



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1111641
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: _____



1111641

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
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:				

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
--	---	---

Form	ACO1 - Well Completion
Operator	H & C Oil Operating Inc.
Well Name	Dorothy Keith 13-2
Doc ID	1111641

All Electric Logs Run

Dual induction log
Dual compensated porosity log
Microresistivity log
Sonic Cement Bond log

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

January 30, 2013

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

Re: ACO1
API 15-065-23882-00-00
Dorothy Keith 13-2
SE/4 Sec.13-09S-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

Marc Downing
Consulting Petroleum Geologist

1411 Washington Circle
Hays, KS 67601
Phone: 620-428-1356 (cell) 785-621-2286

GEOLOGIC REPORT LOG

COMPANY: HRC Oil Operating, Inc.
WELL: Daring Keith #13-2
FIELD: Wildcat

LOCATION: L508 F5L + 231' FEL
SEC. 13 TWP. 9S RGE. 25W
COUNTY: Graham
STATE: Kansas

PRODUCTION: LMK
ELEVATION: KB 2640
DF: 2535

OPERATOR: HRC Oil Operating, Inc.
CONTRACTOR: American Engr. Rig #3
COMM: 12-18-72 COM# 1-11-13

CASING RECORD
SURF: 5 5/8" @ 2291
PROD: 5 1/2" @ 4151
TOTAL DEPTH DRILLERS: 4160'
TOTAL DEPTH LOG: 4156'

FORMATION TOPS AND STRUCTURAL POSITION

FORMATION	SAMPLE TOP	ELECTRIC LOG TOP	SUB-SEA DRTUM	STRUCTURAL POSITION
Tag Anhydrite	2224	2222	4314	f11
Base Anhydrite	2264	2258	4282	f9
Topoka	3636	3647	-1691	f3
Heegner	3655	3646	-1324	-4
Tecoma	3876	3849	-1329	-2
LKC	3896	3844	-1349	FL
BKC	4113	4164	-1568	f1

REFERENCE WELL FOR STRUCTURE: HRC Oil Operating, Inc.
Daring Keith #13-1 640' FEL 1841' FEL Sec. 13-9S-25W

DRILL STEM TESTS

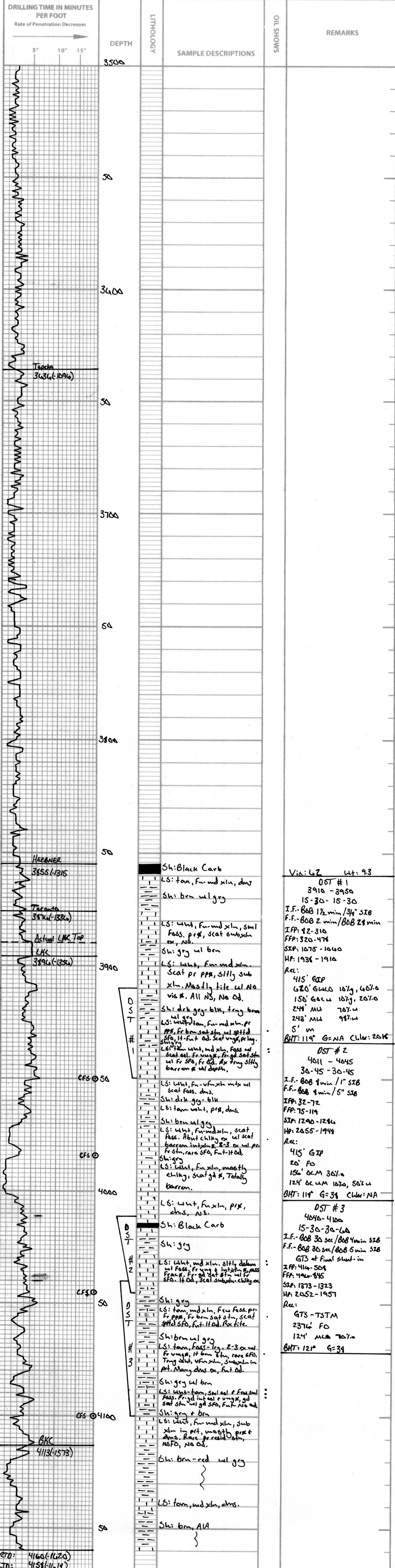
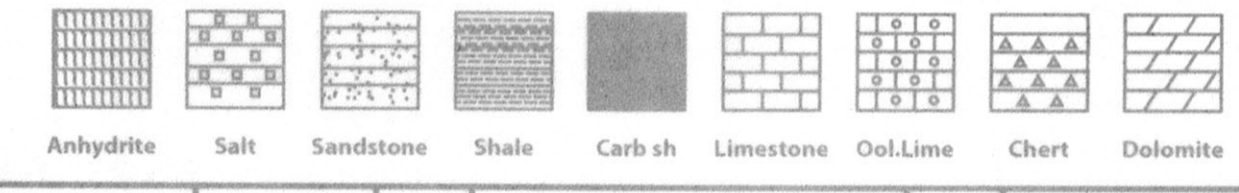
No.	Interval	HP/Time	ISF/Time	FFP/Time	FSF/Time	HR/HP	RECOVERY

REMARKS AND RECOMMENDATIONS: Due to structural position, DST recovery & log evaluation, it was decided to set 5 1/2" production casing for completion.

Perforations:
LKC K: 4079-84
T: 4061-64
H: 4024-28
D: 3928-30, 3931-36
C: 3916-20

4156

LEGEND





DRILL STEM TEST REPORT

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

PO Box 86
Plainville, KS 67663

ATTN: Marc Downing

Dorothy Keith #13-2

13-9s-25w Graham,KS

Start Date: 2013.01.07 @ 14:14:00

End Date: 2013.01.07 @ 20:22:15

Job Ticket #: 51181 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.01.17 @ 09:01:36

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

Dorothy Keith #13-2

DST # 1

LKC "C-D"

2013.01.07



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

ATTN: Marc Downing

Job Ticket: 51181

DST#: 1

Test Start: 2013.01.07 @ 14:14:00

GENERAL INFORMATION:

Formation: **LKC "C-D"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 16:28:15
 Tester: Kevin Mack
 Time Test Ended: 20:22:15
 Unit No: 43
 Interval: **3910.00 ft (KB) To 3950.00 ft (KB) (TVD)**
 Reference Elevations: 2540.00 ft (KB)
 Total Depth: 3950.00 ft (KB) (TVD)
 2535.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 5.00 ft

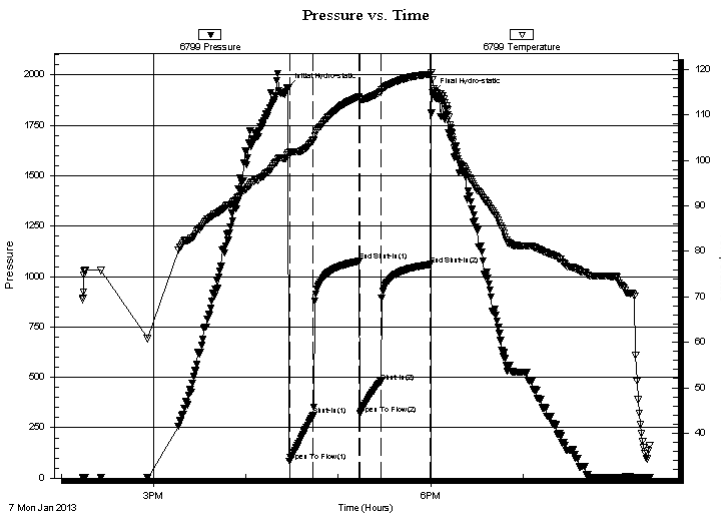
Serial #: 6799

Inside

Press @ Run Depth: 478.38 psig @ 3911.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.01.07 End Date: 2013.01.07 Last Calib.: 2013.01.07
 Start Time: 14:14:05 End Time: 20:22:14 Time On Btm: 2013.01.07 @ 16:27:30
 Time Off Btm: 2013.01.07 @ 18:01:15

TEST COMMENT: 15 - IF- BoB in 1 1/2 min.
 30 - IS- Weak Surface Return started at 15 min. Built to 3/4"
 15 - FF- BoB in 2 min.
 30 - FS- BoB in 28 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1938.32	101.60	Initial Hydro-static
1	82.29	101.31	Open To Flow (1)
17	310.99	104.38	Shut-In(1)
46	1075.50	113.92	End Shut-In(1)
47	319.58	113.44	Open To Flow (2)
60	478.38	115.00	Shut-In(2)
93	1060.10	118.92	End Shut-In(2)
94	1910.12	117.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud (Heavy) 100M	0.07
243.00	MW 2M 98W	3.41
248.00	MW 30M 70W	3.48
620.00	GWCO 10G 60o 30W	8.70
150.00	GOCW 10G 20o 70W	2.10

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

Job Ticket: 51181

DST#: 1

ATTN: Marc Downing

Test Start: 2013.01.07 @ 14:14:00

Tool Information

Drill Pipe:	Length: 3902.00 ft	Diameter: 3.80 inches	Volume: 54.73 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: 60000.00 lb
			<u>Total Volume: 54.73 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3910.00 ft			Final 52000.00 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 Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3890.00	
Shut In Tool	5.00			3895.00	
Hydraulic tool	5.00			3900.00	
Packer	5.00			3905.00	21.00 Bottom Of Top Packer
Packer	5.00			3910.00	
Stubb	1.00			3911.00	
Recorder	0.00	8648	Inside	3911.00	
Recorder	0.00	6799	Inside	3911.00	
Perforations	2.00			3913.00	
Change Over Sub	1.00			3914.00	
Drill Pipe	32.00			3946.00	
Change Over Sub	1.00			3947.00	
Bullnose	3.00			3950.00	40.00 Bottom Packers & Anchor

Total Tool Length: 61.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

Job Ticket: 51181

DST#: 1

ATTN: Marc Downing

Test Start: 2013.01.07 @ 14:14:00

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:

20000 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud (Heavy) 100M	0.070
243.00	MW 2M 98W	3.409
248.00	MW 30M 70W	3.479
620.00	GWCO 10G 60o 30W	8.697
150.00	GOCW 10G 20o 70W	2.104

Total Length: 1266.00 ft Total Volume: 17.759 bbl

Num Fluid Samples: 0

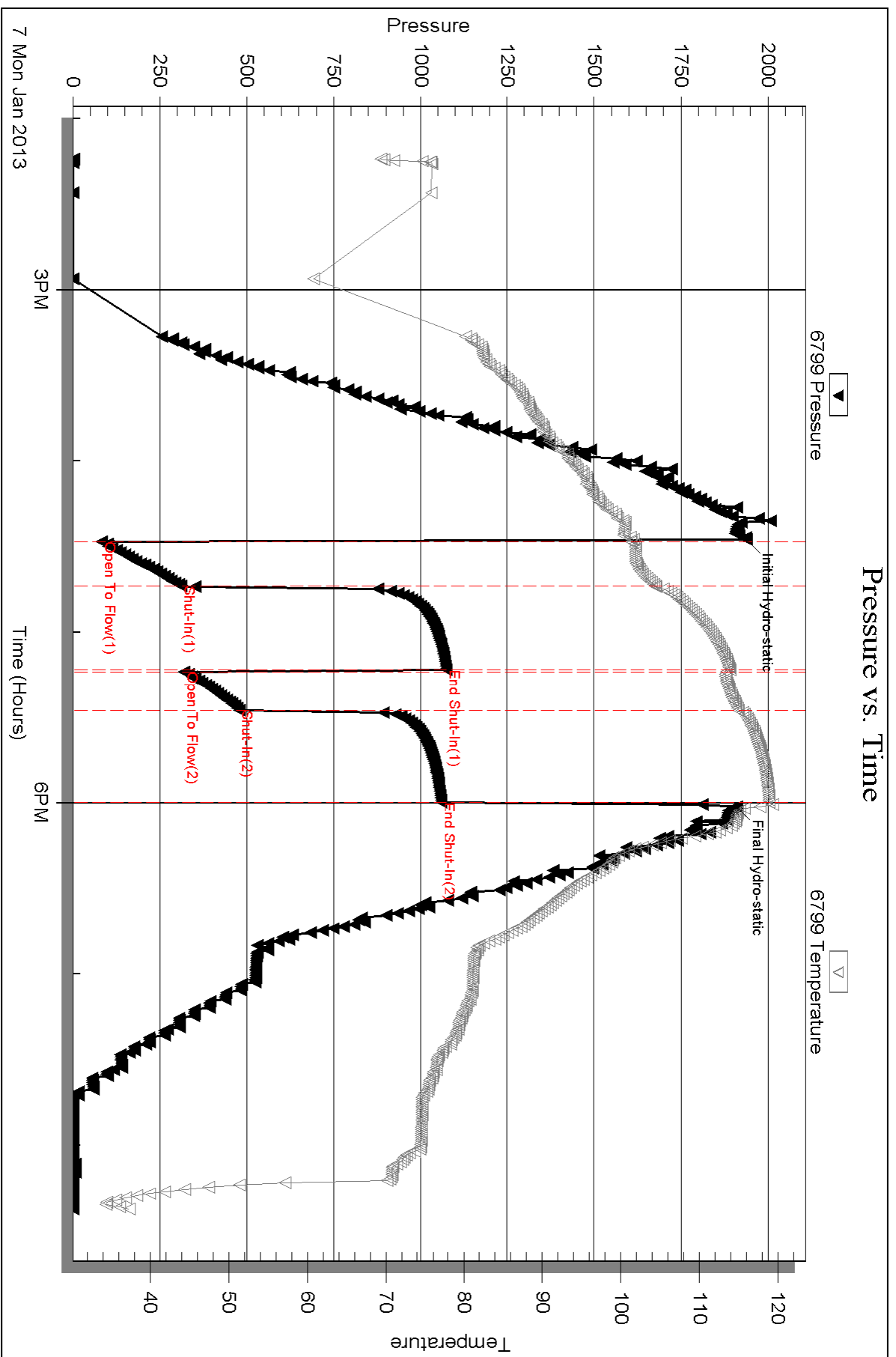
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .35 @ 68 deg = 20,000ppm



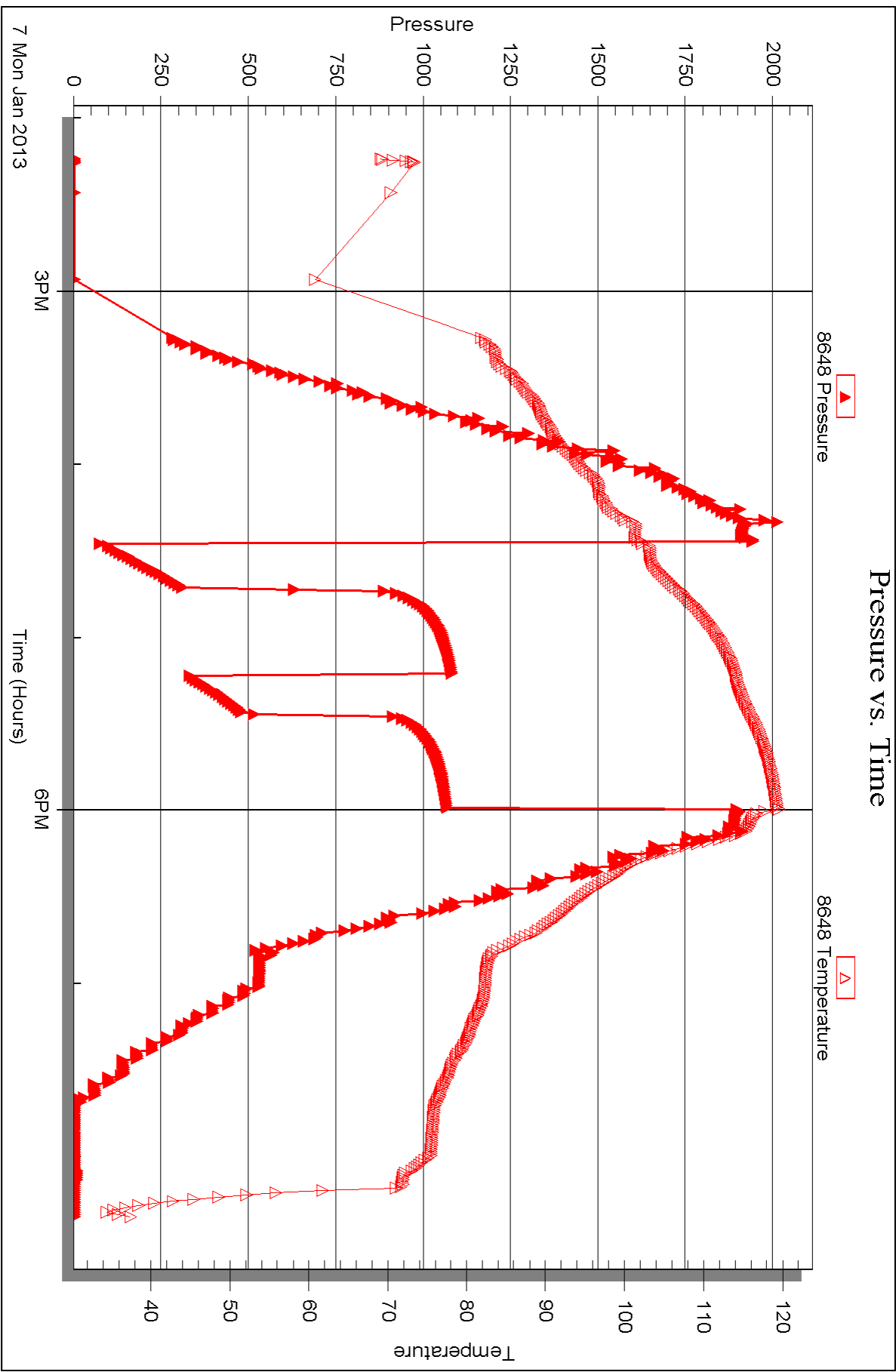
Serial #: 8648

Inside

H&C Oil Operating, Inc.

Dorothy Keith #13-2

DST Test Number: 1





DRILL STEM TEST REPORT

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

PO Box 86
Plainville, KS 67663

ATTN: Marc Downing

Dorothy Keith #13-2

13-9s-25w Graham,KS

Start Date: 2013.01.10 @ 00:28:00

End Date: 2013.01.10 @ 08:40:00

Job Ticket #: 51182 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.01.17 @ 09:00:52

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

Dorothy Keith #13-2

DST # 2

LKC "H"

2013.01.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

ATTN: Marc Downing

Job Ticket: 51182

DST#: 2

Test Start: 2013.01.10 @ 00:28:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:04:45

Time Test Ended: 08:40:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 43

Interval: 4011.00 ft (KB) To 4045.00 ft (KB) (TVD)

Reference Elevations: 2540.00 ft (KB)

Total Depth: 4045.00 ft (KB) (TVD)

2535.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 6799

Inside

Press @ Run Depth: 119.77 psig @ 4012.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.10

End Date:

2013.01.10

Last Calib.:

2013.01.10

Start Time: 00:28:05

End Time:

08:39:59

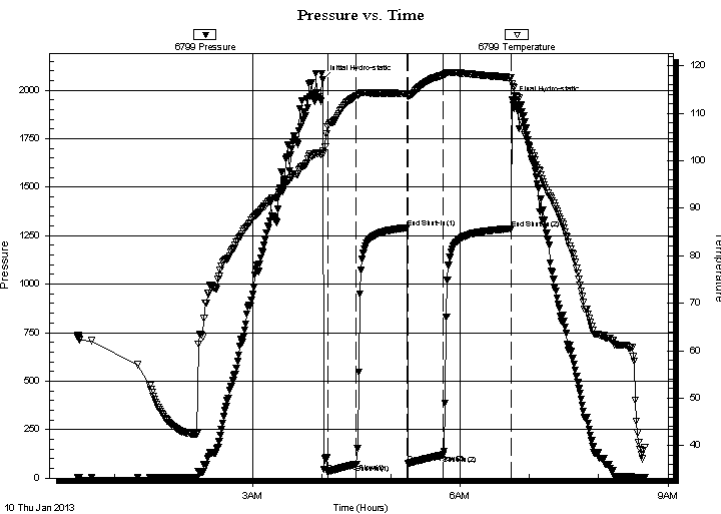
Time On Btm:

2013.01.10 @ 04:00:45

Time Off Btm:

2013.01.10 @ 06:44:45

TEST COMMENT: 30 - IF- BoB in 8 min.
45 - IS- Surface return started at 5 min built to 1"
30 - FF- BoB in 8 min
45 - FS- Return started at 1 min. Built to 5"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2055.64	102.10	Initial Hydro-static
4	32.55	107.18	Open To Flow (1)
29	72.85	113.77	Shut-In(1)
73	1290.66	114.17	End Shut-In(1)
74	75.52	113.47	Open To Flow (2)
104	119.77	118.03	Shut-In(2)
163	1286.05	117.54	End Shut-In(2)
164	1948.41	116.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	OCMW 40M 10o 50W	1.74
156.00	OCM 70M 30o	2.19
20.00	Free Oil 100o	0.28
0.00	450' Gas in pipe	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

ATTN: Marc Downing

Job Ticket: 51182

DST#: 2

Test Start: 2013.01.10 @ 00:28:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:04:45

Time Test Ended: 08:40:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 43

Interval: 4011.00 ft (KB) To 4045.00 ft (KB) (TVD)

Reference Elevations: 2540.00 ft (KB)

Total Depth: 4045.00 ft (KB) (TVD)

2535.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8648 Inside

Press @ Run Depth: psig @ 4012.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.10 End Date: 2013.01.10

Last Calib.: 2013.01.10

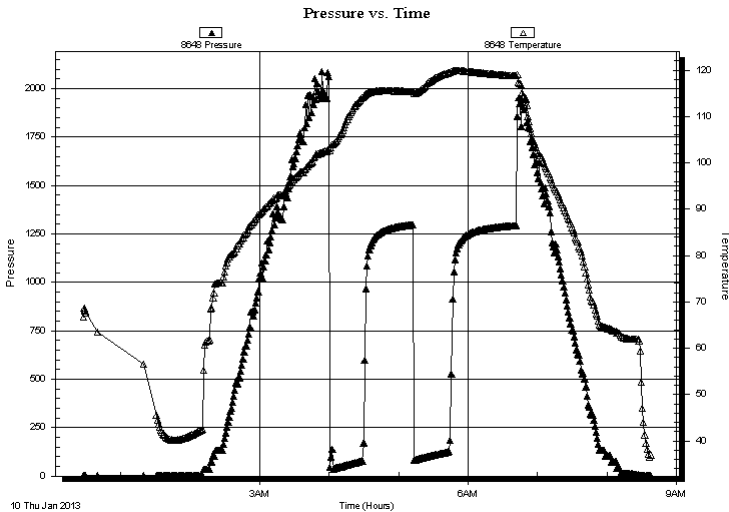
Start Time: 00:28:05 End Time: 08:38:14

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF- BoB in 8 min.
45 - IS- Surface return started at 5 min built to 1"
30 - FF- BoB in 8 min
45 - FS- Return started at 1 min. Built to 5"

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
124.00	OCMW 40M 10o 50W	1.74
156.00	OCM 70M 30o	2.19
20.00	Free Oil 100o	0.28
0.00	450' Gas in pipe	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.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

Job Ticket: 51182

DST#: 2

ATTN: Marc Downing

Test Start: 2013.01.10 @ 00:28:00

Tool Information

Drill Pipe:	Length: 3995.00 ft	Diameter: 3.80 inches	Volume: 56.04 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:	54000.00 lb
			<u>Total Volume: 56.04 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	48000.00 lb
Depth to Top Packer:	4011.00 ft			Final	52000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	34.00 ft				
Tool Length:	55.00 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			3991.00	
Shut In Tool	5.00			3996.00	
Hydraulic tool	5.00			4001.00	
Packer	5.00			4006.00	21.00 Bottom Of Top Packer
Packer	5.00			4011.00	
Stubb	1.00			4012.00	
Recorder	0.00	8648	Inside	4012.00	
Recorder	0.00	6799	Inside	4012.00	
Perforations	28.00			4040.00	
Bullnose	5.00			4045.00	34.00 Bottom Packers & Anchor
Total Tool Length:	55.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

Job Ticket: 51182

DST#: 2

ATTN: Marc Downing

Test Start: 2013.01.10 @ 00:28:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.79 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	OCMW 40M 10o 50W	1.739
156.00	OCM 70M 30o	2.188
20.00	Free Oil 100o	0.281
0.00	450' Gas in pipe	0.000

Total Length: 300.00 ft

Total Volume: 4.208 bbl

Num Fluid Samples: 0

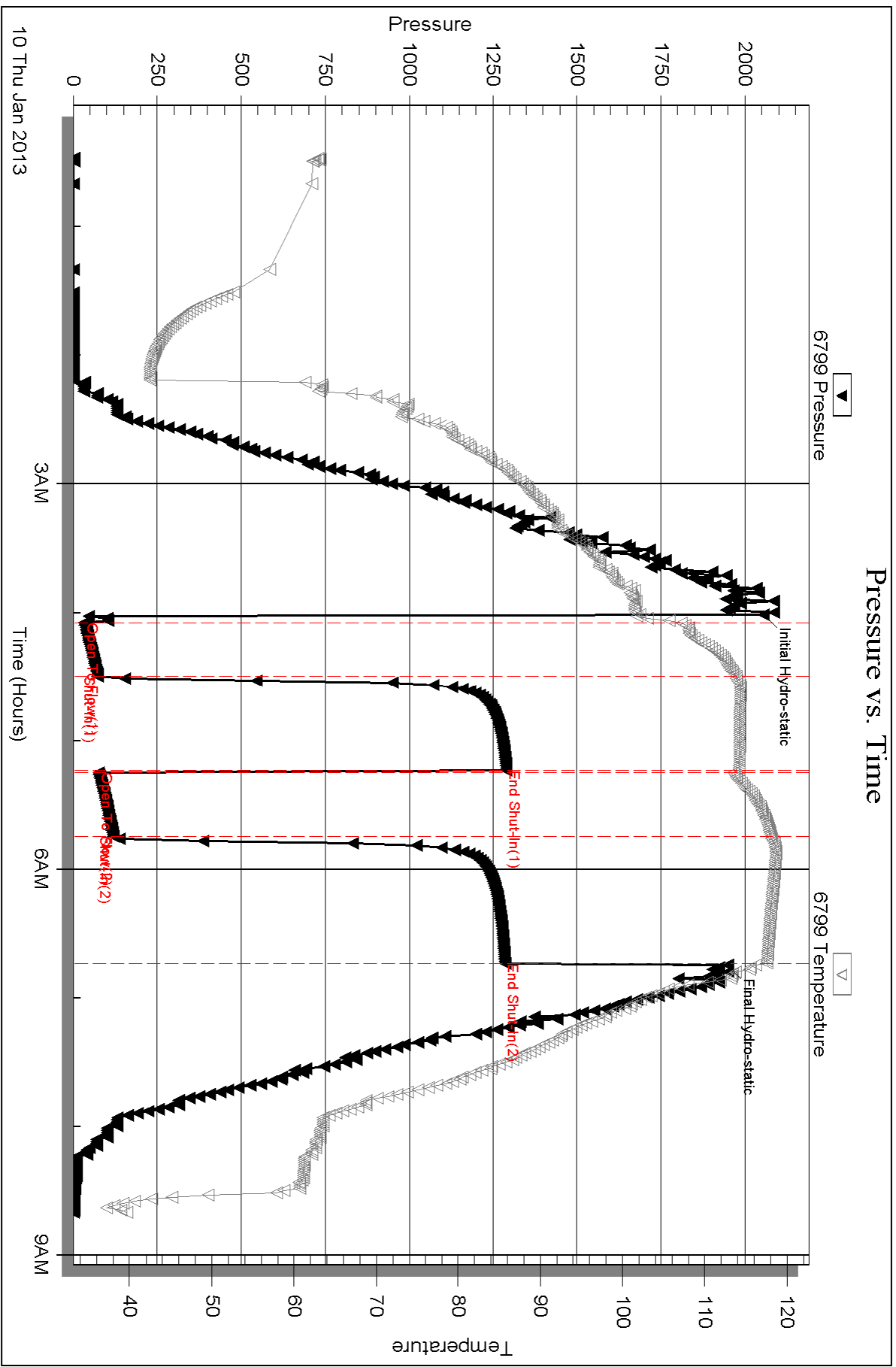
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API = 39 @ 70 deg = 38 cor



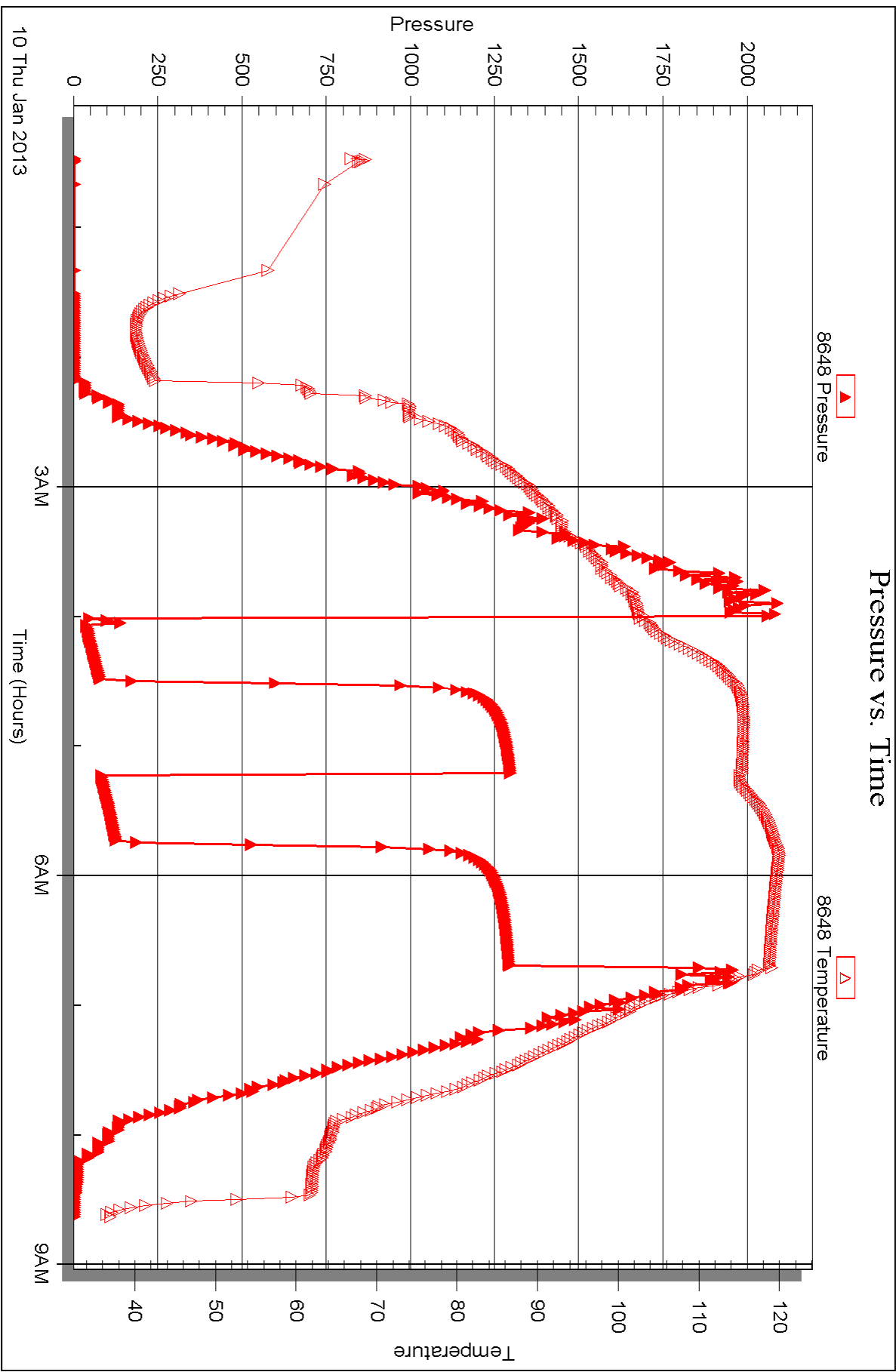
Serial #: 8648

Inside

H&C Oil Operating, Inc.

Dorothy Keith #13-2

DST Test Number: 2





DRILL STEM TEST REPORT

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

PO Box 86
Plainville, KS 67663

ATTN: Marc Downing

Dorothy Keith #13-2

13-9s-25w Graham,KS

Start Date: 2013.01.10 @ 17:52:00

End Date: 2013.01.11 @ 02:15:00

Job Ticket #: 51183 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.01.17 @ 08:54:21

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

Dorothy Keith #13-2

DST # 3

LKC "I,J,K"

2013.01.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

ATTN: Marc Downing

Job Ticket: 51183

DST#: 3

Test Start: 2013.01.10 @ 17:52:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:55:45

Time Test Ended: 02:15:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 43

Interval: 4040.00 ft (KB) To 4100.00 ft (KB) (TVD)

Reference Elevations: 2540.00 ft (KB)

Total Depth: 4100.00 ft (KB) (TVD)

2535.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 6799

Inside

Press @ Run Depth: 845.01 psig @ 4041.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.01.10

End Date:

2013.01.11

Last Calib.: 2013.01.11

Start Time: 17:52:05

End Time:

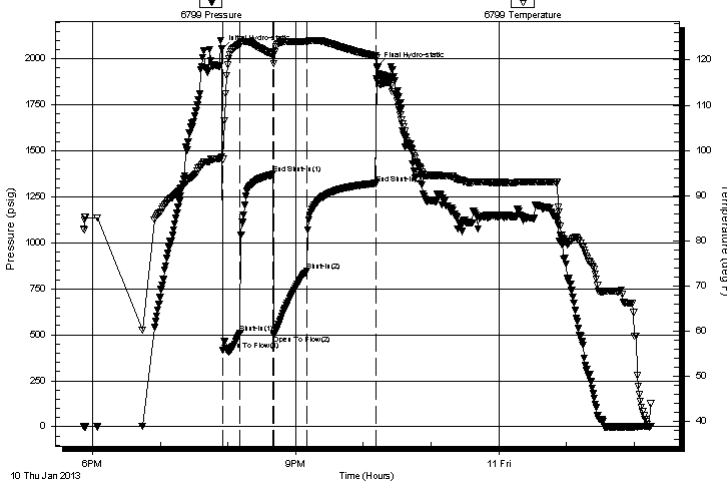
02:14:59

Time On Btm: 2013.01.10 @ 19:54:45

Time Off Btm: 2013.01.10 @ 22:12:00

TEST COMMENT: 15 - IF- BoB in 30 sec.
30 - IS- BoB in 4 min.
30 - FF- BoB in 30 sec.
60 - FS- BoB in 5 min

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2052.72	98.64	Initial Hydro-static
1	416.23	98.03	Open To Flow (1)
16	508.13	123.52	Shut-In(1)
45	1373.70	121.20	End Shut-In(1)
46	496.76	119.24	Open To Flow (2)
75	845.01	124.05	Shut-In(2)
136	1323.00	120.91	End Shut-In(2)
138	1957.67	118.30	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	Gas to Surface at Final Shut In	0.00
124.00	MCO 70o 30M	1.74
2376.00	Free Oil 100o	33.33

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

Job Ticket: 51183 **DST#: 3**

ATTN: Marc Downing

Test Start: 2013.01.10 @ 17:52:00

GENERAL INFORMATION:

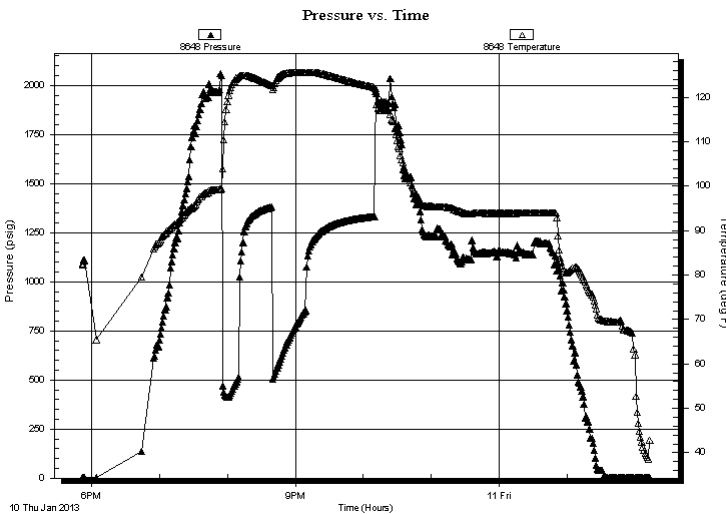
Formation: **LKC "I,J,K"**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 19:55:45 Tester: Kevin Mack
 Time Test Ended: 02:15:00 Unit No: 43

Interval: **4040.00 ft (KB) To 4100.00 ft (KB) (TVD)** Reference Elevations: 2540.00 ft (KB)
 Total Depth: 4100.00 ft (KB) (TVD) 2535.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 8648 Inside
 Press @ Run Depth: psig @ 4041.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.01.10 End Date: 2013.01.11 Last Calib.: 2013.01.11
 Start Time: 17:52:05 End Time: 02:13:14 Time On Btm:
 Time Off Btm:

TEST COMMENT: 15 - IF- BoB in 30 sec.
 30 - IS- BoB in 4 min.
 30 - FF- BoB in 30 sec.
 60 - FS- BoB in 5 min

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
0.00	Gas to Surface at Final Shut In	0.00
124.00	MCO 70o 30M	1.74
2376.00	Free Oil 100o	33.33

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

ATTN: Marc Downing

Job Ticket: 51183

DST#: 3

Test Start: 2013.01.10 @ 17:52:00

Tool Information

Drill Pipe:	Length: 4030.00 ft	Diameter: 3.80 inches	Volume: 56.53 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: 60000.00 lb
			<u>Total Volume: 56.53 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	4040.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	81.00 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			4020.00	
Shut In Tool	5.00			4025.00	
Hydraulic tool	5.00			4030.00	
Packer	5.00			4035.00	21.00 Bottom Of Top Packer
Packer	5.00			4040.00	
Stubb	1.00			4041.00	
Recorder	0.00	8648	Inside	4041.00	
Recorder	0.00	6799	Inside	4041.00	
Perforations	21.00			4062.00	
Change Over Sub	1.00			4063.00	
Drill Pipe	31.00			4094.00	
Change Over Sub	1.00			4095.00	
Bullnose	5.00			4100.00	60.00 Bottom Packers & Anchor

Total Tool Length: 81.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating, Inc.

13-9s-25w Graham,KS

PO Box 86
Plainville, KS 67663

Dorothy Keith #13-2

Job Ticket: 51183

DST#: 3

ATTN: Marc Downing

Test Start: 2013.01.10 @ 17:52:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.79 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
0.00	Gas to Surface at Final Shut In	0.000
124.00	MCO 70o 30M	1.739
2376.00	Free Oil 100o	33.329

Total Length: 2500.00 ft Total Volume: 35.068 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

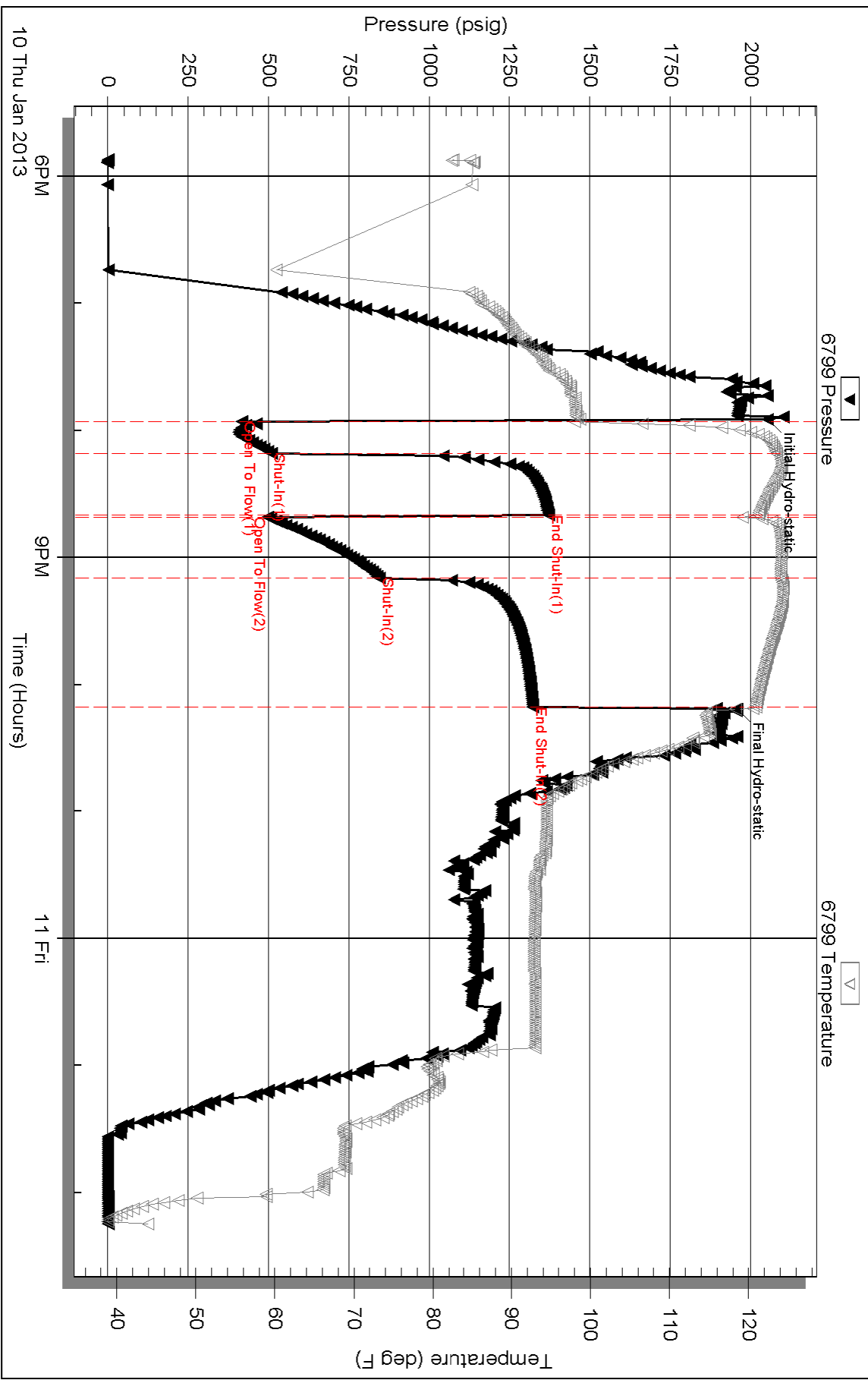
Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API 38 @ 60 deg = 38 cor.

Dumped 2 full stands then dropped bar to reverse fluid.

Pressure vs. Time



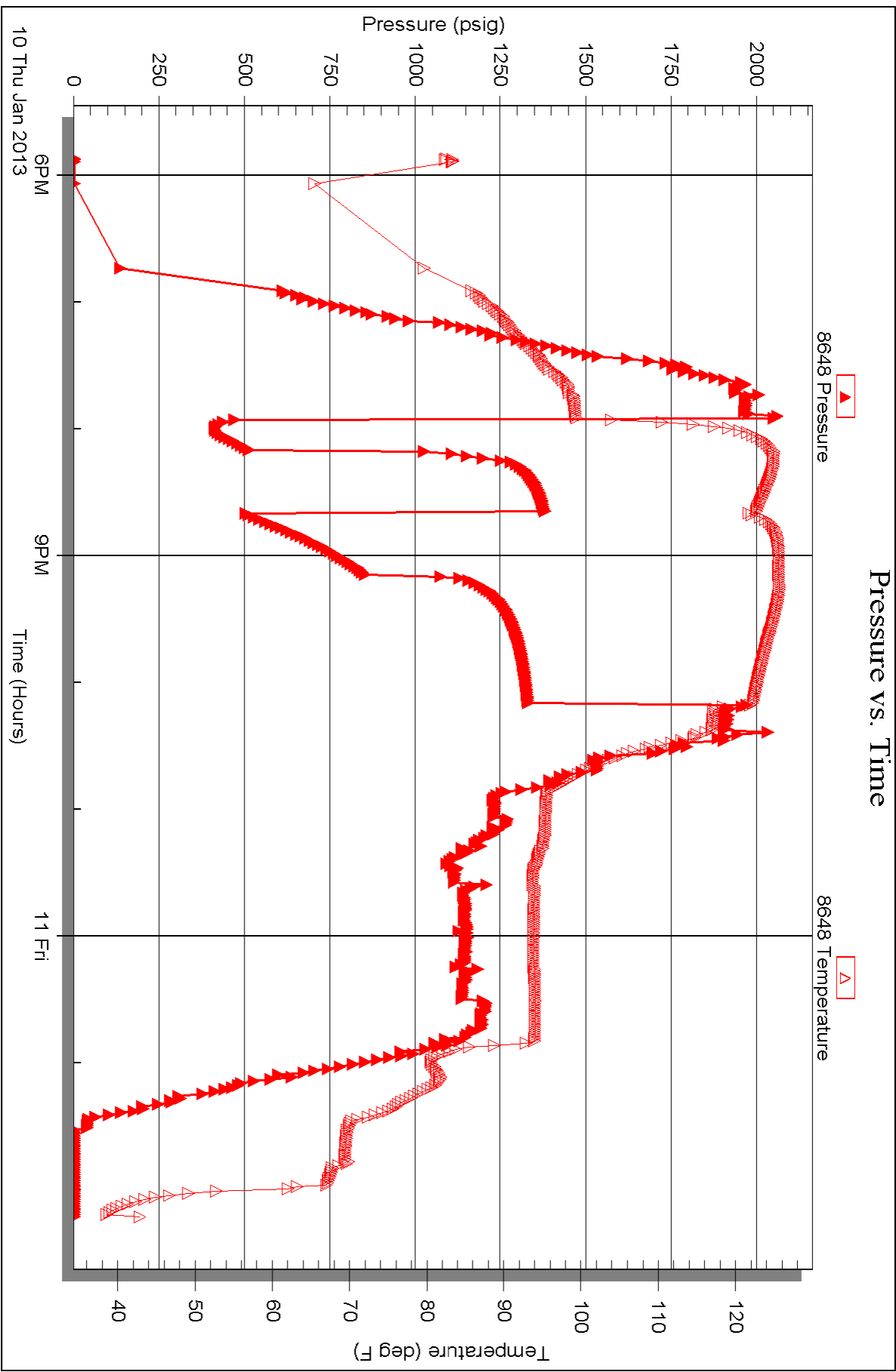
Serial #: 8648

Inside

H&C Oil Operating, Inc.

Dorothy Keith #13-2

DST Test Number: 3





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

51181

NO.

Well Name & No. Dorothy Keith #13-2 Test No. 1 Date 1-7-13
 Company H+C Oil Operating, Inc. Elevation 2540 KB 2535 GL
 Address PO Box 86 Plainville, KS 67663
 Co. Rep / Geo. Marc Downing Rig American Single #3
 Location: Sec. 13 Twp. 9S Rge. 25W Co. Graham State KS

Interval Tested 3910-3950 Zone Tested Like "C-D"
 Anchor Length 40' Drill Pipe Run 3400' Mud Wt. 9.3
 Top Packer Depth 3906 Drill Collars Run 0 Vis 62
 Bottom Packer Depth 3910 Wt. Pipe Run 0 WL 8.0
 Total Depth 3950 Chlorides 4,000 ppm System LCM 2#

Blow Description IF-BOB in 1 1/2 min.
ISI-Surface Return started at 15 min. Built to 3/4"
FF-BoB in 2 min.
FSI-BoB in 28 min.

Rec <u>150</u>	Feet of <u>60CW</u>	<u>10</u> %gas	<u>20</u> %oil	<u>70</u> %water	<u>0</u> %mud
Rec <u>620</u>	Feet of <u>6WCO</u>	<u>10</u> %gas	<u>60</u> %oil	<u>30</u> %water	<u>0</u> %mud
Rec <u>248</u>	Feet of <u>MW</u>	<u>0</u> %gas	<u>70</u> %oil	<u>30</u> %water	<u>0</u> %mud
Rec <u>243</u>	Feet of <u>MW</u>	<u>0</u> %gas	<u>98</u> %oil	<u>2</u> %water	<u>0</u> %mud
Rec <u>5</u>	Feet of <u>Mud (heavy)</u>	<u>0</u> %gas	<u>0</u> %oil	<u>100</u> %water	<u>0</u> %mud

Rec Total 1266 BHT 119 Gravity — API RW .35 @ 68 °F Chlorides 20,000 ppm

(A) Initial Hydrostatic	<u>1938</u>	<input checked="" type="checkbox"/> Test	<u>1150</u>	T-On Location	<u>12:40 PM</u>
(B) First Initial Flow	<u>82</u>	<input type="checkbox"/> Jars		T-Started	<u>2:14 PM</u>
(C) First Final Flow	<u>310</u>	<input type="checkbox"/> Safety Joint		T-Open	<u>4:28 PM</u>
(D) Initial Shut-In	<u>1075</u>	<input checked="" type="checkbox"/> Circ Sub	<u>N/C</u>	T-Pulled	<u>5:58 PM</u>
(E) Second Initial Flow	<u>319</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>8:30 PM</u>
(F) Second Final Flow	<u>478</u>	<input checked="" type="checkbox"/> Mileage	<u>132 RT</u> 204.60	Comments	<u>2000' GDP</u>
(G) Final Shut-In	<u>1060</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>1910</u>	<input type="checkbox"/> Straddle		<input type="checkbox"/> Ruined Shale Packer	
Initial Open	<u>15</u>	<input type="checkbox"/> Shale Packer		<input type="checkbox"/> Ruined Packer	
Initial Shut-In	<u>30</u>	<input type="checkbox"/> Extra Packer		<input type="checkbox"/> Extra Copies	
Final Flow	<u>85</u>	<input type="checkbox"/> Extra Recorder		Sub Total	<u>0</u>
Final Shut-In	<u>30</u>	<input type="checkbox"/> Day Standby		Total	<u>1354.60</u>
		<input type="checkbox"/> Accessibility		MP/DST Disc't	
		Sub Total	<u>1354.60</u>		

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. 51182

Well Name & No. Dorothy Keith #13-2 Test No. 2 Date 1-9-13
 Company H+C Oil Operating, Inc Elevation 2540 KB 2535 GL
 Address PO Box 86 Plainville, KS 67663
 Co. Rep / Geo. Marc Downing Rig American Eagle #3
 Location: Sec. 13 Twp. 9S Rge. 25W Co. Graham State KS

Interval Tested 4011-4045 Zone Tested LKC "H"
 Anchor Length 34' Drill Pipe Run 3995 Mud Wt. 9.2
 Top Packer Depth 4007 Drill Collars Run 0 Vis 5.8
 Bottom Packer Depth 4011 Wt. Pipe Run 0 WL 7.8
 Total Depth 4045 Chlorides 4,000 ppm System LCM 2#

Blow Description IF - Bobin 8 min.
ISF - Return started at 5 min Built to 1"
FF - Bob in 8 min
FSI - Return started at 1 min. Built to 5"

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Free Oil</u>	<u>100</u>			
<u>156</u>	<u>OCM</u>	<u>30</u>		<u>70</u>	
<u>124</u>	<u>OCMw</u>	<u>10</u>	<u>50</u>	<u>40</u>	
<u>415</u>	<u>Gas In Pipe</u>	<u>100</u>			

Rec Total 3000 BHT 118 Gravity 38 API RW — @ — °F Chlorides — ppm ¹⁻⁹⁻¹³

(A) Initial Hydrostatic <u>2055</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>9:30 AM 1/9/13</u>
(B) First Initial Flow <u>32</u>	<input type="checkbox"/> Jars	T-Started <u>12:28 AM 1-10-13</u>
(C) First Final Flow <u>72</u>	<input type="checkbox"/> Safety Joint	T-Open <u>4:00 AM</u>
(D) Initial Shut-In <u>1290</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>6:30 AM</u>
(E) Second Initial Flow <u>75</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>8:45 AM</u>
(F) Second Final Flow <u>119</u>	<input checked="" type="checkbox"/> Mileage <u>132 RT</u> 409.20	Comments <u>Rig was shut down for repairs when I arrived. Finished repairs by 11:30 PM</u>
(G) Final Shut-In <u>1286</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer <u>1-9-13</u>
(H) Final Hydrostatic <u>1948</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	Sub Total <u>900</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Total <u>2559.20</u>
Final Shut-In <u>45</u>	<input checked="" type="checkbox"/> Day Standby <u>X2</u> 1d 27h	MP/DST Disc't
	<input type="checkbox"/> Accessibility	
	Sub Total <u>1659.20</u>	

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. 51183

Well Name & No. Dorothy Keith #13-2 Test No. 3 Date 1-10-13
 Company HAC Oil Operating, Inc. Elevation 2540 KB 2535 GL
 Address PO Box 86 Plainville, KS 67663
 Co. Rep / Geo. Marc Downing Rig American Eagle #3
 Location: Sec. 13 Twp. 9S Rge. 25W Co. Graham State KS

Interval Tested 4040-4100 Zone Tested LKC "I, J, K"
 Anchor Length 60 Drill Pipe Run 4030 Mud Wt. 9.2
 Top Packer Depth 4036 Drill Collars Run 0 Vis 58
 Bottom Packer Depth 4040 Wt. Pipe Run 0 WL 7.8
 Total Depth 4100 Chlorides 4,000 ppm System LCM 2#

Blow Description IF- BoB in 30 seconds
ISL- BoB in 4 min.
FF- BoB in 30 seconds
FSL- BoB in 5 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>2376</u>	<u>Free oil</u>	<u>1000</u>			
<u>124</u>	<u>MCO</u>	<u>70</u>		<u>30</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 25100 BHT 121 Gravity 37 API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic <u>2052</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>5:30 PM</u>
(B) First Initial Flow <u>416</u>	<input type="checkbox"/> Jars	T-Started <u>5:52 PM</u>
(C) First Final Flow <u>508</u>	<input type="checkbox"/> Safety Joint	T-Open <u>7:55 PM</u>
(D) Initial Shut-In <u>1373</u>	<input checked="" type="checkbox"/> Circ Sub <u>✓</u> 50	T-Pulled <u>10:10 PM</u>
(E) Second Initial Flow <u>496</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>3:00 AM 1-11-13</u>
(F) Second Final Flow <u>845</u>	<input checked="" type="checkbox"/> Mileage <u>132 RT</u> 204.60	Comments <u>Gas to surface</u>
(G) Final Shut-In <u>1323</u>	<input type="checkbox"/> Sampler	<u>at final shut in.</u>
(H) Final Hydrostatic <u>1957</u>	<input type="checkbox"/> Straddle	<u>Dropped Bar.</u>
Initial Open <u>15</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1504.60</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1504.60</u>	

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.

