

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 Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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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)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top _____ Bottom _____
---	---	--

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Mud-Co / Service Mud Inc.
 100 S. Main, Suite #310
 Wichita, Ks. 67202
 Ph: 316-264-2814 Fax: 316-264-5024

Sold To: DK OPERATING, INC.
 621 BENTON ST
 JETMORE, KS 67854

Ship To: PICKRELL DRLG #10
 #1-12 MARK
 12-20S-23W
 NESS, KS

Shipped From Pratt Warehouse

Quantity	Description	Unit Price	Per	Amount
50	COTTON SEED HULLS	16.69	BAG	834.50
16	CAUSTIC SODA	62.52	BAG	1,000.32
1	CO-POLY-L	171.12	5GAL	171.12
4	DRILL PAK	306.90	BAG	1,227.60
3	LIME	10.23	BAG	30.69
280	PREMIUM GEL	17.11	BAG	4,790.80
20	SODA ASH #50	24.04	BAG	480.80
11	SUPER LIG	26.60	BAG	292.60

*** If Paid by 1/16/2019 you are entitled ***
 *** to a 15% discount of \$1,577.63 ***

Total Mud Cost: 8,828.43
 Trucking Cost: 1,689.08
 Sales Tax: 0.00
 Invoice Total: 10,517.51

1577.63
 8939.88

PAST DUE ACCOUNTS ARE SUBJECT TO A SERVICE CHARGE OF 1.25% PER MONTH AND ALL COSTS OF COLLECTION, INCLUDING ATTORNEY'S FEES

Mail Payments To: Mud-Co/ Service Mud Inc.
 100 S. Main, Suite #310
 Wichita, Ks. 67202

12-22-18
 C/C # 3482

Mud-Co / Service Mud Inc.

Operator **DK Operating** County **Ness** State **Kansas** Pump **6** X **14** X **60** SPM Casing Program **8 5/8" @ 236'**
 Well **Mark #1-12** Location **8.22 BPM**
 Contractor **Pickrell Drilling #10** Sec **12** TWP **20S** RING **23W** D.P. **4.5** in. GPM **203** FT/MIN.R.A.
 Stockpoint **Hays, Kansa** Date **11/30/2018** Engineer **Jason Whiting** Collar **6.25** in. **4.50** ft. **369** FT/MIN.R.A.
 Total Depth **4397'** ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY		GELS 10 sec/7 1/2 min	pH	FILTRATION/FILTRATION ANALYSIS				SAND %	RETURN			Pump Press PSI	CUMULATIVE COST	REMARKS AND TREATMENT
			Sec API @ F	PV @ F			mi API	Cake 30nds	Press #BBL	CI ppm		Ca ppm	Solids %	Oil %			
11/29	0				Make up	Water											
12/5	1275	8.9	29			7.0	N/C									0 RURT	Elevation 2243' surveyed
12/6	2223	9.9	29			7.0	N/C									1,726	Drig.
12/7	2752	9.5	29			7.0	N/C									2,259	DRI
12/8	3241	9.6	29			7.0	N/C									3,860	DRI
12/9	3766	8.8	51	18	11/36	10.0	8.0	1								5,979	DRL
12/10	4185	9.3	72	9	20/94	9.0	13.2	1								6,948	DRL
12/11	4385	9.3	62	10	26/87	10.0	16.0	2								7,500	Drig
12/12	4397	9.0	52	14	13/42	9.0	16.0	1								7,549	DST #1
12/13	4397															8,307	CTCH
																8,828	Final:
																	LTD - 4397'
																	3 DST's.
																	No Logs.
																	Run Casing.
																	Suggested premix after short trip was ignored by rig.
																	Causing poor mud properties
																	Reserve Pit, Chi content ppm:44000
																	Estimated Volume:1200bbbls

MATERIALS	Sacks		Amount	
	Materials	Sacks	Amount	Amount
C/S HULLS	50		834.50	
CAUSTIC SODA	16		1000.32	
CO-POLY-L	1		171.12	
DRILL PAK	4		1227.60	
LIME	3		30.69	
PREMIUM GEL	280		4790.80	
SODA ASH	20		480.80	
SUPER LIG	11		292.60	
TOTAL COST				10517.51

MUD-CO / SERVICE MUD INC.
 100 S. Main Suite #310
 Wichita, Ks. 67202
 316/264-2814 Fax: 316/264-5024

DRILLING MUD RECAP

408684

<table border="1"> <tr> <td>Phone #</td> <td>785-445-3525</td> </tr> <tr> <td>Fax #</td> <td>785-445-3526</td> </tr> </table>		Phone #	785-445-3525	Fax #	785-445-3526	Thank you for your business.
Phone #	785-445-3525					
Fax #	785-445-3526					
Total \$4,808.05						
Quantity	Description	Rate	Amount			
160	60/40 POZMIX CEMENT	14.02	2,243.20			
6	CALCIUM-CHLORIDE	80.00	480.00			
3	BENTONITE GEL	30.00	90.00			
169	HANDLING	1.90	321.10			
	BULK MILEAGE	500.00	500.00			
1	TRI-PLEX PUMP CHARGE FOR SURFACE	850.00	850.00			
35	HEAVY EQUIPMENT, ONE WAY	6.50	227.50			
35	LMV- ONE WAY	2.75	96.25			
	15% DISCOUNT IF PAID WITHIN 15 DAYS OF INVOICE					
	new sales tax rate as of 7-1-2015	8.50%	0.00			

P.O. No.	MARK 1-12
Terms	Due on receipt
Project	

Bill To
 DK OPERATING INC
 621 BENTON ST
 JETMORE, KS 67854

Date	12/10/2018
Invoice #	0013289

12-22-18
 3490

GLOBAL OIL FIELD SERVICES, LLC
 24 S. Lincoln
 RUSSELL, KS 67665

Invoice

GLOBAL OIL FIELD SERVICES, LLC

0013289

REMIT TO

24 S. Lincoln
Russell, KS 67665

SERVICE POINT:

Russell, KS

DATE	12-1-18	SEC.	12	TWP.	26S	RANGE	23W	ON LOCATION		JOB START	4/25 AM	JOB FINISH	4/25 AM
LEASE MARK	1-12	WELL #	1-12	LOCATION	SOUTH OF Mrs. Kym's farm			COUNTY	McPh	STATE	KS		
OLD OR NEW (CIRCLE ONE) <input type="checkbox"/> OLD <input checked="" type="checkbox"/> NEW													

CONTRACTOR: Pickrell Drilling, LLC OWNER: DR Operations

TYPE OF JOB: Well T.D. 239 CEMENT AMOUNT ORDERED: 16058 Co/10 for 30%

HOLE SIZE: 12 1/4 DRILL PIPE DEPTH: 236 TUBING SIZE DEPTH: 236

TOOL DEPTH: 236 PRES. MAX DEPTH: 236 MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 24 PERFS

DISPLACEMENT EQUIPMENT

PUMP TRUCK CEMENTER 10/11 HELPER 5/11

BULK TRUCK DRIVER 10/11 BULK TRUCK DRIVER 10/11

REMARKS: 16058 Co/10 for 30% cement. 10/11 hooked up. 10/11 hooked up. 10/11 hooked up.

DEPTH OF JOB PUMP TRUCK CHARGE EXTRA FOOTAGE MILEAGE MANIPOLD

PLUG & FLOAT EQUIPMENT TOTAL

SERVICE TOTAL

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

Global Oil Field 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: Mike Klein
 SIGNATURE: [Signature]

CHARGE TO: DR Operations
 STREET: _____
 CITY: _____ STATE: _____ ZIP: _____



TICKET 031875

CHARGE TO: DK Operating
 ADDRESS:
 CITY, STATE, ZIP CODE:

SERVICE LOCATIONS: Neos City, KS
 1. WELL/PROJECT NO. 1-17 LEASE MARK COUNTY/PARISH Ness CITY Neos City STATE KS DATE 13 Dec 18 OWNER
 2. TICKET TYPE SERVICE SALES CONTRACTOR PICKRELL RIG NAME/NO. location ORDER NO.
 3. WELL TYPE oil WELL CATEGORY Development JOB PURPOSE concrete 2-stage for string DELIVERED TO location WELL LOCATION 12-20-23
 4. INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT							
575		1			20	mi			5.10	100.00
579		1		MILEAGE TRX 114					1800.00	1800.00
403		1		Pump Charge (2 stage)	2	ea			275.00	550.00
407		1		Cement Bucket	1	ea			325.00	325.00
408		1		insert float shoe w/ AUTO FILL	1	ea			3375.00	3375.00
409		1		DV Tool	5	ea			85.20	425.00
417		1		Turbolizer	1	ea			200.00	200.00
				DV latch door plug & baffle						

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.
 X Ricky Popp TIME SIGNED A.M. P.M.

DATE SIGNED

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

SURVEY
 OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?
 WE UNDERSTOOD AND MET YOUR NEEDS?
 OUR SERVICE WAS PERFORMED WITHOUT DELAY?
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?
 ARE YOU SATISFIED WITH OUR SERVICE?
 YES NO

AGREE UNDECIDED DISAGREE

PAGE TOTAL 6775.00
 9150.18
 15,925.18
 847.80
 16,773.04

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

SWIFT OPERATOR Ricky Popp APPROVAL

Thank You!

TERMS		Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1-12		Mark	Ness	Pickrell Drlg	Oil	Development	Cement 2 stage l...	Blaine
PRICE REF.	DESCRIPTION	QTY	UM	UNIT PRICE	AMOUNT				
575D	Mileage - 1 Way	20	Miles	5.00	100.00				
579D	Pump Charge - Two-Stage & Top To Bottom LongString	1	Job	1,800.00	1,800.00				
403-5	5 1/2" Cement Basket	2	Each	275.00	550.00				
407-5	5 1/2" Insert Float Shoe With Auto Fill	1	Each	325.00	325.00				
408-5	5 1/2" D.V. Tool & Plug Set	1	Each	3,375.00	3,375.00				
409-5	5 1/2" Turbolyzer	5	Each	85.00	425.00				
417-5	5 1/2" D.V. Latch Down Plug & Baffle	1	Each	200.00	200.00				
330	Swift Multi-Density Standard (MIDCON II)	200	Sacks	16.25	3,250.00				
325	Standard Cement	175	Sacks	13.00	2,275.00				
284	Calscal	8	Sack(s)	35.00	280.00				
283	Salt	900	Lb(s)	0.20	180.00				
292	Halad 322	125	Lb(s)	8.00	1,000.00				
276	Flocele	100	Lb(s)	2.50	250.00				
281	Mud Flush	500	Gallon(s)	1.50	750.00				
221	Liquid KCL (Clayfix)	4	Gallon(s)	25.00	100.00				
290	D-Air	2	Gallon(s)	42.00	84.00				
581D	Service Charge Cement	375	Sacks	1.75	656.25				
583D	Drayage	382.27	Ton Miles	0.85	324.93				
	Subtotal			6.50%	15,925.18				
	Sales Tax Ness County				847.86				
					Total	\$16,773.04			

We Appreciate Your Business!

BILL TO
 D K Operating, Inc.
 621 Benton Street
 Jetmore, KS 67854

- Acidizing
- Cement
- Tool Rental

INVOICE #	DATE
31875	12/13/2018

Invoice

12-22-18
 CK# 3487



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

SWIFT
 Services, Inc.

CUSTOMER: DK Operating WELL NO.: 1-12 LEASE: MAPR JOB TYPE: Count long skin 2stage 3B75 TICKET NO.: 3B75

DESCRIPTION OF OPERATION AND MATERIALS

175sk 4-2 count w/ 1/4" fibro

200sk 5MD count w/ 1/4" fibro

5x 17" casing 102.75

5x 17" casing 102.75

Contrate 1.124 to 6.69

once well 14

start 5x17" casing in well

Drop ball - circulate

Pump 30 gal mud flush

Pump 30 bbl RCL fluid

Mix 2-2 count 175sk @ 15.3ppg

Drop 1st stage plug

Wash-out pump & line

Displace plug

Mud plug 1st stage

Drop 1st stage

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Geologic Report

Drilling Time and Sample Log

Operator DK Operating, Inc.			Elevation KB 2250'	
Lease Mark		No. 1-12	DF GL 2243'	
API # 15-135-26038-0000			Casing Record	
Field Riverside NW			Surface 8 5/8" @ 236' 160sx 60-40 POZ, 2% Gel, 3% CC	
Location 467' FNL & 1095' FEL			Production 5 1/2" @ 4397' D/V @ 1500' 175sx 8MD, 175sx EA2	
Sec. 12 Twp. 20s Rge. 23w			Electrical Surveys None	
County Ness		State Kansas		
Formation	Sample tops	Log Tops	Datum	Struct Comp
Anhydrite	1472'		+778	+783 -5
Base	1507'		+743	
Heebner	3704'		-1454	-1452 -2
Lansing	3751'		-1501	-1502 -1
BKC	4083'		-1833	-1833 FL
Pawnee	4199'		-1949	-1954 +5
Fort Scott	4270'		-2020	-2023 +3
Cherokee	4295'		-2045	-2051 +6
Mississippian	4366'		-2116	-2115 -1
Osage	4379'		-2129	-2132 +3
Total Depth	4397'		-2147	
Reference Well For Structural Comparison Murfin Drilling Company Simmitt #1-12 C NW NW Sec. 12 T20s R23w Ness Co. Kansas				

Drilling Contractor	Pickrell Drilling Co. Rig #10		
Commenced	11-30-2018	Completed	12-13-2018
Samples Saved From	4000'	To	RTD
Drilling Time Kept From	3600'	To	RTD
Samples Examined From	4000'	To	RTD
Geological Supervision From	4000'	To	RTD
Displacement	3500'		
Mud Type	Chemical		

Summary and Recommendations

The location for the Mark #1-12 was found via 3-D seismic survey. The new well ran structurally as expected via the survey. Three Drill Stem Tests were conducted, one of which recovered commercial amounts of oil from the Mississippian Osage Formation. After all gathered data had been examined the decision was made to run 5 1/2 inch production casing to further evaluate the Mark #1-12 well.

Respectfully Submitted,

Jason T Alm
Hard Rock Consulting, Inc.

ROCK TYPES

Cht
Dolsec

Lmst fw7>
shale, gry

Carbon Sh
shale, red

Shool

ACCESSORIES

MINERAL
~ Varicolored chert
△ Chert White
∇ Euhed rhombs of dol or

FOSSIL
◇ Oolite

STRINGER
-D-AT Conglomerate
••• Sandstone
Shale
— green shale
— red shale

TEXTURE
C Chalky

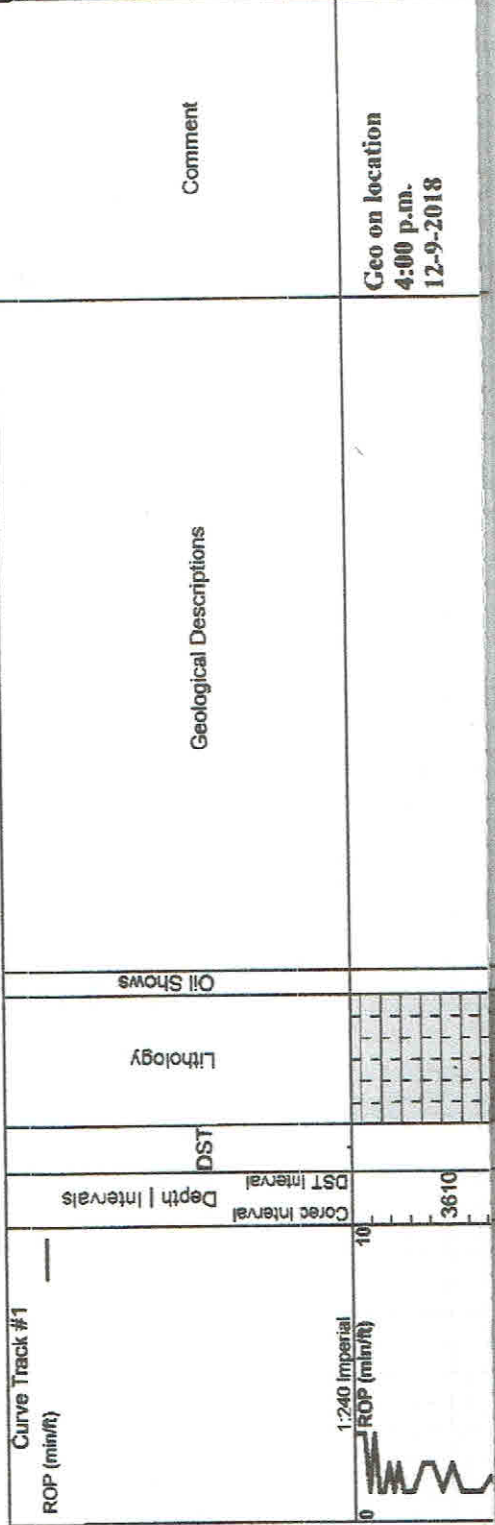
OTHER SYMBOLS

OIL SHOWS
● Even Stn
● Spotted Stn 50 - 75 %
○ Spotted Stn 25 - 50 %
○ Spotted Stn 1 - 25 %
○ Questionable Stn
D Dead Oil Stn
■ Fluorescence

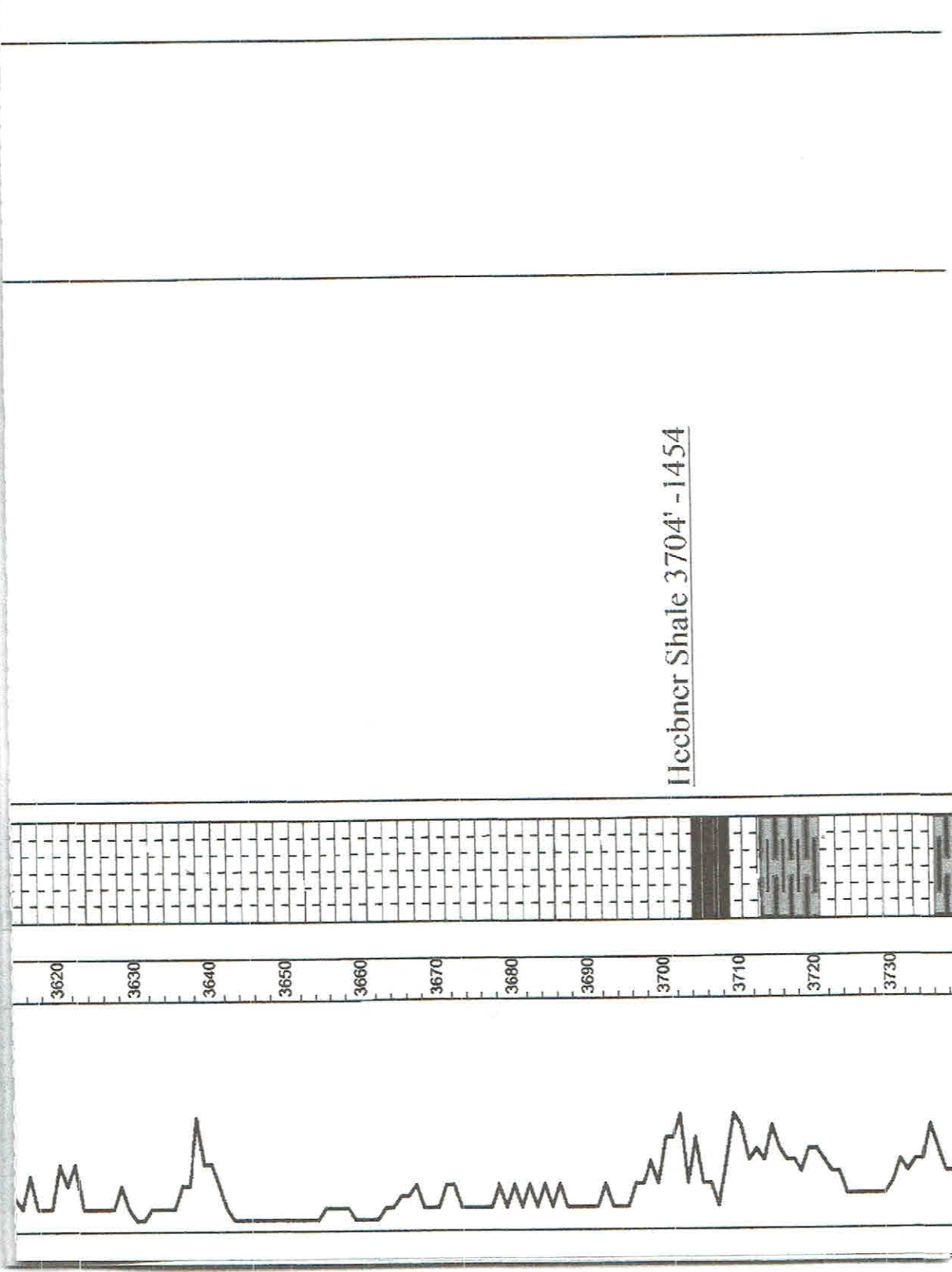
INTERVALS
■ Core
• DST

DST
■ DST Int
■ DST alt
■ Core
|| tail pipe

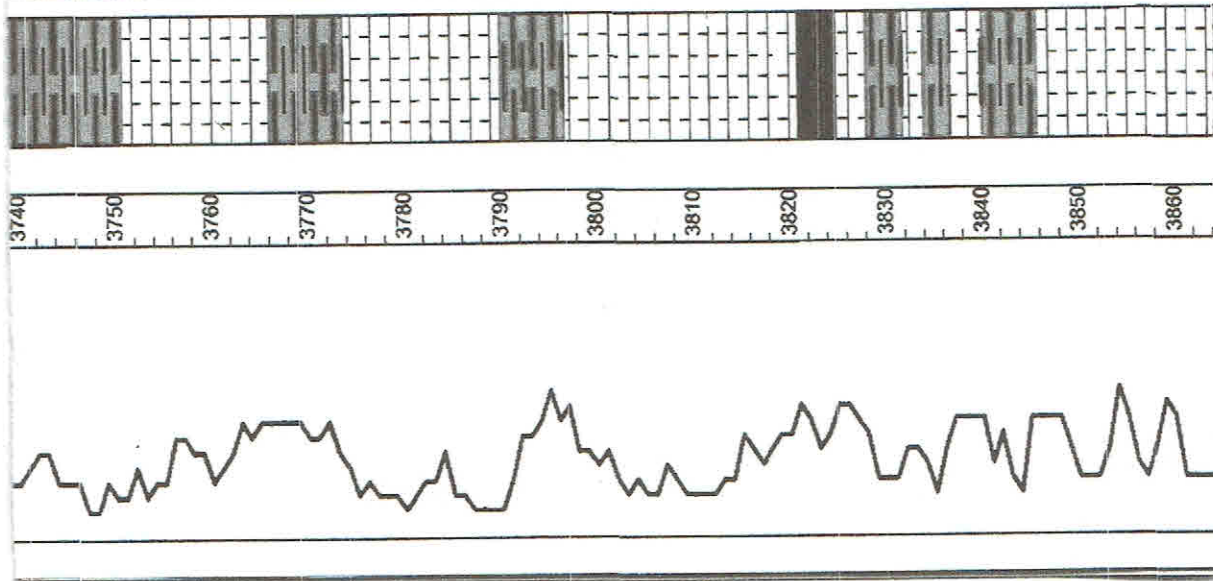
Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

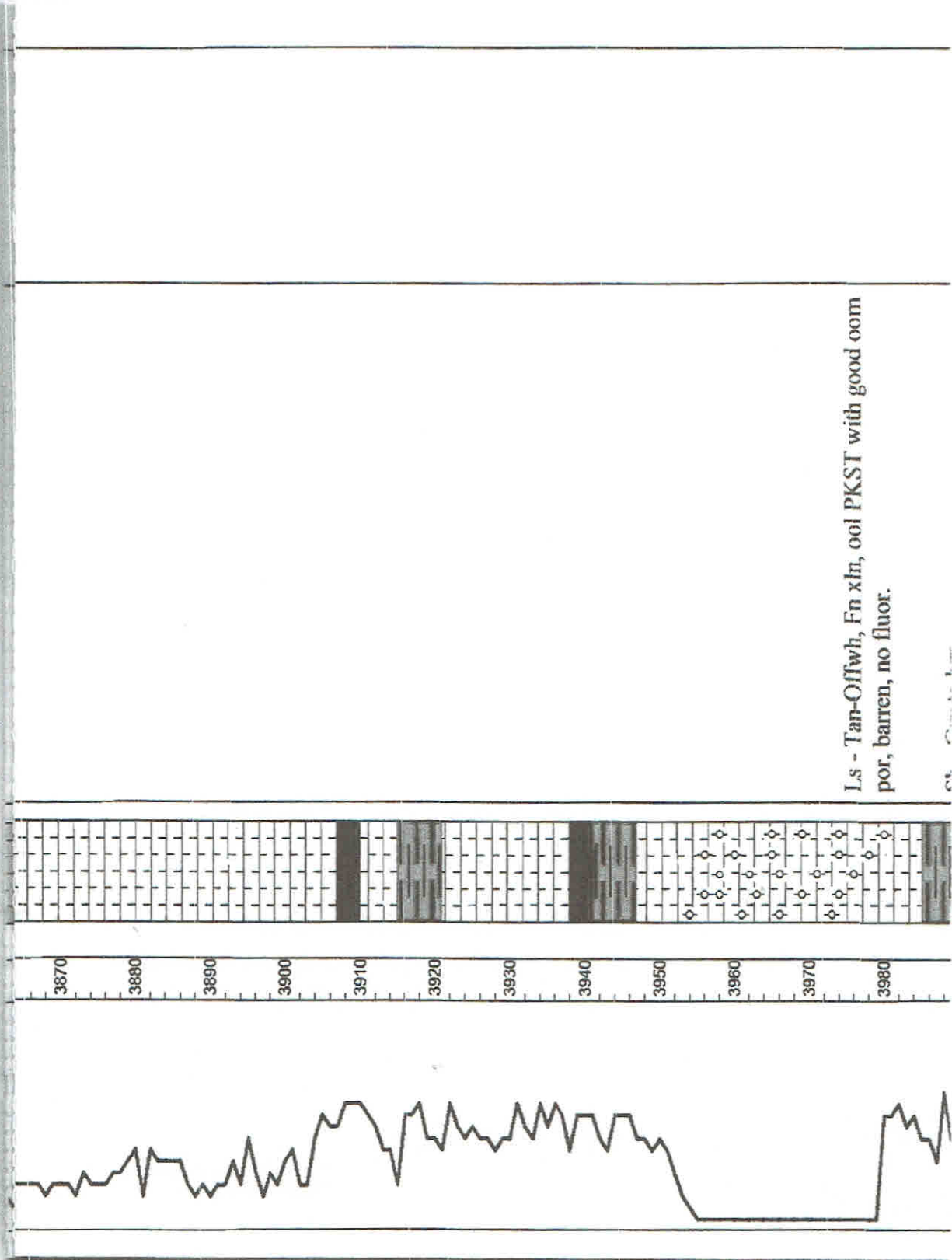


Heebner Shale 3704' - 1454



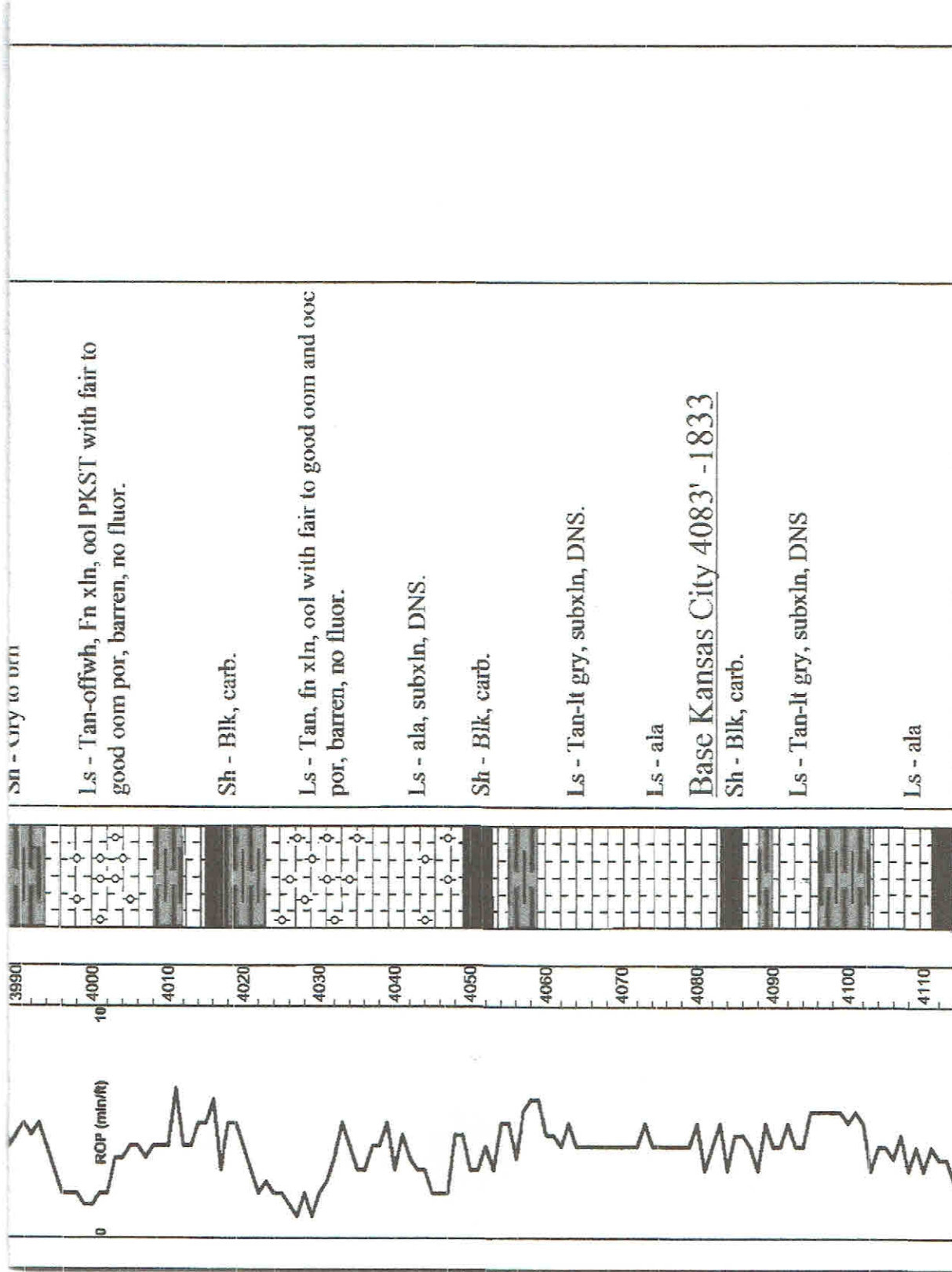
Lansing-Kansas City 3751' -1501

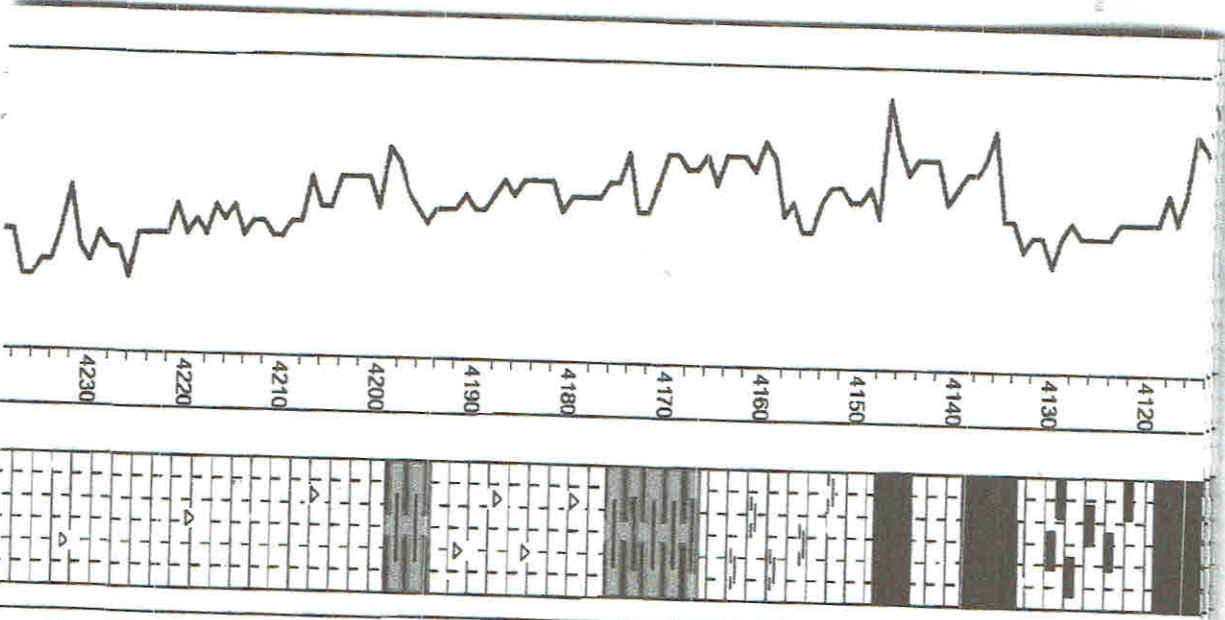




Ls - Tan-Offwh, Fn xln, ool PKST with good com
por, barren, no fluor.

ca. 1000 ft





Sh - Brn-gry

Ls - Tan, subxln, mottled with brn to red sh.

Sh - Brn-gry

Ls - Tan-lt gry, subxln, DNS

Sh - Gry to brn

Ls - Tan-lt gry, subxln, DNS, sl chert-whl.

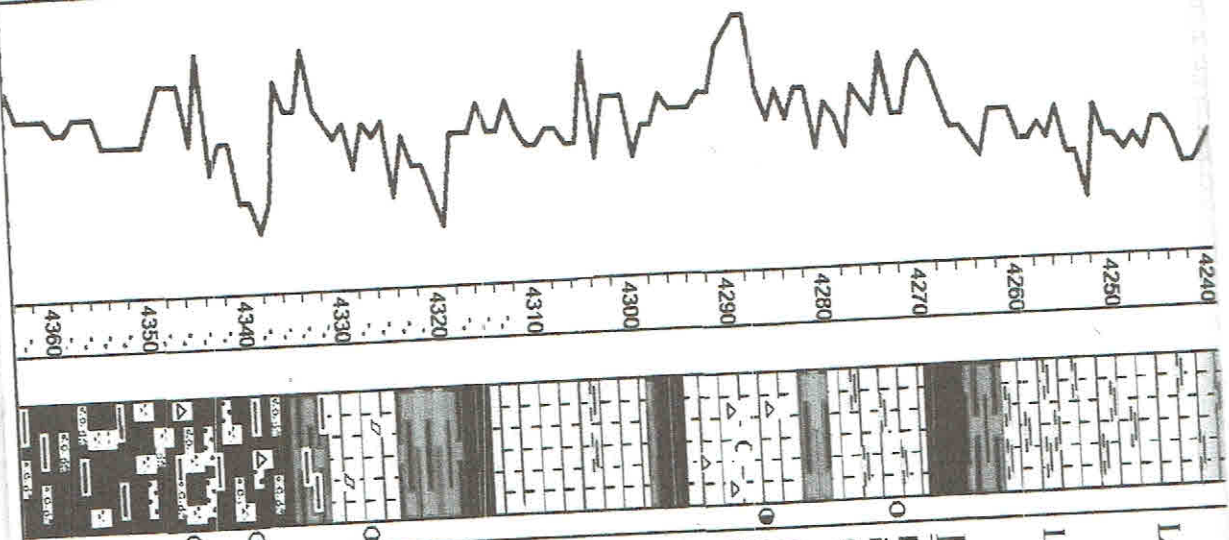
Pawnee 4199' - 1949

Sh - Gry-grn, semi-carb.

Ls - Gry-lt gry, subxln, DNS.

Ls - ala

Ls - ala



Ls - Gry, subxln, DNS, increasing drk gry sh.

Ls - ala, heavy drk gry sh.

Fort Scott 4270' - 2020

Ls - Tan-offwh, fn-subxln w/ poor vuggy & scat poor interxln por, lt spot oil st in por, sl sfo when broken, lt yel fluor, no odor, mottled w/ gry sh.

Ls - Tan, fn xln w/ poor to fair interxln & vuggy por, light to fair spot oil st, very lt sat in part, sl sfo when broken, few gas bubbles on break, lt-fair yel fluor, fair odor, chalky in part.

Cherokee 4295' - 2045

Sh - Blk-drk gry

Ls - Tan-lt gry, fn-subxln, DNS.

Sh - Blk-drk gry

Sh - Gry-brn-grm

Ls - Tan-offwh, fn-subxln w/ scattered poor vuggy por, lt oil st in por, NSF0, no odor, dull yel fluor.

Sh - Gry-grm

Sh - Brn-red-grm, fairly cherty-varied color, sl sandy w/ many dense Ss clusters, sl oil st, lt SFO in trav.

Sh - ala, more chert, less sand, less oil shows.

Sh - ala, heavy frag chert, mostly barren.

Mississippian 4266' - 2116'

DST #1
Mississippian Osage
4313' - 4385'

30-30-15

IH 2091 #

IF 24-24 #

Built to 1 1/4 in

ISI 865 #

FF Dead

24-29 #

Built to 1/4 in

FH 2083 #

BHT 109 degrees F

Recovery:

1' Clean Oil

20' SI oil spot mud

DST #2

Mississippian Osage
4385' - 4394'

15-30-10

Mis-run, couldn't get tool to bottom. Fill in hole

DST #3

Mississippian Osage
4312-4397'

45-45-45-45

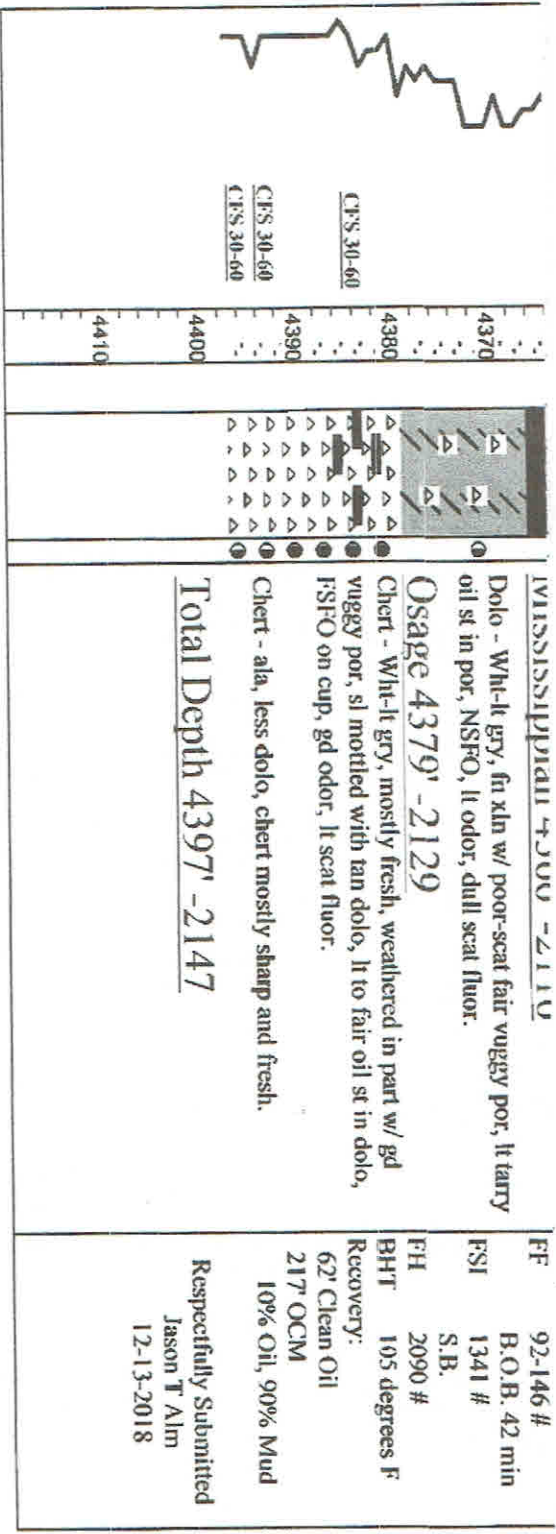
IH 2118 #

IF 25-88 #

B.O.B. 33 min

ISI 1352 #

S.B.





DRILL STEM TEST REPORT

Prepared For: **DK Operating Inc**

621 Benton St
Jetmore, KS 67854+9019

ATTN: Jason Alm

Mark #1-12

12-20S-23W Ness,KS

Start Date: 2018.12.11 @ 12:42:00

End Date: 2018.12.11 @ 18:04:02

Job Ticket #: 64569 DST #: 1

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

Printed: 2018.12.14 @ 10:42:28

DK Operating Inc
12-20S-23W Ness,KS
Mark #1-12
DST # 1
Mississippi
2018.12.11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

DK Operating Inc
 621 Benton St
 Jetmore, KS 67854+9019
 ATTN: Jason Alm

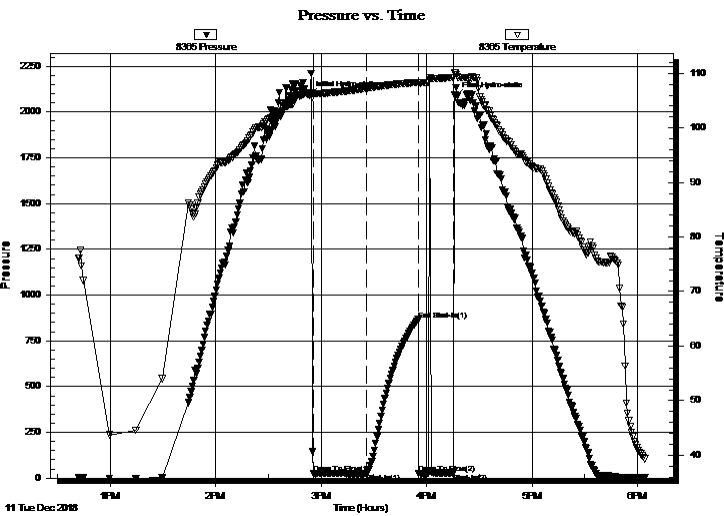
12-20S-23W Ness,KS
Mark #1-12
 Job Ticket: 64569 **DST#: 1**
 Test Start: 2018.12.11 @ 12:42:00

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:55:32
 Time Test Ended: 18:04:02
 Interval: **4313.00 ft (KB) To 4385.00 ft (KB) (TVD)**
 Total Depth: 4385.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: 7
 Reference Elevations: 2250.00 ft (KB)
 2243.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8365 **Inside**
 Press@RunDepth: 24.85 psig @ 4314.00 ft (KB) Capacity: psig
 Start Date: 2018.12.11 End Date: 2018.12.11 Last Calib.: 2018.12.11
 Start Time: 12:42:01 End Time: 18:04:02 Time On Btm: 2018.12.11 @ 14:53:32
 Time Off Btm: 2018.12.11 @ 16:16:17

TEST COMMENT: IFP 30 Minutes Blow built to 1 1/2"
 ISI 30 Minutes No blow back
 FFP 15 Minutes Few bubbles at open - Flush tool - Built to 1/4" - Pull test



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2091.46	106.46	Initial Hydro-static
2	24.23	106.24	Open To Flow (1)
32	24.85	107.25	Shut-In(1)
62	865.22	108.31	End Shut-In(1)
62	24.74	108.20	Open To Flow (2)
82	29.00	109.26	Shut-In(2)
83	2083.78	110.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Light oil spot mud/ Mud 100%	0.28
1.00	Clean Oil	0.01

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

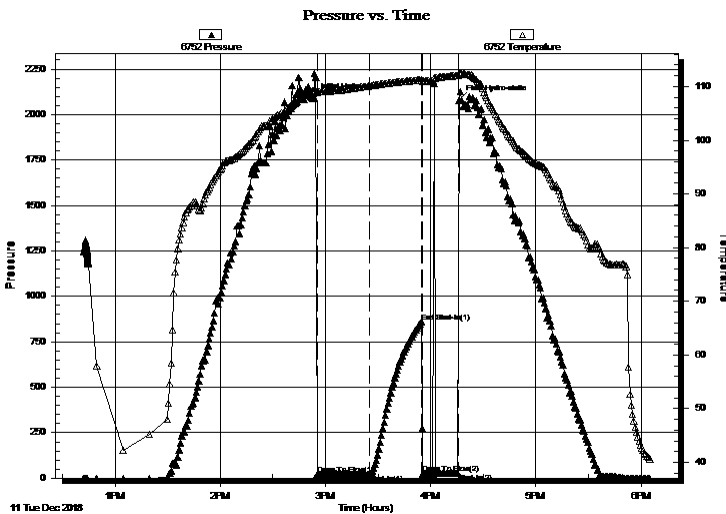
12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64569 **DST#: 1**
Test Start: 2018.12.11 @ 12:42:00

GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:55:32
Time Test Ended: 18:04:02
Interval: **4313.00 ft (KB) To 4385.00 ft (KB) (TVD)**
Total Depth: 4385.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor
Test Type: Conventional Bottom Hole (Initial)
Tester: Ken Swinney
Unit No: 7
Reference Elevations: 2250.00 ft (KB)
2243.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6752 Outside
Press@RunDepth: 860.64 psig @ 4315.00 ft (KB) Capacity: psig
Start Date: 2018.12.11 End Date: 2018.12.11 Last Calib.: 2018.12.11
Start Time: 12:42:01 End Time: 18:05:02 Time On Btm: 2018.12.11 @ 14:53:32
Time Off Btm: 2018.12.11 @ 16:16:17

TEST COMMENT: IFP 30 Minutes Blow built to 1 1/2"
ISI 30 Minutes No blow back
FFP 15 Minutes Few bubbles at open - Flush tool - Built to 1/4" - Pull test



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2090.10	109.24	Initial Hydro-static
2	20.41	108.97	Open To Flow (1)
32	21.77	110.12	Shut-In(1)
62	860.64	111.20	End Shut-In(1)
62	24.42	111.03	Open To Flow (2)
83	26.43	112.07	Shut-In(2)
83	2079.77	112.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Light oil spot mud/ Mud 100%	0.28
1.00	Clean Oil	0.01

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64569 **DST#: 1**
Test Start: 2018.12.11 @ 12:42:00

Tool Information

Drill Pipe:	Length: 4292.00 ft	Diameter: 3.80 inches	Volume: 60.21 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 60.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4313.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	72.44 ft			
Tool Length:	100.44 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut-In Tool	5.00			4290.00	
Hydraulic tool	5.00			4295.00	
Jars	6.00			4301.00	
Safety Joint	2.00			4303.00	
Top Packer	5.00			4308.00	
Packer	5.00			4313.00	28.00 Bottom Of Top Packer
Recorder	1.00	8365	Inside	4314.00	
Recorder	1.00	6752	Outside	4315.00	
Anchor	34.00			4349.00	
Change Over Sub	1.00			4350.00	
Drill Pipe	31.44			4381.44	
Change Over Sub	1.00			4382.44	
Bullnose	3.00			4385.44	72.44 Anchor Tool

Total Tool Length: 100.44



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DK Operating Inc

12-20S-23W Ness,KS

621 Benton St
Jetmore, KS 67854+9019

Mark #1-12

Job Ticket: 64569

DST#: 1

ATTN: Jason Alm

Test Start: 2018.12.11 @ 12:42:00

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:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 15.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Light oil spot mud/ Mud 100%	0.281
1.00	Clean Oil	0.014

Total Length: 21.00 ft Total Volume: 0.295 bbl

Num Fluid Samples: 0

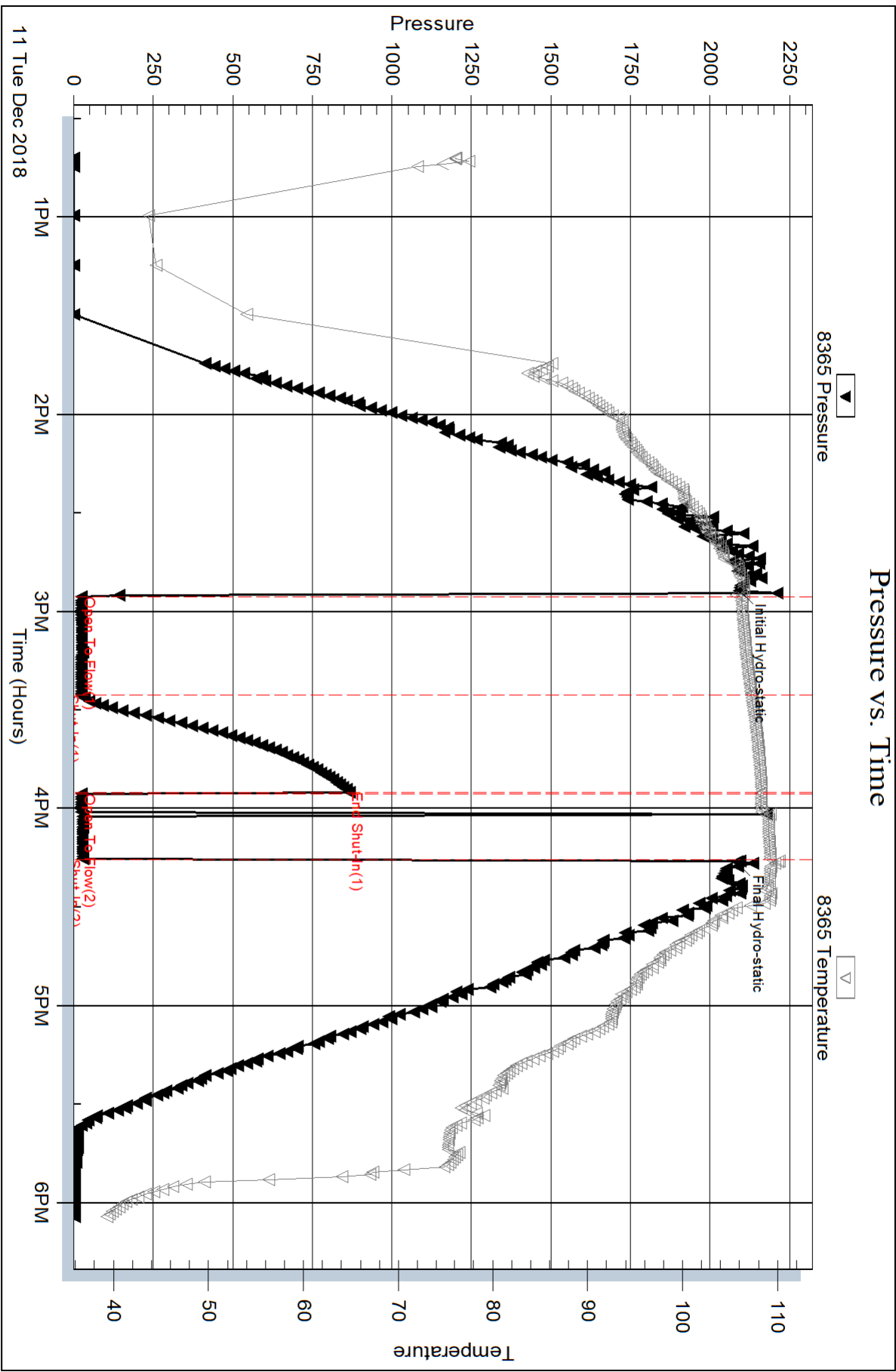
Num Gas Bombs: 0

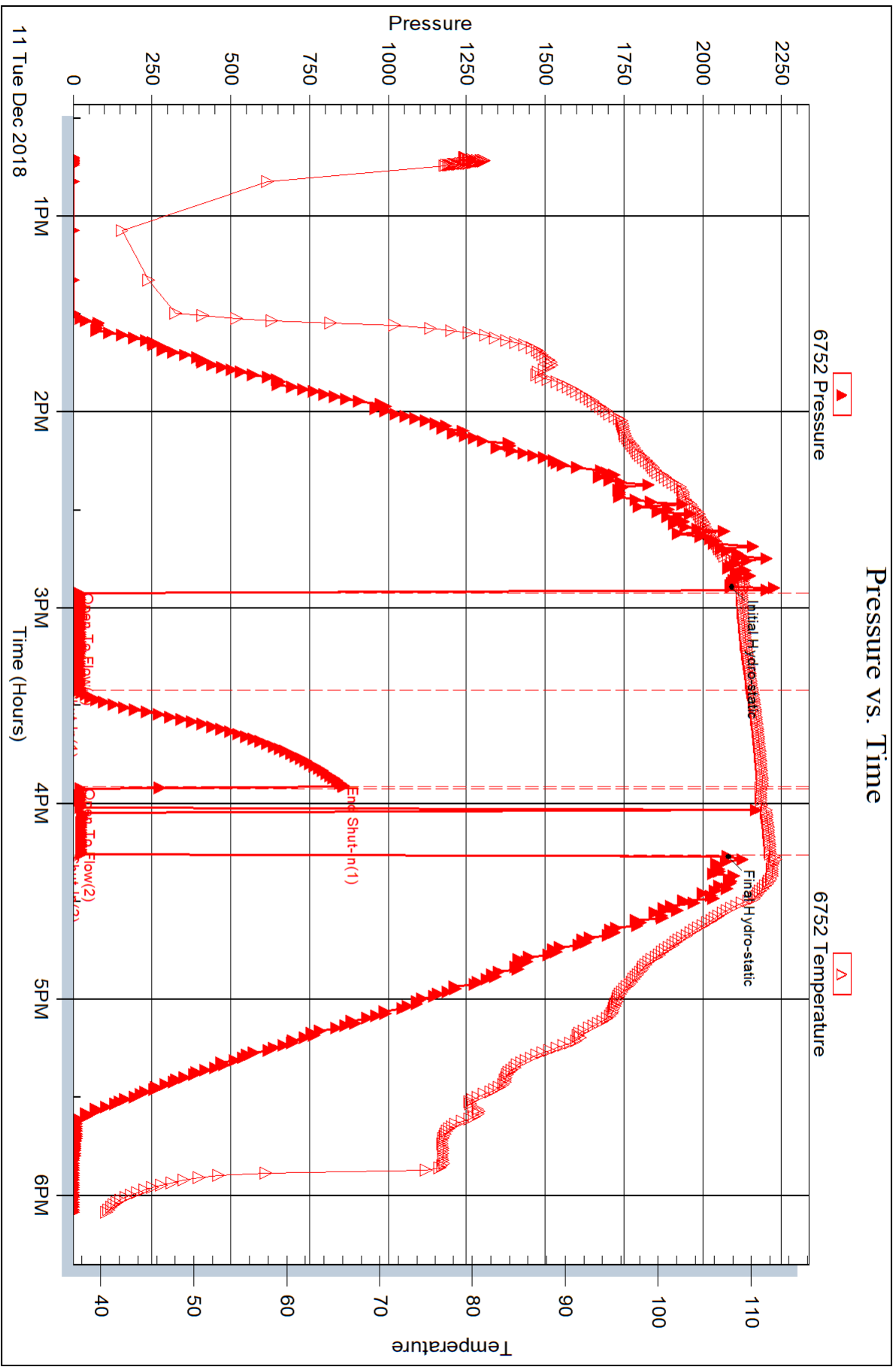
Serial #:

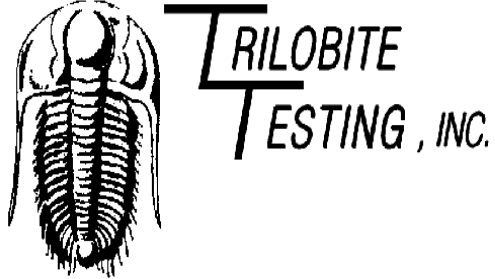
Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **DK Operating Inc**

621 Benton St
Jetmore, KS 67854+9019

ATTN: Jason Alm

Mark #1-12

12-20S-23W Ness,KS

Start Date: 2018.12.12 @ 01:18:00

End Date: 2018.12.12 @ 06:10:17

Job Ticket #: 64570 DST #: 2

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

Printed: 2018.12.14 @ 10:42:05

DK Operating Inc
12-20S-23W Ness,KS
Mark #1-12
DST # 2
Mississippi
2018.12.12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

DK Operating Inc
 621 Benton St
 Jetmore, KS 67854+9019
 ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
 Job Ticket: 64570 **DST#: 2**
 Test Start: 2018.12.12 @ 01:18:00

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:16:47
 Time Test Ended: 06:10:17
 Interval: **4385.00 ft (KB) To 4394.00 ft (KB) (TVD)**
 Total Depth: 4394.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: 72
 Reference Elevations: 2250.00 ft (KB)
 2243.00 ft (CF)
 KB to GR/CF: 7.00 ft

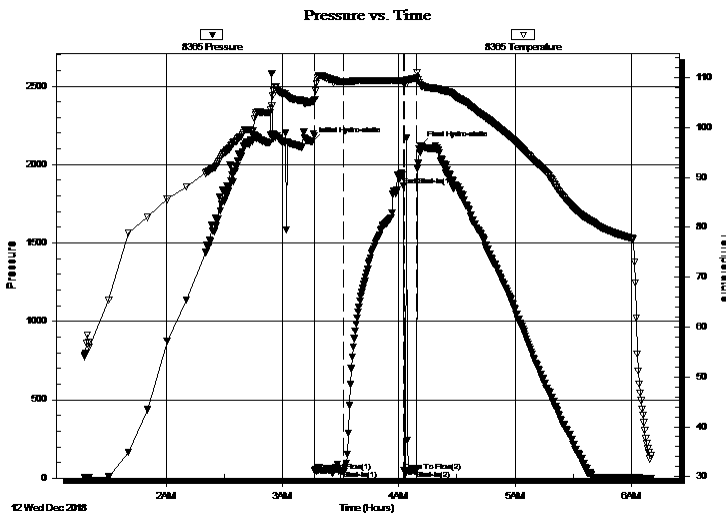
Serial #: 8365

Inside

Press@RunDepth: 48.09 psig @ 4386.00 ft (KB) Capacity: psig
 Start Date: 2018.12.12 End Date: 2018.12.12 Last Calib.: 2018.12.12
 Start Time: 01:18:01 End Time: 06:10:17 Time On Btm: 2018.12.12 @ 03:15:32
 Time Off Btm: 2018.12.12 @ 04:11:17

TEST COMMENT: Hole had fill - tool set 7 foot high
 IFP Blow built to 1 3/4" - Flush tool additional 1/4" build
 ISI No blow back
 FFP Dead - Flush tool no help - Pull test

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2145.55	105.16	Initial Hydro-static
2	46.46	105.64	Open To Flow (1)
16	48.09	109.18	Shut-In(1)
47	1866.34	109.38	End Shut-In(1)
48	45.82	108.64	Open To Flow (2)
54	50.34	109.90	Shut-In(2)
56	2122.03	108.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud 100%	0.42

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

DK Operating Inc
 621 Benton St
 Jetmore, KS 67854+9019
 ATTN: Jason Alm

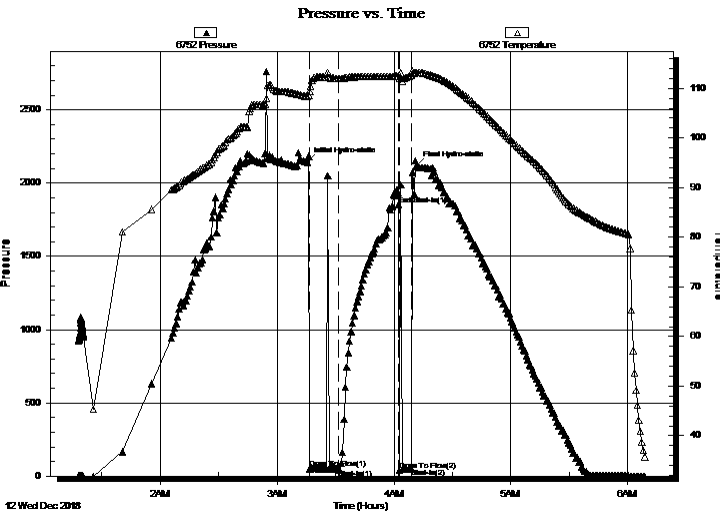
12-20S-23W Ness,KS
Mark #1-12
 Job Ticket: 64570 **DST#: 2**
 Test Start: 2018.12.12 @ 01:18:00

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:16:47
 Time Test Ended: 06:10:17
 Interval: **4385.00 ft (KB) To 4394.00 ft (KB) (TVD)**
 Total Depth: 4394.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: 72
 Reference Elevations: 2250.00 ft (KB)
 2243.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 6752 Outside
 Press@RunDepth: 1854.75 psig @ 4387.00 ft (KB) Capacity: psig
 Start Date: 2018.12.12 End Date: 2018.12.12 Last Calib.: 2018.12.12
 Start Time: 01:18:01 End Time: 06:09:02 Time On Btm: 2018.12.12 @ 03:15:32
 Time Off Btm: 2018.12.12 @ 04:11:32

TEST COMMENT: Hole had fill - tool set 7 foot high
 IFP Blow built to 1 3/4" - Flush tool additional 1/4" build
 ISI No blow back
 FFP Dead - Flush tool no help - Pull test



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2142.85	108.36	Initial Hydro-static
2	50.82	109.38	Open To Flow (1)
16	47.50	112.00	Shut-In(1)
47	1854.75	112.47	End Shut-In(1)
48	39.42	111.99	Open To Flow (2)
54	52.95	112.65	Shut-In(2)
56	2121.21	113.22	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud 100%	0.42

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64570 **DST#: 2**
Test Start: 2018.12.12 @ 01:18:00

Tool Information

Drill Pipe:	Length: 4386.00 ft	Diameter: 3.80 inches	Volume: 61.52 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 120000.0 lb
			<u>Total Volume: 61.52 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4385.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	36.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut-In Tool	5.00			4363.00	
Hydraulic tool	5.00			4368.00	
Jars	5.00			4373.00	
Safety Joint	2.00			4375.00	
Top Packer	5.00			4380.00	
Packer	5.00			4385.00	27.00 Bottom Of Top Packer
Recorder	1.00	8365	Inside	4386.00	
Recorder	1.00	6752	Outside	4387.00	
Anchor	4.00			4391.00	
Bullnose	3.00			4394.00	9.00 Anchor Tool
Total Tool Length:	36.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64570 **DST#: 2**
Test Start: 2018.12.12 @ 01:18:00

Mud and Cushion Information

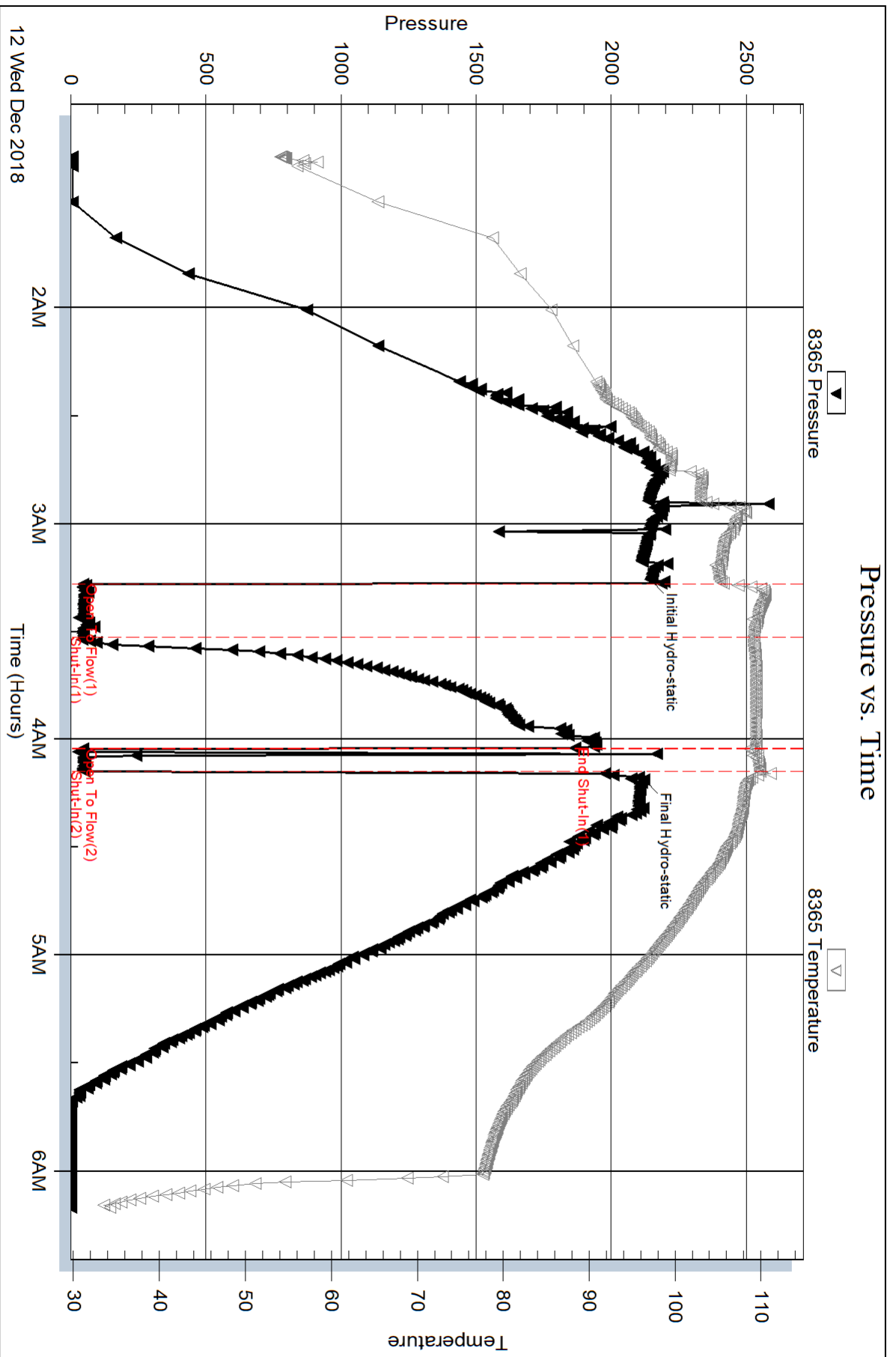
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 62.00 sec/qt	Cushion Volume: bbl		
Water Loss: 15.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 8000.00 ppm			
Filter Cake: 1.00 inches			

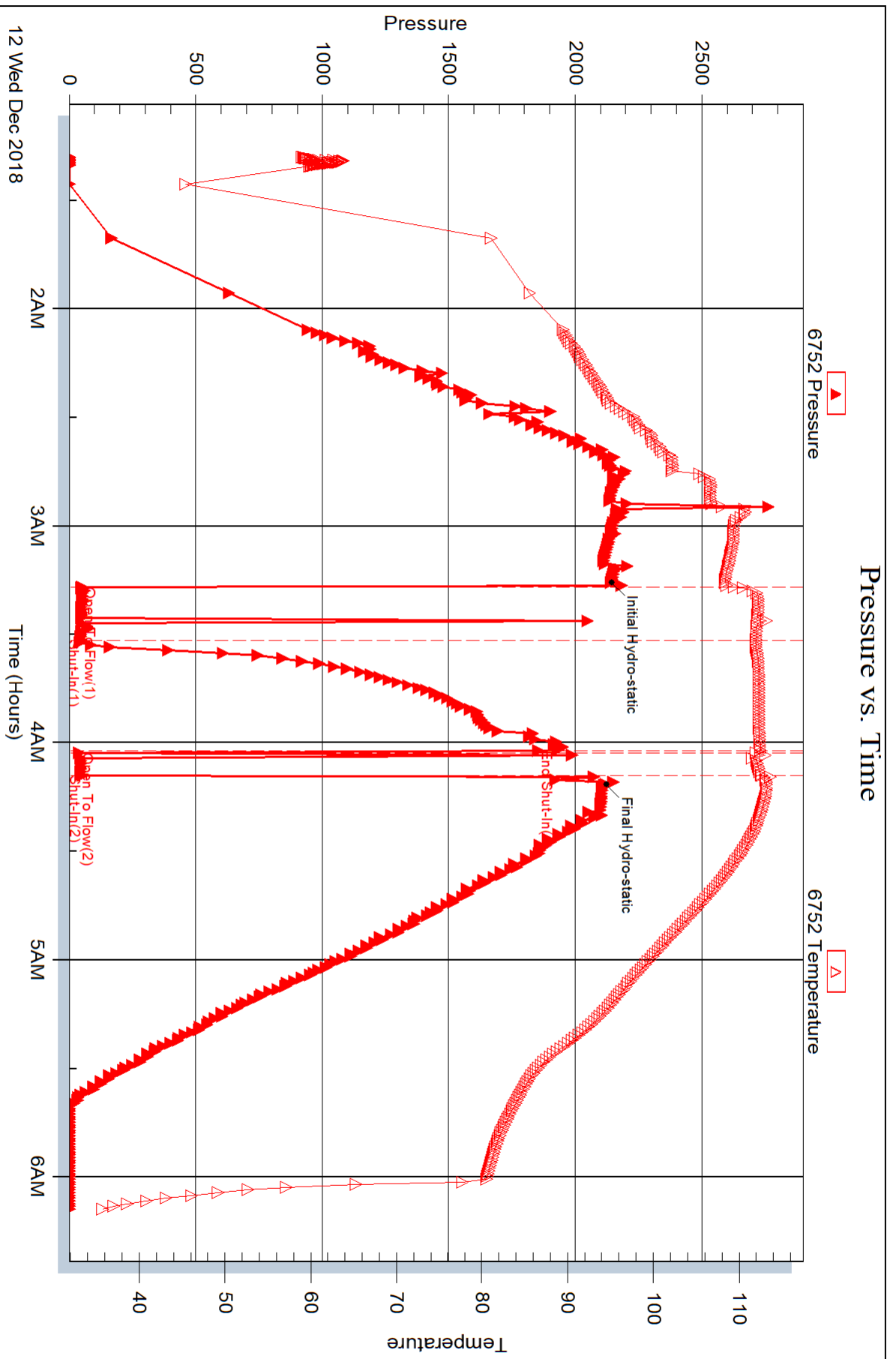
Recovery Information

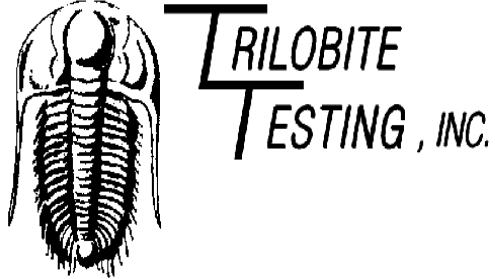
Recovery Table

Length ft	Description	Volume bbl
30.00	Mud 100%	0.421

Total Length: 30.00 ft Total Volume: 0.421 bbl
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **DK Operating Inc**

621 Benton St
Jetmore, KS 67854+9019

ATTN: Jason Alm

Mark #1-12

12-20S-23W Ness,KS

Start Date: 2018.12.12 @ 16:50:00

End Date: 2018.12.12 @ 23:56:02

Job Ticket #: 64571 DST #: 3

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

Printed: 2018.12.14 @ 10:40:28

DK Operating Inc
12-20S-23W Ness,KS
Mark #1-12
DST # 3
Mississippi
2018.12.12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

DK Operating Inc
 621 Benton St
 Jetmore, KS 67854+9019
 ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
 Job Ticket: 64571 **DST#: 3**
 Test Start: 2018.12.12 @ 16:50:00

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 18:37:17 Tester: Ken Swinney
 Time Test Ended: 23:56:02 Unit No: 72
 Interval: **4312.00 ft (KB) To 4397.00 ft (KB) (TVD)** Reference Elevations: 2250.00 ft (KB)
 Total Depth: 4397.00 ft (KB) (TVD) 2243.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 7.00 ft

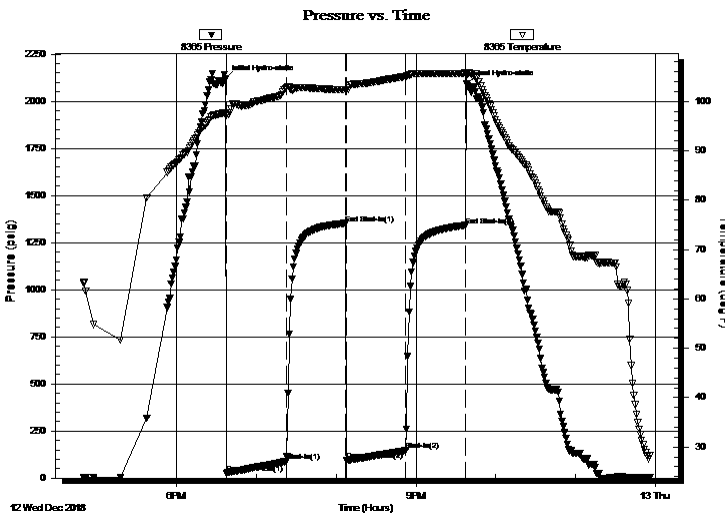
Serial #: 8365

Inside

Press@RunDepth: 145.90 psig @ 4313.00 ft (KB) Capacity: psig
 Start Date: 2018.12.12 End Date: 2018.12.12 Last Calib.: 2018.12.13
 Start Time: 16:50:01 End Time: 23:56:02 Time On Btm: 2018.12.12 @ 18:36:47
 Time Off Btm: 2018.12.12 @ 21:38:02

TEST COMMENT: IFP 45 Minutes Blow built to BOB in 33 minutes -Total build 16"
 ISI 45 Minutes Slight blow back
 FFP 45 Minutes Blow built to BOB in 42 minutes - Total build 13 1/2"
 FSI 45 Minutes Slight blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2117.52	97.54	Initial Hydro-static
1	25.60	97.31	Open To Flow (1)
46	88.13	102.85	Shut-In(1)
91	1351.79	102.38	End Shut-In(1)
91	92.73	102.44	Open To Flow (2)
136	145.90	105.09	Shut-In(2)
181	1341.09	105.73	End Shut-In(2)
182	2090.35	105.85	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
217.00	Oil cut Mud/ Oil 10% Mud 90%	3.04
62.00	Clean Oil 100%	0.87

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64571 **DST#: 3**
Test Start: 2018.12.12 @ 16:50:00

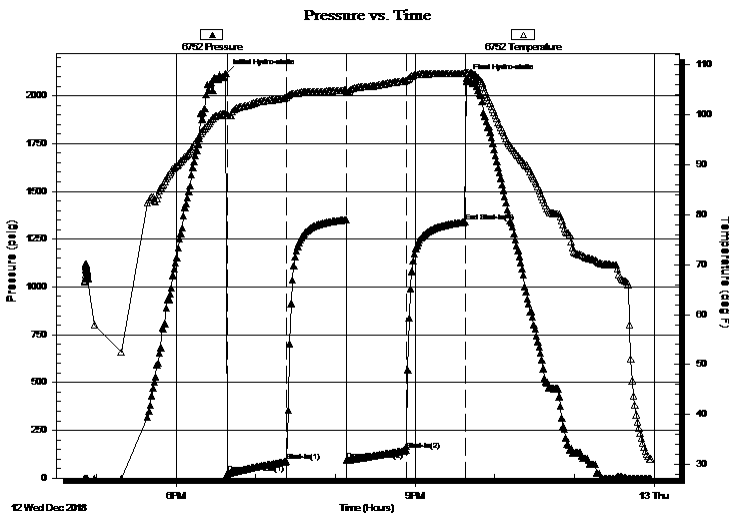
GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:37:17
Time Test Ended: 23:56:02
Interval: **4312.00 ft (KB) To 4397.00 ft (KB) (TVD)**
Total Depth: 4397.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2250.00 ft (KB)
2243.00 ft (CF)
KB to GR/CF: 7.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Ken Swinney
Unit No: 72

Serial #: 6752 Outside
Press@RunDepth: 1339.76 psig @ 4314.00 ft (KB) Capacity: psig
Start Date: 2018.12.12 End Date: 2018.12.12 Last Calib.: 2018.12.13
Start Time: 16:51:00 End Time: 23:58:01 Time On Btm: 2018.12.12 @ 18:37:46
Time Off Btm: 2018.12.12 @ 21:39:01

TEST COMMENT: IFP 45 Minutes Blow built to BOB in 33 minutes -Total build 16"
ISI 45 Minutes Slight blow back
FFP 45 Minutes Blow built to BOB in 42 minutes - Total build 13 1/2"
FSI 45 Minutes Slight blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2116.46	100.29	Initial Hydro-static
1	23.44	99.89	Open To Flow (1)
46	86.96	103.56	Shut-In(1)
91	92.04	104.64	Open To Flow (2)
136	144.87	106.89	Shut-In(2)
180	1339.76	108.37	End Shut-In(1)
182	2089.63	108.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
217.00	Oil cut Mud/ Oil 10% Mud 90%	3.04
62.00	Clean Oil 100%	0.87

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64571 **DST#: 3**
Test Start: 2018.12.12 @ 16:50:00

Tool Information

Drill Pipe:	Length: 4292.00 ft	Diameter: 3.80 inches	Volume: 60.21 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 76000.00 lb
			<u>Total Volume: 60.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4312.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	84.97 ft			
Tool Length:	112.97 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut-In Tool	5.00			4289.00	
Hydraulic tool	5.00			4294.00	
Jars	6.00			4300.00	
Safety Joint	2.00			4302.00	
Top Packer	5.00			4307.00	
Packer	5.00			4312.00	28.00 Bottom Of Top Packer
Recorder	1.00	8365	Inside	4313.00	
Recorder	1.00	6752	Outside	4314.00	
Anchor	15.00			4329.00	
Change Over Sub	1.00			4330.00	
Drill Pipe	62.97			4392.97	
Change Over Sub	1.00			4393.97	
Bullnose	3.00			4396.97	84.97 Anchor Tool

Total Tool Length: 112.97



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DK Operating Inc
621 Benton St
Jetmore, KS 67854+9019
ATTN: Jason Alm

12-20S-23W Ness,KS
Mark #1-12
Job Ticket: 64571 **DST#: 3**
Test Start: 2018.12.12 @ 16:50:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 37 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 15.98 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 9800.00 ppm		
Filter Cake: 1.00 inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
217.00	Oil cut Mud/ Oil 10% Mud 90%	3.044
62.00	Clean Oil 100%	0.870

Total Length: 279.00 ft Total Volume: 3.914 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

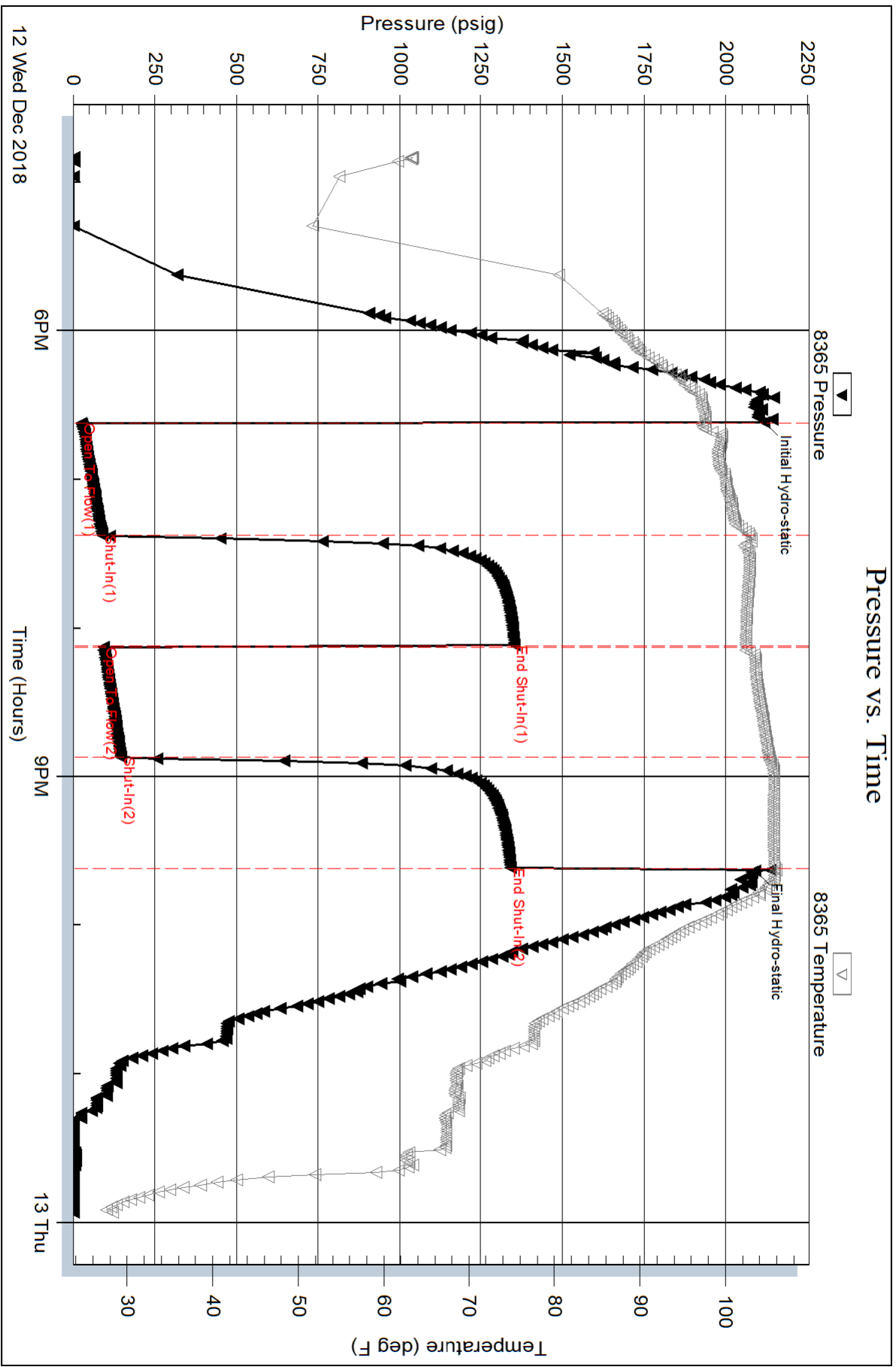
Serial #: 8365

Inside

DK Operating Inc

Mark #1-12

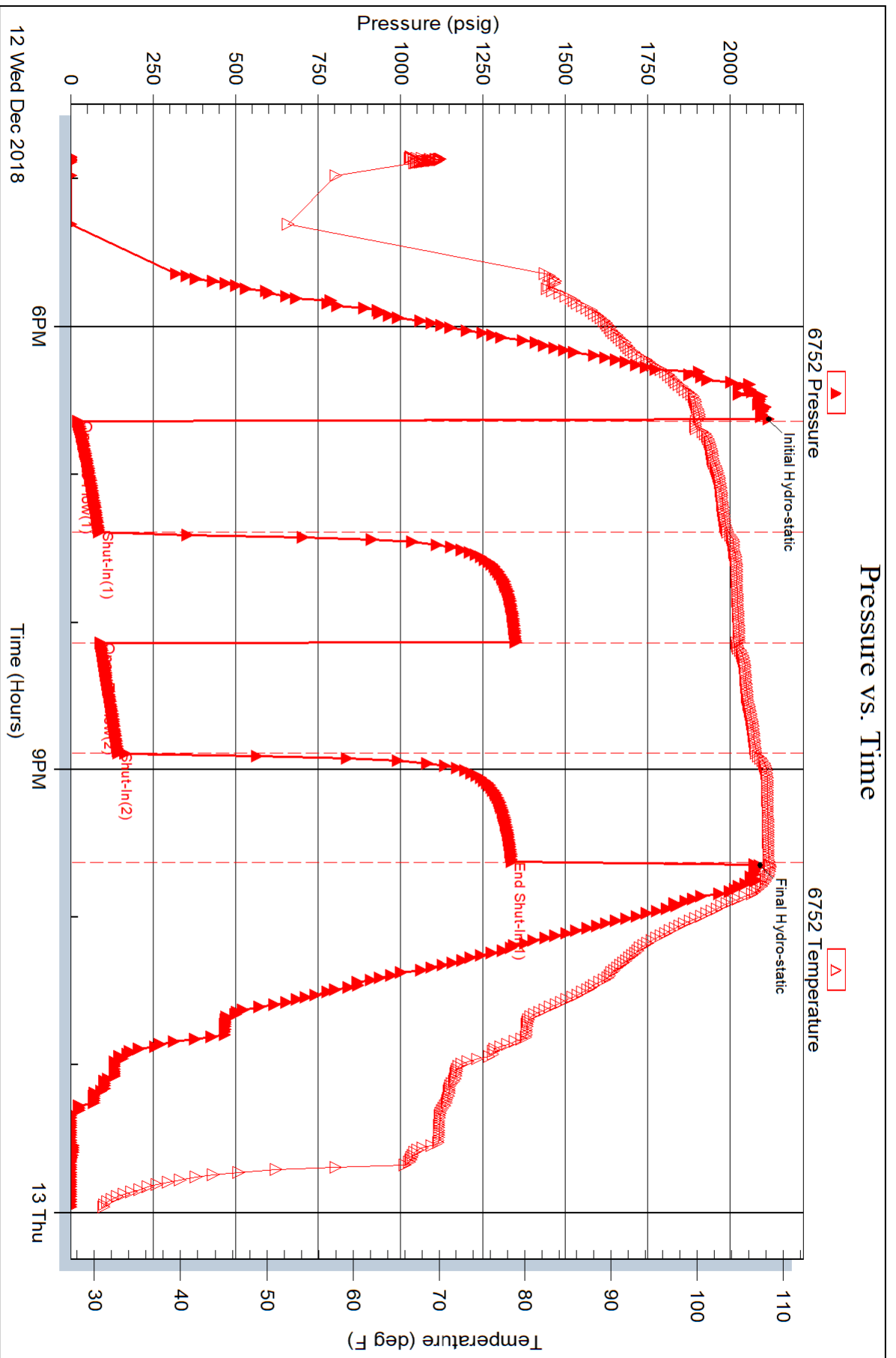
DST Test Number: 3



Triobite Testing, Inc

Ref. No: 64571

Printed: 2018.12.14 @ 10:40:29





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **64569**

4/10

Well Name & No. Mark 1-12 Test No. 1 Date 11 DEC 18
 Company DK Operating Inc Elevation 2250 KB 2243 GL
 Address 621 Benton St Jetmore KS 67854-9019
 Co. Rep / Geo. Jason Alm Rig Pickrel Rig 10
 Location: Sec. 12 Twp 20S Rge. 23W Co. Ness State KS

Interval Tested 4313-4385 Zone Tested Mississippi
 Anchor Length 72 Drill Pipe Run 4792 Mud Wt. 9.3
 Top Packer Depth 4308 Drill Collars Run - Vis 62
 Bottom Packer Depth 4313 Wt. Pipe Run - WL 16.0
 Total Depth 4385 Chlorides 8000 ppm System LCM Trace

Blow Description I.F. Blow built to 1 1/2 inch
E.S.I. No blow back
F.F. Few bubbles at open then Lead/Flush tool/Built to 1/4 inch/Pull test

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>light oil spot mud</u>			<u>100</u>	
<u>1</u>	<u>clean oil</u>		<u>100</u>		

Rec Total 20 BHT 109 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2091 Test 1150 T-On Location 9:34 am
 (B) First Initial Flow 24 Jars 250 T-Started 12:42 pm
 (C) First Final Flow 24 Safety Joint 75 T-Open 2:55 pm
 (D) Initial Shut-In 865 Circ Sub _____ T-Pulled 4:10 pm
 (E) Second Initial Flow 24 Hourly Standby _____ T-Out _____
 (F) Second Final Flow 29 Mileage 136 136 Comments _____
 (G) Final Shut-In ~~2083~~ Sampler _____
 (H) Final Hydrostatic 2083 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1611 Sub Total 0
 Total 1611 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **64570**

Well Name & No. Mark 1-12 Test No. 2 Date 12 DEC 18
 Company DK Operating Inc Elevation 2200 KB 2243 GL
 Address 621 Benton St Jetmore KS 67854-9019
 Co. Rep / Geo. Jason Alm Rig Pickrel Rig 10
 Location: Sec. 12 Twp 20S Rge. 23W Co. Ness State KS

Interval Tested 4385-4394 Zone Tested Mississippi
 Anchor Length 9 Drill Pipe Run 4386 Mud Wt. 9.3
 Top Packer Depth 4380 Drill Collars Run — Vis 62
 Bottom Packer Depth 4385 Wt. Pipe Run — WL 16.0
 Total Depth 4394 Chlorides 8000 ppm System LCM Trace

Blow Description Hole had F.I./ Tool 7 ft high
IF slide 7 ft blow to 1 3/4 inch Plush tool additional 1/4 inch burr
I.S.I. No blow back
F.F. Dead / Flush tool no help / Pull test

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>Mud</u>				<u>100%</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30 BHT 109 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2145 Test 1150 T-On Location 11:50 pm
 (B) First Initial Flow 46 Jars 250 T-Started 1:18 am
 (C) First Final Flow 48 Safety Joint 75 T-Open 3:16 am
 (D) Initial Shut-In 1866 Circ Sub _____ T-Pulled 4:06 am
 (E) Second Initial Flow 45 Hourly Standby _____ T-Out 6:10 am
 (F) Second Final Flow 50 Mileage 136 136
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic 2172 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 15
 Initial Shut-In 30
 Final Flow 10
 Final Shut-In _____

Sub Total 1611

Comments _____
 Sub Total 0
 Total 1611
 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **64571**

4/10

Well Name & No. Mark 1-12 Test No. 3 Date 12 DEC 18
 Company DK Operating Inc. Elevation 2250 KB 2243 GL
 Address 621 Benton St Jetmore Kansas 67854-9019
 Co. Rep / Geo. Jason Alm Rig Pickrel Rig 10
 Location: Sec. 12 Twp 20S Rge. 23W Co. Ness State KS

Interval Tested 4312-4397 Zone Tested Mississippi
 Anchor Length 85 Drill Pipe Run 4292 Mud Wt. 9.0
 Top Packer Depth 4367 Drill Collars Run — Vis 52
 Bottom Packer Depth 4312 Wt. Pipe Run — WL 16.0
 Total Depth 4397 Chlorides 9800 ppm System LCM 2#

Blow Description I.F. Blow built to BOB in 33 minutes total build 16 inches
I.S.I. Slight blow back
F.F. Blow built to BOB in 42 minutes total build 13 1/2 inches
F.S.I. Slight blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>Clean Oil</u>	<u>100</u>			
<u>217</u>	<u>Oil cut Mud</u>	<u>10</u>			<u>90</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 279 BHT 105 Gravity 37 API RW @ °F Chlorides ppm
 (A) Initial Hydrostatic 2117 Test 1150 T-On Location 3:50 pm
 (B) First Initial Flow 25 Jars 250 T-Started 4:50 pm
 (C) First Final Flow 88 Safety Joint 75 T-Open 6:37 pm
 (D) Initial Shut-In 135-1 Circ Sub — T-Pulled 9:37 pm
 (E) Second Initial Flow 92 Hourly Standby — T-Out 11:57 pm
 (F) Second Final Flow 145 Mileage 136 136
 (G) Final Shut-In 1341 Sampler —
 (H) Final Hydrostatic 2090 Straddle —
 Shale Packer —
 Ruined Shale Packer —
 Ruined Packer —
 Extra Packer —
 Extra Copies —
 Extra Recorder —
 Day Standby —
 Accessibility —
 Sub Total 1611

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45
 Sub Total 0
 Total 1611
 MP/DST Disc't —

Approved By _____ Our Representative [Signature]

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