

OPERATOR

Company: BLACK DIAMOND OIL, INC.
 Address: P.O. BOX 641
 HAYS, KS 676-1

Contact Geologist: KENNETH VEHIGE
 Contact Phone Nbr: (785) 625-5891
 Well Name: GLENNEMEIER A #2
 Location: SE SE SW Sec. 21 - 5S - 21W
 API: 15-137-20727-00-00
 Pool:
 State: KANSAS

Field: WEST UNION
 Country: USA

Scale 1:240 Imperial

Well Name: GLENNEMEIER A #2
 Surface Location: SE SE SW Sec. 21 - 5S - 21W
 Bottom Location:
 API: 15-137-20727-00-00
 License Number: 7076
 Spud Date: 12/10/2014 Time: 2:45 PM
 Region: NORTON COUNTY KANSAS
 Drilling Completed: 12/16/2014 Time: 12:57 AM
 Surface Coordinates: 330' FSL & 2310' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2210.00ft
 K.B. Elevation: 2215.00ft
 Logged Interval: 3000.00ft To: 3650.00ft
 Total Depth: 3650.00ft
 Formation: LANSING - KANSAS CITY; REAGAN (GORHAM SAND)
 Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.6901054
 Latitude: 39.5969729
 N/S Co-ord: 330' FSL
 E/W Co-ord: 2310' FWL

LOGGED BY

Company: BIG CREEK CONSULTING, INC.
 Address: 1909 MAPLE
 ELLIS, KS 67637

Phone Nbr: (785) 259-3737
 Logged By: Geologist Name: JEFF LAWLER

CONTRACTOR

Contractor: WW DRILLING, LLC
 Rig #: 6
 Rig Type: MUD ROTARY
 Spud Date: 12/10/2014 Time: 2:45 PM
 TD Date: 12/16/2014 Time: 12:57 AM
 Rig Release: 12/18/2014 Time: 3:00 PM

ELEVATIONS

K.B. Elevation: 2215.00ft Ground Elevation: 2210.00ft
 K.B. to Ground: 5.00ft

NOTES

AFTER LOG ANALYSIS AND SEVERAL DRILL STEM TESTS DECISION WAS MADE TO CEMENT 5 1/2" PRODUCTION PIPE AND FURTHER EVALUATE ZONES OF INTEREST BY PERFORATION.


RESPECTFULLY SUBMITTED,

JEFF LAWLER

WELL COMPARISON SHEET

	P&A 8-63								●				■				■							
	D&D DRILLING								BLACK DIAMOND OIL, INC.				HUMMON CORPORATION				D&D DRILLING & LARIO OIL							
	WILLIAMS #1								GLENNEMEIER A #1				WILLIAMS #2				TAZELAAR #1							
	LOGAN NW #1								W2 SE SW SE 21-5-21				NE 28-5-21				NENW 28-5-21							
KB		2215		GL		2210		KB		2244		KB		2266		KB		2324		KB		2243		
LOG TOPS				SAMPLE TOPS				LOG				LOG				COMP. CARD				COMP. CARD				
DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	LOG	SMPL.	DEPTH	DATUM	LOG	SMPL.	DEPTH	DATUM	LOG	SMPL.	DEPTH	DATUM	LOG	SMPL.	DEPTH	DATUM	LOG	SMPL.	
ANHYDRITE TOP	1813	402	1815	400	1845	399	+ 3	+ 1	1864	402	+ 0	- 2	1902	422	- 20	- 22	1848	395	+ 7	+ 5				
BASE	1842	373	1845	370					1892	374	- 1	- 4	1933	391	- 18	- 21								
TOPEKA	3158	-943	3164	-949	3200	-956	+ 13	+ 7	3213	-947	+ 4	- 2					3201	-958	+ 15	+ 9				
HEEBNER SHALE	3363	-1148	3367	-1152	3397	-1153	+ 5	+ 1	3415	-1149	+ 1	- 3	3469	-1145	- 3	- 7	3399	-1156	+ 8	+ 4				
TORONTO	3390	-1175	3393	-1178	3424	-1180	+ 5	+ 2	3441	-1175	+ 0	- 3	3497	-1173	- 2	- 5	3428	-1185	+ 10	+ 7				
LKC	3407	-1192	3415	-1200	3442	-1198	+ 6	- 2	3461	-1195	+ 3	- 5	3515	-1191	- 1	- 9	3443	-1200	+ 8	+ 0				
BKC	3593	-1378	3596	-1381	3625	-1381	+ 3	+ 0	3646	-1380	+ 2	- 1	3700	-1376	- 2	- 5								
GORHAM SND/REAGAN			3649	-1434	3678	-1434		+ 0	3699	-1433		- 1	3751	-1427		- 7	3685	-1442		+ 8				
TOTAL DEPTH	3648	-1433	3650	-1435	3680	-1436	+ 3	+ 1	3700	-1434	+ 1	- 1	3755	-1431	- 2	- 4	3688	-1445	+ 12	+ 10				

DST #1 LKC A 3403' - 3435'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Diamond 21-5s-21w Norton KS

Po Box 641 Glennemeier A #2
Hays KS, 67601 Job Ticket: 62401 **DST#: 1**

ATTN: Jeff Lawler Test Start: 2014.12.13 @ 20:43:00

GENERAL INFORMATION:

Formation: **LKC "A"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:22:45
 Time Test Ended: 06:08:15

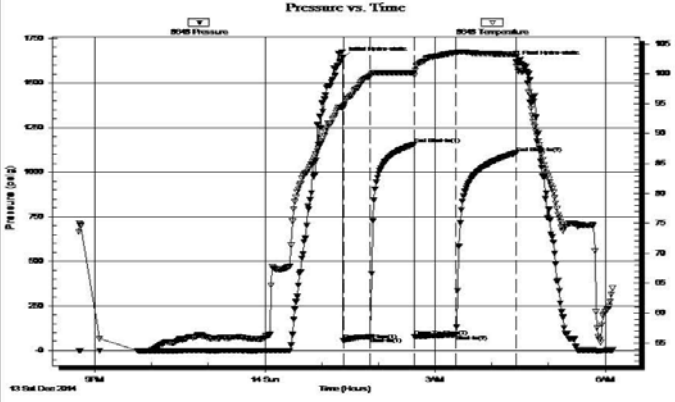
Test Type: Conventional Bottom Hole (Initial)
 Tester: Cody Bloedorn
 Unit No: 73

Interval: **3403.00 ft (KB) To 3435.00 ft (KB) (TVD)**
 Total Depth: 3435.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 2215.00 ft (KB)
 2210.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8648 Inside

Press@RunDepth: 89.44 psig @ 3407.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2014.12.13	End Date: 2014.12.14
Start Time: 20:43:05	End Time: 06:08:15
	Last Calib.: 2014.12.14
	Time On Btm: 2014.12.14 @ 01:22:15
	Time Off Btm: 2014.12.14 @ 04:25:45

TEST COMMENT: 30 - IF- 6" blow
 45 - IS- No return
 45 - FF- Surface blow
 60 - FS- No return



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1642.20	94.53	Initial Hydro-static
1	55.09	94.32	Open To Flow (1)
30	76.36	99.61	Shut-In(1)
76	1156.39	100.17	End Shut-In(1)
76	78.48	99.71	Open To Flow (2)
120	89.44	103.50	Shut-In(2)
183	1107.19	103.24	End Shut-In(2)
184	1617.63	103.33	Final Hydro-static

Length (ft)	Description	Volume (bbl)
62.00	MW - Oil spots, 10%M, 90%W	0.30
102.00	Mud - Oil spots, 100%M	0.90

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

Trilobite Testing, Inc Ref. No: 62401 Printed: 2014.12.14 @ 06:35:13



Hays KS, 67601

Job Ticket: 62403

DST#: 3

ATTN: Jeff Lawler

Test Start: 2014.12.15 @ 07:48:00

GENERAL INFORMATION:

Formation: LKC "H-I"

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:32:15

Time Test Ended: 15:06:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3507.00 ft (KB) To 3552.00 ft (KB) (TVD)

Total Depth: 3552.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2215.00 ft (KB)

2210.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8648 Inside

Press@RunDepth: 56.20 psig @ 3544.00 ft (KB)

Start Date: 2014.12.15

End Date:

2014.12.15

Start Time: 07:48:05

End Time:

15:06:44

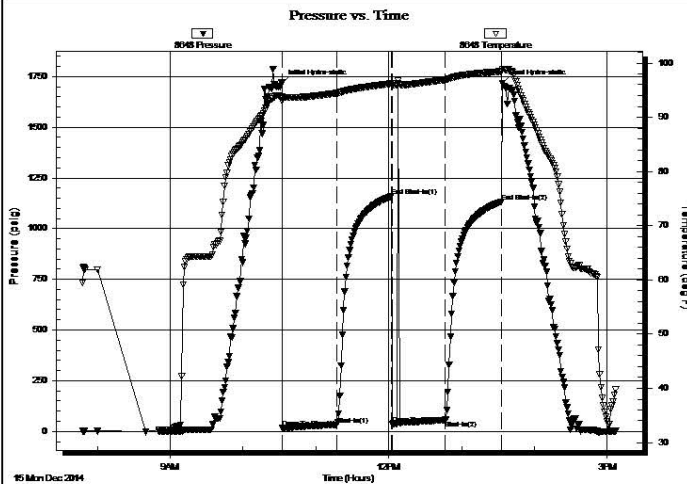
Capacity: 8000.00 psig

Last Calib.: 2014.12.15

Time On Btm: 2014.12.15 @ 10:32:00

Time Off Btm: 2014.12.15 @ 13:33:45

TEST COMMENT: 45 - IF- Surface blow
45 - IS- No return
45 - FF- Surged and died, flushed tool, surged and died
45 - FS- No return



PRESSURE SUMMARY

Table with 4 columns: Time (Min.), Pressure (psig), Temp (deg F), Annotation. Contains data points for initial hydro-static, flow events, shut-ins, and final hydro-static pressure.

Recovery

Table with 3 columns: Length (ft), Description, Volume (bbl). Shows 80.00 ft of mud with oil spots, 100%M, totaling 0.39 bbl.

Gas Rates

Table with 4 columns: Choke (inches), Pressure (psig), Gas Rate (Mcf/d). Currently empty.

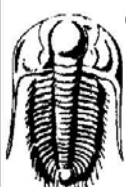
* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 62403

Printed: 2014.12.15 @ 16:07:22

DST #4 LKC I - K 3535' - 3587'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Diamond

21-5s-21w Norton KS

Po Box 641
Hays KS, 67601

Glennemeier A #2

ATTN: Jeff Lawler

Job Ticket: 62404

DST#: 4

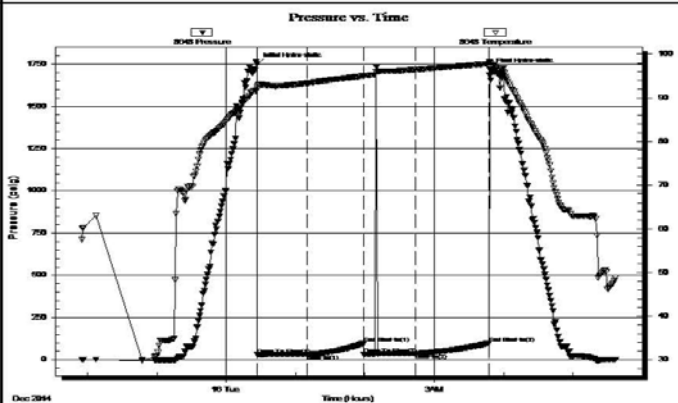
Test Start: 2014.12.15 @ 21:55:00

GENERAL INFORMATION:

Formation: **LKC "I-K"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:27:00
 Time Test Ended: 05:37:30
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Cody Bloedorn
 Unit No: 73
 Interval: **3535.00 ft (KB) To 3587.00 ft (KB) (TVD)**
 Total Depth: 3587.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 2215.00 ft (KB)
 2210.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8648 Inside
 Press@RunDepth: 38.26 psig @ 3572.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.12.15 End Date: 2014.12.16 Last Calib.: 2014.12.16
 Start Time: 21:55:05 End Time: 05:37:29 Time On Btm: 2014.12.16 @ 00:26:45
 Time Off Btm: 2014.12.16 @ 03:48:00

TEST COMMENT: 45 - IF- 1.5' blow in 23 minutes, died back to 1" blow
 45 - IS- No return
 45 - FF- Surged and died, flushed tool, surged and died
 60 - FS- No return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1749.17	92.48	Initial Hydro-static
1	32.03	92.03	Open To Flow (1)
44	33.61	93.39	Shut-In(1)
92	97.94	95.00	End Shut-In(1)
93	33.94	94.99	Open To Flow (2)
137	38.26	96.48	Shut-In(2)
201	99.65	97.82	End Shut-In(2)
202	1719.60	98.08	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	V SOCM, 2%, 98% M	0.10

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

* Recovery from multiple tests

ROCK TYPES

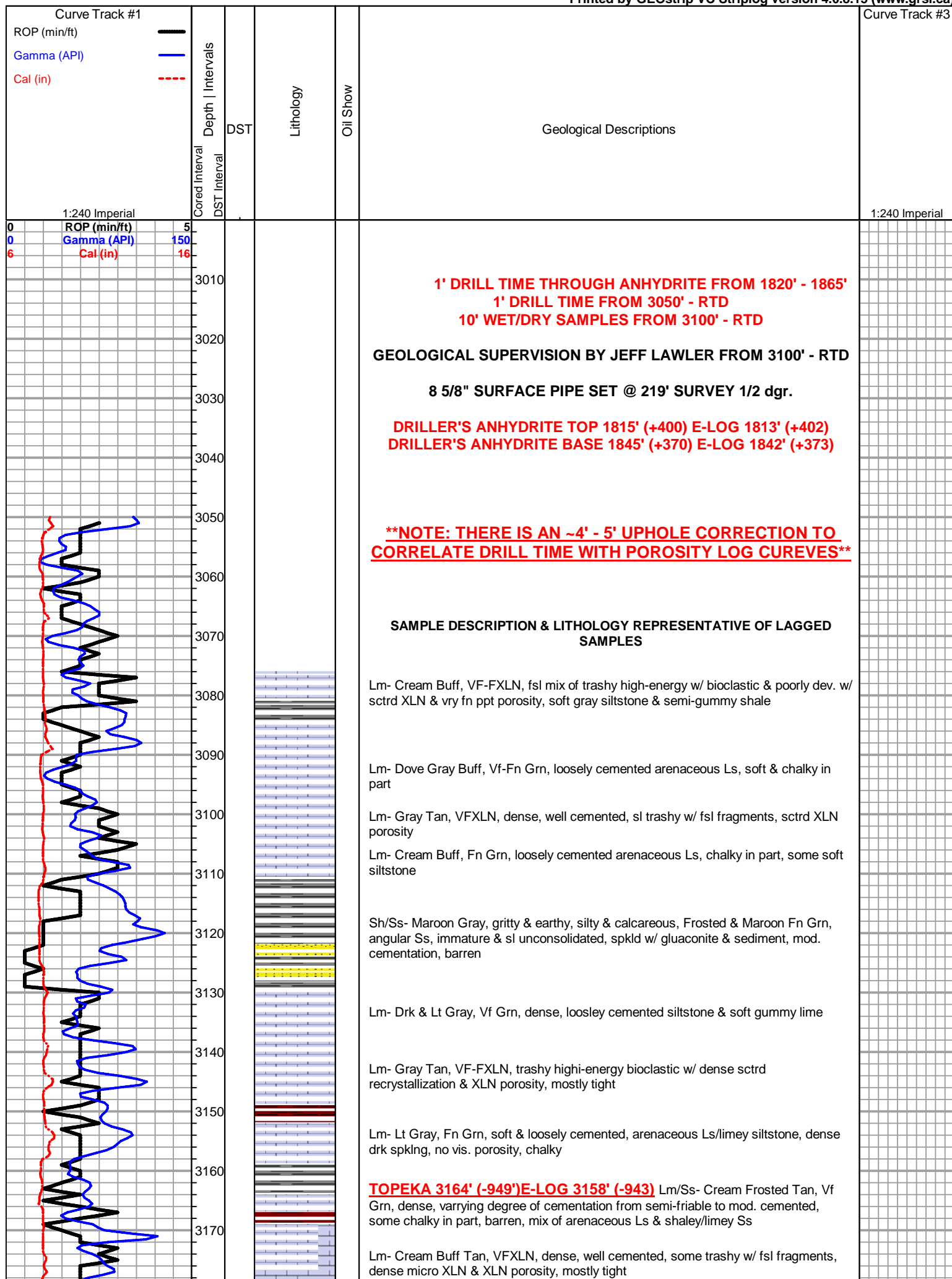
- Cht
- shale, grn
- Shblk
- Lscongl
- Dolsec
- shale, gry
- shale, red
-
- Lmst fw7>
- Carbon Sh
- Ss

ACCESSORIES

- FOSSIL
◇ Oolite
- STRINGER
▬ Dolomite

OTHER SYMBOLS

- MISC
DR Daily Report
- DST
■ DST Int
- Digital Photo
- DST alt
- Document
- Folder
- Link
- Vertical Log File
- Horizontal Log File
- Core Log File
- Drill Cuttings Rpt



1' DRILL TIME THROUGH ANHYDRITE FROM 1820' - 1865'
1' DRILL TIME FROM 3050' - RTD
10' WET/DRY SAMPLES FROM 3100' - RTD

GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 3100' - RTD

8 5/8" SURFACE PIPE SET @ 219' SURVEY 1/2 dgr.

DRILLER'S ANHYDRITE TOP 1815' (+400) E-LOG 1813' (+402)
DRILLER'S ANHYDRITE BASE 1845' (+370) E-LOG 1842' (+373)

****NOTE: THERE IS AN -4' - 5' UPHOLE CORRECTION TO CORRELATE DRILL TIME WITH POROSITY LOG CUREVES****

SAMPLE DESCRIPTION & LITHOLOGY REPRESENTATIVE OF LAGGED SAMPLES

Lm- Cream Buff, VF-FXLN, fsl mix of trashy high-energy w/ bioclastic & poorly dev. w/ sctrd XLN & vry fn ppt porosity, soft gray siltstone & semi-gummy shale

Lm- Dove Gray Buff, Vf-Fn Grn, loosely cemented arenaceous Ls, soft & chalky in part

Lm- Gray Tan, VFXLN, dense, well cemented, sl trashy w/ fsl fragments, sctrd XLN porosity

Lm- Cream Buff, Fn Grn, loosely cemented arenaceous Ls, chalky in part, some soft siltstone

Sh/Ss- Maroon Gray, gritty & earthy, silty & calcareous, Frosted & Maroon Fn Grn, angular Ss, immature & sl unconsolidated, spkld w/ gluaconite & sediment, mod. cementation, barren

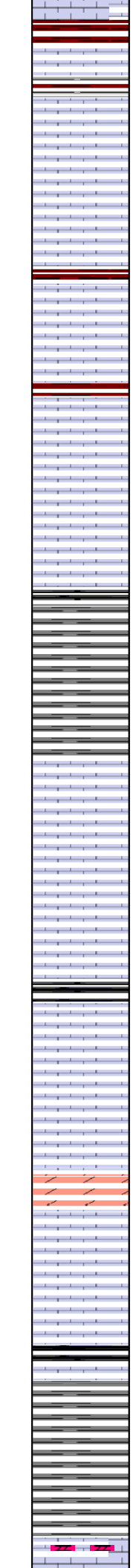
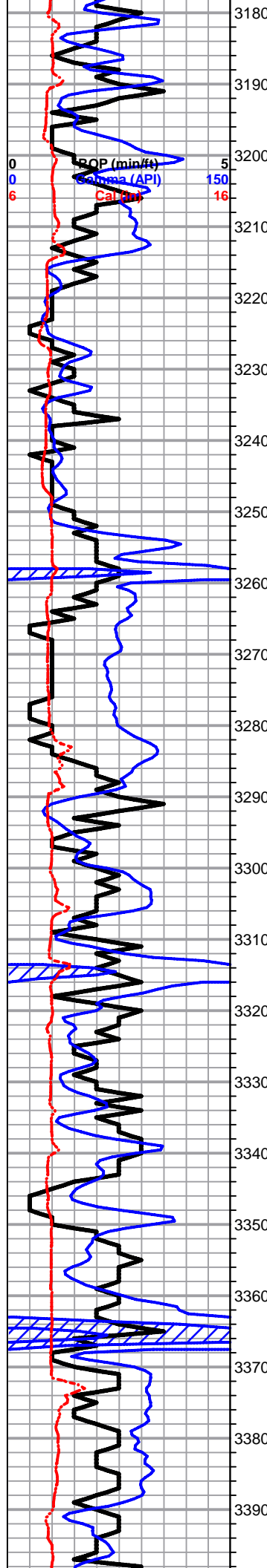
Lm- Drk & Lt Gray, Vf Grn, dense, loosley cemented siltstone & soft gummy lime

Lm- Gray Tan, VF-FXLN, trashy highi-energy bioclastic w/ dense sctrd recrystallization & XLN porosity, mostly tight

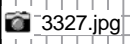
Lm- Lt Gray, Fn Grn, soft & loosely cemented, arenaceous Ls/limey siltstone, dense drk spkng, no vis. porosity, chalky

TOPEKA 3164' (-949')E-LOG 3158' (-943) Lm/Ss- Cream Frosted Tan, Vf Grn, dense, varrying degree of cementation from semi-friable to mod. cemented, some chalky in part, barren, mix of arenaceous Ls & shaley/limey Ss

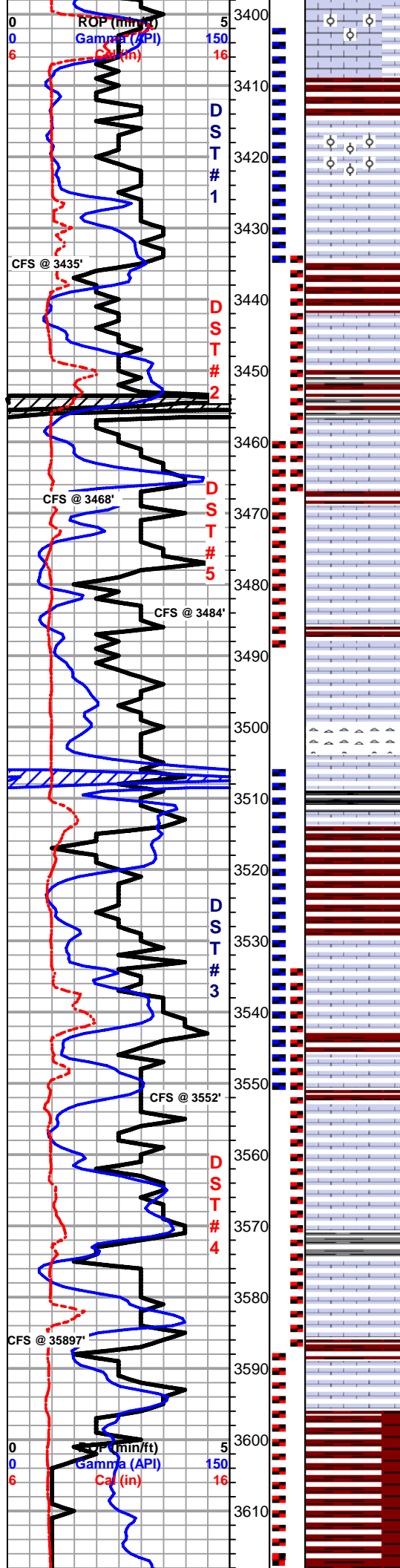
Lm- Cream Buff Tan, VFXLN, dense, well cemented, some trashy w/ fsl fragments, dense micro XLN & XLN porosity, mostly tight



3180 Sh- Maroon Gray, soft & silty, some calcareous, some sl sandy
 Lm- Buff Cream Tan, VFXLN Vf Grn, dense, all mostly tight w/ poor vis. porosity, some chalky siltstone
 3190 Sh- Black Maroon Grayn, silty & soft, gritty & earthy, calcareous
 Lm- Buff Cream, VFXLN, dense, sl trashy w/ fsl fragments, poor vis. porosity, few pcs of golden brown/milky white fresh bedded chert
 3200 Lm- Cream Gray, VFXLN, fsl mix, poorly dev. w/ rare XLN porosity, sl chalky in part & trashy gray FXLN w/ trashy fsl fragments
 3210 Lm- Cream A/A w/ much soft white chalk & milky white fresh bedded chert
 3220
 3230
 3240 Lm- Cream Off White, VF-FXLN, fsl, massive, some w/ sctrd fn ppt porosity, most w/ clear replacement cementation & apparent porosity, poor effective porosity, some sctrd recrystallization, some soft white chalk & fresh bedded golden brown & white chert
 3250 Lm- A/A w/ incr. in VFXLN, all vry clean & barren
 3260 Sh- Black, fissile & slaty, carbonaceous
 3270 Ss/Sh- Dove Gray Frosted, Fn Grn, consolidated & well sorted, sub-anguar, mature, friable, barren, gummy sandy wash & clumps
 3280 Ss/Sh- A/A w/ silty & calcareous gray & mint green & some maroon & white gummy clumps
 3290 Lm- Cream Buff, VFXLN, sl fsl, mostly tight w/ wk vis. porosity, barren
 3300 Lm- Cream Maroon Mustard, Fn Grn, arenaceous Ls, most well cemented w/ sctrd XLN porosity, barren
 3310
 3320 Sh- Black Maroon Gray, silty & carbonaceous, gritty & earthy, silty & calcareous
 ● Lm- Cream Off White, FXLN, dense, sl fsl, sctrd fn ppt, ppt, & XLN porosity, SCTRDRK STN, WK-FR SFO, MOD. ODR
 Lm- Cream Buff, VF-FXLN, dense, well cemented, mostly tight w/ sctrd micro XLN & XLN porosity, clean & barren
 3340 Lm- Buff, FXLN, dense, well cemented dolomitic Ls w/ consistent micro XLN porosity, barren
 3350 Lm- Cream Lt Gray, VF-FXLN, dense, well cemented, sl fsl, mostly tight w/ poor vis. porosity, barren
 3360
 3370 **HEEBNER 3367' (-1152) E-LOG 3363' (-1148)** Sh- Black, fissile & carbonaceous
 Sh- Gray Maroon, sandy lime/shaly Ss, some silty & calcareous
 3380 Sh- A/A w/ gummy maroon clumps/wash
 3390
 ● **TORONTO 3394' (-1178) E-LOG 3390' (-1175)** Lm/Chert- mix of Cream Off White, sl fsl & dolitic Ls w/ sctrd vry fn ppt inter. colite & XLN porosity, sctrd dev. some



SHORT TRIP SURVEY STRAP +1.03'
 DST #1 LKC A 3403' - 3435' 30-45-45-60
 TOOL SLID 10' TO BOTTOM
 102' MUD w/ OIL SPOTS
 62' MW w/ OIL SPOTS (90%W, 10%M)
 CHLOR: 124,000 Rv: .08 @ 58 dgr.
 IFP: 55-76# FFP: 78-89# SIP: 1156-1107#
 SEE PICS AT END OF REPORT
 3396.jpg



white, silty & oolitic Ls w/ sctrd vry fn ppt inter oolite & XLN porosity, sctrd dev. some sl chalky in part, few pcs of VFXLN dolomitic Ls w/ micro XLN porosity, ALL W/ SCTRD SPOTTY STN, TR FO (1 pc), WK ODR, several pcs of golden brown & white fresh bedded chert & gritty dolomitic chert

LKC 3415' (-1200) E-LOG 3407' (-1192) Lm- Cream Off White, F-Med XLN, mod. well dev. & oolitic w/ sctrd ppt to sub-vuggy inter oolite porosity, SCTRD DRK STN, HVY OILY SHEEN, FR-GD SFO, FR ODR, FR AMOUNT OF FREE OIL FLOATING IN WET CUP

Lm- Cream Off White, VFXLN, tight w/ sctrd micro XLN porosity, some soft white chalk, vry clean, barren, few pcs of mustard colored cryptoXLN oolitic biomicrite w/o vis. porosity & some soft white chalk

Lm- White Off White, FXLN Vf Grn, dense, sl oolitic, sctrd dev, some chalky in part, sctrd XLN & some vry fn ppt inter oolite porosity, WK SPOTTY STN, NSFO, NO ODR, DULL YLW FLOR., NO STRM WET CUT, some pyrite

****PORTION OF SLIP DIE FELL IN HOLE DURING TRIP, ANOMALOMOUS 2' OF DRILL TIME TO KNOCK IT OFF TO SIDE OF WELL BORE****

Lm- White Off White, F-MedXLN, oolitic, sctrd XLN to ppt inter oolite porosity, some sctrd recrystallization w/in porosity, few pcs of detrital appearing chert/cherty Ls, ALL W/ SCTRD DRK STN, TR FO, WK-FR ODR

Lm- Cream Tan, VF-FXLN, dense, well cemented, mostly tight w/ poor vis. porosity, barren, several pcs of tan/white frsh bedded chert

Lm/Chert- White Cream, VF-FXLN Vf Grn, dense, mostly tight, some sl oolitic, poorly dev. w/ vry sctrd vry fn ppt inter oolite porosity, some soft white chalk, several pcs of oolitic fresh bedded chert, all vry clean & barren

Lm- Tan Cream VF-FXLN, fsl & oolitic, sctrd vry fn ppt to ppt inter oolite, crse. XLN recrystallization porosity, vry well cemented, SCTRD DRK STN, FR SFO UPON CRUSH, GD SULFURIC ODR

Lm/Chert- Cream Tan, VFXLN, dense tight mix, poor vis. porosity, some soft crumbly & semi-chalky, much bone white/buff/tan fresh bedded chert

Sh- Black Maroon Green, fissile & carbonaceous, gritty & earthy, dense & semi-waxy

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

Lm- Cream Off White, FXLN, oolitic w/ sctrd XLN & fn ppt inter oolite porosity, well cemented, SCTRD LT STN, TR FO, GD SULFURIC ODR

Lm- Lt Gray, Vf Grn VFXLN, dense tight mix w/ poor vis. porosity

Lm- Cream Maroon, VFXLN, dense, well cemented, some sl unconsolidated, poor vis. porosity, barren

Lm- Cream Off White, VF-FXLN, fsl & sl oolitic, well cemented, sctrd dev. w/ micro XLN & some sctrd fn ppt inter oolite porosity, LT BRWN STN, TR FO, SEMI-FLAKEY, FR ODR

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

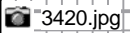
Lm- White Off White Tan, mix of oolitic FXLN, mod. well dev. w/ sctrd-consistent ppt inter oolite porosity, & VFXLN, dense w/o vis. matrix, sctrd ppt to sub-vuggy porosity, ALL W/ DRK CONSISTENT STN, WK-FR SFO, FR ODR

Sh- Maroon, gummy argillaceous clumps

Lm- Tan, FXLN, fsl & sl oolitic w/ few loose fusulinids & crinoids, poorly dev, most well cemented, some sl chalky, poor vis. porosity & barren

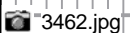
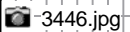
BKC 3596' (-1381) E-LOG 3593' (-1378) Sh- Maroon Brown Gray, gritty & earthy, gummy argillaceous clumps, soft & silty

Sh- A/A w/ sandy white/maroon lime & sl sandy gray slivers, few sl pebbly



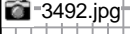
DST #2 LKC C - D
3434' - 3468'
45-45-45-45

60' HOCM (30%O)
15' VSOCM (5%O)
IFP: 14-31#
FFP: 38-50#
SIP: 884-827#



DST #6 LKC F-G
(STRADDLE)
30-45-45-60

125' TOTAL FLUID
60' WM w/ OIL
SPOTS
(10%W, 90%M)
65' VSOCM
(5%O)
IFP: 14-48#
FFP: 54-72#
SIP: 1146-1142#

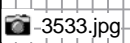


SHORT TRIP
SURVEY 3/4 dgr.

DST #3 LKC H - I
3507' - 3552'
45-45-45-45

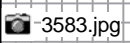
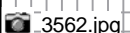
80' MUD w/ OIL
SPOTS

IFP: 16-32#
FFP: 37-56#
SIP: 1159-1133#

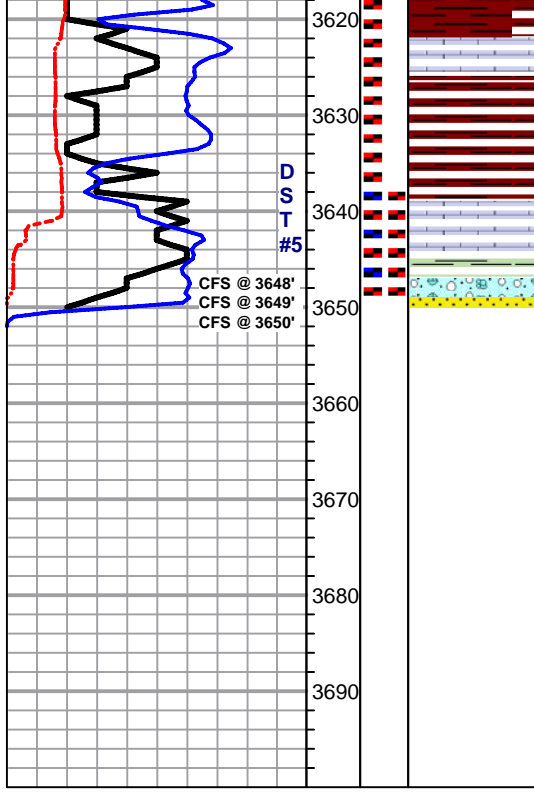


DST #4 LKC I - K
3535' - 3587'
45-45-45-60

20' VSOCM (2%O)
IFP: 32-33#
FFP: 33-38#
SIP: 97-99#



DST #5
GORHAM SAND



Lm- Cream Off White, FXLN, sl fsl & oolitic, mix of loosely cemented w/ dense XLN porosity, some chalky in part, some soft mud supported matrix w/ poor vis. porosity, all clean & barren

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

Lm- White Cream, Vf-Fn Grn FXLN, dense chalky mix, poorly dev. mix of loosely-well cemented, poor vis. porosity, barren

3648'- Sh- Gray Lm Green Maroon, silty & calcareous, some limey Ss, gritty & earthy 1-2 pcs of Ca maxtrix/cementation w/ sub-rounded fn-med qtz inclusions, well cemented, barren

3649'- Lm- White, Ca matrix, loosley cemented w/ sub-rounded to angular fn grn qtz. inclusions, SCTRDRK STN, NSFO, TR ODR

3650'- **GORHAM SAND 3649' (-1434)** Sand- Clear, Fn-Med Grn, angular to sub-rounded, consolidated & well sorted, loosely cemented, SAT DRK STN, SOME BLEEDING FO, FR SFO, GD SULFURIC ODR

RTD 3650' (-1435) LTD 3648' (-1433) @ 10:57 12/16/2014

- DST 5.jpg
- DST 6.jpg
- DST 6_BTMPKR.jpg
- DST 7.jpg
- DST 8.jpg

3638' - 3650'
30-45-45-60

244' TOTAL FLUID
75' GSY OIL
(5% G, 95% O)
169' OCMW
(20% O, 50% W, 30% M)

IFP: 19-65#
FFP: 71-102#
SIP: 1029-1016#

3648.jpg
 3649.jpg
 3650.jpg

DST #7
GORHAM SAND
3638' - 3650'
MISRUN

DST #8
GORHAM SAND
3588' - 3650'
60-30-60-60

5' MCO
(30% M, 70% O)
186' SOCM
(10% O, 90% M)
124' VSLOCWM
(5% O, 10% W, 85% M)

SIP: 973-1000#





0.5 mm

3396' X 20



0.5 mm

3420' X 20



0.5 mm

3446' X 25



0.5 mm

3462' X 25





0.5 mm

3533' x 20



0.5 mm

3562' X 20



0.5 mm

3583' X 20




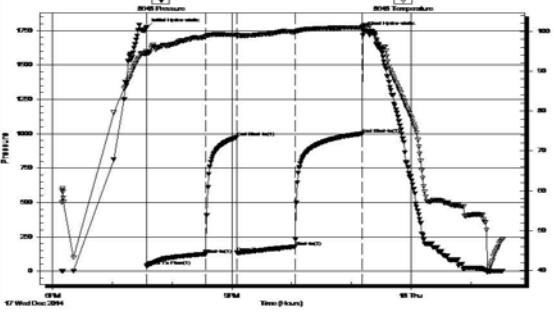
0.2 mm

3648' x 55





3650' x 25

 TRILOBITE TESTING, INC.	<h3>DRILL STEM TEST REPORT</h3>																																				
Black Diamond Po Box 641 Hays KS, 67601 ATTN: Jeff Lawler	21-5s-21w Norton KS Glennemeier A #2 Job Ticket: 62408 DST#: 8 Test Start: 2014.12.17 @ 18:09:00																																				
GENERAL INFORMATION: Formation: Gorham Sand Deviated: No Whipstock: ft (KB) Time Tool Opened: 19:34:15 Time Test Ended: 01:31:45 Test Type: Conventional Bottom Hole (Reset) Tester: Cody Bloedorn Unit No: 73 Reference Elevations: 2215.00 ft (KB) 2210.00 ft (CF) KB to GR/CF: 5.00 ft Interval: 3588.00 ft (KB) To 3650.00 ft (KB) (TVD) Total Depth: 3650.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Fair																																					
Serial #: 8648 Inside Press@RunDepth: 179.48 psig @ 3627.00 ft (KB) Start Date: 2014.12.17 End Date: 2014.12.18 Start Time: 18:09:05 End Time: 01:31:44 Capacity: 8000.00 psig Last Calib.: 2014.12.18 Time On Btm: 2014.12.17 @ 19:34:00 Time Off Btm: 2014.12.17 @ 23:11:30																																					
TEST COMMENT: 60 - IF- B.O.B. in 35 minutes 30 - IS- surface return 60 - FF- B.O.B. in 48 minutes 60 - FSI- Surface return																																					
Pressure vs. Time 	PRESSURE SUMMARY <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr><td>0</td><td>1773.85</td><td>94.87</td><td>Initial Hydro-static</td></tr> <tr><td>1</td><td>38.90</td><td>94.17</td><td>Open To Flow (1)</td></tr> <tr><td>60</td><td>124.56</td><td>98.61</td><td>Shut-In(1)</td></tr> <tr><td>91</td><td>973.90</td><td>99.12</td><td>End Shut-In(1)</td></tr> <tr><td>92</td><td>135.51</td><td>98.81</td><td>Open To Flow (2)</td></tr> <tr><td>150</td><td>179.48</td><td>99.77</td><td>Shut-In(2)</td></tr> <tr><td>217</td><td>1000.52</td><td>100.96</td><td>End Shut-In(2)</td></tr> <tr><td>218</td><td>1750.03</td><td>101.19</td><td>Final Hydro-static</td></tr> </tbody> </table>	Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1773.85	94.87	Initial Hydro-static	1	38.90	94.17	Open To Flow (1)	60	124.56	98.61	Shut-In(1)	91	973.90	99.12	End Shut-In(1)	92	135.51	98.81	Open To Flow (2)	150	179.48	99.77	Shut-In(2)	217	1000.52	100.96	End Shut-In(2)	218	1750.03	101.19	Final Hydro-static
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