



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

Well Name: # 1 ROEMER UNIT
Location: 85' N. & 75' W.-W/2-W/2-NE OF SEC. 7 - 16 S. - 29 W
License Number: A.P.I. # 15-101-22,449-00-00
Spud Date: 07/10/2013
Surface Coordinates: SPOT: 2385' FEL & 1235' FNL
Region: LANE CO., KS.
Drilling Completed: 07/21/2013

**Bottom Hole
Coordinates:**
Ground Elevation (ft): 2711' **K.B. Elevation (ft):** 2719'
Logged Interval (ft): 235' **To:** 4532' **Total Depth (ft):** 4532'
Formation: MISSISSIPPIAN
Type of Drilling Fluid: CHEMICAL/ POLYMER/ GEL WITH MUD DISPLACEMENT @ 3319'.
Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: RITCHIE EXPLORATION, INC. KCC LIC. NO. 4767
Address: P.O. BOX 783188
WICHITA, KANSAS 67278-3188

GEOLOGIST

Name: DAVID P. WILLIAMS, P.G.
Company: DW Energy, LLC (DWE)
Address: 312 North Broadview Street
Wichita, Kansas 67208

CASING & DEVIATION

Ran 5 jts new 23# 8-5/8" surface casing. Tally at 225.22', set at 235.22'. Strap & Weld Surface Casing. Cemented with 165 sacks common, 3% cc, 2% gel. Cement did circulate. Plug down at 7:00 P.M. on 07/11/13. Cemented By Allied Cementing Company.

Deviation Survey's Taken: @ 235' = 3/4 degree; @ 3836' = 3/4 degree; @ 4530' = 3/4 degree.

DSTs

~~ DST # 1 3777' - 3836'. Times: 30"-45"-30"-30".

Blow: IF= Weak Surface Blow; FF= No Blow (Flushed Tool-No Help).

Recovery: 10' M.

Pressures: IH = 1787#; FH =1783#; IF= 6-11#; FF= 13-24#;

ISIP = 1065#; FSIP = 979#; Temp.= 116 degrees F.

~~ DST # 2 3836'-3880'. Times: 30"-45"-30"-30".

Blow: IF= Weak Surface Blow/1"; FF= Weak Surface Blow.

Recovery: 30' M.

Pressures: IH =1821#; FH =1820#; IF= 5-16#; FF = 18-27#;

ISIP = 981#; FSIP = 902#;Temp.=115 degrees F.

~~DST # 3 3880'-3928'. Times: 30"-30"-30"-30".

Blow: IF= Weak Surface Blow; FF= No Blow (Flushed Tool-No Help).

Recovery: 5' Mud.

Pressures: IH = 1835#; FH = 1834#; IF = 6-8#; FF = 7-11#;

ISIP = 64#; FSIP = 49#; Temp = 114 degrees F..

~~DST # 4 4049"-4100'. Times: 30"-45"-45"-60".

Blow: IF= Weak 1/4" Build/6.5"; FF= Weak Build/7.5".

Recovery: 236' TF: 1' CO; 115' SOHWCM (6% O, 35% Wtr., 59% M); 120' SOMCW (4% O, 72% Wtr, 24% M).Ch = 53,000 Ppm. PH=8.0, RW=>22 @ 75 degrees F..

Pressures: IH = 1960#; FH =1957#; IF = 3 -72#; FF= 75 -112#;

ISIP = 372#; FSIP = 367; Temp =121 degrees F.

~~DST # 5 4219'-4250'. Times: 30"-30"-30"-30".

Blow: IF= Weak Surface Blow; FF= No Blow (Flushed Tool-No Help).

Recovery: 5' Mud.

Pressures: IH = 2035#; FH = 2011#; IF= 6-8#; FF= 7-11#;

ISIP = 20#; FSIP= 19#; Temp=120 degrees F.

~~DST #6 4207' - 4242' (STRADDLE) TOP PACKER FAILURE - MISS-RUN.

~~~ DST #7 Times:

30"-45"-45"-60". Blow: IF= Fair Blow Build BOB/ 12.5"& 1 1/4" Blow Bk During ISIP. FF= Weak Blow Build/BOB /26".

Recovery: 285' GIP; TF= 465': 140' CO (100%); 20' GSWMCO (10% G, 70% O, 5% Wtr, 15% M); 125' GSWOCM (12% G, 32% O, 4% Wtr, 52% M); 180' GSOMCW ( 1% G, 5% O, 80% Wtr).




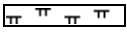
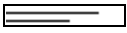
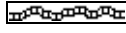




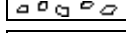







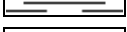
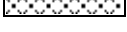



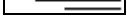
Chl =55,000 Ppm

Pressures: IH=1979#; FH =1976#; IF=27-135#; FF=142-203#;

ISIP= 317#; FSIP= 282#; Temp=126 degrees F.; API Oil Grv.= 23; RW = .17 @ 86 degrees F..

## Comments

### ROCK TYPES

|                                                                                    |         |                                                                                     |        |                                                                                     |        |                                                                                      |           |                                                                                       |       |
|------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|-------|
|  | Anhy    |  | Clyst  |  | Gry sh |  | Mrlst     |  | Shgy  |
|  | Bent    |  | Coal   |  | Gyp    |  | Red shale |  | Sltst |
|  | Brec    |  | Congl  |  | Igne   |  | Salt      |  | Ss    |
|  | Carb sh |  | Dol    |  | Lmst   |  | Shale     |  | Till  |
|  | Cht     |  | Grn sh |  | Meta   |  | Shcol     |                                                                                       |       |

**ACCESSORIES**

- MINERAL**
- Anhy
  - Arggrn
  - Arg
  - Bent
  - Bit
  - Breclfrag
  - Calc
  - Carb
  - Chtdk
  - Chtlt
  - Dol
  - Feldspar
  - Ferrpel
  - Ferr
  - Glau
  - Gyp

- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

- FOSSIL**
- Algae
  - Amph

- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Fuss
- Gastro
- Oolite
- Oomold
- Ostra
- Pelec

- Pellet
- Pisolite
- Plant
- Strom

**STRINGER**

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

**TEXTURE**

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

**OTHER SYMBOLS**

- POROSITY**
- Earthy
  - Fenest
  - Fracture
  - Inter
  - Moldic
  - Organic
  - Pinpoint

- Vuggy

- SORTING**
- Well
  - Moderate
  - Poor

- ROUNDING**
- Rounded
  - Subrnd
  - Subang
  - Angular

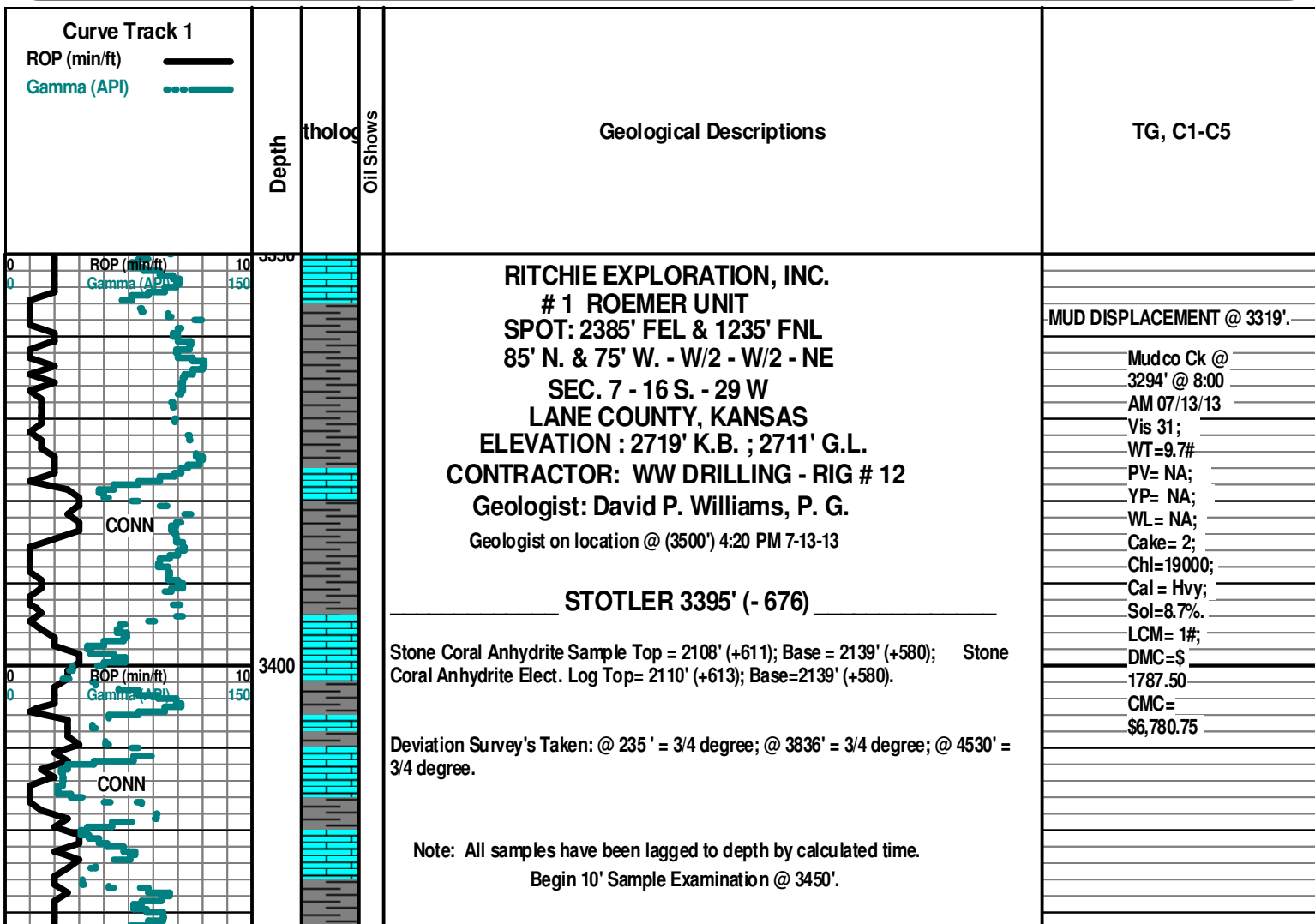
- OIL SHOW**
- Gas show

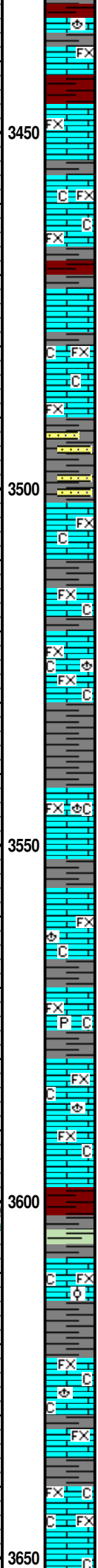
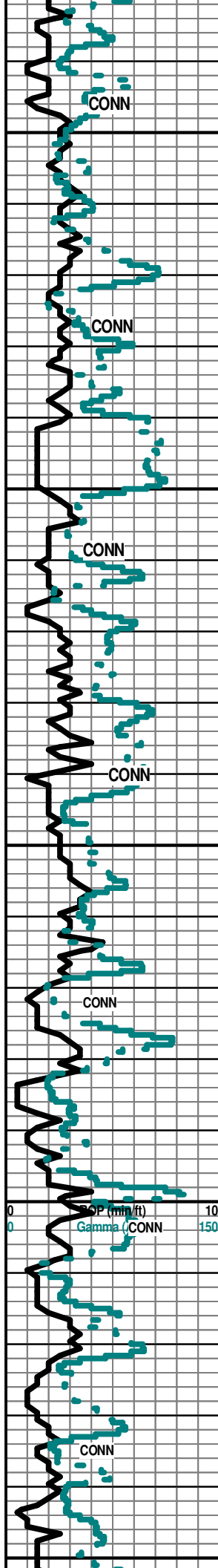
- Even
- Spotted
- Ques
- Dead

- INTERVAL**
- Dst
  - Dst\_alt

- Straddle test tail pi
- Core

- EVENT**
- Rft
  - Sidewall





Ls Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Fos (Brach) Sh Char-Gry-Red Soft No Odor No Stn No Flor NS

Ls Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Sh Char-Gry-Red Soft No Odor No Stn No Flor NS

Ls Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Chalky Sh Char-Gry-Red Soft Inc No Odor No Stn No Flor NS

Ls Crm-Wht FxIn Poor IxIn Por Grad Dns Micrite Chalky Sh Char-Gry-Red Soft Inc No Odor No Stn No Flor NS

Ls Crm-Wht FxIn Fair IxIn Por Grad Gran Pin-Pt Por Chalky Sh Char- Gry- Red Soft Inc No Odor No Stn No Flor NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Grad Dns Micrite Chalky Sh Char -Gry -Gry-Maroon Soft Inc No Odor No Stn No Flor NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Grad Dns Micrite Qtz Ss Gry VFGrn Well Sort Fair-Med Igran Por Friable (Tr Only) Chalky Sh Char -Grn - Gry-Red Fissil-Soft Inc No Odor No Stn No Flor NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Grad Dns Micrite Qtz Ss Gry VFGrn Well Sort Fair-Med Igran Por(w/Micaceous & Pyr Includ) Friable Grad Gry Siltstn Chalky Sh Char-Grn-Gry-Red Fissil-Soft No Odor No Stn No Flor NS

Ls Crm-Wht-Tan FxIn Poor IxIn Por Grad Dns Micrite Chalky Sh Char -Grn -Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Fos (Brach) Sh Char- Gry- Red Soft No Odor No Stn No Flor NS

Sh Char-Grn-Gry-Red Fissil-Soft Inc Ls Crm-Wht-Tan FxIn Poor IxIn Por Grad Dns Micrite Chalky No Odor No Stn No Flor NS

**TOPEKA 3543' (- 824)**

Ls Wht-Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Fos (Brach) Sh Char-Gry-Red Soft No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Fos (Brach) Sh Char-Gry-MaroonSoft No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Fair IxIn Por Grad Gran Pin-Pt Por Pyr (w/Rd Cluster Includ) Sh Char-Gry-Maroon Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Tan FxIn Fair IxIn Por Grad Gran Pin-Pt Por Fos (Brach) Chalky Sh Char-Gry-Maroon Soft Fissil-No Odor No Stn No Flor NS

Ls Wht-Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Gran Pin-Pt Por Chalky Sh Char-Gry-Maroon-Red Fissil-Soft No Odor No Stn No Flor NS

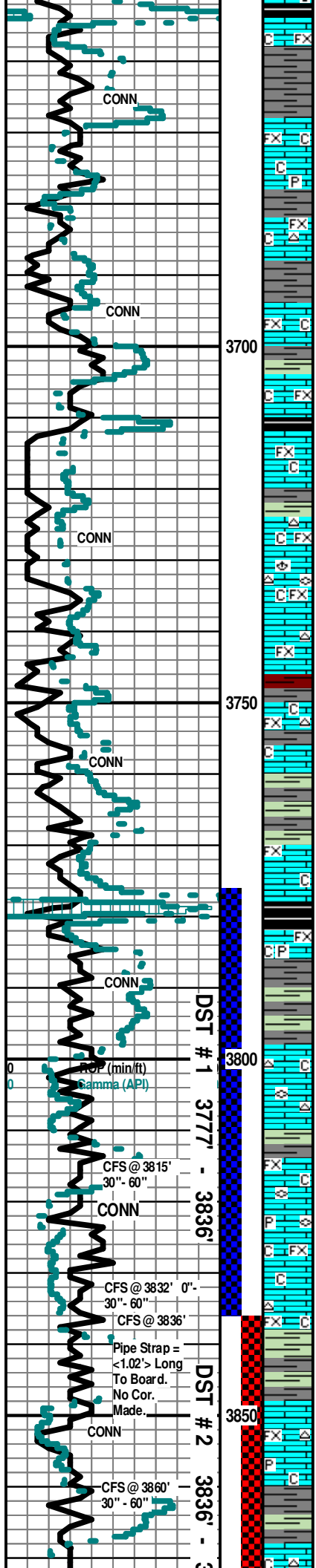
Sh Red-Char-Gry-Maroon Fissil-Soft Ls Wht-Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Gran Pin-Pt Por Chalky No Odor No Stn No Flor NS

Ls Wht-Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Poor OOL Por (w/OOL in p) Chalky Sh Char-Gry-Maroon-Red Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Fos (Brach) Chalky Sh Char-Gry-Maroon-Red Fissil-Soft No Odor No Stn No Flor NS

Ls Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Chalky Inc Sh Char-Gry-Maroon-Red Fissil-Soft No Odor No Stn No Flor NS

Ls Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Chalk Inc Sh Char-Gry-Maroon-Red Fissil-Soft No Odor No Stn No Flor NS



Ls Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Chalk Inc Sh Blk Carb-Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Crm-Tan FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Chalk Inc Sh Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Crm-Gry FxIn Dns Micrite Grad Poor-Fair IxIn Por Pyr Mass Chalky Sh Blk Carb-Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Fair IxIn Por Cht Wht Op Shp Vit Por Chalk Inc Sh Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Poor-Fair IxIn Por Chalky Sh Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Poor-Fair IxIn Por Chalky Sh Blk Carb-Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Poor-Fair IxIn Por Chalk Inc Sh Blk Carb-Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Fair IxIn Por Cht Wht Op Shp Vit Chalky Sh Char-Drab Gry-Blk Carb Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm FxIn Dns Micrite Grad Fair IxIn Por Cht (w/Fos (Fuss Inklus) Wht Op Shp Vit Fos (Brach) Chalk Abd Sh Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Fair IxIn Por Cht Wht-Org Op Shp Vit Chalk Sh Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm-Gry FxIn Dns Micrite Grad Fair IxIn Por Cht Wht Op Shp Vit Fos (Fuss) Chalk Sh Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm- Lt Brn-Gry FxIn Dns Micrite Grad Fair IxIn Por Chalk Sh Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

Ls Wht-Crm- Lt Brn-Gry FxIn Dns Micrite Grad Fair IxIn Por Chalk Sh Char-Drab Gry-Blk Carb Tr Fissil-Soft No Odor No Stn No Flor NS

**HEEBNER 3778' (- 1059)**

Sh Blk Carb-Char-Gry Fissil Ls Crm-Wht FxIn Dns Micrite Grad Poor IxIn Por Chalk Soft No Odor No Stn No Flor NS

Sh Char-Drab Gry-Blk Carb Fissil Ls Crm-Wht FxIn Dns Micrite Grad Poor IxIn Por Chalk Pyr Soft No Odor No Stn No Flor NS

**TORONTO 3798' (- 1079)**

30" CFS @ 3815' Ls Wht-Crm FxIn Dns Micrite Grad Poor-Fair IxIn Por Grad Lt Brn- Crm Poor Pin-Pt IxIn Por (w/ ? VSSO) Cht Wht Op Shp Vit Chalk Fos (Fuss) Sh Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

60" CFS @ 3815' Ls Wht-Crm FxIn Dns Micrite Grad Poor IxIn Por Cht Wht Op Shp Vit Chalk Sh Char-Drab Gry Fissil-Soft No Odor No Stn No Flor NS

**LANSING 3814' (- 1095)**

0" CFS @ 3832' Ls Wht FxIn Dns Micrite Grad Poor OOL Por (w/OOL in pl) Poor IxIn Por Tr Sli Vug Leaching (w/? Lt Brn Stn) Poor Dissolu Fos (Fuss) Pyr Mass Chalk Sh Char-Drab Gry-Maroon Fissil-Soft No Odor ? Brn Stn No Flor NS

30" CFS @ 3832' Ls Wht FxIn Dns Micrite Grad Tr Poor OOL Por (w/OOL in pl) Poor IxIn Por Tr Sli Leaching Poor Dissolu Fos (Fuss) Pyr Mass Chalk Sh Char-Drab Gry-Maroon Fissil-Soft No Odor No Stn No Flor NS

60" CFS @ 3832' Ls Wht FxIn Dns Mostly Micrite Grad Tr Poor OOL Por AA V Poor IxIn-IOOL Por Tr Sli Leaching Poor Dissolu Chalk Sh Char-Drab Gry-Maroon Fissil-Soft No Odor ? Dead Drk Blk Stn No Flor NS

30" CFS @ 3860' Ls Wht FxIn Dns Mostly Micrite Grad Tr Poor OOL Por AA V Poor IxIn-IOOL Por Tr Sli Leaching Poor Dissolu Cht Amber-Wht Op Translu-Op Shp Vit Chalk Abd Sh Char-Drab Gry-Maroon Fissil-Soft No ? Odor No Stn No Flor NS

**LANSING "C" 3848' (-1129)**

60" CFS @ 3860' Ls Wht FxIn Dns Mostly Micrite Grad V Poor InterOOL Por (w/Small-Med Ooids in pl) No-Poor Leaching Poor Dissolu Poor Develop Cht Wht Op Shp Vit Chalk Abd Pyr Mass Sh Char-Drab Grn/Gry- Aqua Fissil-Soft Faint Odor No Stn No Flor NS

**LANSING "D" 3870' (-1151)**

30" CFS @ 3880' Ls Wht FxIn-MicroIn Dns Micrite Grad Poor IxIn Por Cht Wht Op Shp Vit Chalk Sh

**DST #1**  
3777'-3836'.

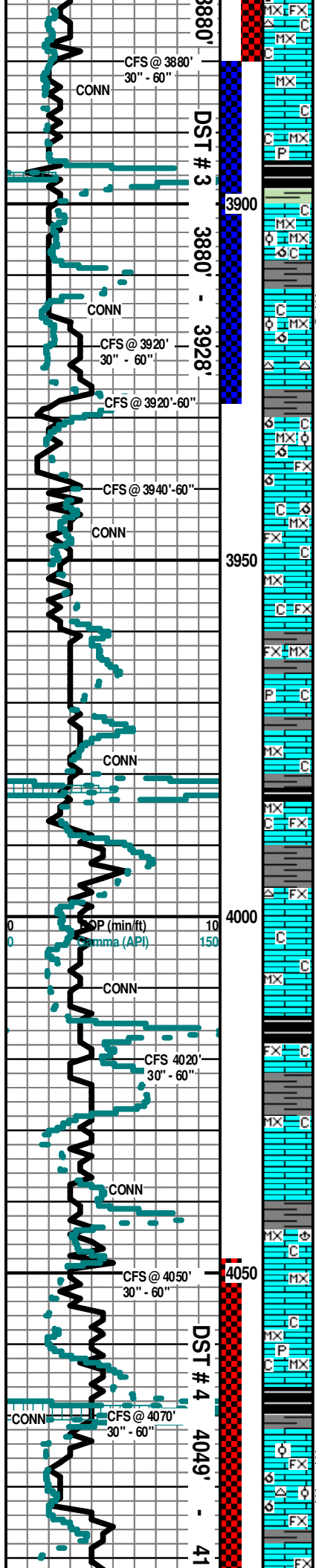
Times:  
30"-45"-30"-30".  
Blow: IF= Weak  
Surface Blow:  
FF= No Blow  
(Flushed Tool-No Help). Recovery:  
10' Mud.

Pressures:  
IH = 1787#;  
FH = 1783#;  
IF = 6-11#;  
FF = 13-24#;  
ISIP = 1065#;  
FSIP = 979#;  
Temp.= 116 degrees F.

Mudco Ck @  
3821' @ 8:00  
AM 07/14/13  
Vis 49;  
WT=9.1#  
PV= 14;  
YP= 17;  
WL= 8.0;  
Sol=5.4%  
Cake= 1;  
Chl=2200; Cal= 40;  
LCM= 1#;  
DMC=\$1480.75  
CMC=\$8,261.50

**DST # 2**  
3836'-3880'.

Times:  
30"-45"-30"-30".  
Blow: IF= Weak  
Surface Blow/1":  
FF= Weak Surface  
Blow. Recovery: 30'  
Mud.  
Pressures:  
IH = 1821#;  
FH = 1820#;  
IF = 5-16#;  
FF = 18-27#;  
ISIP = 981#;



Char-Drab Grn/Gry-Aqua Fissil-Soft No Odor No Stn No Flor NS  
 60" CFS @ 3880' Ls Wht FxIn-MicroxIn Dns Micrite Grad Poor IxIn Por Cht Wht Op Shp Vit Chalk Sh Char-Drab Grn/Gry-Aqua Fissil-Soft No Odor No Stn No Flor NS

Ls Wht MicroxIn Dns Micrite Grad Poor IxIn Por Cht Wht Op Shp Vit Chalk Sh Char-Drab Grn/Gry Fissil-Soft No Odor No Stn No Flor NS

Ls Wht FxIn-MicroxIn Dns Micrite Grad Poor IxIn Por Pyr Mass Chalk Sh Char-Drab Grn/Gry Fissil-Soft No Odor No Stn No Flor NS

**LANSING "E" 3900' (-1181)**

30" CFS @ 3920' Ls Wht-Crm MicroxIn Dns Micrite Grad V Poor Sli Vug (w/Tr OOM w/Small-Med OOids in pl) Por (w/Drk Blk Dead Stn on Edges) Chalk V Abd Sh Drk Char (w/Carb Includ)-Drab Grn/Gry Tr Mostly Fissil No Odor Dead Brn-Blk Stn (7 Pcs) No Flor NS

**LANSING "F" 3914' (-1195)**

60" CFS @ 3920' Ls Wht-Crm MicroxIn Dns Micrite Grad V Poor Sli Vug (w/Tr OOM w/Small-Med OOids in pl) Por (w/Drk Blk Dead Stn on Edges) Chalk V Abd Sh Drk Char (w/Carb Includ)-Drab Grn/Gry Tr Mostly Fissil No Odor Dead Brn-Blk Stn (20 Pcs w/ VSSG w/Broken) No Flor VSSG ? VSSO

60" CFS @ 3928' Ls Wht MicroxIn Dns Micrite Grad V Poor Sli Vug (w/Tr OOM w/Small-Med OOids in pl) Por (w/Drk Blk Dead Stn on Edges) AA Cht Wht-Peach-Org Op Shp Vit Chalk Tr Sh AA No Odor Sli Brn-Blk Stn (12 Pcs) No Flor ? VSil Show

**LANSING "G" 3928' (-1209)**

60" CFS @ 3940' Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor OOM Por (w/Small OOids in pl) Poor Dissolu Poor Development (w/Tr Drk Blk Dead Stn on Edges (2 Pcs) Chalk V Abd No Odor No Flor ? Tr Blk Dead Stn NS

Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor OOM Por Poor Dissolu Poor Leaching Por Poor Develop Chalky No Odor No Flor No Stn NS

Ls Gry-Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk V Abd No Odor No Flor No Stn NS

Ls Gry-Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk V Abd Pyr Mass Sh Char Soft-Fissil No Odor No Flor No Stn NS

Ls Gry-Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk V Abd Sh Char-Blk Carb Soft-Fissil No Odor No Flor No Stn NS

**MUNCIE 3980' (- 1261)**

Sh Blk Carb Fissil Ls Gry-Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk V Abd No Odor No Flor No Stn NS

Ls Gry-Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Cht Wht Op Shp Vit Chalk V Abd Sh Blk Carb-Grn/Gry Fissil-Soft Ino Odor No Flor No Stn NS

**KANSAS CITY "DRUM" (H) 3998' (- 1279)**

30" CFS @ 4020' Ls Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk Abd Sh Char-Grn/Gry-Blk Carb Fissi-Soft Ino Odor No Flor No Stn NS

60" CFS @ 4020' Ls Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk Abd Sh Char-Grn/Gry Fissi-Soft Ino Odor No Flor No Stn NS

**KANSAS CITY "BLOCK" (I) 4028' (- 1309)**

Ls Crm-Wht MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Chalk Abd Sh Char-Grn/Gry Fissi-Soft Ino Odor No Flor No Stn NS

**KANSAS CITY "DENNIS" (J) 4044' (- 1325)**

30" CFS @ 4050' Ls Wht-Crm-Gry MicroxIn Dns Micrite No Vis Por Fos (Brach) Chalk Abd Sh Char-Gry/Grn-Blk Carb Fissil ? Faint Odor No Stn No Flor NS

60" CFS @ 4050' Ls Wht-Crm-Gry MicroxIn Dns Micrite No Vis Por Chalk Abd Sh Char-Gry/Grn-Blk Carb Fissil ? Faint Odor No Stn No Flor NS

30" CFS @ 4070' Sh Blk Carb Abd (w/GSG Streaming Under Wtr w/Heat Added) Ls Wht-Crm Dns Micrite No Vis Por Pyr Mass Chalk Strong Odor No Flor GSG in Blk Sh

**STARK SHALE 4068' (- 1349)**

60" CFS @ 4070' Sh Blk Carb Abd (w/GSG Streaming Under Wtr w/Heat Added) Ls Wht-Crm Dns Micrite No Vis Por Chalk Strong Odor Inc No Flor GSG in Blk Sh

**KANSAS CITY "SWOPE" (K) 4071' (- 1352)**

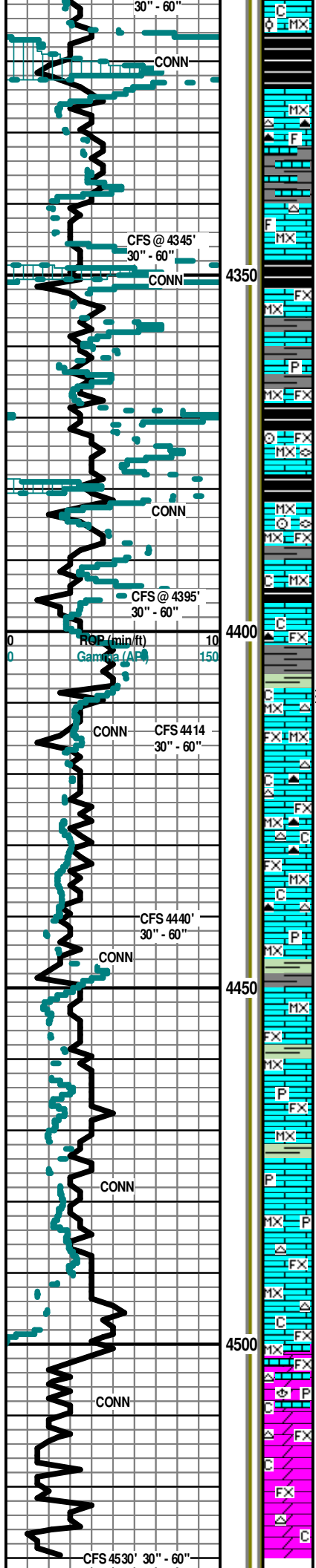
Ls Wht-Crm FxIn Dns Micrite AA Grad Med-Good OOL/OOM Vug Por (w/Small-Med OOids in pl) Fair-Med Leaching Por Med-Good Dissolu Med-Good SG & SSO Good-Strong Odor Fair Flor (Lt Grn) Lt Brn Stn Med-Good SG & SSO (Oil Does Flor)

30" CFS @ 4100' Wht-Crm FxIn Dns Micrite AA Grad Med OOL/OOM Vug Por (w/Small-Med OOids in pl) Fair Leaching Por Med Dissolu Dec Cht Wht Op Shp Vit Fair-Med SG & SSO Med-Good Odor Fair Scat Flor (Lt Grn) Lt Brn Stn Med SG & SSO (Oil Does Flor)

RSP = 902#;  
 Temp = 115 degrees  
 F. \_\_\_\_\_ Mudco Ck @ 3880' @ 10:00 AM 07/15/13 Vis 50; WT=9.1#  
**DST # 3** PV= 15; YP= 17; WL= 9.6; Cake= 1; Chl=2000; Cal = 40; Sol= 5.3%; LCM= 1#; DMC=\$0.00  
 Blow: IF= Weak  
 Surface Blow; FF= No Blow (Flushed Tool-No Help). CMC=\$8,261.50  
 Recovery: 5' Mud.  
**Pressures:**  
 IH = 1835#;  
 FH = 1834#;  
 IF = 6-8#;  
 FF = 7-11#;  
 ISIP = 64#; Mudco Ck @ 3928' @ 11:00 AM 07/16/13 Vis 54; WT=9.2#  
 FSIP = 49#; Temp = 114 degrees F. PV= 16; YP= 19; WL=10.4; Cake= 1; Chl=3000; Cal = 120; Sol= 5.9%; LCM= 1#; DMC=\$0.00 CMC=\$8,261.50

**DST # 4**  
 4049" -4100'. Times:  
 30"-45"-45"-60".  
 Blow: IF= Weak/  
 1/4" Build/6.5";  
 FF= Weak  
 Build/7.5".  
 Recovery: 236' TF:  
 1' CO; 115'  
 SOHWCM (6% O, 35% Wtr., 59% M);  
 120' SOMCW (4% O, 72% Wtr, 24% M).  
 Chl=53,000 Ppm.  
 PH=8.0, RW=>22 @ 75 degrees.  
**Pressures:**  
 IH = 1960#;  
 FH = 1957#;  
 IF = 3 - 72#;  
 FF = 75 -112#;  
 ISIP = 372#;





Cht Wht Op Shp-Vit Chalk Sh Char-Grn/Blk Carb Fissil No Odor No Flr NS

**FORT SCOTT 4323' (-1604)**

30" CFS @ 4345' Ls Wh-Crm-Tan MicroxIn Dns Micrite No Vis IxIn Por Cht Wht-Gry-Org Op Shp-Vit Fos (Spicule) Chalky Sh Char-Gry/Drab Grn-Blk Carb Fissil No Odor No Stn No Flr NS

60" CFS @ 4345' Ls Wh-Crm-Tan MicroxIn Dns Micrite No Vis IxIn Por Cht Wht-Gry Op Shp-Vit Fos Chalky Sh Char-Gry/Drab Grn Fissil No Odor No Stn No Flr NS

**CHEROKEE SHALE 4350' (-1631)**

Ls Crm-Gry MicroxIn-FxIn Micrite Grad Poor IxIn Por Sh Char-Drab Grn/Gry-Blk Carb Soft-Fissil No Odor No Flr NS

Ls Crm-Gry MicroxIn-FxIn Micrite (w/Pyr Inklus) Grad Poor IxIn Por Chalky Sh Char-Drab Grn/Gry-Blk Carb-Maroon-Red Soft-Fissil No Odor No Flr NS

Ls Gry-Crm-Wht MicroxIn-FxIn Micrite Grad Poor-Fair IxIn Por Fos (Crin, Fuss) Sh Char-Drab Grn/Gry-Aqua-Maroon Soft-Fissil No Odor No Flr NS

30" CFS @ 4395' Ls Wht-Crm-Tan MicroxIn Micrite Fos (Crin) Sh Char - Drab Grn/Gry- Aqua -Maroon Fissil No Odor No Flr NS

**JOHNSON 4385' (-1666)**

60" CFS @ 4395' Ls Wht-Crm-Tan MicroxIn Micrite (1 Pc Chalk w/Tr Drk Blk Dead Stn) Sh Char - Drab Grn/Gry- Aqua -Maroon Fissil No Odor No Flr NS

30" CFS @ 4414' Ls Wht-Crm-Yell MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Cht Wht-Org Chalk Sh Char-Grn-Gry-Aqua Fissil No Odor No Stn No Flr NS

**MISSISSIPPIAN 4408' (-1689)**

60" CFS @ 4414' Ls Wht-Crm-Yell MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Grad Poor Sli. Vug IxIn Por (1 Pc w/ VSSG & VSSO) Chalk Sh Char-Grn-Gry-Aqua Fissil No Odor No Stn No Flr ? NS

Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Cht Wht-Org Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Yell-Olive Abd Fissil No Odor No Stn No Flr NS

30" CFS @ 4440' Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Cht Wht-Org Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Yell- Fissil No Odor No Stn No Flr NS

60" CFS @ 4440' Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Cht Wht-Org Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Yell- Fissil No Odor No Stn No Flr NS

Ls Wht-Crm-Tan MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Chalk Sh Char-Grn/Gry-Aqua (w/Pyr Inklus)-Yell (Tr) Fissil No Odor No Stn No Flr NS

Sh Char-Grn/Gry-Aqua (w/Pyr Inklus)-Maroon-Red (? Sluff) Fissil s Wht-Crm-Tan MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Chalk No Odor No Stn No Flr NS

Poor Sample Sh Char-Grn/Gry-Aqua (w/Pyr Inklus)-Maroon-Red (? Sluff) Fissil s Wht-Crm-Tan MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Chalk No Odor No Stn No Flr NS

Ls Wht-Crm MicroxIn Dns Micrite (Tr/Pyr Inklus) Baren Cht Wht Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Yell-Maroon-Red (Abd Sh) Fissil No Odor No Stn No Flr NS

Ls/Dolo Wht-Crm MicroxIn-FxIn Dns Micrite (Tr/Pyr Inklus) Grad Poor IxIn Por Baren Cht Wht Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Yell-Maroon-Red (Abd Sh) Fissil No Odor No Stn No Flr NS

(Poor Sample) Dolo/Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor IxIn Por Baren Cht Wht Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Maroon - Red (Abd Sh) Fissil No Odor No Stn No Flr NS

Dolo/Ls Wht-Crm MicroxIn-FxIn Dns Micrite Grad Poor-Fair Sli Grannular IxIn Por Baren Cht Wht (w/Pyr Inklus) Op Shp Vit Fos (Brach) Chalk Sh Char- Grn/Gry-Aqua (Abd Sh) Fissil No Odor No Stn No Flr NS

30" CFS @ 4530' Dolo Crm-Tan FxIn Fair Sli Grannular IxIn Por Baren Cht Wht Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Maroon-Red Fissil No Odor No Stn No Flr NS

60" CFS @ 4530' Dolo Wht Crm-Tan FxIn Fair Sli Grannular IxIn Por Baren Cht Wht Op Shp Vit Chalk Sh Char-Grn/Gry-Aqua-Maroon-Red (? Sluff) Fissil No Odor No Stn No Flr NS

1/4" Blow Bk During  
 ISIP. FF= Weak  
 Blow Build/BOB  
 /26".  
 Recovery: 285' GIP;  
 TF= 465: 140' CO  
 (100%); 20'  
 GSWMCO (10% G,  
 70% O, 5% Wtr, 15%  
 M); 125' GSWOCM  
 (12% G, 32% O, 4%  
 Wtr, 52% M); 180'  
 GSOMCW (1% G,  
 5% O, 80% Wtr).  
 Chl =55,000 Ppm  
 Pressures:  
 IH = 1979#;  
 FH = 1976#;  
 IF = 27-135#;  
 FF = 142-203#;  
 ISIP = 317#;  
 FSIP = 282#;  
 Temp = 126 degrees  
 F.  
 API Oil Grv.= 23  
 RW = .17 @ 86  
 degrees F.

Mudco Ck @  
 4476' @ 8:00  
 AM 07/20/13  
 Vis 51;  
 WT=9.4#  
 PV= 15;  
 YP= 17;  
 WL= 10.0;  
 Cake= 1;  
 Chl=3500; Cal  
 = 40;  
 Sol=7.3%.  
 LCM= 1#;  
 DMC=  
 \$ 1790.60  
 CMC=  
 \$ 11,337.10



R.T.D. 4530' (- 1811)  
L.T.D. 4532' (- 1813)

Electric Logs Run: By Nabors Logging:  
Dual Induction and Compensated Density-Neutron Logs.

Geologist Left Location at : M on 7/ /2013.

4550

4600