OPERATOR

Company:	HERTEL OIL COMPANY LLC		
Address:	704 E 12TH ST HAYS, KANSAS 67601		
Contact Geologist:	MIKE HERTEL		
Contact Phone Nbr:	785-650-9807		
Well Name:	WASINGER A # 3		
Location:	NW SW NE NE Sec 24-15s-19w	API:	15-051-26,523-00-00
Pool:		Field:	MARTINA EAST
State:	KANSAS	Country:	USA

Scale 1:240 Imperial

Well Name:	WASINGER A # 3		
Surface Location:	NW SW NE NE Sec 24-15s-19w		
Bottom Location:			
API:	15-051-26,523-00-00		
License Number:	33625		
Spud Date:	6/12/2013	Time:	5:41 PM
Region:	ELLIS COUNTY		
Drilling Completed:	6/18/2013	Time:	7:15 AM
Surface Coordinates:	800' FNL & 1140' FEL		
Bottom Hole Coordinates:			
Ground Elevation:	1998.00ft		
K.B. Elevation:	2006.00ft		
Logged Interval:	2900.00ft	To:	3700.00ft
Total Depth:	3700.00ft		
Formation:	LANSING-KANSAS CITY		
Drilling Fluid Type:	CHEMICAL/FRESH WATER GEL		

SURFACE CO-ORDINATES

Well Type:	Vertical		
Longitude:		Latitude:	
N/S Co-ord:	800' FNL		
E/W Co-ord:	1140' FEL		

LOGGED BY

Company:	SOLUTIONS CONSULTING, INC.		
Address:	108 W 35TH HAYS, KS 67601		
Phone Nbr:	(785) 639-1337		
Logged By:	Geologist	Name:	HERB DEINES/STEVE REED

CONTRACTOR

Contractor:	DISCOVERY DRILLING, INC		
Rig #:	1		
Rig Type:	MUD ROTARY		
Spud Date:	6/12/2013	Time:	5:41 PM
TD Date:	6/18/2013	Time:	7:15 AM
Rig Release:	6/19/2013	Time:	5:00 AM

ELEVATIONS

K.B. Elevation:	2006.00ft	Ground Elevation:	1998.00ft
K.B. to Ground:	8.00ft		

NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON FAVORABLE STRUCTURE AND POSITIVE RESULTS OF STRADDLE DST # 1

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

DRILL STEM TESTING BY TRILOBITE TESTING INC.: ONE (1) STRADDLE TEST

FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

	WASINGER # A-3 **NW SW NE NE** **Sec. 24-15s-19w** **1998' GL 2006' KB**		**WASINGER # A-1** **E2 NE NE** **Sec 24-15s-19w** **Reference Well**
FORMATION	**SAMPLE TOPS**	**LOG TOPS**	**LOG TOPS**
Anhydrite	1180+ 826	**1180+ 826**	*+ 824*
B-Anhydrite	1216+ 790	**1213+ 793**	*+ 785*

Topeka	2960- 954	**2960- 954**	- 957
Heebner Shale	3242-1236	**3241-1235**	*-1238*
Toronto	3265-1259	**3261-1255**	*-1257*
LKC	3285-1279	**3286-1280**	*-1283*
BKC	3533-1527	**3536-1530**	*-1529*
Conglomerate SS		**N0NE**	
Reworked Arbuckle		**3611-1605**	
Arbuckle		**3634-1628**	-1621
RTD	3700-1694		
LTD		**3700-1694**	

SUMMARY OF DAILY ACTIVITY

6-12-13 RU, spud 1:30 PM

6-13-13 1123', set 8 5/8" surface pipe to 1195.6' w/ 450 sxs common 2% gel 3% CC, plug down 2:15PM, WOC 12 HRS

6-14-13 1297', drilling

6-15-13 2352', drilling, parted drill string at 2725'

6-16-13 2725', fished parted collar string, TIWB, drilling, displaced @2802'

6-17-13 3242', drilling

6-18-13 3688', RTD 3700' @ 8:15AM, short trip, CCH, TOWB, logs, DST # 1 straddle test 3294'-3342' "C & D" LKC, TIWB, LDDP

6-19-13 3700', finish LDDP, run casing and cement, RD

DST # 1 STRADDLE TEST SUMMARY "C _D" LKC BOTTOM PACKER HELD

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Co Inc

704 E 12th st
Hays Ks 67601-3440

ATTN: Dave Hertel

24-15s-19w Ellis

Wasinger A#3

Job Ticket: 52094 **DST#: 1**

Test Start: 2013.06.18 @ 15:55:33

GENERAL INFORMATION:

Formation: **LKC C-D**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:31:43
Time Test Ended: 22:59:42

Test Type: Conventional Straddle (Initial)
Tester: Ray Schwager
Unit No: 42

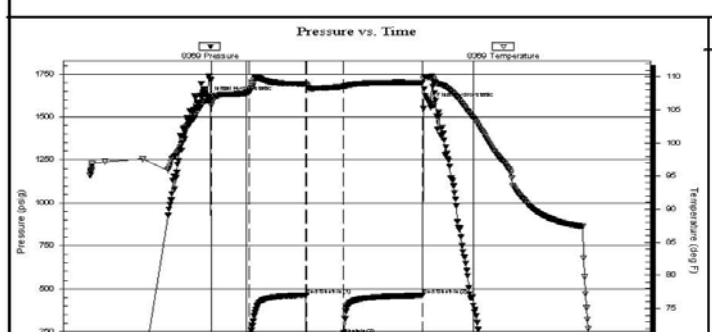
Interval: 3294.00 ft (KB) To 3342.00 ft (KB) (TVD)
Total Depth: 3700.00 ft (KB) (TVD)
Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 2006.00 ft (KB)
1998.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8369 **Inside**
Press@RunDepth: 231.40 psig @ 3300.00 ft (KB)
Start Date: 2013.06.18 End Date: 2013.06.18
Start Time: 15:55:33 End Time: 22:59:42

Capacity: 8000.00 psig
Last Calib.: 2013.06.18
Time On Btm: 2013.06.18 @ 17:29:13
Time Off Btm: 2013.06.18 @ 20:25:27

TEST COMMENT: 30-IFP-strg bl in 1min , GTS in 26min
45-ISIP-strg bl bk
30-FFP-strg bl GTS , To w k to gauge
60-FSIP-strg bl bk



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1611.81	106.43	Initial Hydro-static
3	132.05	105.72	Open To Flow (1)
33	176.01	107.63	Shut-In(1)
78	462.90	108.92	End Shut-In(1)
78	151.38	108.76	Open To Flow (2)
108	231.40	108.52	Shut-In(2)
171	461.50	109.11	End Shut-In(2)
177	1575.07	109.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GTS	0.00
372.00	GMO 35%G5%M60%O	5.22
186.00	GMO 45%G 5%M50%O	2.61
62.00	CO	0.87

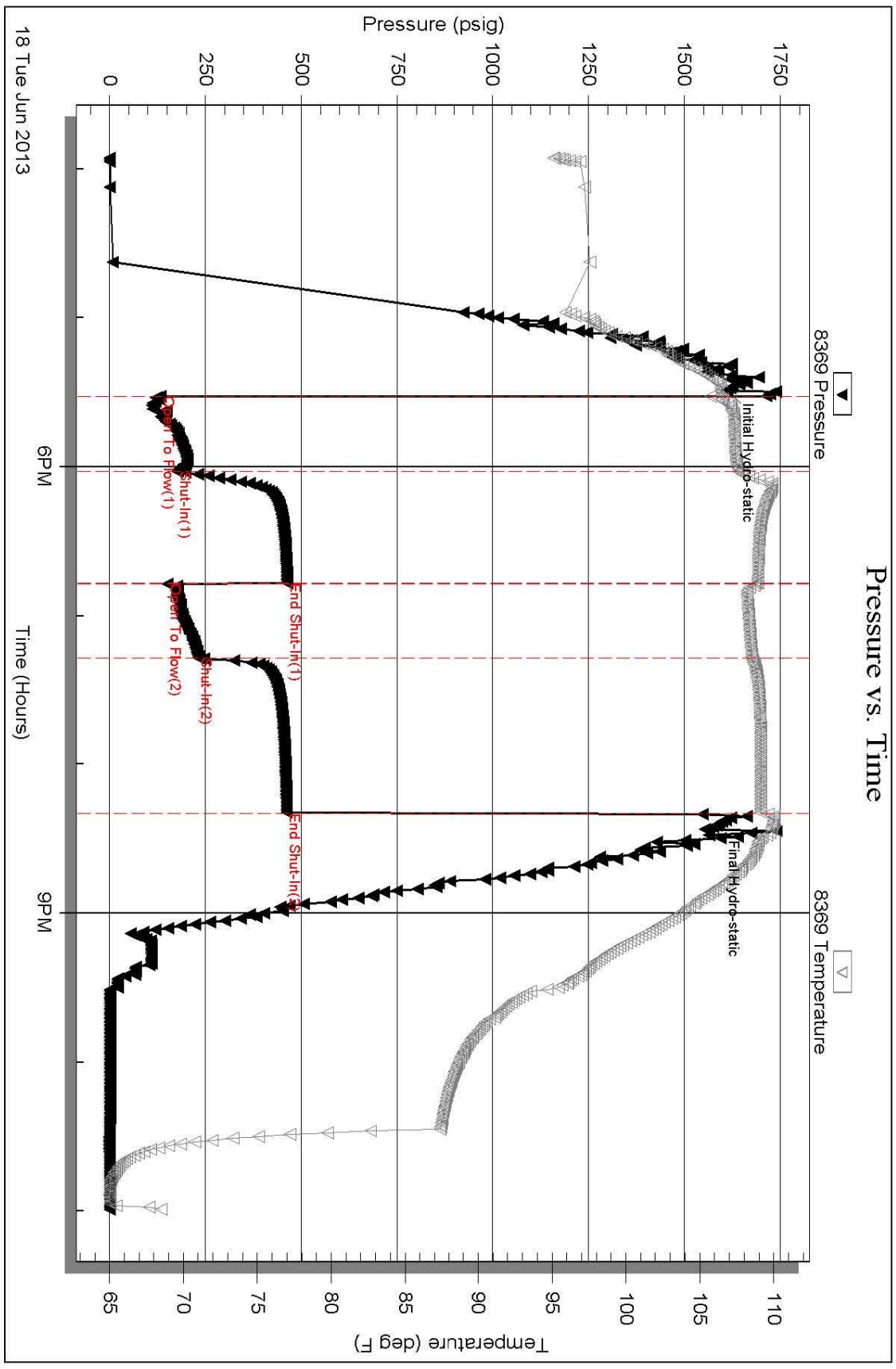
Gas Rates

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

Trilobite Testing, Inc Ref. No: 52094 Printed: 2013.06.19 @ 07:48:18

EXPANDED CHART DST # 1 STRADDLE TEST

Serial #: 8369 **Inside** Hertel Oil Co Inc Wasinger A#3



Trilobite Testing, Inc Ref. No: 52094

Printed: 2013.06.19 @ 07:48:20

ROCK TYPES

Chtcongl	Dol Lime	Lscongl	Carbon Sh	Ss
Dolprim	Lmst fw<7	shale, grn	shale, red	Sltst
Dolsec	Lmst fw7>	shale, gry	Shcol	

ACCESSORIES

MINERAL
- Chert, dark
- Chert, tripolitic
- Pyrite
- Chert White

FOSSIL
- Fussilinid

STRINGER
- red shale

OTHER SYMBOLS

DST
- DST Int
- DST alt

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

Curve Track #1 ROP (min/ft) 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) 6 2900 2910 2920					**Begin 1' drill time from 2900' to RTD** **Begin 10' wet and dry samples from 2950' to RTD** **ANHYDRITE SPL TOP 1180+826 E-LOG 1180+826** **ANHYDRITE SPL BASE 1216+790 E-LOG 1213+**	8 5/8" surface casing set to 1195' W / 450 sxs common, 2% gel, 3%CC

793

Shale gray/green blocky soft

Shale Dark Gray fissile

TOPEKA SPL 2960-954 E-LOG 2960-954

Lime cream- Light brown fnxln fossiliferous

Lime cream fnxln dense chalky in part

Lime light brown fnxln

Lime light gray fnxln slighly fossiliferous

Lime medium brown sucrosic friable

Lime light-medium brown fnxln

Lime medium brown fnxln to granular in part

Lime light to medium brown fnxln

Lime light brown-tan fnxln

Lime brown fnxln chalky

Lime medium brown fnxln to granular slighly fossiliferous

Lime medium gray fn-vfxln

Shale gray soft blocky

Shale black carbonaceous blocky (King Hill)

Lime cream fnxln dense

Lime off white fnxln

Lime tan fn-vfxln

Lime off white chalky fossiliferous

Shale black carbonaceous blocky (Queen Hill)

Lime light brown sucrosic friable slightly chalky

Shale light gray with black specks soft and blocky

Lime light gray fnxln fossiliferous

Lime light-medium gray fn-vfxln
Chert light gray hard brittle

D Lime light brown fnxln gillsonitic stain no odor NSFO

Lime light gray fnxln with fusulinids in part

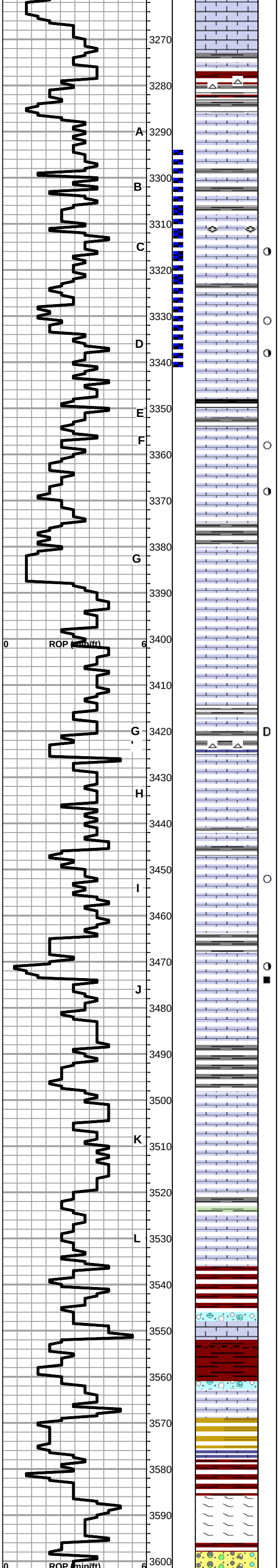
Lime gray to medium brown fnxln

HEEBNER SHALE SPL 3242-1236 E-LOG 3241-1235

Shale black carbonaceous blocky

Shale gray/green blocky soft

TORONTO E-LOG 3261-1255



Lime bright white fn-vfxln

Shale maroon/gray soft sticky with white chert in part

LKC SPL 3285-1279 E-LOG 3286-1280

Lime off white slightly oolitic fnxln
slight odor NSFO

DST # 1 3294' TO 3342'
SEE HEADER FOR TEST SUMMARY

Lime medium xln-granular
slight odor, slight staining, NSFO

LOG INTERVAL 3316-22 IS PRODUCTIVE IN AREA BUT NOT IN EAST OFFSETS. TENDS TO BE WATER DRIVE WITH GOOD PRODUCTIVE POTENTIAL

Lime light brown fn-vfxln

Lime cream white medium xln with slight staining no odor

LIme fine inner xln cream slight staining NSFO

LOG INTERVAL 3326-34 APPEARS TO BE NEW ZONE IN FIELD. RECOMMEND PERFORATING ZONE BY ITSELF AND TESTING BEFORE PERFORATING ANY OTHER ZONE

Shale dark gray / black carbonaceous, fissile

Lime cream medium xln slight pin point porosity scattered stain
no odor, NSFO

LOG INTERVAL 3360-64 SHOULD BE PERFORATED AND TESTED PRIOR TO ABANDONMENT OF WELL

LIme cream vuggy porosity slight staining NSFO

Lime cream granular NSFO vugs in some chips

Lime cream-light tan fnxln

Lime cream fnxln

D

Lime cream granular with gillsonitic staining
Chert light gray

LOG INTERVAL 3426-28 ZONE APPEARS VERY THIN. ZONE SHOULD BE PERFORTED AND TESTED PRIOR TO ABANDONMENT OF WELL

Lime cream oolitic fnxln no stain
Shale light gray-brown soft blocky

Lime cream fnxln friable

Lime cream fnxln some pinpoint porosity slight staining no odor

LOG INTERVAL 3448-50. APPEARS TO BE THIN ZONE BUT SHOULD BE PERFORATED AND TESTED BEFORE ABANDONMENT. ZONE MAY HAVE LOW PRESSURE DUE TO PRODUCTION IN OFFSETS

Lime tan oomoldic no odor

Lime cream-light tan fnxln

Lime cream oomoldic with slight staining slight wet cut upon breakage
under blacklight

LOG INTERVAL 3468-73 PRIMARY PRODUCTIVE ZONE IN OFFSETS. LIKELY LOW PRESSURE FROM DEPLETION. WOULD ONLY PERFORATE AND TEST AFTER OTHER ZONES EXHAUSTED AND ENHANCED RECOVERY WELL INSTALLED.

Lime cream fnxln

Lime cream-off white fn-vfnxln

Lime light brown fnxln

Shale green-gray soft blocky

BKC SPL 3533-1527 E-LOG 3536-1530

Lime cream-tan fnxln

Shale reddish brown soft sticky, clastic mix

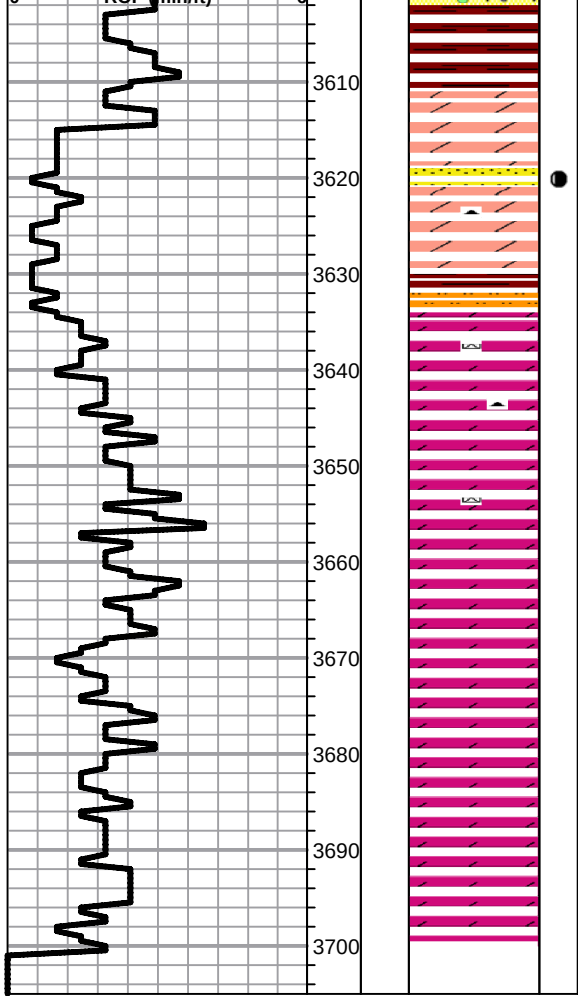
Lime cream- light brown fnxln

Shales various colors blocky to sticky, red wash persistent
1 chip oolitic Lime with slight staining

Cherts various colors rework

Lime hard brittle slighly dolomitic

Conglomerate unconsolidated with angular clasts



Shale bright orange very sticky

REWORKED ARBUCKLE E-LOG 3611-1605

Dolomitic sand clusters with clear quartz heavy black oil staining in part very strong odor SFO upon breakage. Florescence under UV light.

ALTHOUGH ZONE HAD STAINING, IT IS STRUCTURALLY LOW AND THE LOGS CONDEMN THE ZONE

CLEAN ARBUCKLE E-LOG 3634-1628

Dolomite cream-tan med-fnxln pinpoint porosity in some

Dolomite buff white med xln

Dolomite, cream, fnxln- medium granular
orange-white chert oolitic in part

Dolomite cream fnxln

Dolomite snow white med-fnxln clean

Dolomite cream- tan med-fnxln

RAN 5 1/2" CASING SET 6' OFF RTD

RTD 3700-1694 LTD 3700-1694