

**CONFIDENTIAL**

**KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION**

5/26/13 ORIGINAL RECEIVED Form ACO-1 June 2009

MAY 27 2011 Form Must Be Typed Form must be Signed All blanks must be Filled

**WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

**KCC WICHITA**

OPERATOR: License # 4767  
Name: Ritchie Exploration, Inc.  
Address 1: P.O. Box 783188  
Address 2: \_\_\_\_\_  
City: Wichita State: KS Zip: 67278 + 3188  
Contact Person: John Niemberger  
Phone: (316) 691-9500  
CONTRACTOR: License # 33575  
Name: WW Drilling, LLC  
Wellsite Geologist: Jeff Christian  
Purchaser: NCRA

API No. 15 - 065-23718-00-00  
Spot Description: 5' N & 5' W of  
SW SE SE Sec. 13 Twp. 6 S. R. 22  East  West  
335 Feet from  North /  South Line of Section  
985 Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:  
 NE  NW  SE  SW  
County: Graham  
Lease Name: Allen Worcester B Well #: 3  
Field Name: \_\_\_\_\_

Producing Formation: Toronto & LKC  
Elevation: Ground: 2302 Kelly Bushing: 2307  
Total Depth: 3860 Plug Back Total Depth: 3834'  
Amount of Surface Pipe Set and Cemented at: 219 Feet  
Multiple Stage Cementing Collar Used?  Yes  No  
If yes, show depth set: 1937 Feet  
If Alternate II completion, cement circulated from: 1937  
feet depth to: surface w/ 300 sx cmt.

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  
 Conv. to GSW  
 Plug Back: \_\_\_\_\_ Plug Back Total Depth \_\_\_\_\_  
 Commingled Permit #: \_\_\_\_\_  
 Dual Completion Permit #: \_\_\_\_\_  
 SWD Permit #: \_\_\_\_\_  
 ENHR Permit #: \_\_\_\_\_  
 GSW Permit #: \_\_\_\_\_

2/23/11 3/3/11 3/3/11  
Spud Date or Date Reached TD Completion Date or Recompletion Date

**Drilling Fluid Management Plan**  
(Data must be collected from the Reserve Pit)  
Chloride content: 17000 ppm Fluid volume: 1100 bbls  
Dewatering method used: evaporation  
Location of fluid disposal if hauled offsite: \_\_\_\_\_  
Operator Name: \_\_\_\_\_  
Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_  
Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West  
County: \_\_\_\_\_ Permit #: \_\_\_\_\_

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**INSTRUCTIONS:** An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information of side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

**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.

Signature: \_\_\_\_\_  
Title: Production Manager Date: 5/26/11

**KCC Office Use ONLY**

Letter of Confidentiality Received  
Date: 5/26/11 - 5/26/13  
 Confidential Release Date: \_\_\_\_\_  
 Wireline Log Received  
 Geologist Report Received  
 UIC Distribution  
ALT  I  II  III Approved by: NM Date: 5/26/11

Operator Name: Ritchie Exploration, Inc. Lease Name: Allen Worcester B Well #: 3  
 Sec. 13 Twp. 6 S. R. 22  East  West County: Graham

**INSTRUCTIONS:** Show important tops and base 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. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Attach Additional Sheets)  Samples Sent to Geological Survey <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If no, Submit Copy)  List All E. Logs Run: <b>Radiation Guard Log</b>	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input checked="" type="checkbox"/> Sample  Name Top Datum  SEE ATTACHED
--	--

CASING RECORD <input checked="" 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
Surface	12-1/4	8-5/8	23	219	common	150	3% cc, 2% gel
Production	7-7/8	4-1/2	10.5	3858	60/40 Poz	160	10% sal, 2% gel & 3/4% CD31

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				

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
4	3708' - 3709.5', 3699' - 3702' (3/29/11)	1000 gallons 15% NE & 15 soluble perf-ball-sealers (3/30/11)	
4	3539' - 3541' (3/29/11)	500 gallons 15% NE (3/30/11)	

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TUBING RECORD: Size: <u>2-3/8"</u> Set At: <u>3817'</u> Packer At: _____		Liner Run: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Date of First, Resumed Production, SWD or ENHR. <u>5/2/11</u>		Producing Method: <input type="checkbox"/> Flowing <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain) _____	
Estimated Production Per 24 Hours	Oil Bbls. <u>8.19</u>	Gas Mcf <u>2.04</u>	Water Bbls. <u>34.7</u>

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

Mail to: **KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202**



**#3 Allen Worcester B**  
335' FSL & 985' FEL  
5' N & 5' W of SW SE SE Section 13-6S-22W  
Graham County, Kansas  
API# 15-065-23718-0000  
Elevation: GL: 2302', KB: 2307'

<u>Sample Tops</u>			<u>Ref.</u>	<u>Well</u>
Anhydrite	1963'	+344	-1	
B/Anhydrite	1995'	+312	flat	
Topeka	3312'	-1005	-3	
Heebner	3511'	-1204	+1	
Toronto	3542'	-1235	-3	
Lansing	3560'	-1253	-3	
Muncie Shale	3666'	-1359	+1	
BKC	3743'	-1436	+4	
Conglomerate	3782'	-1475	+7	
Arbuckle	3836'	-1529	+11	
RTD	3860'	-1553		

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# ALLIED CEMENTING CO., LLC. 038706

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:  
Great Bend KS

DATE <u>2-23-11</u>	SEC <u>13</u>	TWP <u>06S</u>	RANGE <u>22W</u>	CALLED OUT	ON LOCATION	JOB START <u>5:30 PM</u>	JOB FINISH <u>1:00 PM</u>
LEASE <u>Worcester</u>		WELL # <u>B 3</u>	LOCATION <u>North Hill city 18924 5th</u>	COUNTY <u>Graham</u>	STATE <u>KS</u>		
OLD OR <u>NEW</u> (Circle one)			<u>1 1/2 west 10 North west 1/4 T2</u>				

CONTRACTOR Wesley Rig Co  
 TYPE OF JOB Surface  
 HOLE SIZE 12 1/4 T.D. 220  
 CASING SIZE 8 1/2 DEPTH 220  
 TUBING SIZE DEPTH  
 DRILL PIPE DEPTH  
 TOOL DEPTH  
 PRES. MAX MINIMUM  
 MEAS. LINE SHOE JOINT  
 CEMENT LEFT IN CSG. 15  
 PERFS.  
 DISPLACEMENT 12 BBLs fresh water  
 EQUIPMENT  
 PUMP TRUCK CEMENTER Wayne - D  
 # 366 HELPER Gary - Bob  
 BULK TRUCK  
 # 473 DRIVER Todd  
 BULK TRUCK  
 # DRIVER

OWNER Ritchie Exploration  
 CEMENT  
 AMOUNT ORDERED 1500# class A 3%cc + 2% Gel  
 COMMON 150 @ 13.50 2025.00  
 POZMIX @  
 GEL 3 @ 20.25 60.75  
 CHLORIDE 5 @ 51.50 257.50  
 ASC @  
 @  
 @  
 @  
 @  
 @  
 @  
 @  
 @  
 HANDLING 150 @ 2.25 337.50  
 MILEAGE 150 x .40 x .10 600.00  
 TOTAL 3,280.75

REMARKS:

Pipe on Bottom Break circulation with mud. Run 5 BBLs water ahead Hook up mix 1500# class A 3%cc + 2% Gel Displace 12 BBLs fresh water Cement did circulate Shut in Rig Down

SERVICE

DEPTH OF JOB 220  
 PUMP TRUCK CHARGE 991.00  
 EXTRA FOOTAGE @  
 MILEAGE 40 @ 7.00 280.00  
 MANIFOLD @  
 @  
 @

CHARGE TO: Ritchie Exploration  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

TOTAL 1,271.00

PLUG & FLOAT EQUIPMENT

@ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

To Allied Cementing Co., LLC.  
 You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Mark Bigge  
 SIGNATURE Mark Bigge

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES 1,271.00  
 DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS

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# ALLIED CEMENTING CO., LLC. 034160

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:

Russell

DATE <u>3/3/11</u>	SEC. <u>13</u>	TWP. <u>6</u>	RANGE <u>22</u>	CALLED OUT	ON LOCATION	JOB START <u>6:00p</u>	JOB FINISH <u>7:00pm</u>
LEASE <u>Warraster</u>	WELL# <u>3</u>	LOCATION <u> Hwy 24 1/2 Sct 11 1/2 W</u>			COUNTY <u>Ottawa</u>	STATE <u>KS</u>	
OLD OR NEW (Circle one)		10 N Wichita					

CONTRACTOR Ww Drilling Rig # 6  
 TYPE OF JOB Production String  
 HOLE SIZE 2 3/4 T.D. 3860  
 CASING SIZE 4 1/2 10 1/2 DEPTH 3863'  
 TUBING SIZE DEPTH  
 DRILL PIPE DEPTH  
 TOOL- Rat Collar DEPTH 1935'  
 PRES. MAX 1600 psi MINIMUM \_\_\_\_\_  
 MEAS. LINE SHOE JOINT 21'  
 CEMENT LEFT IN CSG. 21'  
 PERFS.  
 DISPLACEMENT 62, 24 661

OWNER  
 CEMENT  
 AMOUNT ORDERED 190 60% 10.96 / 28 Gal  
740 61% CD-31  
500 Gal WFR-2  
 COMMON 114 @ 13.50 1539.00  
 POZMIX 70 @ 7.55 528.50  
 GEL 3 @ 20.25 60.75  
 CHLORIDE @ \_\_\_\_\_  
 ASC @ \_\_\_\_\_  
Salt 8 @ 21.25 170.00  
CD-31 1224 @ 9.10 1110.20  
WFR-2 500 @ 1.10 550.00  
 HANDLING 190 @ 2.25 427.50  
 MILEAGE 110/15k/mi 760.00  
 TOTAL 5191.25

EQUIPMENT

PUMP TRUCK CEMENTER Shane, Heath  
 # 417 HELPER Tony  
 BULK TRUCK  
 # 404 DRIVER Mike  
 BULK TRUCK  
 # DRIVER

REMARKS:

Rat Hole 30 sks  
Inset @ 3892'  
Pipe on Bottom - Est Circulation  
mixed 160 sks down. 4 1/2 Carrying  
Washed pump + Circ. Displaced 661  
Landed Plus @ 1600 psi  
Float Held

SERVICE

DEPTH OF JOB  
 PUMP TRUCK CHARGE 1957.00  
 EXTRA FOOTAGE @ \_\_\_\_\_  
 MILEAGE 40 @ 7.00 280.00  
 MANIFOLD @ \_\_\_\_\_  
 TOTAL 2237.00

CHARGE TO: Richie Exploration  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PLUG & FLOAT EQUIPMENT

TRP 43.00  
6- Journalizer @ 42.00 252.00  
1- Basket @ 161.00  
1- Basket @ 161.00  
Rat Collar @ 1750.00  
Inset @ 112.00  
 TOTAL 2479.00

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To Allied Cementing Co., LLC.  
 You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME \_\_\_\_\_

SIGNATURE Thomas B. A. A.

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES 2479.00  
 DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS

TR

# ALLIED CEMENTING CO., LLC. 034165

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

*Allen Worcester B3*

SERVICE POINT: Russell

DATE <u>3-7-11</u>	SEC. <u>13</u>	TWP. <u>6</u>	RANGE <u>22</u>	CALLED OUT	ON LOCATION	JOB START <u>2:15p</u>	JOB FINISH <u>2:45p</u>
LEASE <u>Allen Worcester</u>	WELL # <u>B #3</u>	LOCATION <u> Hwy 24 + 18 Jct,</u>			COUNTY <u>Franklin</u>	STATE <u>KS</u>	
OLD OR <u>NEW</u> (Circle one)		<u>1 1/2" 10 N wint</u>					

CONTRACTOR Express Well Service  
 TYPE OF JOB P.C. Circulate Cement  
 HOLE SIZE 2 3/4" T.D.  
 CASING SIZE 4 1/2" DEPTH  
 TUBING SIZE 2 3/4" DEPTH 1935  
 DRILL PIPE DEPTH  
 TOOL DEPTH  
 PRES. MAX 1200psi MINIMUM  
 MEAS. LINE SHOE JOINT  
 CEMENT LEFT IN CSG.  
 PERFS.  
 DISPLACEMENT 6.5661

OWNER  
 CEMENT Use 300 Sk 100 # hulls  
 AMOUNT ORDERED 475 @ 62.6 = 29725.00  
500 # hulls  
 COMMON 180 @ 16.25 = 2925.00  
 POZMIX 120 @ 8.50 = 1020.00  
 GEL 15 @ 21.25 = 318.75  
 CHLORIDE @  
 ASC @  
 @  
Hulls 2 @ 31.85 = 63.70  
 @  
Fl. Seal 75 @ 2.70 = 202.50  
 @  
 @  
 @  
 HANDLING 499 @ 2.25 = 1122.75  
 MILEAGE 11.56/mile @ 3293.40  
 TOTAL 8946.10

REMARKS:

Tested hole to 1200psi. Opened P.C. Est a flow mixed 300skts with 100 # hulls cement circulated. Displaced 6.5661. Closed P.C. Tested to 1200psi. Released flow 5 jts. Washed clean. Conc out of hole

SERVICE

DEPTH OF JOB  
 PUMP TRUCK CHARGE 1925.00  
 EXTRA FOOTAGE @  
 MILEAGE 120 @ 7.00 = 840.00  
 MANIFOLD @  
 @  
 @  
 TOTAL 2765.00

CHARGE TO: Richie  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PLUG & FLOAT EQUIPMENT

\_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

To Allied Cementing Co., LLC.  
 You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME \_\_\_\_\_  
 SIGNATURE Thomas A. [Signature]

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES [Signature]  
 DISCOUNT [Signature] IF PAID IN 30 DAYS

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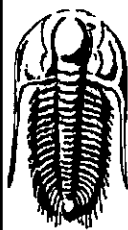
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**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
 8100 E. 22nd St. N.  
 #700 Wichita KS.  
 67278  
 ATTN: Jeff Christian

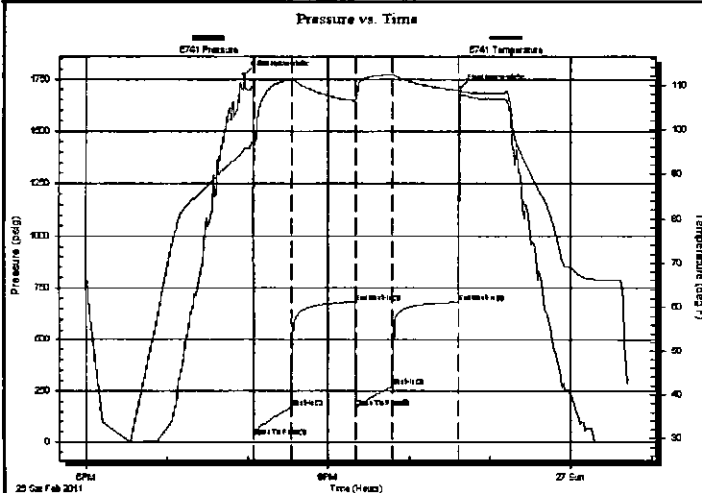
**A Worcester-B**  
**13 6 22w Graham**  
 Job Ticket: 040736      **DST#: 1**  
 Test Start: 2011.02.26 @ 18:00:00

## GENERAL INFORMATION:

Formation: **Oread-A**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:04:30  
 Time Test Ended: 00:42:30  
 Interval: **3459.00 ft (KB) To 3477.00 ft (KB) (TVD)**  
 Total Depth: 3477.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole  
 Tester: Chuck Kreutzer Jr.  
 Unit No: 36  
 Reference Elevations: 2307.00 ft (KB)  
 2302.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 6741**      **Outside**  
 Press@RunDepth: 270.67 psig @ 3460.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2011.02.26      End Date: 2011.02.27      Last Calib.: 2011.02.27  
 Start Time: 18:00:01      End Time: 00:42:30      Time On Btm: 2011.02.26 @ 19:57:00  
 Time Off Btm: 2011.02.26 @ 22:38:00

**TEST COMMENT:** IF: Strong blow, B.O.B in 6 mins.  
 IS: No blow back over 45 mins.  
 FF: Fair blow, B.O.B in 10 mins.  
 FSI: No blow back over 45 mins.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1772.11	95.56	Initial Hydro-static
8	26.95	96.35	Open To Flow (1)
36	169.21	111.34	Shut-In(1)
83	681.69	106.45	End Shut-In(1)
84	173.46	106.97	Open To Flow (2)
111	270.67	112.28	Shut-In(2)
160	679.24	108.79	End Shut-In(2)
161	1707.87	108.07	Final Hydro-static

## Recovery

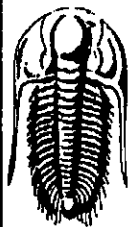
Length (ft)	Description	Volume (bbl)
537.00	gw -5%g95%w	6.44
5.00	oil	0.07

## Gas Rates

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

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**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040736

**DST#: 1**

ATTN: Jeff Christian

Test Start: 2011.02.26 @ 18:00:00

**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: 63.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.40 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
537.00	gw -5%g95%w	6.440
5.00	oil	0.070

Total Length: 542.00 ft

Total Volume: 6.510 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

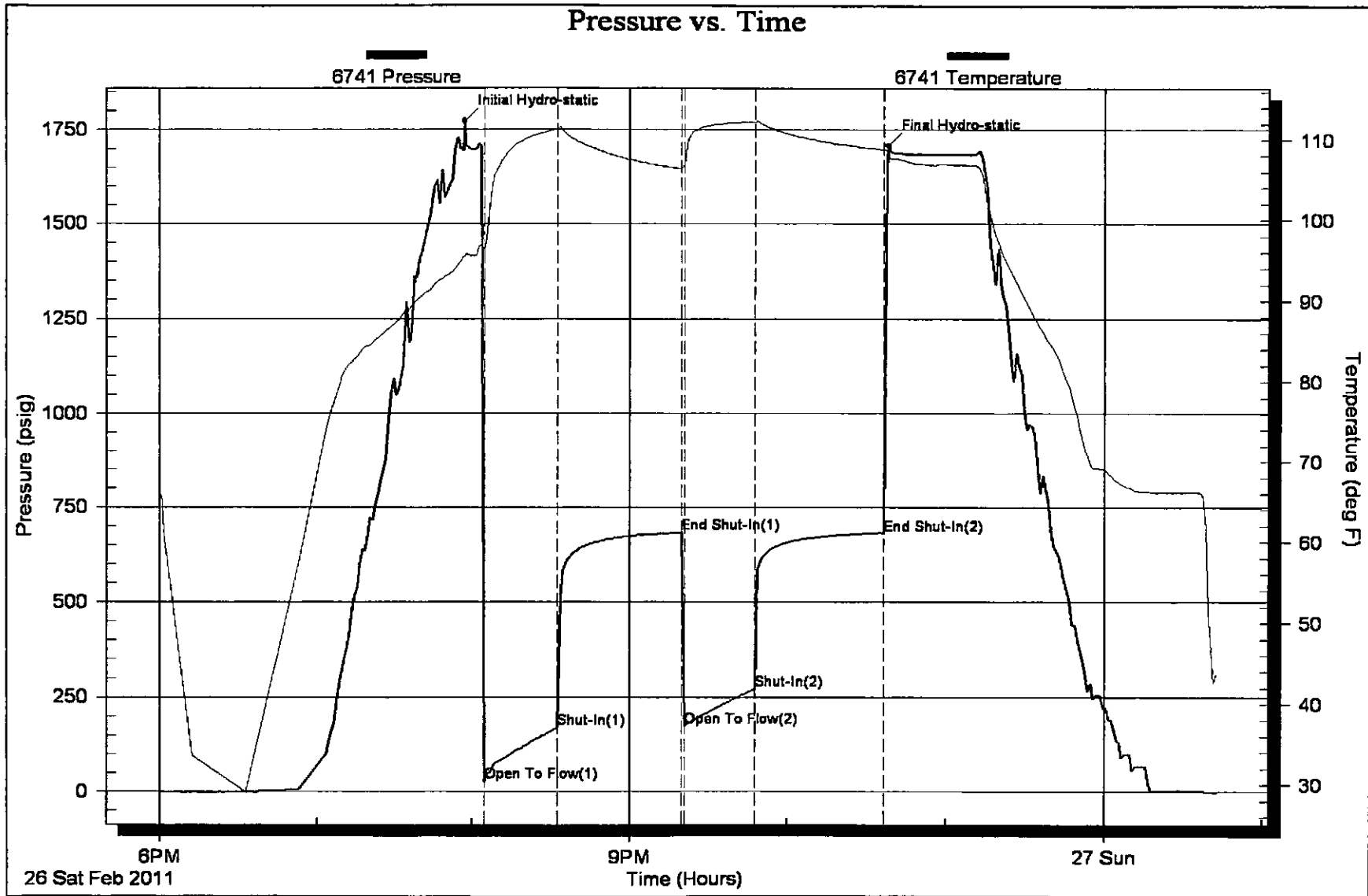
Laboratory Name:

Laboratory Location:

Recovery Comments:

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**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E. 22nd St. N.  
#700 Wichita KS.  
67278  
ATTN: Jeff Christian

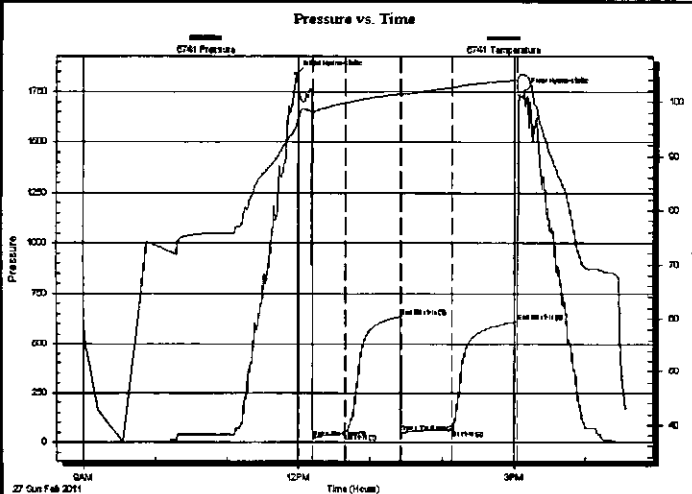
**A Worcester-B**  
**13 6 22w Graham**  
Job Ticket: 040737      DST#: 2  
Test Start: 2011.02.27 @ 09:00:00

### GENERAL INFORMATION:

Formation: **Toronto**  
Deviated: No      Whipstock:      ft (KB)  
Time Tool Opened: 12:12:30  
Time Test Ended: 16:33:30  
Interval: **3510.00 ft (KB) To 3550.00 ft (KB) (TVD)**  
Total Depth: 3550.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches      Hole Condition: Good  
Test Type: Conventional Bottom Hole  
Tester: Chuck Kreutzer Jr.  
Unit No: 36  
Reference Elevations: 2307.00 ft (KB)  
2302.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 6741      Outside**  
Press@RunDepth: 64.56 psig @ 3515.60 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2011.02.27      End Date: 2011.02.27      Last Calib.: 2011.02.27  
Start Time: 09:00:01      End Time: 16:33:30      Time On Btm: 2011.02.27 @ 11:58:30  
Time Off Btm: 2011.02.27 @ 15:08:30

**TEST COMMENT:** IF: Weak blow, built to 3 in. over 30 mins.  
IS: No blow back over 45 mins.  
FF: Weak blow, Built to 4 in. over 45 mins.  
FSI: No blow back over 60 mins.



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1836.92	95.65	Initial Hydro-static
14	18.47	98.06	Open To Flow (1)
41	44.48	99.77	Shut-In(1)
87	633.55	101.46	End Shut-In(1)
88	46.40	101.33	Open To Flow (2)
130	64.56	102.61	Shut-In(2)
184	610.22	103.99	End Shut-In(2)
190	1751.74	105.04	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
62.00	gocm-5%g10%o85%m	0.30
30.00	gocm-5%g20%o75%m	0.15
30.00	go-5%g95%o	0.17

### Gas Rates

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

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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040737

DST#: 2

ATTN: Jeff Christian

Test Start: 2011.02.27 @ 09:00:00

## 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: 63.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	gocm-5%g10%o85%m	0.305
30.00	gocm-5%g20%o75%m	0.148
30.00	go-5%g95%o	0.166

Total Length: 122.00 ft      Total Volume: 0.619 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

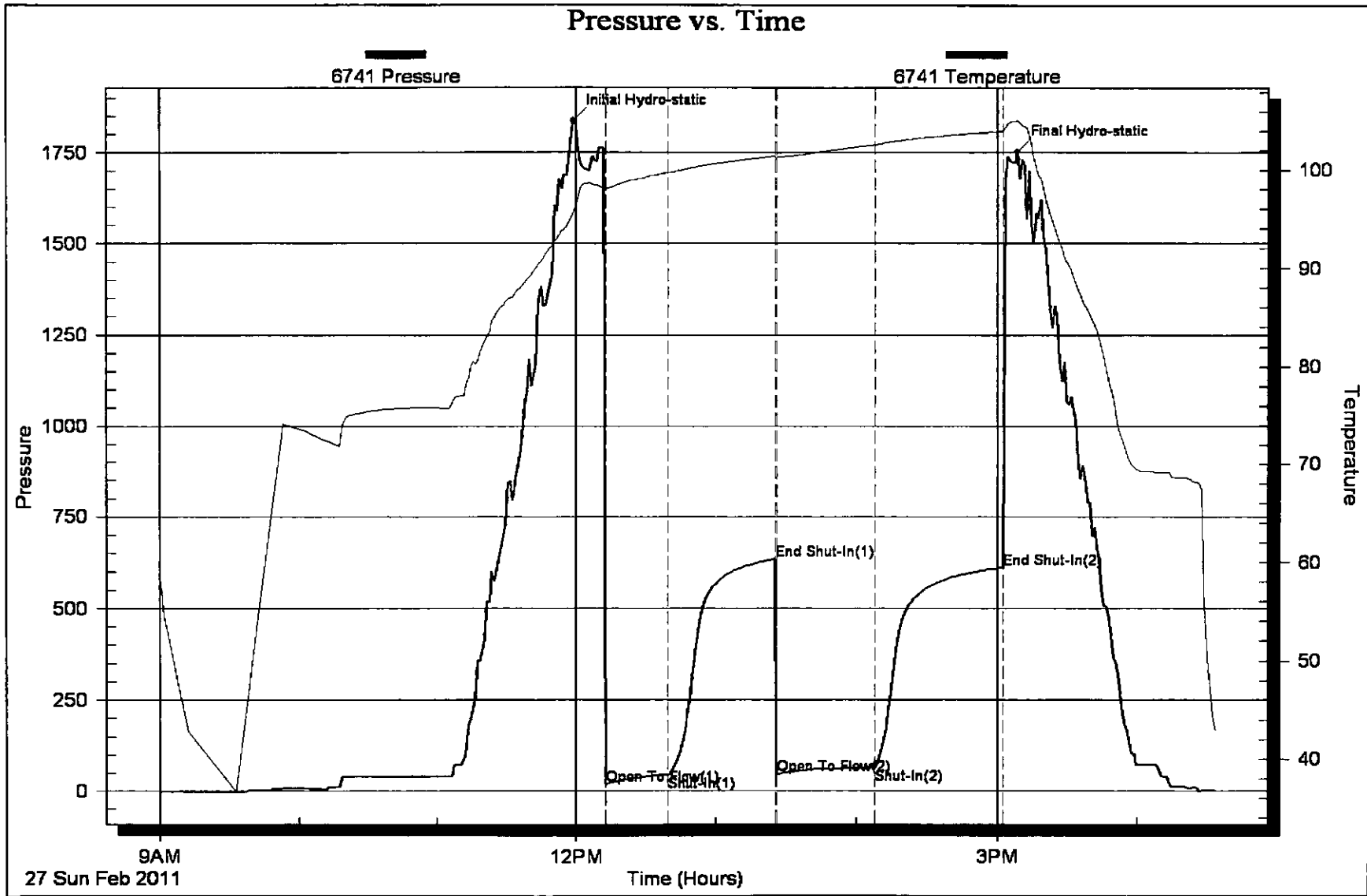
Laboratory Location:

Recovery Comments:

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# DRILL STEM TEST REPORT

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040738

DST#: 3

ATTN: Jeff Christian

Test Start: 2011.02.27 @ 22:05:00

## GENERAL INFORMATION:

Formation: **LKC-A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:44:30

Time Test Ended: 03:08:00

Test Type: Conventional Bottom Hole

Tester: Chuck Kreutzer Jr.

Unit No: 36

Interval: **3548.00 ft (KB) To 3570.00 ft (KB) (TVD)**

Reference Elevations: 2307.00 ft (KB)

Total Depth: 3570.00 ft (KB) (TVD)

2302.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6741**

Outside

Press@RunDepth: 14.53 psig @ 3549.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.02.27

End Date:

2011.02.28

Last Calib.: 2011.02.28

Start Time: 22:05:01

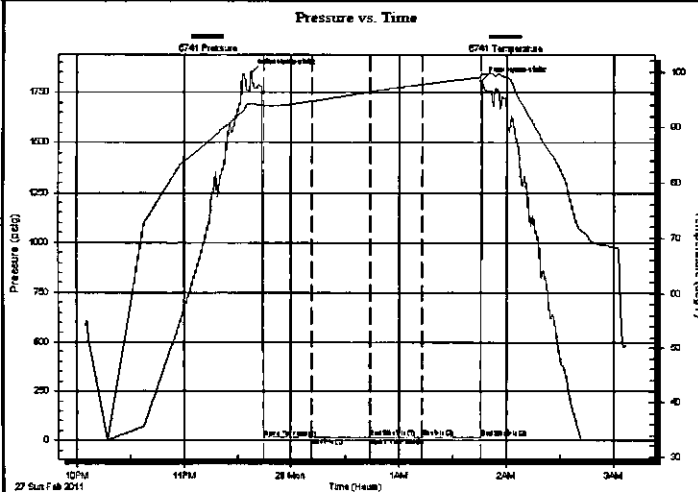
End Time:

03:08:00

Time On Btm: 2011.02.27 @ 23:37:30

Time Off Btm: 2011.02.28 @ 01:46:00

**TEST COMMENT:** IF: Weak blow, Died in 15 mins.  
IS: No blow back over 30 mins.  
FF: No blow over 30 mins.  
FSI: No blow back over 30 mins.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1848.06	94.31	Initial Hydro-static
7	13.10	93.70	Open To Flow (1)
34	14.28	94.72	Shut-In(1)
66	17.19	96.34	End Shut-In(1)
67	14.53	96.36	Open To Flow (2)
96	14.53	97.71	Shut-In(2)
128	16.21	99.04	End Shut-In(2)
129	1808.29	99.81	Final Hydro-static

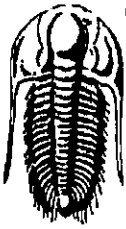
## Recovery

Length (ft)	Description	Volume (bbl)
2.00	mud	0.01

## Gas Rates

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

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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040738

**DST#: 3**

ATTN: Jeff Christian

Test Start: 2011.02.27 @ 22:05:00

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.20 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 12000.00 ppm			
Filter Cake: 2.00 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
2.00	mud	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

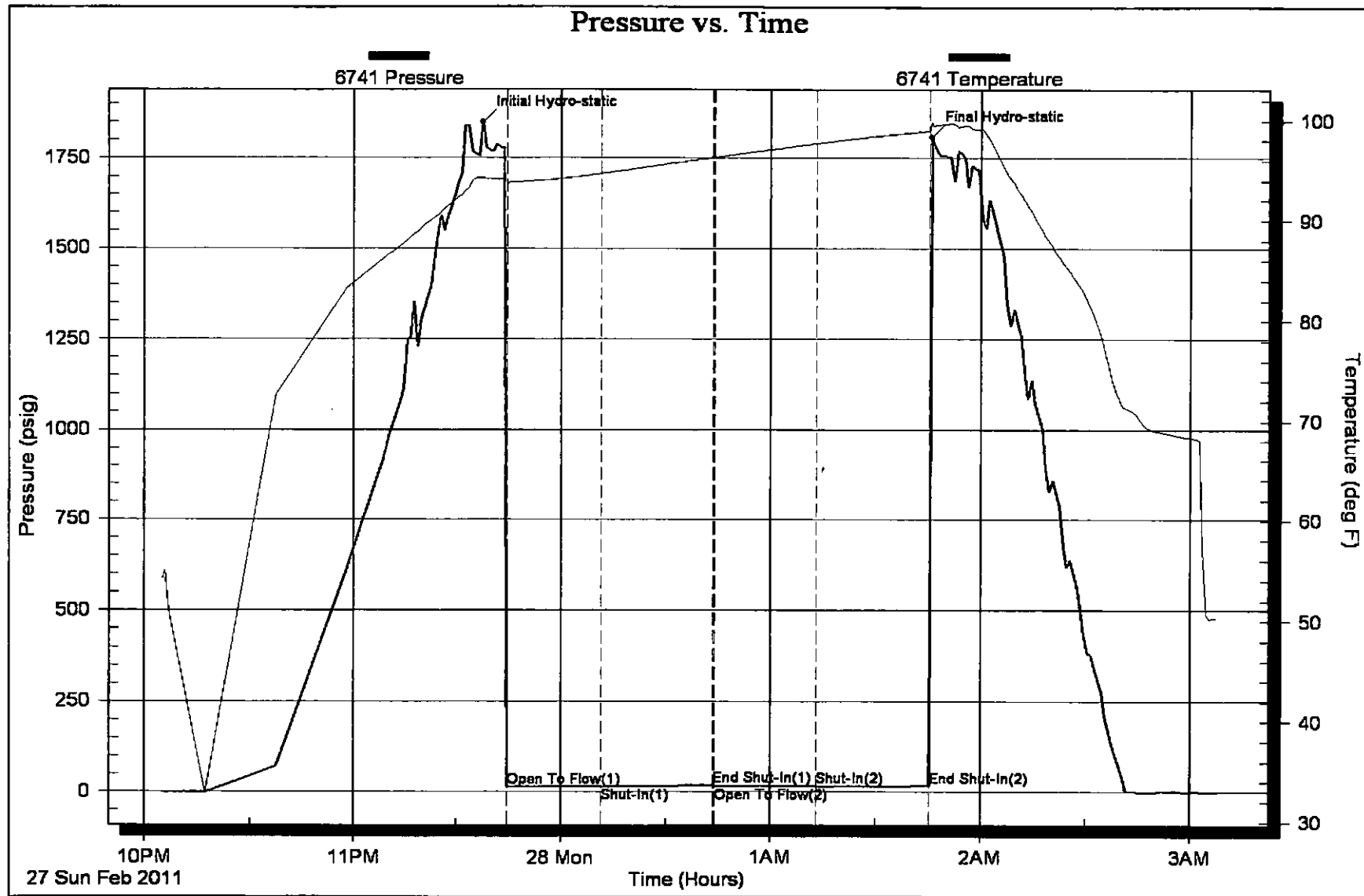
Laboratory Location:

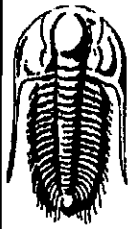
Recovery Comments:

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# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E. 22nd St. N.  
#700 Wichita KS.  
67278  
ATTN: Jeff Christian

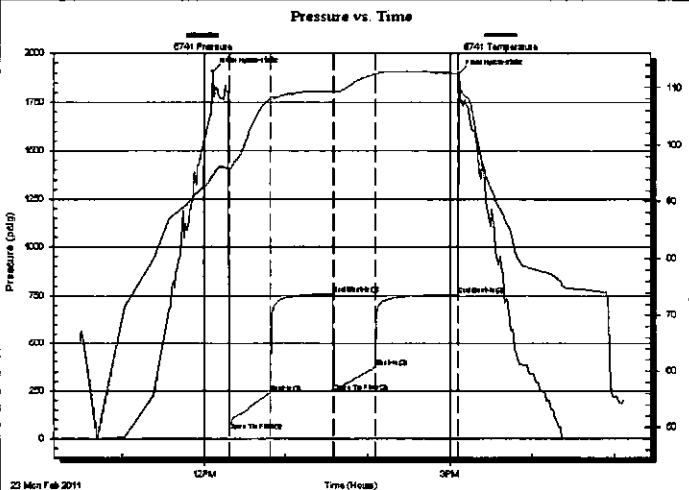
**A Worcester-B**  
**13 6 22w Graham**  
Job Ticket: 040739      **DST#: 4**  
Test Start: 2011.02.28 @ 10:30:00

**GENERAL INFORMATION:**

Formation: **LKC-C-D**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 12:18:30  
Time Test Ended: 17:06:30  
Interval: **3574.00 ft (KB) To 3614.00 ft (KB) (TVD)**  
Total Depth: 3614.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole  
Tester: Chuck Kreuzer Jr.  
Unit No: 36  
Reference Elevations: 2307.00 ft (KB)  
2302.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 6741**      Outside  
Press@RunDepth: 370.41 psig @ 3579.60 ft (KB)  
Start Date: 2011.02.28      End Date: 2011.02.28  
Start Time: 10:30:01      End Time: 17:06:30  
Capacity: 8000.00 psig  
Last Calib.: 2011.02.28  
Time On Btm: 2011.02.28 @ 12:06:30  
Time Off Btm: 2011.02.28 @ 15:06:30

**TEST COMMENT:** IF: Strong blow , B.O.B in 3 mins.  
IS: No blow back over 45 mins.  
FF: Strong blow , B.O.B in 6 mins.  
FS: No blow back over 60 mins.



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1908.30	94.63	Initial Hydro-static
12	39.99	95.51	Open To Flow (1)
42	238.53	108.19	Shut-In(1)
88	757.58	109.28	End Shut-In(1)
89	242.61	109.16	Open To Flow (2)
119	370.41	112.33	Shut-In(2)
179	756.00	112.49	End Shut-In(2)
180	1898.20	112.02	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
124.00	gmcw -10%g10%m80%w	0.65
124.00	gocmw -20%g20%o10%m50%w	1.74
248.00	gocmw -20%g20%o20%m40%w	3.48

**Gas Rates**

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

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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040739

**DST#: 4**

ATTN: Jeff Christian

Test Start: 2011.02.28 @ 10:30:00

**Mud and Cushion Information**

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 58.00 sec/qt  
Water Loss: 7.80 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 1800.00 ppm  
Filter Cake: 2.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
124.00	gmcw -10%g10%m80%w	0.646
124.00	gocrw -20%g20%o10%m50%w	1.739
248.00	gocrw -20%g20%o20%m40%w	3.479

Total Length: 496.00 ft      Total Volume: 5.864 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

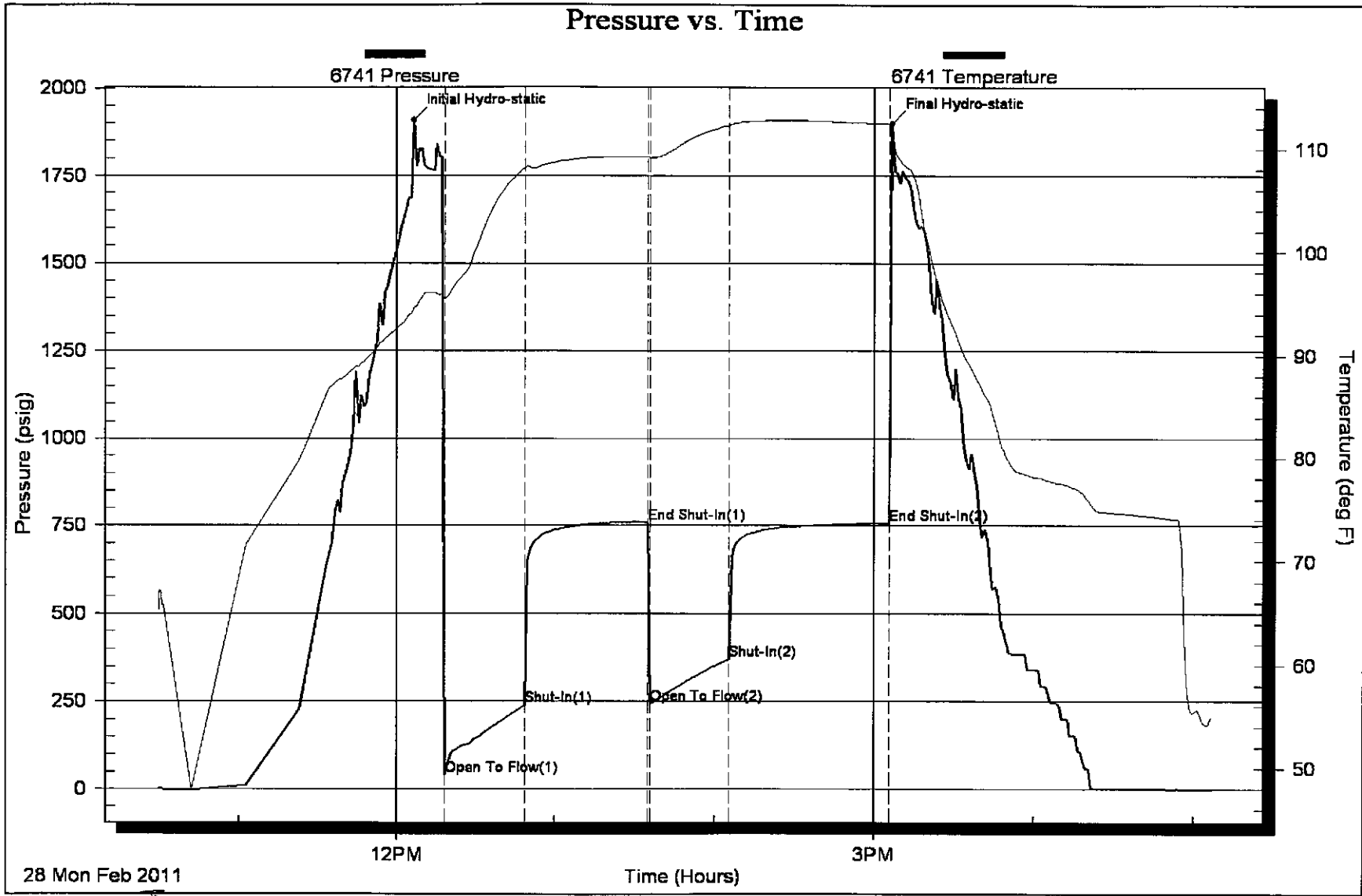
Laboratory Location:

Recovery Comments:

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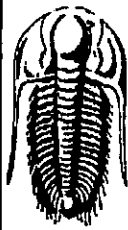
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# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E. 22nd St. N.  
#700 Wichita KS.  
67278  
ATTN: Jeff Christian

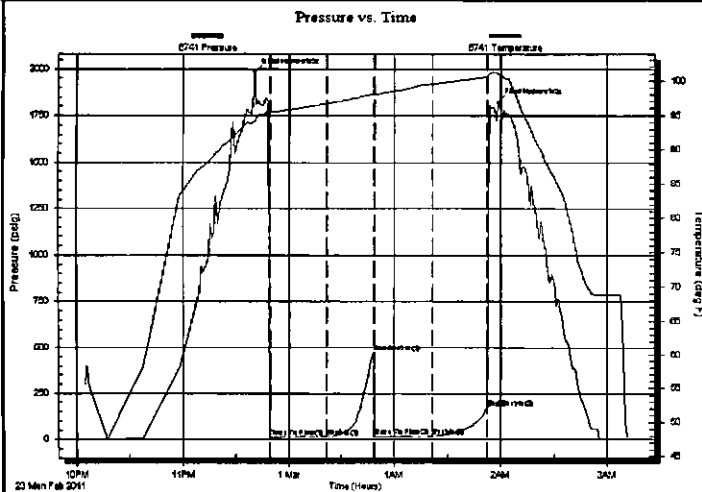
**A Worcester-B**  
**13 6 22w Graham**  
Job Ticket: 040740      DST#: 5  
Test Start: 2011.02.28 @ 22:05:00

## GENERAL INFORMATION:

Formation: **LKC-**  
Deviated: No      Whipstock:      ft (KB)  
Time Tool Opened: 23:49:30  
Time Test Ended: 03:12:00  
Interval: **3611.00 ft (KB) To 3627.00 ft (KB) (TVD)**  
Total Depth: **3627.00 ft (KB) (TVD)**  
Hole Diameter: **7.88 inches** Hole Condition: **Good**  
Test Type: **Conventional Bottom Hole**  
Tester: **Chuck Kreutzer Jr.**  
Unit No: **36**  
Reference Elevations: **2307.00 ft (KB)**  
**2302.00 ft (CF)**  
KB to GR/CF: **5.00 ft**

**Serial #: 6741**      **Outside**  
Press@RunDepth: **16.06 psig @ 3612.00 ft (KB)**  
Start Date: **2011.02.28**      End Date: **2011.03.01**  
Start Time: **22:05:01**      End Time: **03:12:00**  
Capacity: **8000.00 psig**  
Last Calib.: **2011.03.01**  
Time On Btm: **2011.02.28 @ 23:40:30**  
Time Off Btm: **2011.03.01 @ 01:58:30**

**TEST COMMENT:** IF: Weak blow, Died in 1 min.  
IS: No blow back over 30 mins.  
FF: No blow over 30 mins.  
FS: No blow back over 30 mins.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1982.75	94.07	Initial Hydro-static
9	11.60	95.25	Open To Flow (1)
42	14.25	96.71	Shut-In(1)
68	476.43	98.08	End Shut-In(1)
69	14.84	97.84	Open To Flow (2)
101	16.06	99.53	Shut-In(2)
132	170.80	100.56	End Shut-In(2)
138	1820.37	100.95	Final Hydro-static

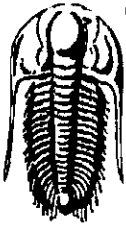
## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil specs	0.02

## Gas Rates

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

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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040740

**DST#: 5**

ATTN: Jeff Christian

Test Start: 2011.02.28 @ 22:05:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 58.00 sec/qt  
Water Loss: 7.80 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 1800.00 ppm  
Filter Cake: 2.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud with oil specs	0.025

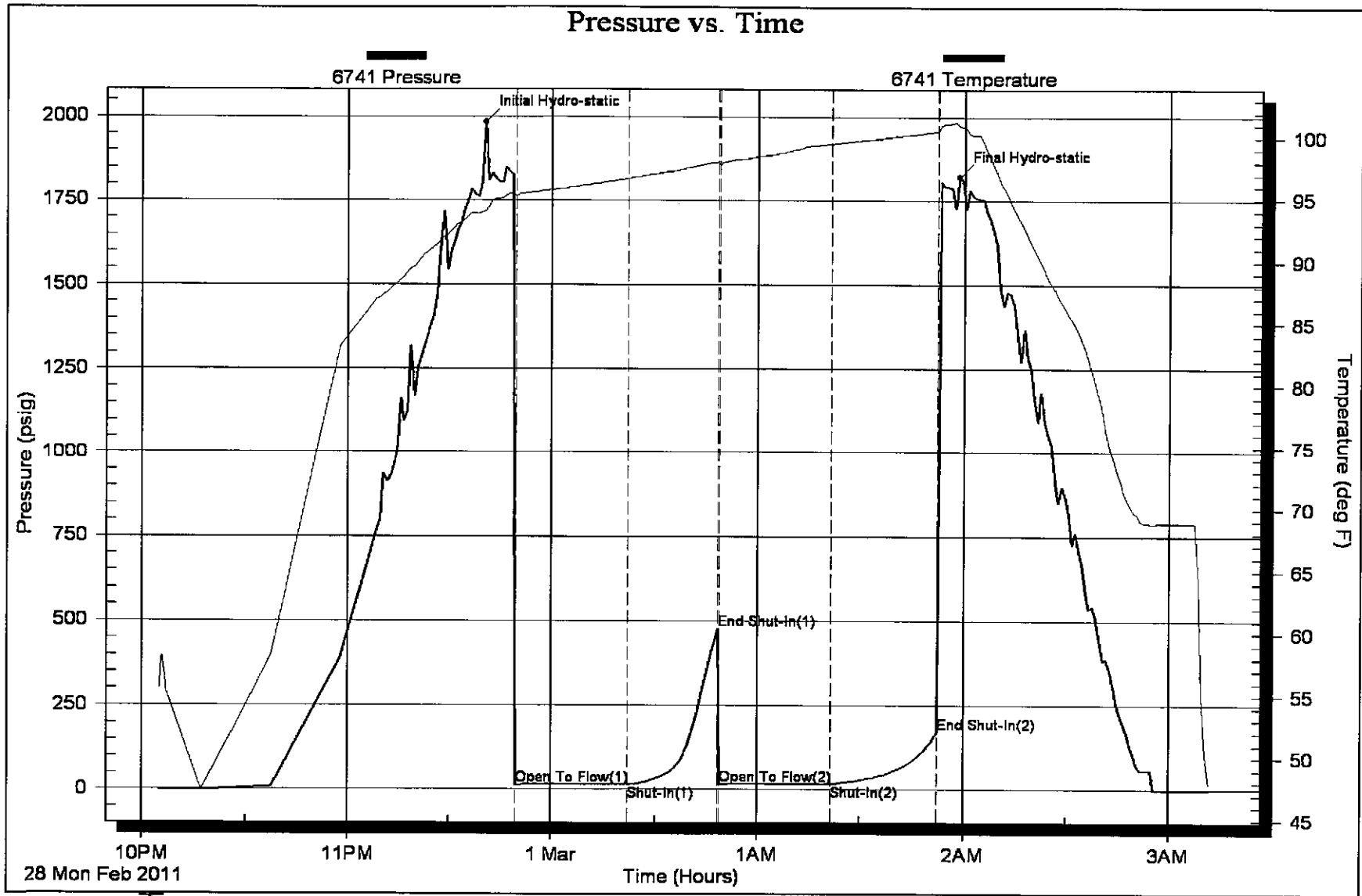
Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

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# DRILL STEM TEST REPORT

Ritchie Exploration  
 8100 E. 22nd St. N.  
 #700 Wichita KS.  
 67278  
 ATTN: Jeff Christian

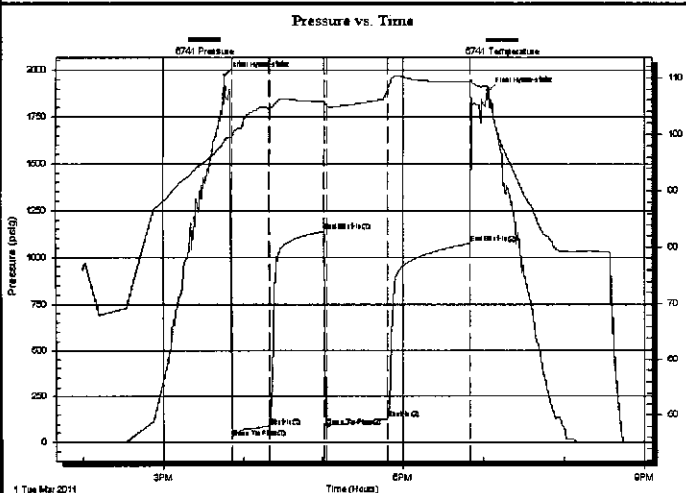
**A Worcester-B**  
**13 6 22w Graham**  
 Job Ticket: 040741      **DST#: 6**  
 Test Start: 2011.03.01 @ 14:00:00

## GENERAL INFORMATION:

Formation: **LKC-H,I,J**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole  
 Time Tool Opened: 15:51:30  
 Tester: Chuck Kreutzer Jr.  
 Time Test Ended: 20:46:00  
 Unit No: 36  
 Interval: **3662.00 ft (KB) To 3720.00 ft (KB) (TVD)**  
 Reference Elevations: 2307.00 ft (KB)  
 Total Depth: 3720.00 ft (KB) (TVD)  
 2302.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 KB to GR/CF: 5.00 ft

**Serial #: 6741**      **Outside**  
 Press@RunDepth: 126.80 psig @ 3670.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2011.03.01      End Date: 2011.03.01      Last Calib.: 2011.03.01  
 Start Time: 14:00:01      End Time: 20:46:00      Time On Btm: 2011.03.01 @ 15:46:00  
 Time Off Btm: 2011.03.01 @ 19:03:30

**TEST COMMENT:** IF: Strong blow, B.O.B in 10 mins.  
 IS: Weak blow back, Died in 8 mins.  
 FF: Strong blow, B.O.B in 10 mins.  
 FS: Weak blow back, Died in 18 mins.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1971.28	98.57	Initial Hydro-static
6	25.57	99.36	Open To Flow (1)
34	90.45	104.60	Shut-In(1)
76	1140.04	105.79	End Shut-In(1)
77	90.31	104.98	Open To Flow (2)
123	126.80	108.11	Shut-In(2)
184	1075.17	109.31	End Shut-In(2)
198	1890.85	108.29	Final Hydro-static

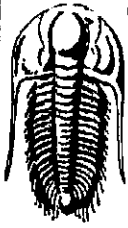
## Recovery

Length (ft)	Description	Volume (bbl)
120.00	ghmco-30%g20%m50%o	0.59
124.00	ghmco-10%g30%m60%o	1.74
62.00	ghmco-20%g10%m70%o	0.87
0.00	382 gas in pipe	0.00

## Gas Rates

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

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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040741

**DST#: 6**

ATTN: Jeff Christian

Test Start: 2011.03.01 @ 14:00:00

**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: 58.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
120.00	ghmco-30%g20%m50%o	0.590
124.00	ghmco-10%g30%m60%o	1.739
62.00	ghmco-20%g10%m70%o	0.870
0.00	382 gas in pipe	0.000

Total Length: 306.00 ft

Total Volume: 3.199 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

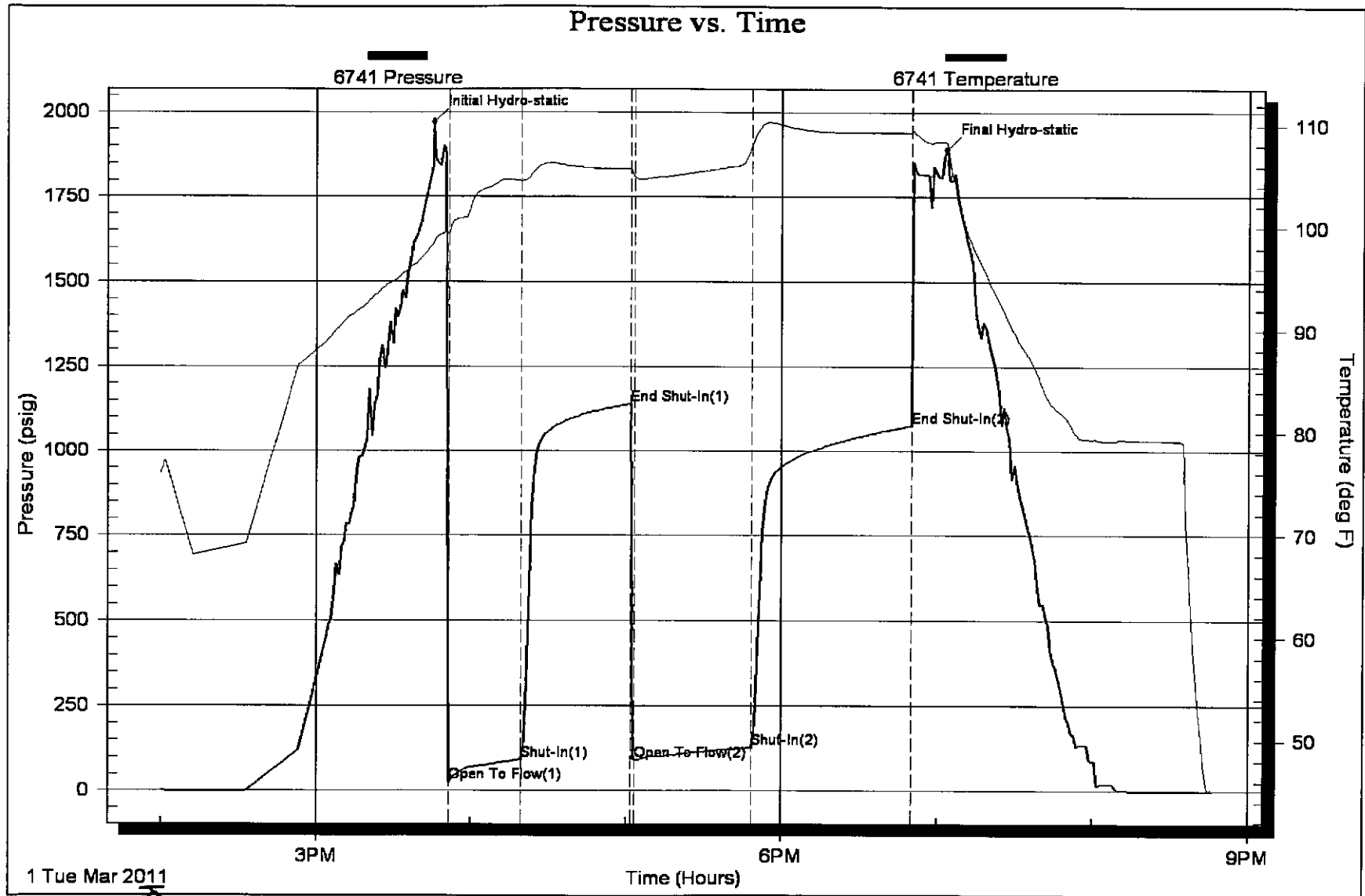
Serial #:

Laboratory Name:

Laboratory Location:

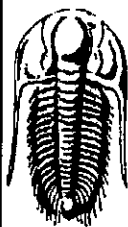
Recovery Comments:

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# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St. N.  
#700 Wichita KS.  
67278  
ATTN: Jeff Christian

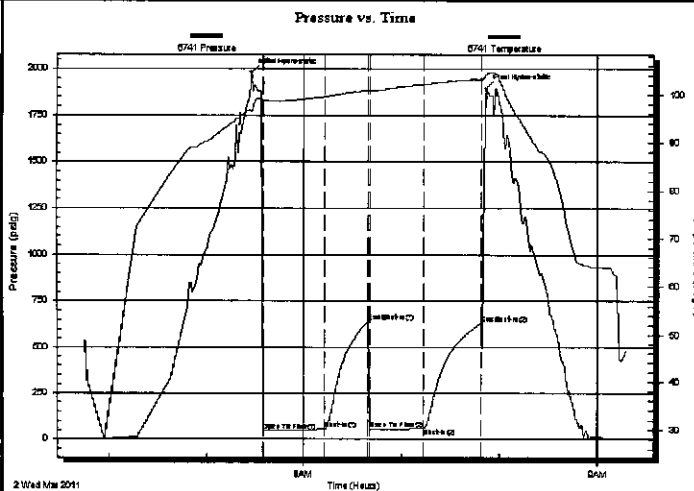
**A Worcester-B**  
**13 6 22w Graham**  
Job Ticket: 040742      **DST#: 7**  
Test Start: 2011.03.02 @ 03:45:00

## GENERAL INFORMATION:

Formation: **LKC-K,L**  
Deviated: No      Whipstock:      ft (KB)  
Time Tool Opened: 05:34:30  
Time Test Ended: 09:17:30  
Interval: **3715.00 ft (KB) To 3750.00 ft (KB) (TVD)**  
Total Depth: **3750.00 ft (KB) (TVD)**  
Hole Diameter: **7.88 inches** Hole Condition: **Good**  
Test Type: **Conventional Bottom Hole**  
Tester: **Chuck Kreutzer Jr.**  
Unit No: **36**  
Reference Elevations: **2307.00 ft (KB)**  
**2302.00 ft (CF)**  
KB to GR/CF: **5.00 ft**

**Serial #: 6741      Outside**  
Press@RunDepth: **56.56 psig @ 3716.00 ft (KB)**      Capacity: **8000.00 psig**  
Start Date: **2011.03.02**      End Date: **2011.03.02**      Last Calib.: **2011.03.02**  
Start Time: **03:45:01**      End Time: **09:17:30**      Time On Btm: **2011.03.02 @ 05:27:30**  
Time Off Btm: **2011.03.02 @ 07:51:30**

**TEST COMMENT:** IF: Weak blow, Built to 1/2 in. over 30 mins.  
IS: No blow back over 30 mins.  
FF: No blow over 30 mins.  
FSI: No blow back over 30 mins.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1981.24	96.48	Initial Hydro-static
7	44.06	98.30	Open To Flow (1)
46	51.06	99.53	Shut-In (1)
72	638.14	100.87	End Shut-In (1)
73	51.78	100.67	Open To Flow (2)
106	56.56	102.10	Shut-In (2)
141	628.71	103.25	End Shut-In (2)
144	1897.33	104.15	Final Hydro-static

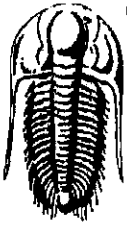
## Recovery

Length (ft)	Description	Volume (bbl)
80.00	mud-100%	0.39

## Gas Rates

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

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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040742

**DST#: 7**

ATTN: Jeff Christian

Test Start: 2011.03.02 @ 03:45:00

**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: 58.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
80.00	mud-100%	0.393

Total Length: 80.00 ft      Total Volume: 0.393 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

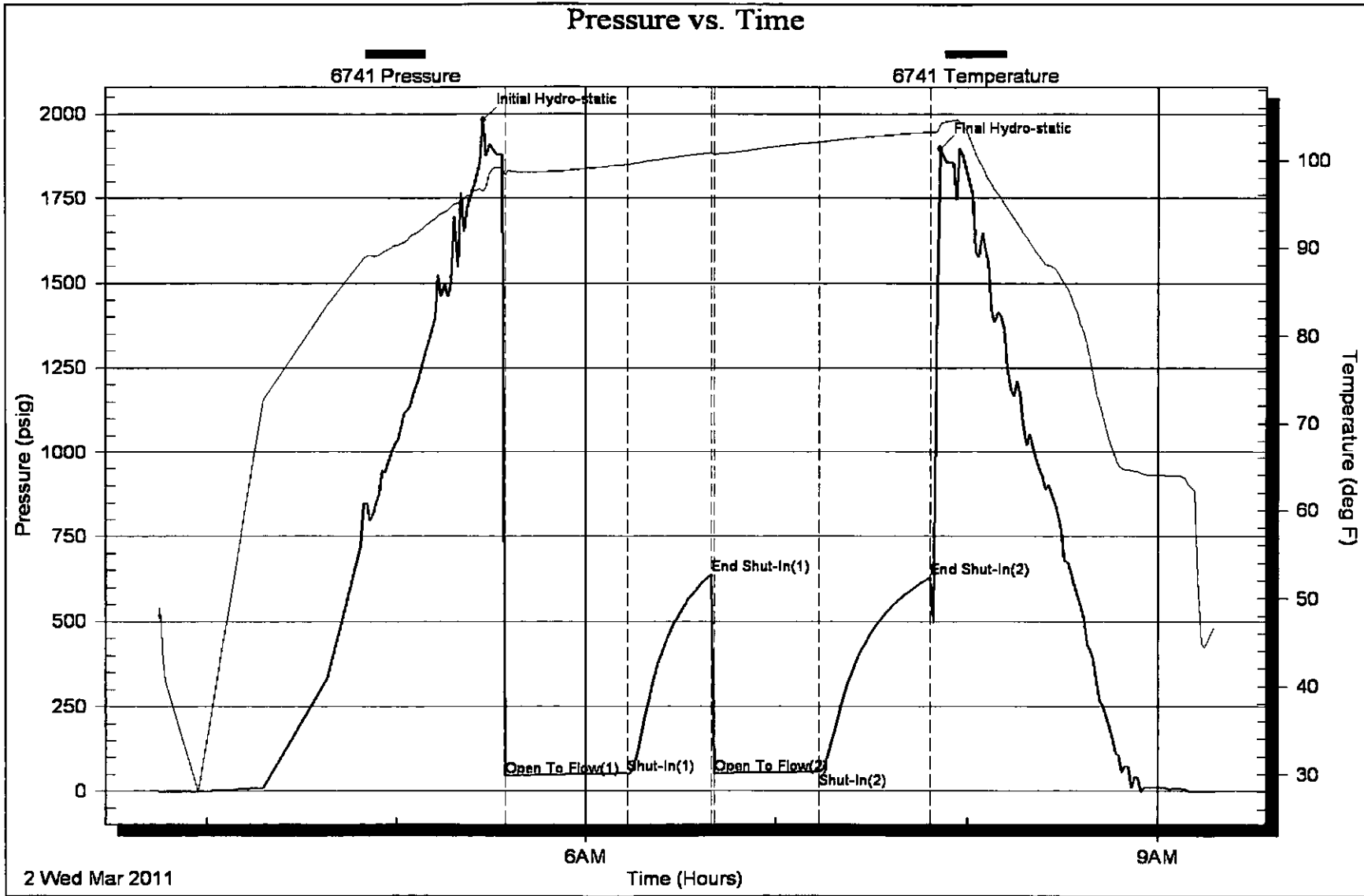
Laboratory Location:

Recovery Comments:

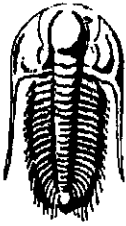
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## DRILL STEM TEST REPORT

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040743

**DST#: 8**

ATTN: Jeff Christian

Test Start: 2011.03.02 @ 18:30:00

### GENERAL INFORMATION:

Formation: **con. sand**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: **20:20:30**

Time Test Ended: **00:11:00**

Test Type: **Conventional Bottom Hole**

Tester: **Chuck Kreuzer Jr.**

Unit No: **36**

Interval: **3770.00 ft (KB) To 3815.00 ft (KB) (TVD)**

Reference Elevations: **2307.00 ft (KB)**

Total Depth: **3815.00 ft (KB) (TVD)**

**2302.00 ft (CF)**

Hole Diameter: **7.88 inches** Hole Condition: **Good**

KB to GR/CF: **5.00 ft**

**Serial #: 6741**

**Outside**

Press@RunDepth: **288.61 psig @ 3776.60 ft (KB)**

Capacity: **8000.00 psig**

Start Date: **2011.03.02**

End Date:

**2011.03.03**

Last Calib.: **2011.03.03**

Start Time: **18:30:01**

End Time:

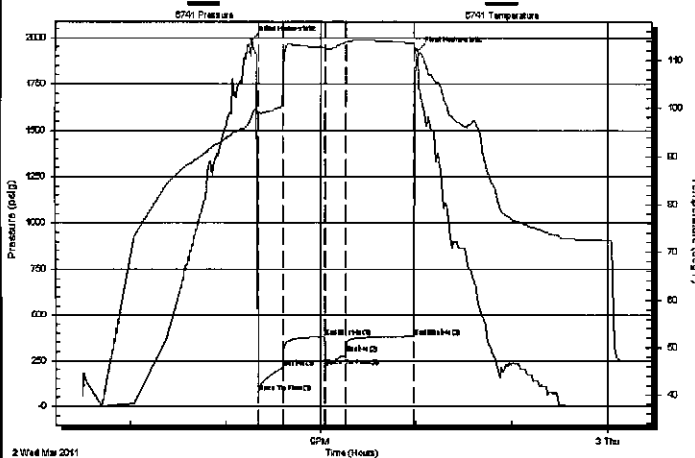
**00:11:00**

Time On Btm: **2011.03.02 @ 20:16:30**

Time Off Btm: **2011.03.02 @ 22:01:00**

**TEST COMMENT:** IF: Strong blow , B.O.B in 1 min.  
IS: No blow back over 30 mins.  
FF: Strong blow , B.O.B in 10 mins.  
FS: NO blow back over 45 mins.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1989.10	98.09	Initial Hydro-static
4	75.89	99.15	Open To Flow (1)
20	211.92	104.55	Shut-In(1)
46	377.15	112.57	End Shut-In(1)
47	216.45	112.49	Open To Flow (2)
60	288.61	113.79	Shut-In(2)
102	380.32	113.60	End Shut-In(2)
105	1932.04	110.56	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
306.00	vsgomcw -5%g2%o23%m70%w	3.20
186.00	vsgow cm-5%g5%o40%w 50%m	2.61
72.00	vsgow cm-5%g5%o15%w 75%m	1.01

### Gas Rates

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

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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**A Worcester-B**

8100 E. 22nd St. N.  
#700 Wichita KS.  
67278

**13 6 22w Graham**

Job Ticket: 040743

**DST#: 8**

ATTN: Jeff Christian

Test Start: 2011.03.02 @ 18:30:00

**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: 57.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
306.00	vsgomcw -5%g2%o23%m70%w	3.199
186.00	vsgow cm-5%g5%o40%w 50%m	2.609
72.00	vsgow cm-5%g5%o15%w 75%m	1.010

Total Length: 564.00 ft

Total Volume: 6.818 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

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