

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1363116
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: _____

1363116

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
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:				

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: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method: Flowing Pumping Gas Lift Other *(Explain)* _____

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	Bird Dog Oil, LLC
Well Name	SW-BOOR 1-29
Doc ID	1363116

All Electric Logs Run

Micro
Dual Induction
Sonic
Compensated Density/Neutron



DRILL STEM TEST REPORT

Prepared For: **BIRD DOG OIL LLC**

1801 BROADWAY SUITE 450
DENVER , COLORADO 80202

ATTN: .KEITH REAVIS

SW-BOOR 1-29

29-16-10

Start Date: 2017.03.25 @ 07:53:00

End Date: 2017.03.26 @ 12:32:00

Job Ticket #: 01161 DST #: 1

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2017.03.26 @ 00:59:19

BIRD DOG OIL LLC
29-16-10
SW-BOOR 1-29
DST # 1
KANSAS CITY I-J
2017.03.25



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01161

DST#: 1

ATTN: KEITH REAVIS

Test Start: 2017.03.25 @ 07:53:00

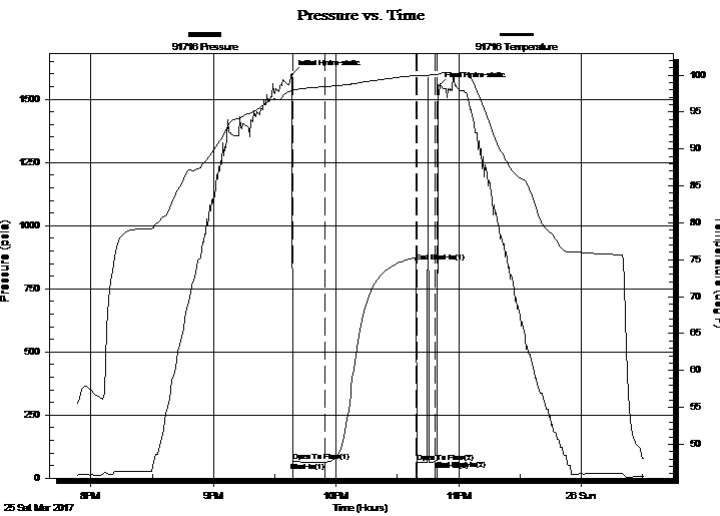
GENERAL INFORMATION:

Formation: **KANSAS CITY I-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:40:00
 Time Test Ended: 12:32:00
 Interval: **3162.00 ft (KB) To 3192.00 ft (KB) (TVD)**
 Total Depth: 3162.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: GENE BUDIG
 Unit No: 1
 Reference Elevations: 1847.00 ft (KB)
 1838.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 91716 Outside

Press@RunDepth: 72.29 psia @ 3190.00 ft (KB) Capacity: 5000.00 psia
 Start Date: 2017.03.25 End Date: 2017.03.26 Last Calib.: 2017.03.26
 Start Time: 19:53:00 End Time: 00:30:59 Time On Btm: 2017.03.25 @ 21:38:30
 Time Off Btm: 2017.03.25 @ 22:50:00

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW FOR 13 MINUTES AND DIED
 1ST SHUT-IN 45 MINUTES NO BLOW BACK
 2ND OPENING 10 MINUTES NO BLOW-FLUSHED TOOL-GOOD SURGE-NO HELP
 2ND SHUT-IN 05 MINUTES NO BLOW BACK



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1596.72	97.98	Initial Hydro-static
1	65.04	98.03	Open To Flow (1)
16	64.26	98.44	Shut-In(1)
61	858.23	99.97	End Shut-In(1)
61	63.12	99.96	Open To Flow (2)
70	66.72	100.04	Shut-In(2)
71	72.29	100.07	End Shut-In(2)
72	1550.84	100.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	DRILLING MUD	0.28
0.00	THERE WERE A FES SPOTS OF OIL BET	0.001
0.00	THE SHUT-IN AND HYDRAULIC TOOLS	0.00

Gas Rates

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



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01161

DST#: 1

ATTN: KEITH REAVIS

Test Start: 2017.03.25 @ 07:53:00

GENERAL INFORMATION:

Formation: **KANSAS CITY I-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:40:00

Time Test Ended: 12:32:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3162.00 ft (KB) To 3192.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3162.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 9139

Inside

Press@RunDepth: 68.66 psia @ 3190.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2017.03.25

End Date:

2017.03.26

Last Calib.:

2017.03.26

Start Time: 19:53:00

End Time:

00:31:30

Time On Btm:

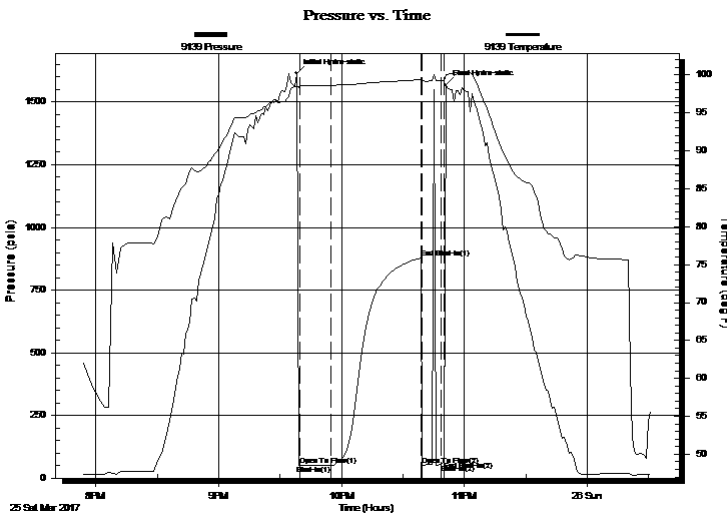
2017.03.25 @ 21:38:00

Time Off Btm:

2017.03.25 @ 22:51:00

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW FOR 13 MINUTES AND DIED
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 10 MINUTES NO BLOW-FLUSHED TOOL-GOOD SURGE-NO HELP
2ND SHUT-IN 05 MINUTES NO BLOW BACK

PRESSURE SUMMARY



Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1614.85	98.45	Initial Hydro-static
2	49.87	98.58	Open To Flow (1)
17	49.52	98.64	Shut-In(1)
61	877.31	99.38	End Shut-In(1)
62	52.29	99.13	Open To Flow (2)
71	56.99	99.28	Shut-In(2)
72	68.66	99.31	End Shut-In(2)
73	1569.01	100.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	DRILLING MUD	0.28
0.00	THERE WERE A FES SPOTS OF OIL BET	0.001
0.00	THE SHUT-IN AND HYDRAULIC TOOLS	0.00

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01161

DST#: 1

ATTN: KEITH REAVIS

Test Start: 2017.03.25 @ 07:53:00

Tool Information

Drill Pipe:	Length: 3146.00 ft	Diameter: 3.80 inches	Volume: 44.13 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: 42000.00 lb
			<u>Total Volume: 44.13 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3162.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	33.00 ft			
Tool Length:	62.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Hydraulic tool	5.00			3138.00	
Jars	7.00			3145.00	
Shut In Tool	5.00			3150.00	
Safety Joint	2.00		Fluid	3152.00	
Top Packer	5.00			3157.00	
Packer	5.00			3162.00	29.00 Bottom Of Top Packer
Anchor	28.00			3190.00	
Recorder	0.00	9139	Inside	3190.00	
Recorder	0.00	91716	Outside	3190.00	
Bullnose	5.00			3195.00	33.00 Anchor Tool
Total Tool Length:	62.00				



DRILL STEM TEST REPORT

FLUID SUMMARY

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01161

DST#: 1

ATTN: . KEITH REAVIS

Test Start: 2017.03.25 @ 07:53:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 58.00 sec/qt
Water Loss: 9.40 in³
Resistivity: 3600.00 ohm.m
Salinity: ppm
Filter Cake: inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psia

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	DRILLING MUD	0.281
0.00	THERE WERE A FES SPOTS OF OIL BETWEEN	0.000
0.00	THE SHUT-IN AND HYDRAULIC TOOLS	0.000

Total Length: 20.00 ft Total Volume: 0.281 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

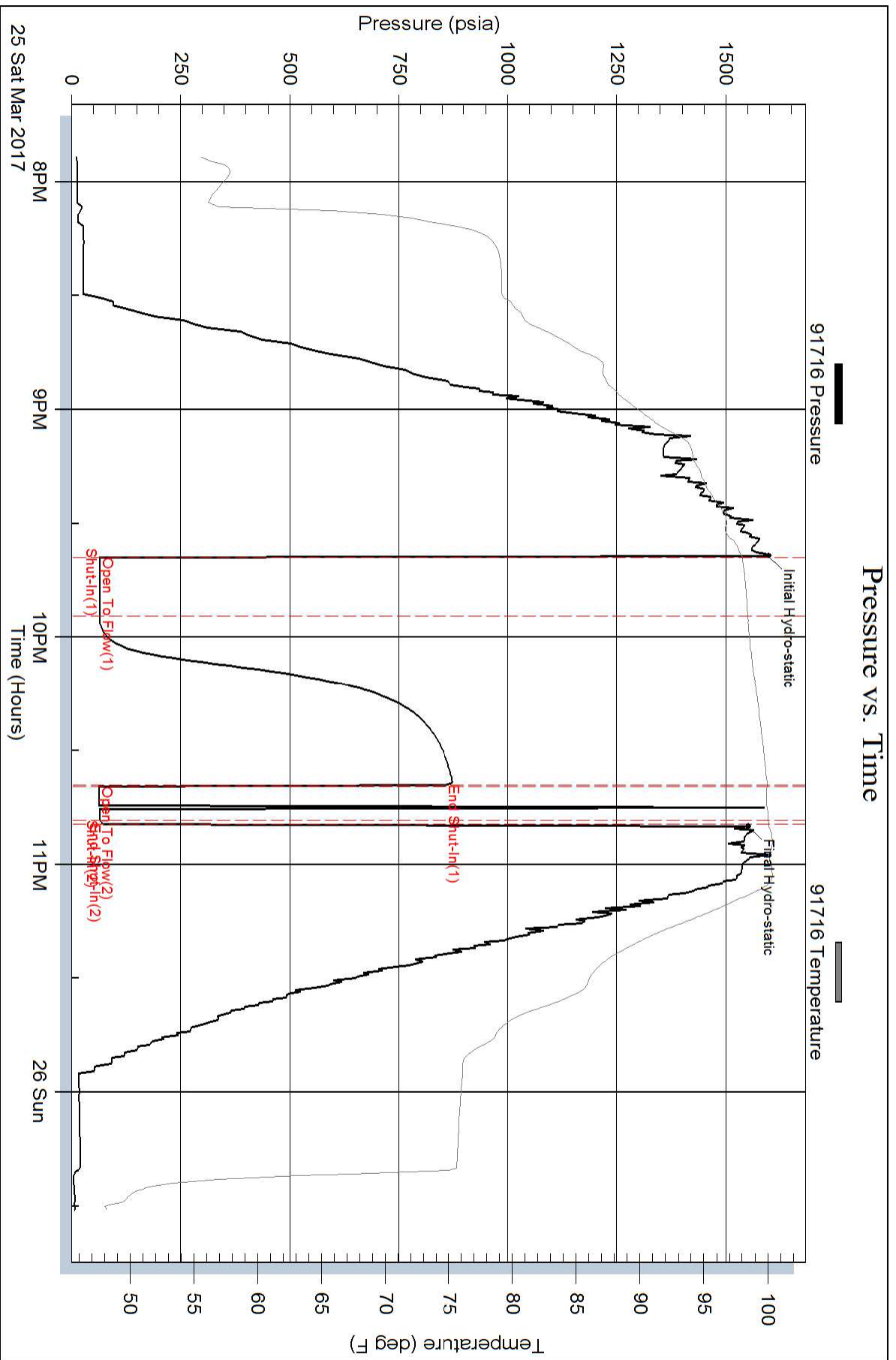
Serial #:

Laboratory Name:

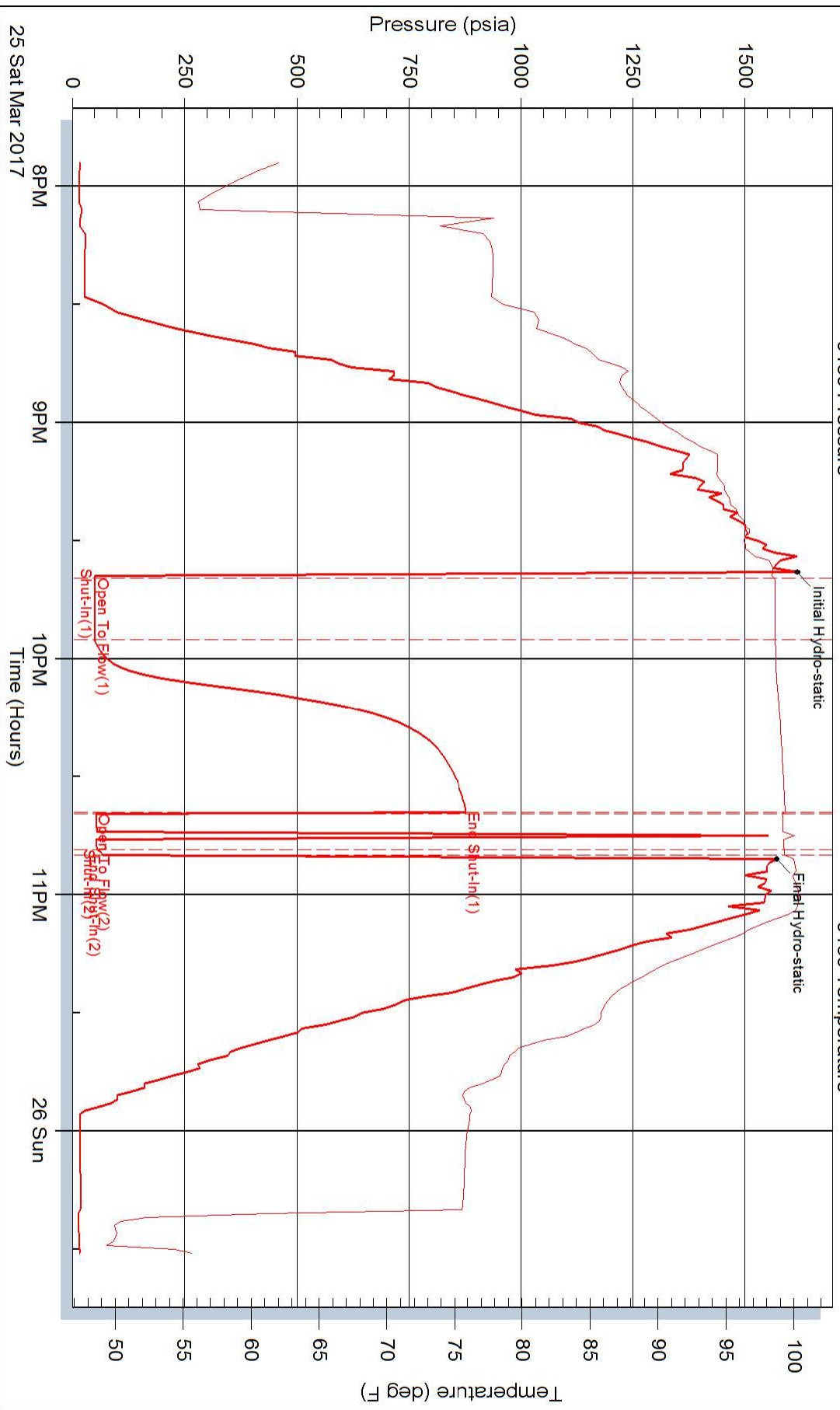
Laboratory Location:

Recovery Comments:

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **BIRD DOG OIL LLC**

1801 BROADWAY SUITE 450
DENVER , COLORADO 80202

ATTN: .KEITH REAVIS

SW-BOOR 1-29

29-16-10

Start Date: 2017.03.26 @ 15:00:00

End Date: 2017.03.26 @ 20:57:00

Job Ticket #: 01162 DST #: 2

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2017.03.26 @ 21:14:25



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01162

DST#: 2

ATTN: KEITH REAVIS

Test Start: 2017.03.26 @ 15:00:00

GENERAL INFORMATION:

Formation: **ARBUCKLE**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:31:00

Time Test Ended: 20:57:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3280.00 ft (KB) To 3315.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3315.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: **91716** Outside

Press@RunDepth: 241.68 psia @ 3310.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2017.03.26

End Date: 2017.03.26

Last Calib.: 2017.03.26

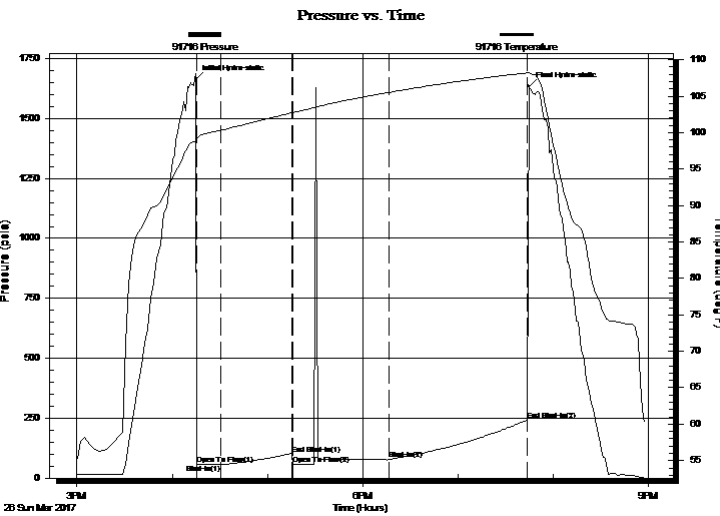
Start Time: 15:00:00

End Time: 20:57:29

Time On Btm: 2017.03.26 @ 16:15:00

Time Off Btm: 2017.03.26 @ 19:44:30

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW FOR 13 MINUTES AND DIED
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 60 MINUTES NO BLOW FLUSHED TOOL BLOW BUILT TO 6 INCHES AND DIED
2ND SHUT-IN 90 MINUTES NO BLOW BACK



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1661.62	98.84	Initial Hydro-static
1	58.90	99.14	Open To Flow (1)
16	57.46	100.31	Shut-In(1)
61	100.58	102.73	End Shut-In(1)
61	58.72	102.76	Open To Flow (2)
122	77.02	105.53	Shut-In(2)
209	241.68	108.21	End Shut-In(2)
210	1633.70	108.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	drilling mud	0.70

Gas Rates

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



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01162

DST#: 2

ATTN: KEITH REAVIS

Test Start: 2017.03.26 @ 15:00:00

GENERAL INFORMATION:

Formation: **ARBUCKLE**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:31:00

Time Test Ended: 20:57:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3280.00 ft (KB) To 3315.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3315.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 9139

Inside

Press@RunDepth: 242.54 psia @ 3310.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2017.03.26

End Date:

2017.03.26

Last Calib.:

2017.03.26

Start Time: 15:00:00

End Time:

20:57:30

Time On Btm:

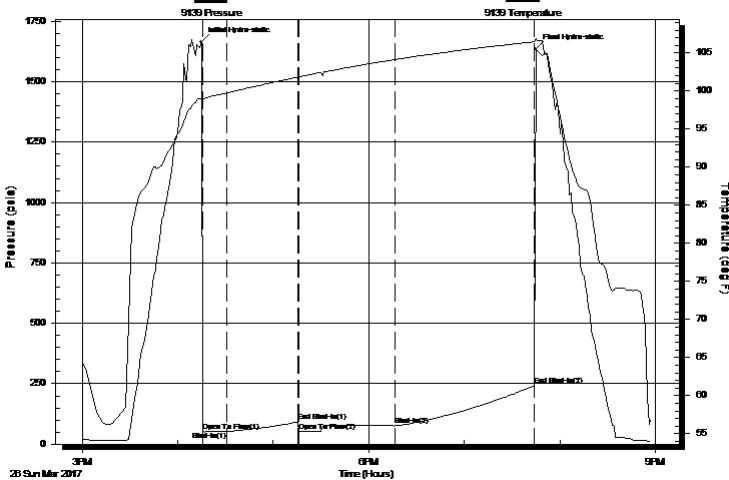
2017.03.26 @ 16:15:00

Time Off Btm:

2017.03.26 @ 19:45:00

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW FOR 13 MINUTES AND DIED
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 60 MINUTES NO BLOW FLUSHED TOOL BLOW BUILT TO 6 INCHES AND DIED
2ND SHUT-IN 90 MINUTES NO BLOW BACK

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1664.44	98.97	Initial Hydro-static
1	52.54	98.61	Open To Flow (1)
16	52.29	99.75	Shut-In(1)
61	93.35	101.83	End Shut-In(1)
61	51.54	101.84	Open To Flow (2)
122	76.14	104.13	Shut-In(2)
209	242.54	106.46	End Shut-In(2)
210	1635.15	106.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	drilling mud	0.70

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01162

DST#: 2

ATTN: KEITH REAVIS

Test Start: 2017.03.26 @ 15:00:00

Tool Information

Drill Pipe:	Length: 3272.00 ft	Diameter: 3.80 inches	Volume: 45.90 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: 48000.00 lb
			<u>Total Volume: 45.90 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3280.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	64.00 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			3256.00	
Hydraulic tool	5.00			3261.00	
Jars	7.00			3268.00	
Safety Joint	2.00		Fluid	3270.00	
Top Packer	5.00			3275.00	
Packer	5.00			3280.00	29.00 Bottom Of Top Packer
Anchor	30.00			3310.00	
Recorder	0.00	9139	Inside	3310.00	
Recorder	0.00	91716	Outside	3310.00	
Bullnose	5.00			3315.00	35.00 Anchor Tool
Total Tool Length:	64.00				



DRILL STEM TEST REPORT

FLUID SUMMARY

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01162

DST#: 2

ATTN: . KEITH REAVIS

Test Start: 2017.03.26 @ 15:00:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 54.00 sec/qt
Water Loss: 83.96 in³
Resistivity: ohm.m
Salinity: 8400.00 ppm
Filter Cake: 1.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psia

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
50.00	drilling mud	0.701

Total Length: 50.00 ft Total Volume: 0.701 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

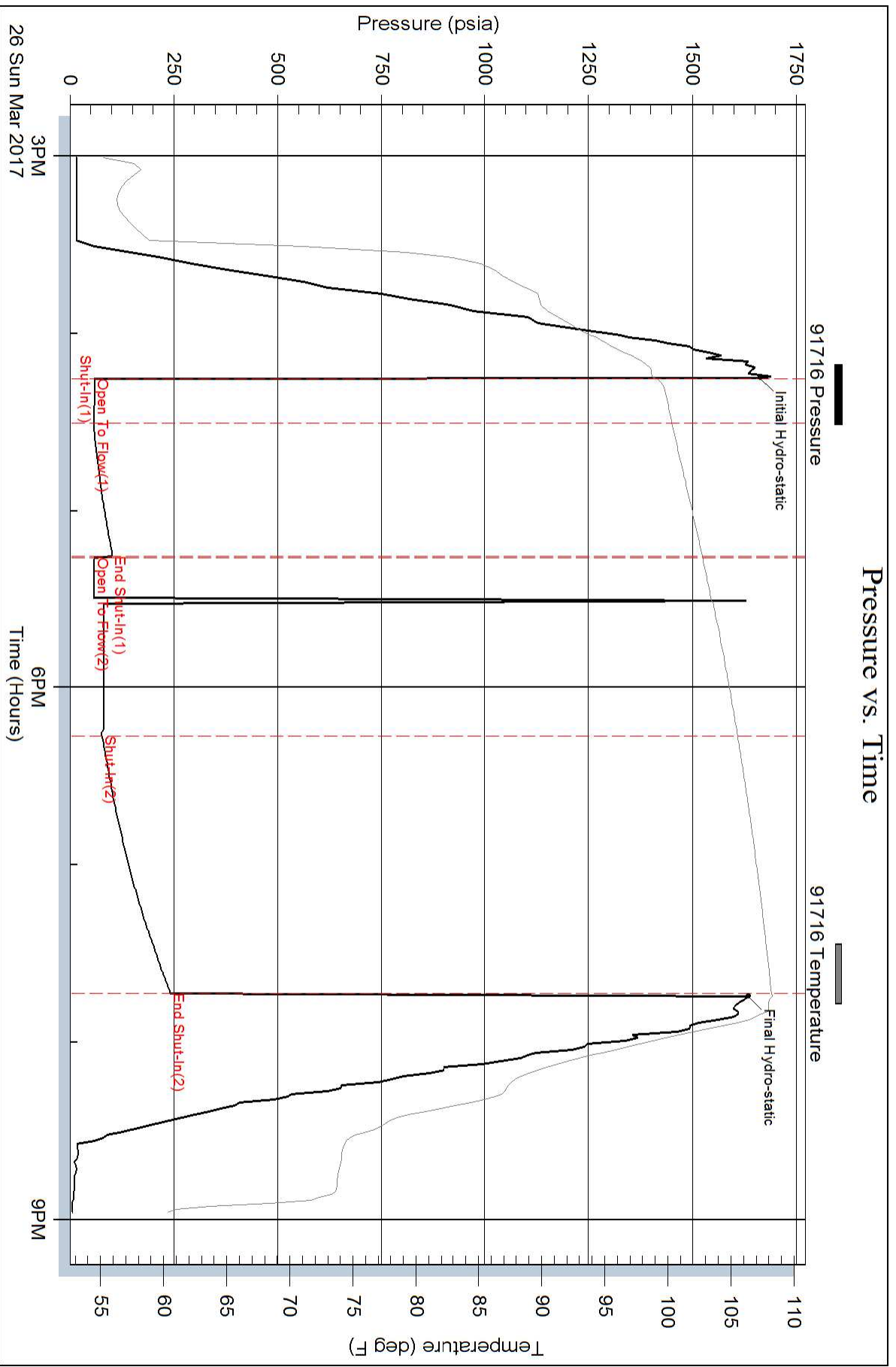
Serial #:

Laboratory Name:

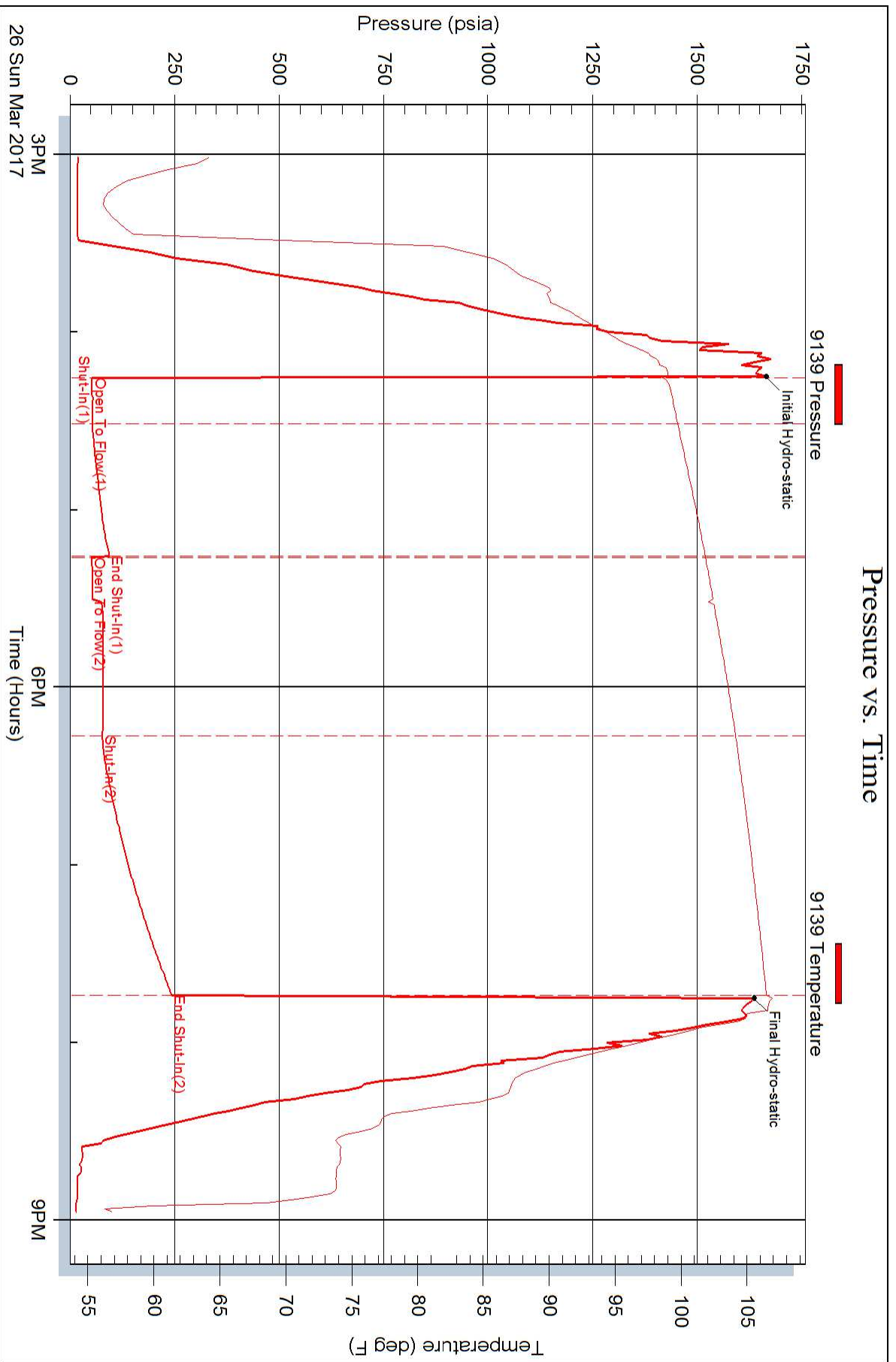
Laboratory Location:

Recovery Comments:

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **BIRD DOG OIL LLC**

1801 BROADWAY SUITE 450
DENVER , COLORADO 80202

ATTN: .KEITH REAVIS

SW-BOOR 1-29

29-16-10

Start Date: 2017.03.27 @ 03:44:00

End Date: 2017.03.27 @ 10:30:00

Job Ticket #: 01163 DST #: 3

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2017.03.27 @ 10:39:50

BIRD DOG OIL LLC 29-16-10 SW-BOOR 1-29 DST # 3 ARBUCKLE 2017.03.27



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01163

DST#: 3

ATTN: KEITH REAVIS

Test Start: 2017.03.27 @ 03:44:00

GENERAL INFORMATION:

Formation: **ARBUCKLE**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:03:00

Time Test Ended: 10:30:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3279.00 ft (KB) To 3323.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3323.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: **91716** Outside

Press@RunDepth: 1017.04 psia @ 3318.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2017.03.27

End Date:

2017.03.27

Last Calib.:

2017.03.27

Start Time: 03:44:00

End Time:

10:24:00

Time On Btm:

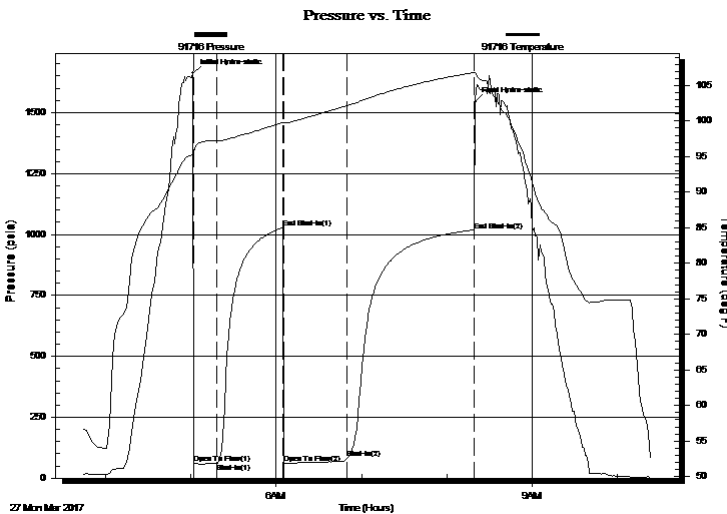
2017.03.27 @ 05:01:30

Time Off Btm:

2017.03.27 @ 08:20:00

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW BUILT TO 2 1/2 INCHES INTO THE WATER
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 45 MINUTES WEAK BLOW BUILT TO 6 INCHES INTO THE WATER
2ND SHUT-IN 60 MINUTES NO BLOW BACK

PRESSURE SUMMARY



Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1661.48	95.32	Initial Hydro-static
1	59.42	95.61	Open To Flow (1)
17	60.66	97.22	Shut-In(1)
63	1027.26	99.77	End Shut-In(1)
64	62.89	99.80	Open To Flow (2)
108	79.94	102.15	Shut-In(2)
198	1017.04	106.82	End Shut-In(2)
199	1543.71	106.84	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	CLEAN OIL ON TOP	0.01
20.00	OIL CUT MUD 65 MUD 35 OIL	0.28
0.00	90 GAS IN THE PIPE	0.00

Gas Rates

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



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01163

DST#: 3

ATTN: KEITH REAVIS

Test Start: 2017.03.27 @ 03:44:00

GENERAL INFORMATION:

Formation: **ARBUCKLE**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:03:00

Time Test Ended: 10:30:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3279.00 ft (KB) To 3323.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3323.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 9139

Inside

Press@RunDepth: 1024.01 psia @ 3318.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2017.03.27

End Date:

2017.03.27

Last Calib.:

2017.03.27

Start Time: 03:44:00

End Time:

10:24:30

Time On Btm:

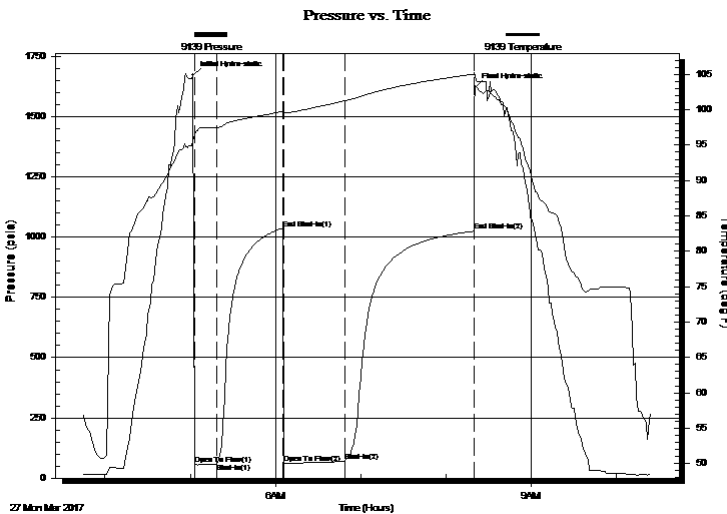
2017.03.27 @ 05:02:00

Time Off Btm:

2017.03.27 @ 08:20:30

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW BUILT TO 2 1/2 INCHES INTO THE WATER
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 45 MINUTES WEAK BLOW BUILT TO 6 INCHES INTO THE WATER
2ND SHUT-IN 60 MINUTES NO BLOW BACK

PRESSURE SUMMARY



Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1671.36	95.67	Initial Hydro-static
1	56.99	96.53	Open To Flow (1)
17	59.46	97.48	Shut-In(1)
64	1035.80	99.75	End Shut-In(1)
64	59.86	99.53	Open To Flow (2)
107	70.22	101.24	Shut-In(2)
198	1024.01	105.04	End Shut-In(2)
199	1621.52	104.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	CLEAN OIL ON TOP	0.01
20.00	OIL CUT MUD 65 MUD 35 OIL	0.28
0.00	90 GAS IN THE PIPE	0.00

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01163

DST#: 3

ATTN: KEITH REAVIS

Test Start: 2017.03.27 @ 03:44:00

Tool Information

Drill Pipe:	Length: 3273.00 ft	Diameter: 3.80 inches	Volume: 45.91 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: 54000.00 lb
			<u>Total Volume: 45.91 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3279.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	73.00 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			3255.00	
Hydraulic tool	5.00			3260.00	
Jars	7.00			3267.00	
Safety Joint	2.00		Fluid	3269.00	
Top Packer	5.00			3274.00	
Packer	5.00			3279.00	29.00 Bottom Of Top Packer
Anchor	39.00			3318.00	
Recorder	0.00	9139	Inside	3318.00	
Recorder	0.00	91716	Outside	3318.00	
Bullnose	5.00			3323.00	44.00 Anchor Tool
Total Tool Length:	73.00				



DRILL STEM TEST REPORT

FLUID SUMMARY

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01163

DST#: 3

ATTN: . KEITH REAVIS

Test Start: 2017.03.27 @ 03:44:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 54.00 sec/qt
Water Loss: 8.40 in³
Resistivity: ohm.m
Salinity: 4800.00 ppm
Filter Cake: 1.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psia

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	CLEAN OIL ON TOP	0.014
20.00	OIL CUT MUD 65 MUD 35 OIL	0.281
0.00	90 GAS IN THE PIPE	0.000

Total Length: 21.00 ft Total Volume: 0.295 bbl

Num Fluid Samples: 0

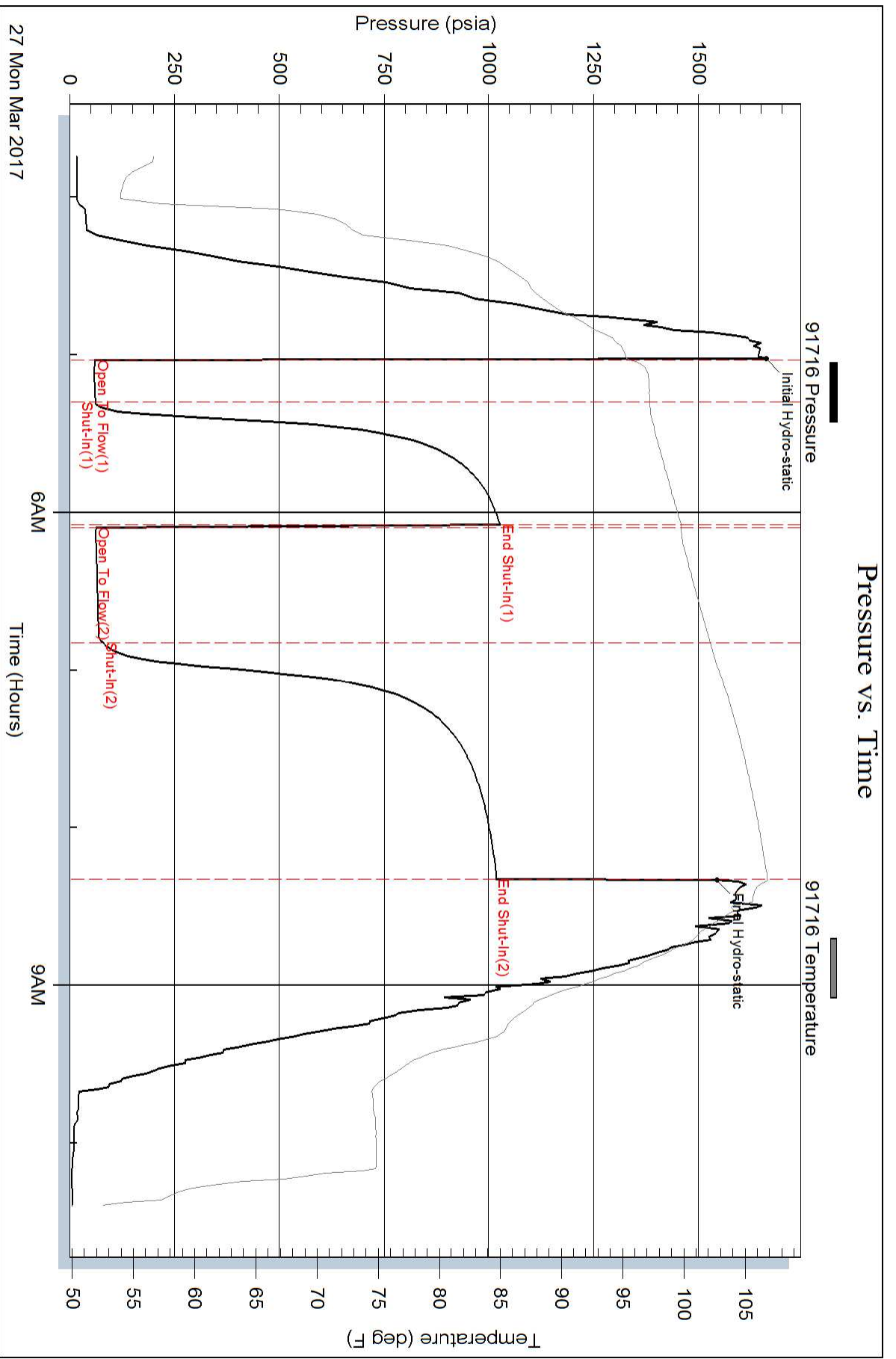
Num Gas Bombs: 0

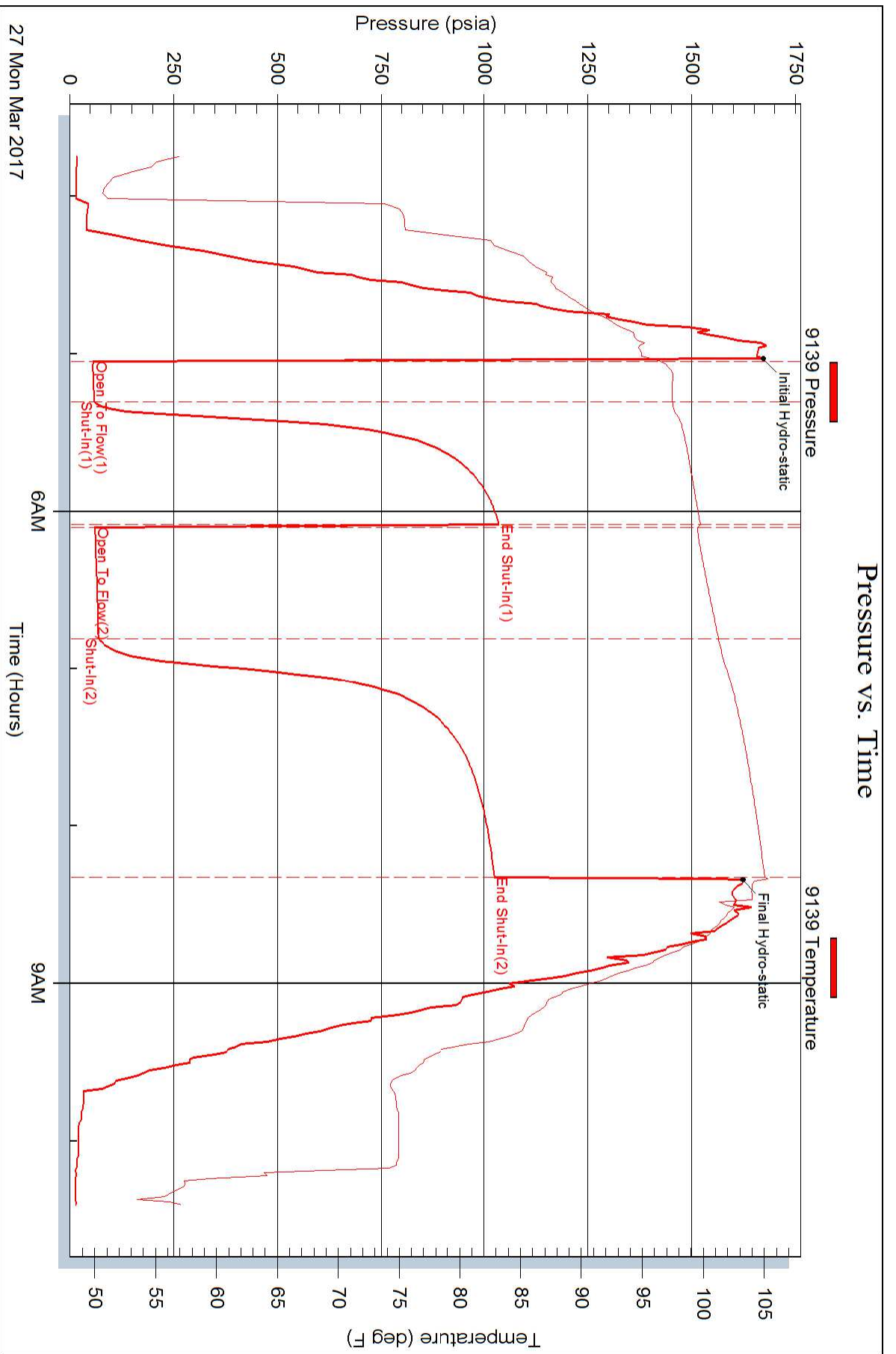
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **BIRD DOG OIL LLC**

1801 BROADWAY SUITE 450
DENVER , COLORADO 80202

ATTN: .KEITH REAVIS

SW-BOOR 1-29

29-16-10

Start Date: 2017.03.27 @ 16:44:00

End Date: 2017.03.27 @ 21:39:00

Job Ticket #: 01164 DST #: 4

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2017.03.27 @ 22:15:59

BIRD DOG OIL LLC 29-16-10 SW-BOOR 1-29 DST # 4 ARBUCKLE 2017.03.27



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01164

DST#: 4

ATTN: KEITH REAVIS

Test Start: 2017.03.27 @ 16:44:00

GENERAL INFORMATION:

Formation: **ARBUCKLE**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:04:00

Time Test Ended: 21:39:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3315.00 ft (KB) To 3328.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3328.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 9139

Inside

Press@RunDepth: 950.24 psia @ 3323.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2017.03.27

End Date:

2017.03.27

Last Calib.:

2017.03.27

Start Time: 16:45:00

End Time:

21:38:00

Time On Btm:

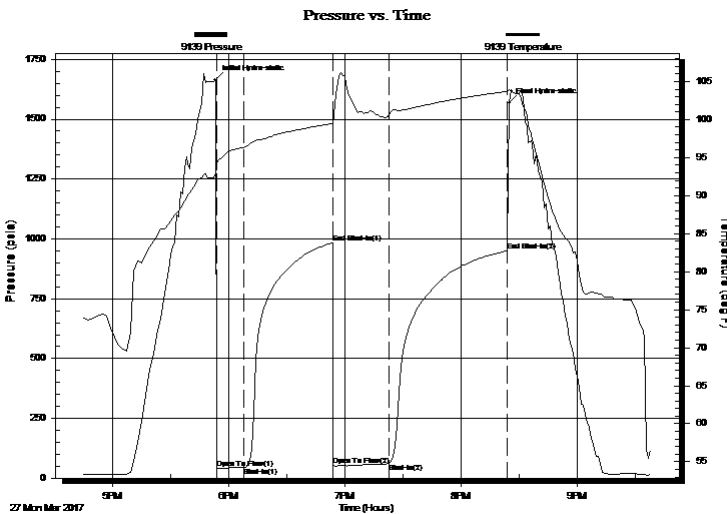
2017.03.27 @ 17:53:00

Time Off Btm:

2017.03.27 @ 20:25:00

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW FOR 15 MINUTES AND DIED
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 30 MINUTES WEAK BUILDING BLOW BUILT TO 2 1/2 INCHES INTO THE WATER
2ND SHUT-IN 60 MINUTES NO BLOW BACK

PRESSURE SUMMARY



Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1664.45	92.94	Initial Hydro-static
1	42.23	93.62	Open To Flow (1)
15	46.80	96.34	Shut-In(1)
61	983.94	99.51	End Shut-In(1)
61	52.54	99.19	Open To Flow (2)
90	60.89	100.70	Shut-In(2)
151	950.24	103.69	End Shut-In(2)
152	1567.87	103.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	30 feet of gas in the pipe	0.00
5.00	clean oil	0.07
50.00	oil cut mud 40 oil 60 mud	0.70

Gas Rates

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



DRILL STEM TEST REPORT

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01164

DST#: 4

ATTN: KEITH REAVIS

Test Start: 2017.03.27 @ 16:44:00

GENERAL INFORMATION:

Formation: **ARBUCKLE**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:04:00

Time Test Ended: 21:39:00

Test Type: Conventional Bottom Hole (Initial)

Tester: GENE BUDIG

Unit No: 1

Interval: **3315.00 ft (KB) To 3328.00 ft (KB) (TVD)**

Reference Elevations: 1847.00 ft (KB)

Total Depth: 3328.00 ft (KB) (TVD)

1838.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

Serial #: 91716

Press@RunDepth: 908.54 psia @ ft (KB)

Capacity: psia

Start Date: 2017.03.27

End Date: 2017.03.27

Last Calib.: 1899.12.30

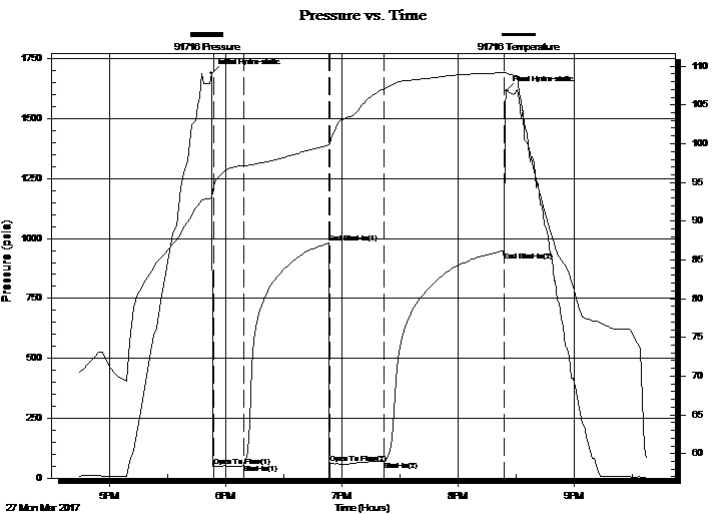
Start Time: 16:44:00

End Time: 21:37:30

Time On Btm: 2017.03.27 @ 17:52:30

Time Off Btm: 2017.03.27 @ 20:25:00

TEST COMMENT: 1ST OPENING 15 MINUTES WEAK BLOW FOR 15 MINUTES AND DIED
1ST SHUT-IN 45 MINUTES NO BLOW BACK
2ND OPENING 30 MINUTES WEAK BUILDING BLOW BUILT TO 2 1/2 INCHES INTO THE WATER
2ND SHUT-IN 60 MINUTES NO BLOW BACK



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1689.20	92.97	Initial Hydro-static
2	49.53	94.52	Open To Flow (1)
17	57.39	97.19	Shut-In(1)
61	979.64	99.82	End Shut-In(1)
62	60.42	100.01	Open To Flow (2)
90	69.64	107.11	Shut-In(2)
152	908.54	109.17	End Shut-In(2)
153	1616.72	109.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	30 feet of gas in the pipe	0.00
5.00	clean oil	0.07
50.00	oil cut mud 40 oil 60 mud	0.70

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01164

DST#: 4

ATTN: KEITH REAVIS

Test Start: 2017.03.27 @ 16:44:00

Tool Information

Drill Pipe:	Length: 3302.00 ft	Diameter: 3.80 inches	Volume: 46.32 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: 42000.00 lb
			<u>Total Volume: 46.32 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3315.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	13.00 ft			
Tool Length:	42.00 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			3291.00	
Hydraulic tool	5.00			3296.00	
Jars	7.00			3303.00	
Safety Joint	2.00		Fluid	3305.00	
Top Packer	5.00			3310.00	
Packer	5.00			3315.00	29.00 Bottom Of Top Packer
Anchor	8.00			3323.00	
Recorder	0.00	9139	Inside	3323.00	
Recorder	0.00	91716	Outside	3323.00	
Bullnose	5.00			3328.00	13.00 Anchor Tool
Total Tool Length:	42.00				



DRILL STEM TEST REPORT

FLUID SUMMARY

BIRD DOG OIL LLC

29-16-10

1801 BROADWAY SUITE 450
DENVER, COLORADO 80202

SW-BOOR 1-29

Job Ticket: 01164

DST#: 4

ATTN: . KEITH REAVIS

Test Start: 2017.03.27 @ 16:44:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 56.00 sec/qt
Water Loss: 8.39 in³
Resistivity: ohm.m
Salinity: 4800.00 ppm
Filter Cake: 1.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psia

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	30 feet of gas in the pipe	0.000
5.00	clean oil	0.070
50.00	oil cut mud 40 oil 60 mud	0.701

Total Length: 55.00 ft Total Volume: 0.771 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

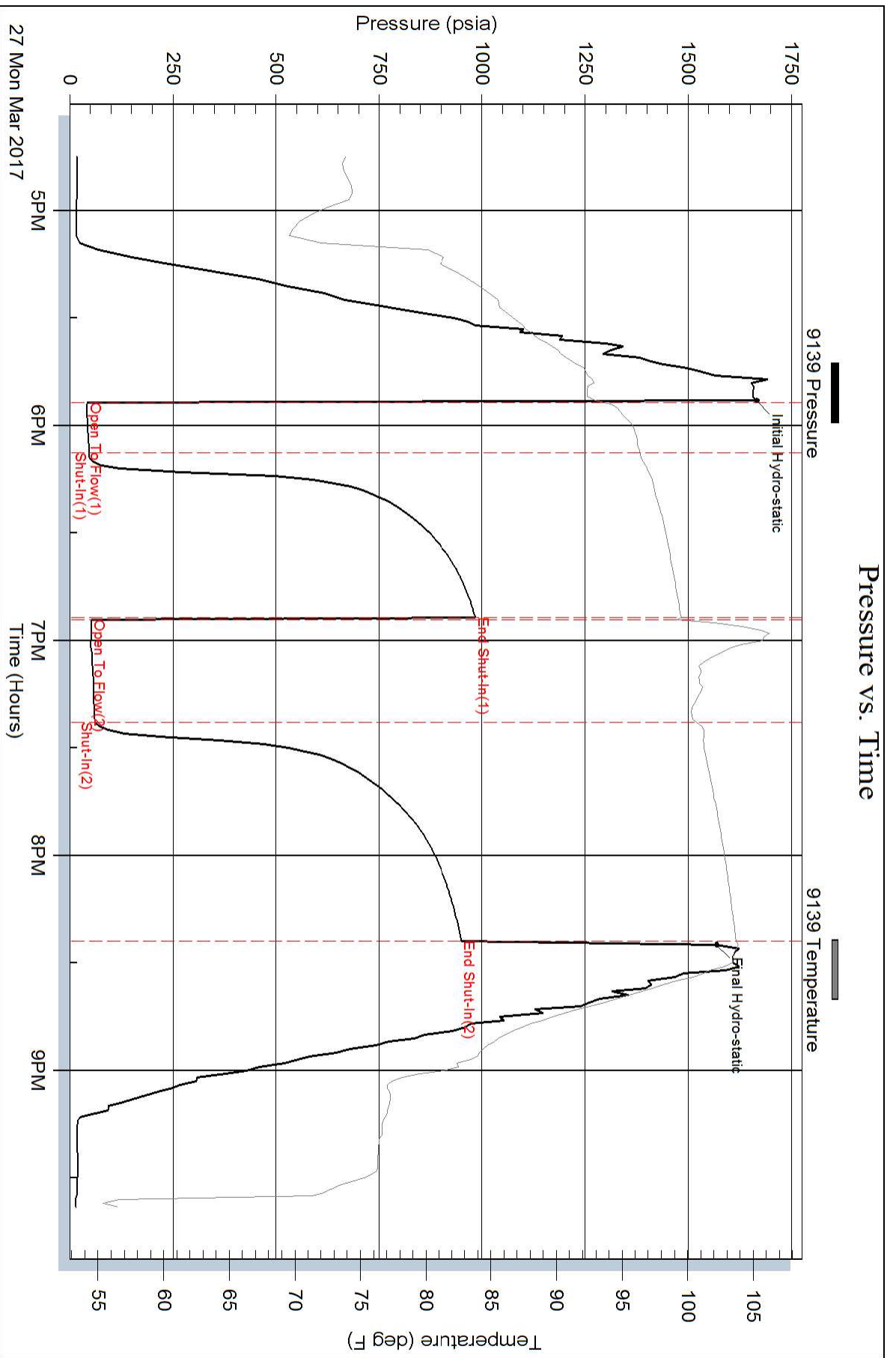
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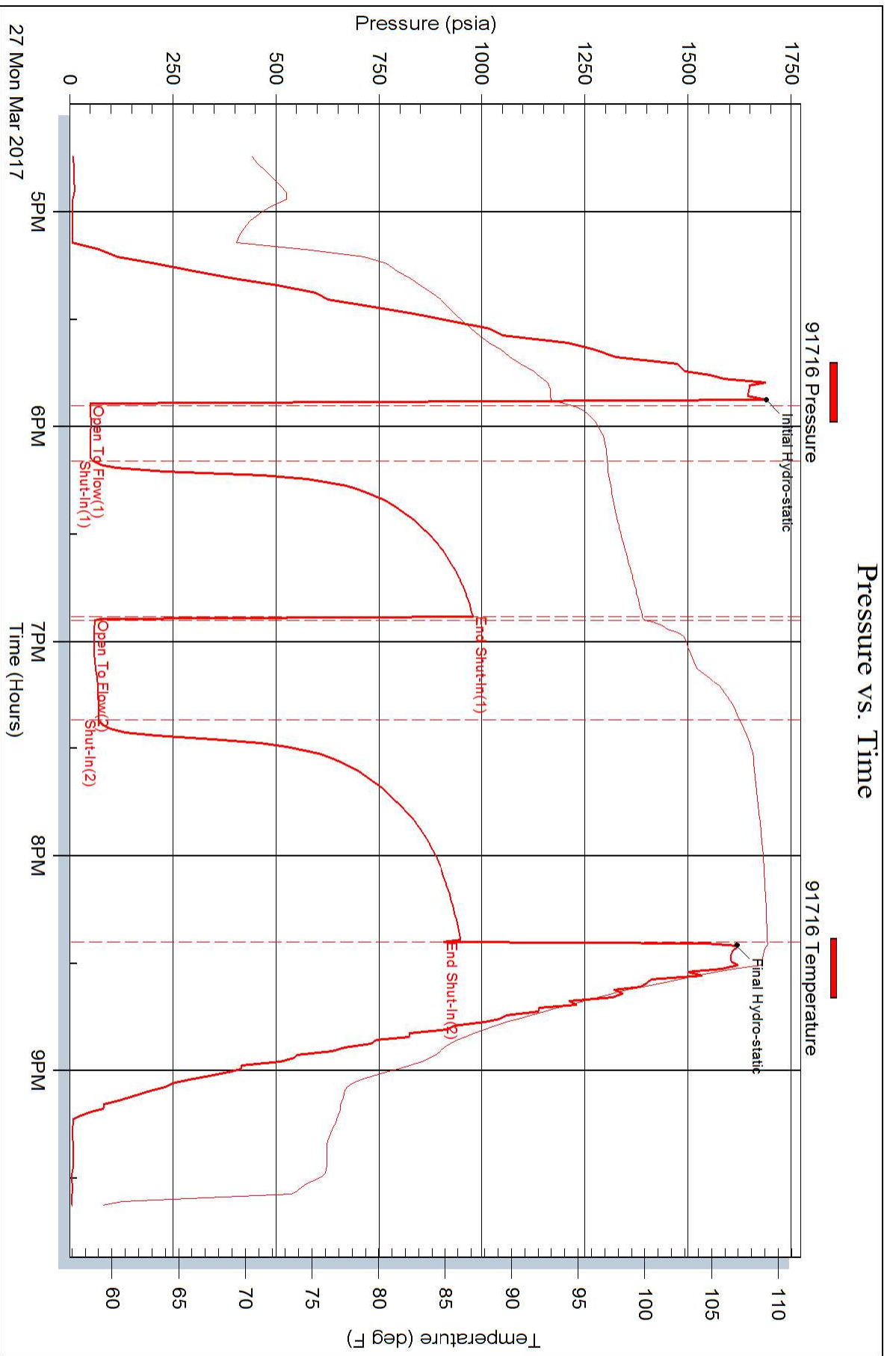
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time





QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

Home Office P.O. Box 32 Russell, KS 67665

No. 1681

Cell 785-324-1041

Date	3-21-17	Sec.	29	Twp.	16	Range	10	County	Ellsworth	State	Ks	On Location		Finish	10:30PM
Lease								Location							
SW Booc								Wilson S to Q Rd, 2E, S+W							
Contractor				Well No.				Owner				To Quality Oilwell Cementing, Inc.			
Southwind #9				1-29				J. R. O.				You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.			
Type Job				Hole Size				Charge To				Cement Amount Ordered			
Surface				12 1/4"				BIRD DOG oil				180 60/40 4% CC 2% Gel			
Csg.				T.D.				Street				City			
8 5/8"				364'								State			
Tbg. Size				Depth				The above was done to satisfaction and supervision of owner agent or contractor.							
				364'											
Tool				Cement Left in Csg.				Cement Amount Ordered							
				15'				180 60/40 4% CC 2% Gel							
Meas Line				Shoe Joint											
				15'											
EQUIPMENT				Displace											
				22 BLS											
Pumptrk				Cement Helper				Common							
16				Troy											
Bulktrk				Driver				Poz. Mix							
9				Doug											
Bulktrk				Driver				Gel.							
p.u.				Rick											
JOB SERVICES & REMARKS				Hulls											
Remarks:				Salt											
Cement did Circulate															
Rat Hole				Flowseal											
Mouse Hole				Kol-Seal											
Centralizers				Mud CLR 48											
Baskets				CFL-117 or CD110 CAF 38											
D/V or Port Collar				Sand											
				Handling											
				Mileage											
				FLOAT EQUIPMENT											
				Guide Shoe											
				Centralizer											
				Baskets											
				AFU Inserts											
				Float Shoe											
				Latch Down											
				Pumptrk Charge											
				Mileage											
				Tax											
				Discount											
				Total Charge											
Signature															

