

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1352165  
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: \_\_\_\_\_

1352165

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

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Blackstone Oil & Gas (Kansas), LLC
Well Name	ITHACA 1-17
Doc ID	1352165

All Electric Logs Run

Dual Porosity
Dual Induction
Microlog
Sonic



# GLOBAL OIL FIELD SERVICES, LLC

2737

REMIT TO 24 S. Lincoln  
Russell, KS 67665

SERVICE POINT: Russell

DATE <u>11-14-16</u>	SEC. <u>17</u>	TWP. <u>18S</u>	RANGE <u>16W</u>	CALLED OUT	ON LOCATION	JOB START <u>11-15-2016</u>	JOB FINISH <u>5:30 AM</u>
LEASE <u>ITHACA</u>	WELL # <u>1-17</u>	LOCATION <u>OTIS 5S 3W 1 1/2 NE NW</u>		COUNTY <u>KASH</u>	STATE <u>KANSAS</u>		
OLD OR <input checked="" type="radio"/> (CIRCLE ONE)							

CONTRACTOR Royal DRG Rig #1 "Dong"  
 TYPE OF JOB PRODUCTION STRING  
 HOLE SIZE 9 3/8 T.D. 3530'  
 CASING SIZE 5 1/2 New DEPTH 3526'  
 TUBING SIZE 15.40 # CSG. DEPTH  
 DRILL PIPE DEPTH  
 TOOK LATCH DOWN PLUG ASSY DEPTH 3507  
 PRES. MAX MINIMUM  
 MEAS. LINE SHOE JOINT 21.02  
 CEMENT LEFT IN CSG. 21.02  
 PERFS  
 DISPLACEMENT 83 1/2 BBL  
 EQUIPMENT

OWNER  
 CEMENT AMOUNT ORDERED 150 SX COMB-10% SALT 270 gal  
200 SX 60/40 6% SOL  
 COMMON \_\_\_\_\_ @ \_\_\_\_\_  
 POZMIX \_\_\_\_\_ @ \_\_\_\_\_  
 GEL \_\_\_\_\_ @ \_\_\_\_\_  
 CHLORIDE \_\_\_\_\_ @ \_\_\_\_\_  
 ASC \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 HANDLING \_\_\_\_\_ @ \_\_\_\_\_  
 MILEAGE \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

REMARKS:

AN 80 JOINT'S OF NEW 15.50# CSG.  
RT @ 3526' CIRCULATE ON BOTTOM  
HR. Pump Desc, CEMENT w/  
100 SX 60/40, FOLLOWED BY 150 SX COMB.  
24R-LINE, Release LATCH DOWN  
PLUG + Displace 83 1/2 BBL H<sub>2</sub>O  
at @ 1500 #s Release PRESSURE &  
FIAT- Plug - Hold. THANKS!  
100 SX CEMENT @ Rat Hole - 15 SX @ Mouse Hole

TO: BLACKSTONE OIL & GAS LLC.

SERVICE

DEPTH OF JOB \_\_\_\_\_  
 PUMP TRUCK CHARGE \_\_\_\_\_  
 EXTRA FOOTAGE \_\_\_\_\_ @ \_\_\_\_\_  
 MILEAGE \_\_\_\_\_ @ \_\_\_\_\_  
 MANIFOLD \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

PLUG & FLOAT EQUIPMENT

1-AFU FIAT Shoe  
1-LATCH DOWN PLUG @  
1-Baffle Plate @  
4-BASKET @  
8-CENTRAZZERS @  
 \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

Oil Field Services, LLC

hereby requested to rent cementing equipment and cementer and helper(s) to assist owner or contractor to is listed. The above work was done to satisfaction vision of owner agent or contractor. I have read and the "GENERAL TERMS AND CONDITIONS" e reverse side.

ME Terry W. Piesker  
Terry W. Piesker

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

# GLOBAL OIL FIELD SERVICES, LLC

2736

REMIT TO 24 S. Lincoln  
Russell, KS 67665

SERVICE POINT Jussell, Ka.  
11-8-2016

DATE <u>11-7-16</u>	SEC <u>17</u>	TWP <u>18</u>	RANGE <u>16</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
LEASE <u>ITHACA</u>	WELL # <u>1-17</u>	LOCATION <u>Q+is</u>	<u>5 S 3 W 34 N</u>	<u>Rush</u>	<u>KANSAS</u>	<u>6:30AM</u>	

OLD OR NEW (CIRCLE ONE)

CONTRACTOR Royal DRAG Rig #1

TYPE OF JOB LONG SURFACE

HOLE SIZE 12 5/8 TD 1,000

CASING SIZE 8 5/8 NEW DEPTH 1,000

TUBING SIZE 2 3/8 casy DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX DEPTH

MEAS. LINE MINIMUM

CEMENT LEFT IN CSG. 39.81 SHOE JOINT 39.81

PERFS

DISPLACEMENT EQUIPMENT 6 1/4 BBL

PUMP TRUCK CEMENTER Herch L.

# 417 HELPER Cody H.

BULK TRUCK DRIVER Jason M.

# 481 DRIVER

OWNER

CEMENT AMOUNT ORDERED 375 SX 60/40 Poz

2% GEL

3% CC

COMMON

POZMEX

GEL

CHLORIDE

ASC

HANDLING

MILEAGE

TOTAL \_\_\_\_\_

REMARKS:

Ran 25 New Joints of 23# - 8 5/8  
Set @ Received CIRCULATION  
Cement w/ 375 SX 60/40  
Release TRP + Displace 62 BBL  
H<sub>2</sub>O, Land Plug @ 550#  
SHUT IN. Cement Did Circulate.  
THANK'S

SERVICE

DEPTH OF JOB \_\_\_\_\_

PUMP TRUCK CHARGE \_\_\_\_\_

EXTRA FOOTAGE

MILEAGE

MANIFOLD

TOTAL \_\_\_\_\_

CHARGE TO: BLACKSTONE OIL & GAS INC

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

8 5/8 PLUG & FLOAT EQUIPMENT

1 - Baffle Plate

1 - TRP

2 - BASKETS

2 - CENTRALIZERS

TOTAL \_\_\_\_\_

Global Oil Field Services, LLC  
I am hereby requested to rent cementing equipment and  
a cementer and helper(s) to assist owner or contractor to  
perform work as is listed. The above work was done to satisfaction  
in the presence of owner agent or contractor. I have read and  
understand the "GENERAL TERMS AND CONDITIONS"  
on the reverse side.

NAME Doug Budig

BY Doug Budig

SALES TAX (If Any) \_\_\_\_\_

TOTAL CHARGES \_\_\_\_\_

DISCOUNT \_\_\_\_\_ IF PAID

# GLOBAL OIL FIELD SERVICES, LLC

2737

REMIT TO 24 S. Lincoln  
Russell, KS 67665

SERVICE POINT: Russell

DATE <u>11-14-16</u>	SEC. <u>17</u>	TWP. <u>18S</u>	RANGE <u>16W</u>	CALLED OUT	ON LOCATION	JOB START <u>11-15-2016</u>	JOB FINISH <u>5:30 AM</u>
LEASE <u>ITHACA</u>		WELL # <u>1-17</u>	LOCATION <u>OTIS 5S 3W 1 1/2 NE NW</u>	COUNTY <u>Rawl</u>	STATE <u>KANSAS</u>		
OLD OR <input checked="" type="radio"/> (CIRCLE ONE)							

CONTRACTOR Royal DRG Rig #1 "Dong"  
 TYPE OF JOB PRODUCTION STRING  
 HOLE SIZE 9 3/8 T.D. 3530'  
 CASING SIZE 5 1/2 New DEPTH 3526'  
 TUBING SIZE 15.40 # CSG. DEPTH  
 DRILL PIPE DEPTH  
 TOOK LATCH DOWN Plug Assy DEPTH 3507  
 PRES. MAX MINIMUM  
 MEAS. LINE SHOE JOINT 21.02  
 CEMENT LEFT IN CSG. 21.02  
 PERFS  
 DISPLACEMENT 83 1/2 BBL  
 EQUIPMENT

OWNER  
 CEMENT AMOUNT ORDERED 150 Sx Com-10% SALT 270 gal  
200 Sx 60/40 6% SCL  
 COMMON \_\_\_\_\_ @ \_\_\_\_\_  
 POZMIX \_\_\_\_\_ @ \_\_\_\_\_  
 GEL \_\_\_\_\_ @ \_\_\_\_\_  
 CHLORIDE \_\_\_\_\_ @ \_\_\_\_\_  
 ASC \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 HANDLING \_\_\_\_\_ @ \_\_\_\_\_  
 MILEAGE \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

REMARKS:

AN 80 JOINT'S OF New 15.50#  
RT @ 3526' CIRCULATE ON Bottom  
HR. Pump Desc, Cement w/  
100 Sx 60/40, Followed By 150 Sx Com-  
PAR-LINE, Release LATCH DOWN  
Plug + Displace 83 1/2 BBL H<sub>2</sub>O  
@ 1500 #s Release Pressure &  
FIAT- Plug - Hold. THANKS!  
x Cement @ Rathole - 15 Sx @ Mouse Hole

TO: Blackstone Oil & Gas LLC.

SERVICE

DEPTH OF JOB \_\_\_\_\_  
 PUMP TRUCK CHARGE \_\_\_\_\_  
 EXTRA FOOTAGE \_\_\_\_\_ @ \_\_\_\_\_  
 MILEAGE \_\_\_\_\_ @ \_\_\_\_\_  
 MANIFOLD \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

PLUG & FLOAT EQUIPMENT

1-AFU FIAT Shoe  
1-LATCH DOWN Plug @  
1-Baffle Plate @  
4-BASKET @  
8-CENTRAZZERS @  
 \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

Oil Field Services, LLC

hereby requested to rent cementing equipment and cementer and helper(s) to assist owner or contractor to is listed. The above work was done to satisfaction vision of owner agent or contractor. I have read and the "GENERAL TERMS AND CONDITIONS" e reverse side.

ME Terry W. Piesker  
Terry W. Piesker

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



## DRILL STEM TEST REPORT

Prepared For: **Blackstone Oil & Gas (Kansas) LLC**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031

ATTN: Roger Fisher

### **Ithaca #1-17**

### **17-18S-16W Rush,KS**

Start Date: 2016.11.11 @ 04:42:00

End Date: 2016.11.11 @ 10:29:00

Job Ticket #: 63677                      DST #: 1

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

Printed: 2016.11.15 @ 10:20:35





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63677

**DST#: 1**

Test Start: 2016.11.11 @ 04:42:00

## GENERAL INFORMATION:

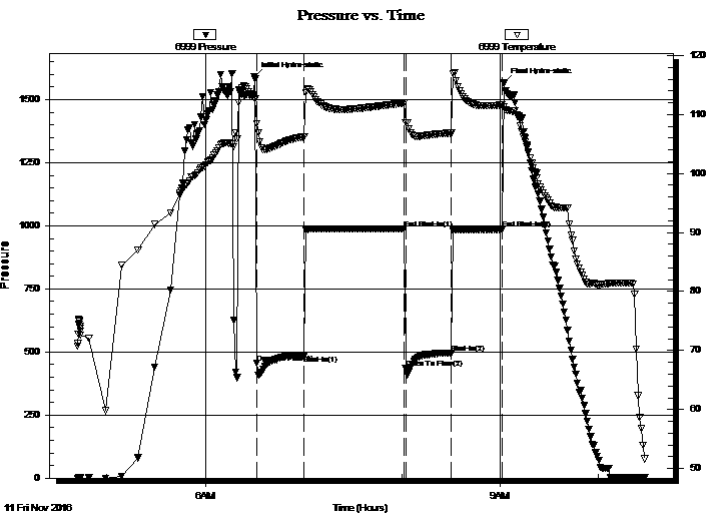
Formation: **LKC C**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 06:31:30  
 Time Test Ended: 10:29:00  
 Interval: **3195.00 ft (KB) To 3212.00 ft (KB) (TVD)**  
 Total Depth: 3212.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
 Reference Elevations: 1939.00 ft (KB)  
 1933.00 ft (CF)  
 KB to GR/CF: 6.00 ft

## Serial #: 6999

Inside

Press@RunDepth: 496.31 psig @ 3208.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.11 End Date: 2016.11.11 Last Calib.: 2016.11.11  
 Start Time: 04:42:05 End Time: 10:28:59 Time On Btm: 2016.11.11 @ 06:30:00  
 Time Off Btm: 2016.11.11 @ 09:02:30

TEST COMMENT: I.F. 30 minutes Blow built to BOB in 10 Sec/ Gas to surface in 30 sec  
 I.S.I 60 minutes No blow back  
 F.F. 30 minutes Blow built to BOB in 5 Sec  
 F.S.I.30 minutes No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1592.67	112.64	Initial Hydro-static
2	455.67	108.42	Open To Flow (1)
31	485.75	106.18	Shut-In(1)
92	988.98	111.94	End Shut-In(1)
93	435.60	108.63	Open To Flow (2)
120	496.31	106.86	Shut-In(2)
152	986.37	111.62	End Shut-In(2)
153	1565.85	111.35	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	Mud 100%	0.98

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	1.00	70.00	2426.40
Last Gas Rate	1.00	74.00	2541.39
Max. Gas Rate	1.00	74.00	2541.39



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63677

**DST#: 1**

Test Start: 2016.11.11 @ 04:42:00

## GENERAL INFORMATION:

Formation: **LKC C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:31:30

Time Test Ended: 10:29:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3195.00 ft (KB) To 3212.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3212.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 8960 Outside**

Press@RunDepth: 983.90 psig @ 3209.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.11

End Date:

2016.11.11

Last Calib.:

2016.11.11

Start Time: 04:42:05

End Time:

10:28:59

Time On Btm:

2016.11.11 @ 06:30:30

Time Off Btm:

2016.11.11 @ 09:02:30

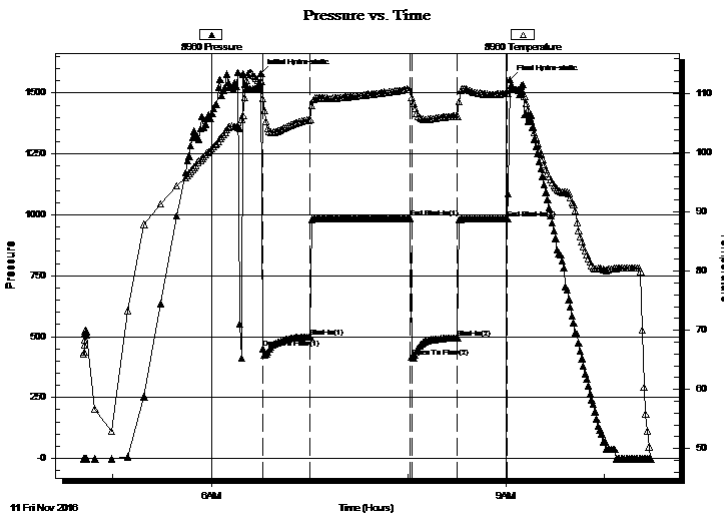
**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 10 Sec/ Gas to surface in 30 sec

I.S.I 60 minutes No blow back

F.F. 30 minutes Blow built to BOB in 5 Sec

F.S.I.30 minutes No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1580.61	112.08	Initial Hydro-static
1	451.48	109.13	Open To Flow (1)
30	497.43	105.58	Shut-In(1)
91	986.38	110.75	End Shut-In(1)
92	417.15	109.38	Open To Flow (2)
120	494.97	106.23	Shut-In(2)
151	983.90	110.03	End Shut-In(2)
152	1554.85	111.07	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	Mud 100%	0.98

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	1.00	70.00	2426.40
Last Gas Rate	1.00	74.00	2541.39
Max. Gas Rate	1.00	74.00	2541.39



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63677

**DST#: 1**

Test Start: 2016.11.11 @ 04:42:00

## Tool Information

Drill Pipe:	Length: 3205.00 ft	Diameter: 3.80 inches	Volume: 44.96 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: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 32000.00 lb
			<u>Total Volume: 44.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 28000.00 lb
Depth to Top Packer:	3195.00 ft			Final 28000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	17.00 ft			
Tool Length:	37.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3180.00	
Hydraulic tool	5.00			3185.00	
Top Packer	5.00			3190.00	
Packer	5.00			3195.00	20.00 Bottom Of Top Packer
Anchor	12.00			3207.00	
Recorder	1.00	6999	Inside	3208.00	
Recorder	1.00	8960	Outside	3209.00	
Bullnose	3.00			3212.00	17.00 Anchor Tool

**Total Tool Length: 37.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63677

**DST#: 1**

Test Start: 2016.11.11 @ 04:42:00

## Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 48.00 sec/qt

Water Loss: 9.17 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	Mud 100%	0.982

Total Length: 70.00 ft      Total Volume: 0.982 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**GAS RATES**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63677

**DST#: 1**

Test Start: 2016.11.11 @ 04:42:00

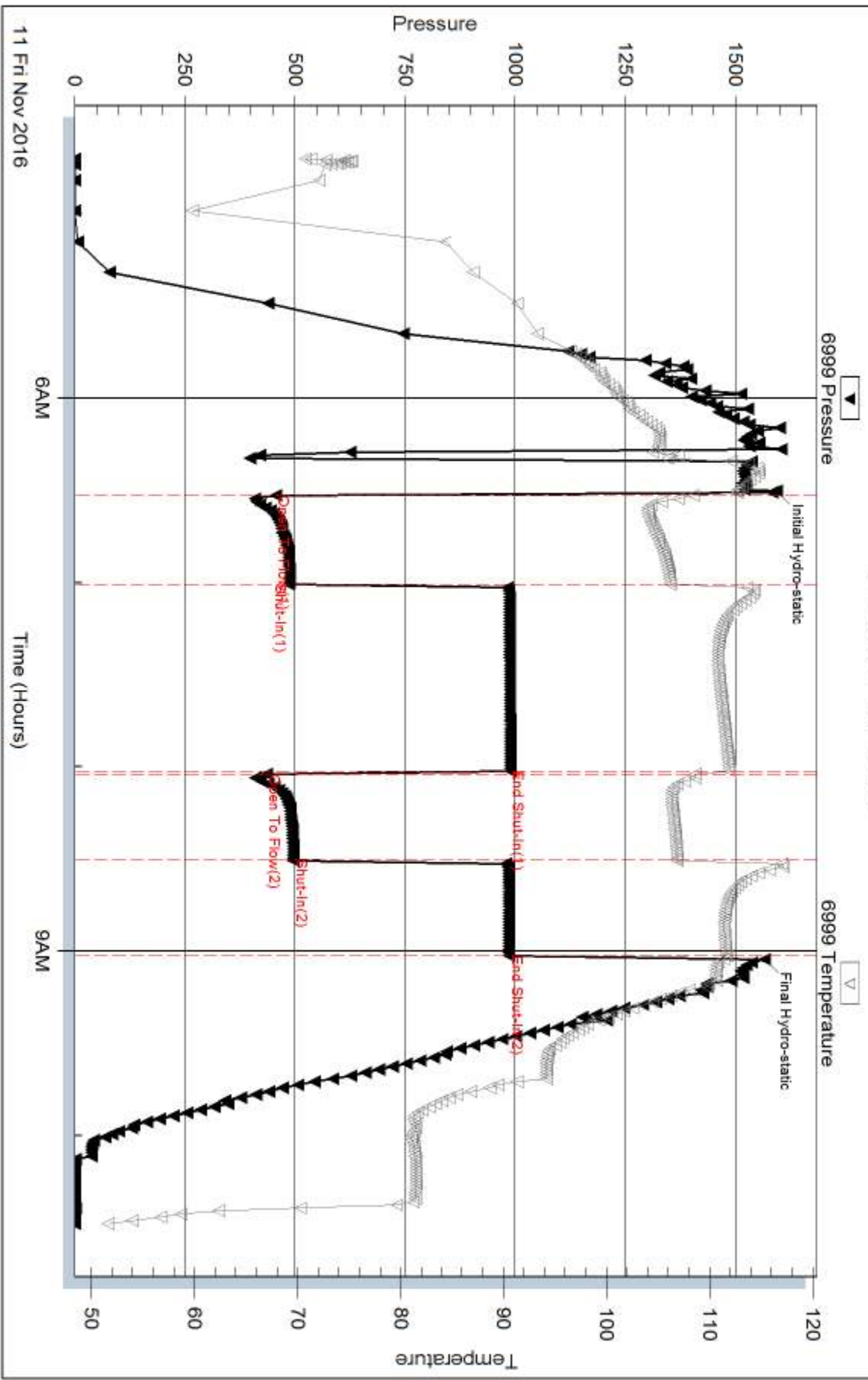
### Gas Rates Information

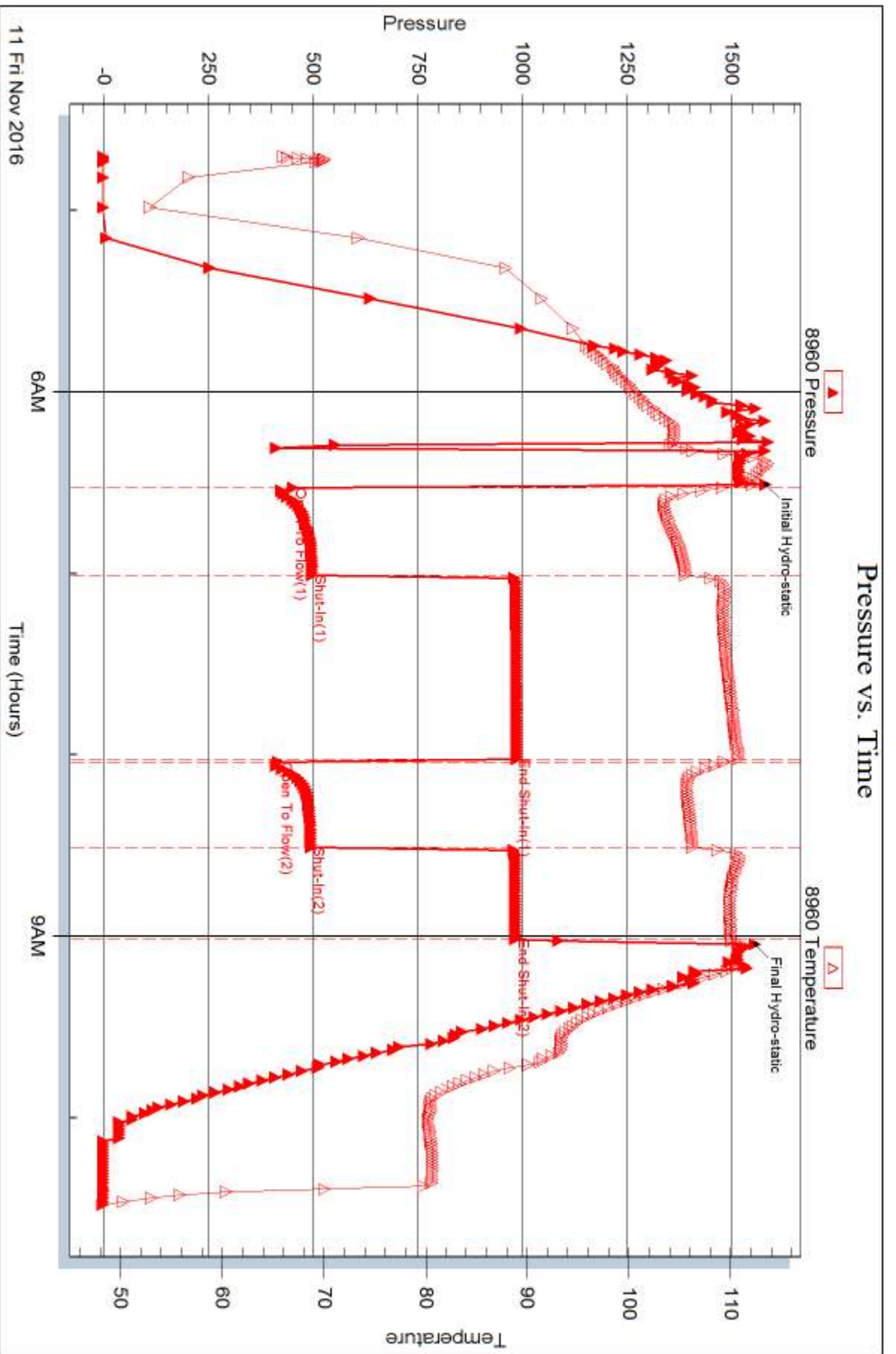
Temperature: 59 (deg F)  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
2	10	1.00	70.00	2426.40
2	20	1.00	74.00	2541.39
2	30	1.00	74.00	2541.39

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Blackstone Oil & Gas (Kansas) LLC**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031

ATTN: Roger Fisher

### **Ithaca #1-17**

### **17-18S-16W Rush,KS**

Start Date: 2016.11.11 @ 18:48:00

End Date: 2016.11.12 @ 00:50:30

Job Ticket #: 63678                      DST #: 2

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

Printed: 2016.11.15 @ 10:30:26





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63678

**DST#: 2**

Test Start: 2016.11.11 @ 18:48:00

## GENERAL INFORMATION:

Formation: **LKC F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:11:30

Time Test Ended: 00:50:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3262.00 ft (KB) To 3270.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3270.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

## Serial #: 6999

Inside

Press@RunDepth: 807.51 psig @ 3266.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.11

End Date: 2016.11.12

Last Calib.: 2016.11.12

Start Time: 18:48:05

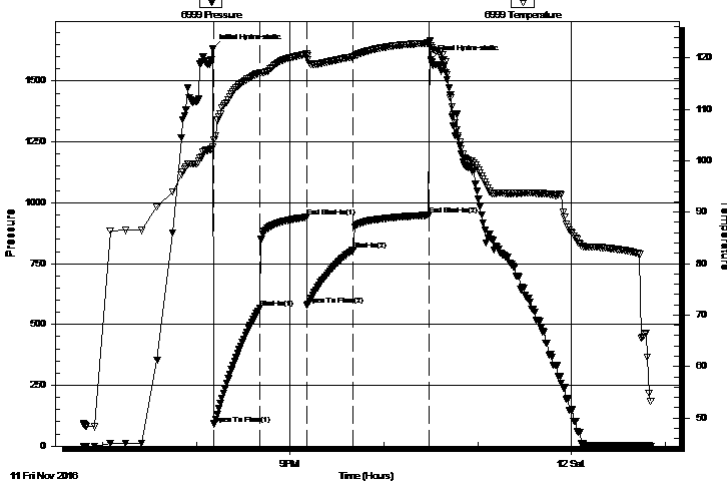
End Time: 00:50:29

Time On Btm: 2016.11.11 @ 20:10:30

Time Off Btm: 2016.11.11 @ 22:30:00

**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 1 minute 15 seconds  
I.S.I. 30 minutes Blow back built to 5 1/2 inches  
F.F. 30 minutes Blow built to BOB in 2 minutes 15 seconds  
F.S.I. 45 minutes Light surface blow back

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1632.41	102.62	Initial Hydro-static
1	91.19	104.04	Open To Flow (1)
30	566.71	117.10	Shut-In(1)
60	940.96	120.69	End Shut-In(1)
61	578.73	120.38	Open To Flow (2)
90	807.51	120.20	Shut-In(2)
138	948.98	122.83	End Shut-In(2)
140	1588.83	122.39	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1612.00	GW Gas 10% Water 90%	22.61
10.00	Clean Oil 100%	0.14
0.00	114 Gas in pipe	0.00

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63678

**DST#: 2**

Test Start: 2016.11.11 @ 18:48:00

## GENERAL INFORMATION:

Formation: **LKC F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:11:30

Time Test Ended: 00:50:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3262.00 ft (KB) To 3270.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3270.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 8960 Outside**

Press@RunDepth: 946.96 psig @ 3267.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.11

End Date: 2016.11.12

Last Calib.: 2016.11.12

Start Time: 18:48:05

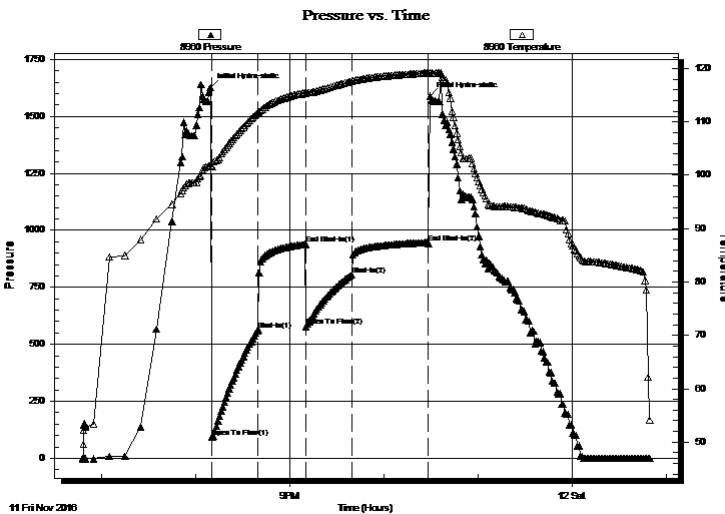
End Time: 00:49:59

Time On Btm: 2016.11.11 @ 20:09:30

Time Off Btm: 2016.11.11 @ 22:29:30

**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 1 minute 15 seconds  
I.S.I. 30 minutes Blow back built to 5 1/2 inches  
F.F. 30 minutes Blow built to BOB in 2 minutes 15 seconds  
F.S.I. 45 minutes Light surface blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1626.11	101.88	Initial Hydro-static
1	92.44	101.59	Open To Flow (1)
31	564.76	111.70	Shut-In(1)
61	938.99	115.49	End Shut-In(1)
61	577.95	115.39	Open To Flow (2)
90	803.71	117.61	Shut-In(2)
139	946.96	119.19	End Shut-In(2)
140	1588.73	119.28	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1612.00	GW Gas 10% Water 90%	22.61
10.00	Clean Oil 100%	0.14
0.00	114 Gas in pipe	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63678

**DST#: 2**

Test Start: 2016.11.11 @ 18:48:00

## Tool Information

Drill Pipe:	Length: 3268.00 ft	Diameter: 3.80 inches	Volume: 45.84 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: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 34000.00 lb
			<u>Total Volume: 45.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 29000.00 lb
Depth to Top Packer:	3262.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	8.00 ft			
Tool Length:	28.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3247.00	
Hydraulic tool	5.00			3252.00	
Top Packer	5.00			3257.00	
Packer	5.00			3262.00	20.00 Bottom Of Top Packer
Anchor	3.00			3265.00	
Recorder	1.00	6999	Inside	3266.00	
Recorder	1.00	8960	Outside	3267.00	
Bullnose	3.00			3270.00	8.00 Anchor Tool

**Total Tool Length: 28.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63678

**DST#: 2**

Test Start: 2016.11.11 @ 18:48:00

## Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 52.00 sec/qt

Water Loss: 8.78 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: 25000 ppm

deg API

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1612.00	GW Gas 10% Water 90%	22.612
10.00	Clean Oil 100%	0.140
0.00	114 Gas in pipe	0.000

Total Length: 1622.00 ft      Total Volume: 22.752 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

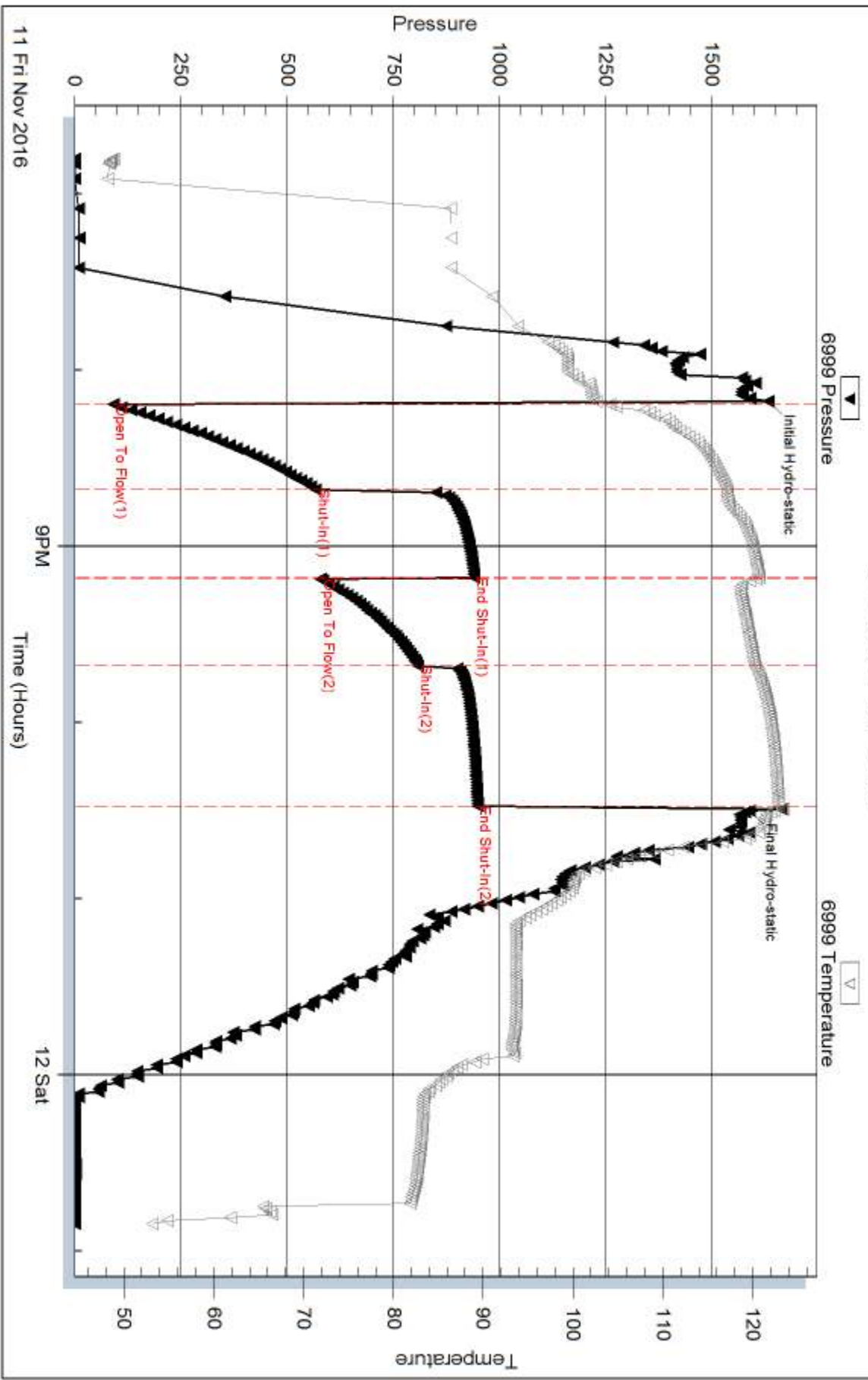
Serial #:

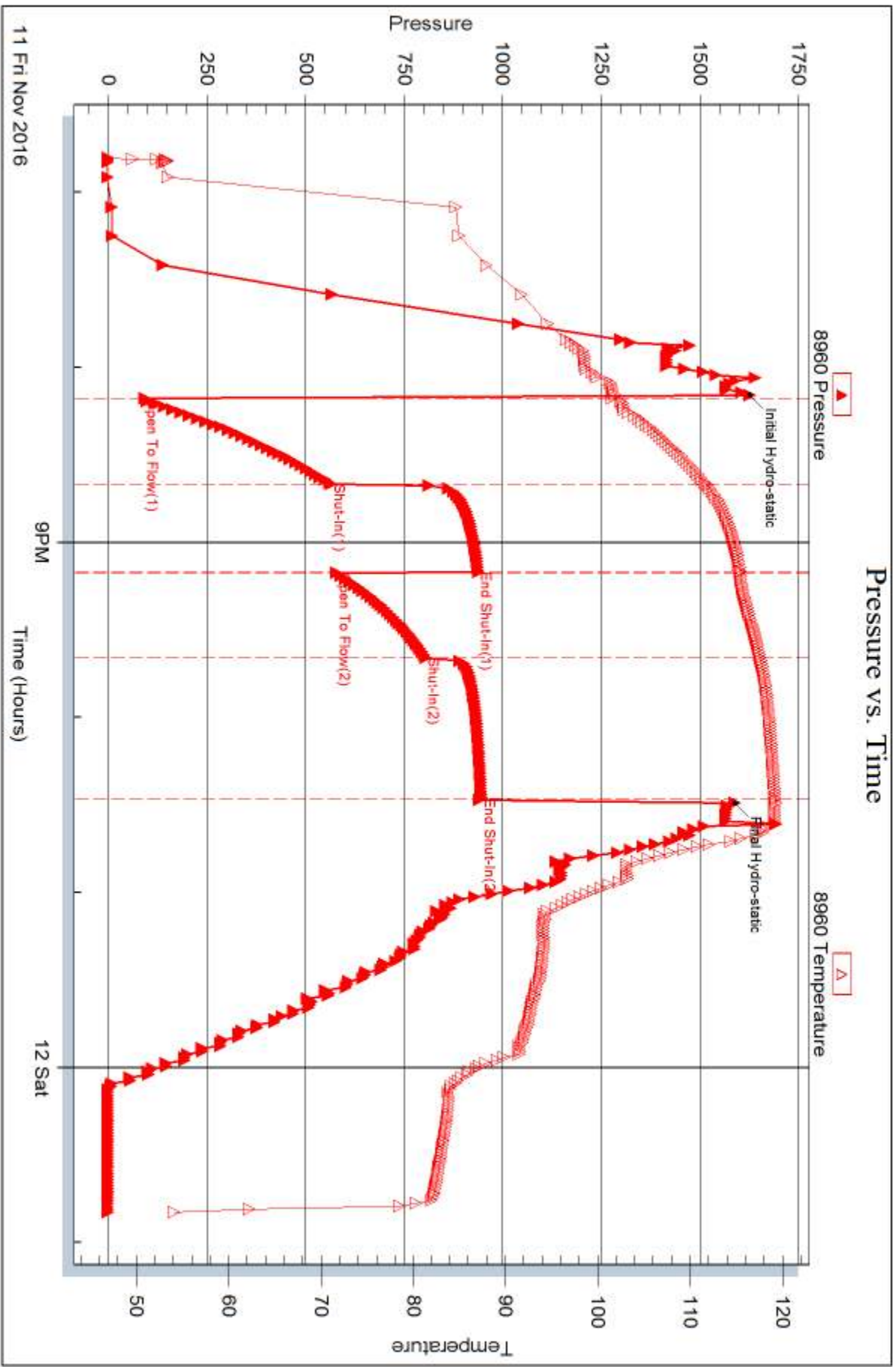
Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Resistivity .51 ohms @ 36 degrees

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Blackstone Oil & Gas (Kansas) LLC**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031

ATTN: Roger Fisher

**Ithaca #1-17**

**17-18S-16W Rush,KS**

Start Date: 2016.11.12 @ 08:03:00

End Date: 2016.11.12 @ 13:56:30

Job Ticket #: 63679                      DST #: 3

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

Printed: 2016.11.15 @ 10:30:04



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63679

**DST#: 3**

Test Start: 2016.11.12 @ 08:03:00

## GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:44:30

Time Test Ended: 13:56:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3299.00 ft (KB) To 3321.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3321.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 6999**

**Inside**

Press@RunDepth: 218.51 psig @ 3317.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.12

End Date:

2016.11.12

Last Calib.:

2016.11.12

Start Time:

08:03:05

End Time:

13:56:29

Time On Btm:

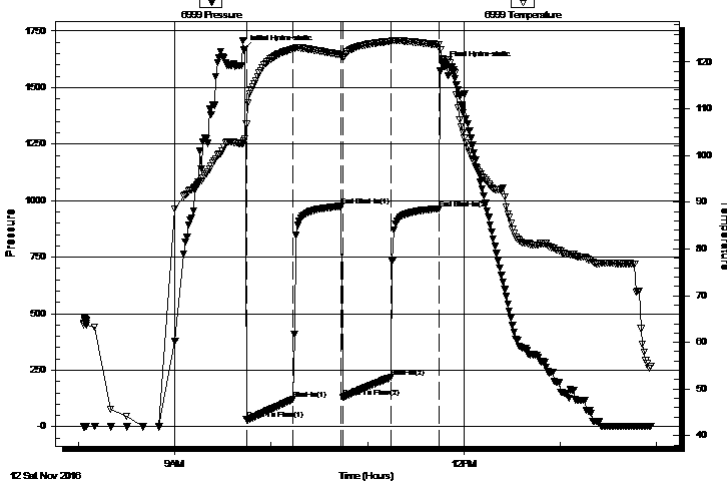
2016.11.12 @ 09:43:00

Time Off Btm:

2016.11.12 @ 11:47:00

**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 4 minutes  
I.S.I. 30 minutes Blow back built to 7"  
F.F. 30 minutes Blow built to BOB in 8 minutes  
F.S.I. 30 minutes Blow back built to 3"

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1665.80	103.03	Initial Hydro-static
2	31.41	106.71	Open To Flow (1)
31	121.72	122.81	Shut-In(1)
61	974.95	121.61	End Shut-In(1)
62	129.53	120.84	Open To Flow (2)
92	218.51	124.47	Shut-In(2)
122	964.60	123.73	End Shut-In(2)
124	1598.92	120.64	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
310.00	OCMW Oil 5% Mud 10% Water 85%	4.35
372.00	GO Gas 15% Oil 85%	5.22
0.00	248' GIP	0.00

## Gas Rates

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





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63679

**DST#: 3**

Test Start: 2016.11.12 @ 08:03:00

## GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:44:30

Time Test Ended: 13:56:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3299.00 ft (KB) To 3321.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3321.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 8960 Outside**

Press@RunDepth: 962.81 psig @ 3318.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.12

End Date:

2016.11.12

Last Calib.:

2016.11.12

Start Time: 08:03:05

End Time:

13:55:59

Time On Btm:

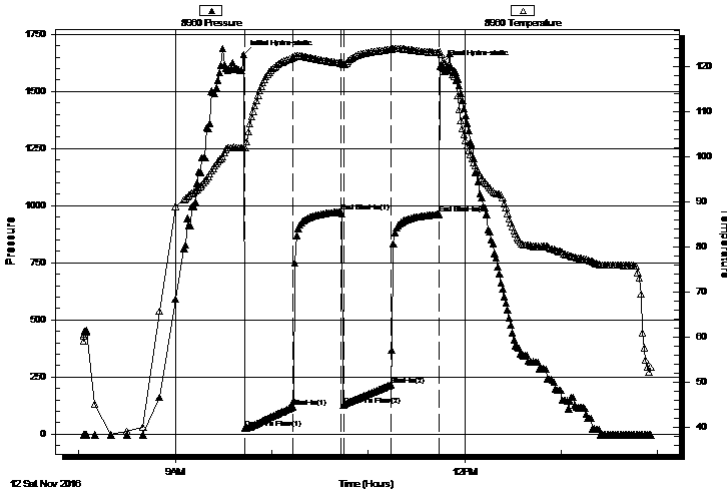
2016.11.12 @ 09:42:30

Time Off Btm:

2016.11.12 @ 11:45:30

**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 4 minutes  
I.S.I. 30 minutes Blow back built to 7"  
F.F. 30 minutes Blow built to BOB in 8 minutes  
F.S.I. 30 minutes Blow back built to 3"

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1662.71	102.02	Initial Hydro-static
1	26.27	101.97	Open To Flow (1)
31	120.26	121.92	Shut-In(1)
61	973.25	120.75	End Shut-In(1)
62	129.01	120.36	Open To Flow (2)
92	217.06	123.78	Shut-In(2)
122	962.81	123.08	End Shut-In(2)
123	1618.25	122.59	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
310.00	OCMW Oil 5% Mud 10% Water 85%	4.35
372.00	GO Gas 15% Oil 85%	5.22
0.00	248' GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63679

**DST#: 3**

Test Start: 2016.11.12 @ 08:03:00

## Tool Information

Drill Pipe:	Length: 3301.00 ft	Diameter: 3.80 inches	Volume: 46.30 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: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 32000.00 lb
			<u>Total Volume: 46.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 28000.00 lb
Depth to Top Packer:	3299.00 ft			Final 28000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut-In Tool	5.00			3284.00	
Hydraulic tool	5.00			3289.00	
Top Packer	5.00			3294.00	
Packer	5.00			3299.00	20.00 Bottom Of Top Packer
Anchor	17.00			3316.00	
Recorder	1.00	6999	Inside	3317.00	
Recorder	1.00	8960	Outside	3318.00	
Bullnose	3.00			3321.00	22.00 Anchor Tool

**Total Tool Length: 42.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63679

**DST#: 3**

Test Start: 2016.11.12 @ 08:03:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 52.00 sec/qt  
Water Loss: 8.78 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 5000.00 ppm  
Filter Cake: 1.00 inches

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

Oil API: 21 deg API  
Water Salinity: 28000 ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
310.00	OCMW Oil 5% Mud 10% Water 85%	4.348
372.00	GO Gas 15% Oil 85%	5.218
0.00	248' GIP	0.000

Total Length: 682.00 ft      Total Volume: 9.566 bbl

Num Fluid Samples: 0

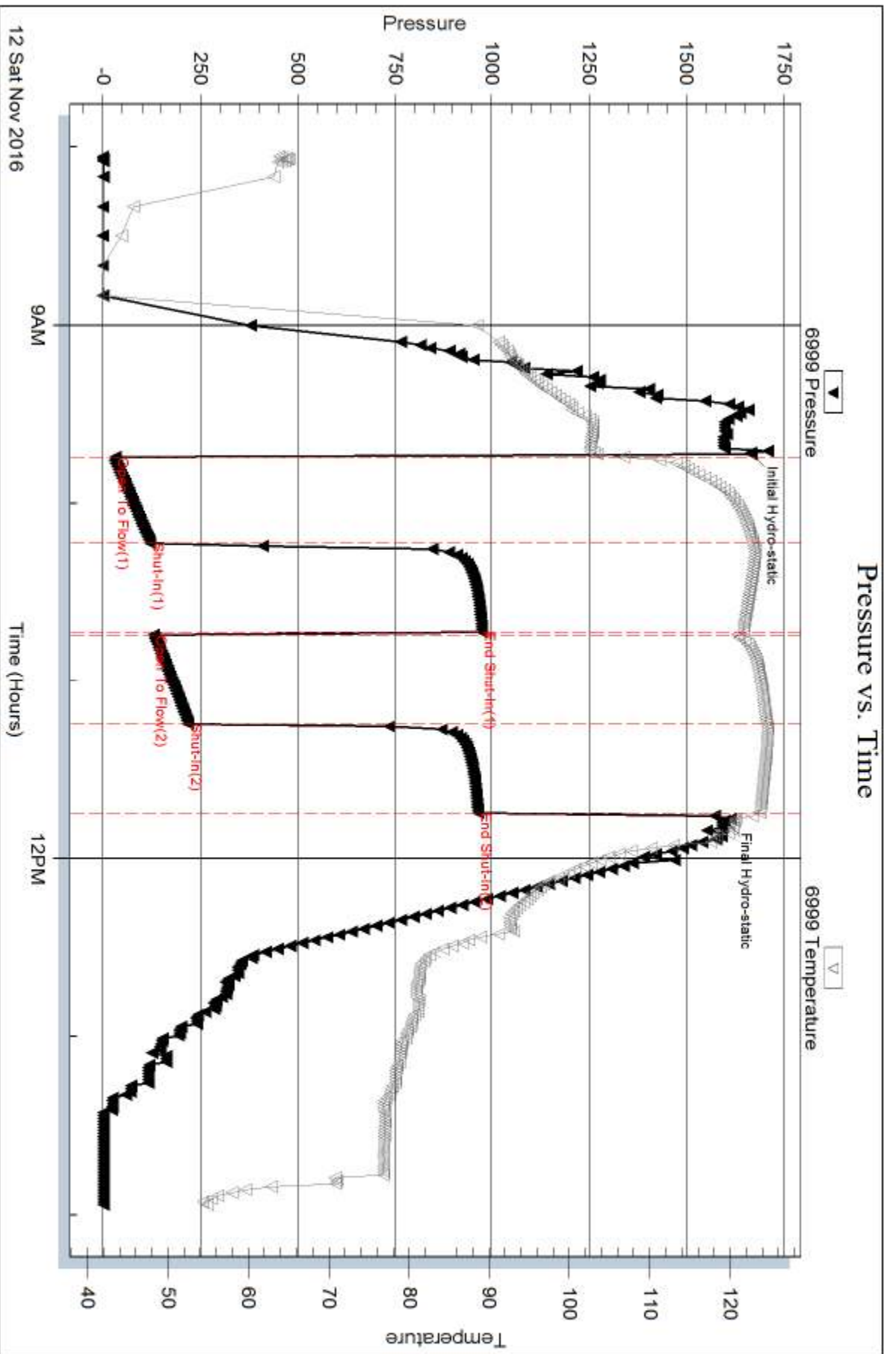
Num Gas Bombs: 0

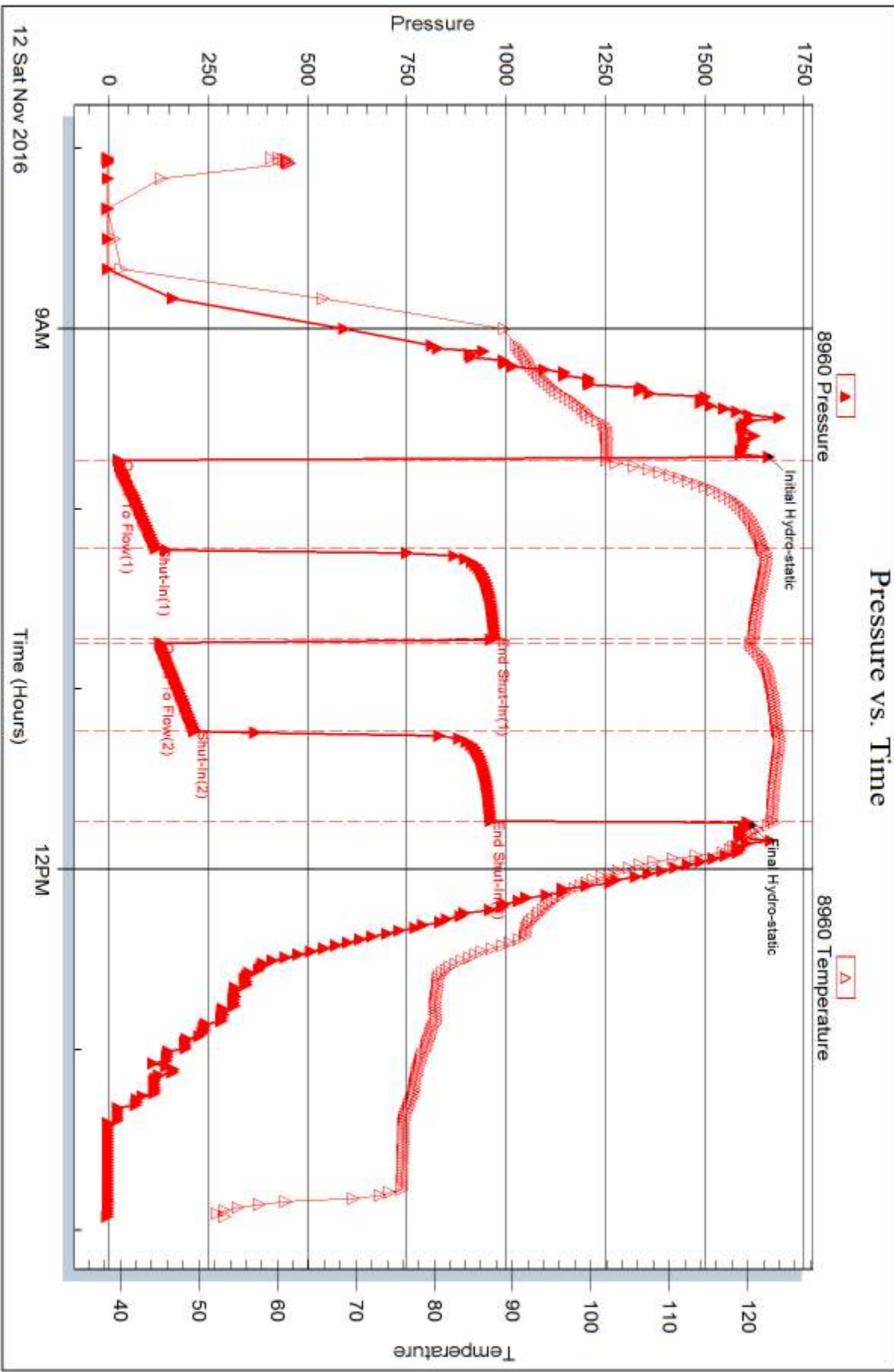
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Chlorides .275 ohms @ 60 degrees







## DRILL STEM TEST REPORT

Prepared For: **Blackstone Oil & Gas (Kansas) LLC**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031

ATTN: Roger Fisher

### **Ithaca #1-17**

### **17-18S-16W Rush,KS**

Start Date: 2016.11.12 @ 23:35:00

End Date: 2016.11.13 @ 04:26:30

Job Ticket #: 63680                      DST #: 4

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

Printed: 2016.11.15 @ 10:27:08



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63680

**DST#: 4**

Test Start: 2016.11.12 @ 23:35:00

## GENERAL INFORMATION:

Formation: **LKC K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:02:30

Time Test Ended: 04:26:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3362.00 ft (KB) To 3371.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3371.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 6999 Inside**

Press@RunDepth: 13.32 psig @ 3367.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.12

End Date:

2016.11.13

Last Calib.:

2016.11.13

Start Time: 23:35:05

End Time:

04:26:29

Time On Btm:

2016.11.13 @ 01:01:00

Time Off Btm:

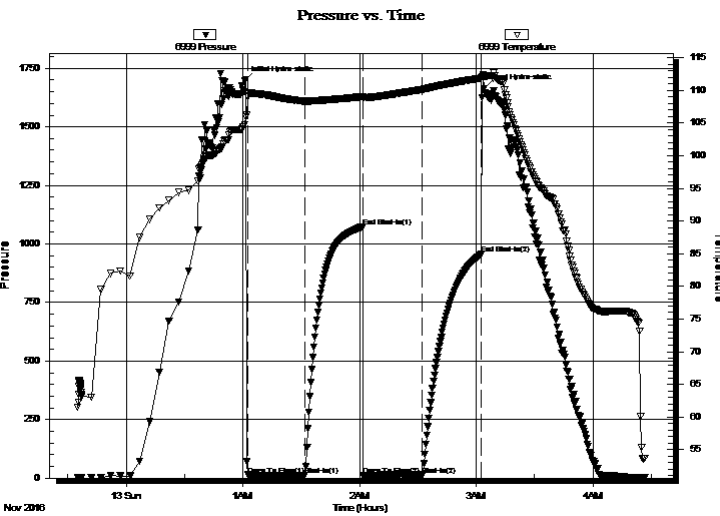
2016.11.13 @ 03:04:00

**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 10 seconds GTS in 23 minutes to light to guage

I.S.I. 30 minutes No blow back

F.F. 30 minutes BOB at open

F.S.I. 30 minutes No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1695.41	104.75	Initial Hydro-static
2	13.67	108.95	Open To Flow (1)
31	11.67	108.33	Shut-In(1)
61	1072.10	109.06	End Shut-In(1)
61	13.23	108.87	Open To Flow (2)
91	13.32	110.13	Shut-In(2)
122	955.50	111.88	End Shut-In(2)
123	1664.61	112.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100%	0.14
0.00	GTS	0.00

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	6.00	7.63
Last Gas Rate	0.13	7.00	8.01
Max. Gas Rate	0.13	7.00	8.01



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63680

**DST#: 4**

Test Start: 2016.11.12 @ 23:35:00

## GENERAL INFORMATION:

Formation: **LKC K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:02:30

Time Test Ended: 04:26:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 72

**Interval: 3362.00 ft (KB) To 3371.00 ft (KB) (TVD)**

Reference Elevations: 1939.00 ft (KB)

Total Depth: 3371.00 ft (KB) (TVD)

1933.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 8960 Outside**

Press@RunDepth: 952.98 psig @ 3368.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.11.12

End Date:

2016.11.13

Last Calib.:

2016.11.13

Start Time: 23:35:05

End Time:

04:25:59

Time On Btm:

2016.11.13 @ 01:01:00

Time Off Btm:

2016.11.13 @ 03:03:00

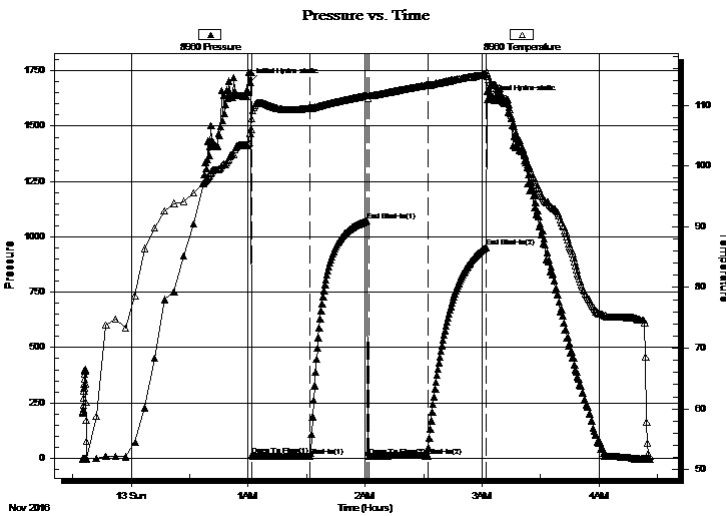
**TEST COMMENT:** I.F. 30 minutes Blow built to BOB in 10 seconds GTS in 23 minutes to light to guage

I.S.I. 30 minutes No blow back

F.F. 30 minutes BOB at open

F.S.I. 30 minutes No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1698.53	105.41	Initial Hydro-static
1	12.45	107.80	Open To Flow (1)
31	9.91	109.56	Shut-In(1)
60	1071.34	111.63	End Shut-In(1)
61	11.07	111.56	Open To Flow (2)
91	11.41	113.35	Shut-In(2)
121	952.98	115.05	End Shut-In(2)
122	1622.08	114.81	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100%	0.14
0.00	GTS	0.00

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	6.00	7.63
Last Gas Rate	0.13	7.00	8.01
Max. Gas Rate	0.13	7.00	8.01





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63680

**DST#: 4**

Test Start: 2016.11.12 @ 23:35:00

## Tool Information

Drill Pipe:	Length: 3362.00 ft	Diameter: 3.80 inches	Volume: 47.16 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: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 30000.00 lb
			<u>Total Volume: 47.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 28000.00 lb
Depth to Top Packer:	3362.00 ft			Final 28000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	29.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut-In Tool	5.00			3347.00	
Hydraulic tool	5.00			3352.00	
Top Packer	5.00			3357.00	
Packer	5.00			3362.00	20.00 Bottom Of Top Packer
Anchor	4.00			3366.00	
Recorder	1.00	6999	Inside	3367.00	
Recorder	1.00	8960	Outside	3368.00	
Bullnose	3.00			3371.00	9.00 Anchor Tool

**Total Tool Length: 29.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63680

**DST#: 4**

Test Start: 2016.11.12 @ 23:35:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 57.00 sec/qt  
Water Loss: 8.79 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 5000.00 ppm  
Filter Cake: 1.00 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
10.00	Mud 100%	0.140
0.00	GTS	0.000

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:



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**GAS RATES**

Blackstone Oil & Gas (Kansas) LLC

**17-18S-16W Rush,KS**

1301 McKinney Street  
Suite 2875  
Houston, TX 77010+3031  
ATTN: Roger Fisher

**Ithaca #1-17**

Job Ticket: 63680

**DST#: 4**

Test Start: 2016.11.12 @ 23:35:00

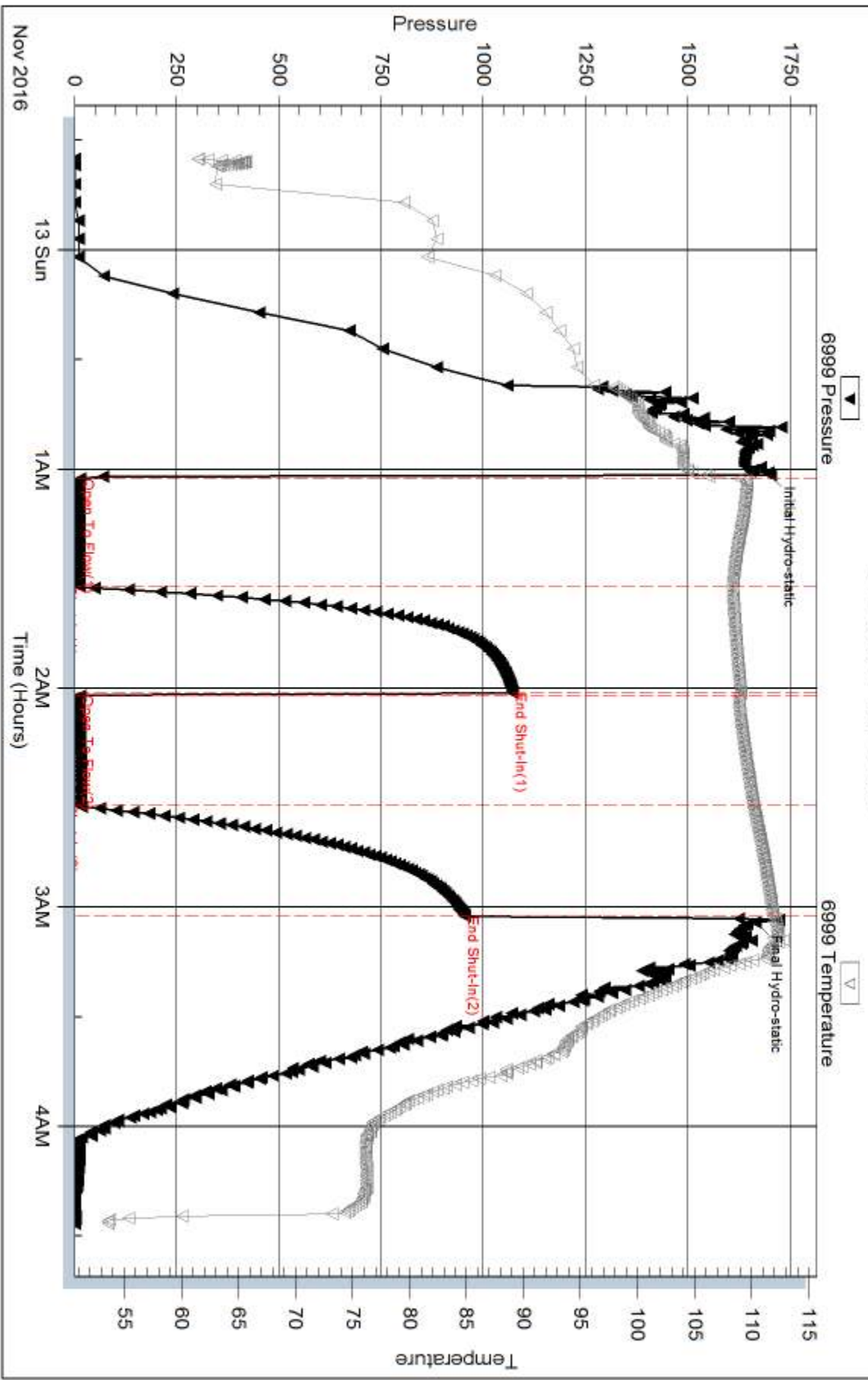
### Gas Rates Information

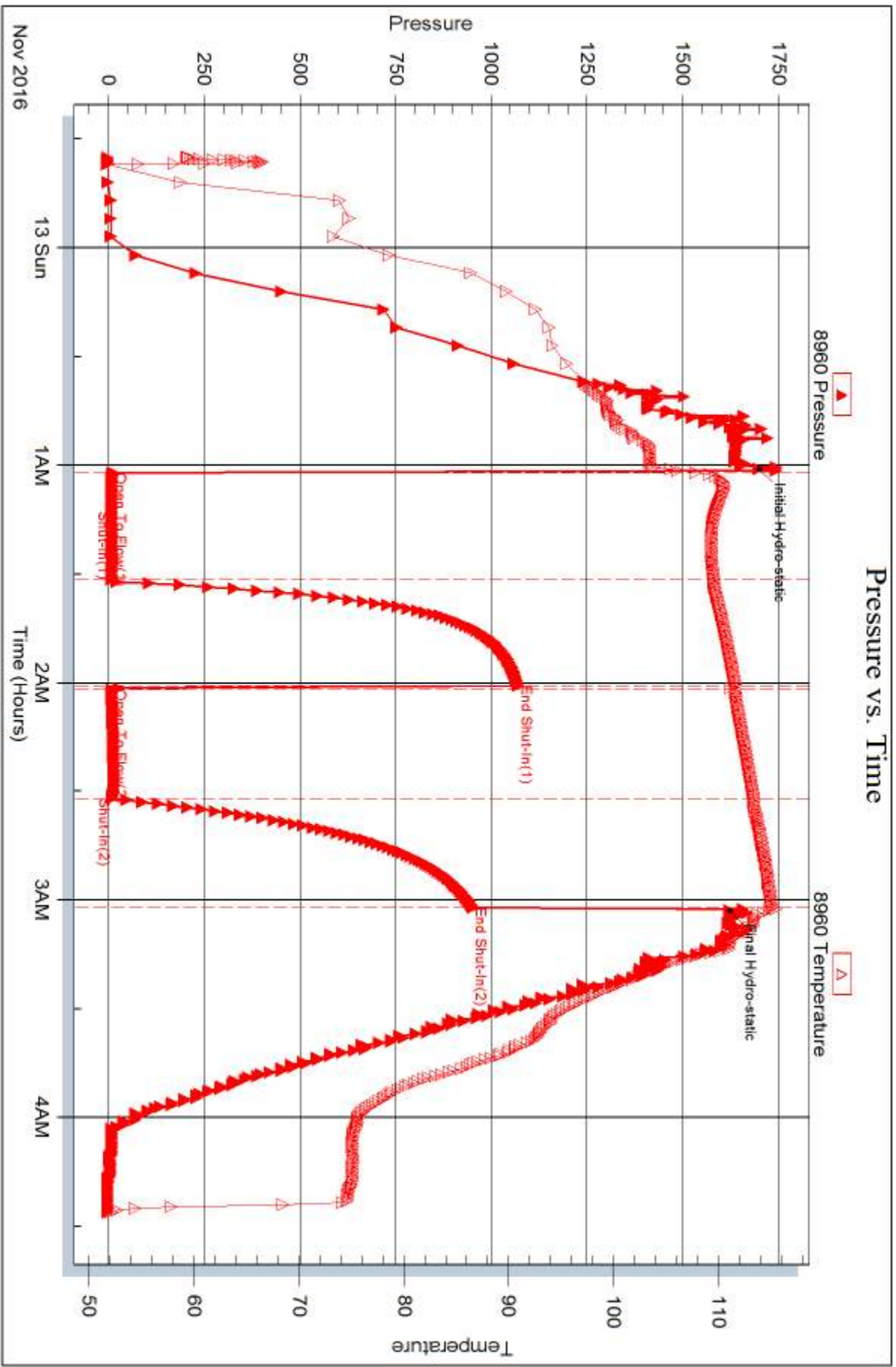
Temperature: 59 (deg F)  
Relative Density: 0.65  
Z Factor: 0.8

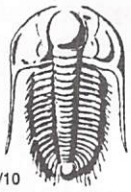
Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
2	10	0.13	6.00	7.63
2	20	0.13	7.00	8.01
2	30	0.13	7.00	8.01

### Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63677**

Well Name & No. Ithaca #1-17 Test No. 1 Date 11 NOV 16  
 Company Blackstone Oil & Gas (Kansas) LLC Elevation 1939 KB 1933 GL  
 Address 1301 McKinney Street Suite 2875 Houston TX 77010+3031  
 Co. Rep / Geo. Roger Fisher Rig Royal Rig 1  
 Location: Sec. 17 Twp. 186 Rge. 16W Co. Rush State KS

Interval Tested 3195-3212 Zone Tested Lansing/Kansas City zone C  
 Anchor Length 17 Drill Pipe Run 3205 Mud Wt. 8.7  
 Top Packer Depth 3190 Drill Collars Run — Vis 48  
 Bottom Packer Depth 3195 Wt. Pipe Run — WL 9.2  
 Total Depth 3212 Chlorides 5000 ppm System LCM 2#

Blow Description I.F. Blow built to BOB in 10 sec. Gas to surface in 30 sec  
I.S.I. no blow back

F.F. Blow built to BOB in 5 sec.

F.S.I. no blow back / Light oil coat in pipe when pulled test

Rec	Feet of	%gas	%oil	%water	%mud
<u>70</u>	<u>Mud</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	Feet of	%gas	%oil	%water	%mud

Rec Total 70 BHT 117 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

- (A) Initial Hydrostatic 1592
- (B) First Initial Flow 455
- (C) First Final Flow 485
- (D) Initial Shut-In 988
- (E) Second Initial Flow 435
- (F) Second Final Flow 496
- (G) Final Shut-In 986
- (H) Final Hydrostatic 1565

- Test 1050
- Jars \_\_\_\_\_
- Safety Joint \_\_\_\_\_
- Circ Sub \_\_\_\_\_
- Hourly Standby \_\_\_\_\_
- Mileage 44 33
- Sampler \_\_\_\_\_
- Straddle \_\_\_\_\_
- Shale Packer \_\_\_\_\_
- Extra Packer \_\_\_\_\_
- Extra Recorder \_\_\_\_\_
- Day Standby \_\_\_\_\_
- Accessibility \_\_\_\_\_
- Sub Total 1083

T-On Location 2:41 am  
 T-Started 4:42 am  
 T-Open 6:30 am  
 T-Pulled 9:00 am  
 T-Out 10:29 am

Comments \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies 2 copies  
 Sub Total \_\_\_\_\_  
 Total 1083  
 MP/DST Disc't \_\_\_\_\_

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

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63678**

Well Name & No. Ithaca #1-17 Test No. 2 Date 11 NOV 16  
 Company Blackstone Oil & Gas (Kansas) LLC Elevation 1939 KB 1933 GL  
 Address 1301 McKinney Street Suite 2875 Houston TX 77010+3031  
 Co. Rep / Geo. Roger Fister Rig Royal Rig 2  
 Location: Sec. 17 Twp. 18S Rge. 16W Co. Rush State KS

Interval Tested 3262-3270 Zone Tested Lansing/Kansas City zone F  
 Anchor Length 8 Drill Pipe Run 3268 Mud Wt. 9.0  
 Top Packer Depth 3257 Drill Collars Run ✓ Vis 52  
 Bottom Packer Depth 3262 Wt. Pipe Run ✓ WL 8.8  
 Total Depth 3270 Chlorides 5000 ppm System LCM 2#

Blow Description I.F. Blow built to bottom of bucket in 1 min 15 sec  
F.S.I. Blow back built to 5 1/2 inches  
F.F. Blow built to bottom of bucket in 2 min 15 sec  
F.S.I. Light surface blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>1612</u>	<u>Gassy Water</u>	<u>10%</u>	<u>90%</u>	<u>0%</u>	<u>0%</u>
<u>10</u>	<u>Clean oil</u>	<u>100%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
<u>114</u>	<u>Gas in pipe</u>	<u>100%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

Rec Total      BHT 122 Gravity      API RW .51 @ 36 °F Chlorides 25,000 ppm

(A) Initial Hydrostatic 1632  Test 1050 T-On Location 6:16 pm  
 (B) First Initial Flow 91  Jars      T-Started 6:48 pm  
 (C) First Final Flow 566  Safety Joint      T-Open 8:11 pm  
 (D) Initial Shut-In 940  Circ Sub      T-Pulled 10:26 pm  
 (E) Second Initial Flow 578  Hourly Standby      T-Out 12:50 am  
 (F) Second Final Flow 807  Mileage 44 33 Comments       
 (G) Final Shut-In 948  Sampler       
 (H) Final Hydrostatic 1588  Straddle       Ruined Shale Packer       
 Shale Packer       Ruined Packer       
 Extra Packer       Extra Copies       
 Initial Open 30  Extra Recorder      Sub Total 0  
 Initial Shut-In 30  Day Standby      Total 1083  
 Final Flow 30  Accessibility      MP/DST Disc't       
 Final Shut-In 45 Sub Total 1083

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63679**

4/10

Well Name & No. Ithaca #1-17 Test No. 3 Date 12 NOV 16  
 Company Blackstone Oil & Gas (Kansas) LLC Elevation 1939 KB 1933 GL  
 Address 1301 McKinney Street Suite 2875 Houston TX 77010+3031  
 Co. Rep / Geo. Roger Fisher Rig Royal Rig 2  
 Location: Sec. 17 Twp. 185 Rge. 16W Co. Rush State KS

Interval Tested 3299-3321 Zone Tested Lansing/Kansas City zone H  
 Anchor Length 22 Drill Pipe Run 3301 Mud Wt. 9  
 Top Packer Depth 3294 Drill Collars Run — Vis 52  
 Bottom Packer Depth 3299 Wt. Pipe Run — WL 8.8  
 Total Depth 3321 Chlorides 5000 ppm System LCM 2#

Blow Description I.F. Blow built to bottom of bucket in 4 minutes  
I.S.I Blow back built to 7 inches  
F.F. Blow built to bottom of bucket in 8 minutes  
F.S.I Blow back built to 3 inches

Rec	Feet of	%gas	%oil	%water	%mud
<u>310</u>	<u>oil cut Muddy Water</u>		<u>5</u>	<u>85</u>	<u>10</u>
<u>372</u>	<u>Gassy Oil</u>	<u>15</u>	<u>85</u>		
<u>248</u>	<u>Gas in Pipe</u>	<u>100</u>			

Rec Total 682 BHT 124 Gravity 21 API RW .275 @ 60 °F Chlorides 28,000 ppm

(A) Initial Hydrostatic 1665  Test 1050 T-On Location 7:25 am  
 (B) First Initial Flow 31  Jars \_\_\_\_\_ T-Started 8:03 am  
 (C) First Final Flow 121  Safety Joint \_\_\_\_\_ T-Open 9:43 am  
 (D) Initial Shut-In 974  Circ Sub \_\_\_\_\_ T-Pulled 11:43 am  
 (E) Second Initial Flow 129  Hourly Standby \_\_\_\_\_ T-Out 1:57 pm  
 (F) Second Final Flow 218  Mileage 44 33 Comments \_\_\_\_\_  
 (G) Final Shut-In 964  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1598  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies 2 copies 5  
 Initial Open 30  Extra Packer \_\_\_\_\_ Sub Total 5  
 Initial Shut-In 30  Extra Recorder \_\_\_\_\_ Total 1088  
 Final Flow 30  Day Standby \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 30  Accessibility \_\_\_\_\_  
 Sub Total 1083

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63680**

4/10

Well Name & No. Ithaca #17 Test No. 4 Date 12 NOV 16  
 Company Blackstone Oil & Gas (Kansas) LLC Elevation 1939 KB 1933 GL  
 Address 1301 McKinney Street Suite 2875 Houston TX 77010+3031  
 Co. Rep / Geo. Roger Fisher Rig Royal Rig 1  
 Location: Sec. 17 Twp. 18S Rge. 16W Co. Rush State KS

Interval Tested 3362-3371 Zone Tested Lansing/Kansas City zone K  
 Anchor Length 9 Drill Pipe Run 3362 Mud Wt. 9.0  
 Top Packer Depth 3357 Drill Collars Run - Vis 57  
 Bottom Packer Depth 3362 Wt. Pipe Run - WL 8.8  
 Total Depth 3371 Chlorides 5000 ppm System LCM 1#

Blow Description IF Blow built to bottom of bucket in 10 seconds/Gas 73min  
I.S.I. No blow back  
F.F. Blow at bottom of bucket at open  
F.S.I. No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud</u>			<u>100</u>	

Rec Total 10 BHT 112 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1695  Test 1050 T-On Location 10:59 pm  
 (B) First Initial Flow 13  Jars \_\_\_\_\_ T-Started 11:25 pm  
 (C) First Final Flow 11  Safety Joint \_\_\_\_\_ T-Open 1:02 am  
 (D) Initial Shut-In 1072  Circ Sub \_\_\_\_\_ T-Pulled 3:07 am  
 (E) Second Initial Flow 13  Hourly Standby \_\_\_\_\_ T-Out 4:23 am  
 (F) Second Final Flow 13  Mileage 44 66 Comments \_\_\_\_\_  
 (G) Final Shut-In 953  Sampler \_\_\_\_\_ loaded tools 10/14 10:35  
 (H) Final Hydrostatic 1664  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 30  Day Standby \_\_\_\_\_ Total 1116  
 Final Shut-In 30  Accessibility \_\_\_\_\_ MP/DST Disc \_\_\_\_\_  
 Sub Total 1116

Approved By B J FEA Our Representative \_\_\_\_\_

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