

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1365940  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
November 2016

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

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

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

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD  
 Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

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

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1365940

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			
Geologist Report / Mud Logs	<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)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i>			PRODUCTION INTERVAL: Top _____ Bottom _____	

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

TUBING RECORD:	Size:	Set At:	Packer At:
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Form	ACO1 - Well Completion
Operator	Samuel Gary Jr. & Associates, Inc.
Well Name	HILDEBRAND 1-15
Doc ID	1365940

All Electric Logs Run

ARRAY-INDUCTION
DENSITY-NEUTRON
MICRO
SONIC





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc

**15-5s-23w Norton**

1515 Wynkoop  
Ste 700  
Denver Co 80202  
ATTN: Spencer Musgrove,Jim

**Hilderbrand #1-15**

Job Ticket: 64150 **DST#: 1**  
Test Start: 2017.05.13 @ 00:15:28

## GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 02:47:23  
 Time Test Ended: 10:02:38  
 Interval: **3350.00 ft (KB) To 3412.00 ft (KB) (TVD)**  
 Total Depth: 3412.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 2212.00 ft (KB)  
 2204.00 ft (CF)  
 KB to GR/CF: 8.00 ft

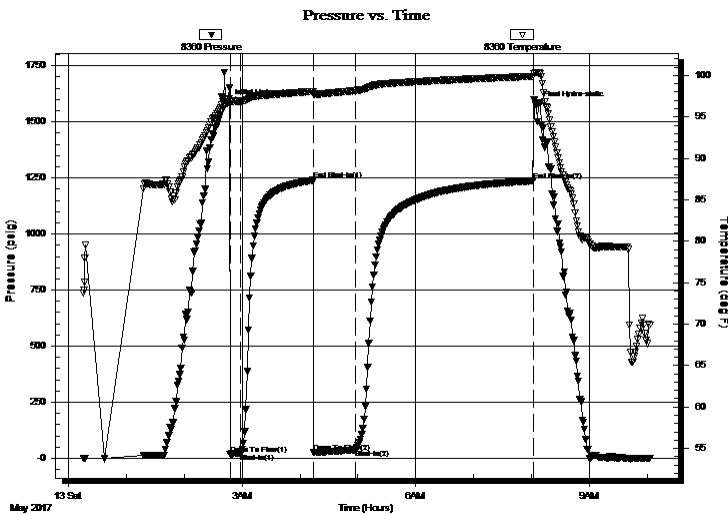
## Serial #: 8360

Inside

Press@RunDepth: 39.54 psig @ 3352.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.13 End Date: 2017.05.13 Last Calib.: 2017.05.13  
 Start Time: 00:15:28 End Time: 10:02:38 Time On Btm: 2017.05.13 @ 02:45:23  
 Time Off Btm: 2017.05.13 @ 08:04:52

TEST COMMENT: 10-IFP-w k bl thru-out 1/4"to 3/4"bl  
 75-ISIP-no bl bk  
 45-FFP-surface bl thru-out  
 180-FSIP-no bl bk

## PRESSURE SUMMARY



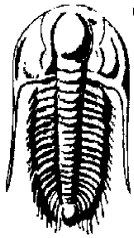
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1579.50	97.16	Initial Hydro-static
2	18.59	96.60	Open To Flow (1)
13	23.23	96.91	Shut-In(1)
89	1239.59	98.09	End Shut-In(1)
89	26.74	97.76	Open To Flow (2)
133	39.54	98.18	Shut-In(2)
317	1236.56	99.89	End Shut-In(2)
320	1572.70	100.36	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
35.00	GMO 5%G40%M55%O	0.25
10.00	CO	0.07

## Gas Rates

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



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Sam Gary Jr & Associates Inc

**15-5s-23w Norton**

1515 Wynkoop  
Ste 700  
Denver Co 80202  
ATTN: Spencer Musgrove, Jim

**Hilderbrand #1-15**

Job Ticket: 64150 **DST#: 1**

Test Start: 2017.05.13 @ 00:15:28

**GENERAL INFORMATION:**

Formation: **LKC**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:47:23

Time Test Ended: 10:02:38

Test Type: Conventional Bottom Hole (Initial)

Tester: Ray Schwager

Unit No: 77

**Interval: 3350.00 ft (KB) To 3412.00 ft (KB) (TVD)**

Reference Elevations: 2212.00 ft (KB)

Total Depth: 3412.00 ft (KB) (TVD)

2204.00 ft (CF)

Hole Diameter: 7.85 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6751 Outside**

Press@RunDepth: psig @ 3352.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.05.13 End Date: 2017.05.13

Last Calib.: 2017.05.13

Start Time: 00:14:35 End Time: 10:01:45

Time On Btm:

Time Off Btm:

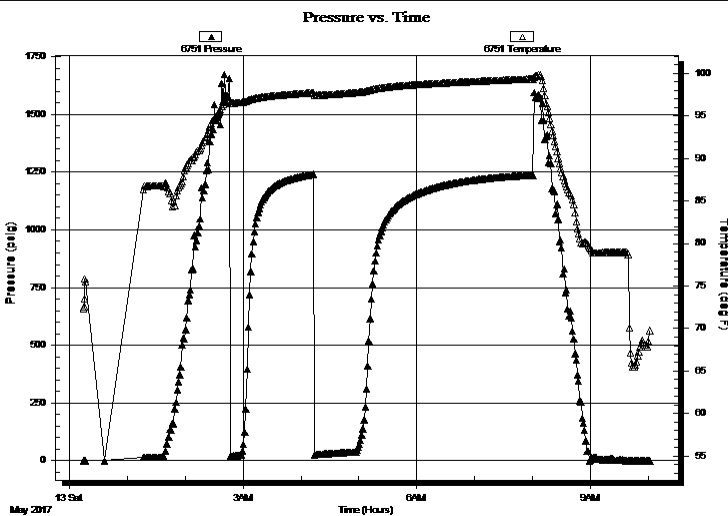
TEST COMMENT: 10-IFP-w k bl thru-out 1/4" to 3/4" bl

75-ISIP-no bl bk

45-FFP-surface bl thru-out

180-FSIP-no bl bk

**PRESSURE SUMMARY**



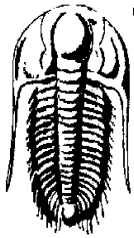
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

**Recovery**

Length (ft)	Description	Volume (bbl)
35.00	GMO 5%G40%M55%O	0.25
10.00	CO	0.07

**Gas Rates**

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove,Jim

**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 64150 **DST#: 1**  
 Test Start: 2017.05.13 @ 00:15:28

### GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 02:47:23 Tester: Ray Schwager  
 Time Test Ended: 10:02:38 Unit No: 77  
 Interval: **3350.00 ft (KB) To 3412.00 ft (KB) (TVD)** Reference Elevations: 2212.00 ft (KB)  
 Total Depth: 3412.00 ft (KB) (TVD) 2204.00 ft (CF)  
 Hole Diameter: 7.85 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

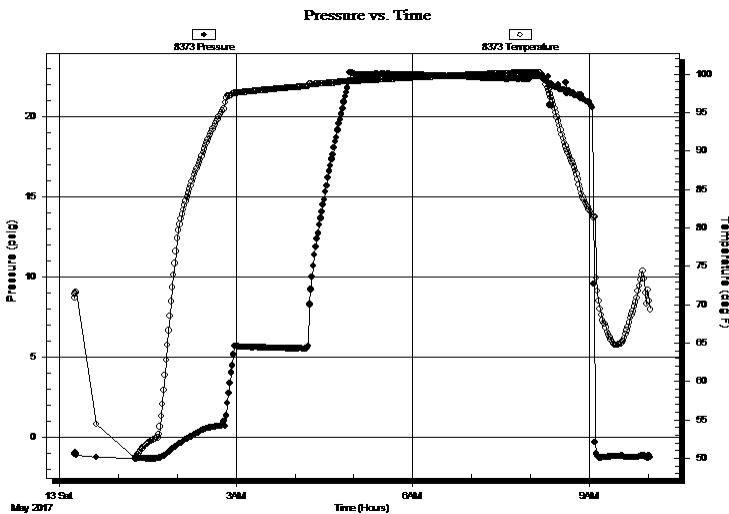
### Serial #: 8373

### Fluid

Press@RunDepth: psig @ 3315.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.13 End Date: 2017.05.13 Last Calib.: 2017.05.13  
 Start Time: 00:15:10 End Time: 10:02:50 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 10-IFP-w k bl thru-out 1/4"to 3/4"bl  
 75-ISIP-no bl bk  
 45-FFP-surface bl thru-out  
 180-FSIP-no bl bk

### PRESSURE SUMMARY



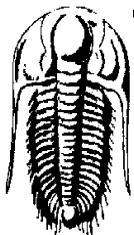
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

### Recovery

Length (ft)	Description	Volume (bbl)
35.00	GMO 5%G40%M55%O	0.25
10.00	CO	0.07

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Sam Gary Jr&Associates Inc

**15-5s-23w Norton**

1515 Wynkoop  
Ste 700  
Denver Co 80202

**Hilderbrand #1-15**

Job Ticket: 64150

**DST#: 1**

ATTN: Spencer Musgrove,Jim

Test Start: 2017.05.13 @ 00:15:28

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

10 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 750.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
35.00	GMO 5%G40%M55%O	0.248
10.00	CO	0.071

Total Length: 45.00 ft      Total Volume: 0.319 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

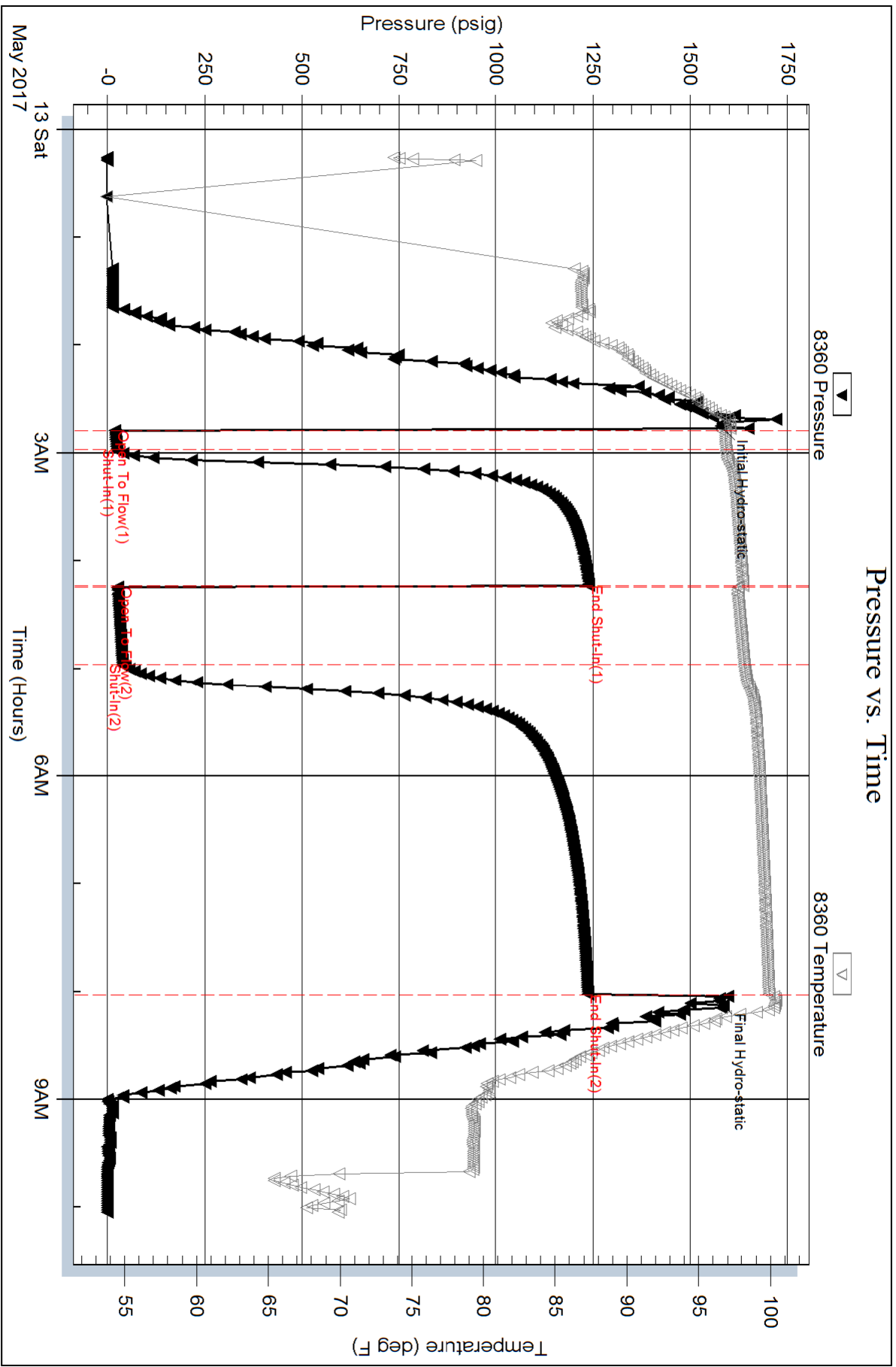
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Sampler Data: PSI 350 # 500ML Gas 300ML Mud  
1200ML Oil



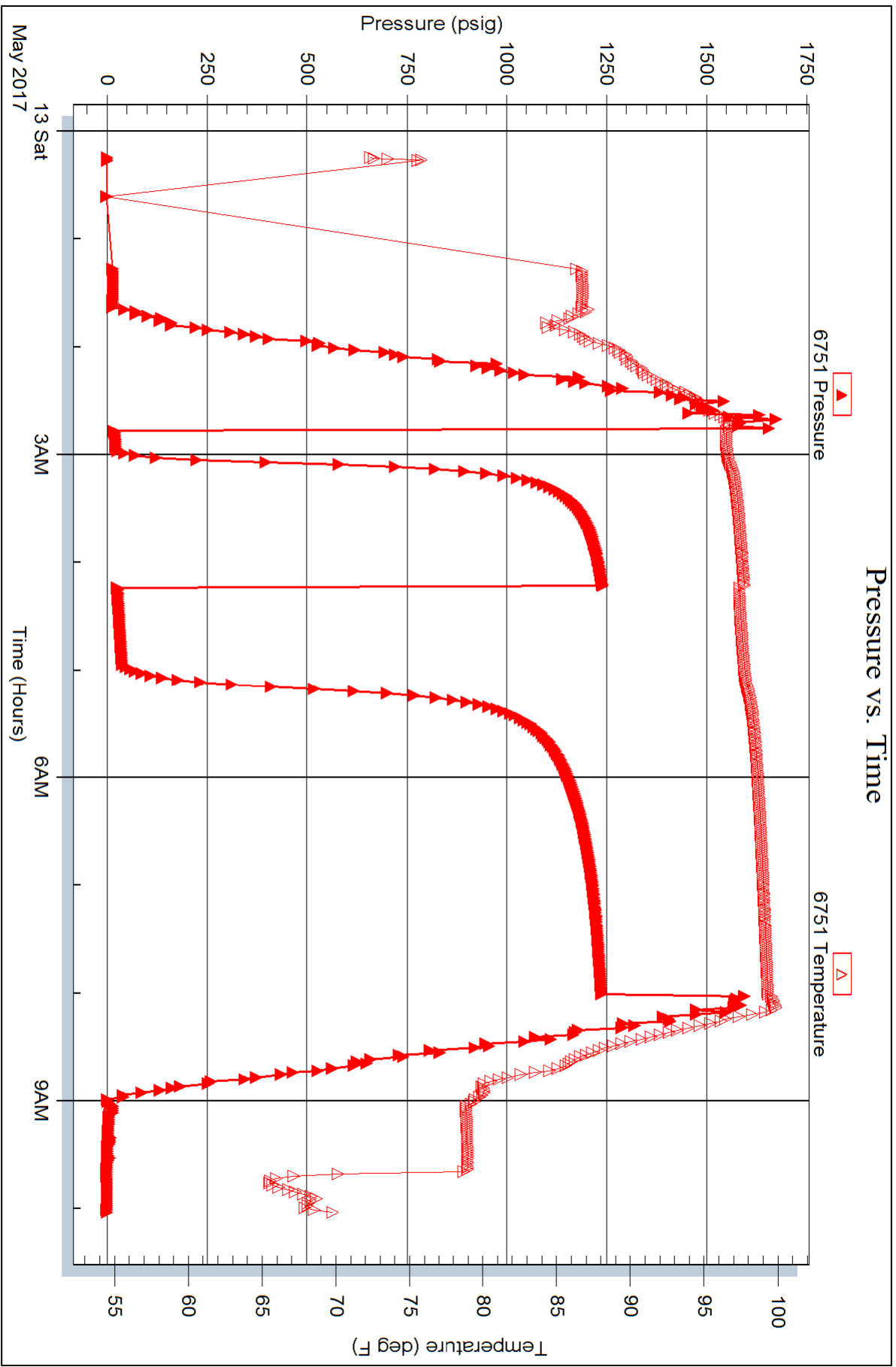


Serial #: 6751

Outside Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 1



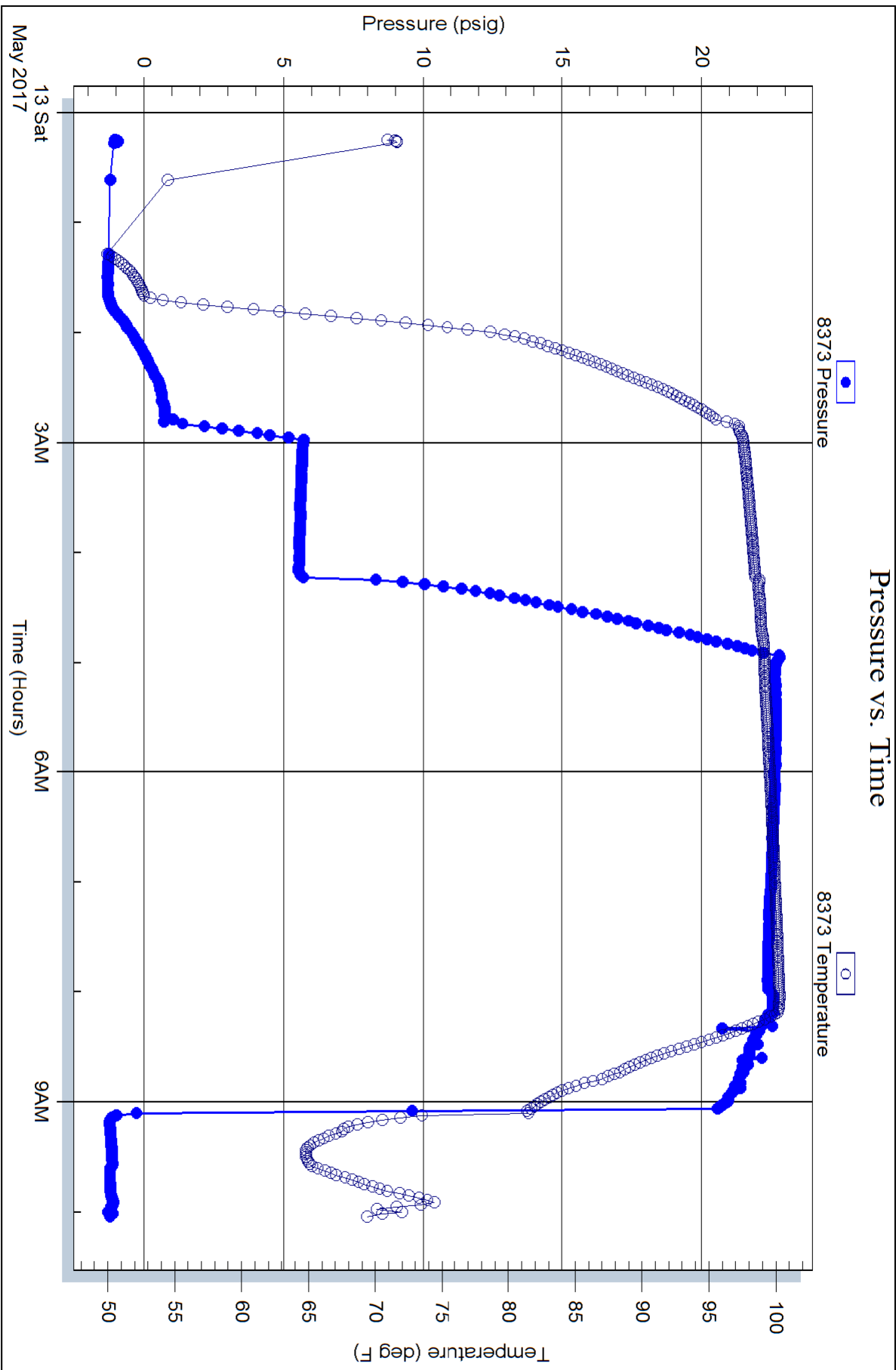
Serial #: 8373

Fluid

Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 64150

Printed: 2017.05.13 @ 10:40:34



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc  
1515 Wynkoop  
Ste 700  
Denver Co 80202  
ATTN: Spencer Musgrove,Jim

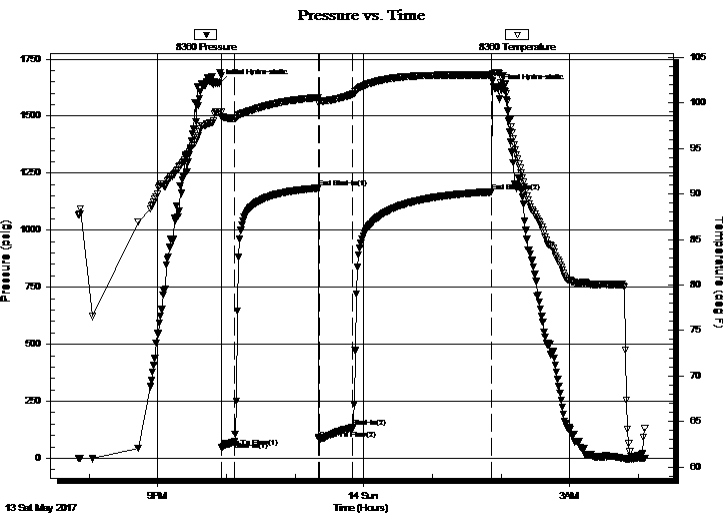
**15-5s-23w Norton**  
**Hilderbrand #1-15**  
Job Ticket: 63951      **DST#: 2**  
Test Start: 2017.05.13 @ 19:50:44

## GENERAL INFORMATION:

Formation: **LKC**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 21:55:39  
Time Test Ended: 04:06:08  
Interval: **3432.00 ft (KB) To 3473.00 ft (KB) (TVD)**  
Total Depth: 3473.00 ft (KB) (TVD)  
Hole Diameter: 7.85 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Ray Schwager  
Unit No: 77  
Reference Elevations: 2212.00 ft (KB)  
2204.00 ft (CF)  
KB to GR/CF: 8.00 ft

**Serial #: 8360**      **Inside**  
Press@RunDepth: 134.84 psig @ 3437.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2017.05.13      End Date: 2017.05.14      Last Calib.: 2017.05.14  
Start Time: 19:50:44      End Time: 04:06:08      Time On Btm: 2017.05.13 @ 21:53:54  
Time Off Btm: 2017.05.14 @ 01:55:38

**TEST COMMENT:** 10-IFP-w k to a fr bl 1/2" to 5"bl  
75-ISIP-no bl 1st 15min, then surface bl bk  
30-FFP-w k to BOB in 30 min  
120-FSIP-1/2 " bl bk



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1642.94	99.01	Initial Hydro-static
2	46.43	98.50	Open To Flow (1)
13	73.33	98.32	Shut-In(1)
87	1184.91	100.59	End Shut-In(1)
87	82.27	100.29	Open To Flow (2)
117	134.84	100.97	Shut-In(2)
238	1167.34	103.06	End Shut-In(2)
242	1621.98	103.35	Final Hydro-static

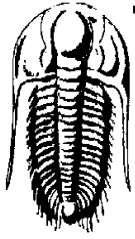
## Recovery

Length (ft)	Description	Volume (bbl)
130.00	GMO 10%G25%M65%O	0.92
155.00	CO	1.10
0.00	210' GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Sam Gary Jr & Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove, Jim

**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 63951 **DST#: 2**  
 Test Start: 2017.05.13 @ 19:50:44

### GENERAL INFORMATION:

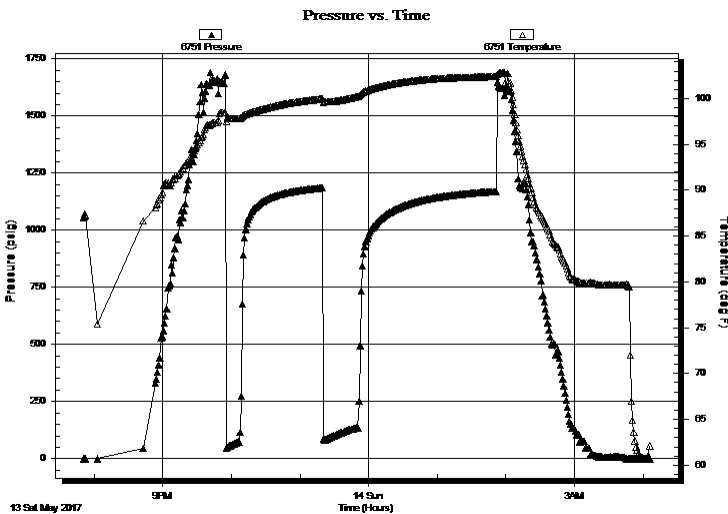
Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 21:55:39  
 Tester: Ray Schwager  
 Time Test Ended: 04:06:08  
 Unit No: 77  
 Interval: **3432.00 ft (KB) To 3473.00 ft (KB) (TVD)**  
 Reference Elevations: 2212.00 ft (KB)  
 Total Depth: 3473.00 ft (KB) (TVD) 2204.00 ft (CF)  
 Hole Diameter: 7.85 inches  
 Hole Condition: Fair KB to GR/CF: 8.00 ft

### Serial #: 6751 Outside

Press@RunDepth: psig @ 3437.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.13 End Date: 2017.05.14 Last Calib.: 2017.05.14  
 Start Time: 19:50:57 End Time: 04:06:21 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 10-IFP-w k to a fr bl 1/2" to 5" bl  
 75-ISIP-no bl 1st 15min, then surface bl bk  
 30-FFP-w k to BOB in 30 min  
 120-FSIP-1/2 " bl bk

### PRESSURE SUMMARY



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

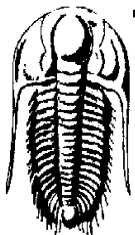
### Recovery

Length (ft)	Description	Volume (bbl)
130.00	GMO 10%G25%M65%O	0.92
155.00	CO	1.10
0.00	210' GIP	0.00

\* Recovery from multiple tests

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc

**15-5s-23w Norton**

1515 Wynkoop  
Ste 700  
Denver Co 80202  
ATTN: Spencer Musgrove,Jim

**Hilderbrand #1-15**

Job Ticket: 63951 **DST#: 2**  
Test Start: 2017.05.13 @ 19:50:44

## GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:55:39  
 Time Test Ended: 04:06:08  
 Interval: **3432.00 ft (KB) To 3473.00 ft (KB) (TVD)**  
 Total Depth: 3473.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches Hole Condition: Fair

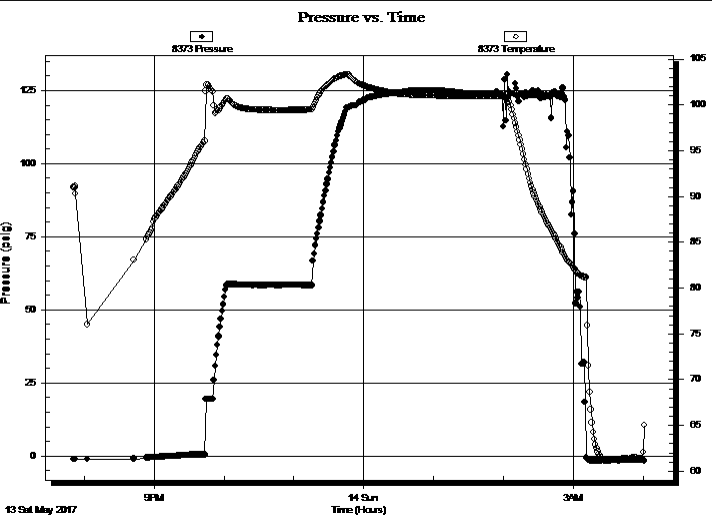
Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 2212.00 ft (KB)  
 2204.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8373

## Fluid

Press@RunDepth: psig @ 3397.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.13 End Date: 2017.05.14 Last Calib.: 2017.05.14  
 Start Time: 19:50:40 End Time: 04:01:34 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 10-IFP-w k to a fr bl 1/2" to 5"bl  
 75-ISIP-no bl 1st 15min, then surface bl bk  
 30-FFP-w k to BOB in 30 min  
 120-FSIP-1/2 " bl bk



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
130.00	GMO 10%G25%M65%O	0.92
155.00	CO	1.10
0.00	210' GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Sam Gary Jr&Associates Inc

**15-5s-23w Norton**

1515 Wynkoop  
Ste 700  
Denver Co 80202

**Hilderbrand #1-15**

Job Ticket: 63951

**DST#: 2**

ATTN: Spencer Musgrove,Jim

Test Start: 2017.05.13 @ 19:50:44

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

29 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 750.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
130.00	GMO 10%G25%M65%O	0.921
155.00	CO	1.098
0.00	210' GIP	0.000

Total Length: 285.00 ft      Total Volume: 2.019 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Sampler Data: PSI 550# 500MLgas  
1500MLOil

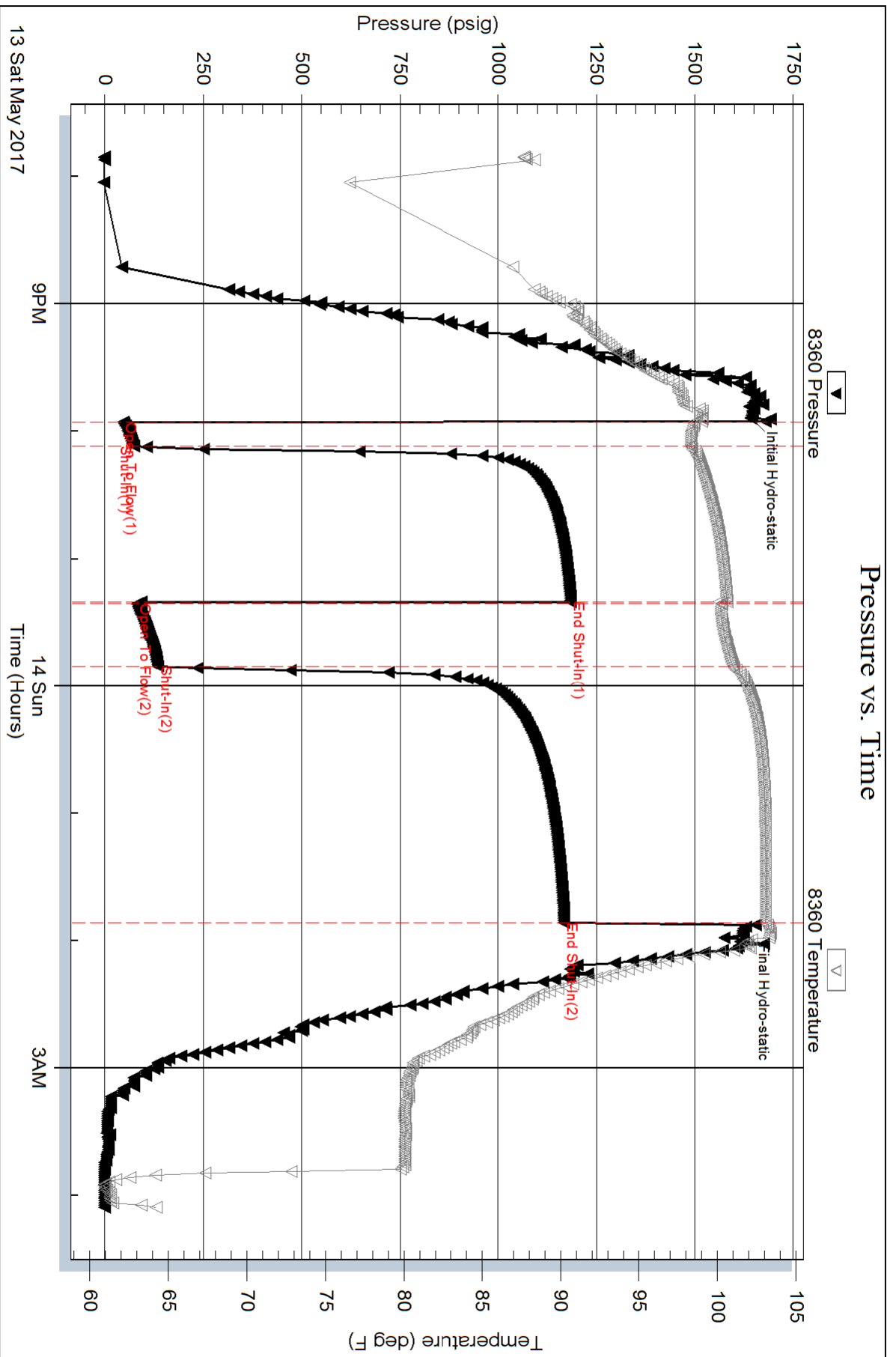
Serial #: 8360

Inside

Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 2





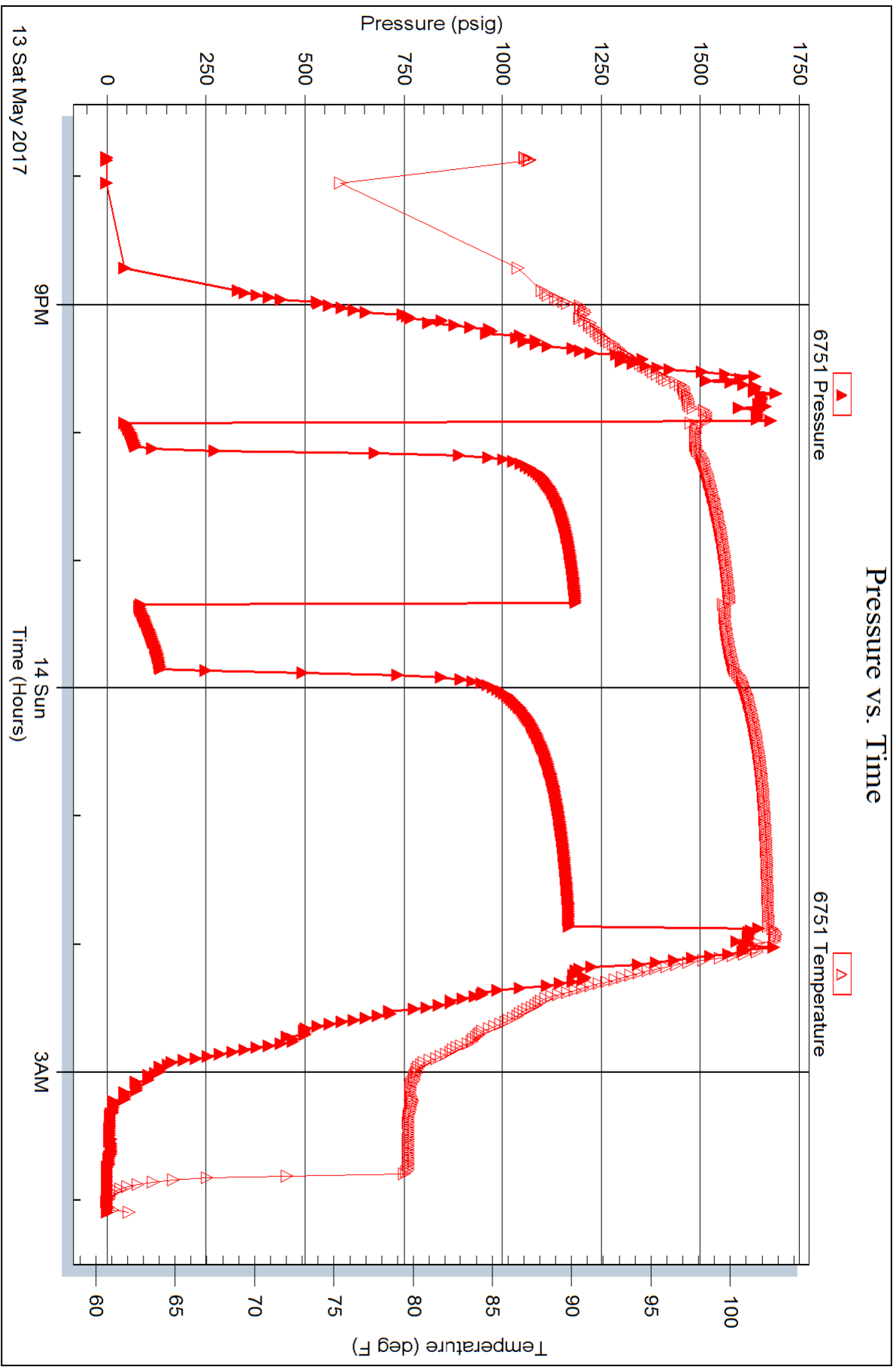
Serial #: 6751

Outside

Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63951

Printed: 2017.05.14 @ 12:18:43

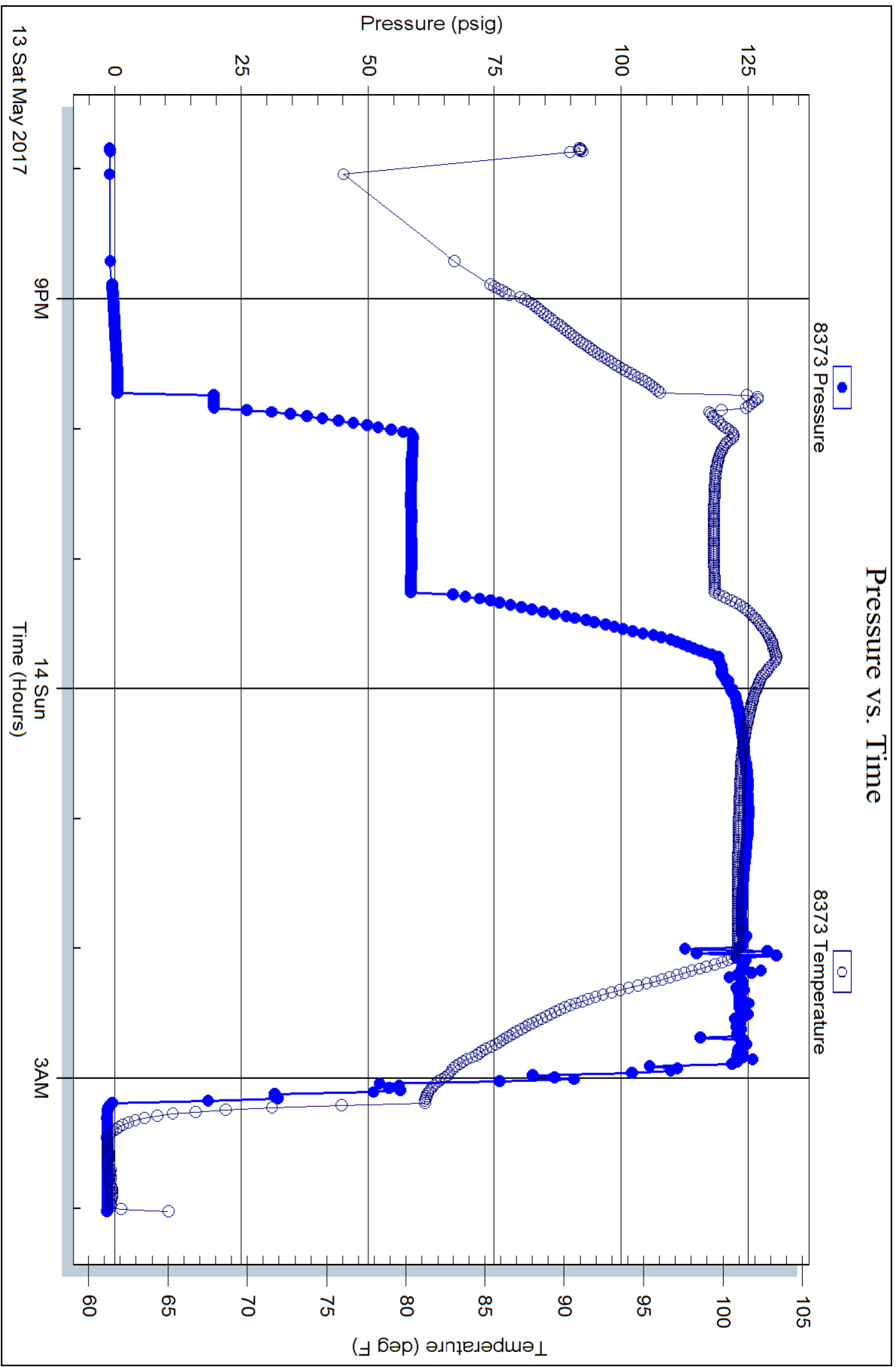
Serial #: 8373

Fluid

Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63951

Printed: 2017.05.14 @ 12:18:43



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove,Jim

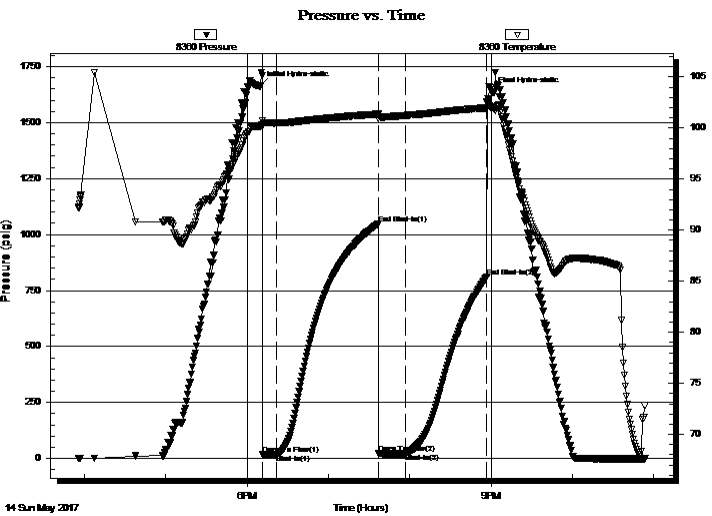
**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 63953 **DST#: 3**  
 Test Start: 2017.05.14 @ 15:55:44

## GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:11:39  
 Time Test Ended: 22:53:38  
**Interval: 3490.00 ft (KB) To 3547.00 ft (KB) (TVD)**  
 Total Depth: 3547.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 2212.00 ft (KB)  
 2204.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8360 Inside**  
 Press@RunDepth: 22.45 psig @ 3492.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.14 End Date: 2017.05.14 Last Calib.: 2017.05.14  
 Start Time: 15:55:44 End Time: 22:53:38 Time On Btm: 2017.05.14 @ 18:09:54  
 Time Off Btm: 2017.05.14 @ 21:00:23

**TEST COMMENT:** 10-IFP-surface bl , died in 8 min  
 75-ISIP-no bl  
 20-FFP-no bl  
 60-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1662.83	100.15	Initial Hydro-static
2	18.74	100.30	Open To Flow (1)
12	20.14	100.50	Shut-In(1)
87	1048.06	101.38	End Shut-In(1)
87	21.84	100.91	Open To Flow (2)
108	22.45	101.25	Shut-In(2)
167	810.38	101.98	End Shut-In(2)
171	1636.42	102.02	Final Hydro-static

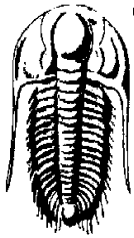
## Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM 10%O90%M	0.07

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove,Jim

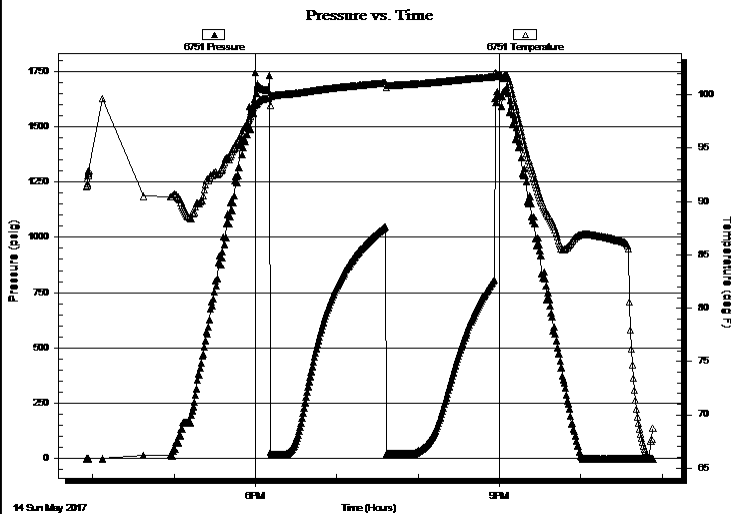
**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 63953      **DST#: 3**  
 Test Start: 2017.05.14 @ 15:55:44

## GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 18:11:39  
 Tester: Ray Schwager  
 Time Test Ended: 22:53:38  
 Unit No: 77  
**Interval: 3490.00 ft (KB) To 3547.00 ft (KB) (TVD)**  
 Reference Elevations: 2212.00 ft (KB)  
 Total Depth: 3547.00 ft (KB) (TVD) 2204.00 ft (CF)  
 Hole Diameter: 7.85 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

**Serial #: 6751 Outside**  
 Press@RunDepth: psig @ 3492.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.14 End Date: 2017.05.14 Last Calib.: 2017.05.14  
 Start Time: 15:55:29 End Time: 22:53:08 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 10-IFP-surface bl , died in 8 min  
 75-ISIP-no bl  
 20-FFP-no bl  
 60-FSIP-no bl



## PRESSURE SUMMARY

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

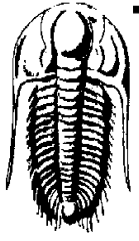
## Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM 10%O90%M	0.07

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sam Gary Jr&Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove,Jim

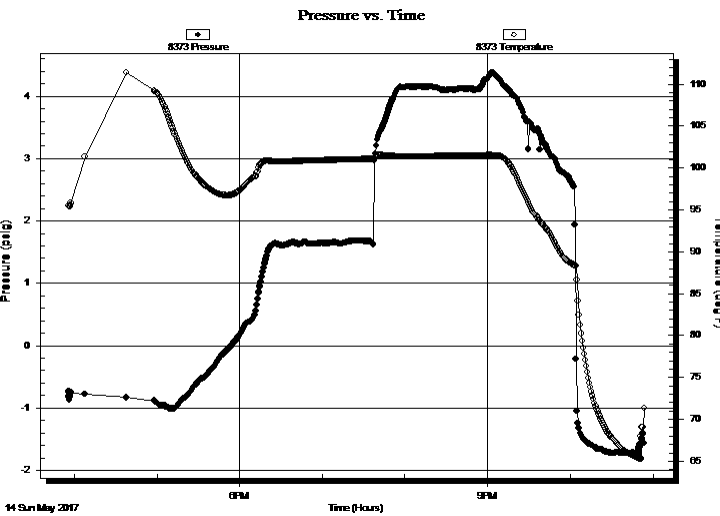
**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 63953      **DST#: 3**  
 Test Start: 2017.05.14 @ 15:55:44

## GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:11:39  
 Time Test Ended: 22:53:38  
**Interval: 3490.00 ft (KB) To 3547.00 ft (KB) (TVD)**  
 Total Depth: 3547.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inchesHole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 2212.00 ft (KB)  
 2204.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8373**      **Fluid**  
 Press@RunDepth:      psig @      3455.00 ft (KB)      Capacity:      8000.00 psig  
 Start Date:      2017.05.14      End Date:      2017.05.14      Last Calib.:      2017.05.14  
 Start Time:      15:56:01      End Time:      22:53:55      Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 10-IFP-surface bl , died in 8 min  
 75-ISIP-no bl  
 20-FFP-no bl  
 60-FSIP-no bl



## PRESSURE SUMMARY

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

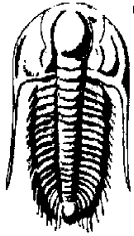
## Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM 10%O90%M	0.07

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Sam Gary Jr&Associates Inc

**15-5s-23w Norton**

1515 Wynkoop  
Ste 700  
Denver Co 80202

**Hilderbrand #1-15**

Job Ticket: 63953

**DST#: 3**

ATTN: Spencer Musgrove,Jim

Test Start: 2017.05.14 @ 15:55:44

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OCM 10%O90%M	0.071

Total Length: 10.00 ft      Total Volume: 0.071 bbl

Num Fluid Samples: 0

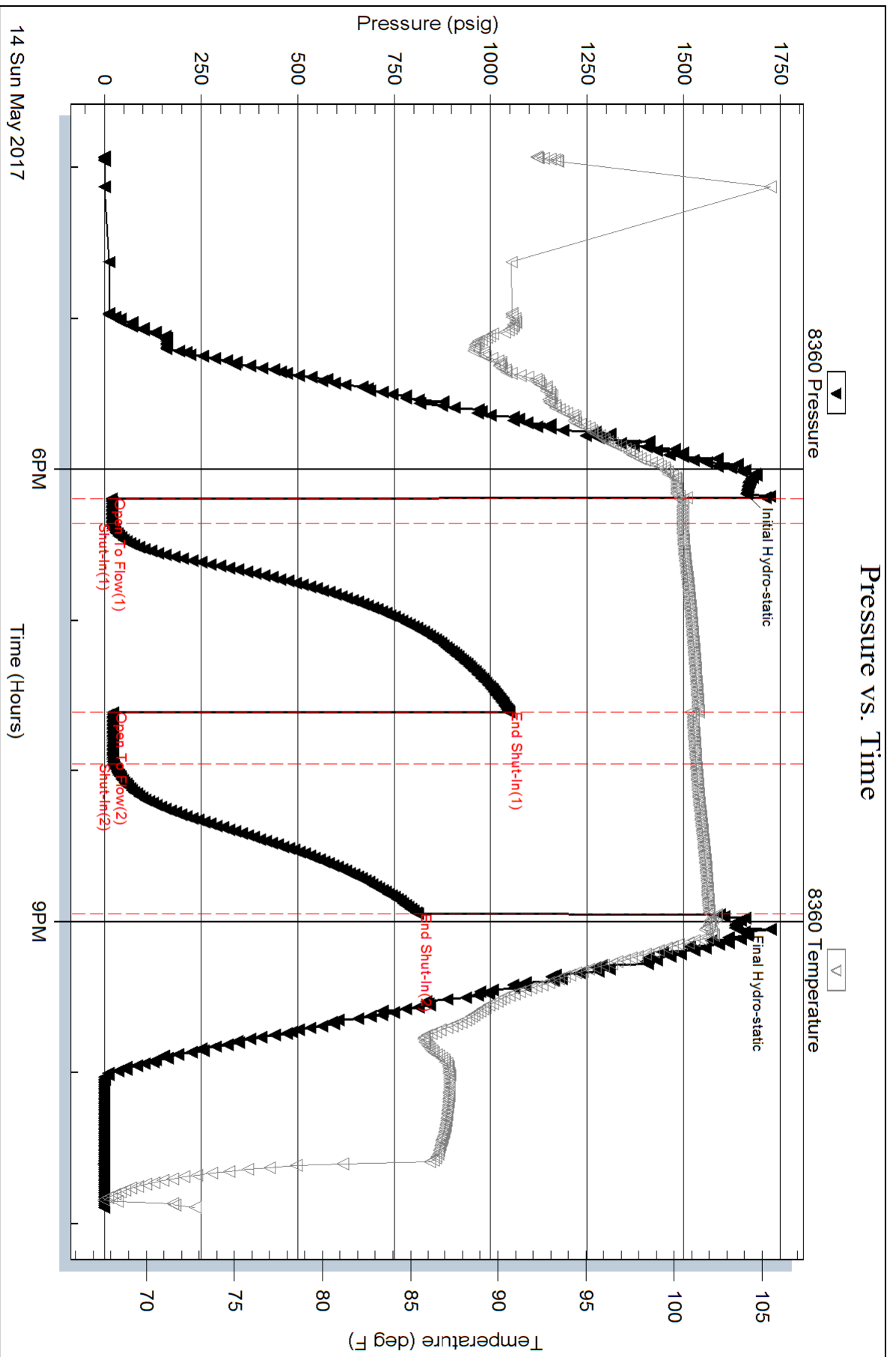
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Sampler Data: PSI :

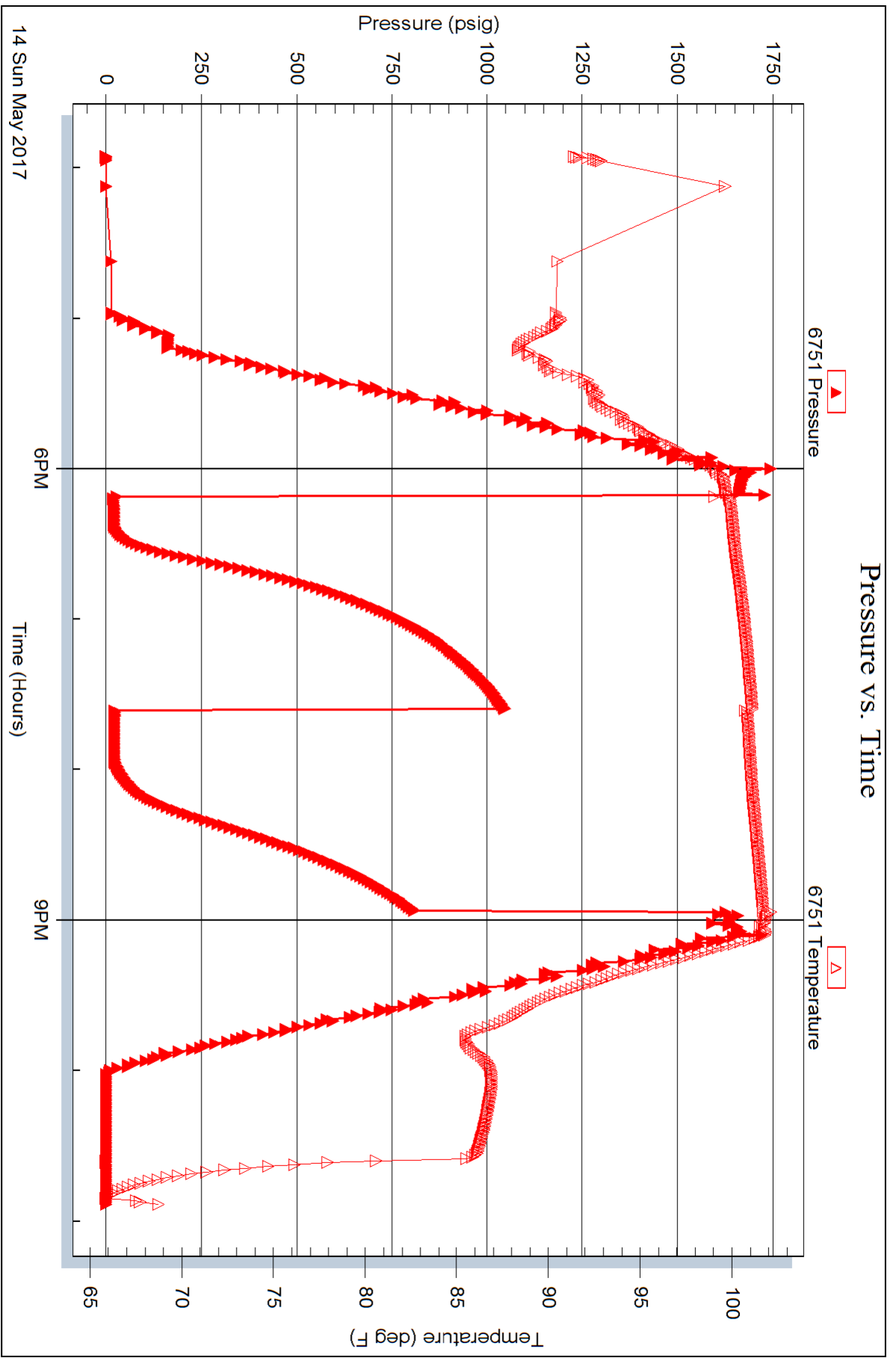


Serial #: 6751

Outside Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 3





Serial #: 8373

Fluid

Sam Gary Jr&Associates Inc

Hilderbrand #1-15

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63953

Printed: 2017.05.14 @ 23:19:40

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

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

No. 224

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-9-17	15	5	23	Norton	KS		5:00 AM

Location Hill City 1 Hwy 9 3W 15 BINTO

Lease <u>Hildebrand</u>	Well No. <u>1-15</u>	Owner
-------------------------	----------------------	-------

Contractor <u>D. Scary #1</u>	To Quality Oilwell Cementing, Inc.
-------------------------------	------------------------------------

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 <u>Surface</u>	Charge To <u>Sam Casey Jr + Associates</u>
-------------------------	--

Hole Size <u>12 1/4</u>	T.D. <u>513</u>	Street
-------------------------	-----------------	--------

Csg. <u>8 5/8</u>	Depth <u>512</u>	City	State
-------------------	------------------	------	-------

Tbg. Size	Depth	The above was done to satisfaction and supervision of owner agent or contractor.	
-----------	-------	--	--

Tool	Depth	Cement Amount Ordered <u>350 8/20 3/12 21 GEL 1/4"</u>
------	-------	--

Cement Left in Csg. <u>25'</u>	Shoe Joint	
--------------------------------	------------	--

Meas Line	Displace <u>313L</u>	Used <u>300</u>
-----------	----------------------	-----------------

**EQUIPMENT**

Pumptrk <u>20</u> No.	Cementer <u>Casey</u>	Common <u>240</u>
-----------------------	-----------------------	-------------------

	Helper	Poz. Mix <u>60</u>
--	--------	--------------------

Bulktrk No.	Driver <u>Casey</u>	Gel. <u>6</u>
-------------	---------------------	---------------

Bulktrk <u>21</u> No.	Driver <u>Doug</u>	Calcium <u>11</u>
-----------------------	--------------------	-------------------

**JOB SERVICES & REMARKS**

Remarks:	Hulls
----------	-------

Rat Hole	Salt
----------	------

Mouse Hole	Flowseal
------------	----------

Centralizers	Kol-Seal
--------------	----------

Baskets	Mud CLR 48
---------	------------

D/V or Port Collar	CFL-117 or CD110 CAF 38
--------------------	-------------------------

<u>8 5/8 on bottom. Est. Circulation.</u>	Sand
---	------

<u>Mix 3000 &amp; Displace Plug.</u>	Handling <u>350</u>
--------------------------------------	---------------------

<u>Cement Circulated!</u>	Mileage
---------------------------	---------

**FLOAT EQUIPMENT**

	Guide Shoe
--	------------

	Centralizer <u>2</u>
--	----------------------

	Baskets <u>1</u>
--	------------------

	AFT Inserts <u>Rubber Plug</u>
--	--------------------------------

	Float Shoe
--	------------

	Latch Down
--	------------

--	--

--	--

--	--

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--	--

--	--

--	--

--	--

--	--

X Signature [Signature]

Tax  
Discount  
Total Charge

Pumptrk Charge Long Surface  
Mileage 55



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

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

No. 232

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-16-17	15	5	23	Norton	KS		07:30 AM

Location Hill City 1/4 NW 9 3w 1/2 E into

Lease HILDEBRAND Well No. 1-15 Owner

Contractor Discovery #1 To Quality Oilwell Cementing, Inc.

Type Job Production String You are hereby requested to rent cementing equipment and furnish

Hole Size 7 7/8 T.D. 3680 Charge To Sam Campbell Jr + Associates

Csg. 5 1/2 15.50\* Depth 3677.48 Street

Tbg. Size Depth City State

Tool Depth The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. 32.50 Shoe Joint 32.50 Cement Amount Ordered 440 80/20 Q.M.D.C. 1/4 # R10

Meas Line Displace 86 3/4 B.C. 200 Q. pro-c 10 1/2 salt 5 1/2 G. Isomite 1/4 # R10

**EQUIPMENT** Common 200 Q. pro-c 500 gal mud clear

Pumptrk 20 No. Cementer raig Poz. Mix B 400 80/20 Q.M.D.C.

Bulktrk 19 No. Helper Brett Gel.

Bulktrk 15 No. Driver Doug Calcium

Driver Tom Hulls

**JOB SERVICES & REMARKS** Salt 17

Remarks: Flowseal 180 #

Rat Hole 305K Kol-Seal 1000#

Mouse Hole 1.55K Mud CLR 48 500 gal

Centralizers CFL-117 or CD110 CAF 38

Baskets Sand

D/V or Port Collar Handling 687

5 1/2 set @ 3677.48. Buffer @ 3645. Mileage

Est. Circulation. Pump 500 gal mud clear **FLOAT EQUIPMENT** 5 1/2

10 B.C. water spacer. Plug Rat hole + mouse hole. Guide Shoe 1 Limit Clamp

Cement 5 1/2. Clear lines + Displace Plug. Centralizer 8 Turbals

Lift Pressure 1000\* Baskets 4 Caged

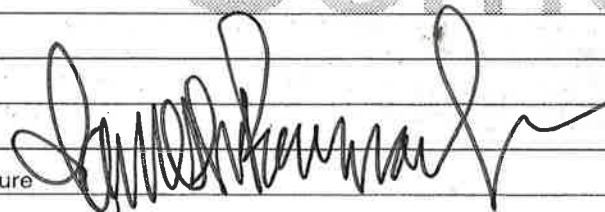
Plug limit @ 1800\* AFU Inserts

Cement Circulate Float Shoe 1

Latch Down 1

Pumptrk Charge Prod String

Mileage 55

Signature 

Tax

Discount

Total Charge



# Musgrove

Petroleum Geology  
212 Main Street, Claflin KS

## NOTES

Company: Samuel Gary Jr. & Associates, Inc.

Lease: Hildebrand #1-15

Location: NW-SW-NE-SW (1665' FSL & 1420' FWL)

Sec: 15 Twsp: 5S Rge: 23W

County: Norton State: Kansas

Field: Wildcat

KB: 2212' GL: 2204'

Contractor: Discovery Drilling Co. (Rig #1)

Spud: 05/8/2017 Comp: 05/15/2017

RTD: 3680' LTD: 3681'

Mud Up: 2950' Type Mud: Chemical

API #: 15-137-20744-00-00

Samples Saved From: 3050' to RTD

Drilling Time Kept From: 3000' to RTD

Samples Examined From: 3050' to RTD

Geological Supervision from: 3100' to RTD

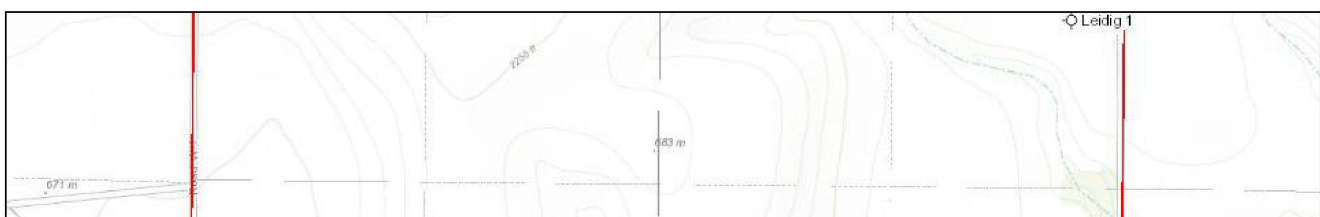
Geologist on Well: Jim Musgrove

Surface Casing: 8 5/8" @ 513'

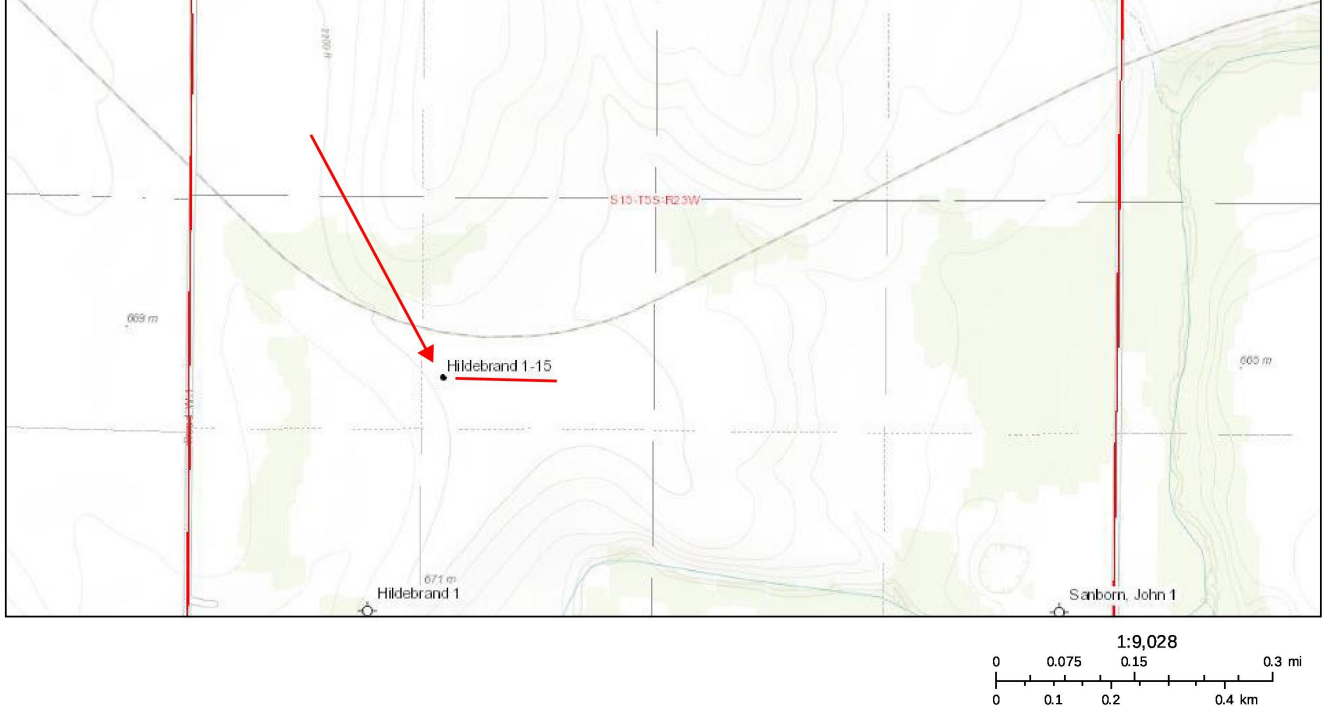
Production Casing: 5 1/2" @ 3678'

Electronic Surveys: Logged by Weatherford: Array Induction Shallow Focused Electric Log, Compact Photo Density Compensated Neutron Micro-Resistivity Log, Compensated Sonic with Integrated Transit Time, Micro-Resistivity Log & Caliper Log.

## SAMUEL GARY - HILDEBRAND #1-15





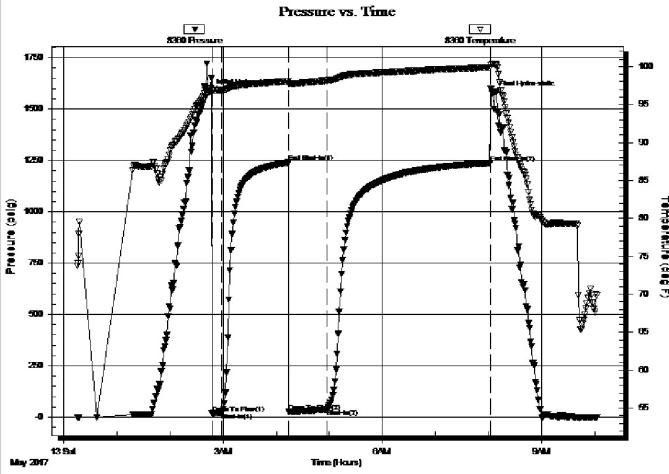


## Samuel Gary Jr. & Associates, Inc. well comparison sheet

DRILLING WELL					COMPARISON WELL				COMPARISON WELL			
Samuel Gary- Hildebrand #1-15					Ambercrombie- #1 Hildebrand				Ritchie Expl.- #1 J. Sanborn			
NW-SW-NE-SW 15-5S-23W oil					SE-SW-SW 15-5S-23W dry hole				50', C-SE-SE-SE 15-5S-23W dry hole			
2212 KB					2207 KB		Structural Relationship		2159 KB		Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Anhydrite	1851	361	1852	360	1844				1792			
B. Anhydrite	1871	341	1870	342	1875				1823			
Topeka	3157	-945	3156	-944	2942				3101	-942	-3	-2
Heebner	3354	-1142	3354	-1142	3356	-1149	7	7	3304	-1145	3	3
Toronto	3380	-1168	3378	-1166	3388	-1181	13	15	3329	-1170	2	4
Lansing	3398	-1186	3394	-1182	3400	-1193	7	11	3346	-1187	1	5
BKC	3580	-1368	3580	-1368	3587	-1380	12	12	3534	-1375	7	7
Marmaton	3613	-1401	3612	-1400								
RTD	3680	-1468	3680	-1468	3600	-1393	-75	-75	3360	-1201	-267	-267
LTD	3681	-1469	3681	-1469	3601	-1394	-75	-75	3359	-1200	-269	-269

	<b>DRILL STEM TEST REPORT</b>		
	Sam Gary Jr&Associates Inc 1515 Wynkoop Ste 700 Denver Co 80202 ATTN: Spencer Musgrove,Jim	<b>15-5s-23w Norton</b>  <b>Hilderbrand #1-15</b> Job Ticket: 64150 <b>DST#: 1</b> Test Start: 2017.05.13 @ 00:15:28	
<b>GENERAL INFORMATION:</b>			
Formation:	<b>LKC</b>		
Deviated:	No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened:	02:47:23		Tester: Ray Schwager
Time Test Ended:	10:02:38		Unit No: 77
Interval:	<b>3350.00 ft (KB) To 3412.00 ft (KB) (TVD)</b>		Reference Elevations: 2212.00 ft (KB)
Total Depth:	3412.00 ft (KB) (TVD)		2204.00 ft (CF)
Hole Diameter:	7.85 inches	Hole Condition: Fair	KB to GR/CF: 8.00 ft
<b>Serial #: 8360</b>	<b>Inside</b>		
Press@RunDepth:	39.54 psig @	3352.00 ft (KB)	Capacity: 8000.00 psig
Start Date:	2017.05.13	End Date: 2017.05.13	Last Calib.: 2017.05.13
Start Time:	00:15:28	End Time: 10:02:38	Time On Btm: 2017.05.13 @ 02:45:23
			Time Off Btm: 2017.05.13 @ 08:04:52

TEST COMMENT: 10-IFP-w k bl thru-out 1/4"to 3/4"bl  
 75-ISIP-no bl bk  
 45-FFP-surface bl thru-out  
 180-FSIP-no bl bk



**PRESSURE SUMMARY**

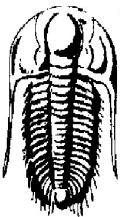
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1579.50	97.16	Initial Hydro-static
2	18.59	96.60	Open To Flow (1)
13	23.23	96.91	Shut-In(1)
89	1239.59	98.09	End Shut-In(1)
89	26.74	97.76	Open To Flow (2)
133	39.54	98.18	Shut-In(2)
317	1236.56	99.89	End Shut-In(2)
320	1572.70	100.36	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
35.00	GMO 5%G40%M55%O	0.25
10.00	CO	0.07

**Gas Rates**

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



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Sam Gary Jr&Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove,Jim

**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 63951 **DST#: 2**  
 Test Start: 2017.05.13 @ 19:50:44

**GENERAL INFORMATION:**

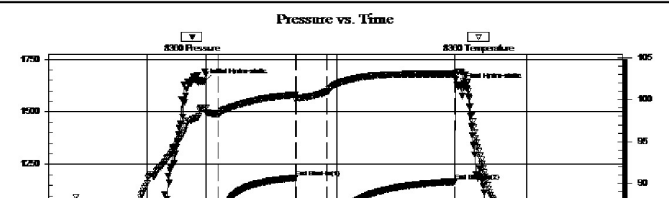
Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:55:39  
 Time Test Ended: 04:06:08  
**Interval: 3432.00 ft (KB) To 3473.00 ft (KB) (TVD)**  
 Total Depth: 3473.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 2212.00 ft (KB)  
 2204.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8360**

**Inside**

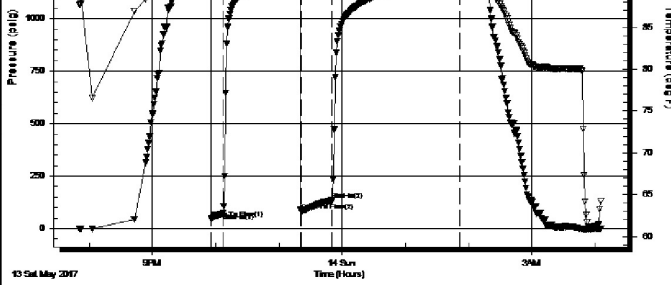
Press@RunDepth: 134.84 psig @ 3437.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.13 End Date: 2017.05.14 Last Calib.: 2017.05.14  
 Start Time: 19:50:44 End Time: 04:06:08 Time On Btm: 2017.05.13 @ 21:53:54  
 Time Off Btm: 2017.05.14 @ 01:55:38

TEST COMMENT: 10-IFP-w k to a fr bl 1/2" to 5"bl  
 75-ISIP-no bl 1st 15min, then surface bl bk  
 30-FFP-w k to BOB in 30 min  
 120-FSIP-1/2 " bl bk



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1642.94	99.01	Initial Hydro-static
2	46.43	98.50	Open To Flow (1)
13	73.33	98.32	Shut-In(1)
87	1184.91	100.59	End Shut-In(1)



87	104.91	100.29	End Shut-In(1)
117	82.27	100.97	Open To Flow (2)
238	1167.34	103.06	Shut-In(2)
242	1621.98	103.35	End Shut-In(2)
			Final Hydro-static

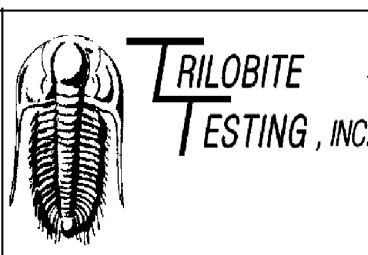
**Recovery**

Length (ft)	Description	Volume (bbl)
130.00	GMO 10% G25% M65% O	0.92
155.00	CO	1.10
0.00	210' GIP	0.00

\* Recovery from multiple tests

**Gas Rates**

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



**DRILL STEM TEST REPORT**

Sam Gary Jr&Associates Inc  
 1515 Wynkoop  
 Ste 700  
 Denver Co 80202  
 ATTN: Spencer Musgrove, Jim

**15-5s-23w Norton**  
**Hilderbrand #1-15**  
 Job Ticket: 63953      **DST#: 3**  
 Test Start: 2017.05.14 @ 15:55:44

**GENERAL INFORMATION:**

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:11:39  
 Time Test Ended: 22:53:38  
 Interval: **3490.00 ft (KB) To 3547.00 ft (KB) (TVD)**  
 Total Depth: 3547.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 2212.00 ft (KB)  
 2204.00 ft (CF)  
 KB to GR/CF: 8.00 ft

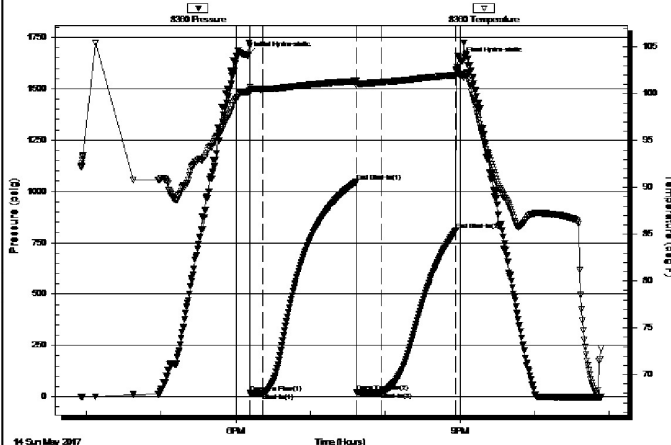
**Serial #: 8360**

**Inside**

Press@RunDepth: 22.45 psig @ 3492.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.14 End Date: 2017.05.14 Last Calib.: 2017.05.14  
 Start Time: 15:55:44 End Time: 22:53:38 Time On Btm: 2017.05.14 @ 18:09:54  
 Time Off Btm: 2017.05.14 @ 21:00:23

TEST COMMENT: 10-IFP-surface bl, died in 8 min  
 75-ISIP-no bl  
 20-FFP-no bl  
 60-FSIP-no bl

**Pressure vs. Time**



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1662.83	100.15	Initial Hydro-static
2	18.74	100.30	Open To Flow (1)
12	20.14	100.50	Shut-In(1)
87	1048.06	101.38	End Shut-In(1)
87	21.84	100.91	Open To Flow (2)
108	22.45	101.25	Shut-In(2)
167	810.38	101.98	End Shut-In(2)
171	1636.42	102.02	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
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**Gas Rates**

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

Length (ft)	Description	Volume (bb)
10.00	OCM 10% O90%M	0.07

\* Recovery from multiple tests

### ROCK TYPES




 Cht vari	 shale, gry	 shale, red
 Lmst fw<7	 Carbon Sh	 Ss

### OTHER SYMBOLS

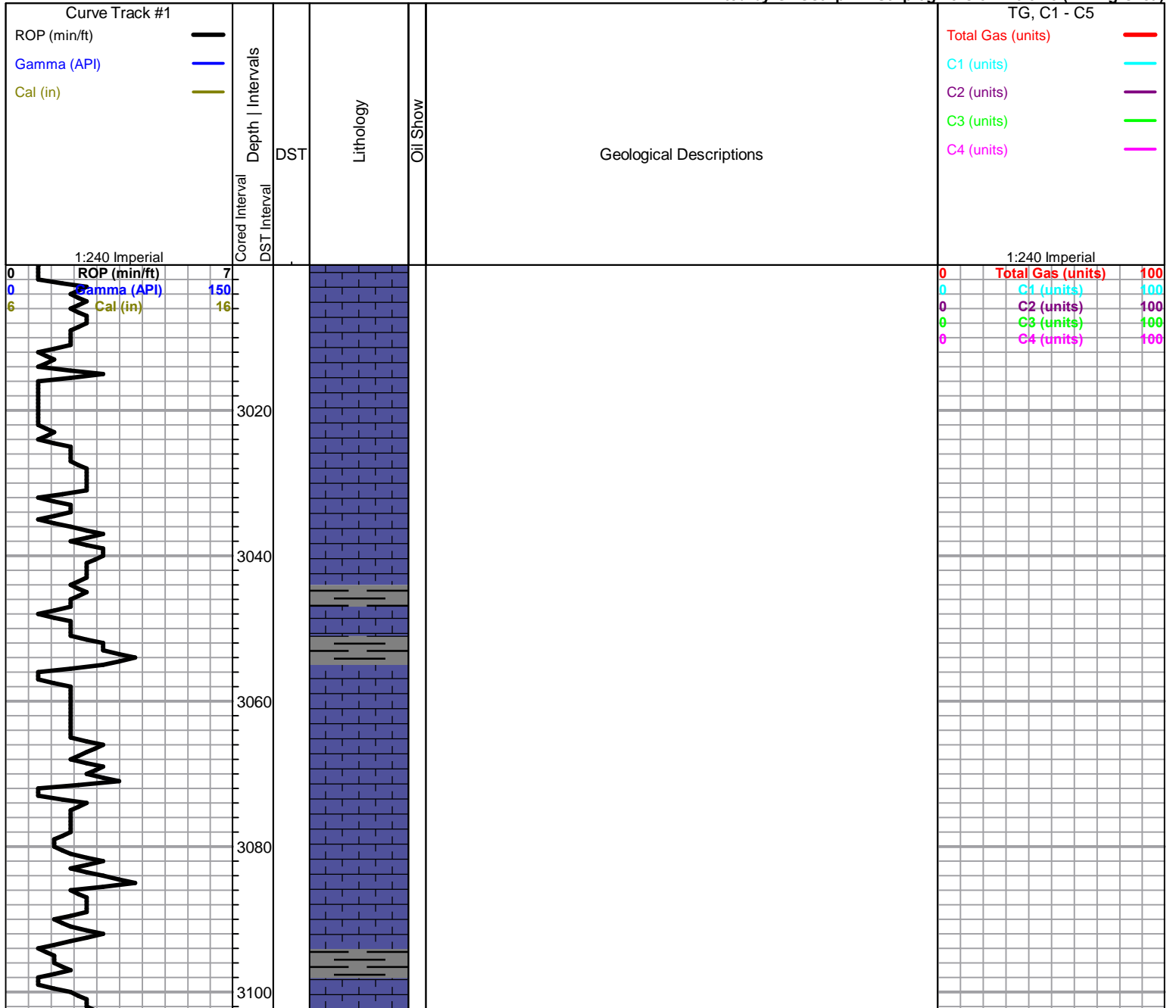
#### Oil Show

- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- D Dead Oil Stn
- Fluorescence
- \* Gas

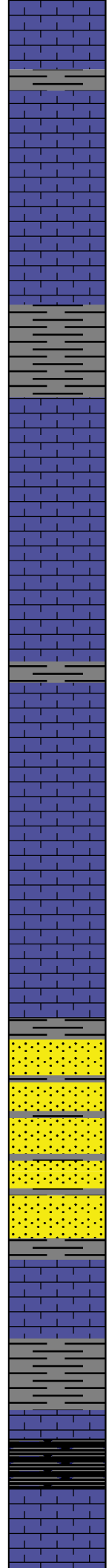
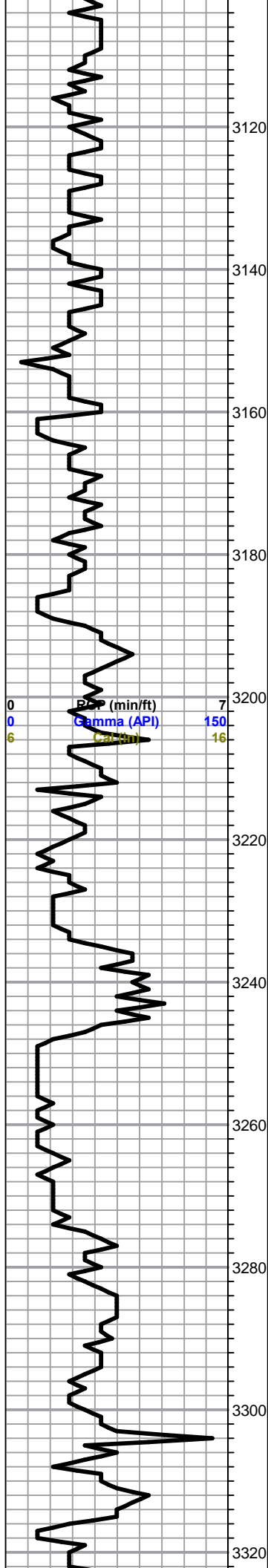
#### DST

-  DST Int
-  DST alt
-  Core
-  tail pipe

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







**Topeka 3157.0 (-945.0)**

LS, gry, white, tan, highly foss, chalky, scattered visible porosity

LS, white, yellow tinted, foss, & tr. amber chert

LS, gry, white, fxl, finely ool, chalky, scattered porosity, no shows

LS, white, tan, ool, scattered porosity, sparry calcite cement, no shows

Tr. gry, vfg, sd, friable, cal, no shows, & rusty brn silty shale

a/a

LS, white, fxl, highly ool, scattered porosity, no shows

Sh, gry

Sh, black, coffee brown

LS white cream gry gran chalky few glauc no

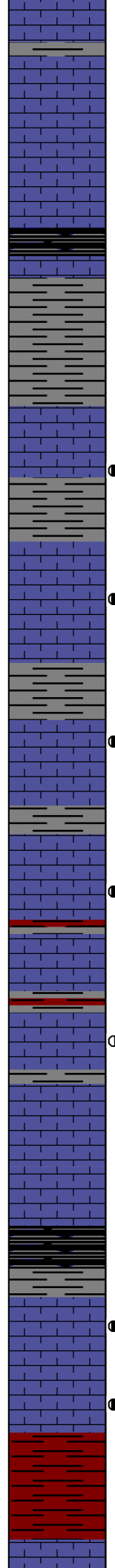
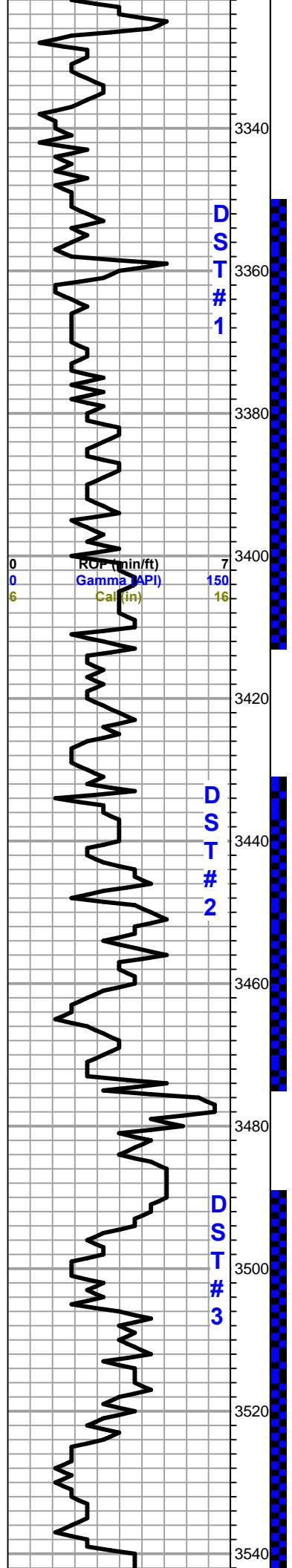
0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

**DST#1 3350-3412**

10-75-45-180

1st Open:  
Weak blow .75"

2nd Open:  
Surface blow



LS, white, cream, gry, gran. chalky, few grade., no shows

LS, cream, white, fxl, ool, sparry calcite cement, no shows

**Heebner 3354.0 (-1142.0)**  
 Sh, black carb  
 LS, tan, chalky, dense, no shows

Sh, gry, silty

**Toronto 3380.0 (-1168.0)**  
 LS, white, highly ool, foss (abund foss. fragments), fr. vuggy inter oolitic type porosity, good dark brn, stain, sat, sfo, fr. odor

**Lansing 3398.0 (-1184.0)**  
 LS, white, ool, scattered inter/oolitic type porosity, few vuggy type porosity, brown/ dk brown stain, sfo, ft. odor

Tr. shale, gry

LS, white, ool, fair-good porosity, fair brown stain, sat, sfo, ft./fr. odor, slug gry, white, trans. opaque chert

LS, gry, finely ool, few med ool, good stain, sat., sfo, faint odor

LS, white, purple, gry, tinted, plus rusty brown shale

LS, white, fxl, ool. in pts, slightly cherty, poorly developed spty brn stain, wk sfo, no odor (few w/ fr. vuggy type porosity)

LS, white, cream, fxl, chalky, poor visible porosity, no shows

Sh, black carb

LS, gry, ool, fair p.p. vuggy type porosity, few golden brown/brown stain, sat., sfo, fr. odor

LS, lt. gry, finely ool, few med. ool, good stain, sat., fr. sfo, faint odor

Sh, rusty brown shale

LS, white, few ool, poor visible porosity, golden/brown

Recovery:  
10' Clean Oil

35' Gassy Muddy Oil  
(5%G, 55%O, 40% M)

Pressures:  
ISIP 1239 psi  
FSIP 1236 psi  
IFP 18-23 psi  
FFP 36-39 psi  
HSH 1579-1572 psi

**DST#2 3432-3473**  
10-75-30-120

1st Open:  
Weak - fair blow (5")

2nd Open:  
Weak - good (BOB 30 mins.)

Recovery:  
210' GIP

155' Clean oil

130' Gassy muddy oil  
(10%G, 65%O, 25%M)

Pressures:  
ISIP 1184 psi  
FSIP 1167 psi  
IFP 46-73 psi  
FFP 82-134 psi  
HSH 1642-1621 psi

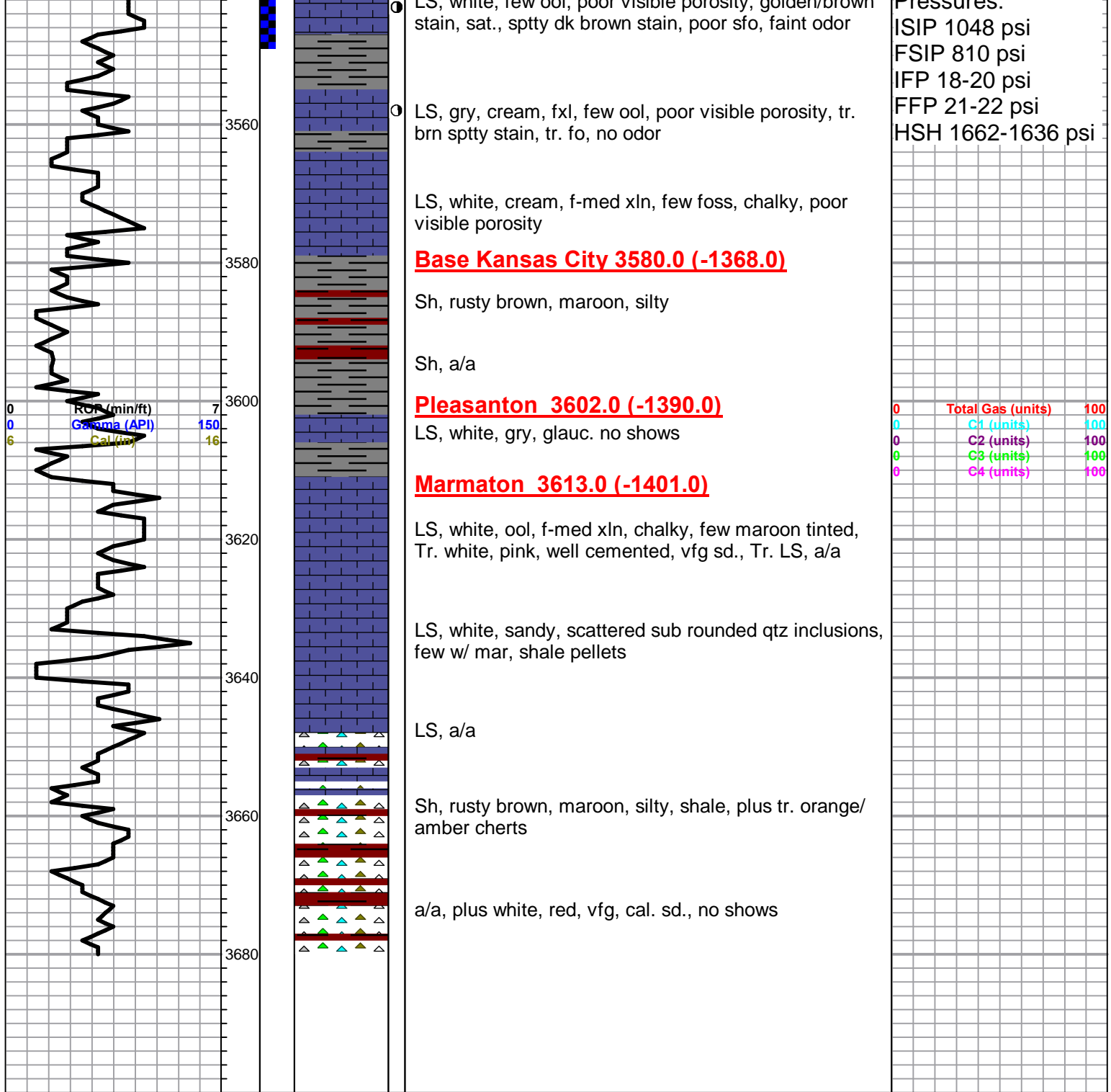
**DST#3 3490-3547**  
10-75-20-60

1st Open:  
Weak (died in 8 mins)

2nd Open:  
No blow

Recovery:  
10' Slightly oil cut mud  
(10%O, 90%M)

Pressures:



Conservation Division  
266 N. Main St., Ste. 220  
Wichita, KS 67202-1513



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Pat Apple, Chairman  
Shari Feist Albrecht, Commissioner  
Jay Scott Emler, Commissioner

Sam Brownback, Governor

September 06, 2017

SPENCER MUSGROVE  
Samuel Gary Jr. & Associates, Inc.  
1515 WYNKOOP, STE 700  
DENVER, CO 80202

Re: ACO-1  
API 15-137-20744-00-00  
HILDEBRAND 1-15  
SW/4 Sec.15-05S-23W  
Norton County, Kansas

Dear SPENCER MUSGROVE:

K.A.R. 82-3-107 provides for all completion information to be filed within 120 days of the spud date. Subsection(e)(2) of that regulation states "All rights to confidentiality shall be lost if the filings are not timely."

The above referenced well was spudded on 5/8/2017 and the ACO-1 was received on September 06, 2017 (not within the 120 days timely requirement).

Therefore, your request for confidential treatment of data contained within the ACO-1 filing cannot be granted at this time.

If you should have any questions, please do not hesitate to contact me at (316)337-6200.

Sincerely,

Production Department