

# Timothy G. Pierce

## Petroleum Geologist

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

COMPANY Murfin Drilling Co., Inc.

LEASE Allen #1-34

FIELD Mikes Meteor

LOCATION 660' FSL & 330' FWL

SEC 34 TWSP 22S RGE 12W

COUNTY Stafford STATE Kansas

CONTRACTOR Murfin Drilling Rig #21

SPUD 5-23-2014 COMP 6-02-2014

RTD 3881 LTD 3886

MUD UP 2490 TYPE MUD Chemical

SAMPLES SAVED FROM 2700 TO RTD

DRILLING TIME KEPT FROM 580-660 TO RTD

SAMPLES EXAMINED FROM 2700 TO RTD

GEOLOGICAL SUPERVISION FROM 2850 TO RTD

GEOLOGIST ON WELL Tim Pierce

#### ELEVATIONS

KB 1847'

DF \_\_\_\_\_

GL 1836'

Measurements Are All From Kelly Bushing

#### CASING

CONDUCTOR \_\_\_\_\_

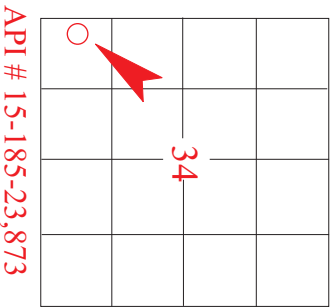
SURFACE 9-5/8" at 308'

PRODUCTION 5-1/2" at \_\_\_\_\_

#### ELECTRICAL SURVEYS

DIL, CN/D, Sonic, Micro Dipole Sonic - Halliburton

FORMATION TOPS	ELECTRIC LOG	SAMPLE
Anhydrite	620 (+1227)	624 (+1223)
Base/Anhydrite	639 (+1208)	643 (+1204)
Topeka LS	2788 (-941)	2785 (-938)
Heebner Sh.	3155 (-1308)	3152 (-1305)
Lansing	3289 (-1442)	3286 (-1439)
Stark Sh.	3504 (-1657)	3505 (-1658)
Viola	3626 (-1779)	3624 (-1777)
Arbuckle	3736 (-1889)	3762 (-1915)



**REMARKS** Drilled 8-3/4" hole to allow for coring.

The well was cored from 3594' to 3716'. The core barrel was then cut into smaller sections and removed from location. The rock was not examined for rock type, porosity, or oil shows except at the cut ends of each section of the core barrel. Cuttings were examined at 10' intervals during the core process attempting to determine lithology, formation tops, etc

A drill stem test covering the cored interval indicated a probable productive zone in the Viola.

A drill stem test covering the upper KC (B thru F zones) proved non commercial, slight shows in the J and K zones of the KC were not tested. A slight show in the Arbuckle was not tested as well.

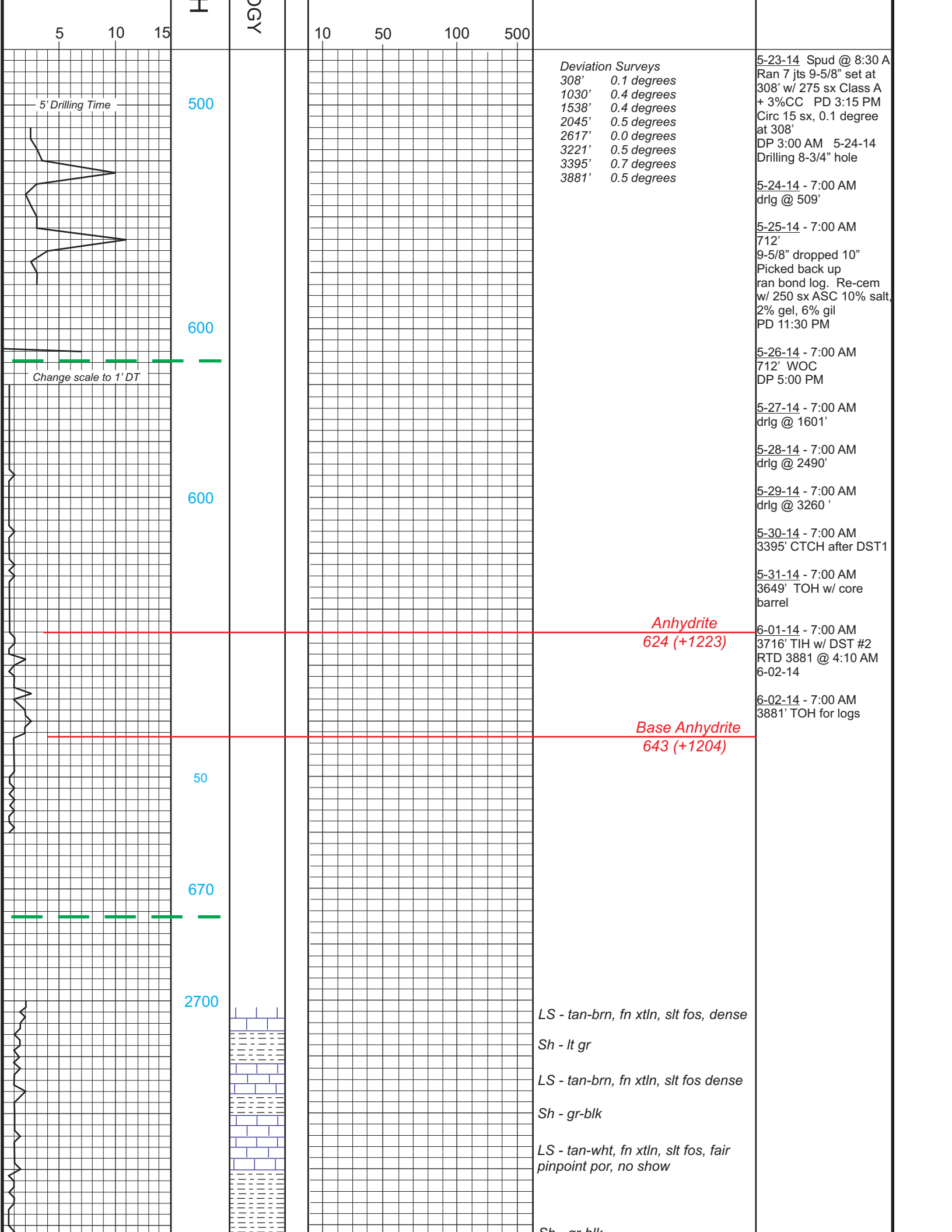
There were no other zones of interest indicated by sample examination or electric logs.

*Timothy G. Pierce*  
Timothy G. Pierce

#### LEGEND

Anhydrite	Sandstone	Limestone	Shale	Carb Sh	Cherty LS	Chert	Dolomite

DRILLING TIME IN MINUTES PER FOOT	DEPTH	LITHOLOG	GAS SCALE	SAMPLE DESCRIPTION	REMARKS
Rate of Penetration Decreases ↓					



*Deviation Surveys*

308'	0.1 degrees
1030'	0.4 degrees
1538'	0.4 degrees
2045'	0.5 degrees
2617'	0.0 degrees
3221'	0.5 degrees
3395'	0.7 degrees
3881'	0.5 degrees

5-23-14 Spud @ 8:30 A  
 Ran 7 jts 9-5/8" set at  
 308' w/ 275 sx Class A  
 + 3%CC PD 3:15 PM  
 Circ 15 sx, 0.1 degree  
 at 308'  
 DP 3:00 AM 5-24-14  
 Drilling 8-3/4" hole

5-24-14 - 7:00 AM  
 drlg @ 509'

5-25-14 - 7:00 AM  
 712'  
 9-5/8" dropped 10"  
 Picked back up  
 ran bond log. Re-cem  
 w/ 250 sx ASC 10% salt,  
 2% gel, 6% gil  
 PD 11:30 PM

5-26-14 - 7:00 AM  
 712' WOC  
 DP 5:00 PM

5-27-14 - 7:00 AM  
 drlg @ 1601'

5-28-14 - 7:00 AM  
 drlg @ 2490'

5-29-14 - 7:00 AM  
 drlg @ 3260'

5-30-14 - 7:00 AM  
 3395' CTCH after DST1

5-31-14 - 7:00 AM  
 3649' TOH w/ core  
 barrel

*Anhydrite*  
 624 (+1223)

6-01-14 - 7:00 AM  
 3716' TIH w/ DST #2  
 RTD 3881 @ 4:10 AM  
 6-02-14

*Base Anhydrite*  
 643 (+1204)

6-02-14 - 7:00 AM  
 3881' TOH for logs

LS - tan-brn, fn xtltn, slt fos, dense

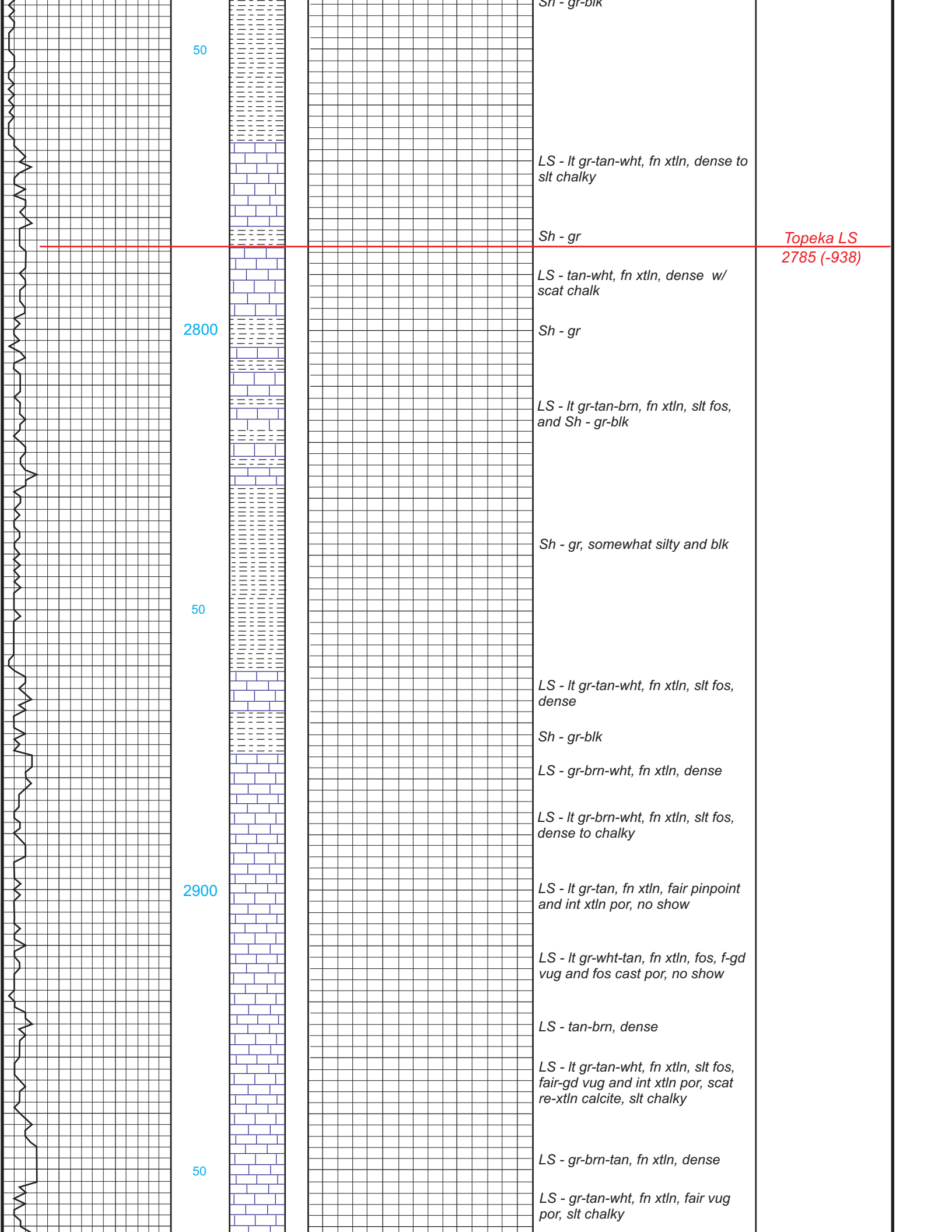
Sh - lt gr

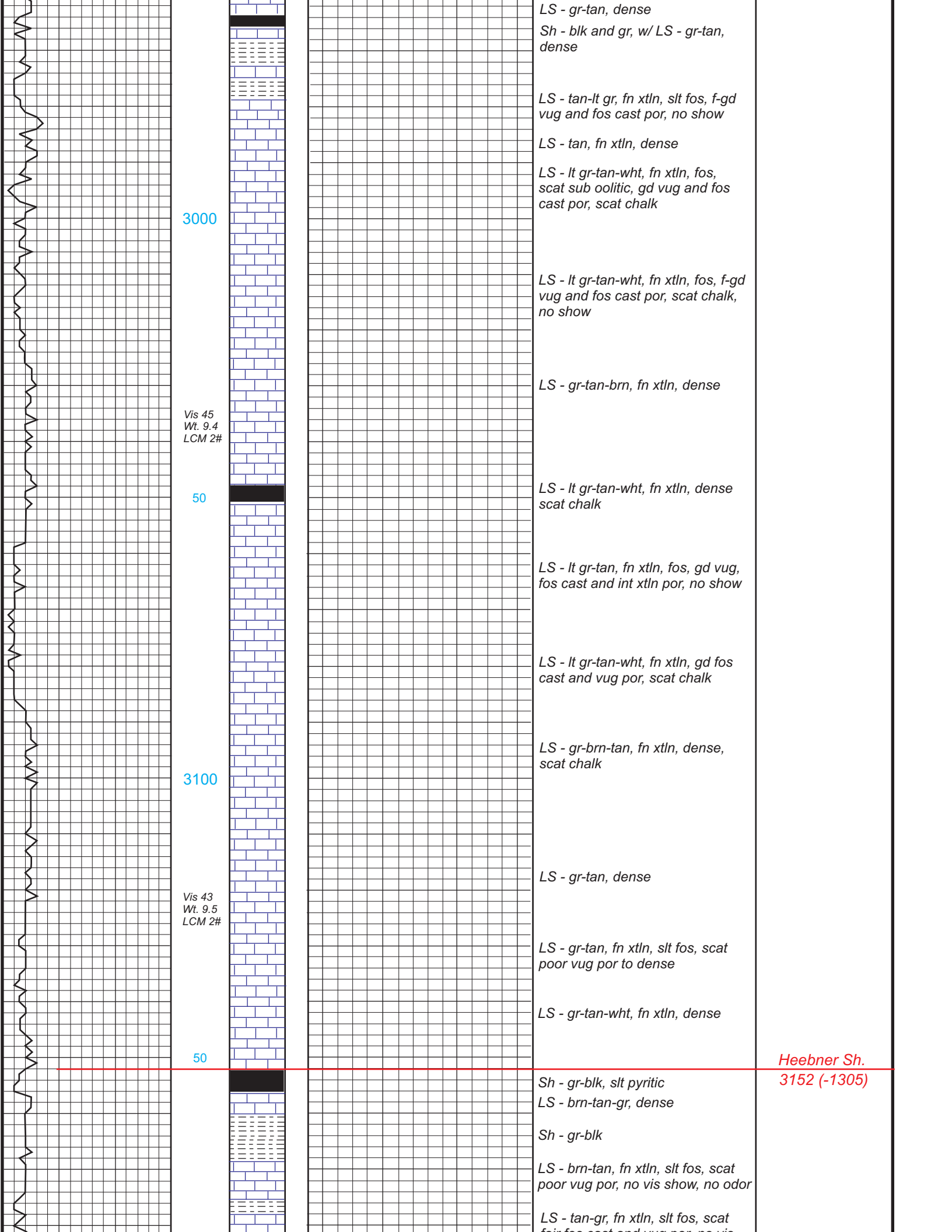
LS - tan-brn, fn xtltn, slt fos dense

Sh - gr-blk

LS - tan-wht, fn xtltn, slt fos, fair  
 pinpoint por, no show

Sh - gr-blk





3000

Vis 45  
Wt. 9.4  
LCM 2#

50

3100

Vis 43  
Wt. 9.5  
LCM 2#

50

LS - gr-tan, dense  
Sh - blk and gr, w/ LS - gr-tan, dense

LS - tan-lt gr, fn xtln, slt fos, f-gd vug and fos cast por, no show

LS - tan, fn xtln, dense

LS - lt gr-tan-wht, fn xtln, fos, scat sub oolitic, gd vug and fos cast por, scat chalk

LS - lt gr-tan-wht, fn xtln, fos, f-gd vug and fos cast por, scat chalk, no show

LS - gr-tan-brn, fn xtln, dense

LS - lt gr-tan-wht, fn xtln, dense scat chalk

LS - lt gr-tan, fn xtln, fos, gd vug, fos cast and int xtln por, no show

LS - lt gr-tan-wht, fn xtln, gd fos cast and vug por, scat chalk

LS - gr-brn-tan, fn xtln, dense, scat chalk

LS - gr-tan, dense

LS - gr-tan, fn xtln, slt fos, scat poor vug por to dense

LS - gr-tan-wht, fn xtln, dense

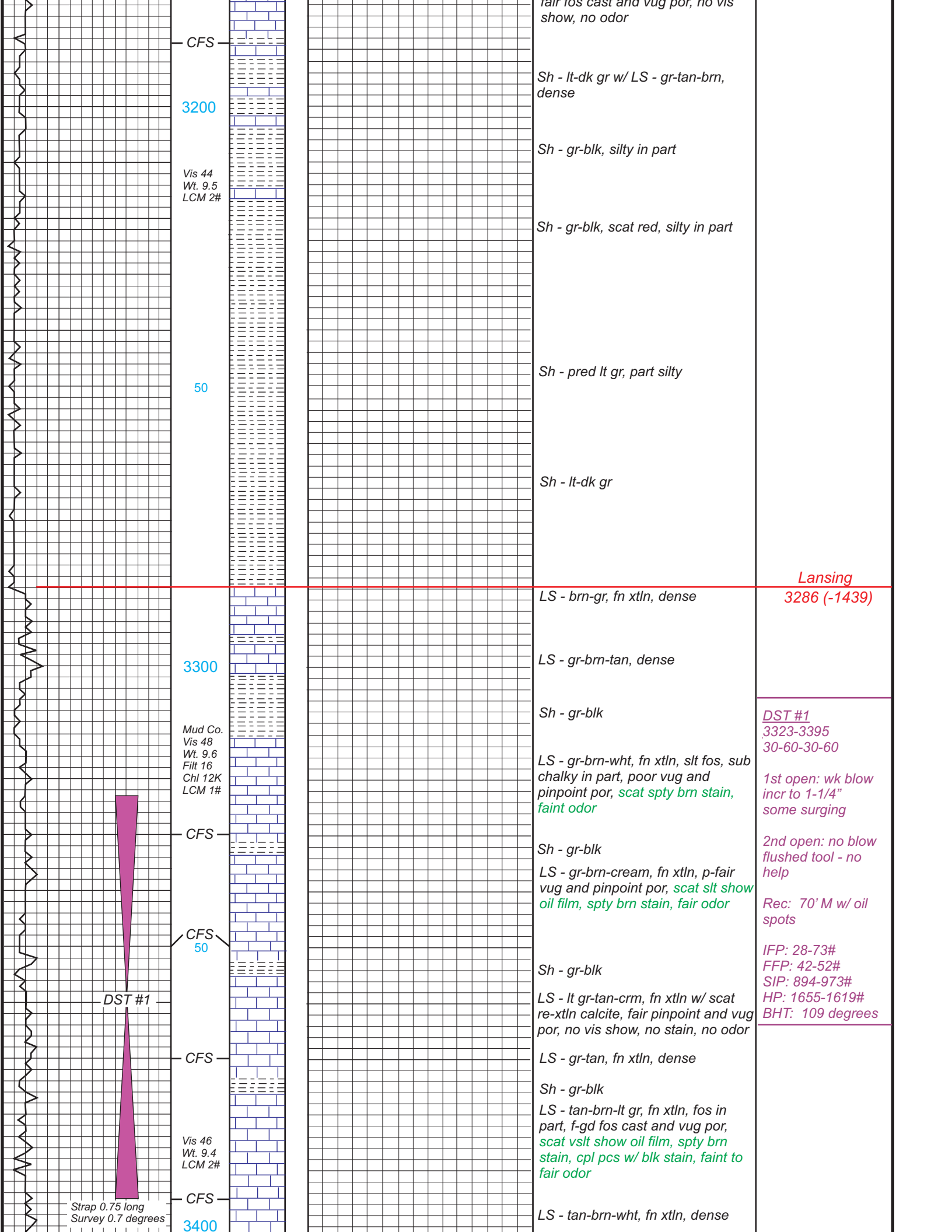
Sh - gr-blk, slt pyritic  
LS - brn-tan-gr, dense

Sh - gr-blk

LS - brn-tan, fn xtln, slt fos, scat poor vug por, no vis show, no odor

LS - tan-gr, fn xtln, slt fos, scat fair fos cast and vug por, no vis

Heebner Sh.  
3152 (-1305)



CFS

3200

Vis 44  
Wt. 9.5  
LCM 2#

50

CFS

CFS

50

Vis 46  
Wt. 9.4  
LCM 2#

CFS

3400

DST #1

Strap 0.75 long  
Survey 0.7 degrees

fair fos cast and vug por, no vis show, no odor

Sh - lt-dk gr w/ LS - gr-tan-brn, dense

Sh - gr-blk, silty in part

Sh - gr-blk, scat red, silty in part

Sh - pred lt gr, part silty

Sh - lt-dk gr

Lansing

3286 (-1439)

LS - brn-gr, fn xtln, dense

LS - gr-brn-tan, dense

Sh - gr-blk

LS - gr-brn-wht, fn xtln, slt fos, sub chalky in part, poor vug and pinpoint por, scat spty brn stain, faint odor

Sh - gr-blk

LS - gr-brn-cream, fn xtln, p-fair vug and pinpoint por, scat slt show oil film, spty brn stain, fair odor

Sh - gr-blk

LS - lt gr-tan-cream, fn xtln w/ scat re-xtln calcite, fair pinpoint and vug por, no vis show, no stain, no odor

LS - gr-tan, fn xtln, dense

Sh - gr-blk

LS - tan-brn-lt gr, fn xtln, fos in part, f-gd fos cast and vug por, scat vslt show oil film, spty brn stain, cpl pcs w/ blk stain, faint to fair odor

LS - tan-brn-wht, fn xtln, dense

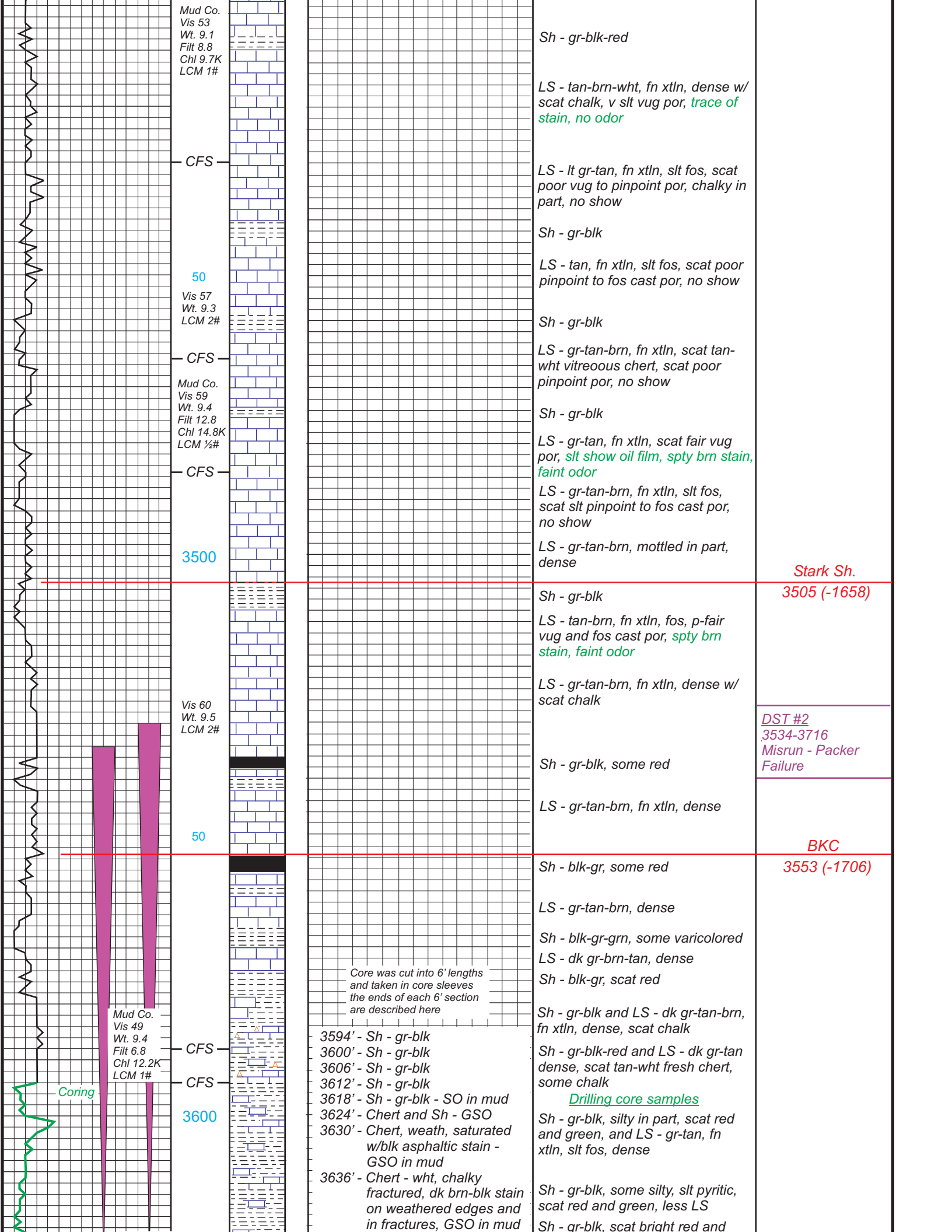
DST #1  
3323-3395  
30-60-30-60

1st open: wk blow  
incr to 1-1/4"  
some surging

2nd open: no blow  
flushed tool - no help

Rec: 70' M w/ oil spots

IFP: 28-73#  
FFP: 42-52#  
SIP: 894-973#  
HP: 1655-1619#  
BHT: 109 degrees



Mud Co.  
Vis 53  
Wt. 9.1  
Filt 8.8  
Chl 9.7K  
LCM 1#

CFS

50  
Vis 57  
Wt. 9.3  
LCM 2#

CFS

Mud Co.  
Vis 59  
Wt. 9.4  
Filt 12.8  
Chl 14.8K  
LCM ½#

CFS

3500

Vis 60  
Wt. 9.5  
LCM 2#

50

Mud Co.  
Vis 49  
Wt. 9.4  
Filt 6.8  
Chl 12.2K  
LCM 1#

CFS

CFS

3600

Coring

Core was cut into 6' lengths  
and taken in core sleeves  
the ends of each 6' section  
are described here

- 3594' - Sh - gr-blk
- 3600' - Sh - gr-blk
- 3606' - Sh - gr-blk
- 3612' - Sh - gr-blk
- 3618' - Sh - gr-blk - SO in mud
- 3624' - Chert and Sh - GSO
- 3630' - Chert, weath, saturated w/blk asphaltic stain - GSO in mud
- 3636' - Chert - wht, chalky fractured, dk brn-blk stain on weathered edges and in fractures, GSO in mud

Sh - gr-blk-red

LS - tan-brn-wht, fn xtln, dense w/ scat chalk, v slt vug por, *trace of stain, no odor*

LS - lt gr-tan, fn xtln, slt fos, scat poor vug to pinpoint por, chalky in part, no show

Sh - gr-blk

LS - tan, fn xtln, slt fos, scat poor pinpoint to fos cast por, no show

Sh - gr-blk

LS - gr-tan-brn, fn xtln, scat tan-wht vitreous chert, scat poor pinpoint por, no show

Sh - gr-blk

LS - gr-tan, fn xtln, scat fair vug por, *slt show oil film, spty brn stain, faint odor*

LS - gr-tan-brn, fn xtln, slt fos, scat slt pinpoint to fos cast por, no show

LS - gr-tan-brn, mottled in part, dense

Stark Sh.  
3505 (-1658)

Sh - gr-blk

LS - tan-brn, fn xtln, fos, p-fair vug and fos cast por, *spty brn stain, faint odor*

LS - gr-tan-brn, fn xtln, dense w/ scat chalk

DST #2  
3534-3716  
Misrun - Packer  
Failure

Sh - gr-blk, some red

LS - gr-tan-brn, fn xtln, dense

BKC  
3553 (-1706)

Sh - blk-gr, some red

LS - gr-tan-brn, dense

Sh - blk-gr-grn, some varicolored

LS - dk gr-brn-tan, dense

Sh - blk-gr, scat red

Sh - gr-blk and LS - dk gr-tan-brn, fn xtln, dense, scat chalk

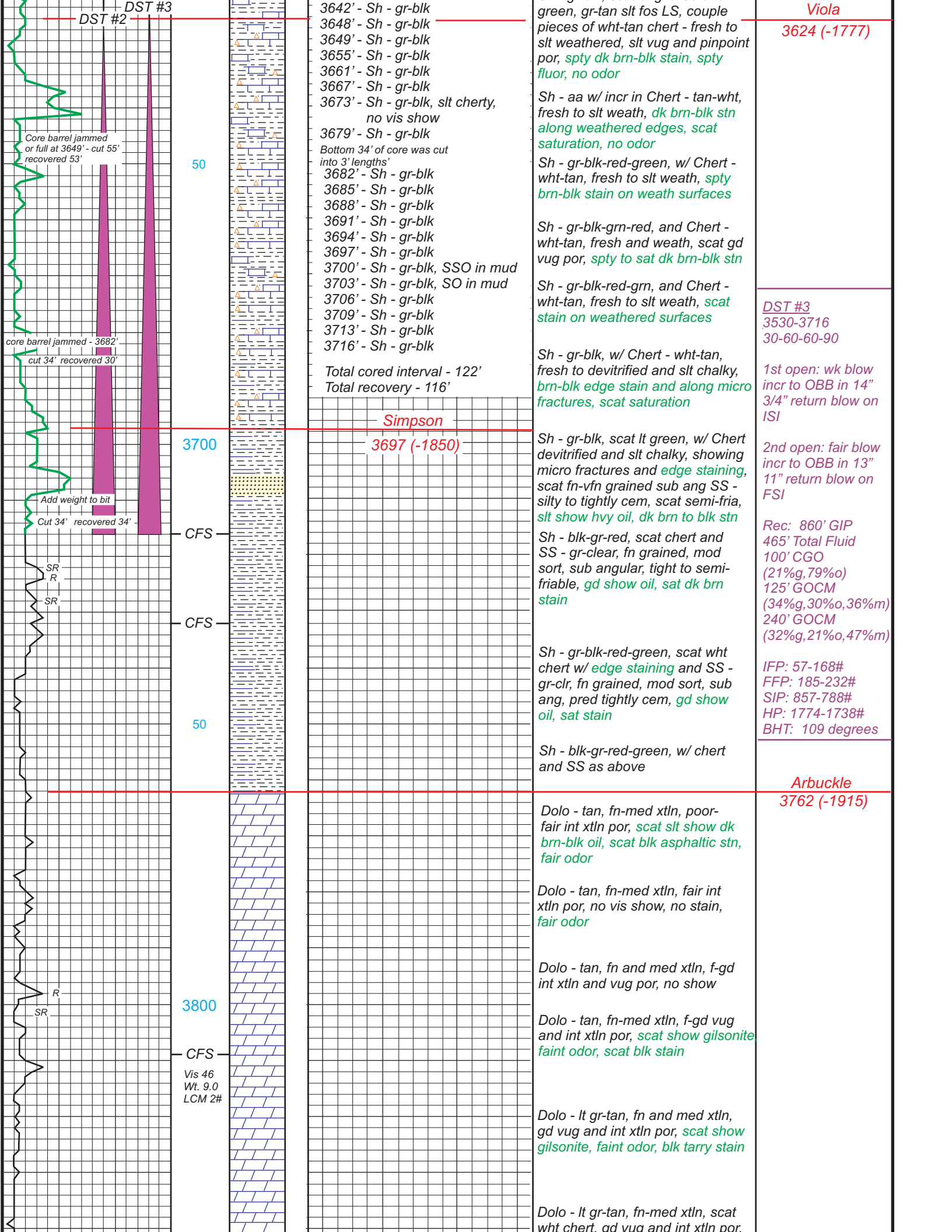
Sh - gr-blk-red and LS - dk gr-tan dense, scat tan-wht fresh chert, some chalk

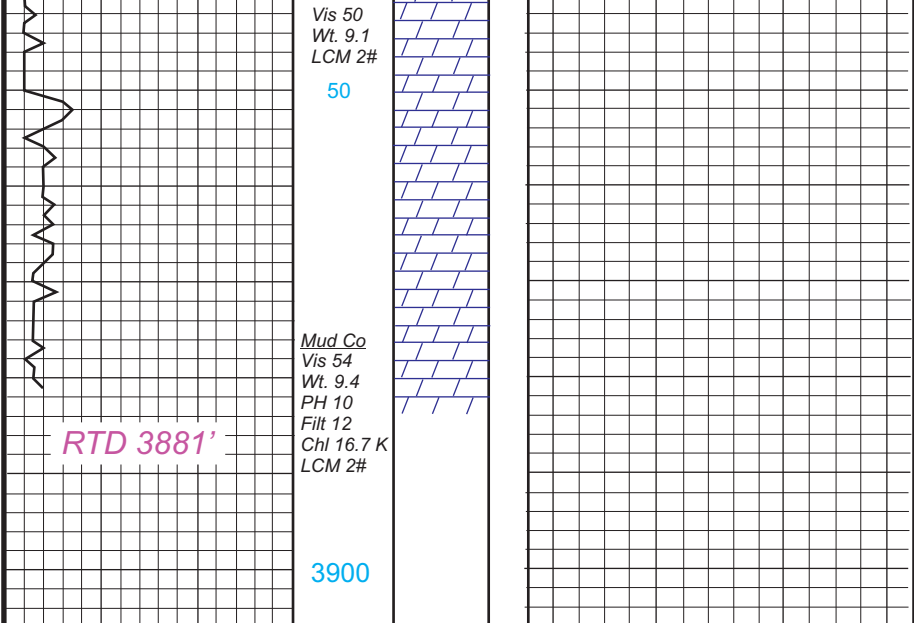
*Drilling core samples*

Sh - gr-blk, silty in part, scat red and green, and LS - gr-tan, fn xtln, slt fos, dense

Sh - gr-blk, some silty, slt pyritic, scat red and green, less LS

Sh - gr-blk, scat bright red and



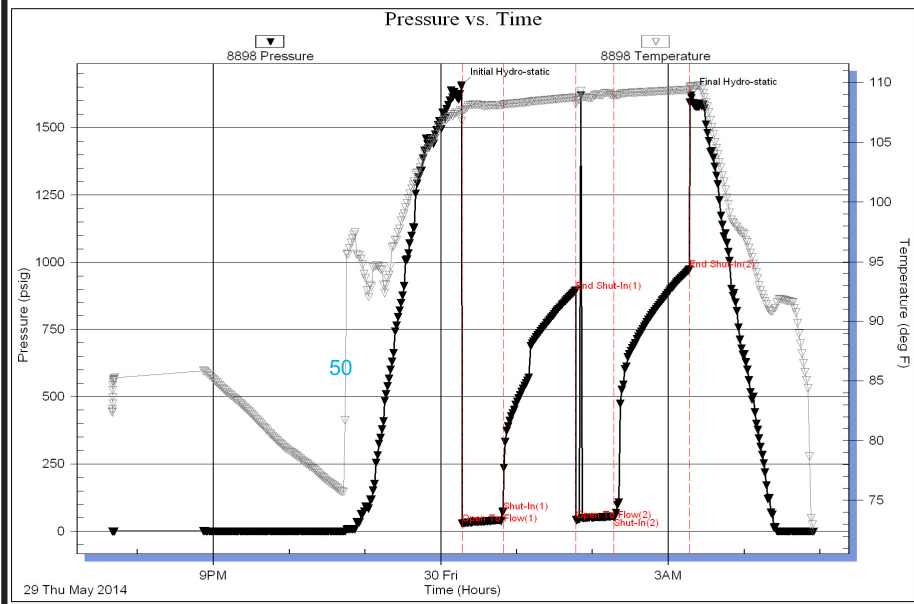


tan-brn-it gr, fn and med xtlh, scat v slt show gilsonite, blk stain

Dolo - tan-lt gr, fn and med xtlh, scat wht chert, dense to fair int xtlh and vug por

Dolo - tan-brn-lt gr, fn and med xtlh, scat gr-wht chert, dense to gd vug and int xtlh por

Serial #: 8898    Outside: Murfin Drilling Co. Inc.    Allen #1-34    DST Test Number: 1



**DST #1**  
3323-3395  
30-60-30-60

1st open: wk blow  
incr to 1-1/4"  
some surging

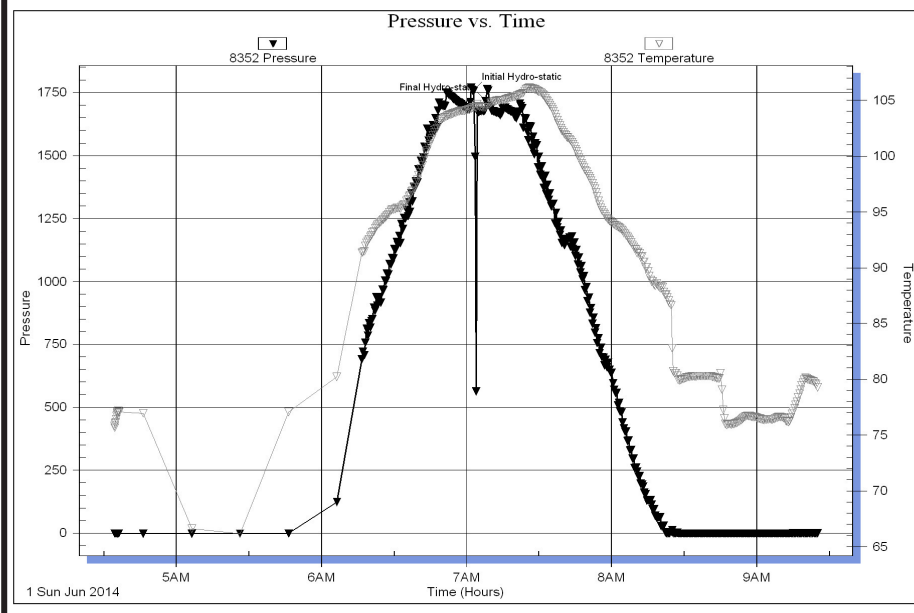
2nd open: no blow  
flushed tool - no  
help

Rec: 70' M w/ oil  
spots

IFP: 28-73#  
FFP: 42-52#  
SIP: 894-973#  
HP: 1655-1619#  
BHT: 109 degrees

Trilobite Testing, Inc    Ref. No: 58898    Printed: 2014.05.30 @ 05:15:35

Serial #: 8352    Outside: Murfin Drilling Co. Inc.    Allen #1-34    DST Test Number: 2

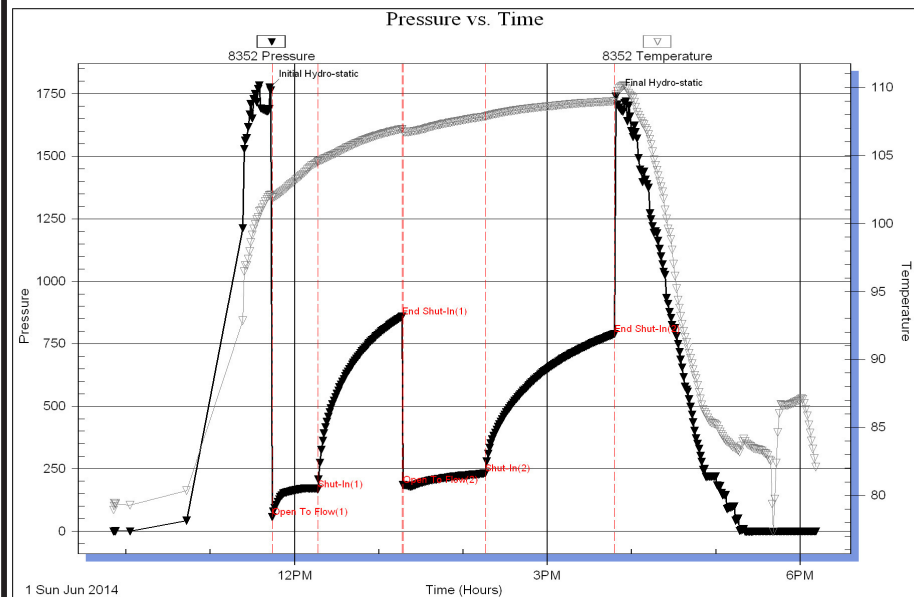


**DST #2**  
3534-3716  
Misrun - Packer  
Failure



Serial #: 8352    Outside    Murfin Drlg Co, Inc.    Allen#1-34    DST Test Number: 3

### Pressure vs. Time



**DST #3**  
3530-3716  
30-60-60-90

*1st open: wk blow  
incr to OBB in 14"  
3/4" return blow on  
ISI*

*2nd open: fair blow  
incr to OBB in 13"  
11" return blow on  
FSI*

*Rec: 860' GIP  
465' Total Fluid  
100' CGO  
(21%g, 79%o)  
125' GOCM  
(34%g, 30%o, 36%m)  
240' GOCM  
(32%g, 21%o, 47%m)*

*IFP: 57-168#  
FFP: 185-232#  
SIP: 857-788#  
HP: 1774-1738#  
BHT: 109 degrees*

