KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION

Form ACO-1 June 2009 Form Must Be Typed Form must be Signed All blanks must be Filled

ALT | | X | | | | | | | | Approved by: Dig Date: | | | | | | | | | | | |

WELL COMPLETION FORM

WELL HISTORY - DESCRIP	
OPERATOR: License # 5386	API No. 15
Name: Production Drilling Inc	Spot Description: 200' S @ 250 W of
Address 1: 1023 Reservation Rd	SW_SW_SE Sec. 12 Twp. 8 S. R. 22 East West
Address 2:	
City: Hays State: Ks Zip: 67601 +	2,560 Feet from Feet from East / West Line of Section
Contact Person:Aven Weaverling	Footages Calculated from Nearest Outside Section Corner:
Phone: (785) 625-1189	□ne □nw ☑se □sw
CONTRACTOR: License # 31548 KANSAS CORPORATION COMMISSION	County: Graham
Discovery Drilling Co., Inc.	Lease Name:Well #:
Wellsite Geologist: Cliff Ottaway	Field Name: Wildcat
Purchaser: Coffeyville CONSERVATION DIVISION	Producing Formation: LKC
WICHITA, KS Designate Type of Completion:	Elevation: Ground: 2052 Kelly Bushing: 2060
	Total Depth: 3582 Plug Back Total Depth:
✓ New Well	Amount of Surface Pipe Set and Cemented at: 223 Feet
Gas D&A ENHR SIGW	. No Multiple Stage Cementing Collar Used? ☑ Yes ☐ No
☐ OG ☐ GSW ☐ Temp. Abd.	If yes, show depth set:Feet
CM (Coal Bed Methane)	If Alternate II completion, cement circulated from: 1596
Cathodic Other (Core, Expl., etc.):	feet depth to: surface w/ 255 sx cmt.
If Workover/Re-entry: Old Well Info as follows:	:
Operator:	Drilling Fluid Management Plan
Well Name:	(Data must be collected from the Reserve Pit)
Original Comp. Date: Original Total Depth:	Chloride content: 14.000 ppm Fluid volume: 240 bbls
☐ Deepening ☐ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD	Dewatering method used: Evaporation
Conv. to GSW	
Plug Back: Plug Back Total Depth	Location of fluid disposal if hauled offsite:
Commingled Permit #:	Operator Name:
Dual Completion Permit #:	Lease Name: License #:
SWD Permit #:	Quarter Sec TwpS. R
ENHR Permit #:	County: Permit #:
☐ GSW Permit #:	·
Spud Date or Date Reached TD Completion Date or	
Recompletion Date Recompletion Date	
INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas 67202, within 120 days of the spud date, recompletion, workover or corn of side two of this form will be held confidential for a period of 12 months if requitiality in excess of 12 months). One copy of all wireline logs and geologist well BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form	oversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information lested in writing and submitted with the form (see rule 82-3-107 for confidenge or shall be attached with this form. ALL CEMENTING TICKETS MUST
AFFIDAVIT	KCC Office Use ONLY
I am the affiant and I hereby certify that all requirements of the statutes, rules and relations promulgated to regulate the oil and gas industry have been fully complied to	
and the statements herein are complete and correct to the best of my knowledge	Date:
	Confidential Release Date:
Signature: Ann Weavelyn	✓ Wireline Log Received ✓ Geologist Report Received

Signature: Avan Weaverlyng

Title: Production Foreman

Side Two

Operator Name: Production Drilling Inc Lease Name: Rhian					_ Well #:1					
Sec. 12 Twp.8			✓ West		Grah					
INSTRUCTIONS: She time tool open and clo recovery, and flow rate line Logs surveyed. A	sed, flowing and shu es if gas to surface te	it-in pressu est, along w	res, whether sl ith final chart(s	hut-in press	sure read	ched static level,	hydrostatic pres	sures, bottom l	nole temp	perature, fluid
Drill Stem Tests Taken		√ Ye	s No		 ✓L	og Formation	n (Top), Depth ar	nd Datum		Sample
(Attach Additional S			s ✓ No		Nam			Тор		Datum
Samples Sent to Geol Cores Taken	logical Survey	∐ Ye □ Ye			Topek			3012 3221		952 I 161
Electric Log Run		✓ Ye			Heebr			3242		1182
Electric Log Submitted	☐ Ye	s √No		Toront	0		3256		1196	
(If no, Submit Copy)					Arbuc	kla		3556		1504
List All E. Logs Run:					Albuc	KIC				
		1	rt all strings set-c			ermediate, producti				
Purpose of String	Size Hole Drilled		e Casing (In O.D.)	Weig Lbs.		Setting Depth	Type of Cement	# Sacks Used		and Percent Additives
Surface Pipe	12 1/4	8 5/8	hiw.	23		223	common	150	2%ge	I -3% CC
Production String	7 7/8	5 1/2		15.5		3563	Q-PRO	150	10% 5	Salt
			ADDITIONAL	CEMENTI	NG / SQL	JEEZE RECORD				
Purpose: —— Perforate	Depth Top Bottom	Туре	Type of Cement		# Sacks Used Type			Percent Additive	\$	
Protect Casing Plug Back TD Plug Off Zone	0-1596	QMDL		225					<u></u>	
Shots Per Foot			D - Bridge Plug Each Interval Per				cture, Shot, Cemer		ord	Depth
LK-C K	3446-48		_			750 gal 15%	6			3447
LK-C J	3424-30	KANSAS (RECEIVED CORPORATION CO	OMMISSION						3425
LK-C F	3336-42	J	UN 0 9 20)10		0				
		con	SERVATION (WICHITA, K	DIVISION_ S						
TUBING RECORD:	Size: 2 7/8	Set At: 3515		Packer A	At:	Liner Run:	Yes ✓ N	0		
Date of First, Resumed 3-18-2010	Production, SWD or E	NHR.	Producing Met	hod: Pumpir	ng [Gas Lift (Other (Explain)			
Estimated Production Per 24 Hours	Oil 71	Bbls.	Gas 0	Mcf	Wa	ter B 30'	bls.	Gas-Oil Ratio		Gravity 35
DISPOSITI	ON OF GAS:			METHOD OF	F COMPI	ETION:		PRODUCT	ION INTER	 RVAL:
Vented Sold		, _ ,	_	✓ Perf.	Duall	y Comp. Co		3448-3336		
	bmit ACO-18.)	1 _	Other (Specify) _		(Submit	ACO-5) (Sub	omit ACO-4) —			

QUALITY OILWELL CEMENTING, INC.

Phone 785-483-2025	Home Office I	P.O. Bo	x 32 Rus	sell, KS 0/005		3694
Cell 785-324-1041						
Sec.	Twp. Range	, C	ounty	State	On Location	Finish
Date 12-4-09 12	8 22	bra	ham	Kanaca		3:45 Fmg
Lease Rhow W	Vell No. /	Location	n Barn	1603	Wilo	
Contractor Discourty Di	112 Revenue		Owner :			
Type Job DV (70)	3			ilwell Cementing, In	nc. nt cementing equipmen	it and furnish
Hole Size 78	T.D. 3.582		cementer an	d helper to assist o	wner or contractor to d	o work as listed.
Csg. 55 15 50 13	Depth 3565		Charge 7	reduction D	CHI	
Tbg. Size	Depth		Street			
Tool DV 749	Depth /595		City	a fan dit en <mark>dit ledt</mark> er a	State	
Cement Left in Csg.	Shoe Joint		The above wa	is done to satisfaction	and supervision of owner	agent or contractor.
Meas Line	Displace 3884	1			CEMENT	
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GENERAL TERMS AND CONDITIONS

DEFINITIONS: In these terms and conditions, "Quality" shall mean Quality Oilwell Cementing, Inc., and "Customer" shall refer to the party identified by that term on the front of this contract. As applicable, "Job" relates to the services described on the front side of this contract, "merchandise" refers to the material described on the front of this contract and to any other materials, products, or supplies used, sold, or furnished under the requirements of this contract.

- TERMS: Unless satisfactory credit has been established, "CUSTOMER" must tender full cash payment to "QUALITY" before the job is undertaken or merchandise is delivered. If satisfactory credit has been established, the terms of payment for the job and/or merchandise, including bulk cement, are net cash, payable in 30 days from the completion of the job and/or delivery of the merchandise. For all past due invoices, "CUSTOMER" agrees to pay interest on amounts invoiced at a rate of 18 percent per annum until paid. Notwith-standing the foregoing in no event shall this Contract provide for interest exceeding the maximum rate of interest that "CUSTOMER" may agree to pay under applicable law. If any such interest should be provided for, it shall be and hereby is deemed to be a mistake, and this contract shall be automatically reformed to lower the rate of interest to the maximum legal contract rate, any amounts previously paid as excess interest shall be deducted from the amounts owing from the "CUSTOMER" or at the option of "QUALITY," refunded directly to "CUSTOMER." For purposes of this paragraph, QUALITY and CUSTOMER agree that KANSAS law shall apply. Any discounts granted with this contract are null and void if the charges are not paid when due.
- ATTORNEY FEES: In any legal action or proceeding between the parties to enforce any of the terms of this Service Contract, or in any way pertaining to the term of this Contract, the prevailing party shall be entitled to recover all expenses, including, but not limit to, a reasonable sum as and attorney's fees.
- PRICES AND TAXES: All merchandise listed in "QUALITY'S" current price shall schedule are F.O.B. QUALITY'S local station and are subject to change without notice. All prices are exclusive of any federal, state, local, or special taxes for the sale or use of the merchandise or services listed. The amount of taxes required to be paid by QUALITY shall be added to the quoted prices charged to CUSTOMER.
- TOWING CHARGES: QUALITY will make a reasonable attempt to get to and from each job site using its own equipment. Should QUALITY be unable to do so because of poor or inadequate road conditions, and should it become necessary to employ a tractor or other pulling equipment to get to or from the job site, the tractor or pulling equipment will be supplied by CUSTOMER or, if furnished by QUALITY, will be charged to and paid by CUSTOMER.
- PREPARATION CHARGES: If a job and/or merchandise is ordered and CUSTOMER cancels the order after preparation of a chemical solution or other material, CUSTOMER will pay QUALITY for the expenses incurred by QUALITY as a result of the cancellation.
- DEADHAUL, CHARGES: Unless otherwise specified on the front of this Contract, a deadhaul charges as set forth in QUALITY'S
 current price book will be charged each way for each service unit which is ordered by CUSTOMER but not used.
- SERVICE CONDITIONS AND LIABILITIES: 1. QUALITY carries public liability and property damage insurance, but since there are so many uncertain and unknown conditions beyond QUALITY'S control, QUALITY shall not be liable for injuries to property or persons or for loss or damage arising from the performance of the job or delivery of the merchandise. Customer shall be responsible for and indemnify, defend, and hold harmless QUALITY, its officers, agents and employees, from and against any and all claims or suits for:
- (A) Damage to property or for bodily injury, sickness, disease, or death, brought by any person, including CUSTOMER and/or the well owner; and:
- (B) Oil spills, pollution, surface or sub-surface damage, injury to the well, reservoir loss, or damage arising from a well blowout arising out of or in connection with QUALITY'S performance of the job or furnishing of merchandise in accordance with this contract, unless such loss or damage is caused by the willful misconduct or gross negligence of QUALITY or its employees.
- 2. With respect to any of QUALITY'S tools, equipment, or instruments which are lost in the well or damaged when performing or attempting to perform the job or, in the case of marine operations, are lost or damaged at any time after delivery to the landing for CUSTOMER and before return to QUALITY at the landing, CUSTOMER shall either recover the lost item without cost to QUALITY or reimburse QUALITY the current replacement cost of the item unless the loss or damage results from the sole negligence of QUALITY or its employees.
- 3. QUALITY does not assume any liability or responsibility for damages or conditions resulting from chemical action in cements caused by contamination of water or other fluids.
- WARRANTIES: 1. QUALITY warrants all merchandise manufactured or furnished by it to be free from defects in material and workmanship under normal use and service when installed, and used, and/or serviced in the manner provided and intended. QUALITY'S obligation under this warranty is expressly limited to repair replacement, or allowance for credit, at its option, for any merchandise which is determined by QUALITY to be defective. THIS IS THE SOLE WARRANTY OF QUALITY AND NO OTHER WARRANTY IS APPLICABLE, EITHER EXPRESS OR OTHERWISE IMPLIED, IN FACT OR IN LAW, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE, CUSTOMER'S sole and only remedy with regard to any defective merchandise shall be the repair or replacement thereof or allowance for credit as herein provided, and QUALITY shall not be liable for any consequential, special, incidental, or punitive damages resulting from or caused by defective materials, products or supplies.
 - 2. More specifically:
- (A) Nothing in this contract shall be constructed as a warranty by QUALITY of the success or the effectiveness of the result of any work done or merchandise used, sold, or furnished under this contract.
- (B) Nothing in this contract shall be construed as a warranty of the accuracy or correctness of any facts, information, or data furnished by QUALITY or any interpretation of test, meter readings, chart information, analysis or research, or recommendations made by QUALITY, unless the inaccuracy or incorrectness is caused by the willful misconduct or gross negligence of QUALITY or its employees in the preparation or furnishing of such facts, information or data. (C) Work done by QUALITY shall be under the direct supervision and control of the CUSTOMER or his agent and QUALITY will accomplish the job as an independent contractor and not as an employee or agent of the CUSTOMER.

QUALITY OILWELL CEMENTING, INC.

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Phone 785-483-2025	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		.O. Box 32 F	Russell, KS 67665
Cell 785-324-1041				
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Tool DV	Depth/59	5	City		State	
Cement Left in Csg.	Shoe Joint	-	The above wa	s done to satisfaction a	nd supervision of owne	agent or contractor.
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Prepared For: Production Drlg Inc

1023 Reservation Rd Hays Ks 67601

ATTN: Larry Patterson

12-8-22 Graham Ks

Rhian #1

Start Date: 2009.12.01 @ 20:23:50 End Date: 2009.12.02 @ 02:07:50 Job Ticket #: 36669 DST#: 1

> **RECEIVED** JUN 2 3 2010 KCC WICHITA

Trilobite Testing, Inc PO Box 1733 Hays, KS 67601 ph: 785-625-4778 fax: 785-625-5620

Printed: 2009.12.14 @ 09:11:06 Page 1

Production Orlg Inc

12-8-22 Graham Ks

K

O



Production Orlg Inc

1023 Reservation Rd Hays Ks 67601

Rhian #1

12-8-22 Graham Ks Job Ticket: 36669

DST#: 1

ATTN: Larry Patterson

Test Start: 2009.12.01 @ 20:23:50

GENERAL INFORMATION:

Formation:

C No

Devlated:

LKC Whipstock:

ft (KB)

Test Type: Conventional Bottom Hole

Tester:

Dan Bangle

Time Tool Opened: 21:49:50 Time Test Ended: 02:07:50

3280.00 ft (KB) To 3305.00 ft (KB) (TVD)

Total Depth: Hole Dlameter:

Interval;

3305.00 ft (KB) (TVD)

7.88 Inches Hole Condition: Good

Unit No:

Reference Elevations:

2060.00 ft (KB)

KB to GR/CP:

2052.00 ft (CF) 8.00 ft

Serial #: 8354 Press@RunDepth:

inside

199.31 psig @ 2009.12,01

3281.00 ft (KB) End Date:

2009.12.02

Capacity: Last Calib.: 8000.00 psig

Start Date: Start Time:

20:23:51

End Time:

02:07:50

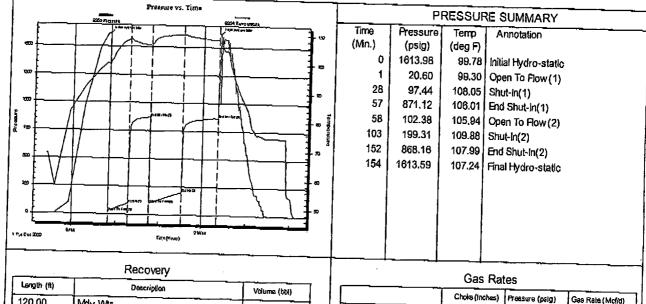
Time On Blm:

2009.12,02

2009.12.01 @ 21:49:20 Time Off Btm: 2009.12.02 @ 00:22:50

TEST COMMENT: IF-Strong &-B in 10 min

ISI-Weak steady surface blow FF-Strong B-B in 12 min FSI-Weak steady surface blow



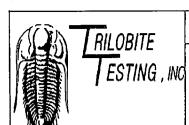
Recovery	
Description	Volume (bbl)
Mdy Wtr	1.41
SittyOCMdyWir 10%o 60%w 30%m	1.68
HOCM 40%o 60%m	0.84
œ	0.70
258 GIP	0.00
Rw .09 @ 80 = 80000ppm	0.00
	Description Mdy Wtr Stitly OCMdy Wtr 10% 0 60%w 30%m HOCM 40% 0 60%m CO

Trilobite Testing, Inc.

Ref. No: 36669

Printed: 2009.12.14 @ 09:11:06 Page 2

Gas Rate (Mcf/d)



TOOL DIAGRAM

P. 003

Production Drig Inc

Rhlan #1

12-8-22 Graham Ks

1023 Reservation Rd Hays Ks 67601

Job Ticket: 36669

DST#:1

ATTN: Larry Patterson

Test Start: 2009.12.01 @ 20:23:50

Tool Information

Drill Pipe:

Drill Collar:

Length: 3233.00 ft Diameter: Heavy Wt. Pipe: Length:

Length:

0.00 ft Diameter: 30.00 ft Diameter: 3.80 inches Volume: 0.00 inches Volume: 2.25 inches Volume:

45.35 bbl 0.00 bbl 0.15 bbl Tool Weight: Weight set on Packer: 25000.00 lb

2000.00 (b

Weight to Pull Loose: 100000.0 fb

Orlli Pipe Above KB:

3.00 ft 3280.00 ft Total Volume: 45.50 bbl Tool Chased

5.00 ft

Depth to Top Packer: Depth to Bottom Packer:

ft

String Weight: Initial 58000.00 lb Final 60000.00 lb

Interval between Packers: Tool Length:

25.00 ft

45.00 ft 2 Diameter:

6.75 inches

Number of Packers: Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			3261.00		
Shut In Tool	5.00			3266.00		
Hydraulic tool	5.00			3271.00		
Packer	5.00			3276.00	20.00	Bottom Of Top Packer
Packer	4.00			3280.00		
Stubb	1.00			3281.00		
Recorder	0.00	8354	Inside	3281,00		
Recorder	0.00	8520	Outside	3281.00		
Perforations	21.00			3302.00		
Bullnose	3.00			3305.00	25.00	Bottom Packers & Anchor
Total Tool Length	. 4500	l				



FLUID SUMMARY

Production Origina

Rhian #1

1023 Reservation Rd Hays Ks 67601

ATTN: Larry Patterson

12-8-22 Graham Ks

Job Ticket: 36669

DST#:1

Test Start: 2009.12.01 @ 20:23:50

Mud and Cushion Information

Mud Type: Gel Chem

9.00 lb/gal

Cushlon Type:

Oli API:

34 deg API

Mud Weight: Viscosity:

52,00 sec/qt

Cushlon Length: Cushlon Volume; ft Water Salinity: bb!

80000 ppm

Water Loss: Resistivity:

7.17 in² ohm.m

Gas Cushion Type: Gas Oushlon Pressure:

psig

Salinity: Filter Cake: 2000.00 ppm inches

Recovery Information

Recovery Table

Length ft	Description	Valume bbl
120.00	Mdy Wtr	1.410
120.00	SlilyOCMdyWir 10%o 60%w 30%m	1.683
60.00	HOCM 40%o 60%m	0.842
50.00	∞	0.701
0.00	258 GiP	0.000
0.00	Rw .09 @ 80 = 80000ppm	0.000

Total Length:

350.00 ft

Total Volume;

4.636 bb!

Num Fluid Samples: 0

Num Gas Bombs:

Serial #:

Laboratory Name:

0

Recovery Comments;

Laboratory Location:

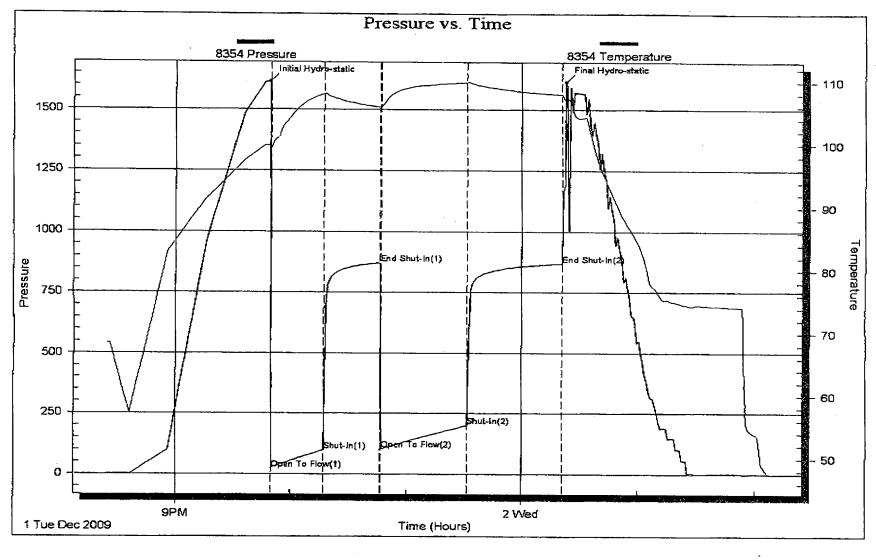


Inside

Production Drlg Inc

12-8-22 Graham Ks

OST Test Number: 1



Trilobite Testing, Inc

Ref. No: 36669

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RECENTED 2009.12.14 @ 09:11:07 Page 5

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CONSERVATION DIVISION WICHITA, KS



DRILL STEM TEST REPORT

Production Drlg Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks Job Ticket: 36670

DST#: 2

ATTN: Larry Patterson

Test Start: 2009.12.02 @ 07:53:05

GENERAL INFORMATION:

Time Tool Opened: 09:10:35

Time Test Ended: 12:31:35

Formation: Deviated:

D

LKC

No

Whipstock:

ft (KB)

Test Type: Conventional Bottom Hole

Tester:

Dan Bangle 38

Unit No:

Reference Elevations:

2060.00 ft (KB)

2052.00 ft (CF)

KB to GR/CF:

8.00 ft

Interval: Total Depth:

Hole Diameter:

Serial #: 8354

Press@RunDepth:

3306.00 ft (KB) To 3320.00 ft (KB) (TVD) 3320.00 ft (KB) (TVD)

7.88 inches Hole Condition: Good

Inside

Start Date:

49.20 psig @ 2009.12.02

3307.00 ft (KB)

End Date: 2009.12.02 Capacity: Last Calib .: 8000.00 psig

Start Time:

07:53:06

End Time:

12:31:35

Time On Btm:

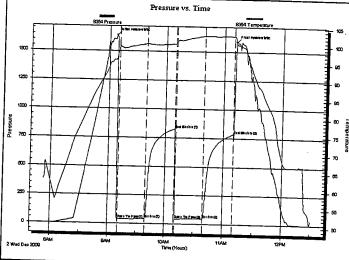
2009.12.02 2009.12.02 @ 09:07:35

Time Off Btm:

2009.12.02 @ 11:12:05

TEST COMMENT: IF-Weak building to 4"

FF-Weak building to 1 1/2"



_	T							
PRESSURE SUMMARY								
	Time	Pressure	Temp	Annotation				
	(Min.)	(psig)	(deg F)					
	0	1638.54	95.91	Initial Hydro-static				
	3	38.97	99.47					
	32	43.02	100.41	Shut-In(1)				
i	62	825.81	100.39	, · · ·				
Temo	63	44.35	100.88	1 1				
Temperature	92	49.20	102.70	Shut-In(2)				
•	123	784.10	102.65	End Shut-In(2)				
-	125	1588.19	100.82	Final Hydro-static				
1								
l								
1			I					

Recovery

Length (ft)	Description	Volume (bbi)
55.00	HOOM 10% 90%m	0.50
15.00	HOOM 40% 60%m	0.21
5.00	∞	0.07
_		

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



TOOL DIAGRAM

Production Drlg Inc

1023 Reservation Rd Hays Ks 67601

ATTN: Larry Patterson

Rhian #1

12-8-22 Graham Ks

Job Ticket: 36670

DST#: 2

Test Start: 2009.12.02 @ 07:53:05

Tool Information

Drill Pipe:

Length: 3264.00 ft Diameter:

3.80 inches Volume:

45.79 bbl

Tool Weight:

2000.00 lb

Heavy Wt. Pipe: Length: Drill Collar:

Length:

0.00 ft Diameter: 30.00 ft Diameter:

0.00 inches Volume: 2.25 inches Volume:

0.00 bbl 0.15 bbl Weight set on Packer: 25000.00 lb

Weight to Pull Loose: 80000.00 lb

Drill Pipe Above KB:

8.00 ft 3306.00 ft

Total Volume: 45.94 bbl Tool Chased

8.00 ft

Depth to Top Packer: Depth to Bottom Packer:

ft 14.00 ft

String Weight: Initial 58000.00 lb

Final 58000.00 lb

Tool Length:

Interval between Packers:

Number of Packers:

34.00 ft 2

Diameter:

6.75 inches

Tool Comments:

Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
1.00			3287.00		
5.00			3292.00		
5.00			3297.00		
5.00			3302.00	20.00	Bottom Of Top Packer
4.00			3306.00		
1.00			3307.00		
0.00	8354	Inside	3307.00		
0.00	8520	Outside	3307.00		
10.00			3317.00		
3.00			3320.00	14.00	Bottom Packers & Anchor
	1.00 5.00 5.00 5.00 4.00 1.00 0.00 0.00	1.00 5.00 5.00 5.00 4.00 1.00 0.00 8354 0.00 8520	1.00 5.00 5.00 5.00 4.00 1.00 0.00 8354 Inside 0.00 8520 Outside 10.00	1.00 3287.00 5.00 3292.00 5.00 3297.00 5.00 3302.00 4.00 3306.00 1.00 3307.00 0.00 8354 Inside 3307.00 0.00 8520 Outside 3307.00 10.00 3317.00	1.00 3287.00 5.00 3292.00 5.00 3297.00 5.00 3302.00 20.00 4.00 3306.00 1.00 3307.00 0.00 8354 Inside 3307.00 0.00 8520 Outside 3307.00 10.00 3317.00

Total Tool Length:

34.00



Rhian #1

1023 Reservation Rd Hays Ks 67601

Production Drlg Inc

12-8-22 Graham Ks

Job Ticket: 36670

DST#: 2

FLUID SUMMARY

ATTN: Larry Patterson

Test Start: 2009.12.02 @ 07:53:05

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight:

9.00 lb/gal 52.00 sec/qt

Viscosity: Water Loss:

7.17 in³

Resistivity: Salinity: Filter Cake:

ohm.m

2000.00 ppm inches **Qushion Type:**

Cushion Length:

Cushion Volume:

Gas Cushion Type: Gas Cushion Pressure:

Oil API: Water Salinity:

deg API ppm

bbl

ft

psig

Recovery Information

Recovery Table

		,	
ļ	Length ft	Description	Volume
	55.00	HOCM 10% 90%m	bbl
1	15.00	HOCM 40%0 60%m	0.498
L	5.00	CO	0.210
			0.070

Total Length:

75.00 ft

Total Volume:

0.778 bbl

Num Fluid Samples: 0

Laboratory Name:

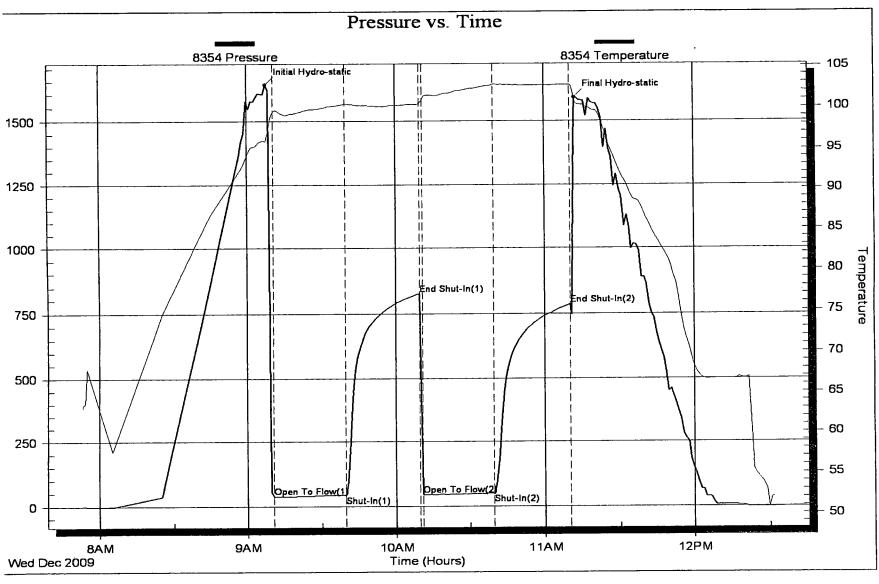
Num Gas Bombs:

Serial #:

Recovery Comments:

Laboratory Location:

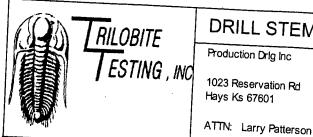
Trilobite Testing Inc



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DRILL STEM TEST REPORT

Production Drlg Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks

Job Ticket: 36671

DST#: 3

Test Start: 2009.12.02 @ 17:55:58

GENERAL INFORMATION:

Formation:

E-F

LKC

Deviated:

No Whipstock:

ft (KB)

Test Type:

Conventional Bottom Hole

Time Tool Opened: 19:10:58 Time Test Ended: 23:38:58

Dan Bangle

Interval:

3322.00 ft (KB) To 3345.00 ft (KB) (TVD)

Tester: Unit No:

38

Total Depth:

3345.00 ft (KB) (TVD)

Reference Elevations:

2060.00 ft (KB)

2052.00 ft (CF)

Hole Diameter:

7.88 inches Hole Condition: Good

KB to GR/CF:

8.00 ft

Serial #: 8354

Press@RunDepth:

Inside 145.05 psig @

3323.00 ft (KB)

Capacity:

Start Date:

2009.12.02

End Date:

2009.12.02

Last Calib .:

8000.00 psig 2009.12.02

Start Time:

17:55:59

End Time:

23:38:58

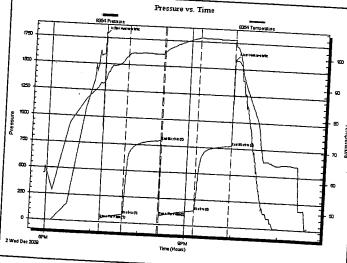
Time On Btm: 2009.12.02 @ 19:10:28

Time Off Btm:

2009.12.02 @ 21:56:58

TEST COMMENT: IF-Strong B-B in 12 min

ISHWeak surface blow FF-Strong B-B in 14 min FSI-Weak surface blow



	PRESSURE SUMMARY							
Temperature 8	Time (Min.) 0 1 30 75 76 121 166 167	Pressure (psig) 1785.89 31.79 81.05 797.55 84.74 145.05 774.86 1588.71	Temp (deg F) 89.97 90.09 98.78 99.70 100.24 105.45 105.23 103.91	Annotation Initial Hydro-static Open To Flow (1) Shut-In(1) End Shut-In(1) Open To Flow (2)				
- 1								

Recovery

Length (A)		_		
	Description	Volume (bbl)		
	SitlyOCMdyWtr 4% 66%w 30%m	0.57		
90.00	MCO 60%0 40%m			
90.00		1.26		
100.00		1.26		
		1.40		
	360 GIP	0.00		
0.00	Rw.12 @ 80 = 66000ppm			
		0.00		
֡	90.00 90.00 90.00 100.00 0.00	60.00 SltlyOCMdyWtr 4% 66%w 30%m 90.00 MCO 60%o 40%m 90.00 MCO 80%o 20%m 100.00 CO 0.00 360 GIP		

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

Trilobite Testing, Inc

Ref. No: 36671



TOOL DIAGRAM

Production Drlg Inc

Rhian #1

Total Volume:

1023 Reservation Rd Hays Ks 67601

ATTN: Larry Patterson

12-8-22 Graham Ks

Job Ticket: 36671

DST#: 3

Test Start: 2009.12.02 @ 17:55:58

Tool Information

Drill Fipe: Heavy Wt. Pipe: Length:

Drill Collar:

Length:

Length: 3295.00 ft Diameter: 0.00 ft Diameter: 30.00 ft Diameter: 3.80 inches Volume: 0.00 inches Volume: 2.25 inches Volume: 46.22 bbl 0.00 bbl 0.15 bbl Tool Weight: Weight set on Packer: 25000.00 lb

2000.00 lb

Tool Chased

Weight to Pull Loose: 60000.00 lb 4.00 ft

46.37 bbl

String Weight: Initial 58000.00 lb

Final 59000.00 lb

Drill Pipe Above KB: Depth to Top Packer: 23.00 ft

3322.00 ft ft

Depth to Bottom Packer: Interval between Packers:

25.00 ft

Tool Length: Number of Packers: 45.00 ft 2

Diameter:

6.75 inches

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			3303.00		
Shut In Tool	5.00			3308.00		
Hydraulic tool	5.00			3313.00		
Packer	5.00			3318.00	20.00	Bottom Of Top Packer
Packer	4.00			3322.00		
Stubb	1.00			3323.00		
Recorder	0.00	8354	Inside	3323.00		
Recorder	0.00	8520	Outside	3323.00		
Perforations	21.00			3344.00		
Bullnose	3.00			3347.00	25.00	Bottom Packers & Anchor
	45.00					

Total Tool Length:

45.00



FLUID SUMMAR

Production Drlg Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks

ATTN: Larry Patterson

Job Ticket: 36671

DST#: 3 Test Start: 2009.12.02 @ 17:55:58

Mud and Cushion Information

Mud Type: Gel Chem Mud Weight:

9.00 lb/gal

Cushion Type:

Oil API:

34 deg API

Viscosity:

52.00 sec/qt 7.97 in³

Cushion Length: Qushion Volume:

Water Salinity:

66000 ppm

Water Loss: Resistivity:

ohm.m

Gas Oushion Type: Gas Cushion Pressure:

psig

ft

bbl

Salinity:

2600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

		Recovery Table	
Le	ength	Description	
	60.00	SittyOCMdyWtr 4% 66%w 30%m	Volume bbi
ļ	90.00	MCO 60% 0 40%m	0.568
 	90.00	MCO 80%o 20%m	1.262
 	100.00	00	1.262
 	0.00	360 GIP	1.403
L	0.00	Rw .12 @ 80 = 66000ppm	0.000
tal Length:	340.	00 ft Total Volume	0.000

Total Length:

Total Volume:

4.495 bbl

Num Fluid Samples: 0

Num Gas Bombs:

Serial #:

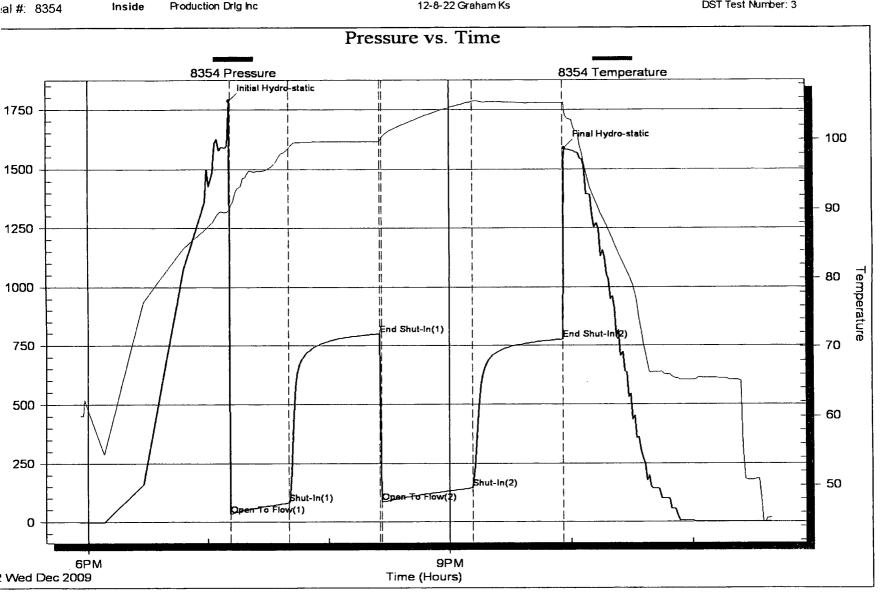
Laboratory Name:

Laboratory Location:

Recovery Comments:

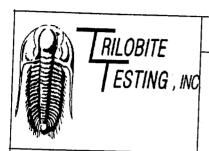
Trilobite Testing, Inc

Ref. No: 36671



JUN 09 2010

CONSERVATION DIVISION WICHITA, KS



DRILL STEM TEST REPORT

Production Drlg Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks

Job Ticket: 36672

DST#: 4

ATTN: Larry Patterson

Test Start: 2009.12.03 @ 17:25:54

GENERAL INFORMATION:

Formation:

Arbuckle

Deviated:

Whipstock: No

ft (KB)

Test Type:

Conventional Bottom Hole

Time Tool Opened: 19:09:24

Time Test Ended: 00:06:24

Tester: Unit No:

Dan Bangle

3564.00 ft (KB) To 3582.00 ft (KB) (TVD)

Interval: Total Depth:

3582.00 ft (KB) (TVD)

Reference Elevations:

2060.00 ft (KB)

Hole Diameter:

7.88 inches Hole Condition: Good

KB to GR/CF:

38

2052.00 ft (CF) 8.00 ft

Serial #: 8354

Inside Press@RunDepth:

169.99 psig @ 3565.00 ft (KB)

Capacity:

Start Date:

2009.12.03

End Date:

2009.12.04

Last Calib.:

8000.00 psig 2009.12.04

Start Time:

17:25:55

End Time:

00:06:24

Time On Btm:

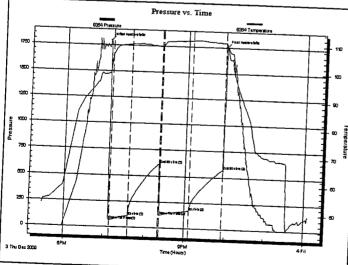
2009.12.03 @ 19:05:24

Time Off Btm:

2009.12.03 @ 21:57:24

TEST COMMENT: IF-Strong B-B in 2 min

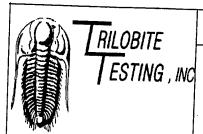
ISI-Weak surface blow FF-Strong B-B in 9 min FSI-Weak surface blow



	ł	DDESCRIPE OF THE PARTY							
	PRESSURE SUMMARY								
	Time	Pressure	Temp	Annotation					
	(Min.)	(psig)	(deg F)	1					
	0	1793.99	99.04	Initial Hydro-static					
	4	68.08	105.78	Open To Flow(1)					
	31	110.87	109.32	Shut-in(1)					
	76	617.07	108.77	End Shut-In(1)					
amoratur	77	121.06	108.62	Open To Flow (2)					
	121	169.99	111.04	Shut-In(2)	l				
1	171	571.86	110.43	End Shut-In(2)					
	172	1752.12	109.54	Final Hydro-static	- 1				
1			j	y c.o oldad	ł				
			}		- 1				
		- 1			j				
					- 1				
L	ł		ļ						
L			ļ		1				
1									

	Recovery	
Length (ft)	Description	Volume (bbl)
90.00	HMCO 60%o 40%m	0.99
390.00	∞	
0.00	258 GIP	5.47
		0.00

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



Production Drlg Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks

ATTN: Larry Patterson

Job Ticket: 36672

DST#:4

Test Start: 2009.12.03 @ 17:25:54

GENERAL INFORMATION:

Time Tool Opened: 19:09:24

Time Test Ended: 00:06:24

Formation:

Arbuckle

Deviated:

No Whipstock:

ft (KB)

Test Type:

Conventional Bottom Hole

Tester:

Dan Bangle

Unit No: 38

2060.00 ft (KB)

Reference Bevations:

2052.00 ft (CF)

KB to GR/CF:

8.00 ft

Interval:

3564.00 ft (KB) To 3582.00 ft (KB) (TVD)

Total Depth: Hole Diameter:

3582.00 ft (KB) (TVD)

7.88 inchesHole Condition: Good

Serial #: 8354

Press@RunDepth:

Start Date:

Start Time:

Inside

169.99 psig @ 2009.12.03

17:25:55

@

3565.00 ft (KB)

End Date:

End Time:

Capacity:

8000.00 psig

2009.12.04 00:06:24

Last Calib.:

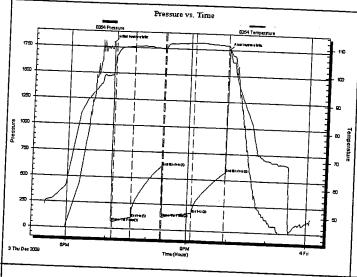
2009.12.04

Time On Btm: Time Off Btm:

2009.12.03 @ 19:05:24 2009.12.03 @ 21:57:24

TEST COMMENT: IF-Strong B-B in 2 min

IF-Strong B-B in 2 min IS-Weak surface blow FF-Strong B-B in 9 min FS-Weak surface blow



PRESSURE SUMMARY Time Pressure Temp Annotation (Min.) (psig) (deg F) 0 1793.99 99.04 Initial Hydro-static 4 68.08 105.78 Open To Flow(1) 31 110.87 109.32 Shut-In(1) 76 617.07 108.77 End Shut-In(1) 77 121.06 108.62 Open To Flow (2) 121 169.99 111.04 Shut-In(2) 171 571.86 110.43 End Shut-In(2) 172 1752.12 109.54 Final Hydro-static

Recovery

1		
Length (ft)	Description	· Volume (bbl)
90.00	HMCO 60%o 40%m	
390.00	00	0.99
0.00		5.47
0.00	258 GIP	0.00
L		
		
L		1 7

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



TOOL DIAGRAM

Production Drig Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks Job Ticket: 36672

DST#:4

ATTN: Larry Patterson

Test Start: 2009.12.03 @ 17:25:54

Tool Information

Drill Pipe:

Length: 3515.00 ft Diameter:

0.00 ft Diameter:

3.80 inches Volume:

49.31 bbl 0.00 bbl Tool Weight:

2000.00 lb

Drill Collar:

Heavy Wt. Pipe: Length: Length:

30.00 ft Diameter:

0.00 inches Volume: 2.25 inches Volume:

0.15 bbl

Weight set on Packer: 25000.00 lb Weight to Pull Loose: 65000.00 lb

Final

Drill Pipe Above KB:

1.00 ft

Total Volume:

Tool Chased

0.00 ft

Depth to Top Packer:

3564.00 ft

49.46 bbl

String Weight: Initial

58000.00 lb

58000.00 lb

Depth to Bottom Packer: Interval between Packers:

ft 18.00 ft 38.00 ft

2

Diameter:

6.75 inches

Number of Packers:

Tool Length:

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			3545.00		
Shut in Tool	5.00			3550.00		
Hydraulic tool	5.00			3555.00		
Packer	5.00			3560.00	20.00	Bottom Of Top Packer
Packer	4.00			3564.00		
Stubb	1.00			3565.00		
Recorder	0.00	8354	Inside	3565.00		
Recorder	0.00	8520	Outside	3565.00		
Perforations	14.00			3579.00		
Bullnose	3.00			3582.00	18.00	Bottom Packers & Anchor
Total Tool Length	. 38.00					

Total Tool Length:

38.00



FLUID SUMMARY

Production Drlg Inc

Rhian #1

1023 Reservation Rd Hays Ks 67601

12-8-22 Graham Ks Job Ticket: 36672

DST#: 4

ATTN: Larry Patterson

Test Start: 2009.12.03 @ 17:25:54

Mud and Cushion Information

Mud Type: Gel Chem Mud Weight:

9.00 lb/gal

Cushion Type: Cushion Length:

ft

Oil API: Water Salinity:

32 deg API ppm

Viscosity: Water Loss:

45.00 sec/qt 6.19 in³

Cushion Volume: Gas Cushion Type: Gas Cushion Pressure:

bbl psig

Resistivity:

ohm.m 3000.00 ppm

Salinity: Filter Cake:

inches

Recovery Information

Recovery Table

	T	
Length ft	Description	Volume
90.00	HMCO 60%o 40%m	bbl
390.00	00	0.989
0.00	258 GIP	5.471
4-11	100 01	0.000

Total Length:

480.00 ft

Total Volume:

6.460 bbi

Num Fluid Samples: 0

Num Gas Bombs:

Serial #:

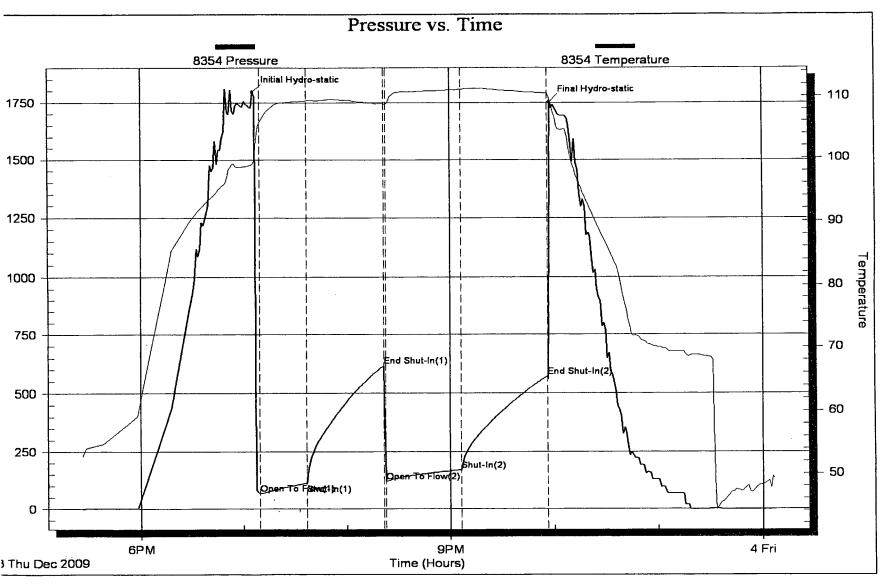
Laboratory Name:

Laboratory Location:

Recovery Comments:

DST Test Number: 4

Production Drlg Inc



obite Testing, Inc

Ref. No: 36672

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