



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1131979  
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
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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: \_\_\_\_\_



1131979

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](mailto: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
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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:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

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> _____ <i>(Submit ACO-4)</i>	<b>PRODUCTION INTERVAL:</b> _____ _____
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Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

April 08, 2013

Charles Ramsay  
H & C Oil Operating Inc.  
PO BOX 86  
PLAINVILLE, KS 67663-0086

Re: ACO1  
API 15-065-23899-00-00  
Minium 23-1  
SE/4 Sec.23-08S-25W  
Graham County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Charles Ramsay



COMPANY: HCL Oil Operating, Inc.  
 WELL: Minimum # 23-1  
 FIELD: Lilledad  
 LOCATION: L4001 FSL + 2310 FEL  
 SEC. 23 TWP. 8S RGE. 25W  
 COUNTY: Graham  
 STATE: Kansas  
 OPERATOR: HCL Oil Operating, Inc.  
 CONTRACTOR: American Eagle, Rig #3  
 COMM: 3-27-13  
 Casing Record: 4-2-13  
 SURF: 894 @ 230' PROD: None  
 TOTAL DEPTH DRILLERS: 3923'  
 TOTAL DEPTH LOG: 3924'

PRODUCTION DATA  
 ELEVATION: KB 2342  
 DF: 2331  
 GI: 2331  
 Drilling Measured from: KB  
 Samples Saved from: 3850 To: TD  
 Drilling Time from: 3300 To: TD  
 Samples Examined from: 3850 To: TD  
 Geological Supervision from: 3300 To: Total Depth  
 Wellbore Geologist: Marc Downing  
 Electrical Services: Pioneer  
 CML/CAL  
 DIT  
 MEL

FORMATION	SAMPLE TOP	ELECTRIC LOG TOP	SUB-SEA DIBOM	STRUCTURAL POSITION
Top Anhydrite	2049	2047	+215	-8
Base Anhydrite	2100	2049	+243	NA
Taranta	3411	3411	-1049	NA
HEEBNER	3423	3425	-1283	-2
Taranta	3447	3450	-1320	-2
LKC	3465	3461	-1325	-6
BKC	3871	3880	-1538	41

FORMATION TOPS AND STRUCTURAL POSITION

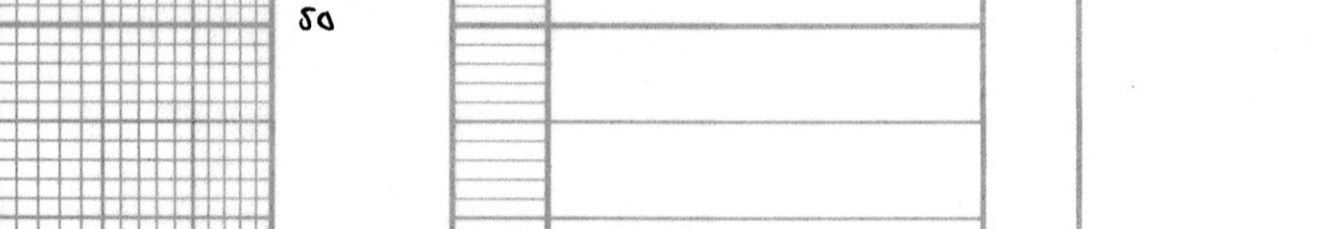
REFERENCE WELL FOR STRUCTURE: Okmar Oil Co. Sec. 23-8S-25W  
 Josephine #1 NE-NE-54

DRILL STEM TESTS

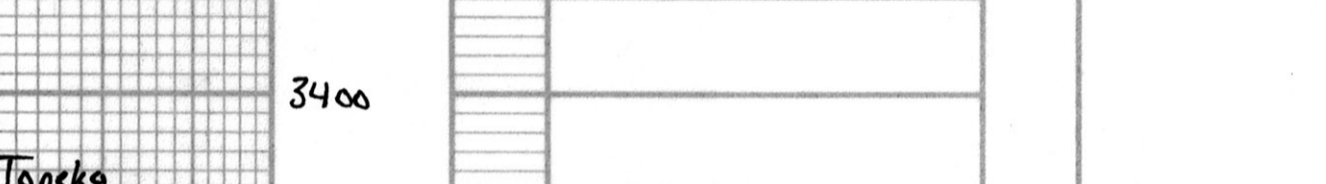
No.	Interval	IFP/Time	ISIP/Time	FFP/Time	ESIP/Time	HP/HP	RECOVERY

REMARKS AND RECOMMENDATIONS: Due to structural position, DST recovery + log evaluation, it was decided to plug + abandon the well.

LEGEND



DRILLING TIME IN MINUTES PER FOOT  
 Rate of Penetration Decreases



DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	OIL SHOWS	REMARKS
3300				
50				
3400				
3411				Tapeka 3411(-1069)
50				
3500				
50				
3600				
3623				HEEBNER 3623(-1281)
50				
3700				
3720				Taranta 3720(-1305)
50				
3800				
3823				LKC 3823(-1323)
50				
3900				
3923				BKC 3923(-1531)
50				
3971				BKC 3971(-1535)

RTD: 3923(-1531)  
 LTD: 3924(-1532)

Vis: 51 Wt: 9.1  
 DST #1  
 3681 - 3720  
 45-45 - 45-45  
 I.F. - 800 35 min  
 F.F. - 800 32 min  
 I.F.A. 53-129  
 FFP: 132-203  
 SFP: 1123-1115  
 HP: 1776-1763  
 Rec: 164' Mw 45%w  
 243' Mw 95%w  
 5' hvy mud  
 oil spots in tool  
 BHT: 116° Chlor: 40K

DST #2  
 3720 - 3740  
 45-45 - 45-45  
 I.F. - 2" blow  
 F.F. - 1" blow  
 I.F.P: 15-20  
 FFP: 21-25  
 SFP: 1139-1106  
 HP: 1847-1793  
 Rec: 1' FO  
 30' ocum 17.0, 39%w  
 BHT: 116°

DST #3  
 3770 - 3862  
 30-30 - 30-30  
 I.F. - 1" blow  
 F.F. - Dead  
 I.F.P: 20-22  
 FFP: 22-23  
 SFP: 223-93  
 HP: 1883-1855  
 Rec: 10' ASM  
 BHT: 106°

Sh: Black Carb  
 LS: wht, md-crs xlm, dms, frag Fass + ool. Gd intab + vnggs, totally barren.  
 LB: Same AIA, mostly prod.  
 LS: wht, fm-mnd xlm, scat vnggs, frag sub xlm-chlky. Few pas wht chrt, All NS.

Sh: Black Carb  
 Sh: gry  
 LS: wht, fm xlm, succ in prt. subxlm, NS  
 Sh: brn  
 LS: wht, fm-mnd xlm, succ in prt w/ Fass. Fr intab, subxlm in prt. All NS.  
 Trng prod + dms.

Sh: gry w/ brn  
 LS: wht, md xlm, ool w/ lrg Fass. pr-fr intab, slth, tite for gd intab, fr sub xlm, fr sfo, no od.  
 Sh: brn  
 LS: Few on AIA, 1-2 pas w/ fr vnggs, fr str, fr sfo, slth hvy, No Od.

Sh: drk gry  
 LS: tan, wht, md xlm, Fass + slth dolom. Fr gd vnggs, w/ od from sub xlm, fr sfo, fr intab, fr sub xlm, fr sfo, no od.  
 LS: wht, fm-mnd xlm, succ in prt, sub xlm-chlky, Rare resid str, NSFA, No Od.  
 LS: wht, fm-mnd xlm, prod + dms. All NS + No Od, Scat tan-gry chrt.

Sh: Black Carb  
 Sh: gry  
 LS: wht, fm-mnd xlm, scat Fass. Mostly prod, subxlm in prt. Few on wht resid str, rare sfo, No Od.  
 Sh: gry  
 LS: wht, md xlm, Fass. 2-3 rx w/ fr vnggs, fr str, fr sfo, no od. Mostly prod + barren, frnt od.

Sh: gry w/ brn  
 LS: wht - tan, fm xlm, Fass, small Fass. pr prod, fr str, fr sfo, no od. Trng hvy - dead blk str.  
 Sh: gry  
 LS: wht, fm xlm, scat Fass. pr prod, scat pr intab, 2-3 rx w/ brn str, rare spotted sfo, No Od. Rx subxlm in prt.  
 Sh: gry  
 LS: wht, md xlm, few small Fass. 1-2 rx w/ hvy str in pr prod. Trng vnggs in base, No Od.

Sh: brn w/ gry  
 Sh: AIA, washer red.  
 LS: tan-wht, md xlm, prod + dms, NS.  
 Sh: brn.

Marc Downing





## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville, KS 67663

ATTN: Marc Downing

### **Minium #23-1**

### **23-8s-25w Graham, KS**

Start Date: 2013.03.30 @ 23:33:00

End Date: 2013.03.31 @ 08:50:00

Job Ticket #: 51220                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.04 @ 10:50:08



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51220

**DST#: 1**

ATTN: Marc Downing

Test Start: 2013.03.30 @ 23:33:00

## GENERAL INFORMATION:

Formation: **LKC "C,D"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:27:45  
 Time Test Ended: 08:50:00  
 Interval: **3681.00 ft (KB) To 3720.00 ft (KB) (TVD)**  
 Total Depth: 3720.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Kevin Mack  
 Unit No: 43  
 Reference Elevations: 2342.00 ft (KB)  
 2337.00 ft (CF)  
 KB to GR/CF: 5.00 ft

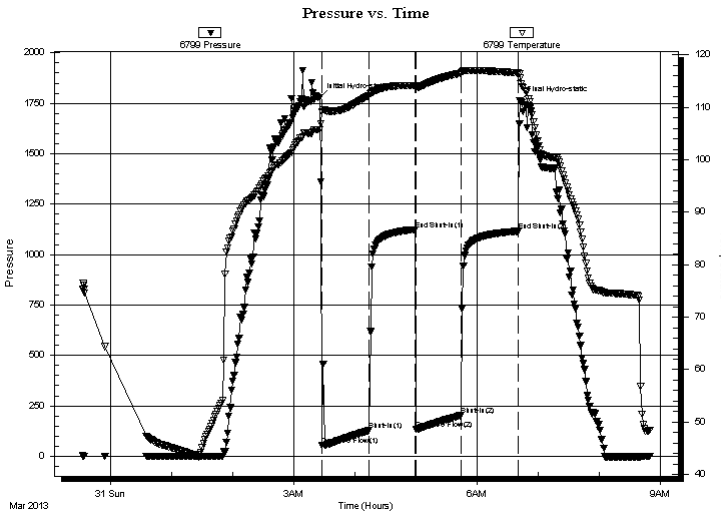
## Serial #: 6799

Inside

Press @ Run Depth: 203.18 psig @ 3682.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.03.30 End Date: 2013.03.31 Last Calib.: 2013.03.31  
 Start Time: 23:33:05 End Time: 08:50:00 Time On Btm: 2013.03.31 @ 03:25:15  
 Time Off Btm: 2013.03.31 @ 06:41:45

**TEST COMMENT:** 45 - IF- Bled off initial Surge. Surface Blow built to BoB in 35 min.  
 45 - IS- No Return  
 45 - FF- BoB in 32 min.  
 45 - FS- No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1776.86	105.73	Initial Hydro-static
3	53.28	109.23	Open To Flow (1)
49	129.03	112.26	Shut-In(1)
94	1123.94	114.17	End Shut-In(1)
95	132.72	113.83	Open To Flow (2)
139	203.18	116.51	Shut-In(2)
195	1115.73	116.52	End Shut-In(2)
197	1763.89	115.58	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Heavy Mud 100M	0.07
243.00	WM 5M 95W	3.41
164.00	WM 35M 65W	2.30
0.00	Show of oil spots in tool	0.00

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51220

**DST#: 1**

ATTN: Marc Downing

Test Start: 2013.03.30 @ 23:33:00

## Tool Information

Drill Pipe:	Length: 3680.00 ft	Diameter: 3.80 inches	Volume: 51.62 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:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	62000.00 lb
			<u>Total Volume: 51.62 bbl</u>	Tool Chased	20.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	40000.00 lb
Depth to Top Packer:	3681.00 ft			Final	48000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	39.00 ft				
Tool Length:	60.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: Tool opened early and had to be chased approx 20' to bottom.

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3661.00	
Shut In Tool	5.00			3666.00	
Hydraulic tool	5.00			3671.00	
Packer	5.00			3676.00	21.00 Bottom Of Top Packer
Packer	5.00			3681.00	
Stubb	1.00			3682.00	
Recorder	0.00	6799	Inside	3682.00	
Recorder	0.00	8648	Inside	3682.00	
Perforations	2.00			3684.00	
Change Over Sub	1.00			3685.00	
Drill Pipe	31.00			3716.00	
Change Over Sub	1.00			3717.00	
Bullnose	3.00			3720.00	39.00 Bottom Packers & Anchor

**Total Tool Length: 60.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51220

**DST#: 1**

ATTN: Marc Downing

Test Start: 2013.03.30 @ 23:33:00

## 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: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
5.00	Heavy Mud 100M	0.070
243.00	WM 5M 95W	3.409
164.00	WM 35M 65W	2.300
0.00	Show of oil spots in tool	0.000

Total Length: 412.00 ft      Total Volume: 5.779 bbl

Num Fluid Samples: 0

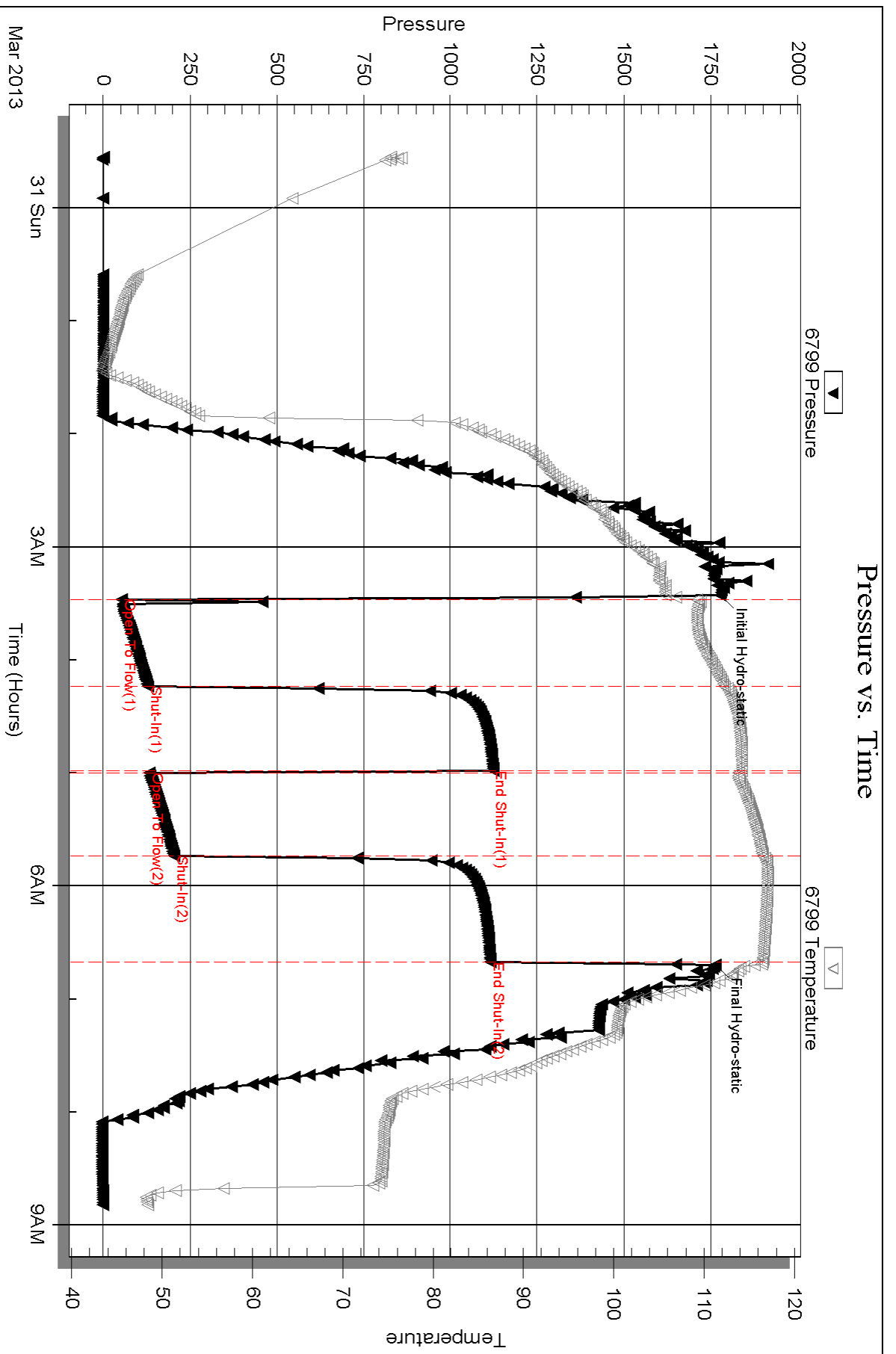
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .184 @ 67 deg = 40,000ppm



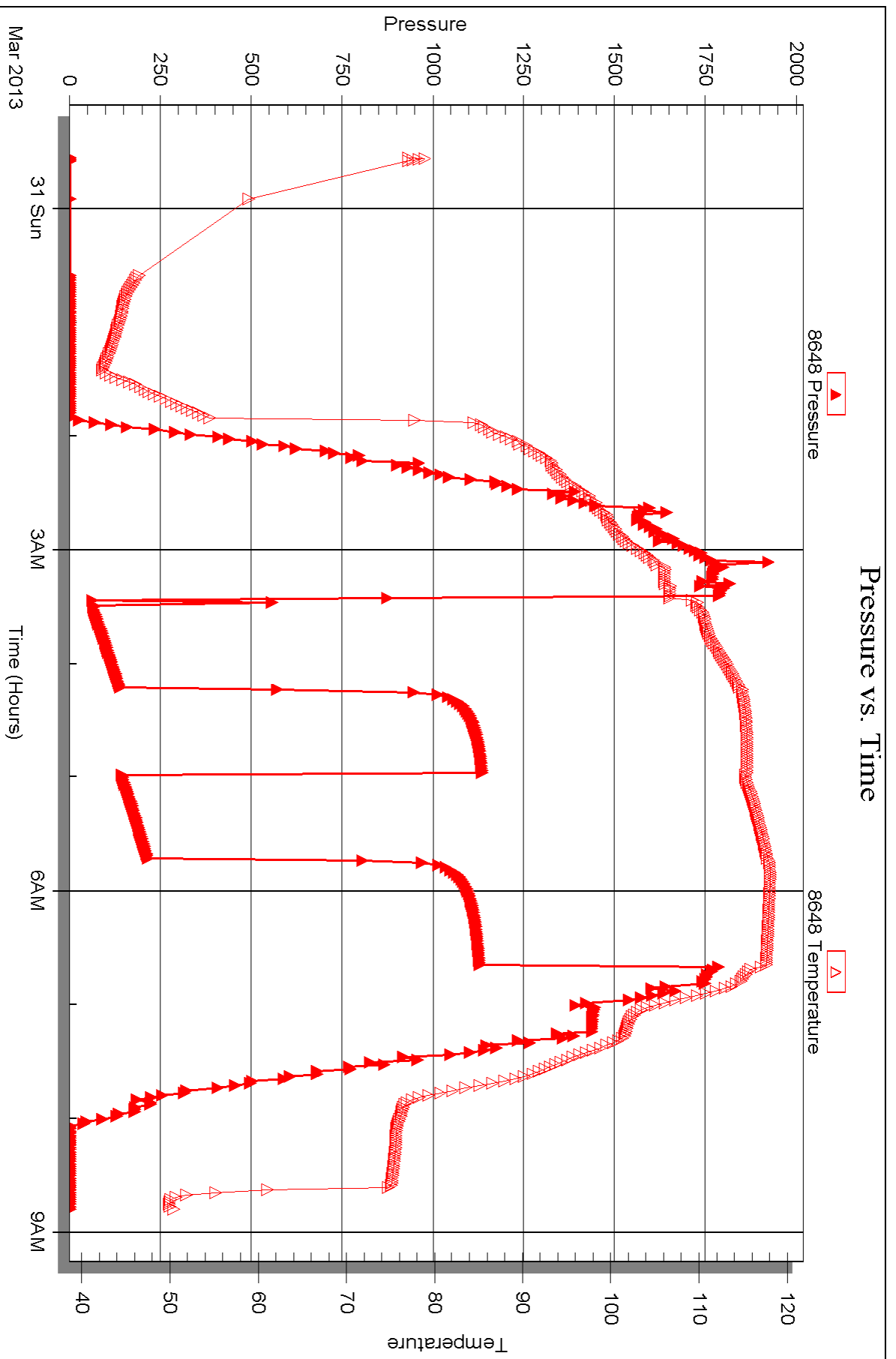
Serial #: 8648

Inside

H & C Oil Operating, Inc.

Mnium#23-1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 51220

Printed: 2013.04.04 @ 10:50:11



## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville, KS 67663

ATTN: Marc Downing

### **Minium #23-1**

### **23-8s-25w Graham, KS**

Start Date: 2013.03.31 @ 15:25:00

End Date: 2013.03.31 @ 21:54:15

Job Ticket #: 51221                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.04 @ 10:49:27



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51221

**DST#: 2**

ATTN: Marc Downing

Test Start: 2013.03.31 @ 15:25:00

## GENERAL INFORMATION:

Formation: **LKC "E"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 17:18:15  
 Tester: Kevin Mack  
 Time Test Ended: 21:54:15  
 Unit No: 43  
 Interval: **3720.00 ft (KB) To 3740.00 ft (KB) (TVD)**  
 Reference Elevations: 2342.00 ft (KB)  
 Total Depth: 3740.00 ft (KB) (TVD)  
 2337.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 KB to GR/CF: 5.00 ft

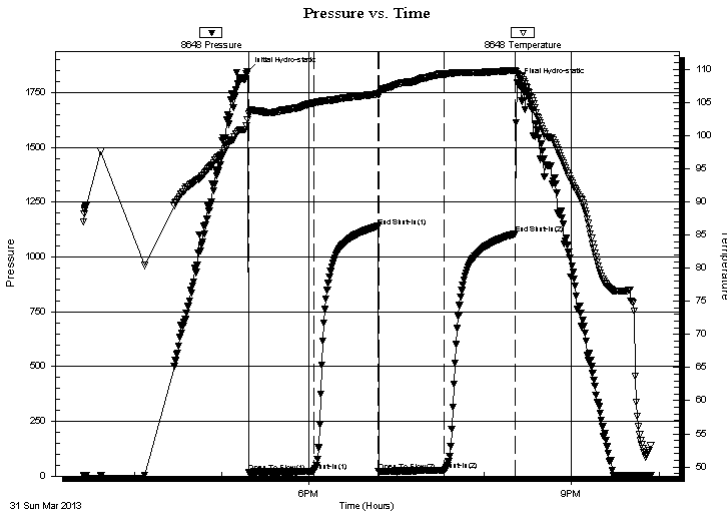
## Serial #: 8648

Inside

Press @ Run Depth: 25.95 psig @ 3721.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.03.31 End Date: 2013.03.31 Last Calib.: 2013.03.31  
 Start Time: 15:25:05 End Time: 21:54:14 Time On Btm: 2013.03.31 @ 17:17:30  
 Time Off Btm: 2013.03.31 @ 20:22:45

TEST COMMENT: 45 - IF- Surface Blow built to 2"  
 45 - IS- No Return  
 45 - FF- Surface Blow started at 10 min. Built to 1"  
 45 - FS- No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1847.57	102.37	Initial Hydro-static
1	15.88	103.22	Open To Flow (1)
46	20.90	104.90	Shut-In(1)
90	1139.52	106.24	End Shut-In(1)
90	21.91	106.13	Open To Flow (2)
135	25.95	109.27	Shut-In(2)
184	1106.49	109.81	End Shut-In(2)
186	1793.93	109.26	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1.00	Free Oil 100o	0.01
30.00	OCWM	0.42

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51221

**DST#: 2**

ATTN: Marc Downing

Test Start: 2013.03.31 @ 15:25:00

## Tool Information

Drill Pipe:	Length: 3714.00 ft	Diameter: 3.80 inches	Volume: 52.10 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: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 52.10 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3720.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	41.00 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			3700.00	
Shut In Tool	5.00			3705.00	
Hydraulic tool	5.00			3710.00	
Packer	5.00			3715.00	21.00 Bottom Of Top Packer
Packer	5.00			3720.00	
Stubb	1.00			3721.00	
Recorder	0.00	6799	Inside	3721.00	
Recorder	0.00	8648	Inside	3721.00	
Perforations	16.00			3737.00	
Bullnose	3.00			3740.00	20.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>41.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51221

**DST#: 2**

ATTN: Marc Downing

Test Start: 2013.03.31 @ 15:25:00

## 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:

13000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	Free Oil 100o	0.014
30.00	OCWM	0.421

Total Length: 31.00 ft      Total Volume: 0.435 bbl

Num Fluid Samples: 0

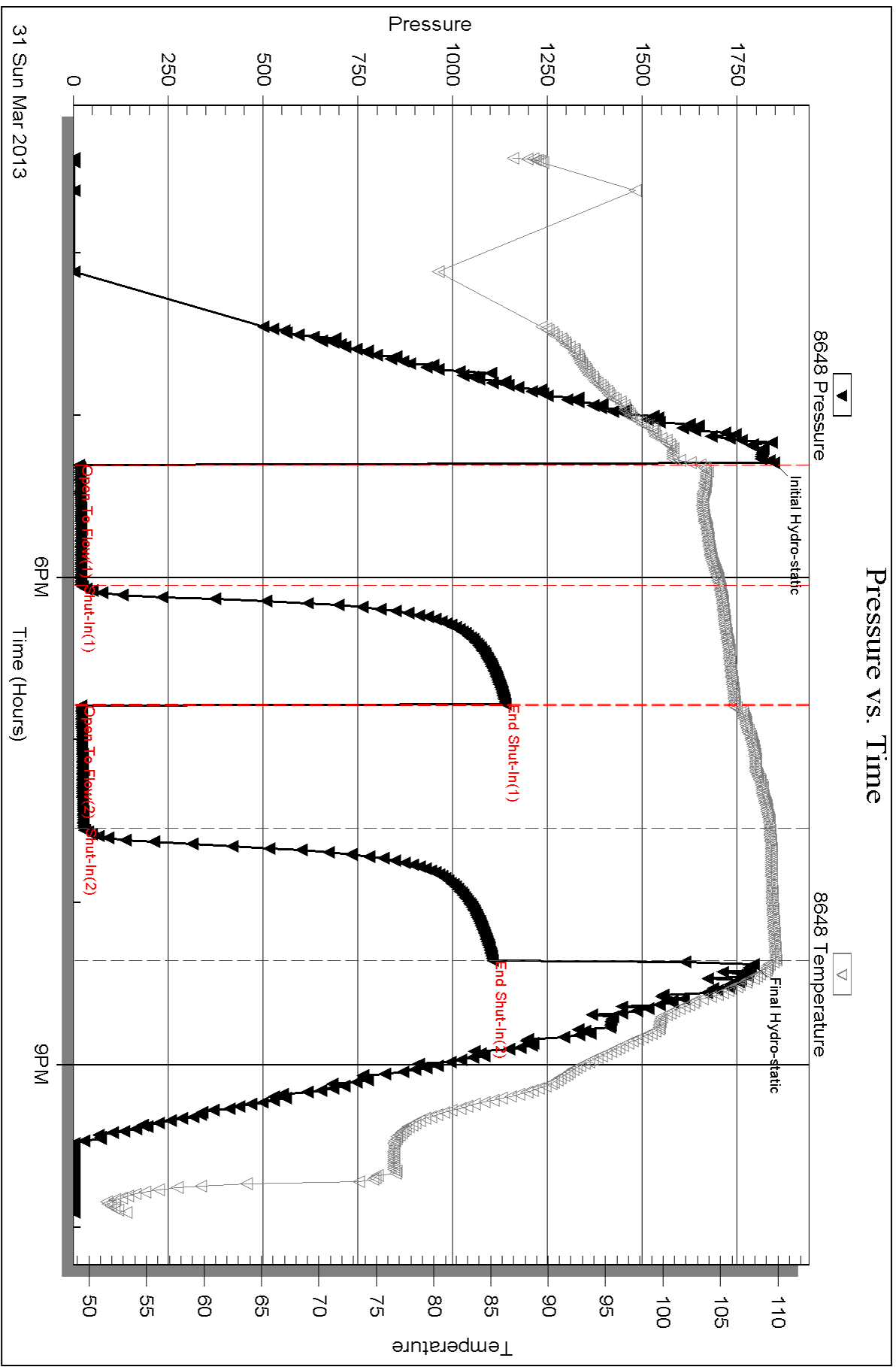
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .65 @ 65 deg = 13000ppm



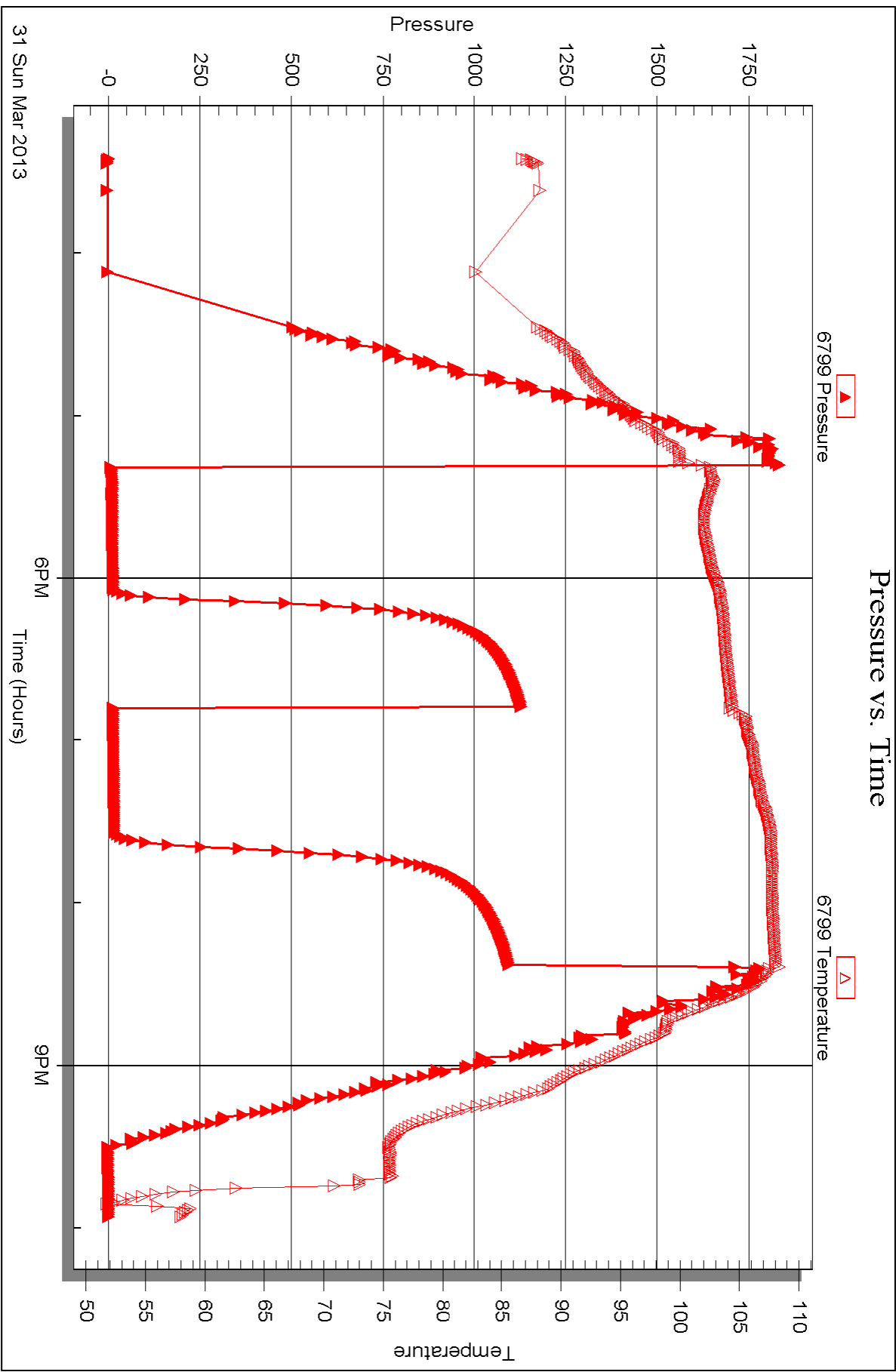
Serial #: 6799

Inside

H & C Oil Operating, Inc.

Minium#23-1

DST Test Number: 2



31 Sun Mar 2013

Triobite Testing, Inc

Ref. No: 51221

Printed: 2013.04.04 @ 10:49:31





## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville, KS 67663

ATTN: Marc Downing

### **Minium #23-1**

### **23-8s-25w Graham, KS**

Start Date: 2013.04.01 @ 11:23:00

End Date: 2013.04.01 @ 17:22:00

Job Ticket #: 51222                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.04 @ 10:48:46



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51222

**DST#: 3**

ATTN: Marc Downing

Test Start: 2013.04.01 @ 11:23:00

## GENERAL INFORMATION:

Formation: **LKC "H-K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:17:45

Time Test Ended: 17:22:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 43

**Interval: 3770.00 ft (KB) To 3862.00 ft (KB) (TVD)**

Reference Elevations: 2342.00 ft (KB)

Total Depth: 3862.00 ft (KB) (TVD)

2337.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6799**

**Inside**

Press @ Run Depth: 22.51 psig @ 3771.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.01

End Date:

2013.04.01

Last Calib.: 2013.04.01

Start Time: 11:23:05

End Time:

17:21:59

Time On Btm: 2013.04.01 @ 13:17:00

Time Off Btm: 2013.04.01 @ 15:26:45

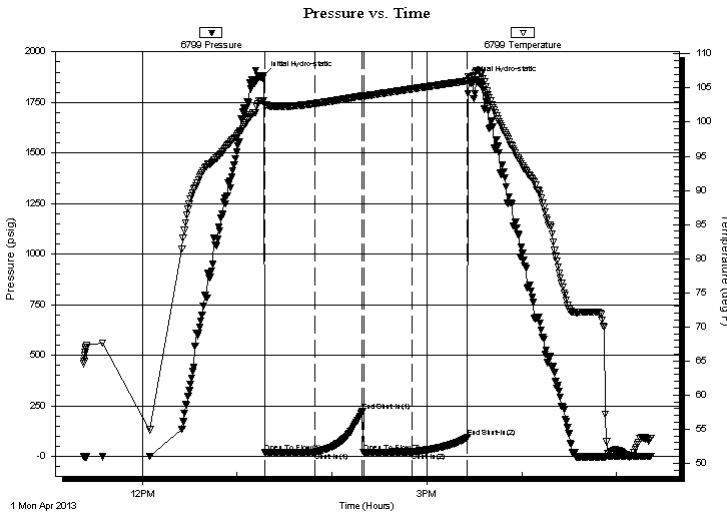
**TEST COMMENT:** 30 - IF- 1/2" Blow Built to 1"

30 - IS- No Return

30 - FF- No Blow

30 - FS- No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1882.62	103.13	Initial Hydro-static
1	19.79	102.59	Open To Flow (1)
33	21.76	102.71	Shut-In(1)
63	222.86	103.85	End Shut-In(1)
63	21.50	103.81	Open To Flow (2)
94	22.51	104.87	Shut-In(2)
129	93.41	106.03	End Shut-In(2)
130	1855.39	106.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100M	0.14

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51222

**DST#: 3**

ATTN: Marc Downing

Test Start: 2013.04.01 @ 11:23:00

## Tool Information

Drill Pipe:	Length: 3772.00 ft	Diameter: 3.80 inches	Volume: 52.91 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: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 52.91 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3770.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	92.00 ft			
Tool Length:	113.00 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			3750.00	
Shut In Tool	5.00			3755.00	
Hydraulic tool	5.00			3760.00	
Packer	5.00			3765.00	21.00 Bottom Of Top Packer
Packer	5.00			3770.00	
Stubb	1.00			3771.00	
Recorder	0.00	6799	Inside	3771.00	
Recorder	0.00	8648	Inside	3771.00	
Perforations	22.00			3793.00	
Change Over Sub	1.00			3794.00	
Drill Pipe	62.00			3856.00	
Change Over Sub	1.00			3857.00	
Bullnose	5.00			3862.00	92.00 Bottom Packers & Anchor

**Total Tool Length: 113.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H & C Oil Operating, Inc.

**23-8s-25w Graham, KS**

PO Box 86  
Plainville, KS 67663

**Minium #23-1**

Job Ticket: 51222

**DST#: 3**

ATTN: Marc Downing

Test Start: 2013.04.01 @ 11:23:00

## 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: 7.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud 100M	0.140

Total Length: 10.00 ft      Total Volume: 0.140 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

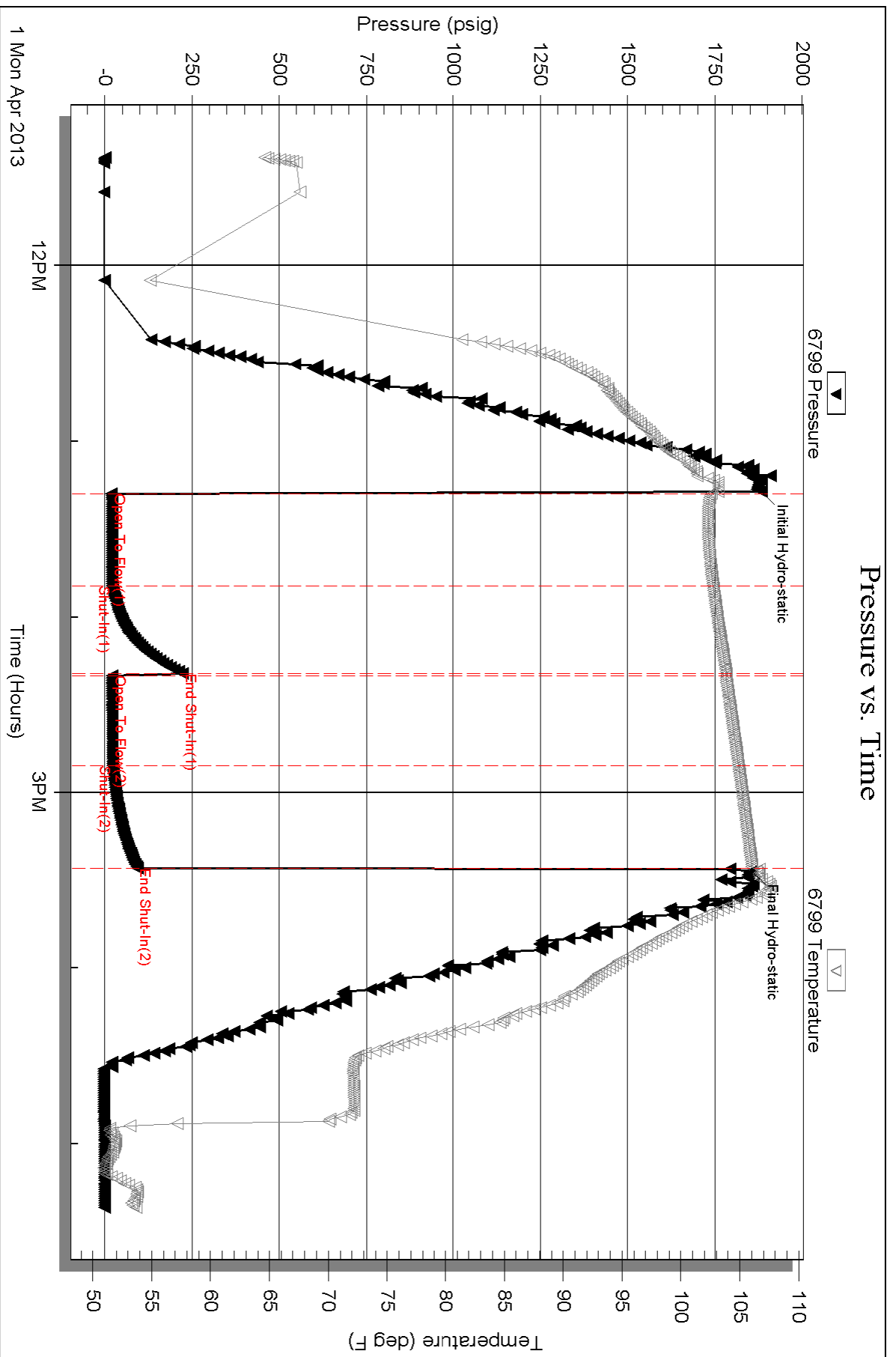
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





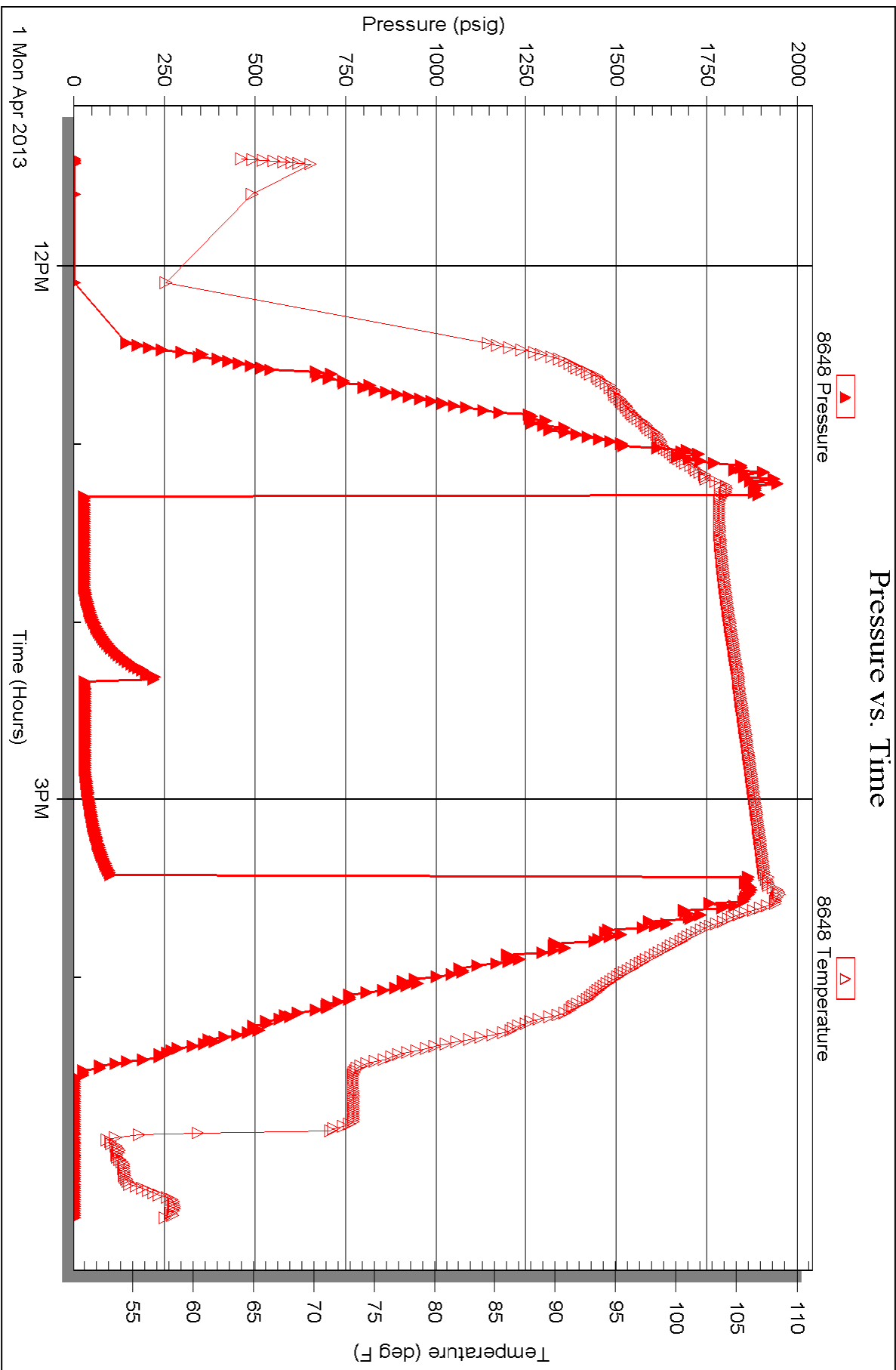
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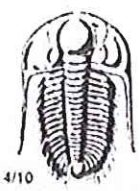
Inside

H & C Oil Operating, Inc.

Mnium#23-1

DST Test Number: 3





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51220

Well Name & No. Minium # 23-1 Test No. 1 Date 3-30-13  
 Company H&L Oil Operating, Inc Elevation 2342 KB 2337 GL  
 Address PO Box 86 Plainville, KS 67663  
 Co. Rep / Geo. Marc Downing Rig American Eagle #3  
 Location: Sec. 23 Twp. 8S Rge. 25W Co. Graham State KS

Interval Tested 3681-3720 Zone Tested LKC "C-D"  
 Anchor Length 39' Drill Pipe Run 3680' Mud Wt. 9.1  
 Top Packer Depth 3677 Drill Collars Run 0 Vis 51  
 Bottom Packer Depth 3681 Wt. Pipe Run 0 WL 6.8  
 Total Depth 3720 Chlorides 900 ppm System LCM Nil

Blow Description IF - Bled off initial Surge. Surface Blow built to BoB in 35 min.  
ISI - NO Return  
FF - BoB in 32 min.  
FSI - NO Return

Rec	Feet of	%gas	%oil	%water	%mud
164	MW		65	35	
<del>243</del> 243	MW		95	5	
5	Heavy mud			100	
0	Show of oil spots interval		SPOTS		

Rec Total 412 BHT 116 Gravity — API RW 0.184 @ 67 °F Chlorides 40,000 ppm

(A) Initial Hydrostatic 1776  Test 1150  
 (B) First Initial Flow 53  Jars  
 (C) First Final Flow 129  Safety Joint  
 (D) Initial Shut-In 1123  Circ Sub N/L  
 (E) Second Initial Flow 132  Hourly Standby  
 (F) Second Final Flow 203  Mileage 120 RT 186  
 (G) Final Shut-In 1115  Sampler  
 (H) Final Hydrostatic 1763  Straddle  
 Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility  
 Sub Total 1336

T-On Location 10:00 PM  
 T-Started 11:33 PM  
 T-Open 3:30 AM  
 T-Pulled 6:30 AM  
 T-Out 8:50 AM

Comments Running monster pump on well too. Chased for approx 24' to bottom  
 Ruined Slat Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1336  
 MP/DST Disc't

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. 51221


Well Name & No. Minium # 23-1 Test No. 2 Date 3-31-13  
 Company H&C Oil Operating, Inc Elevation 2342 KB 2337 GL  
 Address PO Box 86 Plainville, KS 67663  
 Co. Rep / Geo. Marc Downing Rig American Eagle #3  
 Location: Sec. 23 Twp. 8S Rge. 25W Co. Graham State KS

Interval Tested 3720-3740 Zone Tested LKC "E"  
 Anchor Length 20 Drill Pipe Run 3714 Mud Wt. 9.2  
 Top Packer Depth 3716 Drill Collars Run 0 Vis 58  
 Bottom Packer Depth 3720 Wt. Pipe Run 0 WL 7.4  
 Total Depth 3740 Chlorides 1,800 ppm System LCM Nil

Blow Description IF - Surface Blow built to 2"  
ISI - NO Return  
FF - Surface Blow started cut 10 min. Built to 1"  
FSI - NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>OCWM</u>	<u>1</u>	<u>39</u>	<u>60</u>	
<u>1</u>	<u>Free Oil</u>	<u>100</u>			

Rec Total 31' BHT 110 Gravity --- API RW .65 @ 65° F Chlorides 13,000 ppm  
 (A) Initial Hydrostatic 1847  Test 1150 T-On Location 3:20 PM  
 (B) First Initial Flow 15  Jars \_\_\_\_\_ T-Started 3:25 PM  
 (C) First Final Flow 20  Safety Joint \_\_\_\_\_ T-Open 5:20 PM  
 (D) Initial Shut-In 1139  Circ Sub NIC T-Pulled 8:20 PM  
 (E) Second Initial Flow 21  Hourly Standby \_\_\_\_\_ T-Out 9:55 PM  
 (F) Second Final Flow 25  Mileage 120 RT 186 Comments Monster Pump  
 (G) Final Shut-In 1106  Sampler \_\_\_\_\_ On location  
 (H) Final Hydrostatic 1793  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1336  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1336

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51222

Well Name & No. Minium # 23-1 Test No. 3 Date 4-1-13  
 Company HOC Oil Operating, Inc. Elevation 2342 KB 2337 GL  
 Address PO Box 86 Plainville, KS 67663  
 Co. Rep / Geo. Marc Downing Rig American Eagle #3  
 Location: Sec. 23 Twp. 8S Rge. 25W Co. Graham State KS

Interval Tested 3770-3862 Zone Tested LKC "H-K"  
 Anchor Length 92' Drill Pipe Run 3772 Mud Wt. 9.4  
 Top Packer Depth 3766 Drill Collars Run Ø Vis 56  
 Bottom Packer Depth 3770 Wt. Pipe Run Ø WL 7.4  
 Total Depth 3862 Chlorides 1,500 ppm System LCM Nil

Blow Description DE - 1/2" Blow built to 1"  
ISE - No Return  
FF - No Blow  
FSL - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>OSM</u>	<u>SPOTS</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 Total 10 BHT 1066 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1882</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>10:40 AM</u>
(B) First Initial Flow <u>19</u>	<input type="checkbox"/> Jars	T-Started <u>11:23 AM</u>
(C) First Final Flow <u>21</u>	<input type="checkbox"/> Safety Joint	T-Open <u>1:20 PM</u>
(D) Initial Shut-In <u>222</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>3:20 PM</u>
(E) Second Initial Flow <u>21</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>5:25 PM</u>
(F) Second Final Flow <u>22</u>	<input checked="" type="checkbox"/> Mileage <u>120 RT</u> 186	Comments <u>Monster Pump</u>
(G) Final Shut-In <u>9.3</u>	<input type="checkbox"/> Sampler	<u>On location.</u>
(H) Final Hydrostatic <u>1855</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open 30  Shale Packer  
 Initial Shut-In 30  Ruined Packer  
 Final Flow 30  Extra Packer  
 Final Shut-In 30  Extra Recorder  
 Day Standby  
 Accessibility

Sub Total 1336 MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]

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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

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

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

No. 6499

Date	3-26-13	23	8	25	GRAHAM	KANSAS	On Location	8:35 pm	
Lease	MINIMUM								
Contractor	A & E								
Type Job	SURFACE								
Hole Size	12 1/4								
Csg.	8 5/8								
Tbg. Size									
Tool									
Cement Left in Csg.									
Meas Line	Displace 13 1/2 BBLs								
EQUIPMENT									
Pumptrk	#	No.	Cementer						Common
Bulktrk	\$	No.	Helper	TRAVIS					Poz. Mix
Bulktrk	\$	No.	Driver	BILLY					Gel.
Bulktrk	\$	No.	Driver	CISCO					Calcium
JOB SERVICES & REMARKS									
Remarks:									
Rat Hole									
Mouse Hole									
Centralizers									
Baskets									
D/V or Port Collar									
CEMENT DID CIRCULATE!									
FLOAT EQUIPMENT									
Guide Shoe									
Centralizer									
Baskets									
AFU Inserts									
Float Shoe									
Latch Down									
Pumptrk Charge									
Mileage 22									
Tax									
Discount									
Total Charge									
THANK YOU!									
Signature									

Location MEE 25 E/TNTD

Owner H&C OIL  
 To Quality Oilwell Cementing, Inc.  
 You are hereby requested to rent cementing equipment and furnish  
 cementer and helper to assist owner or contractor to do work as listed.  
 Charge H&C OIL  
 To P.O. Box 84  
 Street PLAINVILLE State KS, 67663  
 City PLAINVILLE State KS, 67663  
 The above was done to satisfaction and supervision of owner agent or contractor.  
 Cement Amount Ordered 160 com. 38.2

X Signature

