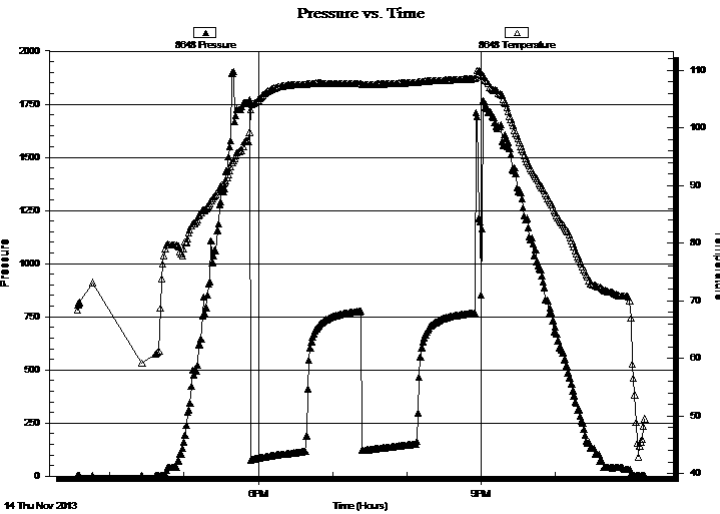
Last Calib.: 2013.11.14

Start Time: 15:34:05 End Time: 23:12:29

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 45 - IF- 3 1/2" blow  
45 - IS- No return  
45 - FF- 3/4" blow  
45 - FS- No return



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	WM, show of oil, 5%W, 95%M	2.34
31.00	VSOCM, 5%O, 95%M	0.43

## 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

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 55351

**DST#: 2**

ATTN: Marc Downing

Test Start: 2013.11.14 @ 15:34:00

## Tool Information

Drill Pipe:	Length: 3562.00 ft	Diameter: 3.80 inches	Volume: 49.97 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 42000.00 lb
			<u>Total Volume: 50.12 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3609.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	69.00 ft			
Tool Length:	90.00 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			3589.00	
Shut In Tool	5.00			3594.00	
Hydraulic tool	5.00			3599.00	
Packer	5.00			3604.00	21.00 Bottom Of Top Packer
Packer	5.00			3609.00	
Stubb	1.00			3610.00	
Perforations	1.00			3611.00	
Change Over Sub	1.00			3612.00	
Drill Pipe	62.00			3674.00	
Change Over Sub	1.00			3675.00	
Recorder	0.00	6799	Inside	3675.00	
Recorder	0.00	8648	Outside	3675.00	
Bullnose	3.00			3678.00	69.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 55351

**DST#: 2**

ATTN: Marc Downing

Test Start: 2013.11.14 @ 15:34:00

### 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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
186.00	WM, show of oil, 5%W, 95%M	2.336
31.00	VSOCM, 5%O, 95%M	0.435

Total Length: 217.00 ft

Total Volume: 2.771 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

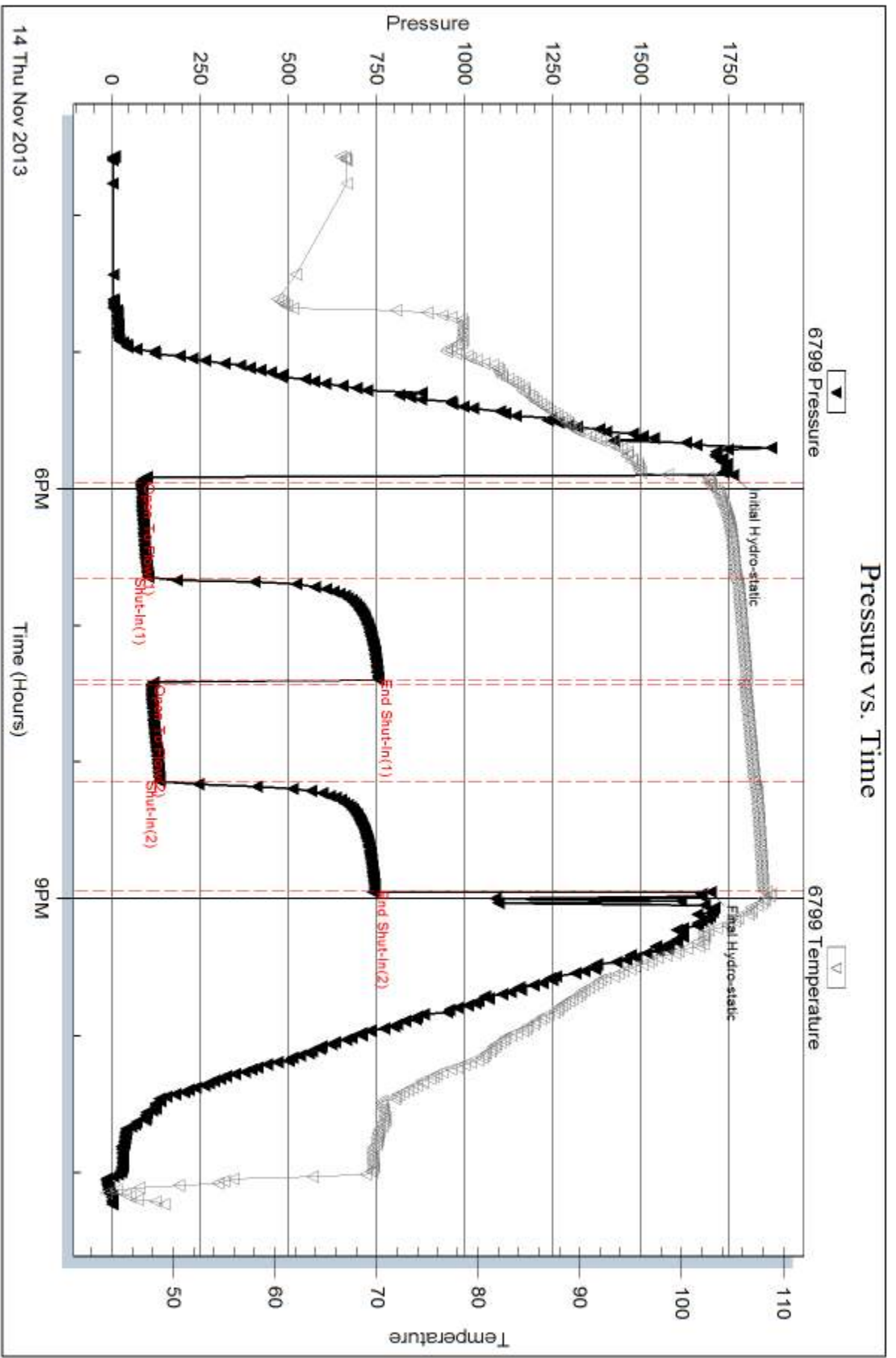
Serial #: 6799

Inside

H&C Oil Operating Inc

Brachtenbach #2-1

DST Test Number: 2



Tribble Testing, Inc

Ref. No: 55351

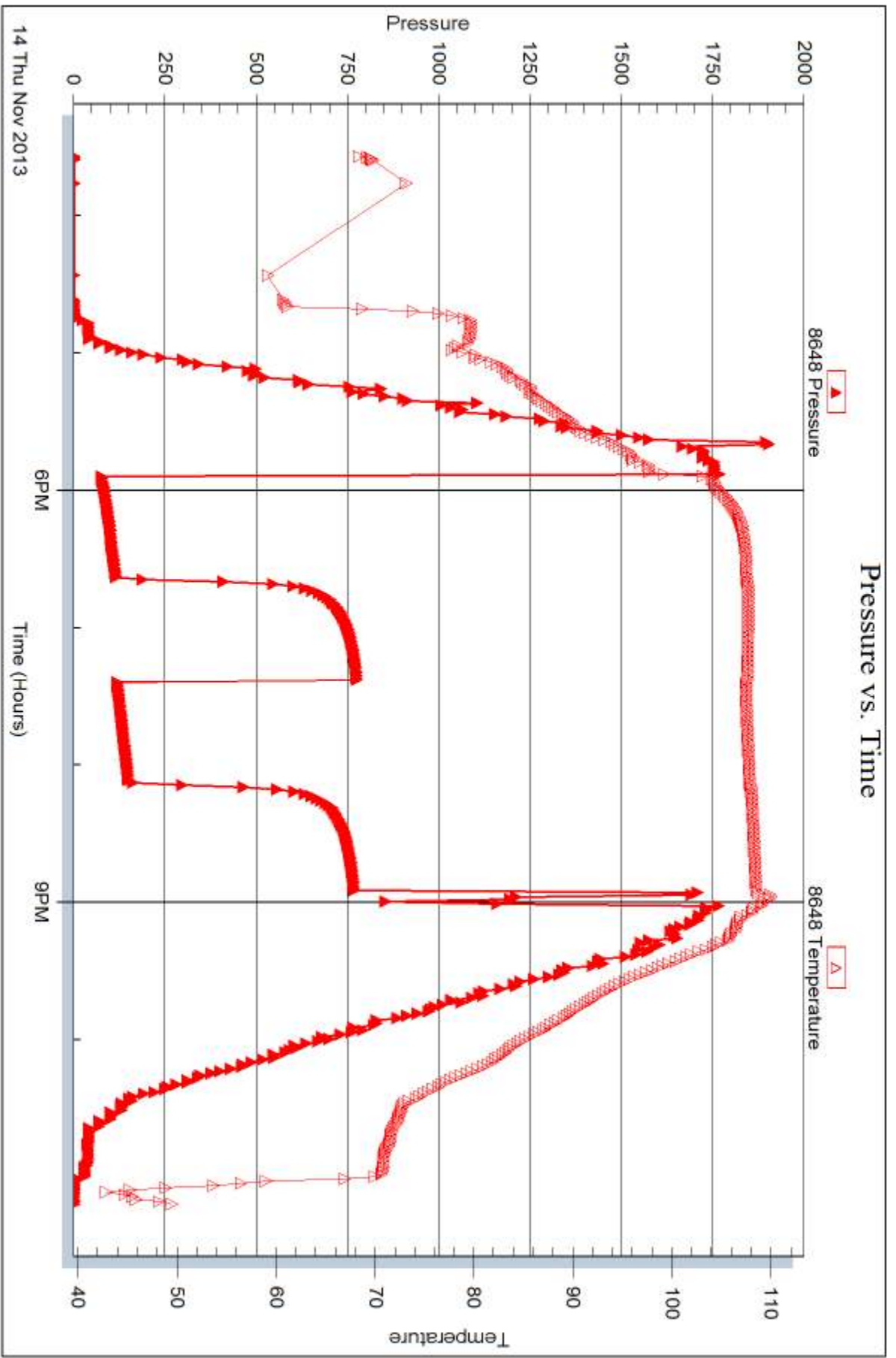
Printed: 2013.11.19 @ 10:58:06

Serial #: 8648

Outside H&C Oil Operating Inc

Brachtenbach #2-1

DST Test Number: 2



14 Thu Nov 2013

Triobite Testing, Inc

Ref. No: 55351

Printed: 2013.11.19 @ 10:58:06



## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville KS 67663

ATTN: Marc Downing

### **Brachtenbach #2-1**

### **2-9s-23w Graham KS**

Start Date: 2013.11.15 @ 13:19:00

End Date: 2013.11.15 @ 21:00:00

Job Ticket #: 55352                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.11.19 @ 10:57:19





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

ATTN: Marc Downing

Job Ticket: 55352

**DST#: 3**

Test Start: 2013.11.15 @ 13:19:00

## GENERAL INFORMATION:

Formation: **LKC "H,I,J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:51:00

Time Test Ended: 21:00:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Cody Bloedorn

Unit No: 53

**Interval: 3704.00 ft (KB) To 3765.00 ft (KB) (TVD)**

Reference Elevations: 2279.00 ft (KB)

Total Depth: 3765.00 ft (KB) (TVD)

2274.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8648 Outside**

Press@RunDepth: 333.36 psig @ 3739.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.15 End Date: 2013.11.15

Last Calib.: 2013.11.14

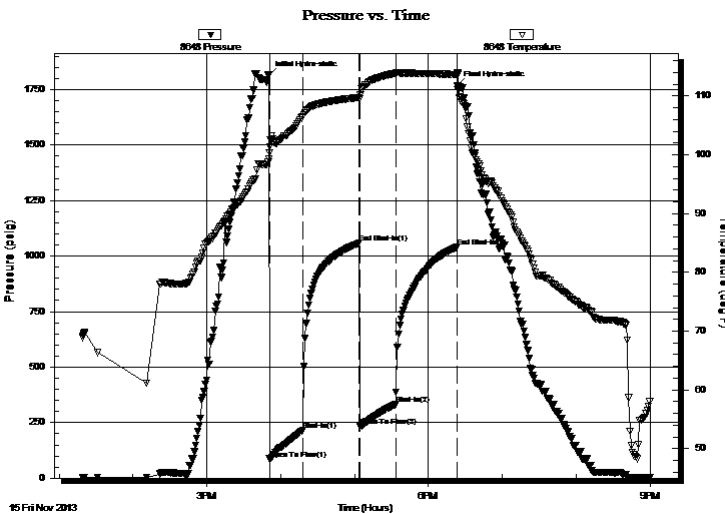
Start Time: 13:19:05 End Time: 20:59:59

Time On Btm: 2013.11.15 @ 15:50:15

Time Off Btm: 2013.11.15 @ 18:23:30

**TEST COMMENT:** 30 - IF- B.O.B. in 2 minutes  
45 - IS- 6" return  
30 - FF- B.O.B. in 1 minute  
45 - FF- 4" return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1814.10	99.26	Initial Hydro-static
1	86.72	101.35	Open To Flow (1)
28	215.02	106.50	Shut-In(1)
74	1058.21	109.75	End Shut-In(1)
74	234.27	109.57	Open To Flow (2)
104	333.36	113.91	Shut-In(2)
153	1039.63	113.65	End Shut-In(2)
154	1766.69	113.97	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	MCO, 40%M, 60%O	1.47
620.00	GO, 50%G, 50%O	8.70
62.00	MCO, 20%M, 80%O	0.87

\* 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

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

ATTN: Marc Downing

Job Ticket: 55352

**DST#: 3**

Test Start: 2013.11.15 @ 13:19:00

## GENERAL INFORMATION:

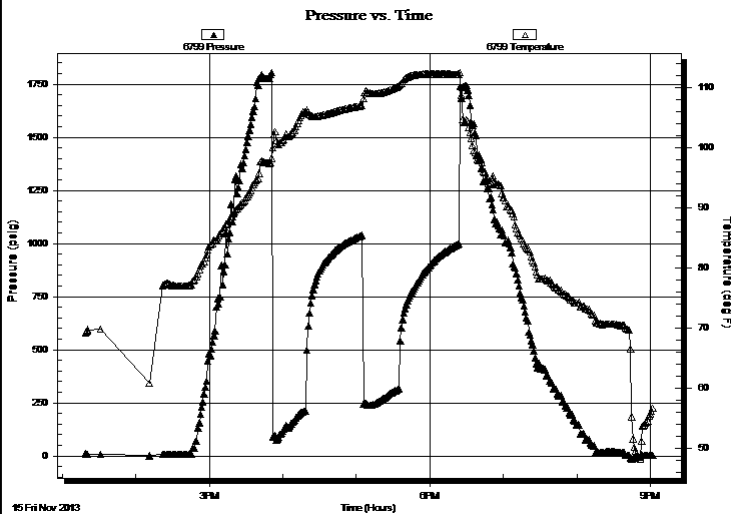
Formation: **LKC "H,I,J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:51:00  
 Time Test Ended: 21:00:00  
 Interval: **3704.00 ft (KB) To 3765.00 ft (KB) (TVD)**  
 Total Depth: 3765.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Cody Bloedorn  
 Unit No: 53  
 Reference Elevations: 2279.00 ft (KB)  
 2274.00 ft (CF)  
 KB to GR/CF: 5.00 ft

## Serial #: 6799

Inside

Press@RunDepth: psig @ 3739.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.15 End Date: 2013.11.15 Last Calib.: 2013.11.14  
 Start Time: 13:19:05 End Time: 21:01:44 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 30 - IF- B.O.B. in 2 minutes  
 45 - IS- 6" return  
 30 - FF- B.O.B. in 1 minute  
 45 - FF- 4" return



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	MCO, 40%M, 60%O	1.47
620.00	GO, 50%G, 50%O	8.70
62.00	MCO, 20%M, 80%O	0.87

## 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

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 55352

**DST#: 3**

ATTN: Marc Downing

Test Start: 2013.11.15 @ 13:19:00

## Tool Information

Drill Pipe:	Length: 3660.00 ft	Diameter: 3.80 inches	Volume: 51.34 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	30000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	54000.00 lb
			<u>Total Volume: 51.49 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	3704.00 ft			Final	49000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	61.00 ft				
Tool Length:	82.00 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			3684.00	
Shut In Tool	5.00			3689.00	
Hydraulic tool	5.00			3694.00	
Packer	5.00			3699.00	21.00 Bottom Of Top Packer
Packer	5.00			3704.00	
Stubb	1.00			3705.00	
Perforations	1.00			3706.00	
Change Over Sub	1.00			3707.00	
Drill Pipe	31.00			3738.00	
Change Over Sub	1.00			3739.00	
Recorder	0.00	6799	Inside	3739.00	
Recorder	0.00	8648	Outside	3739.00	
Perforations	23.00			3762.00	
Bullnose	3.00			3765.00	61.00 Bottom Packers & Anchor

**Total Tool Length: 82.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H&C Oil Operating Inc

**2-9s-23w Graham KS**

PO Box 86  
Plainville KS 67663

**Brachtenbach #2-1**

Job Ticket: 55352

**DST#: 3**

ATTN: Marc Downing

Test Start: 2013.11.15 @ 13:19:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	MCO, 40%M, 60%O	1.466
620.00	GO, 50%G, 50%O	8.697
62.00	MCO, 20%M, 80%O	0.870

Total Length: 806.00 ft      Total Volume: 11.033 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 36 @ 80 Degrees = 34 Gravity

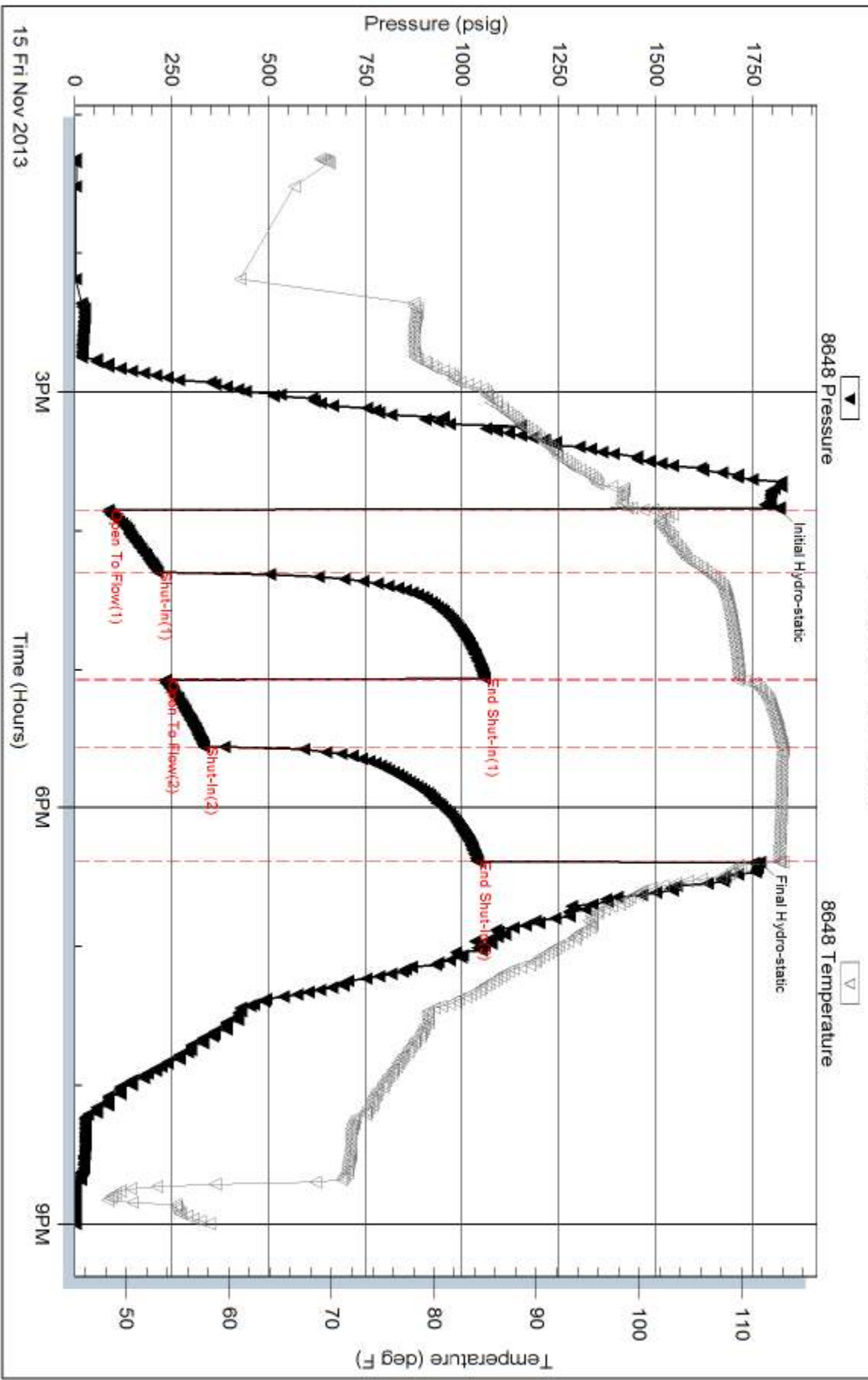
Serial #: 8648

Outside H&C Oil Operating Inc

Brachtenbach #2-1

DST Test Number: 3

### Pressure vs. Time



Trilobe Testing, Inc

Ref. No: 55352

Printed: 2013.11.19 @ 10:57:22

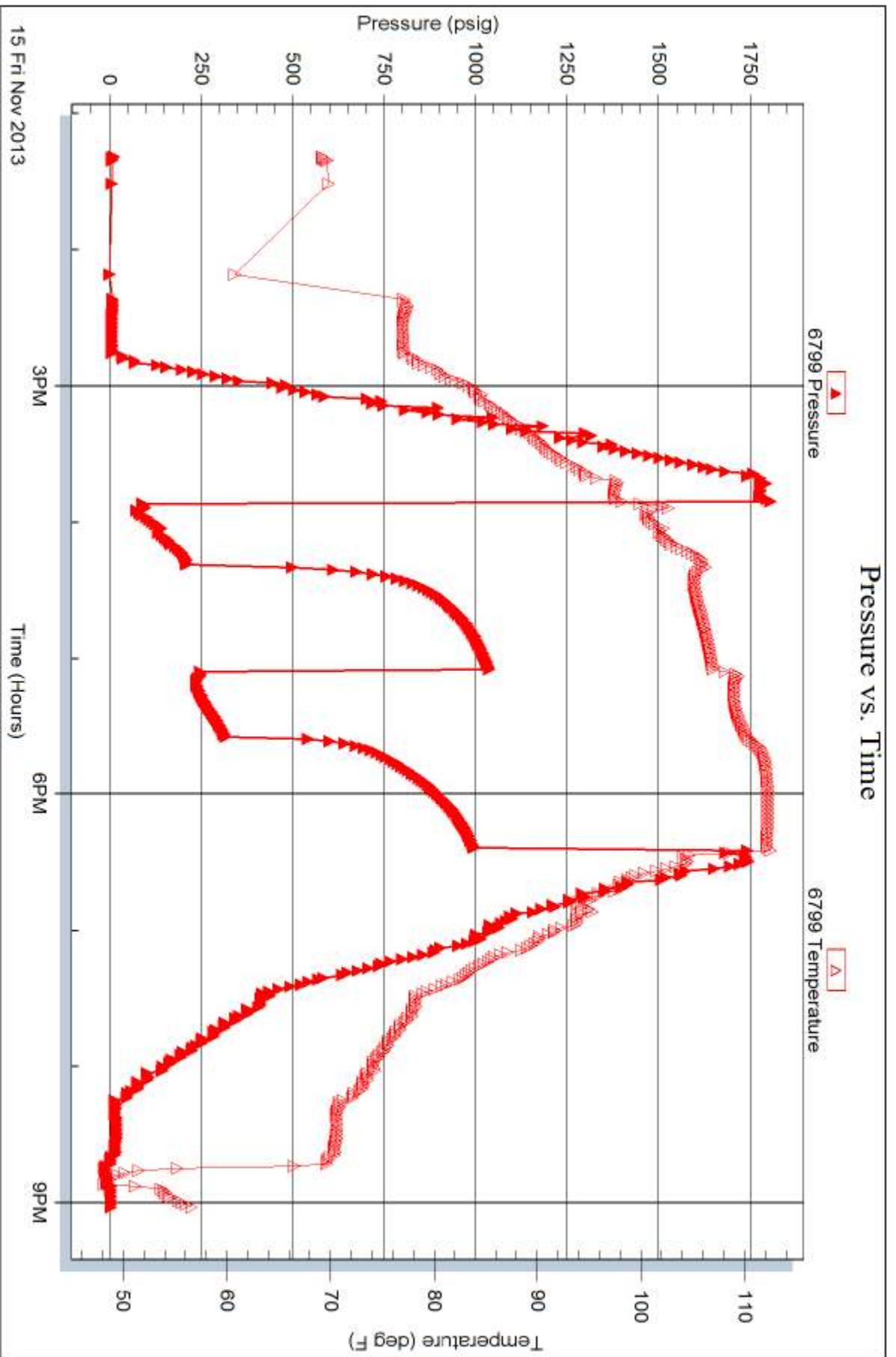
Serial #: 6799

Inside

H&C Oil Operating Inc

Brachtenbach #2-1

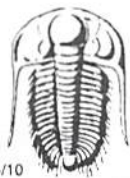
DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 55352

Printed: 2013.11.19 @ 10:57:22



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **54500**

Well Name & No. Braughtenbach #2-1 Test No. 1 Date 11-13-13  
 Company H&C Oil Operating Inc Elevation 2279 KB 2274 GL  
 Address Plainville KS, 67663 Po Box 86  
 Co. Rep / Geo. Marc Downing Rig American Eagle #3  
 Location: Sec. 2 Twp. 9S Rge. 23W Co. Graham State KS

Interval Tested 3609 - 3649 Zone Tested LKC "C-D"  
 Anchor Length 40' Drill Pipe Run 3562' Mud Wt. 8.7  
 Top Packer Depth 3604 Drill Collars Run — Vis 56  
 Bottom Packer Depth 3609 Wt. Pipe Run — WL 6.0  
 Total Depth 3649 Chlorides 500 ppm System LCM —

Blow Description IF- 8" blow instantly (slid 20' to bottom)  
ISI- No return  
FF- 1 1/4" blow  
FSI- No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>85</u>	<u>WM show of oil</u>		<u>5</u>	<u>95</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

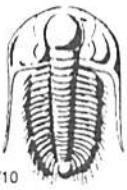
Rec Total 85' BHT 105° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1741  Test 1150 T-On Location 22:20  
 (B) First Initial Flow 68  Jars — T-Started 23:43 11:43pm  
 (C) First Final Flow 81  Safety Joint — T-Open 05:04  
 (D) Initial Shut-In 758  Circ Sub — T-Pulled 07:04  
 (E) Second Initial Flow 91  Hourly Standby — T-Out 08:56  
 (F) Second Final Flow 96  Mileage 106 RT 164.30 Comments —  
 (G) Final Shut-In 760  Sampler —  
 (H) Final Hydrostatic 1700  Straddle —  Ruined Shale Packer —  
 Shale Packer —  Ruined Packer —  
 Extra Packer —  Extra Copies —  
 Extra Recorder — Sub Total 0  
 Day Standby — Total 1314.30  
 Accessibility — MP/DST Disc't —  
 Sub Total 1314.30

Approved By — Our Representative Cody Bloodorn

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. **55351**

Well Name & No. Brachtenbach #2-1 Test No. 2 Date 11-14-13  
 Company H&C Oil Operating Inc Elevation 2279 KB 2274 GL  
 Address Po Box 86, Plainville KS, 67663  
 Co. Rep / Geo. Marc Downing Rig American Eagle #3  
 Location: Sec. 2 Twp. 9S Rge. 23W Co. Graham State KS

Interval Tested 3609 - 3678 Zone Tested LKC "E"  
 Anchor Length 69' Drill Pipe Run 3562' Mud Wt. 8.9  
 Top Packer Depth 3604 Drill Collars Run 30' Vis 55  
 Bottom Packer Depth 3609 Wt. Pipe Run — WL 6.0  
 Total Depth 3678 Chlorides 800 ppm System LCM —  
 Blow Description IF - 3 1/2" blow  
ISI - No return  
FF - 3/4" blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>WM, oil show</u>			<u>5</u>	<u>95</u>
<u>31</u>	<u>USOCM</u>		<u>5</u>		<u>95</u>
Rec Total	<u>217'</u>	BHT	<u>108°</u>	Gravity	<u>—</u>
				API RW	<u>—</u>
				@	<u>—</u> °F
				Chlorides	<u>—</u> ppm

(A) Initial Hydrostatic 1760  Test 1150 T-On Location 15:13  
 (B) First Initial Flow 84  Jars T-Started 15:34  
 (C) First Final Flow 103  Safety Joint T-Open 17:53  
 (D) Initial Shut-In 754  Circ Sub T-Pulled 20:53  
 (E) Second Initial Flow 114  Hourly Standby T-Out 23:13  
 (F) Second Final Flow 137  Mileage 106 RT 164.30 Comments \_\_\_\_\_  
 (G) Final Shut-In 745  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1696  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

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

Sub Total 1314.30  
 Total 1314.30  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Cody Bloodorn

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. **55352**

Well Name & No. Brachtenbach # 2-1 Test No. 3 Date 11-15-13  
 Company H&C Oil Operating Inc Elevation 2279 KB 2274 GL  
 Address Po Box 86, Plainville KS, 67663  
 Co. Rep / Geo. Marc Downing Rig American Eagle #3  
 Location: Sec. 2 Twp. 9s Rge. 23w Co. Graham State KS

Interval Tested 3704 - 3765 Zone Tested LKC "H, I, J"  
 Anchor Length 61 Drill Pipe Run 3660' Mud Wt. 8.9  
 Top Packer Depth 3699 Drill Collars Run 30' Vis 51  
 Bottom Packer Depth 3704 Wt. Pipe Run — WL 5.4  
 Total Depth 3765 Chlorides 1200 ppm System LCM —

Blow Description IF - B.O.B. in 2 minutes  
ISI - 6" return  
FF - B.O.B. in 1 minute  
FSI - 4" return

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>MCO</u>	<u>60</u>		<u>40</u>	
<u>620</u>	<u>60</u>	<u>50</u>	<u>50</u>		
<u>62</u>	<u>MCO</u>	<u>80</u>		<u>20</u>	
	<u>1736' G.I.P.</u>				
Rec Total	<u>806'</u>	BHT <u>113°</u>	Gravity <u>34</u>	API RW <u>—</u>	@ <u>—</u> °F Chlorides <u>—</u> ppm

(A) Initial Hydrostatic 1814  Test 1150 T-On Location 09:32  
 (B) First Initial Flow 86  Flow T-Started 13:19 1:19pm  
 (C) First Final Flow 215  Safety Joint T-Open 15:51 3:51pm  
 (D) Initial Shut-In 1058  Circ Sub T-Pulled 18:21  
 (E) Second Initial Flow 234  Hourly Standby 2.5h 250 T-Out 21:02  
 (F) Second Final Flow 333  Mileage 106 RT 328.60  
 (G) Final Shut-In 1039  Sampler  
 (H) Final Hydrostatic 1786  Straddle  
 Shale Packer  
 Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

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

Sub Total 1728.60

MP/DST Disc't —

Approved By \_\_\_\_\_ Our Representative Coby

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.

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

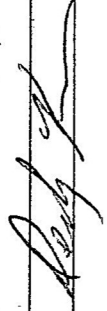
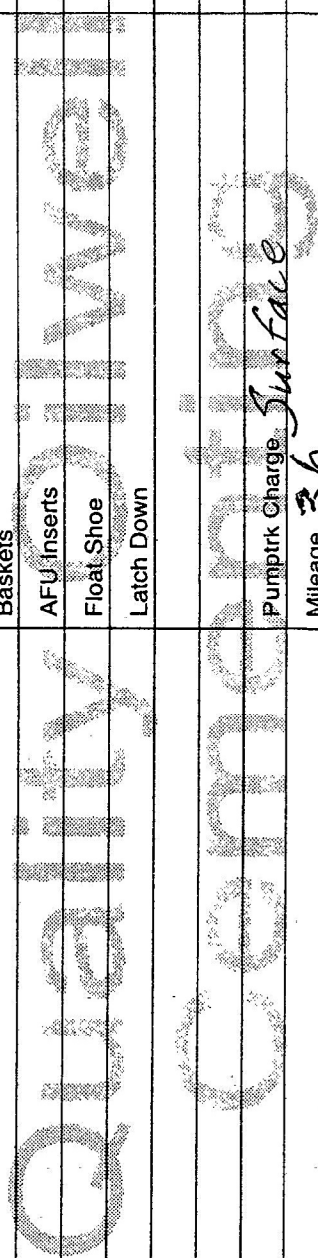
Home Office P.O. Box 32 Russell, KS 67665

No. 7602

Cell 785-324-1041

Date	11-9-13	Sec.	2	Twp.	9	Range	23	County	Graham	State	KS	On Location		Finish	6:30pm
Lease	Brachtenbach														
Well No.	2-1														
Location	Mill City 45 to LABD														
Contractor	American Easel 3														
Type Job	Surface														
Hole Size	1 1/4														
Csg.	55R														
Tbg. Size															
Tool															
Cement Left in Csg.	20 FT														
Meas Line	Displace 1239 BBL														
EQUIPMENT															
Pumptrk	S No.	Cementier	None												
Bulktrk	9 No.	Driver	Lannic												
Bulktrk	pu No.	Driver	Dave												
JOB SERVICES & REMARKS															
Remarks:															
Rat Hole															
Mouse Hole															
Centralizers															
Baskets															
DN or Port Collar															
	Cement 7 ctd														
	Circulate														
	Mud CLR 48														
	CFL-117 or CD110 CAF 38														
	Sand														
	Handling 168														
	Mileage														
	Guide Shoe														
	Centralizer														
	Baskets														
	AFU Inserts														
	Float Shoe														
	Latch Down														
	Pumptrk Charge Sur face														
	Mileage 36														
	Tax														
	Discount														
	Total Charge														

X Signature

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

7480

Home Office P.O. Box 32 Russell, KS 67665

No.

Phone 785-483-2025  
Cell 785-324-1041

Date <u>11-17-13</u>		Sec. <u>2</u>	Twp. <u>9</u>	Range <u>23</u>	County <u>Lincoln</u>	State <u>KS</u>	On Location	Finish <u>See Ann.</u>
Lease <u>Beach ranch</u>		Well No <u>Z-1</u>		Location <u>Hill City 45 miles</u>				
Contractor <u>American Energy #3</u>		Owner <u>To Quality Oilwell Cementing, Inc.</u>						
Type Job <u>Production String</u>		You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.						
Hole Size <u>7'18"</u>	T.D. <u><del>3850</del> 3855</u>	Charge <u>HAC</u>						
Csg. <u>5'12" 14#</u>	Depth <u>3850</u>	Street						
Tbg. Size	Depth	City						
Tool	Depth	State		The above was done to satisfaction and supervision of owner agent or contractor.				
Cement Left in Csg. <u>22.51</u>	Shoe Joint <u>22.51</u>	Cement Amount Ordered <u>400 com 400 &amp; misc</u>						
Meas Line	Displace <u>943L</u>	Common <u>180</u>						
<b>EQUIPMENT</b>								
Pumptrk <u>17</u>	No. Cementer <u>Cox</u>							
Bulktrk <u>19</u>	No. Helper <u>Cody</u>							
Bulktrk <u>1</u>	No. Driver <u>Jones</u>							
	No. Driver <u>Chapten</u>							
<b>JOB SERVICES &amp; REMARKS</b>								
Remarks:								
Rat Hole <u>305K</u>								
Mouse Hole								
Centralizers								
Baskets								
DN or Port Collar								
<p><u>5'12" STD 3850 Insert @ 3828</u></p> <p><u>Est. Connection Pump, Seal and Part</u></p> <p><u>10BL Spacer Plug, Kettle &amp; Cement 5'12"</u></p> <p><u>With 550SK - Clear lines &amp; Displace</u></p> <p><u>Plug. Plug landed 2000#</u></p> <p><u>Release Pressure Inf.</u></p> <p><u>Cement Circulate.</u></p>								
Handling <u>605</u>	FLOAT EQUIPMENT							
Mileage								
Guide Shoe	<u>5'12"</u>							
Centralizer	<u>11 Turbos</u>							
Baskets	<u>4</u>							
AJU Inserts								
Float Shoe	<u>1</u>							
Latch Down	<u>1</u>							
<b>Summary</b>								
Pumptrk Charge	<u>prod long string</u>							
Mileage	<u>36</u>							
Tax								
Discount								
Total Charge								
<p>X Signature <u>Chapten</u></p>								