Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1193824

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 # 33625
Name: Hertel Oil Company LLC
Address 1: 704 E 12TH ST
Address 2:
City: HAYS State: KS Zip: 67601 + 3440
Contact Person: Mike Hertel
Phone: (785) 628-2445
CONTRACTOR: License # 31548
Name: Discovery Drilling
Wellsite Geologist: Chris Neeley
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 #:

12/06/2013	12/11/2013	12/12/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-051-26650-00-00
Spot Description:
NW SE SW SW Sec. 15 Twp. 15 S. R. 18 ☐ East ☑ West
570 Feet from ☐ North / ☑ South Line of Section
918 Feet from ☐ East / ☑ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☐ NE ☐ NW ☐ SE ☑ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Ellis
Lease Name: Louis Well #: 1
Field Name: Leiker
Producing Formation: None
Elevation: Ground: 2050 Kelly Bushing: 2057
Total Vertical Depth: 3750 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 1222 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: 31000 ppm Fluid volume: 240 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

☑ **Confidentiality Requested**
Date: 03/12/2014
☑ **Confidential Release Date:** 03/11/2016
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 03/13/2014

[redacted] 1193824

Operator Name: Hertel Oil Company LLC Lease Name: Louis Well #: 1

Sec. 15 Twp. 15 S. R. 18 ☐ East ☑ West County: Ellis

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☐ Yes ☑ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Compensated Density Neutron Log
Dual Induction Log
Micro Resistivity Log

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

Name	Top	Datum
Anhydrite	1206	852
Topeka	3010	-952
Heebner	3293	-1235
Lansing K.C.	3340	-1282
Arbuckle	3643	-1585

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 Pip	12.25	8.625	23	1222	Common	480	2% Gel & 3% CC

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ 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 *(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

Form	ACO1 - Well Completion
Operator	Hertel Oil Company LLC
Well Name	Louis 1
Doc ID	1193824

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface Pip	12.25	8.625	23	1222	Common	480	2% Gel & 3% CC

OPERATOR

Company:	HERTEL OIL COMPANY, LLC		
Address:	704 E 12TH STREET HAYS, KANSAS 67601		
Contact Geologist:	DAVE HERTEL		
Contact Phone Nbr:	785-628-2445		
Well Name:	LOUIS # 1		
Location:	NW-SE-SW-SW SEC. 15-15S-18W	API:	15-051-26,650-00-00
Pool:	INFIELD	Field:	LEIKER
State:	KANSAS	Country:	U.S.A.

Scale 1:240 Imperial

Well Name:	LOUIS # 1		
Surface Location:	NW-SE-SW-SW SEC. 15-15S-18W		
Bottom Location:			
API:	15-051-26,650-00-00		
License Number:	33625		
Spud Date:	12/6/2013	Time:	11:30 AM
Region:	ELLIS		
Drilling Completed:	12/11/2013	Time:	2:30 PM
Surface Coordinates:	570' FSL & 918' FWL		
Bottom Hole Coordinates:			
Ground Elevation:	2050.00ft		
K.B. Elevation:	2058.00ft		
Logged Interval:	2900.00ft	To:	3750.00ft
Total Depth:	3750.00ft		
Formation:	CONGLOMERATE SAND/ARBUCKLE		
Drilling Fluid Type:	CHEMICAL/FRESH WATER GEL		

SURFACE CO-ORDINATES

Well Type:	Vertical		
Longitude:	-99.3160457	Latitude:	38.7419758
N/S Co-ord:	570' FSL		
E/W Co-ord:	918' FWL		

LOGGED BY

SOLUTIONS CONSULTING

Company:	SOLUTIONS CONSULTING, INC		
Address:	108 W 35TH HAYS, KS 67601		
Phone Nbr:	(785) 639-1337		
Logged By:	GEOLOGIST	Name:	CHRIS NEELEY

CONTRACTOR

Contractor:	DISCOVERY DRILLING CO., INC.		
Rig #:	1		
Rig Type:	MUD ROTARY		
Spud Date:	12/6/2013	Time:	11:30 AM
TD Date:	12/11/2013	Time:	2:30 PM
Rig Release:	12/12/2013	Time:	5:00 PM

ELEVATIONS

K.B. Elevation:	2058.00ft	Ground Elevation:	2050.00ft
K.B. to Ground:	8.00ft		

NOTES

DECISION TO PLUG AND ABANDON WELL WAS BASED ON POOR RESERVOIR DEVELOPMENT AND NEGATIVE RESULTS OF DRILL STEM TEST #1

OPEN HOLE LOGGING BY GEMINI WIRELINE: MICRO RESISTIVITY LOG, DUAL INDUCTION LOG, AND COMPENSATED DENSITY NEUTRON LOG

DRILL STEM TESTING BY TRILOBITE TESTING INC. ONE STRADDLE TEST PERFORMED TO EVALUATE THE 'C' ZONE

Daily Activity Report

for

Louis #1

NW-SE-SW-SW of Section 15, Township 15 South, Range 18 West

12/06/13	Rig-up, Spud in: 11:30 am, Slope: ¾° at 342′
12/07/13	1051′ drilling, Slope: 1° at 1222′, 8 $^{5}/_{8}$" surface casing set at: 1222′ with 480 sxs common 2% gel/3% CC
12/08/13	1235′ drilling
12/09/13	2403′ drilling
12/10/13	3004′ drilling
12/11/13	3560′ drilling, CFS: 3643′ RTD: 3750′ @ 2:30 pm, CFS, Short trip, CCH 1½ hours, Slope: 1°, Logging: Stack micro, Drill stem test #1: 3347′-3394′ LKC 'C' zone
12/12/13	Noncommercial recovery from DST #1, Decision made to plug and abandon

SUMMARY OF FORMATION TOPS AND CORRELATIONS

	LOUIS #1				BEREXCO, LLC.			GRANT OIL			SAM W. MAYS, JR.		
	S2-NW-SW-SE Sec. 30, T14S, R19W				JOSEPH #1			WETTA #2-15			WETTA #4		
					SE-NE-NE-NW Sec. 22, T15S, R18W			NW-SE-SW Sec. 15, T15S, R18W			SW-SW-SW Sec. 15, T15S, R18W		
	KB 2058				KB 2058			KB 2052			KB 2058		
	LOG TOPS		SAMPLE TOPS		MICRO LOG		LOG	RAG LOG		LOG	LATEROLOG		LOG
FORMATION	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	DEPTH	DATUM	CORR.	DEPTH	DATUM	CORR.
ANHYDRITE	1206	+852	1204	+854	1204	+854	-2				1206	+852	+0
ANHYDRITE BASE	1243	+815	1244	+814	1248	+810	+5				1242	+816	-1
TOPEKA	3010	-952	3011	-953	3005	-947	-5	3006	-954	+2			
HEEBNER	3293	-1235	3293	-1235	3286	-1228	-7	3288	-1236	+1	3290	-1232	-3
TORONTO	3311	-1253	3310	-1252	3305	-1247	-6	3307	-1255	+2	3310	-1252	-1
LANSING K.C.	3340	-1282	3340	-1282	3334	-1276	-6	3336	-1284	+2	3338	-1280	-2
K.C. BASE	3563	-1505	3566	-1508	3561	-1503	-2	3560	-1508	+3	3564	-1506	+1
MARMATON	3607	-1549	3604	-1546	3592	-1534	-15	3600	-1548	-1	3600	-1542	-7
CONGLOMERATE					3608	-1550		3608	-1556		3632	-1574	
ARBUCKLE	3643	-1585	3641	-1583	3622	-1564	-21	3641	-1589	+4	3652	-1594	+9
RTD	3750	-1692	3750	-1692	3680	-1622		3716	-1664		3680	-1622	
LTD	3751	-1693			3683	-1625		3717	-1665		3685	-1627	

DRILL STEM TEST #1 3347'-3394' LANSING/KANSAS CITY 'C' ZONE

TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Hertel Oil Co.LLc

704 E 12th St
Hays KS 67601

ATTN: Herb Dienes

15-15-18,Ellis,KS

Louis #1

Job Ticket: 55484 DST#: 1

Test Start: 2013.12.11 @ 23:30:00

GENERAL INFORMATION:

Formation: KC "C"
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:10:00
Time Test Ended: 06:19:00

Test Type: Conventional Straddle (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 3347.00 ft (KB) To 3394.00 ft (KB) (TVD)
Total Depth: 3394.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

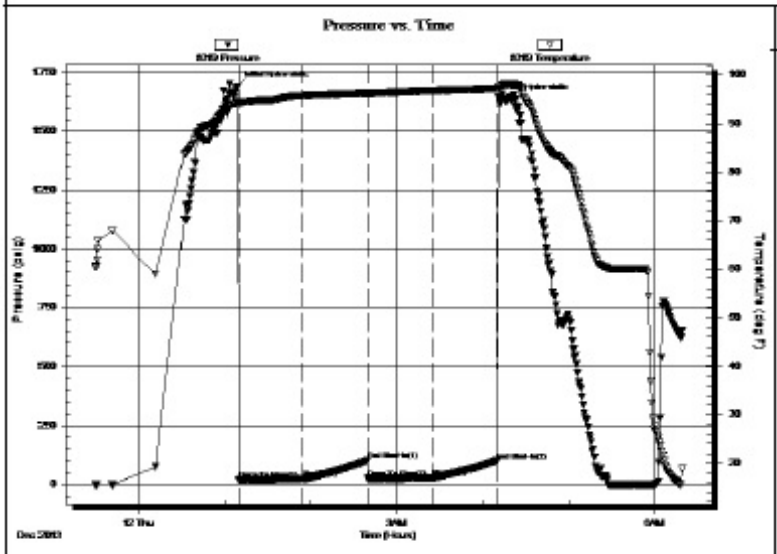
Reference Elevations: 2058.00 ft (KB)
2050.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8319 Inside

Press@RunDepth: 27.32 psig @ 3390.00 ft (KB)
Start Date: 2013.12.11 End Date: 2013.12.12
Start Time: 23:30:05 End Time: 06:18:59

Capacity: 8000.00 psig
Last Calib.: 2013.12.12
Time On Btm: 2013.12.12 @ 01:09:30
Time Off Btm: 2013.12.12 @ 04:11:00

TEST COMMENT: IF-4in blow
ISI-No blow
FF-6in blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1692.50	94.38	Initial Hydro-static
1	17.50	93.84	Open To Flow (1)
45	22.95	95.82	Shut-In(1)
90	101.75	96.34	End Shut-In(1)
91	22.41	96.32	Open To Flow (2)
135	27.32	96.88	Shut-In(2)
180	98.79	97.31	End Shut-In(2)
182	1640.99	97.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 10%O 90%M	0.42
0.00	90ft GIP	0.00

Gas Rates

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

ROCK TYPES

Cht vari
Chtcongl
Dolprim
Dol Lime
Lmst fw7>
Lscongl
shale, grn
shale, gry
Carbon Sh
shale, red
Shcol

ACCESSORIES

MINERAL
- Chert, dark
- Glauconite
- Pyrite
- Sandy
- Silty
- Chert White
- Mica

FOSSIL
- Bioclastic or Fragmental
- Crinoids
- Fussilinid
- Oolite
- Oomoldic
- Pelecypod

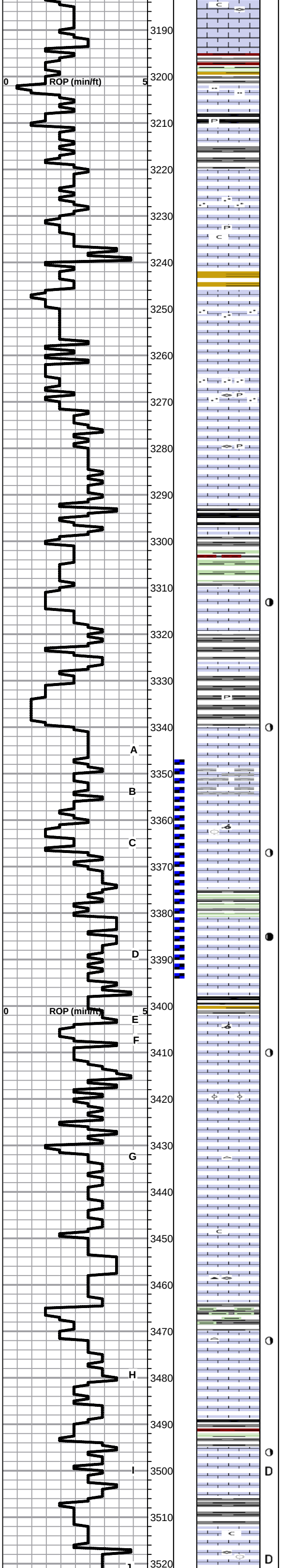
STRINGER
- Sandstone
- Shale
- green shale
- red shale
- carb shale

TEXTURE
- Chalky

OTHER SYMBOLS

DST
DST Int
DST alt

Curve Track #1 ROP (min/ft) 1:240 Imperial	Depth | Intervals Cored Interval DST Interval	DST	Lithology	Oil Show	Geological Descriptions	Curve Track #3 1:240 Imperial
0 ROP (min/ft) 5	2900				BEGIN 1' DRILL TIME FROM 2900' TO RTD BEGIN 10' WET AND DRY SAMPLES FROM 3000' TO RTD **ANHYDRITE TOP 1204 (+854)** **ANHYDRITE BASE 1244 (+814)**	SLOPE: 3/4 DEGREE AT 342' 8 5/8" CASING SET TO 1222' W/480 SXS Common 2% GEL/3%CC SLOPE: 1 DEGREE AT 1222'
	2910					
	2920					
	2930					
	2940					
	2950					
	2960					
	2970				Shale- dark gray, sandy in part; splintery sloughing shale-red	
	2980				Lime- dark brown to dark gray, mottled, vfxln to fxln, fossiliferous, trashy	
	2990				Shale- dark gray to green-gray, micaceous in part	
0 ROP (min/ft) 5	3000				Shale- A/A	
	3010				**TOPEKA 3011 (-953)** Lime- gray-tan, vfxln, mud supported, fossiliferous grain stone, soft on crush, chalky porosity, large pores backfilled with calcite	
	3020				Lime- cream to tan, vfxln, very fine consistent pinpoint porosity, clean, few fossils	
	3030				Lime- dove gray and med brown, vfxln, hard, tight, slightly gritty	
	3040				Lime- gray/brown mottle, fnxln, fossiliferous, inter/intragranular porosity, hard	
	3050				Lime- lt gray, vfxln, chalk/chalky lime, chalky porosity,	
	3060				Lime- gray-brown, vfxln, many fusulinid fragments, intragranular porosity, hard Shale- gray micaceous	
	3070				Lime- cream/tan, vfxln, chalky in pt., consistent pinpoint porosity, abundant fossil frags, dark flecks	
	3080				Lime- med. gray-brown, vfxln, tight, hard, chalky margins	
	3090				Lime- tan/gray, compact to vfxln, tight, few fossil frags, very well compacted	
	3100				Chalk- white to tan, argillaceous, dark flecks, chalky porosity Lime- tan, fxln, slightly chalky, consistent good pinpoint porosity, crushes easily	
	3110				Lime- A/A, increasing fossil content, some chips gray	
	3120				Lime- A/A, some chips fusulinid packstone, considerable white sticky chalk	
	3130				Lime- A/A, significant chalk, some chips tan, hard, less chalky with good pinpoint porosity	
	3140					
	3150				Shale- black, carbonaceous, pyritic Lime- tan lithographic	
	3160				Shale- gray, green, red Lime- cream-tan lithographic, some hummocky bedding with shale stained by shale above	
	3170				Shale- dark gray, platy, waxy, red, green chips	
	3180				Lime- tan, vfxln, brittle and fractured, slight chalky margins, clean	



Lime- tan, fxln, fossiliferous, fenestral porosity filled with calcite, rotted appearance, some chips chalky, others hard on crush

Lime- gray, vfxln, tight, barren

Shale- gray, green, red, maroon

Lime- gray, fxln, gritty, soft and chalky on crush, fossiliferous

Lime- tan/gray, vfxln, pinpoint porosity, hard on crush

Lime- tan, compact, cherty

Lime- lt gray, vfxln, hard on crush

Lime- lt gray, fxln, pisolitic packstone, hard on crush

Lime- tan/gray, fxln, consistent pinpoint porosity, well indurated

Shale- varicolored bedded shale

Lime- gray-brown, fxln, fossil frags, ranges from well compacted to moderately friable and soft on crush

Lime- tan, vfxln to compact, very well consolidated, hard, tight

Lime- tan, fxln, ranges from well consolidated, fossiliferous (fusilinid frags), tight to gritty and friable with consistent pinpoint porosity

Lime- tan, fxln to vfxln, brittle, chalky on crush

Lime- medium gray, vfxln, well consolidated, brittle

HEEBNER 3293 (-1235)

Shale- Black carbonaceous, hard, slick

Lime- brown, vfxln, very well consolidated

Shale- green and gray

TORONTO 3310 (-1252)

Lime- lt. brown, fxln, hard, pinpoint porosity, dark spotty stain, good odor in cup/crush, oil in cup, oil on crush

Lime- off-white, vfxln to fxln-partly sucrosic, clean

Lime- dove to gray-tan, vfxln, very hard, no visible porosity

LANSING/KANSAS CITY 3340 (-1282)

Lime- lt brown, fxln, consistent pinpoint porosity, spotty stain, bleeding oil, lt oil on crush, good lt odor

Lime- lt tan, vfxln, brittle, hard, tight, clean

Lime- tan, fxln, sucrosic, oomolidic, lt stain in molds, oil in cup, no oil on crush, oil in cup, very faint to no odor

Lime- tan, vfxln, well indurated, tight

Shale- dark gray, gray-green

Lime- cream-tan, vfxln with mxln drusy recrystalization, vuggy porosity, lt brown stain, oil on crush, fair odor, oil on crush

Shale- Varicolored blocky

Lime- cream, vfxln matrix, oolitic to oolicastic//moldic, intergranular porosity, lt brown stain in pores, good odor in cup, oil on crush

Lime- bright, clean tan, vfxln, tight, brittle

Lime- gray-tan, vfxln, oolitic packstone, brittle, hard

Lime- cream, vfxl, very well compacted, clean and tight

Lime- cream, fxln, sucrosic, clean

Lime- A/A

Lime- gray-brown, vfxln, chalky margins, hard, tight

Lime- off-white, chalky, chalky porosity

Lime- gray-brown, vfxln, tinted at shale boundary, hummocky bedding surface, trashy

Shale- green and gray wavy laminations, few black chips

Lime- gray-tan, vfxln w/mxln sucrosic margins

Lime- cream, fxln, oolitic, minor amounts of moldic porosity, intra/intergranular porosity, lt spotty stn

Lime- gray, vfxln, very hard and tight

Shale- gray, red, green

Lime- cream w/dark gray/brown spots, fxln to med xln, sucrosic, few vugs, intragranular solution porosity in fusulinid frags, saturated stain on few chips, no odor, no free oil

Chalk- cream, chalky porosity, spotty to saturated dead oil stain

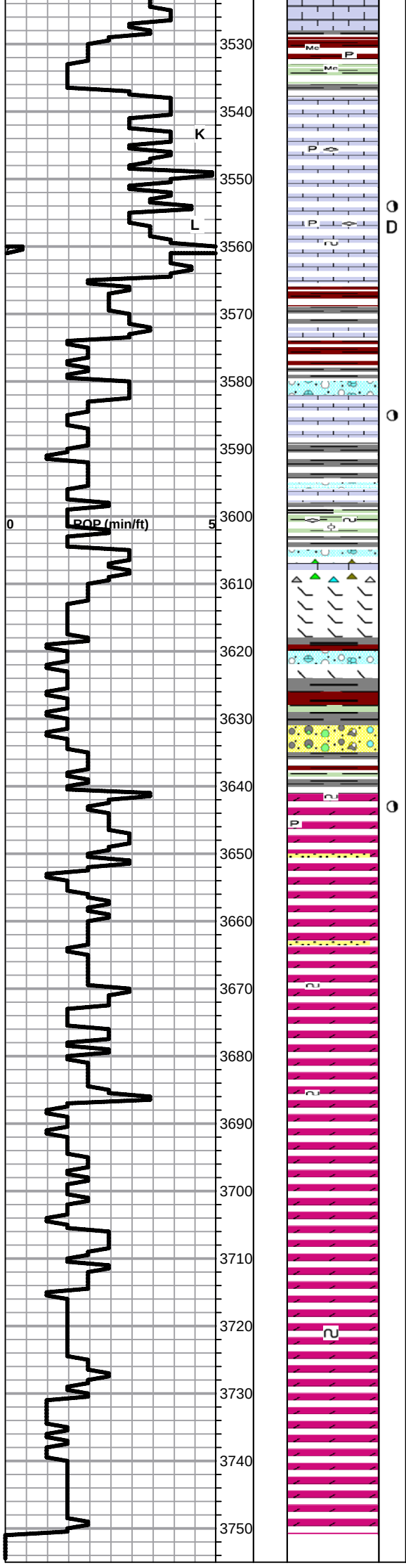
Chalk- A/A no stain

Lime- brown-tan, vfxln to medxln, some chalky margins, clean

Lime- cream, vfxln, fossiliferous, hard, black surface stain, no odor

DRILL STEM TEST #1
3347' - 3394'
45-45-45-45
IFP: 18-23 BUILT TO 4"
ISIP: 102 NO BLOW
FFP: 22-27 BUILT TO 6"
FSIP: 99 NO BLOW

RECOVERY
30' SOCM 10%O, 90%M
90' GIP



Shale- gray, green, red, maroon, all slightly micaceous, sticky platy

Lime- med brown, drusy luster, vfxln to mfxln, tight, lt oil on crush

Lime- pale gray, vfxln, sucrosic, tight, hard, clean, chalky margins, few chips oolitic or fossiliferous

Lime- tan, vfxln, predominately tight, many fusulinid frags w/intragranular porosity, lt brown to black stain, no oil on crush

D

Lime- white, fxln, oolitic in part, some chalk/chalky lime, clean

BASE LKC 3566 (-1508)

Shale- varicolored, red wash

Lime- cream, fxln, brittle

Shale- earthy brown, red wash, gray

Lime- white, vfxln, very well compacted, fossiliferous in pt, small amount of fracture to vuggy porosity w/stain, oil on crush

Clastic mix- mix of shales and limestone, varying textures/compositions

Shale- dark gray-green, sticky, few chips of black

MARMATON 3604 (-1546)

Lime- cream, vfxln, compact, fractured

Chert- dull orange, varicolored, interbedded, some oolitic

Lime- lt gray, vfxln

Chert- bright orange

Lime-varicolored, sandy, clastic mix

ARBUCKLE 3641 (-1583)

Dolomite- lt gray, mfxln-fxln, subhedral, spotty stain, oil on crush, good odor

Dolomite A/A

Sand- white, well rounded, well sorted, friable (from above?)

Dolomite- off-white, up to coarse xln, subhedral, moderately well indurated, spotty stain, lively oil on crush, some chips bleed, good odor in cup/crush

Sand- loose, well rounded, quartz grains

Dolomite- reservoir and stains A/A

Dolomite- white, fxln, sucrosic, wll compacted, some black stain giving up dark lively oil on crush, fair odor

Dolomite- A/A, increasing xstal size to very coarse, some euhedral, some vuggy porosity

Dolomite- lt gray, vfxln, compact

Dolomite- A/A, significant shale carry over from above

RTD 3750 (-1692)
LTD 3751 (-1693)

CIRCULATE FOR SAMPLES: 20'-40'-60' AT 3643'

SLOPE: 1 DEGREE AT 3750

DRILL STEM TEST REPORT

Hertel Oil Co.LLc

704 E 12th St
Hays KS 67601

ATTN: Herb Dienes

15-15-18,Ellis,KS

Louis #1

Job Ticket: 55484 **DST#: 1**

Test Start: 2013.12.11 @ 23:30:00

GENERAL INFORMATION:

Formation: **KC "C"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:10:00
Time Test Ended: 06:19:00

Test Type: Conventional Straddle (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 3347.00 ft (KB) To 3394.00 ft (KB) (TVD)
Total Depth: 3394.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

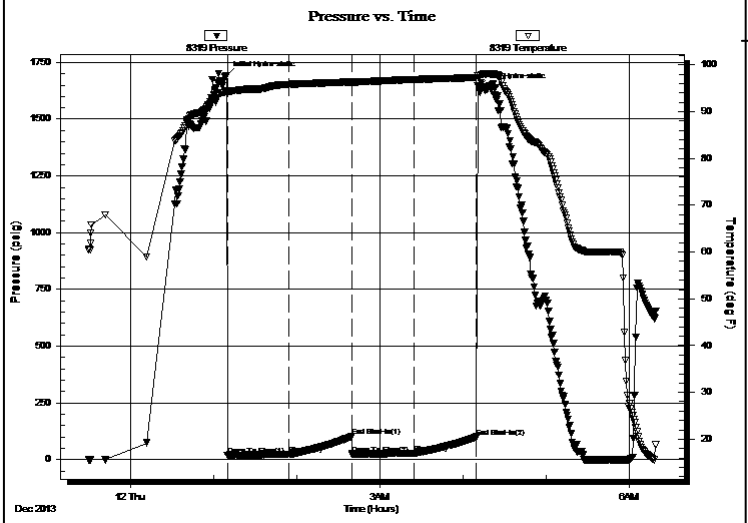
Reference Elevations: 2058.00 ft (KB)
2050.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8319 **Inside**

Press@RunDepth: 27.32 psig @ 3390.00 ft (KB)
Start Date: 2013.12.11 End Date: 2013.12.12
Start Time: 23:30:05 End Time: 06:18:59

Capacity: 8000.00 psig
Last Calib.: 2013.12.12
Time On Btm: 2013.12.12 @ 01:09:30
Time Off Btm: 2013.12.12 @ 04:11:00

TEST COMMENT: IF-4in blow
ISI-No blow
FF-6in blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1692.50	94.38	Initial Hydro-static
1	17.50	93.84	Open To Flow (1)
45	22.95	95.82	Shut-In(1)
90	101.75	96.34	End Shut-In(1)
91	22.41	96.32	Open To Flow (2)
135	27.32	96.88	Shut-In(2)
180	98.79	97.31	End Shut-In(2)
182	1640.99	97.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 10%O 90%M	0.42
0.00	90ft GIP	0.00

Gas Rates

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

DRILL STEM TEST REPORT

Hertel Oil Co.LLc

704 E 12th St
Hays KS 67601

ATTN: Herb Dienes

15-15-18,Ellis,KS

Louis #1

Job Ticket: 55484 **DST#: 1**

Test Start: 2013.12.11 @ 23:30:00

GENERAL INFORMATION:

Formation: **KC "C"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:10:00
Time Test Ended: 06:19:00

Test Type: Conventional Straddle (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 3347.00 ft (KB) To 3394.00 ft (KB) (TVD)
Total Depth: 3394.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

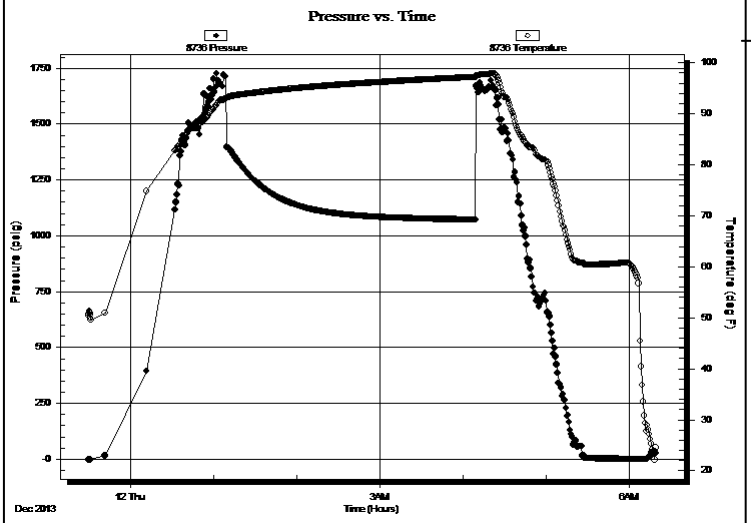
Reference Elevations: 2058.00 ft (KB)
2050.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8736 **Below (Straddle)**

Press@RunDepth: psig @ 3399.00 ft (KB)
Start Date: 2013.12.11 End Date: 2013.12.12
Start Time: 23:30:05 End Time: 06:18:44

Capacity: 8000.00 psig
Last Calib.: 2013.12.12
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-4in blow
ISI-No blow
FF-6in blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 10%O 90%M	0.42
0.00	90ft GIP	0.00

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Co.LLc

704 E 12th St
Hays KS 67601

ATTN: Herb Dienes

15-15-18,Ellis,KS

Louis #1

Job Ticket: 55484 **DST#: 1**

Test Start: 2013.12.11 @ 23:30:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	54.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.80 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3900.00 ppm				
Filter Cake:	inches				

Recovery Information

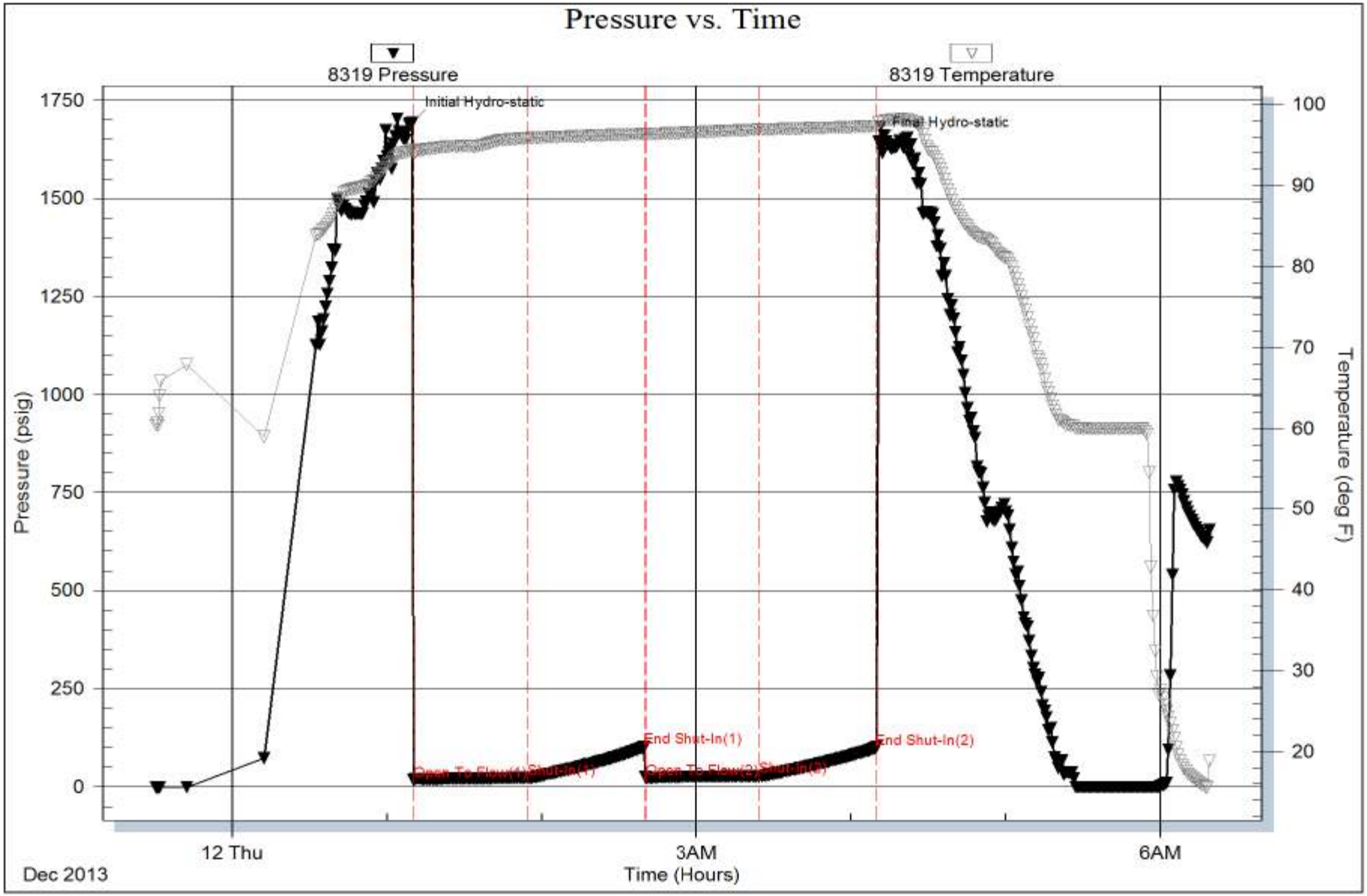
Recovery Table

Length ft	Description	Volume bbl
30.00	SOCM 10%O 90%M	0.421
0.00	90ft GIP	0.000

Total Length: 30.00 ft Total Volume: 0.421 bbl

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

Serial #: 8319 **Inside** Hertel Oil Co.LLc Louis #1 DST Test Number: 1



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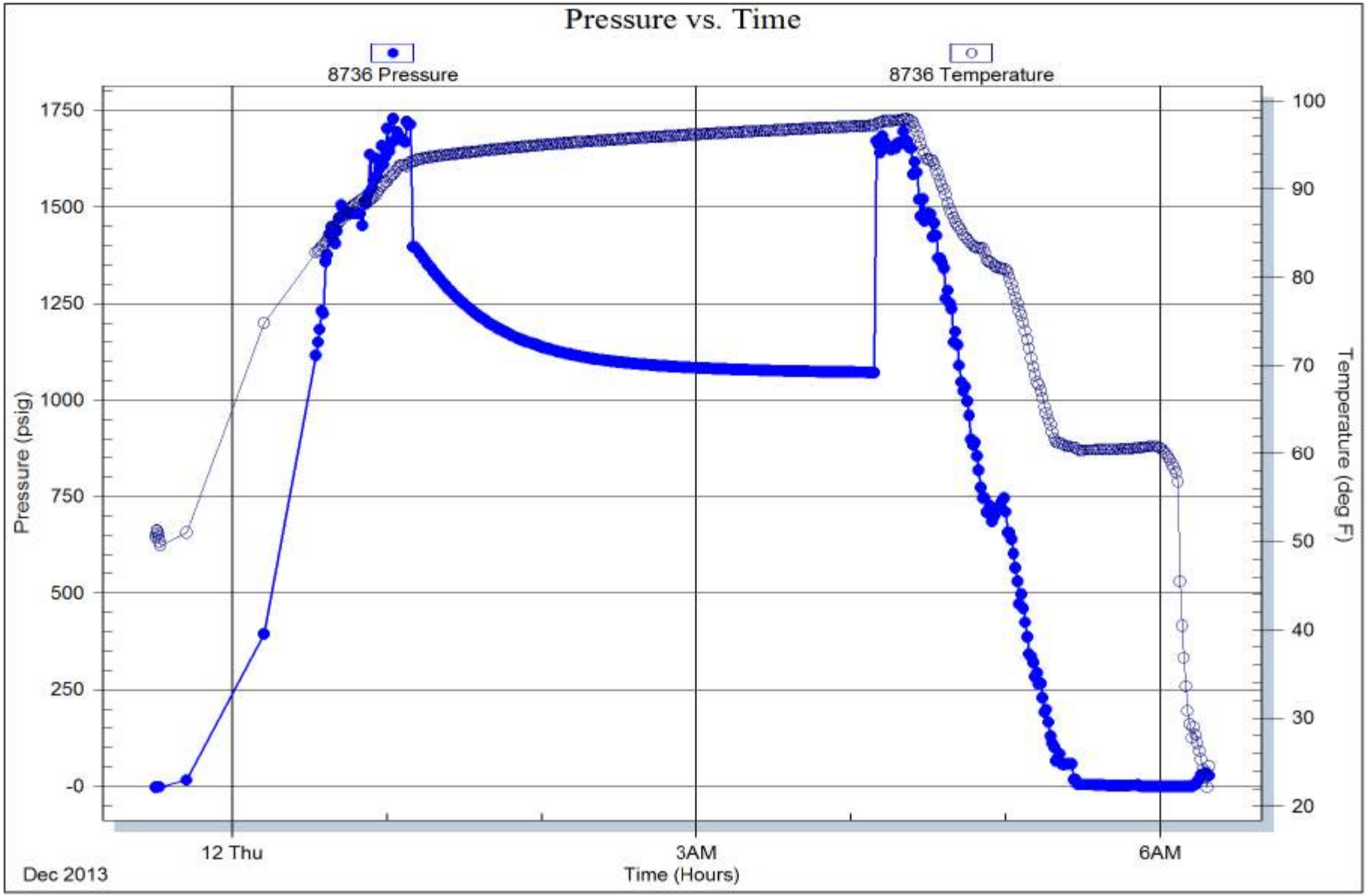
Serial #: 8736 Below (Straddle) Oil Co.LLc Louis #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 55484 Printed: 2013.12.12 @ 07:58:18

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025 **Home Office P.O. Box 32 Russell, KS 67665** **No.** 7662

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
12-7-13	15	15	18	Ellis	KS		4:15pm

Location Hays Mack 1/4E, Nn2

Lease louis | Well No. 1 | Owner

Contractor Discovery #1 | 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 Surface

Hole Size 12¼ | T.D. [redacted]1222 | Charge To Hertel oil

Csg. 8 5/8 | Depth 1222 | 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. | Shoe Joint ~~42.23~~ 25.23 | Cement Amount Ordered 480 com 3%cc 2%gel

Meas Line | Displace 76 bbl

EQUIPMENT

Pumptrk 15	No.	Cementer Helper	Nick
Bulktrk 12	No.	Driver Driver	Lonnie M.
Bulktrk Pu	No.	Driver Driver	Travis

JOB SERVICES & REMARKS

Remarks: cement did circulate

Rat Hole

Mouse Hole

Centralizers 1,2,17

Baskets 2,18

D/V or Port Collar

Common	480
Poz. Mix	
Gel.	9
Calcium	
Hulls	
Salt	18
Flowseal	
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	507
Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	3
Baskets	2
AFU Inserts	
Float Shoe	
Latch Down	
	1 Rubber Plug
	1 baffal Plate
Pumptrk Charge	Long Surface
Mileage	11
Tax	
Discount	
Total Charge	

X Signature Cliff Mayfield