

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

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

OPERATOR: License # \_\_\_\_\_

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

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

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

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

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 EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

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

API No.: \_\_\_\_\_

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

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

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

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

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

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

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

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

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

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

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

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

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**AFFIDAVIT**

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

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

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

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

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <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 Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  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				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:		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		

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	<b>PRODUCTION INTERVAL:</b> Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:
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Form	ACO1 - Well Completion
Operator	Culbreath Oil & Gas Company, Inc.
Well Name	VOTH 1-4
Doc ID	1388174

Tops

Name	Top	Datum
Anhy	2577	+473
Base Anhy	2604	+446
Topeka	3795	-745
Heebner	4017	-967
Lansing	4064	-1014
BKC	4350	-1300
Marmaton	4382	-1332
Pawnee	4488	-1438
Fort Scott	4538	-1488
Cherokee Sh	4560	-1510
Johnson Zone	4594	-1544
Mississippi	4665	-1615





Confidentiality Requested:

Yes  No

# CONFIDENTIAL WELL COMPLETION FORM

## WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

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

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

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

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

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

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

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

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

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

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

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

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

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

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

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

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### 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

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Submitted Electronically

### KCC Office Use ONLY

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

## Summary of Changes

Lease Name and Number: VOTH 1-4

API/Permit #: 15-109-21498-00-00

Doc ID: 1388174

Correction Number: 2

Approved By: Karen Ritter

Field Name	Previous Value	New Value
Approved Date	07/24/2017	02/12/2018
Geologist Report / Mud Logs?		Yes
Perf_bridgeplug4depth		4650
Perf_bridgeplug4type		CIBP Cast Iron Bridge Plug
Perf_perf1bottom		4135
Perf_perf1top		4131
Perf_perf2bottom		4218
Perf_perf2top		4214
Perf_perf3bottom		4618
Perf_perf3top		4614

Summary of changes for correction 2 continued

Field Name	Previous Value	New Value
Perf_perf4bottom		4628
Perf_perf4top		4624
Perf_shots1		4
Perf_shots2		4
Perf_shots3		4
Perf_shots4		4
PerforationsRevised		[[dataGrid]]
Production Interval #1		4131
Production Interval #3		4628

## Summary of Attachments

Lease Name and Number: VOTH 1-4

API: 15-109-21498-00-00

Doc ID: 1388174

Correction Number: 2

Attachment Name

Geologist Report



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1354957  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

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Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

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Datum:  NAD27       NAD83       WGS84

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

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

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

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

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

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

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feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

### Drilling Fluid Management Plan

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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

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Submitted Electronically

### KCC Office Use ONLY

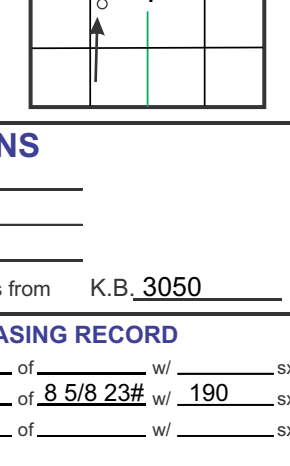
- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

# GEOLOGICAL REPORT

## Larry A. Nicholson

NAD 83  
93 0889735  
-100.8623714

COMPANY <b>Culbreath Oil &amp; Gas Company Inc.</b>		FIELD <b>Un-named</b>
API # <b>15-109-21498</b>	LEASE <b>Voth #1-4</b>	
LOCATION <b>NW NW NE SW</b>		
SURVEY <b>2389 FSL 1513 FWL</b>		
SECTION <b>4</b>	TWP <b>12S</b>	RGE <b>32W</b>
COUNTY <b>Logan</b>	STATE <b>Ks</b>	
CONTRACTOR <b>Southwind</b>		Rig # <b>8</b>
SPUD <b>04-10-17 6:15 pm</b>	COIMP <b>ELEVATIONS</b>	K.B. <b>3050</b>
RTD <b>04-20-17 12:57 am</b>	LTD <b>4671</b>	D.F. <b>3040</b>
MUD UP AT <b>3350</b>	All measurements from <b>K.B. 3050</b>	
MUD TYPE <b>Chemical Andys Mud</b>	CASING RECORD	
SAMPLES SAVED	FROM <b>7000</b> TO <b>RTD</b>	Conductor _____ of _____ w/ _____ in _____
DRILLING TIME	FROM <b>3600</b> TO <b>RTD</b>	Surface _____ of <b>8.5/8.236</b> w/ <b>190</b> _____
SAMPLES EXAMINED	FROM <b>3000</b> TO <b>RTD</b>	Production _____ of _____ w/ _____
GEOLOGICAL SUPERVISION	RECOR <b>617D</b>	
WELLSITE GEOLOGIST	<b>LARRY A. NICHOLSON</b>	



ELECTRICAL SURVEYS & STRUCTURAL POSITION			
FORMATION	SAMPLE TOPS	SURFACE DATUM	ELEC LOG TOPS
Anyrite	2578	+472	2584 +472
Bu/Anh	2602	+448	2606 +450
Topoka	3792	-742	3801 -745
Hoebner	4016	-966	4027 -971
Lansing	4060	-1010	4071 -1015
Stark	4279	-1229	4295 -1239
BKC	4350	-1300	4360 -1304
Pawnee	4488	-1438	4503 -1447
Cherokee	4567	-1517	4576 -1520
Johnson	4600	-1550	4609 -1553
Miss	4660	-1610	4680 -1624
RTD	4770	-1720	4780 -1724
LTD	4771	-1721	4778 -1722

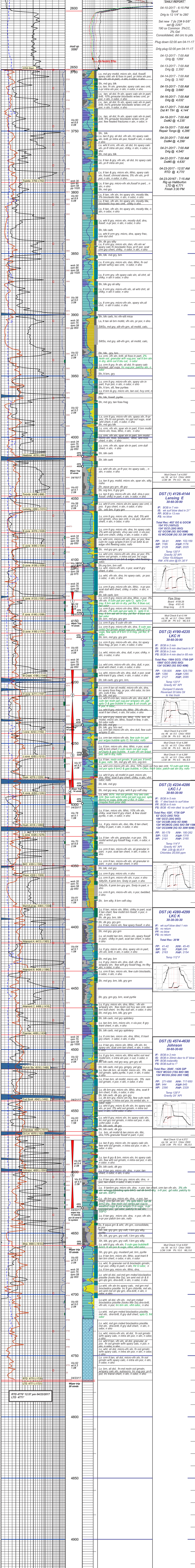
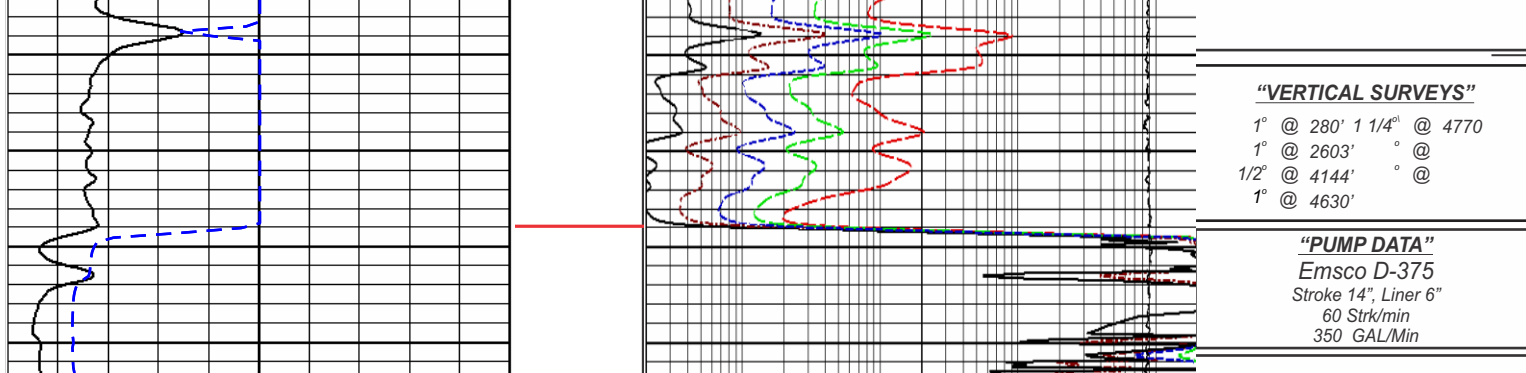
REFERENCE WELLS  
A: New Gulf Res. James #1-4, Sec 4-T12S-R32W, NW SE NE NE KB 3056  
B: \_\_\_\_\_

REMARKS & RECOMMENDATIONS:  
Based on sample shows and dst results the pipe was set

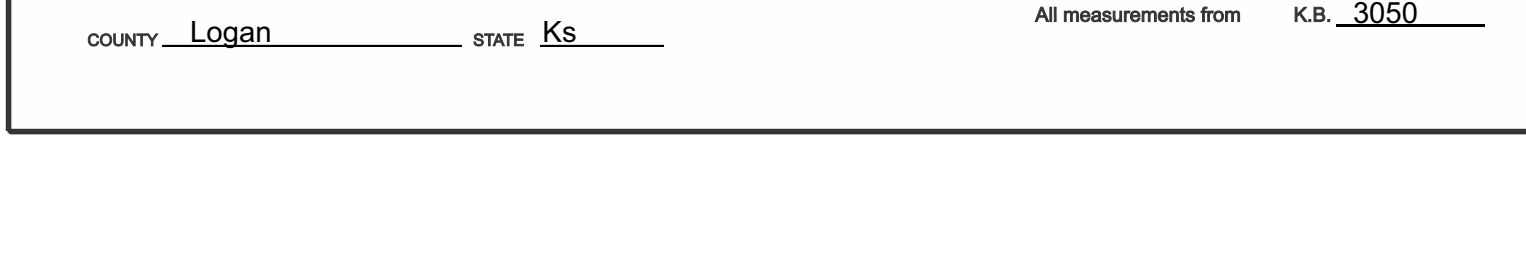
\*Note Drill Time and Electric logs are on same depth

LAN 7/92, Modified 5/05, 11/11, 4/12 Hanover, KS 66845 1inch = 25.4mm 8.5 x 9.15 216 mm x 2460 mm

### LEGEND



COMPANY <b>Culbreath Oil &amp; Gas Company Inc.</b>		ELEVATIONS <b>K.B. 3050</b>
LEASE <b>Voth #1-4 NW NW NE SW</b>		D.F. <b>3040</b>
LOCATION <b>2389 FSL 1513 FWL SEC 4 TWP 12S RGE 32W</b>		
COUNTY <b>Logan</b>	STATE <b>Ks</b>	All measurements from <b>K.B. 3050</b>





1771  
7844

TICKET NUMBER 51760  
LOCATION Oakley, KS  
FOREMAN Walt Dunkel

PO Box 384, Chanute, KS 66720  
620-431-9210 or 800-467-8676

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

**Invoice #810044**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
4-10-17	2777	Voth 1-4	4	12-5	32 W	Logan
CUSTOMER <u>Cultbreath Oil + Gas</u>			Oakley			
MAILING ADDRESS <u>3501 South Yale Avenue</u>			South to West Rd			
CITY <u>Tulsa</u>			1 W - 1/2 1/2 W			
STATE <u>OK</u>		ZIP CODE <u>74135</u>				
TRUCK #		DRIVER		TRUCK #		DRIVER
<u>753</u>		<u>Stanton</u>		<u>Oaks</u>		<u>1</u>
<u>566</u>		<u>Miles</u>		<u>Shaw</u>		
<u>697</u>						

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 280' CASING SIZE & WEIGHT 8 5/8 - 23 #  
 CASING DEPTH 280' DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
 SLURRY WEIGHT 15.2 SLURRY VOL \_\_\_\_\_ WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING 15' to 20'  
 DISPLACEMENT 16 1/2 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE 4 BPM

REMARKS: Safety meeting, Rig up on Southwest 1/2, Circ casing on Bottom  
mix 190 SKS com, 3/4 cc - 2% cel, Displace 16 1/2 BBL H2O, Shut in  
Cement Did Circ

Thank You  
Walt Dunkel

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
<u>Ce0470</u>	<u>1</u>	<u>PUMP CHARGE</u>	<u>1,150.00</u>	<u>1,150.00</u>
<u>Ce0002</u>	<u>5</u>	<u>MILEAGE</u>	<u>7.15</u>	<u>35.75</u>
<u>Ce0711</u>	<u>8.93</u>	<u>Tom Mileage Delivery</u>	<u>1.75</u>	<u>156.00</u>
<u>Cc5871</u>	<u>190 SKS</u>	<u>Surface Blend II</u>	<u>23.00</u>	<u>4,370.00</u>
				<u>6,215.75</u>
<u>Less 30% Disc</u>				<u>- 1,864.73</u>
				<u>4,351.02</u>
SALES TAX				<u>244.73</u>
ESTIMATED TOTAL				<u>4,595.75</u>

Ravin 3737  
 AUTHORIZATION [Signature] TITLE [Signature] DATE 4/11/17

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, are as follows: Net 30 days from invoice date. Payment in full is required for all services identified on this form.



PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

8050  
7944

TICKET NUMBER 51776  
LOCATION Oakley Ks  
FOREMAN Jerry Y

FIELD TICKET & TREATMENT REPORT

CEMENT

Invoice # 810139

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY	
4-23-17	2777	Voth 1-4	4	12S	32W	Logan	
CUSTOMER		Mailing Address		TRUCK #	DRIVER	TRUCK #	DRIVER
Culbreath		3501 South Yale Avenue		731	Cory D		
CITY: Tulsa		STATE: OK	ZIP CODE: 74135	479	Walt D		
				529-7-127			

JOB TYPE 2 Stage HOLE SIZE 7 7/8 HOLE DEPTH 4771 CASING SIZE & WEIGHT 5 1/2 15.5#  
 CASING DEPTH 4769 DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER DV @ 2576  
 SLURRY WEIGHT 14.2/11.6 SLURRY VOL 1.42/1.89 WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING 42'  
 DISPLACEMENT 112#/614 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting & rig up on Southwind & run float eq. scratches on 3, 4, 5, 10, 11, 12, 13, 14, 15, 16, 115 centralizers on 3, 5, 7, 9, 11, 13, 15, 115, 20, 30 baskets on 4, 21, 51 AFU Tool on top of 51 spot @ 2576 casing to bottom pump ball thr & circulate Vis 36 pump 5 bbl H<sub>2</sub>O, mud flush, 20 bbl KCL mix 175 sks thixobland III shut down release plug wash pumps lines displac with 114 3/4 bbl final lift 800# plug landed @ 1400# released back a float held open tool 900# & circulate 3 hrs pump 5 H<sub>2</sub>O mud flush 5 H<sub>2</sub>O after mix 400 sks lite blend III shut down clean pumps lines & release plug displac with 63 bbl fresh water final lift 500# plug landed steel closed @ 1250# released back a float held 20 sks mbase hole 30 sks rat  
 Thank you Jerry & crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE0453	1	PUMP CHARGE	2800.00	2800.00
CE0002	5	MILEAGE	7.15	35.75
CE0711		ten mileage delivery	66.00	66.00
CC5862	175 sks	thixobland III	26.00	4550.00
CC6077	875#	Kal seal	50	437.50
CC5831	450 sks	lite blend III	17.50	7875.00
CC6075	113 #	flb seal	3.00	339.00
CC5301	2 gal	KCL	39.00	78.00
CC6125	1000 gal	mud flush	65	650.00
CP8676	40	5 1/2 scratches	75.00	3000.00
CP8485	1	5 1/2 AFU float shoe	585.00	585.00
CP8254	1	5 1/2 latch down assy	400.00	400.00
CP8554	10	5 1/2 centralizers	81.00	810.00
CP8629	3	5 1/2 baskets	385.00	1155.00
CP8801	1	5 1/2 DV Tool	5970.00	5970.00
		subtotal		29345.25
			-35.8	10270.84
		subtotal		19074.41
		SALES TAX		1344.17
		ESTIMATED TOTAL		20418.58

AUTHORIZATION [Signature] TITLE \_\_\_\_\_ DATE \_\_\_\_\_

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63716

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2017.04.16 @ 22:13:15

## GENERAL INFORMATION:

Formation: **LKC E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:12:15

Time Test Ended: 06:25:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 81

**Interval: 4126.00 ft (KB) To 4144.00 ft (KB) (TVD)**

Reference Elevations: 3050.00 ft (KB)

Total Depth: 4144.00 ft (KB) (TVD)

3040.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 6749 Outside**

Press@RunDepth: 169.75 psig @ 4127.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.04.16

End Date:

2017.04.17

Last Calib.:

2017.04.17

Start Time: 22:13:15

End Time:

06:25:00

Time On Btm:

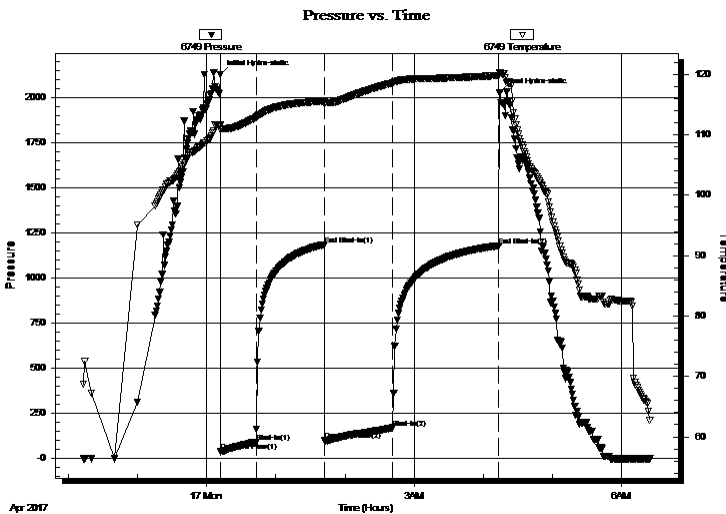
2017.04.17 @ 00:11:45

Time Off Btm:

2017.04.17 @ 04:14:15

**TEST COMMENT:** IF:BOB in 7 min.  
IS:Weak surface blow died in 21 min.  
FF:BOB in 13 min.  
FS:No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2126.35	111.59	Initial Hydro-static
1	38.88	110.90	Open To Flow (1)
31	91.37	112.85	Shut-In(1)
91	1185.12	115.59	End Shut-In(1)
91	102.36	115.05	Open To Flow (2)
150	169.75	118.57	Shut-In(2)
242	1179.10	119.80	End Shut-In(2)
243	2025.08	120.33	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
154.00	free oil	2.16
124.00	gco 20%g 80%o	1.74
62.00	gcom 5%g 35%o 60%m	0.87
62.00	w cogm 2%w 3%o 5%g 90% m	0.87

## Gas Rates

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



**TRILOBITE TESTING, INC.**

## DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63716

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2017.04.16 @ 22:13:15

### GENERAL INFORMATION:

Formation: **LKC E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:12:15

Time Test Ended: 06:25:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 81

**Interval: 4126.00 ft (KB) To 4144.00 ft (KB) (TVD)**

Total Depth: 4144.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3050.00 ft (KB)

3040.00 ft (CF)

KB to GR/CF: 10.00 ft

**Serial #: 8672** Inside

Press@RunDepth: psig @ 4127.00 ft (KB)

Start Date: 2017.04.16

End Date: 2017.04.17

Start Time: 22:13:15

End Time: 06:25:00

Capacity: 8000.00 psig

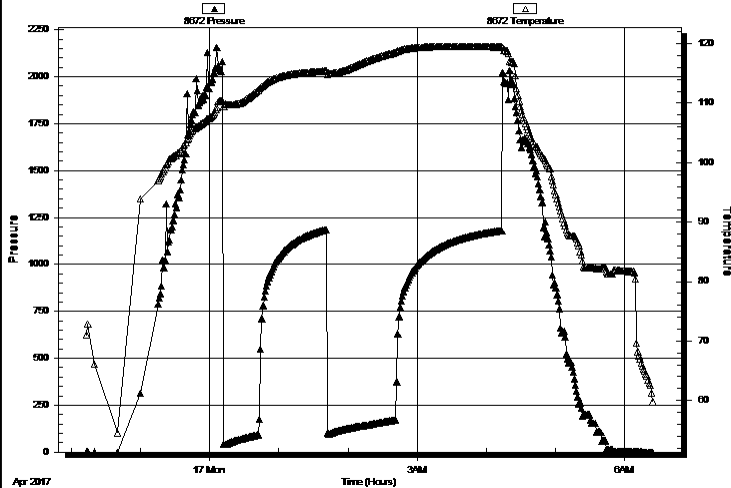
Last Calib.: 2017.04.17

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF:BOB in 7 min.  
IS:Weak surface blow died in 21 min.  
FF:BOB in 13 min.  
FS:No return blow

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

### Recovery

Length (ft)	Description	Volume (bbl)
154.00	free oil	2.16
124.00	gco 20%g 80%o	1.74
62.00	gcom 5%g 35%o 60%m	0.87
62.00	w cogm 2%w 3%o 5%g 90% m	0.87

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63716

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2017.04.16 @ 22:13:15

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

32 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

19000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.36 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
154.00	free oil	2.160
124.00	gco 20%g 80%o	1.739
62.00	gcom 5%g 35%o 60%m	0.870
62.00	w cogm 2%w 3%o 5%g 90% m	0.870

Total Length: 402.00 ft      Total Volume: 5.639 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

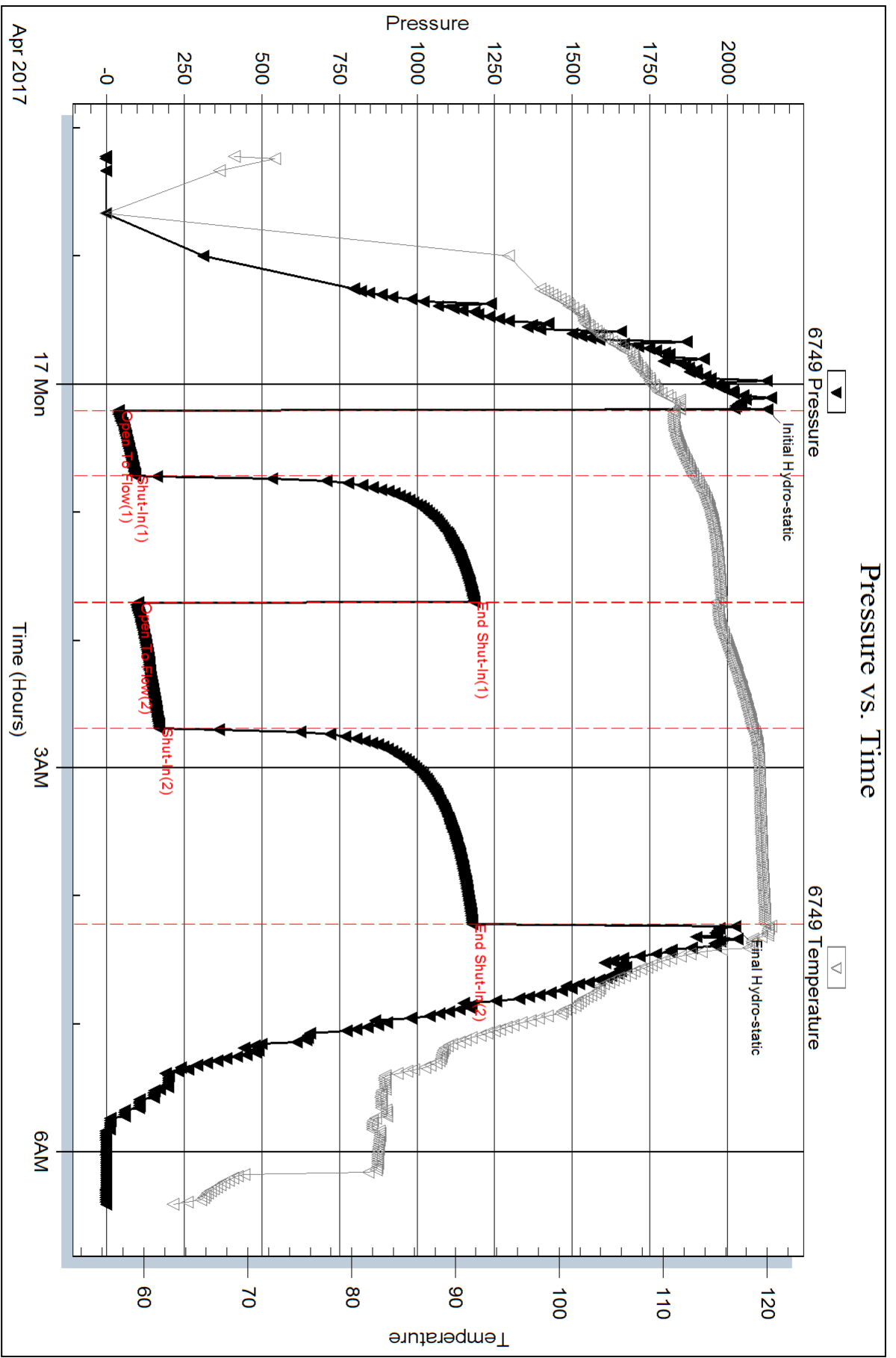
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .476@ 61.3=19,000 ppm

API= 32 @ 60 corrected to 32





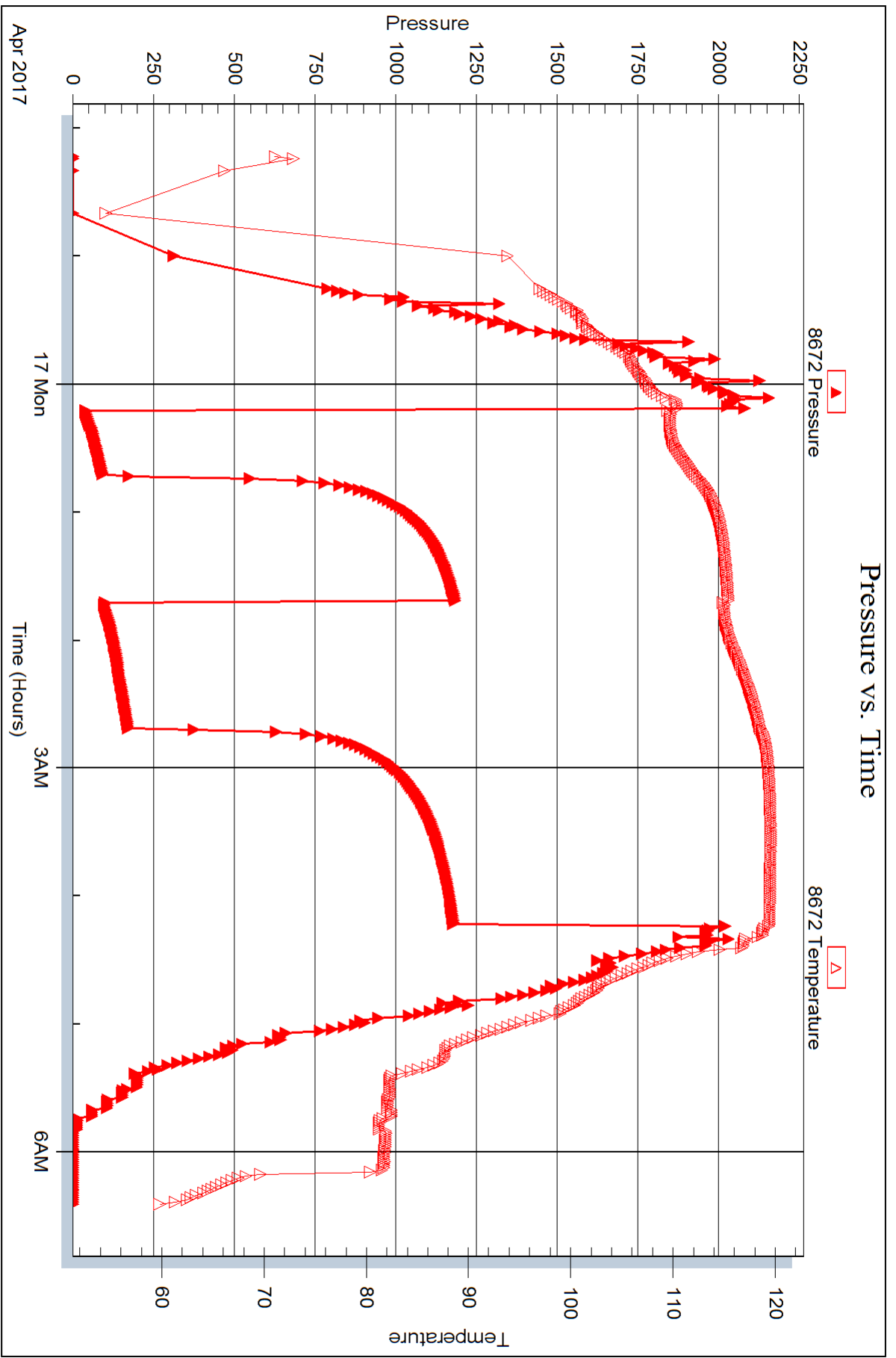
Serial #: 8672

Inside

Culbreath Oil And Gas Company

Voith #1-4

DST Test Number: 1





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63717

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2017.04.18 @ 04:53:15

## GENERAL INFORMATION:

Formation: **H**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 07:06:00  
 Time Test Ended: 15:52:45  
 Interval: **4190.00 ft (KB) To 435.00 ft (KB) (TVD)**  
 Total Depth: 4235.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Mike Roberts  
 Unit No: 81  
 Reference Elevations: 3050.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 10.00 ft

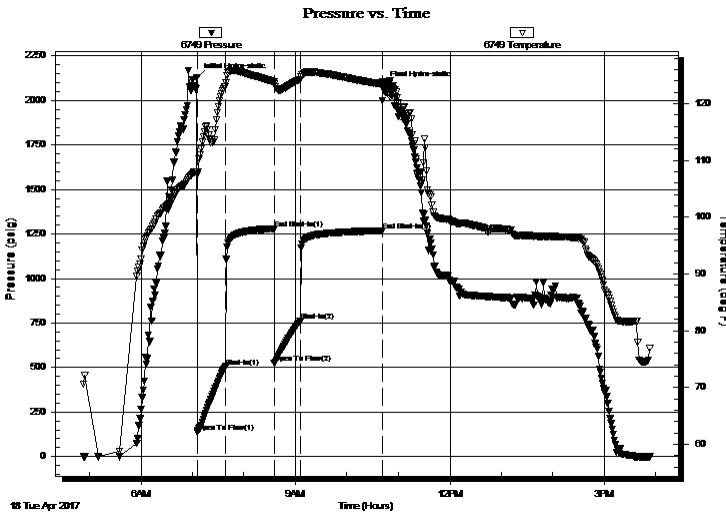
## Serial #: 6749

**Outside**

Press@RunDepth: 759.17 psig @ 4230.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.04.18 End Date: 2017.04.18 Last Calib.: 2017.04.18  
 Start Time: 04:53:15 End Time: 15:52:45 Time On Btm: 2017.04.18 @ 07:05:30  
 Time Off Btm: 2017.04.18 @ 10:42:00

TEST COMMENT: IF:BOB in 2 min.  
 IS:BOB in 9 min. died back to 9"  
 FF:BOB in 2 min.  
 FS:BOB in 4 min. died in 85 min

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2127.71	108.06	Initial Hydro-static
1	135.64	107.52	Open To Flow (1)
33	505.00	123.03	Shut-In(1)
90	1280.62	123.82	End Shut-In(1)
90	525.24	123.46	Open To Flow (2)
120	759.17	124.25	Shut-In(2)
216	1265.83	123.39	End Shut-In(2)
217	2085.66	123.79	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 1798	0.00
1860.00	gco 50%g 50%o	26.09
124.00	gcmo 5%g 40%m 55%o	1.74

\* Recovery from multiple tests

## Gas Rates

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



TRILOBITE TESTING, INC.

# DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

4-12s-32w Logan Co KS

3501 S Yale Ave.  
Tulsa OK 74135

Voth #1-4

Job Ticket: 63717

DST#: 2

ATTN: Larry Nicholson

Test Start: 2017.04.18 @ 04:53:15

## GENERAL INFORMATION:

Formation: **H**  
Deviated: **No** Whipstock: **ft (KB)**  
Time Tool Opened: 07:06:00  
Time Test Ended: 15:52:45

Test Type: Conventional Bottom Hole (Reset)  
Tester: Mike Roberts  
Unit No: 81

Interval: **4190.00 ft (KB) To 435.00 ft (KB) (TVD)**  
Total Depth: 4235.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3050.00 ft (KB)  
3040.00 ft (CF)  
KB to GR/CF: 10.00 ft

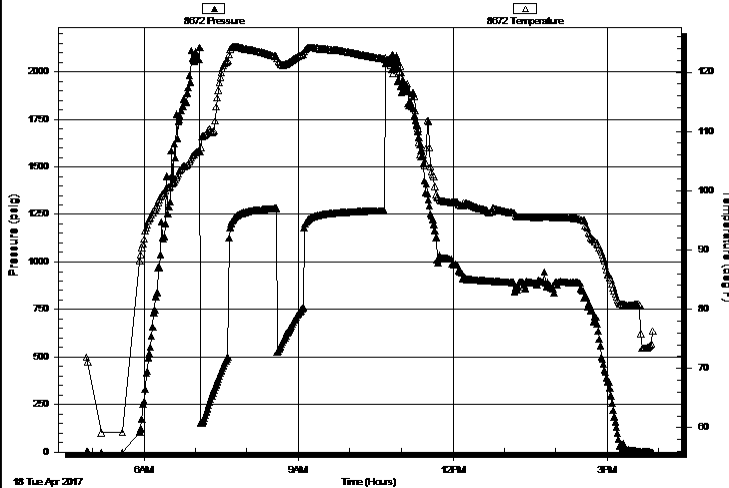
Serial #: **8672** Inside

Press@RunDepth: psig @ 4230.00 ft (KB)  
Start Date: 2017.04.18 End Date: 2017.04.18  
Start Time: 04:53:15 End Time: 15:52:45

Capacity: 8000.00 psig  
Last Calib.: 2017.04.18  
Time On Btm:  
Time Off Btm:

TEST COMMENT: IF:BOB in 2 min.  
IS:BOB in 9 min. died back to 9"  
FF:BOB in 2 min.  
FS:BOB in 4 min. died in 85 min

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 1798	0.00
1860.00	gco 50%g 50%o	26.09
124.00	gcmo 5%g 40%m 55%o	1.74

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63717

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2017.04.18 @ 04:53:15

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

40 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.57 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	GIP= 1798	0.000
1860.00	gco 50%g 50%o	26.091
124.00	gcmo 5%g 40%m 55%o	1.739

Total Length: 1984.00 ft      Total Volume: 27.830 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

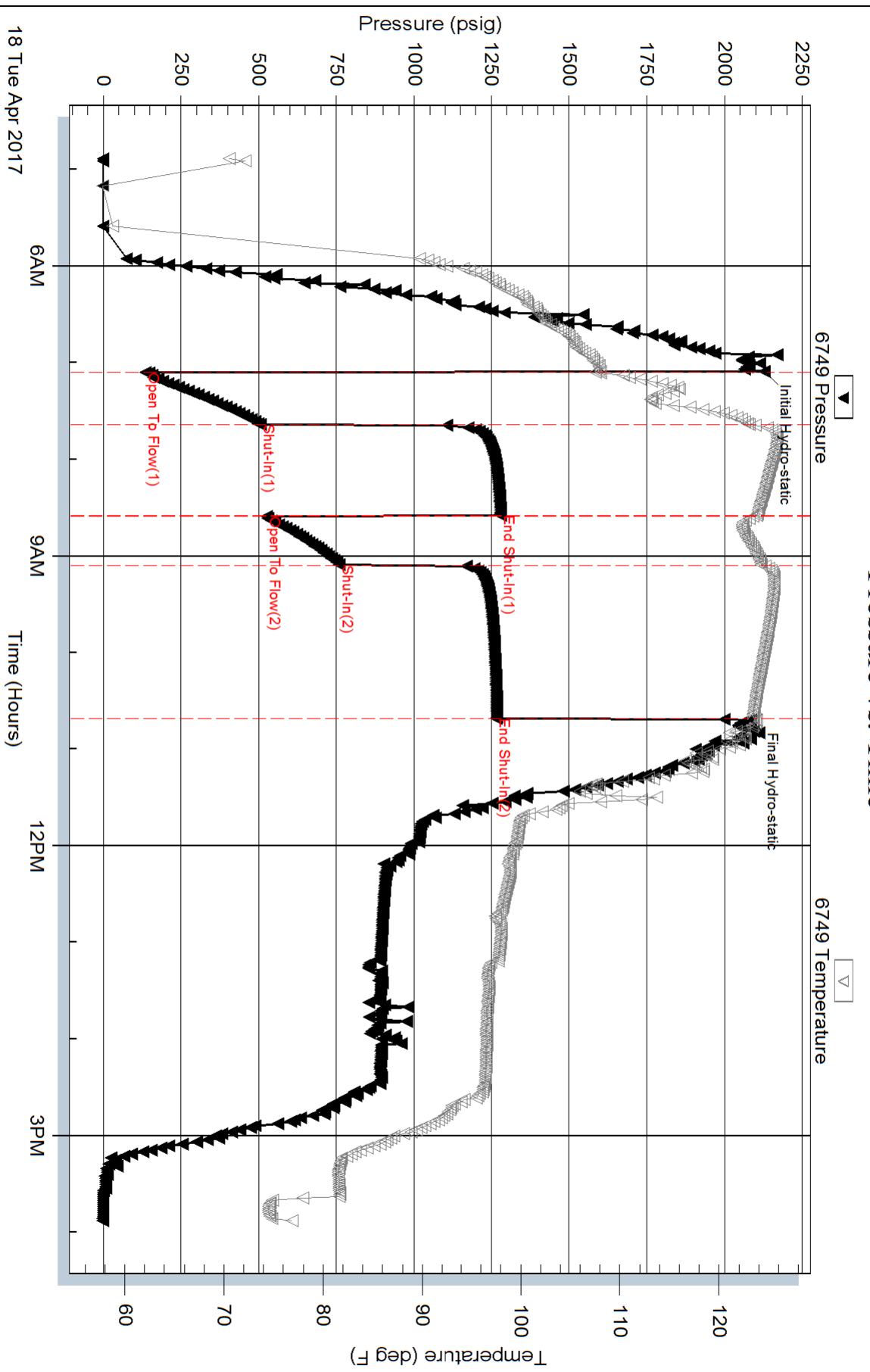
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API= 41@ 70 corrected to 40 @ 60

### Pressure vs. Time



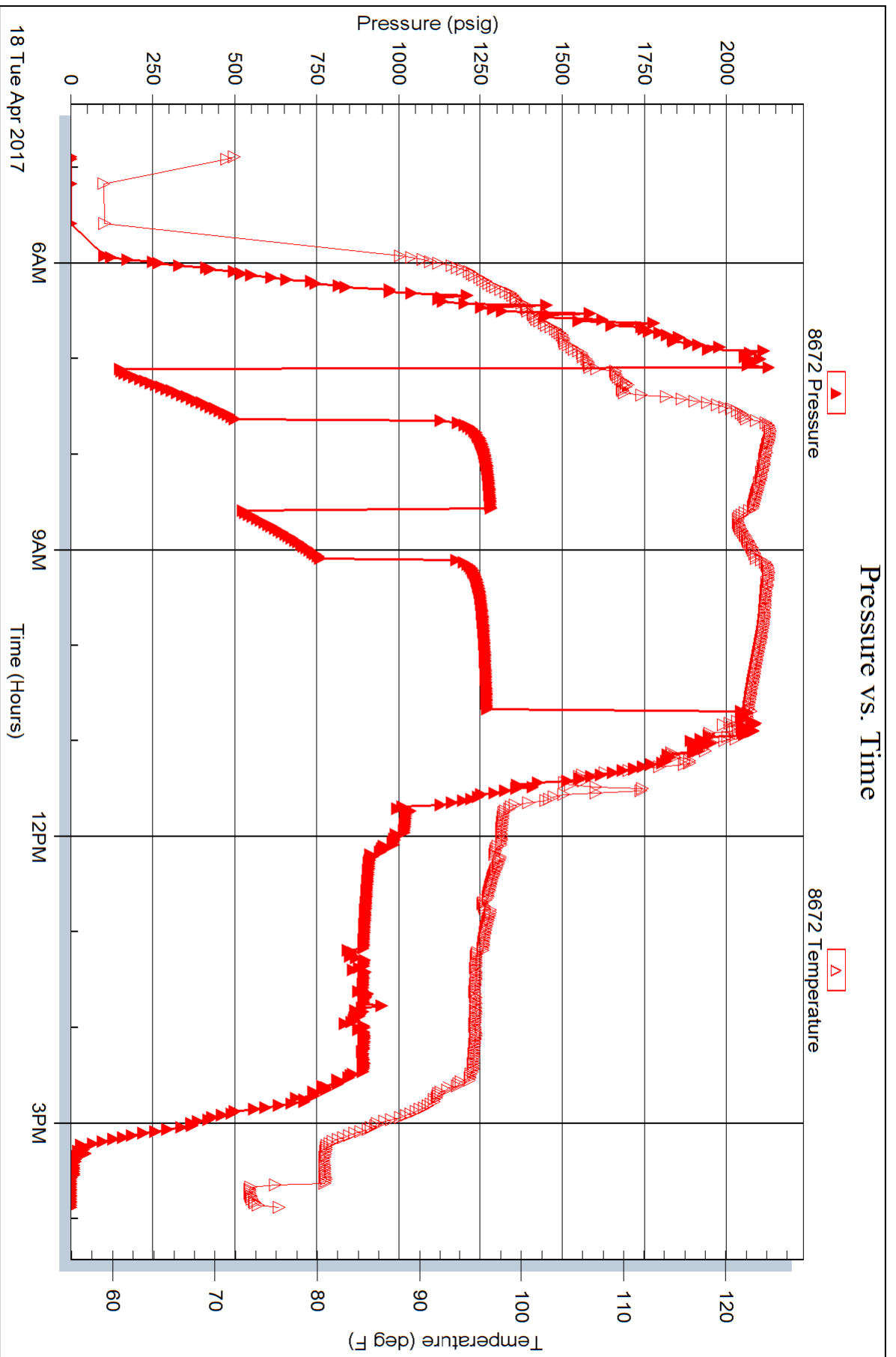
Serial #: 8672

Inside

Culbreath Oil And Gas Company

Voith #1-4

DST Test Number: 2





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK  
74135

**Voth #1-4**

Job Ticket: 63718

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2017.04.19 @ 10:02:15

## GENERAL INFORMATION:

Formation: **I-J**  
 Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole (Reset)**  
 Time Tool Opened: **12:30:00** Tester: **Mike Roberts**  
 Time Test Ended: **18:26:30** Unit No: **81**  
**Interval: 4234.00 ft (KB) To 4286.00 ft (KB) (TVD)** Reference Elevations: **3050.00 ft (KB)**  
 Total Depth: **4286.00 ft (KB) (TVD)** **3040.00 ft (CF)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Fair** KB to GR/CF: **10.00 ft**

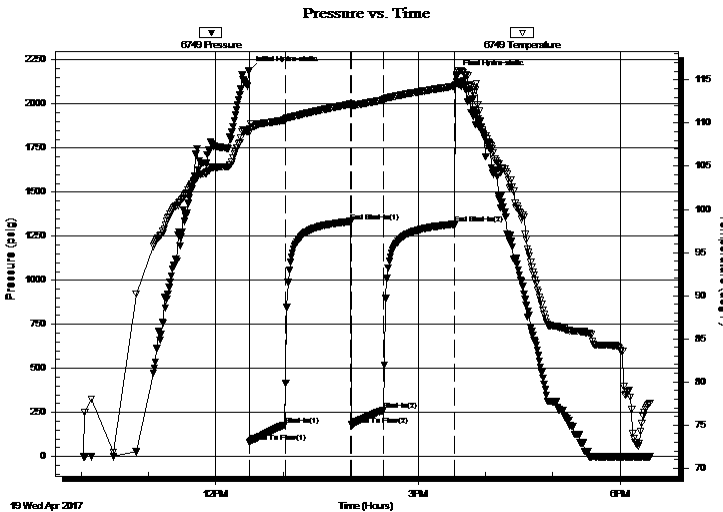
## Serial #: 6749

**Outside**

Press@RunDepth: **262.99 psig @ 4281.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2017.04.19** End Date: **2017.04.19** Last Calib.: **2017.04.19**  
 Start Time: **10:02:15** End Time: **18:26:30** Time On Btm: **2017.04.19 @ 12:29:30**  
 Time Off Btm: **2017.04.19 @ 15:34:00**

**TEST COMMENT:** IF:BOB in 5 min.  
 IS:Built to 1" blow died back to weak surface blow  
 FF:BOB in 6 min.  
 FS:BOB in 43 min. gas to surface at 60 min

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2191.17	109.28	Initial Hydro-static
1	80.60	108.85	Open To Flow (1)
32	179.78	110.35	Shut-In(1)
91	1333.74	112.21	End Shut-In(1)
92	180.01	111.94	Open To Flow (2)
120	262.99	112.68	Shut-In(2)
184	1318.18	114.27	End Shut-In(2)
185	2165.56	114.74	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	GlP= 1736	0.00
62.00	gco 30%g 70%o	0.87
186.00	gco 20%g 80%o	2.61
124.00	ocgm 5%o 45%g 50%m	1.74
124.00	w cmog 5%w 15%m 30%g 50%o	1.74
124.00	ocgw m 5%o 5%g 30%w 60%m	1.74

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.

**Voth #1-4**

Tulsa OK

Job Ticket: 63718

**DST#: 3**

74135

ATTN: Larry Nicholson

Test Start: 2017.04.19 @ 10:02:15

## GENERAL INFORMATION:

Formation: **I-J**  
 Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole (Reset)**  
 Time Tool Opened: **12:30:00** Tester: **Mike Roberts**  
 Time Test Ended: **18:26:30** Unit No: **81**  
**Interval: 4234.00 ft (KB) To 4286.00 ft (KB) (TVD)** Reference Elevations: **3050.00 ft (KB)**  
 Total Depth: **4286.00 ft (KB) (TVD)** **3040.00 ft (CF)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Fair** KB to GR/CF: **10.00 ft**

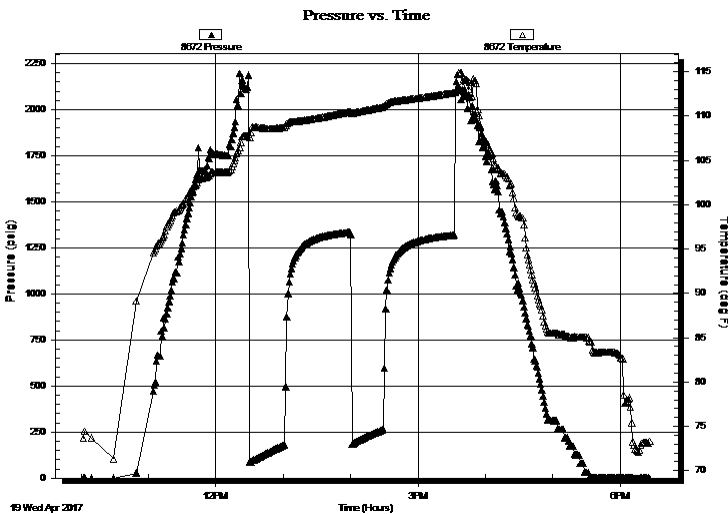
## Serial #: 8672

**Inside**

Press@RunDepth: **psig @ 4281.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2017.04.19** End Date: **2017.04.19** Last Calib.: **1899.12.30**  
 Start Time: **10:02:15** End Time: **18:26:15** Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF:BOB in 5 min.  
 IS:Built to 1" blow died back to weak surface blow  
 FF:BOB in 6 min.  
 FS:BOB in 43 min. gas to surface at 60 min

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	GlP= 1736	0.00
62.00	gco 30%g 70%o	0.87
186.00	gco 20%g 80%o	2.61
124.00	ocgm 5%o 45%g 50%m	1.74
124.00	w cmog 5%w 15%m 30%g 50%o	1.74
124.00	ocgw m 5%o 5%g 30%w 60%m	1.74

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Culbreath Oil And Gas Company

**4-12s-32w Logan Co KS**

3501 S Yale Ave.  
Tulsa OK  
74135

**Voth #1-4**

Job Ticket: 63718

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2017.04.19 @ 10:02:15

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

40 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

29000 ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbf

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

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
0.00	Glp= 1736	0.000
62.00	gco 30%g 70%o	0.870
186.00	gco 20%g 80%o	2.609
124.00	ocgm 5%o 45%g 50%m	1.739
124.00	w cmog 5%w 15%m 30%g 50%o	1.739
124.00	ocgw m 5%o 5%g 30%w 60%m	1.739

Total Length: 620.00 ft      Total Volume: 8.696 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

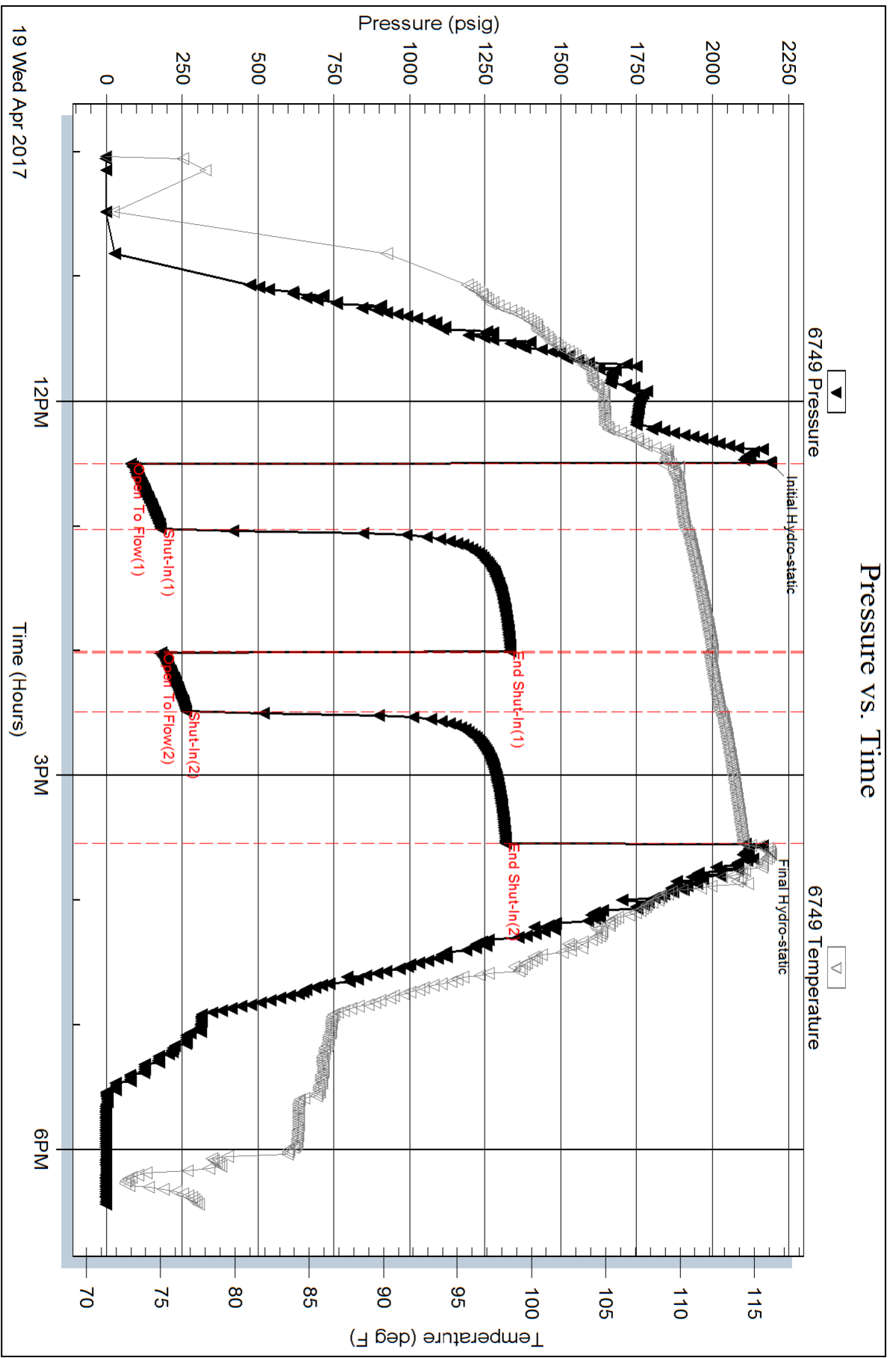
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API= 40@ 60

RW= .228 @ 85.8= 29,000 ppm



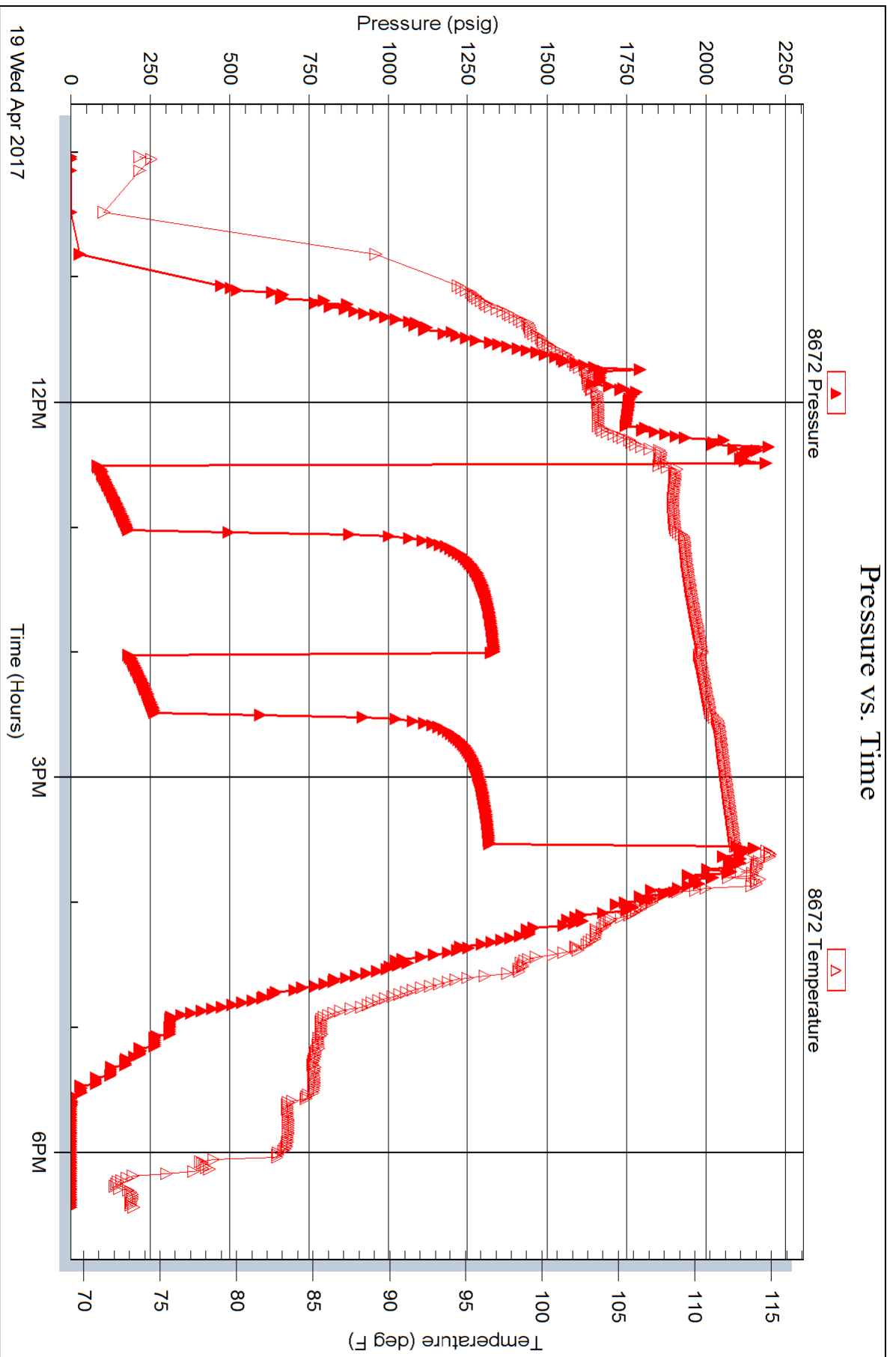
Serial #: 8672

Inside

Culbreath Oil And Gas Company

Voith #1-4

DST Test Number: 3





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

**4-12s-32w Logan,KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63719

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2017.04.20 @ 02:10:15

## GENERAL INFORMATION:

Formation: **K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:15:00  
 Time Test Ended: 08:39:15  
 Interval: **4280.00 ft (KB) To 4299.00 ft (KB) (TVD)**  
 Total Depth: 4299.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Mike Roberts  
 Unit No: 81  
 Reference Elevations: 3050.00 ft (KB)  
 3040.00 ft (CF)  
 KB to GR/CF: 10.00 ft

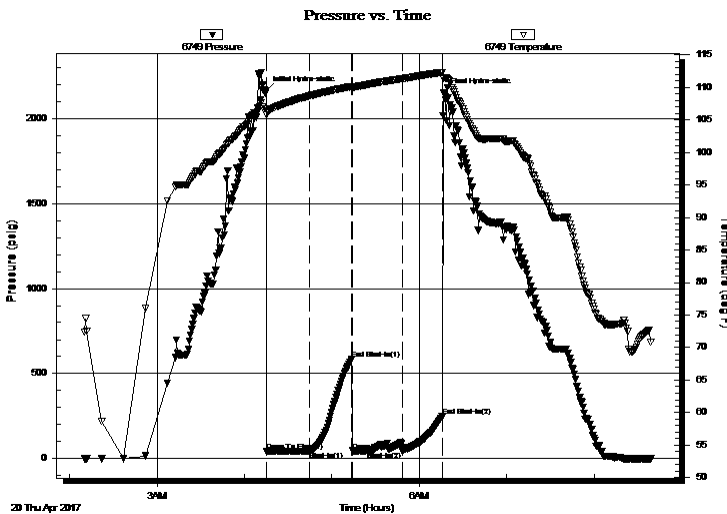
**Serial #: 6749**

**Outside**

Press@RunDepth: 45.52 psig @ 4281.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.04.20 End Date: 2017.04.20 Last Calib.: 2017.04.20  
 Start Time: 02:10:15 End Time: 08:39:15 Time On Btm: 2017.04.20 @ 04:14:45  
 Time Off Btm: 2017.04.20 @ 06:16:45

**TEST COMMENT:** IF:Weak surface blow died in 1 min.  
 IS:No return blow  
 FF:No blow  
 FS:No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2163.65	106.68	Initial Hydro-static
1	41.53	105.67	Open To Flow (1)
30	42.85	108.68	Shut-In(1)
59	582.46	110.09	End Shut-In(1)
60	45.77	109.95	Open To Flow (2)
94	45.52	111.28	Shut-In(2)
121	246.59	112.26	End Shut-In(2)
122	2154.13	111.31	Final Hydro-static

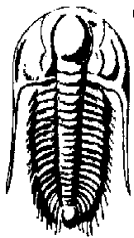
## Recovery

Length (ft)	Description	Volume (bbl)
20.00	mud w ith oil apots 100%m	0.28

## Gas Rates

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

\* Recovery from multiple tests



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Culbreath Oil And Gas Company

4-12s-32w Logan, KS

3501 S Yale Ave.  
Tulsa OK 74135

Voth #1-4

Job Ticket: 63719

DST#: 4

ATTN: Larry Nicholson

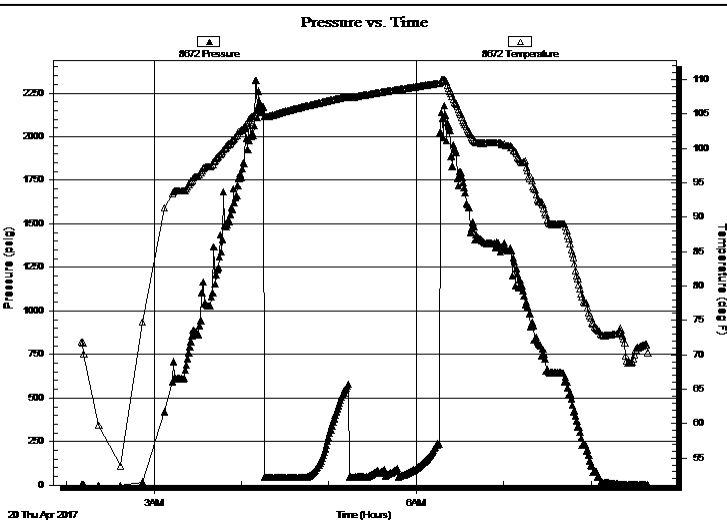
Test Start: 2017.04.20 @ 02:10:15

### GENERAL INFORMATION:

Formation: **K**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 04:15:00 Tester: Mike Roberts  
 Time Test Ended: 08:39:15 Unit No: 81  
 Interval: **4280.00 ft (KB) To 4299.00 ft (KB) (TVD)** Reference Elevations: 3050.00 ft (KB)  
 Total Depth: 4299.00 ft (KB) (TVD) 3040.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

**Serial #: 8672 Inside**  
 Press@RunDepth: psig @ 4281.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.04.20 End Date: 2017.04.20 Last Calib.: 2017.04.20  
 Start Time: 02:10:15 End Time: 08:39:15 Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF:Weak surface blow died in 1 min.  
 IS:No return blow  
 FF:No blow  
 FS:No return blow



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

### Recovery

Length (ft)	Description	Volume (bbl)
20.00	mud with oil apots 100%m	0.28

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Culbreath Oil And Gas Company

**4-12s-32w Logan,KS**

3501 S Yale Ave.  
Tulsa OK 74135

**Voth #1-4**

Job Ticket: 63719

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2017.04.20 @ 02:10:15

## 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: 46.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	mud w ith oil apots 100%m	0.281

Total Length: 20.00 ft      Total Volume: 0.281 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

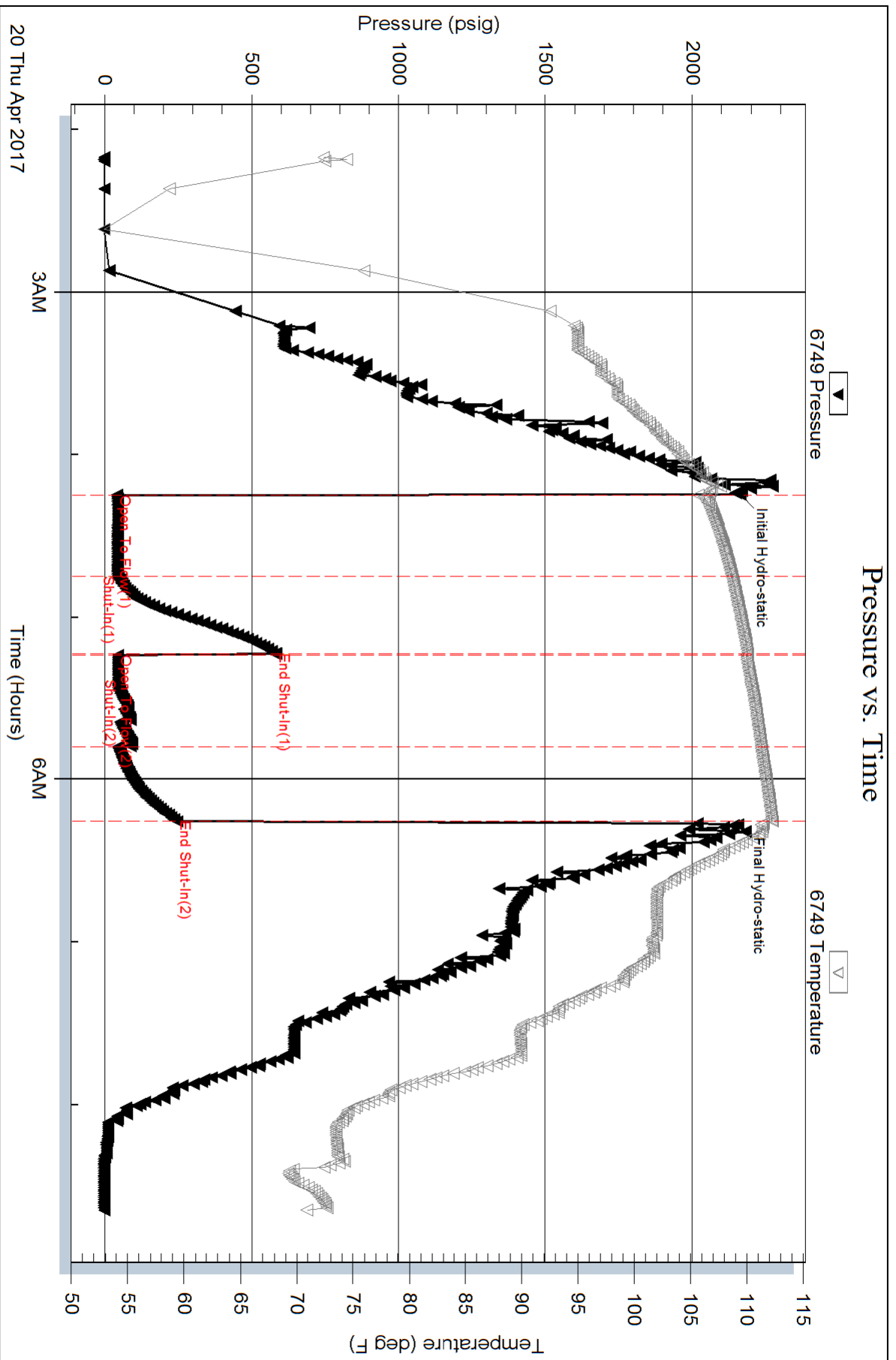
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



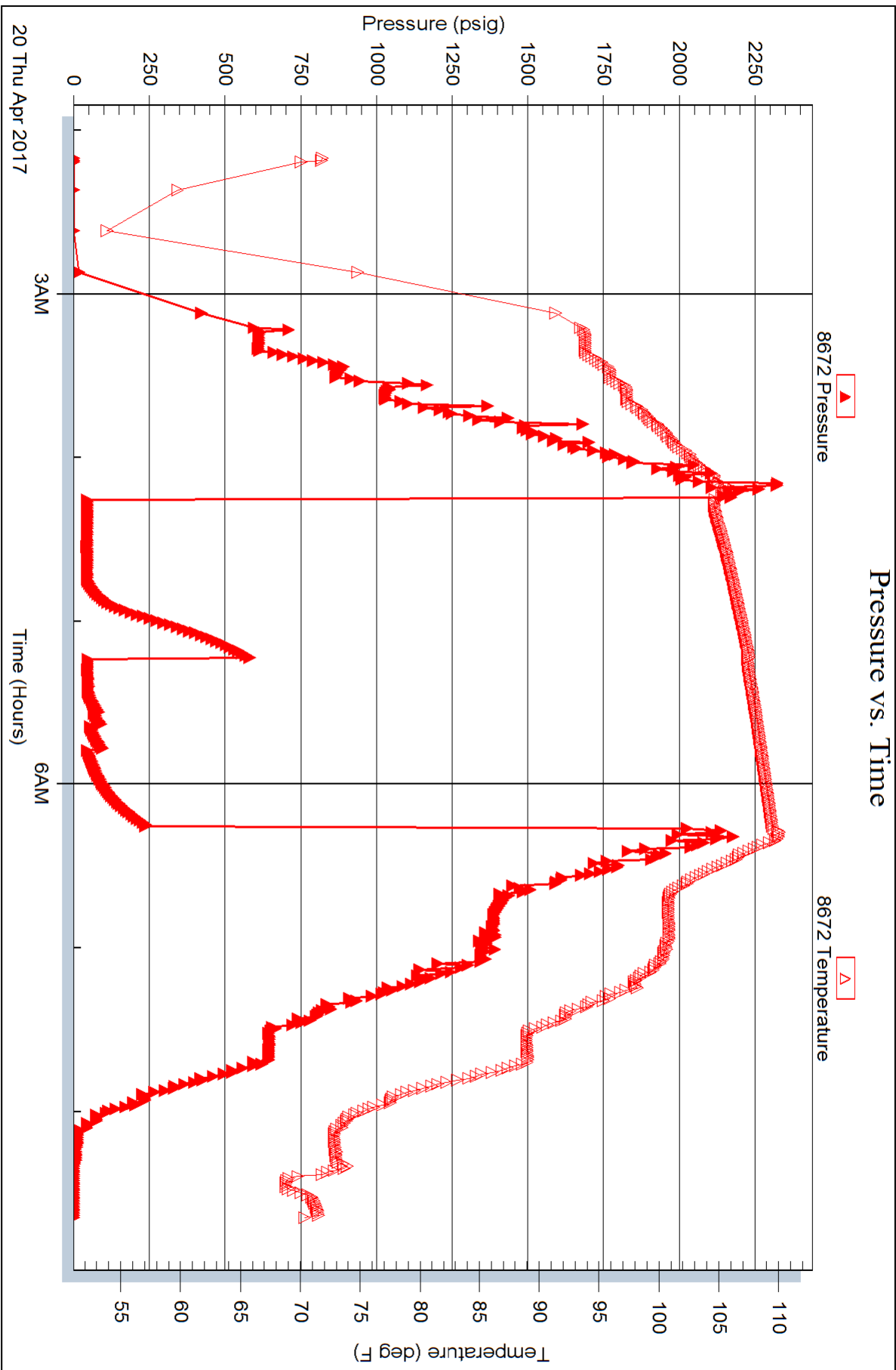
Serial #: 8672

Inside

Culbreath Oil And Gas Company

Voith #1-4

DST Test Number: 4





# GEOLOGICAL REPORT

## Larry A. Nicholson

NAD 83  
90.0897355  
-100.8237144

COMPANY & WELL: **Culbreath O&G Co. Inc. Voith #1-4**  
 LOCATION: **2389 FSL 1513' FWL NW NW NE SW**  
 SEC: **4** TWP: **12S** RGE: **32W**  
 COUNTY: **Logan** STATE: **Ks**

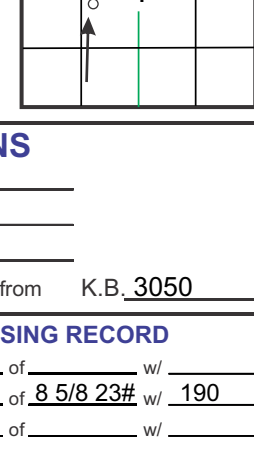
COMPANY: **Culbreath Oil & Gas Company Inc.**  
 API #: **15-109-21498** FIELD: **Un-named**  
 LEASE: **Voith** WELL #: **#1-4**  
 LOCATION: **NW NW NE SW**  
 SURVEY: **2389 FSL 1513' FWL**  
 SECTION: **4** TWP: **12S** RGE: **32W**  
 COUNTY: **Logan** STATE: **Kansas**

CONTRACTOR: **Southwind** Rig # **8**  
 SPUD: **04-10-17 6:15 pm** COMPLETION: **04-23-17 12:57 pm**  
 RTD: **04-23-17 12:57 pm** LTD: **04-23-17 12:57 pm**  
 MUD UP AT: **3350**  
 MUD TYPE: **Chemical Andy's Mud**

SAMPLES SAVED: FROM **7000** TO **RTD**  
 DRILLING TIME: FROM **3600** TO **RTD**  
 SAMPLES EXAMINED: FROM **3600** TO **RTD**  
 GEOLOGICAL SUPERVISOR: **LTD**  
 WELL SITE GEOLOGIST: **LARRY A. NICHOLSON**

**ELEVATIONS**  
 K.B. **3050**  
 D.F. **3040**  
 G.L. **3040**  
 All measurements from **K.B. 3050**

**CASING RECORD**  
 Conductor: **279** of **8.58** w/ **190** sh  
 Production: **279** of **8.58** w/ **190** sh

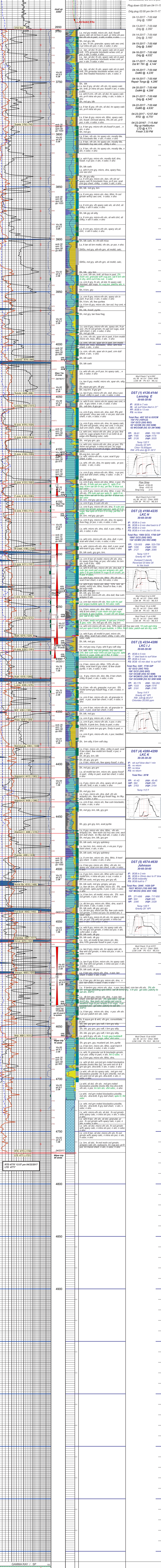
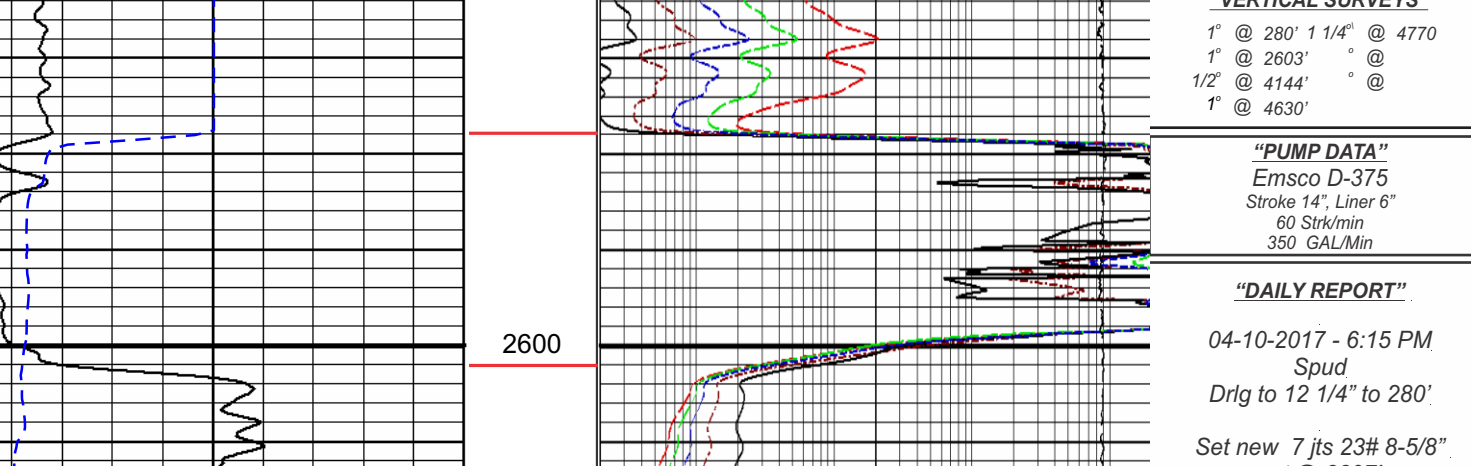


FORMATION	SAMPLE TOPS	SURFACE DATUM	ELEVATION	SURFACE TOWNS		REFERENCE WELL	
				A	B	A	B
Anyrite			2578	+472	2584	+472	
Bu/Anh			2602	+448	2606	+450	-2
Topoka			3792	-742	3801	-745	+3
Hoebner			4018	-966	4027	-971	+5
Lansing			4060	-1010	4071	-1015	+5
Stark			4279	-1229	4295	-1239	+10
BKC			4350	-1300	4360	-1304	+4
Pawnee			4488	-1438	4503	-1447	+9
Cherokee			4567	-1517	4576	-1520	+3
Johnson			4600	-1550	4609	-1553	+3
Miss			4660	-1610	4680	-1624	+14
RTD			4770	-1720	4780	-1724	
LTD			4771	-1721	4778	-1722	

REFERENCE WELLS: A: **New Gulf Res. James #1-4, Sec 4-T12S-R32W, NW SE NE** B: **KB 3056**

**REMARKS & RECOMMENDATIONS:**  
 Based on sample shows and dst results the pipe was set  
 \*Note Drill Time and Electric logs are on same depth

LAN 762, Modified 5/05, 11/11, 4/12 Hanover, KS 66845 1inch = 25.4mm 8.5 x 97.5 216 mm x 2460 mm



COMPANY: **Culbreath Oil & Gas Company Inc.** ELEVATIONS: **K.B. 3050**  
 LEASE: **Voith #1-4 NW NW NE SW** D.F.: **3040**  
 LOCATION: **2389 FSL 1513' FWL** SEC: **4** TWP: **12S** RGE: **32W** G.L.: **3040**  
 COUNTY: **Logan** STATE: **Ks** All measurements from **K.B. 3050**