

OPERATOR

Company: Murfin Drilling Company, Inc.
 Address: 250 N. Water
 Suite 300
 Wichita, KS 67202
 Contact Geologist: Shauna Gunzelman
 Contact Phone Nbr: 316-267-3241
 Well Name: Ivalee #1-4
 Location: Sec. 4 - T1S - R37W
 Pool:
 State: Kansas

API: 15-023-21380-0000
 Field: Jones Canyon
 Country: USA



Scale 1:240 Imperial

Well Name: Ivalee #1-4
 Surface Location: Sec. 4 - T1S - R37W
 Bottom Location:
 API: 15-023-21380-0000
 License Number: 30606
 Spud Date: 2/14/2014 Time: 19:45
 Region: Cheyenne County Time: 18:15
 Drilling Completed: 2/22/2014
 Surface Coordinates: 990' FSL & 1980' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 3157.00ft
 K.B. Elevation: 3170.00ft
 Logged Interval: 3506.00ft To: 4719.00ft
 Total Depth: 3719.00ft
 Formation: Cherokee
 Drilling Fluid Type: Chemical/Fresh Water Gel

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 990' FSL
 E/W Co-ord: 1980' FWL

LOGGED BY

Keith Reavis
Consulting Geologist

Company: Keith Reavis, Inc.
 Address: 3420 22nd Street
 Great Bend, KS 67530

Phone Nbr: 620-617-4091
 Logged By: KLG #136 Name: Keith Reavis

CONTRACTOR

Contractor: Murfin Drilling Company, Inc.
 Rig #: 25
 Rig Type: mud rotary
 Spud Date: 2/14/2014 Time: 19:45
 TD Date: 2/22/2014 Time: 18:15
 Rig Release: Time:

ELEVATIONS

ELEVATIONS

K.B. Elevation: 3170.00ft
K.B. to Ground: 13.00ft

Ground Elevation: 3157.00ft

NOTES

Due to the positive results of DST #5 it was elected to set 5 1/2" production casing and further test the Lansing J through perforations and stimulation.

The gamma ray and caliper curves were imported into this report from the electrical log suite. Electrical log tops were consistently 4 to 10 ft high to the driller measurements. Plotted drill time in this report was not shifted to match the electrical log tops, but left as recorded in the field.

The samples were saved and will be available for review at the Kansas Geological Survey Well Sample Library located in Wichita, KS.

Respectfully submitted,
Keith Reavis

Murfin Drilling Company

daily drilling report

DATE	7:00 AM DEPTH	REMARKS
02/16/2014		Geologist Keith Reavis on location @ 1310 hrs, 3506 ft, bit trip complete bit trip, ctch, resume drilling, Neva, Red Eagle, Foraker, show in Foraker warrants test, TOH for DST #1
02/17/2014	3716	conduct and complete DST #1, successful test, TIH w/bit, resume drilling
02/18/2014	4073	drilling Topeka, Oread, show in Oread warrants test, short trip, TOH w/bit, conducting DST #2, complete DST #2, successful test, TIH w/bit, drill ahead Oread, Lansing
02/19/2014	4218	shows in Lansing A - D warrant test, TOH w/bit, conduct and complete DST #3, successful test, TIH w/bit, resume drilling, show in G warrants test, TOH w/bit, conducting DST #4
02/20/2014	4320	complete DST #4, successful trip, TIH w/bit, drill ahead, cut H, I, J, show warrants test, TOH w/bit, conduct and complete DST #5, successful test
02/21/2014	4360	lost packer in hole, chasing down with bit, lost circ, re-gain returns, resume drilling 0800 hrs, drilling BKC, Marmaton, Pawnee, show in Pawnee warrants test, short trip, TOH w/bit, in with tools
02/22/2014	4554	conduct and complete DST #6, successful test, TIH w/bit, resume drilling Cherokee, TD 4719 ft @ hrs, TOH for logs, conduct logging operations
02/23/2014	4719	complete logging operations, geologist off location 0045 hrs

Murfin Drilling Company

well comparison sheet

DRILLING WELL					COMPARISON WELL				COMPARISON WELL			
Murfin - Ivalee #1-4 990' FSL & 1980' FWL Sec. 4 - T1S - R37W					Murfin - Patti G #1-4 660' FSL & 2200' FEL Sec. 4 - T1S - R37W				Murfin - Shones Unit #1-5 2600' FSL & 660' FEL Sec. 5 - T1S - R37W			
3170 KB					3147 KB		Structural Relationship		3177 KB		Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Neva	3586	-416	*		3562	-415	-1		3596	-419	3	
Red Eagle	3649	-479	*		3626	-479	0		3661	-484	5	
Foraker	3694	-524	*		3674	-527	3		3707	-530	6	
Topeka	3921	-751	*		3893	-746	-5		3925	-748	-3	
Oread	4060	-890	4055	-885	4027	-880	-10	-5	4060	-883	-7	-2
Lansing	4141	-971	4134	-964	4108	-961	-10	-3	4138	-961	-10	-3
Stark	4352	-1182	4350	-1180	4321	-1174	-8	-6	4357	-1180	-2	0
BKC	4416	-1246	4408	-1238	4380	-1233	-13	-5	4414	-1237	-9	-1
Pawnee	4539	-1369	4529	-1359	4498	-1351	-18	-8	4530	-1353	-16	-6
Cherokee	4623	-1453	4615	-1445	4585	-1438	-15	-7	4619	-1442	-11	-3
Mississippian	nr	nr	nr	nr	nr	nr	nr	nr	4870	-1693	na	na
Total Depth	4719	-1549	4714	-1544	4669	-1522	-27	-22	4960	-1783	234	239

* NOTE: zones above Oread not logged in this well due to lost test tool packer in hole

ROCK TYPES

Congl sdy lmst	Lmst fw> shale, grn	Carbon Sh shale, red	Ss
Lmst fw<7	shale, gry	Shcol	Slst
			Brec

ACCESSORIES

MINERAL

- ▲ Chert, dark
- △ Dolomitic
- ✕ Mineral Crystals
- P Pyrite
- Sandy
- Silty
- △ Chert White

FOSSIL

- ∩ Bioclastic or Fragmental
- ∩ Coral
- F Fossils < 20%
- ⊖ Oolite
- ∩ Pellets

STRINGER

- ▨ Dolomite
- ▨ Limestone
- ▨ Sandstone
- ▨ Siltstone
- ▨ green shale

TEXTURE

- C Chalky
- L Lithogr

OTHER SYMBOLS

MISC

- Daily Report
- Digital Photo
- Document
- Folder
- Link
- Vertical Log File
- Horizontal Log File
- Core Log File
- Drill Cuttings Rpt

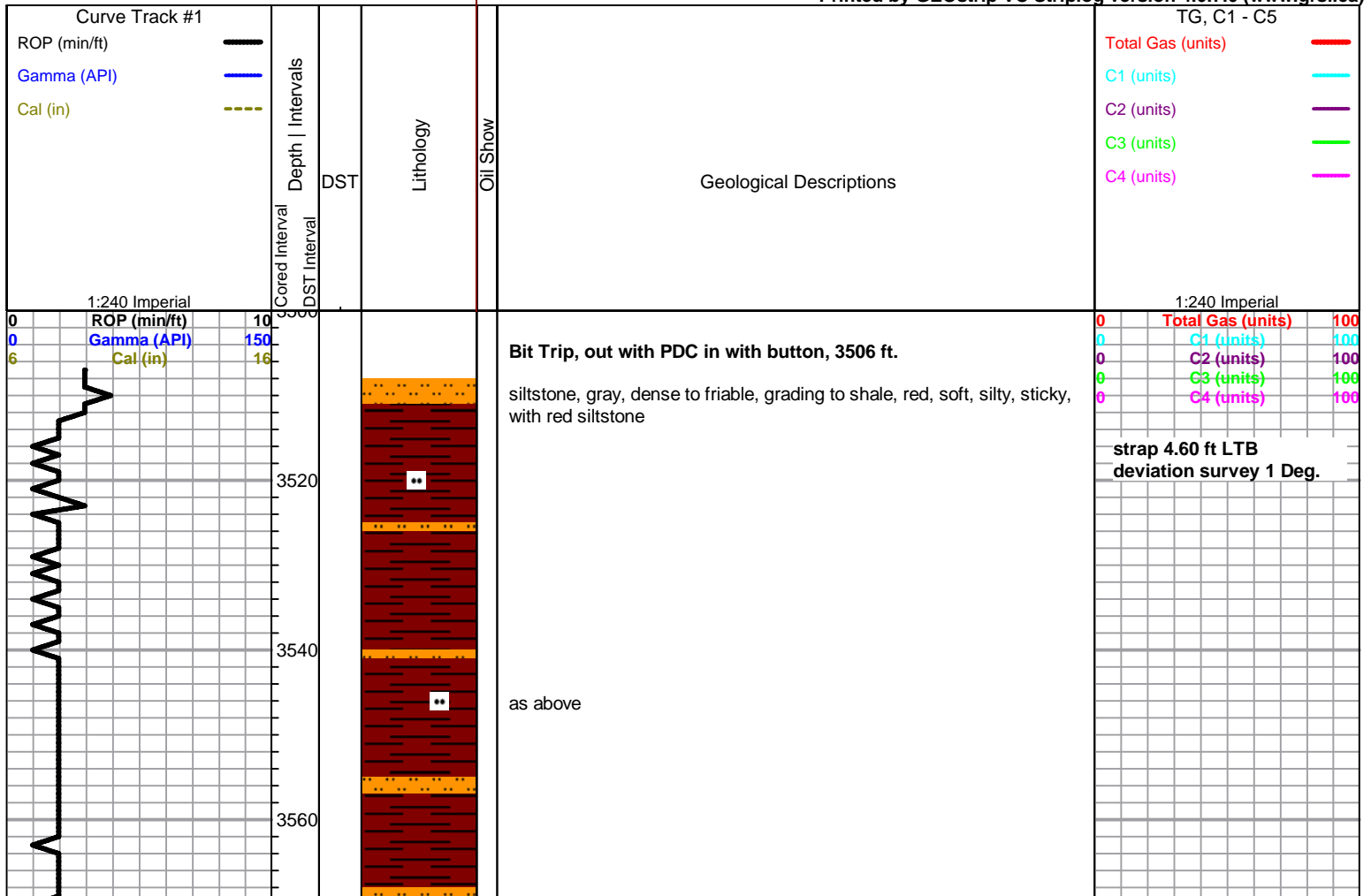
Oil Show

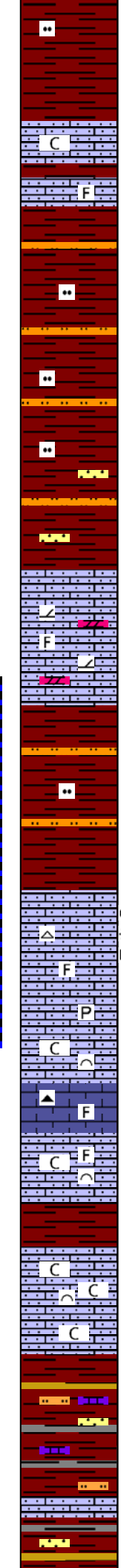
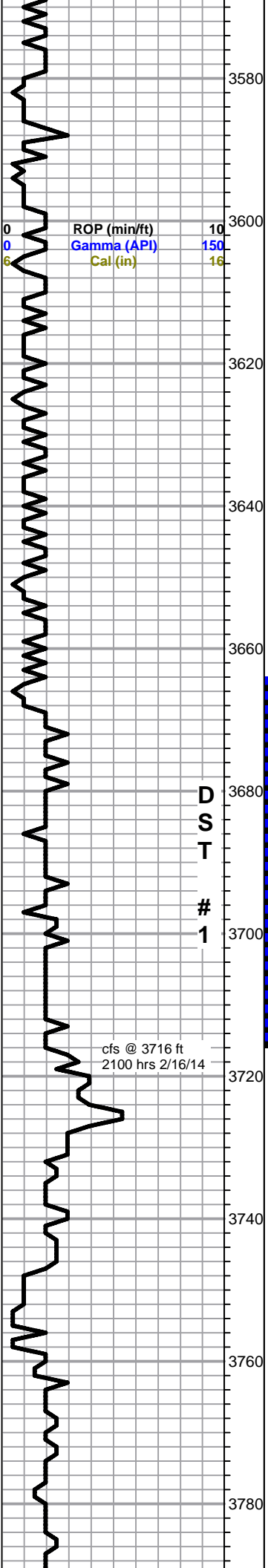
- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Strn
- D Dead Oil Stn
- Fluorescence
- * Gas

DST

- DST Int
- DST alt
- Core
- tail pipe

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Neva 3586 -416

limestone, white to pale green/gray, micro-cryptocrystalline, chalky to sandy, slightly fossiliferous, poor visible porosity, no shows, abundant chalk in samples

red silty soft shale, sticky, with red siltstone

as above, some gray/green silstone and very fine grain sandstone

Red Eagle 3649 -479

limestone, light gray to gray/green, sandy, dolomitic in part, fossiliferous and chalky in part, poor visible porosity, some light gray fine sucrosic dolomite, friable, no visible porosity, no shows

shales and silts as above

Foraker 3694 -524

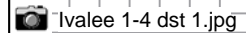
limestone, light gray, microcrystalline, sandy, fossiliferous, trace pyritic and cherty, good scattered pinpoint porosity, trace small vugs, black to brown spotty to saturated stain, bleeding some free oil, slow bleeding gas, no odor, good fluorescence, good cut

limestone as above, some bioclastic, with gray/black very dense cherty limestone, white fossil clasts, no shows

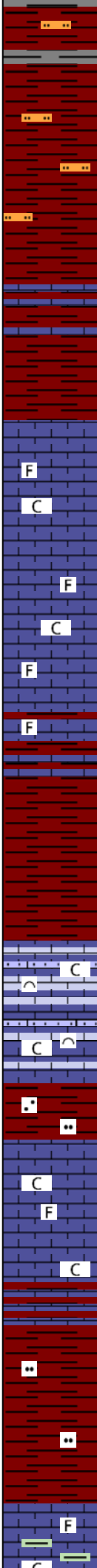
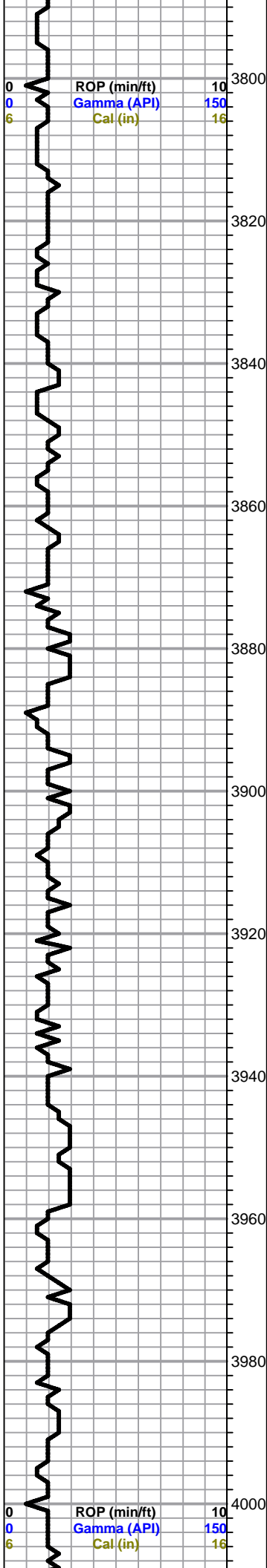
limestone, white to gray, microcrystalline, sandy in part, bioclastic, chalky, flood chalk in samples, no shows

shale, sticky red, gray and maroon, abundant siltstones, trace yellow to maroon dirty sandstone, stringers mixed fossiliferous limestones,

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



Morgan Mud chk
@ 3716 ft.
0730 hrs. 2/17/14
Vis. 58 Wt. 9.2
PV 24 YP 20
WL 6.0
Cake 2/32,
pH 10.5
CHL 700 ppm
Ca 30 ppm
Sol 6.4 LCM 4#
DMC \$2350.00
CMC \$15952.00



as above

grades to mostly red shale and siltstone

limestone, gray to light gray, cryptocrystalline, dense fossiliferous, some arenaceous, no visible porosity or shows

red and orange shales

3870 sample - limestone, light gray to cream, some mottled, microcrystalline, fossiliferous, arenaceous, chalky in part, some edge etching with spotty black dead gilsonitic stain, good even mineral fluorescence, good cut, no show free oil, no odor

carrying abundant limestone a.a. thru 3910 samples, some weathered/chalky

limestone above dropping out, influx limestone, gray to gray/green, micro-cryptocrystalline, fossiliferous, dense, no show

3920 and 30 sample, flood red sticky soft shale

Topeka 3921 -751

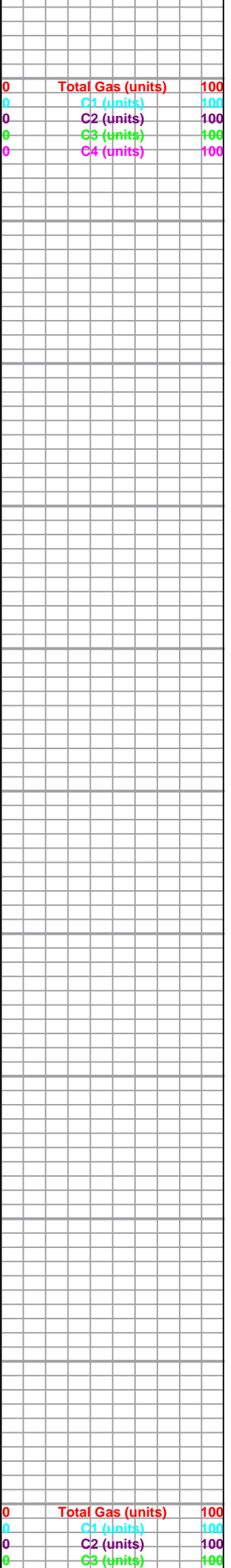
limestone, as above, some sandy with flood limestone, light gray to white, bioclastic, chalky, poor visible porosity, no shows, abundant chalk

red silty shale, some green shale, trace small green-maroon dirty sand clusters

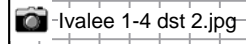
limestone, white to light gray, micro-cryptocrystalline, fossiliferous, chalky, poor visible porosity, no shows, abundant chalk

red shale

samples, limestone, white with some green tint, mostly cryptocrystalline, fossiliferous, mostly dense, some chalky, poor visible porosity, no shows, abundant light green shale

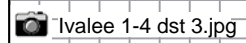


No open hole electrical log ran above this point



deviation survey 0.6 deg

Morgan Mud chk @ 4073 ft. 0730 hrs. 2/18/14 Vis. 70 Wt. 9.2 PV 30 YP 22 WL 5.6 Cake 2/32, pH 10.5 CHL 600 ppm Ca 30 ppm Sol 6.4 LCM 2# DMC \$3439.00 CMC \$19391.00



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

Morgan Mud chk @ 4218 ft. 0715 hrs. 2/19/14 Vis. 57 Wt. 9.4 PV 26 YP 20

red/brn shale mottled

red and green shales

Oread 4060 -890 (log top 4055 -885)

● limestone, light gray, microcrystalline, fossiliferous, leached with abundant edge etching and pinpoint porosity, spotty to saturated dark brown-black staining, fair show free oil and heavy sheen, fair overall even fluorescence, excellent cut, faint odor, some chalk

○ limestone, white, chalky weathered fossiliferous, some vugs, abundant black gilsonitic/asphaltic staining, trace clingy tarry oil, some light scattered fluorescence, good cut, no odor

grades to limestone, light gray, cryptocrystalline, fossiliferous, dense, no show

○ 4110 sample, a.a. with influx gray arenaceous limestone, few pieces with leached pinpoint porosity, grayish black saturated stain, slight show free oil on break, no odor, dull yellow fluorescence

● siltstone to very fine grain dirty sandstone, light gray to gray green, poor visible porosity, slightly friable, light stain, scaly tarry free oil on break, with limestone stringers, gray green, sandy, vuggy coral fragments, inter-intraclast stain, bleeds heavy free oil, poor fluorescence, excellent milky cut, fleeting odor

red shales

Lansing 4141 -971 (log top 4134 -964)

○ limestone, light gray to white, cryptocrystalline, lithographic, trace fossiliferous, some scattered stained solution vugs, trace scaly oil on break, no odor, poor overall fluorescence, good slow streaming cut, some chalk

cfs samples grades to limestone a.a., no show, with scattered gray chert

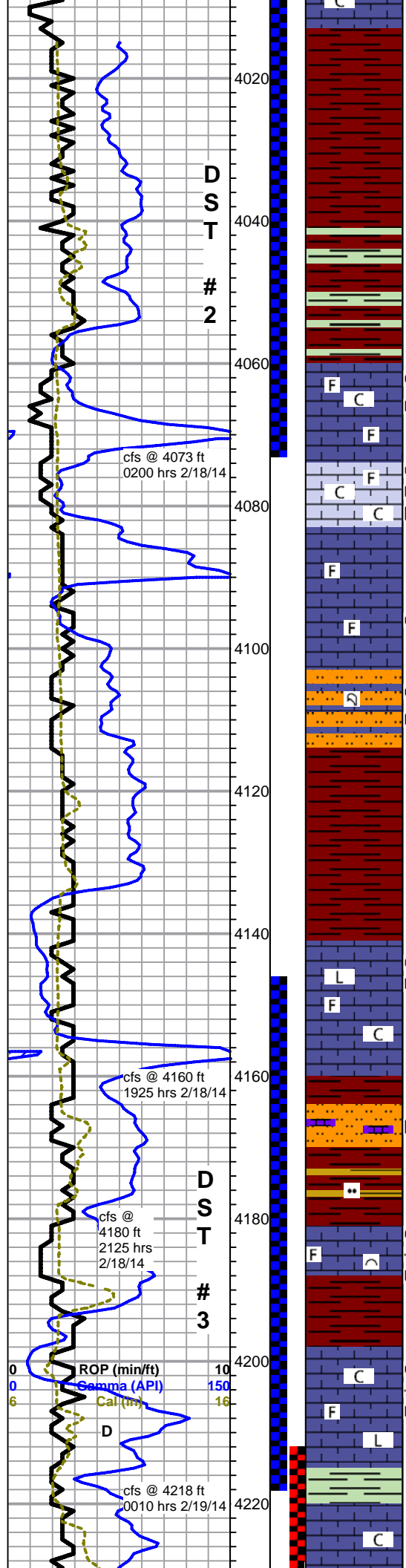
● siltstone, pale gray green, some dark maroon, trace stain, some pale green sandy limestone, some pelletal, trace dead black stain, no show free oil or odor - grades back to red and olive/yellow silty shale

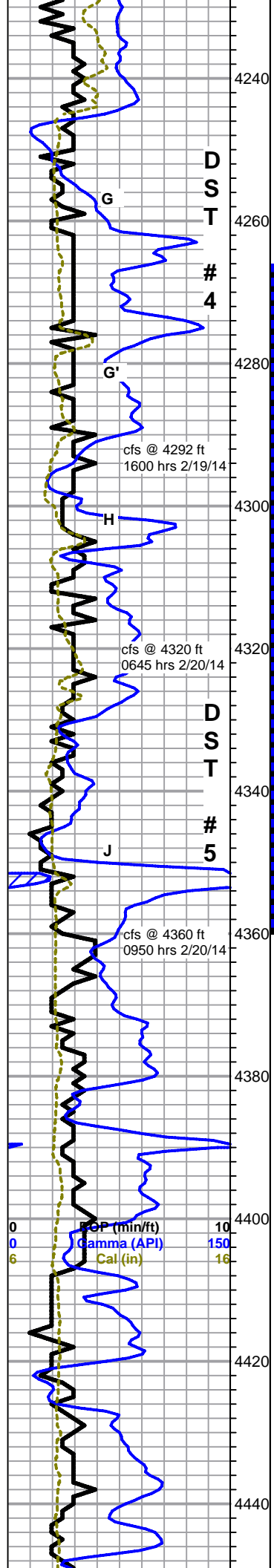
● limestone, light gray to pale green, microcrystalline, arenaceous to bioclastic and fossiliferous, appx. 40% with good etching to vuggy porosity, fair black to brown spotty to saturated stain, show gas and heavy free oil, heavy sheen in tray, fleeting odor, spotty light fluorescence, excellent cut

● limestone, white, cryptocrystalline, chalky, lithographic to fossiliferous in part, some good small to medium solution vugs, staining through vugs, bleeding heavy free oil, some gas bubbles, fairly even light fluorescence, good cut with halo, no odor

cfs samples - grades to limestone, pale green, crypto-microcrystalline, dense lithographic, with green shale, no shows, still abundant limestone a.a.

limestone, white, cryptocrystalline, very chalky, soft, no shows





shales, red, sticky, soft, some gray

4260 sample, shale as above with limestone, gray, bioclastic, good pinpoint porosity, saturated grayish/black stain, good sheen in tray, no free oil droplets, poor fluorescence, fair cut, no odor, still abundant shale

4270 sample, grades to limestone, white to light gray and gray/green, cryptocrystalline, fossiliferous, some large clasts, some fair interclast wormy/vuggy porosity, good brown staining in vugs, bleeding free oil and gas bubbles, fleeting odor, poor fluorescence, good milky cut to poor light cut

4280 sample, grades to limestone, pale green, cryptocrystalline, lithographic, dense, no shows

dense gray/green to gray and brick orange shale

limestone, gray to tan, mottled, pelletal and fossiliferous, some large secondary calcite crystals, spotty black dead stain, no show free oil or odor, with white to pale green cryptocrystalline limestone, lithographic, barren

limestone, white to light gray, chalky fossiliferous, with limestone, gray/green, cryptocrystalline, arenaceous, slightly fossiliferous, few pieces both facies with slight etching and dead black stain, no show free oil, poor overall porosity and fluorescence, no odor

limestone, white to pale gray/gray green, microcrystalline, fossiliferous, chalky in part, some interclast porosity, spotty to saturated black stain, trace scaly sheen, no odor, light yellow to spotty fair fluorescence

flood chalk in 4350 sample, some light green gritty fossiliferous limestone

limestone, white to light gray and gray/green, microcrystalline, fossiliferous to bioclastic, chalky in part, some scattered interclast porosity, very spotty light staining, sheen light oil on break and in tray, no questionable odor, fair even green fluorescence, fair cut - still flood chalk in samples

Stark Shale 4352 -1182 (log top 4350 -1180)

mixed red, gray and green shales, samples heavy red wash

lost packer in hole after test, lost circ pushing packer to bottom. 450 bbl

limestone, white to light gray, gray and gray green, mostly cryptocrystalline fossiliferous, some chalky in part, trace glauconitic, poor visible porosity, no shows

limestone as above, with some brown pelletal, trace chert, no shows

Base KC 4416 -1246 (log top 4408 -1238)

limestone, gray, dense arenaceous, light gray fossiliferous, 1 piece with vugs, slight stain (sluff from above?), no show, abundant brecciated fossiliferous limestone with maroon shale infill

WL 4.8
Cake 2/32,
pH 11.0
CHL 600 ppm
Ca 20 ppm
Sol 7.1 LCM 2#
DMC \$2198.00
CMC \$21589.00

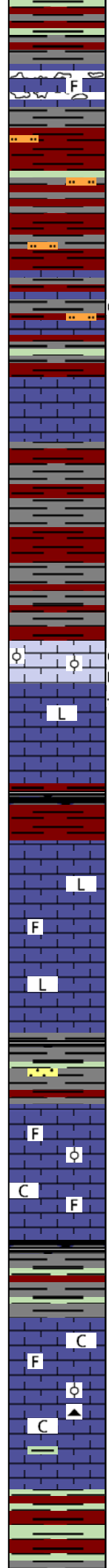
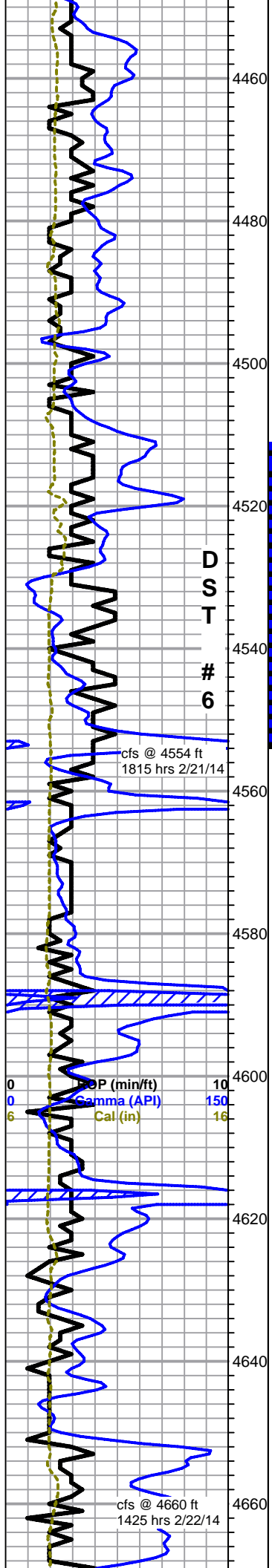
Ivalee 1-4 dst 4.jpg

Ivalee 1-4 dst 5.jpg

Morgan Mud chk
@ 4320 ft.
0715 hrs. 2/20/14
Vis. 54 Wt. 9.4
PV 21 YP 18
WL 6.0
Cake 2/32,
pH 10.5
CHL 600 ppm
Ca 20 ppm
Sol 7.8 LCM 2#
DMC \$0.00
CMC \$21589.00

Morgan Mud chk
@ 4360 ft.
0700 hrs. 2/21/14
Vis. 123 Wt. 8.7
PV 30 YP 37
WL 4.4
Cake 2/32,
pH 11.5
CHL 800 ppm
Ca 10 ppm
Sol 2.9 LCM 10#
DMC \$8182.00
CMC \$29771.00

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



limestones as above, no shows

mixed shales, mostly reds, some burnt orange, abundant reddish pink siltstone, dense

limestone, white to light gray, chalky, bioclastic to fossiliferous, some micro-oolitic, questionable stain on few pieces, seems organic not petroleum based, no fluorescence or cut

limestone, gray, cryptocrystalline, arenaceous, gritty, dense

shale, red, influx abundant gray shale, some brown shale with fossil pellets

Pawnee 4539 -1369 (log top 4529 -1359)

limestone, white to light gray, oolitic, some fair inter-oolite porosity, slight framework, wormy saturated inter-oolite stain, fair show free oil, trace gas bubbles, faint odor, fair even fluorescence, fair to good cut with halo

grades to limestone, gray, cryptocrystalline, arenaceous and to smooth lithographic, dense

limestone, variable gray, cryptocrystalline, arenaceous to lithographic, dense, some scattered light gray to cream fossiliferous, some chalk, no shows

mostly gray shales, soft, heavy gray wash, trace dirty medium grain glauconitic sandstone, no show

limestone, light gray to white, microcrystalline, fossiliferous to flattened oolitic, chalky in part, poor visible porosity, with limestone, cream to gray, cryptocrystalline, arenaceous, chalky in part, no shows

Cherokee 4623 -1423 (log top 4615 -1445)

limestone, white to gray, chalky fossiliferous to oolitic, limestone, some brown fossiliferous, variable gray, cryptocrystalline lithographic to fossiliferous, dense, abundant chalk, some orange cherts, no shows

as above, cherts dropping out, some bright turquoise shales

red, green, olive mottled shales

losing some fluid here, about 40 bbls, built back up to 10# lcm

lvalee 1-4 dst 6.jpg

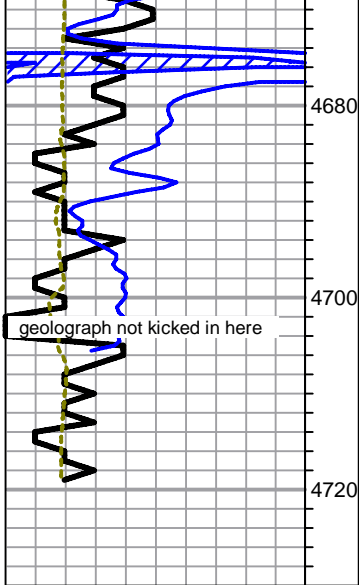
cfs @ 4554 ft
1815 hrs 2/21/14

Morgan Mud chk @ 4554 ft.
0715 hrs. 2/22/14
Vis. 60 Wt. 9.1
PV 32 YP 10
WL 6.0
Cake 2/32,
pH 10.5
CHL 600 ppm
Ca 20 ppm
Sol 5.7 LCM 12#
DMC \$2542.00
CMC \$32313.00

0 10
0 150
6 16
ROP (min/ft)
Gamma (API)
Cal (in)

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

cfs @ 4660 ft
1425 hrs 2/22/14



4680
4700
4720



limestone, light gray to white, microcrystalline, fossiliferous, chalky in part, poor visible porosity, no shows

red, green and gray variable shale, sandstone, white, quartz, fine to very fine grain, sub angular to sub round, poor to fair sorting, siliceous cement, well cemented, poor visible porosity, barren

conglomerate? red and green mottled shales, heavy red wash, abundant large quartz shards, some fractured, some orange and pink angular feldspars, abundant sand grains

Rotary TD 4719 ft. @ 1815 hrs 2/22/14
Pioneer Wireline Log TD 4714 ft.
Complete Logging Operations @ 0030 hrs 2/23/14

deviation survey 0.6 degrees



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co
250 N Water STE 300
Wichita KS, 67202
ATTN: Keith Reavis

4 1s 37w Cheyenne Ks

IvaLee #1-4

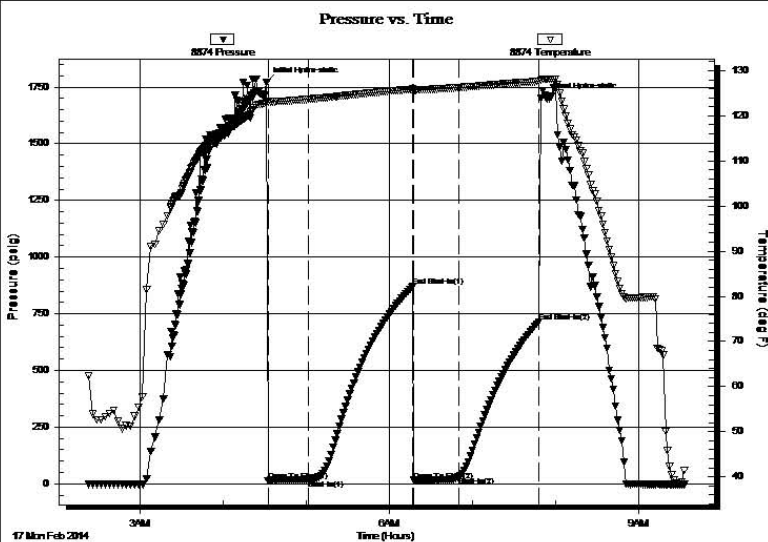
Job Ticket: 56752 **DST#: 1**
Test Start: 2014.02.17 @ 02:22:00

GENERAL INFORMATION:

Formation: **Foraker**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:32:30
Time Test Ended: 09:34:00
Interval: **3664.00 ft (KB) To 3716.00 ft (KB) (TVD)**
Total Depth: 3716.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Robert Zodrow
Unit No: 66
Reference Elevations: 3170.00 ft (KB)
3157.00 ft (CF)
KB to GR/CF: 13.00 ft

Serial #: 8874 Inside
Press@RunDepth: 29.67 psig @ 3665.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.17 End Date: 2014.02.17 Last Calib.: 2014.02.17
Start Time: 02:23:00 End Time: 09:34:00 Time On Btm: 2014.02.17 @ 04:31:30
Time Off Btm: 2014.02.17 @ 07:53:30

TEST COMMENT: 30-IF- w eak surface blow
60-IS- no return
30-FF- no blow
60-FS- no return



PRESSURE SUMMARY

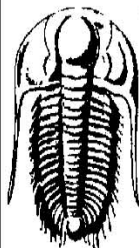
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1771.39	123.20	Initial Hydro-static
1	14.22	123.04	Open To Flow (1)
31	15.22	123.68	Shut-In(1)
106	870.90	125.89	End Shut-In(1)
106	15.09	125.54	Open To Flow (2)
139	29.67	126.25	Shut-In(2)
197	714.29	127.60	End Shut-In(2)
202	1700.94	128.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100%m	0.01

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co
250 N Water STE 300
Wichita KS, 67202
ATTN: Keith Reavis

4 1s 37w Cheyenne Ks

Ivalee #1-4

Job Ticket: 56753

DST#: 2

Test Start: 2014.02.18 @ 05:46:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:00:30

Time Test Ended: 12:52:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Robert Zodrow

Unit No: 66

Interval: 4009.00 ft (KB) To 4073.00 ft (KB) (TVD)

Total Depth: 3716.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3170.00 ft (KB)

3157.00 ft (CF)

KB to GR/CF: 13.00 ft

Serial #: 8874 Inside

Press@RunDepth: 33.93 psig @ 4010.00 ft (KB)

Start Date: 2014.02.18

End Date: 2014.02.18

Start Time: 05:47:00

End Time: 12:52:30

Capacity: 8000.00 psig

Last Calib.: 2014.02.18

Time On Btm: 2014.02.18 @ 08:00:00

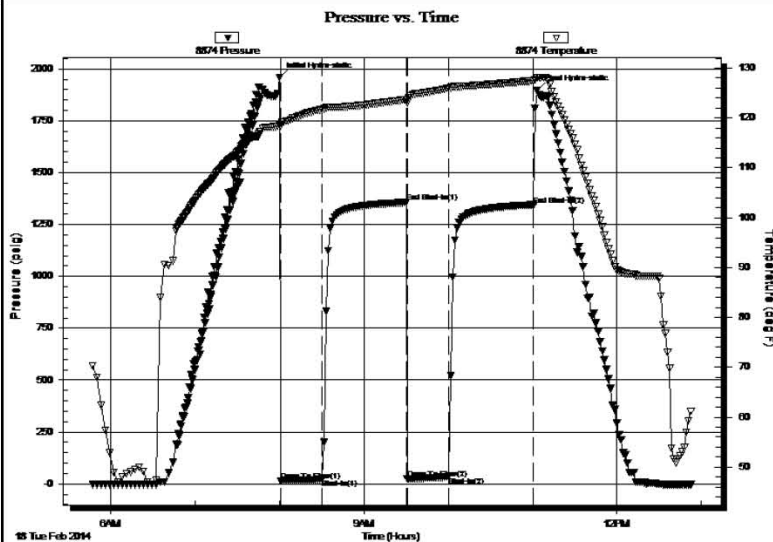
Time Off Btm: 2014.02.18 @ 11:03:00

TEST COMMENT: 30-IF- Blow Built To 1 1/4"

60-ISI- No Return

30-FF- Blow Built 1/4"

60-FSI- No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1958.79	118.53	Initial Hydro-static
1	15.01	118.47	Open To Flow (1)
30	22.46	121.73	Shut-In(1)
90	1356.34	123.71	End Shut-In(1)
91	24.35	123.09	Open To Flow (2)
120	33.93	125.98	Shut-In(2)
181	1343.06	127.47	End Shut-In(2)
183	1896.88	128.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	Mud 100% with oil spots	0.73

Gas Rates

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

* Recovery from multiple tests

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE 300
 Wichita KS, 67202
 ATTN: Keith Reavis

4 1s 37w Cheyenne Ks

IvaLee #1-4

Job Ticket: 56754 **DST#: 3**
 Test Start: 2014.02.19 @ 02:25:00

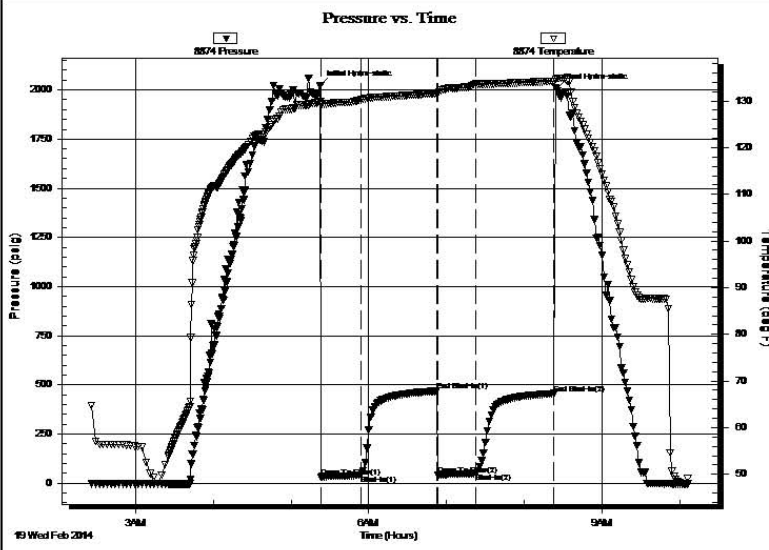


GENERAL INFORMATION:

Formation: **LKC "A - D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:23:00
 Time Test Ended: 10:06:00
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Robert Zodrow
 Unit No: 66
 Interval: **4146.00 ft (KB) To 4218.00 ft (KB) (TVD)**
 Total Depth: 3716.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 3170.00 ft (KB)
 3157.00 ft (CF)
 KB to GR/CF: 13.00 ft

Serial #: 8874 **Inside**
 Press@RunDepth: 50.21 psig @ 4147.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.19 End Date: 2014.02.19 Last Calib.: 2014.02.19
 Start Time: 02:26:00 End Time: 10:06:00 Time On Btm: 2014.02.19 @ 05:22:30
 Time Off Btm: 2014.02.19 @ 08:25:00

TEST COMMENT: 30-IF-Blow Built To 2"
 60-ISI- No Return
 30-FF-No Blow
 60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2023.62	129.80	Initial Hydro-static
1	32.36	129.30	Open To Flow (1)
32	41.46	130.26	Shut-In(1)
90	468.18	131.64	End Shut-In(1)
91	43.37	131.49	Open To Flow (2)
120	50.21	133.63	Shut-In(2)
181	456.11	134.23	End Shut-In(2)
183	2005.11	134.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	OCM 99% _m 1% _o	1.02

Gas Rates

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

* Recovery from multiple tests

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE 300
 Wichita KS, 67202
 ATTN: Keith Reavis

4 1s 37w Cheyenne Ks
IvaLee #1-4
 Job Ticket: 53392 **DST#: 4**
 Test Start: 2014.02.19 @ 18:26:00

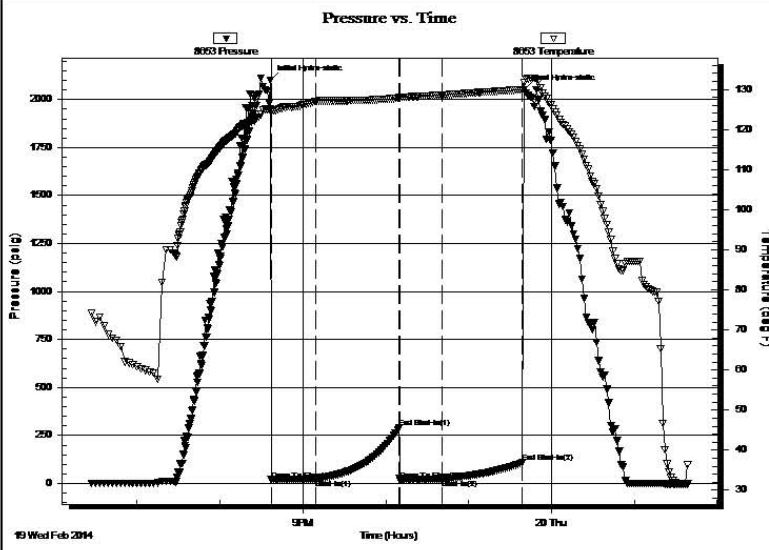


GENERAL INFORMATION:

Formation: **LKC "G-G" "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:37:00
 Time Test Ended: 01:39:30
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Kevin Mack
 Unit No: 66
 Interval: **4212.00 ft (KB) To 4292.00 ft (KB) (TVD)**
 Total Depth: 4292.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Reference Elevations: 3170.00 ft (KB)
 3157.00 ft (CF)
 KB to GR/CF: 13.00 ft

Serial #: 8653 **Outside**
 Press@RunDepth: 21.10 psig @ 4213.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.19 End Date: 2014.02.20 Last Calib.: 2014.02.20
 Start Time: 18:27:00 End Time: 01:39:30 Time On Btm: 2014.02.19 @ 20:36:30
 Time Off Btm: 2014.02.19 @ 23:40:00


TEST COMMENT: 30 - IF- 1/2" Blow built to 1 1/2"
 60 - IS- No Return
 30 - FF- No Blow
 60 - FS- No Return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2101.33	125.06	Initial Hydro-static
1	19.05	124.70	Open To Flow (1)
33	21.21	127.03	Shut-In(1)
93	288.07	127.77	End Shut-In(1)
94	17.33	128.04	Open To Flow (2)
124	21.10	128.57	Shut-In(2)
182	107.75	129.94	End Shut-In(2)
184	2052.69	131.57	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
15.00	OCM 80M 20o	0.21

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

	DRILL STEM TEST REPORT	
	Murfin Drilling Co 250 N Water STE 300 Wichita KS, 67202 ATTN: Keith Reavis	4 1s 37w Cheyenne Ks IvaLee #1-4 Job Ticket: 53393 DST#: 5 Test Start: 2014.02.20 @ 12:45:00

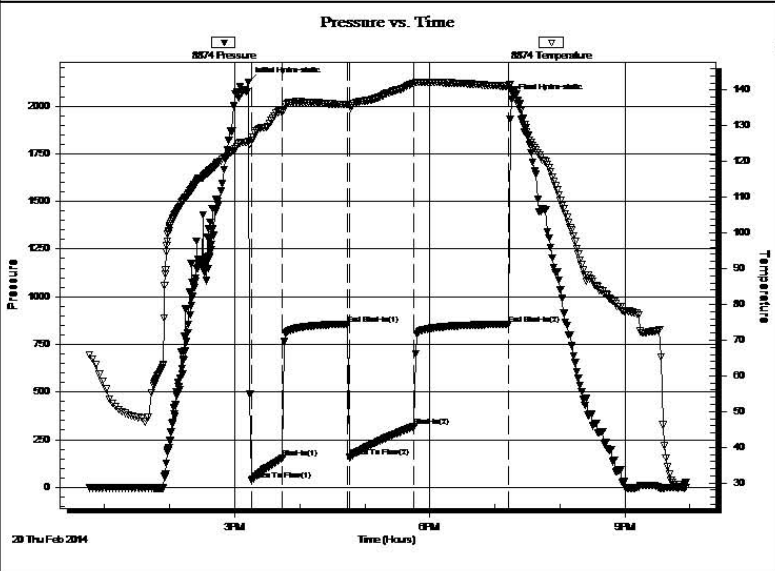
GENERAL INFORMATION:

Formation: LKC "H,I,J" Deviated: No Whipstock: ft (KB) Time Tool Opened: 15:15:30 Time Test Ended: 21:57:00	Test Type: Conventional Bottom Hole (Initial) Tester: Kevin Mack Unit No: 66
Interval: 4266.00 ft (KB) To 4360.00 ft (KB) (TVD) Total Depth: 4360.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Good	Reference Elevations: 3170.00 ft (KB) 3157.00 ft (CF) KB to GR/CF: 13.00 ft

Serial #: 8874 Inside

Press@RunDepth: 320.55 psig @ 4267.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2014.02.20 End Date: 2014.02.20	Last Calib.: 2014.02.20
Start Time: 12:46:00 End Time: 21:57:00	Time On Btm: 2014.02.20 @ 15:12:30
	Time Off Btm: 2014.02.20 @ 19:15:30

TEST COMMENT: 30 - IF- BoB in 8 min.
 60 - IS- BoB in 45 min.
 60 - FF- BoB in 7 min.
 90 - FS- Surface Blow built to 9"



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2125.53	125.51	Initial Hydro-static
3	39.47	125.85	Open To Flow (1)
32	152.36	133.88	Shut-In(1)
92	856.52	135.91	End Shut-In(1)
93	156.90	135.62	Open To Flow (2)
153	320.55	141.93	Shut-In(2)
240	855.37	141.12	End Shut-In(2)
243	2034.30	139.59	Final Hydro-static

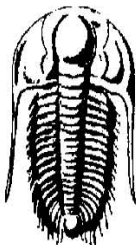
Recovery		
Length (ft)	Description	Volume (bbl)
94.00	OCM 10o 90M	1.32
238.00	GOCM 10G 30o 60M	3.34
441.00	Clean Gassy Oil 20G 80o	6.19
0.00	720' GIP	0.00

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

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE300
 Wichita KS, 67202
 ATTN: Keith Reavis

4 1s 37w Cheyenne Ks
IvaLee #1-4
 Job Ticket: 53394 **DST#: 6**
 Test Start: 2014.02.21 @ 23:50:00



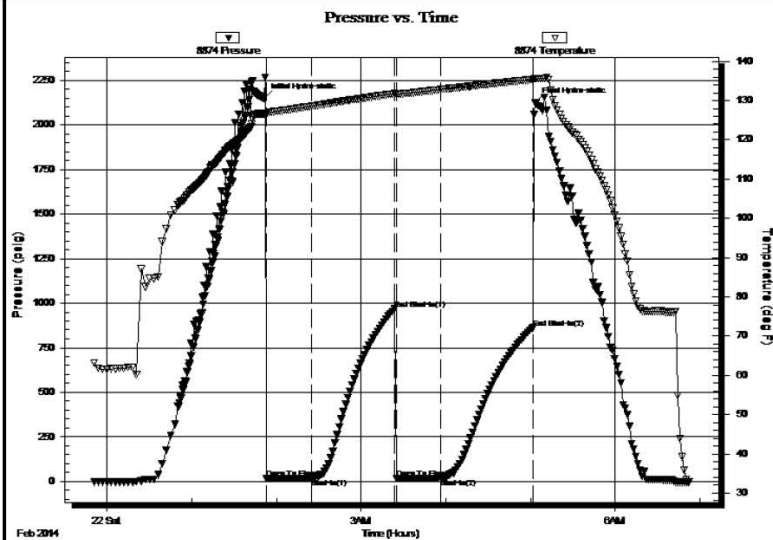
TRILOBITE TESTING, INC

GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:53:00
 Time Test Ended: 06:52:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Kevin Mack
 Unit No: 66
 Interval: **4511.00 ft (KB) To 4554.00 ft (KB) (TVD)**
 Total Depth: 4554.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 3170.00 ft (KB)
 3157.00 ft (CF)
 KB to GR/CF: 13.00 ft

Serial #: 8874 Inside
 Press@RunDepth: 19.66 psig @ 4512.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.21 End Date: 2014.02.22 Last Calib.: 2014.02.22
 Start Time: 23:51:00 End Time: 06:52:00 Time On Btm: 2014.02.22 @ 01:51:00
 Time Off Btm: 2014.02.22 @ 05:03:30

TEST COMMENT: 30 - IF- 1/2" Blow built to 1 1/4"
 60 - IS- No Return
 30 - FF- No Blow
 60 - FS- No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2149.46	126.71	Initial Hydro-static
2	17.00	126.56	Open To Flow (1)
34	17.95	128.58	Shut-In(1)
93	968.14	131.76	End Shut-In(1)
94	18.93	131.60	Open To Flow (2)
126	19.66	132.82	Shut-In(2)
191	861.85	135.36	End Shut-In(2)
193	2123.67	135.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud 100M	0.21

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (M cf/d)