



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1149645  
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: \_\_\_\_\_

1149645

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> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Carrie Exploration & Development, a General Partnership
Well Name	Hayes C-1
Doc ID	1149645

Tops

Name	Top	Datum
Tarkio	2475	-672
Topeka	2724	-921
Heebner	3000	-1197
Douglas	3034	-1291
LKC	3140	-1337
BKC	3370	-1567
Arbuckle	3415	-1612
RTD	3520	-1717

Form	ACO1 - Well Completion
Operator	Carrie Exploration & Development, a General Partnership
Well Name	Hayes C-1
Doc ID	1149645

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	3415-3444	150 gal 15% MOD	3415-3442
		750 gal 15% MOD	3415-3442
		40 sacks cement W 50lb C-12	3415-3442
		150 gal 15% MOD	3415-3444
		750 gal 15% HCL w Hyflo	3415-3444
		1500 gal 15 %MOD 202 w Hyflo	3415-3444



## DRILL STEM TEST REPORT

Prepared For: **Carrie Exploration & Development**

210 W. 22nd  
Hays Kansas, 67601

ATTN: Jeff Lawler

**Hayes #C-1**

**8/21s/11w/Stafford**

Start Date: 2013.06.20 @ 00:05:00

End Date: 2013.06.20 @ 06:19:00

Job Ticket #: 17600                      DST #: 1

Superior Testers Enterprises LLC  
PO Box 138 Great Bend KS 67530  
1-800-792-6902

Printed: 2013.06.20 @ 06:37:43

Carrie Exploration & Development  
8/21s/11w/Stafford  
Hayes #C-1  
DST # 1  
LKC "I-J"  
2013.06.20



# DRILL STEM TEST REPORT

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 17600

DST#: 1

ATTN: Jeff Lawler

Test Start: 2013.06.20 @ 00:05:00

## GENERAL INFORMATION:

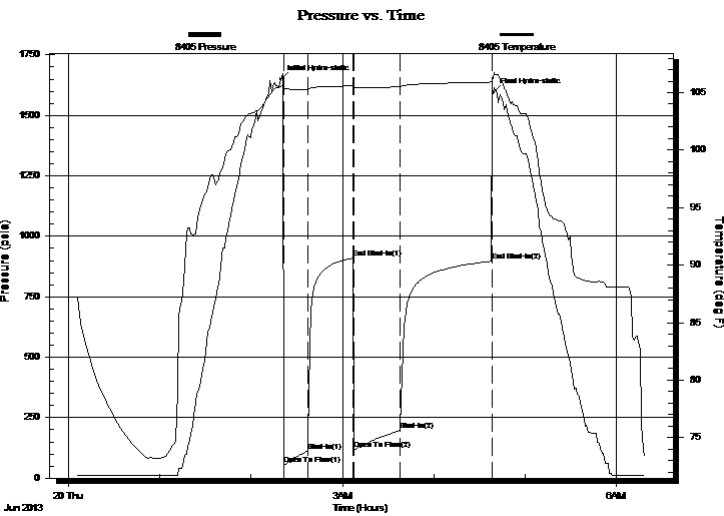
Formation: **LKC "I-J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 02:21:30  
 Time Test Ended: 06:19:00  
 Interval: **3290.00 ft (KB) To 3340.00 ft (KB) (TVD)**  
 Total Depth: 3340.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: 3330/50/Great Bend  
 Reference Elevations: 1803.00 ft (KB)  
 1795.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8405

Inside

Press @ Run Depth: 196.41 psia @ 3336.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.06.20 End Date: 2013.06.20 Last Calib.: 2013.06.20  
 Start Time: 00:05:00 End Time: 06:19:00 Time On Btm: 2013.06.20 @ 02:19:30  
 Time Off Btm: 2013.06.20 @ 04:39:00

TEST COMMENT: 1st Open/ 15 Minutes. Good blow built to bottom of 5 gallon bucket in 10 minutes.  
 1st SHut In/ 30 Minutes. No blow back.  
 2nd Open/ 30 Minutes. Fair blow built to bottom of 5 gallon bucket in 16 1/2 minutes.  
 2nd SHut In/ 60 Minutes. No Blow Back.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1648.25	105.50	Initial Hydro-static
2	56.28	105.37	Open To Flow (1)
18	110.70	105.28	Shut-In(1)
48	910.09	105.59	End Shut-In(1)
48	119.26	105.38	Open To Flow (2)
78	196.41	105.52	Shut-In(2)
139	896.78	105.92	End Shut-In(2)
140	1592.03	106.31	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	No gas	0.00
126.00	20% mud, 80% water, trace of oil	1.77
189.00	10% mud, 90% water, trace of oil.	2.65
0.00	Chloride recov. 31000 ppm	0.00
0.00	esist recov, .22 ohms at 40 degrees	0.00

## Gas Rates

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



# DRILL STEM TEST REPORT

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 17600

DST#: 1

ATTN: Jeff Lawler

Test Start: 2013.06.20 @ 00:05:00

## GENERAL INFORMATION:

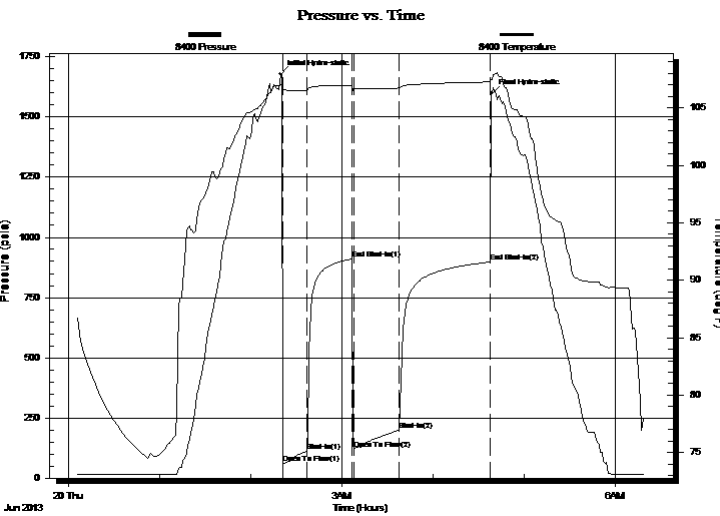
Formation: **LKC "I-J"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 02:21:30  
 Tester: Shane Konzem  
 Time Test Ended: 06:19:00  
 Unit No: 3330/50/Great Bend  
 Interval: **3290.00 ft (KB) To 3340.00 ft (KB) (TVD)**  
 Reference Elevations: 1803.00 ft (KB)  
 Total Depth: 3340.00 ft (KB) (TVD)  
 1795.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Fair  
 KB to GR/CF: 8.00 ft

## Serial #: 8400

Outside

Press @ RunDepth: 898.03 psia @ 3337.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.06.20 End Date: 2013.06.20 Last Calib.: 2013.06.20  
 Start Time: 00:05:00 End Time: 06:19:30 Time On Btm: 2013.06.20 @ 02:19:30  
 Time Off Btm: 2013.06.20 @ 04:39:00

TEST COMMENT: 1st Open/ 15 Minutes. Good blow built to bottom of 5 gallon bucket in 10 minutes.  
 1st SHut In/ 30 Minutes. No blow back.  
 2nd Open/ 30 Minutes. Fair blow built to bottom of 5 gallon bucket in 16 1/2 minutes.  
 2nd SHut In/ 60 Minutes. No Blow Back.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1678.20	106.98	Initial Hydro-static
2	60.28	106.60	Open To Flow (1)
18	113.13	106.54	Shut-In(1)
48	911.31	106.99	End Shut-In(1)
49	120.61	106.69	Open To Flow (2)
78	199.05	106.72	Shut-In(2)
139	898.03	107.26	End Shut-In(2)
140	1597.58	107.45	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	No gas	0.00
126.00	20% mud, 80% water, trace of oil	1.77
189.00	10% mud, 90% water, trace of oil.	2.65
0.00	Chloride recov. 31000 ppm	0.00
0.00	esist recov, .22 ohms at 40 degrees	0.00

## Gas Rates

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



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Carrie Exploration & Development

**8/21s/11w/Stafford**

210 W. 22nd  
Hays Kansas, 67601

**Hayes #C-1**

Job Ticket: 17600

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2013.06.20 @ 00:05:00

## Tool Information

Drill Pipe:	Length: 3271.00 ft	Diameter: 3.80 inches	Volume: 45.88 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: 52000.00 lb
			<u>Total Volume: 45.88 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	2.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3290.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	71.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3270.00	
Shut-In Tool	5.00			3275.00	
Hydroic Tool	5.00			3280.00	
Packer	5.00			3285.00	21.00 Bottom Of Top Packer
Packer	5.00			3290.00	
Perforations	45.00			3335.00	
Recorder	1.00	8405	Inside	3336.00	
Recorder	1.00	8400	Outside	3337.00	
Bullnose	3.00			3340.00	50.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>71.00</b>				





# DRILL STEM TEST REPORT

## FLUID SUMMARY

Carrie Exploration & Development

**8/21s/11w/Stafford**

210 W. 22nd  
Hays Kansas, 67601

**Hayes #C-1**

Job Ticket: 17600

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2013.06.20 @ 00:05:00

### 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: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psia

Salinity: ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
0.00	No gas	0.000
126.00	20% mud, 80% water, trace of oil	1.767
189.00	10% mud, 90% water, trace of oil.	2.651
0.00	Chloride recov. 31000 ppm	0.000
0.00	esist recov, .22 ohms at 40 degrees	0.000

Total Length: 315.00 ft

Total Volume: 4.418 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

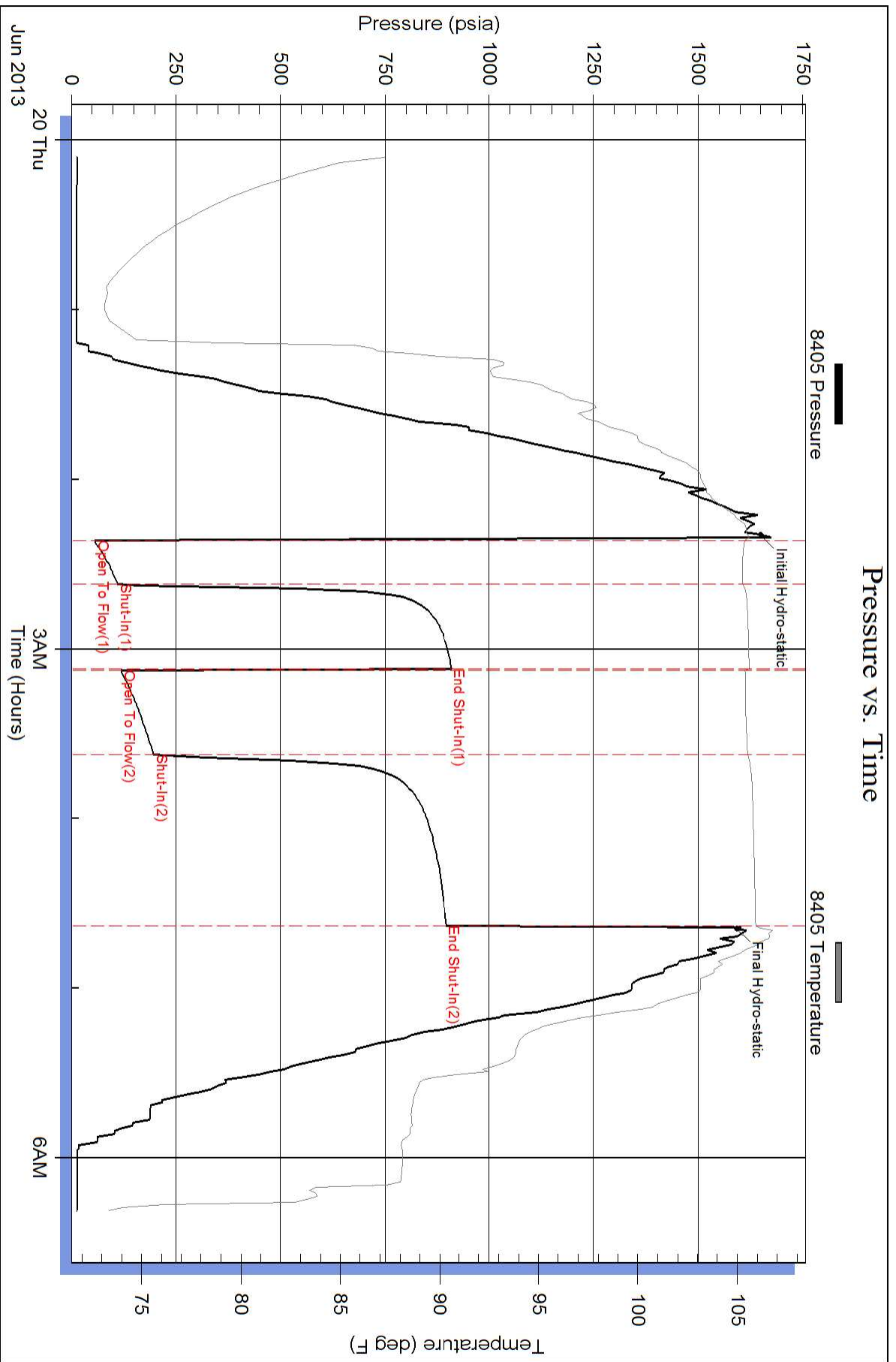
Serial #:

Laboratory Name:

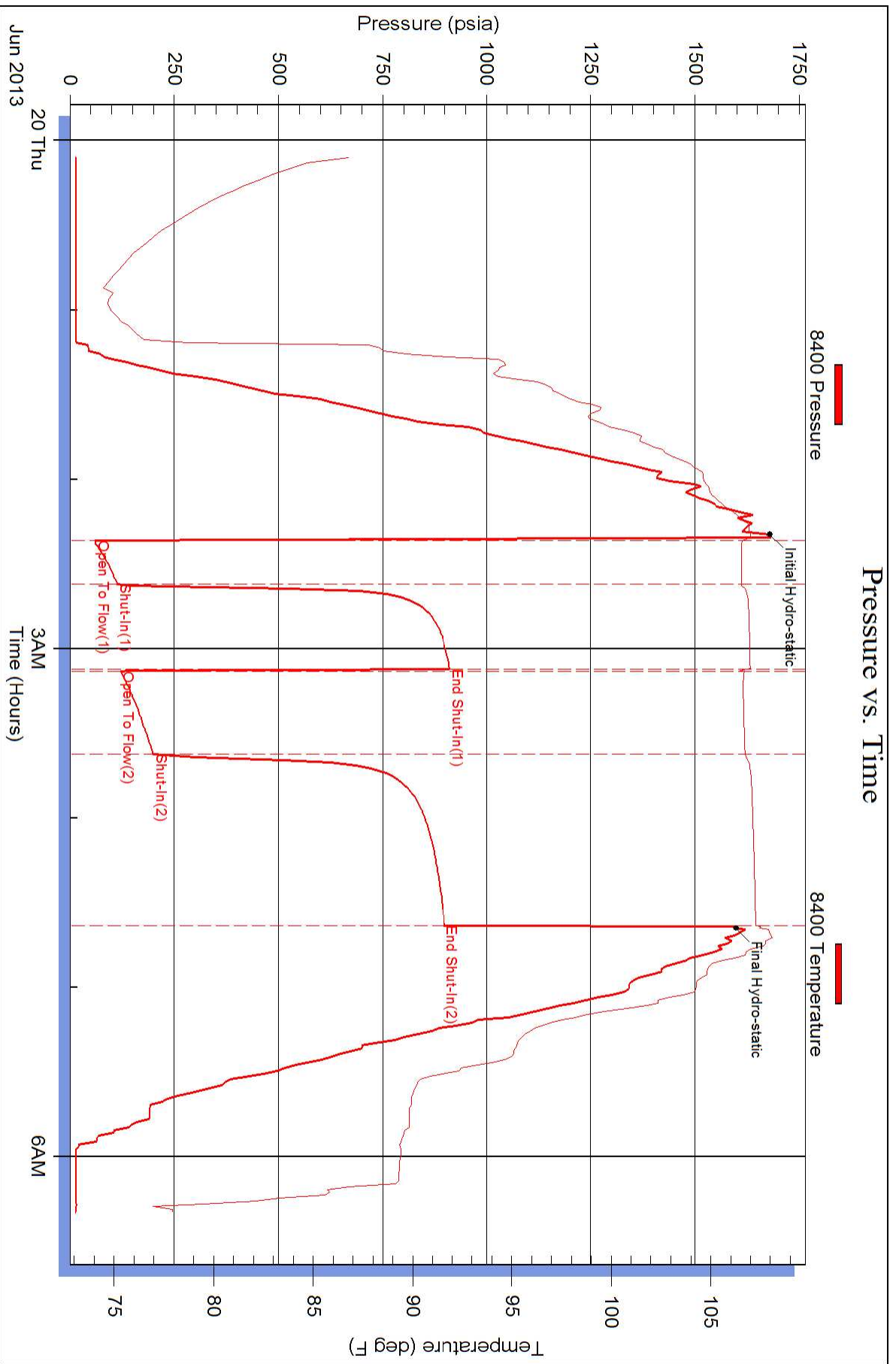
Laboratory Location:

Recovery Comments:

### Pressure vs. Time



### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **Carrie Exploration & Development**

210 W. 22nd  
Hays Kansas, 67601

ATTN: Jeff Lawler

**Hayes #C-1**

**8/21s/11w/Stafford**

Start Date: 2013.06.21 @ 18:50:00

End Date: 2013.06.22 @ 01:32:30

Job Ticket #: 18401                      DST #: 2

Superior Testers Enterprises LLC  
PO Box 138 Great Bend KS 67530  
1-800-792-6902

Printed: 2013.06.21 @ 01:46:03



# DRILL STEM TEST REPORT

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 18401

DST#: 2

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 18:50:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:19:30

Time Test Ended: 01:32:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane Konzem

Unit No: 3330/50/Great Bend

Interval: **3369.00 ft (KB) To 3432.00 ft (KB) (TVD)**

Reference Elevations: 1803.00 ft (KB)

Total Depth: 3432.00 ft (KB) (TVD)

1795.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: **8405**

Inside

Press @ Run Depth: 104.00 psia @ 3427.96 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.06.21

End Date:

2013.06.22

Last Calib.:

2013.06.21

Start Time:

18:50:00

End Time:

01:32:30

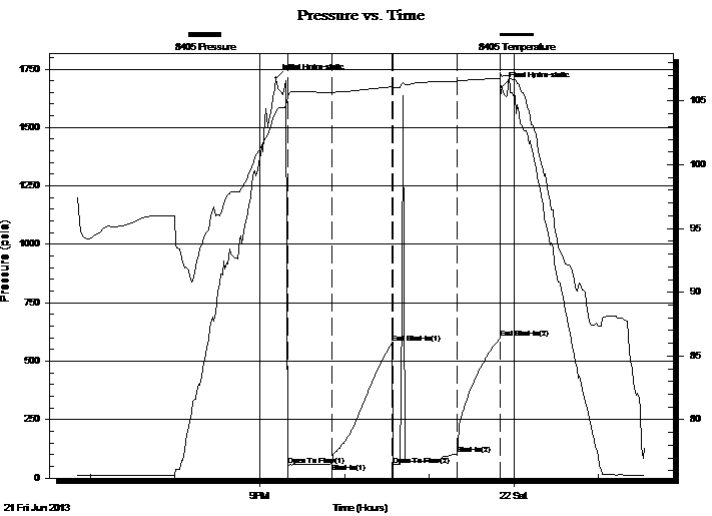
Time On Btm:

2013.06.21 @ 21:11:30

Time Off Btm:

2013.06.21 @ 23:51:30

TEST COMMENT: 1st Open/ 30 Minutes. Weak blow built to 1 inch in 5 gallon bucket.  
1st Shut In/ 45 Minutes. No blow back.  
2nd Open/ 30 Minutes. No blow, flushed tool and gained 1 inch blow in 5 gallon bucket.  
2nd Shut In/ 45 Minutes. No blow back.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1710.57	104.18	Initial Hydro-static
8	56.42	105.24	Open To Flow (1)
40	64.70	105.68	Shut-In(1)
82	576.02	106.12	End Shut-In(1)
83	57.00	106.04	Open To Flow (2)
128	104.00	106.56	Shut-In(2)
159	598.52	106.78	End Shut-In(2)
160	1673.04	106.95	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	No gas	0.00
45.00	trace of oil, 100% mud	0.63

## Gas Rates

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



# DRILL STEM TEST REPORT

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 18401

DST#: 2

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 18:50:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:19:30

Time Test Ended: 01:32:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane Konzem

Unit No: 3330/50/Great Bend

Interval: **3369.00 ft (KB) To 3432.00 ft (KB) (TVD)**

Reference Elevations: 1803.00 ft (KB)

Total Depth: 3432.00 ft (KB) (TVD)

1795.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: **8400** Outside

Press @ Run Depth: 603.08 psia @ 3428.96 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.06.21

End Date:

2013.06.22

Last Calib.:

2013.06.21

Start Time: 18:50:00

End Time:

01:32:30

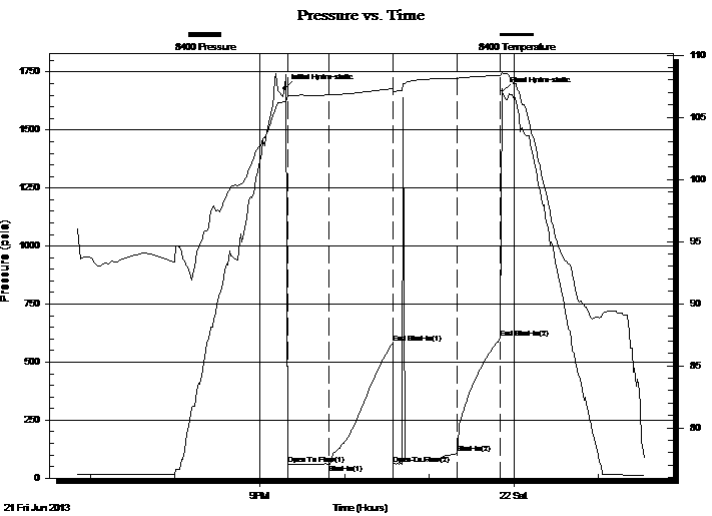
Time On Btm:

2013.06.21 @ 21:17:30

Time Off Btm:

2013.06.21 @ 23:52:00

TEST COMMENT: 1st Open/ 30 Minutes. Weak blow built to 1 inch in 5 gallon bucket.  
1st Shut In/ 45 Minutes. No blow back.  
2nd Open/ 30 Minutes. No blow, flushed tool and gained 1 inch blow in 5 gallon bucket.  
2nd Shut In/ 45 Minutes. No blow back.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1678.48	106.23	Initial Hydro-static
2	59.74	106.77	Open To Flow (1)
32	60.05	106.79	Shut-In(1)
77	581.44	107.30	End Shut-In(1)
77	60.89	107.09	Open To Flow (2)
122	105.99	108.09	Shut-In(2)
153	603.08	108.37	End Shut-In(2)
155	1666.23	108.58	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	No gas	0.00
45.00	trace of oil, 100% mud	0.63

## Gas Rates

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



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Carrie Exploration & Development

**8/21s/11w/Stafford**

210 W. 22nd  
Hays Kansas, 67601

**Hayes #C-1**

Job Ticket: 18401

**DST#: 2**

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 18:50:00

## Tool Information

Drill Pipe:	Length: 3368.00 ft	Diameter: 3.80 inches	Volume: 47.24 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: 45000.00 lb
			<u>Total Volume: 47.24 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3369.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.96 ft			
Tool Length:	83.96 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Change Over Sub	1.00			3349.00	
Shut-In Tool	5.00			3354.00	
Hydroic Tool	5.00			3359.00	
Packer	5.00			3364.00	21.00 Bottom Of Top Packer
Packer	5.00			3369.00	
Perforations	5.00			3374.00	
Change Over Sub	0.75			3374.75	
Drill Pipe	31.46			3406.21	
Change Over Sub	0.75			3406.96	
Perforations	20.00			3426.96	
Recorder	1.00	8405	Inside	3427.96	
Recorder	1.00	8400	Outside	3428.96	
Bullnose	3.00			3431.96	62.96 Bottom Packers & Anchor

**Total Tool Length: 83.96**



# DRILL STEM TEST REPORT

## FLUID SUMMARY

Carrie Exploration & Development

**8/21s/11w/Stafford**

210 W. 22nd  
Hays Kansas, 67601

**Hayes #C-1**

Job Ticket: 18401

**DST#: 2**

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 18:50:00

### 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: 39.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psia

Salinity: ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	No gas	0.000
45.00	trace of oil, 100% mud	0.631

Total Length: 45.00 ft      Total Volume: 0.631 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

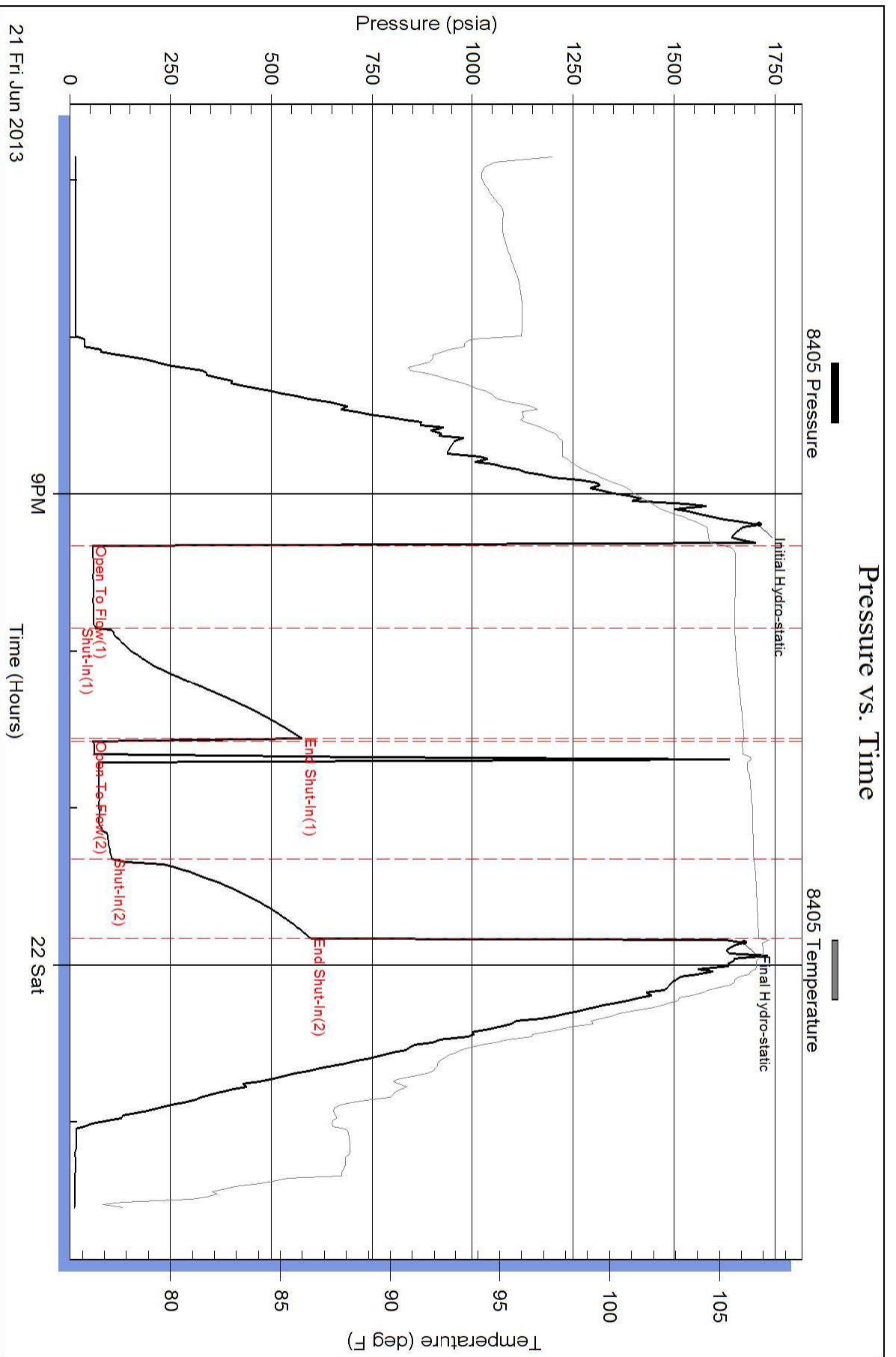
Laboratory Name:

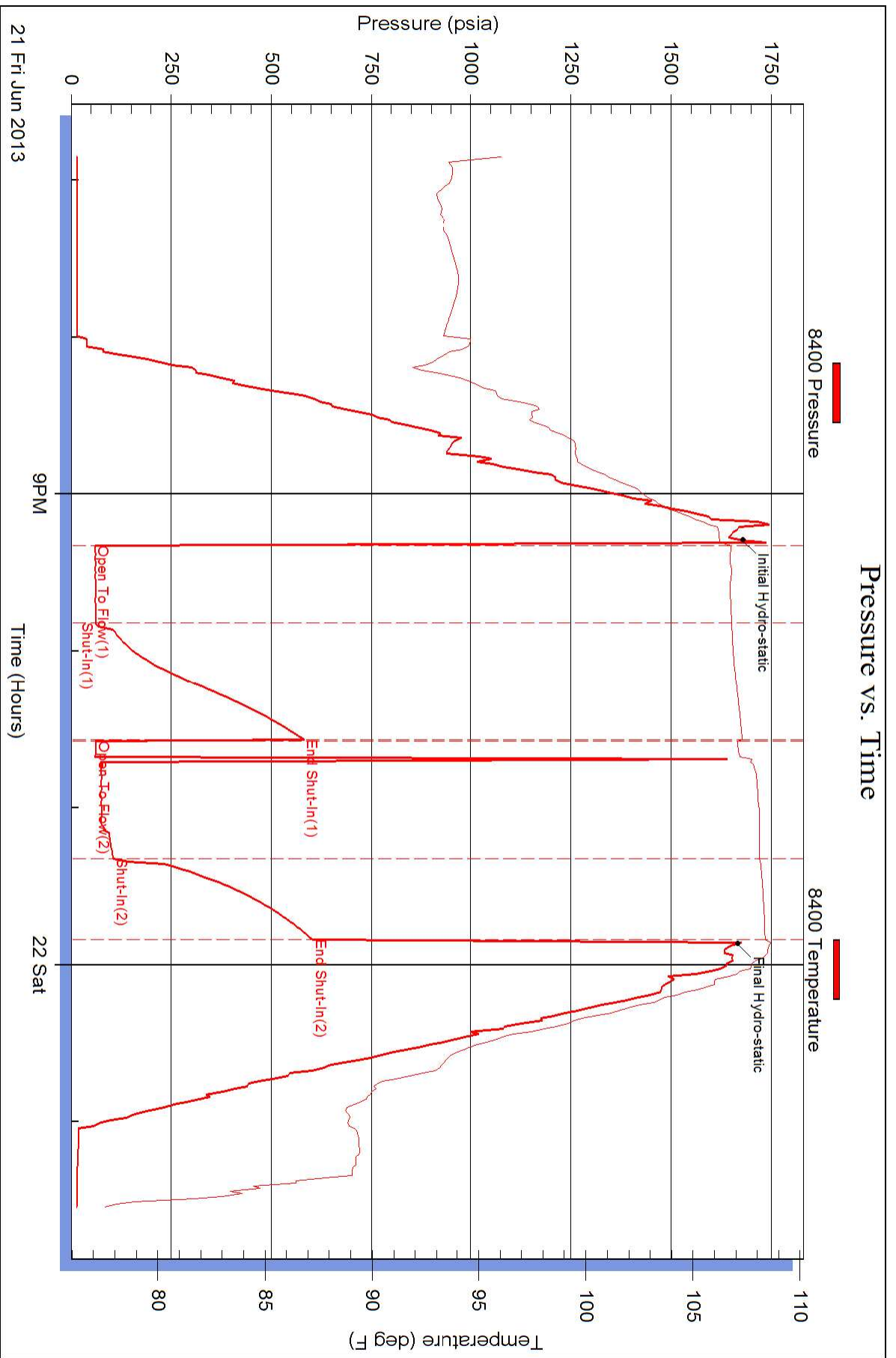
Laboratory Location:

Recovery Comments:



### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Carrie Exploration & Development**

210 W. 22nd  
Hays Kansas, 67601

ATTN: Jeff Lawler

**Hayes #C-1**

**8/21s/11w/Stafford**

Start Date: 2013.06.21 @ 07:45:00

End Date: 2013.06.21 @ 13:30:00

Job Ticket #: 18402                      DST #: 3

Superior Testers Enterprises LLC  
PO Box 138 Great Bend KS 67530  
1-800-792-6902

Printed: 2013.06.21 @ 13:55:05



# DRILL STEM TEST REPORT

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 18402

DST#: 3

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 07:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:24:30

Time Test Ended: 13:30:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane Konzem

Unit No: 3330/50/Great Bend

Interval: **3429.00 ft (KB) To 3444.00 ft (KB) (TVD)**

Reference Elevations: 1803.00 ft (KB)

Total Depth: 3444.00 ft (KB) (TVD)

1795.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: **8405**

Inside

Press @ Run Depth: 97.00 psia @ 3440.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.06.21

End Date:

2013.06.21

Last Calib.:

2013.06.21

Start Time:

07:45:00

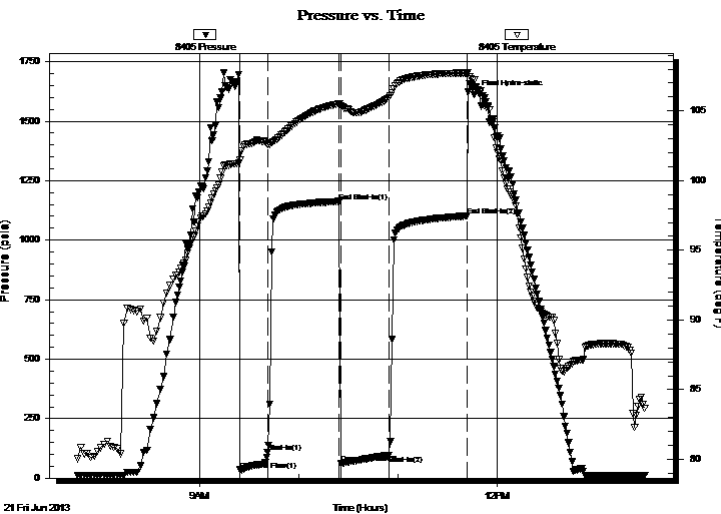
End Time:

13:30:00

Time On Btm:

Time Off Btm: 2013.06.21 @ 11:46:30

TEST COMMENT: 1st Open/ 15 Minutes. Good blow built to bottom of 5 gallon bucket in 9 minutes and 15 seconds.  
1st Shut In/ 45 Minutes. No blow back.  
2nd Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 4 minutes and 40 seconds.  
2nd Shut In/ 45 Minutes. Good blow back built to bottom of bucket after bleeding pressure off 4 times.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	34.38	101.52	Open To Flow (1)
17	107.40	102.58	Shut-In(1)
60	1162.91	105.52	End Shut-In(1)
61	60.52	105.36	Open To Flow (2)
90	97.00	105.95	Shut-In(2)
138	1101.85	107.72	End Shut-In(2)
142	1611.28	107.20	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	1197 feet of gas.	0.00
100.00	Clean oil.	1.40
63.00	30% mud, 60% oil, 10% gas.	0.88
30.00	30% mud, 50% water, 15% oil, 5% gas.	0.42
0.00	Oil gravity was 47 corrected.	0.00

## Gas Rates

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



# DRILL STEM TEST REPORT

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 18402

DST#: 3

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 07:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:24:30

Time Test Ended: 13:30:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane Konzem

Unit No: 3330/50/Great Bend

Interval: **3429.00 ft (KB) To 3444.00 ft (KB) (TVD)**

Reference Elevations: 1803.00 ft (KB)

Total Depth: 3444.00 ft (KB) (TVD)

1795.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: **8400** Outside

Press @ Run Depth: 1102.57 psia @ 3441.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.06.21

End Date:

2013.06.21

Last Calib.:

2013.06.21

Start Time: 07:55:00

End Time:

13:40:30

Time On Btm:

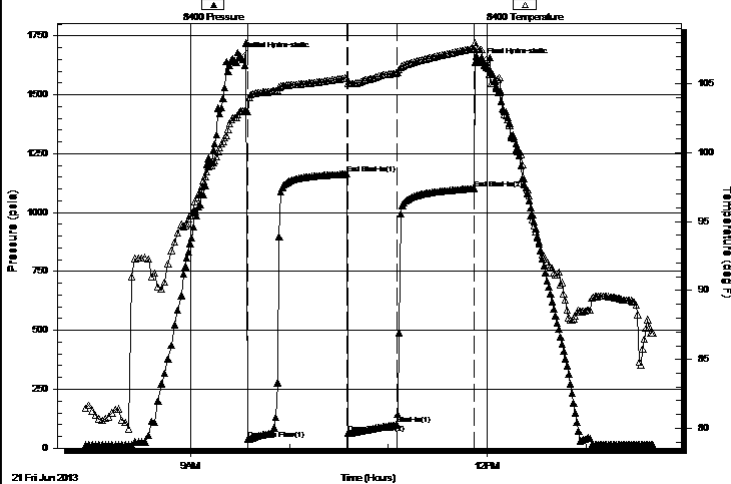
2013.06.21 @ 09:30:00

Time Off Btm:

2013.06.21 @ 11:55:30

TEST COMMENT: 1st Open/ 15 Minutes. Good blow built to bottom of 5 gallon bucket in 9 minutes and 15 seconds.  
1st Shut In/ 45 Minutes. No blow back.  
2nd Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 4 minutes and 40 seconds.  
2nd Shut In/ 45 Minutes. Good blow back built to bottom of bucket after bleeding pressure off 4 times.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1662.34	102.99	Initial Hydro-static
5	38.91	102.96	Open To Flow (1)
65	1163.65	105.42	End Shut-In(1)
66	61.70	105.04	Open To Flow (2)
95	102.13	105.80	Shut-In(1)
142	1102.57	107.56	End Shut-In(2)
146	1637.38	107.51	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	1197 feet of gas.	0.00
100.00	Clean oil.	1.40
63.00	30% mud, 60% oil, 10% gas.	0.88
30.00	30% mud, 50% water, 15% oil, 5% gas.	0.42
0.00	Oil gravity was 47 corrected.	0.00

## Gas Rates

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



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Carrie Exploration & Development

**8/21s/11w/Stafford**

210 W. 22nd  
Hays Kansas, 67601

**Hayes #C-1**

Job Ticket: 18402

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 07:45:00

## Tool Information

Drill Pipe:	Length: 3430.00 ft	Diameter: 3.80 inches	Volume: 48.11 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: 46000.00 lb
			<u>Total Volume: 48.11 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 380000.0 lb
Depth to Top Packer:	3429.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	15.00 ft			
Tool Length:	36.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3409.00	
Shut-In Tool	5.00			3414.00	
Hydroic Tool	5.00			3419.00	
Packer	5.00			3424.00	21.00 Bottom Of Top Packer
Packer	5.00			3429.00	
Perforations	10.00			3439.00	
Recorder	1.00	8405	Inside	3440.00	
Recorder	1.00	8400	Outside	3441.00	
Bullnose	3.00			3444.00	15.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>36.00</b>				



# DRILL STEM TEST REPORT

## FLUID SUMMARY

Carrie Exploration & Development

8/21s/11w/Stafford

210 W. 22nd  
Hays Kansas, 67601

Hayes #C-1

Job Ticket: 18402

DST#: 3

ATTN: Jeff Lawler

Test Start: 2013.06.21 @ 07:45:00

### Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 46.00 sec/qt  
Water Loss: 8.20 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 3000.00 ppm  
Filter Cake: 1.00 inches

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

Oil API: deg API  
Water Salinity: ppm

### Recovery Information

Recovery Table

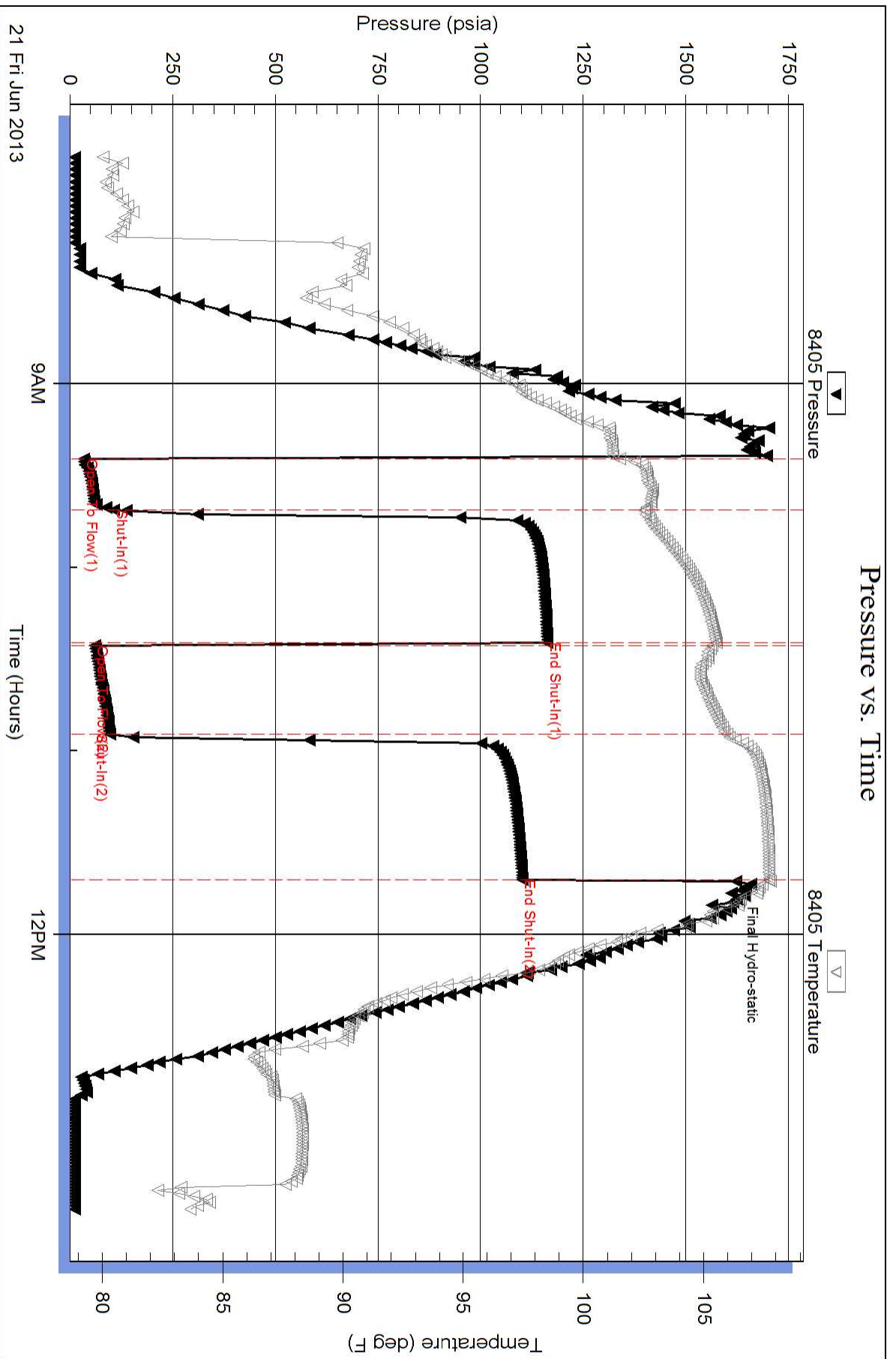
Length ft	Description	Volume bbl
0.00	1197 feet of gas.	0.000
100.00	Clean oil.	1.403
63.00	30% mud, 60% oil, 10% gas.	0.884
30.00	30% mud, 50% water, 15% oil, 5% gas.	0.421
0.00	Oil gravity was 47 corrected.	0.000

Total Length: 193.00 ft      Total Volume: 2.708 bbl

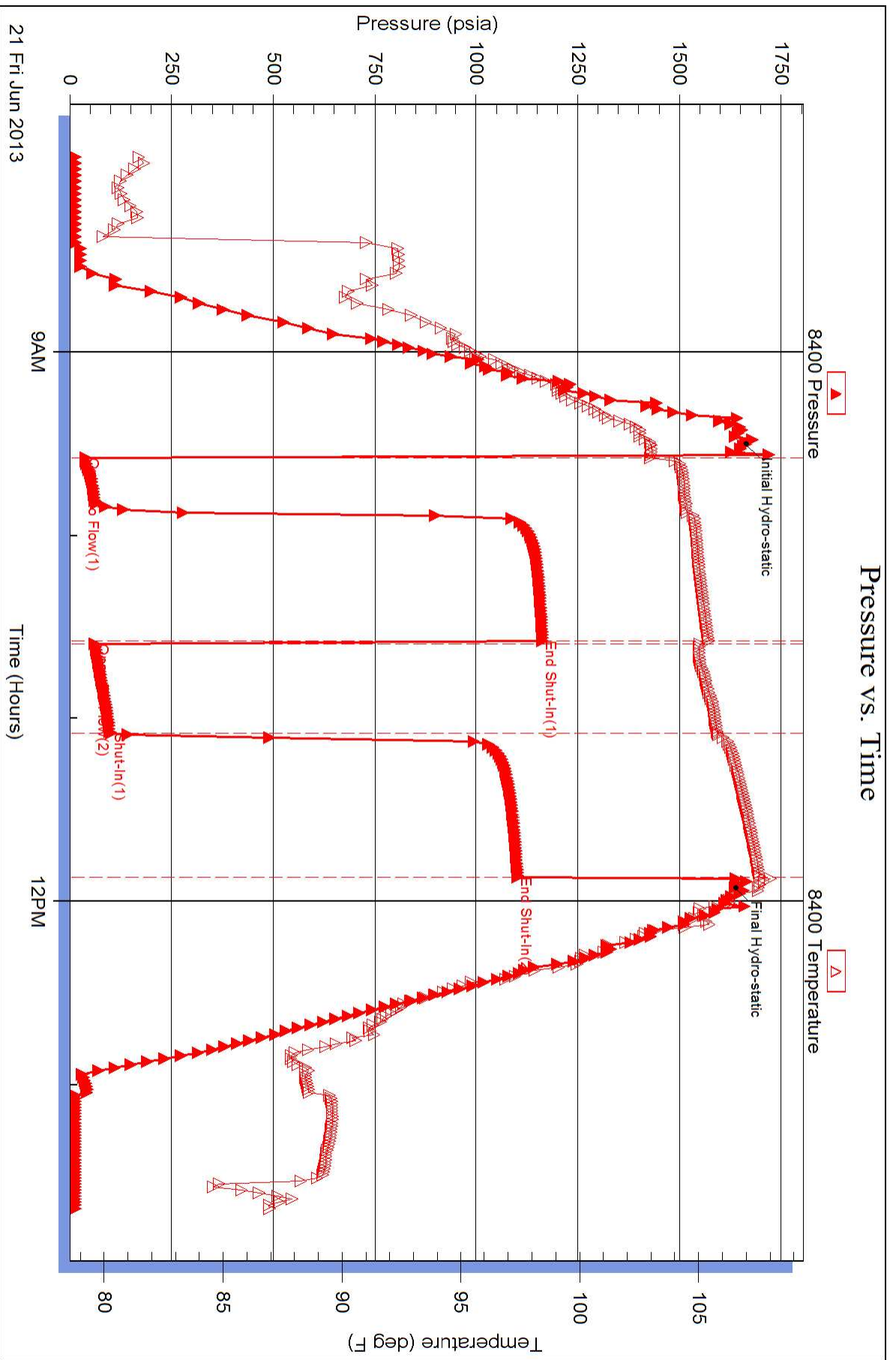
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:









Copy

# INVOICE

PO Box 93999  
Southlake, TX 76092

Invoice Number: 136794  
Invoice Date: Jun 15, 2013  
Page: 1

Voice: (817) 546-7282  
Fax: (817) 246-3361

**Bill To:**

Carrie Exploration & Development LLC  
210 West 22nd Street  
Hays, KS 67601

Now Includes:



Customer ID	Field Ticket #	Payment Terms	
Carrie	60442	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Great Bend	Jun 15, 2013	7/15/13

Quantity	Item	Description	Unit Price	Amount
		<u>Hayes #6-1</u>		
200.00	MAT	Class A Common	17.90	3,580.00
4.00	MAT	Gel	23.40	93.60
7.00	MAT	Chloride	64.00	448.00
216.66	SER	Cubic Feet	2.48	537.31
197.60	SER	Ton Mileage	2.60	513.76
1.00	SER	Surface	1,512.25	1,512.25
20.00	SER	Pump Truck Mileage	7.70	154.00
20.00	SER	Light Vehicle Mileage	4.40	88.00
1.00	CEMENTER	Dustin Chambers		
1.00	EQUIP OPER	Mike Scothorn		
1.00	OPER ASSIST	Kevin Weighous		

*Cemt Surface*

ALL PRICES ARE NET, PAYABLE  
30 DAYS FOLLOWING DATE OF  
INVOICE. 1 1/2% CHARGED  
THEREAFTER. IF ACCOUNT IS  
CURRENT, TAKE DISCOUNT OF

\$ 1,731.73

ONLY IF PAID ON OR BEFORE  
Jul 10, 2013

Subtotal	6,926.92
Sales Tax	300.88
Total Invoice Amount	7,227.80
Payment/Credit Applied	
<b>TOTAL</b>	<b>7,227.80</b>

*less 1,731.73*





**OPERATOR**

Company: CARRIE EXPLORATION AND DEVELOPMENT  
 Address: 210 W 22nd ST.  
 HAYS, KS 67601

Contact Geologist: RON HEROLD  
 Contact Phone Nbr: (913)961-2760  
 Well Name: HAYES C #1  
 Location: N2 N2 NW Sec. 8 - 21S - 11W  
 Pool:  
 State: KANSAS

API: 15-185-23813-00-00  
 Field: KOWALSKY SOUTHWEST  
 Country: USA

Scale 1:240 Imperial

Well Name: HAYES C #1  
 Surface Location: N2 N2 NW Sec. 8 - 21S - 11W  
 Bottom Location:  
 API: 15-185-23813-00-00  
 License Number: 6768  
 Spud Date: 6/14/2013 Time: 3:30 PM  
 Region: STAFFORD  
 Drilling Completed: 6/20/2013 Time: 5:50 PM  
 Surface Coordinates: 2111' FSL & 1857' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1798.00ft  
 K.B. Elevation: 1803.00ft  
 Logged Interval: 2300.00ft To: 3521.00ft  
 Total Depth: 3520.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: FRESH WATER/CHEMICAL GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -98.3744558 Latitude: 38.1502146  
 N/S Co-ord: 2111' FSL  
 E/W Co-ord: 1857' FWL

**LOGGED BY**

Company: SOLUTIONS CONSULTING  
 Address: 108 W 35TH  
 HAYS, KS 67601

Phone Nbr: (785) 259-3737  
 Logged By: Geologist Name: JEFF LAWLER

**CONTRACTOR**

Contractor: SOUTHWIND DRILLING, INC  
 Rig #: 6  
 Rig Type: MUD ROTARY  
 Spud Date: 6/14/2013 Time: 3:30 PM  
 TD Date: 6/20/2013 Time: 5:50 PM  
 Rig Release: 6/22/2013 Time: 12:00 AM

**ELEVATIONS**

K.B. Elevation: 1803.00ft Ground Elevation: 1798.00ft  
 K.B. to Ground: 5.00ft

**NOTES**

DUE TO FAVORABLE LOG ANALYSIS AND RECOVERY ON DRILL STEM TESTS DECISION WAS MADE TO RUN PRODUCTION CASING.



## WELL COMPARISON SHEET

FORMATION	P&A 9-90				P&A 7-2003				H				P&A 8-71							
	DUKE & WOOD				F G HOLL				OAKMAR OIL CO.				F G HOLL							
	KASSELMAN #1				KEELER A #1-8				KASSELMAN A #4				JOHN KASSELMAN #2							
	HAYES C #1				NW NW NW 8-21-11				NW SW NW 8-21-11				NENE NW 8-21-11				NE SE SW 5-21-11			
	1803		1810		1806		1796		1800		1800		1800		1800					
	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS				
DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM			
				COMP. CARD	LOG	SMPL.		COMP. CARD	LOG	SMPL.		COMP. CARD	LOG	SMPL.	COMP. CARD	LOG	SMPL.			
				DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	
ANHYDRITE TOP								567	1239			565	1231							
BASE								587	1219											
TARKIO LIME	2475	-672	2476	-673				2478	-672	+ 0	- 1									
HOWARD	2631	-828	2631	-828				2631	-825	- 3	- 3									
TOPEKA	2724	-921	2725	-922				2725	-919	- 2	- 3									
HEEBNER SHALE	3000	-1197	3003	-1200	3003	-1193	- 4	- 7	3006	-1200	+ 3	+ 0	3009	-1213	+ 16	+ 13	3004	-1204	+ 7	+ 4
TORONTO	3017	-1214	3020	-1217				3024	-1218	+ 4	+ 1	3027	-1231	+ 17	+ 14					
DOUGLAS SHALE	3034	-1231	3037	-1234				3038	-1232	+ 1	- 2									
BROWN LIME	3123	-1320	3125	-1322	3130	-1320	+ 0	- 2	3131	-1325	+ 5	+ 3	3136	-1340	+ 20	+ 18	3130	-1330	+ 10	+ 8
LKC	3140	-1337	3141	-1338	3145	-1335	- 2	- 3	3151	-1345	+ 8	+ 7	3154	-1358	+ 21	+ 20	3152	-1352	+ 15	+ 14
BKC	3370	-1567	3370	-1567				3376	-1570	+ 3	+ 3						3375	-1575	+ 8	+ 8
CONGLOMERATE												3400	-1604				3397	-1597		
SIMPSON SHALE								3396	-1590								3475	-1675		
SIMPSON DOLOMITE																				
SIMPSON SAND					3418	-1608														
ARBuckle	3415	-1612	3413	-1610	3420	-1610	- 2	+ 0	3418	-1612	+ 0	+ 2					3471	-1671	+ 59	+ 61
RTD			3520	-1717	3439	-1629			3423	-1617	- 100	- 100	3503	-1707			3485	-1685		- 32
LTD	3521	-1718						3424	-1618	- 100	- 100									

### DST #1 LKC I-J 3290' - 3340'



## DRILL STEM TEST REPORT

Carrie Exploration & Development

**8/21s/11w/Stafford**

210 W. 22nd  
Hays Kansas, 67601

**Hayes #C-1**

Job Ticket: 17600

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2013.06.20 @ 00:05:00

#### GENERAL INFORMATION:

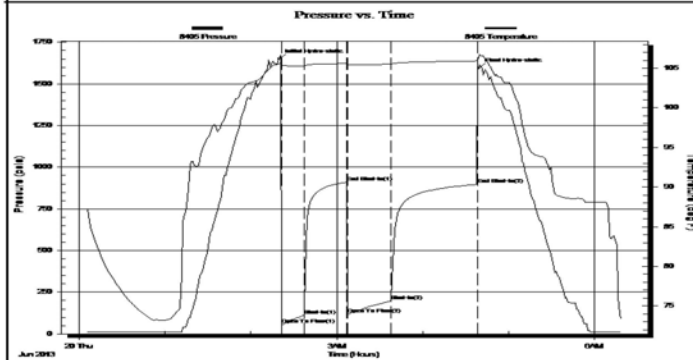
Formation: **LKC "I-J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 02:21:30  
 Time Test Ended: 06:19:00  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: 3330/50/Great Bend  
 Interval: **3290.00 ft (KB) To 3340.00 ft (KB) (TVD)**  
 Total Depth: 3340.00 ft (KB) (TVD)  
 Reference Elevations: 1803.00 ft (KB)  
 1795.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 KB to GR/CF: 8.00 ft

#### Serial #: 8405

#### Inside

Press@RunDepth: 196.41 psia @ 3336.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.06.20 End Date: 2013.06.20 Last Calib.: 2013.06.20  
 Start Time: 00:05:00 End Time: 06:19:00 Time On Btm: 2013.06.20 @ 02:19:30  
 Time Off Btm: 2013.06.20 @ 04:39:00

**TEST COMMENT:** 1st Open/ 15 Minutes. Good blow built to bottom of 5 gallon bucket in 10 minutes.  
 1st SHut In/ 30 Minutes. No blow back.  
 2nd Open/ 30 Minutes. Fair blow built to bottom of 5 gallon bucket in 16 1/2 minutes.  
 2nd SHut In/ 60 Minutes. No Blow Back.



#### PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1648.25	105.50	Initial Hydro-static
2	56.28	105.37	Open To Flow (1)
18	110.70	105.28	Shut-In(1)
48	910.09	105.59	End Shut-In(1)
48	119.26	105.38	Open To Flow (2)
78	196.41	105.52	Shut-In(2)
139	896.78	105.92	End Shut-In(2)
140	1592.03	106.31	Final Hydro-static

#### Recovery

Length (ft)	Description	Volume (bbl)
0.00	No gas	0.00
126.00	20% mud, 80% water, trace of oil	1.77
189.00	10% mud, 90% water, trace of oil.	2.65
0.00	Chloride recov. 31000 ppm	0.00
0.00	esist recov. .22 ohms at 40 degrees	0.00

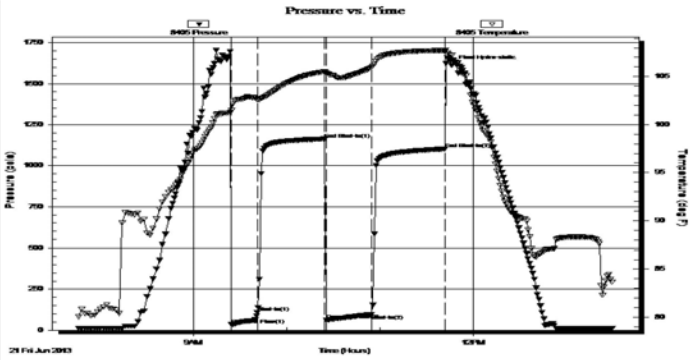
#### Gas Rates

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



**Serial #: 8405** **Inside**  
 Press@RunDepth: 97.00 psia @ 3440.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.06.21 End Date: 2013.06.21 Last Calib.: 2013.06.21  
 Start Time: 07:45:00 End Time: 13:30:00 Time On Btm:  
 Time Off Btm: 2013.06.21 @ 11:46:30

**TEST COMMENT:** 1st Open/ 15 Minutes. Good blow built to bottom of 5 gallon bucket in 9 minutes and 15 seconds.  
 1st Shut In/ 45 Minutes. No blow back.  
 2nd Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 4 minutes and 40 seconds.  
 2nd Shut In/ 45 Minutes. Good blow back built to bottom of bucket after bleeding pressure off 4 times.



Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	34.38	101.52	Open To Flow (1)
17	107.40	102.58	Shut-In(1)
60	1162.91	105.52	End Shut-In(1)
61	60.52	105.36	Open To Flow (2)
90	97.00	105.95	Shut-In(2)
138	1101.85	107.72	End Shut-In(2)
142	1611.28	107.20	Final Hydro-static

Length (ft)	Description	Volume (bbl)
0.00	1197 feet of gas.	0.00
100.00	Clean oil.	1.40
63.00	30% mud, 60% oil, 10% gas.	0.88
30.00	30% mud, 50% water, 15% oil, 5% gas.	0.42
0.00	Oil gravity was 47 corrected.	0.00

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

**ROCK TYPES**

Cht	Lmst fw7>	shale, gry	shale, red	Ss
Dolprim	shale, grn	Carbon Sh	Shcol	

**ACCESSORIES**

**FOSSIL**  
 Oolite

**STRINGER**  
 Sandstone

**OTHER SYMBOLS**

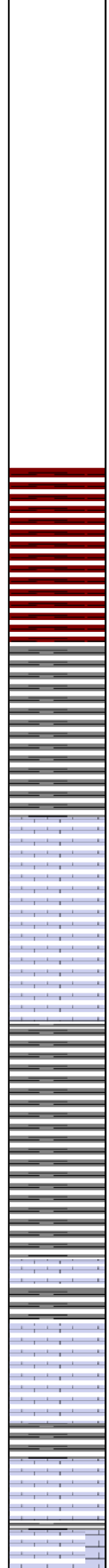
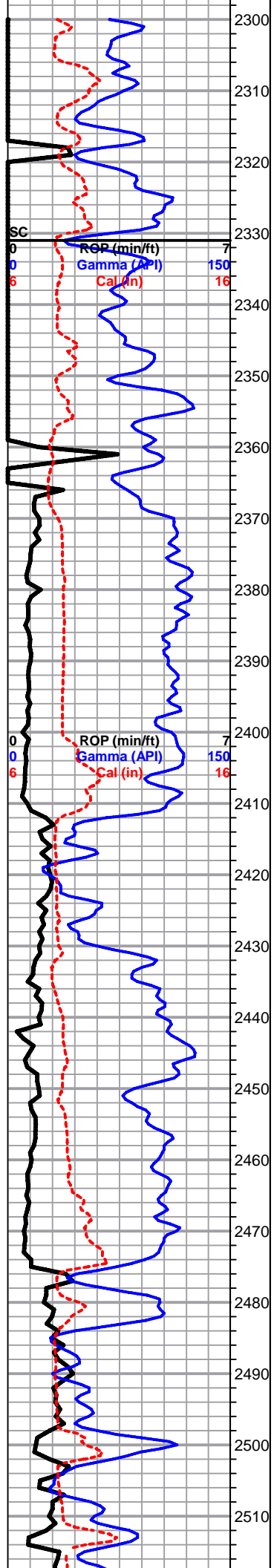
**DST**  
 DST Int  
 DST alt  
 Core

Curve Track #1				DST		Lithology		Oil Show		Geological Descriptions		TG, C1 - C5	
ROP (min/ft)	Gamma (API)	Cal (in)	Depth (ft)	Interval	Interval							Total Gas (units)	
0	0	6	5									0	100
			150									0	100
			16									0	100
			2290									0	100
												0	100

1' DRILL TIME FROM 2300' - RTD  
 10' WET/DRY SAMPLES FROM 2350' - RTD  
 BLOODHOUND GAS DETECTOR DEPLOYED ON THIS

**WELL**

GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 2350' - RTD



Sh- Maroon, gritty & earthy

Sh- A/A w/ soft & silty gray shale

Lm- Cream Buff, FXLN, dense, well cemented, fsl, poorly dev. w/ sctrd micro XLN & XLN porosity, few pcs of gritty Vf Grn Ls w/o vis. porosity

Lm- Tan Cream, Vf Grn FXLN, fsl mix, poorly dev. mostly tight w/ minimal vis. porosity, some w/ sctrd XLN porosity & fsl fragments

Ss- Dove Gray, Fn Grn, sub-angular to sub-rounded, mod dev., micaceous, sl spkld w/ glauconite, loosley cemented, consistant fn ppt intergranular porosity, NS

Sh- Lt Gray, soft & silty, calcareous, few gummy clumps

**TARKIO LM 2476' (-673) E-LOG 2475' (-672)** Lm- Cream Off White, VF-FXLN, dense, tight vry poorly dev., most lithographic w/ no vis. porosity, few w/ sctrd micro XLN, few pcs of dense algal ls, all w/ NS

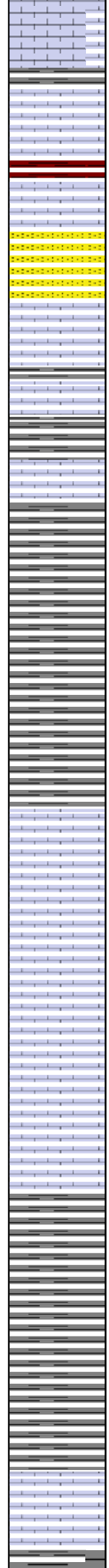
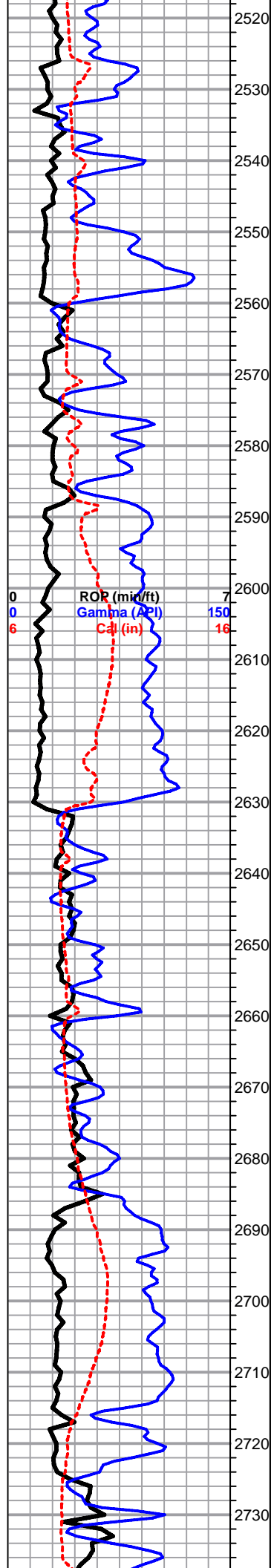
Sh- Lt Gray, silty, sl calcareous

Lm- Tan, FXLN, dense, sl brittle, fsl w/ fragments

Lm- Buff Gray, Fn Grn, some sl chalky, mud supported matrix, well cemented, gritty minimal vis. porosity

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100





grity, minimal vis. porosity

Lm- Lt Gray, Fn Grn, fsl, high-energy mix, trashy mix Sh- Lt & Drk lenses

Lm- Lt Gray, Vf Grn, dense, well cemented, mud supported matrix, sl fsl, no vis. porosity

Lm- Gray Buff, FXLN, dense & gritty, well cemented, sl fsl, tight w/o vis. porosity

Ss- Dove Gray Mustard Yellow, sl unconsolidated, fused, conglomeratic

Lm- White Off White, FXLN, dense, well cemented, fsl & poorly dev. sctrd micro XLN porosity

Lm- Buff, VFXLN, dense, tight, fsl, sl sandy, no vis. porosity

Lm- Lt Gray, VFXLN, dense, sl sandy & sl cherty, tight w/o vis. porosity, vry well cemented

Ss- Lt Gray, Fn Grn, sorted, consolidated, sub-angular, loosely cemented, consistant fn ppt intergranular porosity, NS

Ss- A/A, grading into micaceous, some sandy & shaley Ss

Sh- Gray, soft, vry silty, calcareous

**HOWARD 2631' (-828) E-LOG 2631' (-828)** Lm- Tan Buff, Vf Grn, dense, well cemented, most lithographic w/ no vis. to minimal vis. porosity

Lm- Cream Tan, FXLN, dense, sl fsl, poorly dev. w/ sctrd micro XLN porosity, clean & barren

Lm- Cream Off White, FXLN, dense, vry well cemented, sl sandy, apparent dense fenestral porosity, minimal effective porosity, barren

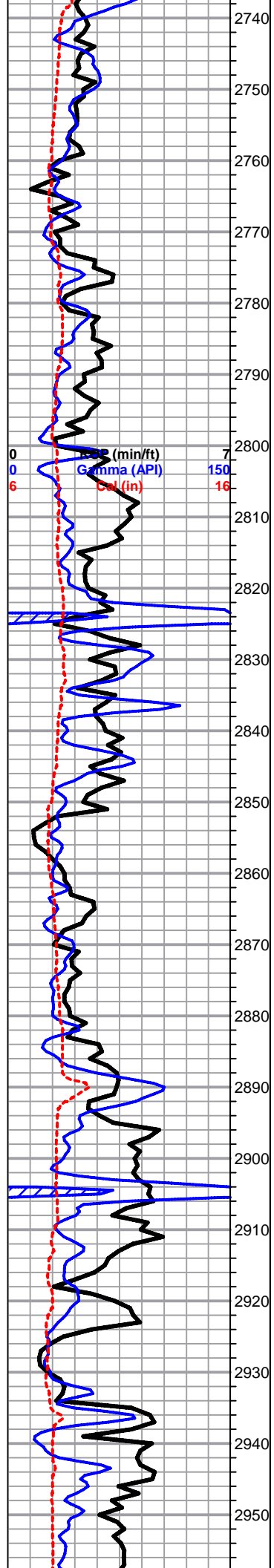
Lm- Gray, Vf - Fn Grn, chalky, soft & loosely cemented, fsl, poor intergranular vis. porosity

Ss- Dove Gray Semi-Frosted, Vry Fn - Fn Grn, angular, consolidated & sorted, micaceous, loosely cemented to semi-fused, consistant fn ppt porosity, barren

Sh- Lt Gray, vry silty & soft, calcareous, some gummy argillaceous clumps

**TOPEKA 2725' (-922) E-LOG 2724' (-921)** Lm- Cream Lt Gray, FXLN, dense, fsl, well cemented, sctrd micro XLN, barren

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



Lm- Gray Tan, Vf-Fn Grn, soft, well cemented, fsl, massive, minimal intergranular porosity, few fsl fragments, barren, chalky in part

Lm- Cream Tan, VF-FXLN, mix of sub-sucrosic sl dolomitic ls, poorly developed w/ consistant micro XLN porosity, barren, & FXLN w/ fsl fragments, tight sl cherty ls, minimal vis. porosity, barren

Lm- Cream Off White, VF-FXLN, soft & loosely cemented, sl chalky in part, sl oolitic, sctrd sl development, sctrd micro XLN & rare fn ppt porosity, clean & barren

Lm- Cream Off White, FXLN, dense fsl cherty ls, sl dev. w/ sctrd micro XLN & XLN porosity, some w/ apparent fn ppt porosity & secondary recrystallization porosity, minimal effective porosity

Lm- Cream Off White, F-Med XLN, poorly dev. well cemented, interbedded fusulinids

Lm- White Cream, Vf Grn, soft, chalky, mud supported matrix, poor intergranular porosity

Sh- Black Drk & Lt Gray Maroon Lm Green, sl waxy, fissile, carbonaceous, soft & silty, calcareous

Lm- Cream Off White, FXLN, fsl, massive, dense, well cemented, sctrd XLN porosity

**\*\*SAMPLES W/ MUCH SHALE CARRYOVER\*\***

Sh- Maroon Lm Green, sl waxy, gritty & earthy, sandy lm green lime

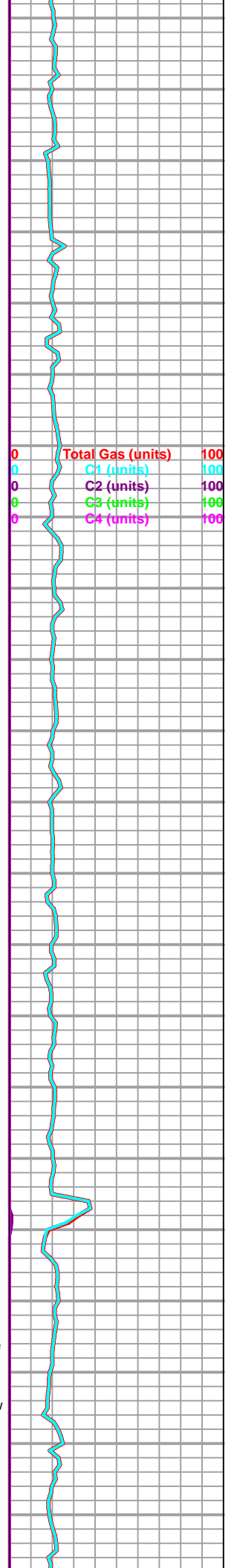
Sh- Black Drk Gray White, gritty, sl sandy, pyritic, sl fsl, highly rich in vis. micro organics, mottled white crumbley chalk

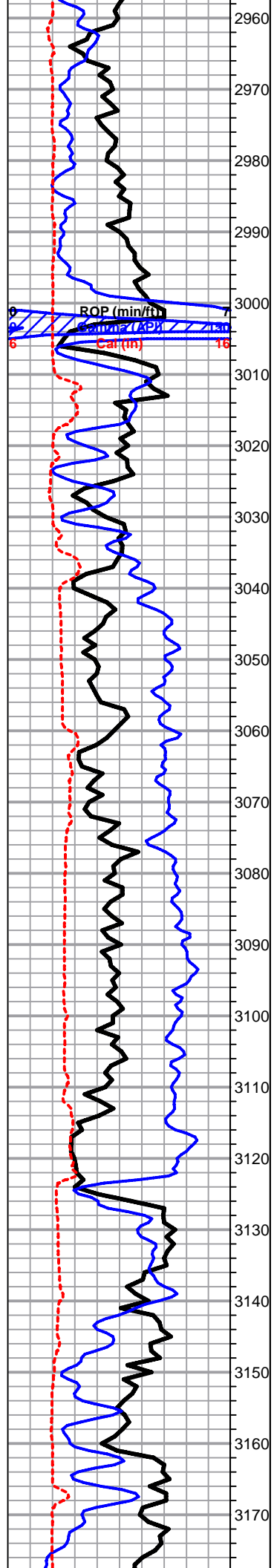
Chert- White, Crypto XLN, dense, gritty sl dolomitic chert, bone white & pristine

Sh- Lt Gray Maroon Lm Green, gummy argillaceous clumps, gritty & earthy, few sl waxy, some sl shaley lm green Ss

Lm- Cream Off White, VF-FXLN, dense, vry well cemented, sl fsl, tight w/ minimal vis. & rare micro XLN - XLN porosity

Lm- Cream Off White, FXLN, fsl, dense, loosely-well cemented, poorly devel. w/ sctrd XLN porosity, barren





Lm- Cream Buff, Fn Grn, dense, well cemented, gritty & granular, sl fsl, tight w/ minimal vis. intergranular porosity

Lm- Ivory, VFXLN, dense, sl cherty ls, vry well cemented w/o vis. porosity

Lm- Tan, Crypto XLN, vry dense & well cemented cherty ls, no vis. porosity

**HEEBNER 3003' (-1200) E-LOG 3000' (-1197)** Sh- Black Maroon Gray, fissile, carbonaceous, silty, gritty & earthy

**TORONTO 3020' (-1217) E-LOG 3017' (-1214)** Lm- White Off White, F-Med XLN, fsl & oolitic, mod. dev. w/ sctrd ppt interoolite porosity, SCTR TO RARE DRK BLK STN, NO SFO, SL TARRY, NO ODR

**DOUGLAS SHALE 3037' (-1234) E-LOG 3034' (-1231)** Sh- Gray Maroon, mostly sl waxy & crumbley, some argillaceous clumps

Sh- Lt Gray, sl silty, vry soft, calcareous, some sl sandy lime

Sh- A/A w/ silty soft brown pcs, some lm green & dove gray shaley Ss, fused & poorly dev. w/ vry fn ppt intergranular porosity, NS

**D** Sh/Ss- Sh A/A, Ss- Clear to Semi-frosted, Fn Grn, angular, loosely cemented to fused, poorly dev. sorted & consolidated, SAT BLK DEAD STN, NO SFO, NO GSY SHEEN, NO ODR

Sh- Lt Gray, soft, silty, & calcareous

Sh- A/A

**BROWN LIME 3125' (-1322) E-LOG 3123' (-1320)** Lm- Brown Tan, VF-FXLN, dense, vry well cemented, tight w/ minimal vis. porosity, lithographic

Sh- Lt Gray, many gummy argillaceous clumps

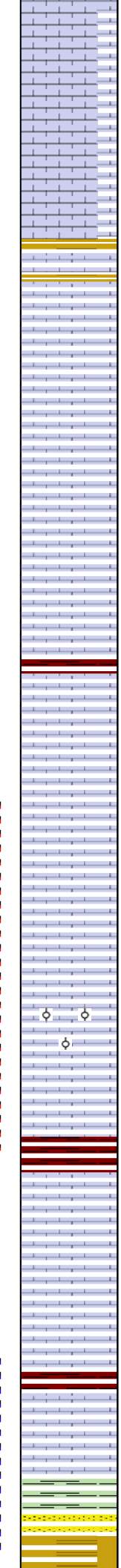
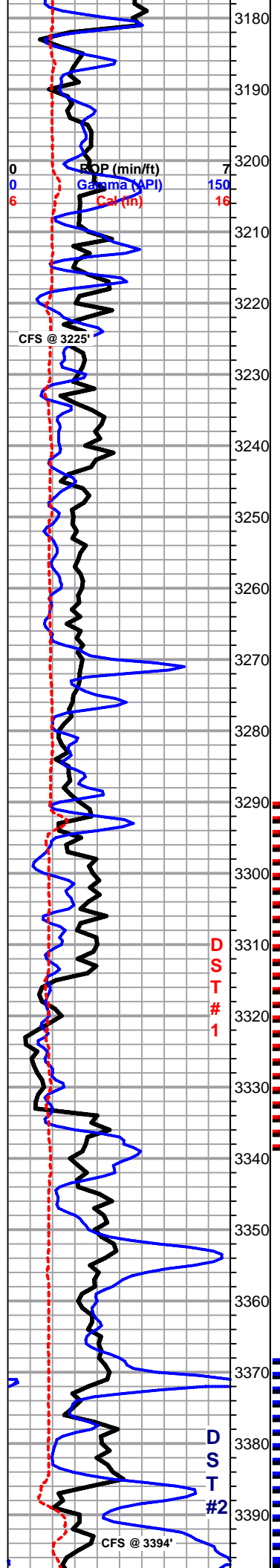
**LKC 3141' (-1338) E-LOG 3140'** Lm- Cream Off White, FXLN, sl fsl, mostly tight & vry well cemented, sctrd micro XLN porosity, barren

**O** Lm- Ivory Buff, VF-FXLN, dense, mostly well cemented, sl - sctrd dev. some w/ minimal vis. - micro XLN porosity, some w/ mostly consistant fn ppt - ppt porosity, SCTR TO RARE DRK BLK STN, SOME W/ RECRYSTALLIZATION W/IN POROSITY, NO SFO, FNT-WK ODR

**O** Lm- Cream Off White, VF-FXLN, dense, vry well cemented, sctrd dev. w/ vry fn ppt porosity, sl dolomitic ls, 2-3 PCS W/ SCTR TO RARE DRK BLK STN, DEAD OIL, NO SFO, FNT ODR

Total Gas (units) 100  
 C1 (units) 100  
 C2 (units) 100  
 C3 (units) 100  
 C4 (units) 100

@ 3180'  
BIT TRIP  
SURVEY 1 dgr.  
STRAP +1.74'



○ Lm- Tan, VF-FXLN, dense, vry well cemented, fsl & oolitic, few pcs of oolitic biomicrite, sl dev. w/ sctrd XLN & ppt porosity, SCTRD LT BRWN STN, NO SFO, FNT ODR

Lm- Cream Tan, FXLN, dense, poorly dev. well cemented, mostly tight w/ sctrd XLN porosity, barren

○ Lm- Lt Gray Buff, VF-FXLN, dense, vry well cemented, poorly dev. oolitic / oolitic biomicrite, sctrd micro XLN & XLN porosity, FEW PCS W/ WK SPOTTY STN, 1-2 W/ SL SFO UPON CRUSH, WK ODR

○ Lm- Cream Tan, Vf-Fn Grn, dense, most loosely cemented & crumbly, sl chalky in part, poor intergranular vis. porosity, few FXLN pcs w/ XLN porosity & secondary recrystallization porosity, mostly all barren w/ FEW PCS W/ VRY WK STN, NO SFO, FNT ODR

○ Lm- Tan Cream, FXLN, oolitic mix, some biomicrite w/ micro XLN porosity, few pcs w/ sctrd fn ppt porosity, tight & poorly dev., SCTRD LT STN, 1 PC W/ WK SFO, SL GSY BBLs UPON CRUSH, WK ODR & cream FXLN, sl oomoldic, partial skeletal dissolution w/ sl vuggy porosity, poor intervugular connectivity, well cemented w/ micro XLN matrix porosity, barren

Lm- Tan, Crypto-FXLN, dense, most well cemented & tight, no vis. - sctrd XLN porosity, barren

Lm- Cream Buff, Vf-Fn Grn, dense, sl chalky in part, loosely cemented to well cemented, most all w/ poor intergranular porosity

Lm- Cream Off White, FXLN, loosely to well cemented, some sl chalky, sl oolitic, poorly dev. w/ sctrd XLN porosity, barren

Lm- Tan, VF-FXLN, dense, well cemented, sl cherty ls, some massive, clean, minimal vis. porosity, barren

○ Lm- Tan, VFXLN, dense, vry well cemented cherty ls, mod. dev. w/ sctrd ppt to sub-vuggy porosity, sctrd recrystallization w/in porosity, LT SCTRD STN, NO SFO, SL GSY SHEEN, WK ODR

○ Lm- White Off White, oolitic, few small pcs of oolitic clusters, well dev. w/ consistant ppt interoolitic porosity, oomoldic w/ vuggy porosity, mostly dissolved oolite nuclei, SCTRD DRK STN, NO SFO, WK ODR

Lm- Tan Cream, VF-FXLN, dense, well cemented, tight w/ minimal vis. porosity, lighographic, some gummy white chalk

Sh- Maroon Gray, soft, blocky

Lm- Cream Tan, FXLN

Lm- Cream, FXLN, sl oolitic, tight w/ no vis. porosity

Lm- Bright Off White, friable

**BKC 3370' (-1567) E-LOG 3370' (-1567)** Sh- Maroon soft gummy red wash

Sh- Lm Green, blocky, sticky

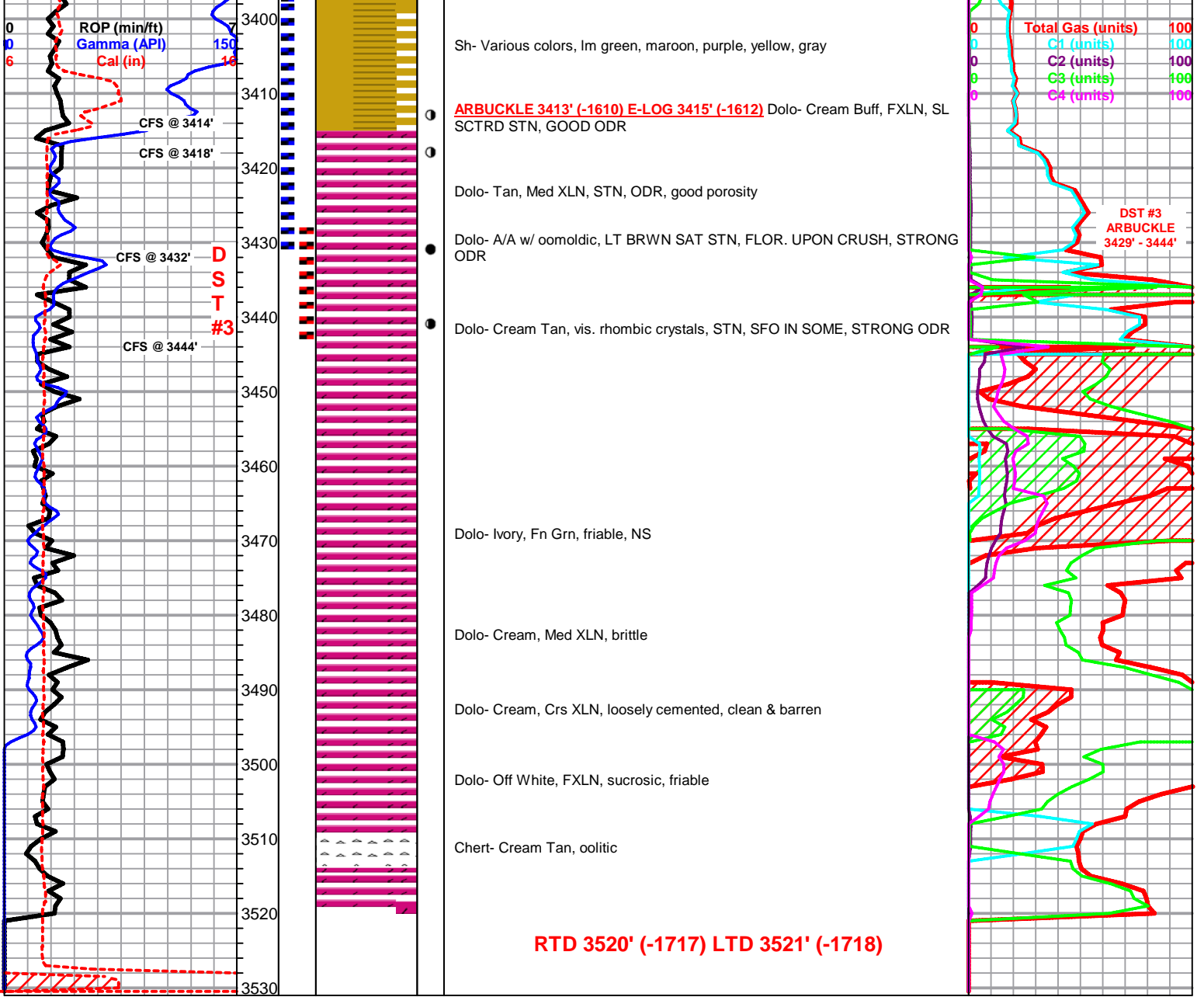
○ Sh- Yellow, blocky, Ss- Green, few pcs clear, BLK STN, NO SFO, NO FLOR. NO ODR

Total Gas (units) 100  
 C1 (units) 100  
 C2 (units) 100  
 C3 (units) 100  
 C4 (units) 100

36 UNITS

DST #1  
LKC I-J  
3290' - 3340'

DST #2  
ARBUCKLE  
3369' - 3432'







**TREATMENT REPORT**

Customer <b>Carrie Exploration</b>	Lease No.	Date <b>6-22-13</b>
Lease <b>Hayes</b>	Well # <b>C-1</b>	
Field Order # <b>8659</b>	Station <b>Pratt</b>	Casing <b>5 1/2 14"</b> Depth
Type Job <b>CNW - 5 1/2 Port collar L.S.</b>	Formation	County <b>Stafford</b> State <b>KS</b>
		Legal Description <b>8-21-11</b>

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size	Tubing Size	Shots/Ft				RATE	PRESS	ISIP
<b>5 1/2 14"</b>			<b>125 shots AA2 1.36 yield</b>					
Depth <b>3517</b>	Depth	From	To <b>1/2 208 LA - 1/4 208 Debone</b>	Pre Pad	Max			5 Min.
Volume <b>83.7</b>	Volume	From	To <b>34 906 gas Blok 1090 salt</b>	Pad	Min			10 Min.
Max Press <b>2000</b>	Max Press	From	To <b>5 1/4 frac</b>	Frac	Avg			15 Min.
Well Connection <b>P.C.</b>	Annulus Vol.	From	To <b>305vc 60/40por 2506l</b>		HHP Used			Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush <b>85.22</b>	Gas Volume			Total Load

Customer Representative <b>Ron Herald</b>	Station Manager <b>Karin Gooden</b>	Treater <b>Steve Delgado / Mike Nalle</b>
Service Units <b>77868 / 19905 / 19903 / 21010 / 38970</b>		
Driver Names <b>Mattal / Rawline / Orlando</b>		

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
<b>8:00 AM</b>					On location Safety meeting
					Run 8375 5 1/2 14" casing
					Centrifuge 1-2-11-78-46
					Bravels 4-116 Port collar 17 1544"
					Casing on Buttons
					Break line w/ris
	<b>300</b>		<b>20</b>	<b>5</b>	Pump 20bbl KCL H2O
	<b>300</b>		<b>12</b>	<b>5</b>	Mud flush
	<b>300</b>		<b>5</b>	<b>5</b>	H2O spacer
	<b>250</b>		<b>30</b>	<b>5</b>	Mix 125 shots AA2 @ 15.6 gal
					Shut Down - Clear pump line
					Release Plug
	<b>0</b>		<b>0</b>	<b>6</b>	Start H2O Displacement
	<b>400</b>		<b>70</b>	<b>5</b>	lift pressure
	<b>550</b>		<b>73</b>	<b>4</b>	slow rate
<b>2:05 PM</b>	<b>1500</b>		<b>8 3/4</b>	<b>4</b>	Plug Down - <b>11.5 gal</b>
					Plug RTW / Books 60/40 por
					Job Complete
					Thank, Steve





PAGE	CUST NO	INVOICE DATE
1 of 1	1005952	06/26/2013
INVOICE NUMBER		
1718 - 91223815		

Pratt (620) 672-1201  
 B CARRIE EXPLORATION & DEVELOPMENT LLC  
 I 210 W 22ND ST  
 L HAYS  
 L KS US 67601  
 T  
 O ATTN: HEROLD

J LEASE NAME Hayes C-1  
 O LOCATION  
 B COUNTY Stafford  
 S STATE KS  
 I JOB DESCRIPTION Cement-New Well Casing/Pi  
 T JOB CONTACT  
 E

*C*

*Copy - original in Cement Tickets*

JOB #	EQUIPMENT #	PURCHASE ORDER NO.	TERMS	DUE DATE
40611279	19905		Net - 30 days	07/26/2013

	QTY	U of M	UNIT PRICE	INVOICE AMOUNT
<b>For Service Dates: 06/22/2013 to 06/22/2013</b>				
0040611279				
171808659A Cement-New Well Casing/Pi 06/22/2013 Cement 5 1/2" Longstring				
AA2 Cement	125.00	EA	11.05	1,381.25 T
60/40 POZ	30.00	EA	7.80	234.00 T
C-41P	30.00	EA	2.60	78.00 T
Salt	575.00	EA	0.33	186.88 T
FLA-322	59.00	EA	4.88	287.63 T
Gilsonite	625.00	EA	0.44	272.19 T
C-44	89.00	EA	3.35	297.93 T
Mud Flush	500.00	EA	0.56	279.50 T
Claymax KCL Substitute	1.00	EA	22.75	22.75 T
"5 1/2" Port Collar "	1.00	EA	2,274.98	2,274.98
"Latch Down Plug & Baffle, 5 1/2" (Blu	1.00	EA	260.00	260.00
"Auto Fill Float Shoe 5 1/2" (Blue)"	1.00	EA	234.00	234.00
"Turbolizer, 5 1/2" (Blue)"	6.00	EA	71.50	429.00
"5 1/2" Basket (Blue)"	2.00	EA	188.50	377.00
"Unit Mileage Chg (PU, cars one way)"	50.00	MI	2.76	138.13
Heavy Equipment Mileage	100.00	MI	4.55	455.00
"Proppant & Bulk Del. Chgs., per ton mil	360.00	EA	1.04	374.40
Depth Charge; 3001-4000'	1.00	EA	1,404.00	1,404.00
Blending & Mixing Service Charge	155.00	BAG	0.91	141.05
Plug Container Util. Chg.	1.00	EA	162.50	162.50
"Service Supervisor, first 8 hrs on loc.	1.00	EA	113.75	113.75

PLEASE REMIT TO:	SEND OTHER CORRESPONDENCE TO:	SUB TOTAL	9,403.94
BASIC ENERGY SERVICES, LP	BASIC ENERGY SERVICES, LP	TAX	221.93
PO BOX 841903	801 CHERRY ST, STE 2100	INVOICE TOTAL	9,625.87
DALLAS, TX 75284-1903	FORT WORTH, TX 76102		