

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

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. 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

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) (Submit ACO-4)</i>	PRODUCTION INTERVAL: 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:	
----------------	-------	---------	------------	--

Form	ACO1 - Well Completion
Operator	Palomino Petroleum, Inc.
Well Name	NATTIER TRUSTS 1
Doc ID	1462847

All Electric Logs Run

Borehole Compensated Sonic Array
Micro
Array Compensated True Resistivity
Annular Hole Volume 5.5 Inch Casing
Cement Bond
Spectral Density Dual Spaced Neutron

Form	ACO1 - Well Completion
Operator	Palomino Petroleum, Inc.
Well Name	NATTIER TRUSTS 1
Doc ID	1462847

Tops

Name	Top	Datum
Heebner	1958	(- 519)
Brown Lime	2142	(- 703)
Stark	2253	(- 814)
BKC	2608	(-1169)
Marmaton	2662	(-1223)
Altamont	2766	(-1327)
Pawnee	2795	(-1356)
Ft. Scott	2822	(-1383)
Cherokee Sh.	2836	(-1397)
Burgess Sand	2852	(-1413)
Miss.	2916	(-1477)
Kinderhook	3137	(-1698)
Hunton	3228	(-1789)
Maquoketa	3284	(-1845)
Viola	3312	(-1873)
Simpson Sd.	3359	(-1920)
Simpson Sh.	3377	(-1938)
Arbuckle	3421	(-1982)
LTD	3499	(-2060)



# SWIFT



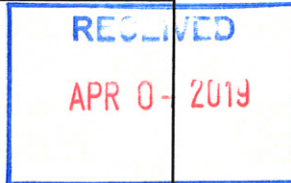
P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



## Invoice

DATE	INVOICE #
3/27/2019	27509

BILL TO
Palomino Petroleum Inc. 4924 S E 84th Street Newton, KS 67114-8827



- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	Nattier Trust	Harvey	WW Drl Rig #4	Oil	Development	Long String	David E
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				150	Miles	5.00	750.00
578D-L	Pump Charge - Long String				1	Job	1,300.00	1,300.00
290	D-Air				3	Gallon(s)	42.00	126.00T
221	Liquid KCL (Clayfix)				4	Gallon(s)	25.00	100.00T
281	Mud Flush				500	Gallon(s)	1.50	750.00T
403-5	5 1/2" Cement Basket				2	Each	275.00	550.00T
406-5	5 1/2" Latch Down Plug & Baffle				1	Each	250.00	250.00T
407-5	5 1/2" Insert Float Shoe With Auto Fill				1	Each	325.00	325.00T
409-5	5 1/2" Turbolizer				11	Each	85.00	935.00T
330	Swift Multi-Density Standard (MIDCON II)				200	Sacks	16.25	3,250.00T
325	Standard Cement				100	Sacks	13.00	1,300.00T
284	Calseal				5	Sack(s)	35.00	175.00T
283	Salt				400	Lb(s)	0.20	80.00T
285	CFR-1				50	Lb(s)	4.50	225.00T
276	Flocele				75	Lb(s)	2.50	187.50T
581D	Service Charge Cement				300	Sacks	1.75	525.00
583D	Drayage				2,192	Ton Miles	0.85	1,863.20
580	Additional Hours (If Circulate More Than 1 Hour)				4	Hours	250.00	1,000.00T
	Subtotal							13,691.70
	Sales Tax Harvey County						8.50%	786.55

**We Appreciate Your Business!**

**Total**

\$14,478.25



CHARGE TO: Parvino Petroleum  
 ADDRESS: \_\_\_\_\_  
 CITY, STATE, ZIP CODE: \_\_\_\_\_

TICKET 27509

PAGE 1 OF 1

1. SERVICE LOCATIONS: Hays Ks WELL/PROJECT NO.: \_\_\_\_\_ LEASE: Nether Trust COUNTY/PARISH: Harvey STATE: Ks DATE: 3-27-19 OWNER: \_\_\_\_\_  
 2. Ness City Ks TICKET TYPE: # 1 CONTRACTOR: NW Drilling RIG NAME/NO.: Rig # 4 SHIPPED VIA: TR ORDER NO.: \_\_\_\_\_  
 3. WELL TYPE: Oil WELL CATEGORY: development JOB PURPOSE: Long String DELIVERED TO LOCATION: \_\_\_\_\_  
 4. REFERRAL LOCATION: \_\_\_\_\_ INVOICE INSTRUCTIONS: \_\_\_\_\_

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	MILEAGE	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF								
<u>S75</u>					<u>MILEAGE Trl # 110</u>	<u>150</u>	<u>mi</u>				<u>5.00</u>	<u>750.00</u>
<u>S78</u>					<u>Pump Charge - Long String</u>	<u>1</u>	<u>KA</u>				<u>1300.00</u>	<u>1300.00</u>
<u>290</u>					<u>D-Air</u>	<u>3</u>	<u>gal</u>				<u>42.00</u>	<u>126.00</u>
<u>225</u>					<u>Liquid Kac</u>	<u>4</u>	<u>gal</u>				<u>25.00</u>	<u>100.00</u>
<u>281</u>					<u>Mudflush</u>	<u>500</u>	<u>cu</u>				<u>1.50</u>	<u>750.00</u>
<u>403</u>					<u>Cement Basket</u>	<u>2</u>	<u>ea</u>				<u>275.00</u>	<u>550.00</u>
<u>406</u>					<u>Lateral Down Plug &amp; Borehole</u>	<u>1</u>	<u>ea</u>				<u>250.00</u>	<u>250.00</u>
<u>407</u>					<u>Insert Blow shoe w/Auto Fill</u>	<u>1</u>	<u>ea</u>				<u>325.00</u>	<u>325.00</u>
<u>409</u>					<u>Turbolizer</u>	<u>11</u>	<u>ea</u>				<u>85.00</u>	<u>935.00</u>
<u>550</u>					<u>Additional flour</u>	<u>4</u>	<u>Hg</u>				<u>250.00</u>	<u>1000.00</u>

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.

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

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

SURVEY

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?	AGREE	UN-DECIDED	DIS-AGREE
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	

DATE SIGNED: \_\_\_\_\_ TIME SIGNED: \_\_\_\_\_

SWIFT OPERATOR: [Signature] APPROVAL: \_\_\_\_\_

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

TOTAL: 14478.95

Thank you!





JOB LOG

SWIFT Services, Inc.

DATE 3-27-19 PAGE NO. 3

CUSTOMER *Palomino Petroleum* WELL NO. *#1* LEASE *Nattier Trust* JOB TYPE *Long String* TICKET NO. *27509*

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	130							On location
								Csg - 5 1/2 x 15.5 RTD - 3500 Shoe - 42.45 CENTRALIZERS - 2, 3, 4, 5, 6, 7, 8, 11, 16, 18, 9. Baskets - 4 @ 45
	930							START Running
	1245							BREAK CIRC ON BOTTOM
	1330	2.5	8			0		Plug Rat Hole - 30 sks
		6	12			300		pump mudflush - 500 gal
		6	20			300		pump KCL spacer
	1345	7.25	0			300		START CMT - 170 sks SMD @ 11.2 RPM
		5	95			500		Switch to EA-2 For 100 sks @ 15.5 RPM
		5	120			200		END CMT
	1405							Drop plug - Wash P&L
	1410	8	0			300		START Disp
	1425	7.5	82			900/1500		LAND PLUG - Lift Psi - 900 * Land Psi - 1500 *
	1430							Release Psi - Dry
								TOTAL CMT DOWN HOLE - 170 SMD 100 EA-2
								JOB COMPLETE
								Thanks DAVIS, ZACH & ISAAC



REMIT TO  
 QES Pressure Pumping LLC  
 Dept:970  
 P.O.Box 4346  
 Houston, TX 77210-4346

MAIN OFFICE  
 P.O.Box884  
 Chanute, KS 66720  
 620/431-9210, 1-800/467-8676  
 Fax 620/431-0012

Invoice

Invoice#

900573

Invoice Date: 03/18/19

Terms: Net 30

Page 1

PALOMINO PETROLEUM, INC.  
 4924 SE 84TH STREET  
 NEWTON KS 67114-8827  
 USA

**RECEIVED**  
 MAR 21 2019

**NATTIER TRUSTS #1**

15-079-20717-00-00

Part No	Description	Quantity	Discounted Unit Price	Discounted Total
CE0450	Cement Pump Charge 0 - 1500'	1.000	975.0000	975.00
CE0002	Equipment Mileage Charge - Heavy Equipment	20.000	4.6475	92.95
CE0711	Minimum Cement Delivery Charge	1.000	429.0000	429.00
CC5800A	Class A Cement - Sack	150.000	13.0000	1,950.00
CC5325	Calcium Chloride	450.000	0.8125	365.63
CC5965	Bentonite	300.000	0.1950	58.50
CC6075	Celloflake	75.000	1.3000	97.50
			SubTotal After Discount	3,968.58

Tax: 210.09

Total: 4,178.67

Amount Due 6,428.71 If paid after 04/17/19



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

**FIELD TICKET & TREATMENT REPORT  
 CEMENT**

TICKET NUMBER 54411  
 LOCATION El Dorado, KS  
 FOREMAN Fuzzz

**Invoice # 900573<sub>5</sub>**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
3-17-19	6285	NATIVE TRUSTS #1	16	24	2	Harvey
CUSTOMER Palomino Petroleum			TRUCK #	DRIVER	TRUCK #	DRIVER
MAILING ADDRESS 4924 SE 84 <sup>th</sup>			446	Brad		
CITY Newton			775	Jud		
STATE KS			725	Fuzzz		
ZIP CODE 67114						

JOB TYPE surface HOLE SIZE 12 1/4" HOLE DEPTH 219' CASING SIZE & WEIGHT 8 5/8"  
 CASING DEPTH 218' DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
 SLURRY WEIGHT 14.7 SLURRY VOL 36.3 WATER gal/sk 6.5 CEMENT LEFT in CASING 20'  
 DISPLACEMENT 12.6 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting on well #1. Rig up and establish circulation  
Pump 10 BBL water. Mix 150 sks class 'A' 3% cc, 2% gel w  
1/2" Polyflake presk. Displace 12 1/2 BBL and shut in.  
Cement did circulate approx 2 BBL to pit

Thanks  
 Fuzzz & Crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CG0450	1	PUMP CHARGE	1500 <sup>00</sup>	1500 <sup>00</sup>
CG0002	20 miles	MILEAGE	715	1430 <sup>00</sup>
CG0711	7.1 Ton	Ton Mileage Delivery (min)	660 <sup>00</sup>	660 <sup>00</sup>
CC5800A	150 sks	Class 'A'	20 <sup>00</sup>	3000 <sup>00</sup>
CC5325	450 #	Calcium chloride	1.25	562.50
CC5965	300 #	Bentonite (gel)	.30	90 <sup>00</sup>
CC6075	75 #	Polyflake	2 <sup>00</sup>	150 <sup>00</sup>
		subtotal		6105 <sup>50</sup>
		disc	35%	2136 <sup>93</sup>
		subtotal		3968 <sup>57</sup>

**SCANNED**

Ravin 3737 AUTHORIZATION [Signature] TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
 SALES TAX 210.09  
 ESTIMATED TOTAL 4178.67

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.



## DRILL STEM TEST REPORT

Prepared For: **Palomino Petroleum Co.**

4924 SE 84th St  
Newton, KS 67114-8827

ATTN: Klee Watchous

### **Nattier Trusts #1**

### **16-24S-2E Harvey, KS**

Start Date: 2019.03.22 @ 18:42:00

End Date: 2019.03.23 @ 01:22:09

Job Ticket #: 63935                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Palomino Petroleum Co.  
 4924 SE 84th St  
 Newton, KS 67114-8827  
 ATTN: Klee Watchous

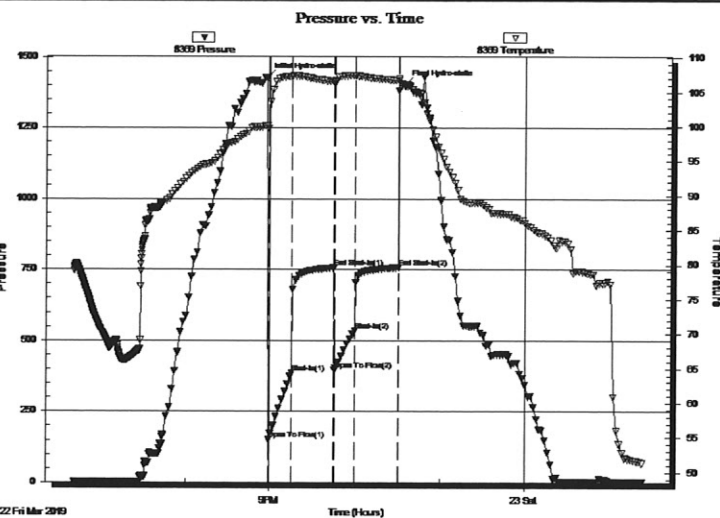
**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
 Job Ticket: 63935 **DST#: 1**  
 Test Start: 2019.03.22 @ 18:42:00

## GENERAL INFORMATION:

Formation: **Burgess Sand**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 20:58:50 Tester: Jimmy Ricketts  
 Time Test Ended: 01:22:09 Unit No: 80  
 Interval: **2838.00 ft (KB) To 2860.00 ft (KB) (TVD)** Reference Elevations: 1439.00 ft (KB)  
 Total Depth: 2860.00 ft (KB) (TVD) 1433.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: KB to GR/CF: 6.00 ft

**Serial #: 8369 Outside**  
 Press@RunDepth: 534.02 psig @ 2839.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.03.22 End Date: 2019.03.23 Last Calib.: 1899.12.30  
 Start Time: 18:42:01 End Time: 01:22:10 Time On Btm: 2019.03.22 @ 20:57:50  
 Time Off Btm: 2019.03.22 @ 22:34:20

**TEST COMMENT:** IF - Strong blow throughout initial flow period. Built to 123"  
 IS - Weak surface blow back  
 FF - Weak blow building to strong blow 2 minutes into final flow period. Built to 75"  
 FS - 6" blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1426.45	100.13	Initial Hydro-static
1	150.16	99.72	Open To Flow (1)
18	385.57	107.25	Shut-In(1)
48	756.36	106.44	End Shut-In(1)
48	396.37	106.26	Open To Flow (2)
62	534.02	107.35	Shut-In(2)
93	756.95	106.66	End Shut-In(2)
97	1403.30	105.80	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
940.00	GOSMCW 4%G 1%O 88%W 7%M	12.12
260.00	GVSO&HMCW 15%G 4%O 47%W 34%M	3.65
65.00	65' GIP	0.91

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**

**Nattier Trusts #1**

Job Ticket: 63935      **DST#: 1**  
Test Start: 2019.03.22 @ 18:42:00

## GENERAL INFORMATION:

Formation: **Burgess Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:58:50

Time Test Ended: 01:22:09

Test Type: Conventional Bottom Hole (Initial)

Tester: Jimmy Ricketts

Unit No: 80

Interval: **2838.00 ft (KB) To 2860.00 ft (KB) (TVD)**

Total Depth: 2860.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition:

Reference Elevations: 1439.00 ft (KB)

1433.00 ft (CF)

KB to GR/CF: 6.00 ft

**Serial #: 8846**

**Inside**

Press@RunDepth: psig @ 2839.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.03.22

End Date:

2019.03.23

Last Calib.: 1899.12.30

Start Time: 18:42:01

End Time:

01:22:00

Time On Btm:

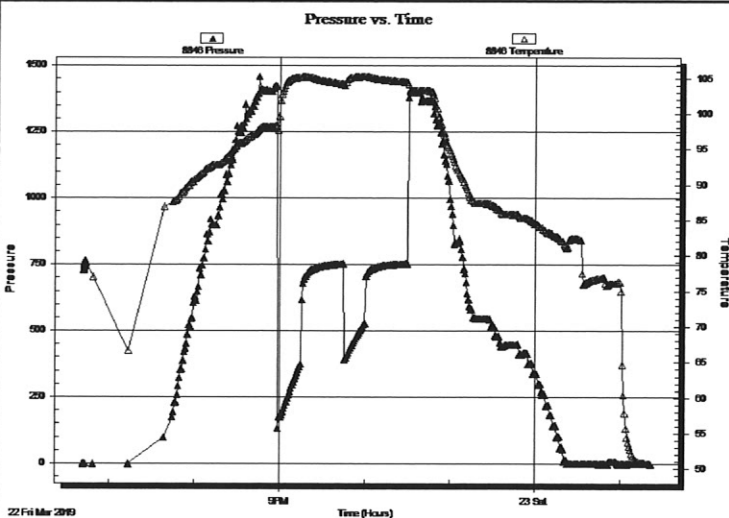
Time Off Btm:

TEST COMMENT: IF - Strong blow throughout initial flow period. Built to 123"

IS - Weak surface blow back

FF - Weak blow building to strong blow 2 minutes into final flow period. Built to 75"

FS - 6" blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
940.00	GOSMCW 4%G 1%O 88%W 7%M	12.12
260.00	GVSO&HMCW 15%G 4%O 47%W 34%M	3.65
65.00	65' GIP	0.91

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
Job Ticket: 63935      **DST#: 1**  
Test Start: 2019.03.22 @ 18:42:00

## Tool Information

Drill Pipe:	Length: 2716.00 ft	Diameter: 3.80 inches	Volume: 38.10 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 74000.00 lb
		<u>Total Volume:</u>	<u>38.68 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	2838.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2810.00	
Shut In Tool	5.00			2815.00	
Sampler	1.00			2816.00	
Hydraulic tool	5.00			2821.00	
Jars	5.00			2826.00	
Safety Joint	3.00			2829.00	
Packer	5.00			2834.00	29.00      Bottom Of Top Packer
Packer	4.00			2838.00	
Stubb	1.00			2839.00	
Recorder	0.00	8369	Outside	2839.00	
Recorder	0.00	8846	Inside	2839.00	
Perforations	16.00			2855.00	
Bullnose	5.00			2860.00	22.00      Bottom Packers & Anchor

**Total Tool Length: 51.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
Job Ticket: 63935      **DST#: 1**  
Test Start: 2019.03.22 @ 18:42:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	64000 ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1100.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
940.00	GOSMCW 4%G 1%O 88%W 7%M	12.120
260.00	GVSO&HMCW 15%G 4%O 47%W 34%M	3.647
65.00	65' GIP	0.912

Total Length: 1265.00 ft      Total Volume: 16.679 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:



Serial #: 8369

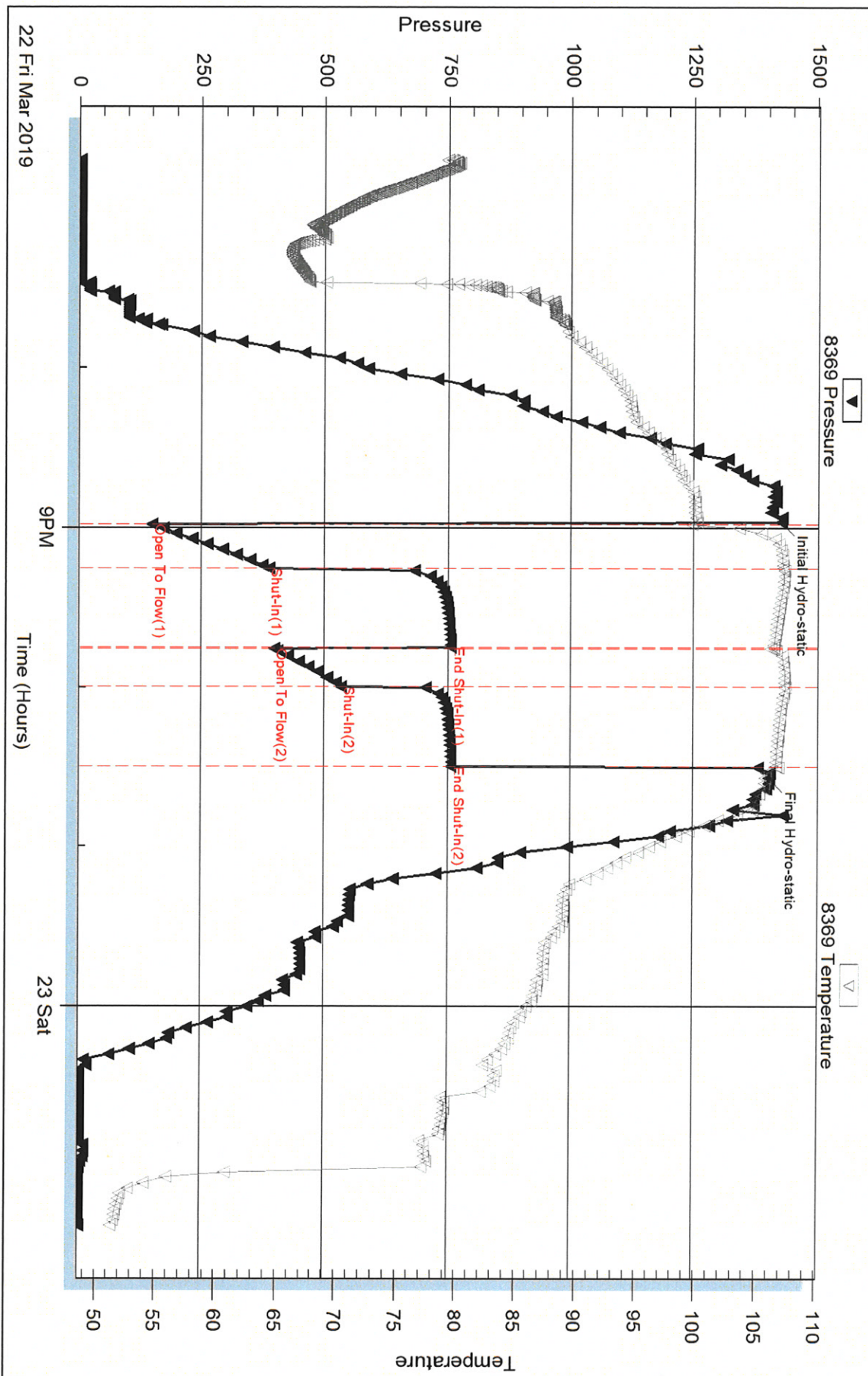
Outside

Palomino Petroleum Co.

Nattier Trusts #1

DST Test Number: 1

### Pressure vs. Time



Triobite Testing, Inc

Ref. No: 63935

Printed: 2019.03.27 @ 16:58:27

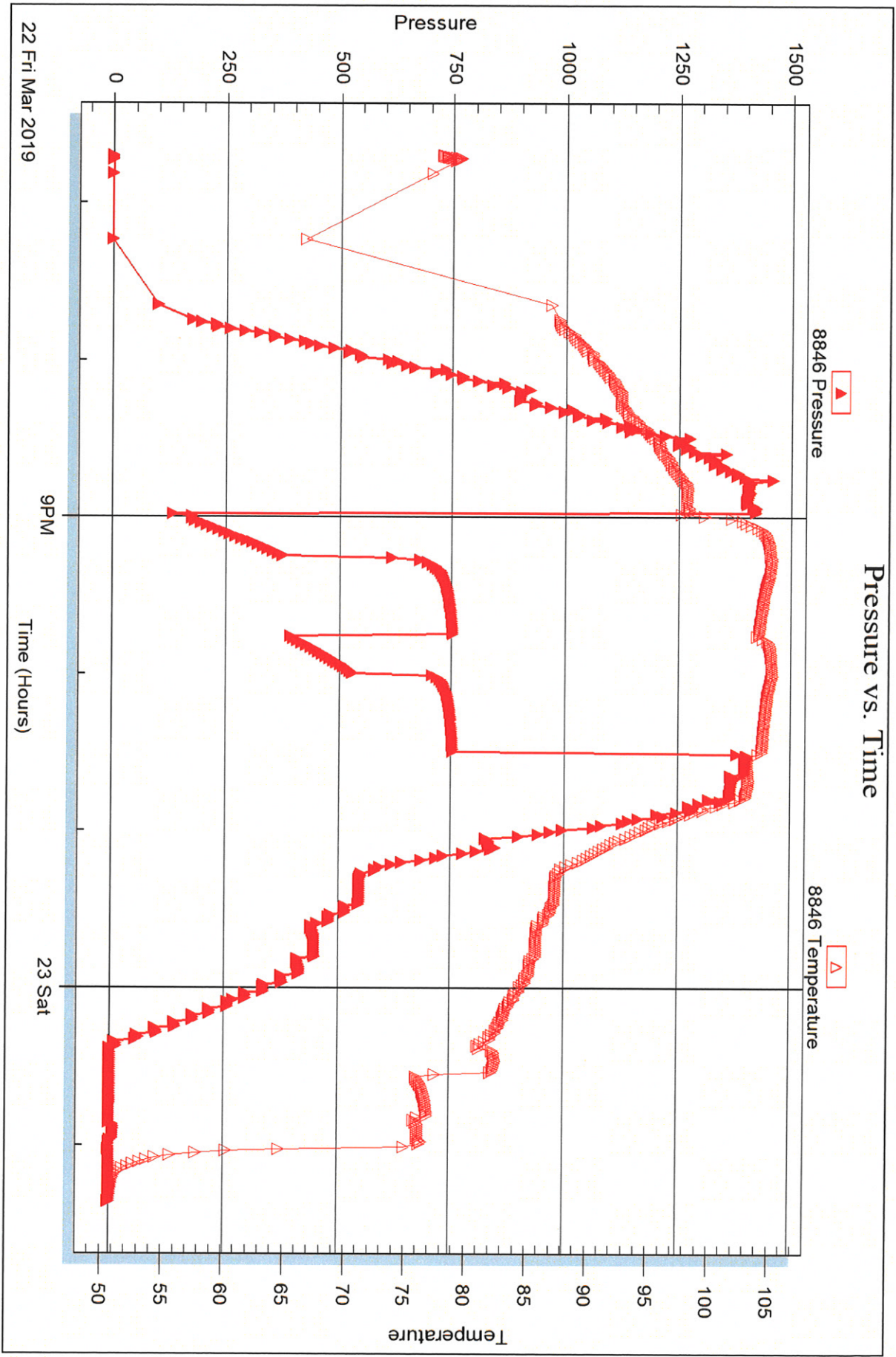
Serial #: 8846

Inside

Palomino Petroleum Co.

Nattier Trusts #1

DST Test Number: 1



Tribotek Testing, Inc

Ref. No: 63935

Printed: 2019.03.27 @ 16:58:27



## DRILL STEM TEST REPORT

Prepared For: **Palomino Petroleum Co.**

4924 SE 84th St  
Newton, KS 67114-8827

ATTN: Klee Watchous

### **Nattier Trusts #1**

### **16-24S-2E Harvey, KS**

Start Date: 2019.03.24 @ 06:58:00

End Date: 2019.03.24 @ 14:27:09

Job Ticket #: 63936                      DST #: 2

Trilobite Testing, Inc

1515 Commerce Parkway Hays, KS 67601

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**

**Nattier Trusts #1**

Job Ticket: 63936

**DST#: 2**

Test Start: 2019.03.24 @ 06:58:00

## GENERAL INFORMATION:

Formation: **Hunton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:03:50

Time Test Ended: 14:27:09

Test Type: Conventional Bottom Hole (Initial)

Tester: Jimmy Ricketts

Unit No: 80

Interval: **3137.00 ft (KB) To 3232.00 ft (KB) (TVD)**

Total Depth: 3232.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition:

Reference Elevations: 1439.00 ft (KB)

1433.00 ft (CF)

KB to GR/CF: 6.00 ft

**Serial #: 8369**

**Outside**

Press@RunDepth: 81.47 psig @ 3138.00 ft (KB)

Start Date: 2019.03.24

End Date:

2019.03.24

Capacity: 8000.00 psig

Last Calib.: 2019.03.24

Start Time: 06:58:01

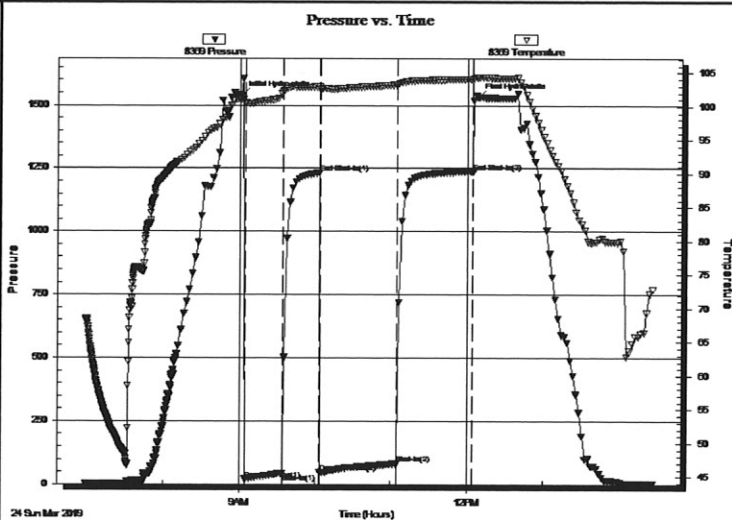
End Time:

14:27:10

Time On Btm: 2019.03.24 @ 09:01:00

Time Off Btm: 2019.03.24 @ 12:08:09

TEST COMMENT: IF - Weak blow building to 5"  
FF - Weak blow building to 9"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1538.40	100.99	Initial Hydro-static
3	20.79	100.45	Open To Flow (1)
33	43.96	102.16	Shut-In(1)
63	1230.55	102.91	End Shut-In(1)
63	47.15	102.47	Open To Flow (2)
124	81.47	103.22	Shut-In(2)
184	1236.01	104.02	End Shut-In(2)
188	1530.41	104.33	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
80.00	OCM 17% O & 83% M	0.39
75.00	CO 100% O	0.72

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

16-24S-2E Harvey, KS

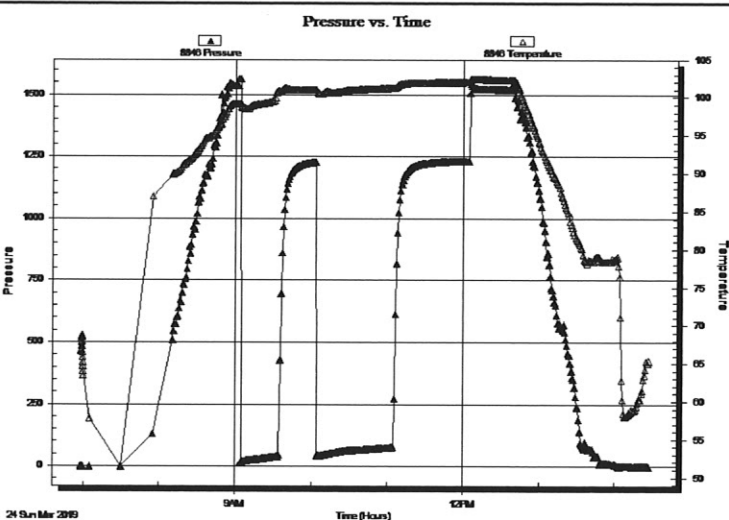
**Nattier Trusts #1**  
Job Ticket: 63936 **DST#: 2**  
Test Start: 2019.03.24 @ 06:58:00

## GENERAL INFORMATION:

Formation: **Hunton**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 09:03:50  
Time Test Ended: 14:27:09  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Jimmy Ricketts  
Unit No: 80  
Interval: **3137.00 ft (KB) To 3232.00 ft (KB) (TVD)**  
Reference Elevations: 1439.00 ft (KB)  
Total Depth: 3232.00 ft (KB) (TVD) 1433.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: KB to GR/CF: 6.00 ft

**Serial #: 8846** **Inside**  
Press@RunDepth: psig @ 3138.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2019.03.24 End Date: 2019.03.24 Last Calib.: 1899.12.30  
Start Time: 06:58:01 End Time: 14:27:40 Time On Btm:  
Time Off Btm:

TEST COMMENT: IF - Weak blow building to 5"  
FF - Weak blow building to 9"



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
80.00	OCM 17% O & 83% M	0.39
75.00	CO 100% O	0.72

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
Job Ticket: 63936      **DST#: 2**  
Test Start: 2019.03.24 @ 06:58:00

## Tool Information

Drill Pipe:	Length: 3004.00 ft	Diameter: 3.80 inches	Volume: 42.14 bbl	Tool Weight: 2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 62000.00 lb
		<u>Total Volume:</u>	<u>42.72 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	3137.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	123.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3110.00	
Shut In Tool	5.00			3115.00	
Hydraulic tool	5.00			3120.00	
Jars	5.00			3125.00	
Safety Joint	3.00			3128.00	
Packer	5.00			3133.00	28.00      Bottom Of Top Packer
Packer	4.00			3137.00	
Stubb	1.00			3138.00	
Recorder	0.00	8369	Outside	3138.00	
Recorder	0.00	8846	Inside	3138.00	
Perforations	23.00			3161.00	
Change Over Sub	0.50			3161.50	
Blank Spacing	64.00			3225.50	
Change Over Sub	0.50			3226.00	
Perforations	1.00			3227.00	
Bullnose	5.00			3232.00	95.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>123.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Palomino Petroleum Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
Job Ticket: 63936      **DST#: 2**  
Test Start: 2019.03.24 @ 06:58:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 27.5 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.99 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1300.00 ppm		
Filter Cake: inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
80.00	OCM 17% O & 83% M	0.393
75.00	CO 100% O	0.715

Total Length: 155.00 ft      Total Volume: 1.108 bbl

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

Laboratory Name:      Laboratory Location:

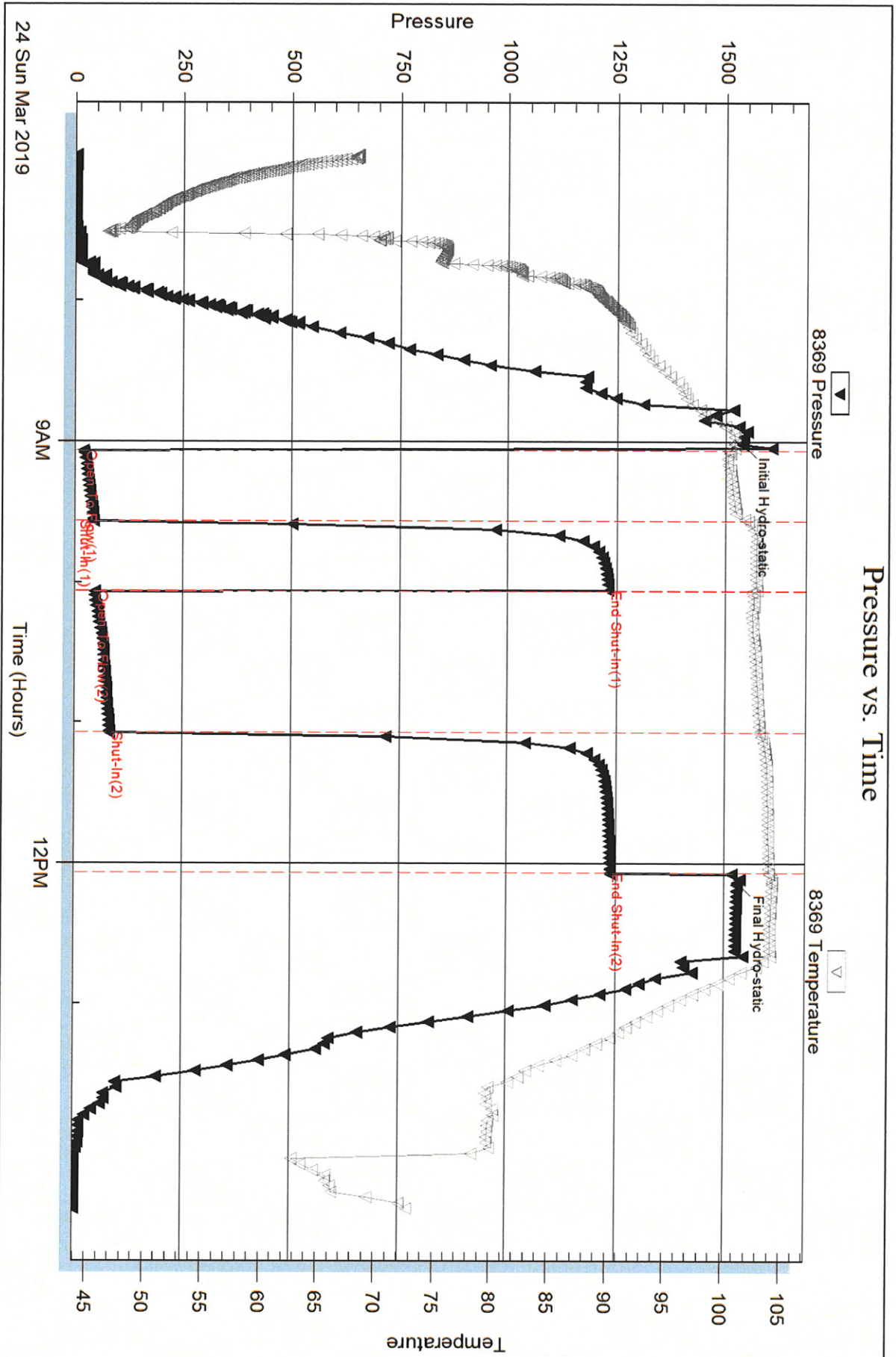
Recovery Comments:

Serial #: 8369

Outside Palomino Petroleum Co.

Nattler Trusts #1

DST Test Number: 2



Tribolite Testing, Inc

Ref. No: 63936

Printed: 2019.03.27 @ 16:56:07



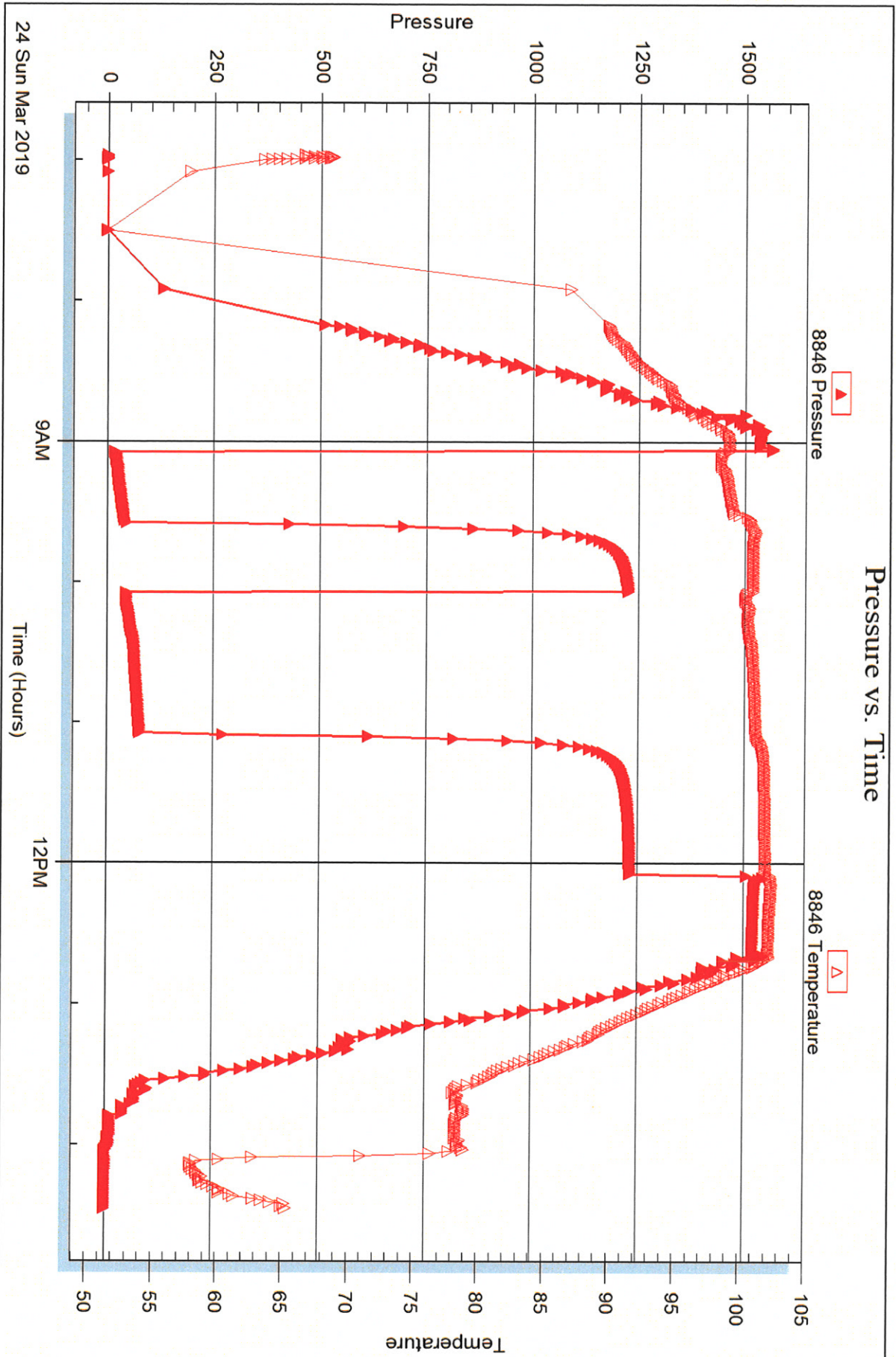
Serial #: 8846

Inside

Palomino Petroleum Co.

Nattier Trusts #1

DST Test Number: 2



Tribotek Testing, Inc

Ref. No: 63936

Printed: 2019.03.27 @ 16:56:07



## DRILL STEM TEST REPORT

Prepared For: **Palomino Petroleum, Co.**

4924 SE 84th St  
Newton, KS 67114-8827

ATTN: Klee Watchous

### **Nattier Trusts #1**

### **16-24S-2E Harvey, KS**

Start Date: 2019.03.24 @ 20:18:00

End Date: 2019.03.25 @ 04:09:00

Job Ticket #: 63937                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Palomino Petroleum, Co.  
 4924 SE 84th St  
 Newton, KS 67114-8827  
 ATTN: Klee Watchous

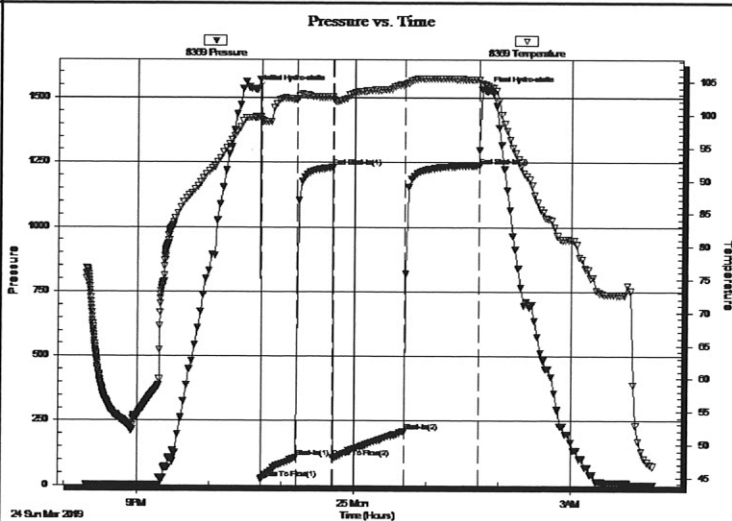
**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
 Job Ticket: 63937      **DST#: 3**  
 Test Start: 2019.03.24 @ 20:18:00

## GENERAL INFORMATION:

Formation: **Hunton**  
 Deviated: No Whipstock:                      ft (KB)  
 Time Tool Opened: 22:42:10  
 Time Test Ended: 04:09:00  
 Interval: **3137.00 ft (KB) To 3237.00 ft (KB) (TVD)**  
 Total Depth: 3237.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition:  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Jimmy Ricketts  
 Unit No: 80  
 Reference Elevations: 1439.00 ft (KB)  
 1433.00 ft (CF)  
 KB to GR/CF: 6.00 ft

**Serial #: 8369      Outside**  
 Press@RunDepth: 210.35 psig @ 3138.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2019.03.24      End Date: 2019.03.25      Last Calib.: 2019.03.24  
 Start Time: 20:18:01      End Time: 04:09:00      Time On Btm: 2019.03.24 @ 22:37:40  
 Time Off Btm: 2019.03.25 @ 01:49:00

**TEST COMMENT:** IF - Weak blow building to strong blow in 21 minutes. Built to 17"  
 FF - Weak blow building to strong blow in 20 minutes. Built to 38"  
 FS - 1/2" blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1532.73	99.59	Initial Hydro-static
5	25.33	99.15	Open To Flow (1)
35	108.99	102.37	Shut-In(1)
65	1230.22	102.66	End Shut-In(1)
65	108.56	102.28	Open To Flow (2)
125	210.35	104.50	Shut-In(2)
186	1237.03	105.31	End Shut-In(2)
192	1526.68	104.45	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	OCM 20% O 80% M	0.62
160.00	GOCM 8%G 13%O 79%M	2.24
165.00	CO 100% O	2.31

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Palomino Petroleum, Co.  
 4924 SE 84th St  
 Newton, KS 67114-8827  
 ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
 Job Ticket: 63937      **DST#: 3**  
 Test Start: 2019.03.24 @ 20:18:00

## GENERAL INFORMATION:

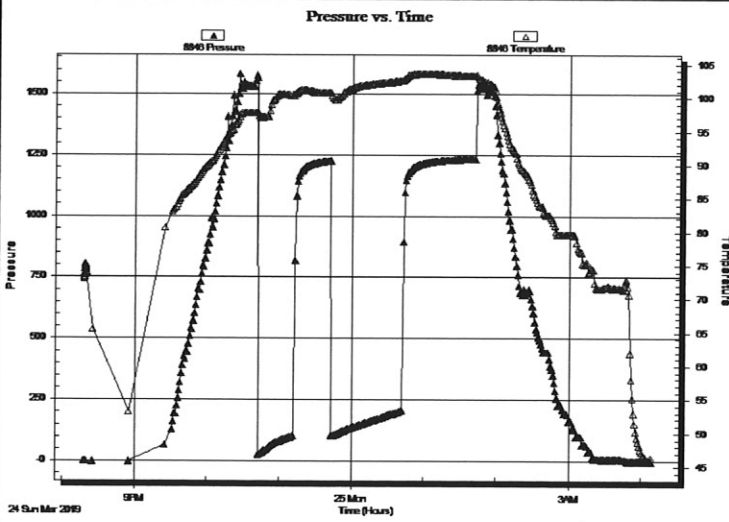
Formation: **Hunton**  
 Deviated: No      Whipstock:      ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 22:42:10      Tester: Jimmy Ricketts  
 Time Test Ended: 04:09:00      Unit No: 80  
 Interval: **3137.00 ft (KB) To 3237.00 ft (KB) (TVD)**      Reference Elevations: 1439.00 ft (KB)  
 Total Depth: 3237.00 ft (KB) (TVD)      1433.00 ft (CF)  
 Hole Diameter: 7.88 inches      Hole Condition:      KB to GR/CF: 6.00 ft

## Serial #: 8846

Inside

Press@RunDepth:      psig @      3138.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2019.03.24      End Date: 2019.03.25      Last Calib.: 1899.12.30  
 Start Time: 20:18:01      End Time: 04:09:20      Time On Btm:  
    Time Off Btm:

TEST COMMENT: IF - Weak blow building to strong blow in 21 minutes. Built to 17"  
 FF - Weak blow building to strong blow in 20 minutes. Built to 38"  
 FS - 1/2" blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	OCM 20% O 80% M	0.62
160.00	GOCM 8%G 13%O 79%M	2.24
165.00	CO 100% O	2.31

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Palomino Petroleum, Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
Job Ticket: 63937      **DST#: 3**  
Test Start: 2019.03.24 @ 20:18:00

## Tool Information

Drill Pipe:	Length: 3004.00 ft	Diameter: 3.80 inches	Volume: 42.14 bbl	Tool Weight: 2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 60000.00 lb
		<b>Total Volume:</b>	<b>42.72 bbl</b>	Tool Chased 1.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	3137.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	128.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3110.00	
Shut In Tool	5.00			3115.00	
Hydraulic tool	5.00			3120.00	
Jars	5.00			3125.00	
Safety Joint	3.00			3128.00	
Packer	5.00			3133.00	28.00      Bottom Of Top Packer
Packer	4.00			3137.00	
Stubb	1.00			3138.00	
Recorder	0.00	8369	Outside	3138.00	
Recorder	0.00	8846	Inside	3138.00	
Perforations	28.00			3166.00	
Change Over Sub	0.50			3166.50	
Blank Spacing	64.00			3230.50	
Change Over Sub	0.50			3231.00	
Perforations	1.00			3232.00	
Bullnose	5.00			3237.00	100.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>128.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Palomino Petroleum, Co.  
4924 SE 84th St  
New ton, KS 67114-8827  
ATTN: Klee Watchous

**16-24S-2E Harvey, KS**  
**Nattier Trusts #1**  
Job Ticket: 63937      **DST#: 3**  
Test Start: 2019.03.24 @ 20:18:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 26.3 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 49.00 sec/qt	Cushion Volume: bbl	
Water Loss: 8.79 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1300.00 ppm		
Filter Cake: inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	OCM 20% O 80% M	0.617
160.00	GOCM 8%G 13%O 79%M	2.244
165.00	CO 100% O	2.315

Total Length: 445.00 ft      Total Volume: 5.176 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

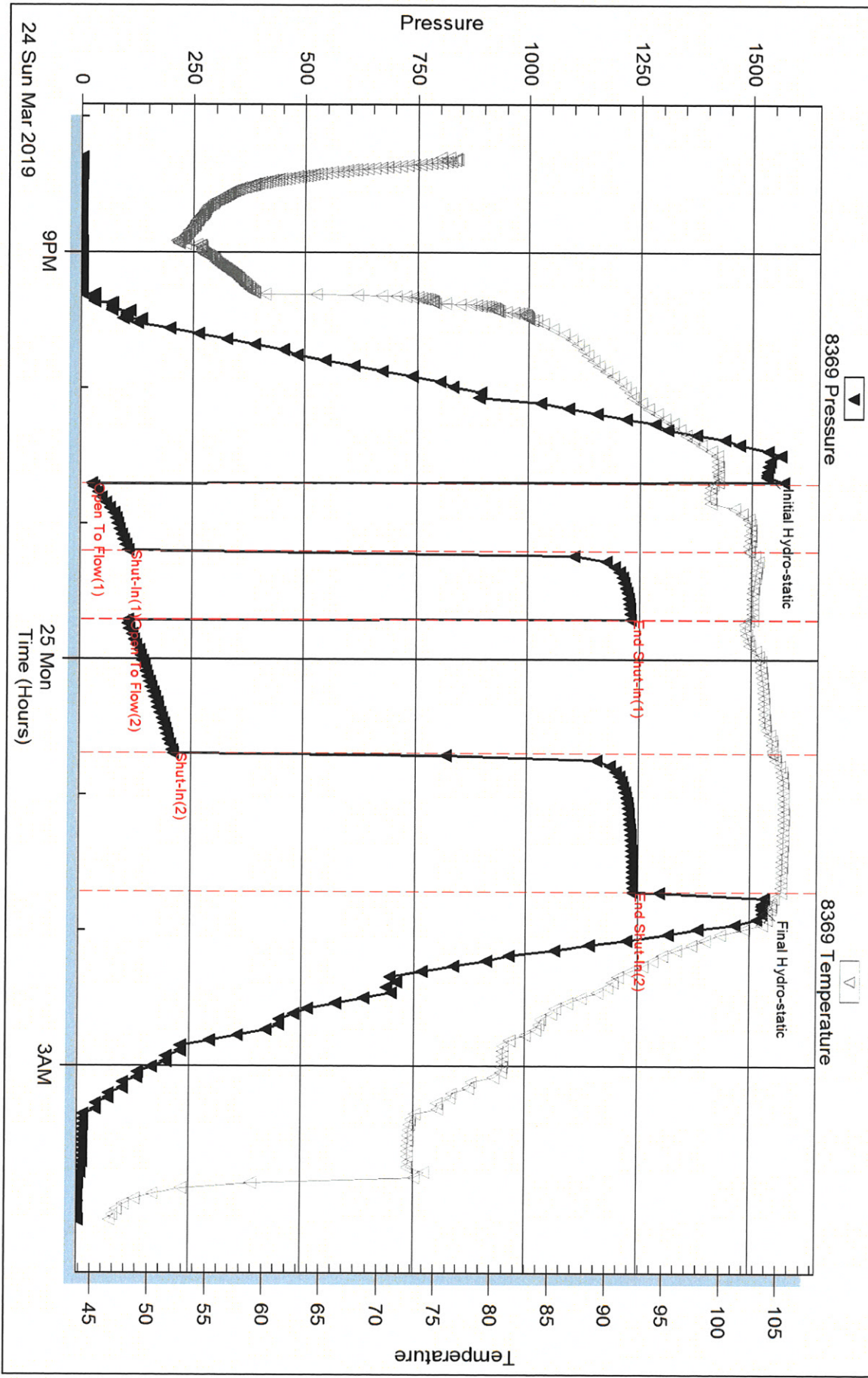
Serial #: 8369

Outside Palomino Petroleum, Co.

Nattier Trusts #1

DST Test Number: 3

# Pressure vs. Time



Tribotek Testing, Inc

Ref. No: 63937

Printed: 2019.03.27 @ 16:50:44

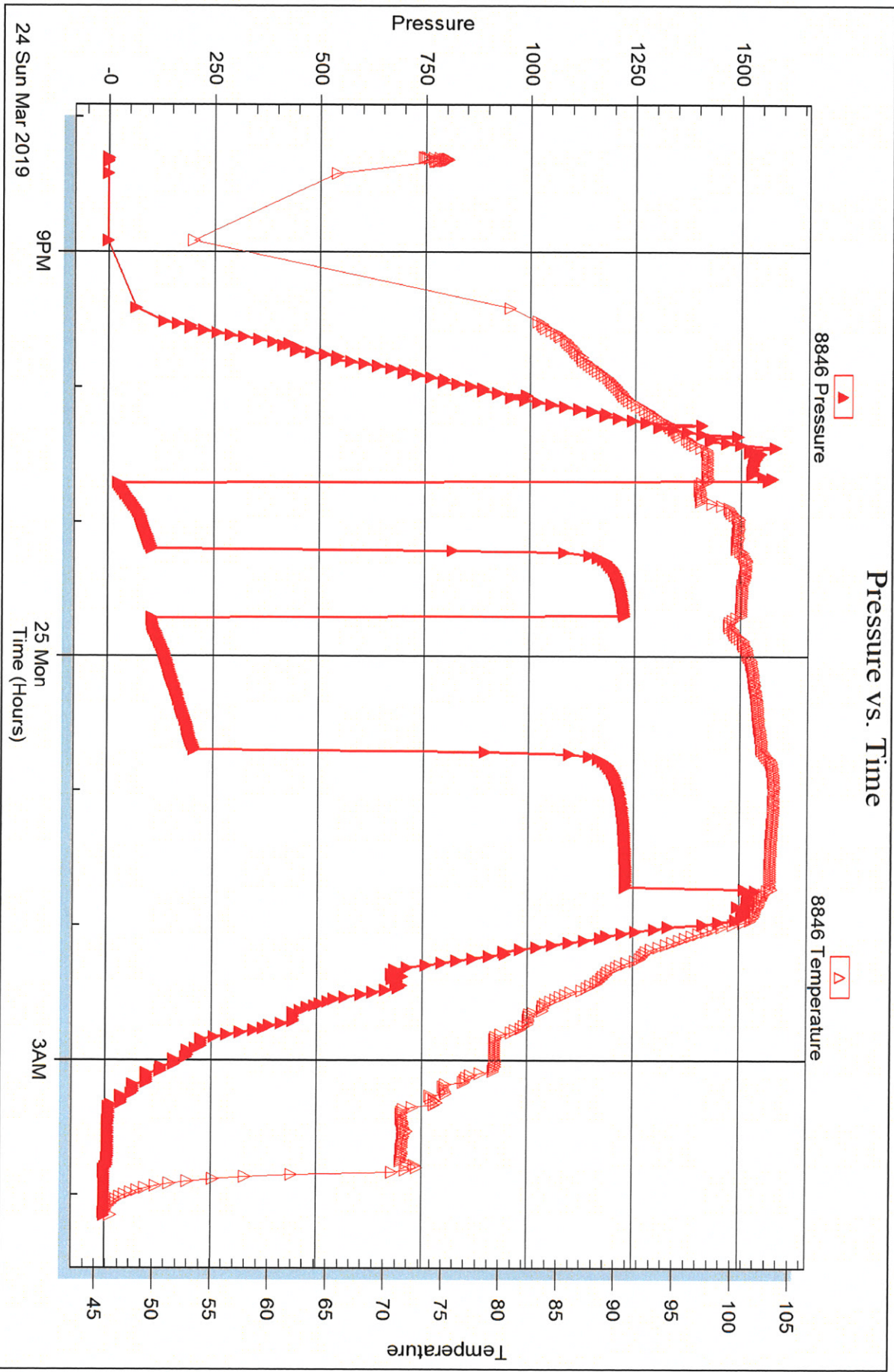
Serial #: 8846

Inside

Palomino Petroleum, Co.

Nattier Trusts #1

DST Test Number: 3



Tribolite Testing, Inc

Ref. No: 63937

Printed: 2019.03.27 @ 16:50:44





# TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63935

Well Name & No. Nattier Trusts #1 Test No. 1 Date 3-22-19  
 Company ~~4421~~ SE Palomino Petroleum Co. Elevation 1439 KB 1433 GL  
 Address 4924 SE 84th Street, Newton, KS. 67114-8827  
 Co. Rep / Geo. Klee Watchous / Eli Felts Rig Ww Drilling #4  
 Location: Sec. 16 Twp 24 S Rge. 2 E Co. Harvey State KS

Interval Tested 2838 - 2860 Zone Tested Burgess Sand  
 Anchor Length 22' Drill Pipe Run 2716 Mud Wt. 9.4  
 Top Packer Depth 2833 Drill Collars Run 117 Vis 45  
 Bottom Packer Depth 2838 Wt. Pipe Run 0 WL 8.8  
 Total Depth 2860 Chlorides 1100 ppm System LCM

Blow Description IF - Strong blow throughout FFP. Building to 123 inches FFP  
FF - Weak blow building to strong blow 2 mins. into FFP  
Building to 75 inches FFP.

Rec	Feet of	%gas	%oil	%water	%mud
<u>940</u>	<u>605 mcnw</u>	<u>4</u>	<u>1</u>	<u>88</u>	<u>7</u>
<u>260</u>	<u>Gassy vs 0+ mcnw</u>	<u>15</u>	<u>4</u>	<u>47</u>	<u>34</u>
<u>65</u>	<u>Gas in pipe</u>	<u>100</u>			

Rec Total 1200 BHT 107 Gravity API RW 0.147 @ 56.4° F Chlorides 64,000 ppm  
 (A) Initial Hydrostatic 1426  Test 1200 T-On Location 1800  
 (B) First Initial Flow 150  Jars 250 T-Started 1842  
 (C) First Final Flow 386  Safety Joint 75 T-Open 2059  
 (D) Initial Shut-In 756  Circ Sub \_\_\_\_\_ T-Pulled 2230  
 (E) Second Initial Flow 396  Hourly Standby \_\_\_\_\_ T-Out 0130  
 (F) Second Final Flow 534  Mileage 194rt RT 52 Comments \_\_\_\_\_  
 (G) Final Shut-In 757  Sampler 250 NC \_\_\_\_\_  
 (H) Final Hydrostatic 1403  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1719  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1719

Initial Open 16  
 Initial Shut-In 30  
 Final Flow 15  
 Final Shut-In 30

Approved By \_\_\_\_\_ Our Representative Jimmy Burketh

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# TRILOBITE TESTING, INC.

1515 Commerce Parkway • Hays, Kansas 67601

## FLUID SAMPLER DATA

Ticket No. 63935 Date 3-22-19  
 Company Name Palomino Petroleum, Co.  
 Lease Mattier Trusts #1 Test No. 1  
 County Harvey Sec. 06 Twp. 24 S Rng. 2 E

## SAMPLER RECOVERY

Gas \_\_\_\_\_ ML  
 Oil \_\_\_\_\_ ML  
 Mud \_\_\_\_\_ ML  
 Water 5 ML  
 Other \_\_\_\_\_ ML  
 Pressure 15 PSI  
 Total 5 ML

## PIT MUD ANALYSIS

Chlorides 1100 ppm.  
 Resistivity \_\_\_\_\_ ohms @ \_\_\_\_\_ F  
 Viscosity 45  
 Mud Weight 9.4  
 Filtrate 8.8  
 Other \_\_\_\_\_

## SAMPLER ANALYSIS

Resistivity \_\_\_\_\_ ohms @ \_\_\_\_\_ F  
 Chlorides \_\_\_\_\_ ppm.  
 Gravity \_\_\_\_\_ corrected @60F

## PIPE RECOVERY

**TOP**  
 Resistivity \_\_\_\_\_ ohms @ \_\_\_\_\_ F  
 Chlorides \_\_\_\_\_ ppm.  
**MIDDLE**  
 Resistivity \_\_\_\_\_ ohms @ \_\_\_\_\_ F  
 Chlorides \_\_\_\_\_ ppm.  
**BOTTOM**  
 Resistivity \_\_\_\_\_ ohms @ \_\_\_\_\_ F  
 Chlorides \_\_\_\_\_ ppm.



# TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63936

Well Name & No. Nattier Trusts #1 Test No. 2 Date 3-24-19  
 Company Palomina Petroleum Co. Elevation 1439 KB 1433 GL  
 Address 4924 SE 84th Street, Newton, KS. 67114-8827  
 Co. Rep / Geo. Klee Watchous / Eli Felts Rig ww Drilling #4  
 Location: Sec. 16 Twp 24S Rge. 2E Co. Harvey State KS

Interval Tested 3137-3232 Zone Tested Hunton  
 Anchor Length 95' Drill Pipe Run 3004 Mud Wt. 9.3  
 Top Packer Depth 3132 Drill Collars Run 117 Vis 45  
 Bottom Packer Depth 3137 Wt. Pipe Run 0 WL 8.0  
 Total Depth 3232 Chlorides 1300 ppm System LCM  
 Blow Description IF-weak blow building to 5 inches FFP  
FF-weak blow building to 9 inches FFP

Rec	Feet of	%gas	%oil	%water	%mud
<u>80</u>	<u>Oil Cut Mud</u>	<u>17</u>		<u>83</u>	
<u>75</u>	<u>Clean Oil</u>				

Rec Total 155 BHT 104 Gravity 27.5 API RW @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1538</u>	<input checked="" type="checkbox"/> Test 1300	T-On Location <u>0545</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>0658</u>
(C) First Final Flow <u>44</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>0904</u>
(D) Initial Shut-In <u>1231</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1204</u>
(E) Second Initial Flow <u>47</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1430</u>
(F) Second Final Flow <u>81</u>	<input checked="" type="checkbox"/> Mileage <u>52</u> <u>RT52</u>	Comments _____
(G) Final Shut-In <u>1236</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1530</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
	<input type="checkbox"/> Day Standby	Total <u>1677</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1677</u>	

Initial Open 30  
 Initial Shut-In 30  
 Final Flow 60  
 Final Shut-In 60  
 Approved By E. I. Felts

Our Representative Jimmy Dickson

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# TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63937

Well Name & No. Nattier Trusts #1 Test No. 3 Date 3-24-19  
 Company Palomino Petroleum, Co. Elevation 1439 KB 1433 GL  
 Address 4924 SE 84th Street, Newton, KS. 67114-8827  
 Co. Rep / Geo. Klee Watchous / Elie Felts Rig Www Drilling #4  
 Location: Sec. 16 Twp 24 S Rge. 2 E Co. Harvey State KS.

Interval Tested 3137 - 3237 Zone Tested Hunton  
 Anchor Length 100' Drill Pipe Run 3004 Mud Wt. 9.3  
 Top Packer Depth 3132 Drill Collars Run 117 Vis 49  
 Bottom Packer Depth 3137 Wt. Pipe Run 0 WL 8.8  
 Total Depth 3237 Chlorides 1300 ppm System LCM

Blow Description IF - weak blow building to strong blow 21 mins. into FFP. Continuing to build to 17 inches IFP.  
FF - weak blow building to strong blow 20 mins. into FFP. Continuing to build to 38 inches FFP. 1/2 inch blow back during FFP.

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>Oil cut mud</u>	<u>20</u>	<u>80</u>	<u>0</u>	<u>0</u>
<u>160</u>	<u>Gassy oil cut mud</u>	<u>8</u>	<u>13</u>	<u>79</u>	<u>0</u>
<u>165</u>	<u>Clean oil</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 445 BHT 105 Gravity 26.3 API RW @     °F Chlorides     ppm  
 (A) Initial Hydrostatic 1533  Test 1300 T-On Location 1930  
 (B) First Initial Flow 25  Jars 250 T-Started 2018  
 (C) First Final Flow 109  Safety Joint 75 T-Open 2242  
 (D) Initial Shut-In 1230  Circ Sub     T-Pulled 0143  
 (E) Second Initial Flow 109  Hourly Standby     T-Out 0430  
 (F) Second Final Flow 210  Mileage 104 RT 52 Comments 7:30 pm  
 (G) Final Shut-In 1237  Sampler     loaded tools 3/26 17:30  
 (H) Final Hydrostatic 1527  Straddle      
 Ruined Shale Packer      
 Ruined Packer      
 Extra Copies    

Initial Open 30  
 Initial Shut-In 30  
 Final Flow 60  
 Final Shut-In 61  
 Sub Total 0  
 Total 1729  
 MP/DST Disc't      
 Sub Total 1729

Approved By Elie Felts Our Representative Jimmy Dickelle

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# PALOMINO PETROLEUM, INC.

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

Well Name: Nattier Trusts #1  
 API: 15-079-20717  
 Location: N2 - SW - SW - SE \_ Sec. 16 Twp. 24S Rge. 2E  
 License Number: 30742  
 Spud Date: 3/17/2019  
 Surface Coordinates: 426' FSL & 2310' FEL

Region: Ness County, KS  
 Drilling Completed: 3/26/2019

Bottom Hole Same as surface coordinates  
 Coordinates:  
 Ground Elevation (ft): 1434' K.B. Elevation (ft): 1439'  
 Logged Interval (ft): 1500' To: 3500' Total Depth (ft): 3500'  
 Formation: Arbuckle @ RTD  
 Type of Drilling Fluid: Mud-Co. Chemical Drispac

Printed by MudLog from WellSight Systems 1-800-447-1534 www.WellSight.com

## OPERATOR

Company: Palomino Petroleum, Inc.  
 Address: 4924 SE 84th St.  
 Newton, KS 67114

## GEOLOGIST

Name: Eli J. Felts  
 Company: Gravity Oil, LLC  
 Address: 954 Prairie Park Road  
 Wichita, KS 67218  
 E: ejfelts47@gmail.com, C: 316.204.5059

## Formation Tops

### SAMPLE TOPS

Heebner	1959 (-520)
Brown Lime	2143 (-704)
Lansing	2212 (-773)
Stark	2556 (-1117)
B/KC	2610 (-1171)
Marmaton	2668 (-1229)
Altamont	2770 (-1331)
Pawnee	2798 (-1359)
Ft. Scott	2826 (-1387)
Cherokee Shale	2839 (-1400)
Burgess Sand	2855 (-1416)
Mississippian	2916 (-1477)
Kinderhook	3138 (-1699)
Hunton	3228 (-1789)
Maquoketa	3285 (-1846)
Viola	3312 (-1873)
Simp Sand	3359 (-1920)
Simp Shale	3377 (-1938)
Arbuckle	3421 (-1982)
RTD	3500 (-2061)

### LOG TOPS

Heebner	1958 (-519)
Brown Lime	2142 (-703)
Lansing	2211 (-772)
Stark	2553 (-1114)
B/KC	2608 (-1169)
Marmaton	2662 (-1229)
Altamont	2666 (-1327)
Pawnee	2795 (-1356)
Ft. Scott	2822 (-1383)
Cherokee Shale	2836 (-1397)
Burgess Sand	2852 (-1413)
Mississippian	2916 (-1477)
Kinderhook	3137 (-1698)
Hunton	3228 (-1789)
Maquoketa	3284 (-1845)
Viola	3312 (-1873)
Simp Sand	3359 (-1920)
Simp Shale	3377 (-1938)
Arbuckle	3421 (-1982)
RTD	3499 (-2060)

## Drilling Report

3/17/19

Moved in WW Drilling, L.L.C. rotary tools (Rig #4). Spudded at 5:45 p.m. Ran surface casing. Plug down at 12:00 a.m. 3/18/19

3/18/19

Waiting on cement.

3/19/19

Drilling @ 1533'

3/20/19

Drilling @ 2035'

Ran Gyro survey to check hole deviation.

3/21/19

Drilling @ 2310'

3/22/19

3/22/19  
Drilling @ 2705'  
DST #1

3/23/19  
Drilling @ 2920'

3/24/19  
DST #2

3/25/19  
DST #3  
3237' (welding on flow nipple)

3/26/19  
3470' (drilling rat-hole)  
Logged well

3/27/19  
Ran 5.5" 15.5# Oil String of Casing

### Drill Stem Tests

DST #1 Burgess Sand  
Interval: 2838'-2860'  
(22') Anchor  
15-30-15-30

IF: sb built to 123"  
ISI: wk sfc bb  
FF: built to 75"  
FSI: 6" bb  
SIP: 756-757#  
IF: 150-386#  
FF: 396-534#  
Hydrostatic: 1426-1403#  
BHT: 107 F  
RW: 0.147 @ 56.4 Deg

Recovery: 1200'  
65' GIP  
260' GVSO&HMCW (15% G 4% O 47% W 34% M)  
940' GOSSMCW (4% G 1% O 88% W 7% M)

DST #2 Hunton  
Interval: 3137'-3232'  
(95') Anchor  
30-30-60-60

IF: wb built to 5"  
ISI: no bb  
FF: wb built to 9"  
FSI: no bb  
SIP: 1231-1236#  
IF: 21-44#  
FF: 47-81#  
Hydrostatic: 1538-1530#  
BHT: 104 F  
Grav: 27.5 API @ 60 Degrees

Recovery: 155' TF  
75' CO  
80' OCM (17% O 83% M)

DST #3 Hunton  
Interval: 3137'-3237'  
(100') Anchor  
30-30-60-60

IF: built to 17"  
ISI: no bb  
FF: built to 38"  
FSI: 1/2" surface bb  
SIP: 1230-1237#  
IF: 25-109#  
FF: 109-210#  
Hydrostatic: 1533-1527#  
BHT: 105  
Grav: 26.3 API @ ambient Degrees






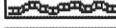



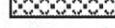
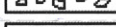


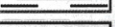
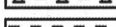


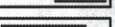






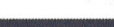

Recovery: 445' TF  
165' CO  
160' GOCM (8%G 13%O 79%M)  
120' OCM (20% O 80%M)

### Pipe Setting

3/17/2019  
Ran 5 jts. new 8 5/8" 23# surface pipe set at 218' and cemented w/ 170 sacks Class A, 2% gel, 3% c.c. Cement did circulate. Plug down at 12:00 a.m. on 3/18/19

3/27/19  
Ran 84 jts. new 5.5" 15.5# Range 3 casing set 8' off bottom @ 3492'. Pumped 500 gal. mud flush with additives followed by 20 bbls. KCL water and cemented w/ 200 sacks SMD cement & 100 sacks EA-2 cement. Pugged rathole w/ 30 sacks SMD cement. Plug down @ 2:15 p.m. Baskets @ 3365' & 1651'. Centralizers at 3408', 3365', 3280', 3237', 3200', 3157', 3085', 2999', 2919', 1651'. Shoe joint = 42.45'.

### ROCK TYPES

 Anhy	 Congl	 Lmst tan	 Shale 2	 Ss
 Bent	 Dol	 Lmst	 Shale gry	 Till
 Brec	 Gyp	 Meta	 Shale 1	
 Cht	 Igne	 Mrlst	 Shcol	
 Clyst	 Granite 2	 Quartz	 Shgy	
 Coal	 Granite	 Salt	 Slst	

tholo	MD	Rate of Penetration		Geological Descriptions	DSTs/Mud/Surveys, etc.
		ROP (min/ft)	Gamma (API)		

Tons have been adjusted to Halliburton Logging tools &

Tops have been adjusted to Halliburton Logging tools & samples have been lagged.

Ran the following Open Hole Logs:

- >Spectral Density Dual Spaced Neutron
- >Array Compensated True Resistivity
- >Micro
- >Borehole Compensated Sonic Array
- >Annular Hole Volume (5.5" Casing)

1450

1450

No more than 10K weight on bit due to faulting in the area. Preventative measures to decrease deviation were taken & wireline surveys taken every 100' until deviation worsened to 3.25 degrees @ 2164'. At this depth a Gyro contractor was called out to measure deviation from 2164' on up to determine DLS.

\*\*\*very poor samples until mud added just before Brown Lime. 30-33 vis was not enough to carry samples in laminar flow. Samples up to Brown Lime were dominated by shales & cavings; any mention of LS was describing any sand sized particles that were able to be lifted with the low vis fluid.

SH - grey, med hard to si sippery; trans to argill SL ip/ dense w/ sm interbedded shales

SH & Arg LS, aa, increase LS - tan to brown, med to fine xln; re-xln ip; oa blooky & ds

1500 C

1500

cup washes light grey w/ flood sh - grey, soft, dissolves/ few LS - tan-brown, med to fine xln; blocky dse w/ few foss

mostly sh; abdt grey, gummy SH - sticky, few LS - cream to tan; sm argillaceous w/ interbedded grey shale; chalky ip; sl dense, ns

LS - cream to brown, med xln, highly foss, sl argillaceous, fair-good fraibility, slightly chalky; ~40% med grey shales, soft to med hard

LS - crea, to brown, med to fine xln, abundant foss, argillaceous in part; few pcs highly oolitic; trace chalky in some pieces; abundant grey shales remain

SH - lt grey to green in part, med soft, sm laminated; abundant micaceous flecks; mst silty to sub-sandy (no vis clusters)

SH - shades of grey, med soft to sticky/gummy ip; decrease micaceous; trace pcs LS

1550

1550

SH - lt to dark grey, some cream to maroon, most soft & silty, few micaceous; sm pcs mottled; few pcs w/ dark staining in laminations; few darker grey shales; poss cavings

SH - no significant changes; poss sandy ip

SH - lt to dark grey, gummy to sticky, micaceous incl ip; oa soft, few vis laminated

90% SH - grey, soft to med; silty in most; few pcs LS - cream to brown, fine xln & foss; dense

1600 C

1600

Mostly SH - shades of grey, lt to med dark, trans cream; few pcs LS - cream to brown, med xln, blocky & foss ip

LS - cream, med xln w/ chalky txture; abdnf foss; few larger - re-xln in some, trans to LS - tan brown, fine to micro xln, dense; trace pcs sandy

LS - cream to white, lt grey, mst med lxn, blocky, argillaceous in some; poor visible por; abundant shales; trace CH - grey to white, vitreous, foss

LS - cream, med xln & hvy foss, app fractured in some; flood shales - silvers, grey to dark; sm mottle

LS - cream to lt grey, mst med xln, foss w/ re-xln in some; few fine xln w/ smooth text; increase shales

1650

1650

SS - white to lt grey clusters, fine to med grained; sub rounded; moderately friable w/ abdt micaceous inclusions; no odor; ns

poor sample; appears mst shaley

poor sample; appears mst shaley

Mud-Co  
Depth: 1660'  
Wt. 9.2+  
Vis. 34  
Filtrate N/A

pqs; few cream LS - med xin & abundant shales; v. fine cuttings

pqs; abundant fines; LS - cream to tan, brown & varicolored shales

pqs; abundant fines; LS - cream to tan, brown & varicolored shales

SH - varicolored as above, few darker, sub carb

SH - aa, few clusters SS - app grey to white, fn-md gmd, sub rounded; gd friability; mst barren w/ few mic & gluc inclusions

SH - varicolored; mottled in some, most soft to med to firm in part

SH - varicolored; mst green, grey, maroon, sm mottled, soft to friable in some, few dark grey

>90% SH, varicolored; trace fine cuttings ls, etc on edges

very poor sample; primarily shale cavings & sub-sand sized cuttings of LS, etc; check VIS

LS - cream to white; abundant shales; very poor sample

LS - cream & others, few ss; abundant shales, varicolored. Cuttings v. fine

Mostly shales; few LS - cream, grey, few yellow-soft & chalky; few foss, partial re-xin; very poor sample

pqs, v. fine cuttings; flood shales & limes, few sandy

as above

pqs; increase LS - white to cream, foss ip, sm ooc w/ partial staining; abundant shales

v. fine cuttings; LS - cream, sm occ, few staining; abundant shales

PQS v. fine cuttings; LS - cream, sm occ, few staining; abundant shales

varicolored shales; few v. fine LS & SS cuttings

99% SH - grey - green, minute trace LS - white, fine xin

99% SH

99% SH

Mostly SH - few LS - cream to white, fine to med xin, some re-xin; friable to chalky, ques stain

1700

1750

1800

1850

1900

1950

C

1700

C

1750

C

C

1800

C

1850

C

1900

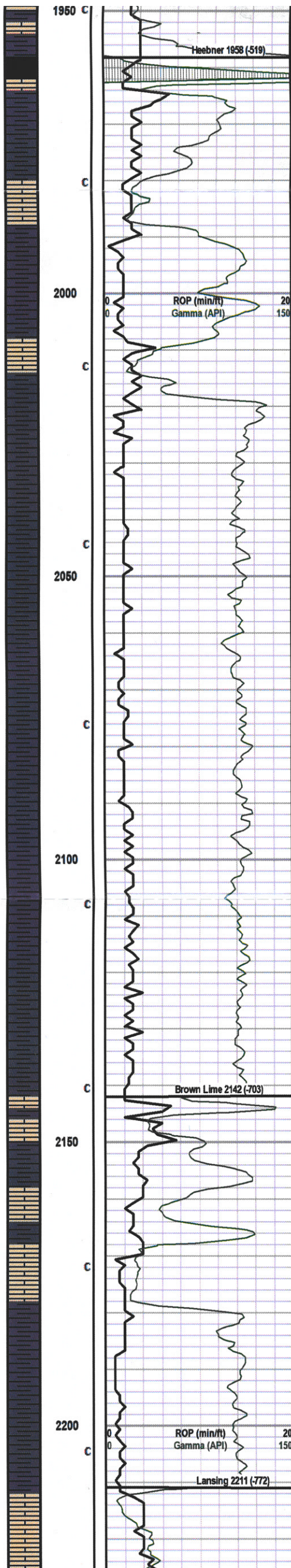
C

1950

ROP (min/ft)  
Gamma (API)

20  
150





Mostly SH - few LS - cream to white, fine to med xin, some re-xin; friable to chalky, ques stain in few

SH - dark brown to black, laminated, carbonaceous; no vis gas; sl chalk edges (Heebner)

SH - few carb aa, trans LS - cream to tan, fine to microxin, few foss; dense blocky; rare re-xin

90% Shales ;few LS - cream to white, fine xin, chalky ip; fraible ^very fine cuttings lime

Flood LS - cream to white ^v fine cuttings; fn-med xin; chalky w/ few ooc & foss porosity; trace staining in few pcs; some re-xin cal & loose calc; no odor, ns

LS - cream to white, fine xin; few foss; chalky ip, mostly friable, rare pc w/ gils staining; marbled; ^abundant shale ~95%+

Flood SH (95%+) - grey to green, some brown; trace pcs LS - cream to white

LS - cream, fine to med xin; sl granular ip, trc chalky few sl lt -dark staining (gils) friable in most; few re-xin calc

LS - cream to lt tan, mst med xin w/ partial re-xin, rare foss, friable to chalky ip; flood shale

SH - flood grey to green, some mottled, med soft, slippery in some

SH - grey to green, mottled in some, overall soft

SH - grey, few green to dark grey, few mottled; sl. Micaceous in some

SH - varicolored greys, some mottled, green, most soft, rare SS clusters, app white, fine grained, micaceous ip

SH - varicolored greys, some mottled, green, most soft, rare SS clusters, app white, fine grained, micaceous ip

SH - varicolored grey, some mottled, few green & brick, few SS, aa; oa soft to med

SH - as above

SH - grey, some green, few mottled, micaceous inclusions in some; rare SS

SH

SH

SH - dark to black; poss carb; ques show gas

flood LS - cream to tan, brown, fine to med xin, sucros ip; friable, re-xin in most w/ few foss, staining ip; no vis shows

Abundant shales & carryover; few LS aa, abdt SS - grey to white clust; fine grained<sup>\*\*\*</sup> trip trash

SH - greys to green, some mottled w/ dark grey, maroon; soft & silty, trace LS - cream to tan, fine-med xin; ^v. small cuttings ls

LS - cream, med xin w/ granular txture; abundant re-xin calc w/ good friability; scattered staining throughout; no visible shows / partial spotted yellow fluor

LS - cream, med xin w/ sm granular txture marbled w/ fine xin tan, re-xin porosity in most w; few ooc & oolites; fair to good vis por w/ good friab & spotted str & scattered dull ylw fluor ~%50 shales remain

SH - grey to green, mottled in some, miceous ip w/ few sandy; soft to med firm

LS - cream to lt grey, mst fine xin, re-xin edges in many, fair vis porosity ip w/ some loose xin calc; scattered chalk

LS - cream to lt grey, mst fine to med xin, vis frac ip w/ re-xin calc; some fine xin - platy &

1950

Run Wireline Survey : 1 degree

2000

2050

Rig Check  
Run Wireline Survey : 3.25 degrees

Run Wireline Survey : 3 degrees

2100

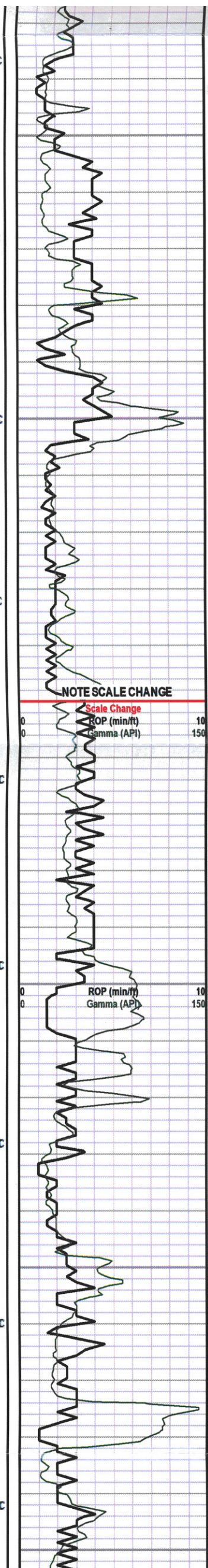
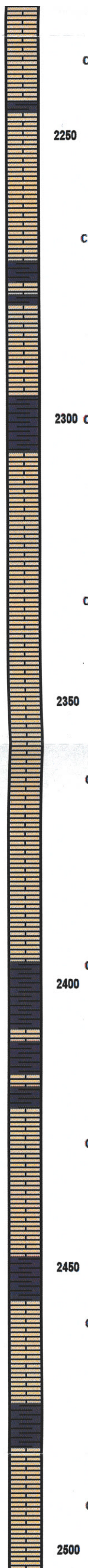
Adding Mud from Premix

Mud-Co  
Depth: 2146'  
Wt. 9.2+  
Vis. 31  
Filtrate N/A  
Chl 1,500  
LCM 0

2164' 3:30 p.m.  
Drop Gyro Survey, Round Trip.  
2150

Samples Improve Drastically

2200



Few LS, aa; flood shale cavings 95% large shale chunks

LS - cream to tan, few brown; cream med xin w/ chalky txt, abdt oolites & sm ooc porosity w/ partial stain and trans chalk; ~50% shale cavings (large chunks) remain

2250 Flood LS - cream, med xin w/ abdt oolites & sm ooc porosity, few transition to pp & vuggy w/ re-xin porosity; chalky break w/ fair to good vis porosity; quest stain in few; no odor, ns

LS - cream to lt grey, fine to med xin, re-xin & some visible fractures; dark gils stain in some; chalky in part

LS - cream to white, lt grey to tan/brown, most med xin, highly foss (varied) w/ fair visible porosity; chalky in part; good friability w/ scattered brown staining; no odor no shows

LS - cream to brown, med to fine xin w/ some micro xin w/ partial re-xin; foss in most, few w/ granular texture; mst dense; trace chalky; few pcs shaley contact (lt green)

LS - v. similar as above; increase chalky; argillaceous ip w/ some brown mineral staining; no odor, ns

2300 LS - cream to tan, brown, cream - med xin to chalky, tan to brown is fine to med xin w/ dark staining (poss mineral) platy & dense; few pcs sharp, sub cherty; ns

LS - cream to brown, as above; few lt grey, fine to micro xin w/ re-xin ip; chalky edges, oa dense; few shaley

LS - cream, med xin chalky; tan brown, fn to micro xin; foss w/ dark mineral strn; trace residual strn on break; no odor, ns

LS - cream to tn, lt gry to brown, fine to med xin, sl chalky to granular ip; few re-xin; scatt staining; no odor, ns

LS - cream to tan, brown, fn to med xin, some micro to sub cherty; foss ip; trace pcs argillaceous, few shaley; oa dense; poor vis por, ns

NOTE SCALE CHANGE

2350 pqs<sup>+</sup> LS aa>>mixing mud to raise vis

LS - cream to tan, grey & brown, mst med xin; foss ip w/ sm re-xin w/ few loose xin calc.; chalky in some, trace edge & fract'd stain in some pcs; mod friable, few pcs argl w/ edge shale ~40% shaley oa, no odor, ns

LS - cream to grey, most fine xin, sm med; mst friable; chalky ip; few argillaceous, poor vis porosity; no odor, ns; abundant grey shales

LS - cm to grey, sm brown, med-fine xin; sl argillaceous (cup washes brown) few scattered CH - trans to opaque, grey-brown, vitreous; 30% shaley

LS - few cm, most brown to grey, dark; fine to med xin; few v. fine cherty pieces; wahses grey-brown

2400 LS - cream to grey, med to fine xin; few microxin, brown; scatt cherty; few pcs sh-grey, some soft to globby (cup washes gry-brown)

SH - grey, lt to dark, most med soft; few mushy (washes gry-brwn)

SH - as above; trans to cream grey LS - med xin, argillaceous & med soft; foss

V. similar aa, increase argillaceous lime, less shaley

LS - cream to grey, most med xin, foss, argillaceous in most; few chalky; trace CH - grey brown, vitreous

LS - cream, med xin w/ chalky texture, foss ip, scattered chalk, some partial re-xin; dark fractured & edge staining; appears residual; nsfo, chalky break, ns (cup washes white)

2450 LS - cream to tan, grey & brown, mst med xin; foss ip w/ sm re-xin; chalky in some, trace edge & fract'd stain in some pcs; mod friable; no odor, ns; few pcs CH - grey to white, sharp & vit

LS - cream to tan, brown, fine to micro xin ip; chalky edges, trace foss; most blocky & dense w/ poor vis porosity;

Flood SH - grey, most soft med grey, few mottled dark brown to grey, few mushy lite grey, washes cup grey

LS - cream to white, fine to med xin, chalky txt w/ partial re-xin, some pp-sm vuggy & re-xin porosity; slight odor, ssfo on break, lt brown oil; fair scattered dull yellow flour w/ few fluor drops floating; v. slow weeping cut forms blue ring over 30 seconds

2500 LS - cream to lt tan, sl sucr to chalky texture, partial re-xin; (2-3) pcs w/ show aa; overall chalky, barren, trace odor

2250

2300

Mud-Co  
Depth: 2311'  
Wt. 9.3+  
Vis. 47  
Filtrate 8.8  
Chl 1,200  
LCM 0

Vis Low > adding premix

2350

2400

2450

2500

LS - mostly cream, few lt grey, mst med xin w/ chalky texture; trans fine xin grey, platy & blocky, med firm (1-2) pcs w/ ssfo, poss cavings (no cup odor)

LS - cream, med xin w/ chalky & foss txture, foss (mst oolites w/ poor dev intrafoss porosity, abundant chalky; few pcs trans to dark brown, app shale contact

LS - cream, med xin w/ grey foss, chalky txture w/ poor vis porosity; mod friability w/ chalky break, few frax w/ re-xin 2ndary; sm dark gils stn ip; few pcs dark shales

LS - cream to tan, med xin, chalky, few foss; flood SH - grey to brown, some earthy, sub carb

2550

poor sample \* shift change; large shale cavings; few crm LS & poss carb SH

2550

Stark 2553 (-1114)

SH - dark brown to black, earthy, carb, ssg; chalky edges; \*dense

LS - cream, med xin, sucrosic ip, foss, intrafoss (ool) to interxin porosity; sl oom-oom to sl vgy ip; trace show fo in tray w/ increase on break; fair cup odor; sptd fluor w/ slow streaming cut

LS - cream, trace pcs aa, trans fine xin, micrite to cherty ip; chalky w/ poor vis porosity

20-40-60

Hushpuckney

SH - black, carb

LS - tan to brown, micrite, angular 2ndary xin devel (unknown yellow mineral); questionable so in (1-2) pcs; appear cavings

LS - cream, tan to brown, crm med xin, chalky w/ dark gils staining; tan - brown, fine xin, blocky & dense w/ poor vis porosity

2600

\*very poor sample\* 95% shale cavings; few LS - tan to grey, fine to micro xin w/ abundant foss, well cemented w/ poor intrafoss or vis porosity; dense

ROP (min/ft)  
Gamma (API)

B/KC 2608 (-1169)

AA - flood shale cavings \* few pcs mottled grey-green shales & argillaceous, foss LS, questionable

SH - few black carb, flood varicolored grey to green, brown, some mottled, soft to blocky, some grey, v. soft to mushy, sticky

SH - varicolored greys, some green to brown, soft & sticky to med hard, blocky; mottled in some; few trc pyrite clust

SH - lt grey w/ black mic specks, green, mst med soft - sl firm; few limey, argill, sm pyritic w/ pyrite xin dev in sh

SH - mst med grey, soft to mushy, sticky, few limey; argillaceous & partly foss

2650

SH - as above, increase dark, argillaceous (shaley lime) w/ foss; flood lt grey to white - v soft; gloffy - dissolves easily

VIS: 50  
WT: 9.5#  
LCM: 1#

Marmaton 2662 (-1223)

SH, as above, trans to SS - gry to lt green, v. fine grained; mod friable w/ shaley matrix; few dark incl; oa med friable; poor visible porosity, no odor, ns : few LS - green to dark, argillaceous w/foss

SS - aa, trans to LS - cream to tan (sm green hue), med xin; highly foss w/poor re-xin & intrafoss porosity, few shaley (lt to med green, med soft)

2650

LS - mst cream to tan, sm green hue, med xin, sandy ip; some foss; argillaceous, few brown, fine xnl, blocky & foss (knobby); trace shales, green & sandy aa, few grey, & dark brown to blk

2700

LS - cream w/ sm sl green hue, fine to med xin, foss ip w/ few gm gluac staining; sandy in some w/ fn grained ss - frsted, well md/std; shaley & limey; trace chalky & few maroon & ylw shales; few pcs SH - dark w/ green mottled; earthy, ques sg

2700

SH - grey/black & mottled green, trans LS - cream/tan, few green hue, med xin & foss; argillaceous ip; sl chalky

LS - cream to lt grey, sm brown, med xin, heavily foss, well cemented w/ poor intrafoss porosity; chalky ip

Flood SH - deep brown to black, earthy, poss carb

Mud-Co  
Depth: 2717'  
Wt. 9.3  
Vis. 50  
Filtrate 8.8  
Chi 1,100  
LCM 1#

LS - cream to lt grey, few brown, fn to med xin, hvy foss, poor re-xin ip; soft crush; trace blk carb sh w/ ssg; sl chalky throughout

2750

LS - cream to lt grey, v. sim aa, few darker LS, micrite & few pcs CH - varicolored, opaque, vitreous

VIS: 45  
WT: 9.2#  
LCM: 2#

questionable sample \* brought in late\*

2750

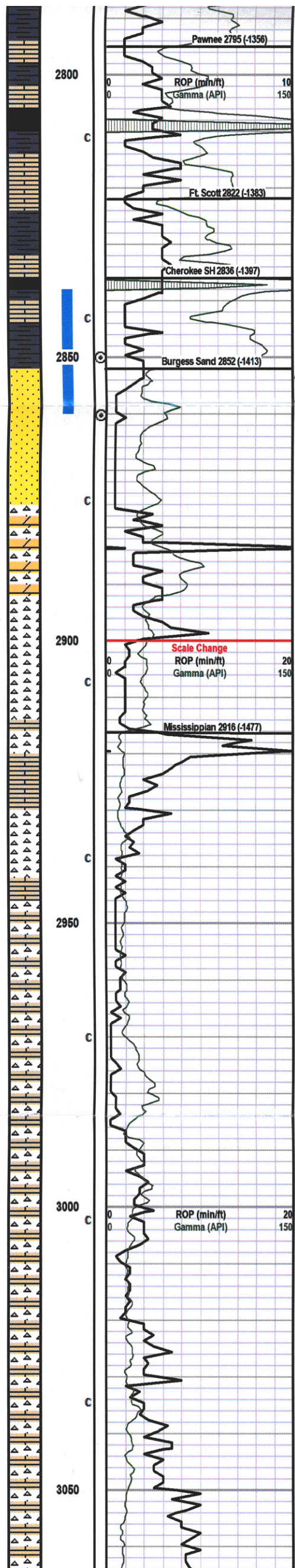
Altamont 2766 (-1327)

SH - black, carb w/ ssg

SH - grey lt grey & few LS - cream tan, fine xin; dense

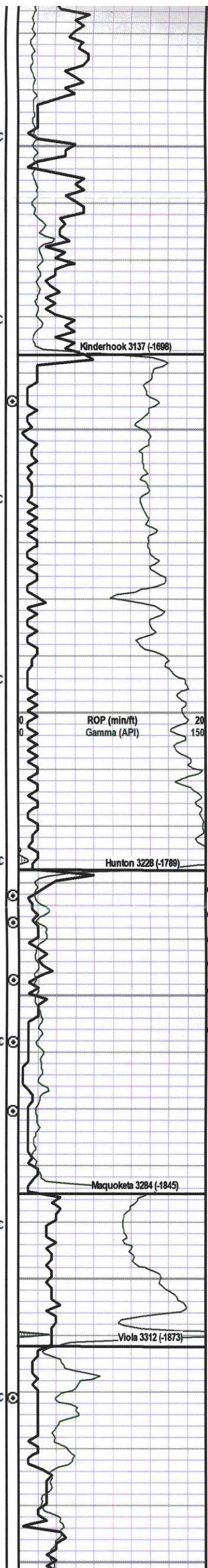
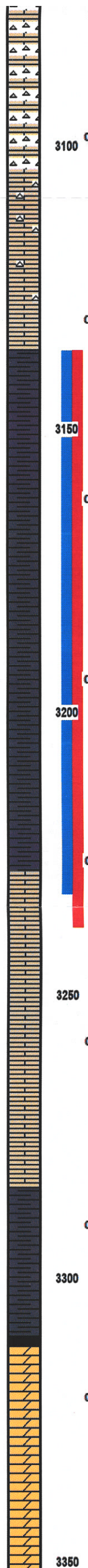
LS - cream to lt grey, mst fine xin, platy & blocky, dense; no odor, ns

LS - cream to tan, brown, mst fine xin; platy & blocky, rare foss; oa dense; no odor, ns



2800  
 0 ROP (min/ft) 10  
 0 Gamma (API) 150  
 Pawnee 2795 (-1356)  
 LS - cream to lt grey, tan, sl green hue in some; partly argillaceous, fine-med xln; occ foss, mst blocky & dense; trc chalky  
 SH - black, carb & v dense  
 Ft. Scott 2822 (-1383)  
 LS - cream -tan, brown, fine to microxln (micrite) few pcs w/ sl green hue; oa v. dense & blocky w/ no vis por  
 LS - aa, few pcs w/ sl re-xln dev ip; few sub-cherty  
 Cherokee SH 2836 (-1387)  
 SH - few black, carb & abundant varicolored grey, yellow, maroon, green, etc, some mottled; mostly soft & sticky/gummy; few LS -tan-brwn, argillaceous w/ sl green hue; fine to microxln ip w/ few foss; dense  
 Burgess Sand 2852 (-1413)  
 SS - few clusters; white, fn - med grained, sub angular; white matrix; trace show free oil ip w/ spotted yellow fluor; inst streaming cut; weak cup odor  
 SS - abundant clusters, white to lt green hue; fn-med grained, sub rnd-ang, fairly sorted (sm larger grains) few w/ glauconitic & pyritic incl; oa good friability; ssfo (light) in tray, increase on break w/ fr-good odor; inst streaming cut; oa good show  
 2900  
 Scale Change  
 0 ROP (min/ft) 20  
 0 Gamma (API) 150  
 Mississippian 2916 (-1477)  
 Flood CH - varicolored, mst shades yellow-orange, few red, opaque in most, sl foss ip; vitreous; few transitional varicolored shaley  
 \*sample pulverized; appears varicolored vitreous chert; flood large shale cavings  
 LS - white, cottony txture w/ sl ylw - lt brown stn in part; appears sl dolomitic & cherty; good friability w/ fair intraxln porosity; no odor, ns: ~50% shales & cherts remain - cavings  
 LS, CH & Chty LS; white to cream, vitreous to cottony txture; sl foss ip, mst good friab w/ poor - fair vis por; flood sky blue chalky, sticky shale w/ few edge contacts; no odor, ns  
 LS - most white, few cream, med xln; sl granular txture; highly chalky; v. soft crush, scattered chalky material; few pcs white vitreous CH, few sl weathered txt  
 LS - offwhite & Cherty LS, med xln w/ cottony texture in most; good friab in mst w/ fairly soft crush; few pcs more vitreous CH w/ sl increase density; abdt chalky, ns  
 LS & Chty LS, aa, no significant changes; few pcs w/ sl gils stn ip; ns  
 LS - cherty, cream w/ granular to cottony txture; sl dolomitic app, trans CH - white, sl foss ip, smooth vitreous txture w/ sharp edges; brittle to sl dense in sm; sl fractured  
 CH - white to lt grey, vitreous in most; foss in part (app spic) few weathered to sub-trippolitic; few lt bm edge staining; few glauconitic & pyritic in few, no odor, ns  
 CH - varicolored, ylw - green, maroon, sm foss, vitreous in most; trans pcs to LS - cream to tan, fn-med xln, blocky & foss; flood shale - varicolored & mottled; some dense (cavings ?)  
 CH - mst white, vitreous, sm weathered, few cream, limey & partly foss; some transitional pcs; occ varicolored chert; foss, vitreous & glassy, abdt sh cavings - sm large silvers  
 CH - aa, some w/ cottony texture; appears dolomitic ip; trans cream, dolomitic app, sucrosic txture, mod soft crush; poor to fair vis porosity; no odor, ns, abdt sh cavings - sm large silvers  
 CH - white to translucent - vitreous to weathered w/ cottony txture ip, sm dark speckled, few pyritic bands; trans & marbled LS, cream, med xln -sucr to dolomitic; abdt sh cavings - sm large silvers  
 CH - v. similar aa, increase weathered & pcs w/ marbled LS; abdt sh cavings - sm large silvers  
 CH - white, trans to opaque, vitreous to weathered, sm foss, cottony txt in some, few pyritic xln dev; few pcs fractured w/ dark stn; sm marbled LS - cream to tan, med xln, sucr; abdt sh cavings; large silvers  
 CH & LS, chert - wht to opq, vitreous, foss ip, sm weathered w/ cottony txt, pyritic ip; few fractured w/ dark stn; sm marbled w/ LS - cream to tn, med xln w/ sucr txt app dolomitic; no

2800  
 DST #1 Burgess Sand  
 Interval: 2838'-2860'  
 (22') Anchor  
 15-30-15-30  
 IF: sb built to 123"  
 IS: wk sfc bb  
 FF: built to 75"  
 FSI: 6" bb  
 SIP: 766-767#  
 IF: 150-386#  
 FF: 396-534#  
 Hydrostatic: 1426-1403#  
 BHT: 107 F  
 RW: 0.147 @ 56.4 Deg  
 2850  
 Recovery: 1200'  
 65' GIP  
 260' GVSO&HMCW (15% G 4% O 47% W 34% M)  
 940' GOSSMCW (4% G 1% O 88% W)  
 PDC Bit after DST #1  
 VIS: 46  
 WT: 9.4#  
 LCM: 2#  
 2900  
 20' samples from 2860-2920  
 Mud-Co  
 Depth: 2938'  
 Wt. 9.4  
 Vis. 51  
 Filtrate 8.0  
 Chl 1,300  
 LCM 3#  
 2950  
 3000  
 VIS: 43  
 WT: 9.4#  
 LCM: 3#  
 3050



CH - white to translucent; sl foss, vitreous to sl trippolitic ip w mostly edge weathering & partial stn; pyritic dev edges; some LS - cream, med xin suc; friable ~75%< SH cavings

LS - cream, med xin suc; chalky break; soft crush; CH, vitreous to weathered (cottony app, sl cream cl); v. sim aa; 70/30 LS/CH ratio, ~70% SH cavings

LS - cream to off wht-few lt green hue; med xin w chalky bxture, sm lt brn mnri stain; few pcs appear dolomite, fine xin suc; some CH remains, white to sl opaque, vitreous & blocky, ~60%SH cavings

Flood LS - cream, med xin, chalky & v. friable; sm marbled fine xin, sl foss ip; 10% CH aa, V significant reduction in SH cavings ~10% remains

LS - cream to lt tan, pred med xin w chalky bxture, few fine xin, sl foss ip, v. friable oa few pcs w lt green SH contact

Kinderhook 3137 (-1698)

Flood SH - grey to green, mottled ip, few slip, soft to med firm, few blocky; trace lt grey, gummy dissolves

SH - most lt grey, med soft, visible silty; few grey-green (sm mottled) slippery to blocky; trace maroon

SH - lt grey, silty, md soft; few green-grey, some darker w/ mottled green, waxy, some blocky ip; trace pyrite

SH - grey - lt grey; no significant change

SH - lt to dark grey, few frac'd w/ calc banding; med soft; few darker grey to brown

ROP (min/ft) 20  
Gamma (API) 150

Hunton 3228 (-1789)

Dol - app lt cream w translucent xin; med-coarse xin w fair -good intraxln porosity; sl cherty in matrix; mod friable; strong odor w / good show med brown free oil; increase on break; bright yellow fluor w/ instant streaming cut

Dol - flood; cream, med to coarse xin w sl cherty matrix; great intraxln porosity w/ fair-good friability; 80% sat'd stain & free oil in tray; heavy oil cut on break; strong cup odor; brght yhw fluor w/ inst streaming cut

CH - white to cream, tripp ip (tan) w/ spotty weathering; trans vitreous, white; boney & dense; LS - cream, fine xin w/ pyritic dev (sm xin, freq) chalky break

CH & LS ; CH-white to tan, mst vitreous & blocky, lithographic w/ sl weathering; few tan - sl to fully trippolitic w/ st'd stain; gsf, incr break; flood chalky LS - dolomitic cream to white; faint odor persists through 3258 cfs stop (60")

CH & Dol, wht to crm, lt tan, vit to sm trip ch, trans tan w/partial stn & sfo; in xnl suc dol ip w/ trc sfo, soft crush, sl chky ip 40"; increase Dol-crm, fine xin suc, v. friable w/ ques sto; ques cut w/ dull yhw fluor, forms ring over 30"; few pcs CH-yhw, vit & ool

Dol - crm lt tan, fine xin suc, v. friable, few pc sm vuggy porosity w/ mst intraxln; ns; dull yhw mineral fluor; no cut, v. faint cup odor

Dol - crm, fine xin suc, aa, sl increase vgy porosity; few pcs dark edge stn, appears shale contact; faint cup odor, ns

Dol - crm, fine xin sucrosic w/ good intraxln porosity; abdt vuggy porosity, mod-gd friability; barren porosity; flood chalk - white, soft

Maquoketa 3284 (-1845)

SH - varicolored grey, med firm to sl dense & blocky w/ sm pyritic banding, mottled ip; few pcs lt green/blue

SH - grey to med brown, sm spotted w/ darker brown spots; med soft to few dense; few pcs v. dense & app limey, blocky; sm mottled green-grey (poss cavings)

SH - grey - brown, silty, sl firm to dense; sm blocky; overall dense

Viola 3312 (-1873)

Dol - cm grey, med coarse xin w/ varisized xin dev; sm glauc stn ip; fair-poor intraxln, vgyg & fractured porosity dev; poor fraibility; dense, sl cup odor w/ sl ques fluor; no cut, ns

Dol - mst grey, med -coarse xin w/ varisized xin dev, sm xl rhombic xin growth; few glauc stn & abdt sm pyrite xin dev; good intra xin, & med-ig vuggy porosity; barren w/ trc odor, ns

Dol - mst grey, few crm, most v. similar aa; trans few fine xin, sl sucrosic w/ abdt glauconitic staining & few pcs w/ green hue; trace pc w/ edge shale contact (brwn) ns

Dol - ~50% aa, trans tan to brown, fine xin sucrosic; blocky w/ moderate friability; fair intraxln porosity; trc chalky; no odor, ns

Dol - crm to lt gry, fine xin suc; prevalent black speck; fw pcs w/ translucent xin w/ interbedded sand, wht app; good friability in most w white chalky matrix

VIS: 45  
WT: 9.3#  
LCM: 3#

Switch to 20' samples @ 3160

DST #2 Hunton  
Interval: 3137'-3232'  
(96") Anchor 3160  
30-30-60-60  
IF: wb built to 5"  
ISI: no bb  
FF: wb built to 9"  
FSI: no bb  
SIP: 1231-1236#  
IF: 21-44#  
FF: 47-81#  
Hydrostatic: 1538-1530#  
BHT: 104 F  
Grav: 27.5 API @ 60 Degrees

Recovery: 165' TF  
75' CO  
80' OCM (17% O 83% M)

3200

DST #3 Hunton  
Interval: 3137'-3237'  
(100") Anchor  
30-30-60-60  
IF: built to 17"  
ISI: no bb  
FF: built to 38"  
FSI: 1/2" surface bb  
SIP: 1230-1237#  
IF: 25-109#  
FF: 109-210#  
Hydrostatic: 1533-1527#  
BHT: 105  
Grav: 26.3 API @ ambient Degrees

Recovery: 445' TF  
165' CO  
160' GOCM (8% 3250% O 79% M)  
120' OCM (20% O 80% M)

VIS: 41  
WT: 9.2#  
LCM: 2.5#

Mud-Co  
Depth: 3237'  
Wt. 9.3+  
Vis. 45  
Filtrate 8.8  
Chl 1,400  
LCM 2#

VIS: 51  
WT: 9.1#  
LCM: 4#

3100

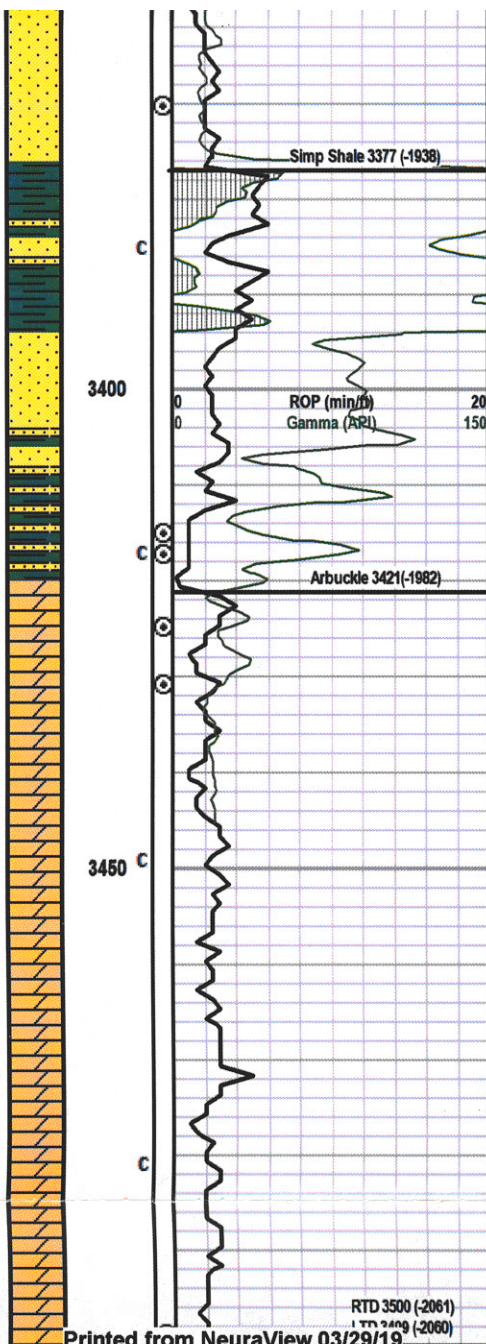
3150

3200

3250

3300

3350



SS - tan to brown app; mst med grains, well rnd & srt'd; good friab in most; clear grains on break w/ tan chalky matrix; no odor, fluor, ns

SS - med to lg clust; mst app cream to tan, few white; clear grains; fine to med grains; well rnd & sorted; some marbled coloring \*appears std stain; no fluor no odor, ns; sl chalky matrix; oa gd friability w/ few sl dnse clust

Simp Shale 3377 (-1938)

SS - wht, tan, brown app; fine grained, clear qtz grns, well rnd/srt'd; marbled matrix w/ lt to dark tan app, app stned; matrix color variations; no odor ns; flood SH - grey green brown, soft to dense, blocky, sm mottled

SH - flood grey, gummy & mushy, sm grey, firm blocky, mottled ip, slippery green & varicolored; yellow-red, sandy ip

SS - wht clust w/ abdt black (sh?) incl; w/ rnd/srt w/ good fri, fair-gd intragrnl porosity w/ well cmt'd mtr; abt SH - gry-green, sm blk, mtd ip; soft to firm & blocky; few SS-gry clust w/ abdt shale matrix, blk & glauc incl, no odor, ns

SS - mst white clust, aa, increase glauc & blk inclusions; good friability & intragrnl porosity; barren; ~30% SH - grey green brown, soft to firm, sm dark brown; fissile; few pyritic incl throughout sand & shales

SS - white to lt grey clusters w/ abdt glauc & dark inclusions, few pyrite xln dev (sm loose clusters\*, sm sh- lt green, soft, dissolves & few firm, mottled grn-blk; good intragrnl porosity & friab; barren

Arbuckle 3421(-1982)

Dol - brown, fine xln, blocky & dense; mst lithographic, few pcs w/ SS contact, no visible porosity, no odor, nsfo 40"; Dol - crm to brown, fine to med xln; brown aa, trans crm, med xln suc' w/ fair to good friab & intra xln w/ sl vgy porosity ip; barren, few SS contact; no odor, no fluor, nsfo 60" med xln, fw org-pink, fria, barren

Dol - crm to lt tan, pink, mst med xln, gd intraxln & few vgy por, good intra xln por w/ fair to good friability, partly dense, trace chalky, few pc w/ green shale contacts; barren porosity w/ no shows

Dol - crm lt tan, med xln w/ some large & XL xln growth (translucent rhombs) good intra xln porosity w/ scattered large vuggs, poor friability; dense break; barren porosity; no odor, ns, no fluor

Dol - crm to lt tan, mst med xln w/ few fn xln, fair visible porosity w/ decrease in vuggy porosity, increase friability; few pcs w/ marbled wht chert; barren, ns

Dol - cream to tan, few off-white, med xln w/ gd intra foss - sm vuggy porosity, fairly fraible; few pcs CH - white to lt grey, mst vitreous w/ re-xln frags, trace oolitic; sharp & fresh; no odor, no shows/fluor

Dol - crm lt tan, med xln, sl dense ip w/ oa lithographic appearance; few pcs CH - white to lt grey, opq, mst vitreous w/ few edge weathered; poor friab; no odor ns

Dol - cream to lt tan, sl pinkish hue in some; fine to med xln - sucrosic ip; moderately friable w/ fair-gd intraxln por; trace CH - wht & scattered chalky material; no odor, ns

Dol - crm to lt tan, sm brown, most fn-med xln, few re-xln suc & trc vgy porosity; fair-mod friab w/ fair -intraxln pors; few CH - white vitreous, heavily ool; trace weatherd ip; no odor, ns

3400

3450

Mud-Co  
 Depth: 3500'  
 Wt. 9.3  
 Vis. 57  
 Filtrate 8.8  
 Chl 1,100  
 LCM 4#