KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1161959

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

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 7076
Name: Black Diamond Oil, Inc.
Address 1: PO BOX 641
Address 2:
City: HAYS State: KS Zip: 67601 + 0641
Contact Person: Kenneth Vehige
Phone: (785) 625-5891
CONTRACTOR: License # 33575
Name: WW Drilling, LLC
Wellsite Geologist: Jeff Lawler
Purchaser:

Designate Type of Completion:

- [x] New Well
- [ ] Re-Entry
- [ ] Workover

- [ ] Oil
- [ ] WSW
- [ ] SWD
- [ ] SIOW
- [ ] Gas
- [x] 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
- [ ] Conv. to GSW
- [ ] Plug Back: Plug Back Total Depth
- [ ] Commingled Permit #:
- [ ] Dual Completion Permit #:
- [ ] SWD Permit #:
- [ ] ENHR Permit #:
- [ ] GSW Permit #:

09/25/2013	10/01/2013	10/01/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-147-20722-00-00
Spot Description:
SW - NE - SE - SW Sec. 18 Twp. 4 S. R. 19 [ ] East [x] West
750 Feet from [ ] North / [x] South Line of Section
2250 Feet from [ ] East / [x] West Line of Section
Footages Calculated from Nearest Outside Section Corner:
[ ] NE [ ] NW [ ] SE [x] SW
County: Phillips
Lease Name: ZILLINGER A Well #: 1
Field Name:
Producing Formation: Lansing/ KC
Elevation: Ground: 1978 Kelly Bushing: 1993
Total Depth: 3510 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 218 Feet
Multiple Stage Cementing Collar Used? [ ] Yes [x] No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from: 218
feet depth to: 0 w/ 150 sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 2000 ppm Fluid volume: 500 bbls
Dewatering method used: Evaporated

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

- [ ] **Letter of Confidentiality Received**
  Date:
- [ ] **Confidential Release Date:**
- [x] **Wireline Log Received**
- [x] **Geologist Report Received**
- [ ] **UIC Distribution**

ALT [ ] I [x] II [ ] III **Approved by:** Deanna Garrison **Date:** 10/11/2013

Side Two

[redacted]

1161959

Operator Name: Black Diamond Oil, Inc. Lease Name: ZILLINGER A Well #: 1

Sec. 18 Twp. 4 S. R. 19 ☐ East ☑ West County: Phillips

INSTRUCTIONS: Show important tops and base 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. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

Electric Log Submitted Electronically ☑ Yes ☐ No
(If no, Submit Copy)

List All E. Logs Run:

Compensated Density/Neutron Log
Dual Induction Log
Micro Log

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Anhydrite (top)	1538	455
Topeka	2940	-947
Heebner Shale	3135	-1142
Toronto	3163	-1170
LKC	3181	-1188

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.625	23	218	Common	150	3% CC, 2% gel

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:
☐ Perforate
☐ Protect Casing
☐ Plug Back TD
☐ Plug Off Zone

Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
-			
-			

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	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:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

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. 7870

Date	Sec.	Twp.	Range	County	State	On Location	Finish
9-26-13	18	4	19	Phillips	KS	12:00 AM	

Location Logan 2E 2N 1/2E Ninto

Lease Zillingler Well No. #1

Contractor WW Rig 6

Type Job Surface

Hole Size 12 1/4 T.D. 218

Csg. 8 5/8 Depth 218

Tbg. Size Depth

Tool Depth

Cement Left in Csg. 20 ft Shoe Joint 20 ft

Meas Line Displace

EQUIPMENT

	No.		
Pumptrk 5		Cementer Helper	Matt
Bulktrk 14	No.	Driver	Lonnie W
Bulktrk pu	No.	Driver Driver	Lonnie M

JOB SERVICES & REMARKS

Remarks:

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

Cement did Circulate

X Signature

Owner
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.

Charge To

Stre Black Diamond Oil

City State

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

Cement Amount Ordered	150 3%CC 2% gel
Common	150
Poz. Mix	
Gel.	3
Calcium	5
Hulls	
Salt	
Flowseal	
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	158
Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	
Pumptrk Charge	Surface
Mileage	61
Tax	
Discount	
Total Charge	

Scale 1:240 Imperial

Well Name:	ZILLINGER A #1		
Surface Location:	SW NE SE SW Sec. 18 - 4S - 19W		
Bottom Location:			
API:	15-147-20722-0000		
License Number:	7076		
Spud Date:	9/25/2013	Time:	3:15 AM
Region:	PHILLIPS COUNTY		
Drilling Completed:	10/1/2013	Time:	6:32 AM
Surface Coordinates:	750' FSL & 2250' FWL		
Bottom Hole Coordinates:			
Ground Elevation:	1988.00ft		
K.B. Elevation:	1993.00ft		
Logged Interval:	2850.00ft	To:	3510.00ft
Total Depth:	3510.00ft		
Formation:	LANSING - KANSAS CITY		
Drilling Fluid Type:	FRESH WATER / CHEMICAL GEL		

OPERATOR

Company:	BLACK DIAMOND OIL, INC.		
Address:	PO BOX 641 HAYS, KS 67601		
Contact Geologist:	KENNETH VEHIGE		
Contact Phone Nbr:	(785) 625-5891		
Well Name:	ZILLINGER A #1		
Location:	SW NE SE SW Sec. 18 - 4S - 19W	API:	15-147-20722-0000
Pool:		Field:	WILDCAT
State:	KANSAS	Country:	USA

SURFACE CO-ORDINATES

Well Type:	Vertical		
Longitude:	-99.5074101	Latitude:	39.7001418
N/S Co-ord:	750' FSL		
E/W Co-ord:	2250' FWL		

LOGGED BY

Company:	SOLUTIONS CONSULTING, INC.		
Address:	108 W 35TH HAYS, KS 67601		
Phone Nbr:	(785)259-3737		
Logged By:	Geologist	Name:	JEFF LAWLER

CONTRACTOR

Contractor:	WW DRILLING, LLC		
Rig #:	6		
Rig Type:	MUD ROTARY		
Spud Date:	9/25/2013	Time:	3:15 AM
TD Date:	10/1/2013	Time:	6:32 AM
Rig Release:	10/2/2013	Time:	12:00 AM

ELEVATIONS

K.B. Elevation:	1993.00ft	Ground Elevation:	1988.00ft
K.B. to Ground:	5.00ft		

NOTES

THE ZILLINGER A #1 RAN STRUCTURALLY HIGHER TO THE PRODUCING WELLS TO THE SOUTH. ALTHOUGH DUE TO THE LACK OF ECONOMICAL RECOVERY ON ALL THE DRILLSTEM TEST DECISION WAS MADE TO PLUG AND ABANDON.

RESPECTFULLY SUBMITTED,
JEFF LAWLER

WELL COMPARISON SHEET

	ZILLINGER A #1				¤ LELAND R BAIRD FISCHLI #1 S2 SW SW 18-4-19					P&A 5-69 PETROLEUM MANAGEMENT WHITE #1 NE NW NE 19-4-19					P&A 5-87 PETROLEUM MANGEMENT SLINKER #2 NE SE NW 19-4-19					¤ HELMERICH & PAYNE A.C. KINTER #1 SW NW NW 20-4-19				
	KB	1993	GL	1988	KB	2021				KB	1971				KB	1991				KB	1945			
	LOG TOPS		SAMPLE TOPS		COMP. CARD		LOG		SMPL.	COMP. CARD		LOG		SMPL.	COMP. CARD		LOG		SMPL.	COMP. CARD		LOG		SMPL.	
FORMATION	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.		CORR.	DEPTH	DATUM	CORR.		CORR.	DEPTH	DATUM	CORR.		CORR.	DEPTH	DATUM	CORR.		CORR.	
ANHYDRITE TOP	1538	455	1541	452	1570	451	+	4	+ 1	1516	455	+	0	- 3						1490	455	+	0	-	3
BASE	1565	428	1565	428						1552	419	+	9	+ 9											
TOPEKA	2940	-947	2942	-949	2965	-944	-	3	- 5	2919	-948	+	1	- 1	2934	-943	-	4	- 6						
HEEBNER SHALE	3135	-1142	3137	-1144	3165	-1144	+	2	+ 0	3120	-1149	+	7	+ 5	3131	-1140	-	2	- 4	3104	-1159	+	17	+	15
TORONTO	3163	-1170	3163	-1170	3193	-1172	+	2	+ 2	3146	-1175	+	5	+ 5	3158	-1167	-	3	- 3	3128	-1183	+	13	+	13
LKC	3181	-1188	3183	-1190	3210	-1189	+	1	- 1	3165	-1194	+	6	+ 4	3177	-1186	-	2	- 4	3148	-1203	+	15	+	13
BKC	3388	-1395	3391	-1398	3420	-1399	+	4	+ 1	3380	-1409	+	14	+ 11	3392	-1401	+	6	+ 3	3383	-1438	+	43	+	40
CONGLOMERATE																									
ARBUCKLE			3471	-1478	3516	-1495			+ 17											3490	-1545			+	67
BASAL SAND																				3790	-1845				
GRANITE WASH																				3805	-1860				
PRE-CAMBRIAN																				3818	-1873				
TOTAL DEPTH	3510	-1517	3510	-1517	3530	-1509	-	8	- 8	3400	-1429	-	88	- 88	3400	-1409	-	108	- 108	3832	-1887	+	370	+	370

DST #1 TORONOTO - LKC B 3134' - 3200'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Law ler

18-4s-19w

Zillinger A #1

Job Ticket: 041772 **DST#: 1**

Test Start: 2013.09.28 @ 20:26:56

GENERAL INFORMATION:

Formation: **Toronto-LKC-B**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:19:26
Time Test Ended: 03:20:26

Test Type: (Initial)
Tester: Jeff Brow n
Unit No: 67

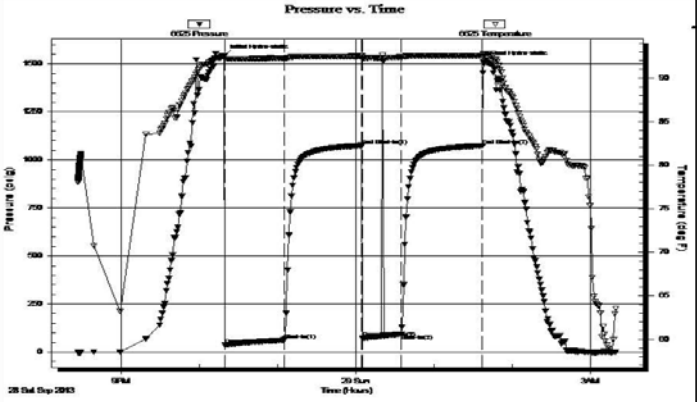
Interval: 3134.00 ft (KB) To 3200.00 ft (KB) (TVD)
Total Depth: 3200.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**
Press@RunDepth: 92.75 psig @ 3172.00 ft (KB)
Start Date: 2013.09.28 End Date: 2013.09.29
Start Time: 20:26:57 End Time: 03:19:26

Capacity: 8000.00 psig
Last Calib.: 2013.09.29
Time On Btm: 2013.09.28 @ 22:18:56
Time Off Btm: 2013.09.29 @ 01:37:56

TEST COMMENT: IFP=Weak blow built to 3 in
ISI=Dead no blow back
FFP=Dead flushed tool- Weak surface blow built to 1/4 in
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1541.83	92.46	Initial Hydro-static
1	35.70	92.19	Open To Flow (1)
46	61.87	92.28	Shut-In(1)
106	1075.30	92.49	End Shut-In(1)
106	70.87	92.28	Open To Flow (2)
136	92.75	92.42	Shut-In(2)
198	1074.63	92.56	End Shut-In(2)
199	1510.31	92.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
123.00	Mud w ith oil spots	0.61

Gas Rates

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

DST #2 LKC C 3198' - 3225'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041773 **DST#: 2**

Test Start: 2013.09.29 @ 09:41:13

GENERAL INFORMATION:

Formation: **LKC=C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:55:43
Time Test Ended: 15:36:43

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

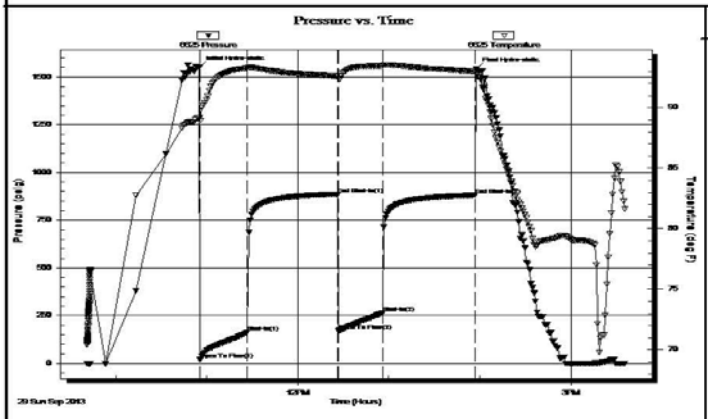
Interval: 3198.00 ft (KB) To 3225.00 ft (KB) (TVD)
Total Depth: 3225.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**
Press@RunDepth: 263.01 psig @ 3202.00 ft (KB)
Start Date: 2013.09.29 End Date: 2013.09.29
Start Time: 09:41:14 End Time: 15:35:43

Capacity: 8000.00 psig
Last Calib.: 2013.09.29
Time On Btm: 2013.09.29 @ 10:55:13
Time Off Btm: 2013.09.29 @ 13:57:43

TEST COMMENT: IFP=Good Blow BOB in 8 min
ISI=Dead no blow back
FFP=Weak blow built to 3-1/2 in
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1551.42	89.19	Initial Hydro-static
1	21.25	88.96	Open To Flow (1)
32	161.80	93.28	Shut-In(1)
91	883.85	92.61	End Shut-In(1)
92	168.70	92.39	Open To Flow (2)
121	263.01	93.47	Shut-In(2)
182	880.22	93.00	End Shut-In(2)
183	1541.99	92.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
500.00	MW 20%M 80%W	5.90
31.00	WM with oil spots 45%W 55%M	0.43

* Recovery from multiple tests

Gas Rates

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

DST #3 LKC D-F 3224' - 3264'

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041774 **DST#: 3**

Test Start: 2013.09.29 @ 21:27:13

GENERAL INFORMATION:

Formation: **LKC-D-F**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:21:13
Time Test Ended: 04:28:13

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

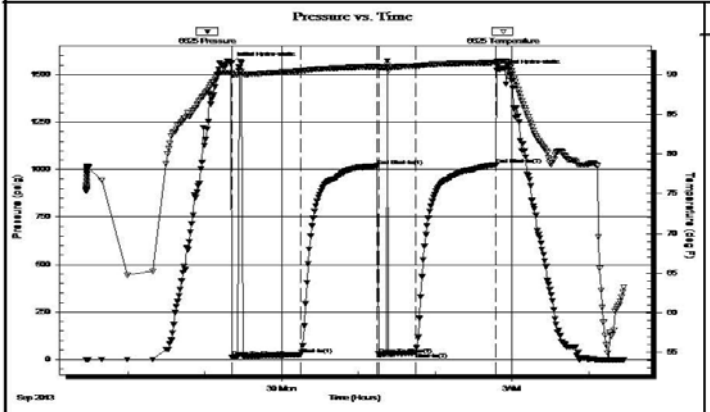
Interval: 3224.00 ft (KB) To 3264.00 ft (KB) (TVD)
Total Depth: 3264.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**
Press@RunDepth: 35.82 psig @ 3259.00 ft (KB)
Start Date: 2013.09.29 End Date: 2013.09.30
Start Time: 21:27:14 End Time: 04:28:13

Capacity: 8000.00 psig
Last Calib.: 2013.09.30
Time On Btm: 2013.09.29 @ 23:20:43
Time Off Btm: 2013.09.30 @ 02:48:13

TEST COMMENT: IFP=Weak blow built to 1/4 in
ISI=Dead no blow back
FFP=Dead flushed tool weak surface blow
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1560.01	90.30	Initial Hydro-static
1	12.33	90.06	Open To Flow (1)
54	26.02	90.45	Shut-In(1)
114	1019.12	91.03	End Shut-In(1)
115	27.09	90.89	Open To Flow (2)
144	35.82	91.10	Shut-In(2)
207	1026.86	91.53	End Shut-In(2)
208	1521.20	91.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	Mud with oil spots	0.25

* Recovery from multiple tests

Gas Rates

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

DST #4 LKC H-J 3291' - 3358'

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041775 **DST#: 4**

Test Start: 2013.09.30 @ 14:53:36

GENERAL INFORMATION:

Formation: **LKC=H-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:24:36

Test Type: (Reset)
Tester: Jeff Brown

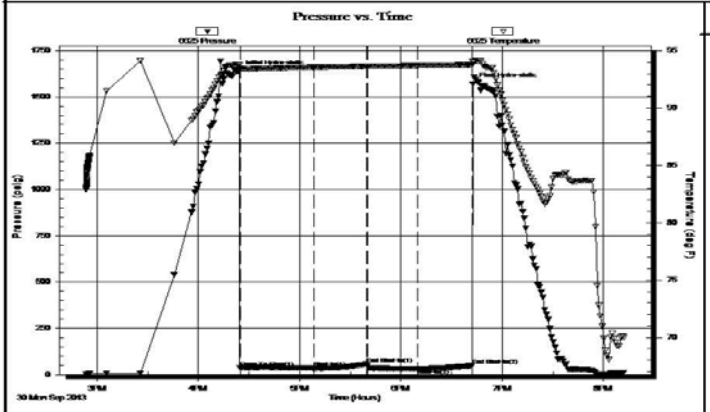
Time Test Ended: 20:20:06 Unit No: 67

Interval: **3291.00 ft (KB) To 3358.00 ft (KB) (TVD)** Reference Elevations: 1998.00 ft (KB)
Total Depth: 3358.00 ft (KB) (TVD) 1993.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**

Press@RunDepth:	33.35 psig @	3326.00 ft (KB)		Capacity:	8000.00 psig
Start Date:	2013.09.30	End Date:	2013.09.30	Last Calib.:	2013.09.30
Start Time:	14:53:37	End Time:	20:12:06	Time On Btm:	2013.09.30 @ 16:24:06
				Time Off Btm:	2013.09.30 @ 18:42:36

TEST COMMENT: IFP=Weak surface blow
ISI=Dead no blow back
FFP=Dead no blow
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1638.12	93.76	Initial Hydro-static
1	37.64	93.47	Open To Flow (1)
45	35.34	93.55	Shut-In(1)
76	57.37	93.63	End Shut-In(1)
76	48.15	93.63	Open To Flow (2)
106	33.35	93.70	Shut-In(2)
138	48.15	93.77	End Shut-In(2)
139	1568.63	94.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 5%O 95%M	0.02

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 041775 Printed: 2013.10.01 @ 18:47:12

ROCK TYPES

Dolprim
Lmst fw<7
Lmst fw7>
shale, gry
Carbon Sh
shale, red
Shcol
Ss
Lscongl

ACCESSORIES

STRINGER
Chert
red shale

OTHER SYMBOLS

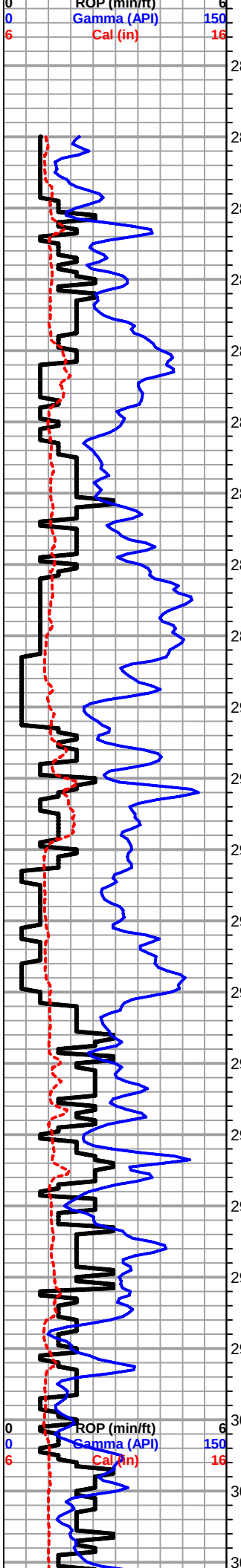
DST
DST Int
DST alt

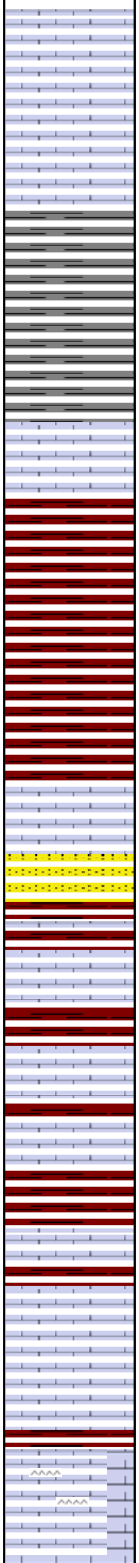
Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)

Curve Track #1
ROP (min/ft)
Gamma (API)
Cal (in)
1:240 Imperial

Depth | Intervals
Cored Interval
DST Interval
DST
Lithology
Oil Show
Geological Descriptions

Curve Track #3
1:240 Imperial





1' DRILL TIME THROUGH ANHYDRITE FROM 1510' - 1580'
1' DRILL TIME FROM 2820' - RTD
10' WET/DRY SAMPLES FROM 2870' - RTD

GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 2870' - RTD

8 5/8" SURFACE PIPE SET @

ANHYDRITE TOP 1541' (+452) E-LOG 1538' (+455)
BASE 1565' (+428) E-LOG 1565' (+428)

Lm- Buff Cream, FXLN, fsl, poorly dev. w/ sctrd XLN porosity, some high-energy w/ fsl fragments

Lm- Tan Cream, Vf Grn, vry soft mud supported matrix, minimal cementation, vry crumbly, some sl arenaceous, poor vis. porosity

Sh- Maroon Mint Green, dense & block, gritty & earthy, gummy argillaceous clumps

Sh- Lt & Drk Gray, silty, soft, & calcareous, some gummy argillaceous clumps

Lm- Off White Cream Buff, fsl mix of VFXLN, sl cherty ls, massive & well cemented, minimal vis. porosity, FXLN, highly fsl w/ embedded & loose crinoids & fusulinds, sl dev. some w/ sctrd fn ppt & some w/ sctrd XLN porosity, barren

Sh- Maroon Lt Gray Lm Green, gritty & earthy, gummy argillaceous clumps, few pcs of mustard ylw sl shaley Ss, unconsolidated & trashy

Sh- A/A w/ increasing amount of sandy lime, some calcareous siltstone

TOPEKA 2942' (-949) E-LOG 2940' (-947) Lm- Cream Tan Buff, FXLN, dense, well cemented, sl fsl, poorly dev. w/ sctrd XLN porosity

Ss- Cream Frosted Lt Ylw, mix of consolidation from mod - unconsolidated, some silty & calcareous, all loosely cemented, fn grn, sub-rounded, barren

Lm- Buff Cream White, VFXLN dense & brittle, no vis. porosity, FXLN sl arenaceous ls w/ sctrd-dense XLN porosity, & FXLN sl dev. & oolitic, sctrd XLN porosity, all barren

Lm- Lt Gray Tan, VF-FXLN, dense, vry well cemented, tight w/ no-minimal vis. porosity, interbedded shaled lenses

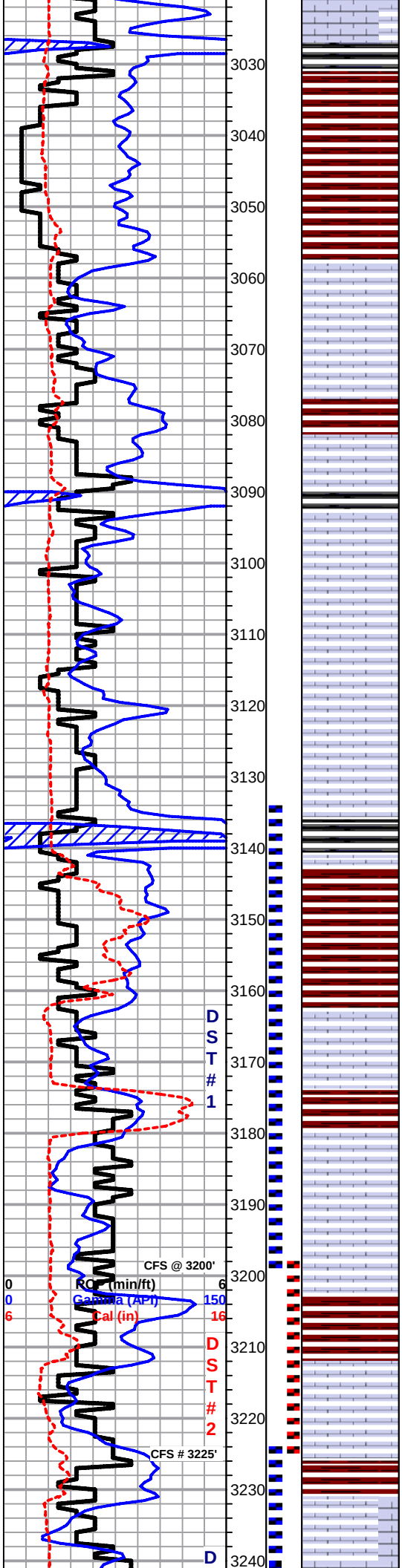
Lm- Buff Lt Gray, VF-FXLN, dense, high-energy w/ fsl fragments, sl trashy, 1-2 pcs of eroded & reworked salmon chert w/ secondary recrystallization porosity

Sh- Maroon Brick Red Gray White, vry gritty & earthy, gummy argillaceous clumps & soft white chalk

Lm- Cream Off White, FXLN, oolitic, poorly dev. loosely cemented & crumbly, chalky in part, poor vis. porosity, barren, fec pcs of sharp angular fresh bedded chert, much soft white chalk

Lm/Chert- A/A w/ increasing dev in oolitic ls, sctrd XLN porosity, barren, much increasing amount of chert

Lm- Cream Off White, VF-FXLN, fsl, dense, vry well cemented, mostly tight w/ sctrd micro XLN



& XLN porosity, barren

Sh- Black, soft, fissile like, carbonaceous

Sh- Lt Gray, silty & sandy, soft

Sh- Maron Lm Green, gritty & earthy, sl waxy, dense

Lm- Cream Off White Tan, Crypto-FXLN, tight, poorly dev. mix, most lithographic sl cherty ls w/o vis. porosity, vry clean, barren

Lm- Lt Purple & Ylw tint, FXLN, poorly dev. oolitic grainstone, sctrd XLN porosity, some soft white lime, chalky in part

Sh- Maroon, gritty & earthy

Lm- Cream, FXLN, densely packed small oolites, poorly dev, loosely cemented & crumbly, poor interoolite porosity

Lm- Cream Tan, VF-FXLN, dense, well cemented, mostly tight w/ minimal vis. porosity, clean, few pcs w/ micro pyrite inclusions

Lm- Cream Off White, VF-FXLN, tight, well cemented, w/o vis. porosity, few pcs of poorly dev. densely packed small oolitic ls, chalky in part, barren

Lm- Cream Lt Gray, FXLN, sl fsl, poorly dev. w/ sctrd micro XLN porosity, some sctrd recrystallized secondary micro XLN porosity, barren

Lm- Cream Off White, FXLN, loosely cemented & crumbly, chalky in part, poor vis. porosity, sl fsl, lt sctrd mottling, barren

HEEBNER 3137' (-1144) E-LOG 3135' (-1142) Sh- Black, fissile, soft, slatey, carbonaceous

Sh- Maroon Tan Lt Gray, some gritty & earthy, mostly gummy argillaceous clumps

TORONTO 3163' (-1170) E-LOG 3163' (-1170) Lm/Chert- Cream Tan, mix of vitreous fresh bedded chert, few pcs w/ secondary recrystallization porosity, & F-MEDXLN fsl & oolitic, mostly well cemented, sl dev. w/ sctrd-dense XLN porosity, some sl chalky in part, WK SPTTY STN, NSFO, SL GASSY SHEEN, TR WK ODR UPON CRUSH

SHORT TRIP SURVEY 3/4 dgr. STRAP -.095'

DST #1 TORONTO - LKC B 3134' - 3200'

Sh- Maroon, few gritty & earthy, mostly gummy argillaceous clumps

LKC 3183' (-1190) E-LOG 3181' (-1188) Lm- Cream Tan mix, F-MEDXLN, fsl & oolitic, some w/ fusulinids, few pcs of pearl shaped oolitic grainstone, mod well dev. w/ mostly consistant fnt ppt & secondary recrystallization porosity, SCTRD WK STN, TR SFO, TR ODR, VF-FXLN, dense, well cemented, mostly tight w/ micro XLN porosity

Lm- VF-FXLN, dense cherty ls, tight w/ sctrd micro XLN & XLN porosity, brittle, barren

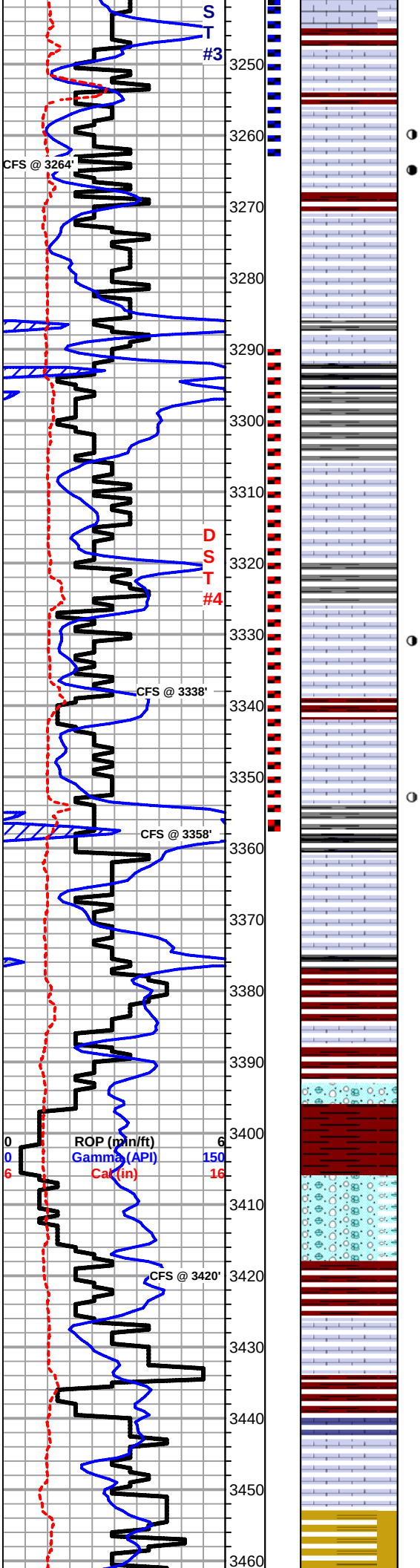
Sh- Maroon Lt Gray, gritty & earthy, silty & soft, some sl pebbley

DST #2 LKC C 3198' - 3225'

Lm/Chert- mix of Smokey Gray & Semi-Translucent sharp angular fresh bedded chert, vitreous, & Tan massive, gritty sub-sucrosic F-Med XLN dolomitic chert & dolomitic ls, mod dev, sl fsl, sctrd XLN & fn ppt porosity, SCTRD LT BRWN STN, PR-FR SFO, SOME GASSY BUBBLES, FR-GD ODR, FLOATING OIL SCUM ON TOP OF WET CUP
20" SMPL- Lm- Cream Off White, F-Med XLN, oolitic, mod dev. w/ fn ppt & XLN interoolite porosity, LT SCTRD STN, TR FO, STRNG ODR

Sh- Maroon Lt Gray, gritty & earthy, soft, silty, sl pebbley & striated, sl fsl

Lm- Cream Lt Green, mix of Vf Grn dense algal ls w/o vis. porosity, & FXLN, dense, poorly dev.



w/ minimal vis. porosity, barren

DST #3
LKC D - F
3224' - 3264'

Lm- Cream White F-Med XLN, fsl w/ fusulinids, mod well dev. dense sctrd fn ppt porosity, SCTRD LT BRWN STN, FR-GD SFO, FR ODR

Lm- Tan Cream, FXLN, well dev. oolitic ls w/ consistant fn ppt porosity, DRK STN, GD SFO, SOME W/ GSSY BUBBLES, GD ODR

Lm- Cream Off White, VF-FXLN, dense, well cemented, tight w/ no vis. - minimal sctrd micro XLN porosity, vry clean, barren

Lm- Cream Off White, F-Med XLN, sl fsl, poorly dev. well cemented, sctrd micro XLN & XLN porosity, barren

Lm- Tan Off White, VFXLN, lithographic, vry well cemented cherty ls w/o vis. porosity

Sh- Black Lt Gray Lm Green, fissile, carbonaceous, trashy & pebbley, gummy argillaceous clumps

Lm- White Cream, mix FXLN, sl fsl, poorly dev. w/ sctrd XLN porosity, & Vf Grn, dense, loosely cemented & chalky mud supported matrix, all tight, vry clean, & barren

Sh- Lt Gray Maroon, soft gummy argillaceous clumps & maroon wash

SURVEY 3/4 dgr.

DST #4
LKC H-J
3291' - 3258'

Lm- Cream Off White, mix of F-Med XLN, fsl, sl-mod dev w/ XLN & sctrd fn ppt porosity, SCTRD STN, TR FO, PR-FR ODR, & Vf Grn, dense mud supported matrix w/ sctrd to mostly consistant vry fn intergranular porosity, DRK STN, SFO, ODR A/A

Lm- Cream Off White, VF-Med XLN mix, dense tight VFXLN on top w/ minimal vis. porosity & barren, transitioning into fsl & oolitic ls, mod dev. w/ sctrd XLN & fn ppt porosity, DRK SCTRD STN, TR FO, SOME FLAKEY, WK ODR

Sh- Black Lt Gray Maroon, silty, trashy & sl fsl, carbonaceous, vry soft & silty, calcareous, some sl waxy, dense & blocky

Lm- White Off White, Vf Grn, mix of mostly vry soft & chalky mud supported matrix, some VF-FXLN, dense, tight w/ minimal vis. porosity, all vry clean & barren

Lm- Cream Buff Off White, VFXLN, tight poorly dev. mix of cherty ls & sl dolomitic cherty ls, all w/ minimal vis. porosity & barren

BKC 3391' (-1398) E-LOG 3388' (-1395) Sh- Black Maroon White, small fissile, vry dense, carbonaceous, gritty & earthy, some soft white chalk, gummy red wash

Lm Conglomerate- Lt Ylw tint, oolitic, mix of well cemented to loosely cemented, poorly dev. w/ sctrd XLN porosity, barren

Sh- Maroon Lm Green Tan White, gummy argillaceous clumps

Lm Conglomerate- Lt Ylw tint, eroded & reworked, unconsolidated, sl shaley, loosely to well cemented, poor vis. porosity, some sl oolitic, barren

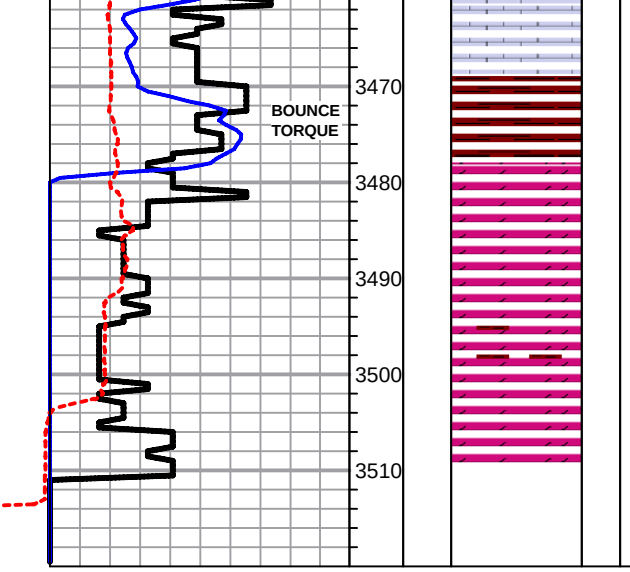
Sh- Maroon Lt Gray, gummy argillaceous clumps & sandy lime

Lm- Tan, CryptoXLN, vry well cemented cherty ls w/o vis. matrix/porosity

Lm- Lt Purple, Vf Grn, dense vry soft sandy lime

Lm- Cream Off White, FXLN, dense, well cemented, densely packed oolites, poorly dev. micro XLN porosity, clean & barren

Sh- Maroon Purple White, abundant gummy argillaceous clumps



Lm- Cream Off White, FXLN, loosely cemented & crumbly, much soft white chalk, oolitic, poorly dev. w/ micro XLN porosity, clean & barren

ARBUCKLE 3471' (-1478) Dol/Chert- Cream F-Med XLN, sandy & oolitic cherty ls, eroded & reworked appearance, massive, fresh bedded oolitic chert, spherical pearl shaped oolitic nodular chert

Dol- creamFn XLN, vry dense & well cemented, poorly dev. w/ consistant micro XLN porosity, barren

Sh- Maroon, dense & blocky, gritty & earthy

Dol-Cream Semi-Translucent, F-Crse, mix of dol A/A w/ increasing amounts of chert & cherty dol A/A, few pcs of mod dev. crs XLN, sl unconsoldiated, sl trashy, reworked appearance, sub-euhedral rhombs w/ mod. interXLN porosity, barren

RTD 3510' (-1517) LTD 3510' (-1517) @ 06:32 10/1/2013

12 STND. MINI TRIP
SURVEY 3/4 dgr.

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041772 **DST#: 1**

Test Start: 2013.09.28 @ 20:26:56

GENERAL INFORMATION:

Formation: **Toronto-LKC-B**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:19:26
Time Test Ended: 03:20:26

Test Type: (Initial)
Tester: Jeff Brown
Unit No: 67

Interval: 3134.00 ft (KB) To 3200.00 ft (KB) (TVD)
Total Depth: 3200.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

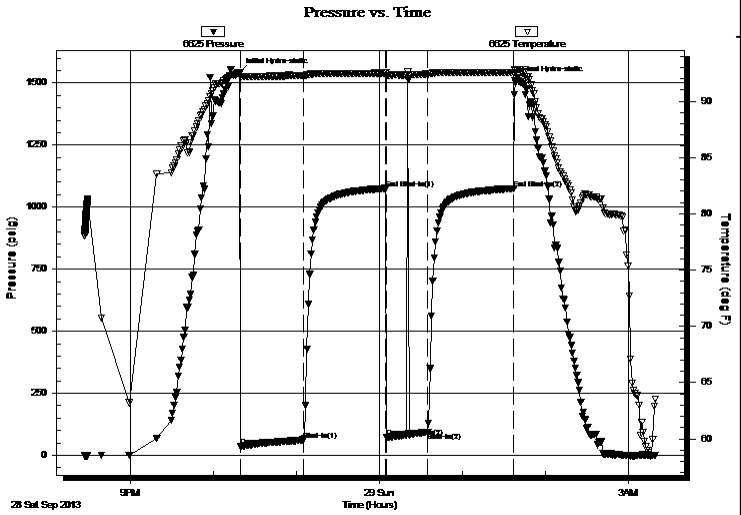
Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**

Press@RunDepth: 92.75 psig @ 3172.00 ft (KB)
Start Date: 2013.09.28 End Date: 2013.09.29
Start Time: 20:26:57 End Time: 03:19:26

Capacity: 8000.00 psig
Last Calib.: 2013.09.29
Time On Btm: 2013.09.28 @ 22:18:56
Time Off Btm: 2013.09.29 @ 01:37:56

TEST COMMENT: IFP=Weak blow built to 3 in
ISI=Dead no blow back
FFP=Dead flushed tool- Weak surface blow built to 1/4 in
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1541.83	92.46	Initial Hydro-static
1	35.70	92.19	Open To Flow (1)
46	61.87	92.28	Shut-In(1)
106	1075.30	92.49	End Shut-In(1)
106	70.87	92.28	Open To Flow (2)
136	92.75	92.42	Shut-In(2)
198	1074.63	92.56	End Shut-In(2)
199	1510.31	92.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
123.00	Mud with oil spots	0.61

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041772 **DST#: 1**

Test Start: 2013.09.28 @ 20:26:56

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:	60.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.00 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	500.00 ppm				
Filter Cake:	inches				

Recovery Information

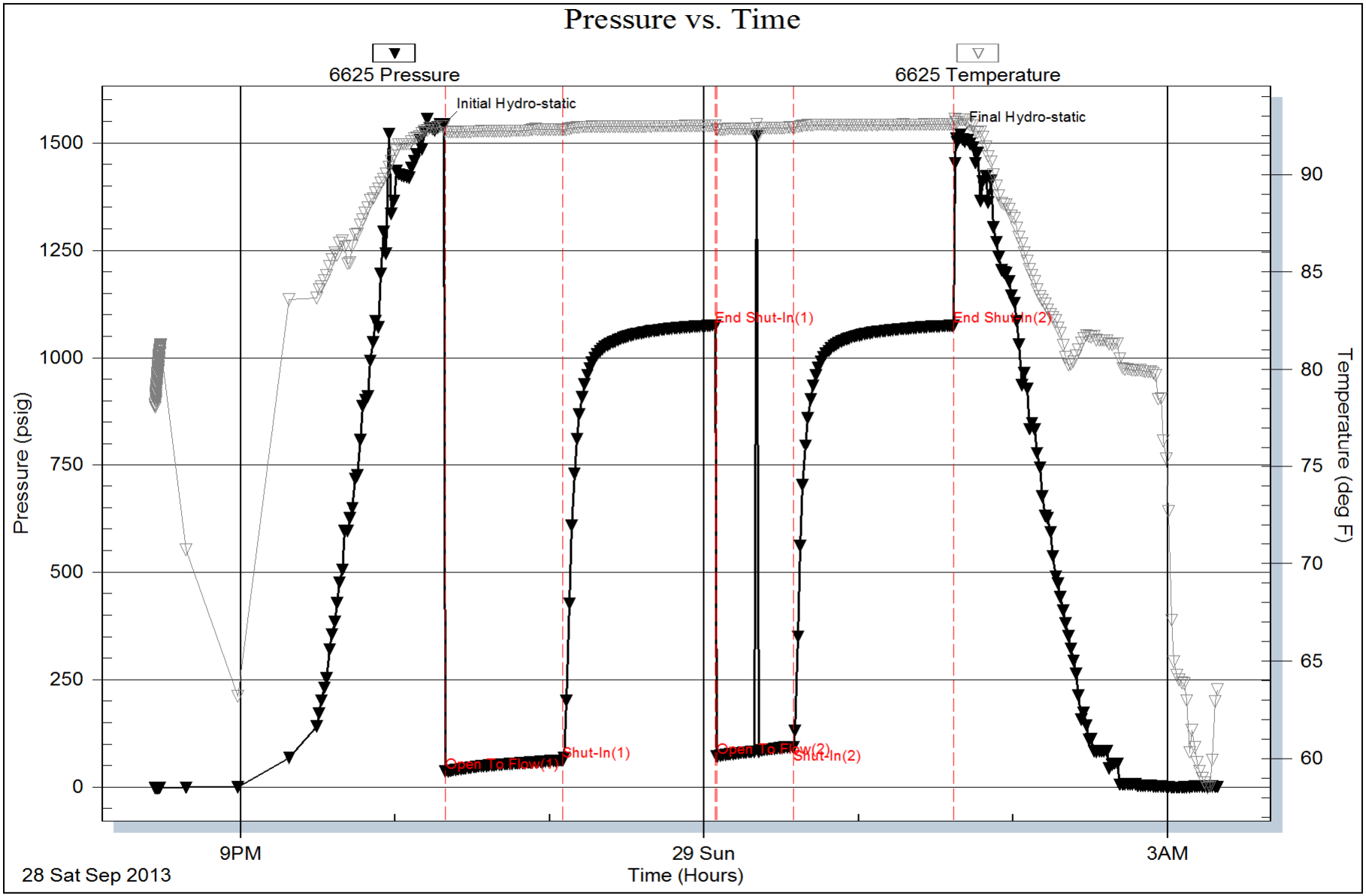
Recovery Table

Length ft	Description	Volume bbl
123.00	Mud with oil spots	0.614

Total Length: 123.00 ft Total Volume: 0.614 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 6625 **Outside** Black Diamond Oil Zillinger A #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 041772 Printed: 2013.09.29 @ 06:30:46

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041773 **DST#: 2**

Test Start: 2013.09.29 @ 09:41:13

GENERAL INFORMATION:

Formation: **LKC=C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:55:43
Time Test Ended: 15:36:43

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

Interval: 3198.00 ft (KB) To 3225.00 ft (KB) (TVD)
Total Depth: 3225.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

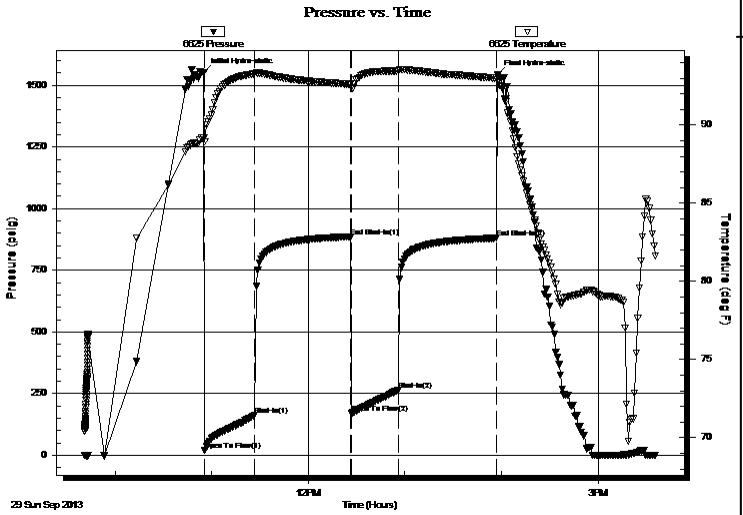
Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**

Press@RunDepth: 263.01 psig @ 3202.00 ft (KB)
Start Date: 2013.09.29 End Date: 2013.09.29
Start Time: 09:41:14 End Time: 15:35:43

Capacity: 8000.00 psig
Last Calib.: 2013.09.29
Time On Btm: 2013.09.29 @ 10:55:13
Time Off Btm: 2013.09.29 @ 13:57:43

TEST COMMENT: IFP=Good Blow BOB in 8 min
ISI=Dead no blow back
FFP=Weak blow built to 3-1/2 in
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1551.42	89.19	Initial Hydro-static
1	21.25	88.96	Open To Flow (1)
32	161.80	93.28	Shut-In(1)
91	883.85	92.61	End Shut-In(1)
92	168.70	92.39	Open To Flow (2)
121	263.01	93.47	Shut-In(2)
182	880.22	93.00	End Shut-In(2)
183	1541.99	92.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
500.00	MW 20%M 80%W	5.90
31.00	WM with oil spots 45%W 55%M	0.43

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041773 **DST#: 2**

Test Start: 2013.09.29 @ 09:41:13

GENERAL INFORMATION:

Formation: **LKC=C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:55:43
Time Test Ended: 15:36:43

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

Interval: 3198.00 ft (KB) To 3225.00 ft (KB) (TVD)
Total Depth: 3225.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

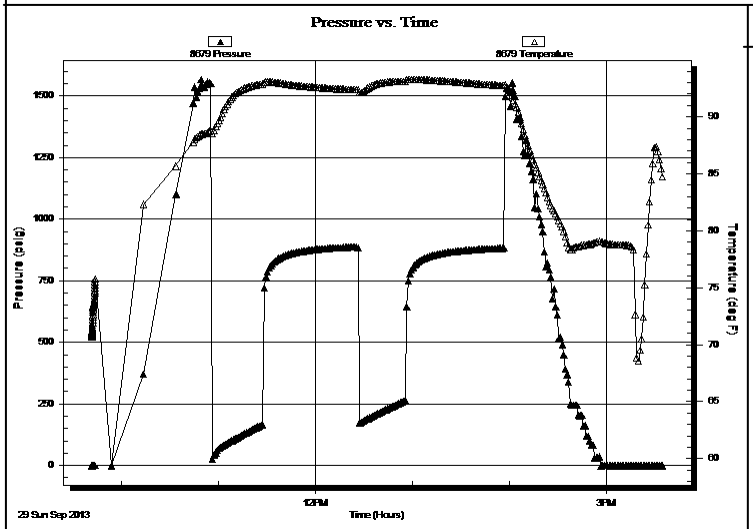
Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8679 **Inside**

Press@RunDepth: psig @ 3202.00 ft (KB)
Start Date: 2013.09.29 End Date: 2013.09.29
Start Time: 09:41:56 End Time: 15:34:55

Capacity: 8000.00 psig
Last Calib.: 2013.09.29
Time On Btm:
Time Off Btm:

TEST COMMENT: IFP=Good Blow BOB in 8 min
ISI=Dead no blow back
FFP=Weak blow built to 3-1/2 in
FSI=Dead no blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
500.00	MW 20%M 80%W	5.90
31.00	WM with oil spots 45%W 55%M	0.43

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041773 **DST#: 2**

Test Start: 2013.09.29 @ 09:41:13

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:	48.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.40 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	750.00 ppm				
Filter Cake:	inches				

Recovery Information

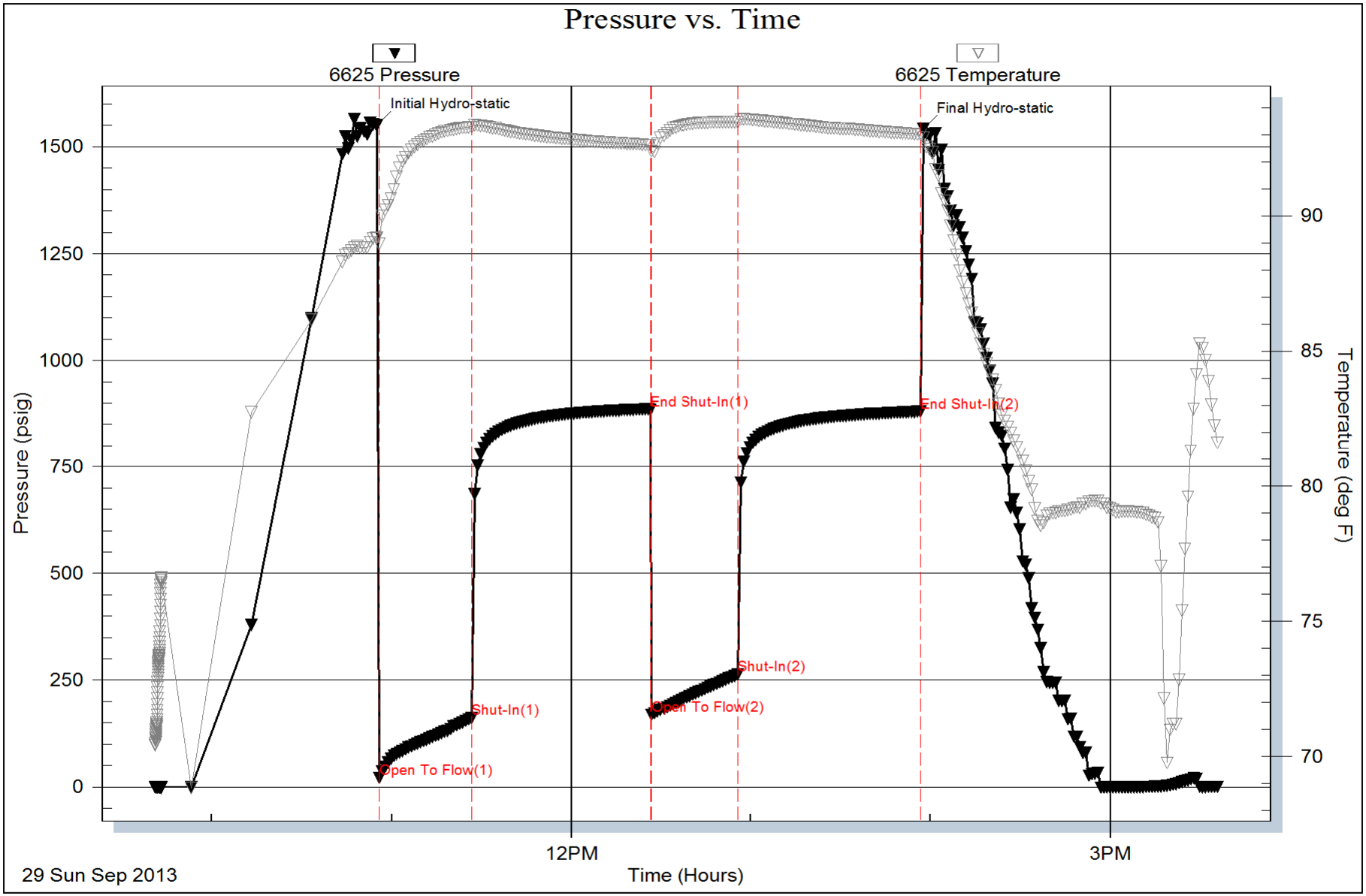
Recovery Table

Length ft	Description	Volume bbl
500.00	MW 20%M 80%W	5.902
31.00	WM with oil spots 45%W 55%M	0.435

Total Length: 531.00 ft Total Volume: 6.337 bbl

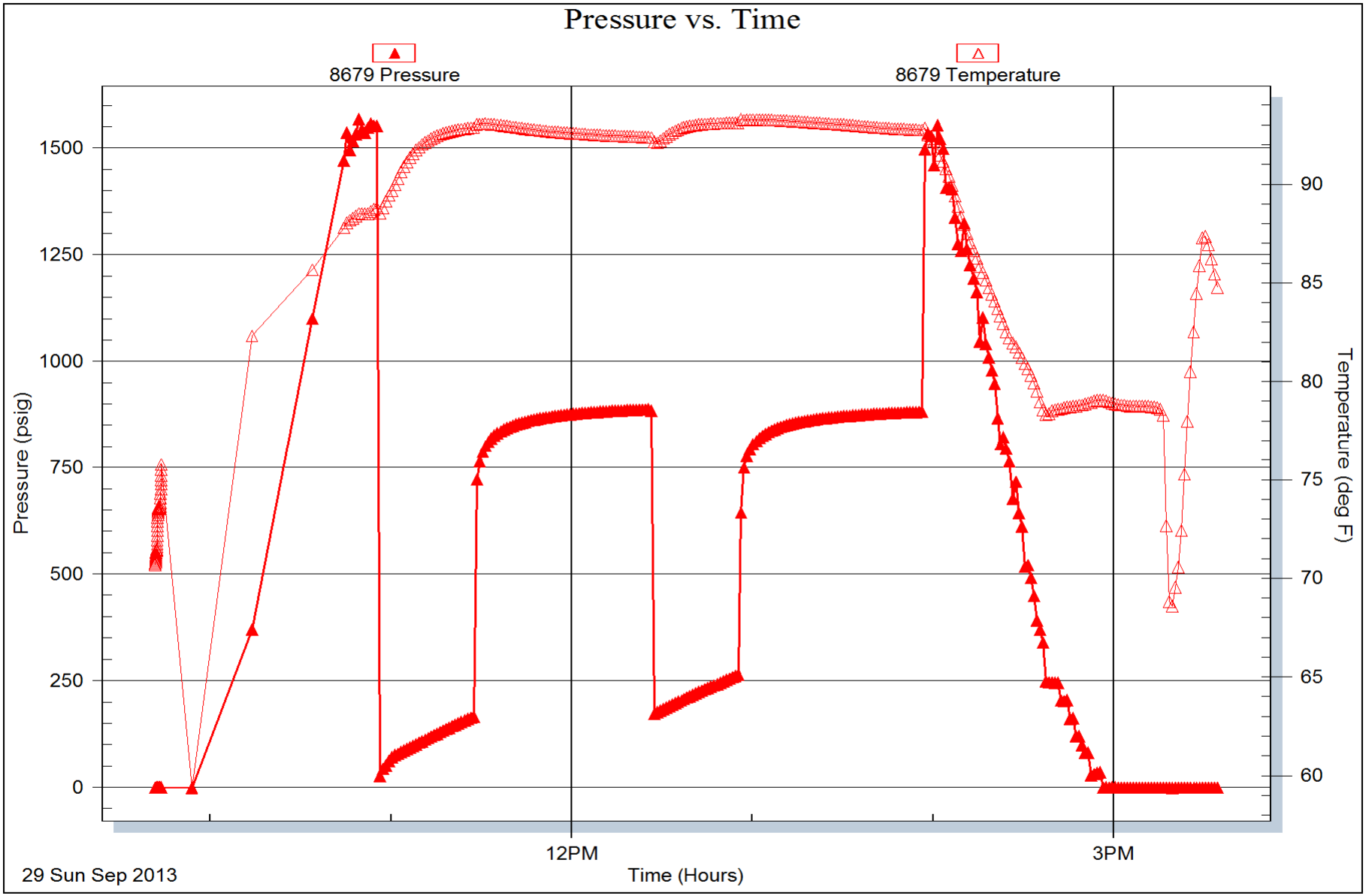
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 6625 **Outside** Black Diamond Oil Zillinger A #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 041773 Printed: 2013.09.29 @ 15:53:19

Serial #: 8679 **Inside** Black Diamond Oil Zillinger A #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 041773 Printed: 2013.09.29 @ 15:53:19

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041774 **DST#: 3**

Test Start: 2013.09.29 @ 21:27:13

GENERAL INFORMATION:

Formation: **LKC-D-F**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:21:13
Time Test Ended: 04:28:13

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

Interval: 3224.00 ft (KB) To 3264.00 ft (KB) (TVD)
Total Depth: 3264.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

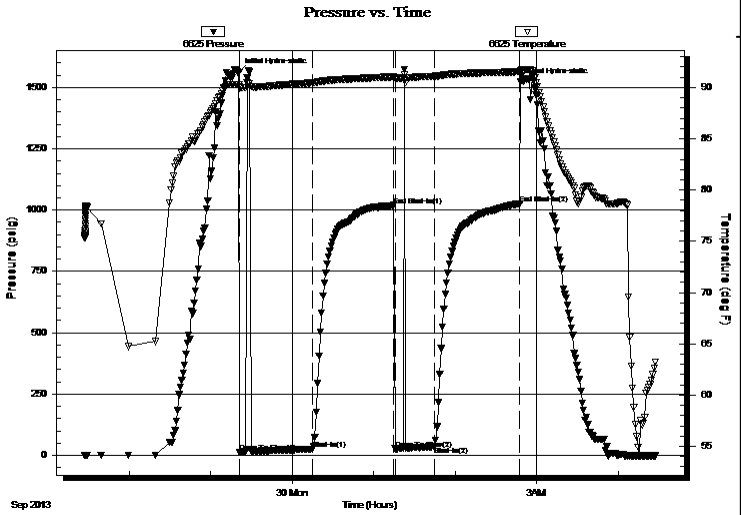
Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**

Press@RunDepth: 35.82 psig @ 3259.00 ft (KB)
Start Date: 2013.09.29 End Date: 2013.09.30
Start Time: 21:27:14 End Time: 04:28:13

Capacity: 8000.00 psig
Last Calib.: 2013.09.30
Time On Btm: 2013.09.29 @ 23:20:43
Time Off Btm: 2013.09.30 @ 02:48:13

TEST COMMENT: IFP=Weak blow built to 1/4 in
ISI=Dead no blow back
FFP=Dead flushed tool weak surface blow
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1560.01	90.30	Initial Hydro-static
1	12.33	90.06	Open To Flow (1)
54	26.02	90.45	Shut-In(1)
114	1019.12	91.03	End Shut-In(1)
115	27.09	90.89	Open To Flow (2)
144	35.82	91.10	Shut-In(2)
207	1026.86	91.53	End Shut-In(2)
208	1521.20	91.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	Mud with oil spots	0.25

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041774 **DST#: 3**

Test Start: 2013.09.29 @ 21:27:13

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:	48.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.40 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	750.00 ppm				
Filter Cake:	inches				

Recovery Information

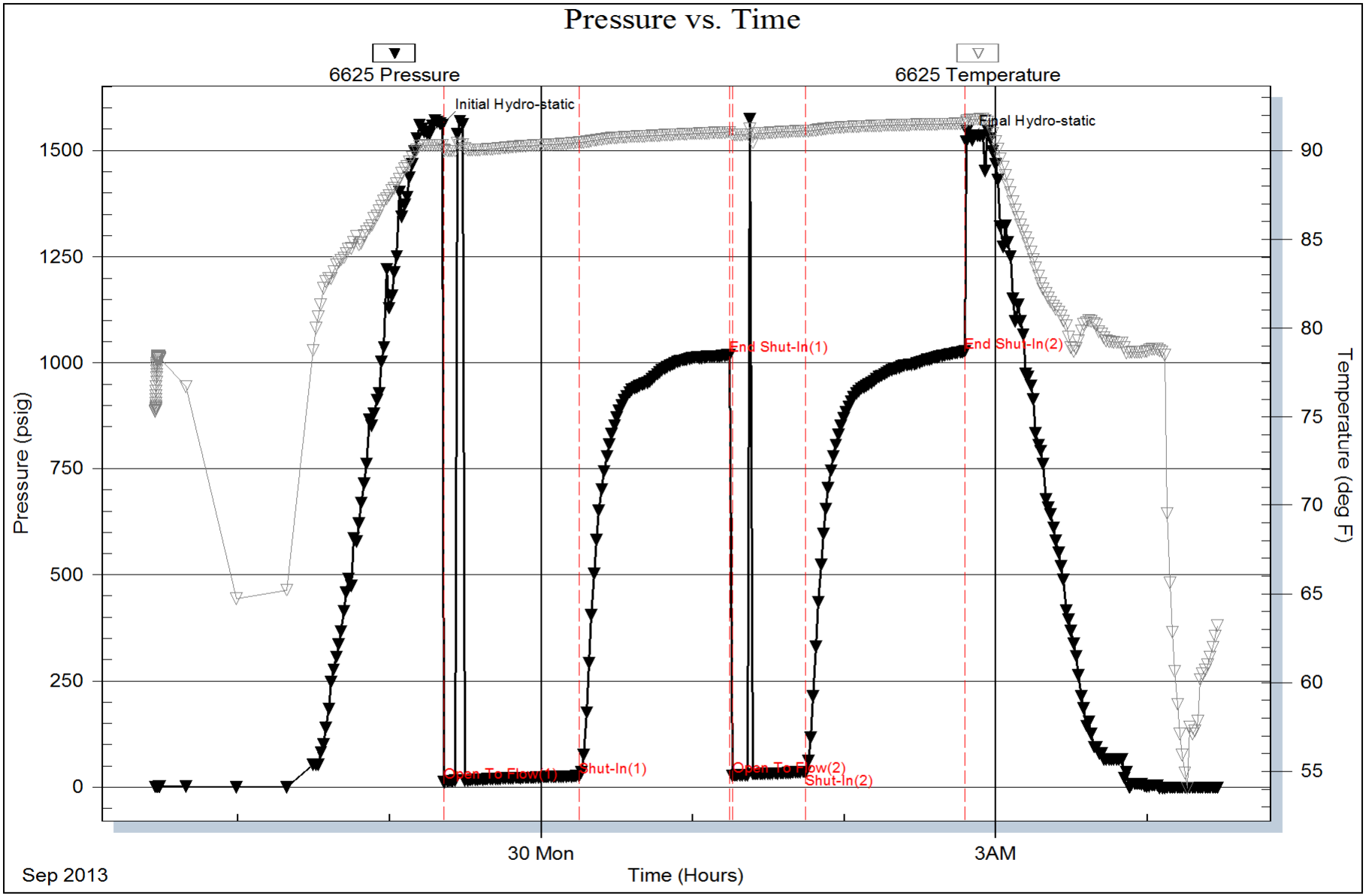
Recovery Table

Length ft	Description	Volume bbl
50.00	Mud with oil spots	0.246

Total Length: 50.00 ft Total Volume: 0.246 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 6625 **Outside** Black Diamond Oil Zillinger A #1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 041774 Printed: 2013.09.30 @ 06:25:14

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041775 **DST#: 4**

Test Start: 2013.09.30 @ 14:53:36

GENERAL INFORMATION:

Formation: **LKC=H-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:24:36
Time Test Ended: 20:20:06

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

Interval: 3291.00 ft (KB) To 3358.00 ft (KB) (TVD)
Total Depth: 3358.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

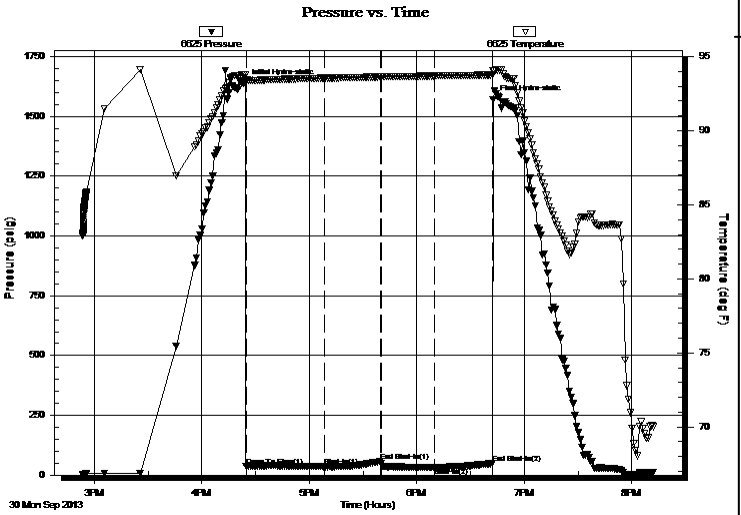
Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 **Outside**

Press@RunDepth: 33.35 psig @ 3326.00 ft (KB)
Start Date: 2013.09.30 End Date: 2013.09.30
Start Time: 14:53:37 End Time: 20:12:06

Capacity: 8000.00 psig
Last Calib.: 2013.09.30
Time On Btm: 2013.09.30 @ 16:24:06
Time Off Btm: 2013.09.30 @ 18:42:36

TEST COMMENT: IFP=Weak surface blow
ISI=Dead no blow back
FFP=Dead no blow
FSI=Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1638.12	93.76	Initial Hydro-static
1	37.64	93.47	Open To Flow (1)
45	35.34	93.55	Shut-In(1)
76	57.37	93.63	End Shut-In(1)
76	48.15	93.63	Open To Flow (2)
106	33.35	93.70	Shut-In(2)
138	48.15	93.77	End Shut-In(2)
139	1568.63	94.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 5%O 95%M	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041775 **DST#: 4**

Test Start: 2013.09.30 @ 14:53:36

GENERAL INFORMATION:

Formation: **LKC=H-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:24:36
Time Test Ended: 20:20:06

Test Type: (Reset)
Tester: Jeff Brown
Unit No: 67

Interval: 3291.00 ft (KB) To 3358.00 ft (KB) (TVD)
Total Depth: 3358.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

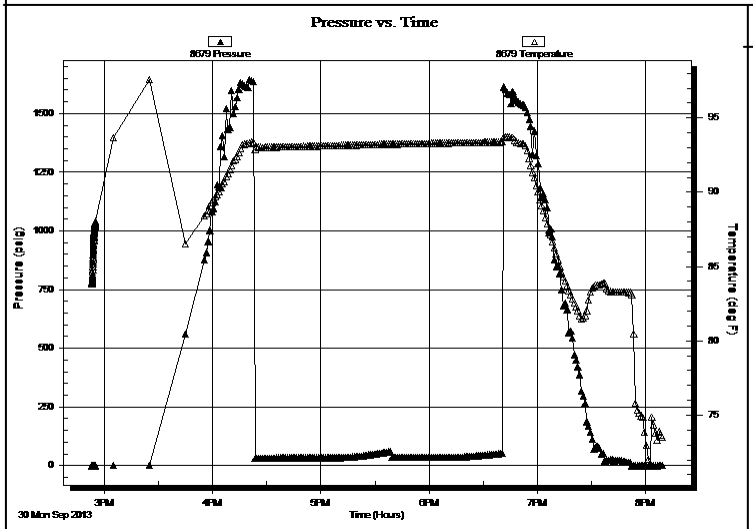
Reference Elevations: 1998.00 ft (KB)
1993.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8679 **Inside**

Press@RunDepth: psig @ 3326.00 ft (KB)
Start Date: 2013.09.30 End Date: 2013.09.30
Start Time: 14:53:01 End Time: 20:10:00

Capacity: 8000.00 psig
Last Calib.: 2013.09.30
Time On Btm:
Time Off Btm:

TEST COMMENT: IFP=Weak surface blow
ISI=Dead no blow back
FFP=Dead no blow
FSI=Dead no blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 5%O 95%M	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Diamond Oil

Po Box 641
Hays Ks 67601

ATTN: Jeff Lawler

18-4s-19w

Zillinger A #1

Job Ticket: 041775 **DST#: 4**

Test Start: 2013.09.30 @ 14:53:36

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:	59.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.00 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2000.00 ppm				
Filter Cake:	inches				

Recovery Information

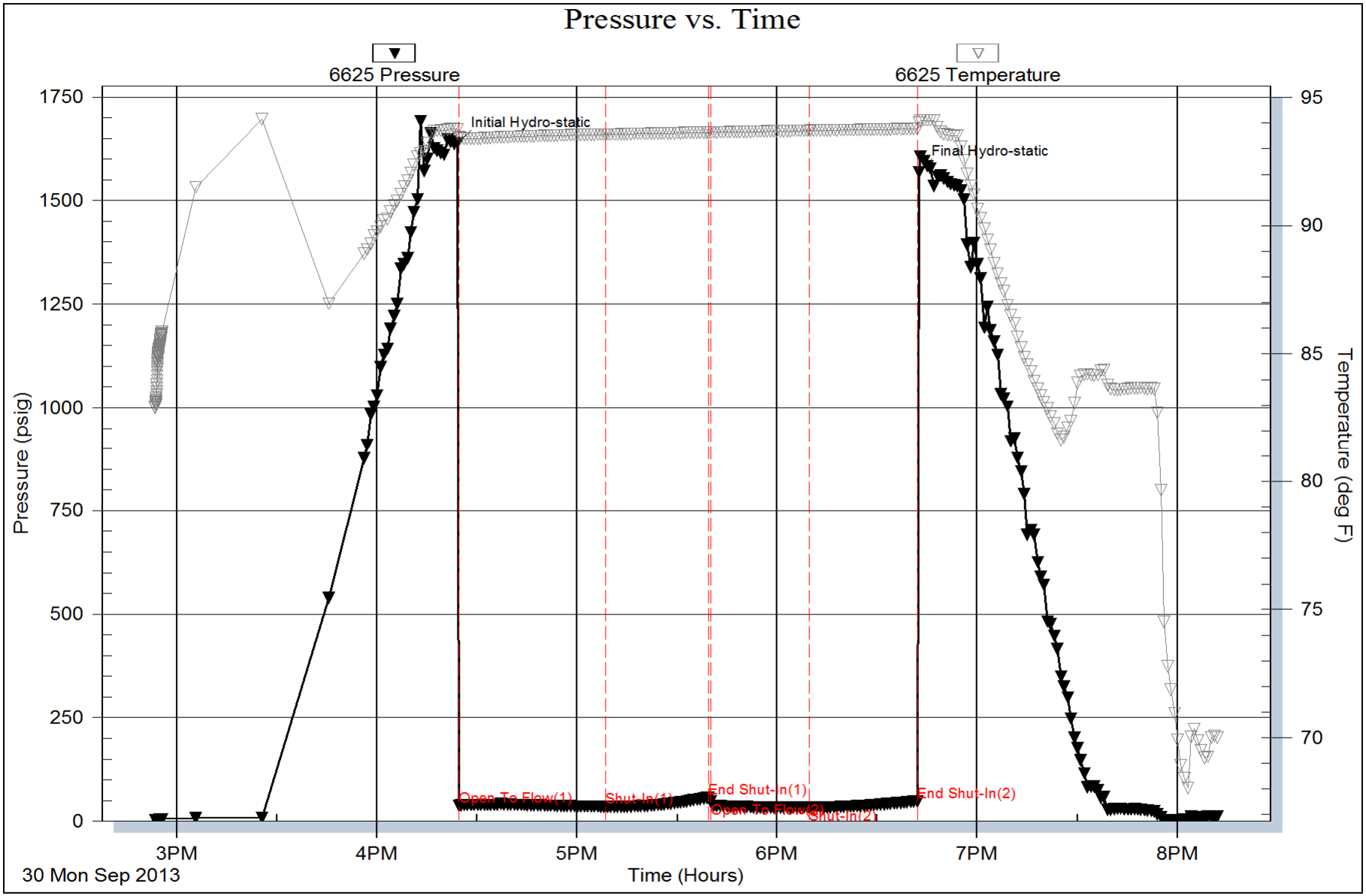
Recovery Table

Length ft	Description	Volume bbl
5.00	SOCM 5%O 95%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 6625 **Outside** Black Diamond Oil Zillinger A #1 DST Test Number: 4



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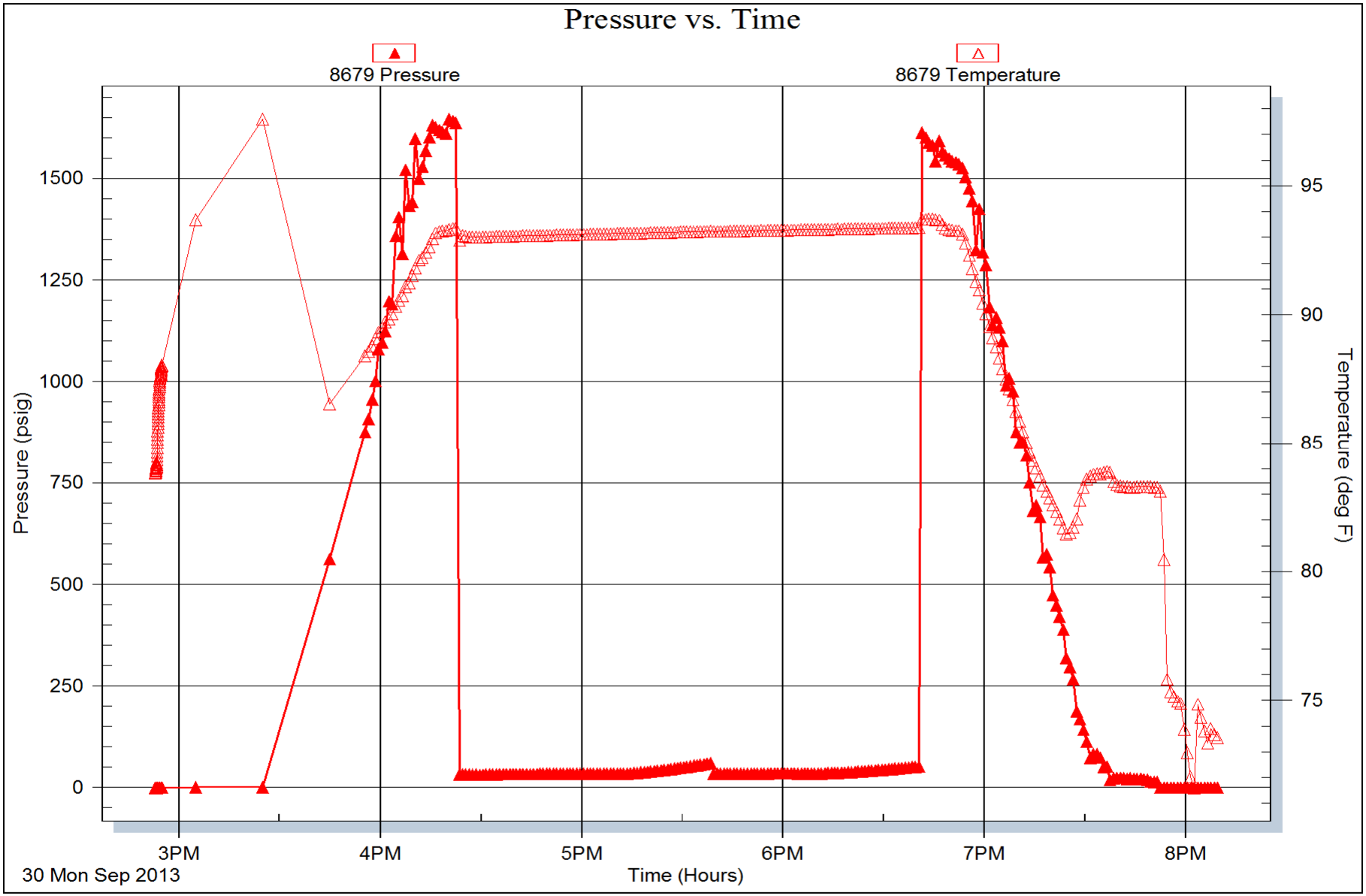
Serial #: 8679 **Inside** Black Diamond Oil Zillinger A #1 DST Test Number: 4



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