KOLAR Document ID: 1401907

Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1
January 2018
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 33596
Name: Unit Petroleum Company
Address 1: 8200 SOUTH UNIT DRIVE
Address 2:
City: TULSA State: OK Zip: 74132 + __ __ __ __
Contact Person: Tyler Cervi
Phone: (918) 477-3932
CONTRACTOR: License # 33596
Name: Unit Petroleum Company
Wellsite Geologist: Alex VandenBorn
Purchaser:

Designate Type of Completion:
☑ New Well ☐ Re-Entry ☐ Workover
☑ Oil ☐ WSW ☐ SWD
☐ Gas ☐ DH ☐ EOR
☐ OG ☐ GSW
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☐ Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:
Operator:
Well Name:
Original Comp. Date: Original Total Depth:
☐ Deepening ☐ Re-perf. ☐ Conv. to EOR ☐ Conv. to SWD
☐ Plug Back ☐ Liner ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ EOR Permit #:
☐ GSW Permit #:

10/06/2017 Spud Date or Recompletion Date
11/2/2017 Date Reached TD
11/27/2017 Completion Date or Recompletion Date

API No.: 15-155-21749-01-00
Spot Description:
SW - NW - SE - NE Sec. 16 Twp. 26 S. R. 10 ☐ East ☑ West
1780 Feet from ☑ North / ☐ South Line of Section
1020 Feet from ☑ East / ☐ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Reno
Lease Name: GEESLING 16 Well #: 1HXL
Field Name:
Producing Formation: Mississippian
Elevation: Ground: 1749 Kelly Bushing: 1765
Total Vertical Depth: 4042 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 140 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: ppm Fluid volume: bbls
Dewatering method used:
Location of fluid disposal if hauled offsite:
Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

☑ **Confidentiality Requested**
Date: 03/26/2018
☐ **Confidential Release Date:**
☑ **Wireline Log Received** ☑ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** Karen Ritter **Date:** 04/03/2018

Operator Name: Unit Petroleum Company Lease Name: GEESLING 16 Well #: 1HXL

Sec. 16 Twp. 26 S. R. 10 ☐ East ☑ West County: Reno

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☐ Yes ☑ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

Geologist Report / Mud Logs ☑ Yes ☐ No

List All E. Logs Run:

Density Neutron

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Mississippian	4,001	1736

CASING RECORD ☑ New ☐ Used
Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12.25	9.625	36	1512	C	755	1.88%CC
Intermediate	8.75	7	29	4472	H	250	0.58% Fluid Loss/Defoamer
Liner	6.125	4.5	13.5	5800	H	140	<2% Fluid Loss/Defoamer

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ Plug Off Zone	-			
	-			

1. Did you perform a hydraulic fracturing treatment on this well? ☑ Yes ☐ No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☑ No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/ Injection: 12/1/2017

Producing Method: ☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	40	0	1600	0	29

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*

PRODUCTION INTERVAL:

Top	Bottom
4498	5800

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*
6	4498	5750			654,580 lbs of sand/masonary 40/70

TUBING RECORD: Size: Set At: Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Unit Petroleum Company
Well Name	GEESLING 16 1HXL
Doc ID	1401907

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	9.625	36	1512	C	755	1.88%CC
Intermediate	8.75	7	29	4472	H	250	0.58% Fluid Loss/Defoamer
Liner	6.125	4.5	13.5	5800	H	140	<2% Fluid Loss/Defoamer

STATE OF KANSAS

CORPORATION COMMISSION
CONSERVATION DIVISION
266 N. MAIN ST., STE. 220
WICHITA, KS 67202-1513

PHONE: 316-337-6200
FAX: 316-337-6211
http://kcc.ks.gov/

GOVERNOR JEFF COLYER, M.D.
SHARI FEIST ALBRECHT, CHAIR | JAY SCOTT EMLER, COMMISSIONER | PAT APPLE, COMMISSIONER

March 26, 2018

Tyler Cervi
Unit Petroleum Company
8200 SOUTH UNIT DRIVE
TULSA, OK 74132

Re: ACO-1
API 15-155-21749-01-00
GEESLING 16 1HXL
NE/4 Sec.16-26S-10W
Reno County, Kansas

Dear Tyler Cervi:

K.A.R. 82-3-107 provides for all completion information to be filed within 120 days of the spud date. Subsection(e)(2) of that regulation states "All rights to confidentiality shall be lost if the filings are not timely."

The above referenced well was spudded on 10/06/2017 and the ACO-1 was received on March 26, 2018 (not within the 120 days timely requirement).

Therefore, your request for confidential treatment of data contained within the ACO-1 filing cannot be granted at this time.

If you should have any questions, please do not hesitate to contact me at (316)337-6200.

Sincerely,

Production Department

SUMMIT GEOLOGICAL INC.

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

Well Name:	GEESLING 16 #1HXL CURVE & LATERAL
Well Id:	
Location:	SEC. 16 T26S-R10W, RENO COUNTY, KANSAS
License Number:	Region:
Spud Date:	10/13/2017 Drilling Completed: 11/01/2017
Surface Coordinates:	N1780' FNL & 1020' FEL, SE/NE, SEC. 16 T26S-R10W, RENO COUNTY, KANSAS
Bottom Hole Coordinates:	1,597' FSL & 1,020' FEL, SWNE SEC. 21, T26S-R10W
Ground Elevation (ft):	1,733' K.B. Elevation (ft): 1,749'
Logged Interval (ft):	3,015' To: 10,455' Total Depth (ft): 10,455'
Formation:	MISSISSIPPIAN LIME
Type of Drilling Fluid:	WATER-BASED CHEMICAL, WATER IN LATERAL WITH ADDED CHEMICALS

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: UNIT PETROLEUM
Address: 8200 SOUTH UNIT DRIVE
TULSA, OKLAHOMA 7413
PO BOX 702500

GEOLOGIST

Name: RICH BACON, LAWRENCE BOUCHER
Company: SUMMIT GEOLOGICAL INC.
Address: 20166 EAST LAKE CIRCLE
CENTENNIAL, COLORADO 80016
303-619-3667

ROCK TYPES

- Anhy
- Arg dol
- Arg ls
- Bent
- Brec
- Dol3
- Calc dol
- Cht
- Clyst
- Coal
- Dol
- Dol ls
- Gyp
- Ls
- Mrlst
- Salt
- Shale
- Sltst1
- Ss
- Sssilty
- Blank
- Dol2
- Trip chrt
- Dolc chrt
- Dk chrt
- Calc chrt

ACCESSORIES

FOSSIL

- Spiculite
- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

MINERAL

- Pyr1
- Glau1
- Sand1
- Arg
- Bent
- Carb
- Chtdk
- Chtlt1
- Chtlt
- Dol
- Gyp
- Marl
- Salt
- Sil
- Silt1
- Mica
- Anhy
- Calc

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltst4
- Ssstrg
- Concrete2
- Fault

TEXTURE

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

OTHER SYMBOLS

INTERVALS

- Svy2
- None
- Core
- Dst

EVENTS

- Rft
- Sidewall
- Bit change
- conn
- bit

OIL SHOWS

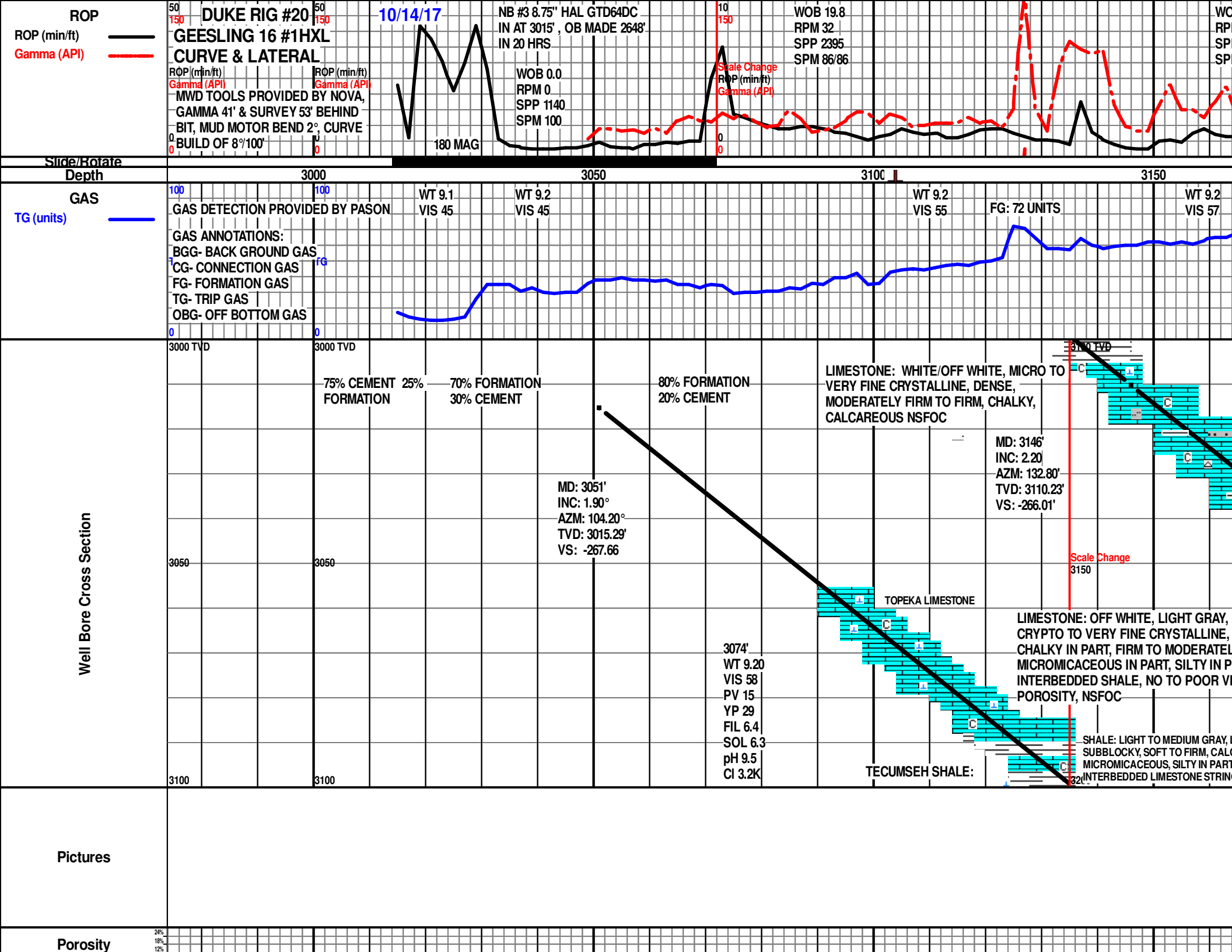
- Even
- Spotted
- Ques
- Dead

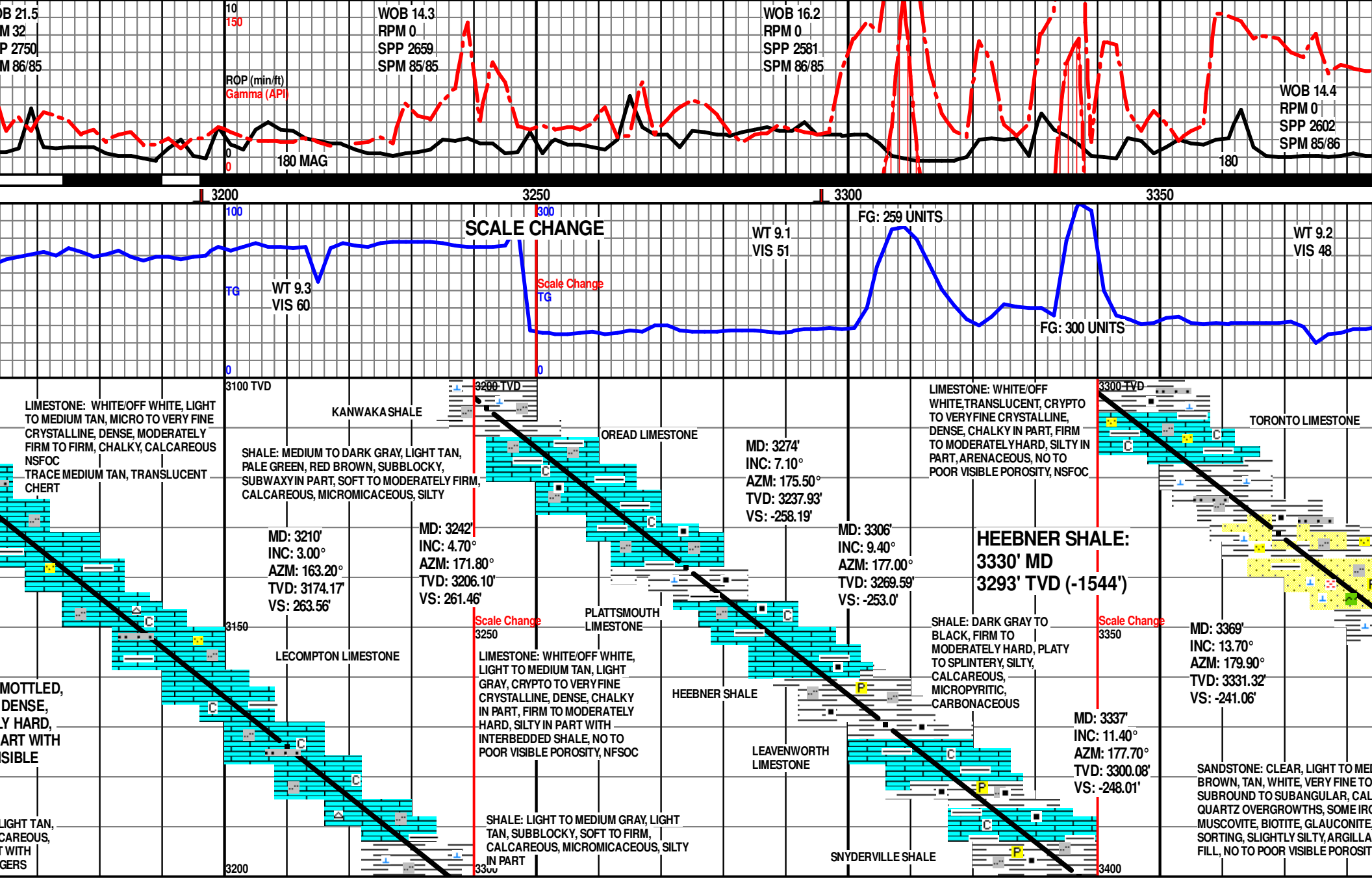
ROUNDING

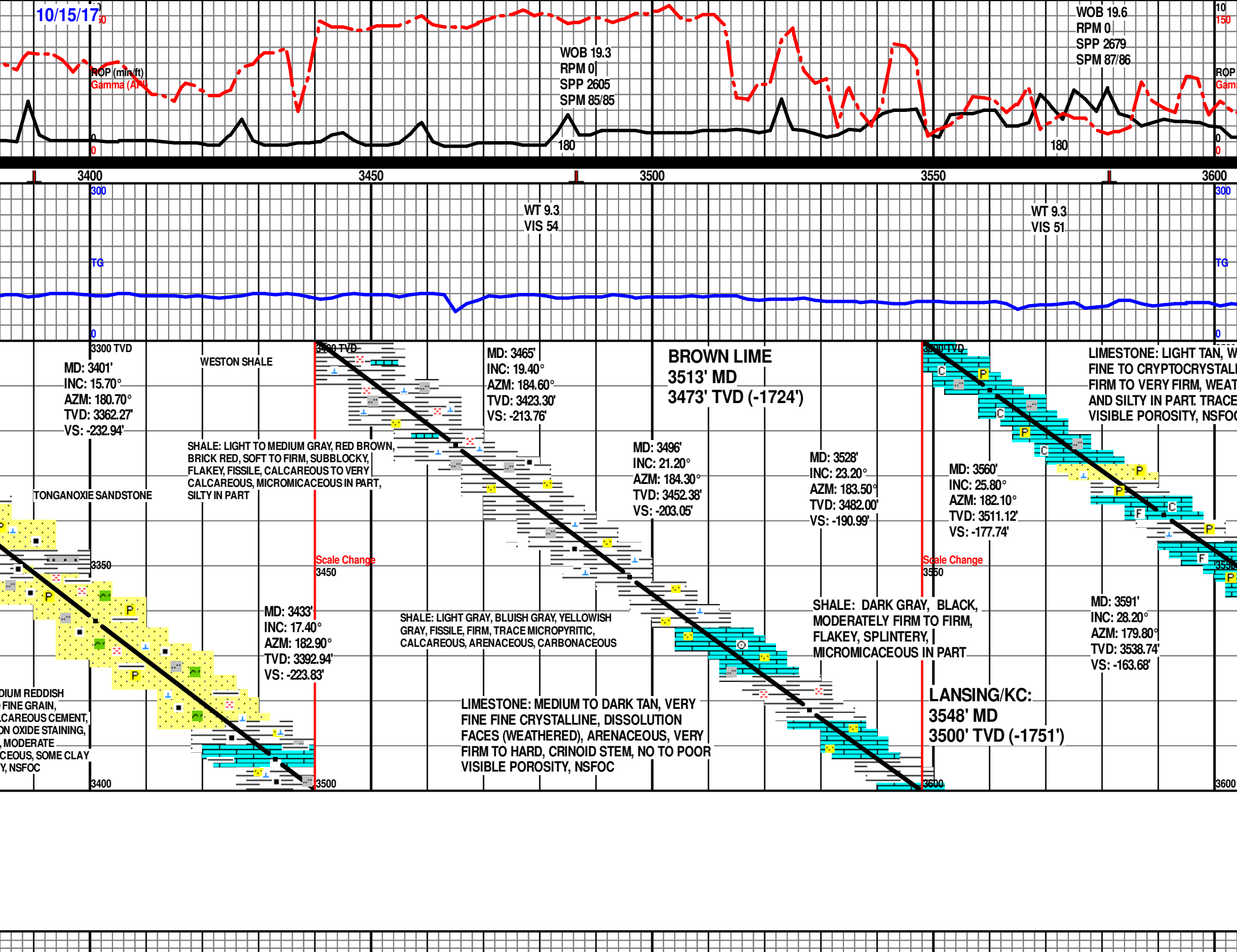
- Rounded
- Subrnd
- Subang
- Angular

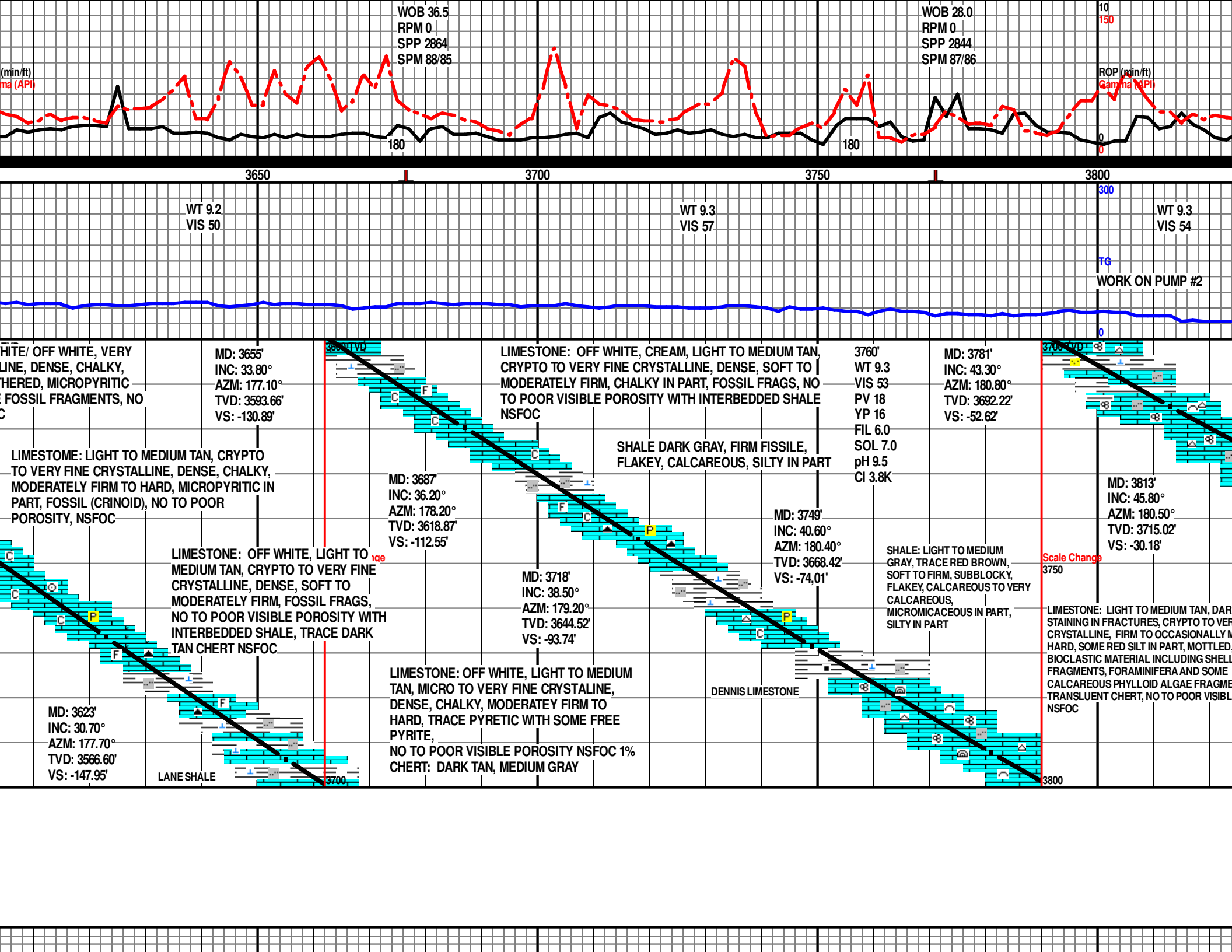
SORTING

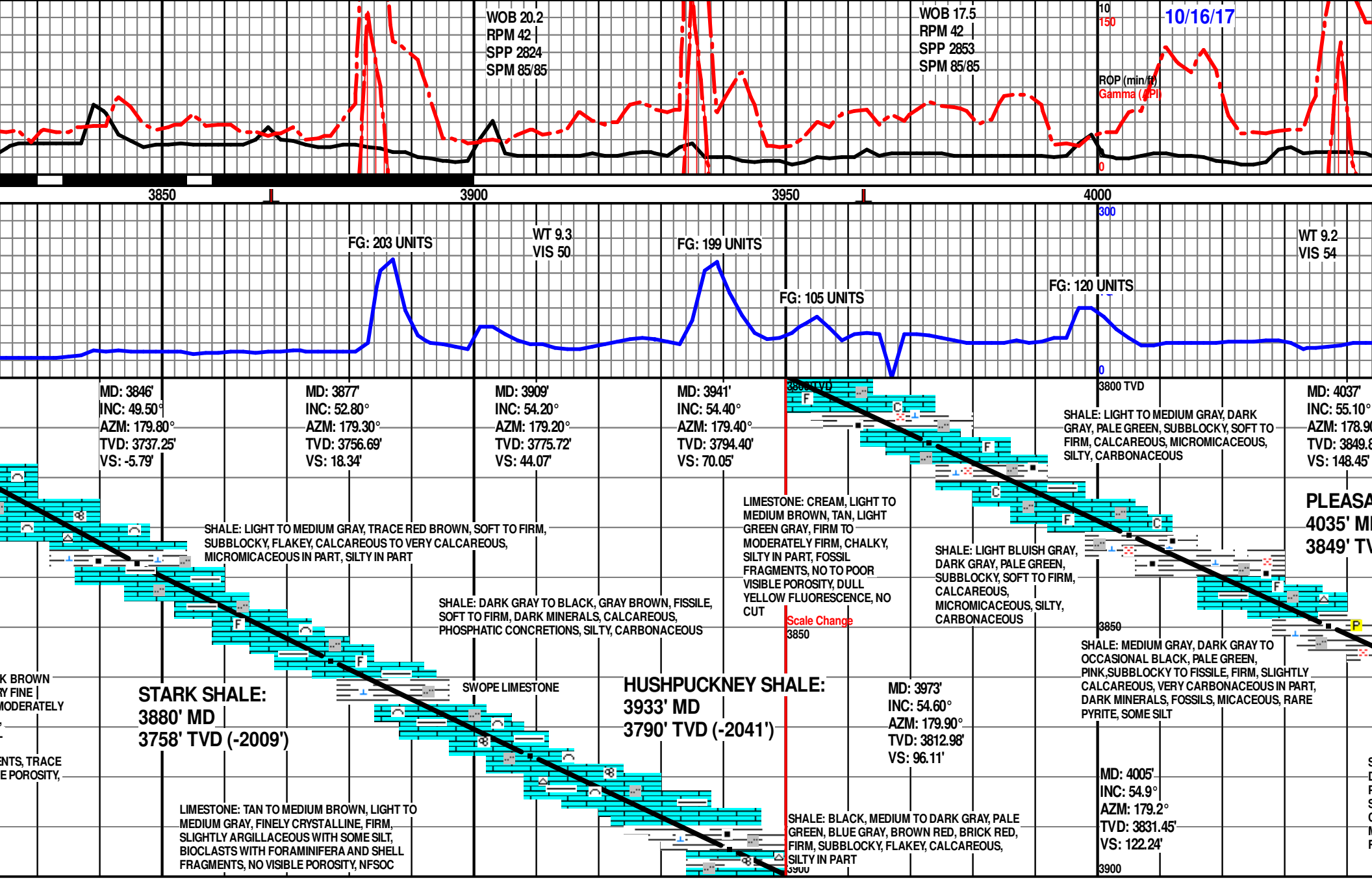
- Well
- Moderate
- Poor


ROP
ROP (min/ft)
Gamma (API)
DUKE RIG #20
GEESLING 16 #1HXL
CURVE & LATERAL
MWD TOOLS PROVIDED BY NOVA, GAMMA 41' & SURVEY 53' BEHIND BIT, MUD MOTOR BEND 2°, CURVE BUILD OF 8°/100'
10/14/17
NB #3 8.75" HAL GTD64DC
IN AT 3015' , OB MADE 2648'
IN 20 HRS
WOB 0.0
RPM 0
SPP 1140
SPM 100
180 MAG
Scale Change
WOB 19.8
RPM 32
SPP 2395
SPM 86/86
Slide/Rotate
Depth
3000
3050
3100
3150
GAS
TG (units)
GAS DETECTION PROVIDED BY PASON
GAS ANNOTATIONS:
BGG- BACK GROUND GAS
CG- CONNECTION GAS
FG- FORMATION GAS
TG- TRIP GAS
OBG- OFF BOTTOM GAS
FG
WT 9.1
VIS 45
WT 9.2
VIS 45
WT 9.2
VIS 55
FG: 72 UNITS
WT 9.2
VIS 57
Well Bore Cross Section
3000 TVD
75% CEMENT 25% FORMATION
70% FORMATION 30% CEMENT
80% FORMATION 20% CEMENT
LIMESTONE: WHITE/OFF WHITE, MICRO TO VERY FINE CRYSTALLINE, DENSE, MODERATELY FIRM TO FIRM, CHALKY, CALCAREOUS NSFOC
MD: 3051'
INC: 1.90°
AZM: 104.20°
TVD: 3015.29'
VS: -267.66
MD: 3146'
INC: 2.20
AZM: 132.80'
TVD: 3110.23'
VS: -266.01'
Scale Change
3150
TOPEKA LIMESTONE
LIMESTONE: OFF WHITE, LIGHT GRAY, CRYPTO TO VERY FINE CRYSTALLINE, CHALKY IN PART, FIRM TO MODERATEL MICROMICACEOUS IN PART, SILTY IN P INTERBEDDED SHALE, NO TO POOR VI POROSITY, NSFOC
3074'
WT 9.20
VIS 58
PV 15
YP 29
FIL 6.4
SOL 6.3
pH 9.5
Cl 3.2K
TECUMSEH SHALE:
SHALE: LIGHT TO MEDIUM GRAY, SUBBLOCKY, SOFT TO FIRM, CALC MICROMICACEOUS, SILTY IN PART INTERBEDDED LIMESTONE STRIN
Pictures
Porosity
24%
18%
12%


OB 21.5
M 32
P 2750
M 86/85
10
150
ROP (min/ft)
Gamma (API)
0
0
180 MAG
WOB 14.3
RPM 0
SPP 2659
SPM 85/85
WOB 16.2
RPM 0
SPP 2581
SPM 86/85
WOB 14.4
RPM 0
SPP 2602
SPM 85/86
180
3200
3250
3300
3350
100
300
SCALE CHANGE
TG
WT 9.3
VIS 60
Scale Change
TG
WT 9.1
VIS 51
FG: 259 UNITS
FG: 300 UNITS
WT 9.2
VIS 48
0
0
3100 TVD
LIMESTONE: WHITE/OFF WHITE, LIGHT TO MEDIUM TAN, MICRO TO VERY FINE CRYSTALLINE, DENSE, MODERATELY FIRM TO FIRM, CHALKY, CALCAREOUS NSFOC
TRACE MEDIUM TAN, TRANSLUCENT CHERT
MOTTLED,
DENSE,
LY HARD,
ART WITH
ISIBLE
LIGHT TAN,
CAREOUS,
T WITH
GERS
3150
3200
KANWAKA SHALE
SHALE: MEDIUM TO DARK GRAY, LIGHT TAN, PALE GREEN, RED BROWN, SUBBLOCKY, SUBWAXY IN PART, SOFT TO MODERATELY FIRM, CALCAREOUS, MICROMICACEOUS, SILTY
MD: 3210'
INC: 3.00°
AZM: 163.20°
TVD: 3174.17'
VS: 263.56'
LECOMPTON LIMESTONE
3200 TVD
MD: 3242'
INC: 4.70°
AZM: 171.80°
TVD: 3206.10'
VS: 261.46'
Scale Change
3250
LIMESTONE: WHITE/OFF WHITE, LIGHT TO MEDIUM TAN, LIGHT GRAY, CRYPTO TO VERY FINE CRYSTALLINE, DENSE, CHALKY IN PART, FIRM TO MODERATELY HARD, SILTY IN PART WITH INTERBEDDED SHALE, NO TO POOR VISIBLE POROSITY, NFSOC
SHALE: LIGHT TO MEDIUM GRAY, LIGHT TAN, SUBBLOCKY, SOFT TO FIRM, CALCAREOUS, MICROMICACEOUS, SILTY IN PART
OREAD LIMESTONE
PLATTSMOUTH LIMESTONE
HEEBNER SHALE
LEAVENWORTH LIMESTONE
MD: 3274'
INC: 7.10°
AZM: 175.50°
TVD: 3237.93'
VS: -258.19'
MD: 3306'
INC: 9.40°
AZM: 177.00°
TVD: 3269.59'
VS: -253.0'
SNYDERVILLE SHALE
3300 TVD
LIMESTONE: WHITE/OFF WHITE, TRANSLUCENT, CRYPTO TO VERY FINE CRYSTALLINE, DENSE, CHALKY IN PART, FIRM TO MODERATELY HARD, SILTY IN PART, ARENACEOUS, NO TO POOR VISIBLE POROSITY, NSFOC
HEEBNER SHALE:
3330' MD
3293' TVD (-1544')
SHALE: DARK GRAY TO BLACK, FIRM TO MODERATELY HARD, PLATY TO SPLINTERY, SILTY, CALCAREOUS, MICROPYRITIC, CARBONACEOUS
Scale Change
3350
MD: 3337'
INC: 11.40°
AZM: 177.70°
TVD: 3300.08'
VS: -248.01'
3400
TORONTO LIMESTONE
MD: 3369'
INC: 13.70°
AZM: 179.90°
TVD: 3331.32'
VS: -241.06'
SANDSTONE: CLEAR, LIGHT TO MEI
BROWN, TAN, WHITE, VERY FINE TO
SUBROUND TO SUBANGULAR, CAL
QUARTZ OVERGROWTHS, SOME IRC
MUSCOVITE, BIOTITE, GLAUCONITE,
SORTING, SLIGHTLY SILTY, ARGILLA
FILL, NO TO POOR VISIBLE POROSIT


10/15/17
ROP (min/ft)
Gamma (API)
WOB 19.3
RPM 0
SPP 2605
SPM 85/85
WOB 19.6
RPM 0
SPP 2679
SPM 87/86
3400
3450
3500
3550
3600
WT 9.3
VIS 54
WT 9.3
VIS 51
TG
3300 TVD
MD: 3401'
INC: 15.70°
AZM: 180.70°
TVD: 3362.27'
VS: -232.94'
WESTON SHALE
SHALE: LIGHT TO MEDIUM GRAY, RED BROWN, BRICK RED, SOFT TO FIRM, SUBBLOCKY, FLAKEY, FISSILE, CALCAREOUS TO VERY CALCAREOUS, MICROMICACEOUS IN PART, SILTY IN PART
TONGANOXIE SANDSTONE
Scale Change
3450
MD: 3433'
INC: 17.40°
AZM: 182.90°
TVD: 3392.94'
VS: -223.83'
MD: 3465'
INC: 19.40°
AZM: 184.60°
TVD: 3423.30'
VS: -213.76'
MD: 3496'
INC: 21.20°
AZM: 184.30°
TVD: 3452.38'
VS: -203.05'
BROWN LIME
3513' MD
3473' TVD (-1724')
SHALE: LIGHT GRAY, BLUISH GRAY, YELLOWISH GRAY, FISSILE, FIRM, TRACE MICROPYRITIC, CALCAREOUS, ARENACEOUS, CARBONACEOUS
LIMESTONE: MEDIUM TO DARK TAN, VERY FINE FINE CRYSTALLINE, DISSOLUTION FACES (WEATHERED), ARENACEOUS, VERY FIRM TO HARD, CRINOID STEM, NO TO POOR VISIBLE POROSITY, NSFOC
MD: 3528'
INC: 23.20°
AZM: 183.50°
TVD: 3482.00'
VS: -190.99'
Scale Change
3550
SHALE: DARK GRAY, BLACK, MODERATELY FIRM TO FIRM, FLAKEY, SPLINTERY, MICROMICACEOUS IN PART
LANSING/KC:
3548' MD
3500' TVD (-1751')
MD: 3560'
INC: 25.80°
AZM: 182.10°
TVD: 3511.12'
VS: -177.74'
MD: 3591'
INC: 28.20°
AZM: 179.80°
TVD: 3538.74'
VS: -163.68'
LIMESTONE: LIGHT TAN, W
FINE TO CRYPTOCRYSTALL
FIRM TO VERY FIRM, WEAT
AND SILTY IN PART. TRACE
VISIBLE POROSITY, NSFOC


WOB 36.5
RPM 0
SPP 2864
SPM 88/85
WOB 28.0
RPM 0
SPP 2844
SPM 87/86
(min/ft)
ma (API)
ROP (min/ft)
Gamma (API)
10
150
0
0
180
180
3650
3700
3750
3800
WT 9.2
VIS 50
WT 9.3
VIS 57
WT 9.3
VIS 54
300
TG
WORK ON PUMP #2
0
HITE/ OFF WHITE, VERY
LINE, DENSE, CHALKY,
THERED, MICROPYRITIC
FOSSIL FRAGMENTS, NO
C
MD: 3655'
INC: 33.80°
AZM: 177.10°
TVD: 3593.66'
VS: -130.89'
LIMESTOME: LIGHT TO MEDIUM TAN, CRYPTO TO VERY FINE CRYSTALLINE, DENSE, CHALKY, MODERATELY FIRM TO HARD, MICROPYRITIC IN PART, FOSSIL (CRINOID), NO TO POOR POROSITY, NSFOC
LIMESTONE: OFF WHITE, LIGHT TO MEDIUM TAN, CRYPTO TO VERY FINE CRYSTALLINE, DENSE, SOFT TO MODERATELY FIRM, FOSSIL FRAGS, NO TO POOR VISIBLE POROSITY WITH INTERBEDDED SHALE, TRACE DARK TAN CHERT NSFOC
MD: 3623'
INC: 30.70°
AZM: 177.70°
TVD: 3566.60'
VS: -147.95'
LANE SHALE
3700
MD: 3687'
INC: 36.20°
AZM: 178.20°
TVD: 3618.87'
VS: -112.55'
LIMESTONE: OFF WHITE, LIGHT TO MEDIUM TAN, MICRO TO VERY FINE CRYSTALINE, DENSE, CHALKY, MODERATEY FIRM TO HARD, TRACE PYRETIC WITH SOME FREE PYRITE,
NO TO POOR VISIBLE POROSITY NSFOC 1%
CHERT: DARK TAN, MEDIUM GRAY
MD: 3718'
INC: 38.50°
AZM: 179.20°
TVD: 3644.52'
VS: -93.74'
LIMESTONE: OFF WHITE, CREAM, LIGHT TO MEDIUM TAN, CRYPTO TO VERY FINE CRYSTALLINE, DENSE, SOFT TO MODERATELY FIRM, CHALKY IN PART, FOSSIL FRAGS, NO TO POOR VISIBLE POROSITY WITH INTERBEDDED SHALE NSFOC
SHALE DARK GRAY, FIRM FISSILE, FLAKEY, CALCAREOUS, SILTY IN PART
MD: 3749'
INC: 40.60°
AZM: 180.40°
TVD: 3668.42'
VS: -74,01'
DENNIS LIMESTONE
3760'
WT 9.3
VIS 53
PV 18
YP 16
FIL 6.0
SOL 7.0
pH 9.5
Cl 3.8K
SHALE: LIGHT TO MEDIUM GRAY, TRACE RED BROWN, SOFT TO FIRM, SUBBLOCKY, FLAKEY, CALCAREOUS TO VERY CALCAREOUS, MICROMICACEOUS IN PART, SILTY IN PART
MD: 3781'
INC: 43.30°
AZM: 180.80°
TVD: 3692.22'
VS: -52.62'
Scale Change
3750
3800
MD: 3813'
INC: 45.80°
AZM: 180.50°
TVD: 3715.02'
VS: -30.18'
LIMESTONE: LIGHT TO MEDIUM TAN, DAR
STAINING IN FRACTURES, CRYPTO TO VER
CRYSTALLINE, FIRM TO OCCASIONALLY M
HARD, SOME RED SILT IN PART, MOTTLED,
BIOCLASTIC MATERIAL INCLUDING SHELL
FRAGMENTS, FORAMINIFERA AND SOME
CALCAREOUS PHYLLOID ALGAE FRAGME
TRANSLUENT CHERT, NO TO POOR VISIBL
NSFOC


WOB 20.2
RPM 42
SPP 2824
SPM 85/85
WOB 17.5
RPM 42
SPP 2853
SPM 85/85
10/16/17
10
150
ROP (min/ft)
Gamma (API)
0
3850
3900
3950
4000
300
FG: 203 UNITS
WT 9.3
VIS 50
FG: 199 UNITS
FG: 105 UNITS
FG: 120 UNITS
WT 9.2
VIS 54
0
3800 TVD
MD: 3846'
INC: 49.50°
AZM: 179.80°
TVD: 3737.25'
VS: -5.79'
MD: 3877'
INC: 52.80°
AZM: 179.30°
TVD: 3756.69'
VS: 18.34'
MD: 3909'
INC: 54.20°
AZM: 179.20°
TVD: 3775.72'
VS: 44.07'
MD: 3941'
INC: 54.40°
AZM: 179.40°
TVD: 3794.40'
VS: 70.05'
MD: 4037'
INC: 55.10°
AZM: 178.9
TVD: 3849.8
VS: 148.45'
PLEASA
4035' M
3849' TV
SHALE: LIGHT TO MEDIUM GRAY, TRACE RED BROWN, SOFT TO FIRM, SUBBLOCKY, FLAKEY, CALCAREOUS TO VERY CALCAREOUS, MICROMICACEOUS IN PART, SILTY IN PART
SHALE: DARK GRAY TO BLACK, GRAY BROWN, FISSILE, SOFT TO FIRM, DARK MINERALS, CALCAREOUS, PHOSPHATIC CONCRETIONS, SILTY, CARBONACEOUS
LIMESTONE: CREAM, LIGHT TO MEDIUM BROWN, TAN, LIGHT GREEN GRAY, FIRM TO MODERATELY FIRM, CHALKY, SILTY IN PART, FOSSIL FRAGMENTS, NO TO POOR VISIBLE POROSITY, DULL YELLOW FLUORESCENCE, NO CUT
Scale Change
3850
SHALE: LIGHT BLUISH GRAY, DARK GRAY, PALE GREEN, SUBBLOCKY, SOFT TO FIRM, CALCAREOUS, MICROMICACEOUS, SILTY, CARBONACEOUS
SHALE: LIGHT TO MEDIUM GRAY, DARK GRAY, PALE GREEN, SUBBLOCKY, SOFT TO FIRM, CALCAREOUS, MICROMICACEOUS, SILTY, CARBONACEOUS
3850
SHALE: MEDIUM GRAY, DARK GRAY TO OCCASIONAL BLACK, PALE GREEN, PINK,SUBBLOCKY TO FISSILE, FIRM, SLIGHTLY CALCAREOUS, VERY CARBONACEOUS IN PART, DARK MINERALS, FOSSILS, MICACEOUS, RARE PYRITE, SOME SILT
K BROWN
Y FINE
MODERATELY
NTS, TRACE
E POROSITY,
STARK SHALE:
3880' MD
3758' TVD (-2009')
SWOPE LIMESTONE
HUSHPUCKNEY SHALE:
3933' MD
3790' TVD (-2041')
MD: 3973'
INC: 54.60°
AZM: 179.90°
TVD: 3812.98'
VS: 96.11'
MD: 4005'
INC: 54.9°
AZM: 179.2°
TVD: 3831.45'
VS: 122.24'
LIMESTONE: TAN TO MEDIUM BROWN, LIGHT TO MEDIUM GRAY, FINELY CRYSTALLINE, FIRM, SLIGHTLY ARGILLACEOUS WITH SOME SILT, BIOCLASTS WITH FORAMINIFERA AND SHELL FRAGMENTS, NO VISIBLE POROSITY, NFSOC
SHALE: BLACK, MEDIUM TO DARK GRAY, PALE GREEN, BLUE GRAY, BROWN RED, BRICK RED, FIRM, SUBBLOCKY, FLAKEY, CALCAREOUS, SILTY IN PART
3900
3900

WOB 28.2
RPM 0
SPP 2806
SPM 85/84

WOB 25.4
RPM 0
SPP 1602
SPM 0/105
ROP (min/ft)
Gamma (API)

4050 4100 4150 4200

NOTE: SCALE CHANGE

WT 9.2
VIS 50

WT 9.4
VIS 54

Scale Change
TG

MD: 4069'
INC: 55.8°
AZM: 179.2°
TVD: 3867.95'
VS: 174.80'

MD: 4101'
INC: 57.90°
AZM: 179.70°
TVD: 3885.45'
VS: 201.59'

MD: 4132'
INC: 60.30°
AZM: 180.60°
TVD: 3901.37'
VS: 228.19'

MD: 4164'
INC: 62.90°
AZM: 180.90°
TVD: 3916.58'
VS: 256.33'

MD: 4196'
INC: 65.30°
AZM: 181.50°
TVD: 3930.56'
VS: 285.10'

MD: 4228'
INC: 68.80°
AZM: 181.90°
TVD: 3943.04'
VS: 314.55'

3900 TVD

ANTON SHALE:
D
VD (-2100')

LIMESTONE: CREAM, LIGHT TO MEDIUM BROWN, TAN, LIGHT GREEN GRAY, FIRM TO MODERATELY FIRM, CHALKY, SILTY IN PART, FOSSIL FRAGMENTS, NO TO POOR VISIBLE POROSITY, DULL YELLOW FLUORESCENCE, NO CUT

LIMESTONE: CREAM/OFF WHITE, LIGHT GRAY, DARK TAN, CRYPTO TO MICRO CRYSTALLINE, FIRM TO MODERATELY HARD, DENSE, TRACE MICROMICACEOUS, NO TO POOR VISIBLE POROSITY, NSFOC
TRACE SANDSTONE: WHITE, MEDIUM GRAY, VERY FINE GRAIN, SUBROUND TO SUBANGULAR, MICROMICACEOUS, SCATTERED CARBONACEOUS SPECKS, POOR VISIBLE POROSITY

FT. SCOTT LIMESTONE

SHALE: LIGHT TO MEDIUM GRAY, DARK GRAY, PALE GREEN, PINK,SUBBLOCKY TO FISSILE, FIRM, SLIGHTLY CALCAREOUS, VERY CARBONACEOUS IN PART, DARK MINERALS, FOSSILS, MICACEOUS, RARE PYRITE, SOME SILT

CHEROKEE:
4190' MD
3928' TVD (-2179')

SHALE: MEDIUM TO DARK GRAY, PALE GREEN, TAN RED, MAROON, TRACE BLACK, SOFT TO FIRM, SUBBLOCKY, SPLINTERY, CALCAREOUS IN PART, SILTY IN PART

LIMESTONE: OFF WHITE, LIGHT GRAY, LIGHT TO DARK TAN, CRYPTO TO MICROCRYSTALINE, DENSE, FIRM TO MODERATELY HARD, TRACE FOSSIL FRAGS, NO TO POOR VISIBLE POROSITY, NSFOC

MISSISSIPP
4261' MD
3955' TVD (

CHERT: WHIT
SHARPLY AN
WEATHERED
VUGULAR PO
POOR YELLO

WOB 28,9
RPM 0
SPP 3084
SPM 87/86

WOB 29.5
RPM 0
SPP 2208
SPM 70/71

WOB 30.4
RPM 0
SPP 2212
SPM 70/69

10/17/17

NB #5 6.125" HAL GT
MADE 1457' IN 60 HR
& GAMMA 36' F/BIT,
BEND 1.5°

10
150
ROP (min/ft)
Gamma (API)
0
0
180
80

4300 4350 4400 4450

FG: 165 UNITS
FG: 181 UNITS
WT 9.4
VIS 56
CG: 116 UNITS
FG: 124 UNITS

NOTE:
SCALE
CHANGE

200
TG
0
500
Scale Change
TG
0

3900 TVD

MD: 4291'
INC: 72.20°
AZM: 179.90°
TVD: 3963.35'
VS: 374.17'

MD: 4324'
INC: 76.50°
AZM: 179.70°
TVD: 3971.98'
VS: 406.01'

MD: 4356'
INC: 79.30°
AZM: 179.90°
TVD: 3978.68'
VS: 437.30'

MD: 4387'
INC: 82.20°
AZM: 180.40°
TVD: 3983.67'
VS: 467.89'

MD: 4419'
INC: 85.20°
AZM: 181.20°
TVD: 3987.19'
VS: 499.69'

PIAN LIME:

-2206')

CHERT: WHITE/OFF WHITE, CREAM TRANSUCENT, LIGHT GRAY, 70% SHARPLY ANGULAR TO ANGULAR, 5% SPICULITE, SOME WEATHERED TRIPOLITIC, DEAD OIL, INCREASE VUGULAR POROSITY, GOOD YELLOW FLUORESCENCE, FAIR YELLOW CLOUDY CUT, BRIGHT RING

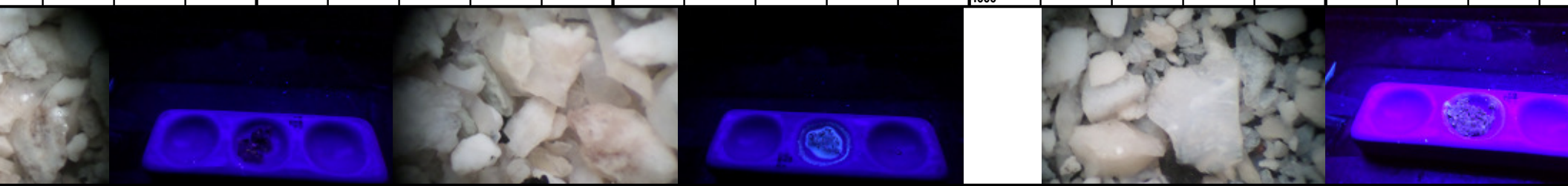
LANDED 4472' MD 3921' TVD (-2187')
AT 1420 HOURS, 10/16/17
RAN 109 JTS 7" CASING, SET AT 4472'

3950

CHERT: WHITE, TRANSUCENT, LIGHT AMBER, CLEAR, LIGHT GRAY, 70% SHARPLY ANGULAR TO ANGULAR, 2% SPICULITE, DECREASE WEATHERED TRIPOLITIC, TRACE DEAD OIL. DECREASE VUGULAR POROSITY, FAINT YELLOW FLUORESCENCE, VERY WEAK POOR YELLOW CLOUDY CUT, FAIR RING

TE, TRANSUCENT, CLEAR, LIGHT GRAY, 80%
NGULAR TO ANGULAR, 10% SPICULITE, SOME
TRIPOLITIC, TRACE DEAD OIL.SOME FAIR
OROSITY FAINT YELLOW FLUORESCENCE,
OW CLOUDY CUT, NO RING

4000



TD64DG OB
RS, SURVEY 41'
MUD MOTOR

5
150
NOTE:
SCALE
CHANGE
Scale Change
ROP (min/ft)
Gamma (API)
0

10/18/17

WOB 6.2
RPM 74
SPP 1109
SPM 0/74

5
150
ROP (min/ft)
Gamma (API)
0

WOB 10.6
RPM 75
SPP 1078
SPM 0/69

4500 4550 4600 4650 4700

WT 8.4
VIS 27

FG: 252 UNITS
FG: 274 UNITS
FG: 429 UNITS
FG: 458 UNITS

500
TG
0

3900 TVD
3950
4000

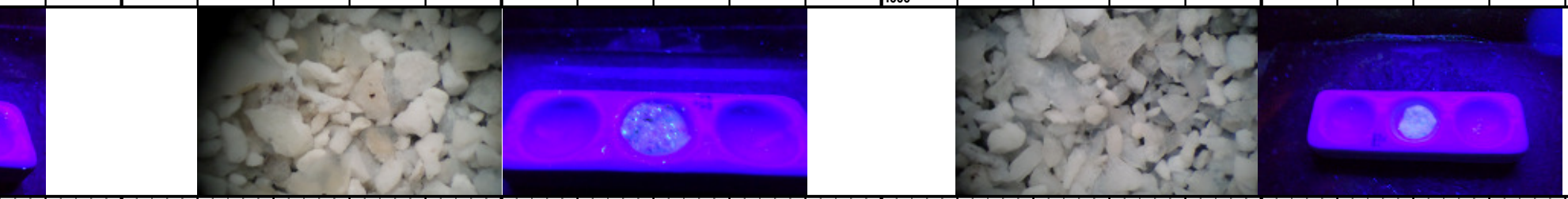
MD: 4491'
INC: 89.20°
AZM: 181.10°
TVD: 3990.69'
VS: 571.56'

MD: 4587'
INC: 90.10°
AZM: 181.00°
TVD: 3991.28'
VS: 667.52'

MD: 4682'
INC: 90.90°
AZM: 181.30°
TVD: 3990.45'
VS: 762.48'

CHERT: WHITE, TRANSLUCENT, AMBER, 50% SHARPLY ANGULAR TO ANGULAR, 2% SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL, MODERATE VUGULAR POROSITY, BRIGHT YELLOW FLUORESCENCE, FAST YELLOW CLOUDY CUT, FAINT YELLOW RING

CHERT: WHITE, TRANSLUCENT, AMBER, 50% SHARPLY ANGULAR TO ANGULAR, 5% SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL, MODERATE VUGULAR POROSITY, BRIGHT YELLOW FLUORESCENCE, FAST YELLOW CLOUDY CUT, FAINT YELLOW RING



WOB 6.8
RPM 76
SPP 1077
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0

WOB 7.8
RPM 76
SPP 1063
SPM 0/70

4750 4800 4850 4900

500
TG
0

FG: 550 UNITS

CG: 574 UNITS

FG: 436 UNITS

MD: 4777'
INC: 91.70°
AZM: 181.00°
TVD: 3988.30'
VS: 857.42'

3900 TVD

MD: 4873'
INC: 92.50°
AZM: 181.00°
TVD: 3984.78'
VS: 953.32'

CHERT: WHITE, TRANSLUCENT, AMBER, 60% SHARPLY ANGULAR TO ANGULAR, 8% SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL, MODERATE VUGULAR POROSITY, BRIGHT YELLOW FLUORESCENCE, FAST YELLOW CLOUDY CUT, MODERATE YELLOW RING

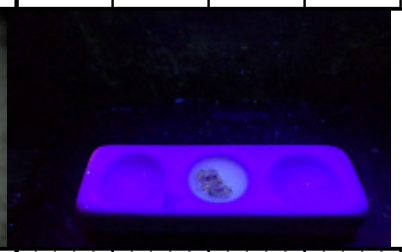
3950

CHERT: WHITE, TRANSLUCENT, AMBER, 70% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL, MODERATE VUGULAR POROSITY, BRIGHT YELLOW FLUORESCENCE, FAST YELLOW CLOUDY CUT, MODERATE YELLOW RING CUTTINGS BECOMING FINE

CHERT: WHITE, T
10% SPICULITE,
MODERATE VUG
YELLOW CLOUD
CUTTINGS FINE

4000




WOB 9.4
RPM 74
SPP 1052
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
180

WOB 8.7
RPM 77
SPP 1086
SPM 0/70

4950
5000
5050
5100

500
TG
0
3900 TVD
3950
4000

FG: 456 UNITS
WT 8.4
VIS 28

WT 8.5
VIS 29

FG: 536 UNITS

CG: 347 UNITS

FG: 456 UNITS

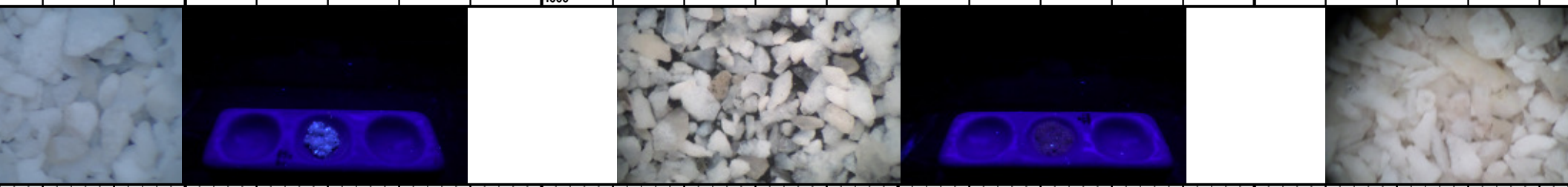
MD: 4968'
INC: 91.80°
AZM: 181.80°
TVD: 3981.21'
VS: 1048.20'

MD: 5064'
INC: 90.90°
AZM: 181.50°
TVD: 3978.95'
VS: 1144.11'

TRANSLUCENT, AMBER, 70% SHARPLY ANGULAR TO ANGULAR,
ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL,
ULAR POROSITY, BRIGHT YELLOW FLUORESCENCE, FAST
Y CUT, MODERATE YELLOW RING
TO VERY FINE

CHERT: WHITE, TRANSLUCENT, AMBER, 70% SHARPLY ANGULAR TO ANGULAR,
15% SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL, TRACE
VUGULAR POROSITY, TRACE CALCAREOUS,BRIGHT YELLOW FLUORESCENCE,
FAST YELLOW CLOUDY CUT, FAINT YELLOW RING
CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, AMB
SPICULITE, ABUNDANT WEATHERED
POROSITY WITH OIL-FILLED VUGS,
FLUORESCENCE, FAST YELLOW CL
CUTTINGS FINE TO VERY FINE



WOB 11.8
RPM 86
SPP 1070
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
0
180

WOB 10.8
RPM 86
SPP 1096
SPM 0/70

5304' NB #6. 6.125" STC MSDi613, OB
MADE 832 FT IN 15.5 HRS, GAMMA 35'
& SURVEY 41' F/BIT
MOTOR BEND 1.5°

180

5150 | 520(| 5250 | 5300 | 5350

1000
NOTE: SCALE CHANGE
Scale Change
TG
0

WT 8.4
VIS 28

1000
WT 8.4
VIS 28
TG
0

OBG: 795 UNITS

FG: 744 UNITS

WT 8.3
VIS 28

CG: 725 UNITS

FG: 552 UNITS

3900 TVD

MD: 5160'
INC: 92.50°
AZM: 182.10°
TVD: 3976.10'
VS: 1239.99'

MD: 5255'
INC: 91.90°
AZM: 180.70°
TVD: 3972.46'
VS: 1334.87'

5304'
WT 8.30
VIS 26
PV 26
YP 1
FIL 99.0
SOL -0.3
pH 9.0
Cl 1.4K

MD: 5351'
INC: 92.30°
AZM: 183.20°
TVD: 3968.94'
VS: 1430.71'

ER, 80% SHARPLY ANGULAR TO ANGULAR, 20%
D TRIPOLITIC, TRACE DEAD OIL, GOOD VUGULAR
TRACE CALCAREOUS, BRIGHT YELLOW
OUDY CUT, MODERATE YELLOW RING

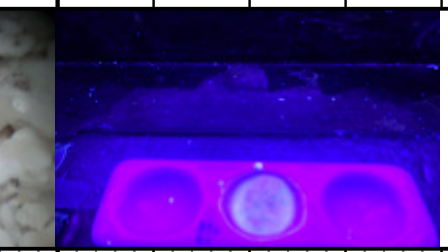
CHERT: WHITE, TRANSLUCENT, AMBER, 80% SHARPLY ANGULAR TO ANGULAR, 20%
SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, TRACE DEAD OIL, GOOD VUGULAR
POROSITY WITH OIL-FILLED VUGS, TRACE CALCAREOUS, BRIGHT YELLOW
FLUORESCENCE, FAST YELLOW CLOUDY CUT, BRIGHT YELLOW RING
CUTTINGS FINE TO VERY FINE

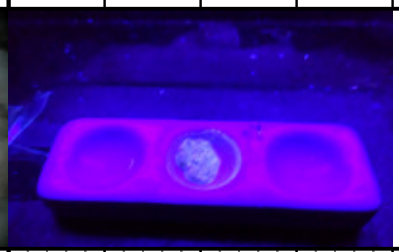
3950

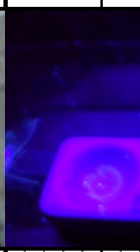
CHERT: WHITE, TRANSLUCENT, 70% SHARPLY A
SPICULITE, ABUNDANT WEATHERED TRIPOLITIC
VUGULAR POROSITY WITH OIL-FILLED VUGS, E
FLUORESCENCE, FAST YELLOW CLOUDY CUT,
CUTTINGS FINE TO VERY FINE

SHALE: BLACK, SOFT TO FIRM,
SUBBLOCKY, SOME PYRITIC

4000







WOB 9.0
RPM 75
SPP 1074
SPM 0/71

5
150
ROP (min/ft)
Gamma (API)
0
0
150R

10/19/17

WOB 21.5
RPM 0
SPP 1080
SPM 72

180

WOB 20.1
RPM 0
SPP 1043
SPM 71

180

5400 5450 5500 5550

1000
TG
0

FG: 922 UNITS

WT 8.5
VIS 29

FG: 839 UNITS

1500
NOTE: SCALE CHANGE
Scale Change
TG
0

FG: 946 UNITS

3900 TVD

MD: 5446'
INC: 90.50°
AZM: 185.20°
TVD: 3966.62'
VS: 1525.36'

MD: 5541'
INC: 88.90°
AZM: 189.20°
TVD: 3967.12'
VS: 1619.50'

NGULAR TO ANGULAR, 10%
C, TRACE DEAD OIL, DECREASE
BRIGHT YELLOW
BRIGHT YELLOW RING

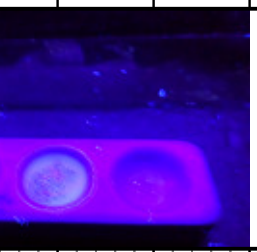
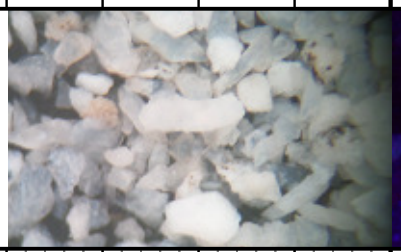
CHERT: WHITE, TRANSLUCENT, 70% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, ABUNDANT WEATHERED TRIPOLITIC, DARK MINERALS, ABUNDANT DEAD OIL, FAIR VUGULAR POROSITY WITH OIL-FILLED VUGS, BRIGHT YELLOW FLUORESCENCE, FAIR YELLOW CLOUDY CUT, BRIGHT YELLOW RING, CUTTINGS FINE TO VERY FINE

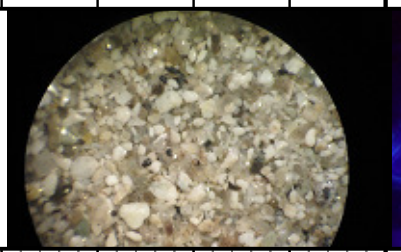
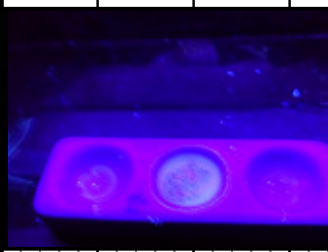
CHERT: WHITE, LIGHT TAN, ANGULAR TO SUBANGULAR, SLIGHTLY TRIPOL
VUGS, SOME FINE GRAINED PINK DOLOMITE, RARE TAN FINE GRAINED S
WITH DARK BROWN STAINING, DEAD OIL, SOME BLACK COAL FLOATERS,
FLUORESCENCE, FAIR TO GOOD YELLOW MILKY CUT, MODERATE YELLO

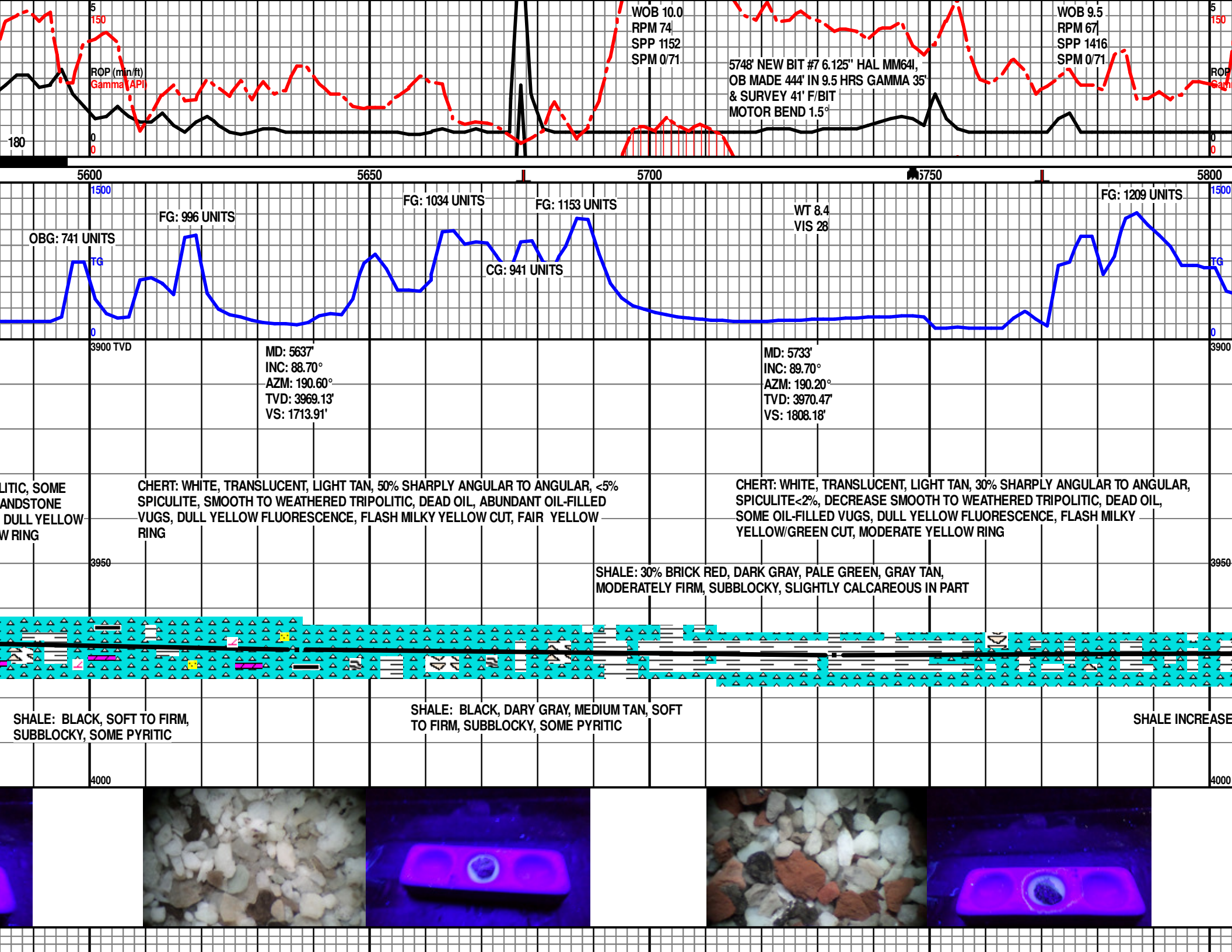
3950

SHALE: BLACK, SOFT TO FIRM, SUBBLOCKY, SOME PYRITIC

4000


WOB 10.0
RPM 74
SPP 1152
SPM 0/71
5748' NEW BIT #7 6.125" HAL MM64I,
OB MADE 444' IN 9.5 HRS GAMMA 35'
& SURVEY 41' F/BIT
MOTOR BEND 1.5°
WOB 9.5
RPM 67
SPP 1416
SPM 0/71
ROP (min/ft)
Gamma (API)
5600
5650
5700
5750
5800
FG: 996 UNITS
FG: 1034 UNITS
FG: 1153 UNITS
FG: 1209 UNITS
OBG: 741 UNITS
CG: 941 UNITS
WT 8.4
VIS 28
TG
3900 TVD
MD: 5637'
INC: 88.70°
AZM: 190.60°
TVD: 3969.13'
VS: 1713.91'
MD: 5733'
INC: 89.70°
AZM: 190.20°
TVD: 3970.47'
VS: 1808.18'
LITIC, SOME
ANDSTONE
DULL YELLOW
W RING
CHERT: WHITE, TRANSLUCENT, LIGHT TAN, 50% SHARPLY ANGULAR TO ANGULAR, <5% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC, DEAD OIL, ABUNDANT OIL-FILLED VUGS, DULL YELLOW FLUORESCENCE, FLASH MILKY YELLOW CUT, FAIR YELLOW RING
CHERT: WHITE, TRANSLUCENT, LIGHT TAN, 30% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2%, DECREASE SMOOTH TO WEATHERED TRIPOLITIC, DEAD OIL, SOME OIL-FILLED VUGS, DULL YELLOW FLUORESCENCE, FLASH MILKY YELLOW/GREEN CUT, MODERATE YELLOW RING
SHALE: 30% BRICK RED, DARK GRAY, PALE GREEN, GRAY TAN, MODERATELY FIRM, SUBBLOCKY, SLIGHTLY CALCAREOUS IN PART
SHALE: BLACK, SOFT TO FIRM, SUBBLOCKY, SOME PYRITIC
SHALE: BLACK, DARY GRAY, MEDIUM TAN, SOFT TO FIRM, SUBBLOCKY, SOME PYRITIC
SHALE INCREASE

WOB 38.1
RPM 0
SPP 1359
SPM 0/69

WOB 32.1
RPM 0
SPP 1275
SPM 70

ROP (min/ft)
Gamma (API)

174R

150/170R

150/170R

5850

5900

5950

6000

NOTE: SCALE CHANGE

Scale Change
TG

FG: 528 UNITS

WT 8.5
VIS 26

SWEEP

OBG: 491 UNITS

FG: 639 UNITS

TG

MD: 5828'
INC: 90.90°
AZM: 190.30°
TVD: 3969.97'
VS: 1901.53'

5836'
WT 8.40
VIS 26
PV 1
YP 3
FIL 99.0
SOL 0.5
pH 7.5
Cl 1.6K

MD: 5860'
INC: 91.30°
AZM: 190.60°
TVD: 3969.35'
VS: 1932.95'

MD: 5892'
INC: 89.10°
AZM: 190.60°
TVD: 3969.24'
VS: 1964.32'

MD: 5923'
INC: 89.00°
AZM: 191.30°
TVD: 3969.76'
VS: 1994.76'

MD: 5955'
INC: 88.20°
AZM: 191.50°
TVD: 3970.54'
VS: 2025.98'

MD: 6019'
INC: 86.00°
AZM: 191.7
TVD: 3974.
VS: 2088.4

3900 TVD

3950

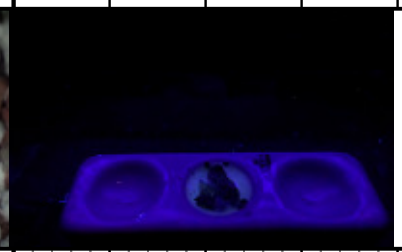
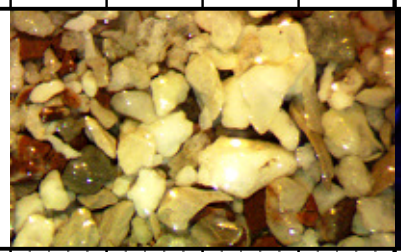
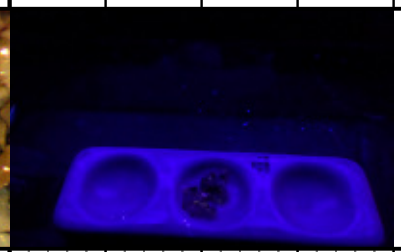
4000

CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2% TRACE SMOOTH TO WEATHERED TRIPOLITIC,TRACE DEAD OIL, VERY FAINT FLUORESCENCE, DULL YELLOW/GREEN CUT, FAINT RING

CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2% TRACE SMOOTH TO WEATHERED TRIPOLITIC,TRACE DEAD OIL, VERY FAINT FLUORESCENCE, NO CUT VERY FINE GRAINS - NOVACULITE

SHALE: 50% BRICK RED, MAROON, DARK RED, DARK GRAY, PALE GREEN, GRAY TAN, SOFT TO MODERATELY FIRM, SUBBLOCKY, SLIGHTLY CALCAREOUS IN PART

SHALE: 25% BRICK RED, MAROON, DARK RED, DARK GRAY, PALE GREEN, GRAY TAN, SOFT TO MODERATELY FIRM, SUBBLOCKY, SLIGHTLY CALCAREOUS IN PART,SILTY


WOB 9.5
RPM 73
SPP 1355
SPM 70

WOB 11.4
RPM 73
SPP 1381
SPM 72

5
150
ROP (min/ft)
Gamma (API)
0

6050 | 6100 | 6150 | 6200

1000
TG
0

FG: 516 UNITS

CG: 711 UNITS

WT 8.5
VIS 28

MD: 6051'
INC: 86.40°
AZM: 191.50°
TVD: 3976.45'
VS: 2119.66'

MD: 6083'
INC: 86.70°
AZM: 191.10°
TVD: 3978.38'
VS: '2150.93

3950 TVD

MD: 6115'
INC: 87.00°
AZM: 190.80°
TVD: 3980.14'
VS: 2182.25'

3950

MD: 6210'
INC: 87.60°
AZM: 190.40°
TVD: 3984.61'
VS: 2275.38'

HERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT GRAY, PINK, 30%
HARPLY ANGULAR TO ANGULAR, VERY FINE GRAINS - NOVACULITE,
PICULITE<2%, TRIPOLITIC IN PART, DEAD OIL WITH DARK BROWN
TAINING, VERY FAINT YELLOW FLUORESCENCE, FAINT YELLOW GREEN
ILKY CUT

Scale Change
4000

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT GRAY, PINK, 40% SHARPLY ANGULAR TO ANGULAR, VERY FINE GRAINS - NOVACULITE, RARE CALCITE, SPICULITE<5%, TRIPOLITIC IN PART, DEAD OIL WITH DARK BROWN STAINING, VERY FAINT YELLOW FLUORESCENCE, FAINT YELLOW GREEN MILKY CUT

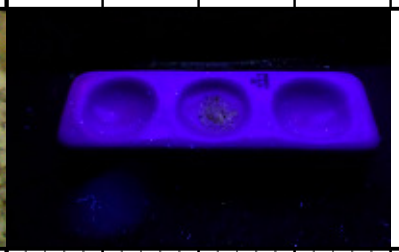
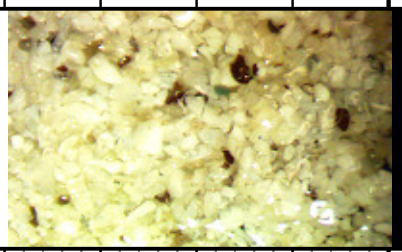
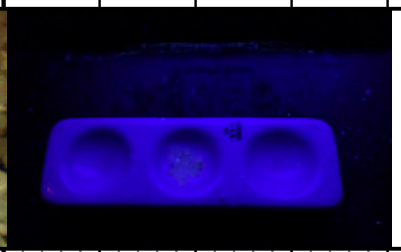
4000

CHERT: WHITE, TRANSLUCENT, O
SHARPLY ANGULAR TO ANGULA
TRIPOLITIC IN PART, DEAD OIL W
YELLOW FLUORESCENCE, FAIR

SHALE: 5% BRICK RED, MAROON, DARK RED, DARK GRAY, PALE GREEN, GRAY TAN, SOFT TO MODERATELY FIRM, SUBBLOCKY, SLIGHTLY CALCAREOUS IN PART, SILTY,

4050

4050


10/20/17

WOB 18.1
RPM 78
SPP 1458
SPM 72

WOB 14.8
RPM 73
SPP 1443
SPM 72

5
150
ROP (min/ft)
Gamma (API)
0
0

HS

6250 | 6300 | 50 | 6400 | 6450

1000
TG
0

ADJUST TORQUE FOR DC'S

SWEEP

WT 8.5
VIS 28

CG: 458 UNITS

FG: 497 UNITS

OBG: 497 UNITS

OBG: 362 UN

MD: 6306'
INC: 88.00°
AZM: 190.20°
TVD: 3988.30'
VS: 2369.63'

3950 TVD
MD: 6401'
INC: 87.70°
AZM: 190.30°
TVD: 3991.86'
VS: 2462.91'

MD: 64
INC: 8
AZM: 1
TVD: 3
VS: 252

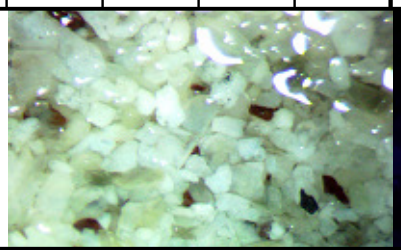
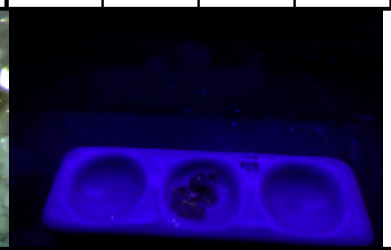
4000

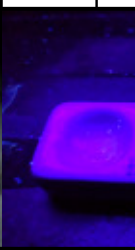
OPAQUE, LIGHT GRAY, PINK, 40%
AR, RARE CALCITE, 10% SPICULITE,
WITH DARK BROWN STAINING, FAIR
YELLOW MILKY CUT, YELLOW RING

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT GRAY, 40% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, TRIPOLITIC IN PART, OCCASIONAL MICROCRYSTALLINE GRAINY TEXTURE- NOVACULITE?, DEAD OIL WITH RARE DARK BROWN STAINING, VERY FAINT FLUORESCENCE, NO CUT

CHERT: WHITE, TRANSLUCENT, OPAQUE, 60% SHARPL
25% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC
INCREASE IN OIL-FILLED VUGS, MODERATE YELLOW
MILKY YELLOW CUT, MODERATE YELLOW RING

4050



WOB 11.6
RPM 78
SPP 1398
SPM 69

5
150
ROP (min/ft)
Gamma (API)
0

WOB 7.3
RPM 79
SPP 1369
SPM 70

6500 6550 6600 6650

500
NOTE: SCALE CHANGE
Scale Change
TG
0

WT 8.5
VIS 28

CG: 307 UNITS

FG: 354 UNITS

500
TG
0

CG: 391 UNITS

FG: 507 UNITS

ITS

65'
8.40°
89.70°
994.04'
25.81'

MD: 6528'
INC: 88.70°
AZM: 189.90°
TVD: 3995.64'
VS: 2587.79'

MD: 6589'
INC: 89.00°
AZM: 190.90°
TVD: 3996.86'
VS: 2647.68'

3950 TVD

MD: 6651'
INC: 87.80°
AZM: 191.50°
TVD: 3998.59'
VS: 2708.38'

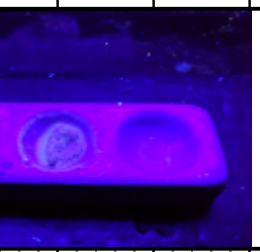
4000

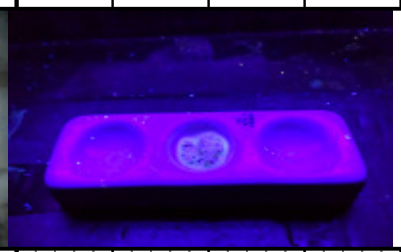
LY ANGULAR TO ANGULAR,
, INCREASE DEAD OIL,
FLUORESCENCE, FAST

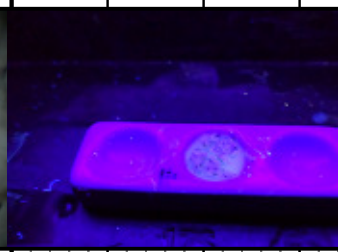
CHERT: WHITE, TRANSLUCENT, OPAQUE, 50% SHARPLY ANGULAR TO ANGULAR, 25% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC, DEAD OIL, OIL-FILLED VUGS, MODERATE YELLOW FLUORESCENCE, FAST MILKY YELLOW CUT, MODERATE YELLOW RING, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 50% SHARPLY ANGULAR TO ANGU
20% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC, TRACE DEAD OIL, S
OIL-FILLED VUGS, MODERATE YELLOW FLUORESCENCE, FAST MILKY YELL
CUT, FAINT YELLOW RING, CUTTINGS FINE TO VERY FINE

4050







WOB 17.3
RPM 67
SPP 1491
SPM 0/71

5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 18.2
RPM 67
SPP 1559
SPM 0/71

45L

HS

6700 6750 6800 6850 6900

FG: 405 UNITS

CG: 294 UNITS

OBG: 291 UNITS

500
TG
0

OBG: 272 UNITS

WT 8.4
VIS 28

3950 TVD

MD: 6713'
INC: 88.70°
AZM: 191.00°
TVD: 4000.48'
VS: 2769.06'

MD: 6774'
INC: 88.70°
AZM: 190.20°
TVD: 4001.87'
VS: 2828.92'

MD: 6834'
INC: 89.70°
AZM: 190.20°
TVD: 4002.71'
VS: 2887.88'

MD: 6897'
INC: 90.20°
AZM: 190.30°
TVD: 4002.76'
VS: 2949.78'

4000

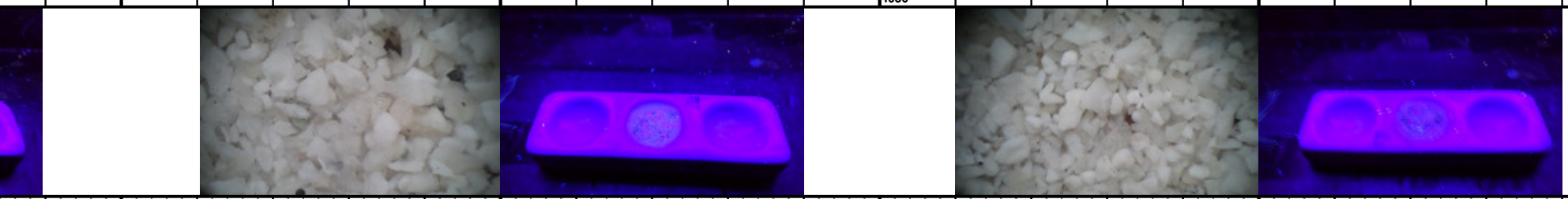
ULAR,
OME
LOW

CHERT: WHITE, TRANSLUCENT, OPAQUE, 40% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC, TRACE DEAD OIL, DEVOID OF VUGS, MODERATE YELLOW FLUORESCENCE, SLOW MILKY YELLOW CUT, FAINT YELLOW RING, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 40% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC, TRACE DEAD OIL, DEVOID OF VUGS, FAINT YELLOW FLUORESCENCE, SLOW MILKY YELLOW CUT, FAINT YELLOW RING, CUTTINGS FINE TO VERY FINE

SHALE: BRICK RED, DARK GRAY TO BLACK, TAN GRAY, SOF
MODERATELY FIRM, SUBBLOCKY, SUBWAXY IN PART

4050



WOB 17.6
RPM 73
SPP 1555
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0

WOB 18.5
RPM 60
SPP 1645
SPM 0/70

6950 | 700 | 7050 | 7100

500
TG
0

FG: 283 UNITS
CG: 242 UNITS
FG: 277 UNITS
CG: 194 UNITS
WT 8.4
VIS 28
CG: 277 UNITS

3950 TVD

6906'
WT 8.40
VIS 26
PV 1
YP 3
FIL 99.0
SOL 0.5
pH 7.5
Cl 1.3K

MD: 6960'
INC: 89.20°
AZM: 189.30°
TVD: 4003.09'
VS: 3011.77'

MD: 7022'
INC: 89.80°
AZM: 189.30°
TVD: 4003.63'
VS: 3072.88'

MD: 7082'
INC: 90.00°
AZM: 189.50°
TVD: 4003.74'
VS: 3131.99'

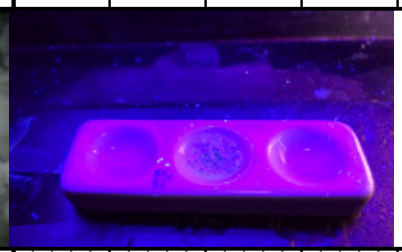
4000

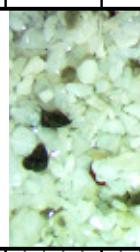
CHERT: WHITE, TRANSLUCENT, OPAQUE, 30% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2%, DECREASE SMOOTH TO WEATHERED TRIPOLITIC, NO DEAD OILOR VUGULAR POROSITY, FAINT YELLOW FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2%, SOME SMOOTH TO WEATHERED TRIPOLITIC, NO DEAD OILOR VUGULAR POROSITY, FAINT YELLOW FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRAN
CONCHOIDAL FRACT
BLACK MINERALS IN
NO FLUORESCENCE,

4050

WOB 18.2
RPM 69
SPP 1627
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 16.8
RPM 74
SPP 1666
SPM 0/71

10/21/17

7260' NB #8 6.125" HAL MM64DI, OB
MADE 1512' IN 29 HRS, GAMMA 36' &
SURVEY 41' F/BIT, MOTOR BEND: 1.5°

WOB 6.3
RPM 76
SPP 1873
SPM 0/70

HS

7150 | 7200 | 7250 | 7300

500
TG
0

SWEEP

FG:180 UNITS

FG: 240 UNITS

TG: 1524 UNITS

SWEEP 20 BBL

WT 8.4
VIS 28

MD: 7144'
INC: 89.60°
AZM: 189.00°
TVD: 4003.95'
VS: 3193.10'

MD: 7205'
INC: 90.00°
AZM: 188.90°
TVD: 4004.17'
VS: 3253.28'

7260'
WT 8.40
VIS 26
PV 26
YP 1
FIL 99.0
SOL 0.5
pH 7.5
Cl 1.3K

MD: 7270'
INC: 88.20°
AZM: 190.10°
TVD: 4005.19'
VS: 3317.30'

MD: 7334'
INC: 88.20°
AZM: 190.40°
TVD: 4007.20'
VS: 3380.15'

HALE: 10% RED BROWN, DARK GRAY TO BLACK, SOFT TO
ODERATELY FIRM, FISSILE, SILTY, NON- CALCAREOUS

SHALE: 10% BRICK RED, DARK GRAY TO BLACK, TAN GRAY, SOFT
TO MODERATELY FIRM, SUBBLOCKY, SUBWAXY IN PART
LARGELY CAVINGS LAGGED AFTER TRIP

SHALE: 30% BRICK RED
TAN, SOFT TO MODERA
SLIGHTLY CALCAREOU

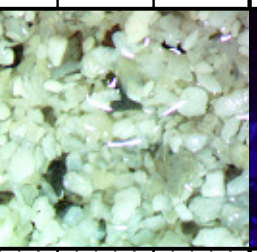
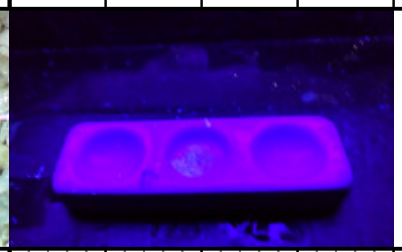
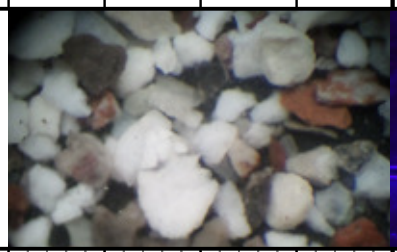
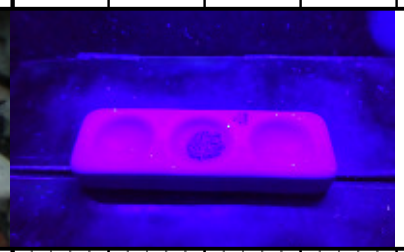
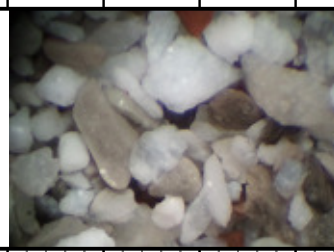
4000

SLUCENT, OPAQUE, TAN WHITE, 20% ANGULAR TO SUBANGULAR,
URING, SPICULITE<2%, SOME WEATHERED TRIPOLITIC, SOME
MINUTE VOIDS AND CRACKS - DEAD OIL?, NO VISIBLE POROSITY,
NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPLY ANGULAR TO
ANGULAR, SPICULITE<2%, SMOOTH TO WEATHERED TRIPOLITIC, NO
DEAD OIL OR VUGULAR POROSITY, FAINT YELLOW FLUORESCENCE,
NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSL
ANGULAR, SPICULITE<
DEAD OIL OR VUGULAR
NO CUT, CUTTINGS FINE

4050

WOB 11.9
RPM 74
SPP 1933
SPM 0/70

10/22/17

WOB 12.2
RPM 74
SPP 1933
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
0

110R

7350 | 7400 | 7450 | 7500 | 7550

500
SWEEP
TG
FG: 157 UNITS
FG: 130 UNITS
0

3950 TVD

MD: 7429'
INC: 89.10°
AZM: 190.50°
TVD: 4009.43'
VS: 3473.41'

MD: 7525'
INC: 88.70°
AZM: 191.30°
TVD: 4011.28'
VS: 3567.51'

D, DARK GRAY, PALE GREEN, GRAY
ATELY FIRM, SUBBLOCKY, SUBWAXY,
S IN PART

SHALE: 15% BRICK RED, DARK GRAY, PALE GREEN, GRAY TAN, SOFT TO MODERATELY FIRM, SUBBLOCKY, SUBWAXY, SLIGHTLY CALCAREOUS IN PART

SHALE: 10% BRICK RED, DARK GRAY, PALE
TAN, SOFT TO MODERATELY FIRM, SUBBLO
SUBWAXY, SLIGHTLY CALCAREOUS IN PAR

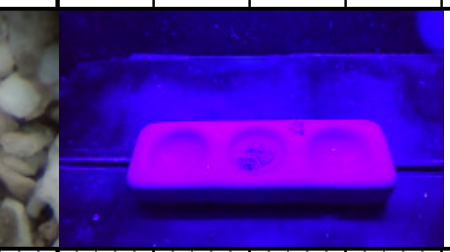
4000

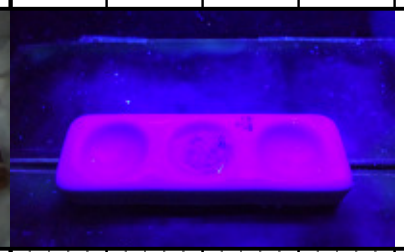
LUCENT, OPAQUE, 20% SHARPLY ANGULAR TO
2%, SMOOTH TO WEATHERED TRIPOLITIC, NO
R POROSITY, FAINT YELLOW FLUORESCENCE,
E TO VERY FINE

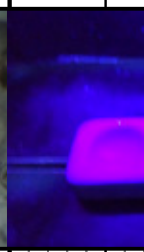
CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2%, SMOOTH TO WEATHERED TRIPOLITIC, NO DEAD OIL OR VUGULAR POROSITY, FAINT YELLOW FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPL
ANGULAR, SPICULITE<2%, SMOOTH TO WEATHERED
OIL OR VUGULAR POROSITY, FAINT YELLOW FLUORE
CUTTINGS FINE TO VERY FINE

4050







5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 11.5
RPM 76
SPP 1820
SPM 0/70

WOB 10.9
RPM 78
SPP 1656
SPM 0/71

150R

7600 7650 7700 7750

200
NOTE: SCALE CHANGE
Scale Change
TG
0

20 BBL SWEEP

OBG: 101 UNITS

3950 TVD

MD: 7620'
INC: 89.70°
AZM: 191.40°
TVD: 4012.60'
VS: 3660.50'

MD: 7715'
INC: 89.60°
AZM: 190.90°
TVD: 4013.18'
VS: 3753.55'

GREEN, GRAY
CKY,
T

SHALE: 10% BRICK RED, DARK GRAY, PALE GREEN, GRAY TAN, SOFT TO MODERATELY FIRM, SUBBLOCKY, SUBWAXY, SLIGHTLY CALCAREOUS IN PART

TRACE SHALE: BRICK RED, MEDIUM GRAY, TAN GRAY, SOFT TO MODERATELY FIRM,SUBBLOCKY

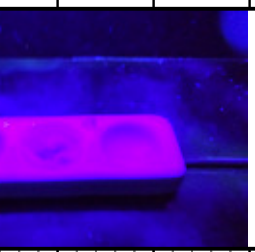
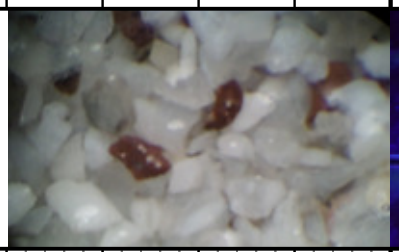
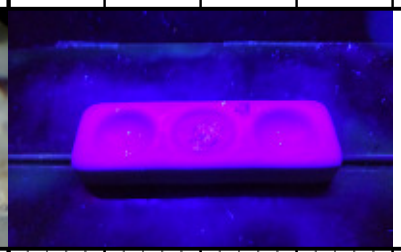
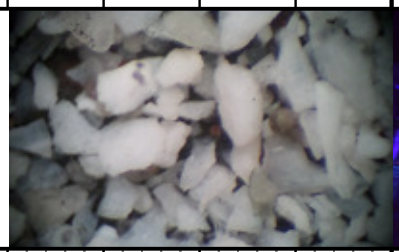
4000

LY ANGULAR TO
TRIPOLITIC, NO DEAD
SCENCE, NO CUT,

CHERT: WHITE, TRANSLUCENT, OPAQUE, 20% SHARPLY ANGULAR TO ANGULAR, SPICULITE<2%, SMOOTH TO WEATHERED TRIPOLITIC, NO DEAD OIL OR VUGULAR POROSITY, FAINT YELLOW FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 30% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH OIL-FILLED VUGS, SCATTERED DEAD OIL, FAIR VUGULAR POROSITY, BRIGHT YELLOW FLUORESCENCE, BRIGHT YELLOW CLOUDY CUT, BRIGH YELLOW RING, CUTTINGS FINE TO VERY FINE

4050


WOB 12.5
RPM 75
SPP 1846
SPM 0/71

WOB 12.6
RPM 70
SPP 1927
SPM 0/72

ROP (min/ft)
Gamma (API)

163R

7800 7850 7900 7950 8000

FG: 111 UNITS

WT 8.4
VIS 28

FG: 107 UNITS

SWEEP

FG: 112 UNITS

3950 TVD

MD: 7811'
INC: 90.10°
AZM: 190.40°
TVD: 4013.44'
VS: 3847.76'

MD: 7906'
INC: 90.70°
AZM: 190.40°
TVD: 4012.77'
VS: 3941.06'

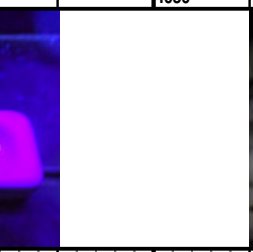
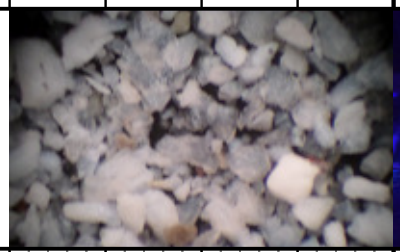
MD: 8001'
INC: 89.20°
AZM: 190.30°
TVD: 4012.86'
VS: 4034.37'

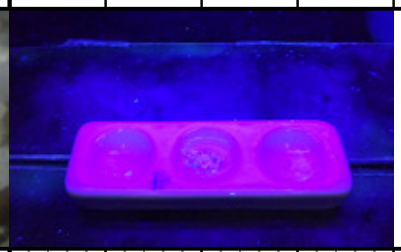
4000

CHERT: WHITE, TRANSLUCENT, OPAQUE, 30% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH FEWER OIL-FILLED VUGS, SCATTERED DEAD OIL, FAIR VUGULAR POROSITY, MODERATE YELLOW FLUORESCENCE, WEAK YELLOW CLOUDY CUT, SLIGHT YELLOW RING, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, 30% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH OIL-FILLED VUGS, SCATTERED DEAD OIL, FAIR VUGULAR POROSITY, MODERATE YELLOW FLUORESCENCE, WEAK YELLOW CLOUDY CUT, SLIGHT YELLOW RING, SLIGHT OIL ODOR AND SHEEN, CUTTINGS FINE TO VERY FINE

4050

WOB 16.9
RPM 58
SPP 1810
SPM 0/72

WOB 13.1
RPM 65
SPP 1776
SPM 0/71

(min/ft)
ma (API)

5
150
ROP (min/ft)
Gamma (API)
0
0

115R

8050 8100 8150 8200

WT 8.7
VIS 26

CG: 125 UNITS
FG: 78 UNITS
CG: 105 UNITS
FG: 116 UNITS

200
TG
0

TVD
8011'
WT 8.70
VIS 26
PV 3
YP 1
FIL 99.0
SOL 0.5
pH 7.5
Cl 1.8K

MD: 8097'
INC: 89.50°
AZM: 189.70°
TVD: 4013.94'
VS: 4128.77'

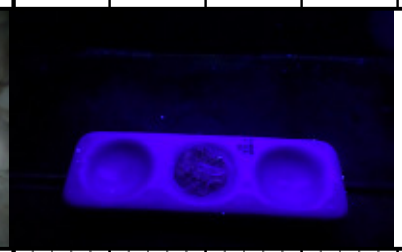
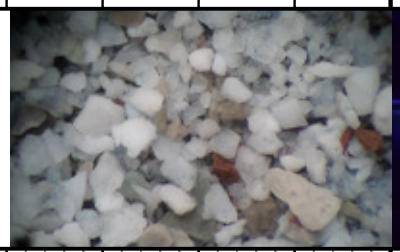
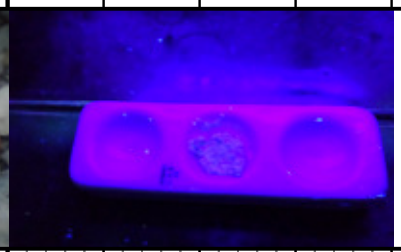
MD: 8192'
INC: 88.70°
AZM: 190.30°
TVD: 4015.44'
VS: 4222.18'

3970 TVD
Scale Change
4020
4070

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, NO DEAD OIL, POOR VUGULAR POROSITY, DULL YELLOW FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, NO DEAD OIL, POOR VUGULAR POROSITY, DULL YELLOW FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE
TO ANGULAR,
OIL-FILLED VU
FLUORESCENC


OB 18.3
M 58
P 1776
M 0/71

WOB 44.9
RPM 0
SPP 1713
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 12.9
RPM 73
SPP 1784
SPM 71/71

90R

8250 8300 8350 8400

200
TG
0
3970 TVD

WT 8.4
VIS 28

FG: 83 UNITS

10 BBL SWEEP

CG: 78 UNITS

WT 8.5
VIS 28

MD: 8287'
INC: 88.70 °
AZM: 189.00°
TVD: 4017.59'
VS: 4315.69'

MD: 8383'
INC: 88.50°
AZM: 190.20°
TVD: 4019.94'
VS: 4410.18'

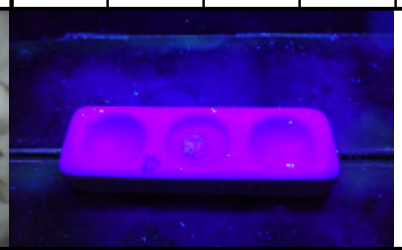
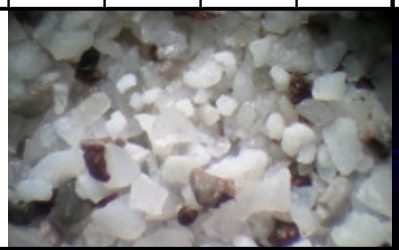
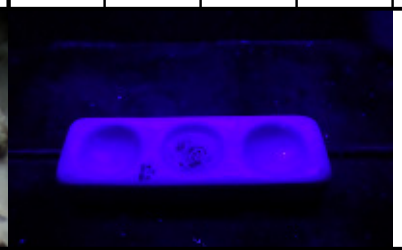
4020

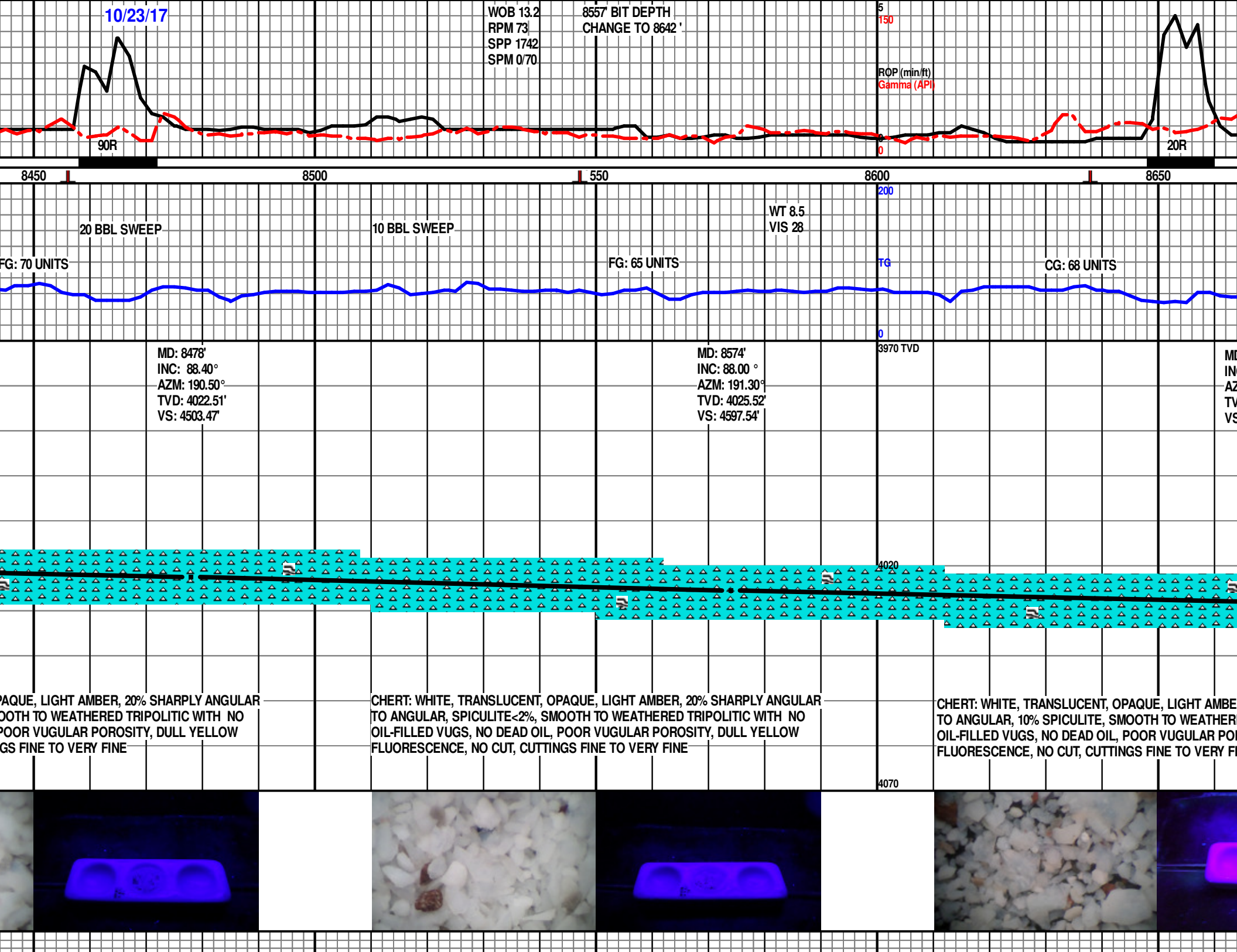
, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR
10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO
GS, NO DEAD OIL, POOR VUGULAR POROSITY, DULL YELLOW
CE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR
TO ANGULAR, 5% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO
OIL-FILLED VUGS, NO DEAD OIL, POOR VUGULAR POROSITY, DULL YELLOW
FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OP
TO ANGULAR, SPICULITE<2%, SM
OIL-FILLED VUGS, NO DEAD OIL, P
FLUORESCENCE, NO CUT, CUTTIN

4070



10/23/17
WOB 13.2
RPM 73
SPP 1742
SPM 0/70
8557' BIT DEPTH
CHANGE TO 8642 '
5
150
ROP (min/ft)
Gamma (API)
0
0
90R
20R
8450
8500
550
8600
8650
200
WT 8.5
VIS 28
20 BBL SWEEP
10 BBL SWEEP
FG: 70 UNITS
FG: 65 UNITS
TG
CG: 68 UNITS
0
3970 TVD
MD: 8478'
INC: 88.40°
AZM: 190.50°
TVD: 4022.51'
VS: 4503.47'
MD: 8574'
INC: 88.00 °
AZM: 191.30°
TVD: 4025.52'
VS: 4597.54'
4020
PAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR
OOTH TO WEATHERED TRIPOLITIC WITH NO
POOR VUGULAR POROSITY, DULL YELLOW
GS FINE TO VERY FINE
CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR
TO ANGULAR, SPICULITE<2%, SMOOTH TO WEATHERED TRIPOLITIC WITH NO
OIL-FILLED VUGS, NO DEAD OIL, POOR VUGULAR POROSITY, DULL YELLOW
FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE
CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBE
TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHER
OIL-FILLED VUGS, NO DEAD OIL, POOR VUGULAR PO
FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY F
4070

WOB 19.2
RPM 72
SPP 1808
SPM 0/69

8,710' NB #9, 6.125" HAL MM64DI, OB MADE
1450' IN 31 HOURS, GAMMA 36' & SURVEY
41' F/BIT, MOTOR BEND 1.5°

RESUMED DRILLING
@ 21:42 CST

WOB 9.7
RPM 76
SPP 2298
SPM 0/71

10/24/17

WOB 10
RPM 76
SPP 23
SPM 0/7

5
150
ROP (min/ft)
Gamma (API)
0

45R

8700 8750 8800 8850

200
TG
0

TG: 87 UNITS

FG: 49 UNITS

FG: 53 UNITS

3970 TVD

D: 8668'
C: 89.00°
ZM: 191.50°
VD: 4027.98'
S: 4689.51'

8710'
WT 8.50
VIS 29
PV 1
YP 4
FIL 99.0
SOL 1.2
pH 7.5
Cl 1.8K

MD: 8791'
INC: 89.60°
AZM: 190.80°
TVD: 4029.49'
VS: 4809.98'

MD
INC
AZI
TVI
VS

SHALE: 10% BRICK RED, DARK GRAY TO BLACK, TAN GRAY, SOFT
TO MODERATELY FIRM, SUBBLOCKY, SUBWAXY IN PART
LARGELY CAVINGS LAGGED AFTER TRIP

4020

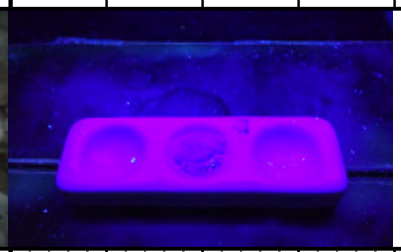
R, 30% SHARPLY ANGULAR
ED TRIPOLITIC WITH NO
ROSITY, DULL YELLOW
INE

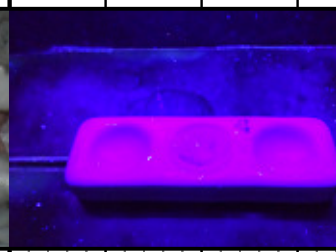
CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR
TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO
OIL-FILLED VUGS, NO DEAD OIL, POOR VUGULAR POROSITY, DULL YELLOW
FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANG
TO ANGULAR, 5% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH
OIL-FILLED VUGS, TRACE DEAD OIL, POOR VUGULAR POROSITY, DULL YE
FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

4070







8930' TRIP FOR MWD TOOL

WOB 12.6
RPM 82
SPP 2332
SPM 0/71

WOB 16.5
RPM 80
SPP 2234
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
0

45R
55R
20R

8900
8950
9000
9050
9100

200
TG
0

PUMP 2 SWEEPS

TG: 87 UNITS

FG: 51 UNITS

WT 8.7
VIS 29

FG: 54 UNITS

3970 TVD

: 8887'
C: 88.40°
M: 191.40°
D: 4031.16'
: 4904.02'

8730'
WT 8.40
VIS 28
PV 1
YP 3
FIL 99.0
SOL 1.3
pH 7.5
Cl 1.3K

MD: 8982'
INC: 88.70°
AZM: 192.10°
TVD: 4033.57'
VS: 4996.85'

MD: 9078'
INC: 88.80°
AZM: 192.20°
TVD: 4035.66'
VS: 5090.51'

4020

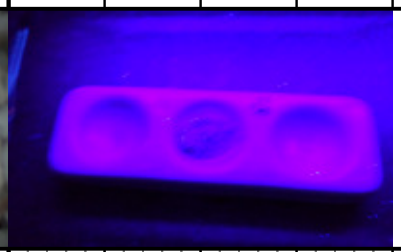
GULAR
NO
LLOW

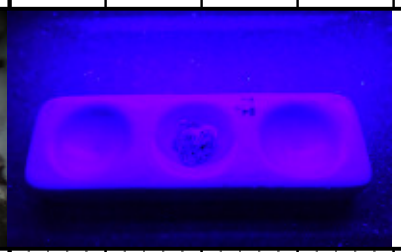
CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, INCREASE DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE SAMPLE LAGGED AFTER TRIP

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR TO ANGULAR, 5% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

4070







WOB 13.1
RPM 70
SPP 2205
SPM 0/70

5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 16.9
RPM 72
SPP 2230
SPM 0/71

10/25/1

10R

110R

9150 9200 9250 9300

200
TG
0

10 BBL SWEEP

OBG: 62 UNITS

FG: 61 UNITS

FG: 48 UNITS

MD: 9173'
INC: 91.20°
AZM: 191.40°
TVD: 4035.66'
VS: 5183.34'

3970 TVD

MD: 9268'
INC: 92.00°
AZM: 190.90°
TVD: 4033.01'
VS: 5276.36'

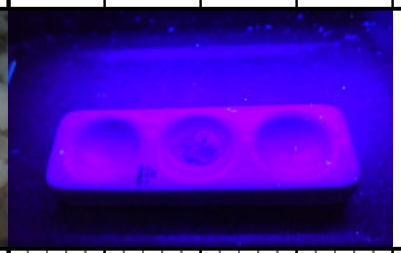
4020

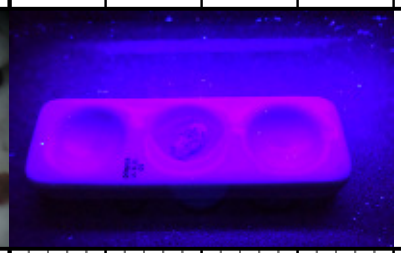
CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 40% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE
TO ANGULAR,
OIL-FILLED VU
CUT, CUTTING

4070




WOB 18.0
RPM 70
SPP 2289
SPM 0/71

5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 18.2
RPM 71
SPP 2207
SPM 0/71

140R

9350 9400 9450

200
TG
0

10 BBL SWEEP

FG: 54 UNITS

FG: 55 UNITS

FG: 57 UNITS

3970 TVD

MD: 9364'
INC: 91.60°
AZM: 191.80°
TVD: 4029.99'
VS: 5370.29'

MD: 9459'
INC: 90.10°
AZM: 192.00°
TVD: 4028.58'
VS: 5463.08'

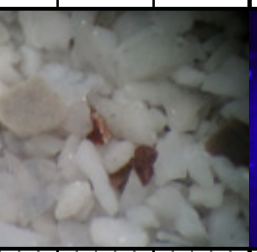
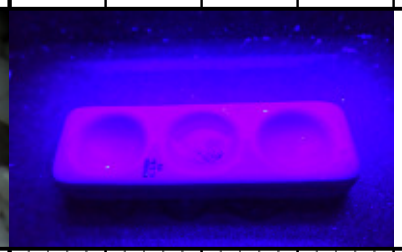
4020

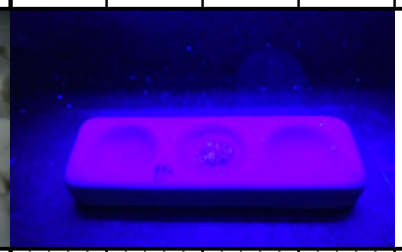
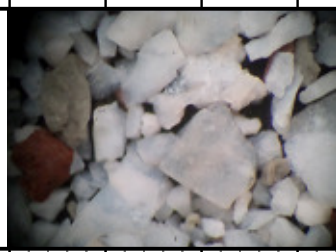
, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR
5% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO
UGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO
S FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR TO ANGULAR, 5% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQ
ANGULAR, 15% SPICULITE, SMOOTH T
OIL-FILLED VUGS, DEAD OIL, POOR V
YELLOW FLUORESCENCE, NO CUT, C

4070

WOB 17.9
RPM 73
SPP 2260
SPM 0/71

5
150
ROP (min/ft)
Gamma (API)
0
0

163R

WOB 20.4
RPM 77
SPP 2356
SPM 0/71

9550 | 9600 | 9650 | 9700 | 9750

200
TG
0

WT 8.5
VIS 26

FG: 61 UNITS

FG: 62 UNITS

3970 TVD

MD: 9554'
INC: 90.80°
AZM: 191.50°
TVD: 4027.84'
VS: 5555.93'

MD: 9650'
INC: 89.70°
AZM: 191.30°
TVD: 4027.42'
VS: 5649.88'

MD: 9745'
INC: 90.10°
AZM: 191.10°
TVD: 4027.58'
VS: 5742.92'

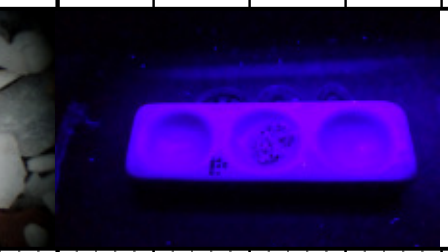
4020

UE, 40% SHARPLY ANGULAR TO
TO WEATHERED TRIPOLITIC WITH NO
'UGULAR POROSITY, MODERATE PAKE
UTTINGS FINE TO VERY FINE

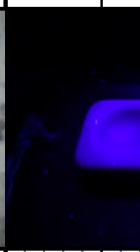
CHERT: WHITE, TRANSLUCENT, OPAQUE, 40% SHARPLY ANGULAR TO ANGULAR, 15% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER
TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERE
OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSI
FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FIN

4070







WOB 13.9
RPM 69
SPP 2308
SPM 0/71

5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 14.0
RPM 69
SPP 2323
SPM 0/72

WOB 10.6
RPM 71
SPP 2332
SPM 0/72

180

9800 9850 9900 9950

200
TG
0

WT 8.5
VIS 28
10

10 BBL SWEEP

FG: 64 UNITS
FG: 65 UNITS
FG: 68 UNITS

3970 TVD

MD: 9841'
INC: 90.20°
AZM: 192.00°
TVD: 4027.33'
VS: 5836.82'

MD: 9936'
INC: 90.50°
AZM: 191.70°
TVD: 4026.75'
VS: 5929.54'

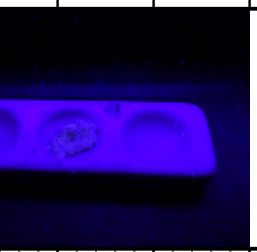
4020

, 30% SHARPLY ANGULAR
D TRIPOLITIC WITH NO
TY, MODERATE PALE
E

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 30% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, MODERATE PALE FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPO
WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE, ABUNDANT CA
DUE TO RUNNING SWEEPS

4070





5
150
ROP (min/ft)
Gamma (API)
0
0

WOB 14.2
RPM 77
SPP 2290
SPM 0/71

WOB 16.9
RPM 77
SPP 2300
SPM 0/70

5
150
ROP
Gam
0
0

10000 | 10050 | 10100 | 10150 | 10200

200
BBL SWEEP
TG
FG: 71 UNITS
0

10 BBL SWEEP
FG: 72 UNITS

10 BBL SWEEP
FG| 64 UNITS
TG
0

3970 TVD

MD: 10032'
INC: 88.30°
AZM: 192.20°
TVD: 4027.76'
VS: 6023.39'

10074'
WT 8.60
VIS 27
PV 2
YP 1
FIL 99.0
SOL 2.0
pH 7.5
Cl 1.7K

MD: 10127 '
INC: 88.40°
AZM: 192.10°
TVD: 4030.49'
VS: 6116.06'

3970

4020

4020

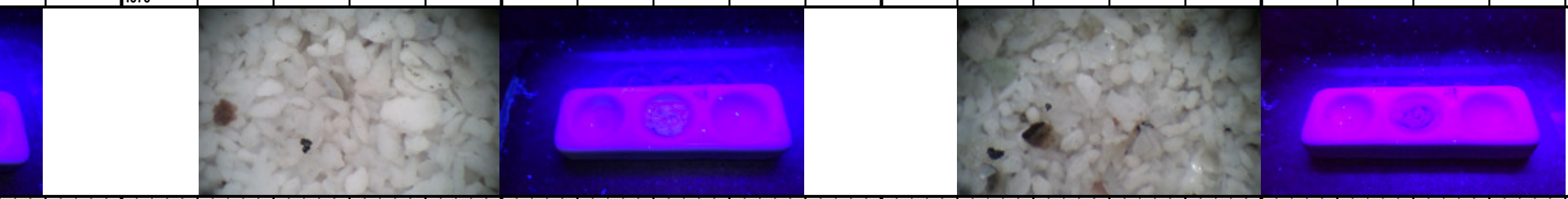
OLITIC
VINGS

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE, ABUNDANT CAVINGS DUE TO RUNNING SWEEPS

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE, ABUNDANT CAVINGS DUE TO RUNNING SWEEPS

4070

4070



WOB 10.8
RPM 61
SPP 2484
SPM 0/70

WOB 18.3
RPM 64
SPP 2376
SPM 0/71

(min/ft)
ma (API)

ROP (min/ft)
Gamma (API)

5
150
0
0

10 R

10250 | 10300 | 10350 | 10400

200
TG
0

FG: 65 UNITS

FG: 56 UNITS

FG: 54 UNITS

TVD

MD: 10223'
INC: 87.60°
AZM: 191.70°
TVD: 4033.84'
VS: 6209.78'

4000 TVD

MD: 10318'
INC: 87.50°
AZM: 191.10°
TVD: 4037.90'
VS: 6302.67'

4000 TVD

MD: 10414'
INC: 88.70°
AZM: 190.70°
TVD: 4041.09'
VS: 6396.74'

Scale Change
4050

4050

95% VARIEGATED SHALE
CAUGHT AROUND 6550' WHILE
WASHING AND REAMING OF
THE HOLE
5% CHERT

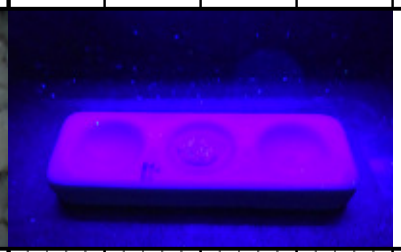
PRO
TO
MD
INC
AZI
TVD
VS:

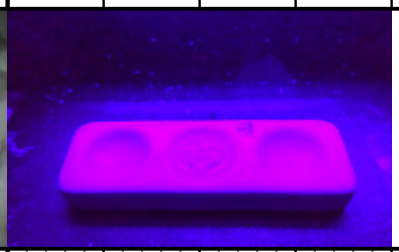
CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

CHERT: WHITE, TRANSLUCENT, OPAQUE, LIGHT AMBER, 20% SHARPLY ANGULAR TO ANGULAR, 10% SPICULITE, SMOOTH TO WEATHERED TRIPOLITIC WITH NO OIL-FILLED VUGS, DEAD OIL, POOR VUGULAR POROSITY, NO FLUORESCENCE, NO CUT, CUTTINGS FINE TO VERY FINE

4100

4100




10/26-31/17

10,455' NB #10, 6.125" HAL MM64DI, OB MADE
1745' IN 33.5 HOURS, GAMMA 36' & SURVEY
41' F/BIT, MOTOR BEND 1.5°

10450 10500 10550 10

SHALE FILLING HOLE WHILE
TRIPPING IN, WASH & REAM,
SWITCH TO CHEMICAL MUD

20 BBL SWEEP

2nd 20 BBL SWEEP

WASHED & REAMED TRYING TO CONDITION SHALE FOR FURTHER
DRILLING. SHALE WOULD NOT HEAL, RUN 4.5" CASING WITH
DIRECTIONAL BHA TO ORIENT CASING THROUGH THE SHALE SECTION

10455'	10455'
WT 8.40	WT 8.90
VIS 27	VIS 40
PV 2	PV 12
YP 1	YP 6
FIL 99.0	FIL 5.2
Sol 0.4	Sol 4.3
pH 7.5	pH 9.5
Cl 1.7K	Cl 1.0K

TD: 10,455' AT 2130 HOURS
ON OCTOBER 26, 2017

BOTTOM HOLE LOCATION:
1,597' FSL & 1,020' FEL SWNW
SEC. 21, T26S-R10W
RENO COUNTY, KANSAS

OJECTION
BIT:
: 10455'
: 88.7°
M: 190.7°
D: 4042.02'
6437.09'

POST JOB REPORT

Unit Petroleum

Intermediate Post Job Report

Geesling 16 1HXL

Reno KS

Quote #: | Execution #: LIB171071048

Unit Petroleum

Attention: Mr. Steven Garrison | (918) 493-7700 | steve.garrison@unitcorp.com

Unit Petroleum | 8200 South Unit Drive | Tulsa, OK 77046

Dear Mr. Steve Garrison,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,
Kevin Aldridge
Sales Engineer | (405) 423-6862 | kevin.aldridge@bjservices.com

Cement Job Summary

Job Number:	Lib1710171048	Job Purpose	08 Intermediate		
Customer:	UNIT PETROLEUM COMPANY			Date:	10/17/2017
Well Name:	Geesling 16	Number:	1HXL	API/UWI:	
County:	Reno	City:		State:	KS
Cust. Rep:		Phone:		Rig Phone:	
Legal Desc:				Rig Name:	Duke#20
Distance	50 miles (one way)			Supervisor	Victor Corona-Marta

Employees:	Emp. ID:	Employees:	Emp. ID:
Victor Corona-Marta		Gerardo Burciaga	
Jaime Torres			

Equipment:	
549-4/550-5	982-2
1080-4/553-5	

Well Information

Open Hole Section

Description:	Size (in):	Excess	Top MD (ft)	Btm MD (ft)	
OPEN HOLE	8 3/4	40%	4172	4,472	Tail Cement
OPEN HOLE	8 3/4	40%	3000	4,172	Lead Cement
OPEN HOLE	8 3/4			3,000	Lead Cement
OPEN HOLE	8 3/4				

Tubulars

Description:	Size (in):	Wgt. (lb/ft)	ID (in)	Grade:	Top MD (ft)	Btm MD (ft)
PREVIOUS CASING	9 5/8	36	8.921		0	1,570
TOTAL CASING	7	29	6.184		0	4,478
SHOE	7	29	6.184		4,441	4,478

Materials - Pumping Schedule

Fluid Name	Description	Rqstd Qty	Density	Yield	Water (gal/sk)
Spacer 1	HIVIS SWEEP	25	8.40	n/a	n/a
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Lead 1	BJ 50/50 POZ BLEND - CLASS H	150	13.60	1.44	6.77
Addl. Additive	**Description**	**Conc. (lb/sk)**	**Determined by**	**Load Volume**	**UOM**
CFL-210	FLUID LOSS ADDITIVE - LOW TEMP	0.336	% BWOC	50.4	lbm
CD-100	CEMENT DISPERSANT	0.084	% BWOC	12.6	lbm
CDF-100P	DEFOAMER - POWDER	0.168	% BWOC	25.2	lbm
CLC-KOL	KOL-SEAL	2	lb/sk	300.0	lbm
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Tail 1	CLASS H PREMIUM	100	15.60	1.18	5.19
Addl. Additive	**Description**	**Conc. (lb/sk)**	**Determined by**	**Load Volume**	**UOM**
CFL-210	FLUID LOSS ADDITIVE - LOW TEMP	0.376	% BWOC	37.6	lbm
CD-100	CEMENT DISPERSANT	0.094	% BWOC	9.4	lbm
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Disp. 1	Displacement	164.9594779	8.33	n/a	n/a

Job Number:	Lib1710171048	Job Purpose	08 Intermediate		
Customer:	UNIT PETROLEUM COMPANY			Date:	10/17/2017
Well Name:	Geesling 16	Number:	1HXL	API/UWI:	

Cement Job Summary

County:	Reno	City:		State:	KS
Cust. Rep:		Phone:		Rig Phone:	0
Distance	50 miles (one way)			Supervisor	Victor Corona-Marta

TIME	PRESSURE - (PSI)		FLUID PUMPED DATA		COMMENTS
AM/PM	CASING	ANNULUS	VOLUME	RATE (BPM)	
10/16/2017					DATE
					Arrived at location
					Casin crew was rigging up
					to rig
					Rig crew had good mud returns
0940am					Safety meeting with company man
					rig crew and BJ crew
0950am	2500				Pressure test lines to 2500psi
0952am	20		25	5	25bbls of HIVIS SWEEP Spacer
1000am	60		38	5	Lead cement 38bbls
					from 150sacks at 13.61lbs
1008am	100		21	5	Tail cement 21bbls
					from 100sacks at 15.61lbs
1016am					Drop plug/wash on top of plug
1017am					Start displacement bbls of H2O
1022am	0		20	6	20bbls gone
1025am	20		40	6	40bbls gone
1029am	20		60	6	60bbls gone
1032am	20		80	6	80bbls gone
1035am	30		100	6	100bbls gone
1038am	80		120	6	120bbls gone
1042am	180		140	5	140bbls gone
1045am	240		154	5	154bbls gone/slow down rate
1048am	950		164	3	Bump plug/check float
					Had good mud returns
					and 1 bbls on water returns
					Rig Down
					Crew and I thanked the company man
					and rig crew for job opportunity.

Customer:	UNIT PETROLEUM COMPANY
Date:	Tuesday, October 17, 2017
Well Name:	Geesling 16 # 1HXL
Well Location:	
Supervisor:	Victor Corona-Marta

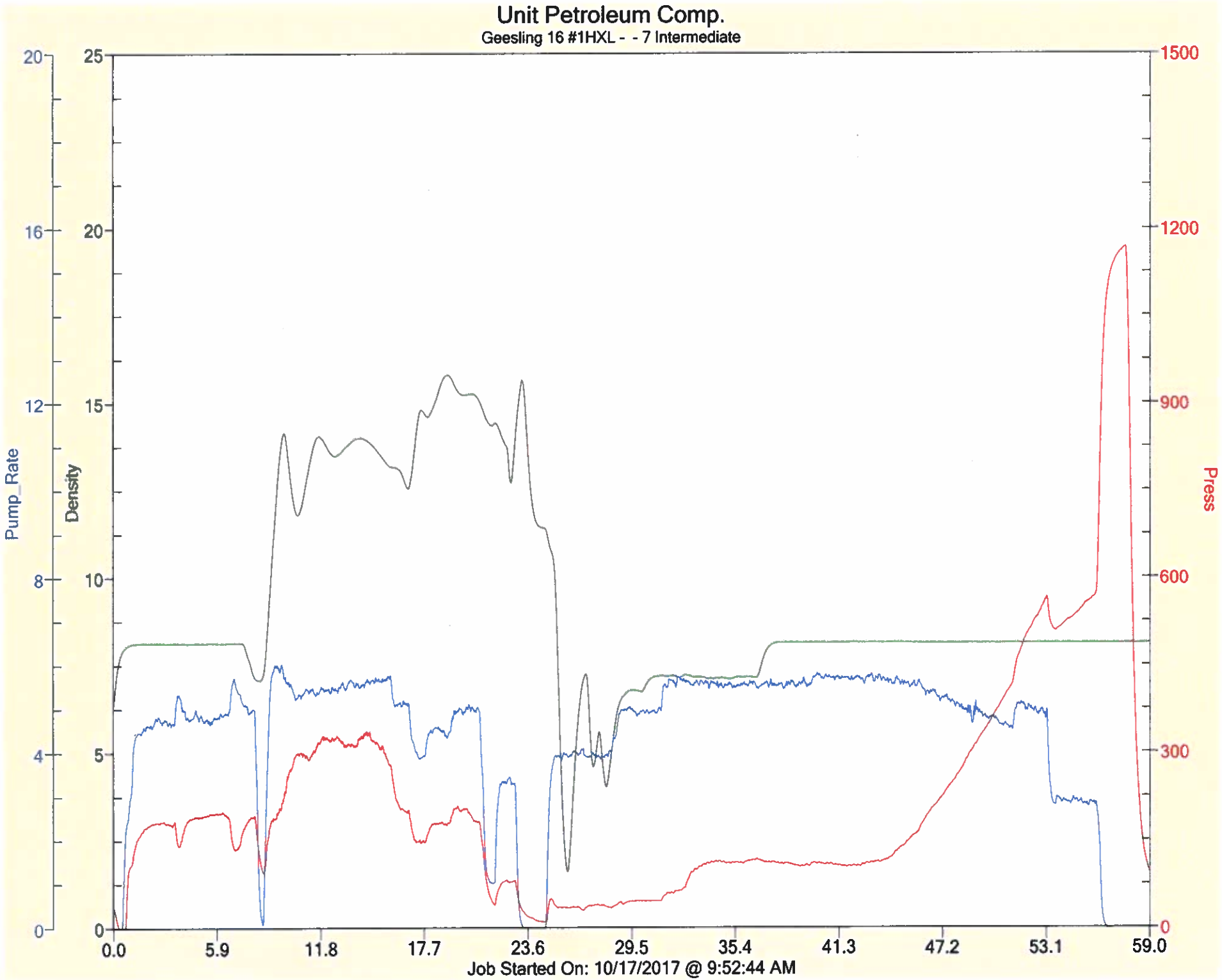
Equipment Operators: Victor Corona-Marta - Gerardo Burciaga - Jaime Torres

Performance	Customer	
Was the appearance of the personnel and equipment satisfactory?	Yes	No
Was the job performed in a professional manner?	Yes	No
Were the calculations prepared and explained properly?	Yes	No
Were the correct services dispatched to the job site?	Yes	No
Were the services performed as requested?	Yes	No
Did the job site environment remain unchanged?	Yes	No
Did the equipment perform in the manner expected?	Yes	No
Did the materials meet your expectations?	Yes	No
Was the crew prepared for the job?	Yes	No
Was the crew prompt in the rig-up and actual job?	Yes	No
Were reasonable recommendations given, as requested?	Yes	No
Did the crew perform safely?	Yes	No
Was the job performed to your satisfaction?	Yes	No

Customer Signature: Glen Mowdy Date: 10-17-17

Additional Comments:

Job well done


Unit Petroleum Comp.
Geesling 16 #1HXL - - 7 Intermediate
Pump_Rate
Density
Press
20
16
12
8
4
0
25
20
15
10
5
0
1500
1200
900
600
300
0
0.0
5.9
11.8
17.7
23.6
29.5
35.4
41.3
47.2
53.1
59.0
Job Started On: 10/17/2017 @ 9:52:44 AM

CEMENT MIXING WATER GUIDELINES

Company Name: **UNIT PETROLEUM COMPANY**

Lease Name: **Geesling 16 # 1HXL**

County: **Reno** State: **KS**

Water Source: **TANK**

Submitted By: **Victor Corona-Marta** Date: **10/17/2017**

pH Level	7	Must be less than 8.5
Sulfates	400	Must be less than 1,000 PPM
Chlorides	0	Must be less than 3,000 PPM
Temperature	64	

COMMENTS

Customer Signature

Thank You

POST JOB REPORT

Unit Petroleum

Liner Post Job Report

Geesling 16 1HXL

Reno KS

Quote #: N1N0X0 | Execution #: L6V6T302

Unit Petroleum

Attention: Mr. Steven Garrison | (918) 493-7700 | steve.garrison@unitcorp.com

Unit Petroleum | 8200 South Unit Drive | Tulsa, OK 77046

Dear Mr. Steve Garrison,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,
Kevin Aldridge
Sales Engineer | (405) 423-6862 | kevin.aldridge@bjservices.com

Cementing Treatment

Start Date	11/03/2017	**Well**	Geesling 16 1HXL
End Date	11/04/2017	**County**	
Client	UNIT PETROLEUM CO	**State/Province**	KS
Client Field Rep		**API**	15-155-21749-0100
Service Supervisor		**Formation**	
Field Ticket No.	Production Liner	**Rig**	
District	Liberal, KS	**Type of Job**	Liner

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Previous Casing	6.18	7.00	29.00	4,285.00	3,800.00			
Open Hole	6.13			5,800.00	3,915.00	10.00		
Drill Pipe	3.34	4.00	14.00	4,070.00	3,300.00			
Liner	3.92	4.50	13.60	5,800.00	3,915.00			

Shoe Length (ft): 84

HARDWARE

Bottom Plug Used?	No	**Tool Type**	Liner Hanger
Bottom Plug Provided By	Non BJ	**Tool Depth (ft)**	4,060.34
Bottom Plug Size	4.500	**Max Tubing Pressure - Rated (psi)**	
Top Plug Used?	Yes	**Max Tubing Pressure - Operated (psi)**	
Top Plug Provided By	Non BJ	**Max Casing Pressure - Rated (psi)**	12,410.00
Top Plug Size	4.000	**Max Casing Pressure - Operated (psi)**	9,928.00
Centralizers Used	No	**Pipe Movement**	
Centralizers Quantity		**Job Pumped Through**	Manifold
Centralizers Type		**Top Connection Thread**	LTC
Landing Collar Depth (ft)	5,716	**Top Connection Size**	4

CIRCULATION PRIOR TO JOB

Cementing Treatment

Well Circulated By	Rig	**Solids Present at End of Circulation**	No
Circulation Prior to Job	Yes	**10 sec SGS**	
Circulation Time (min)	30.00	**10 min SGS**	
Circulation Rate (bpm)	5.00	**30 min SGS**	
Circulation Volume (bbls)		**Flare Prior to/during the Cement Job**	No
Lost Circulation Prior to Cement Job	No	**Gas Present**	No
Mud Density In (ppg)		**Gas Units**	
Mud Density Out (ppg)			
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

TEMPERATURE

Ambient Temperature (°F)	37.00	**Slurry Cement Temperature (°F)**	58.00
Mix Water Temperature (°F)	50.00	**Flow Line Temperature (°F)**	62.00

BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	UltraFlush	8.4000					25.0000
Tail Slurry	Tail Cement	13.6000	1.6213	7.19	140	218.0000	38.8000
Displacement 1	Displacment ahead of plug	8.3300				0.0000	10.0000
Displacement 2	Liner Displacement	8.3300				0.0000	176.0000

Fluid Type	Fluid Name	Component	Concentration	UOM

Spacer / Pre Flush / Flush	UltraFlush	IntegraGuard ULTRA II	100.00	PCT
Tail Slurry	Tail Cement	CEMENT, CLASS H	50.00	PCT
Tail Slurry	Tail Cement	FL-52C, Fluid Loss Add (BJS Only)	0.50	BWOB
Tail Slurry	Tail Cement	SALT, Sodium Chloride, Medium	10.00	BWOW
Tail Slurry	Tail Cement	IntegraSeal KOL	3.00	LBS/SK
Tail Slurry	Tail Cement	IntegraSeal KOL	5.00	LBS/SK
Tail Slurry	Tail Cement	EXTENDER, BENTONITE	2.00	BWOB
Tail Slurry	Tail Cement	CSI-POZ	50.00	PCT
Tail Slurry	Tail Cement	CD-100	0.20	BWOB
Tail Slurry	Tail Cement	CEMENT EXTENDER, GYPSUM, A-10	5.00	BWOB
Tail Slurry	Tail Cement	FOAM PREVENTER, FP-11	0.20	LBS/SK
Tail Slurry	Tail Cement	IntegraSeal CELLO	0.25	LBS/SK
Displacement 1	Displacment ahead of plug	Fresh Water	100.00	PCT
Displacement 1	Displacment ahead of plug	CR-1000	50.00	LBS

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
	UltraFlush	6.00	25.00			
	Tail Cement	6.00	38.80			
	Displacment ahead of plug	6.00	10.00			
	Liner Displacement	5.00	176.00			

	Min	Max	Avg
Pressure (psi)	0.00	4,000.00	650.00
Rate (bpm)	3.50	6.00	5.00

DISPLACEMENT AND END OF JOB SUMMARY

Cementing Treatment

Displaced By	BJ	**Amount of Cement Returned/Reversed**	10.00
Calculated Displacement Volume (bbls)	68.00	**Method Used to Verify Returns**	Visual
Actual Displacement Volume (bbls)	68.00	**Amount of Spacer to Surface**	
Did Float Hold?	Yes	**Pressure Left on Casing (psi)**	
Bump Plug	Yes	**Amount Bled Back After Job**	0.50
Bump Plug Pressure (psi)	2,000.00	**Total Volume Pumped (bbls)**	363.00
Were Returned Planned at Surface	No	**Top Out Cement Spotted**	No
Cement returns During Job	None	**Lost Circulation During Cement Job**	No

CEMENT PLUG

Bottom of Cement Plug?	No	**Wiper Balls Used?**	No
Wiper Ball Quantity		**Plug Catcher**	Yes
Number of Plugs			

SQUEEZE

Injection Rate (bpm)	**Fluid Density (ppg)**
Injection Pressure (psi)	**ISIP (psi)**
Type of Squeeze	**FSIP (psi)**
Operators Max SQ Pressure (psi)	

COMMENTS

Treatment Report

Job Summary

Cementing Treatment

25bbls HIVIS SWEEP
38bbls Tail cement
shut down wash up to pit
pump 2bbls sugar water
drop the plug
pump 8bbs of sugar water behind plug and continue with displacement
68bbls of displacement pumped including the 8bbls of sugar water
set packer put 500PSI to release liner to reverse out
92bbls to reverse out
1000Psi to test against the annular rams

Customer Name Unit Petroleum Company
Well Name Geesling 16 1HXL
Job Type Liner

District Liberal
Supervisor Hector Esqueda
Engineer Kevin A.

Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	11/3/2017 5:00	Mobilization	Callout		1					
2	11/3/2017 10:00	Mobilization	Arrive on Location		48					
3	11/3/2017 10:05	Operational	Spot Units	Cement Pump Truck	49					
4	11/3/2017 10:10	Operational	Rig Up	Cement Pump Truck	50					
5	11/3/2017 10:45	Operational	Prime Up	Cement Pump Truck	52					
6	11/3/2017 13:30	Downtime	Equipment Issue		77					Baker Hughes Liner could not be set for that they are brigging another one from Oklahoma City and its Going to take a few Hours before we start with cement.
7	11/4/2017 2:40	Operational	Rig Up		50					rig up iron to the baker hughes head
8	11/4/2017 2:51	Operational	Safety Meeting		53					Hold Steacs Meeting
9	11/4/2017 3:03	Operational		Cement Pump Truck						start mixing the HIVIS SWEEP spacer into tanks
10	11/4/2017 3:14	Operational	Pressure Test	Cement Pump Truck	54				4000	
11	11/4/2017 3:22	Operational	Pump Spacer	Cement Pump Truck	56		5	25	700	
12	11/4/2017 3:27	Operational	Pump Tail Cement	Cement Pump Truck	60	13.6	6	40	700	
13	11/4/2017 3:37	Operational		Cement Pump Truck						shut down wash up to the pit
14	11/4/2017 3:51	Operational		Cement Pump Truck						Baker hughes dropped his plug
15	11/4/2017 3:53	Operational	Drop Top Plug		63					
16	11/4/2017 3:54	Operational	Pump Displacement	Cement Pump Truck	64		5.3	68	100	start with 8bbls of sugar water after plug and continue on with displacement customers orders
17	11/4/2017 3:56	Operational	Pump Displacement	Cement Pump Truck	64		5.5	10	110	10bbls gone
18	11/4/2017 3:57	Operational	Pump Displacement	Cement Pump Truck	64		4.9	20	420	20bbls gone
19	11/4/2017 4:00	Operational	Pump Displacement	Cement Pump Truck	64		4.2	30	550	30bbls gone
20	11/4/2017 4:03	Operational	Pump Displacement	Cement Pump Truck	64		3	41	2800	41bbls gone drilling pipe sheared casing plug @ 2800 PSI
21	11/4/2017 4:05	Operational	Pump Displacement	Cement Pump Truck	64		5	50	750	50bbls gone
22	11/4/2017 4:07	Operational	Pump Displacement	Cement Pump Truck	64		3.5	58	890	58bbls gone slow down rate to 3.5bpm to land the plug
23	11/4/2017 4:09	Operational	Land Plug	Cement Pump Truck	67			68	2000	landed plug @ 2000PSI final circulating pressure was 1000PSI hold pressure for a few minutes to make sure that the floats are holding
24	11/4/2017 4:11	Operational	Check Floats		68					got 1/2 bbl back to the tank
25	11/4/2017 4:14	Operational	3rd Party Operational		90					baker hughes is going to set the packer so we can start pumping to reverse out
26	11/4/2017 4:16	Operational	Other (See comments)	Cement Pump Truck	76		7.2	96	870	start reversing out do not exceed 2000PSI baker hughes hand orders
27	11/4/2017 4:21	Operational	Other (See comments)	Cement Pump Truck	76		9	40	1150	40bbls gone
28	11/4/2017 4:27	Operational	End Pumping		69			96		shut down pumped 96 bbls of water we reversed out all the HIVIS SWEEP and about 10bbls of cement. Baker Hughes gave me the information

Customer Name Unit Petroleum Company
Well Name Geesling 16 1HXL
Job Type Liner

District Liberal
Supervisor Hector Esqueda
Engineer Kevin A.

Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
29	11/4/2017 4:31	Operational		Cement Pump Truck					1000	have the rig crew close in the annular rams to test the liner watch pressure for a few minutes and release pressure
30	11/4/2017 4:36	Operational	Safety Meeting		53					Hold AAR meeting
31	11/4/2017 4:50	Operational	Rig Down		73					
32	11/4/2017 6:00	Mobilization	Leave Location		74					Thank You

Customer:	UNIT PETROLEUM COMPANY
Date:	Tuesday, October 3, 2017
Well Name:	Geesling 16 # 1HXL
Well Location:	
Supervisor:	Hector Esqueda

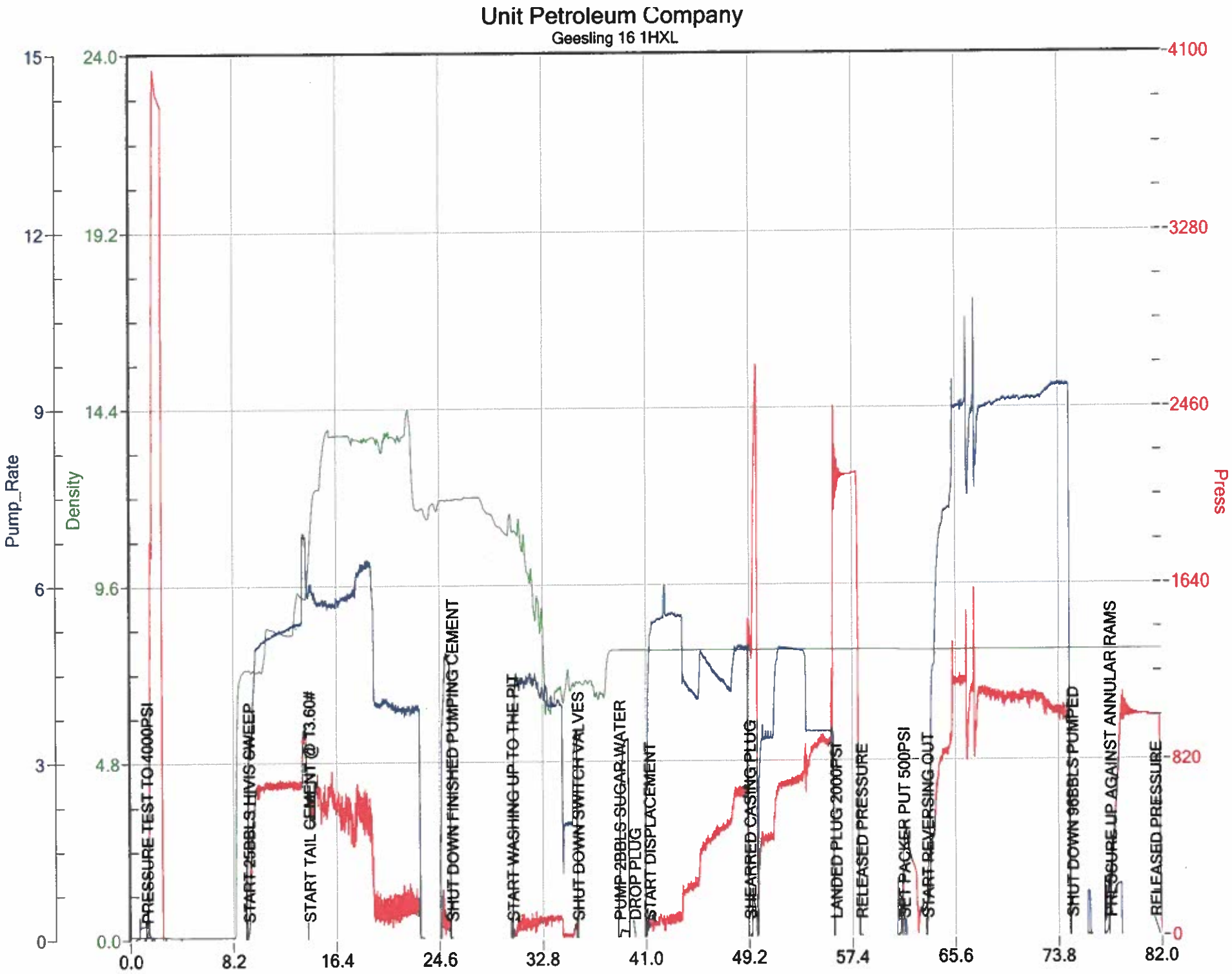
Equipment Operators: Hector Esqueda, Gabriel Mendoza, and Alejandro Ayala

Performance	Customer	
Was the appearance of the personnel and equipment satisfactory?	Yes	No
Was the job performed in a professional manner?	Yes	No
Were the calculations prepared and explained properly?	Yes	No
Were the correct services dispatched to the job site?	Yes	No
Were the services performed as requested?	Yes	No
Did the job site environment remain unchanged?	Yes	No
Did the equipment perform in the manner expected?	Yes	No
Did the materials meet your expectations?	Yes	No
Was the crew prepared for the job?	Yes	No
Was the crew prompt in the rig-up and actual job?	Yes	No
Were reasonable recommendations given, as requested?	Yes	No
Did the crew perform safely?	Yes	No
Was the job performed to your satisfaction?	Yes	No

Customer Signature:

Date: 11-4-17

Additional Comments: Job well done


Unit Petroleum Company
Geesling 16 1HXL
Pump_Rate
Density
Press
15
12
9
6
3
0
24.0
19.2
14.4
9.6
4.8
0.0
4100
3280
2460
1640
820
0
0.0
8.2
16.4
24.6
32.8
41.0
49.2
57.4
65.6
73.8
82.0
PRESSURE TEST TO 4000PSI
START 25BBLS HIVIS SWEEP
START TAIL CEMENT @ 13.60#
SHUT DOWN FINISHED PUMPING CEMENT
START WASHING UP TO THE PIT
SHUT DOWN SWITCH VALVES
PUMP 2BBLS SUGAR WATER
DROP PLUG
START DISPLACEMENT
SHEARRED CASING PLUG
LANDED PLUG 2000PSI
RELEASED PRESSURE
SET PACKER PUT 500PSI
START REVERSING OUT
SHUT DOWN 96BBLS PUMPED
PRESSURE UP AGAINST ANNULAR RAMS
RELEASED PRESSURE

CEMENT MIXING WATER GUIDELINES

Company Name: **UNIT PETROLEUM COMPANY**

Lease Name: **Geesling 16 # 1HXL**

County: **Reno** State: **KS**

Water Source: **TANK**

Submitted By: **Hector Esqueda** Date: **10/3/2017**

pH Level	7	Must be less than 8.5
Sulfates	400	Must be less than 1,000 PPM
Chlorides	0	Must be less than 3,000 PPM
Temperature	64	

COMMENTS

Customer Signature

Thank You

POST JOB REPORT

Unit Petroleum

Plug Post Job Report

Geesling 16 1HXL

Reno KS

Quote #: | Execution #: LIB1710120940

Unit Petroleum

Attention: Mr. Steven Garrison | (918) 493-7700 | steve.garrison@unitcorp.com

Unit Petroleum | 8200 South Unit Drive | Tulsa, OK 77046

Dear Mr. Steve Garrison,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,
Kevin Aldridge
Sales Engineer | (405) 423-6862 | kevin.aldridge@bjservices.com

Cement Job Summary

Job Number:	LIB1710120940	Job Purpose	03 Plug		
Customer:	UNIT PETROLEUM COMPANY			Date:	10/12/2017
Well Name:	Geesling 16		Number: 1HXL	API/UWI:	
County:	Reno	City:		State:	KS
Cust. Rep:	Glenn Monday	Phone:		Rig Phone:	
Legal Desc:				Rig Name:	Duke#20
Distance	50 miles (one way)			Supervisor	James Peppin

Employees:	Emp. ID:	Employees:	Emp. ID:
James Peppin		Calos Ibarra	
Jaime Torrs			

Equipment:	
549-4 / 550	955-4 / 553-5

Well Information

Open Hole Section

OPEN HOLE	8 3/4	15%	2800	3,500		
OPEN HOLE	8 3/4			2,800		

Tubulars

PREVIOUS CASING	9 5/8	36	8.921		0	1,570
TUBING/DRILL PIPE	4	14	3.34		0	3,500

Materials - Pumping Schedule

STAGE #1

Fluid Name	Description	Rqstd Qty	Density	Yield	Water (gal/sk)
Spacer 1	HIVIS SWEEP	50	8.40	n/a	n/a
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Lead 1	CLASS H PREMIUM	50	16.99	1.01	3.83
Addl. Additive	**Description**	**Conc. (lb/sk)**	**Determined by**	**Load Volume**	**UOM**
CD-100	CEMENT DISPERSANT	0.705	% BWOC	35.3	lbm
CDF-100P	DEFOAMER - POWDER	0.2	lb/sk	10.0	lbm
CA-200	SODIUM CHLORIDE	1.595195	% BWOW	79.8	lbm
Disp. 4	Displacement	37.92626114	8.80	n/a	n/a

Job Number:	LIB1710120940	Job Purpose	03 Plug		
Customer:	UNIT PETROLEUM COMPANY			Date:	10/12/2017
Well Name:	Geesling 16		Number: 1HXL	API/UWI:	
County:	Reno	City:		State:	KS
Cust. Rep:	Glenn Monday	Phone:		Rig Phone:	0
Distance	50 miles (one way)			Supervisor	James Peppin

TIME	PRESSURE - (PSI)		FLUID PUMPED DATA		COMMENTS
AM/PM	CASING	ANNULUS	VOLUME	RATE (BPM)	
530 am					left the yard
745 am					arrived on loc and spoted trucks
850					safety meeting
900	1000				test lines
904	200		40	3	pump HIVIS Sweep
919	180		60	3	cmt slurry @ 17 # 334 sks
937	50		10	3	pump HIVIS Sweep
939	70		19	3	pump drilling mud
					shut down and rig started pulling DP
					rig down and the crew and I thank the

Cement Job Summary

					customer for the job

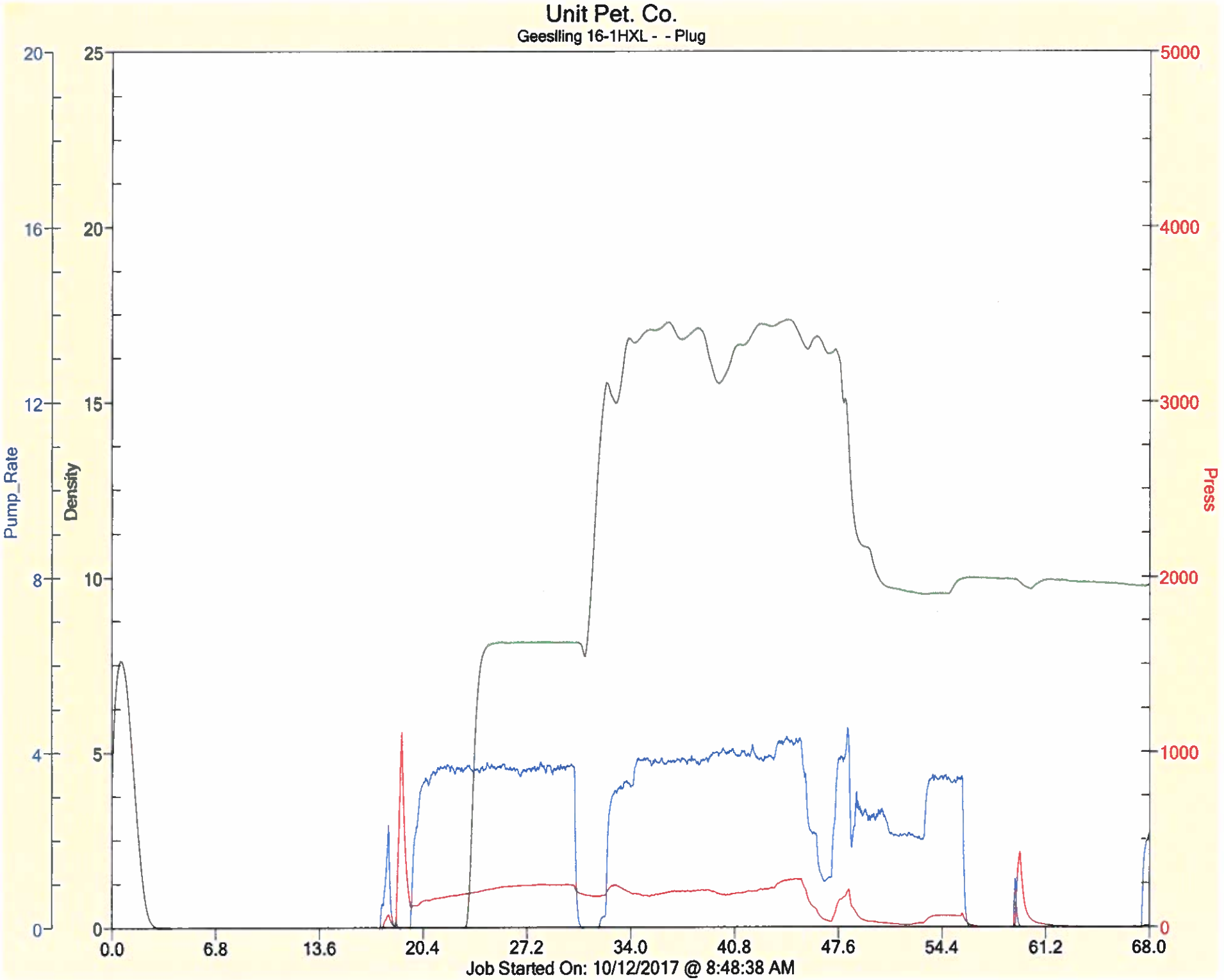
Customer:	UNIT PETROLEUM COMPANY
Date:	Thursday, October 12, 2017
Well Name:	Geesling 16 # 1HXL
Well Location:	
Supervisor:	James Peppin

Equipment Operators: James Peppin - Calos Ibarra - Jaime Torrs

Performance	Customer	
Was the appearance of the personnel and equipment satisfactory?	Yes	No
Was the job performed in a professional manner?	Yes	No
Were the calculations prepared and explained properly?	Yes	No
Were the correct services dispatched to the job site?	Yes	No
Were the services performed as requested?	Yes	No
Did the job site environment remain unchanged?	Yes	No
Did the equipment perform in the manner expected?	Yes	No
Did the materials meet your expectations?	Yes	No
Was the crew prepared for the job?	Yes	No
Was the crew prompt in the rig-up and actual job?	Yes	No
Were reasonable recommendations given, as requested?	Yes	No
Did the crew perform safely?	Yes	No
Was the job performed to your satisfaction?	Yes	No

Customer Signature: Glen Murday Date: 10-12-17

Additional Comments: Job well done


Unit Pet. Co.
Geeslling 16-1HXL - - Plug
Pump_Rate
Density
Press
20
16
12
8
4
0
25
20
15
10
5
0
5000
4000
3000
2000
1000
0
0.0
6.8
13.6
20.4
27.2
34.0
40.8
47.6
54.4
61.2
68.0
Job Started On: 10/12/2017 @ 8:48:38 AM

CEMENT MIXING WATER GUIDELINES

Company Name: **UNIT PETROLEUM COMPANY**

Lease Name: **Geesling 16 # 1HXL**

County: **Reno** State: **KS**

Water Source: **TANK**

Submitted By: **James Peppin** Date: **10/12/2017**

pH Level	7	Must be less than 8.5
Sulfates	400	Must be less than 1,000 PPM
Chlorides	0	Must be less than 3,000 PPM
Temperature	64	

COMMENTS

Customer Signature

Thank You

POST JOB REPORT

Unit Petroleum

Surface Post Job Report

Geesling 16 1HXL

Reno KS

Quote #: | Execution #: AP80017

Unit Petroleum

Attention: Mr. Steven Garrison | (918) 493-7700 | steve.garrison@unitcorp.com

Unit Petroleum | 8200 South Unit Drive | Tulsa, OK 77046

Dear Mr. Steve Garrison,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,
Kevin Aldridge
Sales Engineer | (405) 423-6862 | kevin.aldridge@bjservices.com

Cement Job Summary

Job Number:	Lib1710080017	Job Purpose	01 Surface		
Customer:	UNIT PETROLEUM COMPANY			Date:	10/7/2017
Well Name:	Geesling 16		Number: 1HXL	API/UWI:	
County:	Reno	City:		State:	KS
Cust. Rep:		Phone:		Rig Phone:	
Legal Desc:				Rig Name:	Duke#20
Distance	50 miles (one way)			Supervisor	

Employees:	Emp. ID:	Employees:	Emp. ID:
Hector Esqueda		Gabriel Mendoza	
Alejandro Ayala		Gerardo Burceaga	

Equipment:	
1080-4-469	993-4-1066-5
705-4-1081-4	1039-2

Well Information

Open Hole Section

Description:	Size (in):	Excess	Top MD (ft)	Btm MD (ft)	
OPEN HOLE	12 1/4	150%	1220	1,512	Tail Cement
OPEN HOLE	12 1/4	150%	145	1,220	Lead Cement
OPEN HOLE	12 1/4			145	Lead Cement
OPEN HOLE	12 1/4				

Tubulars

Description:	Size (in):	Wgt. (lb/ft)	ID (in)	Grade:	Top MD (ft)	Btm MD (ft)
PREVIOUS CASING	16	65	15.25		0	145
TOTAL CASING	9 5/8	36	8.921		0	1,516
SHOE	9 5/8	36	8.921		1,474	1,516

Materials - Pumping Schedule

Fluid Name	Description	Rqstd Qty	Density	Yield	Water (gal/sk)
Spacer 1	FRESH WATER	10	8.33	n/a	n/a
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Lead 1	BJ LIGHT WEIGHT CEMENT - CLASS C	510	12.70	1.88	10.06
Addl. Additive	**Description**	**Conc. (lb/sk)**	**Determined by**	**Load Volume**	**UOM**
CA-100	CALCIUM CHLORIDE, PELLETS OR FLAKE	1.74	% BWOC	887.4	lbm
CDF-100P	DEFOAMER - POWDER	0.174	% BWOC	88.7	lbm
CLC-CPF	CELLOPHANE FLAKES	0.25	lb/sk	127.5	lbm
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Tail 1	CLASS C PREMIUM PLUS	245	15.60	1.20	5.23
Addl. Additive	**Description**	**Conc. (lb/sk)**	**Determined by**	**Load Volume**	**UOM**
CA-100	CALCIUM CHLORIDE, PELLETS OR FLAKE	1.88	% BWOC	460.6	lbm
CLC-CPF	CELLOPHANE FLAKES	0.25	lb/sk	61.3	lbm
Fluid Name	**Description**	**Rqstd Qty**	**Density**	**Yield**	**Water (gal/sk)**
Disp. 1	Displacement	113.9726994	8.33	n/a	n/a

Job Number:	Lib1710080017	Job Purpose	01 Surface		
Customer:	UNIT PETROLEUM COMPANY			Date:	10/7/2017
Well Name:	Geesling 16		Number: 1HXL	API/UWI:	
County:	Reno	City:		State:	KS

Cement Job Summary

Cust. Rep:			Phone:		Rig Phone:	0
Distance	50 miles (one way)				Supervisor	Hector Esqueda

TIME	PRESSURE - (PSI)		FLUID PUMPED DATA		COMMENTS
AM/PM	CASING	ANNULUS	VOLUME	RATE (BPM)	
17:30					arrived to location
					waiting on casing crew to run pipe
21:45					spot trucks and rig up iron
22:15					prime up
22:30					Hold STEACS meeting
22:56	3600				pressure test the lines to 3600PSI
22:59	160		10	6	start pumping the 10bbl spacer of water
23:00	230		170	6	start mixing the lead cement @ 12.70#
23:03	340		19	8.1	19bbls gone
23:33	250		52	8.1	start mixing the tail cement @ 15.60#
23:50					shut down (drop the plug) wash up
23:53	30		113	2.6	start the 113bbl displacement
					10/8/2017
0:02	160		40	7	40bbls gone
0:05	210		60	6.6	60bbls gone
0:08	300		80	6	80bbls gone
0:12	380		100	5.3	100bbls gone
0:13	350		103	3	103bbls gone slow rate down to 3bpm
					to land the plug
0:17	950		113		landed plug @ 950PSI
					check floats
					got 1/2bbl back to the tank
					circulated 125bbls of cement to surface
					hold AAR meeting
					rig down released from location @ 0130
					thank you

Customer:	UNIT PETROLEUM COMPANY
Date:	Saturday, October 07, 2017
Well Name:	Geesling 16 # 1HXL
Well Location:	Turon,KS
Supervisor:	Hector Esqueda

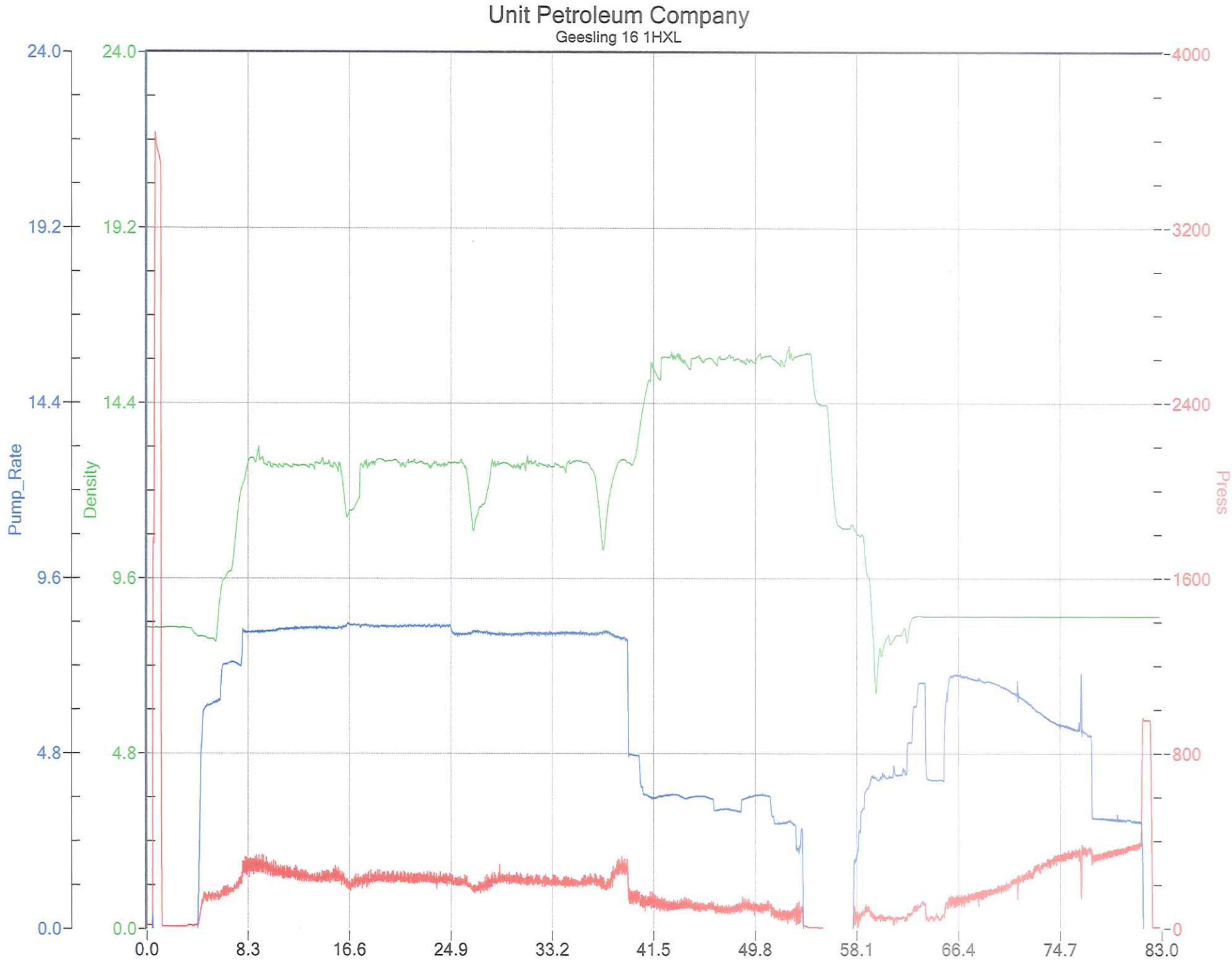
Equipment Operators: Hector Esqueda - Gabriel Mendoza - Alejandro Ayala - Gerardo Burceaga

Performance	Customer	
Was the appearance of the personnel and equipment satisfactory?	Yes	No
Was the job performed in a professional manner?	Yes	No
Were the calculations prepared and explained properly?	Yes	No
Were the correct services dispatched to the job site?	Yes	No
Were the services performed as requested?	Yes	No
Did the job site environment remain unchanged?	Yes	No
Did the equipment perform in the manner expected?	Yes	No
Did the materials meet your expectations?	Yes	No
Was the crew prepared for the job?	Yes	No
Was the crew prompt in the rig-up and actual job?	Yes	No
Were reasonable recommendations given, as requested?	Yes	No
Did the crew perform safely?	Yes	No
Was the job performed to your satisfaction?	Yes	No

Customer Signature: Glen Monday Date: 10-8-17

Additional Comments:

Job Well Done


Unit Petroleum Company
Geesling 16 1HXL
Pump_Rate
Density
Press
24.0
19.2
14.4
9.6
4.8
0.0
4000
3200
2400
1600
800
0
0.0
8.3
16.6
24.9
33.2
41.5
49.8
58.1
66.4
74.7
83.0

CEMENT MIXING WATER GUIDELINES

Company Name: UNIT PETROLEUM COMPANY

Lease Name: Geesling 16 # 1HXL

County: Reno State: KS

Water Source: TANK

Submitted By: Hector Esqueda Date: 10/7/2017

pH Level	7	Must be less than 8.5
Sulfates	400	Must be less than 1,000 PPM
Chlorides	0	Must be less than 3,000 PPM
Temperature	64	

COMMENTS

Customer Signature

Thank You

DRILL STEM TESTING - DATA LISTING

TRILOBITE TESTING, INC.

Unit Petroleum Co

8200 South Unit Drive
Tulsa Ok 74132

ATTN: AlexVandenburgSteveG

16-26s-10w Reno

Geesling 16#1HXL

Job Ticket: 63088 **DST#: 1**

Test Start: 2017.10.11 @ 20:50:41

Serial # 8360 **Inside**				**Serial # 8360** **Inside**			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	0.0	-0.17	68.6		104.2	768.17	93.0
	0.5	-0.20	68.9		105.7	801.99	93.3
	1.0	-0.23	69.3		107.2	816.57	93.3
	1.5	-0.29	71.3		108.7	868.39	93.7
	11.9	-0.43	59.0		110.2	917.54	94.3
	62.2	93.33	88.1		111.7	970.99	95.2
	63.7	92.99	88.1		113.2	1003.78	95.9
	65.2	92.99	88.1		114.7	978.61	96.8
	66.7	94.00	88.0		116.2	1062.72	97.7
	68.2	93.07	88.0		117.7	1112.53	98.5
	69.7	92.89	88.0		119.2	1177.26	99.1
	71.2	92.81	88.0		120.7	1227.24	99.6
	72.7	92.72	87.9		122.2	1206.44	100.4
	74.2	92.68	87.9		123.7	1258.13	101.2
	75.7	92.64	87.9		125.2	1307.70	102.2
	77.2	92.65	87.8		126.7	1377.87	103.0
	78.7	92.72	87.8		128.2	1430.11	103.9
	80.2	89.26	87.8		129.7	1454.61	104.8
	81.7	94.90	88.0		131.2	1454.35	105.7
	83.2	144.70	87.6		132.7	1503.93	106.8
	84.7	143.63	87.3		134.2	1462.59	106.7
	86.2	144.21	87.3		135.7	1555.24	107.4
	87.7	193.34	87.9		137.2	1549.62	107.8
	89.2	241.88	88.5		138.7	1615.84	108.1
	90.7	291.11	89.2		140.2	1596.66	108.6
	92.2	358.71	90.4		141.7	1650.01	109.7
	93.7	388.85	91.0		143.2	1698.34	110.0
	95.2	466.65	91.7		144.7	1782.28	110.1
	96.7	537.41	92.2		146.2	1743.06	111.4
	98.2	582.81	92.7		147.7	1822.18	112.0
	99.7	630.44	92.7		149.2	1921.91	112.4
	101.2	677.90	92.8		150.7	1875.14	121.8
	102.7	726.67	92.9		152.2	1923.64	122.9

Printing every 6 samples

Serial # 8360 Inside				Serial # 8360 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	153.7	1949.28	123.4		200.4	147.96	130.6
	155.2	1945.90	125.2		201.9	149.11	130.6
	156.7	1994.84	126.3		203.4	150.39	130.6
	158.2	2120.35	126.5		204.9	151.69	130.6
	159.7	2049.01	127.9		206.4	152.33	130.7
	161.2	2139.05	128.8		207.9	153.16	130.6
	162.7	2084.70	129.4		209.4	154.31	130.6
	164.2	2080.60	129.4		210.9	155.28	130.7
	165.7	2075.06	129.3		211.2	156.57	130.7
	167.2	2068.41	129.3		211.4	162.60	130.7
	168.7	2061.29	129.3	Shut-In(1)	211.7	166.70	130.7
	170.2	2130.24	129.5		211.9	171.12	130.7
	171.7	2099.56	129.9		212.2	176.27	130.7
	173.2	2091.08	129.7		212.4	181.77	130.7
	174.7	2071.35	129.7		213.9	224.02	130.7
	176.2	2063.11	129.7		215.4	288.94	130.7
	177.7	2057.79	129.7		216.9	383.96	130.7
	179.2	2053.69	129.7		218.4	500.95	130.7
	180.7	2064.20	129.7		219.9	623.78	130.8
	181.2	2060.44	129.7		221.4	740.91	130.8
	181.4	2058.82	129.7		222.9	846.34	130.8
Initial Hydro-static	181.7	2057.47	129.7		224.4	937.72	130.9
	181.9	2056.23	129.7		225.9	1015.46	130.9
	182.2	2055.17	129.7		227.4	1080.72	130.9
	182.4	2144.75	129.7		228.9	1135.05	130.9
	183.9	2131.76	130.4		230.4	1180.12	130.9
	184.2	2122.07	130.4		231.9	1217.23	130.9
	184.4	120.19	129.7		233.4	1247.85	130.9
Open To Flow (1)	184.7	118.82	129.9		234.9	1273.04	130.9
	184.9	118.86	129.9		236.4	1293.72	130.9
	185.2	119.37	129.9		237.9	1310.89	130.9
	185.4	119.58	129.9		239.4	1324.85	130.9
	186.9	123.40	129.9		240.9	1338.28	130.9
	188.4	125.55	130.0		242.4	1348.02	130.9
	189.9	127.73	130.1		243.9	1355.52	130.9
	191.4	129.86	130.2		245.4	1362.85	130.9
	192.9	131.85	130.3		246.9	1368.64	130.9
	194.4	133.75	130.4		248.4	1374.01	130.9
	195.9	172.54	130.5		249.9	1378.41	130.9
	197.4	145.23	130.5		251.4	1382.49	130.9
	198.9	148.11	130.5		252.9	1385.39	130.9

Printing every 6 samples

Serial # 8360 Inside				Serial # 8360 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	254.4	1388.62	130.9	Shut-In(2)	301.9	224.89	130.9
	255.9	1390.99	130.9		302.2	229.51	130.9
	257.4	1393.05	130.9		302.4	229.55	130.9
	258.9	1395.39	130.9		302.7	231.39	130.9
	260.4	1397.36	130.9		304.2	283.43	130.9
	261.9	1399.10	130.9		305.7	361.38	131.0
	263.4	1401.02	130.9		307.2	459.24	131.0
	264.9	1402.65	130.9		308.7	567.54	131.0
	266.4	1404.32	130.9		310.2	676.04	131.0
	267.9	1405.55	130.9		311.7	777.87	131.0
	269.4	1406.83	130.9		313.2	869.91	131.1
	270.9	1407.98	130.9		314.7	950.39	131.1
	271.7	1408.70	130.9		316.2	1019.45	131.1
	271.9	1408.80	130.9		317.7	1078.01	131.1
End Shut-In(1)	272.2	1408.89	130.9		319.2	1127.05	131.1
	272.4	1407.97	130.9		320.7	1167.94	131.1
	272.7	409.01	130.3		322.2	1201.87	131.2
Open To Flow (2)	272.9	173.83	130.5		323.7	1230.10	131.2
	273.2	172.13	130.6		325.2	1253.52	131.2
	273.4	174.80	130.6		326.7	1273.11	131.2
	273.7	186.63	130.6		328.2	1289.30	131.2
	275.2	173.13	130.6		329.7	1302.87	131.2
	276.7	170.77	130.6		331.2	1314.25	131.2
	278.2	172.14	130.7		332.7	1323.87	131.1
	279.7	174.51	130.7		334.2	1332.03	131.1
	281.2	181.40	130.7		335.7	1339.01	131.1
	282.7	176.39	130.8		337.2	1344.94	131.1
	284.2	182.01	130.8		338.7	1350.23	131.1
	285.7	181.11	130.8		340.2	1354.69	131.1
	287.2	195.99	130.8		341.7	1358.80	131.1
	288.7	180.80	130.8		343.2	1362.37	131.1
	290.2	200.29	130.8		344.7	1365.87	131.1
	291.7	232.35	130.8		346.2	1368.53	131.1
	293.2	193.08	130.9		347.7	1370.97	131.1
	294.7	202.50	130.9		349.2	1373.31	131.1
	296.2	189.10	130.9		350.7	1375.30	131.1
	297.7	192.96	130.9		352.2	1377.17	131.1
	299.2	218.70	130.9		353.7	1378.89	131.1
	300.7	242.58	130.9		355.2	1380.46	131.1
	301.4	216.65	130.9		356.7	1381.86	131.1
	301.7	224.07	130.9		358.2	1383.15	131.1

Printing every 6 samples

Serial # 8360 Inside				Serial # 8360 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	359.7	1384.36	131.1		407.7	1600.81	128.1
	361.2	1385.57	131.1		409.2	1555.24	128.1
	362.7	1386.50	131.1		410.7	1542.91	126.6
	364.2	1387.61	131.1		412.2	1503.74	126.4
	365.7	1388.55	131.1		413.7	1492.12	125.6
	367.2	1366.49	131.1		415.2	1489.64	125.0
	367.7	1370.88	131.1		416.7	1456.59	125.4
	367.9	1372.63	131.1		418.2	1408.88	125.2
End Shut-In(2)	368.2	1374.09	131.1		419.7	1359.83	123.6
	368.4	1925.26	131.4		421.2	1298.19	124.1
	368.7	1986.67	131.2		422.7	1261.95	124.6
	368.9	1849.01	131.2		424.2	1191.79	121.2
	370.4	1845.26	131.2		425.7	1134.72	122.4
	371.9	2027.01	131.2		427.2	1116.11	120.8
	373.4	2086.90	131.2		428.7	1064.50	120.8
	374.9	2049.61	131.2		430.2	1014.25	120.0
	376.4	2031.75	131.2		431.7	963.83	118.5
	376.7	2030.93	131.2		433.2	868.58	116.7
Final Hydro-static	376.9	2030.95	131.2		434.7	794.36	116.0
	377.2	2031.34	131.2		436.2	772.75	113.9
	377.4	2031.66	131.2		437.7	724.57	106.6
	377.7	2031.79	131.2		439.2	637.66	100.8
	379.2	2030.65	131.1		440.7	589.19	95.1
	380.7	2054.76	131.1		442.2	532.68	92.4
	382.2	1982.68	131.0		443.7	453.23	90.5
	383.7	2008.63	131.0		445.2	386.88	88.1
	385.2	1990.67	131.0		446.7	339.09	86.3
	386.7	1919.97	130.9		448.2	237.90	84.6
	388.2	1941.82	130.9		449.7	188.57	83.4
	389.7	1921.97	130.8		451.2	142.77	82.5
	391.2	1895.25	130.8		452.7	141.76	82.4
	392.7	1866.31	130.6		454.2	79.66	82.1
	394.2	1770.46	130.5		455.7	79.49	82.1
	395.7	1807.55	130.4		457.2	77.03	82.0
	397.2	1755.76	130.1		458.7	76.97	82.0
	398.7	1661.21	129.9		460.2	77.36	82.1
	400.2	1730.73	129.7		461.7	76.54	82.1
	401.7	1728.59	129.3		463.2	76.44	82.1
	403.2	1715.93	129.1		464.7	76.37	82.1
	404.7	1600.86	128.1		466.2	76.26	82.1
	406.2	1642.38	127.2		467.7	76.16	82.1

Printing every 6 samples

Serial # 8360 Inside				Serial # 8360 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	469.2	76.06	82.1		530.7	-0.65	54.2
	470.7	75.98	82.1				
	472.2	75.92	82.1				
	473.7	73.88	82.1				
	475.2	73.58	82.0				
	476.7	72.99	82.0				
	478.2	72.89	82.0				
	479.7	72.83	82.0				
	481.2	72.80	82.0				
	482.7	72.78	82.0				
	484.2	70.05	82.0				
	485.7	67.24	82.0				
	487.2	72.64	82.0				
	488.7	72.68	81.9				
	490.2	69.42	81.9				
	491.7	60.91	81.9				
	493.2	58.06	81.9				
	494.7	57.17	81.9				
	496.2	57.29	81.9				
	497.7	57.07	81.9				
	499.2	56.44	81.9				
	500.7	56.36	81.9				
	502.2	56.33	81.8				
	503.7	56.26	81.8				
	505.2	38.97	81.8				
	506.7	36.54	81.8				
	508.2	20.55	81.7				
	509.7	2.16	81.4				
	511.2	2.42	81.4				
	512.7	0.01	80.9				
	514.2	-0.04	80.9				
	515.7	-0.17	78.0				
	517.2	-0.36	70.2				
	518.7	-0.49	62.5				
	520.2	-0.53	59.6				
	521.7	-0.54	57.7				
	523.2	-0.53	56.2				
	524.7	-0.54	55.1				
	526.2	-0.59	54.2				
	527.7	-0.68	53.5				
	529.2	-0.56	54.1				

Printing every 6 samples

DRILL STEM TEST REPORT

Unit Petroleum Co

8200 South Unit Drive
Tulsa Ok 74132

ATTN: AlexVandenburgSteveG

16-26s-10w Reno

Geesling 16#1HXL

Job Ticket: 63088 **DST#: 1**

Test Start: 2017.10.11 @ 20:50:41

GENERAL INFORMATION:

Formation: **Miss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:55:21
Time Test Ended: 05:41:21

Test Type: Conventional Bottom Hole (Initial)
Tester: Ray Schwager
Unit No: 77

Interval: 3944.00 ft (KB) To 4160.00 ft (KB) (TVD)
Total Depth: 4160.00 ft (KB) (TVD)
Hole Diameter: 8.75 inches Hole Condition: Fair

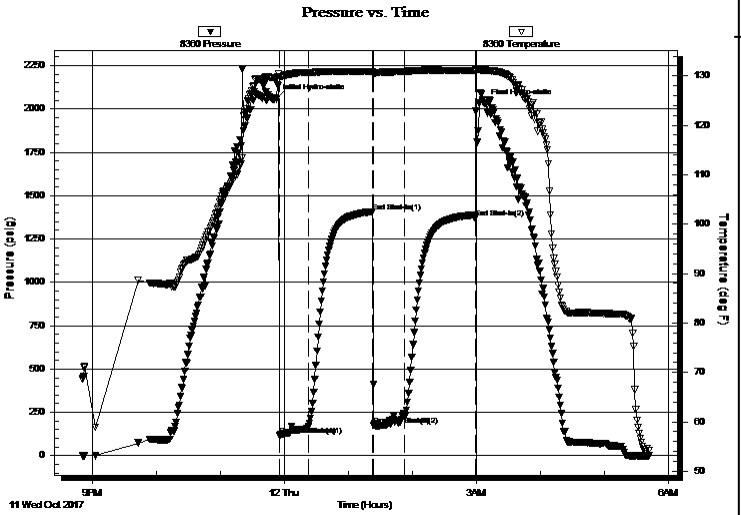
Reference Elevations: 1754.00 ft (KB)
1738.00 ft (CF)
KB to GR/CF: 16.00 ft

Serial #: 8360 **Inside**

Press@RunDepth: 224.89 psig @ 3947.00 ft (KB)
Start Date: 2017.10.11 End Date: 2017.10.12
Start Time: 20:50:41 End Time: 05:41:21

Capacity: 8000.00 psig
Last Calib.: 2017.10.12
Time On Btm: 2017.10.11 @ 23:52:21
Time Off Btm: 2017.10.12 @ 03:07:35

TEST COMMENT: 30-IFP-no bl
60-ISIP-no bl
30-FFP-no bl
60-FSIP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2057.47	129.66	Initial Hydro-static
3	118.82	129.91	Open To Flow (1)
30	166.70	130.67	Shut-In(1)
91	1408.89	130.88	End Shut-In(1)
92	173.83	130.53	Open To Flow (2)
121	224.89	130.92	Shut-In(2)
187	1374.09	131.08	End Shut-In(2)
196	2030.95	131.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
150.00	Mud	1.63

Gas Rates

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

DRILL STEM TEST REPORT

Unit Petroleum Co

8200 South Unit Drive
Tulsa Ok 74132

ATTN: AlexVandenburgSteveG

16-26s-10w Reno

Geesling 16#1HXL

Job Ticket: 63088 **DST#: 1**

Test Start: 2017.10.11 @ 20:50:41

GENERAL INFORMATION:

Formation: **Miss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:55:21
Time Test Ended: 05:41:21

Test Type: Conventional Bottom Hole (Initial)
Tester: Ray Schwager
Unit No: 77

Interval: 3944.00 ft (KB) To 4160.00 ft (KB) (TVD)
Total Depth: 4160.00 ft (KB) (TVD)
Hole Diameter: 8.75 inches Hole Condition: Fair

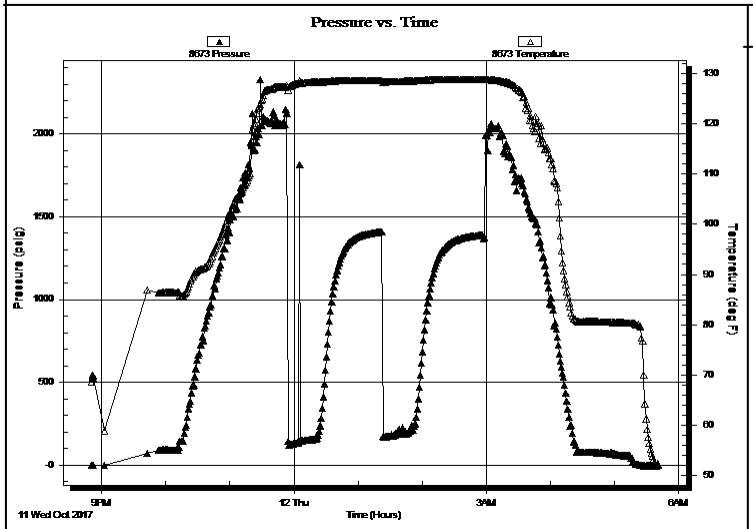
Reference Elevations: 1754.00 ft (KB)
1738.00 ft (CF)
KB to GR/CF: 16.00 ft

Serial #: 8673 **Outside**

Press@RunDepth: psig @ 3947.00 ft (KB)
Start Date: 2017.10.11 End Date: 2017.10.12
Start Time: 20:50:41 End Time: 05:40:36

Capacity: 8000.00 psig
Last Calib.: 2017.10.12
Time On Btm:
Time Off Btm:

TEST COMMENT: 30-IFP-no bl
60-ISIP-no bl
30-FFP-no bl
60-FSIP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
150.00	Mud	1.63

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Unit Petroleum Co

8200 South Unit Drive
Tulsa Ok 74132

ATTN: AlexVandenburgSteveG

16-26s-10w Reno

Geesling 16#1HXL

Job Ticket: 63088 **DST#: 1**

Test Start: 2017.10.11 @ 20:50:41

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.40 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4300.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
150.00	Mud	1.626

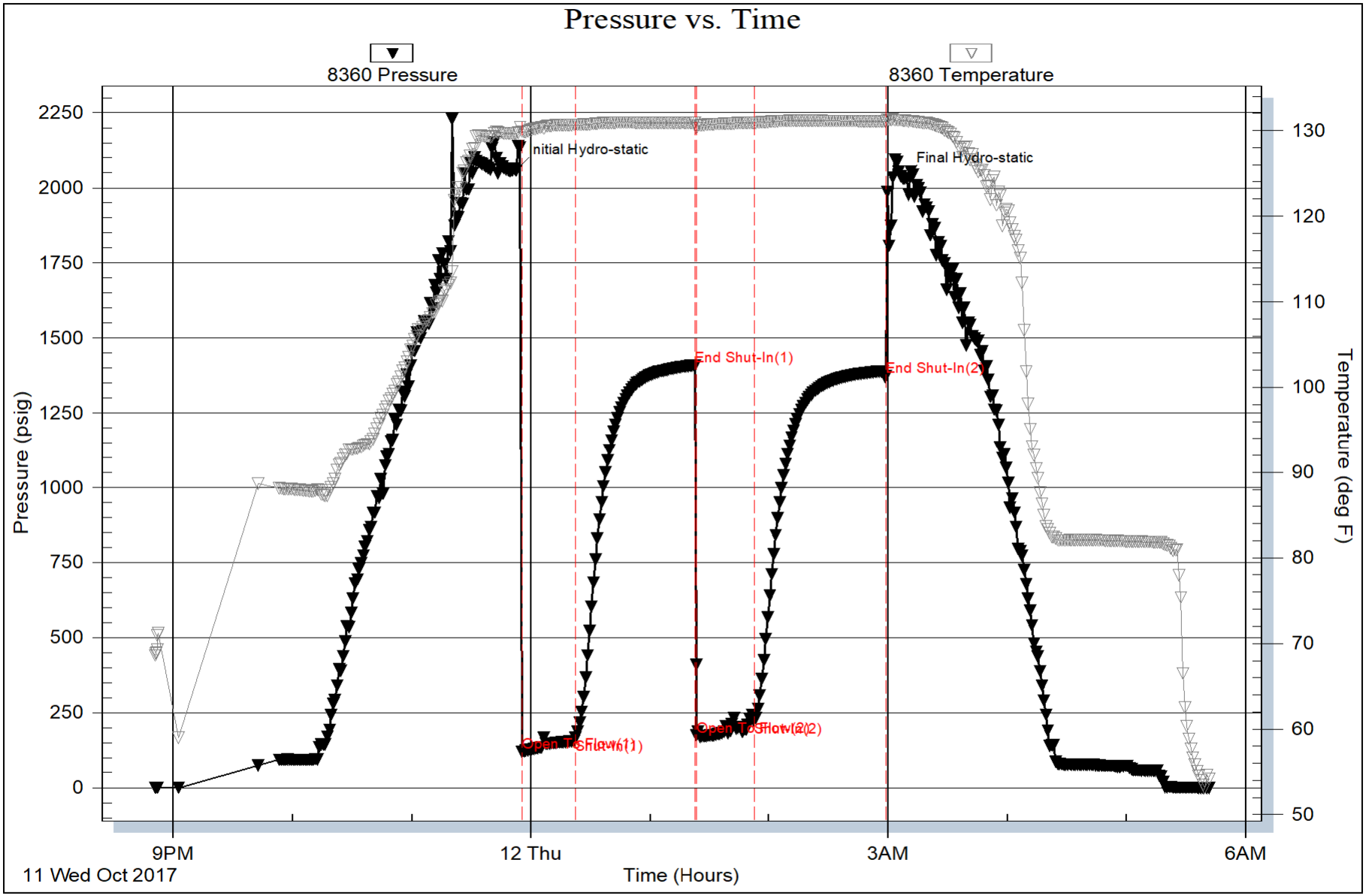
Total Length: 150.00 ft Total Volume: 1.626 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

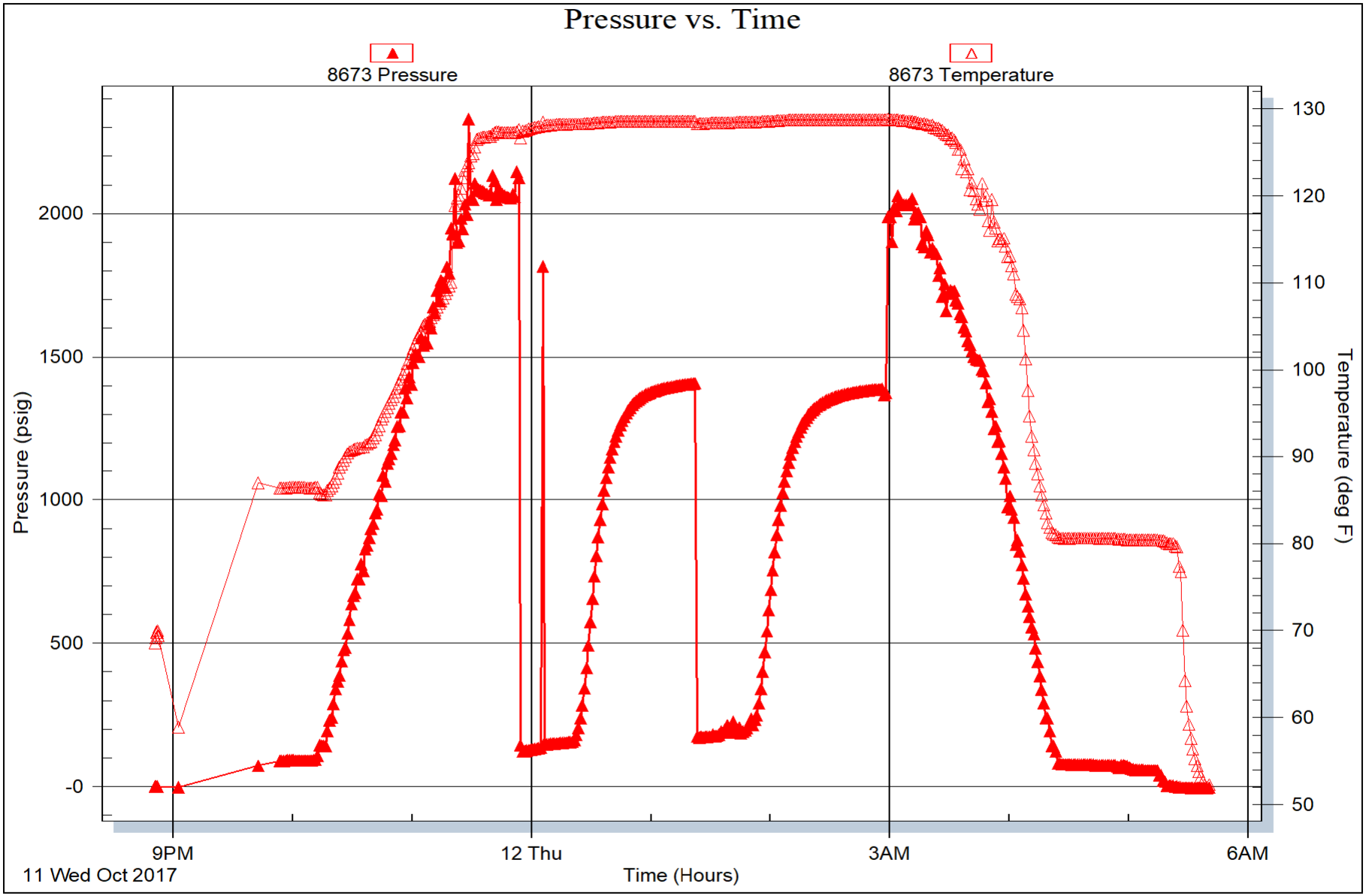
Recovery Comments: Flushed tool 1st open

Serial #: 8360 **Inside** Unit Petroleum Co Geesling 16#1HXL DST Test Number: 1



Trilobite Testing, Inc Ref. No: 63088 Printed: 2017.10.12 @ 08:08:36

Serial #: 8673 **Outside** Unit Petroleum Co Geesling 16#1HXL DST Test Number: 1



Trilobite Testing, Inc Ref. No: 63088 Printed: 2017.10.12 @ 08:08:36

March 28, 2018

Bottom Hole Survey Summary

Well Name: Geesling 16 #1HXL
Location: Sec. 16-26S-10W
County/State: Reno Co., KS
Formation: Mississippian

Location Information

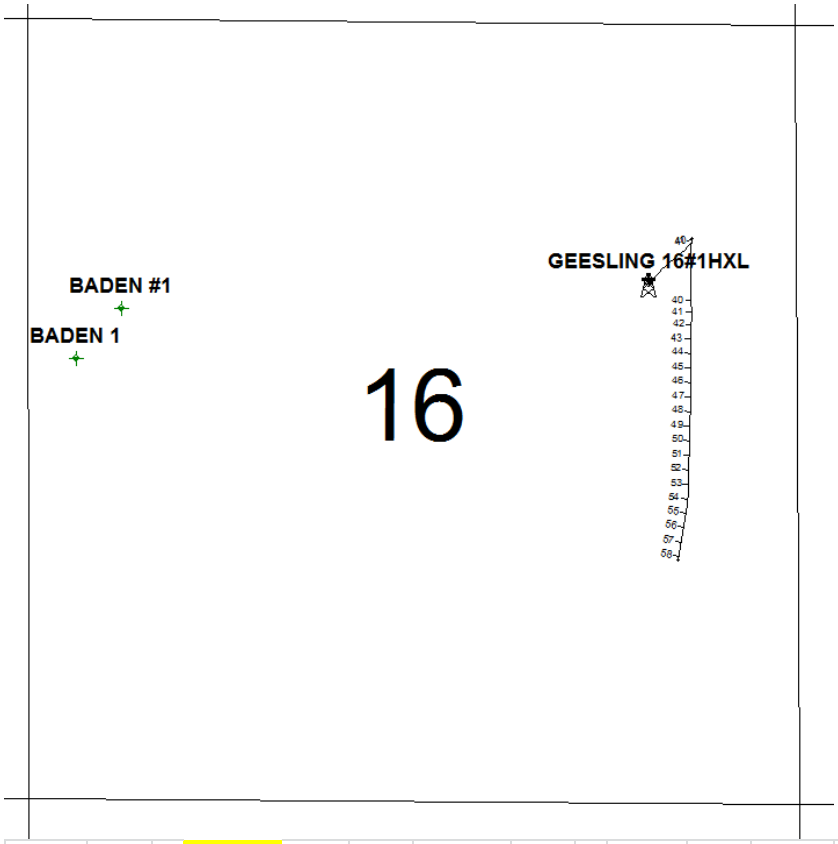
Surface: 1,780’ FNL & 1,020’ FEL of Sec 16
First Perf: 2,354’ FNL & 721’ FEL of Sec 16 (3,990’ TVD /4,498’ MD)
Last Perf: 1,669’ FSL & 827’ FEL of Sec 16 (3,970’ TVD / 5,800’ MD)
Lateral Length: 1,302’

Completion Information

Plug and Perf

Map: (Next Page)

March 28, 2018



input
output

y2 - y1 = (57) ft
ROC = -0.0108 per ft

5,298

x 1= 1,332,857
y 1= 1,721,802

x2 = 1,338,155
y2 = 1,721,745

FNL
POP 2,354
x = 1,337,437
y = 1,719,399
721
FEL

(7) ft
-0.0013 per ft
5,342

x2 -x3 = (35) ft
ROC = -0.0066 per ft
5,316

FEL
TOE 827
x = 1,337,352
y = 1,718,103
1,669
FSL

x4 = 1,332,864
y4 = 1,716,460

x3 = 1,338,190
y3 = 1,716,429

5,326

y3 - y4 = -31 ft
ROC = -0.0058 per ft

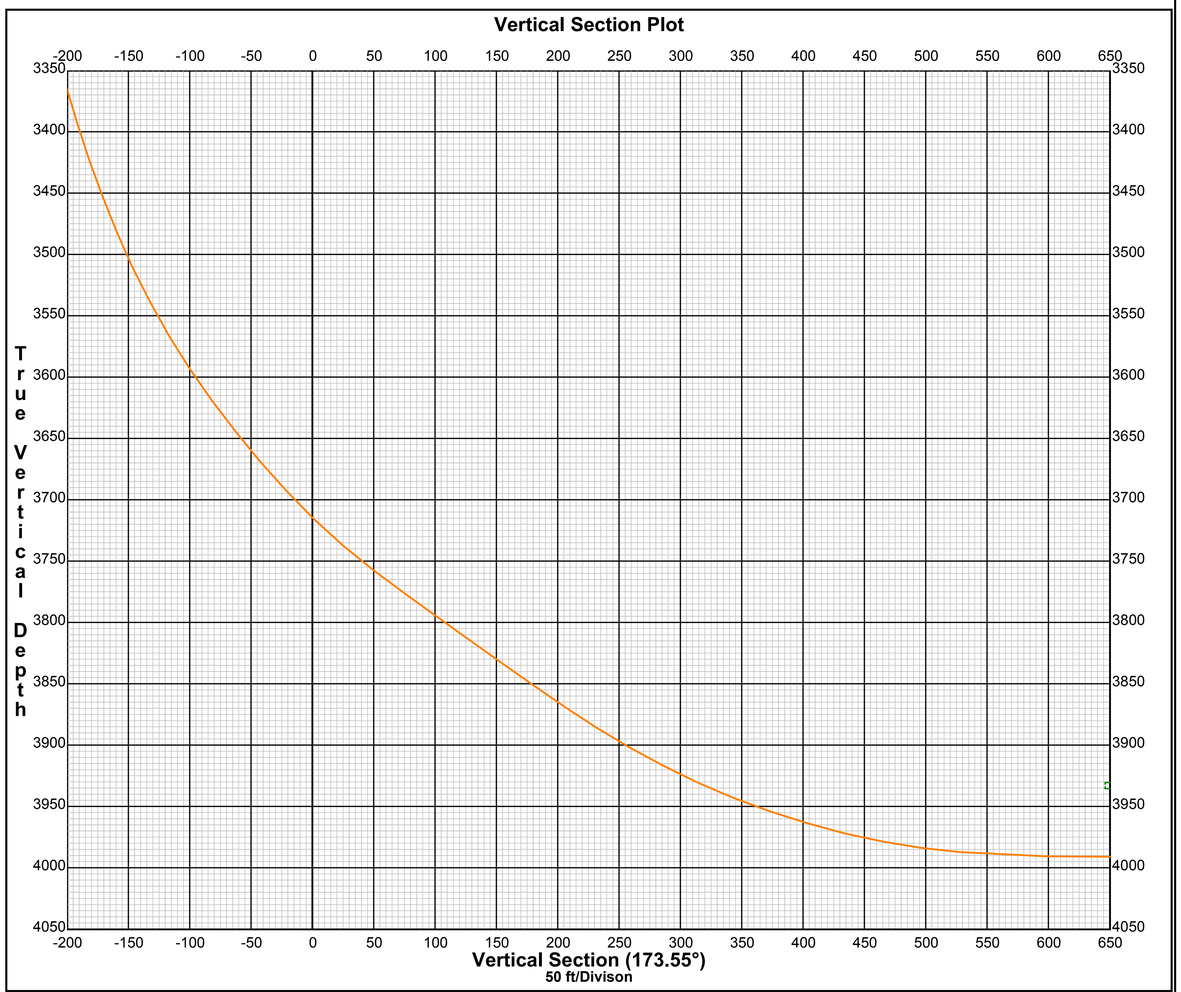
Alex VandenBorn
Petroleum Geologist
Unit Petroleum

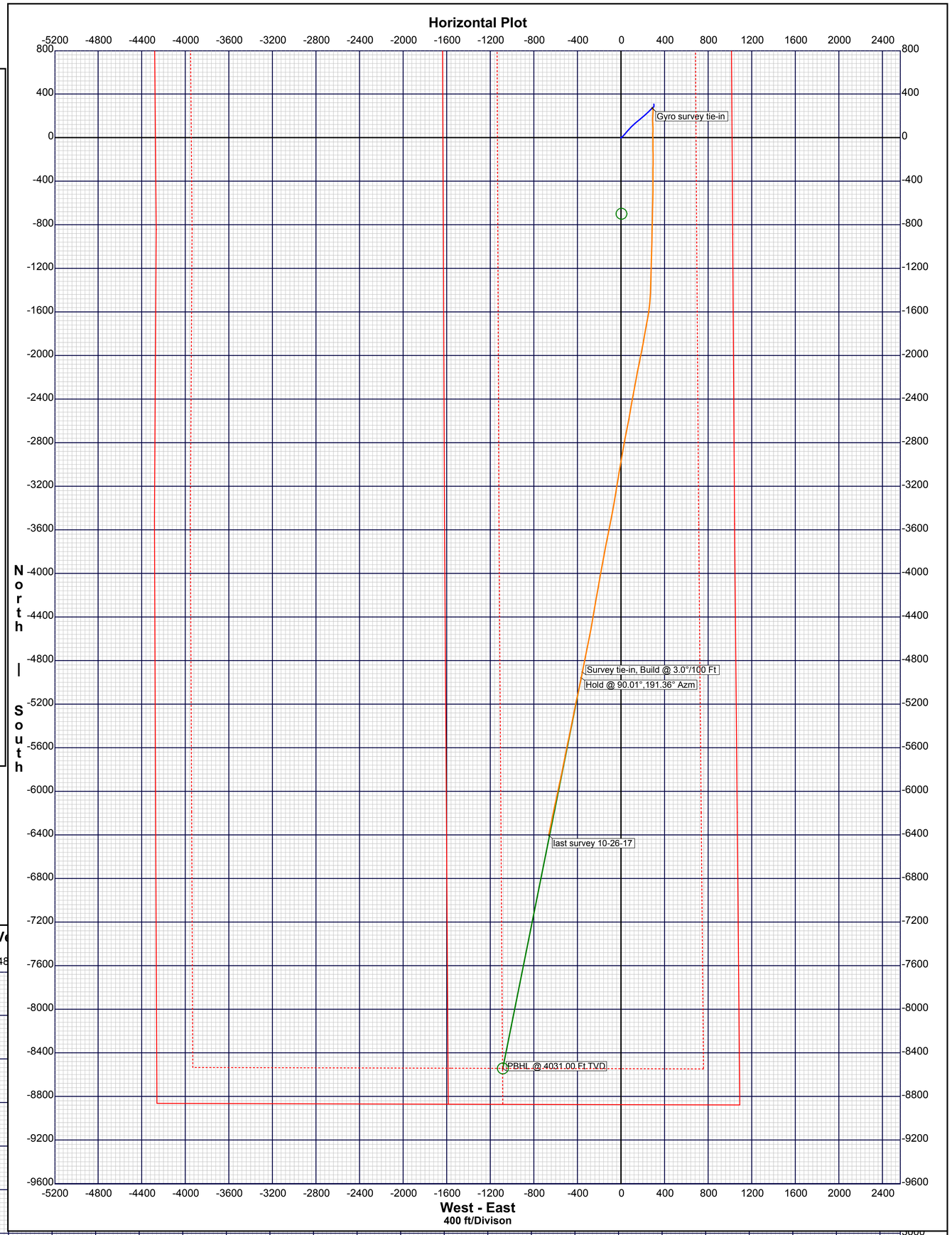
Job ID : 17060
Company : Unit Petroleum Co.
Lease/Well : Gesling 16 #1HXL
Location : Reno County, KS
Rig Name : Duke #20

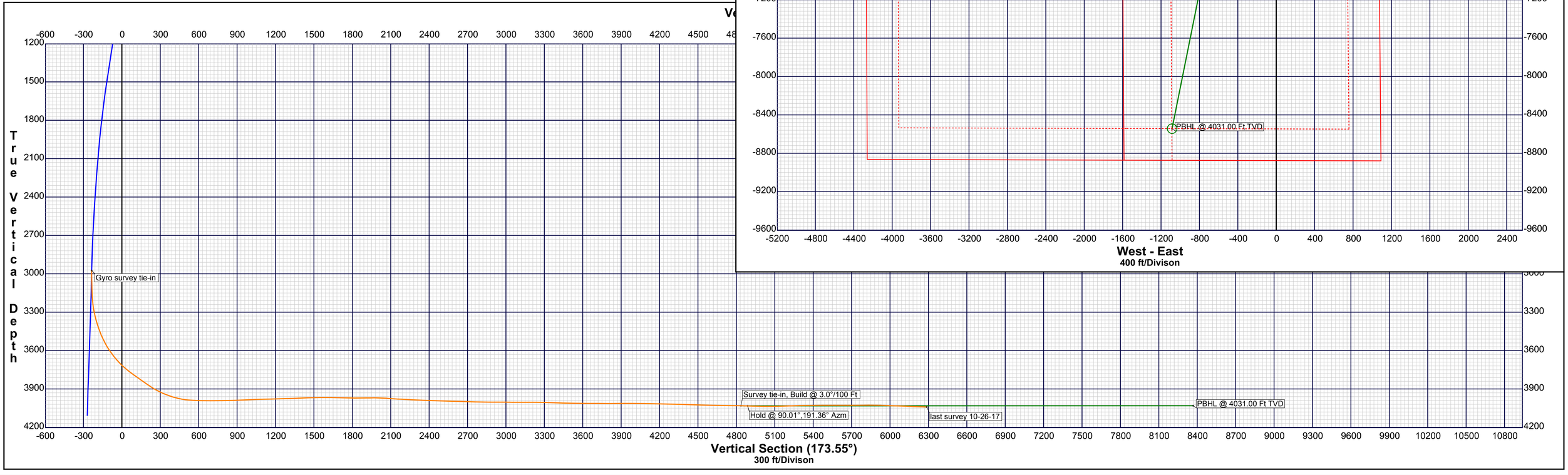
Elevation (To MSL) : 1733 ft
RKB : 16 ft
North Reference : Grid North
Easting : 1337147
Northing : 1719976

CRITICAL POINTS - GEESLING 16 #1HXL PLAN REV6

MD	Inc	Azm	TVD	EW	NS	VS	DLS	Comment
8887.00	88.40	191.40	4031.17	-354.49	-4906.99	4836.11	0.00	Survey tie-in, Build @ 3.0°/100 Ft
8940.83	90.01	191.36	4031.91	-365.11	-4959.76	4887.35	3.00	Hold @ 90.01°,191.36° Azm
12596.65	90.01	191.36	4031.00	-1085.00	-8544.00	8368.03	0.00	PBHL @ 4031.00 Ft TVD

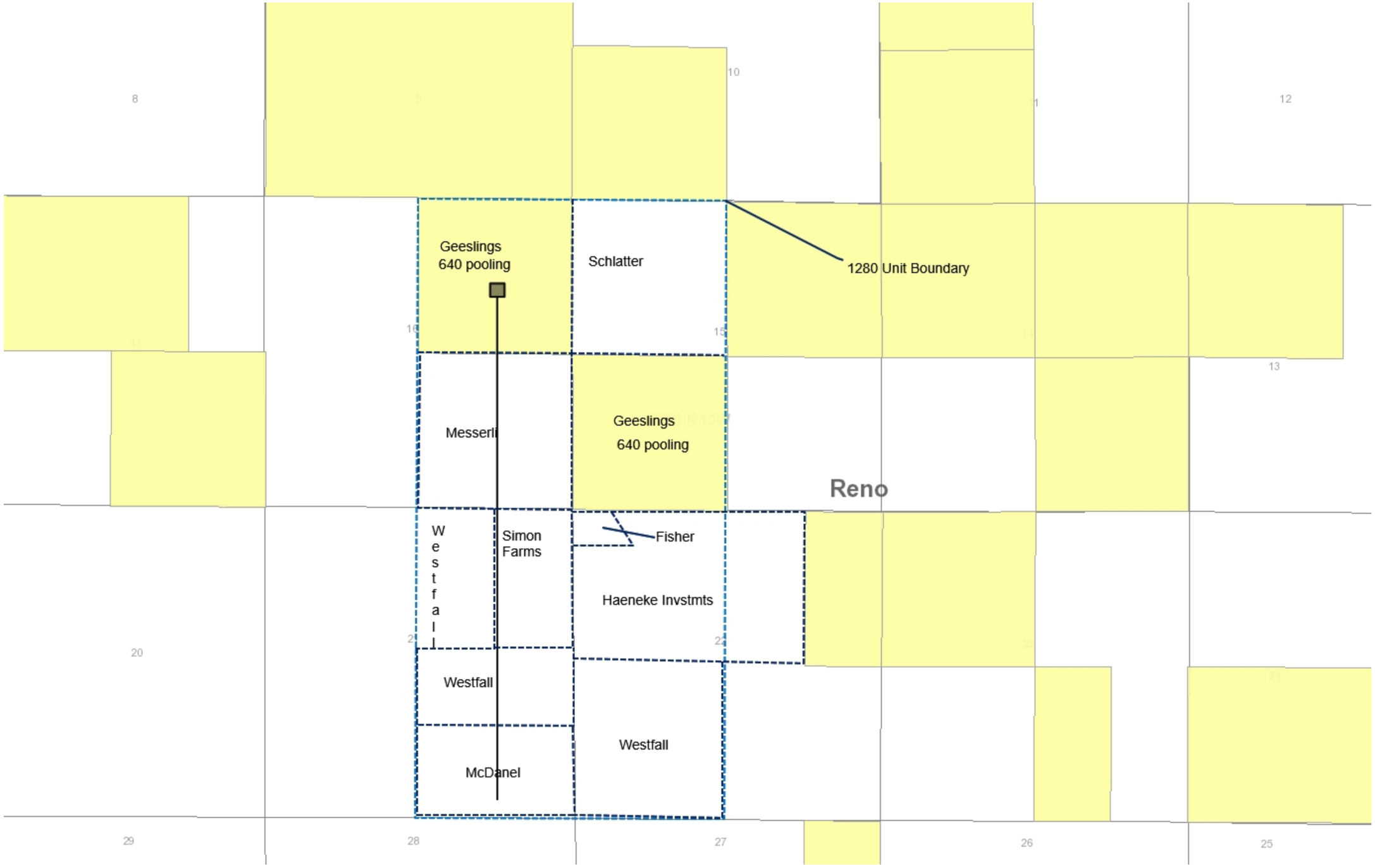






Unit Corporation
A New York Stock Exchange Company
7130 S Lewis Ave - Suite 1000 - Tulsa, OK 74136-5405
P.O. Box 702500 - Tulsa, OK 74170-2500
www.unitcorp.com

Turon Location



Legend

UNIT VERTICAL WELLS
- GAS
- OIL
- SWD/SERVICE
- INJECTION
- ABANDONED
- ABANDONED GAS
- ABANDONED OIL
- ABANDONED O&G
- DRY AND ABANDONED
- JUNKED
- O&G-WO
- SUSPENDED
- OTHER

UNIT SURFACE LOCATIONS

UNIT BOTTOM HOLE LOCAT
- GAS
- OIL
- SWD/SERVICE
- INJECTION
- ABANDONED
- ABANDONED GAS
- ABANDONED OIL
- ABANDONED O&G
- DRY AND ABANDONED
- JUNKED
- O&G-WO
- SUSPENDED
- OTHER

UNIT LEASEHOLD - AGREEM

1: 24,932

0.8 0 0.39 0.8 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
Unit Corporation

Notes

This map was automatically generated using Unit Corp. proprietary data.

Survey Report

Service Company:

Well: Geesling 16 #1HXL

API or UWI:

State: Kansas

County: Reno

Country: U.S.A

Comment

Location: Reno County

Rig: Duke #20

Job Number: 17060

Operating Company: Unit Petroleum

Magnetic Declination: 4.25

Proposed Azimuth: 179.55

North Reference: TRUE

Latitude: 37.78615811

Longitude: -98.4141338

Tie-In Data

MD	Inclination	Azimuth	TVD	NS	EW
3009.92	2.51	53.39	2974.24	269.61	286.83

Survey Data

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
3019.00	2.20	65.20	2983.31	269.80	287.15	46.78	394.01	-267.54	6.32
3051.00	1.90	104.20	3015.29	269.93	288.22	46.88	394.88	-267.66	4.37
3146.00	2.20	132.80	3110.23	268.30	291.08	47.33	395.88	-266.01	1.11
3210.00	3.00	163.20	3174.17	265.87	292.47	47.73	395.25	-263.56	2.45
3242.00	4.70	171.80	3206.10	263.77	292.90	48.00	394.16	-261.46	5.60
3274.00	7.10	175.50	3237.93	260.50	293.24	48.38	392.24	-258.19	7.59
3306.00	9.40	177.00	3269.59	255.91	293.53	48.92	389.43	-253.60	7.22
3337.00	11.40	177.70	3300.08	250.33	293.79	49.57	385.97	-248.01	6.46
3369.00	13.70	179.90	3331.32	243.37	293.92	50.37	381.60	-241.06	7.34
3401.00	15.70	180.70	3362.27	235.26	293.88	51.32	376.44	-232.94	6.28
3433.00	17.40	182.90	3392.94	226.15	293.58	52.39	370.58	-223.83	5.66
3465.00	19.40	184.60	3423.30	216.07	292.91	53.59	363.98	-213.76	6.47
3496.00	21.20	184.30	3452.38	205.35	292.08	54.89	357.04	-203.05	5.82
3528.00	23.20	183.50	3482.00	193.29	291.26	56.43	349.56	-190.99	6.32
3560.00	25.80	182.10	3511.12	180.03	290.62	58.22	341.87	-177.74	8.32
3591.00	28.20	179.80	3538.74	165.96	290.40	60.25	334.48	-163.68	8.44

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
3623.00	30.70	177.70	3566.60	150.24	290.75	62.67	327.27	-147.95	8.45
3655.00	33.80	177.10	3593.66	133.18	291.53	65.45	320.51	-130.89	9.74
3687.00	36.20	178.20	3619.87	114.85	292.28	68.55	314.03	-112.55	7.75
3718.00	38.50	179.20	3644.52	96.04	292.70	71.83	308.06	-93.74	7.67
3749.00	40.60	180.40	3668.42	76.31	292.77	75.39	302.55	-74.01	7.21
3781.00	43.30	180.80	3692.22	54.92	292.54	79.37	297.65	-52.62	8.48
3813.00	45.80	180.50	3715.02	32.47	292.29	83.66	294.08	-30.18	7.84
3846.00	49.50	179.80	3737.25	8.09	292.23	88.41	292.34	-5.79	11.32
3877.00	52.80	179.30	3756.69	-16.05	292.42	93.14	292.86	18.34	10.72
3909.00	54.20	179.20	3775.72	-41.77	292.76	98.12	295.72	44.07	4.38
3941.00	54.40	179.40	3794.40	-67.75	293.07	103.02	300.80	70.05	0.81
3973.00	54.60	179.50	3812.98	-93.80	293.32	107.73	307.96	96.11	0.67
4005.00	54.90	179.20	3831.45	-119.94	293.62	112.22	317.17	122.24	1.21
4037.00	55.10	178.90	3849.80	-146.14	294.05	116.43	328.37	148.45	0.99
4069.00	55.80	179.20	3867.95	-172.50	294.49	120.36	341.29	174.80	2.32
4101.00	57.90	179.70	3885.45	-199.29	294.75	124.06	355.80	201.59	6.69
4132.00	60.30	180.60	3901.37	-225.88	294.67	127.47	371.29	228.19	8.13
4164.00	62.90	180.90	3916.58	-254.03	294.31	130.80	388.77	256.33	8.17
4196.00	65.30	181.50	3930.56	-282.80	293.70	133.92	407.72	285.10	7.69
4228.00	68.80	180.90	3943.04	-312.26	293.09	136.81	428.26	314.55	11.07
4260.00	71.40	180.00	3953.93	-342.35	292.85	139.46	450.51	344.63	8.54
4291.00	73.20	179.90	3963.35	-371.88	292.88	141.78	473.36	374.17	5.81
4324.00	76.50	179.70	3971.98	-403.73	292.99	144.03	498.84	406.01	10.02
4356.00	79.30	179.90	3978.68	-435.01	293.10	146.03	524.54	437.30	8.77
4387.00	82.20	180.40	3983.67	-465.60	293.02	147.82	550.13	467.89	9.49
4419.00	85.20	181.20	3987.18	-497.40	292.57	149.54	577.07	499.69	9.70
4491.00	89.20	181.10	3990.69	-569.29	291.13	152.92	639.41	571.56	5.56
4587.00	90.10	181.00	3991.28	-665.27	289.37	156.49	725.48	667.52	0.94
4682.00	90.90	181.30	3990.45	-760.25	287.46	159.29	812.78	762.48	0.90
4777.00	91.70	181.00	3988.30	-855.20	285.56	161.54	901.62	857.42	0.90
4873.00	92.50	181.00	3984.78	-951.12	283.88	163.38	992.58	953.32	0.83
4968.00	91.80	181.80	3981.21	-1046.03	281.56	164.93	1083.26	1048.20	1.12
5064.00	90.90	181.50	3978.95	-1141.96	278.80	166.28	1175.50	1144.11	0.99
5160.00	92.50	182.10	3976.10	-1237.86	275.79	167.44	1268.21	1239.99	1.78
5255.00	91.90	180.70	3972.46	-1332.76	273.47	168.40	1360.53	1334.87	1.60
5351.00	92.30	183.20	3968.94	-1428.64	270.20	169.29	1453.96	1430.71	2.64
5446.00	90.50	185.20	3966.62	-1523.34	263.25	170.20	1545.92	1525.36	2.83

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
5541.00	88.90	189.20	3967.12	-1617.57	251.34	171.17	1636.98	1619.50	4.53
5637.00	88.70	190.60	3969.13	-1712.12	234.84	172.19	1728.15	1713.91	1.47
5733.00	89.70	190.20	3970.47	-1806.53	217.52	173.13	1819.58	1808.18	1.12
5828.00	90.90	190.30	3969.97	-1900.01	200.61	173.97	1910.57	1901.53	1.27
5860.00	91.30	190.60	3969.35	-1931.48	194.81	174.24	1941.27	1932.95	1.56
5892.00	89.10	191.20	3969.24	-1962.90	188.76	174.51	1971.95	1964.32	7.13
5923.00	89.00	191.30	3969.76	-1993.30	182.71	174.76	2001.65	1994.67	0.46
5955.00	88.20	191.50	3970.54	-2024.65	176.39	175.02	2032.32	2025.98	2.58
5987.00	86.10	191.80	3972.13	-2055.95	169.93	175.27	2062.97	2057.23	6.63
6019.00	86.00	191.70	3974.33	-2087.21	163.43	175.52	2093.60	2088.43	0.44
6051.00	86.40	191.50	3976.45	-2118.49	157.01	175.76	2124.30	2119.66	1.40
6083.00	86.70	191.10	3978.38	-2149.81	150.75	175.99	2155.09	2150.93	1.56
6115.00	87.00	190.80	3980.14	-2181.18	144.69	176.20	2185.97	2182.25	1.32
6210.00	87.60	190.40	3984.61	-2274.45	127.23	176.80	2278.01	2275.38	0.76
6306.00	88.00	190.20	3988.30	-2368.84	110.08	177.34	2371.39	2369.63	0.47
6401.00	87.70	190.30	3991.86	-2462.26	93.18	177.83	2464.02	2462.91	0.33
6465.00	88.40	189.70	3994.04	-2525.25	82.08	178.14	2526.58	2525.81	1.44
6528.00	88.70	189.90	3995.64	-2587.31	71.36	178.42	2588.29	2587.79	0.57
6589.00	89.00	190.90	3996.86	-2647.29	60.35	178.69	2647.98	2647.68	1.71
6651.00	87.80	191.50	3998.59	-2708.09	48.31	178.98	2708.52	2708.38	2.16
6713.00	88.70	191.00	4000.48	-2768.87	36.22	179.25	2769.10	2769.06	1.66
6774.00	88.70	190.20	4001.87	-2828.81	25.00	179.49	2828.92	2828.92	1.31
6834.00	89.70	190.20	4002.71	-2887.85	14.38	179.71	2887.89	2887.88	1.67
6897.00	90.20	190.30	4002.76	-2949.85	3.17	179.94	2949.85	2949.78	0.81
6960.00	89.20	189.30	4003.09	-3011.93	-7.55	180.14	3011.94	3011.77	2.24
7022.00	89.80	189.30	4003.63	-3073.11	-17.57	180.33	3073.16	3072.88	0.97
7082.00	90.00	189.50	4003.74	-3132.30	-27.37	180.50	3132.42	3131.99	0.47
7144.00	89.60	189.00	4003.95	-3193.50	-37.34	180.67	3193.71	3193.10	1.03
7205.00	90.00	188.90	4004.17	-3253.75	-46.83	180.82	3254.09	3253.28	0.68
7270.00	88.20	190.10	4005.19	-3317.85	-57.55	180.99	3318.35	3317.30	3.33
7334.00	88.20	190.40	4007.20	-3380.80	-68.94	181.17	3381.50	3380.15	0.47
7429.00	89.10	190.50	4009.43	-3474.19	-86.16	181.42	3475.26	3473.41	0.95
7525.00	88.70	191.30	4011.28	-3568.44	-104.31	181.67	3569.97	3567.51	0.93
7620.00	89.70	191.40	4012.60	-3661.58	-123.01	181.92	3663.64	3660.50	1.06
7715.00	89.60	190.90	4013.18	-3754.78	-141.38	182.16	3757.44	3753.55	0.54
7811.00	90.10	190.40	4013.44	-3849.13	-159.12	182.37	3852.41	3847.76	0.74
7906.00	90.70	190.40	4012.77	-3942.56	-176.27	182.56	3946.50	3941.06	0.63

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
8001.00	89.20	190.30	4012.86	-4036.01	-193.33	182.74	4040.64	4034.37	1.58
8097.00	89.50	189.70	4013.94	-4130.55	-210.00	182.91	4135.88	4128.77	0.70
8192.00	88.70	190.30	4015.44	-4224.09	-226.50	183.07	4230.16	4222.18	1.05
8287.00	88.70	189.00	4017.59	-4317.72	-242.42	183.21	4324.52	4315.69	1.37
8383.00	88.50	190.20	4019.94	-4412.35	-258.42	183.35	4419.91	4410.18	1.27
8478.00	88.40	190.50	4022.51	-4505.77	-275.48	183.50	4514.18	4503.47	0.33
8574.00	88.00	191.30	4025.52	-4599.99	-293.63	183.65	4609.35	4597.54	0.93
8668.00	89.00	191.50	4027.98	-4692.10	-312.20	183.81	4702.48	4689.51	1.08
8791.00	89.60	190.80	4029.49	-4812.77	-335.99	183.99	4824.48	4809.98	0.75
8887.00	88.40	191.40	4031.16	-4906.96	-354.46	184.13	4919.74	4904.02	1.40
8982.00	88.70	192.10	4033.57	-4999.94	-373.80	184.28	5013.89	4996.85	0.80
9078.00	88.80	192.20	4035.66	-5093.76	-394.00	184.42	5108.98	5090.51	0.15
9173.00	91.20	191.40	4035.66	-5186.75	-413.43	184.56	5203.20	5183.34	2.66
9268.00	92.00	190.90	4033.01	-5279.92	-431.79	184.68	5297.54	5276.36	0.99
9364.00	91.60	191.80	4029.99	-5373.99	-450.68	184.79	5392.86	5370.29	1.03
9459.00	90.10	192.00	4028.58	-5466.94	-470.26	184.92	5487.13	5463.08	1.59
9554.00	90.80	191.50	4027.84	-5559.94	-489.61	185.03	5581.46	5555.93	0.91
9650.00	89.70	191.30	4027.42	-5654.05	-508.58	185.14	5676.87	5649.88	1.16
9745.00	90.10	191.10	4027.58	-5747.24	-527.04	185.24	5771.35	5742.92	0.47
9841.00	90.20	192.00	4027.33	-5841.29	-546.26	185.34	5866.78	5836.82	0.94
9936.00	90.50	191.70	4026.75	-5934.27	-565.76	185.45	5961.17	5929.64	0.45
10032.00	88.30	192.20	4027.76	-6028.17	-585.64	185.55	6056.55	6023.39	2.35
10127.00	88.40	192.10	4030.49	-6121.01	-605.63	185.65	6150.90	6116.06	0.15
10223.00	87.60	191.70	4033.84	-6214.89	-625.41	185.75	6246.27	6209.78	0.93
10318.00	87.50	191.10	4037.90	-6307.93	-644.17	185.83	6340.73	6302.67	0.64
10414.00	88.70	190.70	4041.09	-6402.14	-662.31	185.91	6436.31	6396.74	1.32

Projected Survey

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
10455.00	88.70	190.70	4042.02	-6442.42	-669.92	185.94	6477.16	6436.96	0.00

Weatherford®

COMPACT PHOTO-DENSITY DUAL SPACED NEUTRON MICRO RESISTIVITY LOG

COMPANY	UNIT PETROLEUM COMPANY
WELL	GEESLING 16 1HXL
FIELD	WILDCAT
PROVINCE/COUNTY	RENO COUNTY
COUNTRY/STATE	USA / KANSAS
LOCATION	SW/NW/SE/NE 1780' FNL & 1020' FEL

SEC 16	TWP 26S	RGE 10W	Other Services
Latitude		37.7874	INDUCTION
Longitude		-98.4106	FOCUSED ELECTRIC
API Number		15-155-21749-01	SONIC

Permanent Datum GL, Elevation 1762 feet
Log Measured From KB, 20.00 feet above Permanent Datum
Drilling Measured From KB

Elevations:	feet
KB	1782.00
DF	1780.00
GL	1762.00

Date	11-OCT-2017			
Run Number	ONE			
Service Order	7452-194827385			
Depth Driller	4160.00	feet		
Depth Logger	4163.00	feet		
First Reading	4129.10	feet		
Last Reading	1513.00	feet		
Casing Driller	1512.00	feet		
Casing Logger	1513.00	feet		
Bit Size	8.750	inches		
Hole Fluid Type	WBM			
Density / Viscosity	9.20 lb/USg		42.00 s/qt	
PH / Fluid Loss	9.50		7.60 ml/30Min	
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.60 @100.0	ohm-m		
Rmf @ Measured Temp	0.48 @100.0	ohm-m		
Rmc @ Measured Temp	0.72 @100.0	ohm-m		
Source Rmf / Rmc	CALC		CALC	
Rm @ BHT	0.49 @123.0	ohm-m		
Time Since Circulation	2.0 HOURS			
Max Recorded Temp	123.00	deg F		
Equipment / Base	13057		OKC	
Recorded By	NICHOLAS RUPERT		STACY WIGHT	
Witnessed By	GLEN MONDAY			

BOREHOLE RECORD

Last Edited: 10-OCT-2017 07:37

Bit Size inches	Depth From feet	Depth To feet
12.250	0.00	1512.00
8.750	1512.00	4160.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	1512.00	36.00

REMARKS

WLS SOFTWARE VERSION: 17.03.9609

TOOLSTRING: SHA, MCG, MMR, MDN (DUAL BOWSPRING ECCENTRALIZER), MPD (8" PROFILE PLATE), MFE (ONE 0.5" STANDOFF), MSS (TWO 0.5" STANDOFF), MAI (TWO 0.5" STANDOFFS)

LOG INTERVALS REQUESTED:
ALL SERVICES LOGGED TD-CSG

LIMESTONE MATRIX USED FOR POROSITY CALCULATION, 2.71 G/CC.

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1190 CU FT.
ANNULAR HOLE VOLUME FROM TD TO SURFACE CASING WITH 7.0" FUTURE CASING: 390 CU FT.

MUD PROPERTIES:
CHLORIDES: 3700 PPM

CREW: N. RUPERT, S. WIGHT, D. GILLISPIE, L. JONES

CREW: N. RUPERT, S. WIGHT, D. GILLISPIE, J. JONES

PULLED TIGHT AT 3575 FT. CALIPER LOG SHOWS HOLE UNDER-GAUGE AT THIS DEPTH.

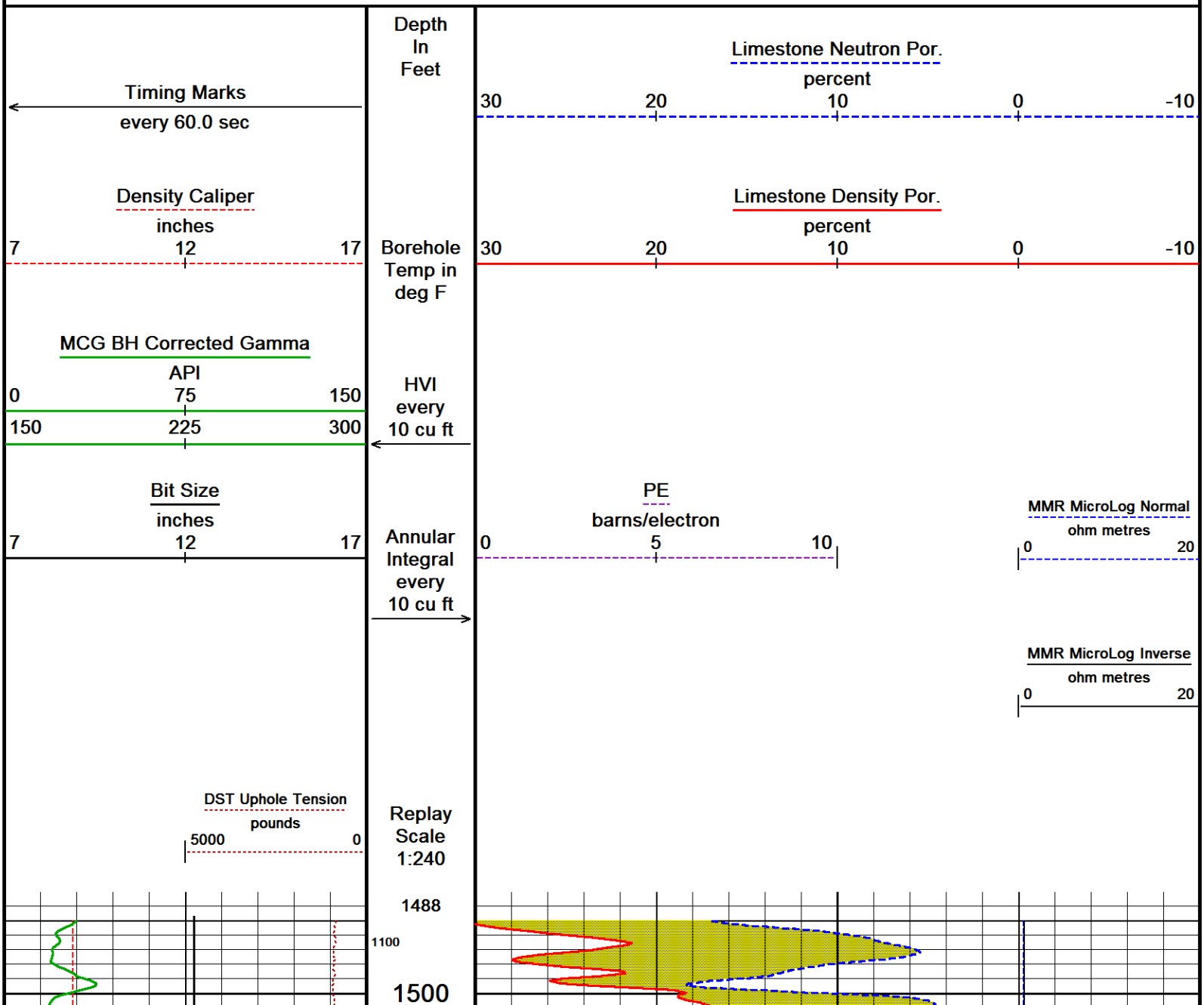
ALL LOGS SCALED AND PRESENTED PER CLIENT REQUEST.

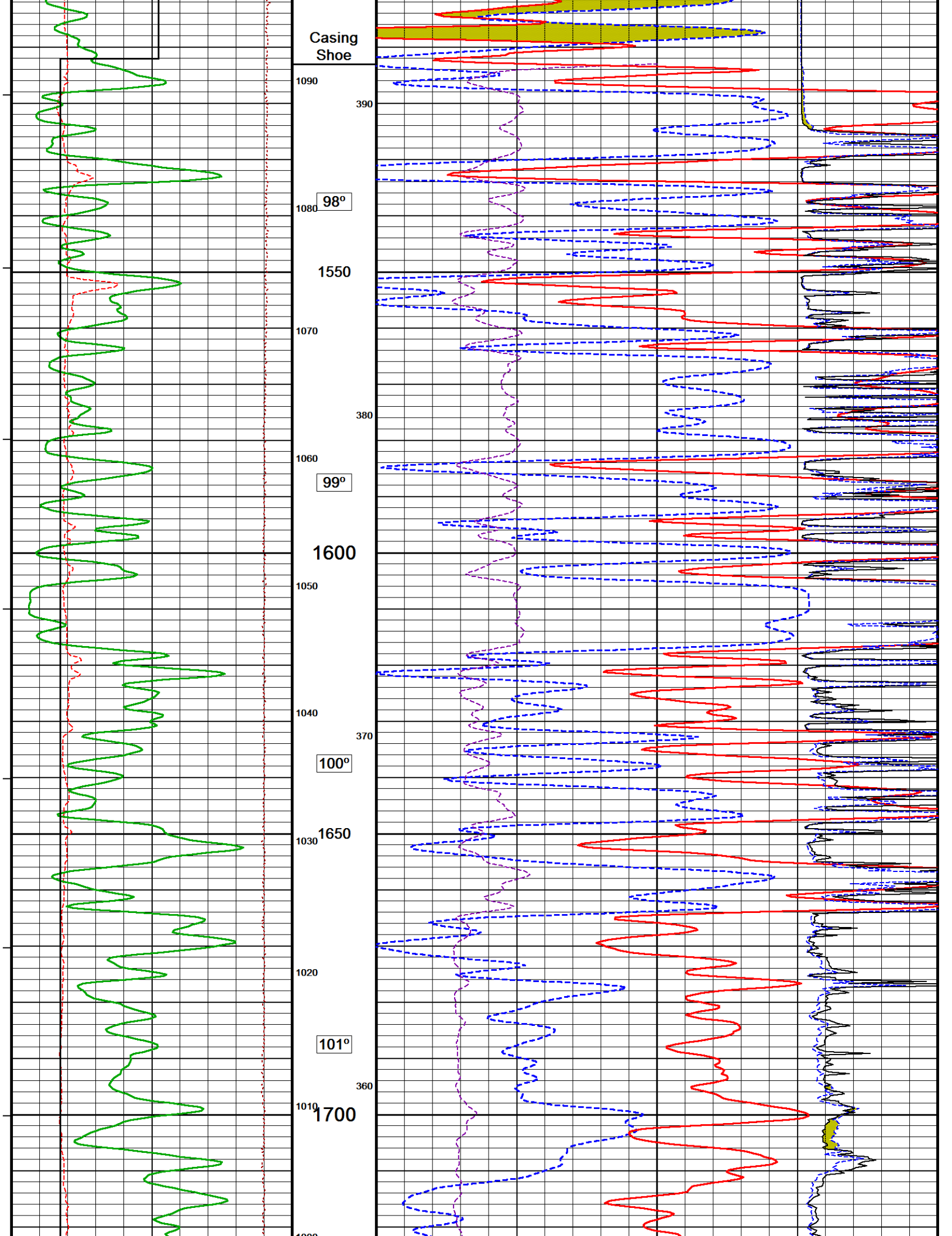
5 INCH MAIN PASS - POROSITY 1:240

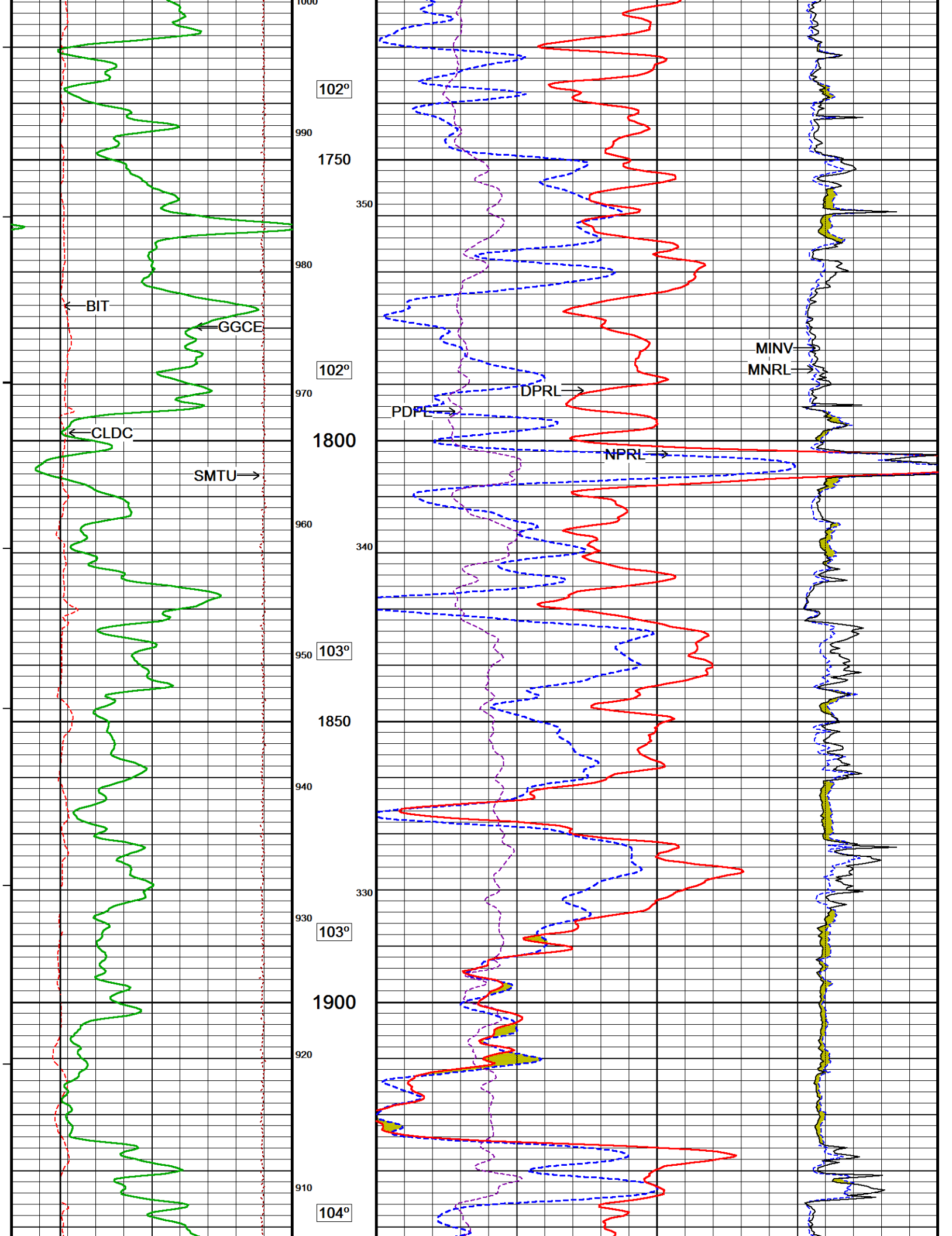
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-OCT-2017 05:26

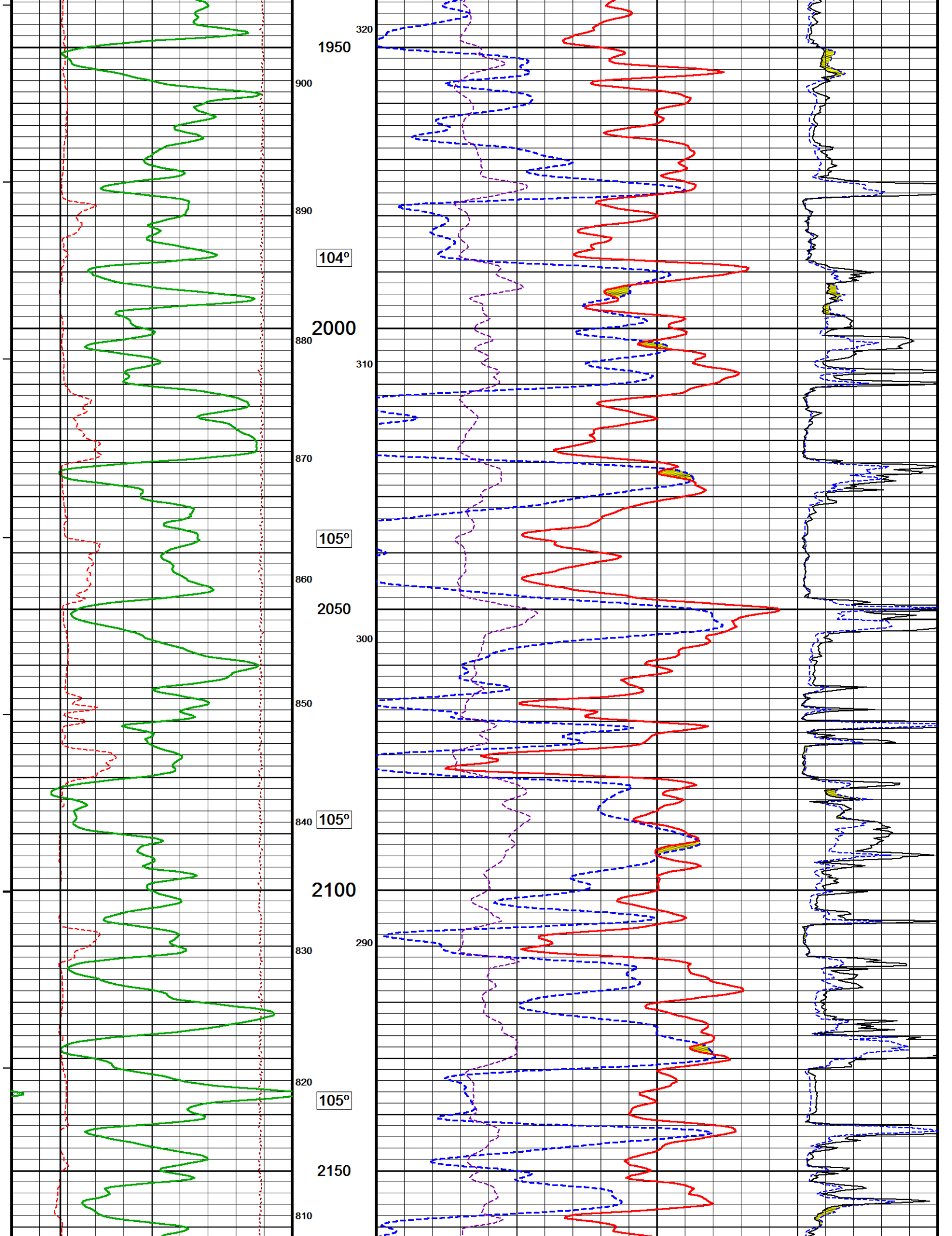
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLIN...\MAIN PASS 1.dta — Recorded on 11-OCT-2017 02:52

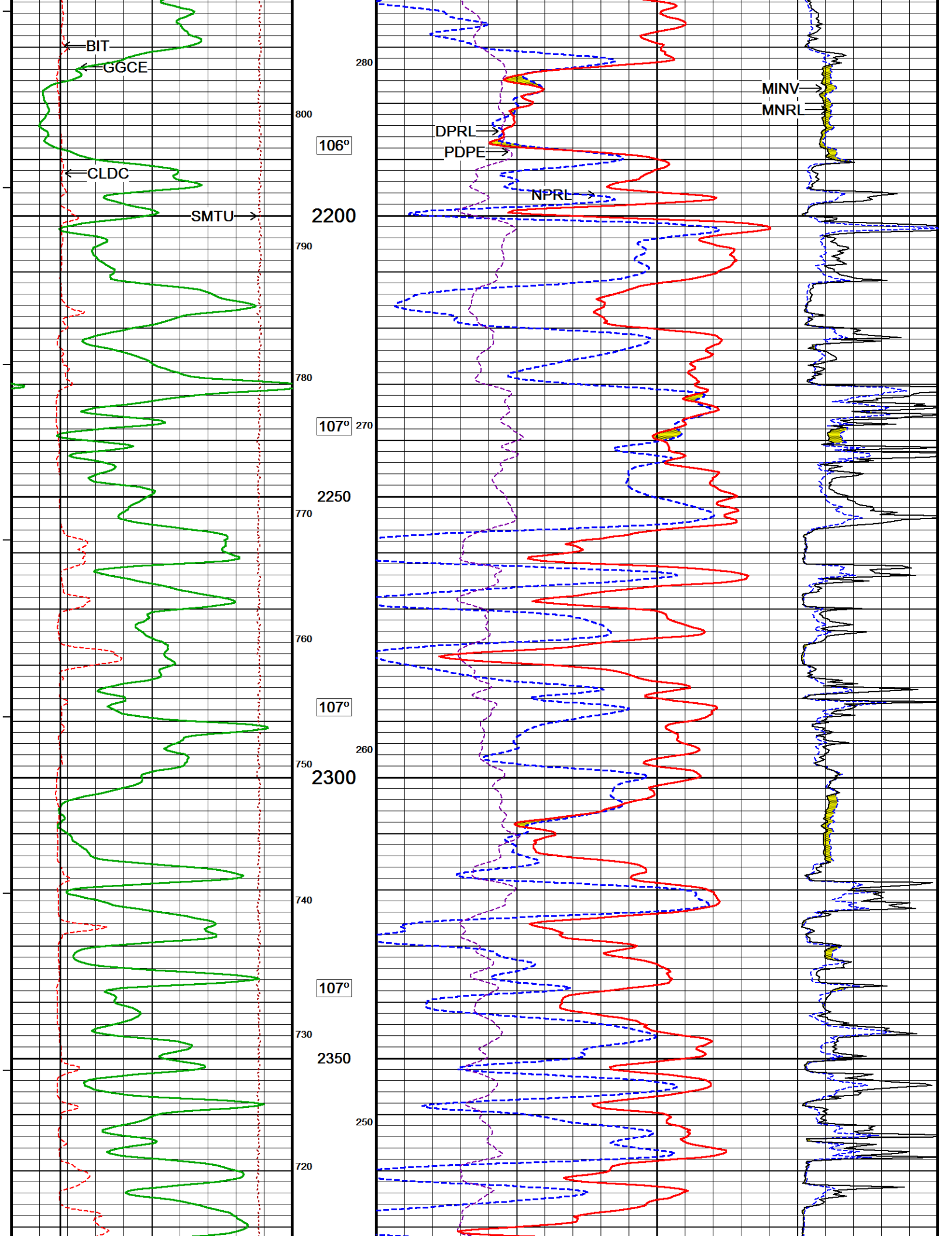
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609

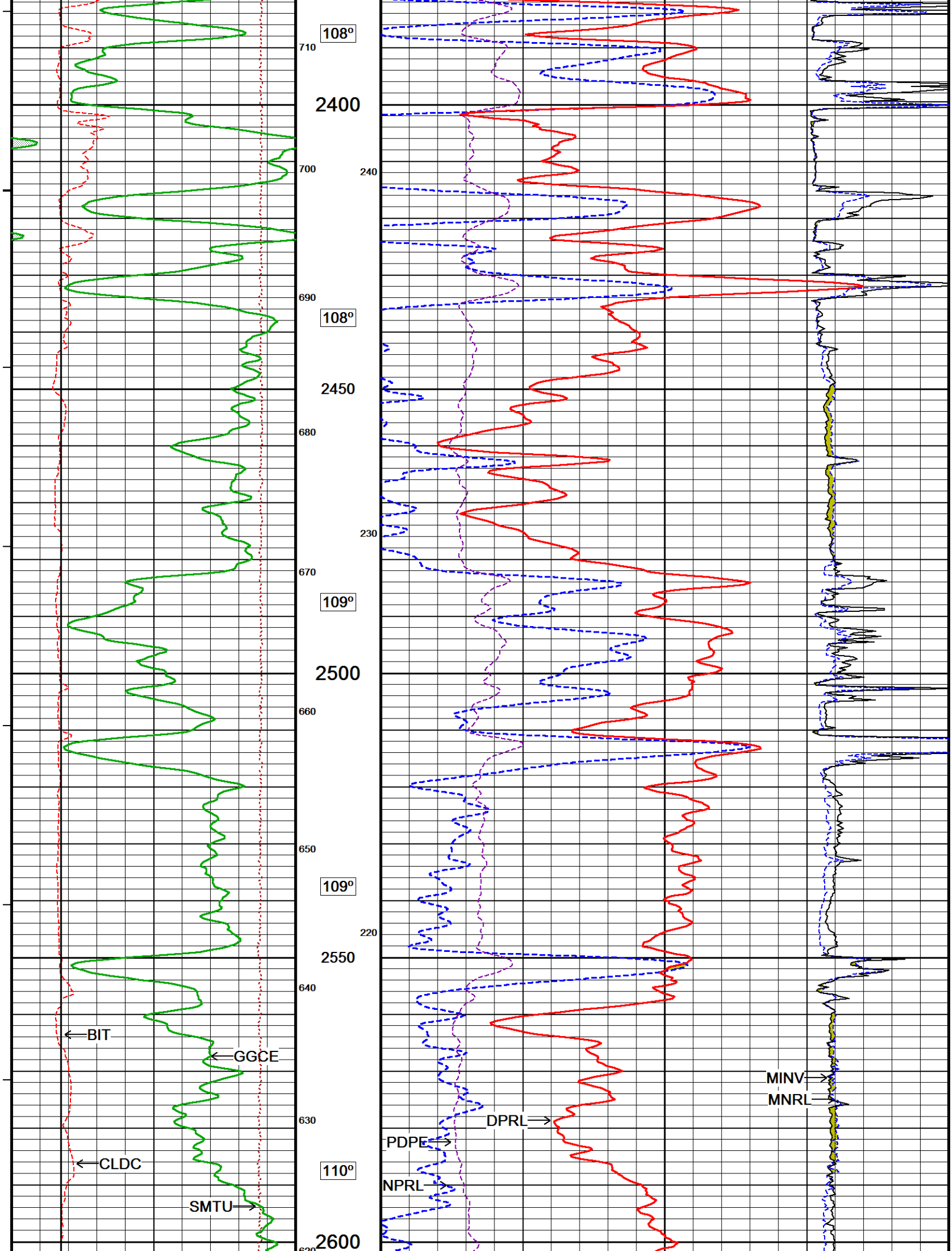


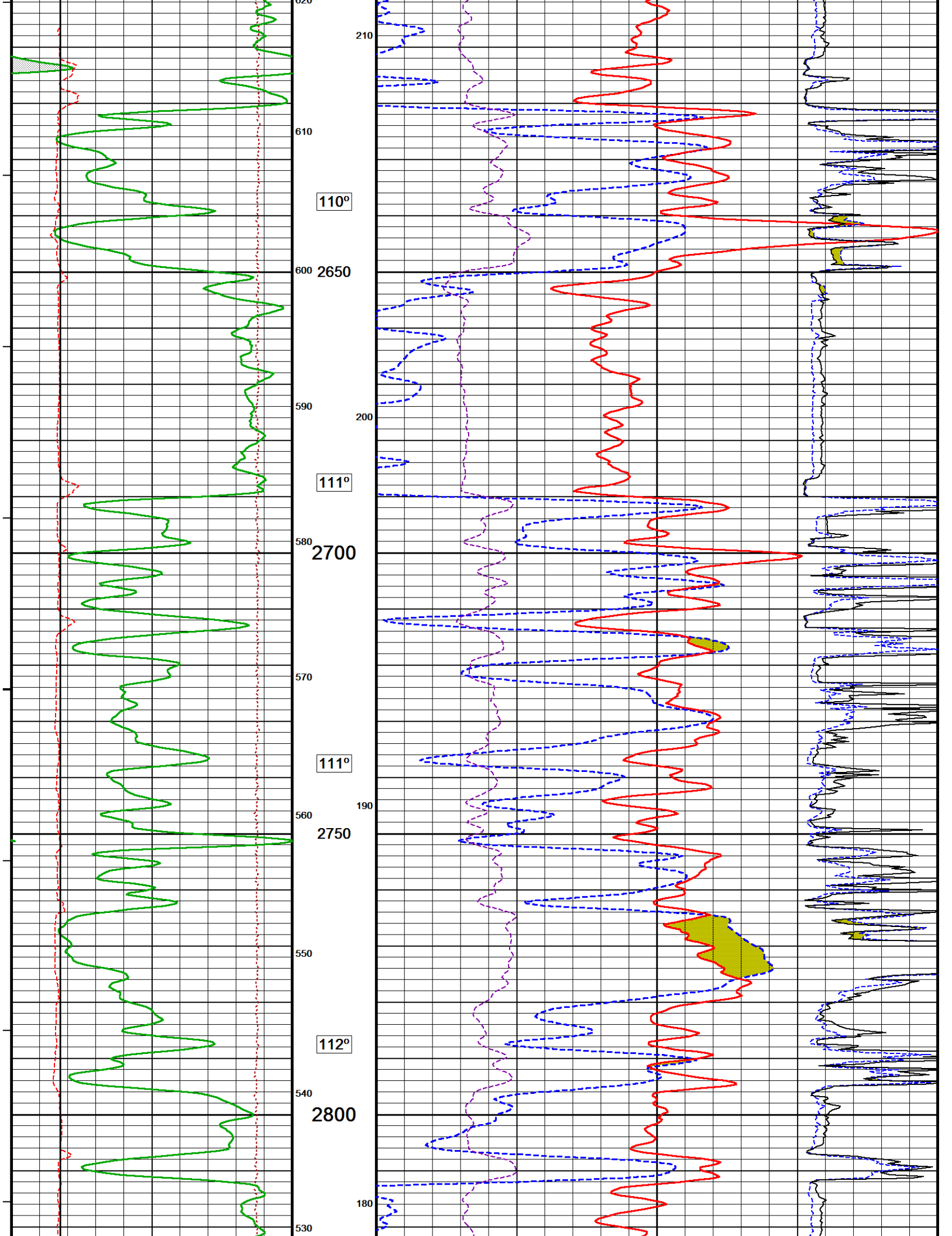

Casing
Shoe
1090
390
1080
98°
1550
1070
380
1060
99°
1600
1050
1040
370
100°
1650
1030
1020
101°
360
1010
1700

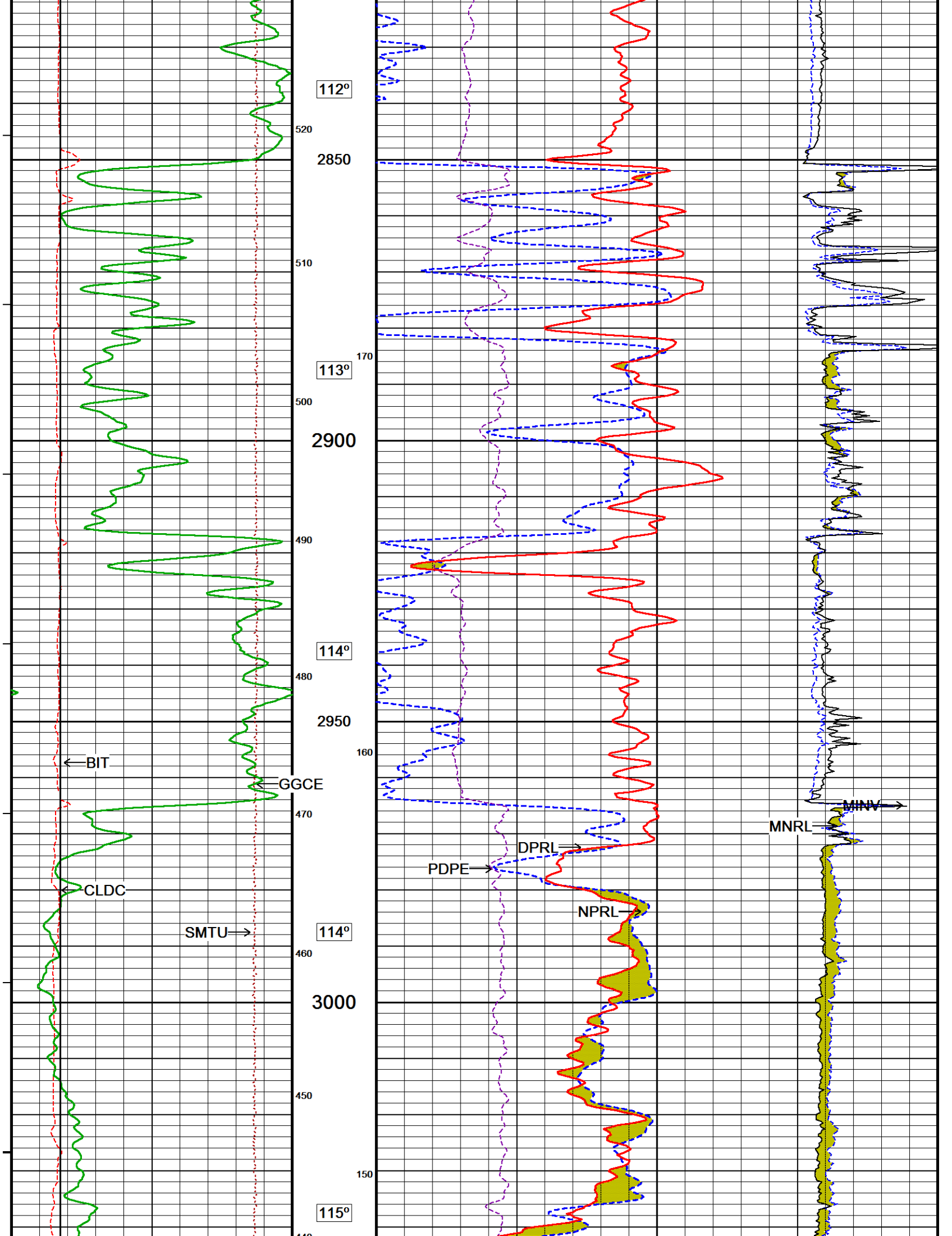

BIT
GGCE
CLDC
SMTU
DPRL
PDPL
NPRL
MINV
MNRL
1000
990
980
970
960
950
940
930
920
910
102°
102°
103°
103°
104°
1750
1800
1850
1900
350
340
330

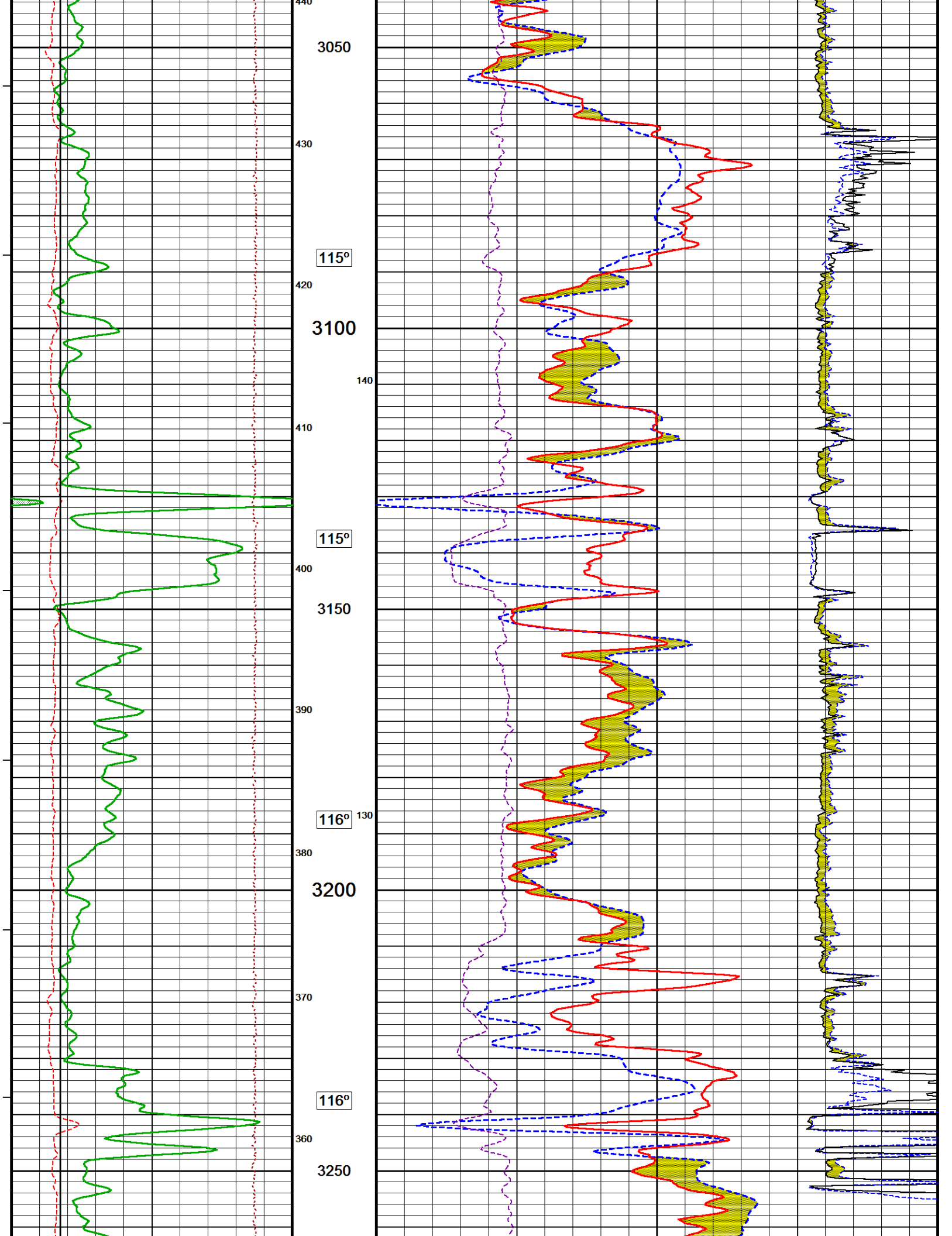

1950
900
890
104°
2000
880
310
870
105°
860
2050
300
850
840
105°
2100
830
290
820
105°
2150
810
320

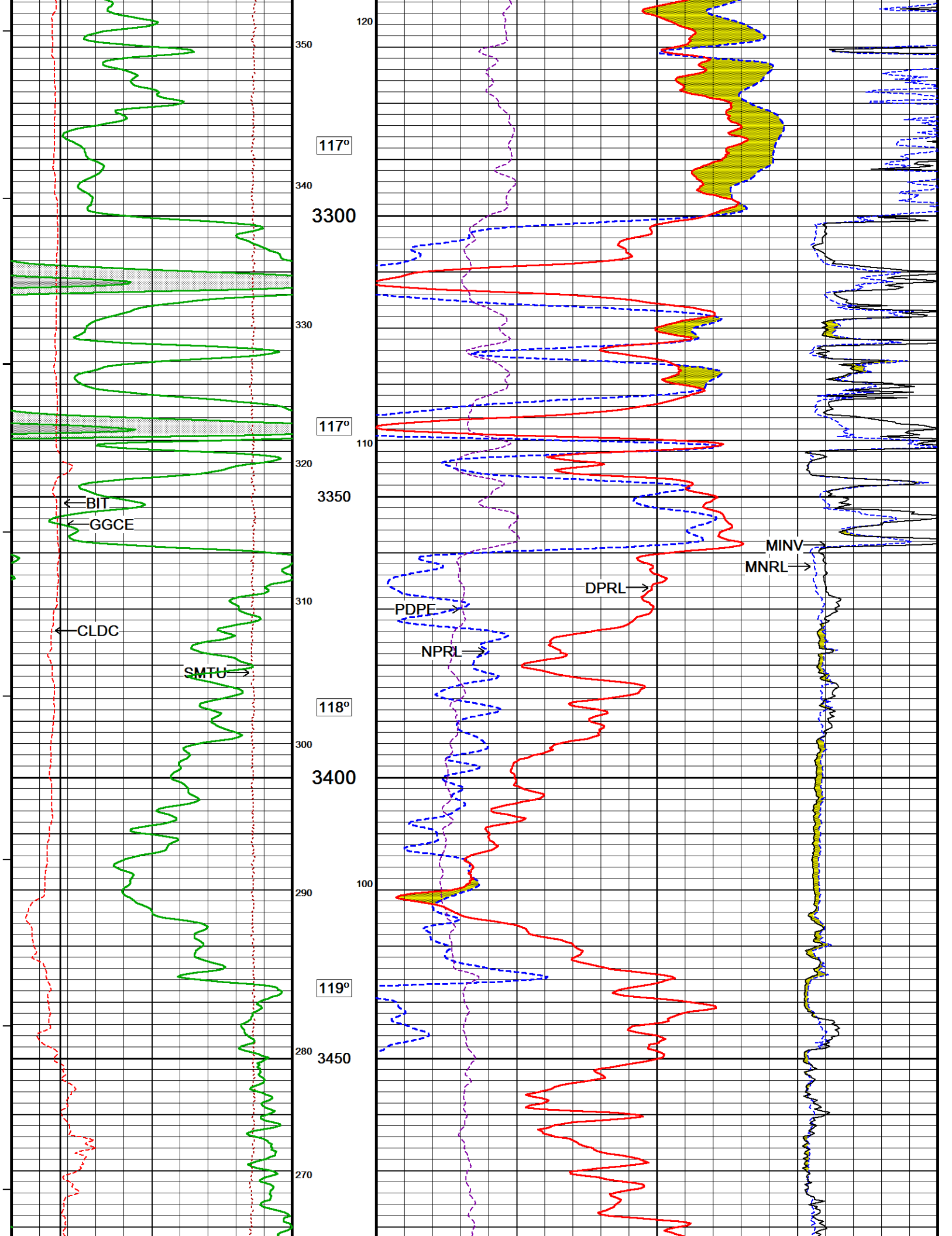

BIT
GGCE
CLDC
SMTU
DPRL
PDPE
NPRL
MINV
MNRL
106°
107°
107°
107°
2200
2250
2300
2350
800
790
780
770
760
750
740
730
720
280
270
260
250

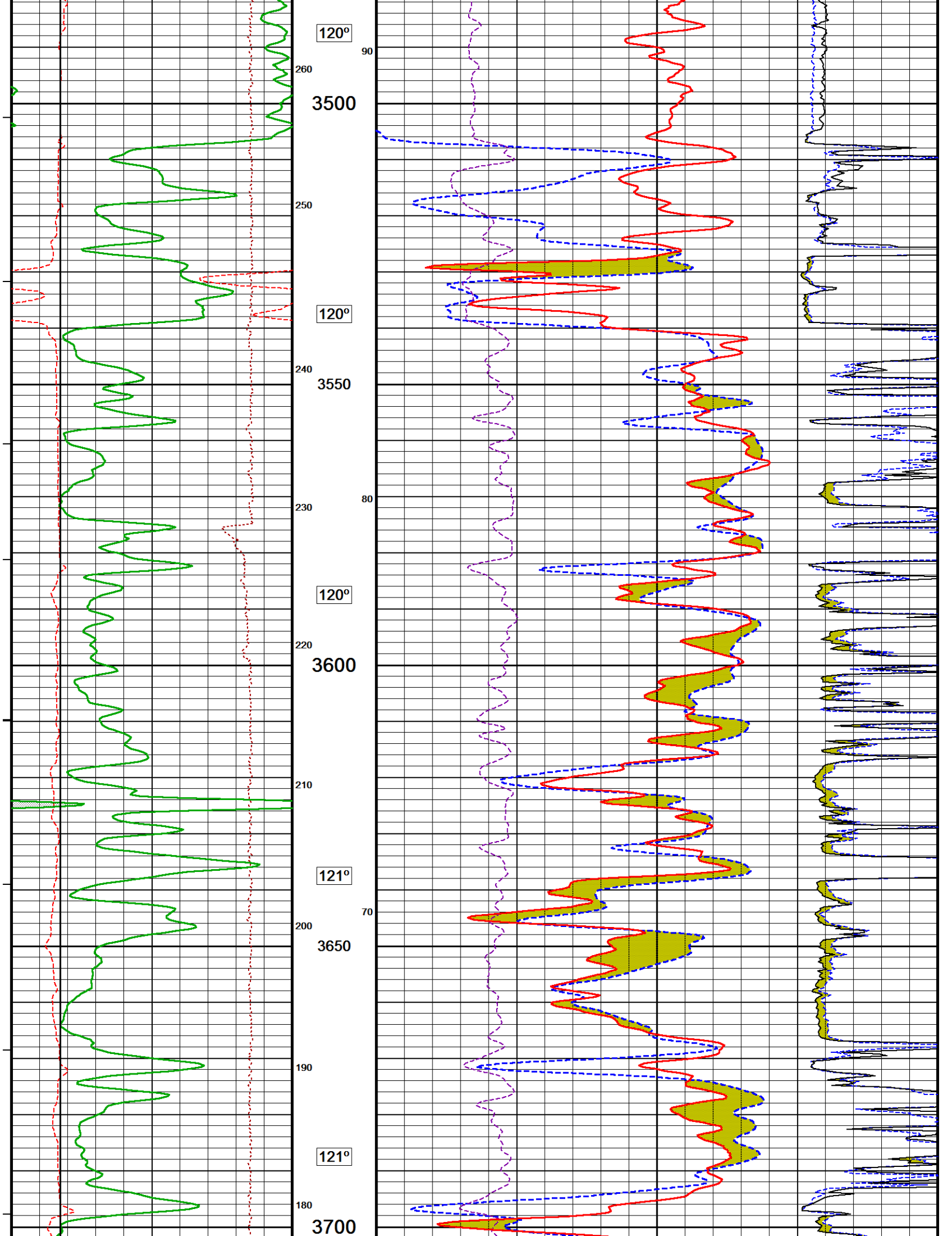

108°
2400
108°
2450
109°
2500
109°
2550
110°
2600
710
700
690
680
670
660
650
640
630
620
240
230
220
BIT
GGCE
CLDC
SMTU
DPRL
PDPE
NPRL
MINV
MNRL

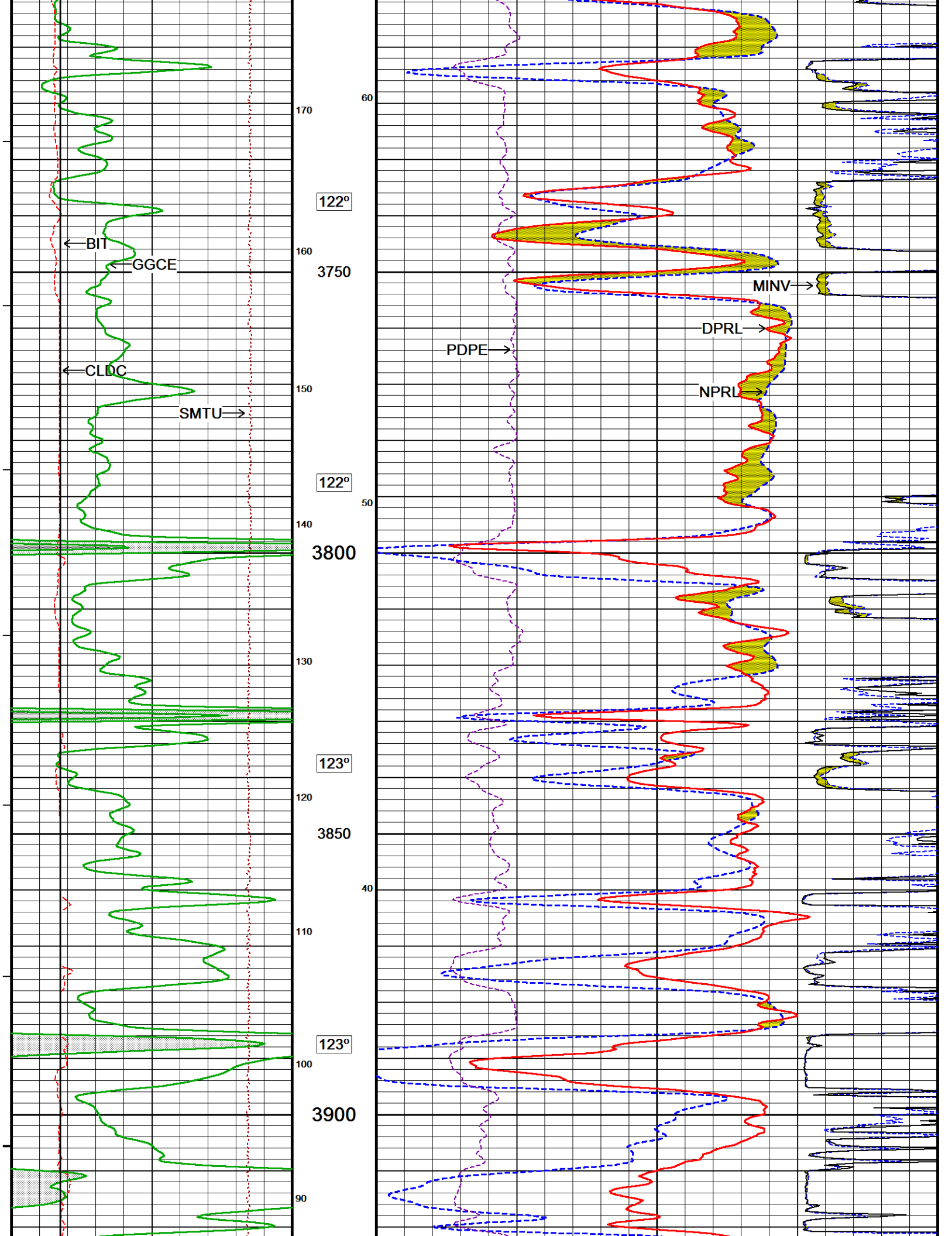

620
610
600
590
580
570
560
550
540
530
210
200
190
180
110°
111°
111°
112°
2650
2700
2750
2800

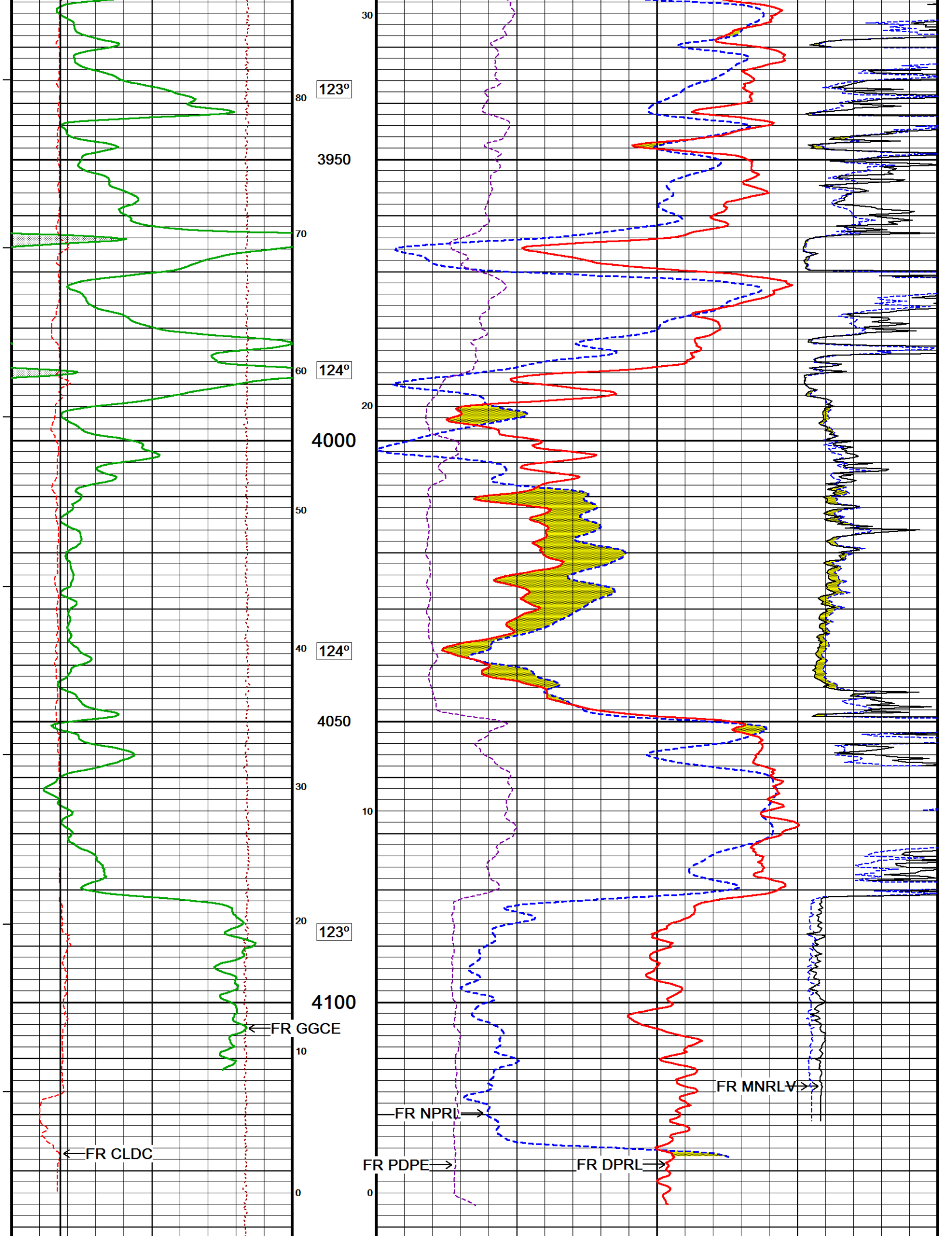

112°
520
2850
510
113°
170
500
2900
490
114°
480
2950
160
BIT
GGCE
470
MINV
MNRL
DPRL
PDPE
CLDC
NPRL
SMTU
114°
460
3000
450
150
115°

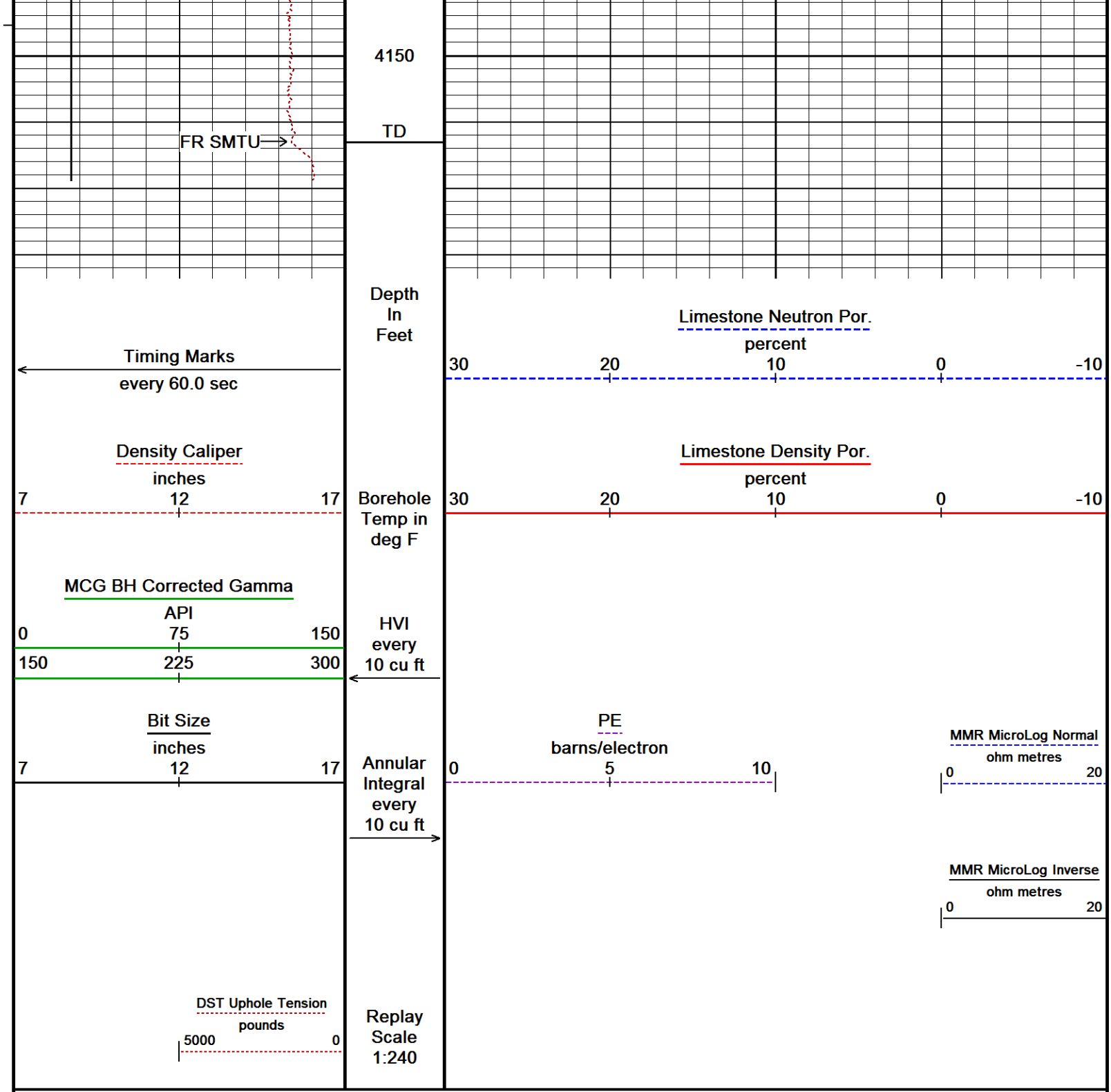

3050
430
115°
420
3100
140
410
115°
400
3150
390
116°
130
380
3200
370
116°
360
3250


350
340
330
320
310
300
290
280
270
120
110
100
117°
117°
118°
119°
3300
3350
3400
3450
BIT
GGCE
CLDC
SMTU
DPRL
PDPE
NPRL
MINV
MNRL


120°
260
3500
250
120°
240
3550
230
120°
220
3600
210
121°
200
3650
190
121°
180
3700
90
80
70


BIT
GGCE
CLDC
SMTU
PDPE
DPRL
NPRL
MINV
170
160
150
140
130
120
110
100
90
60
50
40
122°
122°
123°
123°
3750
3800
3850
3900


123°
3950
124°
4000
124°
4050
123°
4100
80
70
60
50
40
30
20
10
0
30
20
10
0
FR GGCE
FR CLDC
FR NPRL
FR PDPE
FR DPRL
FR MNRLV

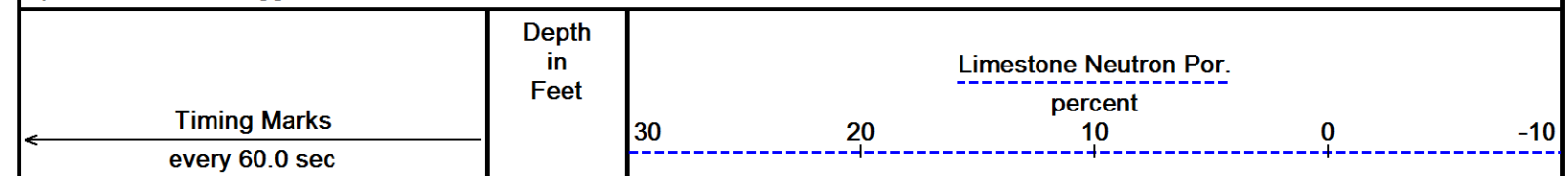


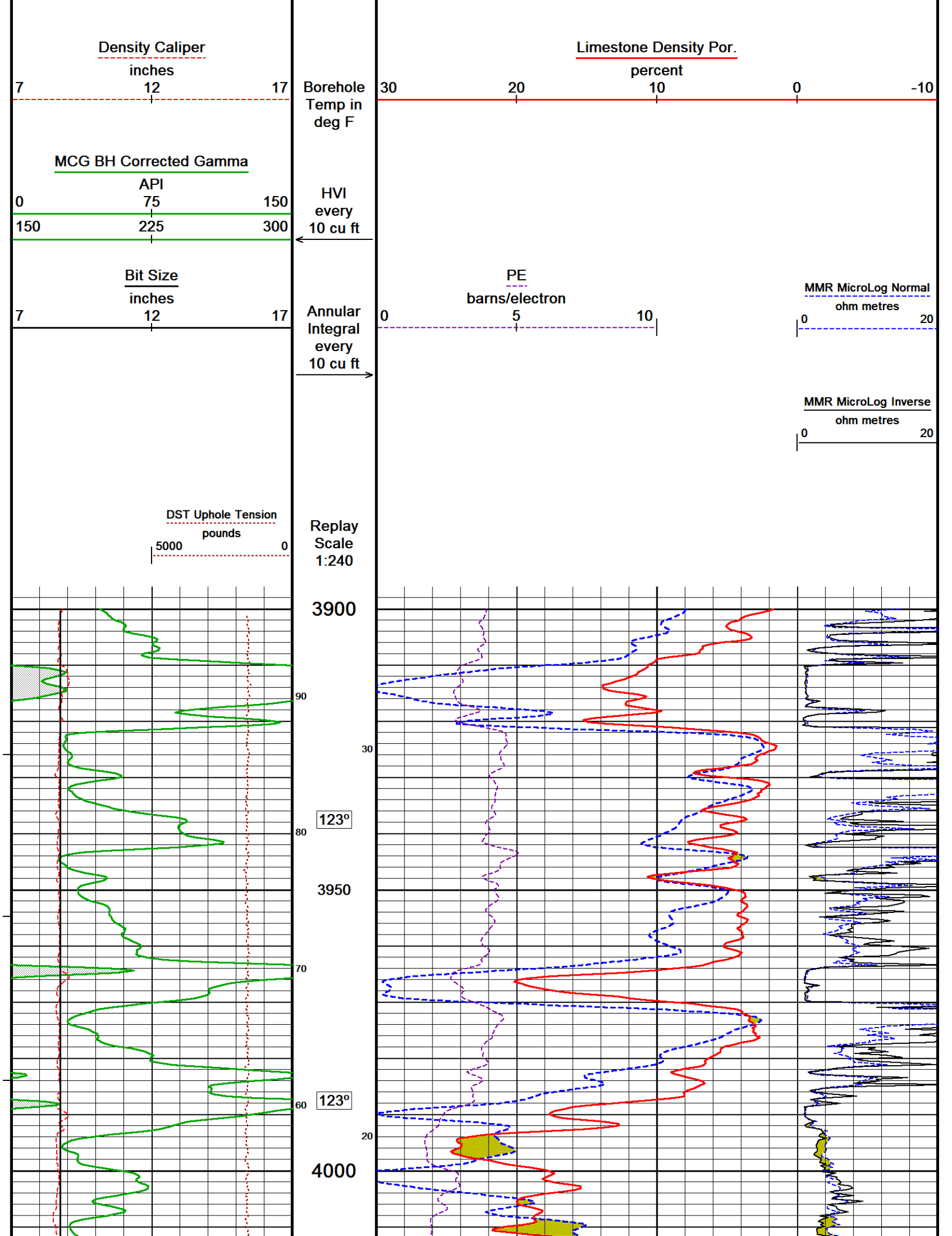
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-OCT-2017 05:26
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLIN...\MAIN PASS 1.dta — Recorded on 11-OCT-2017 02:52
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609

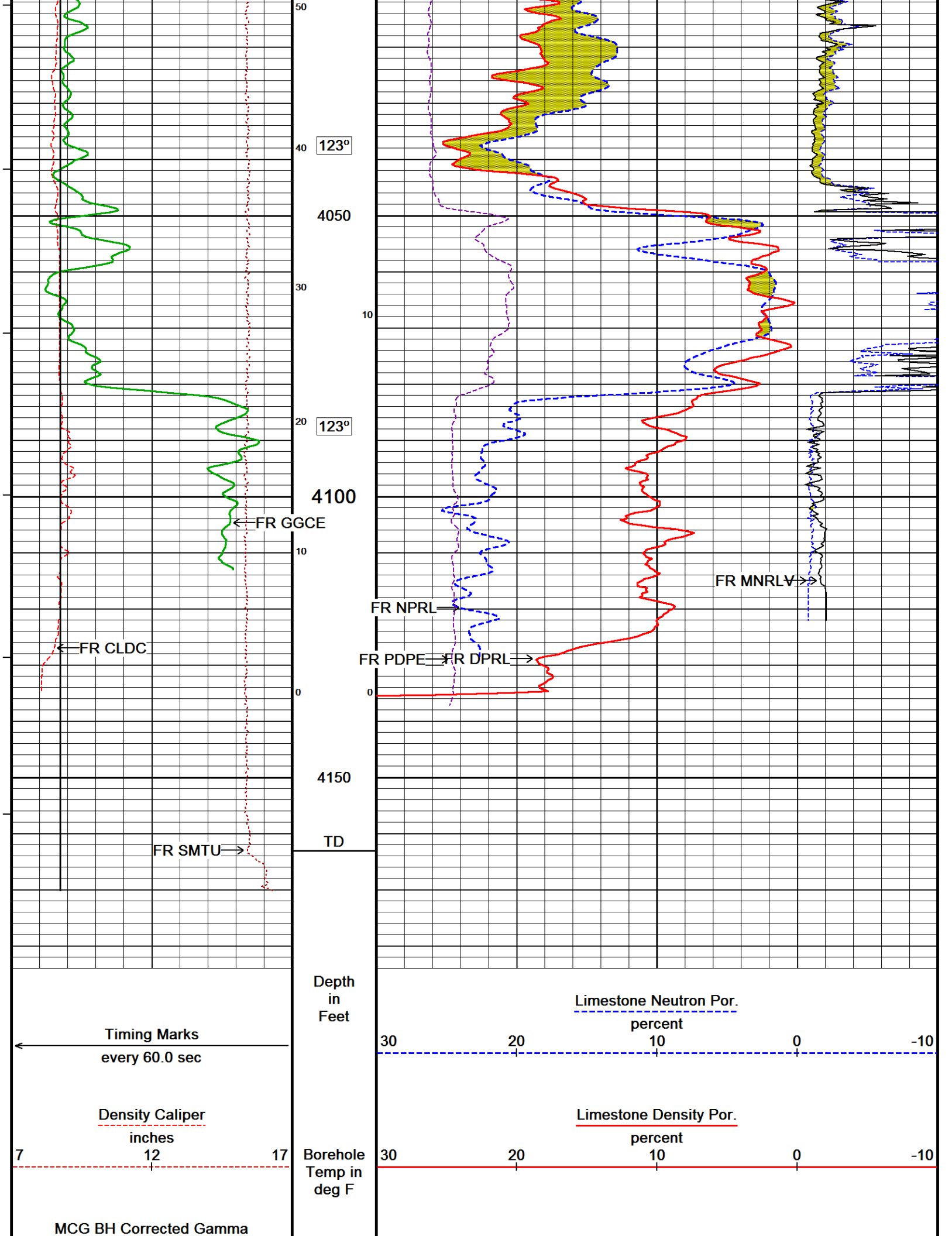
5 INCH MAIN PASS - POROSITY 1:240

5 INCH REPEAT PASS - POROSITY 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-OCT-2017 05:26
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLI...\REPEAT PASS.dta — Recorded on 11-OCT-2017 02:34
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609




Density Caliper
inches
7
12
17
Borehole Temp in deg F
MCG BH Corrected Gamma
API
0
75
150
150
225
300
HVI every 10 cu ft
Bit Size
inches
7
12
17
Annular Integral every 10 cu ft
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
MMR MicroLog Normal
ohm metres
0
20
MMR MicroLog Inverse
ohm metres
0
20
DST Uphole Tension
pounds
5000
0
Replay Scale 1:240
3900
90
80
123°
3950
70
60
123°
4000
30
20


50
40
123°
4050
30
10
20
123°
4100
FR GGCE
10
FR MNRLV
FR NPRL
FR CLDC
FR PDPE
FR DPRL
0
0
4150
TD
FR SMTU
Depth
in
Feet
Limestone Neutron Por.
percent
30
20
10
0
-10
Timing Marks
every 60.0 sec
Density Caliper
inches
7
12
17
Limestone Density Por.
percent
30
20
10
0
-10
Borehole
Temp in
deg F
MCG BH Corrected Gamma

API
0 75 150
150 225 300

Bit Size
inches
7 12 17

DST Uphole Tension
pounds
5000 0

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

PE
barns/electron
0 5 10

MMR MicroLog Normal
ohm metres
0 20

MMR MicroLog Inverse
ohm metres
0 20

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-OCT-2017 05:26
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLI...\REPEAT PASS.dta — Recorded on 11-OCT-2017 02:34
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609

5 INCH REPEAT PASS - POROSITY 1:240

5 INCH MAIN PASS - BULK DENSITY 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-OCT-2017 05:26
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLIN...\MAIN PASS 1.dta — Recorded on 11-OCT-2017 02:52
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609

Timing Marks
every 60.0 sec

Depth In Feet

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Density Caliper
inches
7 12 17

Borehole Temp in deg F

Limestone Density Por.
percent
30 20 10 0 -10

MCG BH Corrected Gamma
API
0 75 150
150 225 300

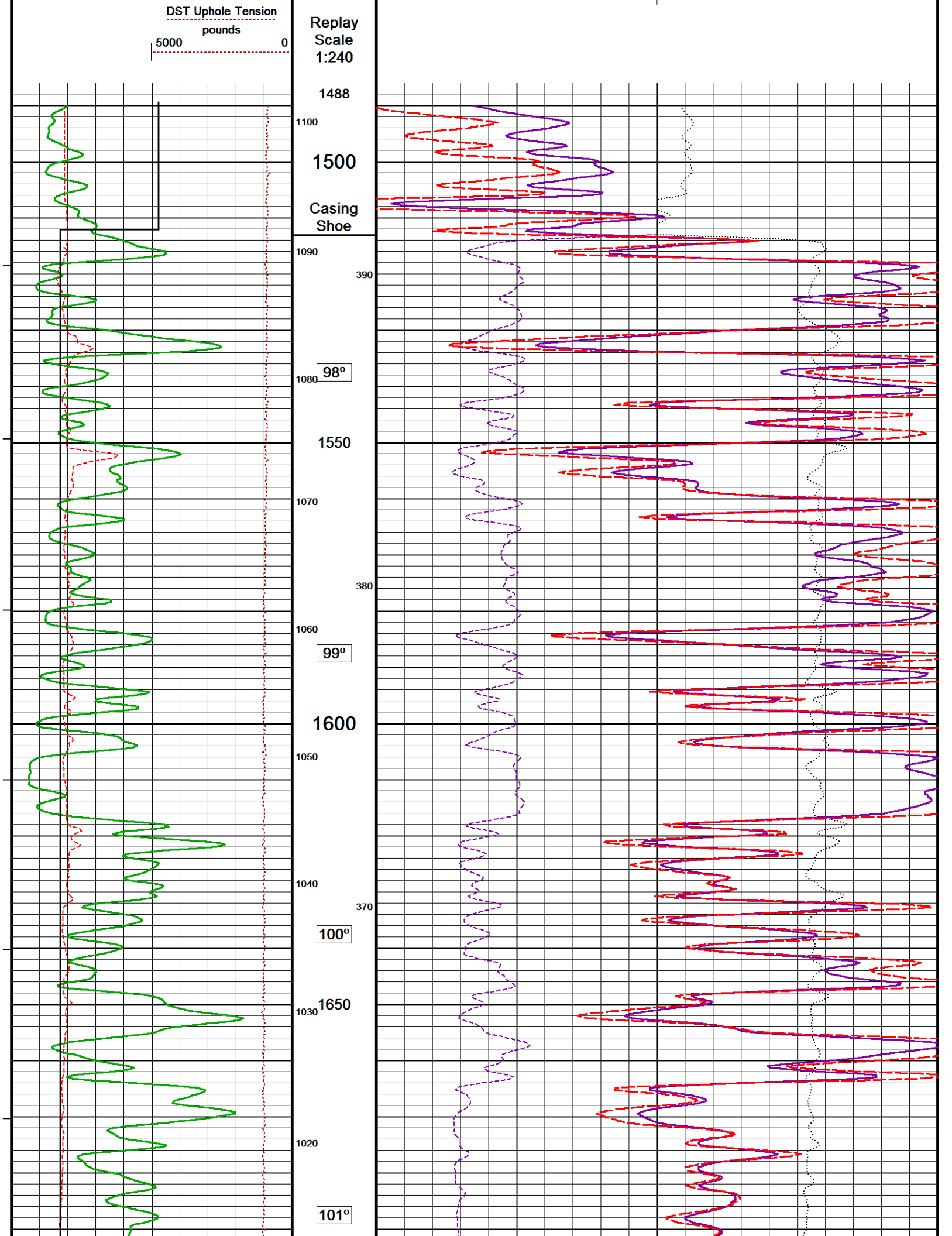
HVI every 10 cu ft

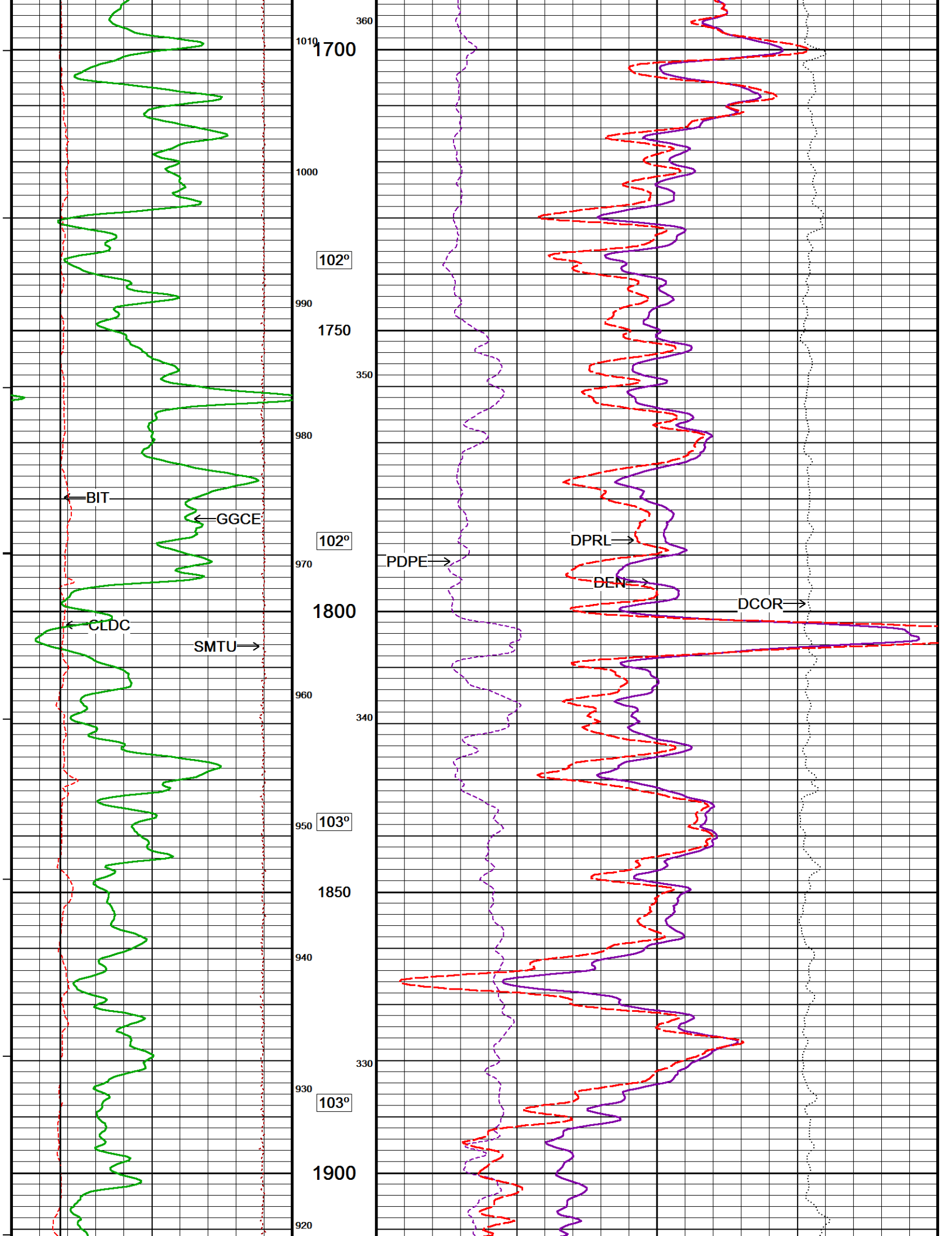
Bit Size
inches
7 12 17

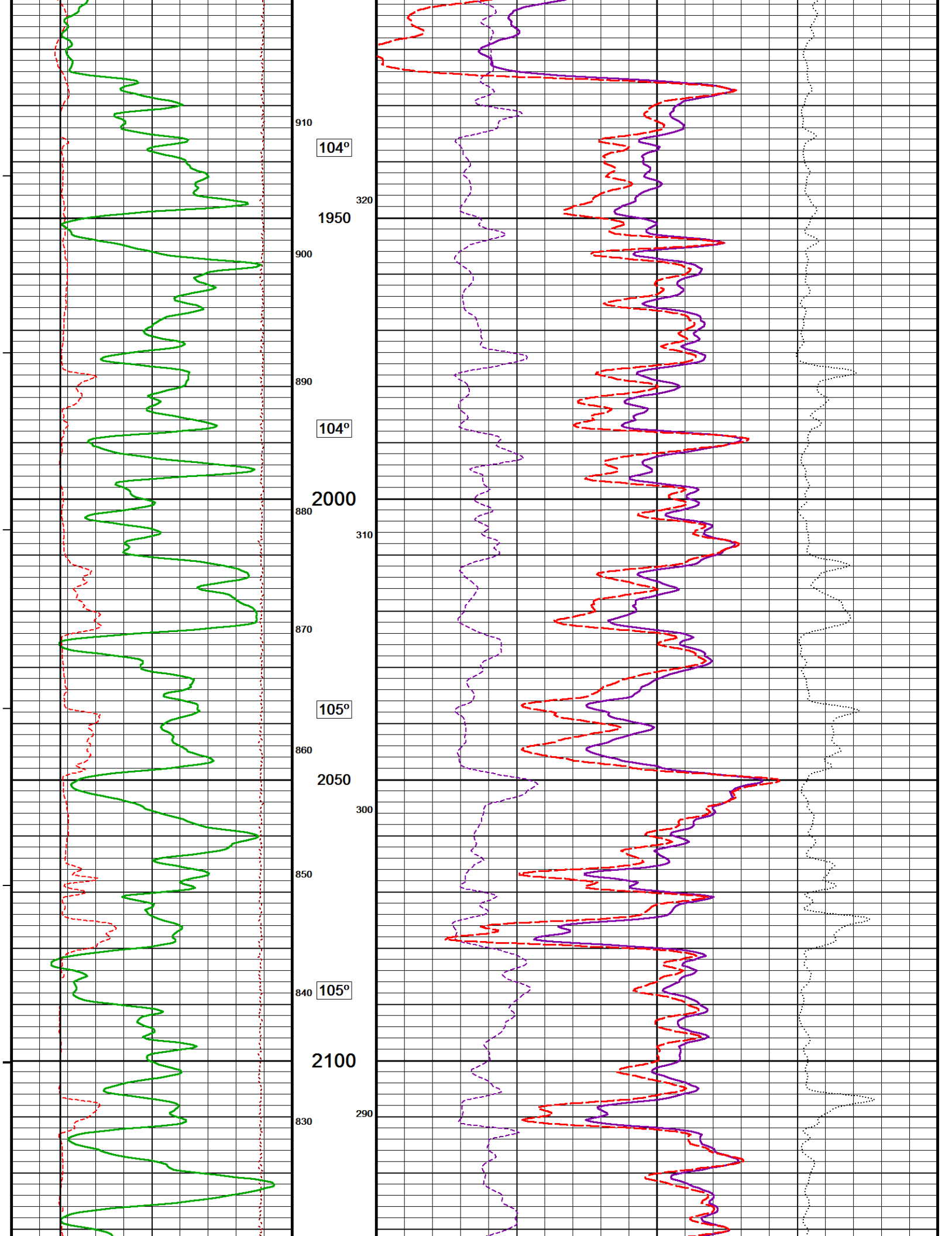
Annular Integral every 10 cu ft

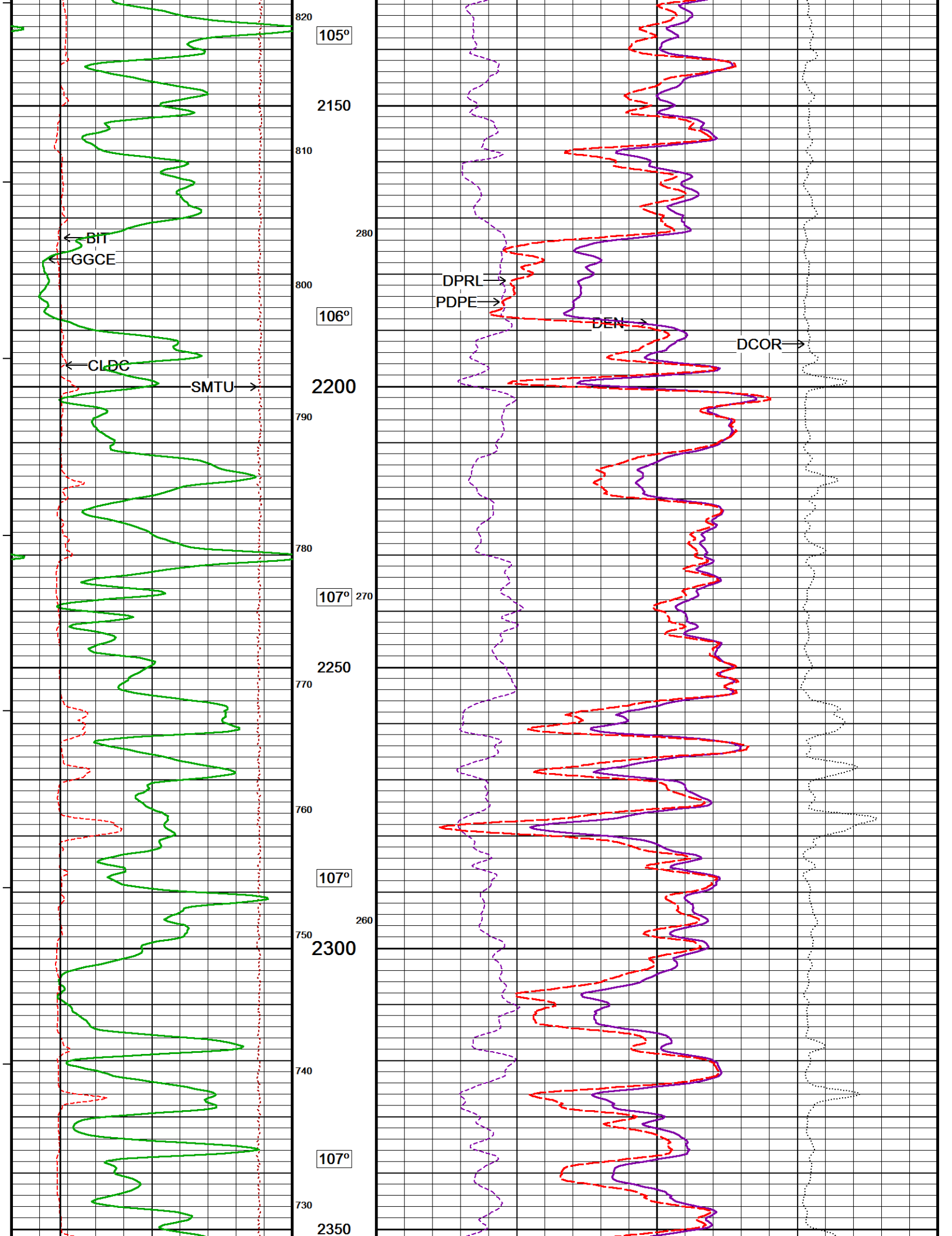
PE
barns/electron
0 5 10

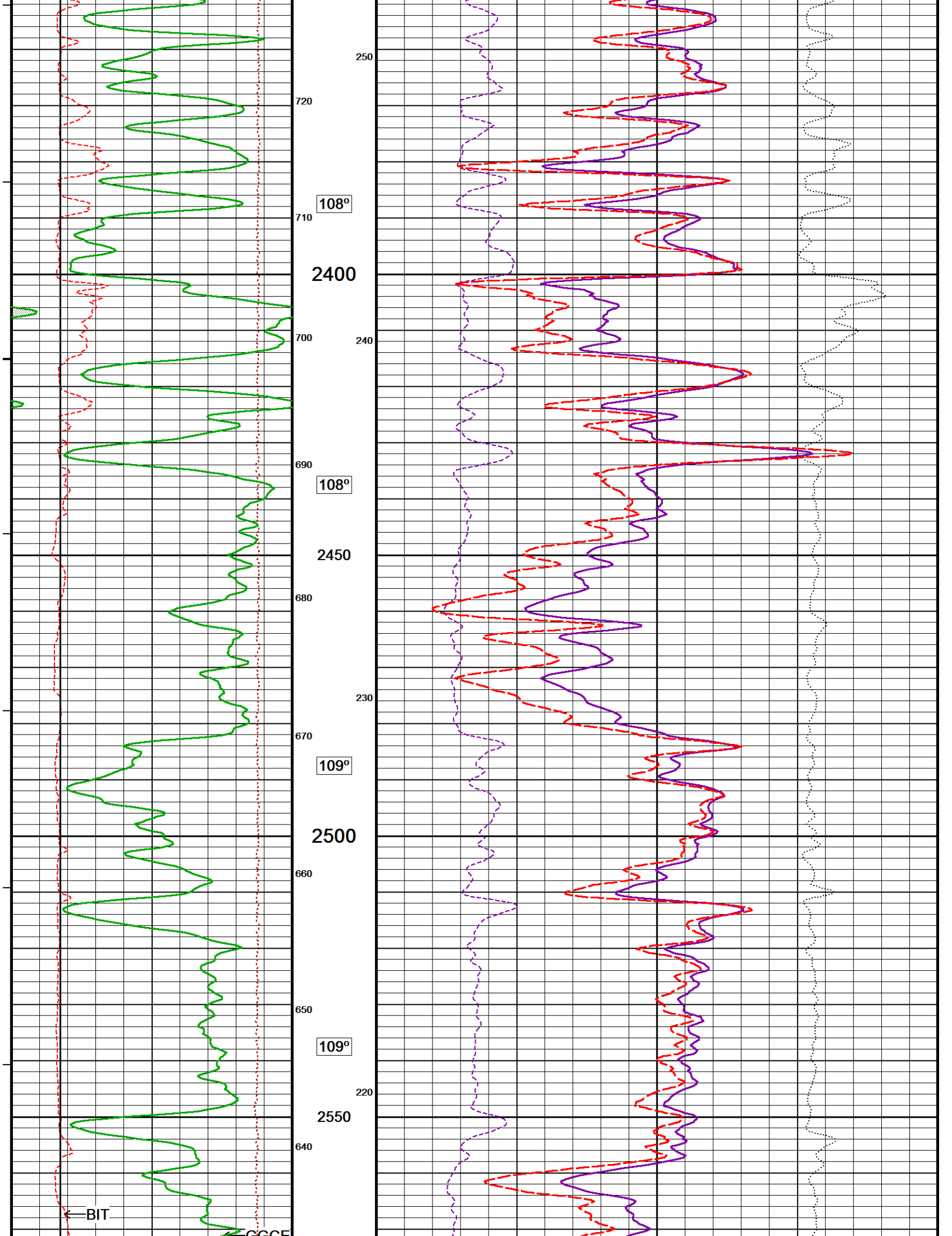
Density Correction
grams/cc
-0.50 0 0.50

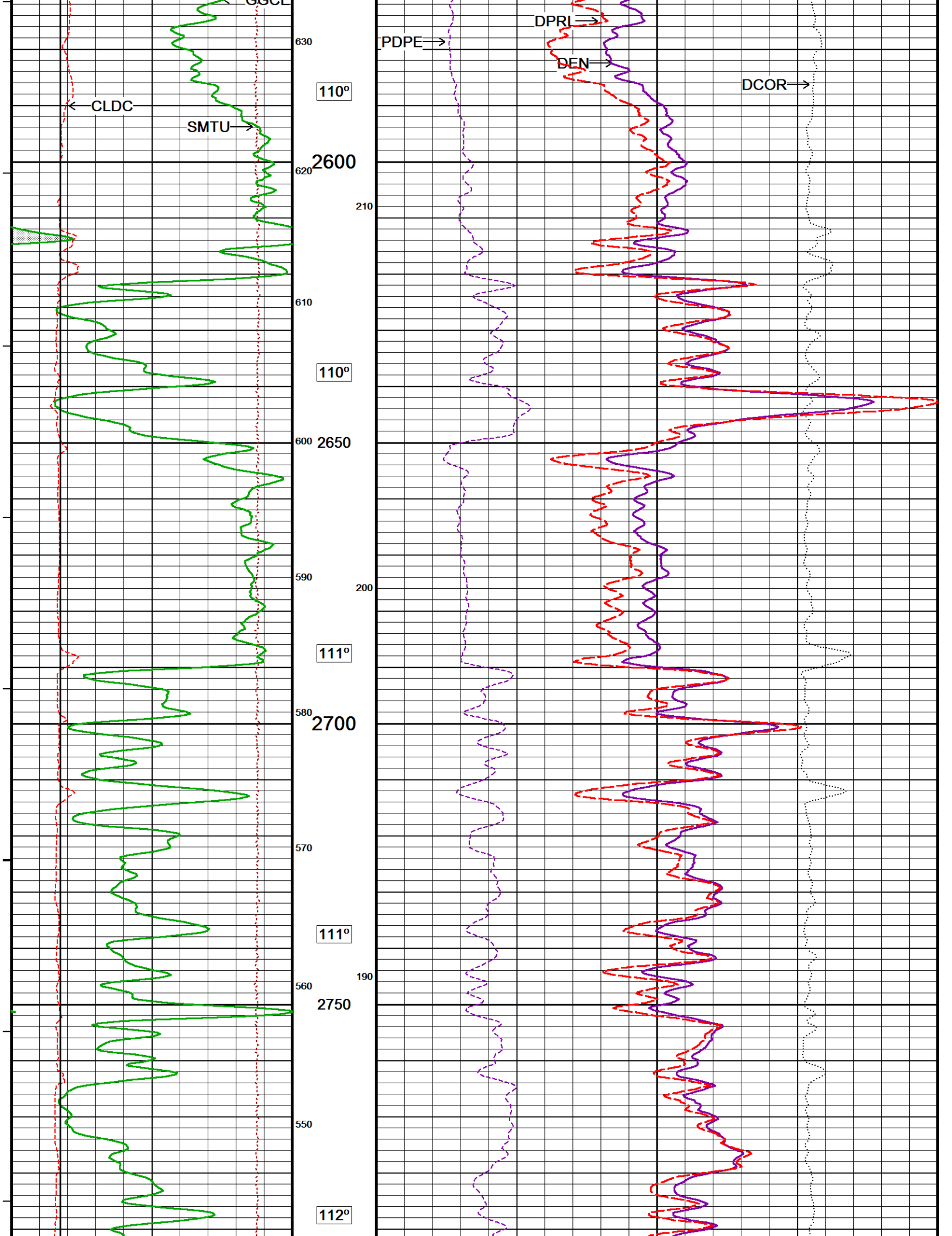

DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
1488
1100
1500
Casing
Shoe
1090
390
1080
98°
1550
1070
380
1060
99°
1600
1050
1040
370
100°
1650
1030
1020
101°

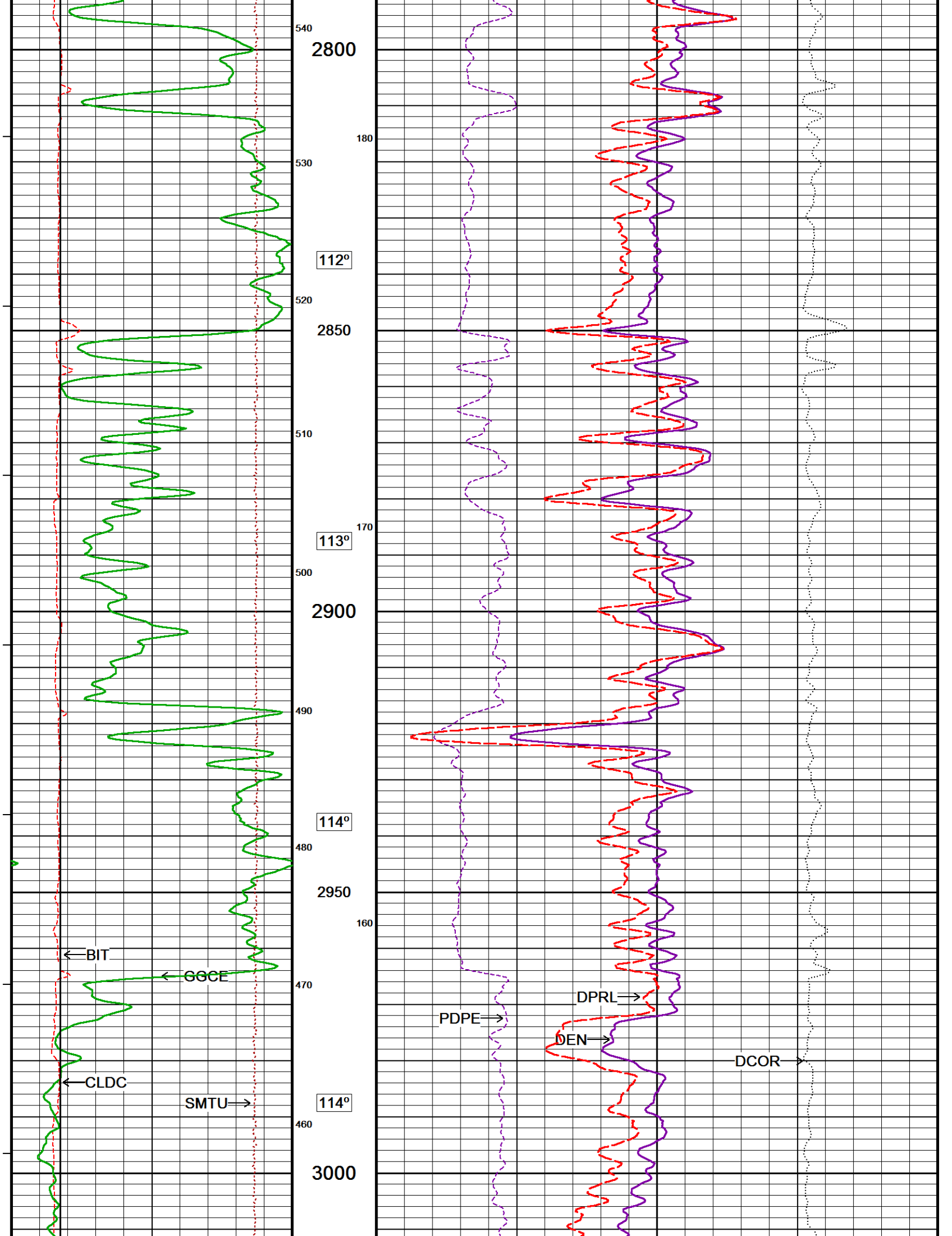

1700
1750
1800
1850
1900
1010
1000
990
980
970
960
950
940
930
920
360
350
340
330
102°
102°
103°
103°
BIT
GGCE
CLDC
SMTU
PDPE
DPRL
DEN
DCOR

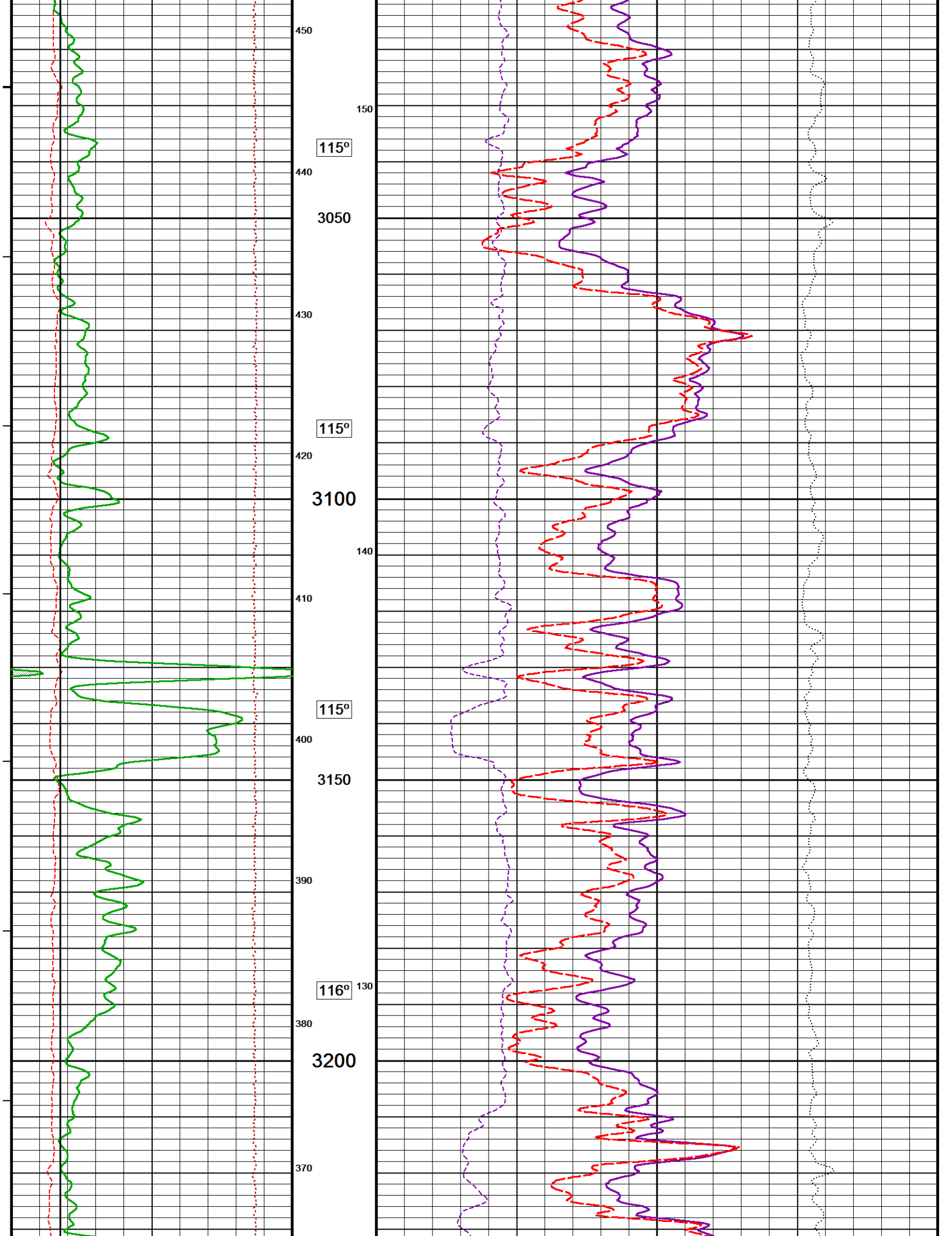

910
104°
1950
320
900
890
104°
2000
880
310
870
105°
860
2050
300
850
840
105°
2100
830
290

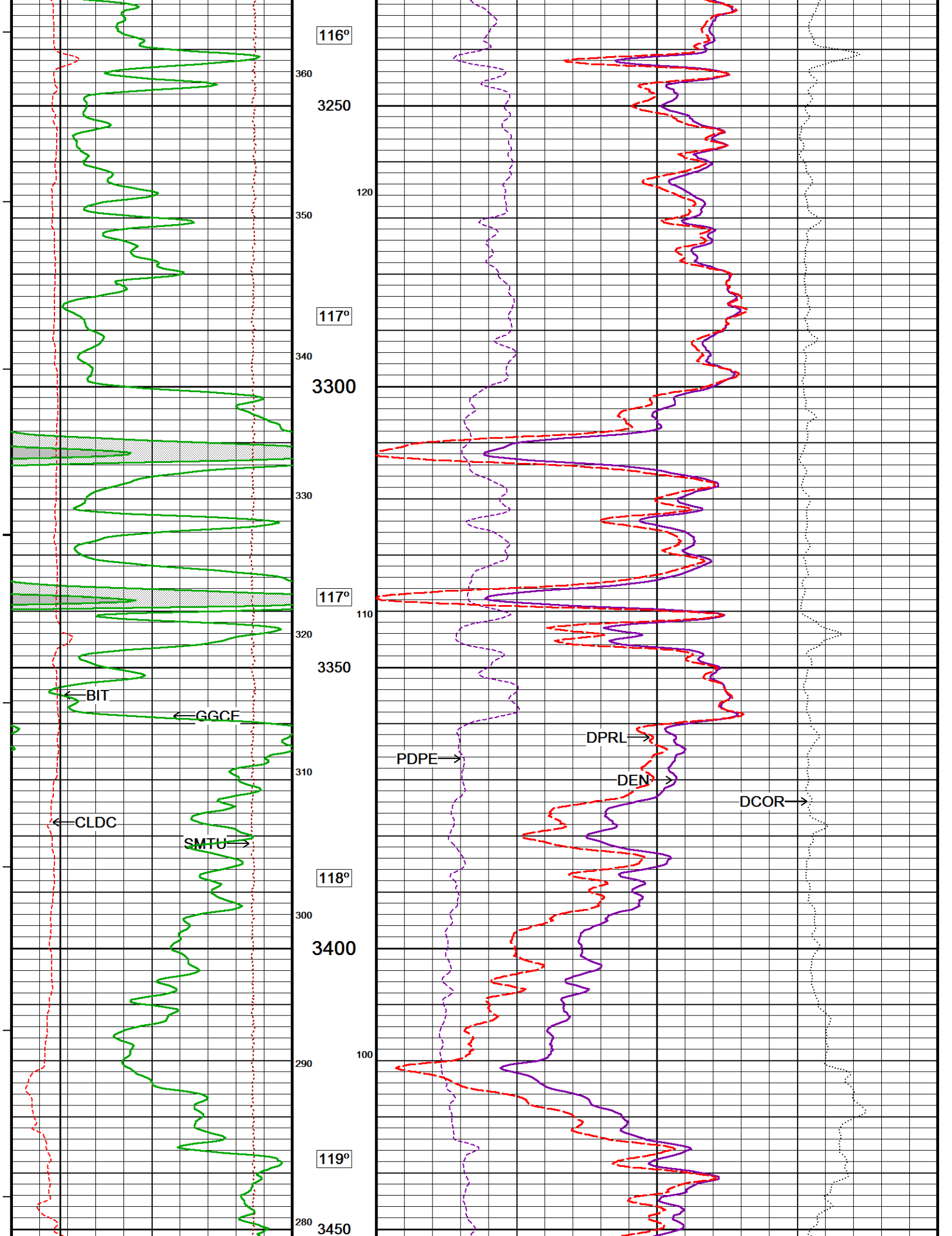

BIT
GGCE
CLDC
SMTU
DPRL
PDPE
DEN
DCOR
820
810
800
790
780
770
760
750
740
730
105°
106°
107°
107°
107°
2150
2200
2250
2300
2350
280
270
260

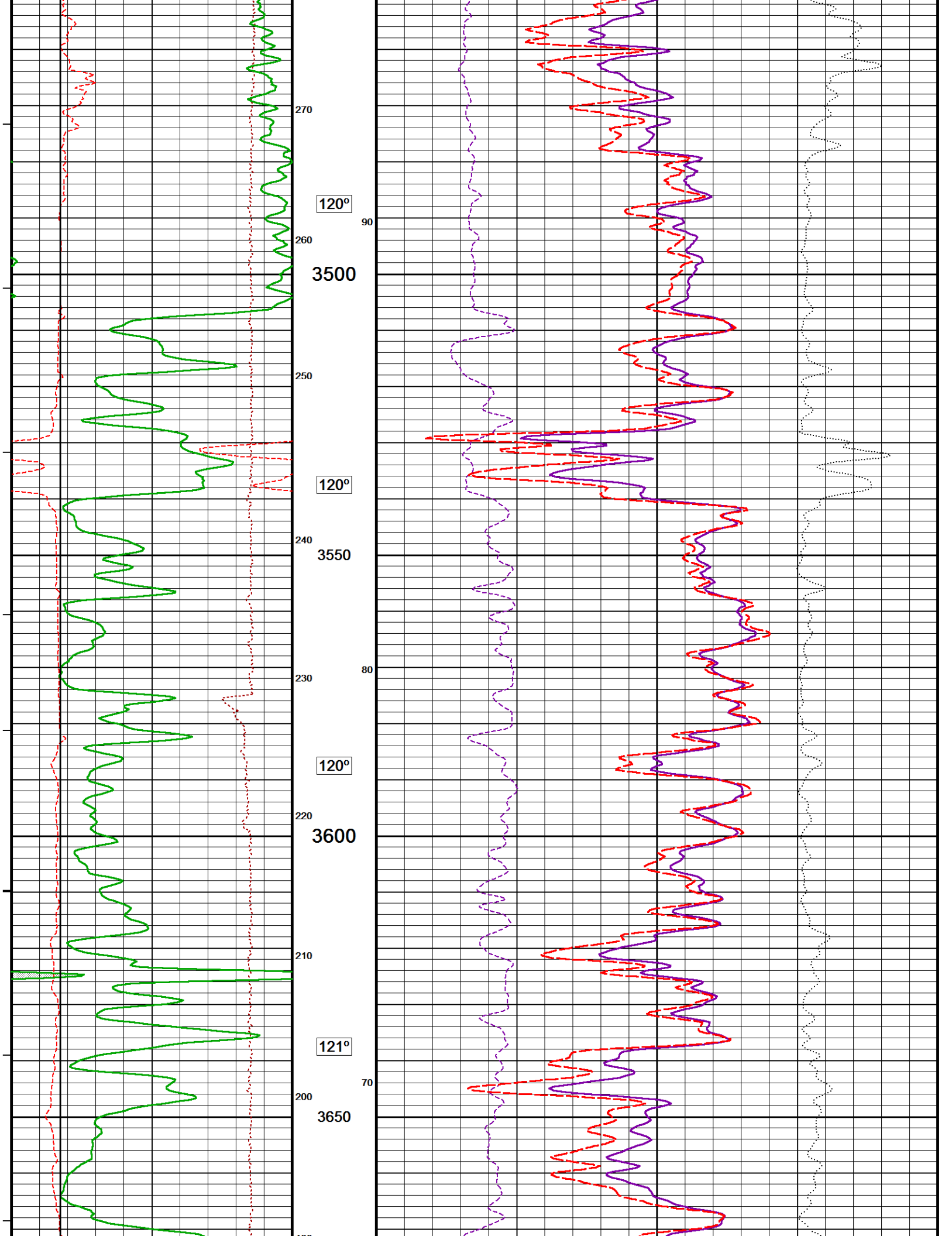

720
710
108°
2400
700
690
108°
2450
680
670
109°
2500
660
650
109°
2550
640
250
240
230
220
BIT

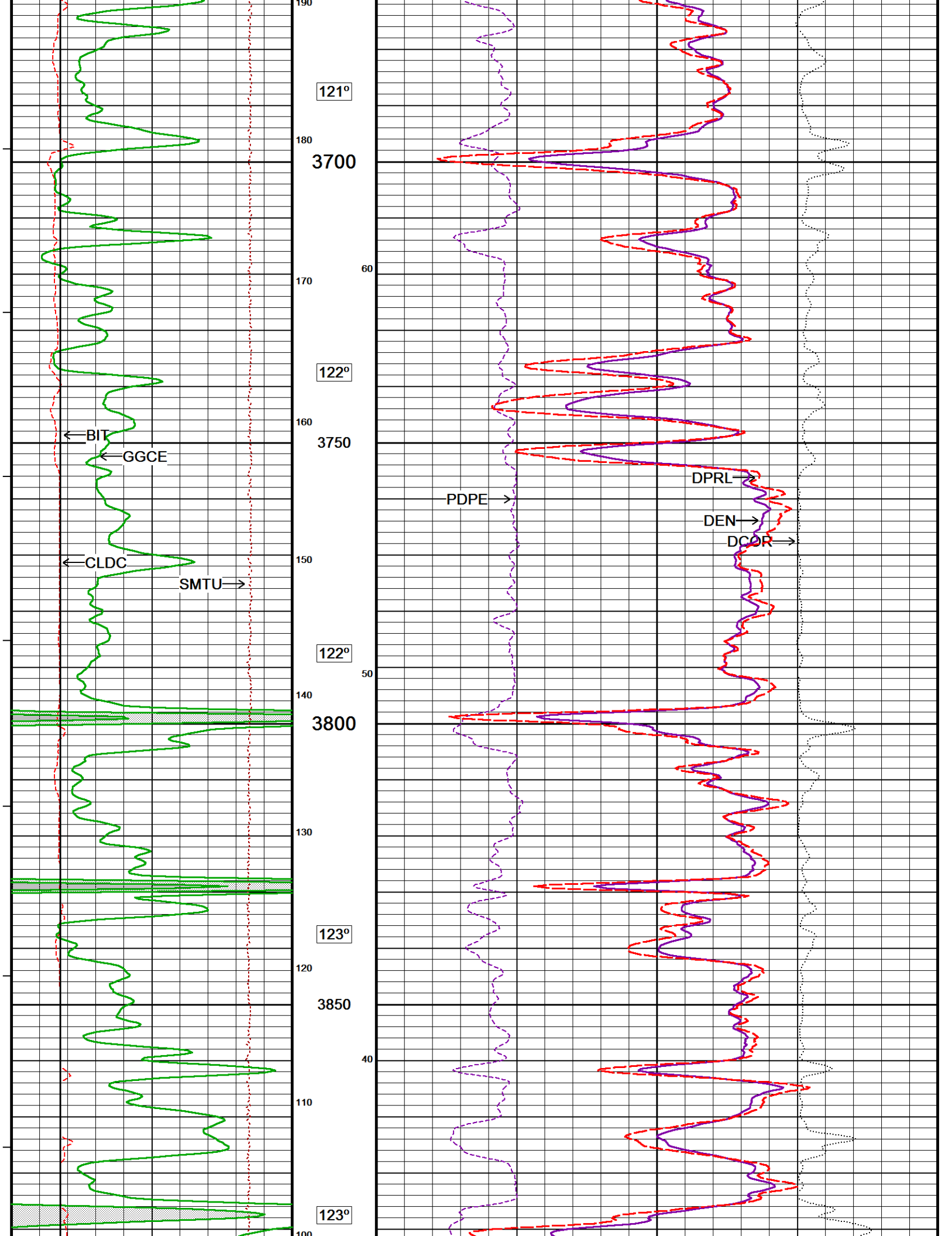

GGCL
CLDC
SMTU
630
110°
620
2600
610
110°
600
2650
590
111°
580
2700
570
111°
560
2750
550
112°
PDPE
DPRL
DEN
DCOR
210
200
190

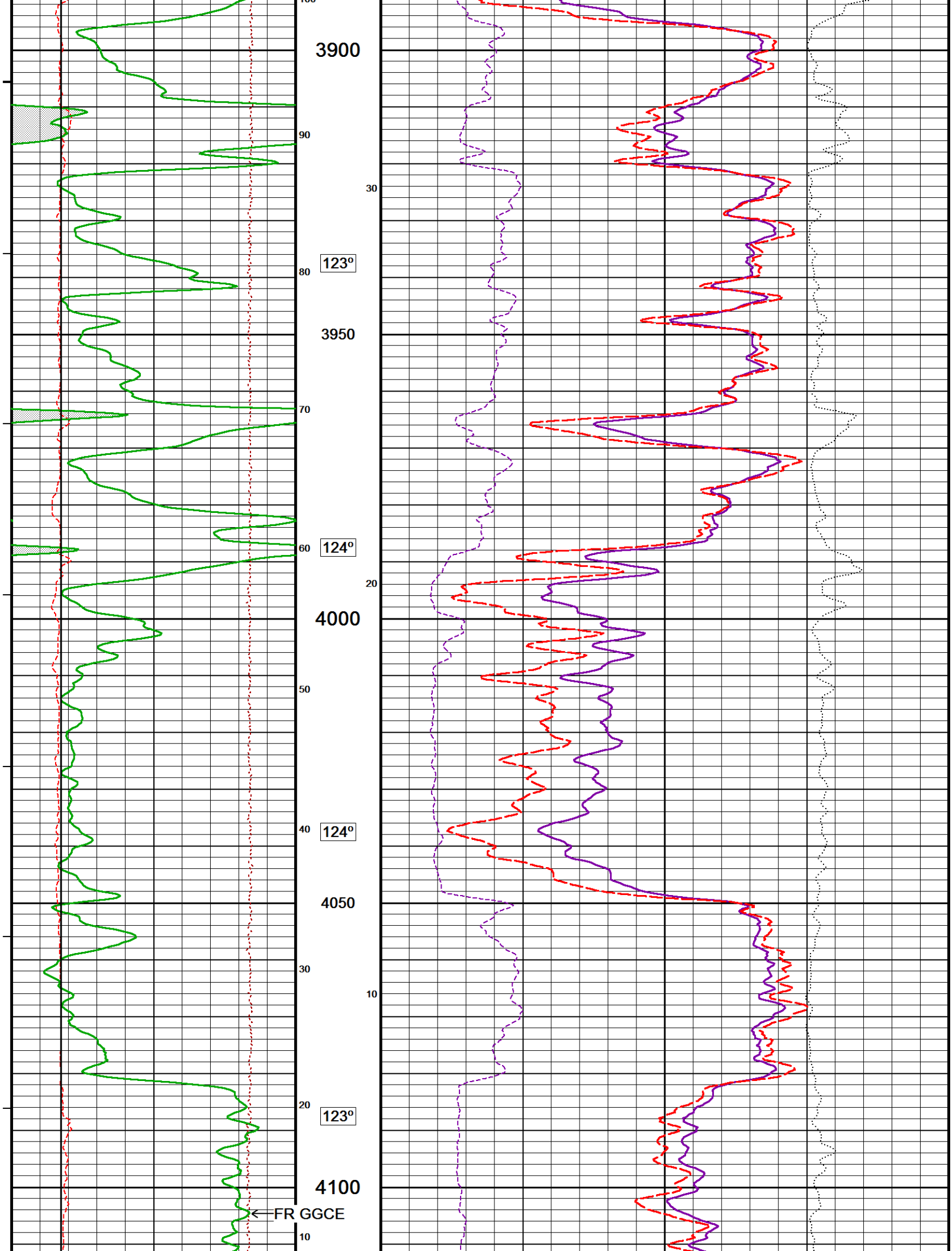

540
2800
180
530
112°
520
2850
510
170
113°
500
2900
490
114°
480
2950
160
BIT
GGCE
470
DPRL
PDPE
DEN
DCOR
CLDC
SMTU
114°
460
3000

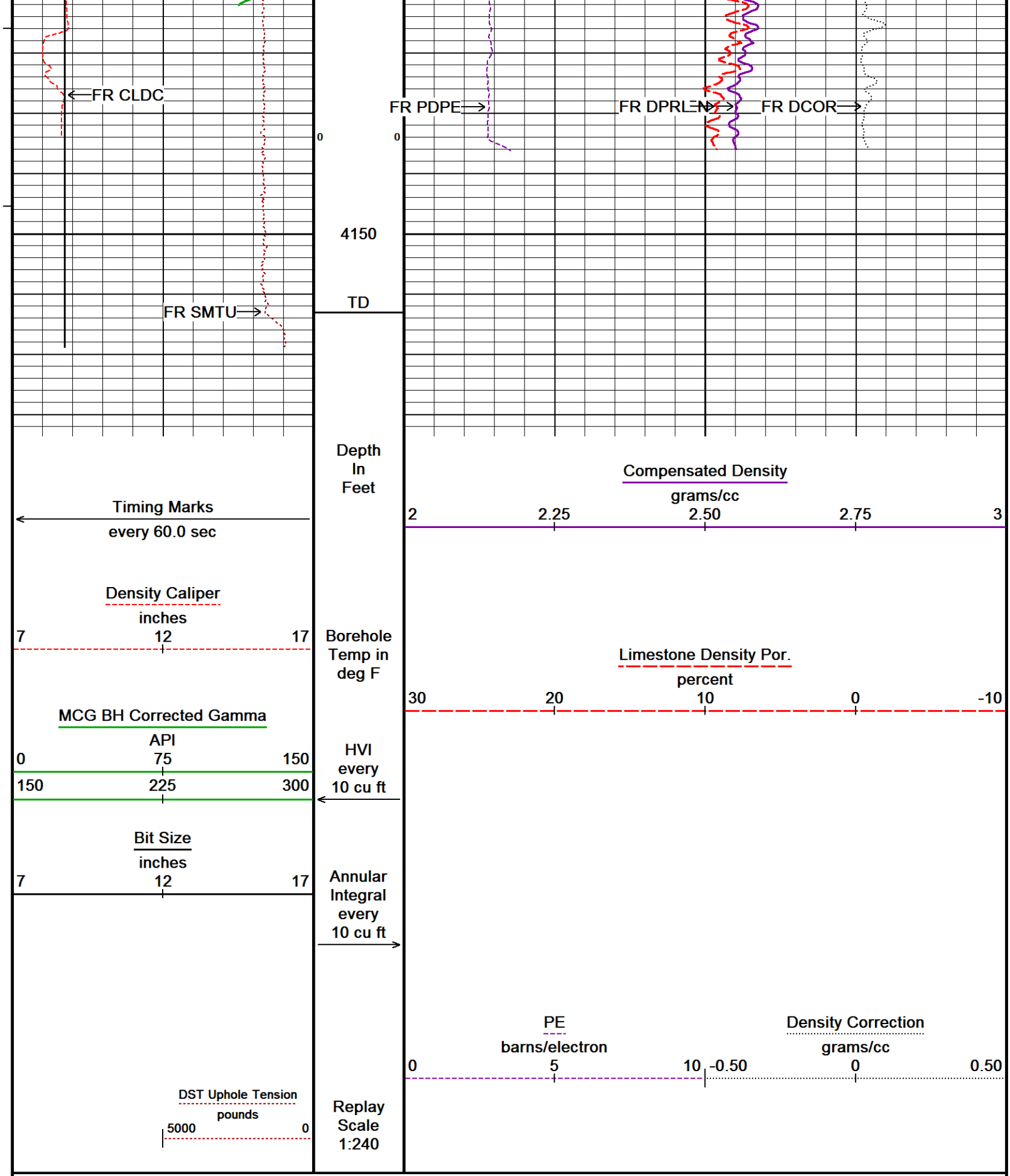

450
440
430
420
410
400
390
380
370
150
140
130
115°
115°
115°
116°
3050
3100
3150
3200


116°
360
3250
350
117°
340
3300
330
117°
320
3350
BIT
GGCF
310
CLDC
SMTU
118°
300
3400
290
119°
280
3450
120
110
100
PDPE
DPRL
DEN
DCOR


270
120°
260
3500
250
120°
240
3550
230
120°
220
3600
210
121°
200
3650
90
80
70


190
121°
180
3700
170
60
122°
160
3750
BIT
GGCE
DPRL
PDPE
DEN
DCOR
CLDC
150
SMTU
122°
50
140
3800
130
123°
120
3850
40
110
123°
100


3900
90
123°
80
3950
70
124°
60
4000
50
40
124°
4050
30
20
123°
4100
FR GGCE
10
30
20
10

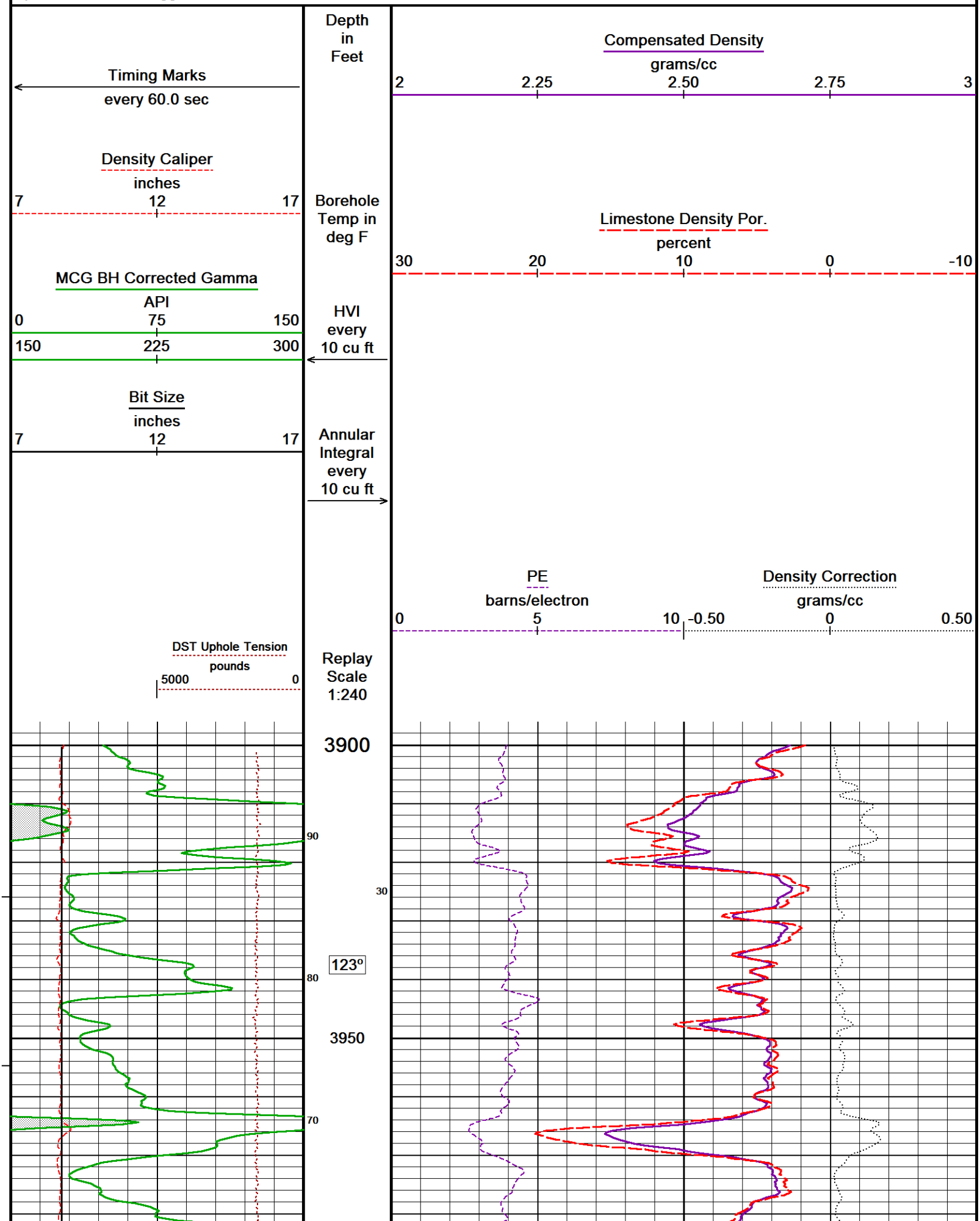


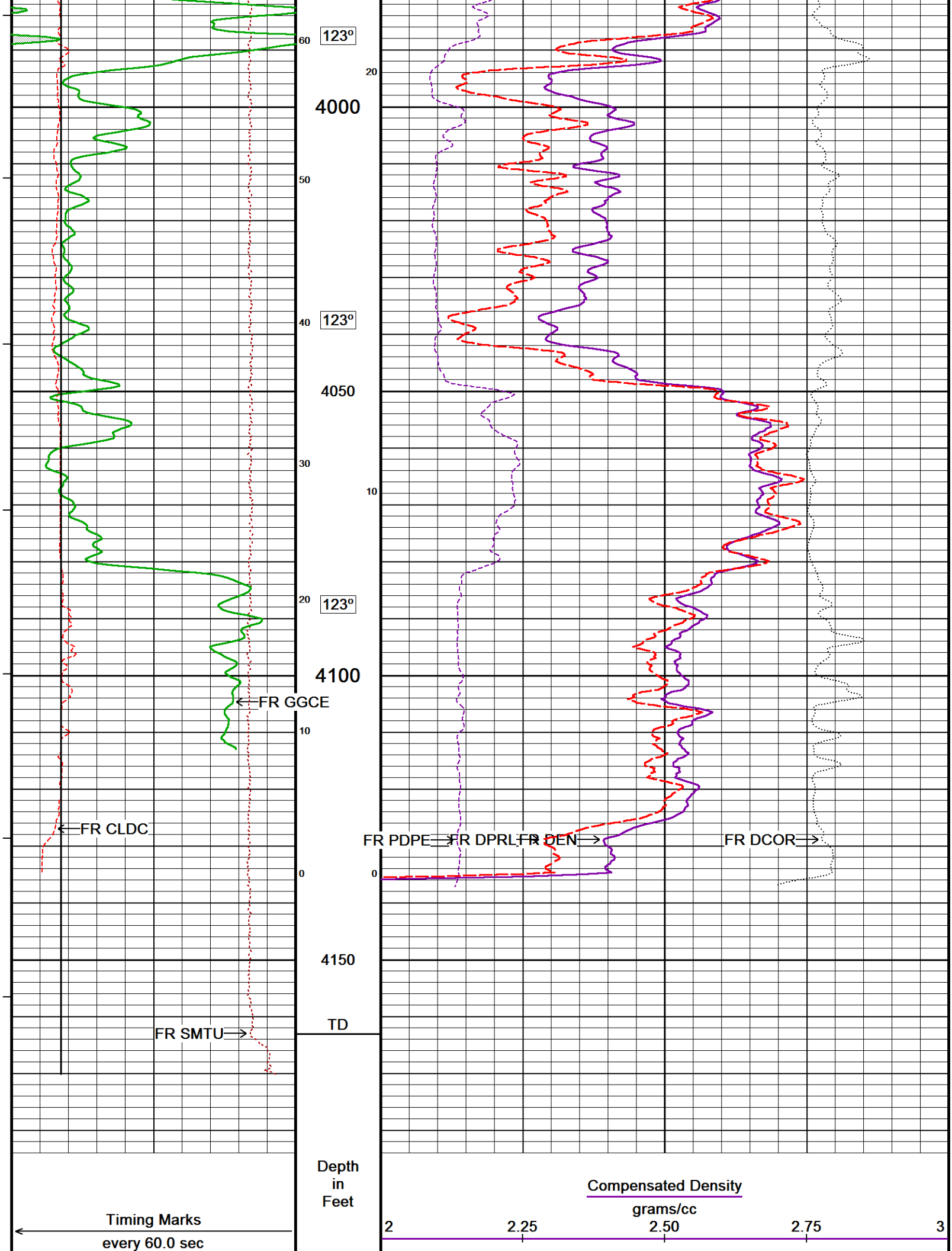
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-OCT-2017 05:26
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLIN...\MAIN PASS 1.dta
Recorded on 11-OCT-2017 02:52
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609

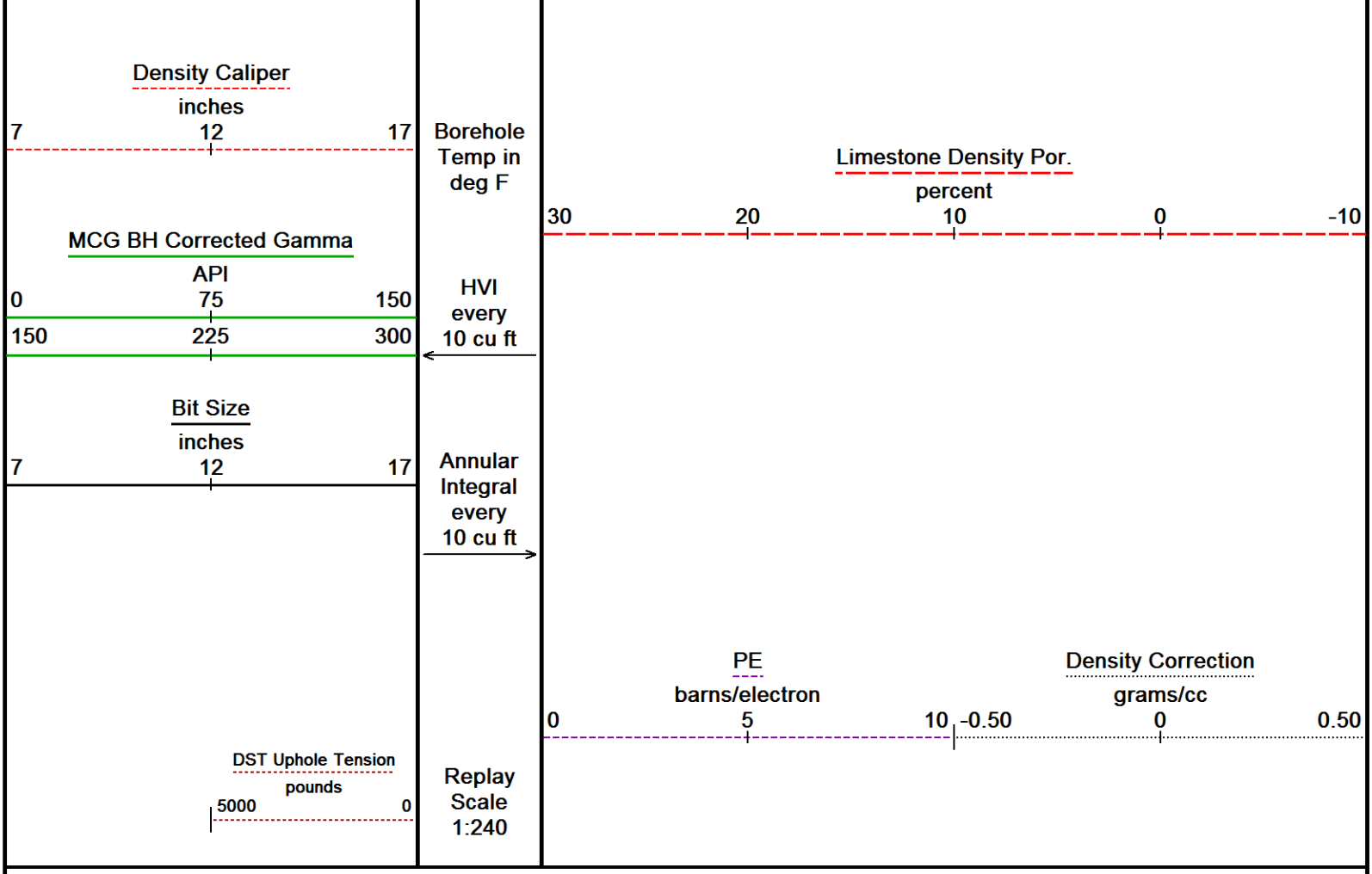
5 INCH MAIN PASS - BULK DENSITY 1:240

5 INCH REPEAT PASS - BULK DENSITY 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-OCT-2017 05:26
Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLI...\REPEAT PASS.dta
Recorded on 11-OCT-2017 02:34
System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609




123°
4000
123°
4050
123°
4100
4150
TD
60
50
40
30
20
10
0
20
10
0
FR GGCE
FR CLDC
FR SMTU
FR PDPE
FR DPRL
FR DEN
FR DCOR
Depth
in
Feet
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-OCT-2017 05:26

Filename: C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLI...\REPEAT PASS.dta — Recorded on 11-OCT-2017 02:34

System Versions: Logged with 17.03.9609 Processed with 17.03.9609 Plotted with 17.03.9609

5 INCH REPEAT PASS - BULK DENSITY 1:240

BEFORE SURVEY CALIBRATION

C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLING 16 1HXL\MAIN PASS 1.dta

General Constants All 000 — Last Edited on 11-OCT-2017,02:13

General Parameters		
Mud Resistivity	0.600	ohm-metres
Mud Resistivity Temperature	100.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	7.000	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. Two Res Rt	
RWA Constant A	0.620	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

High Resolution Temperature Calibration MCG-D.K 475 — Field Calibration on 01-OCT-2017,10:23

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	200.00	200.00

High Resolution Temperature Constants MCG-D.K 475

Last Edited on 11-MAY-2016 11:23

Pre-filter Length	11

Gamma Calibration MCG-D.K 475

Field Calibration on 09-OCT-2017 13:23

	Measured	Calibrated (API)
Background	42	28
Calibrator (Gross)	1912	1289
Calibrator (Net)	1870	1261

Gamma Calibration Tolerances MCG-D.K 475

Ratio	1.483	1.40 / 1.475 / 1.55	Counts/API

Gamma Constants MCG-D.K 475

Last Edited on 10-OCT-2017,08:02

Gamma Calibrator Number	GRC.C 46	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

Photo Density Calibration MPD-D.A 479

Base Calibration on 12-SEP-2017 17:52
Field Check on 09-OCT-2017 10:57

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1142	1372		
Reference 1	44784	21822	59494	30754
Reference 2	18326	2358	24557	2522

Field Check at Base		
	1141.7	1371.8

Field Check		
	1138.0	1366.8

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	220	1019		
Reference 1	20211	44604	0.459	0.367
Reference 2	5783	18198	0.324	0.271

Field Check at Base		
	220.0	1018.9

Field Check		
	218.2	1015.3

Photo Density Calibration Tolerances MPD-D.A 479

Near Density Ratio	2.54	-5% / 2.52 / +5%	Far Density Ratio	20.73	-5% / 21.00 / +5%
PE Calibration	0.130	0.089 / 0.110 / 0.131			
Near Den. Field Check	1138.0	-3% / 1141.7 / +3%	Far Den. Field Check	1366.8	-3% / 1371.8 / +3%
PE WS Field Check	218.2	-6% / 220.0 / +6%	PE WH Field Check	1015.3	-6% / 1018.9 / +6%

Density Constants MPD-D.A 479

Last Edited on 10-OCT-2017,08:03

Density Source Id	13057
Nylon Calibrator Number	766
Aluminium Calibrator Number	633
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied

PE Correction to Density	Not Applied	
Mud Density	1.10	gm/cc
Mud Density Type		
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	
Precision Enhanced Density Processing	Not Applied	

Matrixdensity(gm/cc)	Depth(m)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-D.A 479

Base Calibration on 12-SEP-2017 19:24
Field Calibration on 09-OCT-2017 13:41

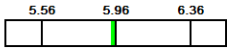
Base Calibration

Reading No	Measured	Calibrator Size (in)
1	12026	4.00
2	18520	5.96
3	25198	7.96
4	31581	9.86
5	38421	11.88
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.93	5.96

Caliper Calibration Tolerances MPD-D.A 479

Long Arm Field Cal. 5.93 

in

DOWNHOLE EQUIPMENT

C:\Minimus 17.03.9609\DATA\UNIT PETROLEUM COMPANY_GEESLING 16 1HXL\MAIN PASS 1.dta

11B Tension Cablehead
MCB-A 1 LG: 2.18 ft WT: 19.8 lb OD: 2.244 in

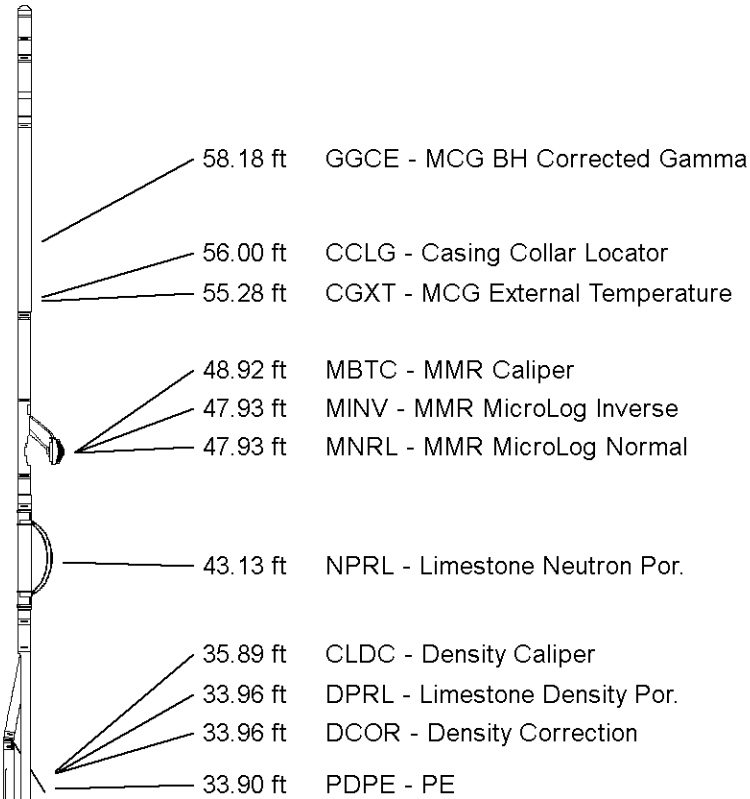
Compact Swivel Head Adaptor
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.K 475 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-B.J 388 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-D.A 479 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in



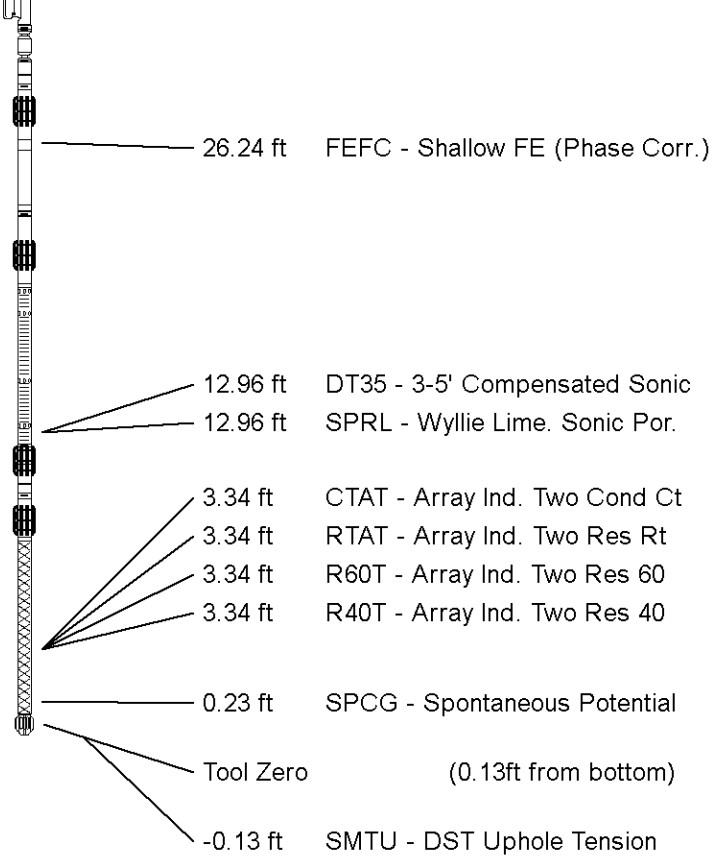
Compact Knuckle Joint
SKJ-E.B 727 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-B.A 261 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-C.A 147 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-B.J 426 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

Total Length: 67.95 ft Weight: 522.5 lb



All measurements relative to tool zero.

COMPANY	UNIT PETROLEUM COMPANY
WELL	GEESLING 16 1HXL
FIELD	WILDCAT
PROVINCE/COUNTY	RENO COUNTY
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1782	feet	First Reading	4129.10	feet
Elevation Drill Floor	1780	feet	Depth Driller	4160.00	feet
Elevation Ground Level	1762	feet	Depth Logger	4163.00	feet

Weatherford®

COMPACT PHOTO-DENSITY
DUAL SPACED NEUTRON
MICRO RESISTIVITY LOG