




FORMATION	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.
ANHYDRITE TOP	1643	379	1643	379	1645	385	- 6	- 6	1650	377	+ 2	+ 2	1767	363	+ 16	+ 16	1780	360	+ 19	+ 19
BASE	1672	350	1672	350	1672	358	- 8	- 8	1679	348	+ 2	+ 2								
TOPEKA	2984	-962	2982	-960	2983	-953	- 9	- 7	2987	-960	- 2	+ 0	3130	-1000	+ 38	+ 40				
HEEBNER SHALE	3183	-1161	3184	-1162	3182	-1152	- 9	- 10	3184	-1157	- 4	- 5	3305	-1175	+ 14	+ 13	3329	-1189	+ 28	+ 27
TORONTO	3211	-1189	3211	-1189	3209	-1179	- 10	- 10	3210	-1183	- 6	- 6	3331	-1201	+ 12	+ 12	3361	-1221	+ 32	+ 32
LKC	3228	-1206	3226	-1204	3224	-1194	- 12	- 10	3224	-1197	- 9	- 7	3347	-1217	+ 11	+ 13	3377	-1237	+ 31	+ 33
BKC	3414	-1392	3418	-1396	3412	-1382	- 10	- 14	3413	-1386	- 6	- 10	3543	-1413	+ 21	+ 17				
ARBUCKLE	3469	-1447	3468	-1446	3463	-1433	- 14	- 13	3473	-1446	- 1	+ 0	3591	-1461	+ 14	+ 15	3636	-1496	+ 49	+ 50
TOTAL DEPTH	3532	-1510	3530	-1508	3469	-1439	- 71	- 69	3500	-1473	- 37	- 35	3645	-1515	+ 5	+ 7	3670	-1530	+ 20	+ 22
DDTD					3475	-1445														
DDTD					3485	-1455														

### DST #1 TORONTO 3182' - 3220'

	<b>DRILL STEM TEST REPORT</b>	
	Black Diamond Oil	<b>4 5 21w Norton Ks.</b>
	P.O. box 641 Hays Ks 67601	<b>Glennemeier #1</b>
	ATTN: Jeff Lawlor	Job Ticket: 55052 <b>DST#: 1</b> Test Start: 2014.04.15 @ 09:05:00

**GENERAL INFORMATION:**

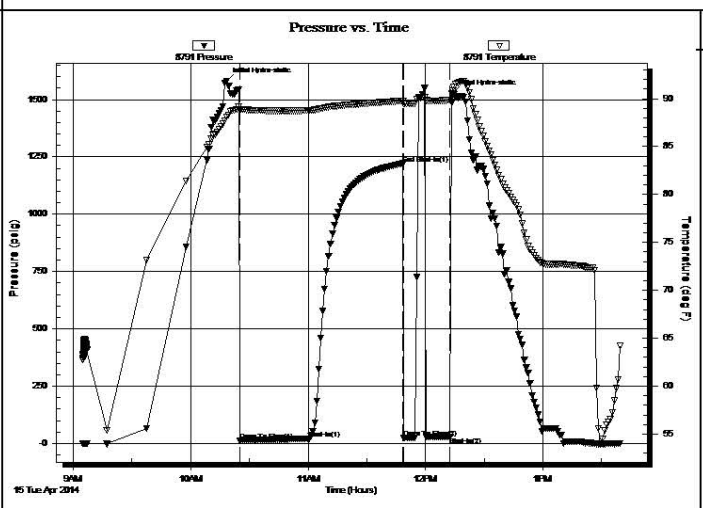
Formation: **Toronto**  
Deviated: No    Whipstock:                      ft (KB)                      Test Type: Conventional Bottom Hole (Initial)  
Time Tool Opened: 10:25:00                      Tester: Chuck Kreutzer Jr.  
Time Test Ended: 13:39:30                      Unit No: 61

Interval: **3182.00 ft (KB) To 3220.00 ft (KB) (TVD)**                      Reference Elevations: 2022.00 ft (KB)  
Total Depth: 3220.00 ft (KB) (TVD)                      2017.00 ft (CF)  
Hole Diameter: 7.88 inches    Hole Condition: Good                      KB to GR/CF: 5.00 ft

**Serial #: 8791      Inside**

Press@RunDepth: 21.19 psig @ 3185.00 ft (KB)                      Capacity: 8000.00 psig  
Start Date: 2014.04.15                      End Date: 2014.04.15                      Last Calib.: 2014.04.15  
Start Time: 09:05:01                      End Time: 13:39:30                      Time On Btm: 2014.04.15 @ 10:18:30  
Time Off Btm: 2014.04.15 @ 12:14:00

**TEST COMMENT:** IF: Weak surface blow over 30 mins.  
ISI: No blow back  
FF: No blow . Flushed tool-Pulled tool 10 mins. after wards




PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1581.01	88.07	Initial Hydro-static
7	13.09	88.80	Open To Flow (1)
42	21.19	88.76	Shut-In(1)
90	1221.11	89.77	End Shut-In(1)
91	23.61	89.45	Open To Flow (2)
114	28.93	89.84	Shut-In(2)
116	1527.67	90.79	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	mud with oil specs	0.10

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

**DST #2 LKC C - D 3242' - 3285'**

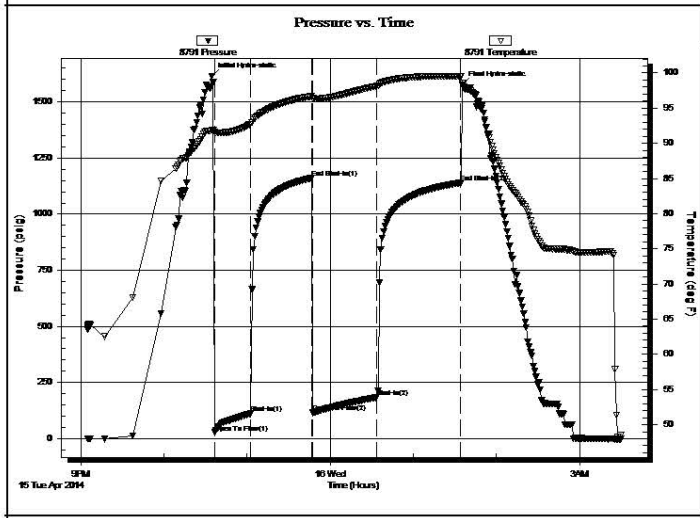
	<b>DRILL STEM TEST REPORT</b>	
	Black Diamond oil P.O.Box 641 Hays Ks 67601 ATTN: Jeff Lowery	<b>4 5 21w Norton Ks.</b> <b>Glennemeier #1</b> Job Ticket: 55053 <b>DST#: 2</b> Test Start: 2014.04.15 @ 21:05:00

**GENERAL INFORMATION:**

Formation: <b>LKC-C-D</b>	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock:                      ft (KB)	Tester: Chuck Kreutzer Jr.
Time Tool Opened: 21:36:30	Unit No: 61
Time Test Ended: 02:29:30	
<b>Interval: 3242.00 ft (KB) To 3285.00 ft (KB) (TVD)</b>	Reference Elevations: 2022.00 ft (KB)
Total Depth: 3285.00 ft (KB) (TVD)	2017.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good	KB to GR/CF: 5.00 ft

<b>Serial #: 8791</b> <b>Inside</b>	
Press@RunDepth: 183.49 psig @ 3250.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2014.04.15      End Date: 2014.04.16	Last Calib.: 2014.04.16
Start Time: 21:05:01      End Time: 03:29:30	Time On Btm: 2014.04.15 @ 22:34:30
	Time Off Btm: 2014.04.16 @ 01:35:30

**TEST COMMENT:** IF: Fair blow , Built to B.O.B in 12 mins.  
 IS: No blow back  
 FF: Fair blow , Built to B.O.B in 20 mins.  
 FS: No blow back



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1614.70	91.85	Initial Hydro-static
2	26.53	91.54	Open To Flow (1)
28	111.17	92.72	Shut-In(1)
72	1160.39	96.69	End Shut-In(1)
73	115.17	96.37	Open To Flow (2)
119	183.49	98.14	Shut-In(2)
180	1139.84	99.53	End Shut-In(2)
181	1576.13	98.53	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
186.00	water-100%	1.50
186.00	MCW-20% m80%w	2.61
62.00	SOCWM-20% o30%w 50%m	0.87

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

**DST #3 LKC E 3285' - 3294'**



**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Black Diamond oil  
 P.O.box 641 Hays Ks 67601  
 ATTN: Jeff Low ery

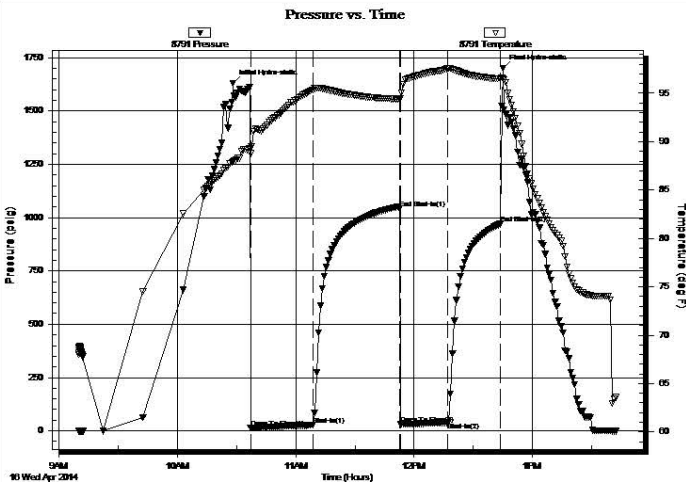
**4 5 21w Norton Ks.**  
**Glennemeier #1**  
 Job Ticket: 55054 **DST#: 3**  
 Test Start: 2014.04.16 @ 09:10:00

**GENERAL INFORMATION:**

Formation: **LKC-E**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:37:00  
 Time Test Ended: 13:42:30  
 Interval: **3285.00 ft (KB) To 3294.00 ft (KB) (TVD)**  
 Total Depth: 3294.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Chuck Kreutzer Jr.  
 Unit No: 61  
 Reference Elevations: 2022.00 ft (KB)  
 2017.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8791** Inside  
 Press@RunDepth: 38.46 psig @ 3286.00 ft (KB)  
 Start Date: 2014.04.16 End Date: 2014.04.16  
 Start Time: 09:10:01 End Time: 13:42:30  
 Capacity: 8000.00 psig  
 Last Calib.: 2014.04.16  
 Time On Btm: 2014.04.16 @ 10:28:00  
 Time Off Btm: 2014.04.16 @ 12:45:00

**TEST COMMENT:** IF: Weak blow surface over 30 mins.  
 IS: No blow back  
 FF: No blow  
 FS: No blow back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1628.42	87.92	Initial Hydro-static
9	13.35	88.77	Open To Flow (1)
41	26.60	95.37	Shut-In(1)
85	1041.94	94.39	End Shut-In(1)
85	30.26	94.49	Open To Flow (2)
109	38.46	97.57	Shut-In(2)
136	970.40	96.48	End Shut-In(2)
137	1701.09	96.54	Final Hydro-static


**Recovery**

Length (ft)	Description	Volume (bbl)
25.00	mcw -35% m65%w -Withgood odor	0.12

**Gas Rates**

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

**DST #4 LKC E - F 3286' - 3302'**

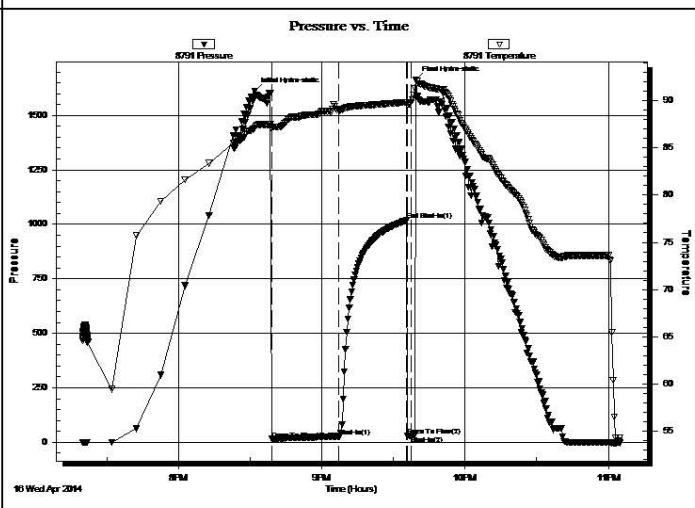
	<b>DRILL STEM TEST REPORT</b>	
	Black Diamond oil P.O.Box 641 Hays Ks 67601 ATTN: Jeff Lowery	<b>4 5 21w Norton Ks.</b> <b>Glennemeier #1</b> Job Ticket: 55055 <b>DST#: 4</b> Test Start: 2014.04.16 @ 19:20:00

**GENERAL INFORMATION:**

Formation: <b>LKC-F</b>	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock: ft (KB)	Tester: Chuck Kreutzer Jr.
Time Tool Opened: 20:39:00	Unit No: 61
Time Test Ended: 23:05:00	Reference Elevations: 2022.00 ft (KB)
<b>Interval: 3286.00 ft (KB) To 3302.00 ft (KB) (TVD)</b>	2017.00 ft (CF)
Total Depth: 3220.00 ft (KB) (TVD)	KB to GR/CF: 5.00 ft
Hole Diameter: 7.88 inches Hole Condition: Good	

<b>Serial #: 8791</b> <b>Inside</b>	Capacity: 8000.00 psig
Press@RunDepth: 27.19 psig @ 3289.00 ft (KB)	Last Calib.: 2014.04.16
Start Date: 2014.04.16      End Date: 2014.04.16	Time On Btm: 2014.04.16 @ 20:32:00
Start Time: 19:20:01      End Time: 23:05:00	Time Off Btm: 2014.04.16 @ 21:39:30

**TEST COMMENT:** IF: Weak blow , Dead in 1 min  
 IS: No blow back  
 FF: No blow -Flushed and pull














PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1611.24	87.13	Initial Hydro-static
7	14.35	87.04	Open To Flow (1)
35	27.19	88.99	Shut-In(1)
64	1017.85	89.84	End Shut-In(1)
64	29.31	89.53	Open To Flow (2)
66	30.33	89.82	Shut-In(2)
68	1664.14	92.22	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
5.00	mud	0.02

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

**ROCK TYPES**

 Cht vari	 Lmst fw<7	 shale, gry	 shale, red
 Congl	 Lmst fw7>	 Carbon Sh	 Ss
 Dolprim	 shale, grn	 Shblk	

**ACCESSORIES**

**MINERAL**

\* Sandy

**FOSSIL**










◇ Oolite

**STRINGER**

■ Sandstone  
■ red shale

**OTHER SYMBOLS**

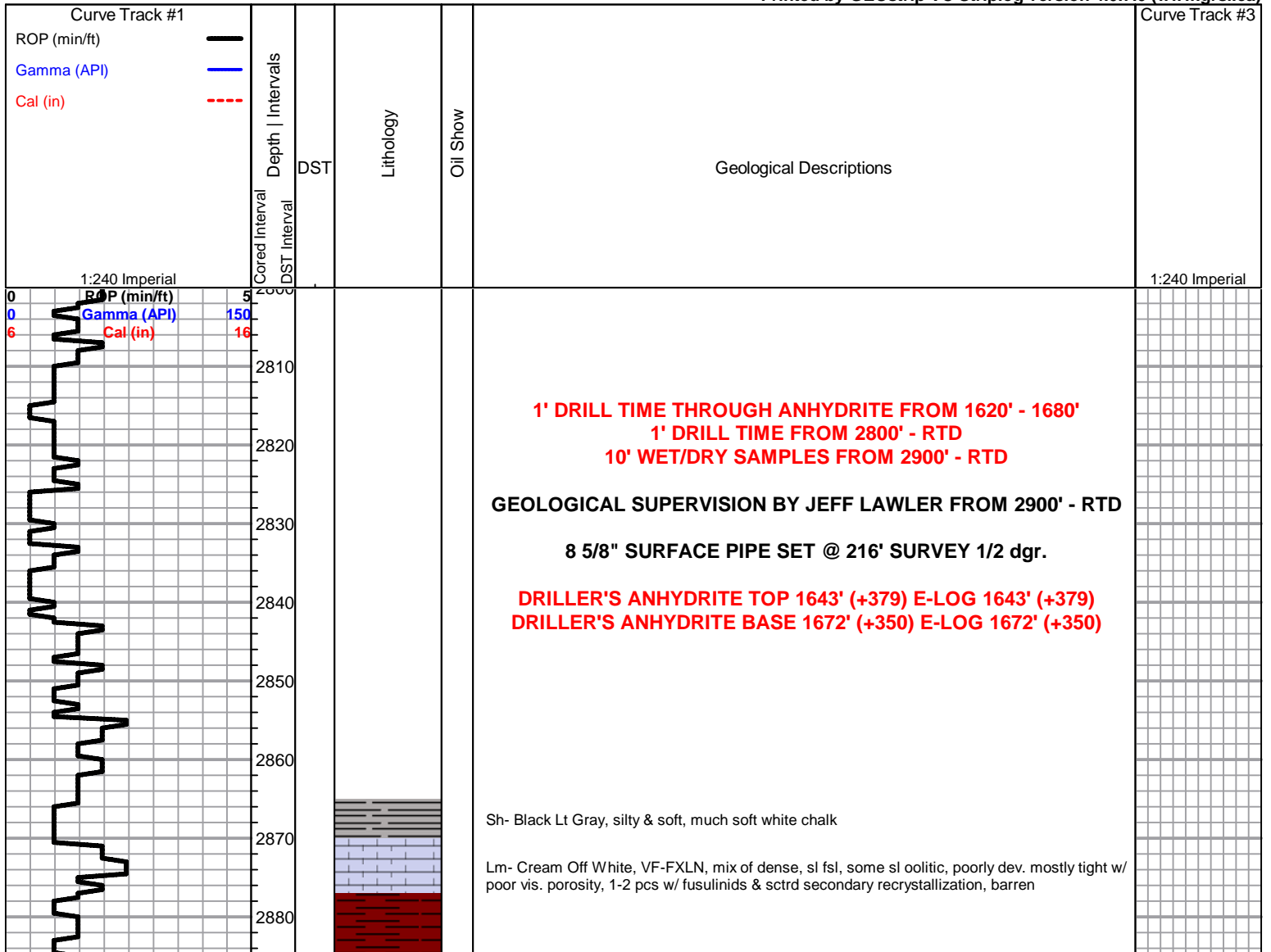
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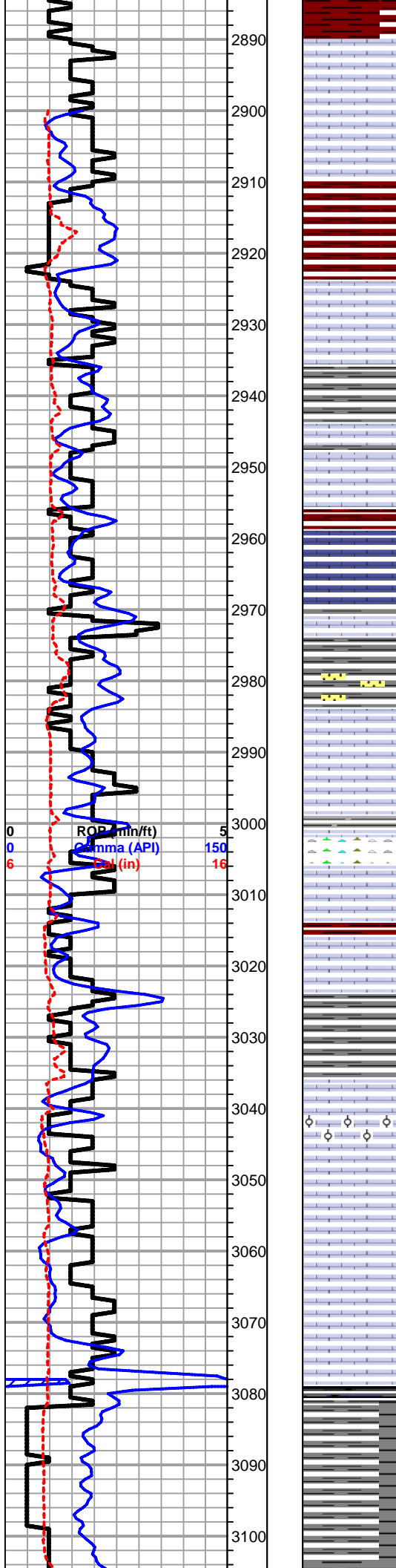
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-  Digital Photo
-  Document
-  Folder
-  Link
-  Vertical Log File
-  Horizontal Log File
-  Core Log File
-  Drill Cuttings Rpt

**DST**

■ DST Int  
■ DST alt

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Lm- Off White Cream, VF-FXLN, dense, well cemented, fsl & some oolitic, poorly dev. w/ dense XLN inter oolite porosity, barren, some tight w/ minimal vis. porosity, few lithified mud matrix w/o vis. porosity

Lm- Cream Tan, VF-FXLN, fsl, some w/ fsl fragments, sctrd-dense XLN porosity, most well cemented, barren, soft white chalk, Sh- Lt Gray, silty & calcareous, some gummy wash

Sh- Maroon Lm Green Gray, gummy argillaceous clumps

Lm- Cream Buff, mix of granular tight sl dolomitic ls w/ poor vis. porosity, & fsl FXLN, dense buff ls w/ sctrd XLN porosity, much soft white chalk

Sh- Gray Maroon, silty & calcareous, gummy wash, gritty & earthy

Lm- Gray Buff Tan, VFXLN, dense, vry well cemented, some sl fsl, tight w/ sctrd micro XLN porosity

Lm- Tan Gray, VF-FXLN Vf Grn, tight mix, some trashy bioclastic w/ fsl frag w/o vis. porosity, rest vry tight w/o vis. porosity, soft siltstone & soft white chalk

Lm- Gray Cream, mostly Vf Grn, mud supported matrix, some fsl & trashy, loosely cemented, few pcs of fsl & sl oolitic, mostly tight w/ poor vis. porosity, barren

Lm- Gray Buff, VFXLN, dense, vry well cemented, sl granular & grainy, no vis. porosity, much soft chalk & gummy lime wash

Ss/Sh- White Gray Mint Green, Vf Grn lime sand, loosely-well cemented Sh- Gummy maroon clumps

**TOPEKA 2982' (-980) E-LOG 2984' (-962)** Lm- Gray w/ Yellow Tint Tan Cream, Fn Grn, chalky mud supported matrix, oolitic, poorly dev. w/ poor porosity, mixed w/ fsl VF-FXLN, fsl, mostly tight w/ micro XLN & sctrd XLN porosity, soft white chalk

Sh- Black Gray, silty & soft, calcareous, gummy wash, abundant soft white chalk

Chert- White/Cream, eroded & reworked chert w/ densely packed fusulinids frag., no vis. porosity

Lm- Cream, VFXLN, massive, sl granular, loosely-well cemented, sl chalky in part, minimal effective porosity, dense recrystallization, barren

Sh- Gray Maroon, silty & soft, gummy wash Ss- Gray, fn grn, sl trashy, most well cemented, granular, barren

Lm- Cream Off White, VF-FXLN, oolitic, ranging from densely packed small oolites w/ sparry cement to FXLN to vry well cemented dense sctrd recrystallization porosity, no effective porosity, barren, few pcs of milky white fresh bedded chert, abundant soft white chalk

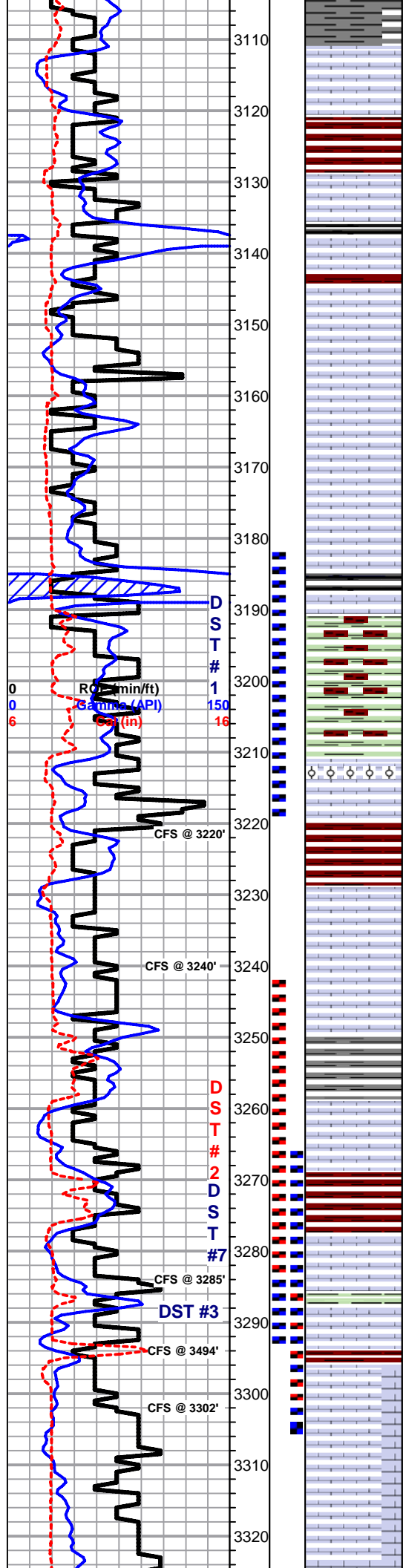
Lm- Cream, VFXLN, massive, dense, vry well cemented dolomitic ls, sub-sucrosic, micro XLN porosity, vry clean, much soft white chalk

Lm- Off White, VF-FXLN, sl fsl, poorly dev, mostly tight w/ micro XLN & XLN porosity, few w/ sctrd recrystallization porosity, vry clean

Lm- A/A w/ buff gray FXLN, bioclastic w/ fsl frag., sctrd XLN porosity, barren

Sh- Black Maroon Gray, fissile, carbonaceous, gritty & earthy, silty gummy lime

Sh- Gray Maroon, sandy gummy lime



Lm- Cream Off White, VF-FXLN, vry densely packed fsl & oolitic, poorly dev. w/ sparry cementation, minimal effective porosity, sctrd recrystallization porosity, barren

Sh- Maroon Gray, gummy wash, sandy lime, silty & calcareous

Sh- Black Maroon White, fissile, carbonaceous, gritty & earthy, dense, much soft white chalk

Lm- Cream Tan, VF-FXLN, fsl & sl oolitic, most poorly dev., some massive & loosely cemented w/ dense XLN porosity, tight fsl w/o effective porosity, all clean, barren, much soft white chalk

Lm- Cream Off White, Crypto-VF-XLN, dense, tight, most w/o vis. porosity, sctrd micro XLN porosity, chalky in part

Lm- Cream Off White, VF-FXLN, dense, sl fsl, tight & poorly dev. w/ minimal vis. porosity, abundant white chalk

Lm- A/A

**HEEBNER 3184' (-1162) E-LOG 3183' (-1161)** Sh- fissile, silty, carbonaceous, gummy gray clumps

Sh- Mint Green Maroon, abundant gummy argillaceous clumps & wash

**TORONTO 3211' (-1189) E-LOG 3211' (-1189)** Lm- White, F-Med XLN, fsl & oolitic, well dev. w/ constant ppt intergranular porosity, few pcs w/ crs recrystallization, SCTRD LT STN, MOD SFO, FR ODR, FR OILY SHEEN, soft white chalk

**40"**- Lm- Cream Tan, VF-FXLN, poorly dev. fsl w/ sctrd XLN porosity, few pcs of milky white fresh bedded chert/cherty ls w/o vis. porosity

**60"**- Lm/Chert- Cream VF-FXLN, sl grainy, vry well cemented w/ sctrd XLN & vry fn ppt porosity, LT SCTRD STN, SL-FR SFO, FR ODR, few pcs of chert w/ dense crs XLN & fn ppt porosity (possible fracturing) & recrystallization, LT SCTRD STN, SL-FR SFO, ODR A/A

**LKC 3226' (-1204) E-LOG 3228' (-1206)** Lm- Buff Cream, VF-FXLN, dense, well cemented, mostly tight w/ minimal vis. porosity, few pcs of oolitic biomicrite w/ sparry replacement cementation, vry sctrd ppt porosity, sl recrystallization w/in, WK SPOTTY STN, NSFO, NO ODR

**40"**- Lm- Cream Off White, VF-XLN, dense, vry well cemented, tight cherty ls mostly w/o vis. porosity, soft white chalk

Lm- Tan, FXLN, well cemented & brittle w/ sctrd XLN recrystallization porosity, tight cherty ls, barren

Sh- Gray Lm Green Maroon, silty & calcareous, dense, gritty & earthy, gummy argillaceous clumps

Lm- White, Med-Crs XLN, mod. well dev., oolitic w/ sctrd to constant ppt inter oolite porosity, SCTRD DRK STN, SFO, FEW W/ GSY BUBBLES UPON CRUSH, FR ODR, HVY OILY SHEEN, some soft white chalk

Lm- FXLN, White Cream, mostly tight, w/ poor vis. porosity, several pcs of milky white frsh bedded chert

Sh- Maroon Lm Green, gritty & earthy, gummy wash

Lm- White, Med XLN, oolitic w/ few small fusulinds, several pcs of well dev. oolitic grainstone w/ constant interoolite porosity throughout, DRK STN, FR SFO, FEW GSY BUBBLES, WK-FR ODR **20"**- Lm- A/A w/ increasing ODR, & VF-XLN, tight w/ minimal vis. porosity & soft white chalk **40"**- Sh- argillaceous lm green clumps

**3294'**- Lm- White Off White, mix of Med XLN, mod. well dev. oolitic ls w/ constant fn ppt porosity throughout, lt sctrd recrystallization w/in por., DRK SCTRD STN, FR SFO, SEVERAL GSY BUBBLES, FR-STRNG SULPHURIC ODR, & VF-FXLN, sl fsl, poorly dev. w/ sctrd micro XLN & XLN porosity, barren, some white chalk, several pcs of milky white bedded chert

**3302'**- Lm- White Cream, Vf Grn VF-FXLN, mostly soft white chalk & mud supported matrix, vry loosely cemented, several pcs of sl fsl & poorly dev. oolitic ls w/ micro XLN & XLN porosity, 3-5 pcs of mod. dev. oolitic ls w/ sctrd fn ppt porosity, SCTRD DRK STN, TR FO, FR-GD SULPHURIC ODR, 2-3 pcs of frosted sl oomoldic, loosely cemented (possible fracturing)

Lm- White Off White, VF-XLN Vf Grn, dense tight mix, minimal vis. porosity, milky white bedded chert

Lm- Cream Tan, VF-XLN, brittle, tight w/ minimal vis. porosity, incr. amount of chert A/A

SHORT TRIP SURVEY +0.72' STRAP 3/4 dgr.

DST #1 TORONTO 3182' - 3220'

30-45-20-0

20' MUD w/ OIL SPOTS

IFP: 13-21#  
FFP: 23-28#  
SIP: 1221-N/A  
HYD: 1581-1527#  
BHT: 90 dgr.

DST #2 LKC C - D 3242' - 3285'

30-45-45-60

434' TOTAL FLUID  
62' SOCWM  
(20%O, 30%W, 50% M)  
186' MW  
(80%W, 20%M)  
186' WATER

IFP: 27-111#  
FFP: 115-183#  
SIP: 1160-1140#  
HYD: 1615-1576#  
BHT: 98 dgr.

DST #3 LKC E 3285' - 3294'

30-45-30-30

25' MCW (65%W, 35%M)

IFP: 13-67#  
FFP: 30-38#  
SIP: 1042-970#  
HYD: 1628-1701#  
BHT: 98 dgr.

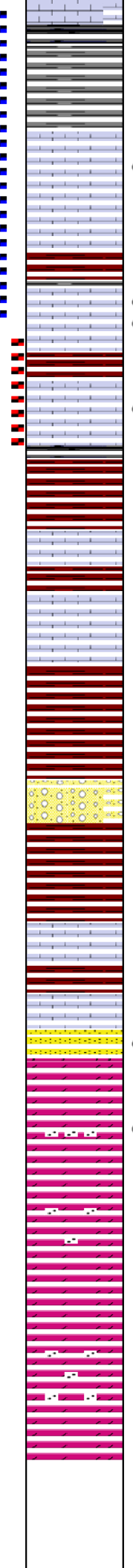
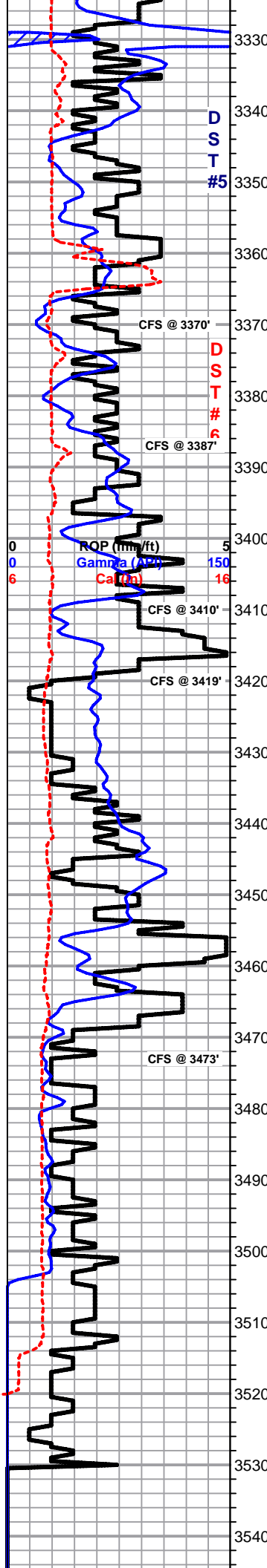
DST #4 LKC E & F 3286' - 3302'

30-30-0-0

5' MUD

IFP: 14-27#  
FFP: 29-30#  
SIP: 1018- N/A  
HYD: 1611-1664#  
BHT: 92 dgr.





Sh- Black Gray Lm Green Maroon, abundant fissile & carbonaceous, gummy, gritty & earthy

Sh- Abundant argillaceous lt gray clumps

Lm- Off White Lt Gray, VF-FXLN, mix of sl fsl w/ sctrd dev. some med-crs recrystallization & Vf Grn, well cemented, all w/ sctrd fn ppt-ppt porosity, SCTRD DRK STN, FR GSY FO, FR ODR, OILY SHEEN, some soft white chalk

Lm- Lt Gray, FXLN, dense, well cemented, poorly dev, chalky in part, minimal vis. porosity, barren

Sh- Maroon Gray Lm Green, gritty & earthy, gummy wash

Lm- Off White Tan, VF-FXLN, mix of off white sl fsl & sl oolitic, mod. dev. w/ sctrd to consistant fn ppt porosity, & dense vry well cemented cherty ls w/ sctrd ppt porosity, ALL W/ DRK SUB-SAT TO SAT STN, GD GSY FO, MOD ODR, HVY OILY SHEEN, MUCH FREE OIL IN WET CUP

20"- Lm- White Off White, FXLN, oolitic w/ few fusulinids, sctrd vry fn ppt & XLN porosity, some soft white chalk, ALL W/ SCTRD LT STN, TR FO, WK-FR ODR

40"- Lm- decreasing A/A, increasing amount of maroon & gray shale

Sh- Black Maroon, fissile, carbonaceous, gritty & earthy, gummy wash

Lm- White, FXLN, fsl & sl oolitic, poorly dev. most poorly dev. & sl chalky w/ sctrd XLN to poor vis. porosity, some soft white chalk

Lm- Off White Cream, VFXLN, dense, sl fsl, poorly dev. w/ micro XLN porosity, few pcs of crypto XLN w/ recrystallization veins, all well cemented & barren

**BKC 3418' (-1396) E-LOG 3414' (-1392)** Sh- Maroon Lm Green Gray, gummy clumps, gritty & earthy, sandy lime, silty & calcareous

Sh- Maroon, increasing amount of argillaceous clumps

Conglomerate- mix of sl unconsolidated VF-FXLN w/ maroon tint, minimal vis. porosity & dense maroon chert/cherty ls w/o vis. porosity

Lm- A/A w/ shaley oolitic FXLN ls, sctrd XLN porsity, some chalky in part, white VFXLN w/ micro XLN porosity, soft sandy lime

**ARBUCKLE 3468' (-1446) E-LOG 3469' (-1447)** Ss- Clear to Frosted, Fn Grn, mix of poorly sorted rounded to sub-angular qtz. grains in white dolomitic cementation w/o porosity, mostly barren, consolidated & sorted qtz. clusters w/ friable to mod. dolomite cementation, some w/ glauconite, consistant intergranular porosity, DRK SCTRD TO SUB-SAT STN, GD SFO, NO ODR, HVY FO ON TOP OF WET CUP

Dol- Cream Off White Lt Pink, VF-Crs XLN, sub-rounded qtz inclusions, anhedral rhombs, loosely-well cemented, dense XLN to ppt porosity throughout, lt glauconite spkng & inclusions, mostly barren few pcs w/ SCTRD DRK STN, TR FO, NODR

Dol- A/A some w/ pyrite spkng

Dol- Cream Off White, VF-FXLN, dense, vry well cemented, dense XLN porosity, incr. amount of glauconite speckling, some white/green soft white chalk, 3-4 large (~3-5mm) angular qtz grains

Dol- Pink Lt Salon, VF-FXLN, dense, vry well cemented, poorly dev. w/ micro XLN & XLN porosity, some sl cherty dol w/ glauconite spkng

Dol- Cream Off White Clear to Frosted, Med-Crs XLN, sandy well dev. dol, w/ dense XLN to ppt porosity, vis. euohedral rhombs along with angular to sub-rounded qtz grains, barren, 4-5 large (~4-5+mm) angular grains

Dol- A/A w/ increasing grain size of qtz inclusions w/ decreasing amount of glauconite

**RTD 3530' (-1508) LTD 3532' (-1510) @ 10:06 4/18/2014**

DST #5  
LKC H - I  
3326' - 3370'  
(SEE CHART BELOW)  
30-45-30-45

25' OCM  
(25% O, 75% M)

IFFP: 15-40#  
FFP: 24-31#  
SIP: 883-797#  
HYD: 1635-1625#  
BHT: 95 dgr.

DST #5 L...

DST #6  
LKC J  
3272' - 3287'  
(SEE CHART BELOW)  
30-45-30-45

5' MUD w/ OIL SPOTS

IFFP: 14-15#  
FFP: 15-15#  
SIP: 16-15#  
HYD: 1651-1633#  
BHT: 96 dgr.

DST #7  
(STRADDLE)  
LKC D  
3257' - 3305'  
(SEE CHARTS BELOW)  
30-45-30-45


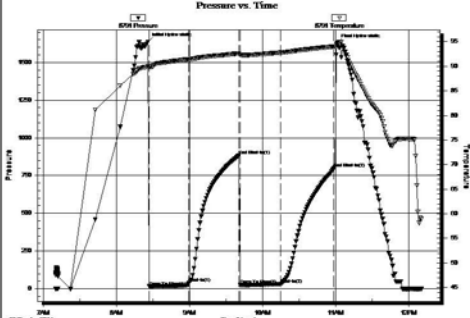
149' MUD (100%)  
1' FREE OIL


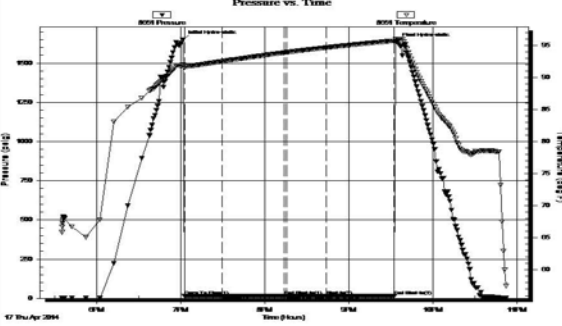
IFFP: 18-49#  
FFP: 53-77#  
SIP: 1082-1071#  
HYD: 1667-1602#  
BHT: 98 dgr.


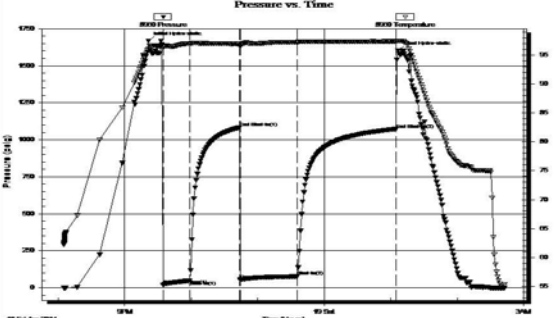
DST #6.jpg  
DST #7 L...  
DST #7 ...

15 STND SHORT TRIP CTCH SURVEY 1/2 dgr.

## DST #5\_LKCH\_I.jpg

 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>			
Black Diamond oil P.O. box 641 Hays Ks 67601  ATTN: Jeff Lowery	<b>4 5 21w Norton Ks.</b>  <b>Glennemeier #1</b> Job Ticket: 55056 <b>DST#: 5</b> Test Start: 2014.04.17 @ 07:10:00			
<b>GENERAL INFORMATION:</b>				
Formation: <b>LKC-HL</b> Deviated: No Whipstock:      ft (KB) Time Tool Opened: 08:26:30 Time Test Ended: 12:10:30		Test Type: Conventional Bottom Hole (Reset) Tester: Chuck Kreuzter Jr. Unit No: 61		
Interval: <b>3326.00 ft (KB) To 3370.00 ft (KB) (TVD)</b> Total Depth: 3370.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Good		Reference Elevations: 2022.00 ft (KB) 2017.00 ft (CF) KB to GR/CF: 5.00 ft		
<b>Serial #: 8791      Inside</b>				
Press@RunDepth: 30.69 psig @ 3335.00 ft (KB) Start Date: 2014.04.17      End Date: 2014.04.17 Start Time: 07:10:01      End Time: 12:10:30		Capacity: 8000.00 psig Last Callb.: 2014.04.17 Time On Btm: 2014.04.17 @ 08:25:30 Time Off Btm: 2014.04.17 @ 11:01:00		
<b>TEST COMMENT:</b> IF: Weak blow surface that died in 25 mins. IS: No blow back FF: no blow FSI: No blow, back				
	<b>PRESSURE SUMMARY</b>			
	Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
	0	1635.48	90.01	Initial Hydro-static
	1	14.84	89.77	Open To Flow (1)
	34	39.71	91.41	Shut-In(1)
	75	883.10	92.60	End Shut-In(1)
	76	24.11	92.31	Open To Flow (2)
	109	30.69	92.76	Shut-In(2)
	153	797.25	93.99	End Shut-In(2)
	156	1624.66	94.69	Final Hydro-static
<b>Recovery</b>				
Length (ft)	Description	Volume (bbl)		
25.00	ocm-25%o75% <i>m</i>	0.12		
<b>Gas Rates</b>				
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)	

	<h2>DRILL STEM TEST REPORT</h2>																																						
Black Diamond oil P.O. box 641 Hays Ks 67601 ATTN: Jeff Lowery	<b>4 5 21w Norton Ks.</b> <b>Glennemeier #1</b> Job Ticket: 55057 <b>DST#: 6</b> Test Start: 2014.04.17 @ 17:35:00																																						
<b>GENERAL INFORMATION:</b> Formation: <b>LKC-J</b> Deviated: No Whipstock      ft (KB) Time Tool Opened: 19:02:30 Time Test Ended: 22:53:00 Test Type: Conventional Bottom Hole (Reset) Tester: Chuck Kreuzer Jr. Unit No: 61 Reference Elevations: 2022.00 ft (KB) 2017.00 ft (CF) Interval: <b>3372.00 ft (KB) To 3387.00 ft (KB) (TVD)</b> Total Depth: 3387.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 5.00 ft																																							
<b>Serial #: 8651      Outside</b> Press@RunDepth: 15.06 psig @ 3374.00 ft (KB)      Capacity: 8000.00 psig Start Date: 2014.04.17      End Date: 2014.04.17      Last Calib.: 2014.04.17 Start Time: 17:35:05      End Time: 22:52:59      Time On Btm: 2014.04.17 @ 19:01:30 Time Off Btm: 2014.04.17 @ 21:34:30																																							
<b>TEST COMMENT:</b> IF: Weak blow Died in 20 mins. IS: No blow back FF: No blow FSI: No blow back																																							
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Black Diamond oil P.O. box 641 Hays Ks 67601 ATTN: Jeff Lowery	<b>4 5 21w Norton Ks.</b> <b>Glennemeier #1</b> Job Ticket: 55058 <b>DST#: 7</b> Test Start: 2014.04.18 @ 20:05:00																																					
<b>GENERAL INFORMATION:</b> Formation: <b>LKC-D</b> Deviated: No Whipstock      ft (KB) Test Type: Conventional Straddle (Reset) Time Tool Opened: 21:34:30      Tester: Chuck Kreuzer Jr. Time Test Ended: 02:43:00      Unit No: 61 Interval: <b>3267.00 ft (KB) To 3305.00 ft (KB) (TVD)</b> Total Depth: 3305.00 ft (KB) (TVD)      Reference Elevations: 2022.00 ft (KB) Hole Diameter: 7.88 inches      Hole Condition: Good      2017.00 ft (CF) KB to GR/CF: 5.00 ft																																						
<b>Serial #: 8960      Inside</b> Press@RunDepth: 77.02 psig @ 3268.00 ft (KB)      Capacity: 8000.00 psig Start Date: 2014.04.18      End Date: 2014.04.19      Last Calib.: 2014.04.19 Start Time: 20:05:01      End Time: 02:43:00      Time On Btm: 2014.04.18 @ 21:21:30 Time Off Btm: 2014.04.19 @ 01:06:30																																						
<b>TEST COMMENT:</b> IF: Weak blow, Built to 2 1/4 in. over 30 mins. IS: No blow back FF: Weak blow, Built to 1/8 in. over 45 mins. FSI: No blow back																																						
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Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 55058

Printed: 2014.04.19 @ 04:26:43

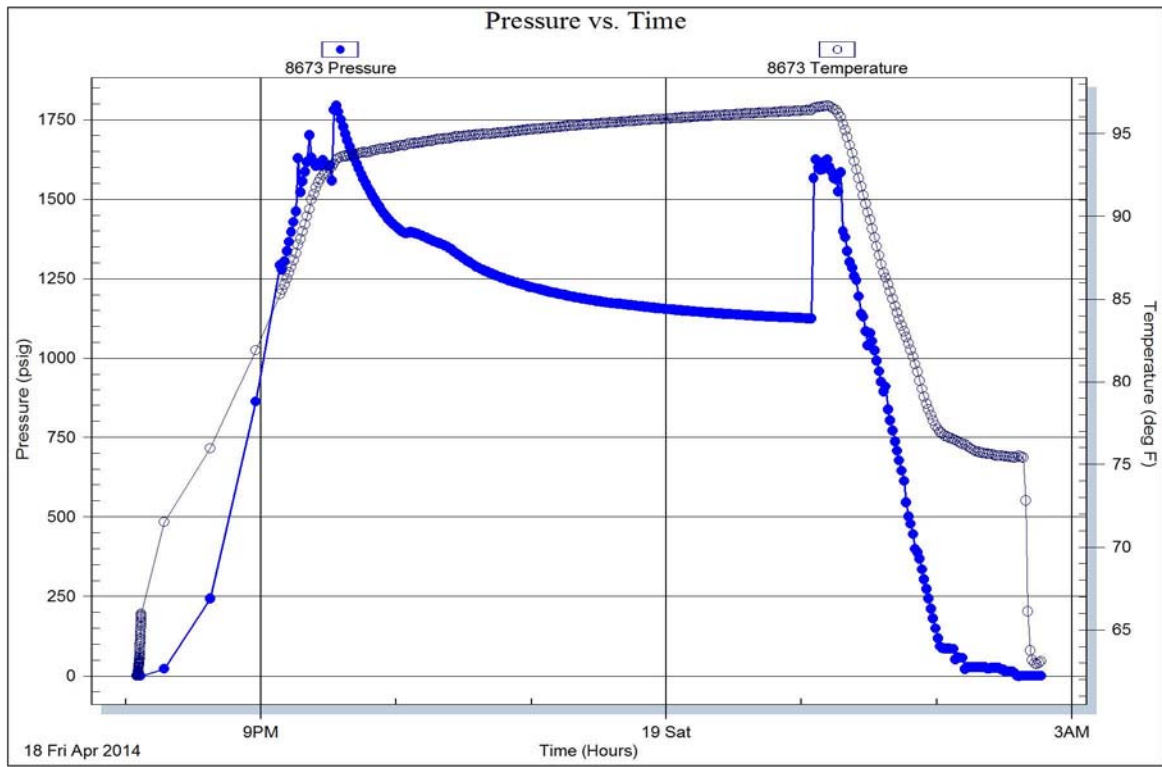
# DST #7\_BTM\_PKR.jpg

Serial #: 8673

Below (Strat) Diamond oil

Glennemeier #1

DST Test Number: 7



Trilobite Testing, Inc

Ref. No: 55058

Printed: 2014.04.19 @ 04:26:45