

OPERATOR

Company: TDI, INC.
 Address: 1310 BISON ROAD
 HAYS, KANSAS 67601

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: HERTEL # 1
 Location: NW NE SE SE Sec 6-15s-19w
 Pool: WILDCAT
 State: KANSAS

API: 15-051-26,486-00-00
 Field: UNNAMED
 Country: USA



TDI, Inc.
 1310 BISON ROAD
 HAYS, KANSAS 67601
 (785) 628-2593

Scale 1:240 Imperial

Well Name: HERTEL # 1
 Surface Location: NW NE SE SE Sec 6-15s-19w
 Bottom Location:
 API: 15-051-26,486-00-00
 License Number: 4787
 Spud Date: 3/29/2013 Time: 3:15 PM
 Region: ELLIS COUNTY
 Drilling Completed: 4/4/2013 Time: 12:01 PM
 Surface Coordinates: 1030' FSL & 580' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2040.00ft
 K.B. Elevation: 2050.00ft
 Logged Interval: 2900.00ft To: 3717.00ft
 Total Depth: 3717.00ft
 Formation: LANSING-KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 1030' FSL
 E/W Co-ord: 580' 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

CONTRACTOR

Contractor: SOUTHWIND DRILLING, INC.
 Rig #: 1
 Rig Type: MUD ROTARY

Rig Type: MUD ROTARY
 Spud Date: 3/29/2013
 TD Date: 4/4/2013
 Rig Release: 4/4/2013

Time: 3:15 PM
 Time: 12:01 PM
 Time: 10:30 PM

ELEVATIONS

K.B. Elevation: 2050.00ft Ground Elevation: 2040.00ft
 K.B. to Ground: 10.00ft

NOTES

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON NEGATIVE RESULTS OF THREE DSTS.
 OPEN HOLE LOGGING BY: PIONEER ENERGY SERVICES-DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG
 DRILL STEM TESTING BY: TRILOBITE TESTING INC. - THREE (3) CONVENTIONAL TESTS

FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

Hertel # 1	DINGES FAMILY # 1
1030' FSL & 580' FEL, SE/4	1425' FNL & 2310' FWL
Sec. 6-15s-19w	Sec. 8-15s-19w
2040' GL 2050' KB	Reference Well

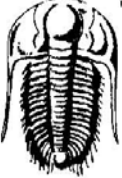
<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1296+ 754	1296+ 754	+ 762
B-Anhydrite	1333+ 717	1330+ 720	+ 725
Topeka	3038- 988	3038- 988	- 987
Heebner Shale	3306-1256	3306-1256	-1258
Toronto	3327-1277	3326-1276	-1278
LKC	3353-1303	3352-1302	-1303
BKC	3600-1550	3597-1547	-1551
Marmaton	3647-1597	3644-1594	-1596
Conglomerate Sand	3699-1649		-1628
Arbuckle		None found	
RTD	3717-1667		
LTD		3715-1665	-1666

SUMMARY OF DAILY ACTIVITY

3-29-13 RU, spud 3:15 pm, set 8 5/8" to 219.68' w/ 150 sxs Common, 2%Gel, 3%CC, plug down 8:00PM, slope 1/2 degree, WOC 8 hrs
 3-30-13 255', drilling, drilled plug at 4:00 am
 3-31-13 1759', drilling
 4-01-13 2620', drilling, displaced 2640' to 2665'

4-02-13 3360', drilling, DST # 1 3368-90 LKC "C", DST # 2 3394-3412 LKC "D"
 4-03-13 3412', TIWB, drilling, DST # 3 3500-50 LKC "I" and "J"
 4-04-13 3595', drilling, RTD @ noon @ 3717', logs, P&A

DST # 1 TEST SUMMARY LKC "C" ZONE

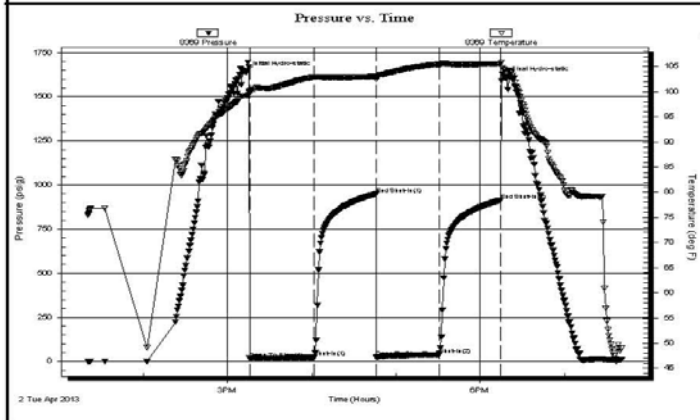
 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT		
	TDI Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning	6-15s-19w Ellis Hertel #1 Job Ticket: 52554 DST#: 1 Test Start: 2013.04.02 @ 13:20:30	

GENERAL INFORMATION:

Formation: LKC "C"	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock ft (KB)	Tester: Ray Schwager
Time Tool Opened: 15:15:40	Unit No: 42
Time Test Ended: 19:41:09	Reference Elevations: 2050.00 ft (KB)
Interval: 3368.00 ft (KB) To 3390.00 ft (KB) (TVD)	2041.00 ft (CF)
Total Depth: 3390.00 ft (KB) (TVD)	KB to GR/CF: 9.00 ft
Hole Diameter: 7.85 inches Hole Condition: Fair	

Serial #: 8369 Inside	Capacity: 8000.00 psig
Press@RunDepth: 37.53 psig @ 3369.00 ft (KB)	Last Calib.: 2013.04.02
Start Date: 2013.04.02 End Date: 2013.04.02	Time On Btm: 2013.04.02 @ 15:13:25
Start Time: 13:20:30 End Time: 19:41:09	Time Off Btm: 2013.04.02 @ 18:17:54

TEST COMMENT: 45-IFP-w k bl thru-out 1/4" to 1 1/4" bl
 45-ISIP-no bl
 45-FFP-w k bl thru-out 1/4" bl
 45-FSIP-no bl




PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1639.98	99.26	Initial Hydro-static
3	17.10	99.77	Open To Flow (1)
48	22.63	102.90	Shut-In(1)
93	949.32	103.00	End Shut-In(1)
93	23.94	102.46	Open To Flow (2)
138	37.53	105.46	Shut-In(2)
182	913.62	105.50	End Shut-In(2)
185	1605.59	104.33	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
0.00	35'GIP	0.00
25.00	SOCMV 3% O20% M77% W	0.35

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

DST # 2 TEST SUMMARY LKC "D" ZONE

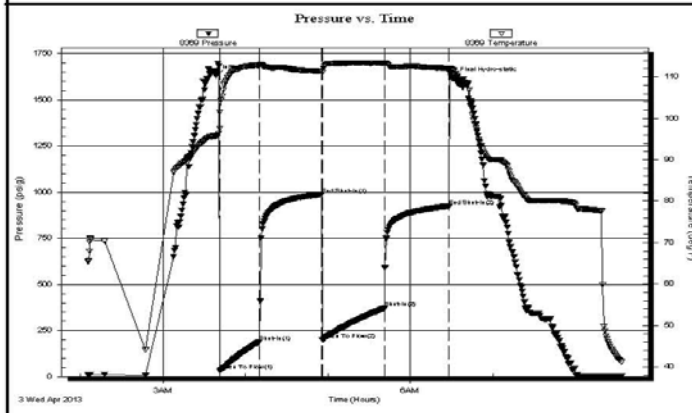
 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT	
	TDI Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning	6-15s-19w Ellis Hertel #1 Job Ticket: 52555 DST#: 2 Test Start: 2013.04.03 @ 02:05:35

GENERAL INFORMATION:

Formation: LKC "D"	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock: ft (KB)	Tester: Ray Schwager
Time Tool Opened: 03:41:15	Unit No: 42
Time Test Ended: 08:33:29	Reference Elevations: 2050.00 ft (KB)
Interval: 3394.00 ft (KB) To 3412.00 ft (KB) (TVD)	2040.00 ft (CF)
Total Depth: 3412.00 ft (KB) (TVD)	KB to GR/CF: 10.00 ft
Hole Diameter: 7.85 inches	Hole Condition: Fair

Serial #: 8369	Inside	Capacity: 8000.00 psig
Press@RunDepth: 371.30 psig @ 3395.00 ft (KB)	Start Date: 2013.04.03	Last Calib.: 2013.04.03
Start Time: 02:05:35	End Date: 2013.04.03	Time On Btm: 2013.04.03 @ 03:38:30
	End Time: 08:33:29	Time Off Btm: 2013.04.03 @ 06:30:59

TEST COMMENT: 30-IFP-w k to strg in 5min
 45-ISIP-no bl
 45-FFP-w k to strg in 7min
 45-FSIP-no bl



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.89	95.71	Initial Hydro-static
3	33.43	97.54	Open To Flow (1)
32	189.76	112.89	Shut-In(1)
77	987.69	111.33	End Shut-In(1)
78	199.67	111.08	Open To Flow (2)
123	371.30	113.33	Shut-In(2)
170	924.62	112.09	End Shut-In(2)
173	1618.17	111.62	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
60.00	MVW w /oil spots	0.84
585.00	Water	8.21

* Recovery from multiple tests

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

Trilobite Testing, Inc

Ref. No: 52555

Printed: 2013.04.03 @ 09:00:44

DST # 3 TEST SUMMARY LKC "i" AND "j" ZONES

 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT	
	TDI Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning	6-15s-19w Ellis

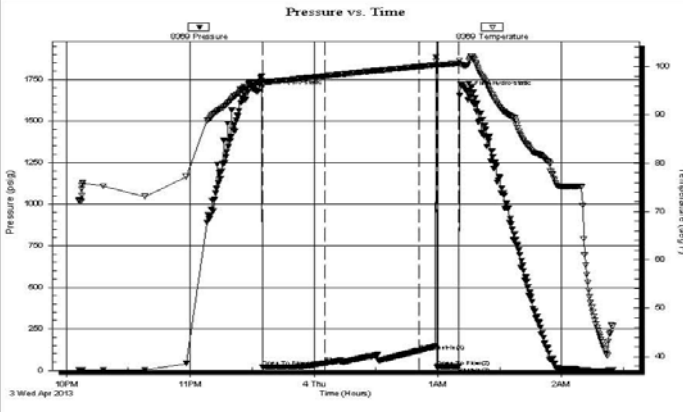


GENERAL INFORMATION:

Formation: **LKC I-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:35:14
 Time Test Ended: 02:24:43
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ray Schwager
 Unit No: 42
 Interval: **3500.00 ft (KB) To 3559.00 ft (KB) (TVD)**
 Reference Elevations: 2050.00 ft (KB)
 Total Depth: 3550.00 ft (KB) (TVD) 2040.00 ft (CF)
 Hole Diameter: 7.85 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 8369 Inside
 Press@RunDepth: 45.48 psig @ 3514.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.04.03 End Date: 2013.04.04 Last Calib.: 2013.04.04
 Start Time: 22:06:04 End Time: 02:24:43 Time On Btm: 2013.04.03 @ 23:32:59
 Time Off Btm: 2013.04.04 @ 01:14:29

TEST COMMENT: 30-IFP-w k surface bl thru-out
 45-ISIP-no bl
 20-FFP-no bl, flushed tool no help
 pulled tool



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1678.26	96.75	Initial Hydro-static
3	22.89	96.40	Open To Flow (1)
33	45.48	98.06	Shut-In(1)
78	117.83	100.02	End Shut-In(1)
87	23.41	99.93	Open To Flow (2)
98	24.62	100.70	Shut-In(2)
102	1674.08	100.32	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
1.00	Mud	0.01

* Recovery from multiple tests

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

ROCK TYPES

- Cht vari
- Chtcong1
- shale, gry
- Ss
- Clystgy
- Lmst fw7>
- Carbon Sh
- Dol Lime
- Clystcol
- shale, grn
- shale, red
- Lscong1

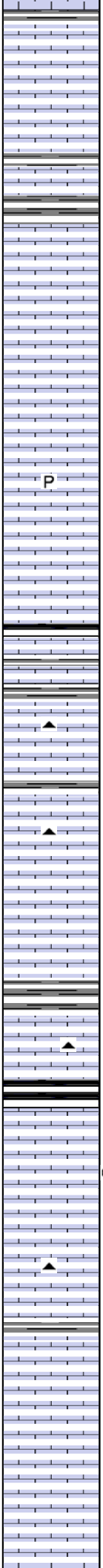
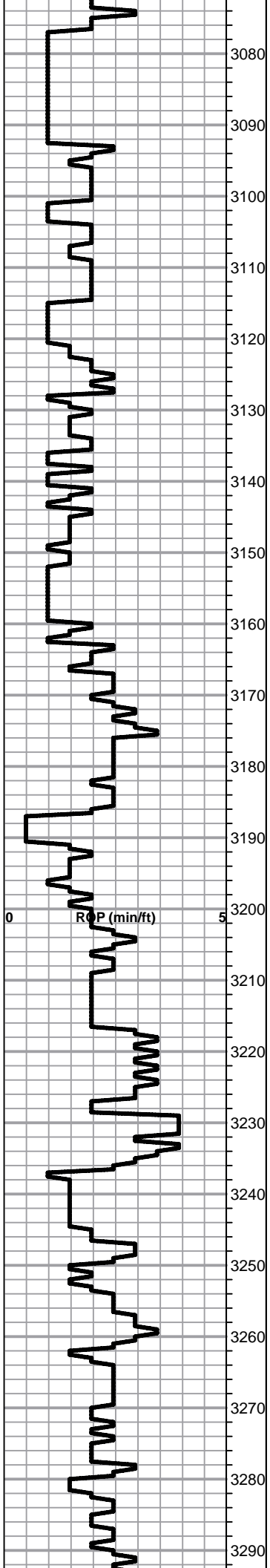
ACCESSORIES

- MINERAL**
- ▲ Chert, dark
 - ≡ Nodules
 - P Pyrite
 - ⋄ Varicolored chert
 - △ Chert White

OTHER SYMBOLS

- DST**
- DST Int
 - DST alt
 - Core

Curve Track #1 ROP (min/ft)	Depth Intervals Cored Interval DST Interval	DST Lithology Oil Show	Geological Descriptions	TG, C1 - C5 1:240 Imperial
<p>1:240 Imperial</p>	<p>2900 2910 2920 2930 2940 2950 2960 2970 2980</p>		<p>BEGIN 1' DRILL TIME FROM 2900' TO RTD BEGIN 10' WET AND DRY SAMPLES FROM 3000' TO RTD</p> <p>ANHYDRITE TOP 1296+754 ANHYDRITE BASE 1330+720</p> <p>Lime, lt brn-med gray, granular, slightly fossiliferous, slight chalk</p> <p>Lime, lt-med brn-gray, fnxln-granular, slightly fossiliferous-fusulinids</p>	<p>8 5/8" SURFACE CASING SET TO 219.68' W/ 150 SXS COMMON, 2%GEL, 3%CC</p> <p>SLOPE SURVEY 1/2 DEGREE</p>
<p>ROP (min/ft)</p>	<p>3000 3010 3020 3030 3040 3050 3060 3070</p>		<p>Lime, lt-med brn, fnxln, fossiliferous Shale, lt-med gray, soft sticky argillaceous clumps</p> <p>Shale, lt-med gray, soft mud-soft blocky</p> <p><u>TOPEKA 3038-988</u></p> <p>Lime, lt brn, fnxln</p> <p>Lime, lt-med brn-grayish brn, fnxln, fusulinids</p> <p>Lime, lt brn-lt grayish brn, fnxln</p> <p>Lime, lt brn-lt grayish brn, fnxln, scattered fusulinids</p> <p>Lime, lt brn-lt grayish brn, fn-vfxln with sticky clumps of</p>	



chalk

3080 Lime, lt grayish brn, fnxln-granular, scattered sticky clumps of chalk, NS

3090 Lime lt-med brn, granular-fnxln, chalk in part

3100 Lime, lt-med brn, fnxln, thin beds of fusulinids, well cemented

3110 Lime, lt-med brn, fnxln-granular, increasing chalk content

3120 Lime, lt-med brn, granular, slightly fossiliferous, slight chalk, NS

3130 Lime, lt-dark brn, fnxln-granular, slightly fossiliferous

3140 Lime, lt-med brn, granular-fnxln, of of chalk with white wash

3150 Lime, lt-med brn, granular with lot of chalk content

3160 Shale, black carbonaceous

3170 Lime, crm, fnxln, lithographic and very clean

3180 Lime, crm-lt brn, fnxln

3190 Lime, lt-med brn, granular, NS

3200 Lime, lt-med brn, fnxln, soft on crush, slightly fossiliferous

3210 Lime, lt-med brn, fnxln

3220 Shale, grayish green, calcareous, gray mottling

3230 Lime, lt-med brn, fnxln, bedded chalk in part

3240 Shale, black carbonaceous, fissile, blocky

3250 Lime, med brn, fn-vfxln

3260 Lime, lt-med brn, granular with sticky chalk clumps , thin fossil beds with interfossiliferous porosity, trace of staining, NFO, No Odor

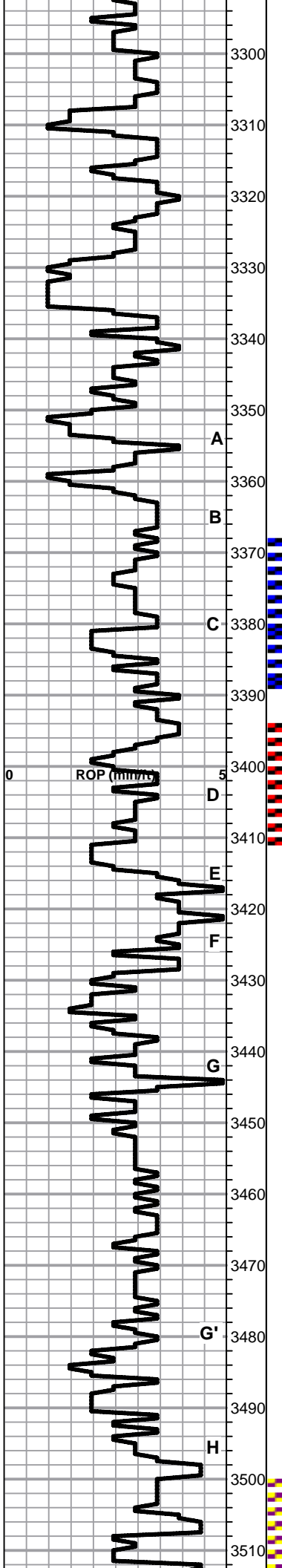
3270 Lime, med brn-med grayish brn, fnxln, slightly fossiliferous

3280 Lime, crm-lt brn, fnxln, NS

3290 Lime, crm-lt brn, fnxln, bedded chalk

Lime, crm-lt brn, fnxln, slight bedded chalk content

Lime, lt brn, fnxln, bedded chalk in part, scattered crinoids



3300
3310
3320
3330
3340
3350
3360
3370
3380
3390
3400
3410
3420
3430
3440
3450
3460
3470
3480
3490
3500
3510

Lime, lt-med brn, fnxln, slight chalk content

HEEBNER SHALE 3306-1256

Shale, black carbonaceous, fissile, blocky
Lime, med brn, fn-vfxln

Shale, lime green forming soft mud

TORONTO 3326-1276

Lime, crm-tan, fnxln-granular, slight chalk, NS, No wet cut

Lime, crm-tan-lt brn, fn-vfxln, NS

Shale, red wash, soft mud

LKC 3352-1302

Lime, lt brn with gray tint, fnxln

Lime, lt-dark brn mix, fnxln

Lime, mix of brns and types, fnxln

Lime, lt brn, fnxln-granular, thin bed of oolitic-oolmoldic material with spotty lt staining, p-f odor, NFO

Lime, lt brn, fnxln

Lime, crm-lt brn, fnxln-granular w fossil fragments, scattered lt staining, f odor, NFO

Lime, crm, fnxln, bedded chalk

Shale, black carbonaceous
Lime, lt gray, fnxln

Shale, lt gray forming soft mud clumps

Lime, crm-tan, fnxln, lt of chalk content, NS

Lime, crm-lt brn, fnxln, bedded chalk, NS

Lime, white-crm, fn-vfxln, lot of bedded chalk

Lime, crm-lt brn, fnxln, soft on crush, bedded chalk

Lime, crm-lt brn, fn-vfxln, bedded chalk

Lime, crm-lt brn, fn-vfxln, bedded chalk

Shale, black carbonaceous
Lime, med brn-gray, fnxln

Lime, lt-med brn, mostly fnxln, bedded chalk, No Odor, NFO, No Staining

Shale, lt gray forming soft mud clumps
Lime, crm-lt brn, fnxln.

Lime, crm, mostly fnxln, scattered lt staining in fine pinpoint

DST # 1 3368' TO 3390' SEE HEADER FOR TEST SUMMARY

SLOPE SURVEY @3390 3/4

DST # 2 3394' TO 3412' SEE HEADER FOR TEST SUMMARY

A

B

C

D

E

F

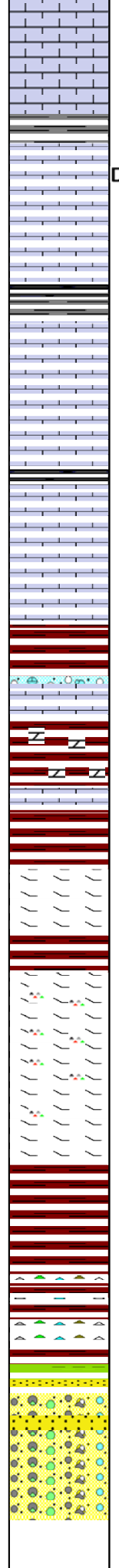
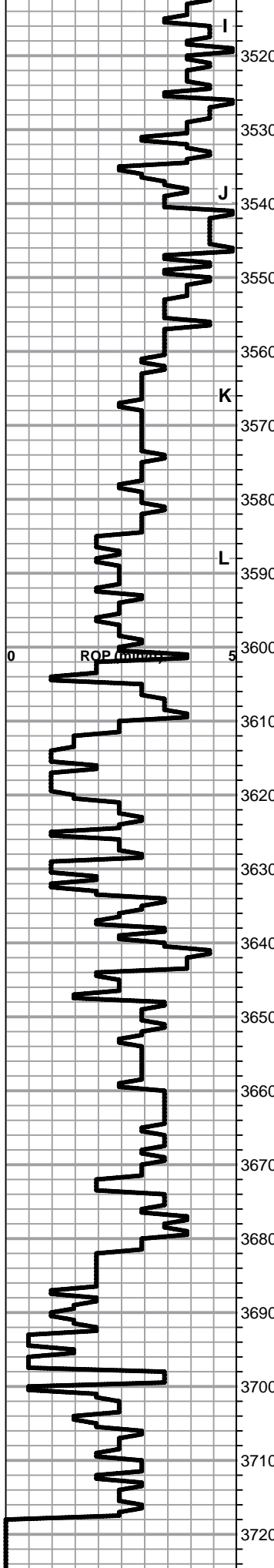
G

G'

H

ROP (min/hr)

0



Lime, crm, mostly fnxn, scattered lt staining in fine pinpoint porosity, Lt Odor, NFO

Lime, crm-tan, fnxn, bedded chalk

Shale, lt gray forming sticky clumps

Lime, lt brn, fnxn, chips with scattered dead oil stain, NFO, No Odor

Lime, lt brn, fnxn-micro xln, bedded chalk

Shale, gray-black carbonaceous, fissile, mix of slivers and blocky

Lime, crm-lt brn, fnxn, bedded chalk, NS

Lime, crm-lt brn, fn-micro xln, bedded chalk

Lime, crm-lt brn, fn-micro xln, bedded chalk

Lime, lt brn, fnxn, bedded chalk

BKC 3597-1547

Shale, red-dark reddish brn, lt red wash

Lime, crm, fn-vfxln, clastic lime-shale mix at boundaries

Shale, reds, brns, maroon w chert nodules

Shale, reds, brns, soft blocky with lt red wash

Lime, crm-lt brn, dolomitic, fnxn

MARMATON 3644-1594

Lime, crm-lt brn, dolomitic, fnxn, hard on crush
Chert, orange-tan, fresh, sharp

Lime, crm, fnxn, hard on crush, dolomitic, cherty

Lime, crm, fnxn, dolomitic, hard on crush

Shale, deep red wash

Shale, red wash, vari color cherts with scattered oolitic chert, NS

Shale, vari color with vary color cherts and scattered ss, NS

CONGLOMERATE SAND 3699-1649

SS, quartz, well sorted, subrounded, clear, NS, friable to fused solid in part

Cherts vari colored, pyritic in part, NS

RTD 3717-1667 LTD 3715-1665

DST # 3 3500' TO 3550' SEE
HEADER FOR TEST
SUMMARY

1ST PLUG @ 1310' W/ 25 SXS
2ND PLUG @ 550' W/ 100 SXS
3RD PLUG @ 270' W/ 40 SXS
4TH PLUG @ 40' W/ 10 SXS
RATHOLE W/ 30 SXS
MOUSEHOLE W/ 15 SXS
PLUG DOWN 10:30 PM
4/4/2013

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 6676

Date	3-29-13	Sec.	6	Twp.	15	Range	19	County	Ellis	State	KS	On Location		Finish	8:00 P.M.
Location								Antenna 4w 3/4s into							
Lease	Hertel			Well No.	1			Owner							
Contractor	Sauthwick							To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.							
Type Job	Surface							Charge To							
Hole Size	12 1/4			T.D.	221			To TDI							
Csg.	8 5/8			Depth	220			Street							
Tbg. Size				Depth				City				State			
Tool				Depth				The above was done to satisfaction and supervision of owner agent or contractor.							
Cement Left in Csg.	15			Shoe Joint				Cement Amount Ordered 150 ccm 30 lb 2 1/2 bags							
Meas Line				Displace	13 BRL										
EQUIPMENT								Common							
Pumptrk	9	No.	Cementer	C. G.			150								
			Helper				Poz. Mix								
Bulktrk		No.	Driver	C. G.			3								
			Driver				Gel.								
Bulktrk	8	No.	Driver	C. G.			5								
			Driver				Calcium								
JOB SERVICES & REMARKS								Hulls							
Remarks:								Salt							
Rat Hole								Flowseal							
Mouse Hole								Kol-Seal							
Centralizers								Mud CLR 48							
Baskets								CFL-117 or CD110 CAF 38							
D/V or Port Collar								Sand							
8 5/8 on bottom. Est. Circulation								Handling 158							
Mix 150 ccm Displace								Mileage							
Cement Circulated								FLOAT EQUIPMENT							
								Guide Shoe							
								Centralizer							
								Baskets							
								AFU Inserts							
								Float Shoe							
								Latch Down							
								Pumptrk Charge							
								Surface							
								Mileage 14							
								Tax							
								Discount							
								Total Charge							
Signature								R. G. P.							

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

Home Office P.O. Box 32 Russell, KS 67665

No. 6730

Cell 785-324-1041

Date	4-4-13	Sec.	6	Twp.	15	Range	19	County	Ellis	State	KS	On Location		Finish	11:30 AM
Location								ANTONIO 4W 3/4S W10TC							
Lease	Lat Hertel				Well No.	1									
Contractor	Southland 1				Owner To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.										
Type Job	plug				Charge To T D I										
Hole Size	7 7/8				T.D.	3717									
Csg.	Dill pipe				Depth	Street									
Tbg. Size					Depth	City State									
Tool					Depth	The above was done to satisfaction and supervision of owner agent or contractor.									
Cement Left in Csg.					Shoe Joint	Cement Amount Ordered 220 60/40 4% gel									
Meas Line					Displace	1/4 flow									
EQUIPMENT															
Pumptrk	5	No.	Cement	Nite											
			Helper												
Bulktrk	1	No.	Driver	Brett											
			Driver												
Bulktrk	1	No.	Driver	David L											
			Driver												
JOB SERVICES & REMARKS															
Remarks:	Salt														
Rat Hole	30 SWS				Flowseal 50#										
Mouse Hole	15 SWS				Kol-Seal										
Centralizers	Mud CLR 48														
Baskets	CFL-117 or CD110 CAF 38														
D/V or Port Collar	Sand														
1st	1310ft 25 SWS				Handling 228										
2nd	550 100 SWS				Mileage										
3rd	270 40 SWS				FLOAT EQUIPMENT										
4th	40 10 SWS				Guide Shoe										
	Centralizer														
	Baskets														
	AFU Inserts														
	Float Shoe														
	Latch Down														
	Wood plugs														
	Pumptrk Charge plug														
	Mileage 14														
	Tax														
	Discount														
	Total Charge														
X Signature	[Signature]														