



KANSAS CORPORATION COMMISSION 1047732
OIL & GAS CONSERVATION DIVISION

Form ACO-1
June 2009

Form Must Be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 3842
Name: Larson Engineering, Inc. dba Larson Operating Company
Address 1: 562 W STATE RD 4
Address 2: _____
City: OLMITZ State: KS Zip: 67564 + 8561
Contact Person: Thomas Larson
Phone: (620) 653-7368
CONTRACTOR: License # 33935
Name: H. D. Drilling, LLC
Wellsite Geologist: Robert Lewellyn
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 #: _____

<u>8/9/2010</u>	<u>8/23/2010</u>	<u>8/23/2010</u>
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22248-00-00

Spot Description: _____

NE_NE_NW Sec. 21 Twp. 17 S. R. 28 East West
330 Feet from North / South Line of Section
2310 Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

County: Lane

Lease Name: Cairns Well #: 1-21

Field Name: _____

Producing Formation: N/A

Elevation: Ground: 2758 Kelly Bushing: 2765

Total Depth: 4624 Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: 256 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: 18000 ppm Fluid volume: 900 bbls

Dewatering method used: Evaporated

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: 12/06/2010
- Confidential Release Date: 12/05/2012
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: NAOMI JAMES Date: 12/06/2010



1047732

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: Cairns Well #: 1-21

Sec. 21 Twp. 17 S. R. 28 East West County: Lane

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

Drill Stem Tests Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i> List All E. Logs Run: Dual Induction Dual Comp Porosity Microresistivity	<input checked="" type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum Attached Attached Attached
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CASING RECORD <input type="checkbox"/> New <input checked="" type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12.25	8.625	20	256	Class A	175	2% Gel, 3% CC

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
— Perforate				
— Protect Casing	-			
— Plug Back TD				
— 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: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Date of First, Resumed Production, SWD or ENHR. _____		Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____	
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls. Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(if vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input checked="" type="checkbox"/> Other <i>(Specify)</i> <u>D & A</u>	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Cairns 1-21
Doc ID	1047732

Tops

Tops		
Anhydrite	2138	+627
Base Anhydrite	2168	+597
Heebner Shale	3932	-1167
Lansing-KC	3970	-1205
Stark Shale	4227	-1462
Base KC	4304	-1539
Altamont	4355	-1590
Pawnee	4421	-1656
Fort Scott	4477	-1712
Cherokee	4501	-1736
Mississippian	4560	-1795

ALLIED CEMENTING CO., LLC. 041849

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

SERVICE POINT:
Russell KS

DATE <u>8-10-10</u>	SEC. <u>20</u>	TWP. <u>18</u>	RANGE <u>30</u>	CALLED-OUT	ON LOCATION	JOB START <u>1:00am</u>	JOB FINISH <u>2:00am</u>
LEASE <u>Cairns</u>		WELL# <u>1-21</u>	LOCATION <u>Dighton KS S North 12 East</u>			COUNTY <u>Lane</u>	STATE <u>KS</u>
OLD OR <u>(NEW)</u> (Circle one)			<u>1 North 1 1/2 East Lane</u>				

CONTRACTOR H-D. Rig #3
 TYPE OF JOB Surface
 HOLE SIZE 17 1/4 T.D. 259'
 CASING SIZE 8 5/8 DEPTH 259'
 TUBING SIZE DEPTH
 DRILL PIPE DEPTH
 TOOL DEPTH
 PRES. MAX MINIMUM
 MEAS. LINE SHOE JOINT
 CEMENT LEFT IN CSG. 15'
 PERFS.
 DISPLACEMENT 15.5 Bbl

EQUIPMENT

PUMP TRUCK CEMENTER John Roberts
 # 398 HELPER Glenn
 BULK TRUCK
 # DRIVER Bob
 BULK TRUCK
 # DRIVER

REMARKS:

Est. Circulation
Mix 175 sk cement
Displace w/ 15.5 Bbl H₂O
Cement did not circulate Ran 1" and tag
Cement 30' down M. red 20 sk to bring
cement to surface. Thank You!

CHARGE TO: Larson Engineering
 STREET
 CITY STATE ZIP

OWNER
(used 195 com. Total)
 CEMENT
 AMOUNT ORDERED 175 com 3/4 cc 2 1/2 Gel
20 com 3/4 cc 2 1/2 Gel

COMMON	<u>195</u>	@ <u>13.50</u>	<u>2632.50</u>
POZMIX		@	
GEL	<u>3</u>	@ <u>20.25</u>	<u>60.75</u>
CHLORIDE	<u>7</u>	@ <u>51.50</u>	<u>360.50</u>
ASC		@	
		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	<u>195</u>	@ <u>2.25</u>	<u>438.75</u>
MILEAGE	<u>110.16/mile</u>		<u>604.50</u>
TOTAL			<u>4,097.00</u>

SERVICE

DEPTH OF JOB			
PUMP TRUCK CHARGE			<u>991.00</u>
EXTRA FOOTAGE		@	
MILEAGE	<u>30</u>	@ <u>7.00</u>	<u>210.00</u>
MANIFOLD		@	
		@	
TOTAL			<u>1208.00</u>

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	

To Allied Cementing Co., LLC.
 You are hereby requested to rent cementing equipment.

ALLIED CEMENTING CO., LLC. 038981

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

SERVICE POINT:

041415

DATE <u>8-23-10</u>	SEC. <u>21</u>	TWP. <u>17S</u>	RANGE <u>28W</u>	CALLED OUT	ON LOCATION <u>9:00am</u>	JOB START <u>11:30am</u>	JOB FINISH <u>12:00pm</u>
LEASE <u>Carrens</u>	WELL# <u>1-21</u>		LOCATION <u>Dresden Sn-16</u>		COUNTY <u>Lane</u>	STATE <u>Ks</u>	
OLD OR <u>NEW</u> (Circle one)			<u>112n-16w</u>				

CONTRACTOR H-D #3

TYPE OF JOB PTA

HOLE SIZE 77/8 T.D. 4619'

CASING SIZE _____ DEPTH _____

TUBING SIZE _____ DEPTH _____

DRILL PIPE 4 1/2 DEPTH 2160'

TOOL _____ DEPTH _____

PRES. MAX _____ MINIMUM _____

MEAS. LINE _____ SHOE JOINT _____

CEMENT LEFT IN CSG. _____

PERFS. _____

DISPLACEMENT _____

OWNER _____

CEMENT AMOUNT ORDERED 280 60 140 400 all

74 Closures

COMMON	<u>168</u>	@ <u>13.65</u>	<u>2293.20</u>
POZMIX	<u>112</u>	@ <u>7.60</u>	<u>851.20</u>
GEL	<u>10</u>	@ <u>20.40</u>	<u>204.00</u>
CHLORIDE		@	
ASC		@	
<u>Closures</u>	<u>70</u>	@ <u>2.45</u>	<u>171.50</u>
HANDLING	<u>292</u>	@ <u>2.10</u>	<u>613.20</u>
MILEAGE	<u>10.25 km</u>	@ <u>11.72</u>	<u>117.20</u>
TOTAL			<u>5307.20</u>

EQUIPMENT

PUMP TRUCK CEMENTER Tuzzy

431 HELPER Kelly

BULK TRUCK DRIVER Jerry

347 DRIVER _____

BULK TRUCK DRIVER _____

REMARKS:

50 SK @ 2160'

80 SK @ 1320'

50 SK @ 660'

50 SK @ 270'

20 SK @ 60'

30 SK 4w 24

Job complete @ 12:00pm

Thanks Tuzzy & crew

SERVICE

DEPTH OF JOB	<u>2160'</u>		
PUMP TRUCK CHARGE			<u>1000.00</u>
EXTRA FOOTAGE		@	
MILEAGE	<u>70</u>	@ <u>7.00</u>	<u>490.00</u>
MANIFOLD		@	
TOTAL			<u>1280.00</u>

CHARGE TO: Larson Engineering

STREET _____

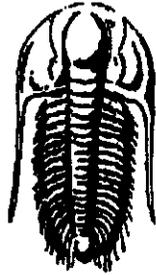
CITY _____ STATE _____ ZIP _____

PLUG & FLOAT EQUIPMENT

	@		
	@		
	@		
	@		

To Allied Cementing Co., LLC.

You are hereby requested to rent cementing equipment



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.16 @ 07:25:00

End Date: 2010.08.16 @ 12:39:00

Job Ticket #: 39595 DST #: 1

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 1

Lansing 'E'

2010.08.16



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Otritz, KS 67564

ATTN: Bob Lewellyn

Cairns #1-21

S21-17-28 Lane, KS

Job Ticket: 39595

DST#: 1

Test Start: 2010.08.16 @ 07:25:00

GENERAL INFORMATION:

Formation: **Lansing 'E'**

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

Time Tool Opened: **09:22:54**

Time Test Ended: **12:39:00**

Test Type: **Conventional Bottom Hole**

Tester: **Chuck Smith**

Unit No: **37**

Interval: **4022.00 ft (KB) To 4056.00 ft (KB) (TVD)**

Total Depth: **4056.00 ft (KB) (TVD)**

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

Reference Elevations: **2765.00 ft (KB)**

2758.00 ft (CF)

KB to GRVCF: **7.00 ft**

Serial #: 8357

Inside

Press@RunDepth: **23.26 psig @ 4026.00 ft (KB)**

Start Date: **2010.08.16**

End Date: **2010.08.16**

Start Time: **07:25:05**

End Time: **12:38:59**

Capacity: **8000.00 psig**

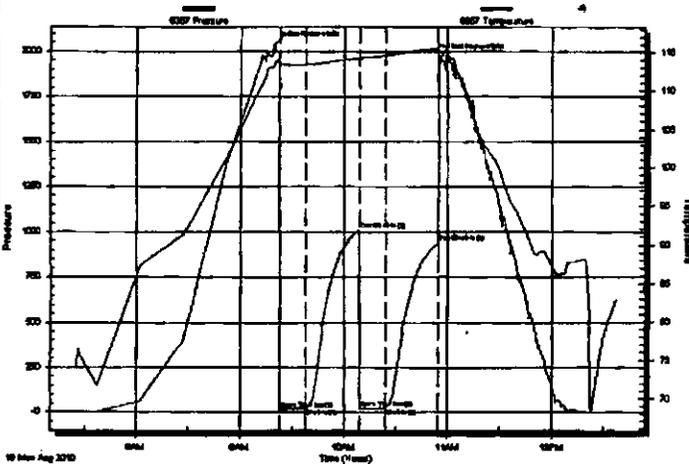
Last Calib.: **2010.08.16**

Time On Btm: **2010.08.16 @ 09:19:48**

Time Off Btm: **2010.08.16 @ 10:55:36**

TEST COMMENT: F: 1/2" Blow died @ 14 min.
IS: No return.
FF: No blow.
FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2035.17	113.38	Initial Hydro-static
4	17.24	113.13	Open To Flow (1)
19	20.51	113.42	Shut-In(1)
49	1010.31	114.26	End Shut-In(1)
50	21.94	114.03	Open To Flow (2)
65	23.26	114.61	Shut-In(2)
95	939.75	115.51	End Shut-In(2)
96	1969.98	115.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OSM 100%M	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.
562 W. St. Rd #4
Olmitz, KS 67564
ATTN: Bob Lewellyn

Cairns #1-21
S21-17-28 Lane, KS
Job Ticket: 39595 DST#: 1
Test Start: 2010.08.16 @ 07:25:00

Tool Information

Drill Pipe:	Length: 3883.00 ft	Diameter: 3.80 inches	Volume: 54.47 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 125.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 55.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.50 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4022.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	34.00 ft			
Tool Length:	61.50 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3995.50	
Shut In Tool	5.00			4000.50	
Hydraulic tool	5.00			4005.50	
Jars	5.00			4010.50	
Safety Joint	2.50			4013.00	
Packer	5.00			4018.00	27.50 Bottom Of Top Packer
Packer	4.00			4022.00	
Stubb	1.00			4023.00	
Perforations	3.00			4026.00	
Recorder	0.00	8357	Inside	4026.00	
Recorder	0.00	6751	Outside	4026.00	
Perforations	27.00			4053.00	
Bullnose	3.00			4056.00	34.00 Bottom Packers & Anchor

Total Tool Length: 61.50



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39595

DST#: 1

ATTN: Bob Lewellyn

Test Start: 2010.08.16 @ 07:25:00

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: 52.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.54 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OSM 100%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

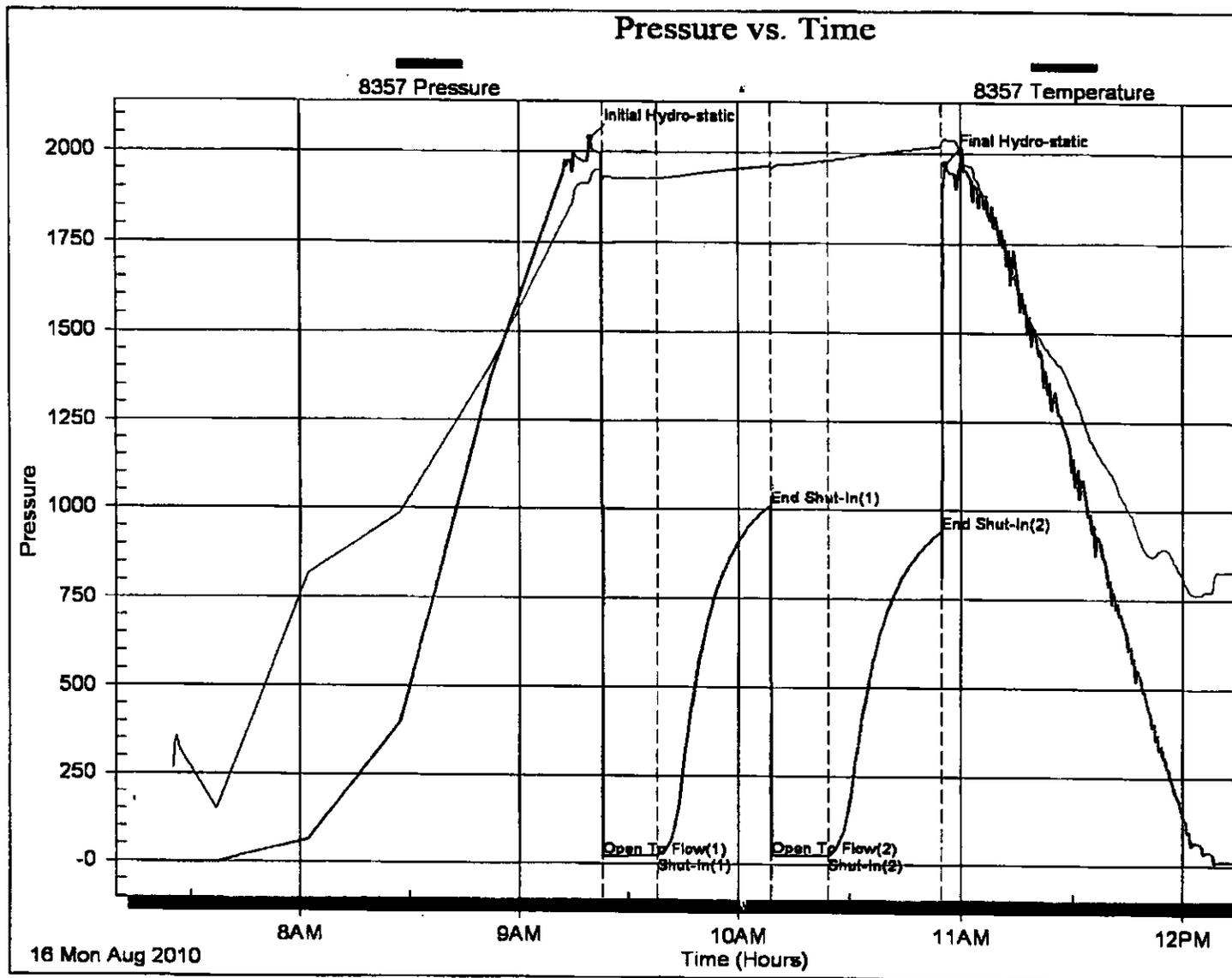
Num Gas Bombs: 0

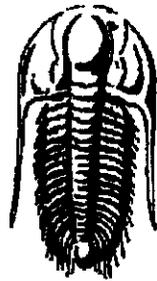
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.17 @ 02:48:00

End Date: 2010.08.17 @ 08:43:06

Job Ticket #: 39596 DST #: 2

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 2

Lansing 'H'

2010.08.17



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

Calrns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39596

DST#: 2

ATTN: Bob Law elyn

Test Start: 2010.08.17 @ 02:48:00

GENERAL INFORMATION:

Formation: **Lansing 'H'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:58:42

Time Test Ended: 08:43:06

Test Type: Conventional Bottom Hole

Tester: Chuck Smith

Unit No: 37

Interval: 4120.00 ft (KB) To 4155.00 ft (KB) (TVD)

Total Depth: 4155.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2765.00 ft (KB)

2758.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8357

Inside

Press@RunDepth: 20.62 psig @ 4124.00 ft (KB)

Start Date: 2010.08.17

End Date:

2010.08.17

Capacity: 8000.00 psig

Last Calib.: 2010.08.17

Start Time: 02:48:05

End Time:

08:43:06

Time On Btm: 2010.08.17 @ 04:56:48

Time Off Btm: 2010.08.17 @ 06:29:48

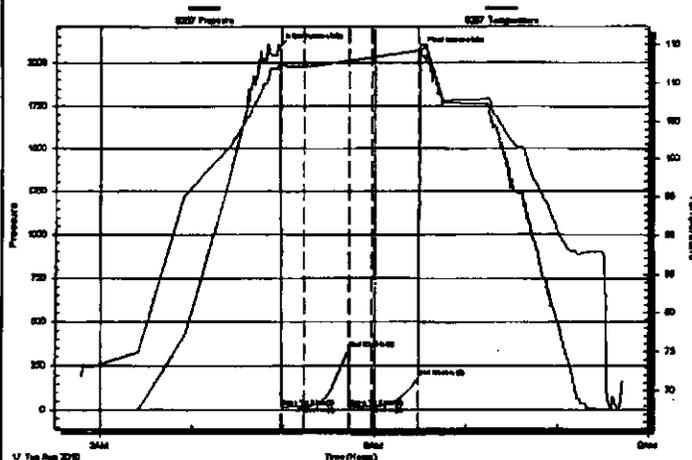
TEST COMMENT: F: 1/2" Blow died @ 12 min.

IS: No return.

FF: No blow.

FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2067.44	112.32	Initial Hydro-static
2	18.29	111.91	Open To Flow (1)
17	19.79	112.18	Shut-In(1)
47	345.10	113.00	End Shut-In(1)
47	19.16	112.91	Open To Flow (2)
62	20.62	113.41	Shut-In(2)
93	184.96	114.31	End Shut-In(2)
93	2066.26	115.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	M 100%M	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39596

DST#: 2

ATTN: Bob Lewelyn

Test Start: 2010.08.17 @ 02:48:00

Tool Information

Drill Pipe:	Length: 3991.00 ft	Diameter: 3.80 inches	Volume: 55.98 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 109.00 ft	Diameter: 2.25 inches	Volume: 0.54 bbl	Weight to Pull Loose: 65000.00 lb
		<u>Total Volume:</u>	<u>56.52 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.50 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4120.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	62.50 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4093.50	
Shut In Tool	5.00			4098.50	
Hydraulic tool	5.00			4103.50	
Jars	5.00			4108.50	
Safety Joint	2.50			4111.00	
Packer	5.00			4116.00	27.50 Bottom Of Top Packer
Packer	4.00			4120.00	
Stubb	1.00			4121.00	
Perforations	3.00			4124.00	
Recorder	0.00	8357	Inside	4124.00	
Recorder	0.00	6751	Outside	4124.00	
Perforations	28.00			4152.00	
Bullnose	3.00			4155.00	35.00 Bottom Packers & Anchor

Total Tool Length: 62.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Calrns #1-21

562 W. St. Rd #4
Olmütz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39596

DST#: 2

ATTN: Bob Lewellyn

Test Start: 2010.08.17 @ 02:48:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.14 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	M 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

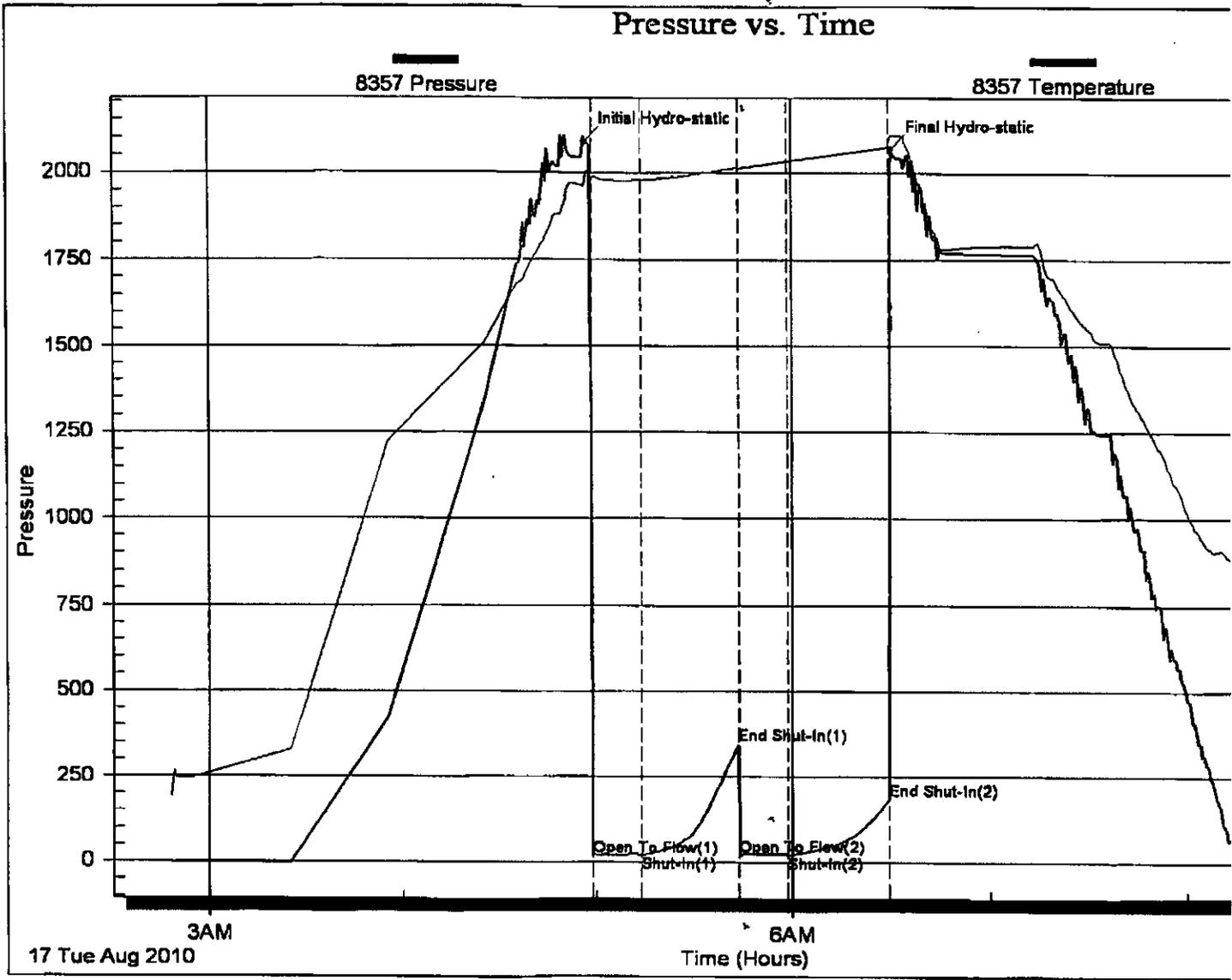
Num Gas Bombs: 0

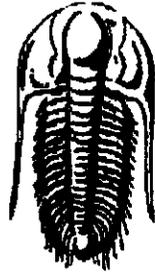
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.17 @ 19:49:00

End Date: 2010.08.18 @ 01:24:54

Job Ticket #: 39597 DST #: 3

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 3

Lansing '1'

2010.08.17



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lew elyn

Cairns #1-21

S21-17-28 Lane, KS

Job Ticket: 39597

DST#: 3

Test Start: 2010.08.17 @ 19:49:00

GENERAL INFORMATION:

Formation: **Lansing 'I'**

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

Time Tool Opened: 21:58:48

Time Test Ended: 01:24:54

Interval: **4160.00 ft (KB) To 4188.00 ft (KB) (TVD)**

Total Depth: **4188.00 ft (KB) (TVD)**

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

Test Type: **Conventional Bottom Hole**

Tester: **Chuck Smith**

Unit No: **37**

Reference Elevations: **2765.00 ft (KB)**

2758.00 ft (CF)

KB to GR/CF: **7.00 ft**

Serial #: 8357

Inside

Press@RunDepth: **19.59 psig @ 4164.00 ft (KB)**

Start Date: **2010.08.17**

End Date:

2010.08.18

Start Time: **19:49:05**

End Time:

01:24:54

Capacity: **8000.00 psig**

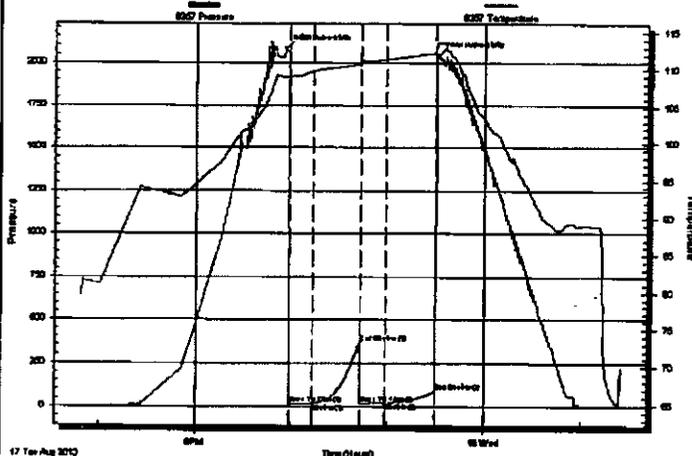
Last Calib.: **2010.08.18**

Time On Btm: **2010.08.17 @ 21:56:12**

Time Off Btm: **2010.08.17 @ 23:31:06**

TEST COMMENT: IF: 1/4" Blow died @ 14 min.
ISL: No return.
FF: No blow.
FSt: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2082.36	109.05	Initial Hydro-static
3	16.74	108.68	Open To Flow (1)
18	18.59	109.81	Shut-In(1)
48	366.27	110.77	End Shut-In(1)
48	17.96	110.61	Open To Flow (2)
63	19.59	111.37	Shut-In(2)
94	88.12	112.34	End Shut-In(2)
95	2044.06	113.66	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 100%M	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39597

DST#: 3

ATTN: Bob Lewellyn

Test Start: 2010.08.17 @ 19:49:00

Tool Information

Drill Pipe:	Length: 4054.00 ft	Diameter: 3.80 inches	Volume: 56.87 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 109.00 ft	Diameter: 2.25 inches	Volume: 0.54 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 57.41 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.50 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	4160.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	55.50 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4133.50	
Shut In Tool	5.00			4138.50	
Hydraulic tool	5.00			4143.50	
Jars	5.00			4148.50	
Safety Joint	2.50			4151.00	
Packer	5.00			4156.00	27.50 Bottom Of Top Packer
Packer	4.00			4160.00	
Stubb	1.00			4161.00	
Perforations	3.00			4164.00	
Recorder	0.00	8357	Inside	4164.00	
Recorder	0.00	6751	Outside	4164.00	
Perforations	21.00			4185.00	
Bullnose	3.00			4188.00	28.00 Bottom Packers & Anchor

Total Tool Length: 55.50



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39597

DST#: 3

ATTN: Bob Lew ellyn

Test Start: 2010.08.17 @ 19:49:00

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: 58.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

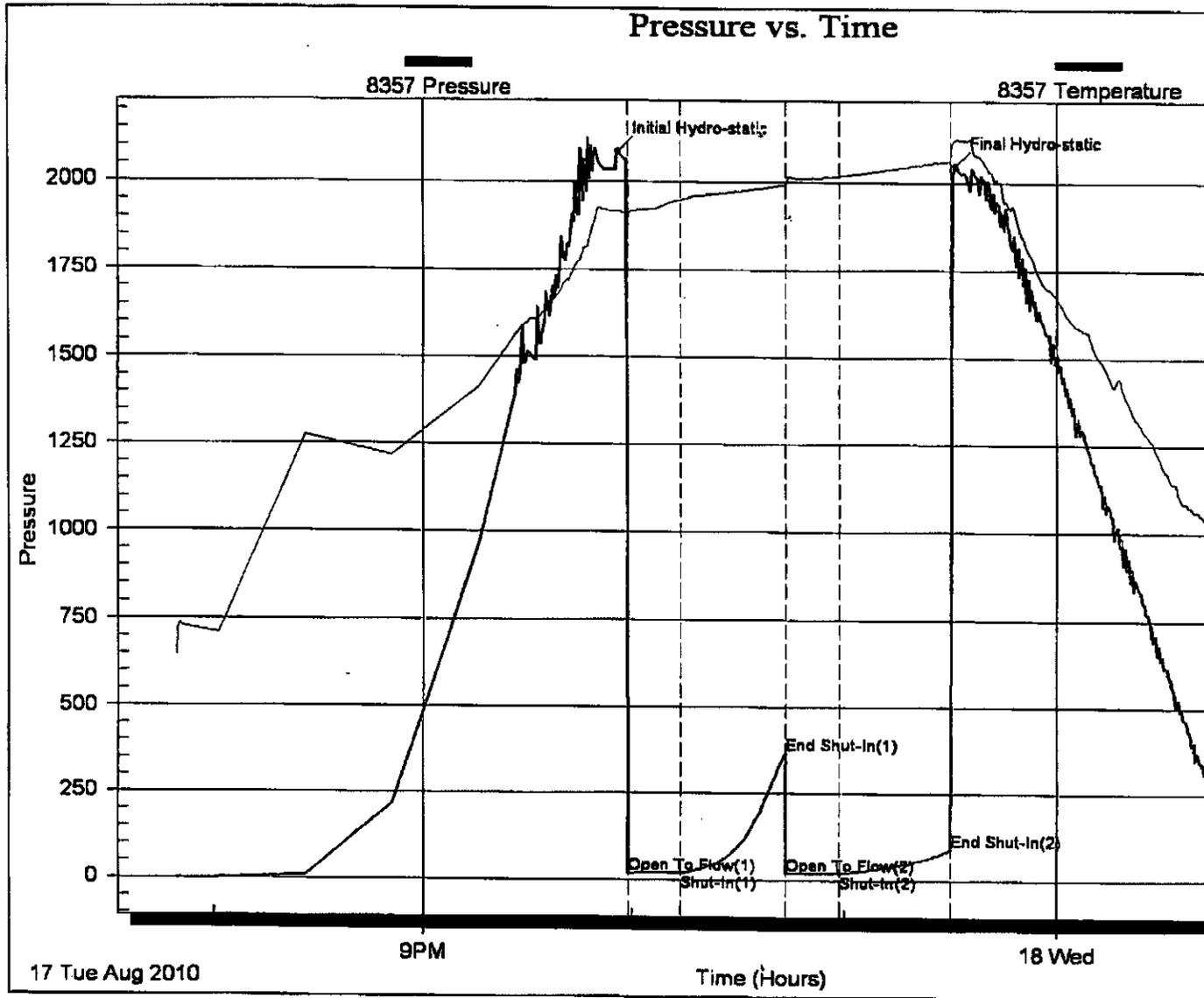
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.18 @ 11:07:55

End Date: 2010.08.18 @ 16:24:34

Job Ticket #: 39121 DST #: 4

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 4

larsing J

2010.08.18



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

Calms #1-21

S21-17-28 Lane, KS

Job Ticket: 39121

DST#: 4

Test Start: 2010.08.18 @ 11:07:55

GENERAL INFORMATION:

Formation: **Iansing J**

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

Time Tool Opened: 12:53:20

Time Test Ended: 16:24:34

Test Type: **Conventional Bottom Hole**

Tester: **Brandon Turley**

Unit No: **35**

Interval: **4194.00 ft (KB) To 4219.00 ft (KB) (TVD)**

Total Depth: **4219.00 ft (KB) (TVD)**

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

Reference Elevations: **2765.00 ft (KB)**

2758.00 ft (CF)

KB to GR/CF: **7.00 ft**

Serial #: **8373**

Inside

Press@RunDepth: **55.31 psig @ 4195.00 ft (KB)**

Capacity: **8000.00 psig**

Start Date: **2010.08.18**

End Date: **2010.08.18**

Last Calib.: **2010.08.18**

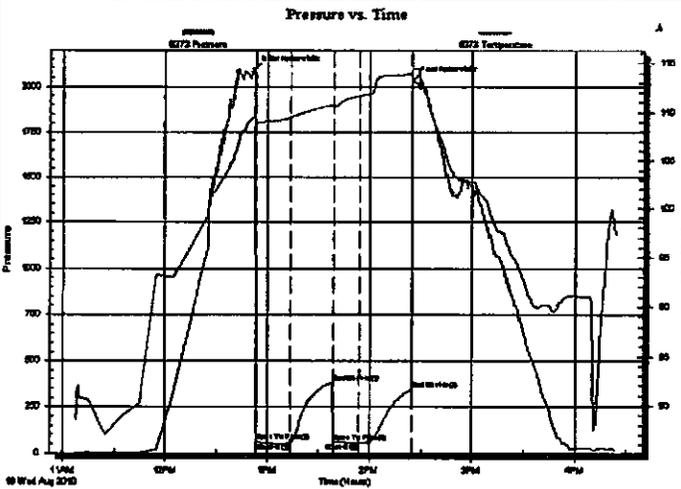
Start Time: **11:07:55**

End Time: **16:24:34**

Time On Btm: **2010.08.18 @ 12:52:05**

Time Off Btm: **2010.08.18 @ 14:25:20**

TEST COMMENT: IF: 1/4 blow died in nine minutes.
IS: no return.
FF: No blow.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2092.33	109.49	Initial Hydro-static
2	68.45	108.53	Open To Flow (1)
22	56.85	109.51	Shut-In(1)
47	384.05	110.77	End Shut-In(1)
47	62.51	110.54	Open To Flow (2)
62	55.31	111.69	Shut-In(2)
93	345.23	113.89	End Shut-In(2)
94	2032.02	114.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	ocm 10%o 90%m	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Calms #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39121

DST#: 4

ATTN: Bob Lewellyn

Test Start: 2010.08.18 @ 11:07:55

Tool Information

Drill Pipe:	Length: 4081.00 ft	Diameter: 3.80 inches	Volume: 57.25 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 111.00 ft	Diameter: 2.25 inches	Volume: 0.55 bbl	Weight to Pull Loose: 70000.00 lb
		Total Volume:	57.80 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4194.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	25.00 ft			
Tool Length:	53.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4167.00	
Shut In Tool	5.00			4172.00	
Hydraulic tool	5.00			4177.00	
Jars	5.00			4182.00	
Safety Joint	3.00			4185.00	
Packer	5.00			4190.00	28.00 Bottom Of Top Packer
Packer	4.00			4194.00	
Stubb	1.00			4195.00	
Recorder	0.00	8373	Inside	4195.00	
Recorder	0.00	8289	Outside	4195.00	
Perforations	19.00			4214.00	
Bullnose	5.00			4219.00	25.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Ohriz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39121

DST#: 4

ATTN: Bob Lewellyn

Test Start: 2010.08.18 @ 11:07:55

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.17 in ²	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1900.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

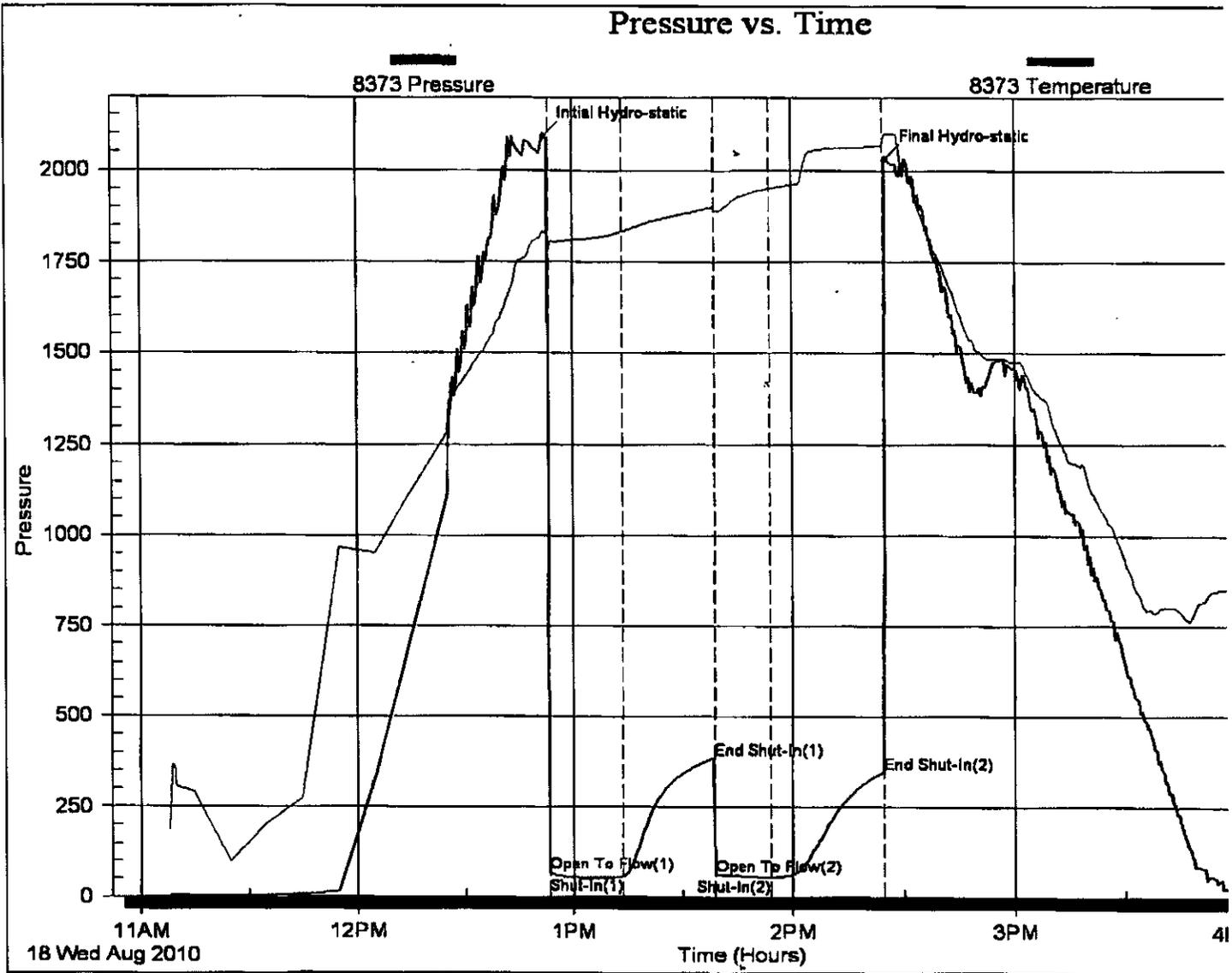
Length ft	Description	Volume bbl
10.00	ocm 10%o 90%m	0.049

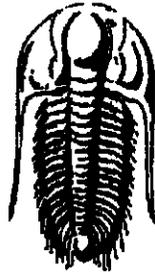
Total Length: 10.00 ft Total Volume: 0.049 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.19 @ 03:12:29

End Date: 2010.08.19 @ 09:31:08

Job Ticket #: 39122 DST #: 5

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 5

Lansing K

2010.08.19



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

Cairns #1-21

S21-17-28 Lane, KS

Job Ticket: 39122

DST#: 5

Test Start: 2010.08.19 @ 03:12:29

GENERAL INFORMATION:

Formation: **Lansing K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:22:09

Time Test Ended: 09:31:08

Test Type: Conventional Bottom Hole

Tester: Brandon Turley

Unit No: 35

Interval: 4222.00 ft (KB) To 4247.00 ft (KB) (TVD)

Total Depth: 4247.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2765.00 ft (KB)

2758.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8373

Inside

Press@RunDepth: 77.66 psig @ 4227.00 ft (KB)

Start Date: 2010.08.19

End Date:

2010.08.19

Capacity: 8000.00 psig

Last Calib.: 2010.08.19

Start Time: 03:12:29

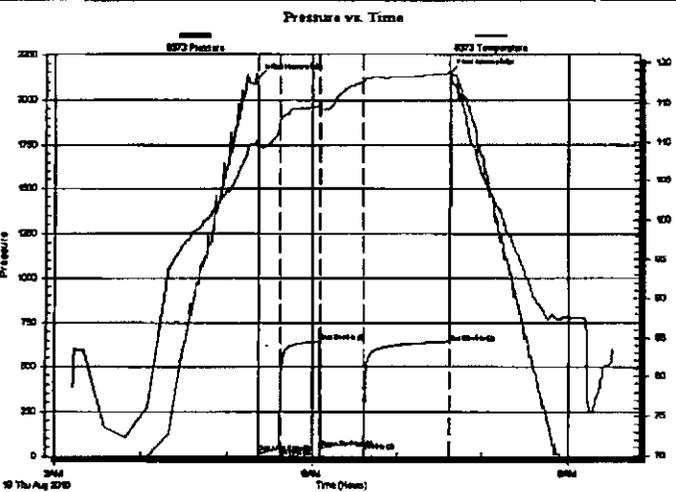
End Time:

09:31:08

Time On Btm: 2010.08.19 @ 05:21:54

Time Off Btm: 2010.08.19 @ 07:37:08

TEST COMMENT: IF. 1/4 blow to 2 1/2 in 15 minutes
IS. No return.
FF. Surface blow built to 2 in 30 minutes
FS. No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2123.09	110.24	Initial Hydro-static
1	17.96	109.56	Open To Flow (1)
16	47.76	111.90	Shut-In(1)
44	643.75	114.45	End Shut-In(1)
45	49.08	114.16	Open To Flow (2)
75	77.66	117.68	Shut-In(2)
135	639.94	118.66	End Shut-In(2)
136	2148.74	118.84	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
55.00	mw 50%w 50%m	0.27
81.00	mud some oil spots 100%m	0.50

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Calms #1-21

562 W. St. Rd #4
Omitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39122

DST#: 5

ATTN: Bob Lewellyn

Test Start: 2010.08.19 @ 03:12:29

Tool Information

Drill Pipe:	Length: 4102.00 ft	Diameter: 3.80 inches	Volume: 57.54 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 125.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.15 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4222.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	53.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4199.00	
Shut In Tool	5.00			4204.00	
Hydraulic tool	5.00			4209.00	
Jars	5.00			4214.00	
Safety Joint	3.00			4217.00	
Packer	5.00			4222.00	24.00 Bottom Of Top Packer
Packer - Shale	4.00			4226.00	
Stubb	1.00			4227.00	
Recorder	0.00	8373	Inside	4227.00	
Recorder	0.00	8289	Outside	4227.00	
Perforations	19.00			4246.00	
Bullnose	5.00			4251.00	29.00 Anchor Tool

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39122

DST#: 5

ATTN: Bob Lewellyn

Test Start: 2010.08.19 @ 03:12:29

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:	27000 ppm
Viscosity: 58.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.17 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1900.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
55.00	nw 50%w 50%m	0.270
81.00	mud some oil spots 100%m	0.499

Total Length: 136.00 ft Total Volume: 0.769 bbl

Num Fluid Samples: 0

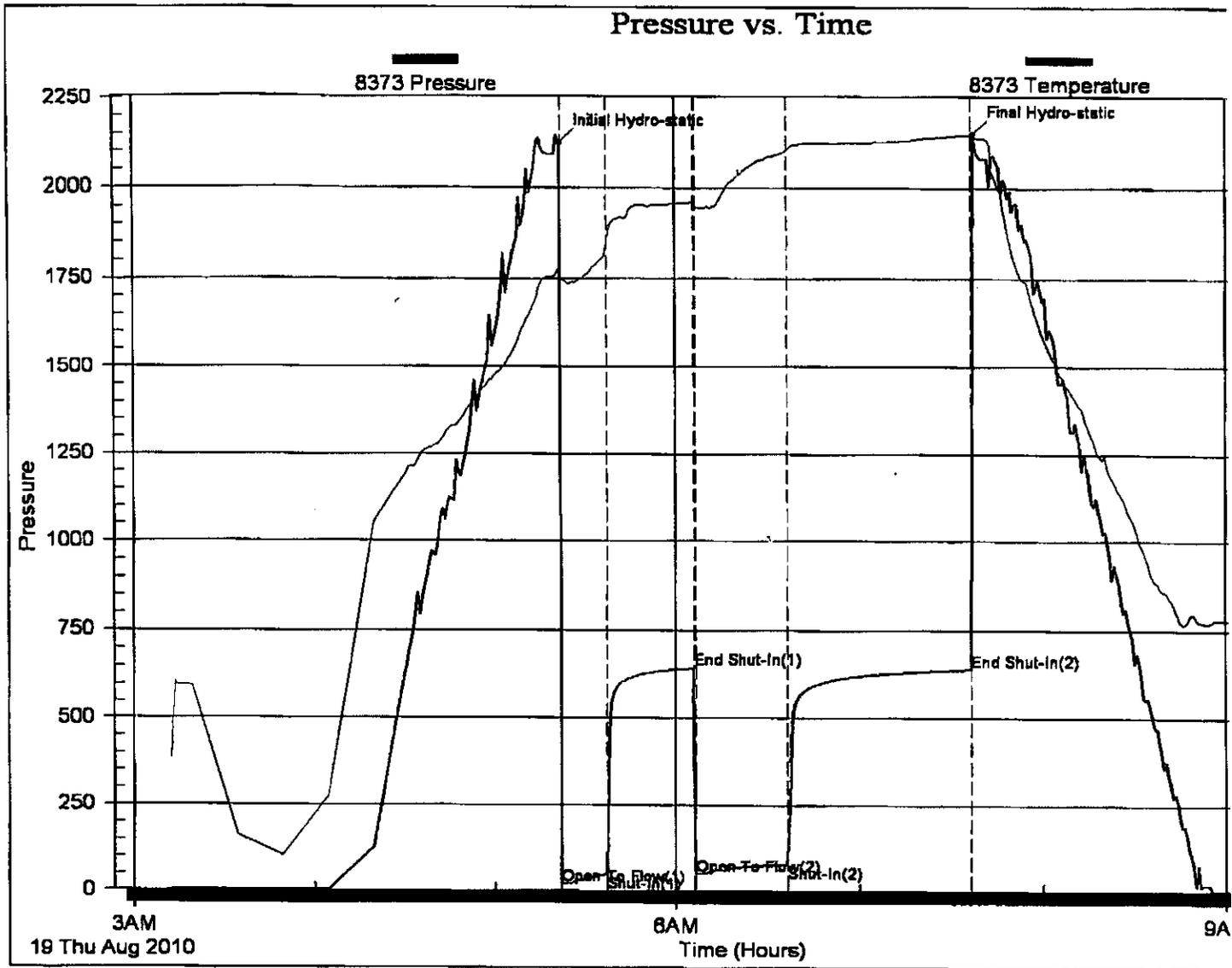
Num Gas Bombs: 0

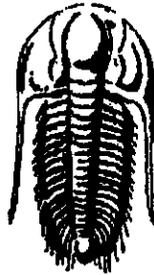
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .22@82=27000





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmits, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.19 @ 18:52:53

End Date: 2010.08.20 @ 00:33:47

Job Ticket #: 39123 DST #: 6

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 6

Lansing L

2010.08.19



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

Cairns #1-21

S21-17-28 Lane, KS

Job Ticket: 39123

DST#: 6

Test Start: 2010.08.19 @ 18:52:53

GENERAL INFORMATION:

Formation: **Lansing L**

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

Time Tool Opened: **21:05:18**

Time Test Ended: **00:33:47**

Test Type: **Conventional Bottom Hole**

Tester: **Brandon Turley**

Unit No: **35**

Interval: **4256.00 ft (KB) To 4278.00 ft (KB) (TVD)**

Total Depth: **4178.00 ft (KB) (TVD)**

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

Reference Elevations: **2765.00 ft (KB)**

2758.00 ft (CF)

KB to GR/CF: **7.00 ft**

Serial #: 8373

Inside

Press@RunDepth: **17.64 psig @ 4257.00 ft (KB)**

Start Date: **2010.08.19**

End Date:

2010.08.20

Start Time: **18:52:53**

End Time:

00:33:47

Capacity: **8000.00 psig**

Last Calib.: **2010.08.20**

Time On Btm: **2010.08.19 @ 21:03:33**

Time Off Btm: **2010.08.19 @ 22:35:33**

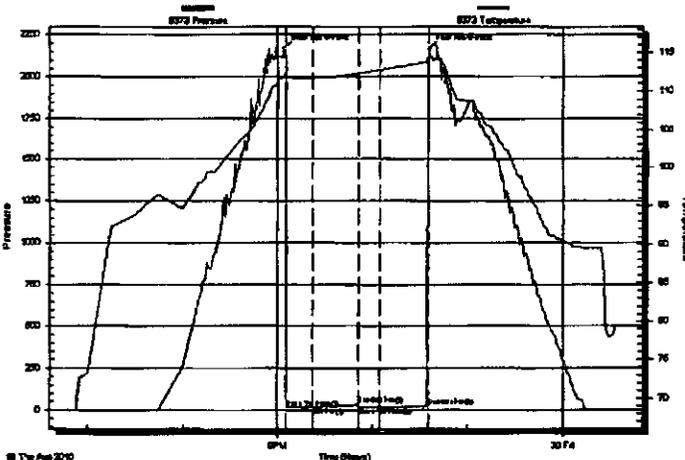
TEST COMMENT: IF: Surface blow died in 2 min.

IS: No return.

FF: No blow.

FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2168.27	111.80	Initial Hydro-static
2	15.41	111.32	Open To Flow (1)
19	17.60	111.71	Shut-In(1)
48	33.45	112.32	End Shut-In(1)
48	16.89	112.32	Open To Flow (2)
62	17.64	112.76	Shut-In(2)
92	24.31	113.81	End Shut-In(2)
92	2165.32	114.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% m	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39123

DST#: 6

ATTN: Bob Lewellyn

Test Start: 2010.08.19 @ 18:52:53

Tool Information

Drill Pipe:	Length: 4128.00 ft	Diameter: 3.80 inches	Volume: 57.90 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 125.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.51 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4256.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	50.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4229.00	
Shut In Tool	5.00			4234.00	
Hydraulic tool	5.00			4239.00	
Jars	5.00			4244.00	
Safety Joint	3.00			4247.00	
Packer	5.00			4252.00	28.00 Bottom Of Top Packer
Packer	4.00			4256.00	
Stubb	1.00			4257.00	
Recorder	0.00	8373	Inside	4257.00	
Recorder	0.00	8289	Outside	4257.00	
Perforations	16.00			4273.00	
Bullnose	5.00			4278.00	22.00 Bottom Packers & Anchor
Total Tool Length:	50.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Cairn's #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39123

DST#: 6

ATTN: Bob Lewellyn

Test Start: 2010.08.19 @ 18:52:53

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: 54.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

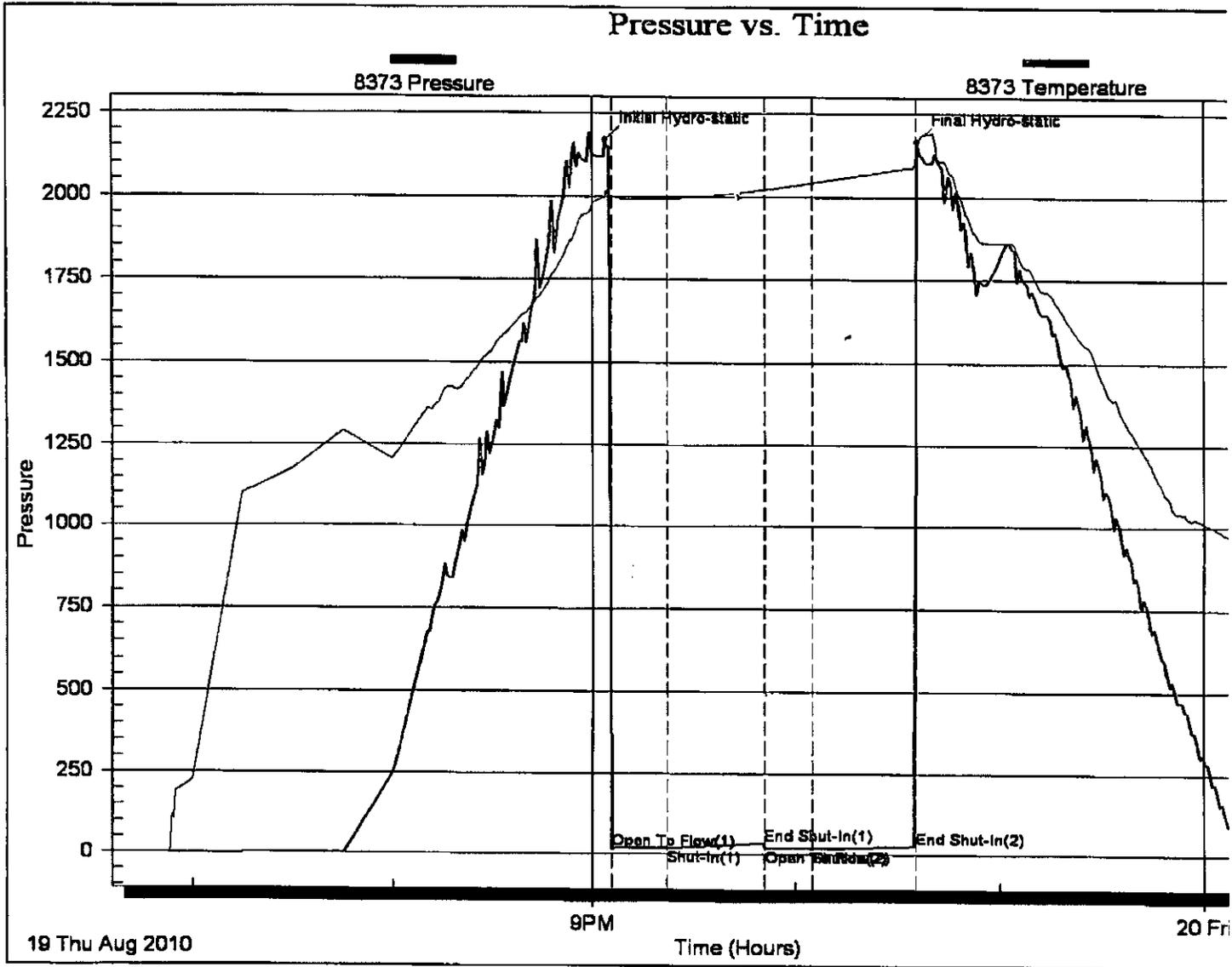
Num Gas Bombs: 0

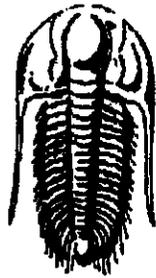
Serial#:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.20 @ 21:28:03

End Date: 2010.08.21 @ 02:57:42

Job Ticket #: 39124 DST #: 7

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 7

Altamont

2010.08.20



**TRIOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

Cairns #1-21

S21-17-28 Lane, KS

Job Ticket: 39124

DST#: 7

Test Start: 2010.08.20 @ 21:28:03

GENERAL INFORMATION:

Formation: **Altamont**

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

Time Tool Opened: 23:37:58

Time Test Ended: 02:57:42

Test Type: **Conventional Bottom Hole**

Tester: **Brandon Turley**

Unit No: **35**

Interval: **4359.00 ft (KB) To 4396.00 ft (KB) (TVD)**

Total Depth: **4396.00 ft (KB) (TVD)**

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

Reference Elevations: **2765.00 ft (KB)**

2758.00 ft (CF)

KB to GR/CF: **7.00 ft**

Serial #: **8289**

Outside

Press@RunDepth: **22.14 psig @ 4360.00 ft (KB)**

Start Date: **2010.08.20**

End Date:

2010.08.21

Capacity: **8000.00 psig**

Last Calib.: **2010.08.21**

Start Time: **21:28:03**

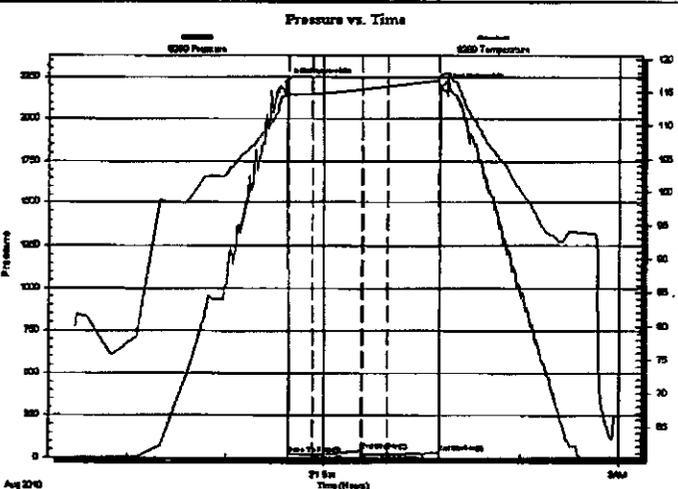
End Time:

02:57:42

Time On Btm: **2010.08.20 @ 23:36:43**

Time Off Btm: **2010.08.21 @ 01:11:28**

TEST COMMENT: IF: Surface blow died in 8 min.
IS: No return.
FF: No blow.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2222.03	114.85	Initial Hydro-static
2	20.93	113.72	Open To Flow (1)
17	21.68	114.81	Shut-In(1)
47	43.29	115.49	End Shut-In(1)
47	21.66	115.50	Open To Flow (2)
62	22.14	115.94	Shut-In(2)
94	34.46	116.86	End Shut-In(2)
95	2193.79	117.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% m	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39124

DST#: 7

ATTN: Bob Lewellyn

Test Start: 2010.08.20 @ 21:28:03

Tool Information

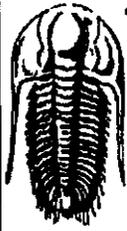
Drill Pipe:	Length: 4236.00 ft	Diameter: 3.80 inches	Volume: 59.42 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 111.00 ft	Diameter: 2.25 inches	Volume: 0.55 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 59.97 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4359.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	65.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4332.00	
Shut In Tool	5.00			4337.00	
Hydraulic tool	5.00			4342.00	
Jars	5.00			4347.00	
Safety Joint	3.00			4350.00	
Packer	5.00			4355.00	28.00 Bottom Of Top Packer
Packer	4.00			4359.00	
Stubb	1.00			4360.00	
Recorder	0.00	8373	Inside	4360.00	
Recorder	0.00	8289	Outside	4360.00	
Perforations	31.00			4391.00	
Bullnose	5.00			4396.00	37.00 Bottom Packers & Anchor

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Calrns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39124

DST#: 7

ATTN: Bob Lewellyn

Test Start: 2010.08.20 @ 21:28:03

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: 43.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.37 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2300.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%r	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

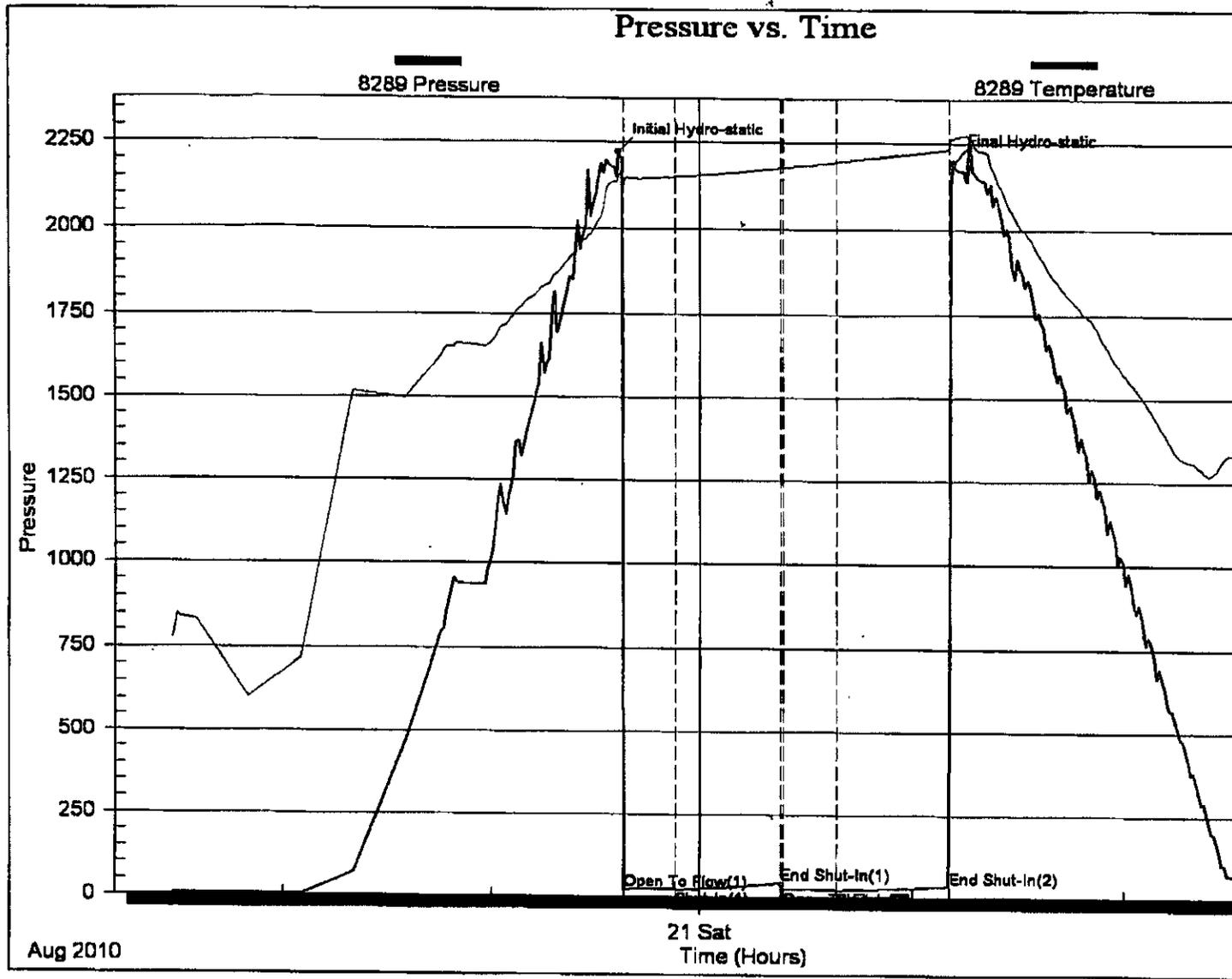
Num Gas Bombs: 0

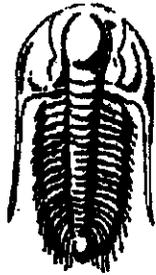
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

S21-17-28 Lane, KS

Cairns #1-21

Start Date: 2010.08.22 @ 03:20:49

End Date: 2010.08.22 @ 09:59:13

Job Ticket #: 39125 DST #: 8

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Larson Engineering, Inc.

Cairns #1-21

S21-17-28 Lane, KS

DST # 8

Pawnee Fl Scott Jo

2010.08.22



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. St. Rd #4
Olmitz, KS 67564

ATTN: Bob Lewellyn

Cairns #1-21

S21-17-28 Lane, KS

Job Ticket: 39125

DST#: 8

Test Start: 2010.08.22 @ 03:20:49

GENERAL INFORMATION:

Formation: **Pawnee Ft. Scott Jo**

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

Time Tool Opened: **05:26:14**

Time Test Ended: **09:59:13**

Test Type: **Conventional Bottom Hole**

Tester: **Brandon Turley**

Unit No: **35**

Interval: **4408.00 ft (KB) To 4562.00 ft (KB) (TVD)**

Total Depth: **4562.00 ft (KB) (TVD)**

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

Reference Elevations: **2765.00 ft (KB)**

2758.00 ft (CF)

KB to GR/CF: **7.00 ft**

Serial #: 8373

Inside

Press@RunDepth: **48.43 psig @ 4409.00 ft (KB)**

Start Date: **2010.08.22**

End Date:

2010.08.22

Start Time: **03:20:49**

End Time:

09:59:13

Capacity: **8000.00 psig**

Last Calib.: **2010.08.22**

Time On Btm: **2010.08.22 @ 05:24:44**

Time Off Btm: **2010.08.22 @ 07:47:58**

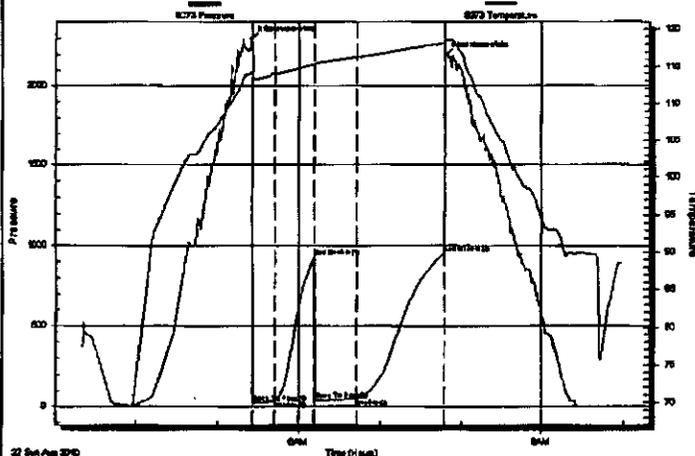
TEST COMMENT: F: 1/4 blow built to 1 1/2 in 15 min.

IS: No return.

FF: Surface blow built to 1 1/2 in 30 min.

FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2294.84	114.21	Initial Hydro-static
2	28.09	113.51	Open To Flow (1)
17	37.34	114.07	Shut-In(1)
47	932.71	115.28	End Shut-In(1)
47	41.46	115.14	Open To Flow (2)
78	48.43	116.27	Shut-In(2)
143	955.40	118.17	End Shut-In(2)
144	2191.11	118.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	ocm 10% @ 90% m	0.30
30.00	ocm 5% @ 95% m	0.15

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmütz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39125

DST#: 8

ATTN: Bob Lewellyn

Test Start: 2010.08.22 @ 03:20:49

Tool Information

Drill Pipe:	Length: 4283.00 ft	Diameter: 3.80 inches	Volume: 60.08 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 125.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 60.69 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4408.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	154.00 ft			
Tool Length:	182.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4381.00	
Shut In Tool	5.00			4386.00	
Hydraulic tool	5.00			4391.00	
Jars	5.00			4396.00	
Safety Joint	3.00			4399.00	
Packer	5.00			4404.00	28.00 Bottom Of Top Packer
Packer	4.00			4408.00	
Stubb	1.00			4409.00	
Recorder	0.00	8373	Inside	4409.00	
Recorder	0.00	8289	Outside	4409.00	
Perforations	22.00			4431.00	
Change Over Sub	1.00			4432.00	
Drill Pipe	124.00			4556.00	
Change Over Sub	1.00			4557.00	
Bullnose	5.00			4562.00	154.00 Bottom Packers & Anchor

Total Tool Length: 182.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

Cairns #1-21

562 W. St. Rd #4
Olmitz, KS 67564

S21-17-28 Lane, KS

Job Ticket: 39125

DST#: 8

ATTN: Bob Lewellyn

Test Start: 2010.08.22 @ 03:20:49

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: 44.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.78 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2000.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	ocm 10%o 90%m	0.295
30.00	ocm 5%o 95%m	0.148

Total Length: 90.00 ft Total Volume: 0.443 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

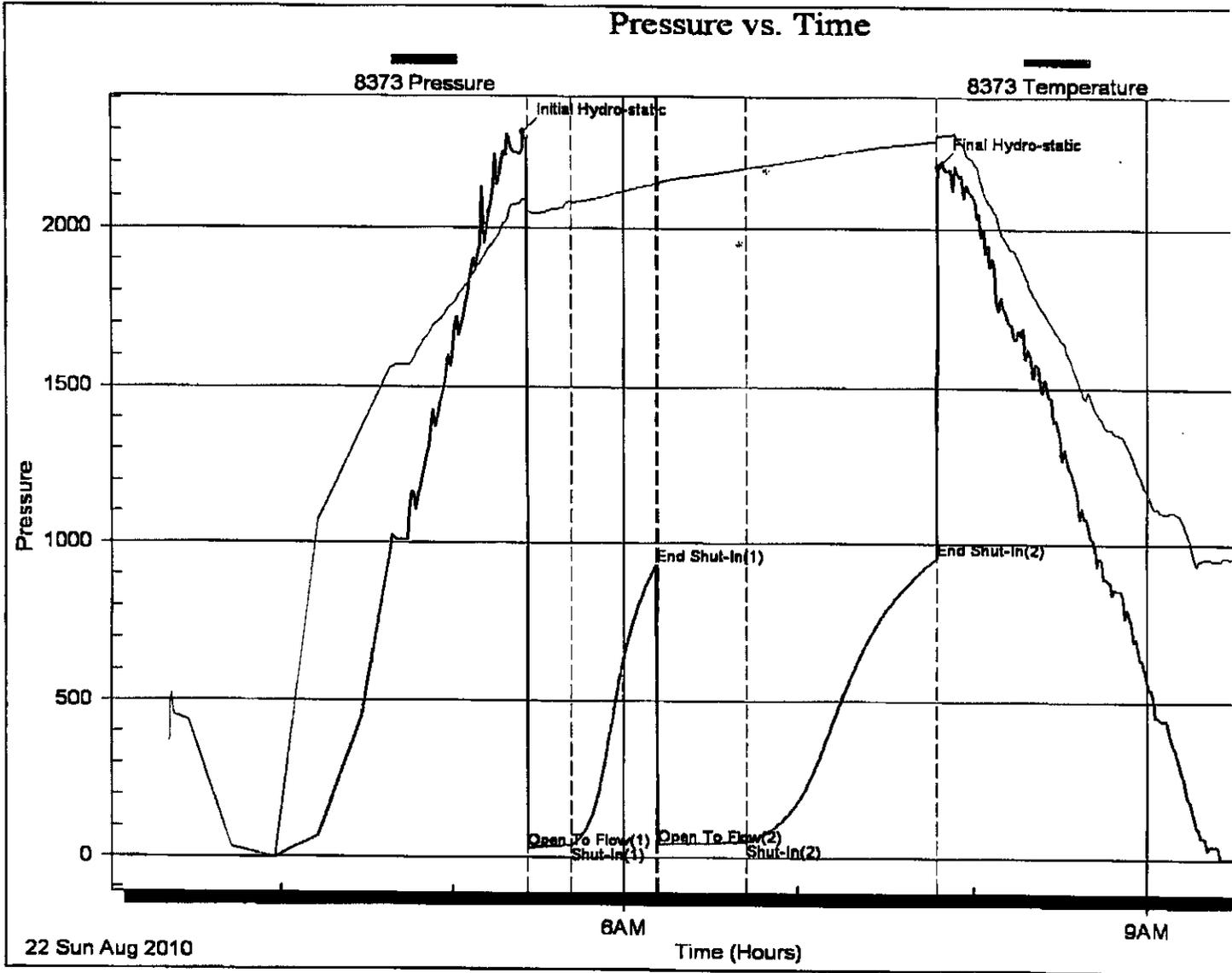
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

r



Robert C. Lewellyn

Consulting Petroleum Geologist

P. O. Box 375
Kechi, KS 67067-0375
Office 316-744-2567
Cell 316-518-0495
boblewellyn@yahoo.com

GEOLOGICAL REPORT

Larson Engineering, Inc.
Cairns No. 1-21
330' FNL & 2310' FWL Sec. 21-17S-28W
Lane County, Kansas

CONTRACTOR: H D Drilling, LLC
SPUDED: August 09, 2010
DRILLING COMPLETED: August 23, 2010
SURFACE CASING: 8 5/8" @ 256 KBM/175 sx,
ELECTRIC LOGS: Log-Tech DIL CNL/CDL MEL
ELEVATIONS: 2765 KB 2758 GL

FORMATION TOPS (Electric Log):

Anhydrite	2138 (+ 627)
Base Anhydrite	2168 (+ 597)
Heebner Shale	3932 (-1167)
Lansing-Kansas City Group	3970 (-1205)
Muncie Creek Shale	4131 (-1366)
Stark Shale	4227 (-1462)
Hushpuckney shale	4260 (-1495)
Base Kansas City	4304 (-1539)
Altamont	4355 (-1590)
Pawnee	4421 (-1656)
Myrick Station	4445 (-1680)
Fort Scott	4477 (-1712)
Cherokee	4501 (-1736)
Mississippian	4560 (-1795)
Electric Log Total Depth	4624 (-1859)

Samples were examined microscopically from 3800 to Rotary Total Depth. Samples were examined wet and dry and samples from potentially productive zones were viewed under a fluoroscope and checked for oil cut. Following is a description of zones of interest, Drill Stem Tests, etc. For a complete lithologic description of all formations, refer to the sample log in the back pages of this report.

Lansing-Kansas City Zones:

3973-3977 (A Zone)

Limestone, buff, some cream, dense with scattered finely crystalline and chalky, slightly fossiliferous, trace of scattered poor intercrystalline porosity, no show of oil.

4004-4018 (B Zone)

Limestone, buff, some tan, some scattered cream, dense to finely crystalline with considerable chalk, zone is mostly tight, no show of oil.

4022-4048 (C/D Zone)

Limestone, buff, dense with cream chalky, some finely crystalline, trace of "birdseye" dense to sub-lithographic limestone, zone is mostly tight with no shows of oil. Some scattered light gray chert.

4050-4056 (E Zone)

Limestone, buff to tan, finely crystalline and finely oolitic, slightly fossiliferous, fair interoolitic and intercrystalline porosity, scattered poor to fair spotted stain, slight show of free oil, faint odor, poor fluorescence, fair cut.

Drill Stem Test No. 1 4022-4056
15-30-15-30; half-inch blow, died in 14 minutes of first flow period; blow did not return on second flow period; recovered 10 feet of oil spotted mud; ISIP 1010# FSIP 940# IFP 17-21# FFP 22-23# IHP 2035# FHP 1970# BHT 116 degrees.

4066-4072 (F Zone)

Limestone, cream to buff, finely crystalline with considerable cream chalky, scattered traces of dead stain in tight pieces, no free oil, no odor, no fluorescence, no cut.

4074-4087 (G Zone)

Limestone, cream to buff, finely crystalline and oolitic, partly chalky, fair scattered oolitic porosity, no show of oil, some scattered white chert.

4146-4154 (H Zone)

Limestone, cream to buff, some tan, dense to finely crystalline with some scattered fossiliferous, poor to fair intercrystalline and interfossil porosity, some small vug porosity, scattered fair spotted stain, slight to fair show of free oil, faint odor, poor fluorescence, fair cut.

Drill Stem Test No. 2 4120-4155

15-30-15-30; half-inch blow, died in 12 minutes of first flow period; blow did not return on second flow period; recovered five feet of mud. ISIP 345# FSIP 185# IFP 18-20# FFP 19-21# IHP 2087# FHP 2066# BHT N/A

4179-4185 (I Zone)

Limestone, buff to tan with scattered brown, finely crystalline, scattered poor to fair intercrystalline porosity, some poor to fair vugular porosity, poor to fair spotted stain, very slight show of free oil, faint odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 3 4160-4188

15-30-15-30; quarter-inch blow died in 14 minutes of first flow period; blow did not return on second flow period; recovered five feet of oil spotted mud. ISIP 366# FSIP 88# IFP 17-19# FFP 18-20# IHP 2082# FHP 2044# BHT 112 degrees.

4206-4215 (J Zone)

Limestone, cream to buff, finely crystalline and partly oolitic, poor to fair intercrystalline and oolitic porosity, poor spotted stain, slight show of free oil, fair to good odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 4 4194-4219

15-30-15-30; quarter-inch blow, died in nine minutes of first flow; blow did not return on second flow; recovered 10 feet of oil cut mud (10% oil, 90% mud). ISIP 384# FSIP 345# IFP 68-58# FFP 62-55# IHP 2092# FHP 2038# BHT 113 degrees.

4237-4245 (K Zone)

Limestone, cream to buff, finely crystalline and slightly fossiliferous, fair intercrystalline porosity, some fair interfossil and small vug porosity, poor to fair spotted stain, fair show of free oil, fair odor, poor fluorescence, fair cut.

Drill Stem Test No. 5 4222-4247

15-30-30-60; quarter-inch blow built to 2 ½ inch blow in 15 minutes; second flow, surface blow built to two-inch blow in 30 minutes; recovered 81 feet of mud (100% mud), some oil spots, and 55 feet of muddy water (50% mud, 50% water). ISIP 643# FSIP 639# IFP 17-47# FFP 49-77# IHP 2123# FHP 2148# BHT 118 degrees.

4263-4279 (Middle Creek and L Zone)

Limestone, buff to tan, some brown, finely crystalline and slightly oolitic, partly fossiliferous, scattered poor intercrystalline and interfossil porosity with scattered poor spotted stain, trace of fair spotted stain, faint to fair odor, very slight show of free oil, poor fluorescence, poor to fair cut. Zone contains some scattered calcite crystal overgrowth.

Drill Stem Test No. 6 4256-4278

15-30-15-30; surface blow died in two minutes on first flow period; blow did not return on second flow period; recovered five feet of mud. ISIP 33# FSIP 24# IFP 15-17# FFP 16-17# IHP 2168# FHP 2165# BHT 113 degrees.

4304-4326 (Pleasanton Zone)

The Pleasanton section consisted of limestone, buff to tan, some brown, dense to finely crystalline, zone is mostly tight with traces of dead stain in a few pieces, no live oil shows.

4326-4338 (Lenapah Zone)

Limestone, buff to tan, dense to finely crystalline, rare trace of very poor spotted stain in tight limestone, no free oil, no odor, no fluorescence, no cut.

4378-4390 (Altamont Zone)

Limestone, cream to buff, fine to medium crystalline and fossiliferous, slightly chalky, fair intercrystalline and interfossil porosity, poor to fair spotted stain, fair to good show of free oil, faint to fair odor, fair to good cut.

Drill Stem Test No. 7 4359-4396

15-30-15-30; surface blow died in eight minutes of first flow; blow did not return on second flow; recovered five feet of mud. ISIP 43# FSIP 34# IFP 20-21# FFP 21-22# IHP 2222# FHP 2193# BHT 116 degrees.

4408-4411 (Lower Altamont Zone)

Limestone, tan to brown, fine to medium crystalline and fossiliferous, poor intercrystalline and vugular porosity, scattered poor to fair spotted stain, fair show of free oil, faint odor, poor fluorescence, poor cut.

4421-4427 (Pawnee Zone)

Limestone, tan to brown, "resinous" in part, dense to finely crystalline, poor intercrystalline porosity with scattered poor spotted stain, slight show of free oil, faint odor, no fluorescence, poor cut.

4454-4456 (Myrick Station Zone)

Limestone, brown, some tan, dense with scattered finely crystalline, trace of poor intercrystalline porosity with very poor scattered spotted stain, no free oil, questionable odor, no fluorescence, no cut.

4477-4501 (Fort Scott Zone)

The Fort Scott interval consisted of tan, dense to finely crystalline limestone in the upper section, with a trace of scattered poor intercrystalline porosity and poor spotted stain, no free oil, faint fleeting odor, no fluorescence and no cut. The lower portion was tan to brown, finely crystalline, scattered very poor intercrystalline porosity, few pieces with very poor spotted stain, no free oil, no odor, no fluorescence, no cut.

4536-4552 (Johnson Zone)

This interval contained limestone, tan to brown, fine to medium crystalline, slightly fossiliferous, fair intercrystalline and small vug porosity, fair show of free oil, faint to fair odor, poor fluorescence, fair cut.

Drill Stem Test No. 8

4408-4562

15-30-30-60; quarter-inch blow built to 1 ½ inch blow in 15 minutes of first flow period; surface blow built to 1 ½" blow in 30 minutes; recovered 30 feet of oil cut mud (5% oil, 95% mud) and 60 feet of oil cut mud (10% oil, 90% mud). ISIP 932# FSIP 955# IFP 28-37# FFP 41-48# IHP 2294# FHP 2191# BHT 118 degrees.

4560-4624 (Mississippian Zone)

The Mississippian section consisted of limestone, cream to buff, finely crystalline and slightly chalky, brittle, friable, mostly tight with no show of oil, grading downward to tan, finely crystalline dolomite and fresh, opaque chert. No shows of oil were present in this section.

4624

Rotary Total Depth

Conclusions and Recommendations:

Sample examination, drill stem testing, and electric logging revealed no zones of potential commercial production of oil or gas. It was therefore recommended and permission granted for the No. 1-21 Cairns to be plugged and abandoned.

Respectfully submitted,

Robert C. Lewellyn
Petroleum Geologist



*Mark Parkinson, Governor
Thomas E. Wright, Chairman
Joseph F. Harkins, Commissioner
Ward Loyd, Commissioner*

December 06, 2010

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

Re: ACO1
API 15-101-22248-00-00
Cairns 1-21
NW/4 Sec.21-17S-28W
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,
Thomas Larson