



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

Spud Date or Recompletion Date      Date Reached TD      Completion Date or Recompletion Date

API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_-\_\_\_\_\_-\_\_\_\_\_- Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total 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**

- Letter of Confidentiality Received  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



1060027

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i>  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

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 Bbbs.	Gas Mcf	Water Bbbs.	Gas-Oil Ratio	Gravity
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DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Cowdery 3-29
Doc ID	1060027

Tops

Name	Top	Datum
Anhydrite	2171	+725
Base Anhydrite	2249	+647
Heebner	3895	-999
Lansing	3932	-1036
Stark	4219	-1323
Pawnee	4426	-1530
Cherokee Sh	4490	-1594
Mississippi	4587	-1691

Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Cowdery 3-29
Doc ID	1060027

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	4542-4566	400 Gal 7-1/2%	4542-66
		1700 Gal 7-1/2%	4542-66
4	4364-67	250 Gal 15% MCA	4364.67
4	4251-56	250 Gal 15% MCA	4251-56
4	4192-96	250 Gal 15% MCA	4192-96
		500 Gal 15% NE	4192-96





PO Box 466  
Ness City, KS 67560  
Off: 785-798-2300

TICKET CONTINUATION

TICKET No. 19897

CUSTOMER Larson Engineering WELL #2-29 Cowdery DATE 4-9-11 PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF			QTY.	U/M	QTY.	U/M		
325		2				standard Cement	175	sk			12 <sup>00</sup>	2100 <sup>00</sup>
276		2				Floccle	50	#	1/8	1/sk	1 <sup>50</sup>	75 <sup>00</sup>
283		2				Salt	950	#	10	%	15	142 <sup>25</sup>
284		2				Calseq	8	sk	5	%	30 <sup>00</sup>	240 <sup>00</sup>
286		2				Halad-1	125	#	7/8	1/sk	7 <sup>00</sup>	875 <sup>00</sup>
277		2				Coal Seal	1100	#	7	1/sk	60	660 <sup>00</sup>
581		2				SERVICE CHARGE	175	sk			1 <sup>50</sup>	262 <sup>50</sup>
583		2				MILEAGE CHARGE					1 <sup>00</sup>	389 <sup>50</sup>

TOTAL WEIGHT 19475  
LOADED MILES 40  
TON MILES 389.5

CONTINUATION TOTAL 4722<sup>50</sup>





CHARGE TO: *Larson Engineering*  
 ADDRESS:  
 CITY, STATE, ZIP CODE:

TICKET  
20574

PAGE 1 OF 1

SERVICE LOCATIONS: 1. *Ness City KS*  
 WELL/PROJECT NO.: *3-29-#*  
 LEASE: *Cowdry*  
 COUNTY/PARISH: *LANE*  
 STATE: *KS*  
 CITY: *Dighton*  
 DATE: *18 APR 11*  
 OWNER:  
 TICKET TYPE:  SERVICE  SALES  
 CONTRACTOR: *WILD WEST*  
 RIG NAME/NO.:  
 SHIPPED VIA: *CT*  
 DELIVERED TO: *location*  
 ORDER NO.:  
 WELL TYPE: *oil*  
 WELL CATEGORY: *Development*  
 JOB PURPOSE: *cement port collar*  
 WELL PERMIT NO.:  
 WELL LOCATION: *29-185-30W*  
 REFERRAL LOCATION:  
 INVOICE INSTRUCTIONS:

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		UM		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE	40		mi		5.00	200.00
576 D		1			Pump Charge	1		ea		1100.00	1100.00
330		1			SMD cement	160		sk		15.00	2400.00
276		1			Floacle	50		lb		1.50	75.00
290		1			D-AIR	2		gal		35.00	70.00
581		1			Service Charge	225		sk		1.50	337.50
583		1			Drayage	2238	15		447.80 TM	1.00	447.80

**LEGAL TERMS:** Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

DATE SIGNED: \_\_\_\_\_ TIME SIGNED: \_\_\_\_\_  A.M.  P.M.

**REMIT PAYMENT TO:**  
 SWIFT SERVICES, INC.  
 P.O. BOX 466  
 NESS CITY, KS 67560  
 785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND			

PAGE TOTAL	4630	30
Lane TAX @ 6.3%	160	34
<b>TOTAL</b>	<b>4790</b>	<b>64</b>

**CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES** The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR: *AB Campbell* APPROVAL: \_\_\_\_\_

*Thank You!*



JOB LOG

SWIFT Services, Inc.

DATE 18 APR 11 PAGE NO.

CUSTOMER Aalson Engineering WELL NO. 3-29 # LEASE Cowdry JOB TYPE Cement port collar TICKET NO. 20574

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								225 SMD 7/8" flocc 2 3/4" x 5 1/2"
	1000							on loc TRX 114
	1030					1000	1000	pressure to 1000 psi - hold open port collar
	1040	3 1/4	3			300		inj rate 3 1/4 @ 300
	1045	3 3/4				300		mix SMD cement @ 11.2 ppg
		3 3/4	17			400		fluid circulate to pit
		3 3/4	88			500		cement to surface
	1115							kick out 160 sks mixed
	1120							close port collar
								pressure to 1000 psi - hold
	1130	3 3/4	25			200		reverse hole clean (after running 4 joints)
								clean truck pull tools
								Rack up
	1215							job complete
								Thanks Dave, David, & Blaine
								{ 160 sks mixed } 20 to pit }

# ALLIED CEMENTING CO., LLC. 038785

Federal Tax I.D.# 20-5975804

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

SERVICE POINT:  
Great Bend

DATE <u>3-28-11</u>	SEC. <u>29</u>	TWP. <u>18</u>	RANGE <u>30</u>	CALLED OUT	ON LOCATION	JOB START <u>800 PM</u>	JOB FINISH <u>830 PM</u>
LEASE <u>Cowdery</u>		WELL # <u>3-29</u>		LOCATION <u>Amy ks west to Bison</u>		COUNTY <u>lane</u>	STATE <u>KS</u>
OLD OR <u>NEW</u> (Circle one)			RO <u>1 1/4 south west into</u>				

CONTRACTOR H.O Rig 3  
 TYPE OF JOB Surface  
 HOLE SIZE 12 1/4 T.D. 259  
 CASING SIZE 8 3/8 DEPTH 259  
 TUBING SIZE DEPTH  
 DRILL PIPE DEPTH  
 TOOL DEPTH  
 PRES. MAX 100 MINIMUM  
 MEAS. LINE SHOE JOINT  
 CEMENT LEFT IN CSG. 15  
 PERFS.  
 DISPLACEMENT 15.50

OWNER Hanson Engineering  
 CEMENT  
 AMOUNT ORDERED 1755X CLASS A 3%<sup>cc</sup> + 2% gel

EQUIPMENT  
 PUMP TRUCK CEMENTER Wayne D  
 # 366 HELPER Bob R  
 BULK TRUCK  
 # 344 DRIVER Greg  
 BULK TRUCK  
 # DRIVER

COMMON <u>175</u>	@ <u>16.25</u>	<u>2843.25</u>
POZMIX	@	
GEL <u>3</u>	@ <u>21.25</u>	<u>63.75</u>
CHLORIDE <u>6</u>	@ <u>58.20</u>	<u>349.20</u>
ASC	@	
	@	
	@	
	@	
	@	
	@	
	@	
	@	
HANDLING <u>184</u>	@ <u>2.25</u>	<u>414.00</u>
MILEAGE <u>184 X 40 X .11</u>		<u>809.60</u>
TOTAL		<u>4480.30</u>

**REMARKS:**

pipe on bottom Break circulation  
with Rig mud shut down  
Run 5 Bbls fresh water ahead  
Mix 1755X CLASS A 3%<sup>cc</sup> + 2% gel  
Displace 15.50 Bbls fresh water  
Shut in cement and circulate  
Rig Down

**SERVICE**

DEPTH OF JOB <u>259</u>		
PUMP TRUCK CHARGE		<u>1125.00</u>
EXTRA FOOTAGE	@	
MILEAGE <u>80</u>	@ <u>7.00</u>	<u>560.00</u>
MANIFOLD	@	
<u>High Touch Mileage 80</u>	@ <u>4.00</u>	<u>320.00</u>
	@	
TOTAL		<u>2005.00</u>

CHARGE TO: Hanson Engineering  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**PLUG & FLOAT EQUIPMENT**

	@	
	@	
	@	
	@	
	@	
TOTAL		

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

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

PRINTED NAME LEWYNE TRESNER  
 SIGNATURE Lewayne Tresner



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/3w/Lane/KS**

ATTN: Vern Sohrag

Job Ticket: 43101

**DST#: 1**

Test Start: 2011.04.03 @ 04:00:00

## GENERAL INFORMATION:

Formation: **L.K.C. "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:30:40

Time Test Ended: 12:00:00

Test Type: Conventional Bottom Hole

Tester: Kevin Mack

Unit No: 37

**Interval: 4109.00 ft (KB) To 4134.00 ft (KB) (TVD)**

Reference Elevations: 2896.00 ft (KB)

Total Depth: 4134.00 ft (KB) (TVD)

2889.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 6751 Outside**

Press @ RunDepth: 70.95 psig @ 4110.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.04.03

End Date: 2011.04.03

Last Calib.: 2011.04.03

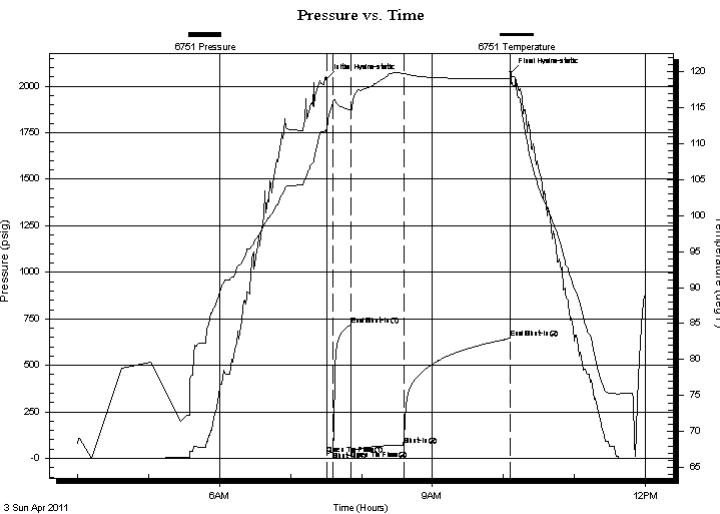
Start Time: 04:00:05

End Time: 11:59:59

Time On Btm: 2011.04.03 @ 07:30:30

Time Off Btm: 2011.04.03 @ 10:06:20

**TEST COMMENT:** IF: Blow built to 2 1/4"  
IS: No Return  
FF: Blow built to 9 1/2"  
FS: No Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2041.21	111.96	Initial Hydro-static
1	20.35	111.20	Open To Flow (1)
6	37.14	115.83	Shut-In(1)
21	718.18	114.66	End Shut-In(1)
21	42.40	114.32	Open To Flow (2)
65	70.95	119.72	Shut-In(2)
156	645.68	119.00	End Shut-In(2)
156	2074.04	119.44	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	MCO 70o 30M	0.30
122.00	MCO 75o 25M	1.16

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/3w/Lane/KS**

Job Ticket: 43101

**DST#: 1**

ATTN: Vern Sohrag

Test Start: 2011.04.03 @ 04:00:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 68.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	MCO 70o 30M	0.295
122.00	MCO 75o 25M	1.165

Total Length: 182.00 ft      Total Volume: 1.460 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

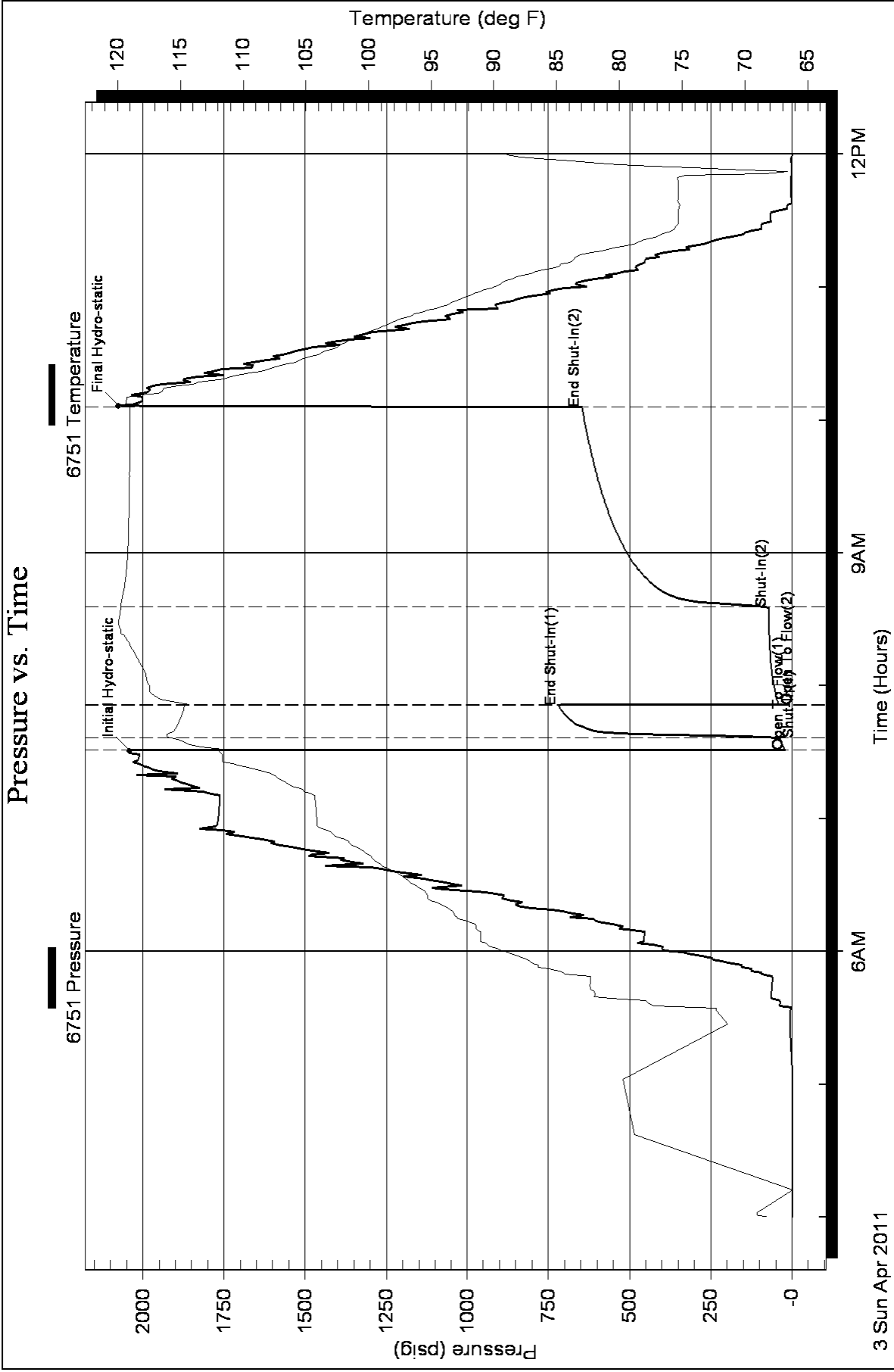
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd. 4  
Olmitz, KS. 67564  
ATTN: Vern Schrag

**Cowdery 3-29**  
**29/18s/3w/Lane/KS**  
Job Ticket: 43102      **DST#: 2**  
Test Start: 2011.04.04 @ 02:26:00

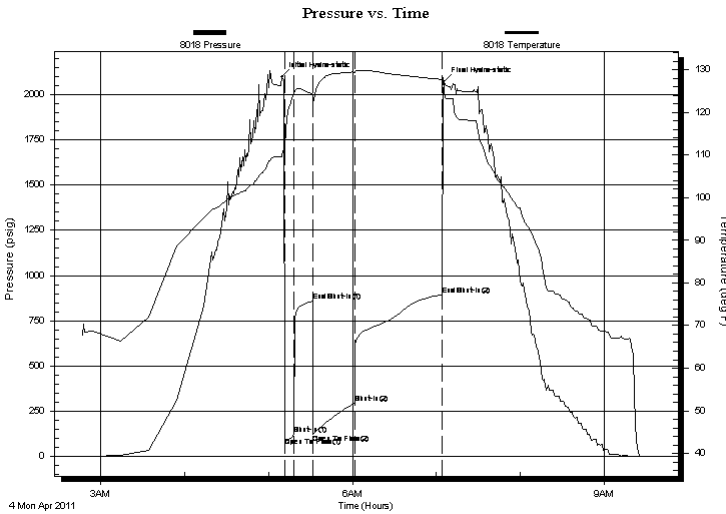
## GENERAL INFORMATION:

Formation: **L.K.C. "J"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 05:11:24  
Time Test Ended: 09:12:00  
Interval: **4180.00 ft (KB) To 4200.00 ft (KB) (TVD)**  
Total Depth: 4200.00 ft (KB) (TVD)  
Hole Diameter: 7.80 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole  
Tester: Kevin Mack  
Unit No: 37  
Reference Elevations: 2896.00 ft (KB)  
2889.00 ft (CF)  
KB to GR/CF: 7.00 ft

**Serial #: 8018      Inside**  
Press @ RunDepth: 296.65 psig @ 4181.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2011.04.04      End Date: 2011.04.04      Last Calib.: 2011.04.04  
Start Time: 02:47:05      End Time: 09:32:59      Time On Btm: 2011.04.04 @ 05:09:36  
Time Off Btm: 2011.04.04 @ 07:05:12

**TEST COMMENT:** IF: B.O.B. @ 2 1/2 min.  
IS: Return started @ 5 min., 2 3/4".  
FF: B.O.B. @ 3 min.  
FS: 2" Return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2098.17	109.94	Initial Hydro-static
2	54.46	111.14	Open To Flow (1)
9	121.45	124.55	Shut-In(1)
22	858.99	124.28	End Shut-In(1)
23	124.80	123.65	Open To Flow (2)
52	296.65	129.47	Shut-In(2)
115	894.29	127.77	End Shut-In(2)
116	2073.57	124.75	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
370.00	GOCM 20g 20o 60m	4.10
410.00	GO 25g 75o	5.75
0.00	145 Feet GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/3w/Lane/KS**

Job Ticket: 43102

**DST#: 2**

ATTN: Vern Schrag

Test Start: 2011.04.04 @ 02:26:00

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

36 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
370.00	GOCM 20g 20o 60m	4.097
410.00	GO 25g 75o	5.751
0.00	145 Feet GIP	0.000

Total Length: 780.00 ft      Total Volume: 9.848 bbl

Num Fluid Samples: 0

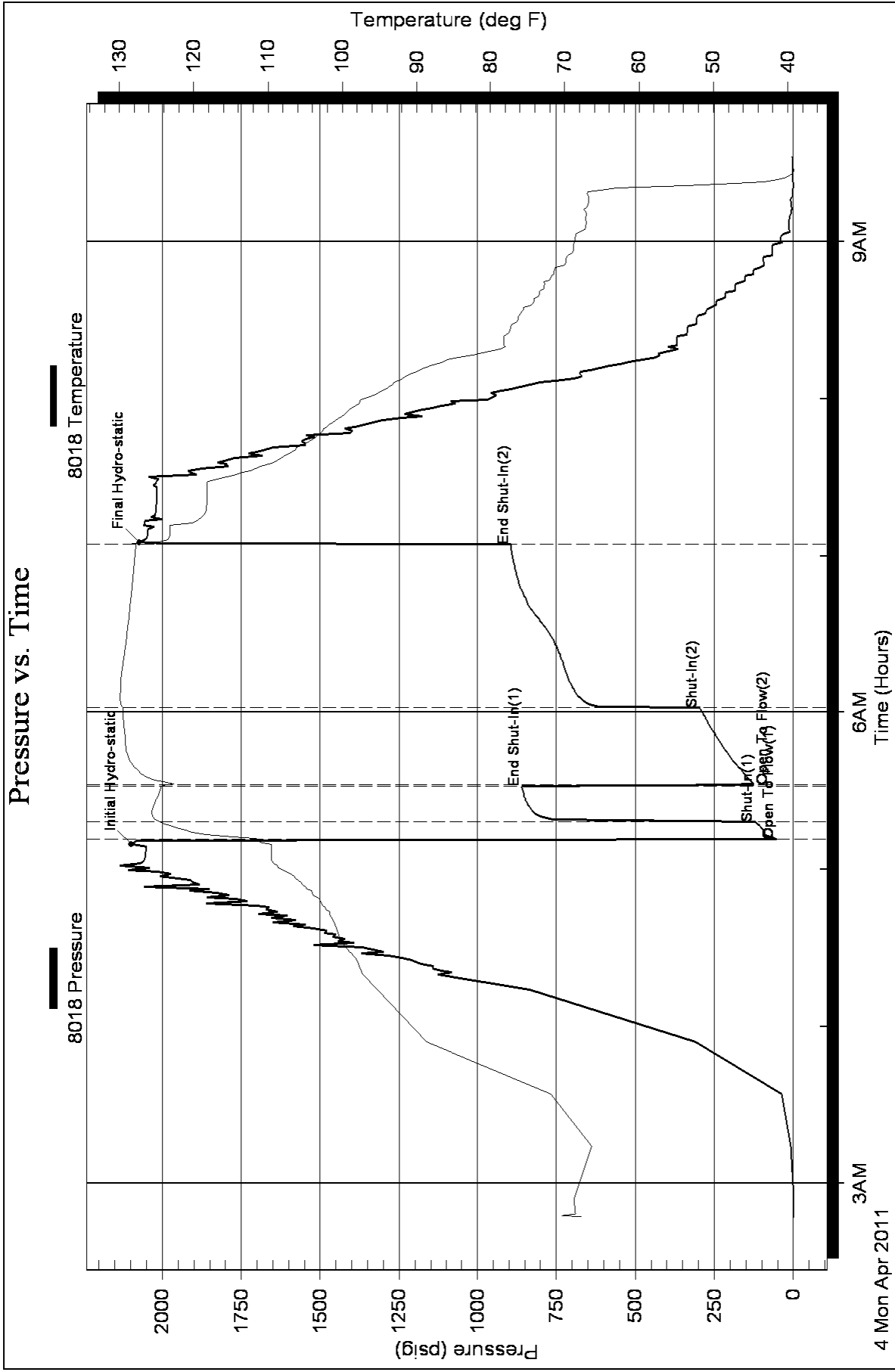
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API:34 @ 40 Degrees F = 36.







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

ATTN: Vern Schrag

Job Ticket: 43103

**DST#: 3**

Test Start: 2011.04.05 @ 00:55:00

## GENERAL INFORMATION:

Formation: **Middle Creek**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:35:48

Time Test Ended: 06:19:47

Test Type: Conventional Bottom Hole

Tester: Chuck Smith

Unit No: 37

**Interval: 4256.00 ft (KB) To 4264.00 ft (KB) (TVD)**

Reference Elevations: 2896.00 ft (KB)

Total Depth: 4264.00 ft (KB) (TVD)

2889.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8018 Inside**

Press @ Run Depth: 102.00 psig @ 4257.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.04.05

End Date:

2011.04.05

Last Calib.: 2011.04.05

Start Time: 00:55:05

End Time:

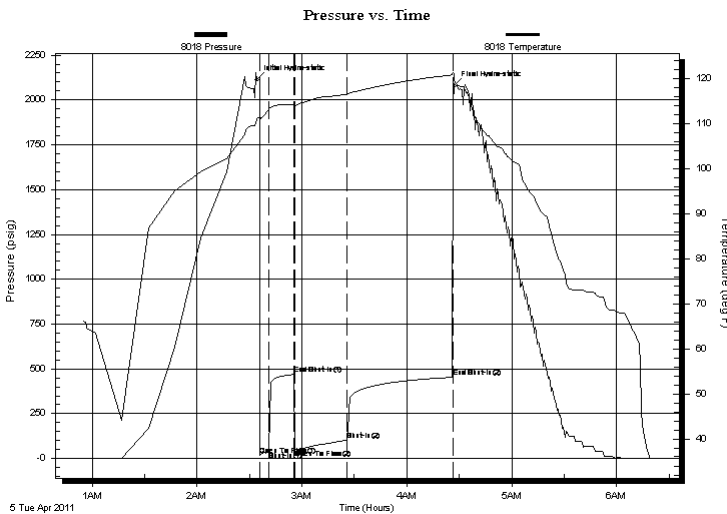
06:19:47

Time On Btm: 2011.04.05 @ 02:34:00

Time Off Btm: 2011.04.05 @ 04:27:00

**TEST COMMENT:** IF: 5" Blow.  
IS: No return.  
FF: B.O.B. @ 11 min.  
FS: 2" Return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2113.12	110.64	Initial Hydro-static
2	20.59	110.58	Open To Flow (1)
7	43.14	113.13	Shut-In(1)
22	469.37	114.27	End Shut-In(1)
22	49.50	114.04	Open To Flow (2)
52	102.00	116.56	Shut-In(2)
113	453.32	120.82	End Shut-In(2)
113	2081.45	121.02	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM 10g 20o 70m	0.30
184.00	GMCO 25g 15m 60o	2.03
31.00	GO 30g 70o	0.43
0.00	160 Weak GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

Job Ticket: 43103

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2011.04.05 @ 00:55:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	GOCM 10g 20o 70m	0.295
184.00	GMCO 25g 15m 60o	2.034
31.00	GO 30g 70o	0.435
0.00	160 Weak GIP	0.000

Total Length: 275.00 ft      Total Volume: 2.764 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

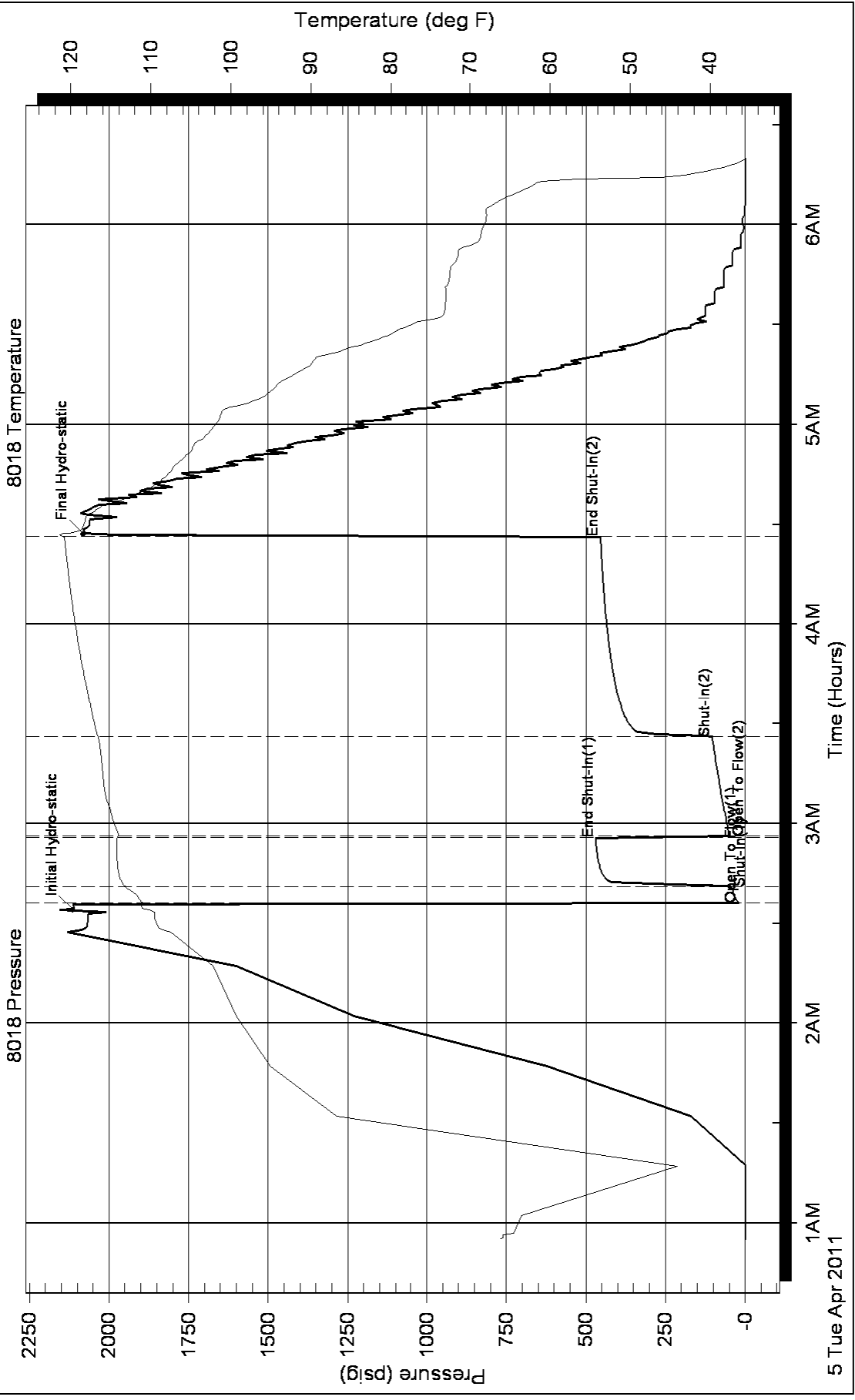
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: 36 @ 40 Degrees F = 38

### Pressure vs. Time





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

ATTN: Vern Schrag

Job Ticket: 43104

**DST#: 4**

Test Start: 2011.04.05 @ 17:20:00

## GENERAL INFORMATION:

Formation: **LKC 'L'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:33:48

Time Test Ended: 22:53:47

Test Type: Conventional Bottom Hole

Tester: Chuck Smith

Unit No: 37

**Interval: 4269.00 ft (KB) To 4286.00 ft (KB) (TVD)**

Reference Elevations: 2896.00 ft (KB)

Total Depth: 4286.00 ft (KB) (TVD)

2889.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8018**

**Inside**

Press @ Run Depth: 22.20 psig @ 4270.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.04.05

End Date:

2011.04.05

Last Calib.:

2011.04.05

Start Time: 17:20:05

End Time:

22:53:47

Time On Btm:

2011.04.05 @ 19:31:48

Time Off Btm:

2011.04.05 @ 20:42:12

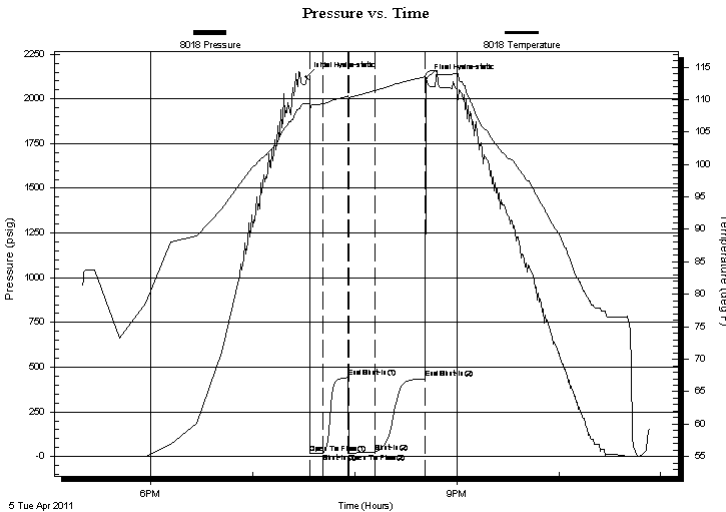
TEST COMMENT: IF: Weak surface blow .

IS: No return.

FF: No blow .

FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2123.58	109.37	Initial Hydro-static
2	16.28	108.18	Open To Flow (1)
10	18.40	109.37	Shut-In(1)
25	441.69	110.53	End Shut-In(1)
25	18.30	110.16	Open To Flow (2)
40	22.20	111.37	Shut-In(2)
70	435.78	113.52	End Shut-In(2)
71	2112.89	114.00	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 1 to 99m	0.02

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

Job Ticket: 43104

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2011.04.05 @ 17:20:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	SOCM 1o 99m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

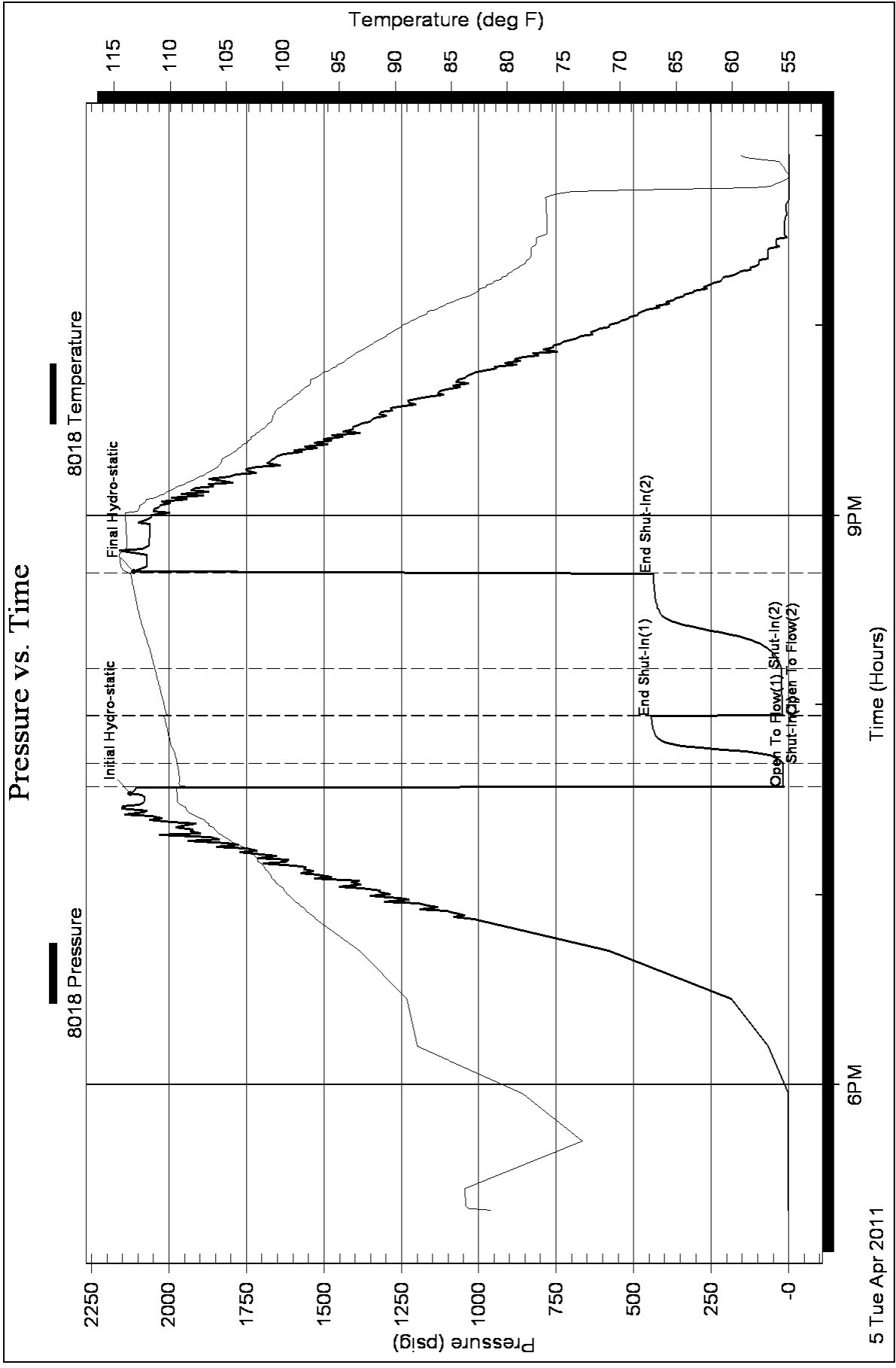
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering  
 562 W State Rd. 4  
 Olmitz, KS. 67564  
 ATTN: Vern Schrag

**Cowdery 3-29**  
**29/18s/30w/Lane/KS**  
 Job Ticket: 43105 **DST#: 5**  
 Test Start: 2011.04.06 @ 12:21:00

## GENERAL INFORMATION:

Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 14:01:36  
 Time Test Ended: 17:46:00  
 Interval: **4295.00 ft (KB) To 4356.00 ft (KB) (TVD)**  
 Total Depth: 4356.00 ft (KB) (TVD)  
 Hole Diameter: 7.80 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole  
 Tester: Kevin Mack  
 Unit No: 37  
 Reference Elevations: 2896.00 ft (KB)  
 2889.00 ft (CF)  
 KB to GR/CF: 7.00 ft

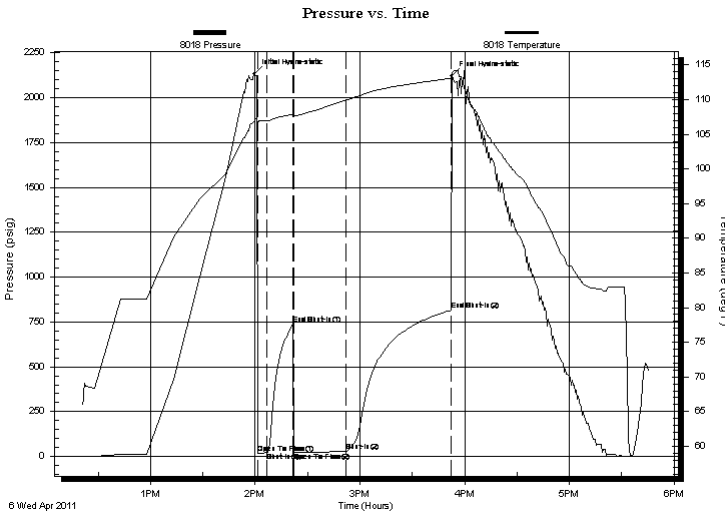
## Serial #: 8018

Inside

Press @ Run Depth: 27.40 psig @ 4299.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2011.04.06 End Date: 2011.04.06 Last Calib.: 2011.04.06  
 Start Time: 12:21:05 End Time: 17:45:59 Time On Btm: 2011.04.06 @ 13:59:36  
 Time Off Btm: 2011.04.06 @ 15:52:36

TEST COMMENT: IF: Surface blow .  
 IS: No return.  
 FF: Weak surface blow died @ 20 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2133.55	106.97	Initial Hydro-static
2	19.46	106.52	Open To Flow (1)
8	20.74	106.96	Shut-In(1)
22	739.42	107.90	End Shut-In(1)
23	22.55	107.56	Open To Flow (2)
53	27.40	109.91	Shut-In(2)
113	814.75	113.07	End Shut-In(2)
113	2120.32	113.79	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 2o 98m	0.15

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

Job Ticket: 43105

**DST#: 5**

ATTN: Vern Schrag

Test Start: 2011.04.06 @ 12:21:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	SOCM 2o 98m	0.148

Total Length: 30.00 ft      Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

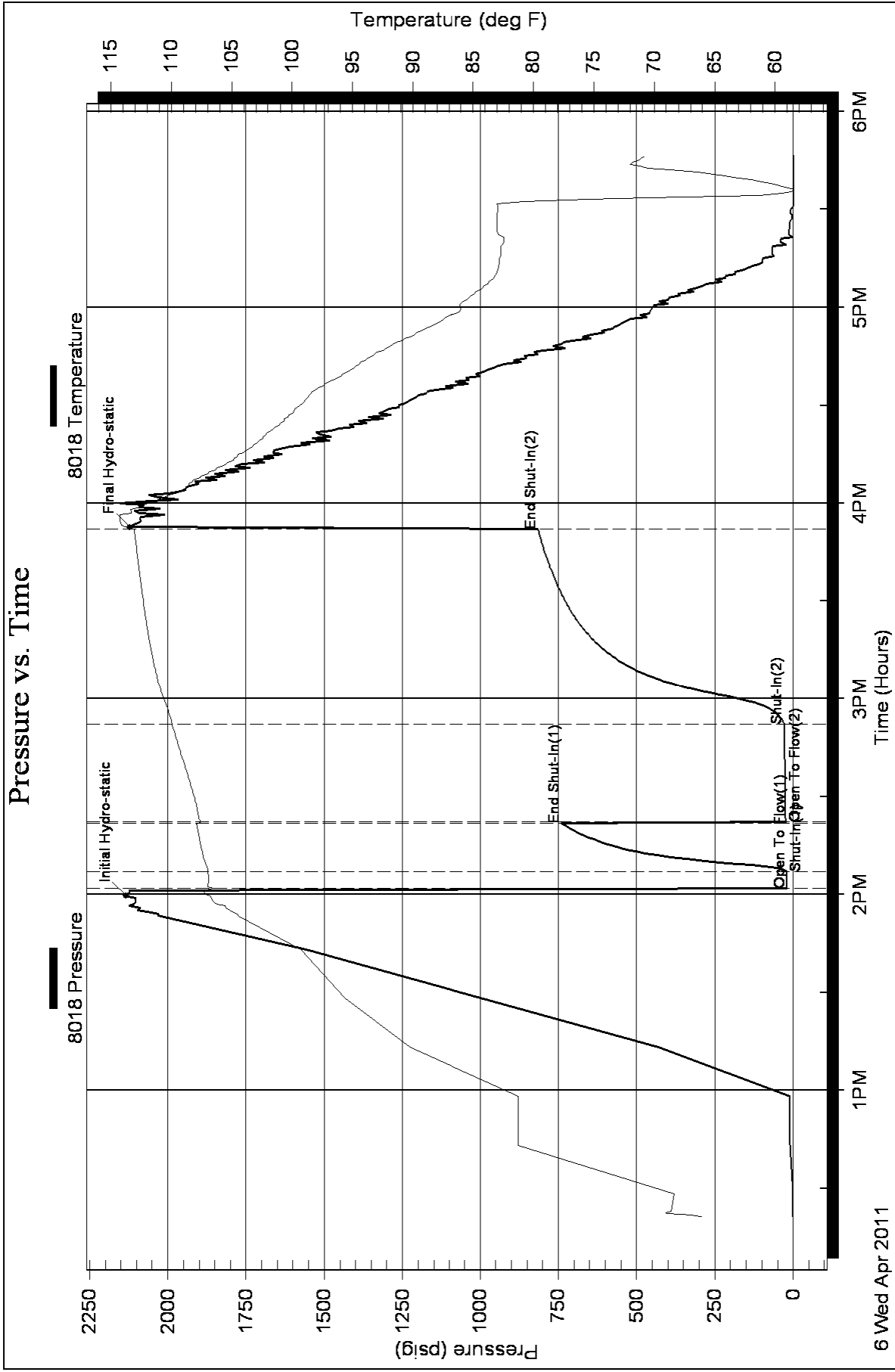
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

ATTN: Vern Schrag

Job Ticket: 43106

**DST#: 6**

Test Start: 2011.04.07 @ 04:26:00

## GENERAL INFORMATION:

Formation: **Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:36:12

Time Test Ended: 11:15:00

Test Type: Conventional Bottom Hole

Tester: Chuck Smith

Unit No: 37

**Interval: 4359.00 ft (KB) To 4392.00 ft (KB) (TVD)**

Reference Elevations: 2896.00 ft (KB)

Total Depth: 4392.00 ft (KB) (TVD)

2889.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8018 Inside**

Press @ RunDepth: 246.45 psig @ 4360.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.04.07 End Date: 2011.04.07

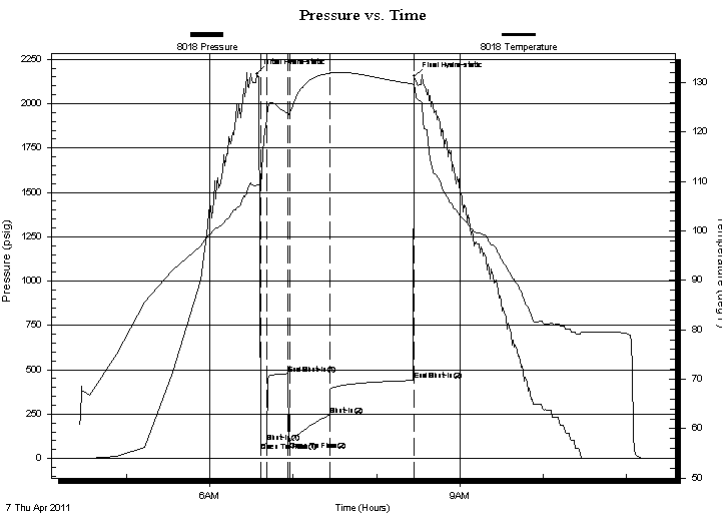
Last Calib.: 2011.04.07

Start Time: 04:26:05 End Time: 11:14:59

Time On Btm: 2011.04.07 @ 06:33:48

Time Off Btm: 2011.04.07 @ 08:27:24

**TEST COMMENT:** IF: B.O.B. @ 5 min.  
IS: 3" Return.  
FF: B.O.B. @ 5 min.  
FS: B.O.B. @ 25 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2168.93	109.25	Initial Hydro-static
3	39.44	108.84	Open To Flow (1)
8	90.63	123.19	Shut-In(1)
23	478.58	123.81	End Shut-In(1)
24	94.71	123.53	Open To Flow (2)
53	246.45	131.89	Shut-In(2)
113	440.48	129.71	End Shut-In(2)
114	2155.41	129.75	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
460.00	GO 45g 55o	5.36
190.00	GOCM 20g 30o 50m	2.67
0.00	775 Feet GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Larson Engineering

**Cowdery 3-29**

562 W State Rd. 4  
Olmitz, KS. 67564

**29/18s/30w/Lane/KS**

Job Ticket: 43106

**DST#: 6**

ATTN: Vern Schrag

Test Start: 2011.04.07 @ 04:26:00

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

36 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
460.00	GO 45g 55o	5.359
190.00	GOCM 20g 30o 50m	2.665
0.00	775 Feet GIP	0.000

Total Length: 650.00 ft      Total Volume: 8.024 bbl

Num Fluid Samples: 0

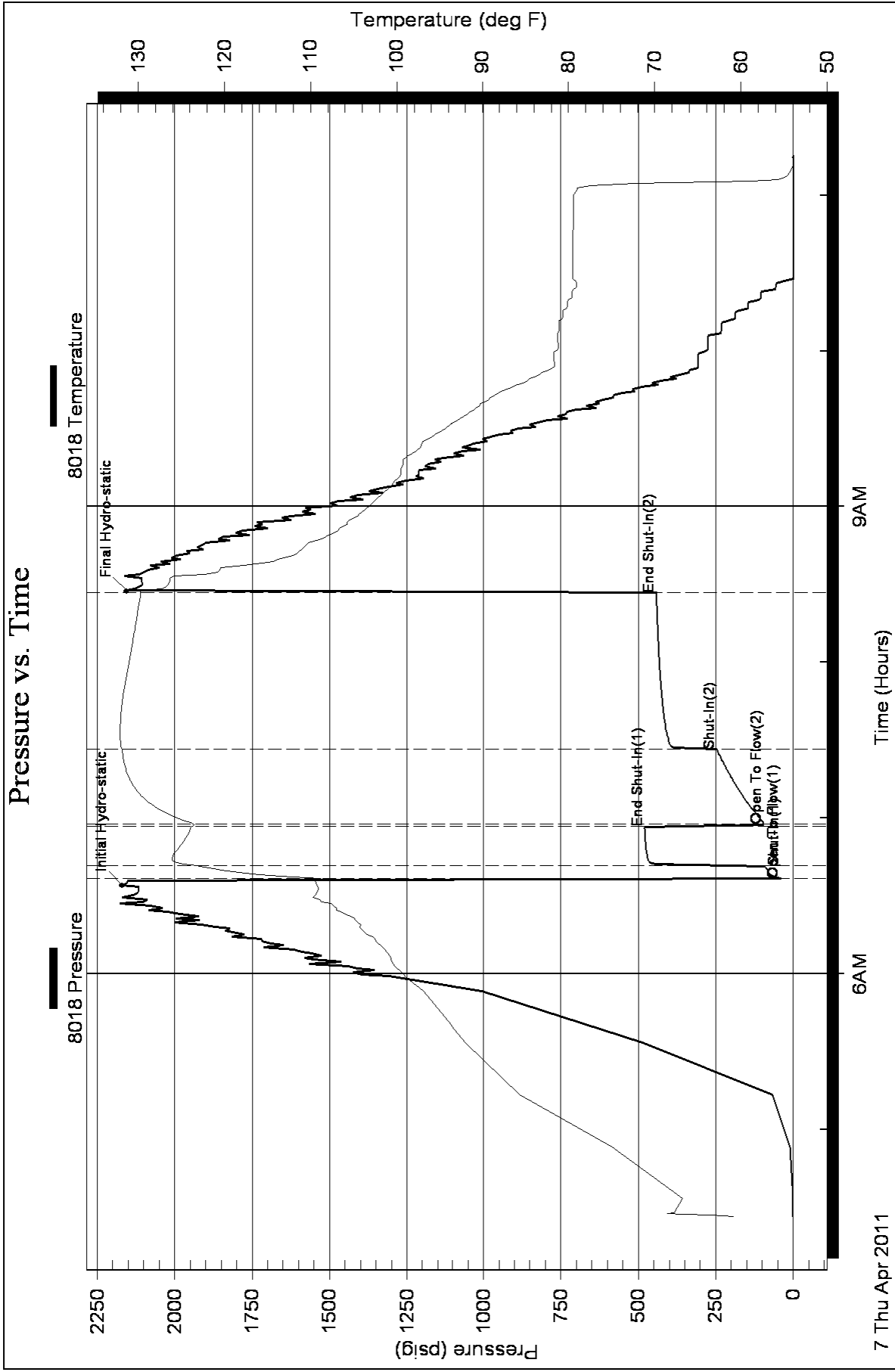
Num Gas Bombs: 0

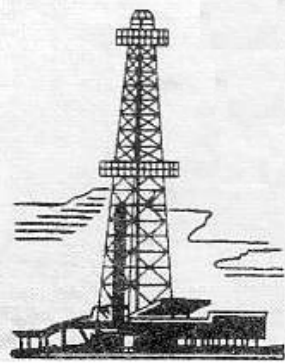
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: 36 @ 60 Degrees F = 36.





# WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG  
CONSULTANT GEOLOGIST



Scale 1:240 (5"=100') Imperial

Well Name: COWDERY #3-29  
Location: SW NW NE NE Sec. 29-18s-30w  
Licence Number: API: 15-101-22287  
Spud Date: Mar. 28, 2011  
Surface Coordinates: 588' FNL & 1089' FEL

Region: Lane Co., KS  
Drilling Completed: Apr. 08, 2011

Bottom Hole Coordinates:	Vertical Hole
Ground Elevation (ft): 2889'	K.B. Elevation (ft): 2896'
Logged Interval (ft): 3800'	To: RTD Total Depth (ft): 4620'
Formation: Mississippi	
Type of Drilling Fluid: Chemical Premix (Displaced)	

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

## OPERATOR:

Company: LARSON ENGINEERING, INC.  
Address: 562 West State Road 4  
Olmitz, KS 67564-8561

## DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3

DP 4.5" XH (16.6#); DC 6.0" (ave) x 2-3/8" (ave) x 621,49', Kelly + Bit 41.30', Tool Joint 5.5" ; Bit: JZ-HA25TL, 7-7/8", jets 14-14-14; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

## SURFACE CASING:

Set 8-5/8" casing at 256' (247.47', 20#)

## CIRCULATION SYSTEM:

Pump: Gardner-Denver FXQ-172, duplex, 6 x 16, 2" rod, 54 spm, 340 gpm (85%). SPP: 750-900 psi; Chemical, premix, displaced at 3577'; Morgan Mud, Inc., McCook, Neb., David Lines, Cade Lines.

## GAS DETECTION SYSTEM:

None.

## OPEN HOLE LOGS:

DN (PE), DI (SP), ML: 5" detail RTD-3600; 2" DI to surface casing; No Sonic Log; LogTech-Pioneer Wireline, Hays, KS, Jerrod Long, Log total depth (4614') was 6' short to rotary total depth (4620').

#### DRILL STEM TEST #1:

Zone: Kans. City "H": Test Interval: 4109-4134' (25' anchor); Blow: weak incr 2" IFP, weak incr 9" FFP, no RB; Time Periods: 5-15-45-90; Recovery: no gas in pipe, 182' MCO, no water: Grindout: 122' (25% mud, 75% oil), 60' (30% mud, 70% oil); Pressures: HP: 2041-2074; SIP: 718-645; FP: 20-37, 42-70; BHT: 114 F; dual packers, jars, joints, 120' collars, Trilobite Testing, Inc., Kevin Mack.

#### DRILL STEM TEST #2:

Zone: Kans. City "J": Interval: 4180-4200 (20' anchor); Blow: BOB in 2.5 min IFP, weak surf RB ISIP; BOB 3 min FFP, 2.5" RB which appeared to weaken somewhat; Time Periods: 5-15-30-60; Recovery: 145' GIP, 780' total; Grindouts: 410' GO (25% gas, 75% oil, 36 API grav), 370 GOCM (20% gas, 20% oil, 60% mud); Pressures: HP: 2098-2074; SIP: 859-894; FP: 54-121, 125-297; BHT: 128 F; final buildup S-shaped; dual packers w/shale packer, jars, joints, 120' collars; Trilobite Testing, Inc., Kevin Mack & Chuck Smith.

#### DRILL STEM TEST #3:

Zone: Kans. City "Middle Creek": Test Interval: 4256-4264 (8' anchor); Blow: BOB 5 min IFP, no RB; BOB 11 min FFP, 2" RB FSIP; Time Periods: 5-15-30-60; Recovery: 160' GIP, 275' GO & MCO; Grindouts: 31' GO (30% gas, 70% oil, 38 API grav.), 184' GMCO (15% mud, 25% gas, 60% oil); 60' GOCM (10% gas, 20% oil, 70% mud); Pressures: HP: 2113-2080, SIP: 469-453; FP: 21-43, 50-102; BHT: 121 F; dual packers w/shale packer, jars, joints, 120' collars; Trilobite Testing, Inc., Chuck Smith.

#### DRILL STEM TEST #4:

Zone: Kans. City "L": Test Interval: 4269-4286 (17' anchor); Blow: weak surf at best IFP, no blow FFP, no RB; Time Periods: 5-15-15-30; Recovery: 5' SOCM (1% oil, 99% mud); Pressures: HP: 2124-2113; SIP: 442-436; FP: 16-18, 18-22; BHT: 114 F; dual packers w/shale packer, jars, joints, 120' collars; Trilobite Testing, Inc., Chuck Smith.

#### DRILL STEM TEST #5:

Zone: Pleasanton, upper Marmaton: Test Interval: 4295 -4356 (61' anchor); weak intermittent surface blow both FP, no RB; Time Periods: 5-15-30-60; Recovery: no GIP; 30' SOCM (2% oil, 98% mud); Pressures: HP: 2134-2120; SIP: 739-815; FP: 19-21, 23-27; BHT: 113 F; dual packers, jars, joints, 120' collars; Trilobite Testing, Inc., Chuck Smith.

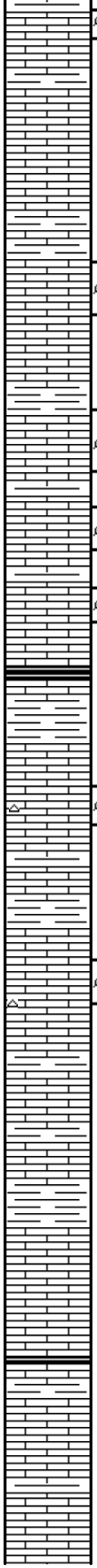
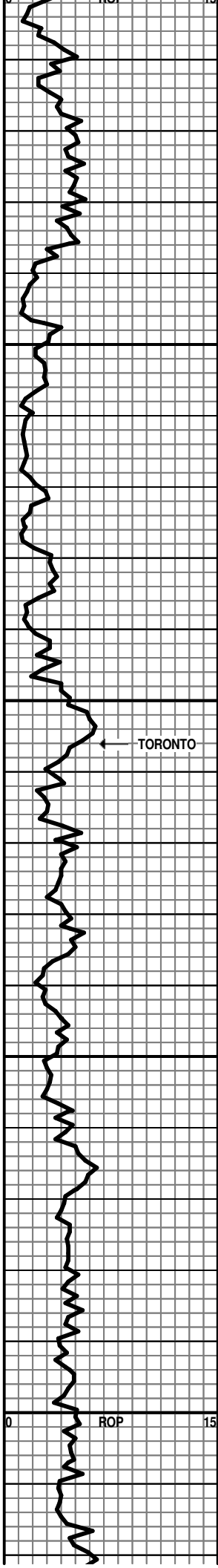
#### DRILL STEM TEST #6:

Zone: Marmaton (Altamont): Test Interval: 4359-4392 (33' anchor); Blow: BOB 5 min IFP, 3" RB; BOB 5 min FFP, BOB-RB; Time Periods: 5-15-30-60; Recovery: 775' GIP, 650' GO, GOCM: Grindout: 460' GO (45% gas, 55% oil, 36 API grav), 190' GOCM (20% gas, 30% oil, 50% mud); Pressures: HP: 2169-2155, SIP: 479-440; FP: 39-91, 95-247; BHT: 130 F; dual packers w/shale packer, jars, joints, 120' collars; Trilobite Testing, Inc., Chuck Smith.

#### COMPLETION:

Oil Well.





3850  
3900  
3950  
4000

LS: GRAY-BRN; VF-XTAL; VF-GRANULAR IN PART; SLI FOS;  
SCAT PIN PT VUG POROSITY; DULL FLUOR; NO SHOWS.

LS: GRAY BRN W/ SCATTERED DARK GRAY GRAINS; VF-XTAL;  
NO APPARENT POROSITY; NO SHOWS.

LS: GRAY BRN; VF-XTAL; VF-GRANULAR; SCATTERED FINE  
VUG POROSITY; NO SHOWS.

LS: AS ABOVE;

LS: LT GRAY BRN, SPECKLED DK BRN, BLACK BY SHALE  
INCLUSIONS; POOR APPARENT POR; N.S.

**HEEBNER 3895 (-999)**  
SH: BLACK; CARBON; GOOD REP 3910.  
LS: DENSE;

LS: WHITE, LT BRN; VF-F XTAL; TIGHT INT XTAL & V-FINE VUG  
POROSITY; DULL FLUOR; NO SHOWS;

LS: WHITE, LT BRN; VF-XTAL; SLI CHALKY; SLI CHERT; NO  
APPARENT POROSITY; DULL FLUOR; NO SHOWS.

**LANSING 3932 (-1036)**  
(CORRECTED TOP)  
LS: WHITE, LT BRN; VF-XTAL; DENSE; CHERTY; TRC FINE VUG  
POROSITY; V-DULL FLUOR; NO SHOWS.

LS: LT-BRN; VF-XTAL; MOSTLY DENSE, SLI CHALKY IN PART;  
NO APPARENT POROSITY; DULL FLOOR NO SHOWS.

LS: AS ABOVE;

LS: LT BRN; VF-XTAL; DENSE; PLATEY; TRC OOLITE; NO  
APPARENT POROSITY; NO SHOWS.

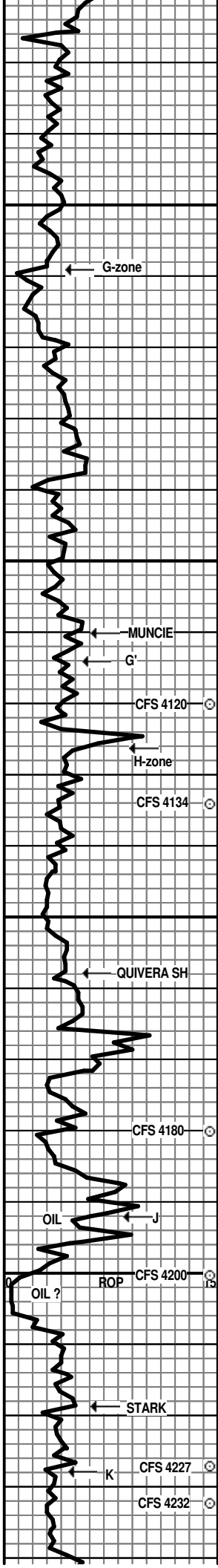
LS: AS ABOVE;

LS: LT-BRN; MIC-VF XTAL; DENSE; PLATEY; SMOOTH; NO  
VISIBLE POROSITY; DULL FLUOR; NO SHOWS; 4010, 4020.

LS: LT-GRAY; VF-XTAL; DENSE; PLATEY; NO APP POROSITY;  
NO SHOWS; 4030.

MORGAN MUD CHECK WHILE DRILLING: 4017:  
04/02-1pm: VIS 68, WT 8.6, WL 7.2, CHL 1500, LCM 2#.





LS: LT BRN, LT GRAY-BRN; VF-XTAL; GRANULAR; ROUGH; POOR APPARENT POROSITY; NO SHOWS. 4040.

LS: AS ABOVE BUT SLI FOS;

4050  
LS: LT-BRN; VF-XTAL; SLI OOL; FOS FRAG; POOR INT FRAG POROSITY; DULL FLUOR; NO SHOW; 4060.

LS: MED-DARK GRAYISH BROWN; VF-F XTAL; MED-CRS OOMOLDIC; ONLY DULL FLUOR; NO SHOWS; STARTS 4090;

LS: WHITE, LT BRN; MIC-VF XTAL; SOFT CHALK; NO APPARENT POROSITY; NO SHOWS; 4090;

LS: MED-BRN; VF-XTAL; OOMOLDIC; NO SHOWS;

4100  
LS: LT-BRN; MIC-VF XTAL; DENSE TO CHALKY IN PART; NO APPARENT POROSITY; NO SHOWS.

LS: LT GRAY; MIC-VF XTAL; DENSE; NO SHOW; TRC 4120, INCR 30 MIN.

**MUNCIE CREEK 4110 (-1214)**

SH: BLACK; CARBON; TRC AT BEST 30 MIN, INCR 60 M

LS: LT-MD GRAYISH BRN; VF-XTAL; DENSE; SLI FOS FRAG; POOR APPARENT POROSITY; DULL FLUOR; NO SHOWS.

LS: MED-DK GRAYISH BRN; VF-XTAL; FOS-FRAG GRAIN STONE; TIGHT INT FRAG POROSITY; TRC FOS-MOLDIC; WEAK FLUOR AT BEST; NO ODOR; CRUSH SLI SHOW MED BRN OIL FROM MANY CHIPS; 30 MIN., IMPROV POROSITY & ODOR IN 60 MIN.

LS: LT-GRAYISH BRN; MIC-VF XTAL; DENSE; NO APPARENT POROSITY; NO SHOWS.

LS: LT GRAYISH, BRN MIXED W/WHITE, SOFT CHALK; MIC-VF XTAL; POOR APPARENT POROSITY; NO SHOWS;

4150

SHALE: BLACK; CARBON; 4170.

LS: MED-DK BRN; VF-XTAL; DENSE; SLI FOS; NO VISIBLE POROSITY; NO SHOWS.

SHALE: GREEN, GRAY

LS: LT-BRN; VF-XTAL; DENSE; FINELY OOLITIC; MIXED WITH SOFT CHALK; NO APPARENT POROSITY; NO SHOWS, 30 MIN.

LS: AS ABOVE;

LS: EVEN MED GRAY; DENSE; NO VIS POR; NO SHOW;  
LS: EVEN MED-GRAY; VF-XTAL; NOT CHALKY; COARSE OOMOLDIC W/SLI SHOW OIL IN 30 MIN; INCR SHOW 60 MIN; PROB 10-20% OF POROSITY SHOWS SLI OIL; NO ODOR; LOOKS WET;

4200  
LS: OOMOLDIC AS ABOVE, EXCEPT NOW LT BRN AND STILL W/ SPOTTED SHOWS AS ABOVE. 4220.

LS: GRAY, BROWN, MOTTLED; VF-XTAL; SHALEY IN PART; NO APPARENT POROSITY; NO SHOWS.

**STARK 4219 (-1323)**

SH: BLACK; CARBON; TRC 4227, GOOD REP 30 MIN.

LS: MED-DK BRN; VF-XTAL; DENSE; PLATEY; NO VISIBLE POROSITY; NO SHOWS.

SH / SILTST: GRAY, GREENISH;

LS: LT-BRN; VF-XTAL; FINELY GRANULAR; WITH SOFT CHALK; TRC CHERT; NO APPARENT POROSITY; NO SHOWS;

LS: LT-BRN; VF-XTAL; FINE GRAN; DENSE; FOS; SLI OOL; SOME SOFT CHALK; NO APPARENT POROSITY; NO SHOWS.

SHORT TRIP 22 STANDS AT 4120' UNEVENTFUL, CIRC 60 MIN BEFORE DRILL AHEAD;

CIRC 75 MIN BEFORE TOH, SURVEY, STRAP: 4127.72; BOARD: 4134.98; STRAP SHORT 7.26'

DST #1: 4109-4134: WEAK INCR BLOW; 5-15-45-90; 182' MCO; SIP: 718-645, FP: 20-37, 42-70.

CIRC 30 MIN BEFORE DRILL AHEAD.

MORGAN MUD CHECK WHILE TESTING: 4134: 04/03-12pm: VIS 48, WT 9.2, WL 7.6, CHL 1700, LCM 2#

4196 CONNECTION, 4197 W.O.P. 25 MIN.

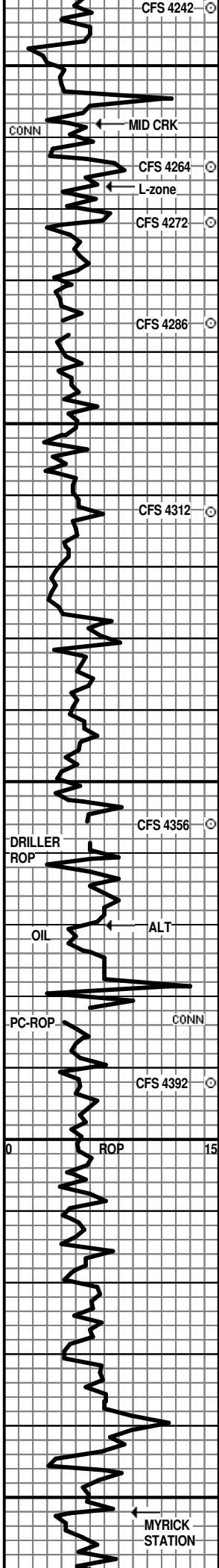
CIRC 90 MIN BEFORE TOH.

DST #2: 4180-4200: BOB/2.5 MIN; 5-15-30-60; 145' GIP, 410' GO, 370' GOCM; SIP: 859-894; FP: 54-121, 125-297.

CIRC 60 MIN BEFORE DRILLING AHEAD.

MORGAN MUD CHECK WHILE CIRC: 4200: 04/04-1pm: VIS 48, WT 9.1, WL 6.8, CHL 2800, LCM 1.5#.

GEOLOGRAPH TROUBLE WHEN DRILL AHEAD AT 4200, TROUBLE W/ BRAKES; PEN DIDN'T MARK, PC MISSED A COUPLE OF FEET IN DRILL OFF, CAUSED SOME CONFUSION, CAME UP 1 FOOT LONG AT CONN 4227, FIGURED BACK.

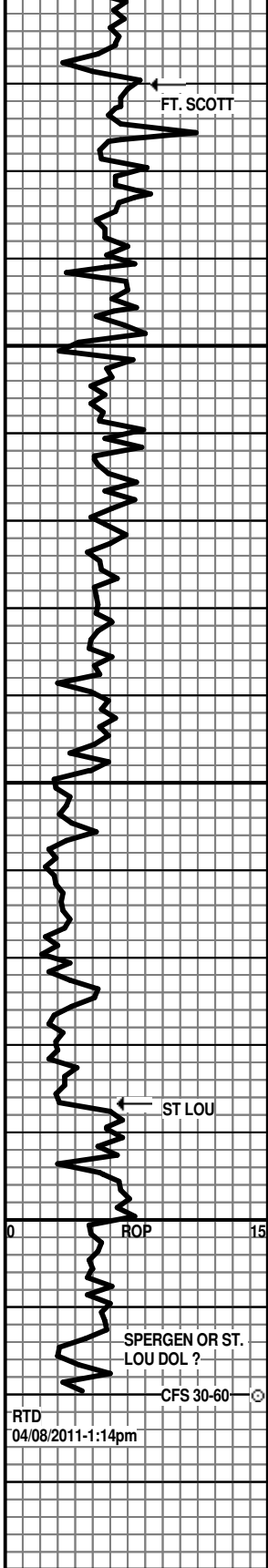


4250  
4300  
4350  
4400  
4450

LS: LT-BRN; VF-XTAL; FINE GRAN IN PART; TRC CHERT; SLI FOS; NO APPARENT POROSITY; NO SHOWS.

**HUSHPUCKNEY 4255 (-1359)**  
SH: BLACK; CARB; GOOD REP 4264.  
LS: MED-DK BRN; VF-F XTAL W/ MANY COARSE, ANHEDRAL CALCITES, SOME IN RELIEF; SOME IMBEDDED, TRC EUHEDRAL DOG-TOOTH CALCITE; SPOTTED-EVEN YEL FLUOR INDICATING SLI SHOW LT BRN OIL, 10-20% OF 30 MIN; V-FAINT ODOR;  
TOP L-ZONE: LS: LT BRN; VF XTAL; FINELY OOL; CHALKY IN PART; TRC FINE VUG W/DK BRN OIL STAIN; NO ODOR; NO FLUOR; 1 CHIP 30 MIN. POS FLOAT ?  
LS: LT-GRAYISH BRN, LT BRN; VF-XTAL; SPOTTED TO EVEN YEL FLUOR INDICATING TIGHT INT XTAL POR & V-FINE PIN PT VUG W/ MINUTE LT BRN STAIN (WET), CRUSH V-SLI SHOW OIL; NO ODOR; DRY STAIN NOT IMPROV; 10% OF 30 MIN, 60 MIN.  
LS: GRAYISH BRN; VF-XTAL; DENSE; BLOCKY; SLI FOS; NO APPARENT POR; NO SHOW.  
**BKC 4296 (-1400)**  
LS: DK-BRN; VF-XTAL; DENSE; NO SHOW.  
LS: LT BRN; VF-XTAL; FEW V-TIGHT OOLITE W/ POS V-SLI INT OOL STAIN & SPOTTED YEL FLUOR; WHICH DOES NOT CUT; NO OIL SHOW; NO ODOR; 30 MIN.  
LS: LT-BRN; VF-XTAL; DENSE; LT GRAY CHERT; NO APPARENT POROSITY; NO SHOWS.  
SH: GREENS, GRAYS, MAROON; SILTY IN PART;  
LS: LT & MED BRN, COARSELY MOTTLED; MIC-VF XTAL; SCATTERED MED-CRS SH INCLUSIONS; SOME W/ HAIRLINE CRACKS & VEINLETS; NO APP POR; NO SHOWS. 4340.  
**MARMATON 4344 (-1448)**  
LS: WHITE, LT BRN; VF-XTAL; MED GRAIN SUPT OOLITE; SPOTTED YEL FLUOR INDICATING V-TIGHT INT OOL POROSITY W/ DK BRN OIL STAIN, CRUSH FEW MICRO-DROPS BLACK OIL FROM SOME, OTHERS BAREN; SOME DOES NOT CUT; <1% 4356 & 30m. IMPROV POR & REP, CRUSH SLI SHOW OIL 60 MIN.  
SH: MOSTLY GRAYS;  
ALTAMONT LS: LT-MD BRN; VF-XTAL; SPOTTED YEL FLUOR INDICATING SOME TIGHT INT-GRAN POR & FEW CHIIPS OF FINE-COARSE DRUSY VUG POROSITY WITH SPOTTED STAIN WHICH YELDS SHOW MD-DK BRN OIL; NO ODOR, 10-15% OF 4380, DECR TO TRACE 4390.  
LS: LT-MD BRN; MIC-VF XTAL; DENSE; SMOOTH; PLATEY; TRC PACKED OOLITE; NO APPARENT POR; ONLY DULL FLUOR; NO SHOWS.  
LS: LT-MD GRAY BRN; MIC-XTAL; DENSE; BLOCKY; SMOOTH TEXTURED; ONLY DULL FLUOR; RARE V-FINE ISOLATED PIN PT VUG POROSITY WITH DK BRN TO BLACK HEAVY STAIN; NO OIL OR ODOR; DOES NOT CUT; TRACE 4410, 4420, 4430.  
LS: WHITE, LT BRN; MIC-VF XTAL; CHALKY; ONLY DULL FLUOR AND TRC DULL HAIRLINE STAINS ?, TRC ASPHALTIC STAINS; NO OIL OR ODOR;  
SH: DARK GRAY, POOR REPRESENTATION.  
**PAWNEE 4426 (-1530)**  
LS: WHITE, V-LT BRN; MIC-XTAL; CHALKY; FEW CHIPS W/ V-POOR VUG POR AND DULL HAIRLINE STAINS ?, NO OIL, NO ODOR, ONLY DULL MINERAL FLUOR; 4440. < 1% SHOW.  
LS: MED BRN; MIC-VF XTAL; DENSE; NO APPARENT POROSITY; NO SHOWS.  
SH: DARK GRAY, POOR REPRESENTATION.  
SH: GRAY, GREENISH GRAY, SOFT;  
MYRICK STATION: LS: WHITE, LT BRN; VF-XTAL; BRIGHT YEL FLUOR INDICATING SCATTERED FINE VUG POROSITY; SPOTTED STAIN, CRUSH FEW MICRO-DROPS OIL 1 CHIP; MOST BRIEF STREAM CUT; NO ODOR; SOMEWHAT CRUMBLY; TRC 4460, 4470.

AUTO-DRILLER TROUBLE AT 4255.  
ROUGH DRILLING AT 4262, CIRC 75 MIN TOH  
DST #3: 4256-4264: INCR BLOW BOB 11 MIN FFP; 5-15-30-60; 160 GIP, 275 GO & MCO; SIP: 469-453; FP: 21-43, 50-102.  
CIRC 60 MIN BEFORE DRILLING AHEAD.  
MORGAN MUD CHECK WHILE TOH: 4286: 04/05-3pm: VIS 49, WT 9.1, WL 6.4, CHL 3k, LCM 1.5#.  
CIRC 75 MIN BEFORE T.O.H.  
DST #4: 4269-4286: NO BLOW, 5-15-15-30, 5' SOCM; SIP: 442-446; FP: 16-18, 18-22  
CIRC 30 MIN BEFORE DRILLING AHEAD.  
MORGAN MUD CHECK WHILE T.O.H.: 4356: 04/06-12pm: VIS 55, WT 9.2, WL 6.8, CHL 3k, LCM 1#.  
CIRC 75 MIN BEFORE T.O.H.  
DST #5: 4295-4356: WEAK SURF BLOW: 5-15-30-60; 30' SOCM, SIP: 739-815, FP: 19-21, 23-27.  
CIRC 30 MIN BEFORE DRILL AHEAD.  
MORGAN MUD CHECK WHILE T.I.H.: 4392: 04/07-1pm: VIS 49, WT 9.1, WL 6.8, CHL 2800, LCM 1#.  
CIRC 75 MIN BEFORE T.O.H.  
DST #6: 4359-4392: BOB 5 min; BB; 5-15-30-60; 775' GIP, 650' GO & GOCM; SIP: 479-440; FP: 39-91, 95-247  
CIRC 30 MIN BEFORE DRILLING AHEAD.  
NOTE: SAMPLES FROM 4410 TO 4450 EXHIBIT A PERSISTANT OCCURANCE OF TRACE QUANTITY OF LS W/ HAIRLINE CRACKS W/ POS DULL STAIN ? AND ASPHALTIC STAIN, BUT NO OIL OR ODOR AND DOES NOT CUT OR REACT TO UV.



4500

4550

4600

SH: BLACK; 4480.  
 LS: LT-DK BROWNS; VF-XTAL; MOSTLY DENSE; GRAIN SUPPORTED OOLITES ARE DARKER THAN THE MATRIX; NO APPARENT POROSITY; ONLY DULL FLUOR; NO SHOWS. 4480.  
 LS: DK BRN; VF-XTAL; DENSE; NO APPARENT POROSITY; NO SHOWS.

**L. CHER SH 4490 (-1594)**

LS: GRAYISH BRN, FINELY MOTTLED; VF-XTAL; SLI OOL; DENSE; NO APPARENT POROSITY; NO SHOWS.  
 LS: LT-GRAYISH BRN; VF-XTAL; TRC PIN POINT POR; SPOTTED YEL FLUOR; CRUSH FEW MICRO-DROPS OIL; NO ODOR; 1-2 CHIPS/TRAY, 4520.  
 LS: GRAYISH BRN; VF-XTAL; DENSE; NO APPARENT POROSITY; NO SHOWS; MIXED W/BLACK & GRAY SHALES

LS: LT BRN, LT GRAYISH BRN; VF-XTAL; TRC V-FINE, SHALLOW VUG POROSITY; SPOTTED YEL FLUOR; CRUSH FEW MICRO-DROPS OIL; NO ODOR; 4540.

LS: GRAYISH BRN; VF-XTAL; TRC FINE ISOLATED VUG POROSITY W/ SPOTTED DARK STAIN AND SLI SHOW OIL; NO ODOR; NO FLUOR; 4570.

**BASE CHER LS 4548 (-1652)**

SAND: SUB-ANG, SUB-RND QUARTZ; F-GRAIN; SPOTTED BLACK INT GRAIN STAIN, FRIABLE; CRUSH FEW MICRO-DROPS BLACK OIL; NO ODOR; ONLY DULL FLUOR; TRACE 4570, INCR TO < 1% 4580.  
 SAND: AS ABOVE: W/ SHOW OIL BUT NOW BLEEDING BLACK OIL DROPS, NO ODOR; SPOTTED TO EVEN BLACK STAIN; 4590, 4600.

LS: VARIOUS, SOME W/SHALE CONTACTS;  
 CHERT: WHITE, OPAQ; TRIPOLITIC; W/ CHALK; SOME SANDY CHALK; TRC W/SLI STAIN. 4690, 4600.

SAND; AS ABOVE W/SHOW;

**MISSISSIPPI 4587 (-1691)**

LS: LT-BRN, CREAM; VF-XTAL; SLI CHALKY; MOSTLY DENSE; SLI OOLITIC; NO APPARENT POROSITY; NO SHOW. STARTS 4600.  
 LS: LT-BRN, CREAM; VF-XTAL; GRAIN SUPPORTED OOLITE; SLI CHALKY; MOSTLY DENSE; NO APPARENT POROSITY; DULL FLUOR; NO SHOWS; GOOD REP 4610.

LS: AS ABOVE W/ TRACE LITHOGRAPHIC;

DOL: MED BRN; F-XTAL; TIGHT INT XTAL POROSITY; NO FLUOR; NO SHOWS. POOR REP < 1%, 60 MIN.

**ROTARY TOTAL DEPTH 4620 (-1724)**

MORGAN MUD CHECK: 4620: 04/08-1pm WHILE CIRC: VIS 67, WT 9.1, WL 7.2, CHL 3k, LCM 1#.  
 CIRC 90 MIN AT RTD AND T.O.H. FOR LOGS. LOG-TECH LTD IS 4614.

Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



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Mark Sievers, Chairman  
Ward Loyd, Commissioner  
Thomas E. Wright, Commissioner

Sam Brownback, Governor

July 25, 2011

Tom Larson  
Larson Engineering, Inc. dba Larson Operating  
Company  
562 W STATE RD 4  
OLMITZ, KS 67564-8561

Re: ACO1  
API 15-101-22287-00-00  
Cowdery 3-29  
NE/4 Sec.29-18S-30W  
Lane County, Kansas

Dear Production Department:

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

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

Respectfully,  
Tom Larson