Charter Consulting
Integrated Geology & Geophysics

# WELLSITE GEOLOGICAL REPORT

**PAUL GERLACH**
**GEOLOGIST**

Drilling Time
Sample Log
Hydrocarbon Shows
Openhole Testing
Coring

OPERATOR OIL PRODUCERS, INC. of KS

LEASE & Well HAWES RANCH #1B-14

FIELD Sanko East

LOCATION 2310 FSL / 965 FWL

SEC 14 TWP 28S RGE 23W

COUNTY Ford STATE Kansas

Contractor Duke Drilling Rig #6

Drlg Comm 08-21-2012 Drlg Comp 08-31-2012

RTD 5275 ft. LTD 5255 ft.

Mud Up At 2700 ft. Mud Type Chem-Gel

Geological Supervision: 4000 ft.to RTD

Gas Detector: 2600 ft. To RTD

Samples Collected: 4000 ft. to RTD

Sample Tops

| Formation | Depth | Datum |
|---|---|---|
| T/ Stnc | 1435 | 1000 |
| Heebner Sh | 4234 | -1799 |
| Lansing | 4369 | (-1934) |
| Stark Sh | 4704 | (-2269) |
| Marmaton | 4838 | (-2403) |
| Chrk. Sh. | 4970 | (-2535) |
| B-P\LM | 5070 | (-2635) |
| Atokan Sand | 5106 | (-2671) |
| Miss. Sprgn | 5190 | (-2760) |

Reference Well:
Mustang O&G, Hawes #1-15, S15-T28S-R23W

ELEVATION
KB 2435
DF
GL 2423
Depth Measurements from Kelly Bushing

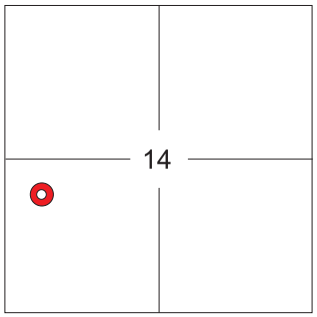
CASING RECORD

8 5/8" @ 742ft.

ELECTRICAL SURVEYS
DIL-SP-GR
FDC-CNL-GR-CAL
SONIC

by Nabors Logging

LOCATION




## Daily Drilling Activity

| Date | Depth | Activity Last 24 Hrs | Bit # | Size | Make/Type |
|---|---|---|---|---|---|
| 08-21-12 | 0 | Rig up, Spud @6 pm, Drlg Surf Hole, | 1 | 12 1/4" | Retip |
| 08-22-12 | 650 | Survey 1@742, 8 5/8 @ 742, WOC, Drilling | 1 | 12 1/4" | Retip |
| 08-23-12 | 900 | Drilling, survey ½@1552 | 2 | 7 7/8" | Smith/F27 |
| 08-24-12 | 2110 | Drilling | | | |
| 08-25-12 | 2890 | Driling, Displace Mud System @ 2800 | | | |
| 08-26-12 | 3460 | Drilling | | | |
| 08-27-12 | 4060 | Drilling | | | |
| 08-28-12 | 4530 | Drilling | | | |
| 08-29-12 | 4915 | Drilling, CFS, Drilling, CFS | | | |
| 08-30-12 | 5120 | DST#1, Drilling | | | |
| 08-31-05 | 5275 | Drilling, RTD, E-Logging, Plugging | 3 | 7 7/8" | Smith/F27 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Bit #2: 4378 ft in 161 hrs 27.19 ft per hr | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

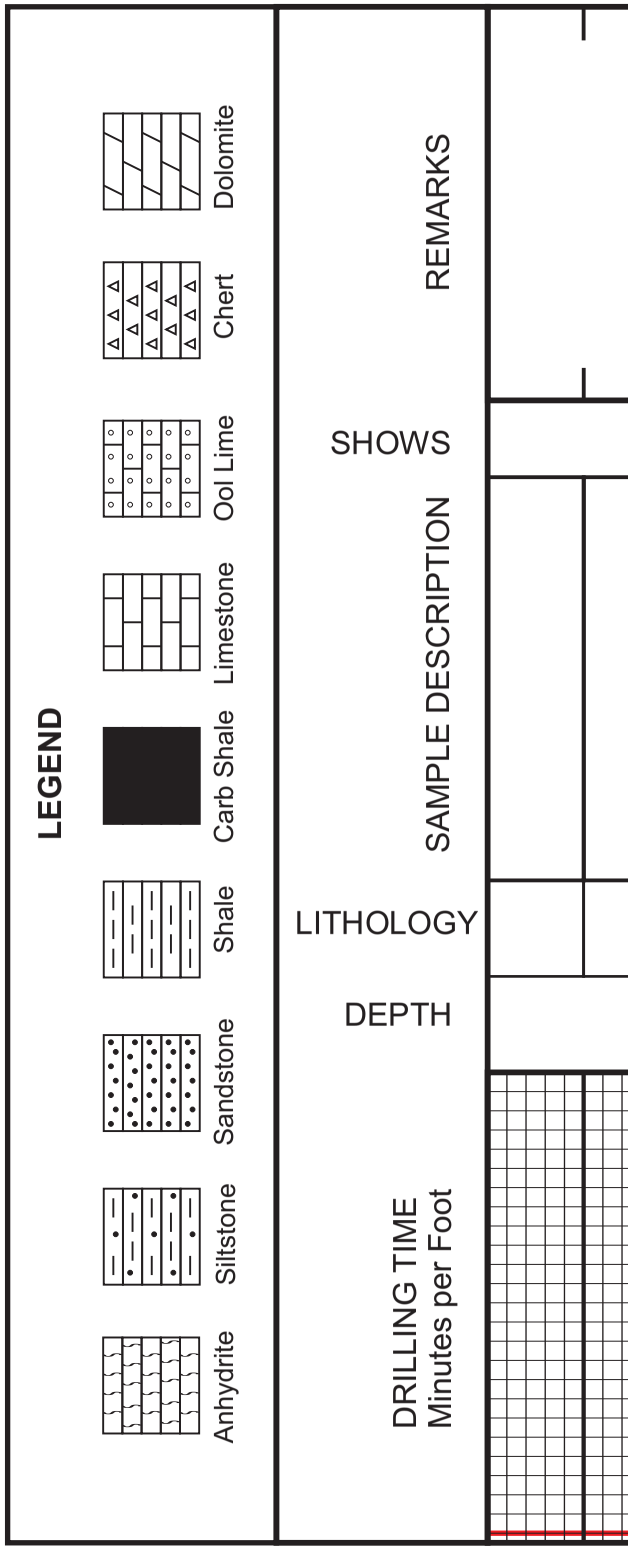
| Depth out/Hrs |
|---|
| |
| 742 ft/12 hrs |
| 9.75 hrs |
| 25.5 hrs |
| 49 hrs |
| 73 hrs |
| 97 hrs |
| 120.5 hrs |
| 144.5 hrs |
| 161 hrs |
| 7 hrs |
| |
| |
| |
| |
| |
| |
| |
| |

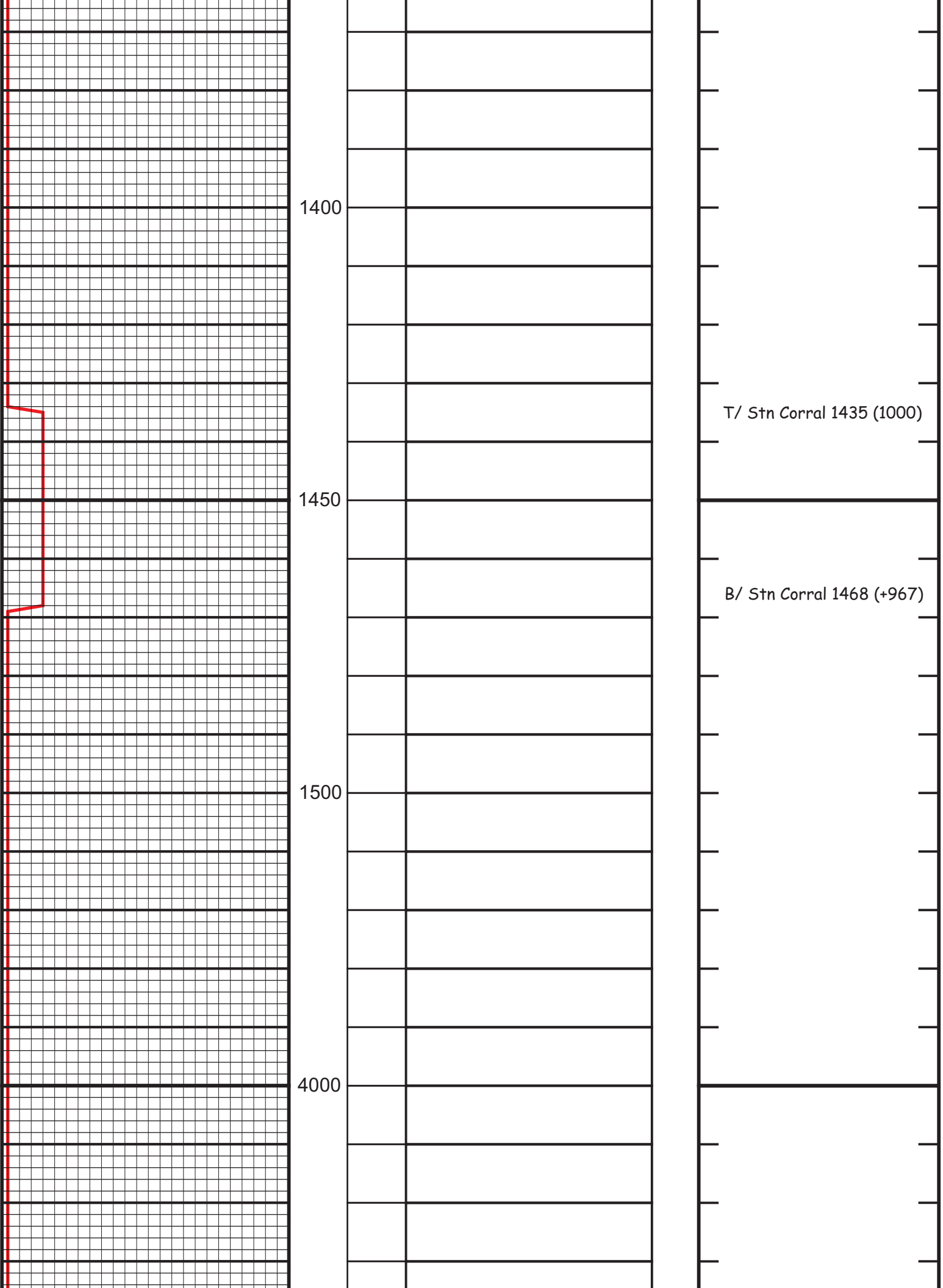
## Hydrocarbon Shows

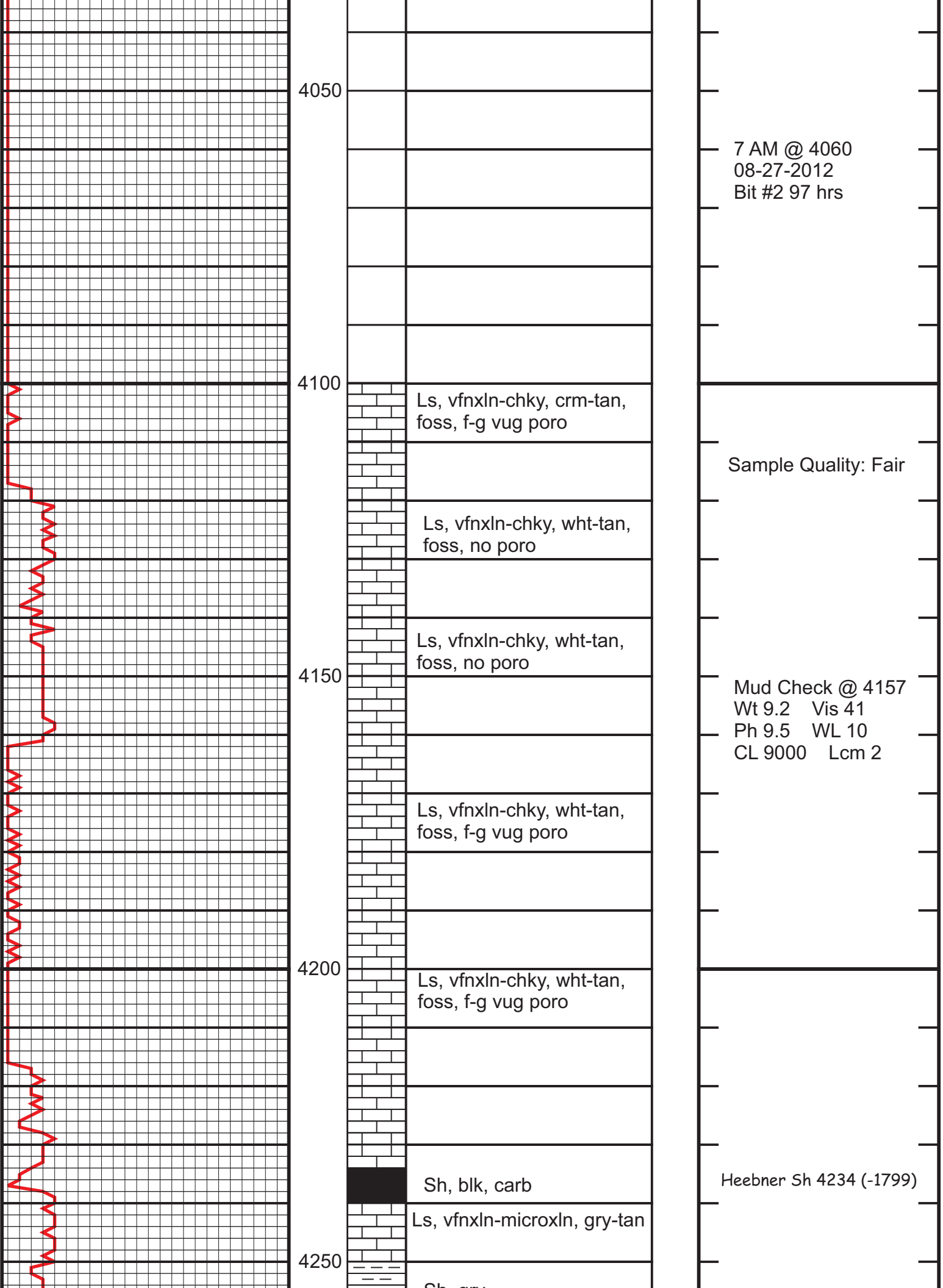
| Depth | Formation | Lithology | Porosity | Description of Show |
|---|---|---|---|---|
| 5106 to 5116 | Atokan Sd | Sand | G Intrprt | Solid saturation, good fluot & cut 30 UGK |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

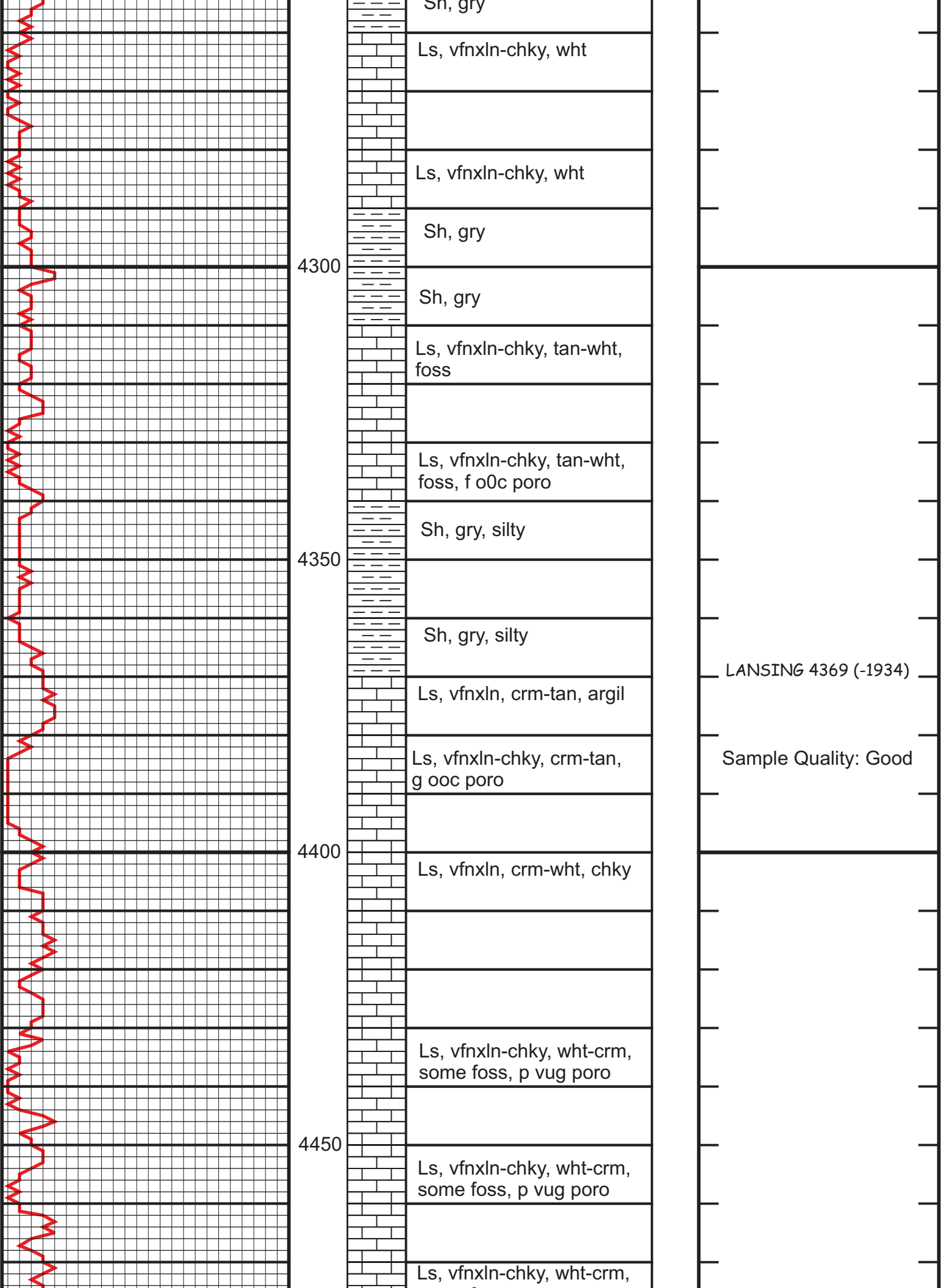
## Drillstem Tests

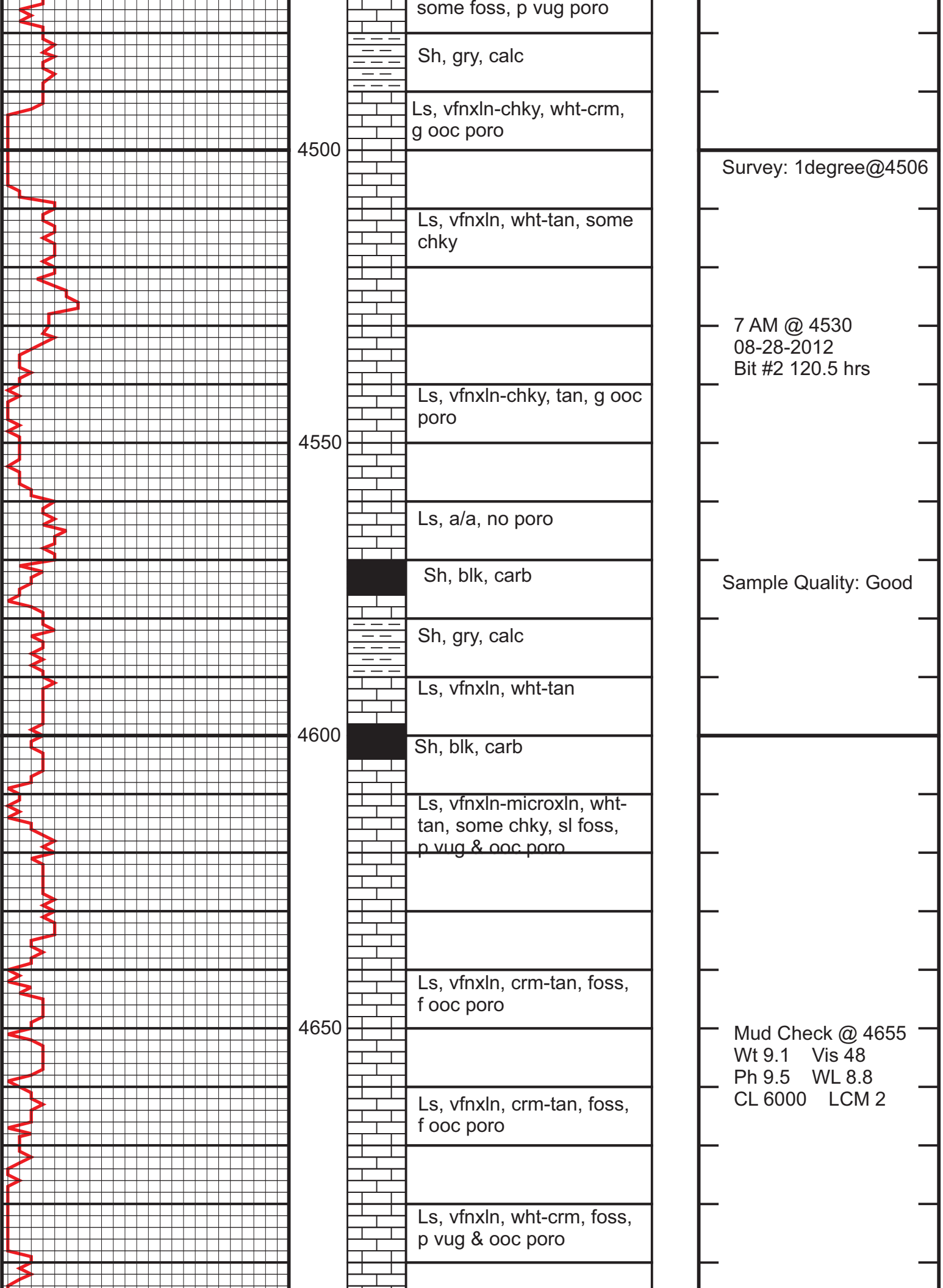
| Interval Formation | IFP Time | FFP Time | ISIP Time | FSIP Time | Recovery |
|---|---|---|---|---|---|
| 5062-5120 | 1021-1321 15” | 1320-1443 60” | 1443 45” | 1445 90” | 280’ GIP, 700’ GCMW, 2410’ GCSW |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

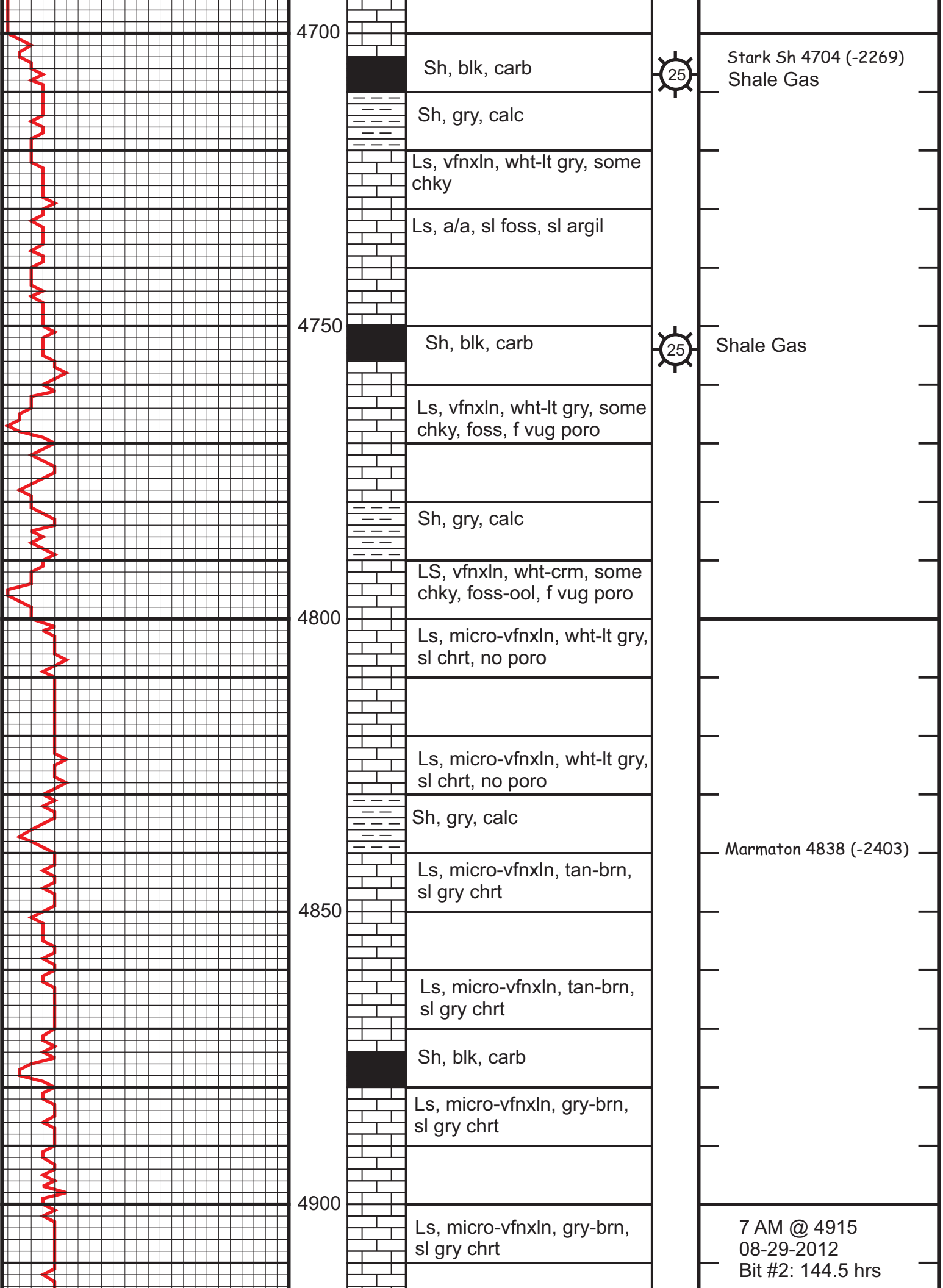


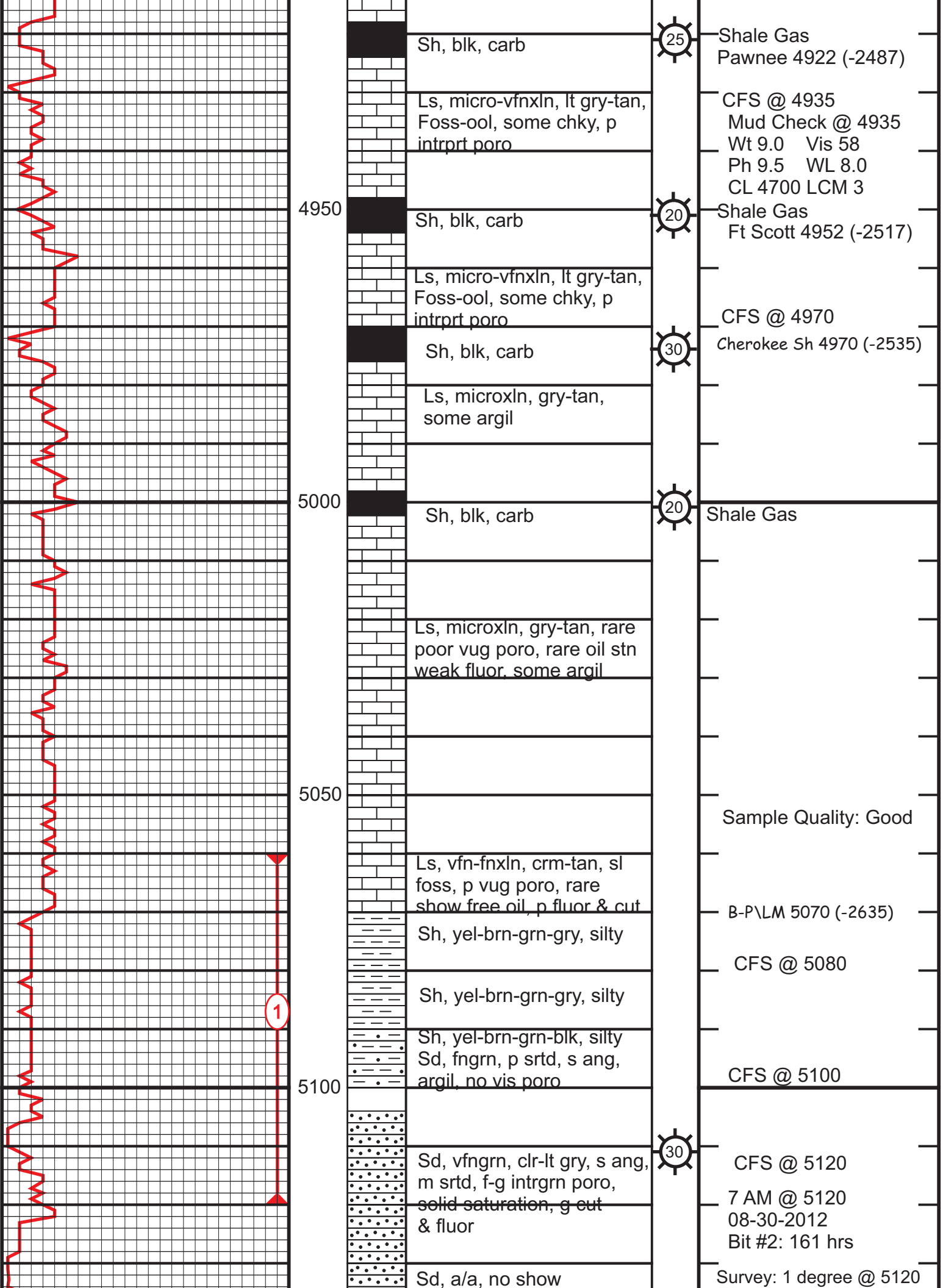

1400
1450
1500
4000
T/ Stn Corral 1435 (1000)
B/ Stn Corral 1468 (+967)

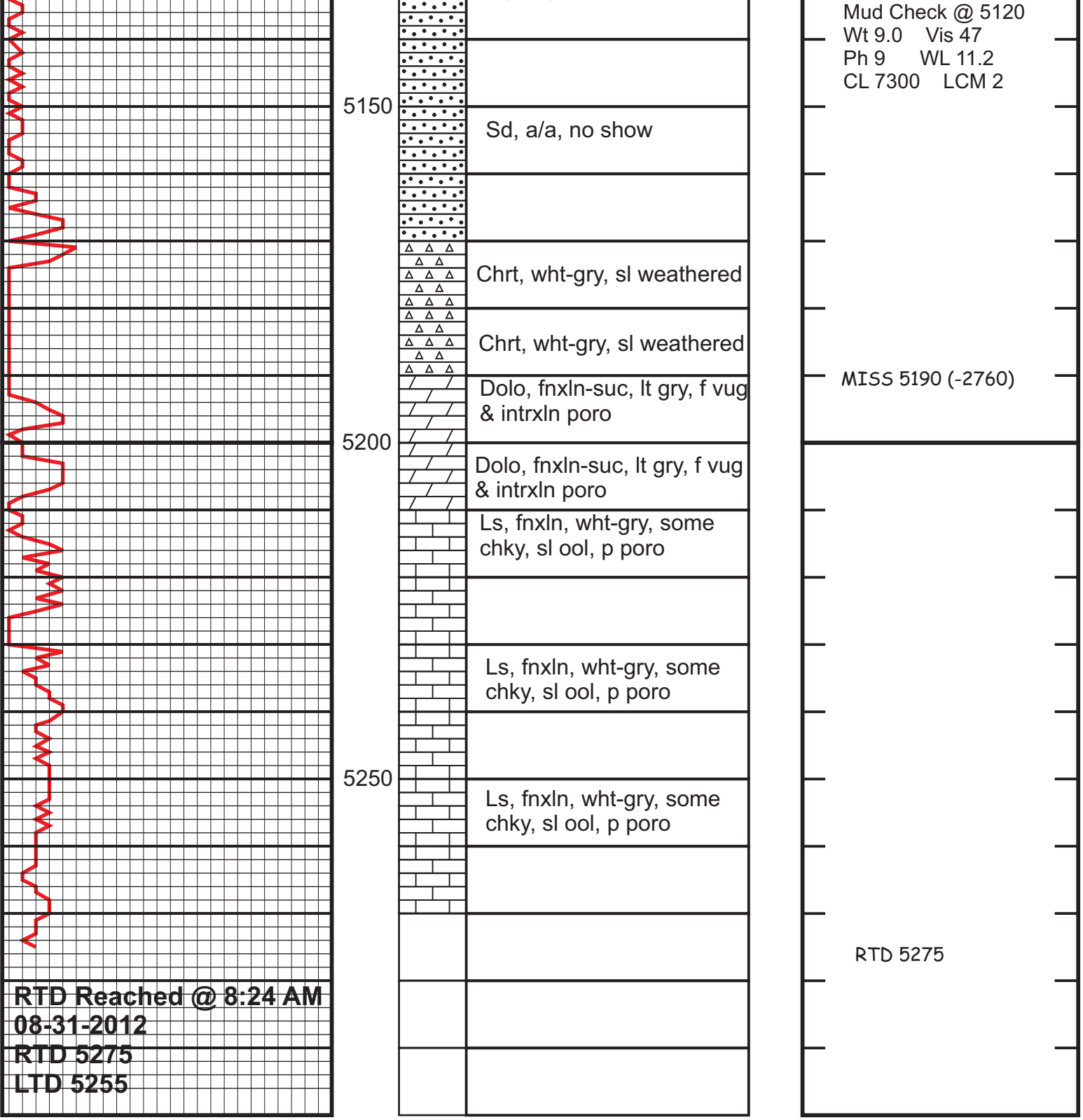

4050
4100
4150
4200
4250
Ls, vfnxln-chky, crm-tan, foss, f-g vug poro
Ls, vfnxln-chky, wht-tan, foss, no poro
Ls, vfnxln-chky, wht-tan, foss, no poro
Ls, vfnxln-chky, wht-tan, foss, f-g vug poro
Ls, vfnxln-chky, wht-tan, foss, f-g vug poro
Sh, blk, carb
Ls, vfnxln-microxln, gry-tan
7 AM @ 4060
08-27-2012
Bit #2 97 hrs
Sample Quality: Fair
Mud Check @ 4157
Wt 9.2 Vis 41
Ph 9.5 WL 10
CL 9000 Lcm 2
Heebner Sh 4234 (-1799)


Sh, gry
Ls, vfnxln-chky, wht
Ls, vfnxln-chky, wht
Sh, gry
4300
Sh, gry
Ls, vfnxln-chky, tan-wht, foss
Ls, vfnxln-chky, tan-wht, foss, f o0c poro
Sh, gry, silty
4350
Sh, gry, silty
LANSING 4369 (-1934)
Ls, vfnxln, crm-tan, argil
Ls, vfnxln-chky, crm-tan, g ooc poro
Sample Quality: Good
4400
Ls, vfnxln, crm-wht, chky
Ls, vfnxln-chky, wht-crm, some foss, p vug poro
4450
Ls, vfnxln-chky, wht-crm, some foss, p vug poro
Ls, vfnxln-chky, wht-crm,


some foss, p vug poro
Sh, gry, calc
Ls, vfnxln-chky, wht-crm, g ooc poro
4500
Survey: 1degree@4506
Ls, vfnxln, wht-tan, some chky
7 AM @ 4530
08-28-2012
Bit #2 120.5 hrs
Ls, vfnxln-chky, tan, g ooc poro
4550
Ls, a/a, no poro
Sh, blk, carb
Sample Quality: Good
Sh, gry, calc
Ls, vfnxln, wht-tan
4600
Sh, blk, carb
Ls, vfnxln-microxln, wht-tan, some chky, sl foss, p vug & ooc poro
Ls, vfnxln, crm-tan, foss, f ooc poro
4650
Mud Check @ 4655
Wt 9.1 Vis 48
Ph 9.5 WL 8.8
CL 6000 LCM 2
Ls, vfnxln, crm-tan, foss, f ooc poro
Ls, vfnxln, wht-crm, foss, p vug & ooc poro


4700
Sh, blk, carb
25
Stark Sh 4704 (-2269)
Shale Gas
Sh, gry, calc
Ls, vfnxln, wht-lt gry, some chky
Ls, a/a, sl foss, sl argil
4750
Sh, blk, carb
25
Shale Gas
Ls, vfnxln, wht-lt gry, some chky, foss, f vug poro
Sh, gry, calc
LS, vfnxln, wht-crm, some chky, foss-ool, f vug poro
4800
Ls, micro-vfnxln, wht-lt gry, sl chrt, no poro
Ls, micro-vfnxln, wht-lt gry, sl chrt, no poro
Sh, gry, calc
Marmaton 4838 (-2403)
Ls, micro-vfnxln, tan-brn, sl gry chrt
4850
Ls, micro-vfnxln, tan-brn, sl gry chrt
Sh, blk, carb
Ls, micro-vfnxln, gry-brn, sl gry chrt
4900
Ls, micro-vfnxln, gry-brn, sl gry chrt
7 AM @ 4915
08-29-2012
Bit #2: 144.5 hrs


4950
5000
5050
5100
1
Sh, blk, carb
Ls, micro-vfnxln, lt gry-tan, Foss-ool, some chky, p intrprt poro
Sh, blk, carb
Ls, micro-vfnxln, lt gry-tan, Foss-ool, some chky, p intrprt poro
Sh, blk, carb
Ls, microxln, gry-tan, some argil
Sh, blk, carb
Ls, microxln, gry-tan, rare poor vug poro, rare oil stn weak fluor, some argil
Ls, vfn-fnxln, crm-tan, sl foss, p vug poro, rare show free oil, p fluor & cut
Sh, yel-brn-grn-gry, silty
Sh, yel-brn-grn-gry, silty
Sh, yel-brn-grn-blk, silty
Sd, fngrn, p srtd, s ang, argil, no vis poro
Sd, vfngrn, clr-lt gry, s ang, m srtd, f-g intrgrn poro, solid saturation, g cut & fluor
Sd, a/a, no show
25
20
30
20
30
Shale Gas
Pawnee 4922 (-2487)
CFS @ 4935
Mud Check @ 4935
Wt 9.0 Vis 58
Ph 9.5 WL 8.0
CL 4700 LCM 3
Shale Gas
Ft Scott 4952 (-2517)
CFS @ 4970
Cherokee Sh 4970 (-2535)
Shale Gas
Sample Quality: Good
B-P\LM 5070 (-2635)
CFS @ 5080
CFS @ 5100
CFS @ 5120
7 AM @ 5120
08-30-2012
Bit #2: 161 hrs
Survey: 1 degree @ 5120


Mud Check @ 5120
Wt 9.0 Vis 47
Ph 9 WL 11.2
CL 7300 LCM 2
5150
Sd, a/a, no show
Chrt, wht-gry, sl weathered
Chrt, wht-gry, sl weathered
MISS 5190 (-2760)
Dolo, fnxln-suc, lt gry, f vug & intrxln poro
5200
Dolo, fnxln-suc, lt gry, f vug & intrxln poro
Ls, fnxln, wht-gry, some chky, sl ool, p poro
Ls, fnxln, wht-gry, some chky, sl ool, p poro
5250
Ls, fnxln, wht-gry, some chky, sl ool, p poro
RTD 5275
RTD Reached @ 8:24 AM
08-31-2012
RTD 5275
LTD 5255