



Scale 1:240 (5"=100') Imperial  
Measured Depth Log

Well Name: ANTHOLZ TRUST 2A  
Well Id: #1  
Location: 1472' FNL, 939' FEL, Sec 02-T05S-R37W, Cheyenne County, Kansas  
License Number: API: 15-023-21510 Region: Cheyenne County  
Spud Date: 04/15/2019 Drilling Completed: 04/24/2019  
Surface Coordinates: Lat: 39.6513911  
Long: -101.4336519  
Bottom Hole Vertical hole  
Coordinates:  
Ground Elevation (ft): 3389' K.B. Elevation (ft): 3394'  
Logged Interval (ft): 4000' To: RTD Total Depth (ft): 5000'  
Formation: Mississippian at RTD  
Type of Drilling Fluid: Chemical

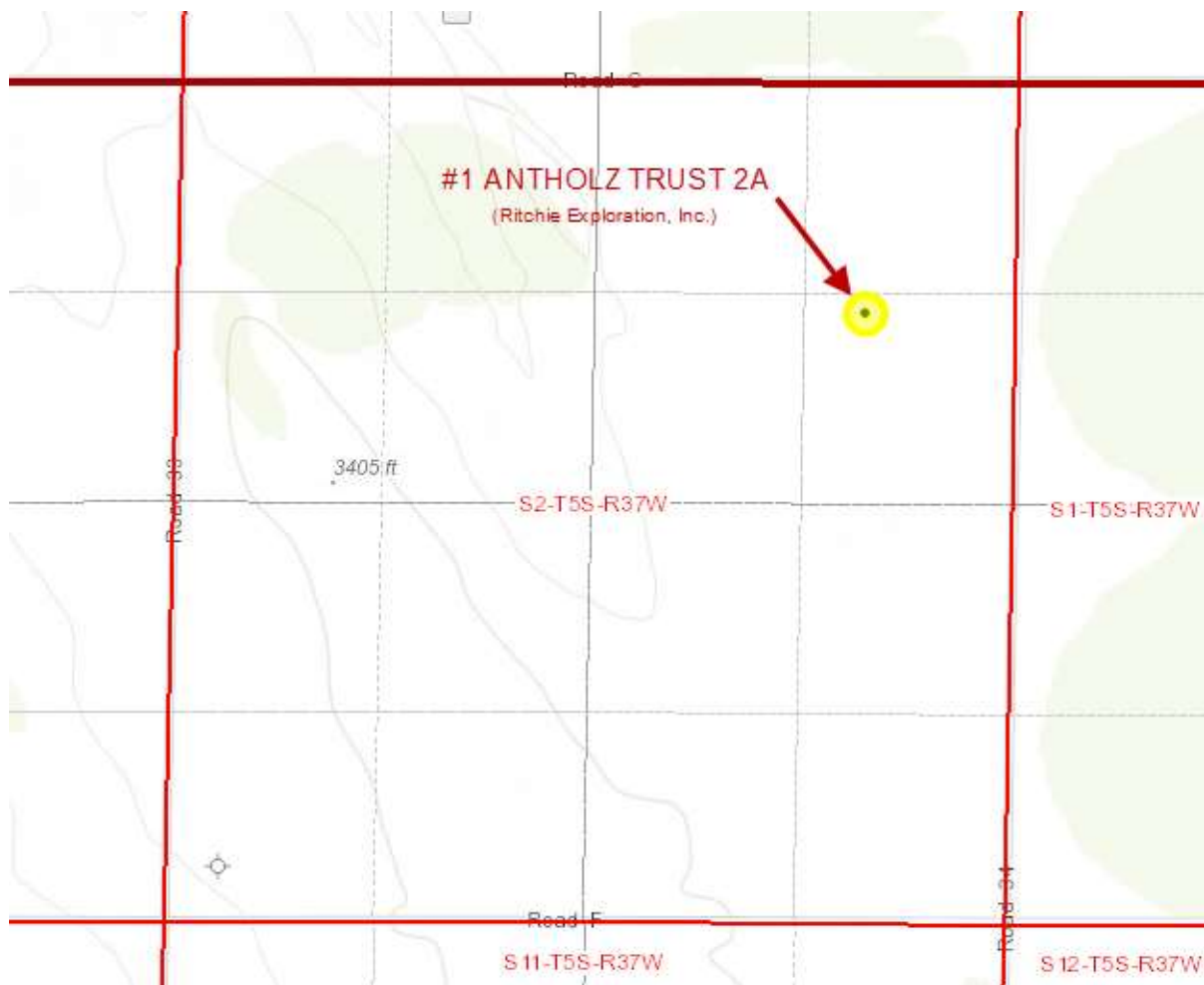
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OPERATOR

Company: Ritchie Exploration, Inc.  
Address: 8100 E. 22nd Street N., Bldg 700  
Wichita, KS 67226  
316-691-9500

GEOLOGIST

Name: Kent R. Matson  
Company: Matson Geological Services, LLC  
Address: 33300 W. 15th Street S.  
Garden Plain, Kansas 67050  
316-644-1975; kent4m@hotmail.com



### COMMENTS

Ritchie Exploration Company Geologist: John Goldsmith, 316-640-0236 (cell).

Contractor: WW Drilling Company, Rig #8.

Tool Pusher: Scott Piland, 620-639-1843 (cell).

Surface Casing: 8 5/8" set at 371' (KB) w/325sx cement.

Production Casing: Based on field observations of drill cuttings, DST results and electric log evaluation, production casing was not installed and the hole was plugged and abandoned.

Mud by: Mud-Co/Service Mud, Inc., Reid Atkins, 785-694-3741 (cell).

DST's by: Diamond Testing, Wil Steinbeck, 620-282-1573 (cell).

Logs by: Pioneer (DI w/GR, CND, Micro, and Sonic), D. Schmidt, 785-628-6395 (office).

RTD= 5000'

LTD= 5003'

## FORMATION TOPS

| FORMATION          | SAMPLE TOPS |       | LOG TOPS |       |
|--------------------|-------------|-------|----------|-------|
|                    | Depth       | Datum | Depth    | Datum |
| Stotler            | 3542'       | -369  | 3536'    | -363  |
| Heebner Shale      | 3908'       | -735  | 3900'    | -727  |
| Lansing            | 3953'       | -780  | 3945'    | -772  |
| Muncie Creek Shale | 4116'       | -943  | 4111'    | -938  |
| Stark Shale        | 4207'       | -1034 | 4201'    | -1028 |
| Hushpuckney Shale  | 4248'       | -1075 | 4239'    | -1066 |
| Base of KC         | 4275'       | -1102 | 4268'    | -1095 |
| Marmaton           | 4321'       | -1148 | 4309'    | -1136 |
| Pawnee             | 4409'       | -1236 | 4400'    | -1227 |
| Myrick Station     | 4459'       | -1286 | 4451'    | -1278 |
| Fort Scott         | 4472'       | -1299 | 4466'    | -1293 |
| Cherokee Shale     | 4506'       | -1333 | 4497'    | -1324 |
| Johnson            | 4570'       | -1397 | 4562'    | -1389 |
| Mississippian      | 4719'       | -1546 | 4710'    | -1537 |
| RTD                | 4840'       | -1667 |          |       |
| LTD                |             |       | 4831'    | -1658 |

## ROCK TYPES

### LITHOLOGY

|  |           |
|--|-----------|
|  | Anhy      |
|  | Cht       |
|  | Coal      |
|  | Congl     |
|  | Dol       |
|  | Gyp       |
|  | Lmst      |
|  | Salt      |
|  | Shale     |
|  | Shcol     |
|  | Shgy      |
|  | Sltst     |
|  | Ss        |
|  | Carb sh   |
|  | Dol       |
|  | Dtd       |
|  | Gry sh    |
|  | Sandy lms |
|  | Shale     |
|  | Sltstn    |
|  | Shlyslts  |

|  |            |
|--|------------|
|  | Sitysh     |
|  | Sdy dolo   |
|  | Silty dolo |
|  | Shy dolo   |
|  | Shaly ls   |

### FOSSIL

|  |         |
|--|---------|
|  | Algae   |
|  | Amph    |
|  | Belm    |
|  | Bioclst |
|  | Brach   |
|  | Bryozoa |
|  | Cephal  |
|  | Coral   |
|  | Crin    |
|  | Echin   |
|  | Fish    |
|  | Foram   |
|  | Fossil  |
|  | Gastro  |
|  | Oolite  |

### MINERAL

|  |          |
|--|----------|
|  | Ostra    |
|  | Pelec    |
|  | Pellet   |
|  | Pisolite |
|  | Plant    |
|  | Strom    |
|  | Fuss     |
|  | Oomold   |
|  | Anhy     |
|  | Arggrn   |
|  | Arg      |
|  | Bent     |
|  | Bit      |
|  | Brecfrag |
|  | Calc     |
|  | Carb     |
|  | Chtdk    |
|  | Chtlt    |
|  | Dol      |
|  | Feldspar |

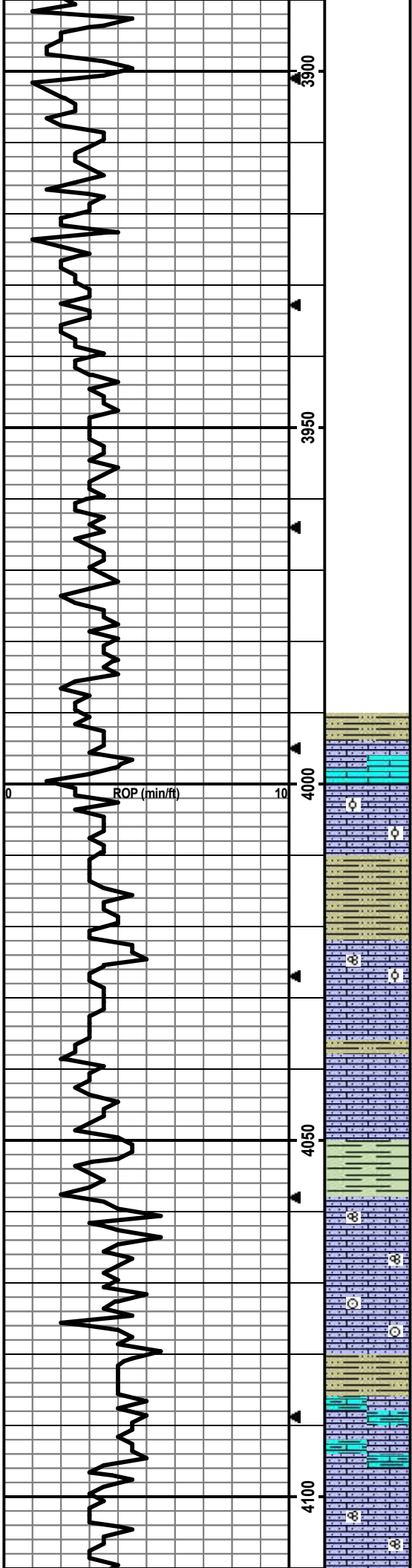
|  |          |
|--|----------|
|  | Ferrpel  |
|  | Ferr     |
|  | Glau     |
|  | Gyp      |
|  | Hvymn    |
|  | Kaol     |
|  | Marl     |
|  | Minxl    |
|  | Nodule   |
|  | Phos     |
|  | Pyr      |
|  | Salt     |
|  | Sandy    |
|  | Silt     |
|  | Sil      |
|  | Sulphur  |
|  | Tuff     |
|  | Chlorite |
|  | Dol      |
|  | Sand     |
|  | Sly      |

| Rate of Penetration (ROP)<br>ROP (min/ft) | Depth | Lithology | CFS Point | Oil Shows                                                                                                                           | Geological Descriptions                                                                                                                                                                                                                                                                                                                                                                                                                        | Remarks                                                                                                                                                                                                                                                    |
|-------------------------------------------|-------|-----------|-----------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                           | 37    |           |           |                                                                                                                                     | <b>Morning Report Depth/Activity (7:00 am)</b><br>04/15/2019, MIRU/Spud.<br>04/16, drilled to 426'; set surface casing @ 371' KB.<br>04/17, drilling @ 2647'.<br>04/18, drilling @ 3565'.<br>04/19, drilling @ 4105'.<br>04/20, CFS @ 4322'.<br>04/21, CFS @ 4450'.<br>04/22, drilling @ 4540'.<br>04/23, drilling @ 4704'.<br>04/24, drilling @ 4925'; TD @ 5000'. Completed electric logging.<br>04/25, DST#2 @ 4752'-4812' (straddle test). | Mud-Co/Service Mud Inc.<br>Check #1 @ 0' 04/15/19,<br>predrilling instructions.                                                                                                                                                                            |
|                                           | 3750  |           |           |                                                                                                                                     | <b>Anhydrite: Top @ 3132', Base @ 3169' (based on drill time).</b><br><br><b>Conducted drilling mud displacement @ 3461' -3477'.</b>                                                                                                                                                                                                                                                                                                           | Mud-Co/Service Mud Inc.<br>Check #2 @ 2688' 04/17/19<br>07:10am<br>wt vis pH chl<br>9.0 28 7.0 120<br>Filt LCM<br>n/c 0<br><br>Mud-Co/Service Mud Inc.<br>Check #3 @ 3619' 04/18/19<br>08:30am<br>wt vis pH chl<br>8.7 66 11.5 2000<br>Filt LCM<br>7.2 1.5 |
|                                           |       |           |           |                                                                                                                                     | Mud-Co/Service Mud Inc.<br>Check #4 @ 4121' 04/19/19<br>07:45am<br>wt vis pH chl<br>9.2 64 11.0 2500<br>Filt LCM<br>6.4 2                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                            |
|                                           |       |           |           | <<<<-----Oil Shows indicator: Left Block 0-10 tray pcs w/show, Middle Block 10-20 tray pcs w/show, Right Block 20+ tray pcs w/show. | Mud-Co/Service Mud Inc.<br>Check #5 @ 4325' 04/20/19<br>07:35am<br>wt vis pH chl<br>9.2 47 11.0 3000<br>Filt LCM<br>7.2 1                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                            |
|                                           | 3800  |           |           | <b>ROP Data begins @ 3800' on 04/18/2019</b>                                                                                        | Mud-Co/Service Mud Inc.<br>Check #6 @ 4468' 04/21/19<br>08:40am<br>wt vis pH chl<br>9.3 53 11.0 3000<br>Filt LCM<br>6.4 1<br><br>Mud-Co/Service Mud Inc.<br>Check #7 @ 4550' 04/22/19<br>08:30am<br>wt vis pH chl<br>9.3 54 11.5 4000<br>Filt LCM<br>7.2 1                                                                                                                                                                                     |                                                                                                                                                                                                                                                            |
|                                           | 3850  |           |           |                                                                                                                                     | Mud-Co/Service Mud Inc.<br>Check #8 @ 4716' 04/23/19<br>07:35am<br>wt vis pH chl<br>9.2 58 10.5 4400<br>Filt LCM<br>8.0 2<br><br>Mud-Co/Service Mud Inc.<br>Check #9 @ 4936' 04/24/19<br>07:20am<br>wt vis pH chl<br>9.4 59 11.0 5000<br>Filt LCM<br>8.8 2                                                                                                                                                                                     |                                                                                                                                                                                                                                                            |

Stotler 3867  
(-473)

**Survey Record  
Deg @ Ft**

1.0 @ 371'  
0.25 @ 4474'  
1.0 @ 5000'



Formation tops and lithologies have been adjusted to correlate to the electric log.

Drill cutting samples at 10' intervals start at 4000'.

SH: lt-dk gry/lt green-gry/lt maroon, some vry silty, slit carb, firm.

LS: cm/lt-m brn/gry, micro-med xtal, some vry silty, min chalky, foss frags, 1 pce w/show, yel flor/cut, ppt-f in-xtal por, no odor, ssfo.

LS: cm, micro-med xtal, vry silty/sndy, some chalky, foss frags/dense ool, ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry/maroon, vry silty, slit carb, firm, no odor, ns.

LS: cm/lt bm, micro-m xtal, silty/sndy, some chalky, foss frags/fusin/dense ool, min ppt-f in-xtal por, no odor, ns.

LS: cm/lt bm/lt gry, micro-f xtal, vry silty/sndy, min foss frags, ppt-f in-xtal por, no odor, ns.

SH: dk gry/red bm, soft-firm, no odor, ns.

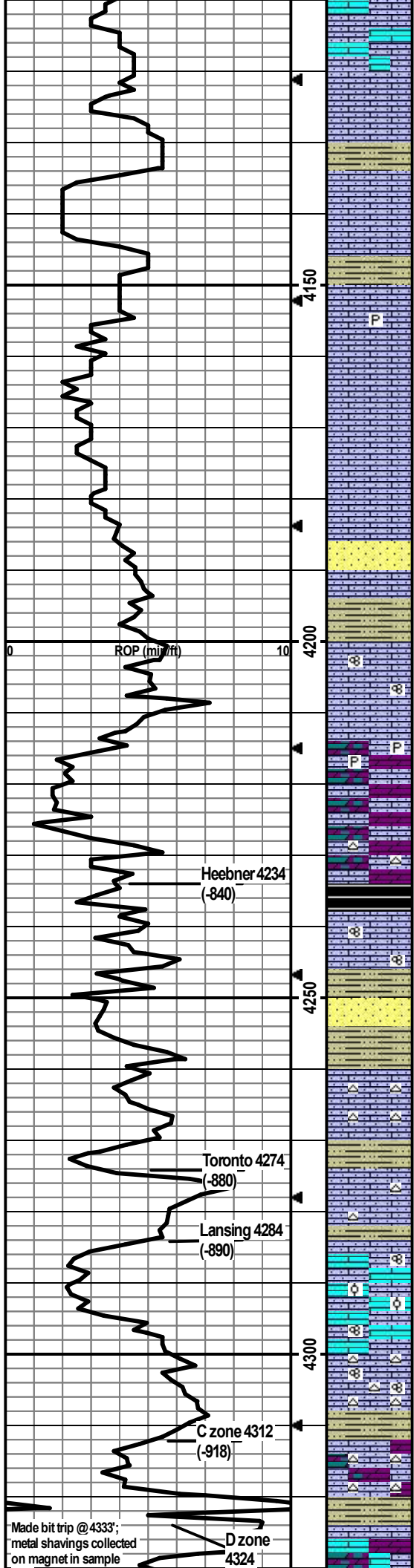
LS: cm/lt gry, micro-med xtal, silty/sndy, chalky, foss frags/fusin, ppt-f in-xtal por, no odor, ns.

LS: cm/lt gry/lt bm, micro-med xtal, silty/sndy, some chalky, foss frags/crin, no vis por, no odor, ns.

SH: m-dk gry/red brn/maroon/min lt green-gry, some vry silty/sndy, firm.

LS: cm/lt bm/lt gry, micro-m xtal, silty/sndy, chalky, some arg, foss frags, no vis por, no odor, ns.

LS: cm, micro-med, silty, chalky, foss frags/fusin, ppt-f in-xtal por, no odor, ns.



LS: cm/lt gry, micro-med, some silty, some chalky, foss frags, no vis por, no odor, ns.

LS: cm/lt gry-cm, micro-f xtal, some vry sndy, some chalky, min foss frags, no vis por, no odor, ns.

SH: med-dk gry/ red-brn/maroon, some silty, slt carb, soft-firm.

LS: cm, micro-f xtal, vry silty/sndy, some chalky, min foss frags, crushes easily, no vis por, no odor, ns.

4150

LS: cm/lt bm, micro-m xtal, some silty/sndy, some chalky, min pyritic, min foss frags, min ppt-f in-xtal por, 1 pce w/blk tar oil w/yel cut, no odor, slt show.

LS: cm/lt bm/min lt gry, micro-m xtal, some vry silty/sndy, some chalky, ppt-f in-xtal por, no odor, ns.

LS: cm/lt bm/min lt gry, micro-m xtal, some vry silty/sndy, some chalky, mostly ppt-f in-xtal por w/some m-c por, no odor, ns.

4200

LS: lt gry, micro-f xtal, vry silty, min foss frags/brac, no vis por, no odor, ns. Some SS: lt-m gry, vf-f, pred qtz, glauc, arg, friable, no odor, ns.

LS: lt-m gry, vf-f xtal, vry silty, arg, foss frags, no vis por, no odor, ns. SH: m-dk gry, some vry silty, slt carb, soft-firm, no odor, ns.

4250

LS: lt-m bm/gry/gry-bm, vf-med xtal, some vry silty, some chalky, foss frags/fusln, no vis por, no odor, ns.

LS: cm, vf-f xtal, silty/sndy, grainy, dolomitic, some chalky, min pyritic, ppt-f in-xtal por, no odor, ns.

LS: cm, vf-f xtal, silty/sndy, grainy, dolomitic, some chalky, min wht chert, ppt-f in-xtal por, no odor, ns.

SH: m-dk gry/blk, firm, slt carb, fissile.

LS: cm/lt gry/bm, vf-m xtal, silty/sndy, some chalky, foss frags/fusln, no vis por, no odor, ns.

4300

SH: lt-dk gry/lt green-gry/maroon, some vry silty/sndy, slt carb, firm. Some SS: lt green-gry, f-m, pred qtz, sr-wr, arg, friable, no odor, ns.

LS: cm/lt bm, micro-f xtal, some silty/sndy, min chalky, abund lt bm chert, foss frags, ppt-vf in-xtal por, 4 pcs w/blk tar oil w/yel cut, no odor, no free oil droplets.

SH: lt-dk gry/lt green-gry/bm/maroon, some vry silty/sndy/friable, firm, no odor, ns.

LS: cm/lt bm, vf-m xtal, vry silty/sndy, arg, bm chert, foss frags/grainy, 2 pcs w/blk tar oil w/yel cut, ppt-f in-xtal por, no odor, no free oil droplets.

4324

LS: cm/lt gry-brn, micro-m xtal, some silty/sndy, sample vry chalky, min pyritic, foss frags/fusln, ppt-m in-xtal por w/por within fusln, no odor, ns.

LS: cm/lt brn, micro-m xtal, some silty/sndy, sample vry chalky, foss frags/fusln/ool, ppt-m in-xtal por w/por within fusln, 8 pcs w/lt yel staining w/yel cut w/ppt in-xtal por, no odor, no vis free oil, ns.

LS: cm, micro-m xtal, vry silty/sndy, some chalky, abund wht/lt brn/orange chert, foss frags/fusln, some ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry/lt green-gry/min maroon, some vry silty/sndy, slt carb, firm, no odor, ns.

LS: cm/lt bm, micro-f xtal, sample chalky, some silty/sndy, grainy, dolomitic, lt bm/orange chert, min foss frags, no vis por, no odor.

SH: m-dk gry/lt green-gry/dk maroon, silty, slt carb, firm.

LS: cm/lt brn, micro-med xtal, some silty/sndy, some chalky, some grainy, dolomitic, foss frags, min ppt-f in-xtal por, no odor, ns. Sample was a flood of SH.

CFS @ 4184'  
Stop/30"/60"

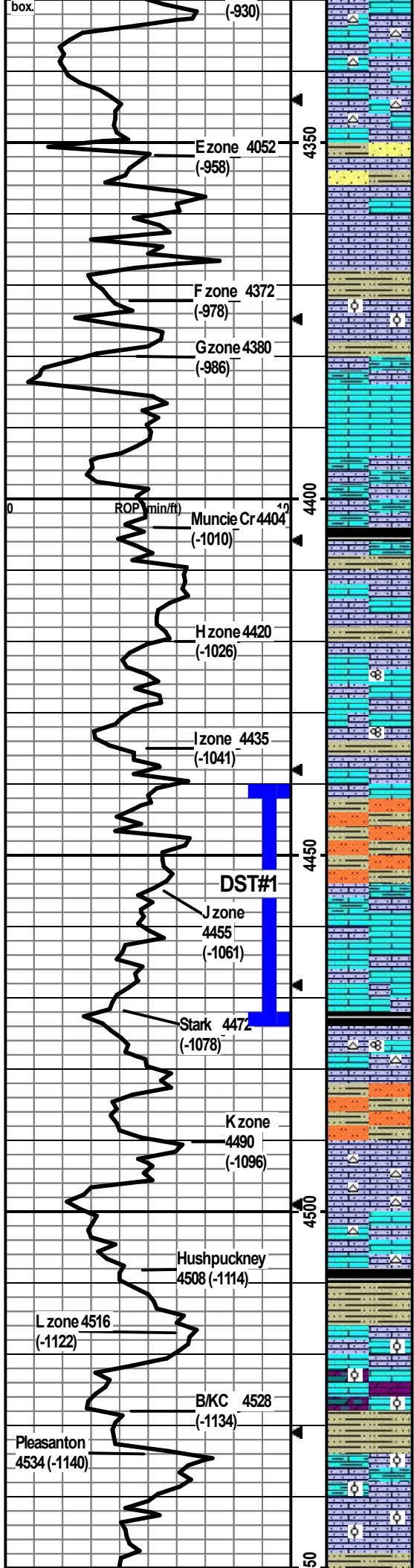
Conducted 40 stand wiper trip at 4184' connection.

CFS @ 4284'  
Stop/30"/60"

CFS @ 4300'  
Stop/30"/60"

CFS @ 4324'  
Stop/30"/60"

Made bit trip @ 4333'; metal shavings collected on magnet in sample



LS: wht/cm, micro-m xtal w/some 2ndry xtals, some vry silty, chalky, wht/orange chert, foss frags, no vis por, no odor, ns.

LS: wht/cm/lt gry, micro-med xtal, some silty, chalky, wht/orange chert, foss frags, 1 pce w/blk tar oil w/yel cut, some ppt-f in-xtal por, no odor, no oil droplets.

Flood of SH: m-dk gry/red-brn/maroon/lt green-gry, some vry silty/sndy, slt carb, soft-firm, few lt gry SS pcs.

LS: cm/lt gry/lt brn, micro-m xtal, some silty/sndy, some chalky, min foss frags, no vis por, ns.

LS: wht/cm, micro-med xtal, vry sndy, vry chalky, min foss frags, min ppt-f in-xtal por, no odor, ns.

SH: m-dk gry/dk red-brn, vry silty/sndy, slt carb, firm, no odor, ns.

LS: cm/lt brn, micro-m xtal, some vry silty/sndy, some chalky, some arg, min foss frags/dense ool, no vis por, no odor, ns.

LS: cm/lt gry, micro-f xtal, some 2ndry xtal, some silty, some arg, min foss frags, no vis por, no odor, ns.

LS: cm/lt gry, micro-f xtal, some silty/arg, no vis por, no odor, ns.

LS: brn/m-dk gry, micro-m xtal, silty/sndy, arg. some chalky, min wht chert, foss frags, no vis por, no odor, ns.

SH: m-dk gry/min blk, some vry silty, slt carb, soft-firm.

LS: wht/cm, micro-f xtal, some vry chalky, some silty, 23 pcs w/blk tar oil w/yel cut mostly in chalk, ppt-f in-xtal por, no odor, no free oil droplets.

LS: cm/lt brn/lt gry, micro-m xtal, some vry chalky, some silty, min fulsn, 21 pcs w/blk tar oil w/yel cut some in chalk, ppt-f in-xtal por, no odor, no free oil.

LS: cm/lt brn/lt gry-brn, micro-med xtal, some silty, some chalky, foss frags/fulsn, no vis por, no odor, ns (1 pcs w/ppt por w/blk tar oil assumed from above).

LS: crm, micro-m xtal, some silty, some chalky, foss frags, no vis por, no odor, ns.

Sltstn: lt gry/maroon/red-brn/yel mottling, pred qtz, arg, friable, no odor, ns. SH: lt-m gry/red-brn, vry silty/sndy, slt carb, soft-firm, no odor, ns.

LS: cm/lt gry/brn, micro-m xtal, some silty, some chalky, some arg, foss frags/fulsn, no vis por, no odor, ns.

LS: cm/lt gry, micro-f xtal, some silty, some chalky, 24 pcs w/bm oil staining, no free oil, yel cut, ppt in-xtal por, no odor.

SH: m-d gry, slt carb, firm.

LS: crm, micro-m xtal, some chalky, some silty, crm/orange chert, min foss frags/fulsn, 7 pcs w/sfo w/ppt-f in-xtal por, yel flor/cut, oil droplets on break, no odor, sfo.

SH: lt-dk gry/dk red-brn/maroon/min lt green-gry, vry silty/sndy, slt carb, firm, no odor, ns. Some Sltstn: dk red-brn, vry arg, slt carb, friable, no odor, ns.

LS: cm/lt gry, micro-f xtal, vry silty/sndy, some vry chalky, abund crm chert, min pyritic, foss frags/grainy, no vis por, no odor, ns.

LS: cm/min lt gry, micro-f xtal, some vry chalky, some cm/orange chert, some silty/sndy, some foss frags/grainy, no vis por, no odor, ns.

SH: lt-dk gry/blk/lt green-gry/maroon, some vry silty, firm.

LS: cm/min lt brn, micro-m xtal, some silty, foss frags/min dense ool, no vis por, no odor, ns.

LS: cm/lt brn/min lt gry, vf-m xtal, silty, some chalky, some dolomitic, foss frags/min dense ool, min ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry/red-brn, vry silty, slt carb, firm, no odor, ns. Some Sltstn/SS: lt gry, pred qtz, arg, friable, no odor, ns.

LS: crm/lt green-gry, micro-f xtal, some vry silty/sndy, arg, min foss frags/min ool, 6 pcs w/sfo on break w/yel cut, ppt-f in-xtal por, no odor, sfo.

LS: cm/lt gry, micro-m xtal, some silty/sndy, foss frags/ool, 18 pcs w/sfo on break w/yel cut, ppt-f in-xtal/in-ool por, no odor, sfo.

sample box. Tricone bit was badly damaged.

Pipe strap on bit trip at 4333' was 0.55' short to the board.

CFS @ 4350'  
Stop/30"/60"

CFS @ 4370'  
Stop/30"/60"

CFS @ 4380'  
Stop/30"/60"

CFS @ 4400'  
Stop/30"/60"

CFS @ 4430'  
Stop/30"/60"

CFS @ 4450'  
Stop/30"/60"

CFS @ 4474'  
Stop/30"/60"

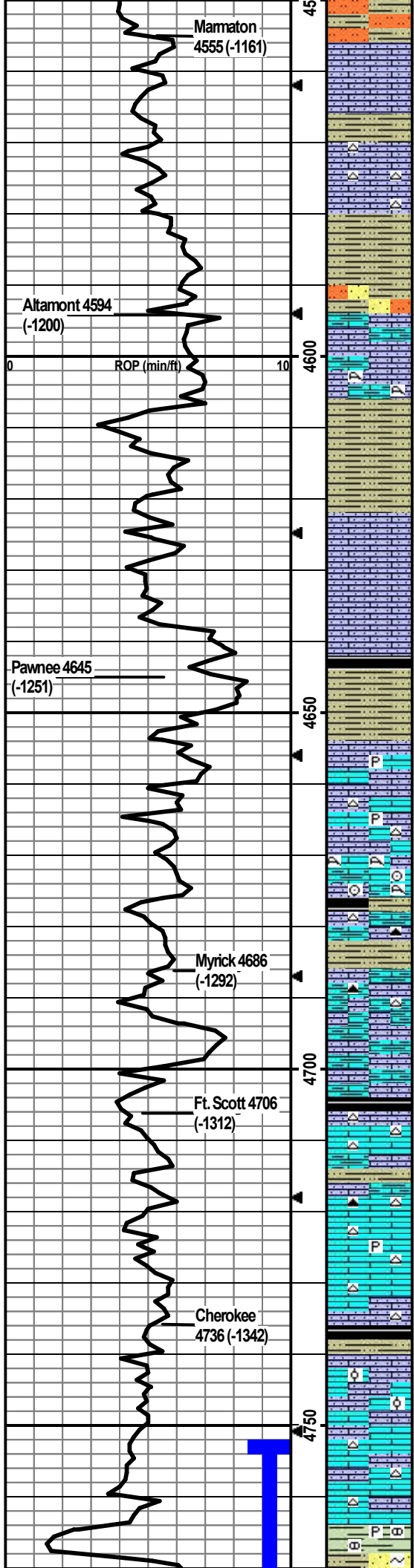
**DST1) 4440-4474  
Lansing J-zone**

30/30/30/30  
1st) Surge blow then dead; no BB.  
2nd) Surge blow then dead; no BB.  
IFP 7-7#  
ISIP 22#  
FFP 24-25#  
FSIP 96#  
HP 2179-2161#  
Recvd: 5' mud.

CFS @ 4510'  
Stop/30"/60"

CFS @ 4531'  
Stop/30"/60"

CFS @ 4550'



SH: lt-dk gry/red-brn/maroon/lt green-gry, some vry silty, slit carb, firm. Siltstn/SS: lt gry, vf-f, pred qtz, some arg, 9 pcs w/dk brn staining, yel cut, ppt-vf in-xtal por, no odor, sfo.

LS: cm/lt gry, micro-m xtal, vry silty/sndy, arg, foss frags/dense ool, 4 pcs w/brn staining, yel cut, ppt-vf in-xtal/in-ool por, no odor, no free oil droplets.

Sample flood of SH: dk red-brn, vry silty/sndy, firm, no odor, ns. Min LS: cm/lt gry, 3 pcs as above w/brn staining/yel cut, no odor, no free oil.

LS: cm/lt gry, micro-m xtal, vry silty, some chalky, abund wht/lt-dk orange chert, foss frags, no vis por, no odor, ns.

Min LS/chert as above w/flood of SH: lt-dk gry/min red-brn, vry silty, vry carb, firm, no odor, ns.

SH: lt-dk gry/maroon-gry/red-brn, vry silty, vry carb, firm. Siltstn/SS: lt gry, vf-f, pred qtz, some glac, arg, 1 pce w/yel cut on break, no odor, no free oil. Min LS: cm/lt gry, micro-f xtal, some vry silty, some arg, min foss frags, no vis por, no odor, ns.

LS: cm/lt-dk brn/lt gry, micro-m xtal, some vry silty, some chalky, some vry arg, min foss frags/few pcs of lattice coral, no vis por, no odor, ns. SH: m-dk gry/dk red-brn/lt green-gry, some vry silty/sndy, firm, no odor, ns.

SH: lt-dk gry/dk red-brn/dk maroon-brn, some vry silty/sndy, slit carb, no odor, ns.

LS: lt gry/lt brn, micro-m xtal, some vry silty/sndy, some chalky, foss frags, no vis por, no odor, ns.

LS: cm/lt gry, vf-f xtal, vry silty, some chalky, min foss frags, no vis por, no odor, ns.

SH: lt-dk gry/blk/lt gry-brn, some vry silty, carb, firm, no odor, ns.

LS: wht/lt gry/min brn, micro-f xtal, sample vry chalky, some vry silty, some arg, min pyritic, min foss frags/fusin, no vis por, no odor, ns.

LS: cm/lt-m brn, micro-f xtal, some vry silty, chalky, cm chert, min pyritic, 10 pcs w/brn oil staining, yel cut, mostly dense w/min ppt-f in-xtal por, no odor, no free oil droplets.

LS: cm/lt-m gry-brn, vf-m, some vry silty, chalky, arg, min wht/lt-dk brn chert (60min), foss frags/crin w/abund lattice coral, some f-m por in coral, no odor, ns.

SH: dk gry/blk/dk brn-gry, some silty, firm, no odor, ns

LS: lt-m brn/gry-brn, f-m xtal, some silty, arg, some chalky, wht/lt-dk brn chert, foss frags, no vis por, no odor, ns.

LS: cm/lt-dk brn, micro-m xtal, some silty/arg/chalky, foss frags, no vis por, no odor, ns.

SH: m-dk arv/blk, silty, slit carb, firm.

LS: cm/lt gry-brn, micro-m xtal, some silty, chalky, wht/lt gry chert, foss frags, no vis por, no odor, ns.

SH: m-dk gry/blk/dk maroon/lt green-gry, vry silty/sndy, firm.

LS: cm/lt-dk brn/gry/brn, micro-m xtal, some vry sndy, some chalky, some arg, wht/lt-dk brn chert, foss frags, no vis por, no odor, ns.

LS: cm/lt brn, micro-m xtal, some chalky, min pyritic, wht/lt gry chert, foss frags, no vis por, no odor, ns.

LS: cm/lt gry/lt-m brn, micro-f xtal, some silty/sndy, some chalky, lt brn chert, foss frags, no vis por, no odor, ns.

SH: m-dk gry/blk/dk brn, some vry silty, slit carb, firm.

LS: cm/brn/gry, f-crs xtal, some vry silty/sndy, some chalky, foss frags/some dense ool, 1 pce w/fo on break, yel cut, ppt-f in-xtal por, no odor, ssfo.

LS: cm/min lt gry, micro-med xtal, some silty/sndy, some chalky, some lt brn chert, no vis por, no odor, ns.

SH: med gry, blocky tex, LS nod, min pyritic, no odor, ns.

Stop/30"/60"

CFS @ 4570'  
Stop/30"/60"

CFS @ 4610'  
Stop/30"/60"

CFS @ 4640'  
Stop/30"/60"

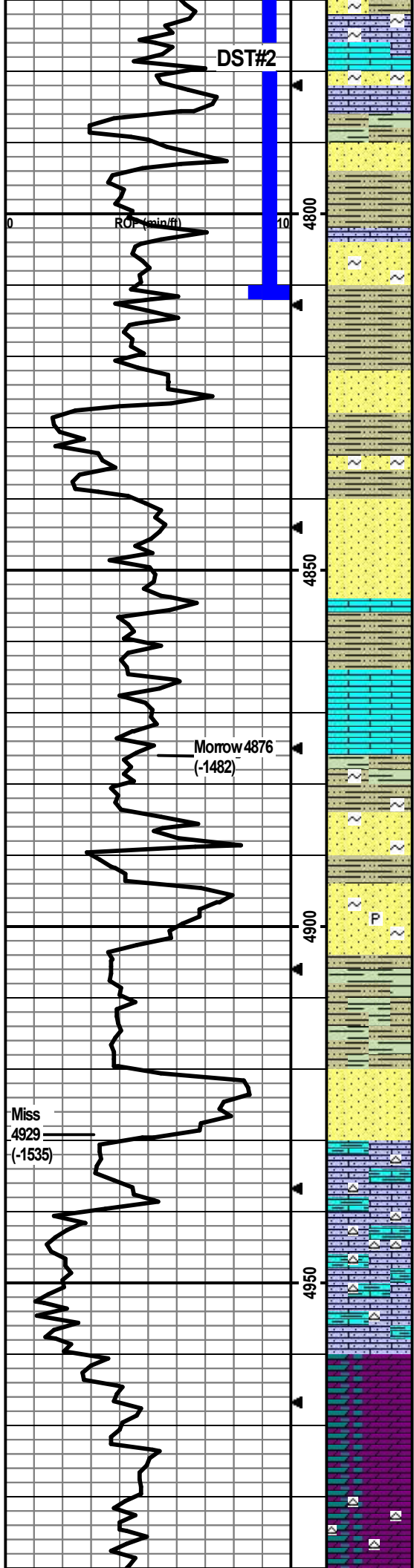
CFS @ 4680'  
Stop/30"/60"

CFS @ 4700'  
Stop/30"/60"

CFS @ 4730'  
Stop/30"/60"

CFS @ 4770'  
Stop/30"/60"





SH: lt-dk gry/lt green-gry/min mustard yel/maroon, vry silty/sndy, carb, firm, no odor, ns. SS: Lt gry/gry-brn/lt green/wht, f-m, sr-wr, carb, arg, glac, hard, friable, no odor, ns. LS: crm/lt brn, f-m xtal, some vry sndy, glac, min foss frags, min frac por, no odor, ns.

SH: m-dk gry/dk red-bm, some vry sndy, firm. some LS/SS as above, some SS: crs wht clean sand, no odor, ns.

SS: wht/crm/lt gry, f-crs, sr-wr, pred qtz, opaque, some glauc, hard, some friable, no vis por, no odor, ns.

SH: m-dk gry/dk red-bm/maroon, some silty, slt carb, firm, no odor, ns.

LS: crm/lt brn, micro-m xtal, some vry sndy, some chalky, foss frags, no vis por, no odor, ns. SS: wht/crm/lt gry/lt green-gry, f-crs, sr-wr, pred qtz, some glauc, pred qtz, hard, some friable, no odor, ns. SH: lt-dk gry/lt green-gry/dk maroon/min mustard yel, some vry silty/sndy, firm, no odor, ns.

SH: lt-dk gry/dk maroon/lt green-gry/dk red-bm, some vry silty/sndy, firm, some friable. Some SS and LS as above, no odor, ns.

SS: wht/red-brn/lt green-gry, f-crs, sr-wr, some arg, pred qtz, hard, some friable, no odor, ns. SH: lt-dk gry/dk red-bm/maroon/lt green-gry, some vry silty/sndy, slt carb, no odor, ns.

Sample vry muddy. SH: m-dk gry/lt green-gry/maroon/red-brn/mustard yel, some vry silty/sndy, min SS: wht/lt green/lt gry/lt brn, f-crs, sr-wr, glauc, 1 pce w/sheen w/yel cut, no odor, no free oil droplets.

SS: dk red-bm, f-crs, sr-wr, pred qtz, arg, carb, hard, some friable, no odor, ns.

LS: wht/crm, micro-f xtal, vry chalky, no vis por, no odor, ns.

SH: m-dk gry/maroon/mustard yel, some vry silty/sndy, firm, no odor, ns.

LS: crm/lt brn/some lt green and yel mottling, micro-f xtal, some chalky, no vis por, no odor, ns.

SH: lt-dk gry/dk red-bm/maroon/mustard yel/min lt green-gry, some vry silty/sndy/glauc, soft-firm, no odor, ns.

Min SS: wht/lt green-gry, qtz, f-c, sr-wr, glauc, hard, friable, no odor, ns.

SH: lt-dk gry/maroon/mustard yel/lt green-gry/red-brn, silty/sndy, firm, no odor, ns.

SS: lt-dk green-gry/lt gry/lt red-brn, f-m, sr-wr, pred qtz, glauc, arg, pyritic, hard, friable, no odor, ns.

SH: lt-dk gry/maroon/mustard yel/lt green-gry/red-brn, some silty/sndy, slt carb, firm, no odor, ns.

Flood of SH as above; SS: wht/crm/lt-m gry, f-m, sr-wr, some arg, hard, friable, no odor, ns.

LS: lt gry w/ lt brn mottle, vf-f xtal, vry silty, arg, glauc, min orange chert, no vis por, no odor, ns.

LS: lt-m gry/lt brn-gry, vf-f xtal, vry silty, arg, increase in wht/orange chert, no vis por, no odor, ns.

LS: crm/lt gry/lt gry-brn, vf-f xtal, vry silty/sndy, chalky, arg, wht/orange chert, no vis por, no odor, ns.

DOLO: lt-m brn/gry-brn, vf-f xtal, silty, arg, no odor, ns.

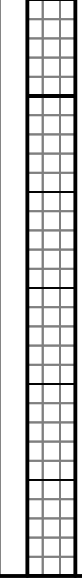
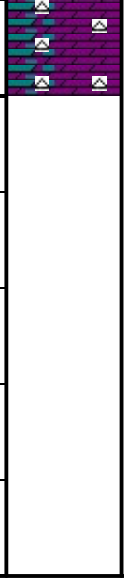
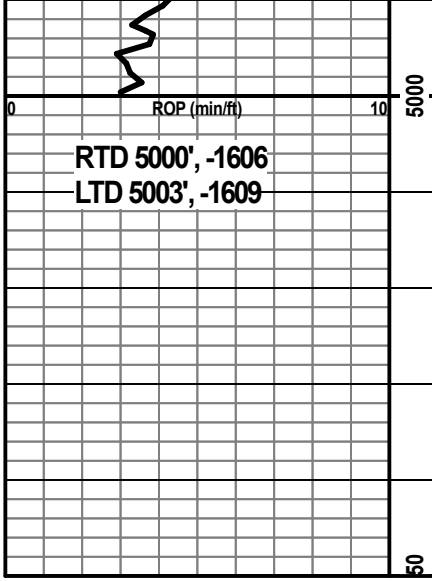
DOLO: lt brn/lt gry, vf-f xtal, silty, arg, no odor, ns.

DOLO as above w/abund wht/lt gry chert, no odor, ns.

CFS @ 4791'  
Stop/30"/60"

**DST2) 4752-4812**  
**(Straddle Test)**  
**Cherokee**

CFS @ 4840'  
Stop/30"/60"



DOLO wchert as above, no odor, ns.

TD @5000'

CFS @5000'  
Stop/30'/60"  
Cir 1.5 hr to collect samples and condition hole. Made 10 stand short trip, then circulated to condition hole, then TOH for logging.