



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1195808
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

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

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

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

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

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

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

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

1195808

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

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

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

Drill Stem Tests Taken <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 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				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
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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> _____
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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 type="checkbox"/> Other <i>(Specify)</i> _____ <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Pickrell Drilling Company, Inc.
Well Name	Salmans-Hopkins Unit 1
Doc ID	1195808

Tops

Name	Top	Datum
T/Anhydrite	1881	+644
B/Anhydrite	1913	+632
Heebner	3811	(-1266)
Lansing	3852	(-1307)
Stark	4099	(-1554)
Fort Scott	4369	(-1824)
Cherokee	4393	(-1848)
Mississippi	4472	(-1927)
Mississippi dolomite	4490	(-1945)

ALLIED OIL & GAS SERVICES, LLC 061100

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999
SOUTHLAKE, TEXAS 76092

SERVICE POINT: Granbury

DATE <u>1-15-14</u>	SE <u>6.</u>	TW <u>175</u>	RANGE <u>25W</u>	CALLED OUT	ON LOCATION	JOB START <u>12:00</u>	JOB FINISH <u>12:30</u>
LEASE <u>SALMENS - HOPELAND</u>		WELL # <u>1</u>		LOCATION <u>N2 N2 NWSE</u>		STATE <u>TX</u>	
OLD OR <u>NW</u> (Circle one)							

CONTRACTOR Pickrell

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D. _____

CASING SIZE 8 1/2 DEPTH 211.34

TUBING SIZE _____ DEPTH _____

DRILL PIPE 4 1/2 DEPTH _____

TOOL _____ DEPTH _____

PRES. MAX _____ MINIMUM _____

MEAS. LINE _____ SHOE JOINT _____

CEMENT LEFT IN CSG. 15 FT

PERFS. _____

DISPLACEMENT 17.50 bbl fresh water

OWNER _____

CEMENT AMOUNT ORDERED 150 SKS CLASS A 3MIL

2 1/2 gal

EQUIPMENT

PUMP TRUCK CEMENTER Josh Jacob

398 HELPER Mike Scoborn

BULK TRUCK # 610-170 DRIVER Kevin with house

BULK TRUCK # _____ DRIVER _____

COMMON	<u>150</u>	@ <u>17.90</u>	<u>2,685.00</u>
POZMIX		@	
GEL	<u>3</u>	@ <u>23.40</u>	<u>70.20</u>
CHLORIDE	<u>423</u>	@ <u>.80</u>	<u>338.40</u>
ASC		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	<u>162.5</u>	@ <u>2.48</u>	<u>403.00</u>
MILEAGE	<u>7.4 x 33 x</u>	<u>2.60</u>	<u>634.92</u>
TOTAL			<u>4,131.52</u>

REMARKS:

On location - Rig up - had safety meeting

Run 8 1/2 casing - Break circulation w/ Rig and

Run 5 bbl fresh water ahead

mix 150 SKS CLASS A 3MIL 2 1/2 gal

displace 17.50 bbl fresh water

Shut in 12:15 AM

Cement did circulate

Rig down

CHARGE TO: PICKERELL DRILLING

STREET _____

CITY _____ STATE _____ ZIP _____

SERVICE

DEPTH OF JOB	<u>211</u>		
PUMP TRUCK CHARGE		<u>1512.35</u>	
EXTRA FOOTAGE		@	
MILEAGE	<u>HUM 33</u>	@ <u>7.70</u>	<u>254.10</u>
MANIFOLD		@	
	<u>HUM 33</u>	@ <u>4.40</u>	<u>145.20</u>
		@	

TOTAL 1,911.55

PLUG & FLOAT EQUIPMENT

_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____

TOTAL _____

To: Allied Oil & Gas Services, LLC.

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

PRINTED NAME X. Mike Kern

SIGNATURE X. Mike Kern

Thank you!!

SALES TAX (If Any) _____

TOTAL CHARGES 6,043.07

DISCOUNT 1,208.61 IF PAID IN 30 DAYS

4,834.45



Services, Inc.

CHARGE TO: **PICKRELL DRILLING**

TICKET 26062

ADDRESS

CITY, STATE, ZIP CODE

PAGE 1 OF 2

SERVICE LOCATIONS

1. **Ness City, KS**

2. **UNIT #1** LEASE **SALMANS - HOPKINS** COUNTY/PARISH **NESS** STATE **KS** CITY **UTICA, KS.** DATE **22 JAN 14** OWNER

3. **PICKRELL DRILLING RIG #1** CONTRACTOR **PICKRELL DRILLING RIG #1** RIG NAME NO. **NESS** SHIPPED VIA **TRUCK** DELIVERED TO **UTICA, KS.** ORDER NO.

4. **DIL** WELL TYPE **DIL** WELL CATEGORY **DEVELOPMENT** JOB PURPOSE **4 1/2" HOUSING** WELL PERMIT NO. **1E, 3S, 5E, N Auto**

INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT							
5725				MILEAGE #115	35	mi			6.00	210.00
579				PUMP CHARGES	1	JOB			2000.00	2000.00
402				DETRUDZERS	2	EA.			390.00	780.00
403				CEMENT BASKETS	2	EA.			275.00	550.00
407				INSERT FLDAT SNOE W/FILL	1	EA.			325.00	325.00
408				DV TOOL C# PLUG SET	1	EA.			3000.00	3000.00
417				DV LATEX DOWN PLUG & Baffle	1	EA.			200.00	200.00
281				MUD FLUSH	500	gal			1.25	625.00
221				KIBWD RCL	4	gal			25.00	100.00

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

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

DATE SIGNED **22 JAN 14** TIME SIGNED **2:00** A.M. P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.

P.O. BOX 466

NESS CITY, KS 67560

785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL	TOTAL
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				1	74.00
WE UNDERSTOOD AND MET YOUR NEEDS?				2	12,078.00
OUR SERVICE WAS PERFORMED WITHOUT DELAY?				1	19,478.00
WE OPERATED THE EQUIPMENT AND PERFORMED JOB SATISFACTORILY?				7 = 5.5 TAX @ 15%	937.00
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO			20,415.58

SWIFT OPERATOR **[Signature]** APPROVAL **[Signature]**

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

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 22 JAN 14 PAGE NO.

CUSTOMER VICKRELL DRILLING

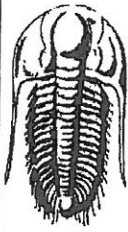
WELL NO. WIT #1

LEASE SALMANS - HOPKINS

JOB TYPE 4 1/2 LONGSTRING

TICKET NO. 26062

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1730							ON LOCATION
	1930							START PIPE 4 1/2 - 10.5 # RTD @ 4504 LTD @ 4504 SHOEST. 21.11 SET @ 4490 CENTRALIZERS 1, 2, 3, 4, 5, 6 BASKETS 2, 6 DV TOOL # 61 @ 1940'
	2133							DROP BALL - CIRCULATE
	2147	6	12		✓		400	Pump 500 gal MUD FLUSH
		6	20		✓		400	Pump 20 Bbl KCL FLUSH
	2153	4	29		✓			MIX 125 sx 60/40 POZMIX 2% GEL
		4	16		✓			MIX 75 sx STANDARD 10% SALT
	2203							WASH OUT PUMP & LINES
	2205	6			✓			START DISPLACING PLUG
	2217	Ø	71		✓		1500	PLUG DOWN LATCH PLUG IN
	2219							RELEASE PSI - DRY
	2220							DROP DV OPENING TOOL
	2227						1300	OPEN DV TOOL
	2227	6	20		✓			Pump 20 Bbl KCL FLUSH
	2230		7.5		✓			PLUG RA-30 sx - MH 20 sx
	2236	7 1/2	166		✓		400	MIX 300 sx SMD
	2306							WASH OUT PUMP & LINES
	2309	6			✓			START DISPLACING PLUG/CLOSING TOOL
	2314	Ø	31		✓		1600	PLUG DOWN - CLOSE DV TOOL
	2315							RELEASE PSI - DRY
	2320							WASH TRUCK
	2345							JOB COMPLETE.
								THANKS #115
								JASON DAVE DOUG JUAN JOAN



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pickrell Drilling Co Inc

100 S Main STE 500
Wichita KS,67202

ATTN: Jerry Smith

7-15s-25w Ness KS

#1 Salmans Hopkins

Job Ticket: 56058

DST#: 1

Test Start: 2014.01.20 @ 13:13:00

GENERAL INFORMATION:

Formation: **Ft Scott**

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

Time Tool Opened: 18:49:30

Time Test Ended: 23:02:15

Test Type: **Conventional Bottom Hole (Initial)**

Tester: **Cody Bloedorn**

Unit No: **73**

Interval: **4340.00 ft (KB) To 4391.00 ft (KB) (TVD)**

Total Depth: **4391.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Fair**

Reference Elevations: **2545.00 ft (KB)**

2535.00 ft (CF)

KB to GR/CF: **10.00 ft**

Serial #: 8875 **Inside**

Press@RunDepth: **49.67 psig @ 4341.00 ft (KB)**

Start Date: **2014.01.20**

End Date: **2014.01.20**

Start Time: **13:13:05**

End Time: **23:02:15**

Capacity: **8000.00 psig**

Last Calib.: **2014.01.20**

Time On Btm: **2014.01.20 @ 18:49:00**

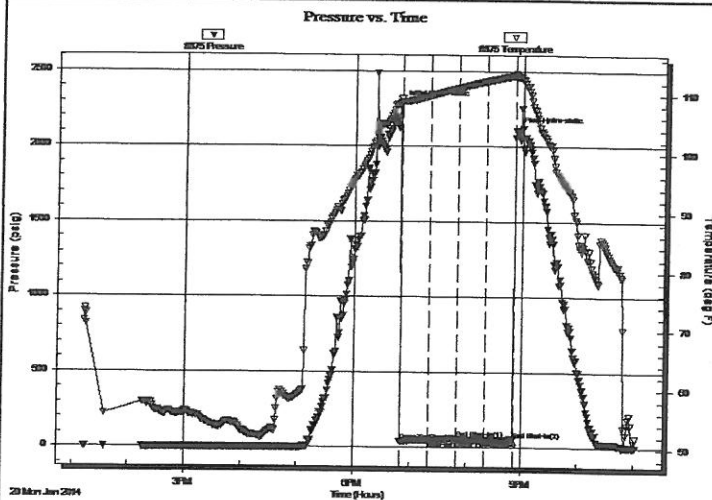
Time Off Btm: **2014.01.20 @ 20:52:00**

TEST COMMENT: 30 - IF- 1/2" blow in 16 minutes, died back to 1/4"

30 - IS- No return

30 - FF- No blow

30 - FS- No return



PRESSURE SUMMARY

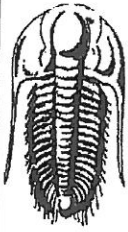
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2277.05	109.30	Initial Hydro-static
1	40.89	108.73	Open To Flow (1)
32	48.95	109.87	Shut-In(1)
61	60.63	111.16	End Shut-In(1)
61	49.15	111.17	Open To Flow (2)
91	49.67	112.30	Shut-In(2)
122	55.91	113.31	End Shut-In(2)
123	2101.48	113.38	Final Hydro-static

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

FLUID SUMMARY

Pickrell Drilling Co Inc

7-15s-25w Ness KS

100 S Main STE 500
Wichita KS,67202

#1 Salmans Hopkins

Job Ticket: 56058

DST#: 1

ATTN: Jerry Smith

Test Start: 2014.01.20 @ 13:13:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 80.00 sec/qt

Water Loss: 7.80 in³

Resistivity: ohm.m

Salinity: 2500.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbbl

psig

Oil API:

Water Salinity:

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
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:

Serial #: 8875

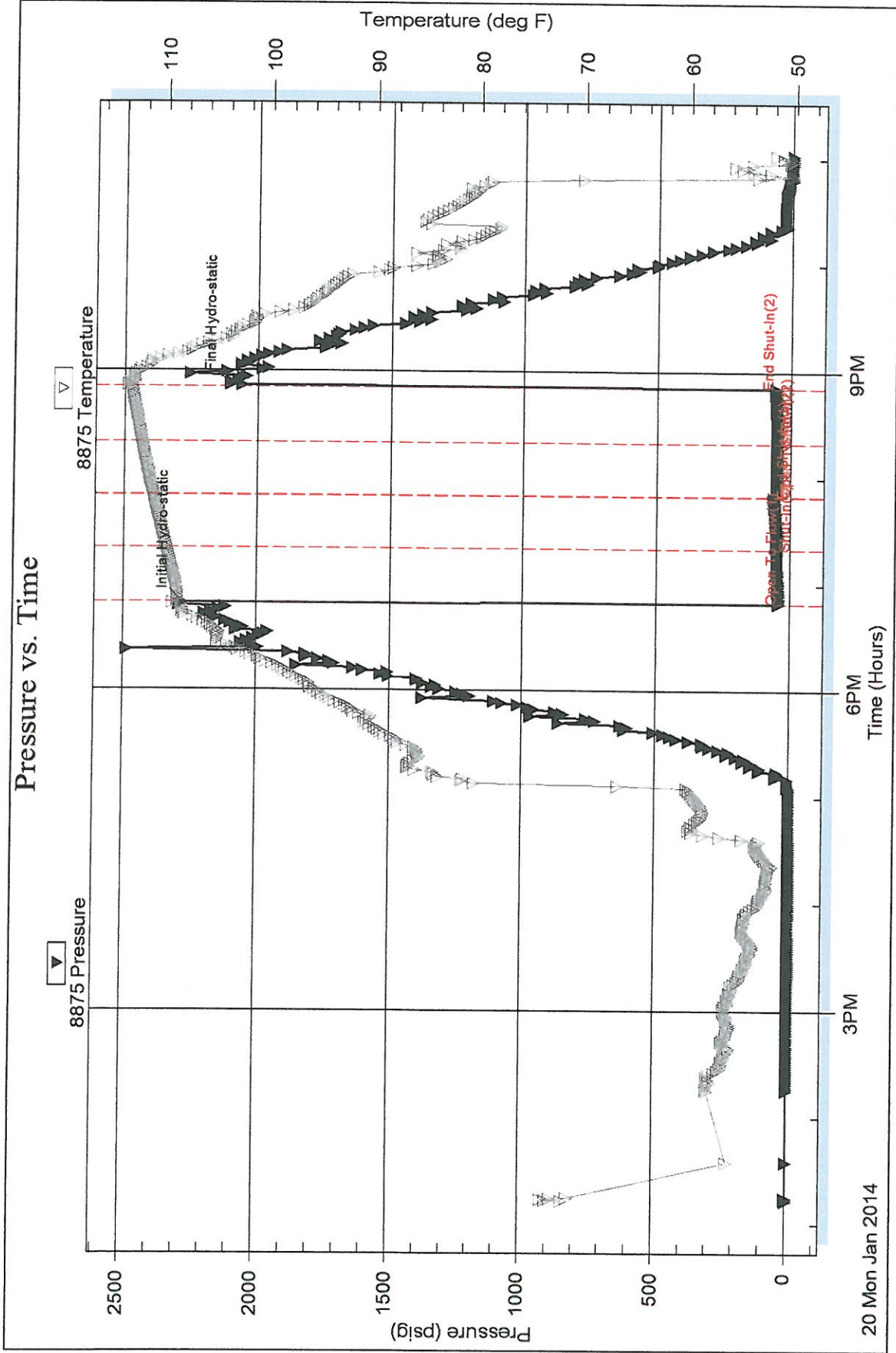
Inside

Pickrell Drilling Co Inc

#1 Salmans Hopkins

DST Test Number: 1

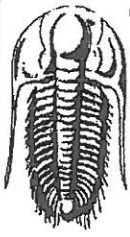
Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 56058

Printed: 2014.01.21 @ 01:02:22



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pickrell Drilling Co Inc

100 S Main STE 500
Wichita KS, 67202

ATTN: Jerry Smith

7-15s-25w Ness KS

#1 Salmans Hopkins

Job Ticket: 56059

DST#: 2

Test Start: 2014.01.21 @ 15:25:00

GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:30:30

Time Test Ended: 02:43:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cody Bloedorn

Unit No: 73

Interval: **4414.00 ft (KB) To 4502.00 ft (KB) (TVD)**

Total Depth: 4502.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2545.00 ft (KB)

2535.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 6799

Inside

Press@RunDepth: 279.54 psig @ 4415.00 ft (KB)

Start Date: 2014.01.21

End Date:

2014.01.22

Start Time: 15:25:05

End Time:

02:43:30

Capacity: 8000.00 psig

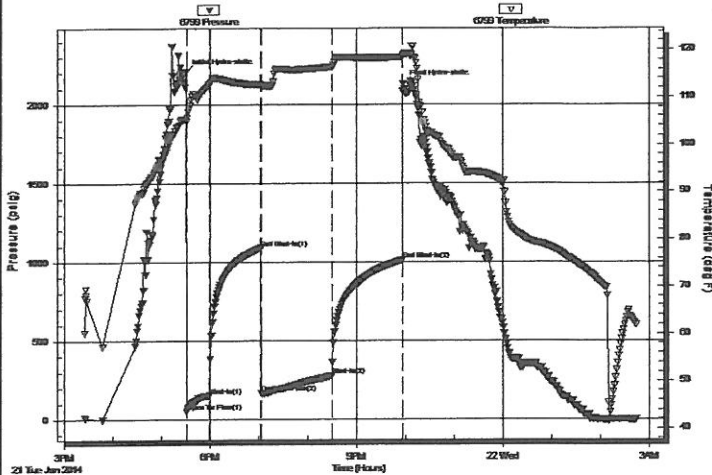
Last Calib.: 2014.01.22

Time On Btm: 2014.01.21 @ 17:29:45

Time Off Btm: 2014.01.21 @ 21:57:30

TEST COMMENT: 30 - IF- B.O.B. in 12 minutes
60 - IS- Surface return
90 - FF- B.O.B. in 29 minutes
90 - FS- Surface return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2204.92	105.27	Initial Hydro-static
1	51.81	104.92	Open To Flow (1)
29	152.03	112.65	Shut-In(1)
92	1088.83	112.69	End Shut-In(1)
93	166.22	112.41	Open To Flow (2)
181	279.54	116.36	Shut-In(2)
267	1011.89	118.36	End Shut-In(2)
268	2129.85	118.84	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	HOCM, 50%M, 50%O	0.61
496.00	GHOCM, 10%G, 40%M, 50%O	5.90
93.00	GO, 40%G, 60%O	1.30

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pickrell Drilling Co Inc

7-15s-25w Ness KS

100 S Main STE 500
Wichita KS,67202

#1 Salmans Hopkins

Job Ticket: 56059

DST#: 2

ATTN: Jerry Smith

Test Start: 2014.01.21 @ 15:25:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 75.00 sec/qt

Water Loss: 8.79 in³

Resistivity: ohm.m

Salinity: 2800.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	HOCM, 50%M, 50%O	0.610
496.00	GHOCM, 10%G, 40%M, 50%O	5.901
93.00	GO, 40%G, 60%O	1.305

Total Length: 713.00 ft Total Volume: 7.816 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6799

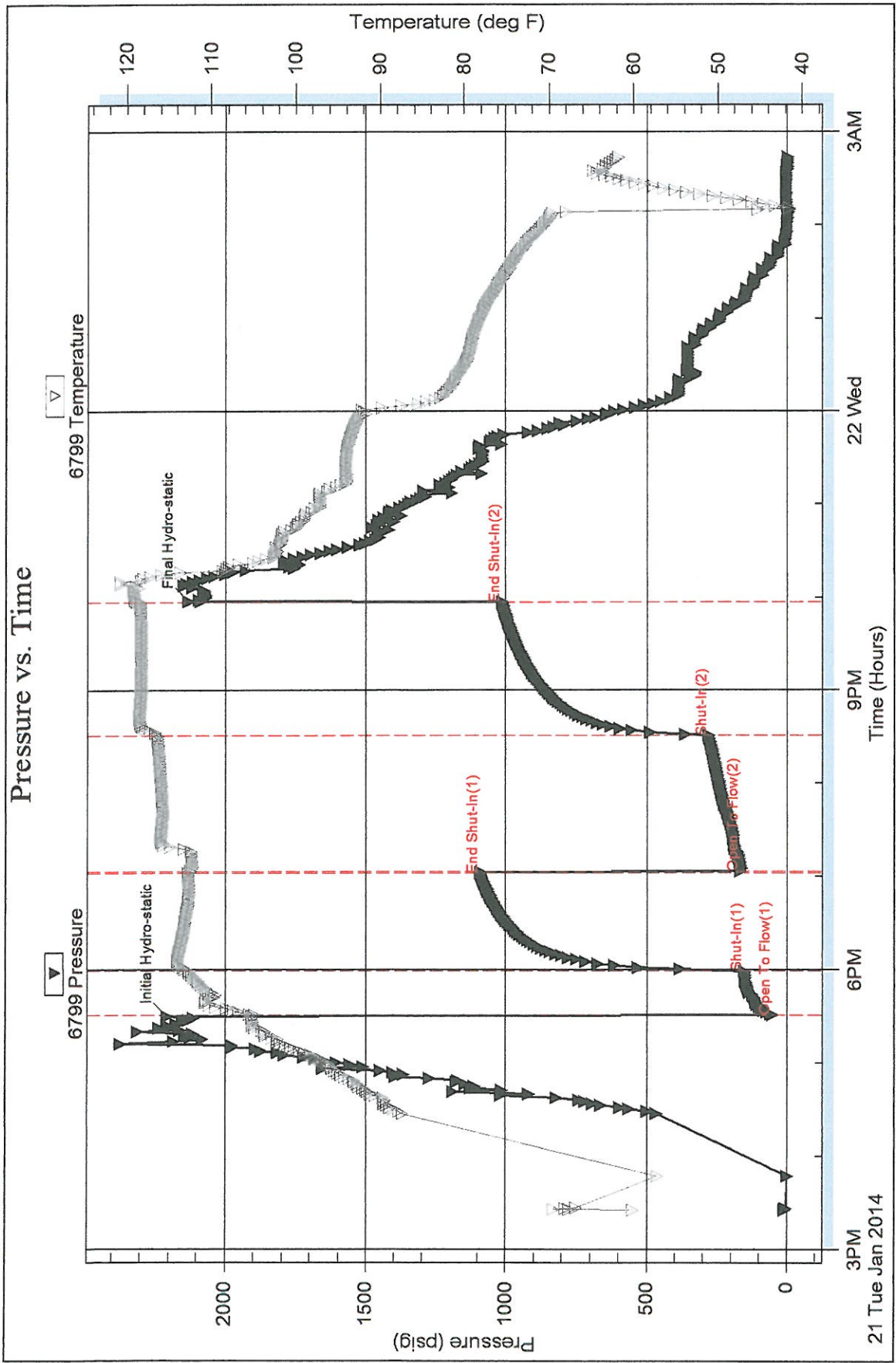
Inside

Pickrell Drilling Co Inc

#1 Salmans Hopkins

DST Test Number: 2

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 56059

Printed: 2014.01.22 @ 03:57:52

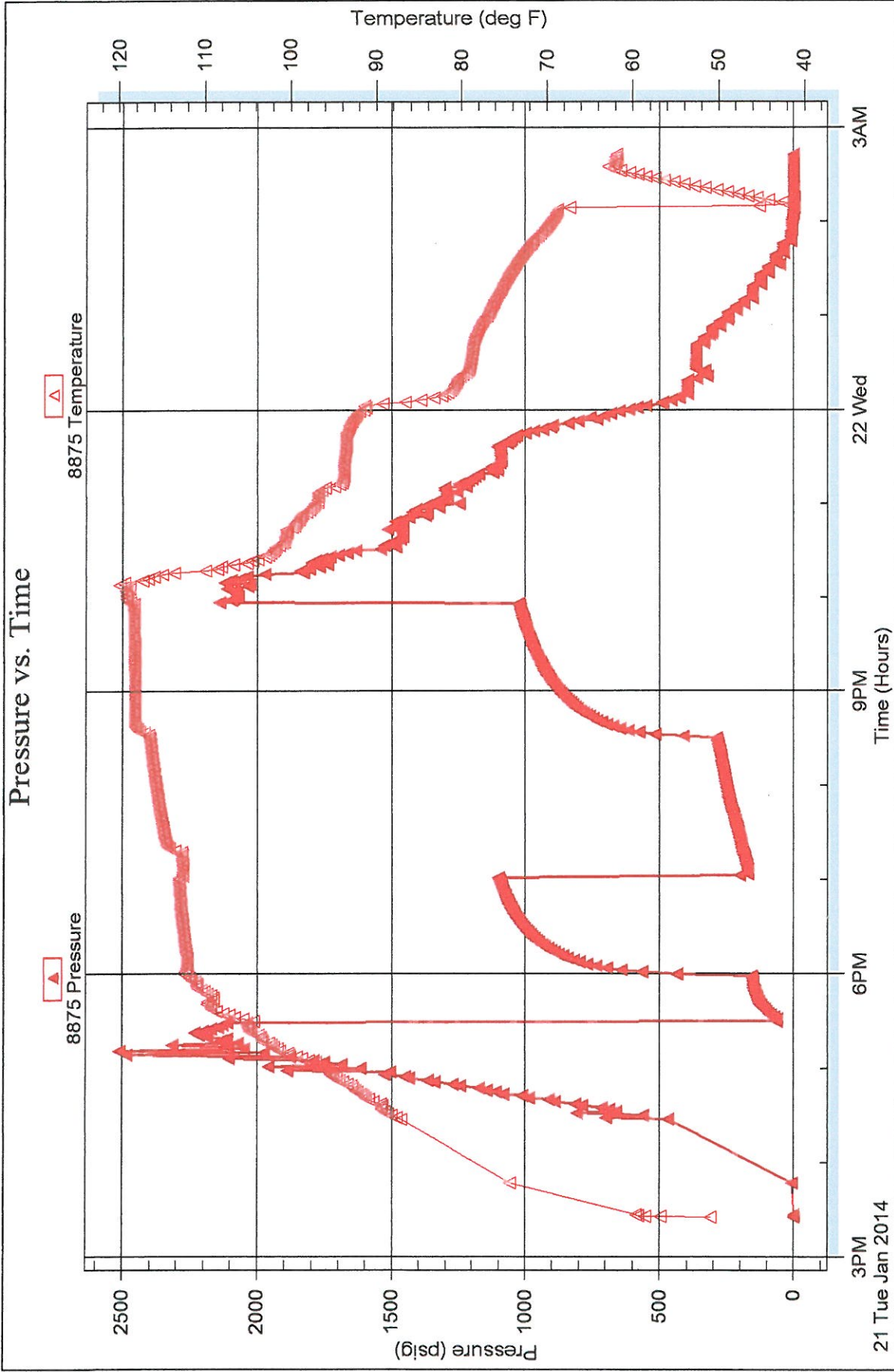
DST Test Number: 2

#1 Salmans Hopkins

Outside Rickrell Drilling Co Inc

Serial #: 8875

Pressure vs. Time



Printed: 2014.01.22 @ 03:57:52

Ref. No: 56059

Trilobite Testing, Inc



JERRY A. SMITH

CERTIFIED PETROLEUM GEOLOGIST

GEOLOGIST'S REPORT

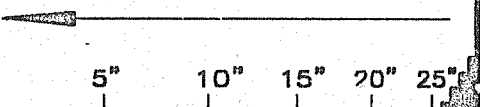
DRILLING TIME and SAMPLE LOG

COMPANY: PICKRELL DRILLING COMPANY, INC		ELEVATIONS	
LEASE: #1 SALMANS-HOPKINS UNIT		K.B. 2545	
FIELD: ARNOLD SW		D.F.	
LOCATION: 2338' FSL & 1980' FEL		G.L. 2535	
SEC. 7	TWSP. 17	RNG. 25 W	Measurements Are All From: KB
COUNTY: NESS	STATE: KANSAS		
CONTRACTOR: COMPANY TOOLS, RIG #1		CASING	
SPUD: 01/14/14	COMP. 01/22/14	SURFACE: 8 5/8 " @ 223'	
RTD. 4502	LTD. 4504	PRODUCTION : 4 1/2" @ 4484'	
MUD UP: 3500	TYPE MUD: CHEMICAL	ELECTRICAL SURVEYS	
API No. 15-135-25713		NABORS: RAG	
SAMPLES SAVED FROM: 3700	TO: RTD		
DRILLING TIME KEPT FROM: 1800/3600	TO: 2000/RTD		
SAMPLES EXAMINED FROM: 3700	TO: RTD		
GEOLOGICAL SUPERVISION FROM: 3705		TO: RTD	
GEOLOGIST ON WELL: JERRY A. SMITH			
FORMATION TOPS	LOG	SAMPLES	
ANHYDRITE	1881 (+664)	1882 (+663)	
HEEBNER	3811 (-1266)	3811 (-1266)	
LANSING	3852 (-1307)	3850 (-1305)	
STARK	4099 (-1554)	4097 (-1552)	
FT. SCOTT	4369 (-1824)	4365 (-1820)	
CHEROKEE	4393 (-1848)	4389 (-1844)	
MISSISSIPPIAN	4472 (-1927)	4472 (-1927)	
DOLOMITE Ø	4490 (-1945)	4490 (-1945)	

LEGEND

Anhydrite	Salt	Sandstone	Shale	Carb sh	Limestone	Ool.Lime	Chert	Dolomite

DRILLING TIME IN MINUTES
PER FOOT
Rate of Penetration Increases



DEPTH	DRILLING TIME IN MINUTES PER FOOT	SAMPLE DESCRIPTIONS	REMARKS
			NO GAS DETECTOR DST'S (2): TRILOBITE MUD: MUD-CO
			S.H.T.'S: 225' 3/4" 2268' 3/4" 752' 3/4" 2804' 1"
LITHOLOGY			

1752 7/4 2804 1
1256' 3/4° 3310' 3/4°
1731' 3/4° 4391' 1 1/4°

VERT. LOG SCALE: 2" = 100'

1800

50

1900

50

2000

3600

ANHYDRITE
1882 (+663) SMPL
1881 (+664) LOG

B/ANHYDRITE
1914 (+631) SMPL
1913 (+632) LOG

VERT. LOG SCALE: 5" = 100'

20

40

60

80



3700

SH - RED, GRN, GY.

SH - RED, GRN, GY.

20

SH - RED, GRN, GY.

SH - RED, GRN, GY.

40

SH - RED, GRN, GY.

SH - RED, GRN, GY.

60

SH - RED, GRN, GY.

SH - RED, GRN, GY.

80

SH - RED, GRN, GY. w/
ARB. VM, SET CNK.

LM - GRN. FX. CNKX
FOSS IN PT.

3800

LM - AA. SEAT. COMID
VGY. N.S.

SH - BLK. CARB.

HEEBNER
3811 (-1266) SMPL & LOG

20

LM - LT GY. FX. DSE.

SH - M -> DK GY.

LM - GRN. LT GY. FX.
DSE -> SEAT VGY. N.S.

40

LM - AA. No Vis. S.

SH - M GY. CALC.

LANSING
3850 (-1305) SMPL
3852 (-1307) LOG

60

LM - GRN. FX. CNKX
IN PT. VGY IN PT.
FOSS. N.S.

SH - M GY.

LM - GRN. FX. DSE ->
CNKX.

80

SH - DK GY. CALC.

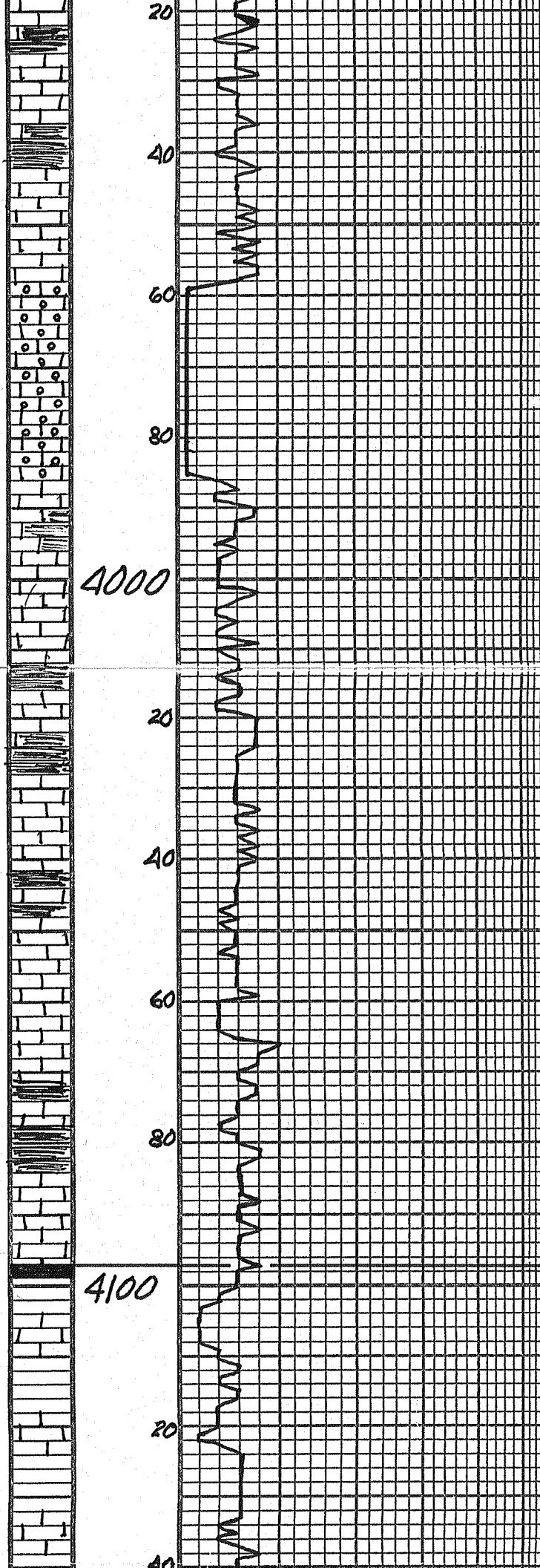
SH - M -> DK GY.

3900

LM - GRN. FX. DSE.

LM - GRN. FX. - FR VGY
N.S.

LM - GRN. LT GY. FX.



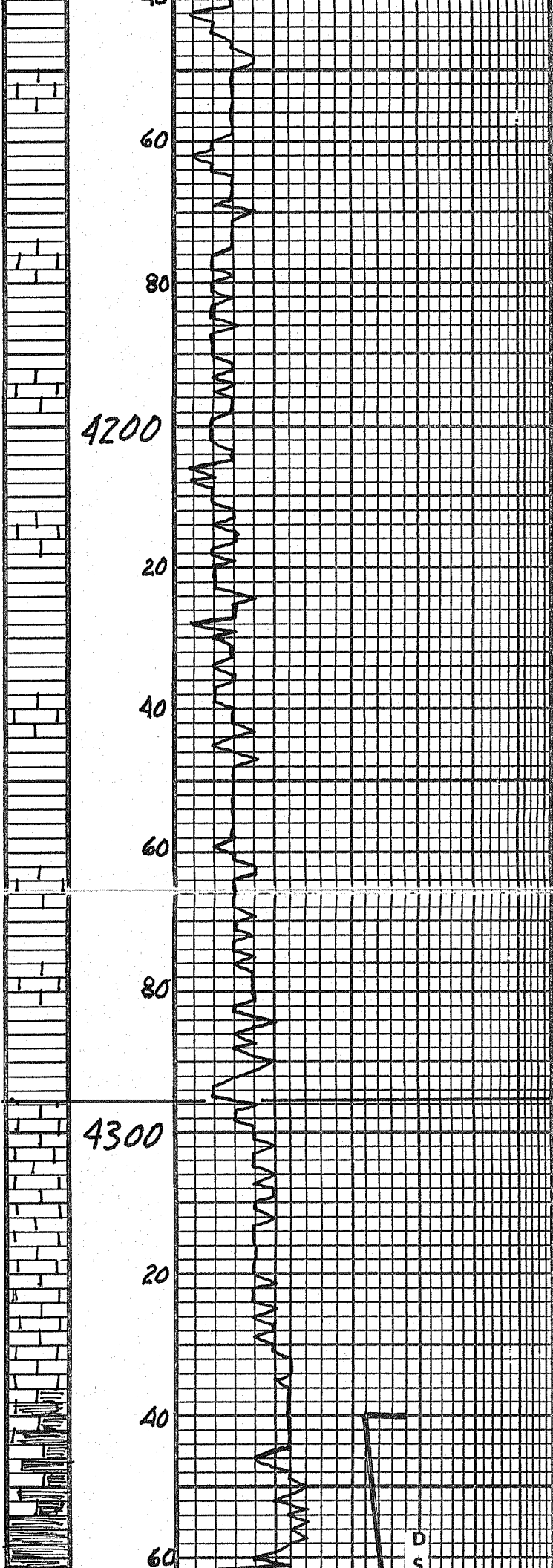
DSE → CHRY.
 Lm - AA. SHLY.
 Lm - CRM. FX. DSE.
 Lm - AA. CHRY.
 Lm - CRM. FX. GR
 COMED. D. VIS.
 Lm - AA.
 Lm - AA.
 Lm - CRM, GY. FX.
 DSE.
 Lm - AA.
 Lm - AA.
 Lm - CRM, GY. FX.
 DSE. SHLY.
 Lm - CRM. FX. DSE.
 Lm - AA.
 SH - M → DK GY.
 Lm - CRM. FX. GR
 SCAT. VGY. D. VIS.
 Lm - CRM. FX. DSE.
 SH - M → DK GY.
 Lm - CRM. FX. DSE.
 Lm - AA. w/ ABD RED
 f GRN SH.
 ABD. BIR CARR SH.
 PREDOM. RED. GRN GY
 SH w/ SCAT. Lm - M
 GY, FX, DSE Lm.
 SH & SCAT Lm - AA.
 PREDOM. RED. GRN GY
 SH w/ SCAT. CRM
 CHRY Lm.

MUD @ 4071':
 9.3 WT, 56 VIS, 8.8 FILT,
 2800 CHLOR, 1# LCM

STARK
 4097 (-1552) SMPL
 4099 (-1554) LOG

4000

4100



SH & CHRY LM- AA.

SH & CHRY LM- AA.

SH & CHRY LM- AA.

LM- GRN. Lm. BY. FX. DSE.
 W/ SH- GRN, GRN, GRN,
 BLK.

LM & SH- AA.

LM- GRN. Lm. BY. FX. DSE.
 DSE → CHRY. W/ SH-
 RED. MAROON. BY, GRN,
 BLK. TR. SH.

LM & SH- AA.

SH- RED. MAROON. BY,
 GRN. BLK. TR. SH.
 SCAT. LM- LT → M. BY.
 FX. DSE.

SH & SCAT LM- AA.

SH & SCAT LM- AA.

SH & SCAT LM- AA.

SH & SCAT LM- AA.

SH & SCAT LM- AA.

SH & SCAT LM- AA.

LM- GRN. Lm. BY. FX. DSE.
 DSE → SUB- CHRY.
 CH- M. BY. OP. GRN. SH.
 DSE. ADD. BY. GRN. SH.

LM, CHY, SH- AA.

LM- M. BY. FX. DSE. HD.
 TR. W/ SH, SET. CHY.

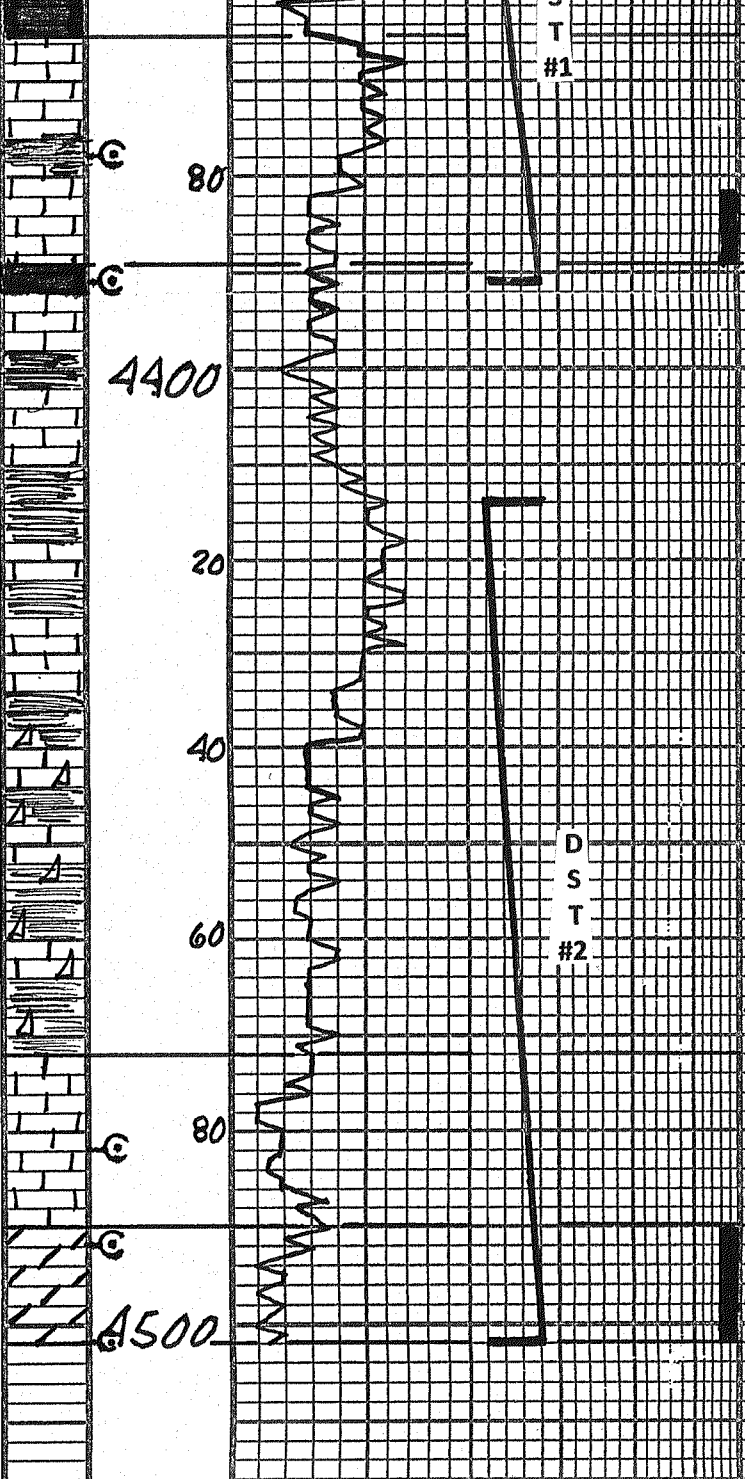
LM- AA.

LM- AA. ARGILL.

LM- AA. ARGILL.

PAWNEE
 4295 (-1750) SMPL
 4298 (-1753) LOG

MUD @ 4387':
 9.35 WT, 80 VIS, 7.8 FILT,
 2500 CHLOR, TR LCM



SH - BLK. CARB.
 LM - LT - M Gy. FX. DSE. w/ SCAM ISOLATED SANDS. FR ODR. BRN STN IN Q.
 LM - M - DK Gy. FX. DSE. w/ ABD DK Gy SH.
 LM - M - M Gy. FX. Base in P. Fr. Fr. - TR VAY FASS M.D. Fr. ODR. FR SUB DR. FO.
 SH - BLK. CARB.
 LM - CRM. LT - M Gy. FX. DSE. TR VAY SET CAR.
 LM - AA - w/ ABD M Gy. Gy - GRN. SH.
 LM - M - M Gy. FX. DSE. w/ TR VAY SET CAR.
 LM - M - DK Gy. FX. DSE.
 SH - M - DK Gy. Gy - GRN. w/ LM - AA.
 SH & LM - AA.
 LM & SH - AA w/ SCAM CHY - TR VAY FASS M.D. Fr. ODR. - SE M. TR. SH. DSE. FR BLK. DEAD STN.
 VARIOUS SH, LM, CHY.
 VARIOUS SH, LM, CHY - AA CHKY WK. FREETING ODR.
 LM - CRM. LT - M Gy. FX. DSE. w/ SCAM CHY. SH. DSE. CHY TR VAY FASS M.D. Fr. ODR. VGY Q. WK. FREET. ODR.
 LM - WA. CHKY - M Gy. FX. DSE. No Vis. Q. NS. V. ODR. ODR.
 LM - WA. CHKY - M Gy. FX. DSE. No Vis. Q. NS. No ODR.
 TR Dolo - WA. M. FAY Sugar. DSE. w/ Gy - BRN. FX. FR VGY Q. DK STN. FR SHO FGO. FR ODR. Dolo - by - M. FX. FR - GO VGY Q. ODR. FR - GO SHO FGO. FR - GO DK BRN STN.

FT. SCOTT
 4365 (-1820) SMPL
 4369 (-1824) LOG
 CHEROKEE
 4389 (-1844) SMPL
 4393 (-1848) LOG
 PIPE STRAP @ 4391':
 4412.28 STRAP
 4408.37 BOARD
 3.91 LONG
 (VERY WINDY)
 MUD @ 4474':
 9.35 WT, 75 VIS, 8.8 FILT,
 2800 CHLOR, 0 LCM
 MISSISSIPPIAN
 4472 (-1927) SMPL & LOG
 DOLOMITE POROSITY
 4490 (-1945) SMPL & LOG
 TOTAL DEPTH
 4502 (-1957) ROTARY
 4504 (-1959) LOG

DST #1: 4340-91
 30-30-30-30
 IF: 1/2" TO 1/4" BLOW
 ISI: NO RETURN
 FF: NO BLOW
 FSI: NO RETURN
 RECOVERY:
 5' MUD
 SIP'S: 60-49 #
 FP'S: 40-48/49-49 #
 HP'S: 2277-2101 #
 BHT: 113° F

DST #2: 4414-4502
 30-60-90-90
 IF: BOB IN 12 MIN.
 ISI: SURF. RETURN
 FF: BOB IN 29 MIN.
 FSI: SURF. RETURN
 RECOVERY:
 124' HOCM
 (50% O, 50% M)
 496' GHOCM
 (10% G, 50% O, 40% M)
 93' GO
 (40% G, 60% O)
 713' TOTAL FLUID, NW

20
 40
 60
 80

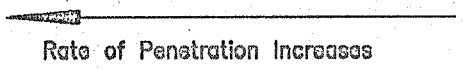
SIP'S: 1088-1011 #
 FP'S: 51-152/166-279 #
 HP'S: 2204-2129 #
 BHT: 118° F

4600

LITHOLOGY

DEPTH

5" 10" 15" 20" 25"
 DRILLING TIME MINUTES/FOOT



SAMPLE DESCRIPTIONS

REMARKS

COMPANY: PICKRELL DRILLING COMPANY, INC.

ELEVATION: 2545 KB

LEASE: #1 SALMANS-HOPKINS UNIT

LOCATION: 2338' FSL & 1980' FEL

SEC 7

TWP 17

RGE 25 W

COUNTY: NESS

STATE: KANSAS