



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1213705
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

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

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

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

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

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

Spot Description: _____

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

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

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

County: _____ Permit #: _____

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

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

1213705

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

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

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

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

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

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

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

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

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

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Baird Oil Company LLC
Well Name	Esther Worcester 4-13
Doc ID	1213705

Tops

Name	Top	Datum
Anhydrite	1807	+369
Base Anhydrite	1840	+336
Topeka	3167	-991
Heebner	3376	-1200
Toronto	3398	-1222
Lansing	3415	-1239
Base Kansas City	3601	-1425
Arbuckle	3700	-1524
Total Depth	3799	-1623

Global Cementing LLC

18048 I-70 Road
Russell, KS 67665

Invoice

Date	Invoice #
5/5/2014	1315

Bill To
BAIRD OIL COMPANY LLC PO BOX 428 LOGAN,KS 67646

P.O. No.	Terms	Project
ESTER WORCHE...	Net 30	

Quantity	Description	Rate	Amount
175	COMMON	15.50	2,712.50
6	CALCIUM	53.00	318.00
4	GEL	23.50	94.00
185	HANDLING	2.10	388.50
	BULK MILEAGE	495.80	495.80
1	TRI-PLEX PUMP CHARGE FOR SURFACE	1,050.00	1,050.00
67	PUMP TRUCK MILEAGE	6.50	435.50
67	PICKUP	2.50	167.50
	DEDUCT 15% FROM TOTAL IF PAID WITHIN 30 DAYS OF INVOICE GRAHAM CO	7.15%	0.00

R 5/20/2014
P 5/20/2014
E Worces 190402 5661.80
Esther Worcester 4-13 - Pump charge,
Cement & other misc used to cement
surface casing

Thank you for your business.

Phone #	Fax #	E-mail
785-324-2658	785-445-3526	

Total

\$5,661.80

GLOBAL CEMENTING, L.L.C.

1315

REMIT TO 18048 170RD
RUSSELL, KS 67665

SERVICE POINT: Russell, KS

DATE <u>5-5-14</u>	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START <u>5:15pm</u>	JOB FINISH <u>5:45pm</u>
LEASE <u>Worcester</u>	WELL #. <u>4-13</u>	LOCATION			COUNTY <u>Graham</u>	STATE <u>KS</u>	
OLD OR <u>NEW</u> (CIRCLE ONE)							

CONTRACTOR WV Drilling

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D.

CASING SIZE 8 5/8 DEPTH

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 20ft

PERFS

DISPLACEMENT 1234 bbl

EQUIPMENT

PUMP TRUCK CEMENTER Heath

P1 HELPER Colt

BULK TRUCK

B3 DRIVER Brad

BULK TRUCK

DRIVER

OWNER

CEMENT AMOUNT ORDERED 125 100 sr com 3%cc

290 gal

COMMON @

POZMIX @

GEL @

CHLORIDE @

ASC @

HANDLING @

MILEAGE @

TOTAL

REMARKS:

Ran 5 hrs of 8 5/8 casing and landing
- est circulation with mud pump
Hook up and mix 150sr and disp 1234 bbl
at 420 - shut in @ 300 psi
Cement did circulate to surface

CHARGE TO: Bird Oil

STREET

CITY STATE ZIP

Global Cementing, L.L.C.,
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 Calvin Phammetrac

SIGNATURE Calvin Phammetrac

SERVICE

DEPTH OF JOB

PUMP TRUCK CHARGE

EXTRA FOOTAGE @

MILEAGE 67 @

MANIFOLD @

TOTAL

PLUG & FLOAT EQUIPMENT

@

@

@

@

@

TOTAL

SALES TAX (If Any)

TOTAL CHARGES

DISCOUNT IF PAID IN 30 DAYS

SWIFT



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



Invoice

DATE	INVOICE #
5/11/2014	25543

BILL TO
Baird Oil Company LLC PO Box 428 Logan, KS 67646

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#4-13	Esther Worce...	Graham	WW Drilling	Oil	Development	5-1/2" LongString	Josh

PRICE REF.	DESCRIPTION	QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way	80	Miles	6.00	480.00
578D-L	Pump Charge - Long String	1	Job	1,500.00	1,500.00
221	Liquid KCL (Clayfix)	2	Gallon(s)	25.00	50.00T
280	Flocheck 21	500	Gallon(s)	3.00	1,500.00T
290	D-Air	3	Gallon(s)	42.00	126.00T
402-5	5 1/2" Centralizer	12	Each	70.00	840.00T
403-5	5 1/2" Cement Basket	1	Each	300.00	300.00T
404-5	5 1/2" Port Collar	1	Each	2,900.00	2,900.00T
406-5	5 1/2" Latch Down Plug & Baffle	1	Each	275.00	275.00T
407-5	5 1/2" Insert Float Shoe With Auto Fill	1	Each	375.00	375.00T
411-5	5 1/2" Recipo Scratcher	40	Each	50.00	2,000.00T
325	Standard Cement	200	Sacks	14.50	2,900.00T
326	60/40 Pozmix (2% Gel)	40	Sacks	11.50	460.00T
276	Flocele	50	Lb(s)	2.50	125.00T
277	Gilsonite (Coal Seal)	400	Lb(s)	0.75	300.00T
283	Salt	1,550	Lb(s)	0.20	310.00T
285	CFR-1	100	Lb(s)	4.50	450.00T
581D	Service Charge Cement	240	Sacks	2.00	480.00
583D	Drayage	968	Ton Miles	1.00	968.00
	Subtotal				16,339.00
	Sales Tax Graham County			7.15%	923.14

R 5/15/14
P 5/15/14
EWorces 190402 17,262.14
Esther Worcester 4-13 - pump charge,
cement, + other misc expenses used to
cement production casing.

We Appreciate Your Business!

Total

\$17,262.14



CHARGE TO: Barnd 0:1
 ADDRESS
 CITY, STATE, ZIP CODE

TICKET 25543

PAGE 1 OF 2

1. SERVICE LOCATIONS <u>Hays ks</u>	WELL/PROJECT NO. <u>413</u>	LEASE <u>Esther Worcester</u>	COUNTY/PARISH <u>Graham</u>	STATE <u>ks</u>	CITY	DATE <u>5-11-14</u>	OWNER
2. <u>Ness City ks</u>	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>W W</u>	RIG NAME/NO.	SHIPPED VIA	DELIVERED TO <u>Location</u>	ORDER NO.	
3.	WELL TYPE <u>Oil</u>	WELL CATEGORY <u>Development</u>	JOB PURPOSE <u>5 1/2 long string</u>	WELL PERMIT NO.		WELL LOCATION <u>Sec 13, Twp 7S, R22W</u>	
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE #112	80	mi			6.00	480.00
578					Pump Charge long string	1	ea			1500.00	1500.00
221					Liquid KLL	2	gal			25.00	50.00
280					Hookback 21	500	gal			3.00	1500.00
290					O-Air	3	gal			42.00	126.00
402					Centralizer	12	ea			70.00	840.00
403					Cement Basket	1	ea			300.00	300.00
404					Port Collar	1	ea			2900.00	2900.00
406					Latch Down Plug + Gaffs	1	ea			275.00	275.00
407					Insert Plug Shoe w/ Ann Fil	1	ea			375.00	375.00
411					Recipr Scratchers	40	ea			50.00	2000.00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.
 MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X Richard Ball DATE SIGNED 5-11-14 TIME SIGNED 1600 A.M. P.M.

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

SURVEY		AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL	TOTAL
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?					P1	10346.00
WE UNDERSTOOD AND MET YOUR NEEDS?					P2	5993.00
OUR SERVICE WAS PERFORMED WITHOUT DELAY?						16,339.00
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?						923.11
ARE YOU SATISFIED WITH OUR SERVICE?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO				17,262.11

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

SWIFT OPERATOR for full APPROVAL

Thank You



PO Box 466
Ness City, KS 67560
Off: 785-798-2300

TICKET CONTINUATION

TICKET No. 25543

CUSTOMER *Barnd Oil*

WELL *Esther Worcester 418*

DATE *5-11-14* PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	WELL		UNIT PRICE	AMOUNT	
		LOC	ACCT	DF			QTY	U/M			QTY
325		2				Standard Cement	200	SKS	14.50	2900.00	
326		2				60/40 Premium 2% gel	40	SKS	11.50	460.00	
276		2				Fluocel	50	LBS	2.50	125.00	
277		2				Gilsonite	400	LBS	.75	300.00	
283		2				Salt	1550	LBS	.20	310.00	
285		2				CFR-1	100	LBS	4.50	450.00	
581		2				SERVICE CHARGE			2.00	4.00	
583		2				MILEAGE CHARGE			1.00	3.68	
							TOTAL WEIGHT	2412			
							LOADED MILES	30			
							CUBIC FEET	240			
							TON MILES	968			

CONTINUATION TOTAL 5993.00

JOB LOG

SWIFT Services, Inc.

DATE 5-11-14 PAGE NO.

CUSTOMER Bard Oil WELL NO. 4-13 LEASE Es the Worcester JOB TYPE 5 1/2 long string TICKET NO. 25543

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1600							on location
								TD 3800 SS 20
								TP 3805 Instkt 3785
								Centralizers 1-11, 47
								Basket 48 scratchers 2-11 4/50000
								PC TOP 48 1817'
	1715							Start Pipe
	1845							Drop Ball circulate Reciprocate
	1945		7					Plug BH 30 sts
	1955	5	10				300	Start KCL
		5	12				300	Start flocheck 21
		5	5				300	Start KCL
		5	3				200	Start Cement 60/40 200 22,500
		5	43				200	200 sty standard
	2018							Drop Plug wash out Pump lines
	2020							Start Displacement
	2045		92.3				900 1500	land Plug
								Release Dry
								wash up back up
	2115							Job complete Thank You Dash, Brian, Rob

SWIFT



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

Invoice

DATE	INVOICE #
5/14/2014	26611

BILL TO
Baird Oil Company LLC PO Box 428 Logan, KS 67646

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#4-13	Esther Worce...	Graham		Oil	Development	Cement Port Collar	Roger
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				80	Miles	6.00	480.00
576D-D	Pump Charge - Port Collar				1	Job	1,500.00	1,500.00
290	D-Air				2	Gallon(s)	42.00	84.00T
105	5 1/2" Port Collar Tool Rental With Man				1	Each	350.00	350.00T
330	Swift Multi-Density Standard (MIDCON II)				175	Sacks	18.50	3,237.50T
276	Flocele				50	Lb(s)	2.50	125.00T
581D	Service Charge Cement				200	Sacks	2.00	400.00
583D	Drayage				796	Ton Miles	1.00	796.00
	Subtotal							6,972.50
	Sales Tax Graham County						7.15%	271.45
	R 5/19/14							
	P 5/19/14							
	E Worces 190402 375.03							
	Esther Worcester 4-13- rental of port collar tool + man when cementing from port collar to surface							
	E Worces 190402 6868.92							
	Esther Worcester 4-13- pump charge, cement, + misc expenses used to cement from port collar to surface.							

We Appreciate Your Business!	Total	\$7,243.95
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CHARGE TO: Baird O.I Co.
 ADDRESS:
 CITY, STATE, ZIP CODE

TICKET 26611

PAGE 1 OF 1

SERVICE LOCATIONS
 1. Hays, KS WELL/PROJECT NO. 4-13 LEASE Estra Webster COUNTY/PARISH Graham STATE Ks. CITY Loc. DATE 5-14-14 OWNER Same
 2. TICKET TYPE SERVICE SALES CONTRACTOR RIG NAME/NO. SHIPPED VIA CIT DELIVERED TO
 3. WELL TYPE Oil WELL CATEGORY Development JOB PURPOSE Cont. Port Collar WELL PERMIT NO. WELL 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								
575		1			MILEAGE #113	80	mil				6.00	480.00
576 D		1			Pump Service	1	ea				1500.00	1500.00
290		1			D-Air	2	gal				42.00	84.00
105		1			Port Collar Tool	1	ea		5 1/2 in		350.00	350.00
581		1			Service Charge	200	SK				2.00	400.00
583		1			Drayage	796	Ton Miles				1.00	796.00
330		1			SMD Cement	175	SK				18.50	3237.50
296		1			Floacle	50	#				2.50	125.00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY**, and **LIMITED WARRANTY** provisions.
 MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS
 X DATE SIGNED [Signature] TIME SIGNED A.M. P.M.

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
 CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL 41992
 TAX 7.15%
 TOTAL 7243.94

SWIFT OPERATOR [Signature] APPROVAL
 CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.
 Thank You

JOB LOG

SWIFT Services, Inc.

DATE 5-14-14 PAGE NO. 1

CUSTOMER Baird Oil Co WELL NO. 4-13 LEASE Ester Webster JOB TYPE Part Collar TICKET NO. 26611

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	10:25							on Loc.
	10:30							Start in hole with opening tool Find Part Collar @ 1817'
	11:50					1000	1000	Press test 1,000psr holding open P.C. circulating
		3				300		Pump 80 ^{ss} Mud Pump 5 ^{ss} H ₂ O special
	12:25							Start Mixing SMO Cont. Cont. to surface 155sbs
	13:30							tail in 20sbs @ 14#/gal Finish mixing Displ. 6 ^{ss}
						1000		close P.C. test to 1,000psr hold Run 4 Jts tubing
	13:40							Reverse out Hole clean 2 Flags 20 ^{ss} Pull tool out of hole wash + Rack up truck Job Complete

[Handwritten Signature]

Roger, Jan, John



DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co.,LLc**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #4-13

Start Date: 2014.05.09 @ 16:57:00

End Date: 2014.05.10 @ 00:26:15

Job Ticket #: 58951 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.15 @ 11:42:02

Baird Oil Co.,LLc

Esther Worcester #4-13

13-7s-22w Graham,KS

DST # 1

Arbuckle

2014.05.09



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 58951

DST#: 1

Test Start: 2014.05.09 @ 16:57:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:22:15

Time Test Ended: 00:26:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

Interval: 3648.00 ft (KB) To 3711.00 ft (KB) (TVD)

Reference Elevations: 2176.00 ft (KB)

Total Depth: 3711.00 ft (KB) (TVD)

2168.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8957

Inside

Press@RunDepth: 113.29 psig @ 3654.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.09

End Date:

2014.05.10

Last Calib.: 2014.05.10

Start Time: 16:57:05

End Time:

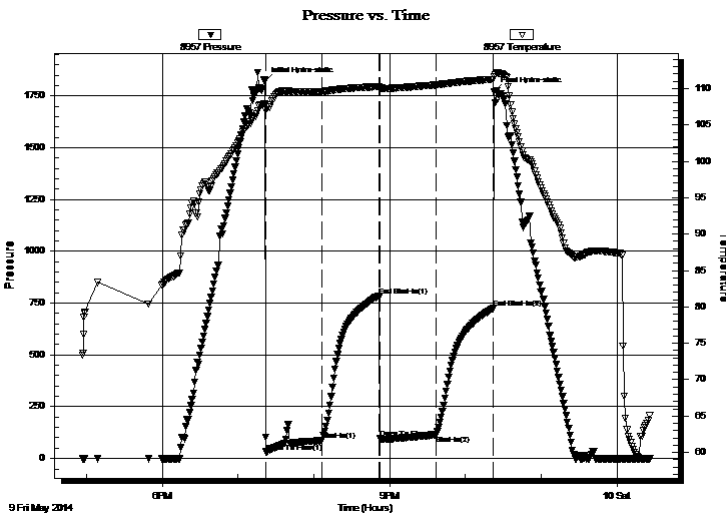
00:26:14

Time On Btm: 2014.05.09 @ 19:21:15

Time Off Btm: 2014.05.09 @ 22:22:45

TEST COMMENT: IF-BOB in 42 min
IS-No blow
FF-8in blow
FSI-Weak surface blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1821.26	107.95	Initial Hydro-static
1	31.71	107.49	Open To Flow (1)
46	86.71	109.54	Shut-In(1)
91	784.66	110.26	End Shut-In(1)
91	95.54	110.05	Open To Flow (2)
136	113.29	110.49	Shut-In(2)
181	724.36	111.25	End Shut-In(2)
182	1769.97	111.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	VSGOCM 5%G 20%O 75%M	0.30
40.00	SGOCM 10%G 35%O 55%M	0.20
150.00	SGO 10%G 90%O	1.92
0.00	115ft GIP	0.00

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58951 **DST#: 1**

ATTN: Richard Bell

Test Start: 2014.05.09 @ 16:57:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:22:15

Time Test Ended: 00:26:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

Interval: 3648.00 ft (KB) To 3711.00 ft (KB) (TVD)

Reference Elevations: 2176.00 ft (KB)

Total Depth: 3711.00 ft (KB) (TVD)

2168.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8934 Outside

Press@RunDepth: psig @ 3654.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.09

End Date:

2014.05.10

Last Calib.:

2014.05.10

Start Time: 16:57:05

End Time:

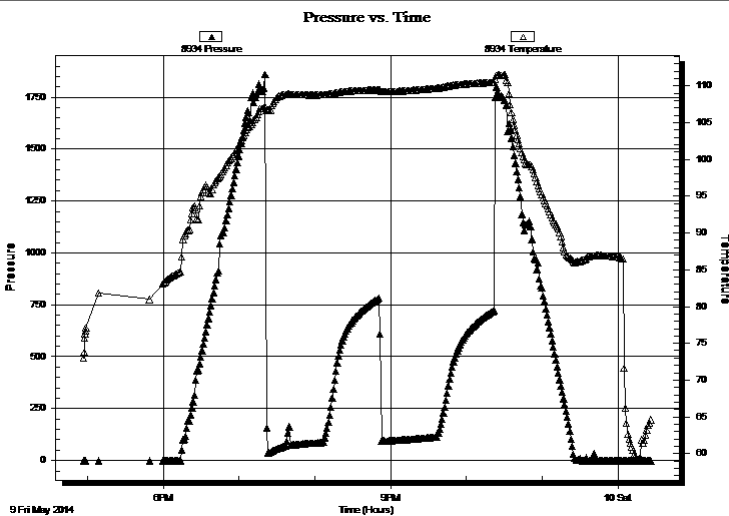
00:26:14

Time On Btm:

Time Off Btm:

TEST COMMENT: IF-BOB in 42 min
ISI-No blow
FF-8in blow
FSI-Weak surface blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	VSGOCM 5%G 20%O 75%M	0.30
40.00	SGOCM 10%G 35%O 55%M	0.20
150.00	SGO 10%G 90%O	1.92
0.00	115ft GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58951

DST#: 1

ATTN: Richard Bell

Test Start: 2014.05.09 @ 16:57:00

Tool Information

Drill Pipe:	Length: 3509.00 ft	Diameter: 3.80 inches	Volume: 49.22 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
				String Weight: Initial	50000.00 lb
Drill Pipe Above KB:	9.00 ft			Final	52000.00 lb
Depth to Top Packer:	3648.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	63.00 ft				
Tool Length:	91.00 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			3625.00	
Hydraulic tool	5.00			3630.00	
Jars	5.00			3635.00	
Safety Joint	3.00			3638.00	
Packer	5.00			3643.00	28.00 Bottom Of Top Packer
Packer	5.00			3648.00	
Stubb	1.00			3649.00	
Perforations	5.00			3654.00	
Recorder	0.00	8957	Inside	3654.00	
Recorder	0.00	8934	Outside	3654.00	
Change Over Sub	1.00			3655.00	
Drill Pipe	30.00			3685.00	
Change Over Sub	1.00			3686.00	
Perforations	22.00			3708.00	
Bullnose	3.00			3711.00	63.00 Bottom Packers & Anchor

Total Tool Length: 91.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58951

DST#: 1

ATTN: Richard Bell

Test Start: 2014.05.09 @ 16:57:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	VSGOCM 5%G 20%O 75%M	0.295
40.00	SGOCM 10%G 35%O 55%M	0.197
150.00	SGO 10%G 90%O	1.922
0.00	115ft GIP	0.000

Total Length: 250.00 ft

Total Volume: 2.414 bbl

Num Fluid Samples: 0

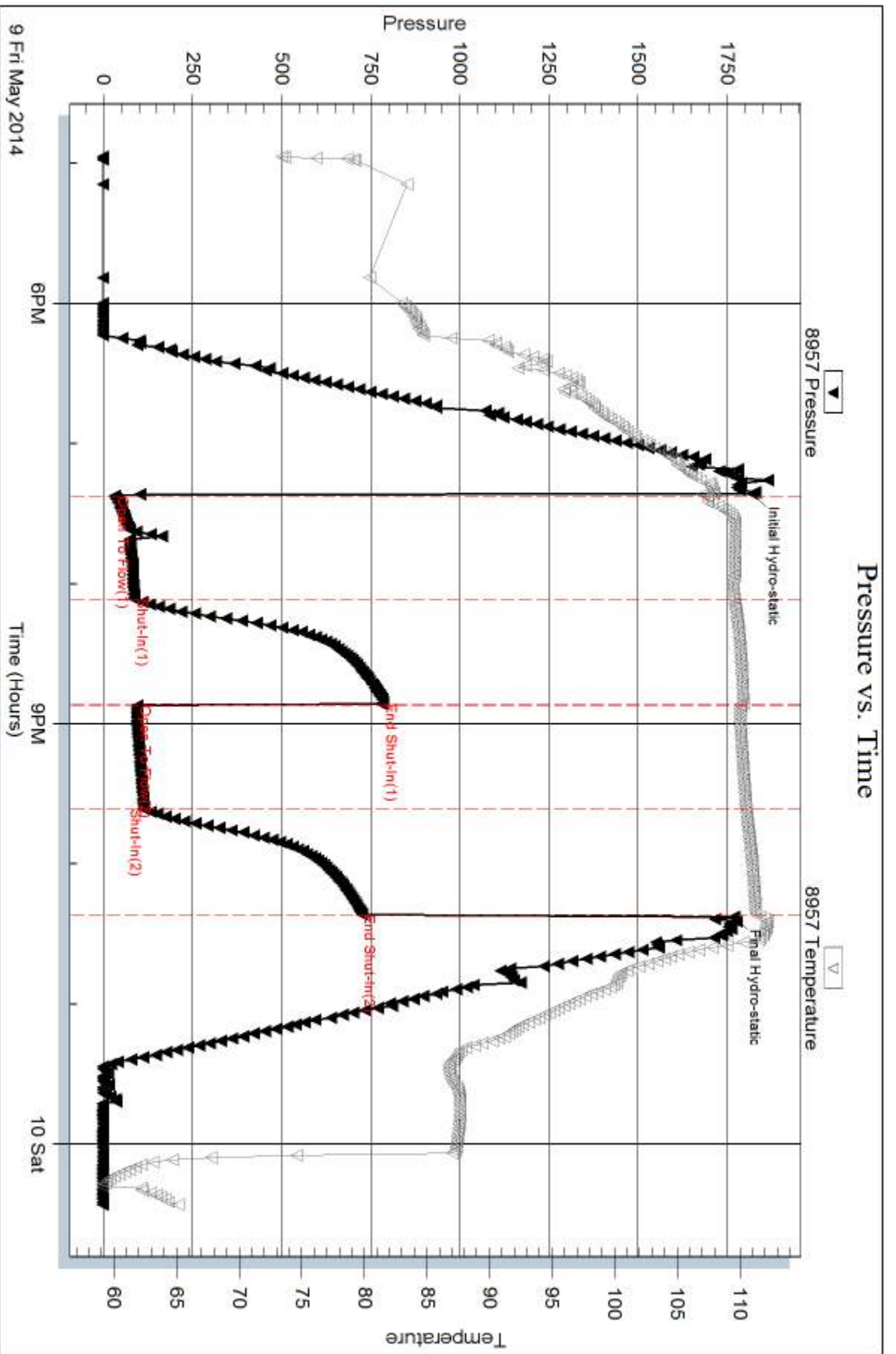
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

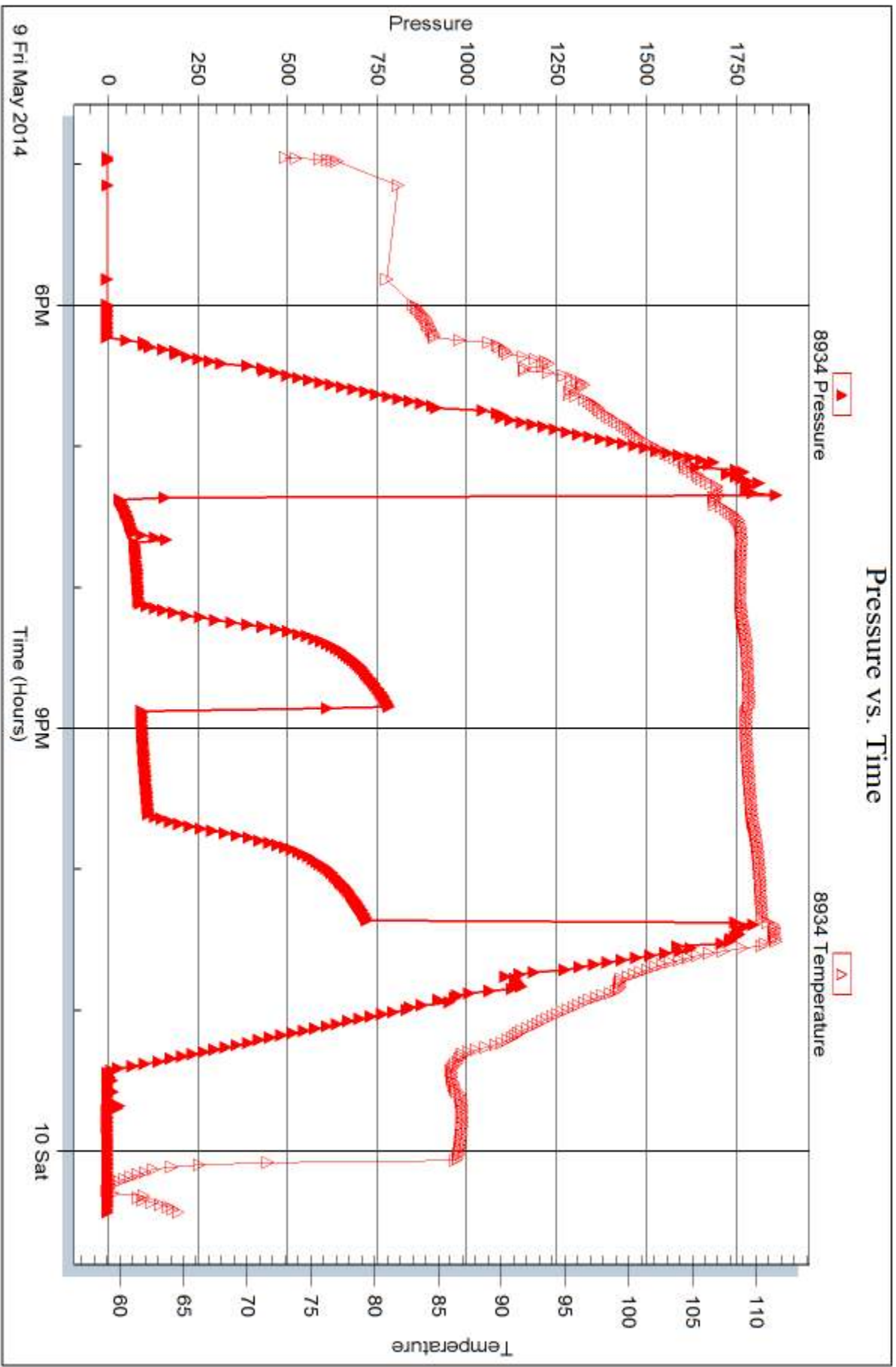


Serial #: 8934

Outside Baird Oil Co., LLC

13-7s-22w Graham, KS

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 58951

Printed: 2014.05.15 @ 11:42:03



DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co.,LLc**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #4-13

Start Date: 2014.05.10 @ 05:28:00

End Date: 2014.05.10 @ 12:20:15

Job Ticket #: 58952 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.15 @ 11:41:36

Baird Oil Co.,LLc

Esther Worcester #4-13

13-7s-22w Graham,KS

DST # 2

Arbuckle

2014.05.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 58952

DST#: 2

Test Start: 2014.05.10 @ 05:28:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:34:45

Time Test Ended: 12:20:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 59

Interval: 3711.00 ft (KB) To 3726.00 ft (KB) (TVD)

Reference Elevations: 2176.00 ft (KB)

Total Depth: 3726.00 ft (KB) (TVD)

2168.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8957 Inside

Press@RunDepth: 88.72 psig @ 3713.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.10

End Date: 2014.05.10

Last Calib.: 2014.05.10

Start Time: 05:28:05

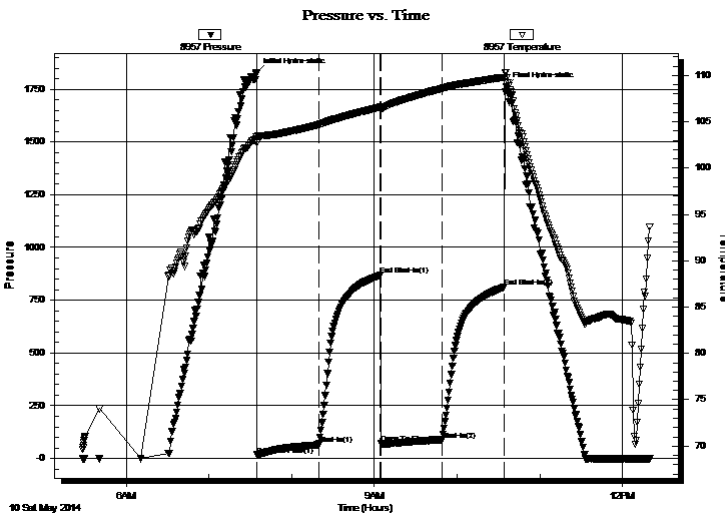
End Time: 12:20:14

Time On Btm: 2014.05.10 @ 07:34:15

Time Off Btm: 2014.05.10 @ 10:35:30

TEST COMMENT: IF-8 1/2" blow
IS-No blow
FF-5" blow
FSI-Weak Surface blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1829.77	103.36	Initial Hydro-static
1	16.69	102.74	Open To Flow (1)
46	65.19	104.68	Shut-In(1)
90	86.77	106.58	End Shut-In(1)
91	69.74	106.41	Open To Flow (2)
135	88.72	108.58	Shut-In(2)
180	812.49	109.81	End Shut-In(2)
182	1764.21	110.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	VSGMCO 5%G 30%M 65%O	0.30
190.00	SGO 10%G 90%O	2.12
0.00	55ft GIP	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58952

DST#: 2

ATTN: Richard Bell

Test Start: 2014.05.10 @ 05:28:00

Tool Information

Drill Pipe:	Length: 3569.00 ft	Diameter: 3.80 inches	Volume: 50.06 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3711.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	15.00 ft				
Tool Length:	43.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3688.00	
Hydraulic tool	5.00			3693.00	
Jars	5.00			3698.00	
Safety Joint	3.00			3701.00	
Packer	5.00			3706.00	28.00 Bottom Of Top Packer
Packer	5.00			3711.00	
Stubb	1.00			3712.00	
Perforations	1.00			3713.00	
Recorder	0.00	8957	Inside	3713.00	
Recorder	0.00	8934	Outside	3713.00	
Perforations	10.00			3723.00	
Bullnose	3.00			3726.00	15.00 Bottom Packers & Anchor

Total Tool Length: 43.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58952

DST#: 2

ATTN: Richard Bell

Test Start: 2014.05.10 @ 05:28:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

26 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	VSGMCO 5%G 30%M 65%O	0.295
190.00	SGO 10%G 90%O	2.119
0.00	55ft GIP	0.000

Total Length: 250.00 ft Total Volume: 2.414 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

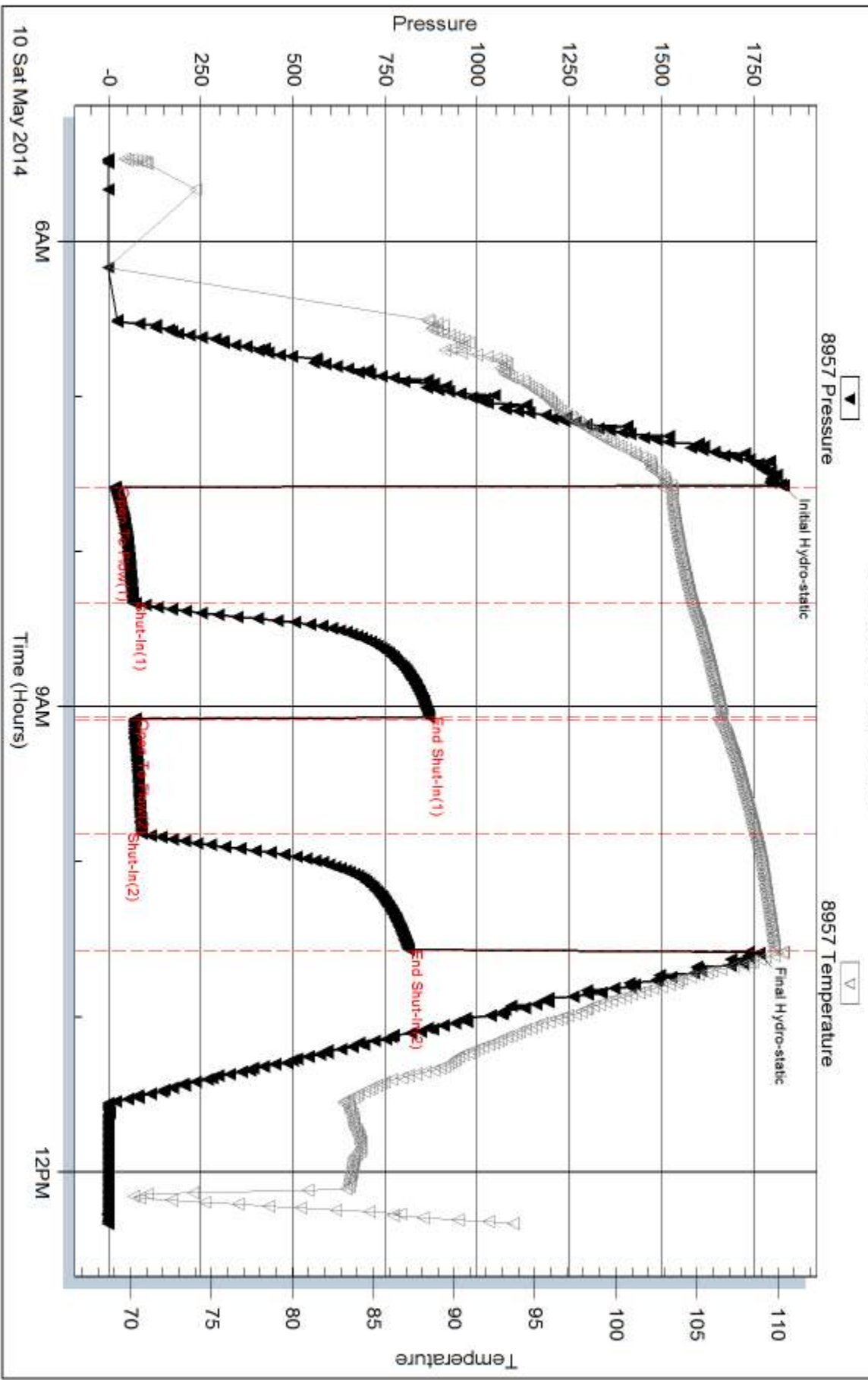
Serial #:

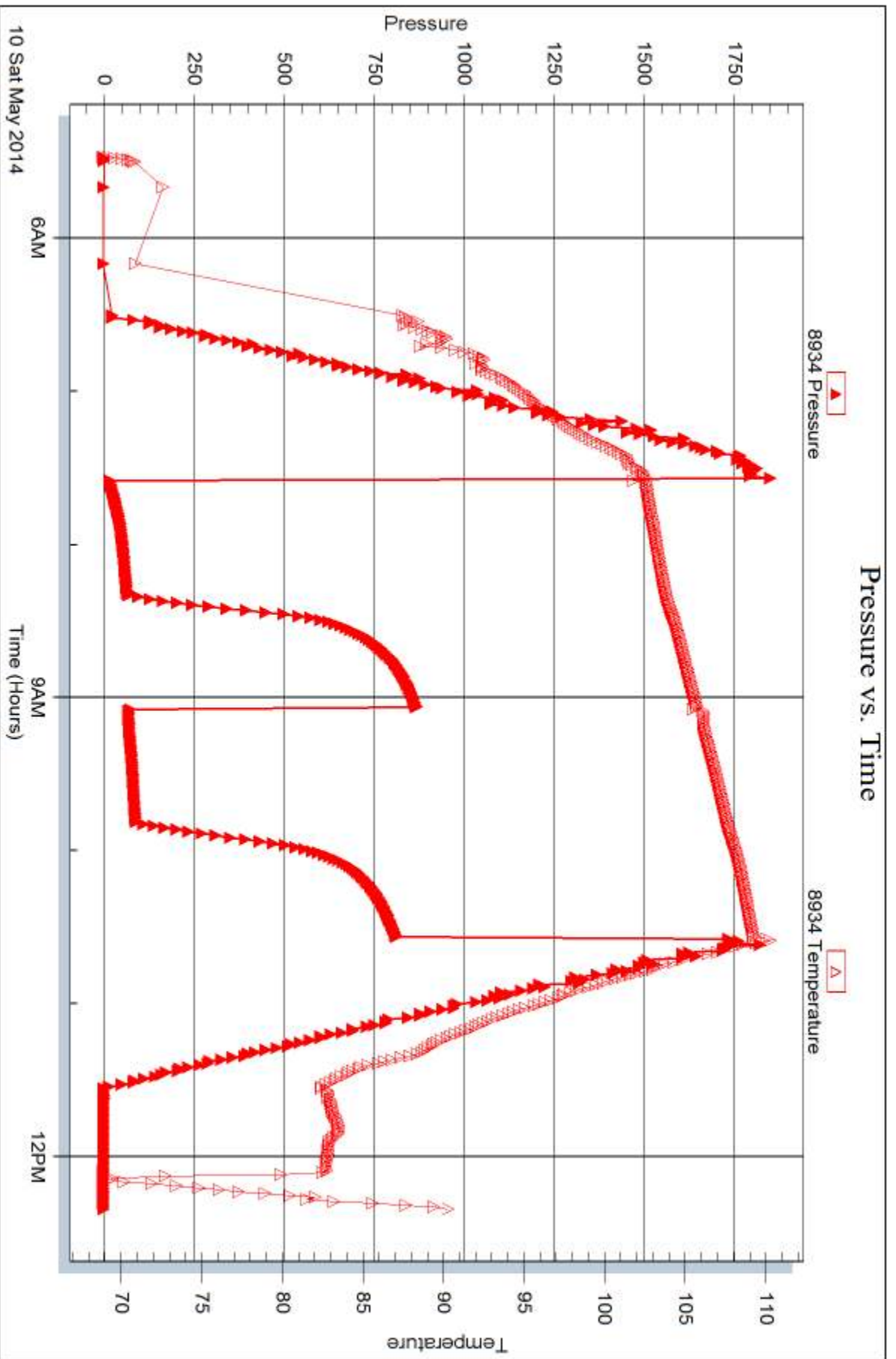
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Baird Oil Co.,LLc**

PO Box 428
Logan KS 67646

ATTN: Richard Bell

13-7s-22w Graham,KS

Esther Worcester #4-13

Start Date: 2014.05.10 @ 17:40:00

End Date: 2014.05.10 @ 23:43:00

Job Ticket #: 58953 DST #: 3

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.05.15 @ 11:41:09

Baird Oil Co.,LLc
Esther Worcester #4-13
13-7s-22w Graham,KS
DST # 3
Arbuckle
2014.05.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

ATTN: Richard Bell

Job Ticket: 58953

DST#: 3

Test Start: 2014.05.10 @ 17:40:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:04:00

Time Test Ended: 23:43:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 59

Interval: 3726.00 ft (KB) To 3741.00 ft (KB) (TVD)

Reference Elevations: 2176.00 ft (KB)

Total Depth: 3741.00 ft (KB) (TVD)

2168.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8957

Inside

Press@RunDepth: 25.36 psig @ 3728.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.10

End Date:

2014.05.10

Last Calib.:

2014.05.10

Start Time: 17:40:05

End Time:

23:42:59

Time On Btm:

2014.05.10 @ 20:03:30

Time Off Btm:

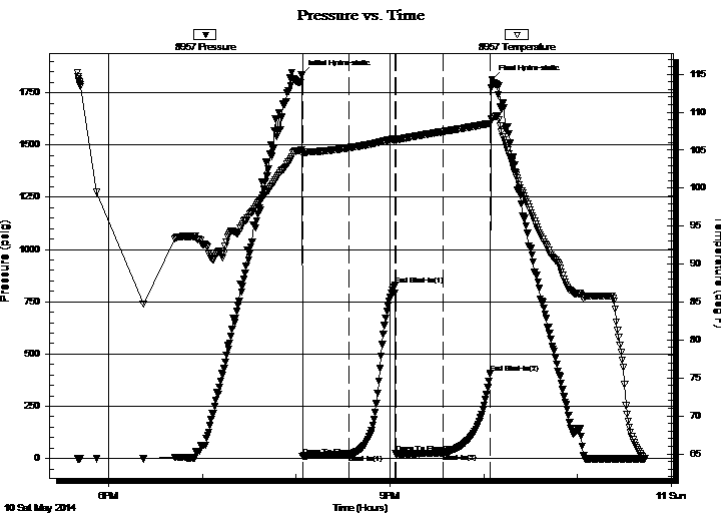
2014.05.10 @ 22:05:30

TEST COMMENT: IF-Weak surface blow

IS-No blow

FF-No blow

FS-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1837.23	105.13	Initial Hydro-static
1	12.05	104.40	Open To Flow (1)
31	18.84	105.33	Shut-In(1)
60	828.32	106.52	End Shut-In(1)
60	22.61	106.12	Open To Flow (2)
91	25.36	107.45	Shut-In(2)
121	406.92	108.56	End Shut-In(2)
122	1811.73	109.20	Final Hydro-static

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
30.00	VSGOCM 5%G 40%O 55%M	0.15

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58953

DST#: 3

ATTN: Richard Bell

Test Start: 2014.05.10 @ 17:40:00

Tool Information

Drill Pipe:	Length: 3608.00 ft	Diameter: 3.80 inches	Volume: 50.61 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.70 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
			- bbl	String Weight: Initial	50000.00 lb
Drill Pipe Above KB:	30.00 ft			Final	50000.00 lb
Depth to Top Packer:	3726.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	15.00 ft				
Tool Length:	43.00 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			3703.00	
Hydraulic tool	5.00			3708.00	
Jars	5.00			3713.00	
Safety Joint	3.00			3716.00	
Packer	5.00			3721.00	28.00 Bottom Of Top Packer
Packer	5.00			3726.00	
Stubb	1.00			3727.00	
Perforations	1.00			3728.00	
Recorder	0.00	8957	Inside	3728.00	
Recorder	0.00	8934	Outside	3728.00	
Perforations	10.00			3738.00	
Bullnose	3.00			3741.00	15.00 Bottom Packers & Anchor

Total Tool Length: 43.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Baird Oil Co.,LLc

Esther Worcester #4-13

PO Box 428
Logan KS 67646

13-7s-22w Graham,KS

Job Ticket: 58953

DST#: 3

ATTN: Richard Bell

Test Start: 2014.05.10 @ 17:40:00

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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	VSGOCM 5%G 40%O 55%M	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

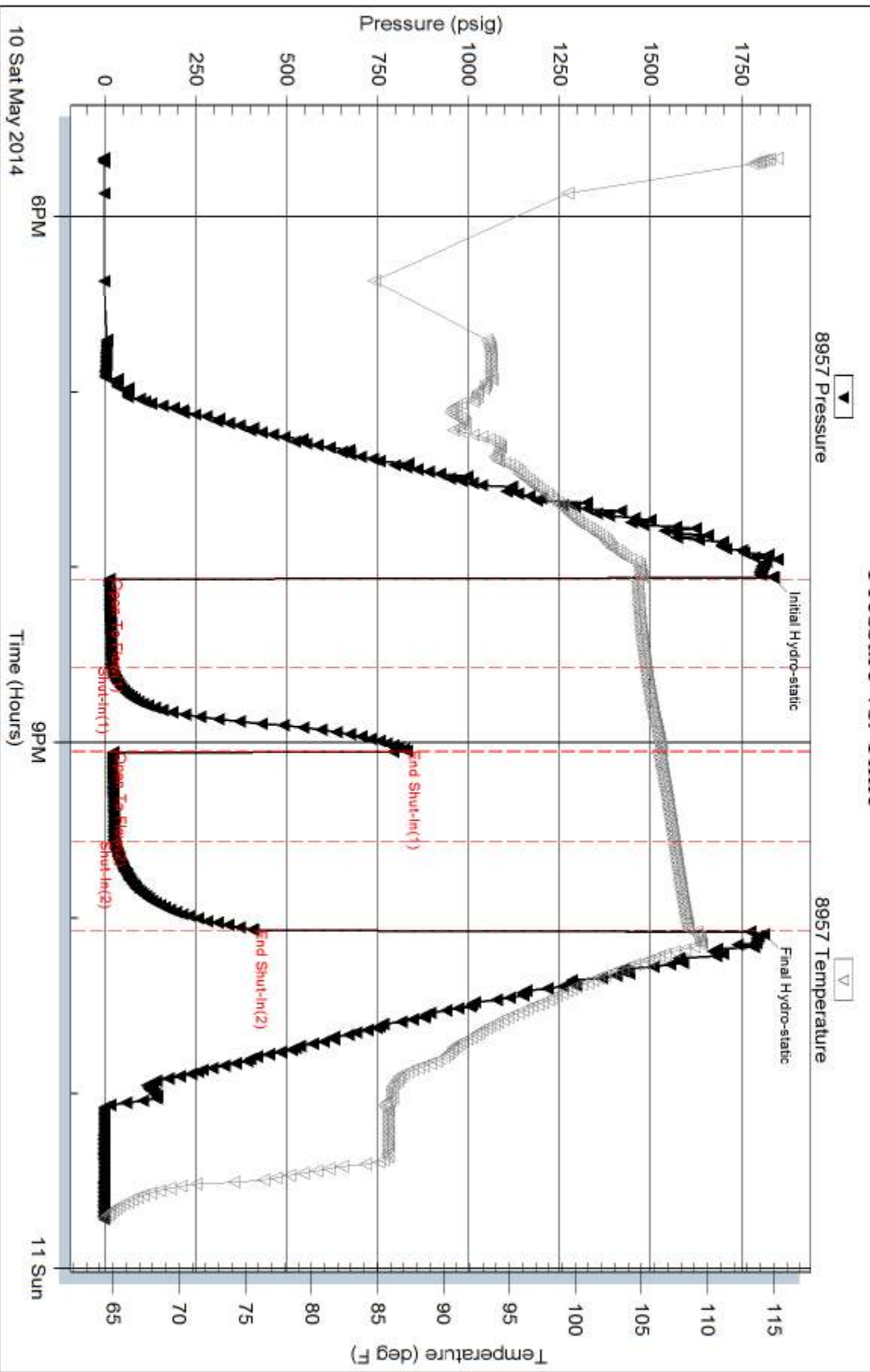
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

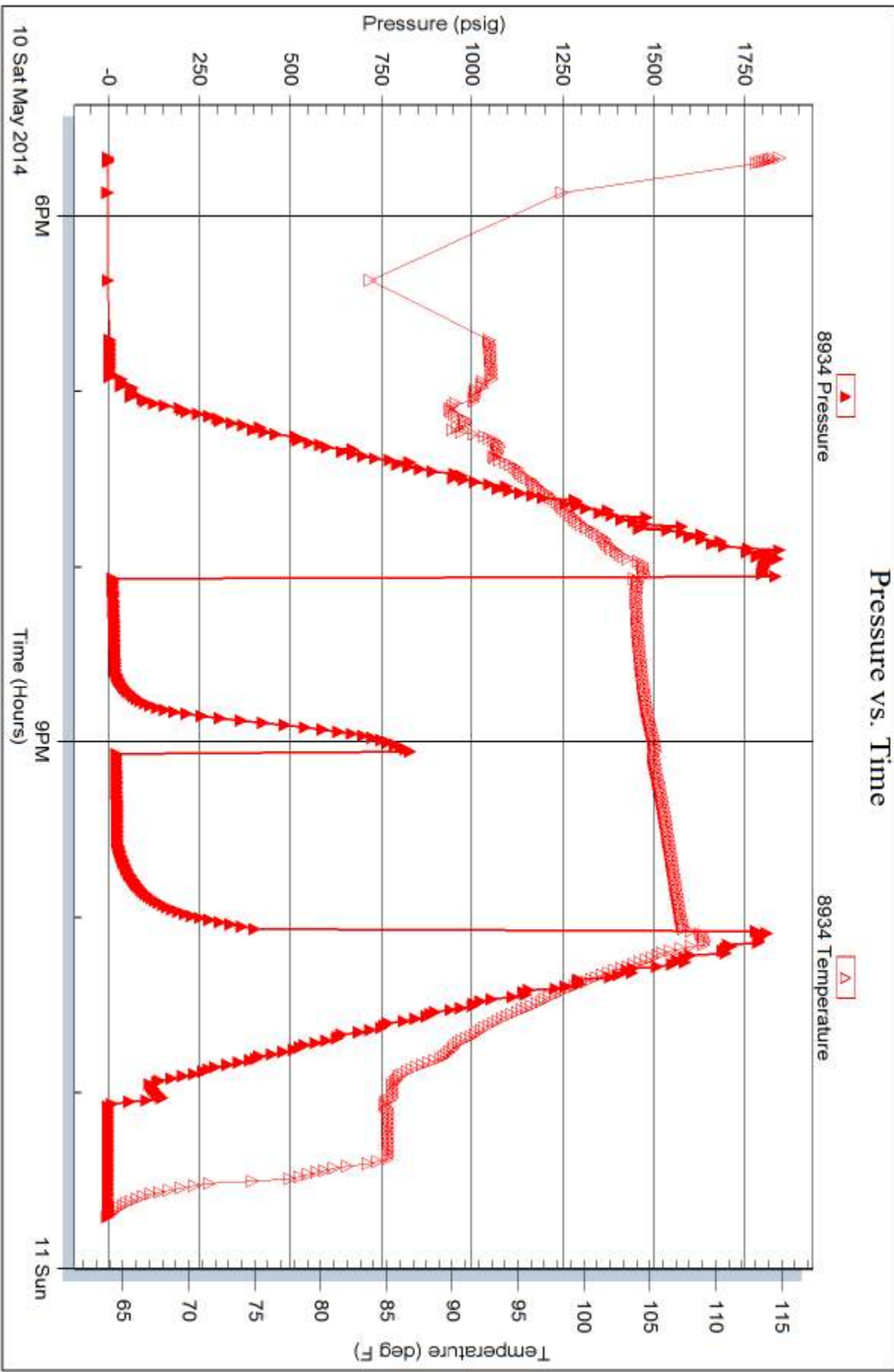


Serial #: 8934

Outside Baird Oil Co., LLC

13-7s-22w Graham, KS

DST Test Number: 3





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58951

Well Name & No. Esther Worcester #4-13 Test No. 1 Date 5/9/14
 Company Baird Oil Company, LLC Elevation 2176 KB 2168 GL
 Address PO BOX 428 Logan KS 67646
 Co. Rep / Geo. Richard Bell Rig WW #12
 Location: Sec. 13 Twp. 7S Rge. 22W Co. Graham State KS

Interval Tested 3648-3711 Zone Tested Arbuckle
 Anchor Length 63 Drill Pipe Run _____ Mud Wt. 9.0
 Top Packer Depth 3643 Drill Collars Run 120 Vis 57
 Bottom Packer Depth 3648 Wt. Pipe Run — WL 6.8
 Total Depth 3711 Chlorides 1,500 ppm System LCM 2[#]

Blow Description FF-BOB in 42 min
ISI-No blow
FF-8 in blow
ISI-Surface blow

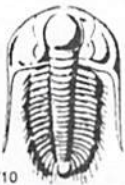
Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>VSGOCM</u>	<u>5</u>	<u>20</u>	<u>75</u>	
<u>40</u>	<u>SGOCM</u>	<u>10</u>	<u>35</u>	<u>55</u>	
<u>150</u>	<u>SGO</u>	<u>10</u>	<u>90</u>		
____	<u>113 GGP</u>	____	____	____	____
____	____	____	____	____	____

Rec Total 250 BHT 111 Gravity 27 API RW _____ @ _____ °F Chlorides _____ ppm
 (A) Initial Hydrostatic 1,821 Test 1150 T-On Location 16:40
 (B) First Initial Flow 32 Jars _____ T-Started 16:57
 (C) First Final Flow 87 Safety Joint _____ T-Open 19:22
 (D) Initial Shut-In 785 Circ Sub _____ T-Pulled 22:22
 (E) Second Initial Flow 96 Hourly Standby _____ T-Out 00:26
 (F) Second Final Flow 113 Mileage 90-T 139.50 Comments _____
 (G) Final Shut-In 724 Sampler _____
 (H) Final Hydrostatic 1,770 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1289.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1289.50

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45

Approved By _____ Our Representative Bill D...

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. 58952

4/10

Well Name & No. Esther Worcester #4-13 Test No. 2 Date 5/10/14
 Company Baird Oil Company, LLC Elevation 2176 KB 2168 GL
 Address PO BOX 428 Logan KS 67646
 Co. Rep / Geo. Richard Bell Rig WW #12
 Location: Sec. 13 Twp. 7s Rge. 22w Co. Graham State KS

Interval Tested 3711 - 3726 Zone Tested Arb.
 Anchor Length 15 Drill Pipe Run _____ Mud Wt. 9.0
 Top Packer Depth 3706 Drill Collars Run 120 Vis 57
 Bottom Packer Depth 3711 Wt. Pipe Run — WL 6.8
 Total Depth 3726 Chlorides 1,500 ppm System LCM 2#
 Blow Description IF - 8 1/2 in blow
FSI - No blow
FF - 5 in blow
FSI - weak surface blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>VSGMCO</u>	<u>5</u>	<u>65</u>	<u>30</u>	
<u>190</u>	<u>360</u>	<u>10</u>	<u>90</u>		
	<u>55 ft GIP</u>				

Rec Total 250 BHT 110 Gravity 26 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1,830 Test 1150 T-On Location _____
 (B) First Initial Flow 17 Jars _____ T-Started 6:28
 (C) First Final Flow 65 Safety Joint _____ T-Open 7:30
 (D) Initial Shut-In 868 Circ Sub _____ T-Pulled 10:30
 (E) Second Initial Flow 70 Hourly Standby _____ T-Out 12:17
 (F) Second Final Flow 89 Mileage 90.7 139.50 Comments _____
 (G) Final Shut-In 812 Sampler _____
 (H) Final Hydrostatic 1,764 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1289.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1289.50

Approved By _____ Our Representative Butt D...

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. 58953

4/10

Well Name & No. Esther Worcester Test No. 3 Date 5/10/14
 Company Baird Oil Company, LLC Elevation 2176 KB 2168 GL
 Address _____
 Co. Rep / Geo. Richard Bell Rig WW #12
 Location: Sec. 13 Twp. 7s Rge. 22w Co. Graham State KS

Interval Tested 3726-3741 Zone Tested Arb
 Anchor Length 15 Drill Pipe Run _____ Mud Wt. 9.1
 Top Packer Depth 3721 Drill Collars Run 120 Vis 55
 Bottom Packer Depth 3726 Wt. Pipe Run — WL 7.2
 Total Depth 3741 Chlorides 6800 ppm System LCM 1#
 Blow Description IF - weak surface blow
ISF - No blow
FF - No blow
FSF - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>VSGOCM</u>	<u>5</u>	<u>40</u>	<u>55</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 1,837 Test 1150 T-On Location 17:40
 (B) First Initial Flow 12 Jars _____ T-Started 17:40
 (C) First Final Flow 19 Safety Joint _____ T-Open 20:02
 (D) Initial Shut-In 828 Circ Sub _____ T-Pulled 22:02
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 23:40
 (F) Second Final Flow 25 Mileage 90-7 139.50 Comments _____
 (G) Final Shut-In 407 Sampler _____
 (H) Final Hydrostatic 1,812 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1289.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1289.50

Approved By _____ Our Representative Burt D... [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.

A.P.T.# 15-065-24037-00-00

GEOLOGICAL REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY <u>Baird Oil Company, LLC.</u> LEASE <u>Esther Worcester #4-13</u> FIELD <u>Worcester East</u> LOCATION <u>1610' FNL + 1600' FEL</u> SEC <u>13</u> TWSP <u>7S</u> RGE <u>22W</u> COUNTY <u>Graham</u> STATE <u>Kansas</u>	ELEVATION KB <u>2176'</u> DF <u>2174'</u> GL <u>2168'</u> Depths Measured From Log <u>KB</u> Drilling <u>KB</u>
CONTRACTOR <u>WW Drilling Rig #12</u> SPUD <u>5-5-14</u> COMP <u>5-11-14</u> SAMPLES SAVED FROM <u>3100'</u> TO <u>R.T.D.</u>	CASING Surface <u>8 5/8" @ 219'</u> Production <u>5 1/2" @ 3798'</u> ELECTRIC LOGS <u>Nabors</u>

FORMATION TOPS AND STRUCTURAL POSITION

FORMATION	SAMPLE	E. LOG	DATUM	A	B	C	D
				●	●		
Anhydrite	1807	1807 +	369	+ 373	+ 381		
Base Anhydrite	1840	1840 +	336	+ 342	+ 350		
Topeka	3168	3167 -	991	- 986	- 983		
Heebner	3377	3376 -	1200	- 1193	- 1193		
Toronto	3400	3398 -	1222	- 1215	- 1214		
Lansing	3415	3415 -	1239	- 1232	- 1230		
Base Kansas City	3601	3601 -	1425	- 1420	- 1420		
Arbuckle	3701	3700 -	1524	- 1502	- 1506		
Total Depth	3800	3799 -	1623	- 1528	- 1574		

REFERENCE WELLS

A	Baird Oil Co. #1-13 Worcester Unit, 2290' FNL + 2500' FNL Sec 13-7S-22W
B	Baird Oil Co. Esther Worcester #2-13, 1270' FSL + 195' FEL Sec 13-7S-22W
C	
D	Part Collar @ 1817'

REMARKS

This well ran 7 to 9 feet lower on the Lansing top and 18 to 22 feet lower on the Atbuckle top than the reference wells. Encouraging D.S.T. results warranted the cementing of production casing to further test the well. The following zones should be tested; 3718'-3724' and 3700'-3714'.

Richard B. Bell
5/11/14

7502

LEGEND

- Anhydrite

- Salt

- Sandstone

- Shale

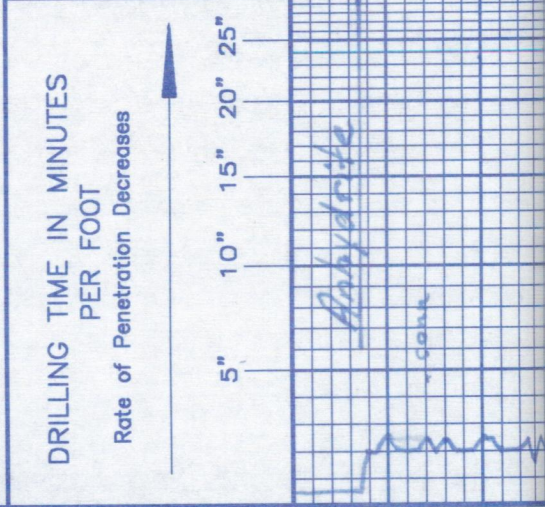
- Carb sh

- Limestone

- Ool. Lime

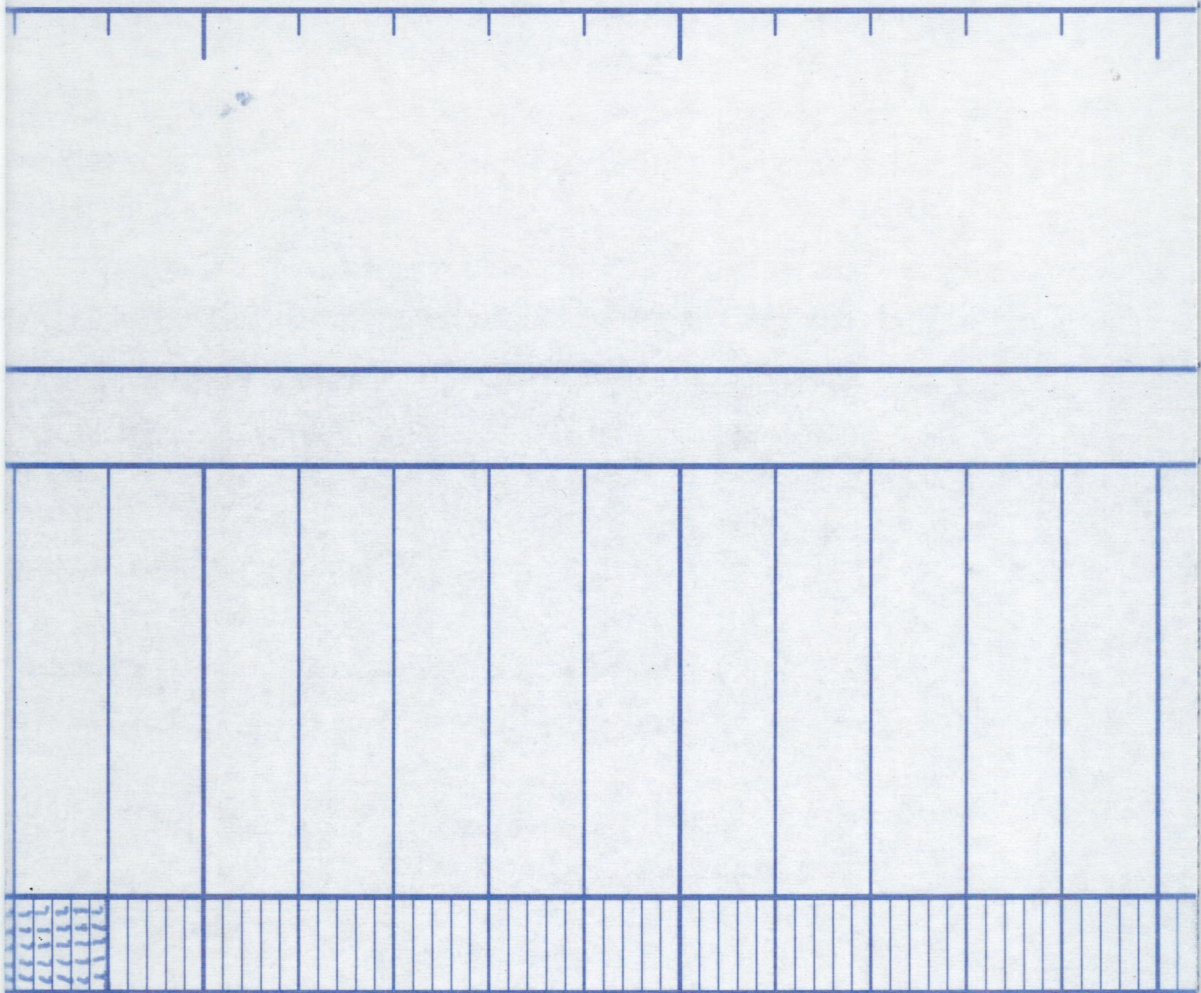
- Chert

- Dolomite

DEPTH		LITHOLOGY		SAMPLE DESCRIPTIONS		OIL SHOWS		REMARKS
1800		Anhydrite						

LOG 7710



1850

3000

20

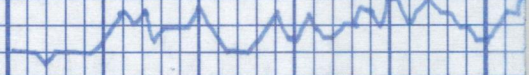
40

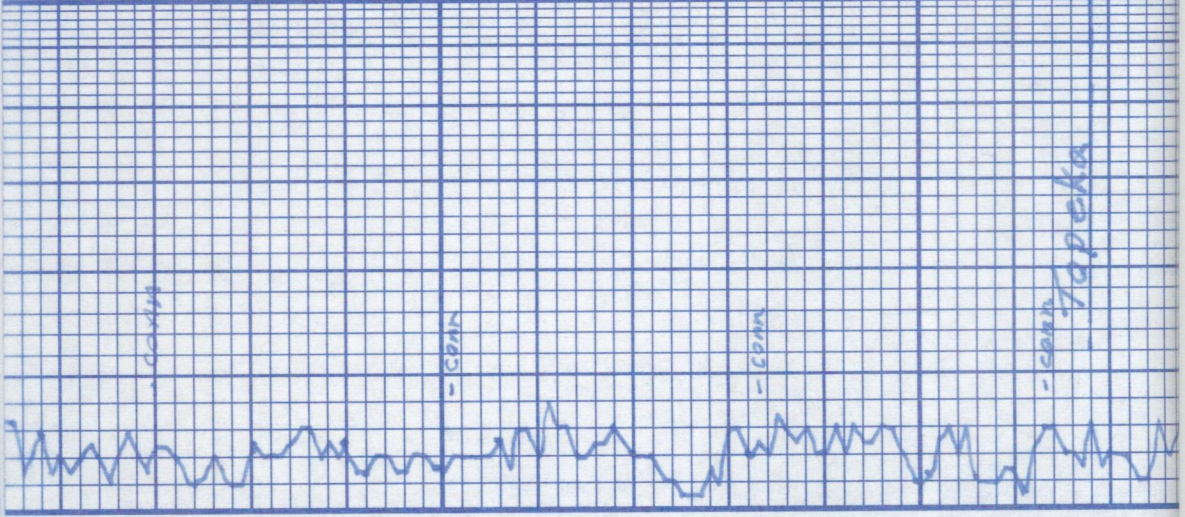
Basa Anhydride

- 0.01

- 0.01

- 0.01





60									
80									
3100									
20									
40									
60									

Samples are lagged
good samples

sltstone: brn

LS: fn - gry fslf dms

sltstone: gry

LS: fn - gry fslf dms

LS: fn - gry fslf dms

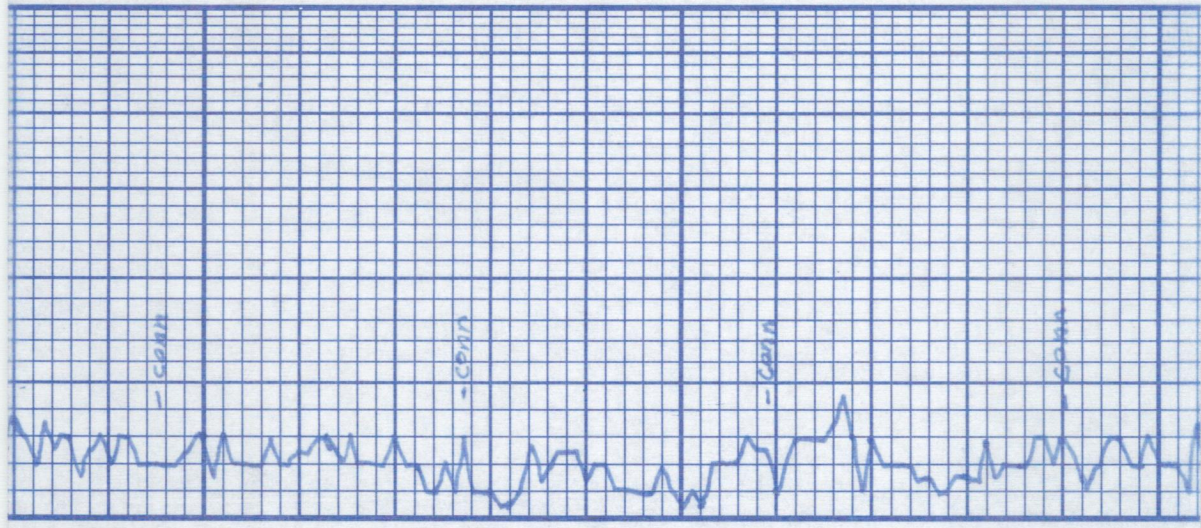
LS: qa.

sltstone: gry

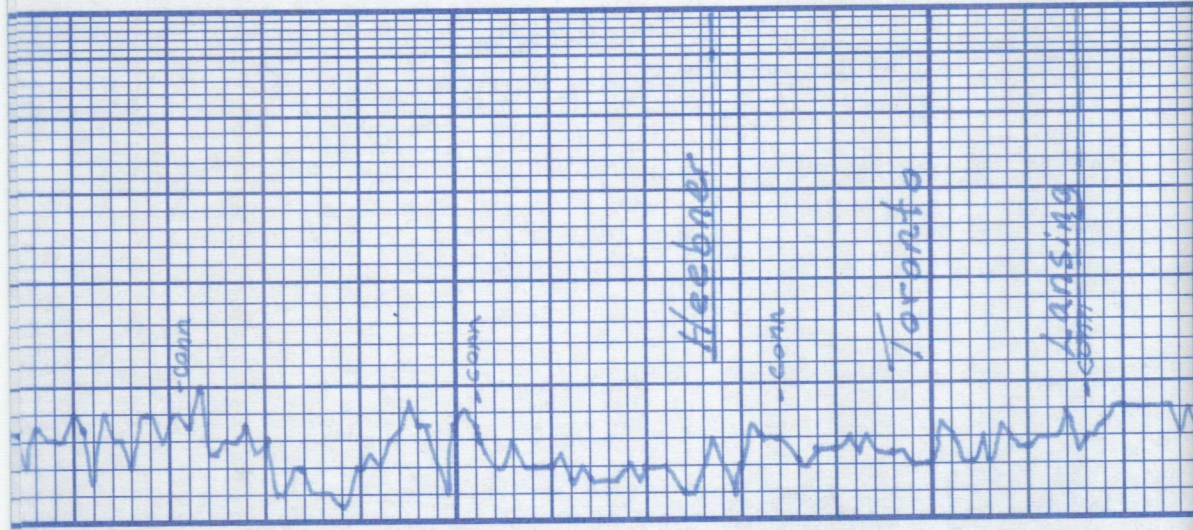
75.55 gry V. fn. gn dmsol
mgan & N.S.O. biotic spks

LS: fn - gry fslf dms

Tapoka



3200	Sh: brnd gry LS: wh-tn fxln das
20	LS: wh-tn-gry sli-clsif No vis ϕ N.S.O. LS: aa. SS: gry v. fn gm Cansol. irreg ϕ N.S.O.
40	LS: tn fxln pp ϕ N.S.O. Δ + Y wh-ta " "
60	LS: tn fxln Tr. sli-clsif + c. pp ϕ N.S.O. Tr Δ wh
80	LS: + Δ aa Sh: blk Carb. slt-stone: ht. gry + brn
3300	LS: tn fxln-sli-clsif pp ϕ N.S.O. LS: tn-grv b. ln das



20

40

60

80

3400

20

'A'

Sh: brn

LS: tn - gry fxl n das
Sh: blk Carb.

LS: tn - gry fxl n das N.S.O.

LS: tn fslf pp ϕ N.S.O.
 Δ wh fslf

LS: wh-tn fxl n pp ϕ N.S.O.
 Δ wh

Sh: blk Carb.

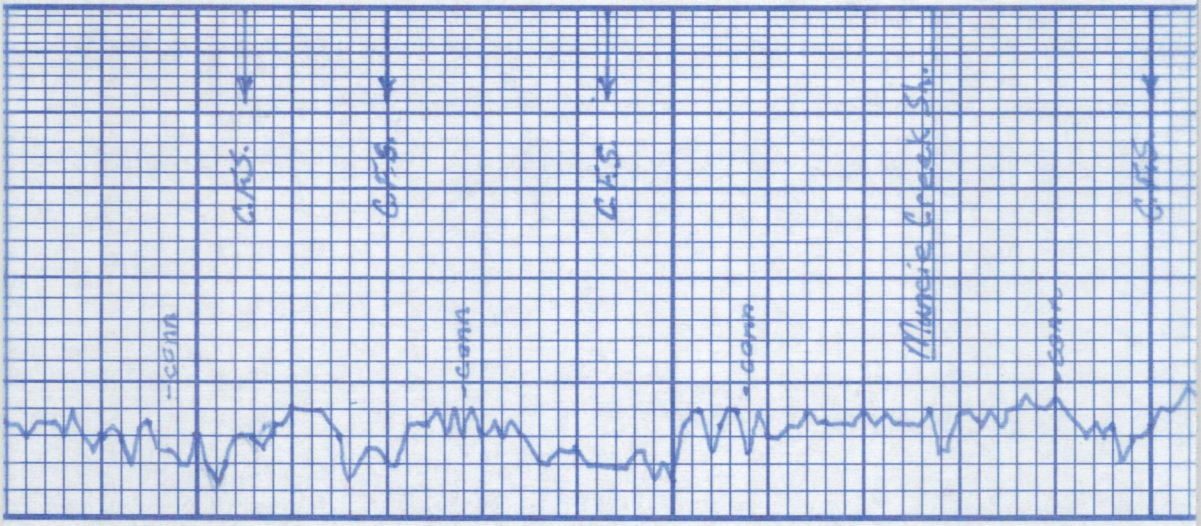
LS: tn - gry fslf das

Sh: gry, brn

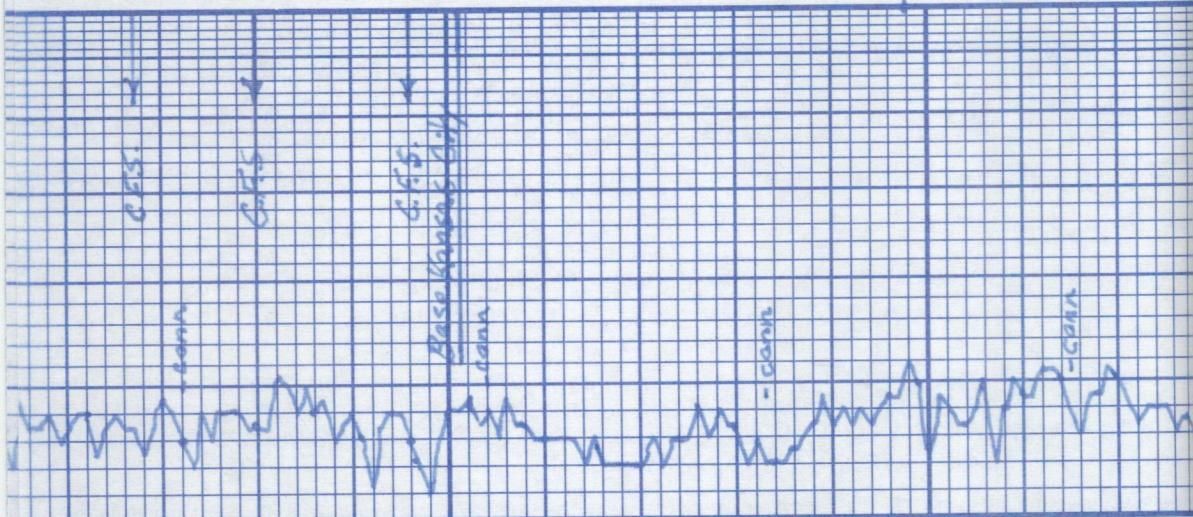
LS: wh-tn sli: chy-fxl n das
N.S.O. - Tr Δ tn

Sh: brn + gry

LS: wh-tn fxl n Tr. Sli. öl
das N.S.O.



40	LS: wh-tn fxln das LS: gry fslf das sh: gry + brn	✓
60	LS: wh-tn fxln tr faly ool pps in part of Tr. Lt. Sfn N.F.O. ft. odor V. Dry wk. Lt. gry sh: brn + gry	✓
80	Dol: tn fxln in xln of sp. pss. tr. of snt Scent Lt. sptd. Sfn N.F.O. No odor LS: gry	✓
80	LS: tn - gry fxln das. LS: wh-tn fxln drs N.S.O.	✓
3500	LS: wh-tn fxln - tr sji. ool pp of pr. Lt. sptd. Sfn ft. odor N.F.O.	✓
20	LS: wh-tn fxln tr pp tr. pr Lt. sptd. Sfn N.F.O. No odor	✓
40	LS: wh-tn - Lt. gry sli. cky - fxln das ds.o. sh: blk Carb LS: tn - gry fslf das. sh: brn + gry	✓
40	LS: wh-tn fxln tr pr. pp of Tr. pr. Lt. sptd. Sfn N.F.O. Lt. Cat on crushing sh: brn	✓



60	I	LS: wh-tn fcln sli.cky p.c. pp V. Lt. Spd 0 Sta. Lt. Cas N.F.O.
80	J	LS: wh-tn sli.cky-fxln Tr. Sub ool. pr. pp Lt. Spd 0 Sta. sm. pp flaring FO. No odor Sh: gry, brn
3600	K	LS: wh-tn fcln ool pyritic pp & pr. fagat. 0. 5% Sta Tr. pp F.O. No odor LS: wh-ta fcln das Sh: brn & gry
20		LS: wh-ta fcln-sli fslf das NSO. Tr Δ wh Sh: brn
40		LS: tn-brn-fcln das NSO.
60		Sh: brn slty LS & sdy LS: wh-ta fcln sd embed. ingran & spnd dk 0 Sta N.F.O. Sh: brn LS: wh-ta sli.cky-fcln das N.S.O.

Trilobite Testing

DST #1 3648'-3711'
45-45-45-45

IF: B.O.B. in 42 min
ISI: No blow
FF: wk blow incr. to 8"
FSI: wk blow

Recovery: 115' G.I.P.
250' Total fluid
150' G.O. 107.6 90% 20
40' G+OCM 102.6 35% 0
552 m

60' G+OCM 57.6, 202.0
752 m

HYD: 1821-1770#

FP: 32-87/96-113#

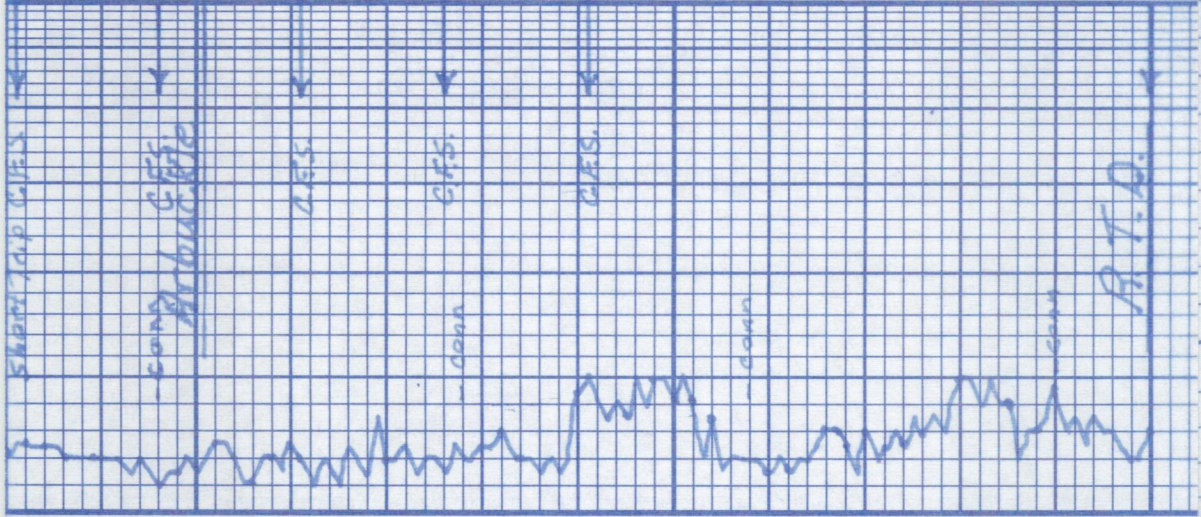
BHP: 785-724#

BHTemp: 111°F.

gravity: 27° A.P.I.

DST #2 3711'-3726'
45-45-46-45

IF: wk blow incr. to 8 1/2"
ISI: No blow



Sh: brn	
sh: brn slty Δ yel + blk	
Dol: wh-tn fxln - mxln inln - vgy φ rainbow S.O. gd φ sat, bleeding F.O gd odor	
Dol: a.a. incr. vgy φ str a.a. gd odor rainbow S.O.	
Dol: wh-tn fxln - mxln inln vgy φ rainbow S.O. gd Sat but decreasing lot of barren sh: brn	
Dol: tn - brn fxln dns	
Dol: wh-tn fxln - mxln glawc spks tr. pyrite inln φ - vgy φ tr blk Thick tary φ str	
Dol: a.a. barren	
Dol: wh-tn fxln - mxln slty inln φ glawc spks N.S.O.	

FSI: wk blow
 Recovery: 55 G.I.P.
 250' Total fluid
 190' G.O. 10% G, 90% O
 60' G+MCO 5% G, 65% O,
 30% M
 HYD: 1830-1724#
 FP: 17-65/70-89#
 BHP: 868-812#
 BH Temp: 110°F
 gravity: 26° A.P.I.

DST #3 3726'-3741'
 30-30-30-30
 IF: wk blow
 FF: No blow
 Recovery: 30' G+O CM
 5% G, 40% O, 55% M
 HYD: 1837-1812#
 FP: 12-19/23-25#
 BHP: 828-407#
 BH Temp: 109°F

Board 3728.61
 Strap 3728.06
 Diff. .55
 Incline @ 3741' 1/2°