

OPERATOR

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

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: KRAUS UNIT # 1
 Location: NE SE NE SW Sec.10-15s-19w
 Pool: IN FIELD
 State: KANSAS

API: 15-051-26,416-00-00
 Field: REICHERT
 Country: USA



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

Scale 1:240 Imperial

Well Name: KRAUS UNIT # 1
 Surface Location: NE SE NE SW Sec.10-15s-19w
 Bottom Location:
 API: 15-051-26,416-00-00
 License Number: 4787
 Spud Date: 11/15/2012 Time: 1:30 PM
 Region: ELLIS COUNTY
 Drilling Completed: 11/20/2012 Time: 10:14 PM
 Surface Coordinates: 1890' FSL & 2515' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2036.00ft
 K.B. Elevation: 2046.00ft
 Logged Interval: 2900.00ft To: 3750.00ft
 Total Depth: 3750.00ft
 Formation: LANSING- KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 1890' FSL
 E/W Co-ord: 2515' FWL

LOGGED BY

Company: SOLUTIONS CONSULTING
 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: 11/15/2012
TD Date: 11/20/2012
Rig Release: 11/21/2012

Time: 1:30 PM
Time: 10:14 PM
Time: 8:00 PM

ELEVATIONS

K.B. Elevation: 2046.00ft
K.B. to Ground: 10.00ft

Ground Elevation: 2036.00ft

NOTES

DECISION TO PLUG AND ABANDON WELL BASED ON NEGATIVE RESULTS OF THREE DSTS AND LOW STRUCTURE.

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, MICRORESISTIVITY LOG.

DRILL STEM TESTING BY TRILOBITE TESTING INC: THREE (3) TESTS-TWO CONVENTIONAL AND ONE STRADDLE TEST

FORMATION TOPS SUJMMARY AND CHRONOLOGY OF DAILY ACTIVITY

KRAUS UNIT # 1

1890' FSL & 2515' FWL, SW/4

Sec.10-15s-19w

2036' GL 2046' KB

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1263+783	1262+ 784
B-Anhydrite	1299+ 747	1299+ 747
Topeka	3025- 979	3027- 981
Heebner Shale	3293-1247	3295-1249
Toronto	3314-1268	3315-1269
LKC	3337-1291	3340-1294
BKC	3580-1534	3584-1538
Conglomerate Sand	3644-1598	3650-1604
Arbuckle	3671-1625	3678-1632
RTD	3750-1704	
LTD		3754-1708


SUMMARY OF DAILY ACTIVITY

11-15-12 RU, Spud 1:30 PM, set 8 5/8" surface casing to 223.65' w/ 150 sxs
Common, 2%Gel, 3%CC, plug down 6:15 PM, slope ¼ degree

11-16-12 536', drilling

- 11-17-12 2025', drilling
- 11-18-12 2827', drilling, displace 2765'- 2777'
- 11-19-12 3375', drilling, short trip, CCH, DST # 1 3322'-75 LKC- A-C, pipe strap 3392.78', board 3393.66'
- 11-20-12 3535', drilling, DST # 2 3445'-3535' LKC-H-J, RTD 3750' @10:26PM, mini short trip, CCH
- 11-21-12 3750', logging, DST # 3 straddle test 3635'-80 Conglomerate Sand, plug and abandon well.

DST # 1 TEST SUMMARY A-C

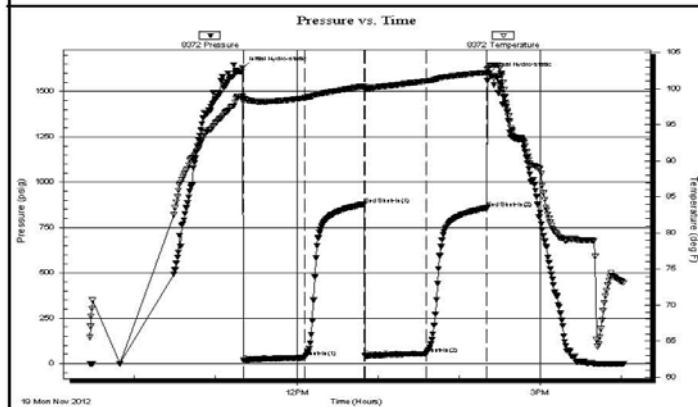
	DRILL STEM TEST REPORT		
	TDI inc 1310 Bison Rd Hays Ks. 67601 ATTN: Herb Deines	10-15s-19w Ellis Kraus Unit #1 Job Ticket: 50757 DST#: 1 Test Start: 2012.11.19 @ 09:27:05	

GENERAL INFORMATION:

Formation: LKC"A-C" Deviated: No Whipstock ft (KB) Time Tool Opened: 11:20:30 Time Test Ended: 16:02:09 Interval: 3322.00 ft (KB) To 3375.00 ft (KB) (TVD) Total Depth: 3375.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Poor	Test Type: Conventional Bottom Hole (Initial) Tester: Andy Carreira Unit No: 39 Reference Elevations: 2046.00 ft (KB) 2036.00 ft (CF) KB to GR/CF: 10.00 ft
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Serial #: 8372	Outside		
Press@RunDepth: 53.79 psig @ 3329.00 ft (KB)	Capacity: 8000.00 psig		
Start Date: 2012.11.19	End Date: 2012.11.19	Last Calib.: 2012.11.19	
Start Time: 09:27:05	End Time: 16:02:10	Time On Btm: 2012.11.19 @ 11:19:50	
		Time Off Btm: 2012.11.19 @ 14:21:50	

TEST COMMENT: IF:(45min) 2" Blow in 12 min. 3" in 23 min. 4" in 42 min.
 ISl:(45min) No Return
 FF:(45min) 1" blow in 15 min. 2" blow in 26 min. built to 2.5"
 FS:(45min) No Return




PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.55	98.96	Initial Hydro-static
1	15.38	98.16	Open To Flow (1)
47	33.89	98.73	Shut-In(1)
91	878.66	100.32	End Shut-In(1)
91	40.80	99.89	Open To Flow (2)
136	53.79	101.03	Shut-In(2)
181	858.23	102.25	End Shut-In(2)
182	1600.31	102.87	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
60.00	OSVM o=tr w =40% m=60%	0.84
25.00	OSM o=tr m=100%	0.35

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

DST # 2 TEST SUMMARY H-J

 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT	
	TDI inc 1310 Bison Rd Hays Ks. 67601 ATTN: Herb Deines	10-15s-19w Ellis Kraus Unit #1 Job Ticket: 50758 DST#: 2 Test Start: 2012.11.20 @ 04:33:05

GENERAL INFORMATION:

Formation: **LKC"H,I,J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:15:20
 Time Test Ended: 11:01:20

Interval: 3445.00 ft (KB) To 3535.00 ft (KB) (TVD)
 Total Depth: 3535.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor

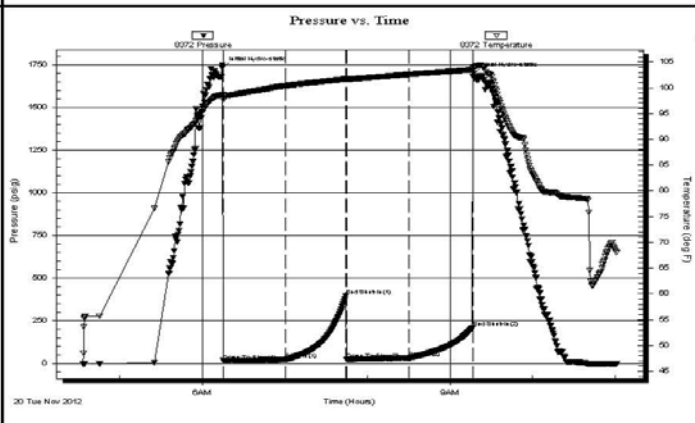
Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39

Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8372 Outside

Press@RunDepth: 31.68 psig @ 3452.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2012.11.20 End Date: 2012.11.20	Last Calib.: 2012.11.20
Start Time: 04:33:05 End Time: 11:01:20	Time On Btm: 2012.11.20 @ 06:14:30
	Time Off Btm: 2012.11.20 @ 09:16:59

TEST COMMENT: IF:(45min) 1" in 6 min. 2" in 15 min. 4" in 43 min.
 ISl:(45min) No Return
 FF:(45min) 2" in 4 min. 4" in 18 min. 6" in 39 min.
 FS:(45min) No Return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1731.69	98.67	Initial Hydro-static
1	16.02	97.70	Open To Flow (1)
46	22.78	100.38	Shut-In(1)
90	394.65	101.67	End Shut-In(1)
91	22.91	101.59	Open To Flow (2)
136	31.68	102.58	Shut-In(2)
182	208.81	103.48	End Shut-In(2)
183	1699.32	103.81	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
45.00	OCGM g=10% o=10% m=80%	0.63
0.00	GIP= 75 ft	0.00

* Recovery from multiple tests

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

DST # 3 STRADDLE TEST CONGLOMERATE SAND



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
1310 Bison Rd
Hays Ks. 67601
ATTN: Herb Deines

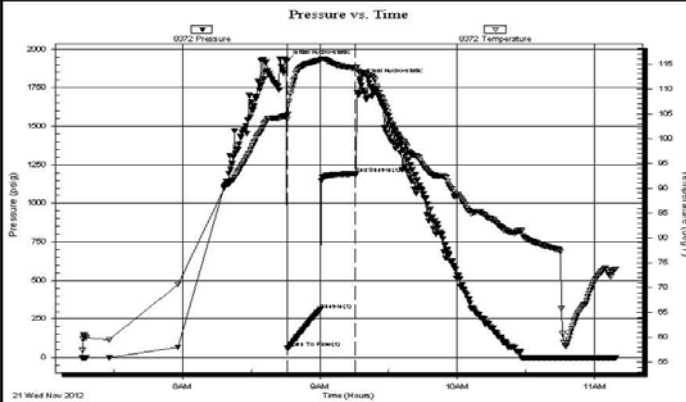
10-15s-19w Ellis
Kraus Unit #1
Job Ticket: 50759 **DST#: 3**
Test Start: 2012.11.21 @ 07:16:05

GENERAL INFORMATION:

Formation: **Conglomerate**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:45:50
Time Test Ended: 11:09:20
Interval: **3635.00 ft (KB) To 3680.00 ft (KB) (TVD)**
Total Depth: 3752.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor
Test Type: Conventional Straddle (Reset)
Tester: Andy Carreira
Unit No: 39
Reference Elevations: 2046.00 ft (KB)
2036.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8372 Outside
Press@RunDepth: 310.22 psig @ 3638.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.11.21 End Date: 2012.11.21 Last Calib.: 2012.11.21
Start Time: 07:16:05 End Time: 11:09:20 Time On Btm: 2012.11.21 @ 08:45:30
Time Off Btm: 2012.11.21 @ 09:17:30

TEST COMMENT: IF:(15min) BOB in 2 min.
ISl:(15min) Return surface blow.
Pulled tool



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1922.99	104.67	Initial Hydro-static
1	60.79	103.85	Open To Flow (1)
15	310.22	115.75	Shut-In(1)
30	1192.00	114.13	End Shut-In(1)
32	1803.76	113.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
610.00	MVW / oil spks in tool	8.56

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 50759

Printed: 2012.11.21 @ 16:22:47

ROCK TYPES

Dolprim	shale, grn	shale, red	Dol Lime
Lmst fw<7	shale, gry	Ss	
Lmst fw>7	Carbon Sh	Arg/Shale	

ACCESSORIES

MINERAL

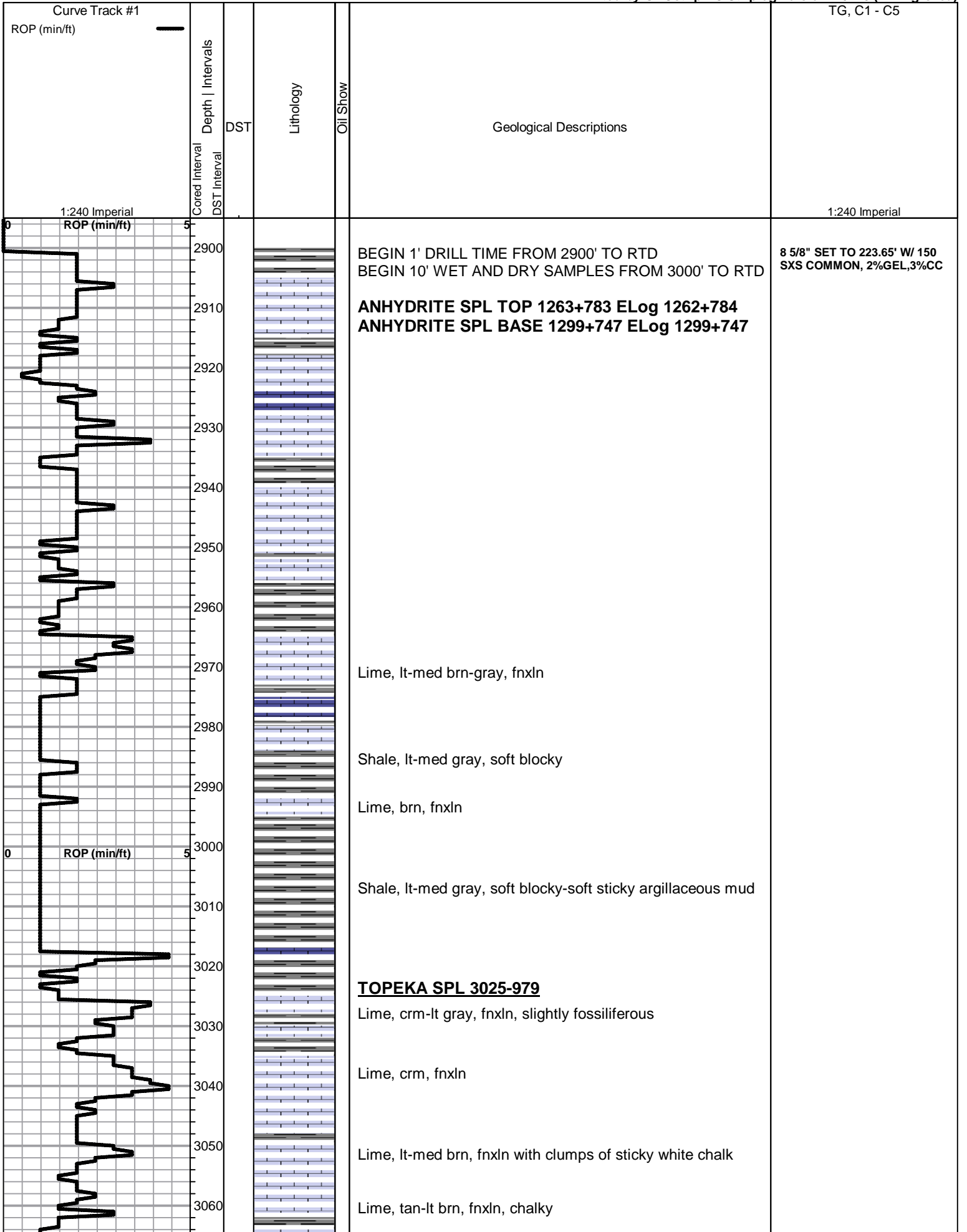
- ▲ Chert, dark
- ◆ Varicolored chert

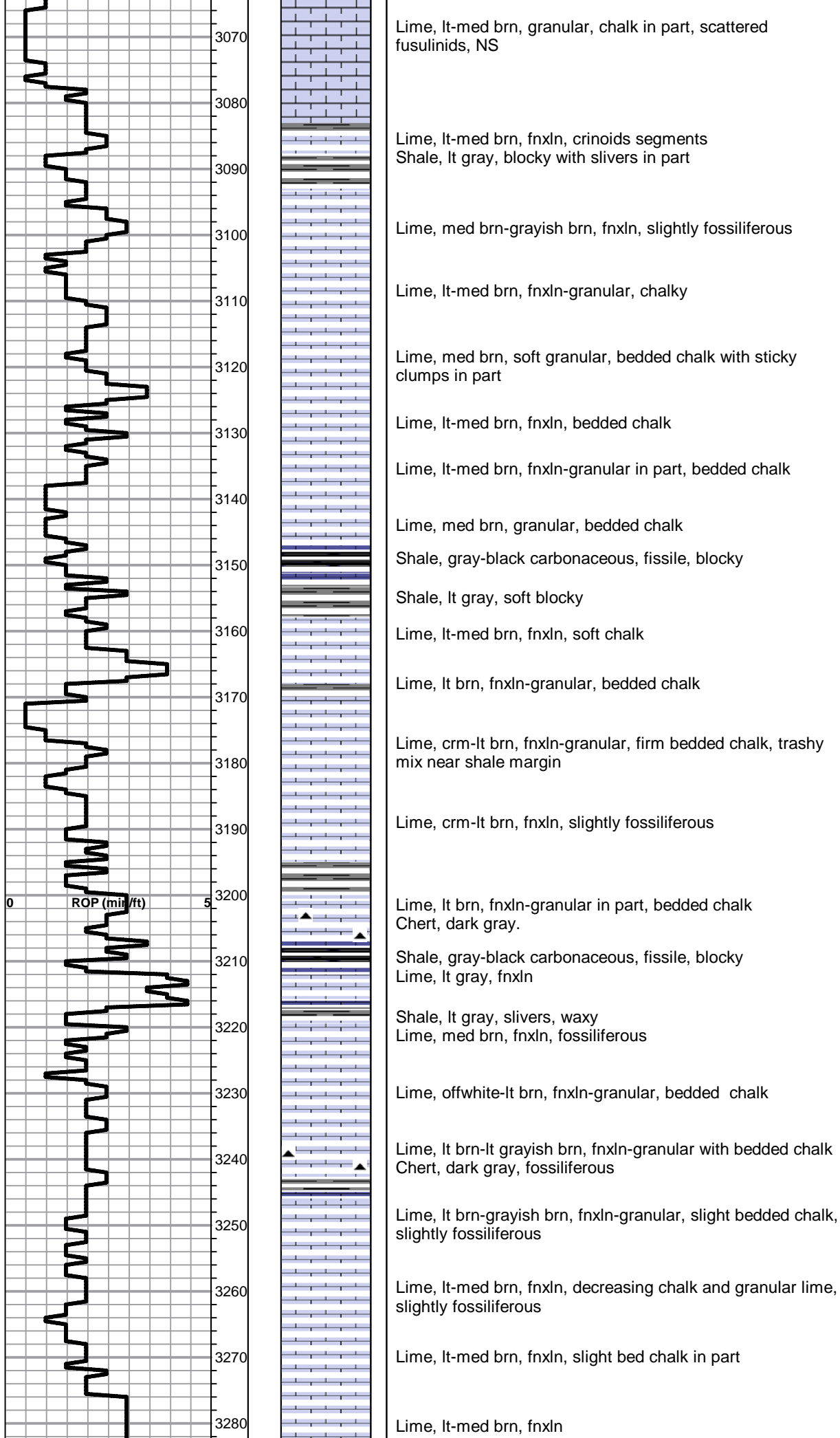
FOSSIL

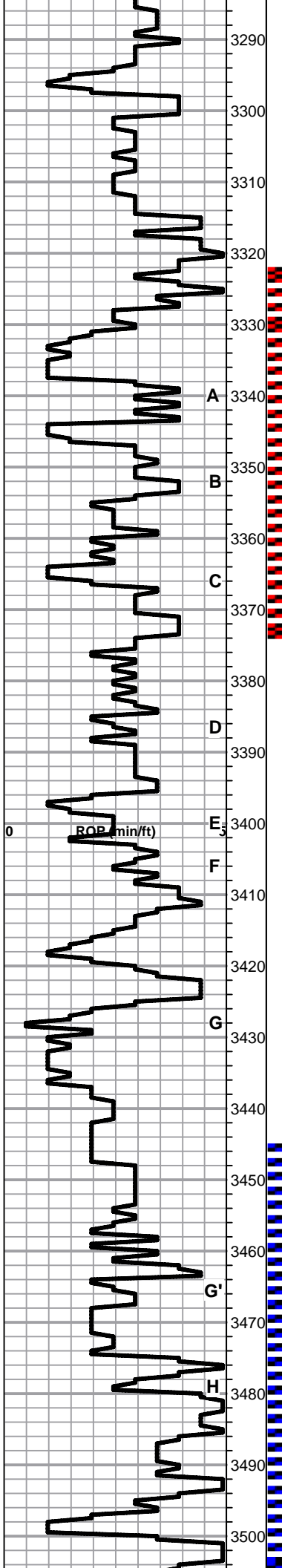
- Oolite
- ⊕ Oomoldic

OTHER SYMBOLS

DST







HEEBNER SHALE SPL 3293-1247

Shale, black carbonaceous, fissile, blocky
 Lime, med brn, fnxln, hard on crush
 Shale, med green, blocky grading into lime green soft mud

TORONTO SPL 3314-1268

Lime, white-crm, fn-vfxln, bedded chalk in part NS

Lime, crm-lt brn, fn-vfxln, slight chalk, NS

Shale, red, soft with lt red wash

LKC SPL 3337-1291

Lime, lt-dark brn, fn-vfxln, slightly fossiliferous, NS
 Shale, grayish green, soft blocky

Lime, lt-med brn, fnxln with trashy lime/shale boundary

Shale, lt gray, soft sticky argillaceous mud clumps

Lime, lt-med brn, fnxln grading into oolitic/oolmoldic zone with scattered-saturated lt staining, lt odor, VMSFO on break

Lime, crm-lt brn, mostly fnxln. Thin fossil fragment bed with lt scattered staining, NFO,

Lime, crm-tan, fnxln

Shale, gray-black carbonaceous, fissile, blocky
 Lime, pale gray, fnxln
 Shale, lt gray, soft, sticky, argillaceous

Lime, crm-tan, fnxln, lot of bedded chalk, NS

Lime, crm-tan, fnxln, granular, lot of bedded chalk, NS

Lime, crm-tan, fnxln with continued high volume of bedded chalk, NS

Lime, crm-lt brn, fnxln, bedded chalk

Lime, crm-lt brn, fnxln, bedded chalk

Lime, pale gray, fnxln
 Shale, med gray, blocky, calcareous in part

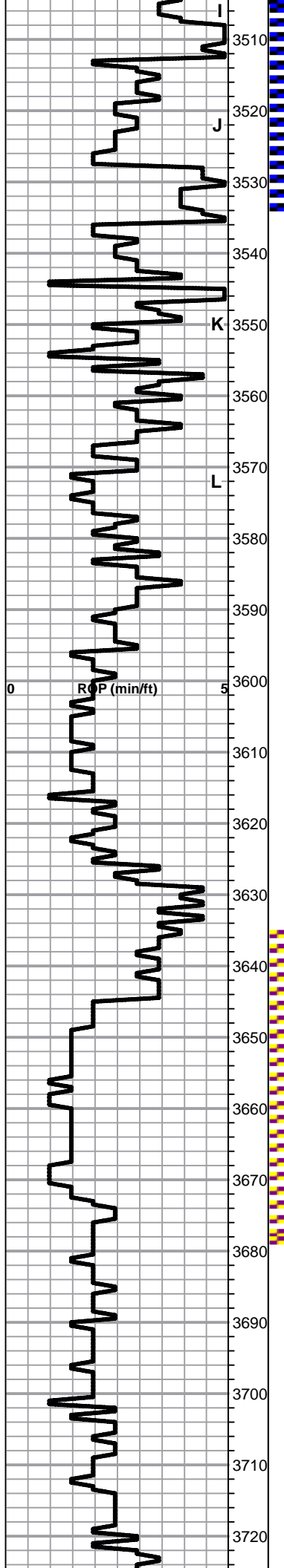
Shale, med gray, blocky, calcareous in lime/shale transition zones

Lime, crm-lt brn, fn-vfxln, NS noted
 Chert, tan, fresh, sharp

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn, fn-vfxln with few oolitic/oolmoldic chips with lt scattered to saturated staining, NFO, No Odor

DST # 2 3445' TO 3535' SEE HEADER FOR TEST SUMMARY



Lime, lt brn, fnxln

Shale, dove gray, soft, argillaceous mud clumps
 Lime, crm-tan, fnxln with scattered fine, honey comb vuggy porosity with lt scattered staining, NFO, VLT Odor

Lime, crm-tan, fnxln, bedded chalk in part

Lime, crm-tan, fnxln, bed chalk, NS

Lime, crm-lt brn, fn-vfxln, slight bed chalk in part

Lime, crm-lt brn, fnxln, sticky white chalk in party

Lime, crm-lt brn, fnxln, bed chalk in part, NS

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

BKC SPL 3580-1534

Shale, red, soft blocky with lt red wash

Lime, crm-tan, fnxln, chalky

Shale, red, red wash with argillaceous, sticky clumps

Shale, red, red wash with soft, argillaceous sticky clumps

MARMATION SPL 3625-1579

Lime, crm-tan, fnxln, hard on crush with scattered orange chert fragments, NS

CONGLOMERATE SAND SPL 3644-1598

Sandstone, quartz, friable, subrounded, polished fine-coarse grains, very lt odor. Few cemented clusters noted at top of sequence with no clusters throughout most of zone. One of the best developed and cleanest sands noted in the area but too low to be productive.

ARBUCKLE SPL 3671-1625

Dolomite, ivory-crm, fnxln-granular, scattered specks of free oil and flaky residue, No Odor

Dolomite, ivory-crm, fnxln, chalky white wash, NS

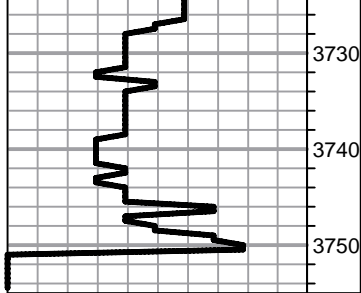
Dolomite, crm, granular, NS

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln-granular

DST # 3 STRADDLE TEST
 3535' - 3580' SEE HEADER
 FOR TEST SUMMARY



Dolomite, crm, fxlIn-granular

RTD 3750-1704 LTD 3754-1708

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. 6204

Date	11.15.12	Sec.	10	Twp.	15	Range	19	County	Ellis	State	KS	On Location	Finish	6:15 p.m.
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Location Antonio Lu252w Ninto

Lease <u>Kraus Unit</u>	Well No. <u>1</u>	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.
Contractor <u>Southwind #1</u>		Charge To <u>T D I</u>
Type Job <u>Surface</u>		
Hole Size <u>12 1/4</u>	T.D. <u>225</u>	Street
Csg. <u>8 5/8</u>	Depth <u>223</u>	City
Tbg. Size	Depth	State
Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg. <u>15'</u>	Shoe Joint	Cement Amount Ordered <u>150 Gm. 34000 Jockey</u>
Meas Line	Displace <u>13 1/4 BCL</u>	

EQUIPMENT

Pumptrk	No. <u>15</u>	Cementer <u>Craig</u>	Helper	Common <u>150</u>
Bulktrk	No. <u>8</u>	Driver <u>Nick</u>	Driver	Poz. Mix <u>3</u>
Bulktrk	No. <u>8</u>	Driver <u>Louie W.</u>	Driver	Gel. <u>5</u>
				Calcium <u>5</u>

JOB SERVICES & REMARKS

Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
<u>8 5/8 on bottom Est Circulation</u>	Sand
<u>Mix 150 SL & Displace.</u>	Handling <u>158</u>
	Mileage

FLOAT EQUIPMENT

<u>Cement Circulated,</u>	Guide Shoe
	Centralizer <u>8 5/8 Swage</u>
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

Pumptrk Charge <u>Surface</u>	
Mileage <u>13</u>	

	Tax	
	Discount	
	Total Charge	

X Signature Ruby L

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. 6197

Date	11-21-12	Sec.	10	Twp.	15	Range	19	County	Ellis	State	Ks	On Location	Finish	5:30 PM
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Lease	Kraus Unit	Well No.	1	Owner	Antonio, Ks - 1W, 2S, 1/2W
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Contractor	Southwind #1	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.			
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Type Job	Plug	Hole Size	7 7/8"	T.D.	3750'	Charge To	TDI Inc.
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Csg.	Tbg. Size	Depth	3650'	Street	City	State
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Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.			
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Cement Left in Csg.	Shoe Joint	Cement Amount Ordered	245 5x 60/40 4% Gel		
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Meas Line	Displace	H2O / mud	1/4" B Flo seal	Common
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EQUIPMENT					
Pumptrk	5	No.	Cementer	Brett	Poz. Mix
			Helper		
Bulktrk	13	No.	Driver	Lonnice M.	Gel.
			Driver		
Bulktrk	p.u.	No.	Driver	Rick	Calcium
			Driver		

JOB SERVICES & REMARKS

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
3650' - 25 5x	Handling
1280' - 25 5x	Mileage

FLOAT EQUIPMENT

550' - 80 5x	Guide Shoe
275' - 40 5x	Centralizer
40' - 10 5x w/ Plug	Baskets
Rathole w/ 30 5x	AFU Inserts
Max hole w/ 15 5x	Float Shoe
Cement did Circulate	Latch Down
	1 - Dry hole plug
	Pumptrk Charge
	Mileage

X Signature	Tax
	Discount
	Total Charge