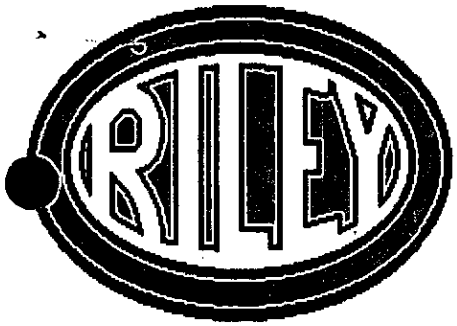

Company : B & W SOUTHERN
Geologist : ED GONZALES
Well : JC WILLIAMSON ROSS DRAW UNIT NO 26
County & State : EDDY COUNTY NEW MEXICO
Legal : 450'FNL & 450'FEL,SCT 34,T-26-S,R-30-E
Survey :
Elevation : G.L. 2990 K.B. 3000
Field : ROSS DRAW
API Number : 30-015-33083
Spud Date : 11/23/2003
Dates Logged : 11/28/2003 To 12/3/2003
Depths Logged : 3000 To 5720
Rig : ROD - RIC RIG NO 2
Unit #
Loggers : RICH MASTERSON

Riley Geological Consultants
P.O. Box 3247
Lubbock, TX 79452-3247
806-744-6460 Office
806-632-8380 Mobile

RECEIVED
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Abbreviations

CG - Conn Gas	NB - New Bit
CO - Circ Out	NCB- New Core Bit
TG - Trip Gas	DCB- Diamond Core Bit
CS - Casing Seat	DS - Directional Survey
NR - No Returns	DC - Depth Correction
XO - Change Out	MD - Measured Depth
TIH - Trip In Hole	TOH - Trip Out Hole
HIP - Hole In Pipe	TVD - True Vertical Depth

BHA - Bottom Hole Assembly
DST - Drill Stem Test

Lithology Symbols

Sand	Chert
Limestone	Conglomerate A
Dolomite	Conglomerate B
Anhydrite	Conglomerate C
Volcanics	Shale
Fractures	Salt
Bentonite	Chalk
Silt	Calcite
Coal	Fossil
Metamorphics	Granite Wash
Granite	Pyrite

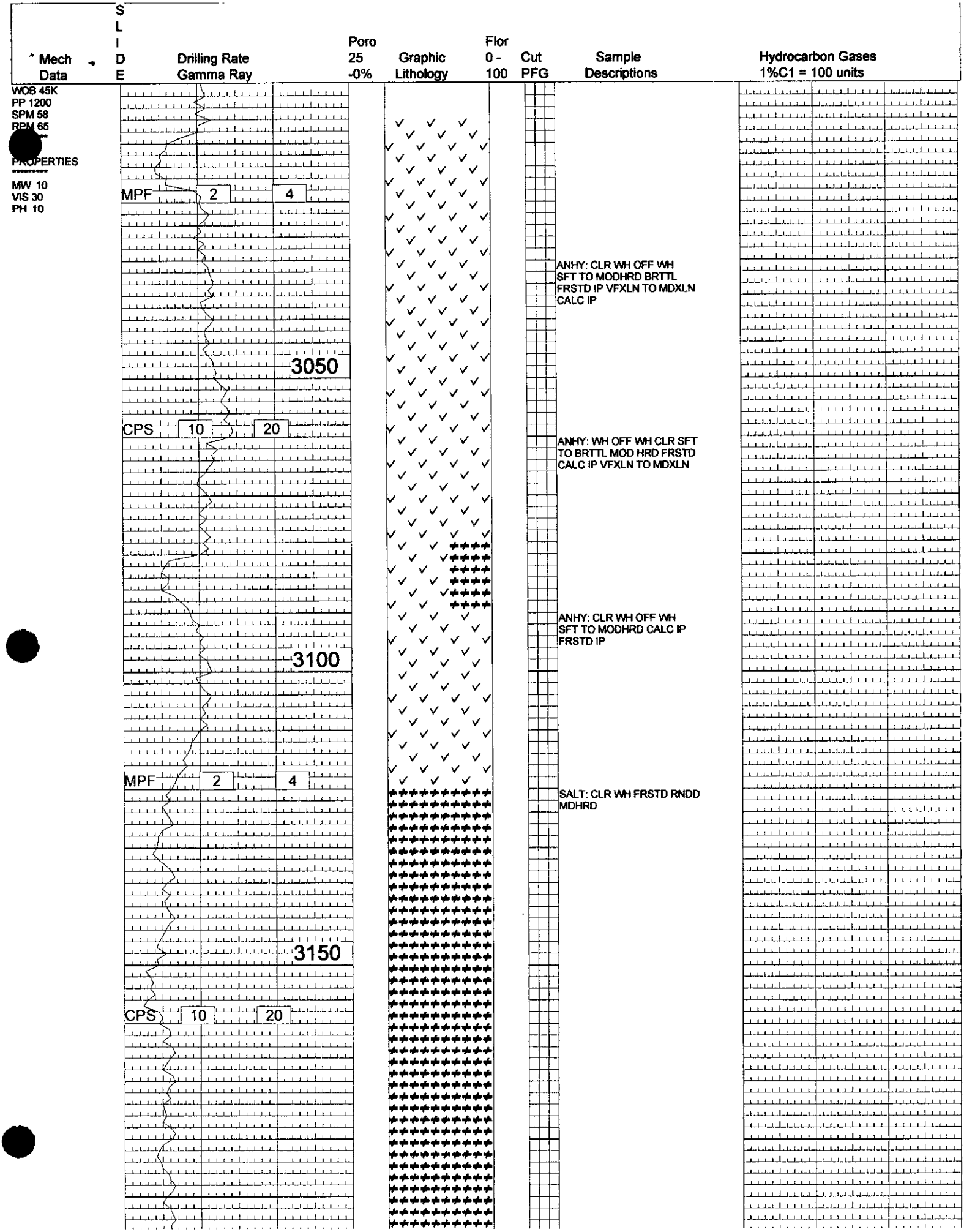
Drilling Rate Lines

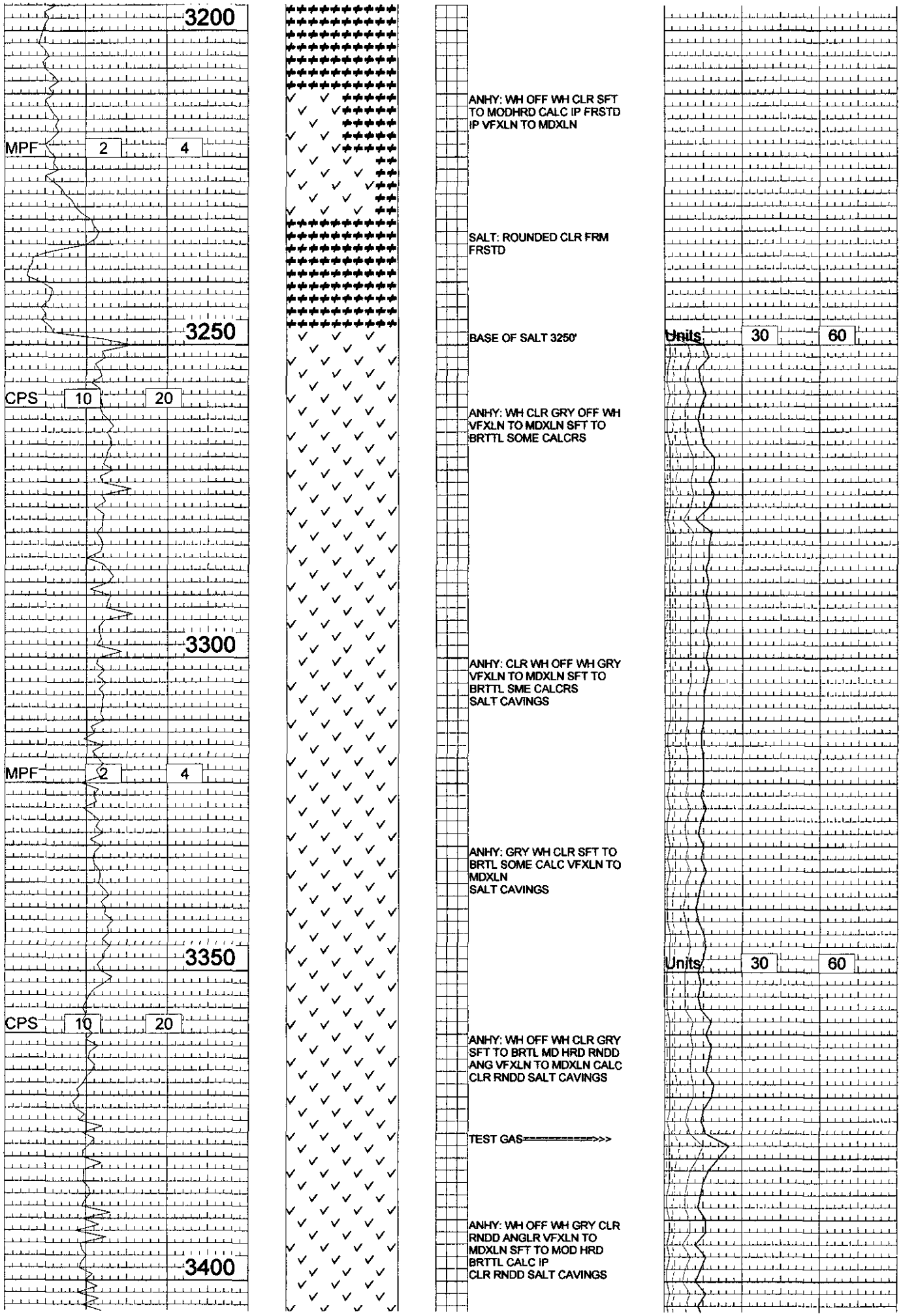
ROP : Rate Of Penetration : _____
Minutes Per Foot (MPF)
Feet Per Hour (FPH)

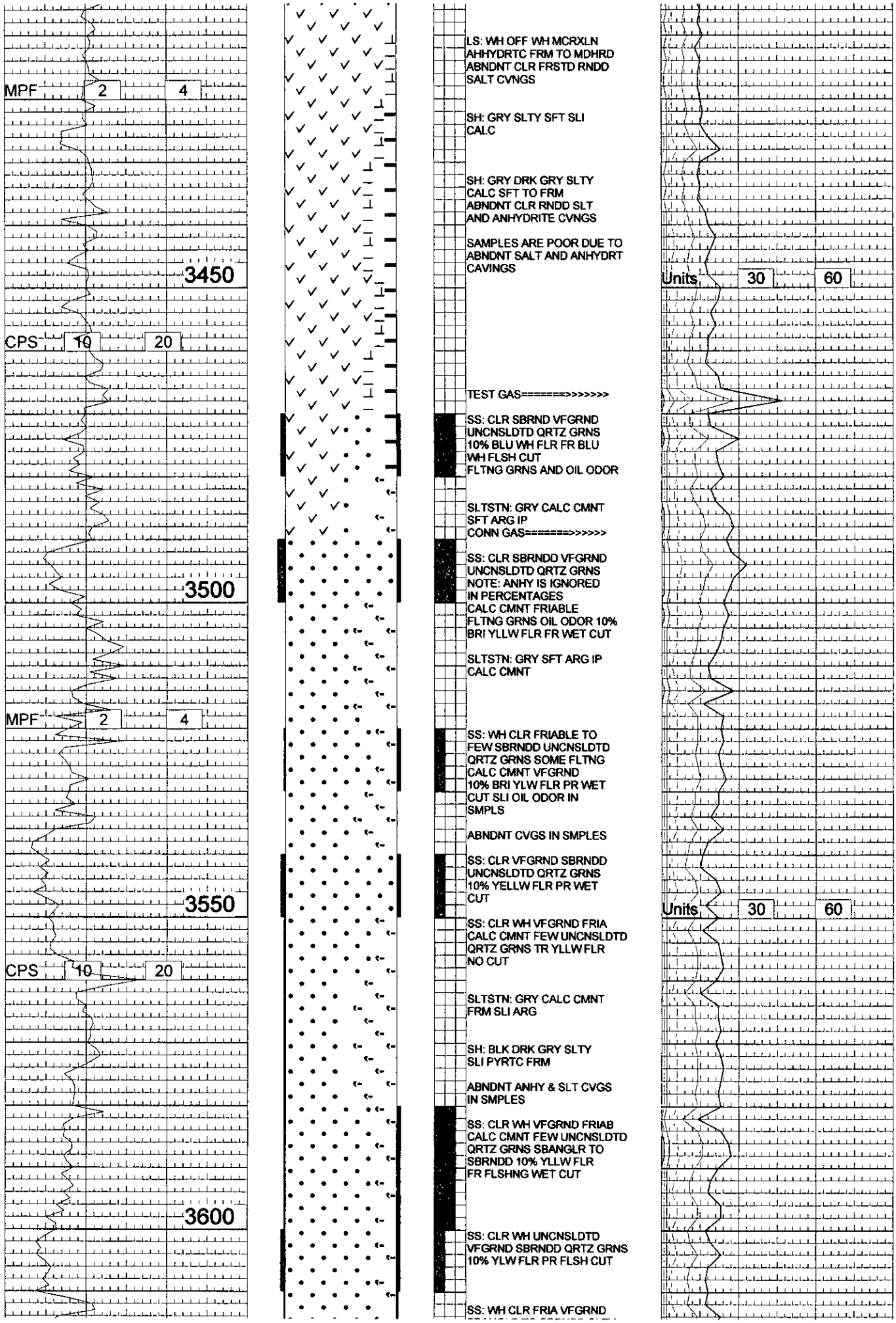
Gamma Ray Neutron _____
Counts Per Second

Gas Chromatograph Lines

Total Gas
Methane
Ethane
Propane
Isobutane
Butane

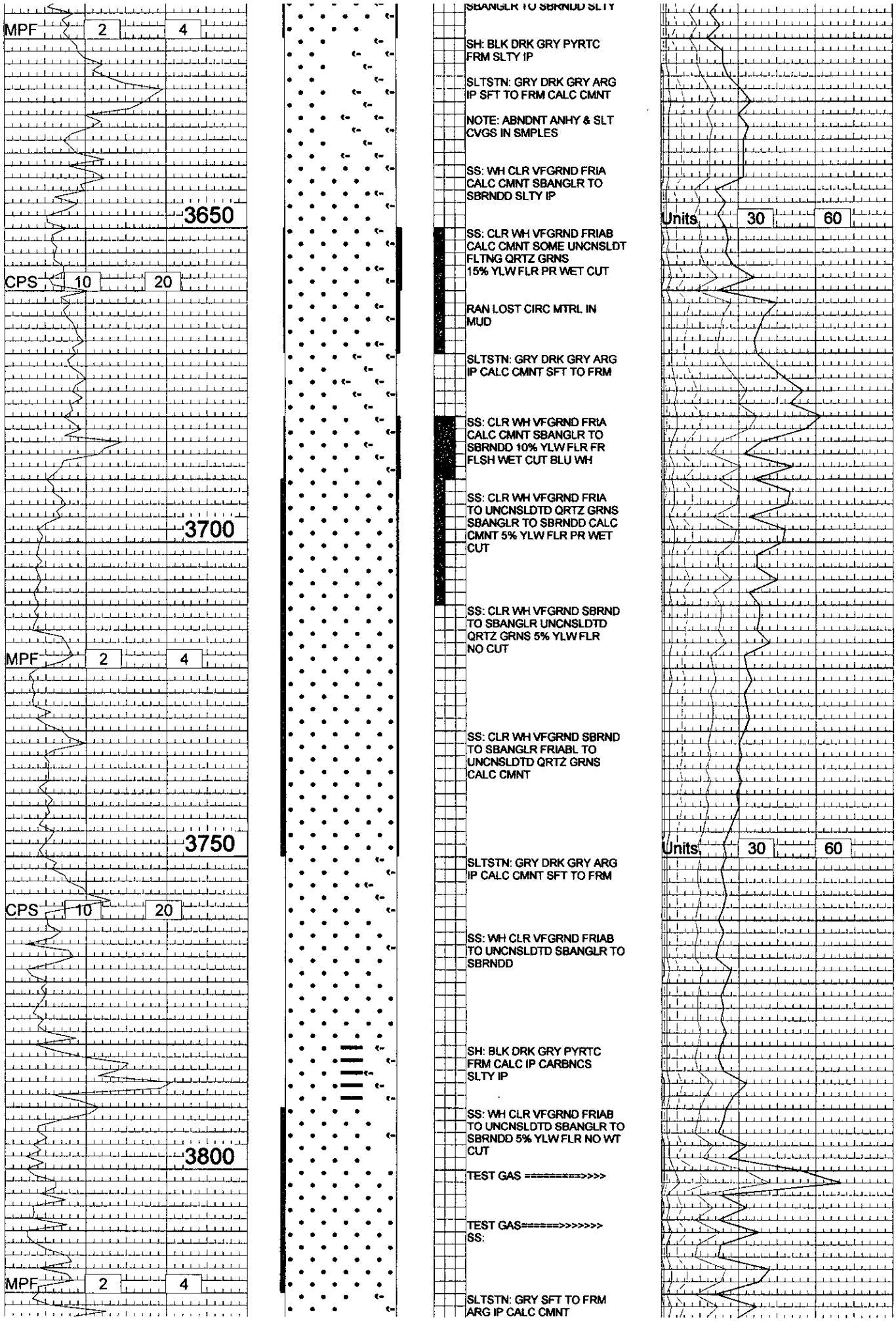

^ Mech Data
SLIDE
Drilling Rate
Gamma Ray
Poro
25
-0%
Graphic Lithology
Flor
0 -
100
Cut
PFG
Sample Descriptions
Hydrocarbon Gases
1%C1 = 100 units
WOB 45K
PP 1200
SPM 58
RPM 65
PROPERTIES
MW 10
VIS 30
PH 10
MPF
2
4
3050
CPS
10
20
ANHY: CLR WH OFF WH SFT TO MODHRD BRTTL FRSTD IP VFXLN TO MDXLN CALC IP
ANHY: WH OFF WH CLR SFT TO BRTTL MOD HRD FRSTD CALC IP VFXLN TO MDXLN
3100
ANHY: CLR WH OFF WH SFT TO MODHRD CALC IP FRSTD IP
MPF
2
4
SALT: CLR WH FRSTD RNDD MDHRD
3150
CPS
10
20

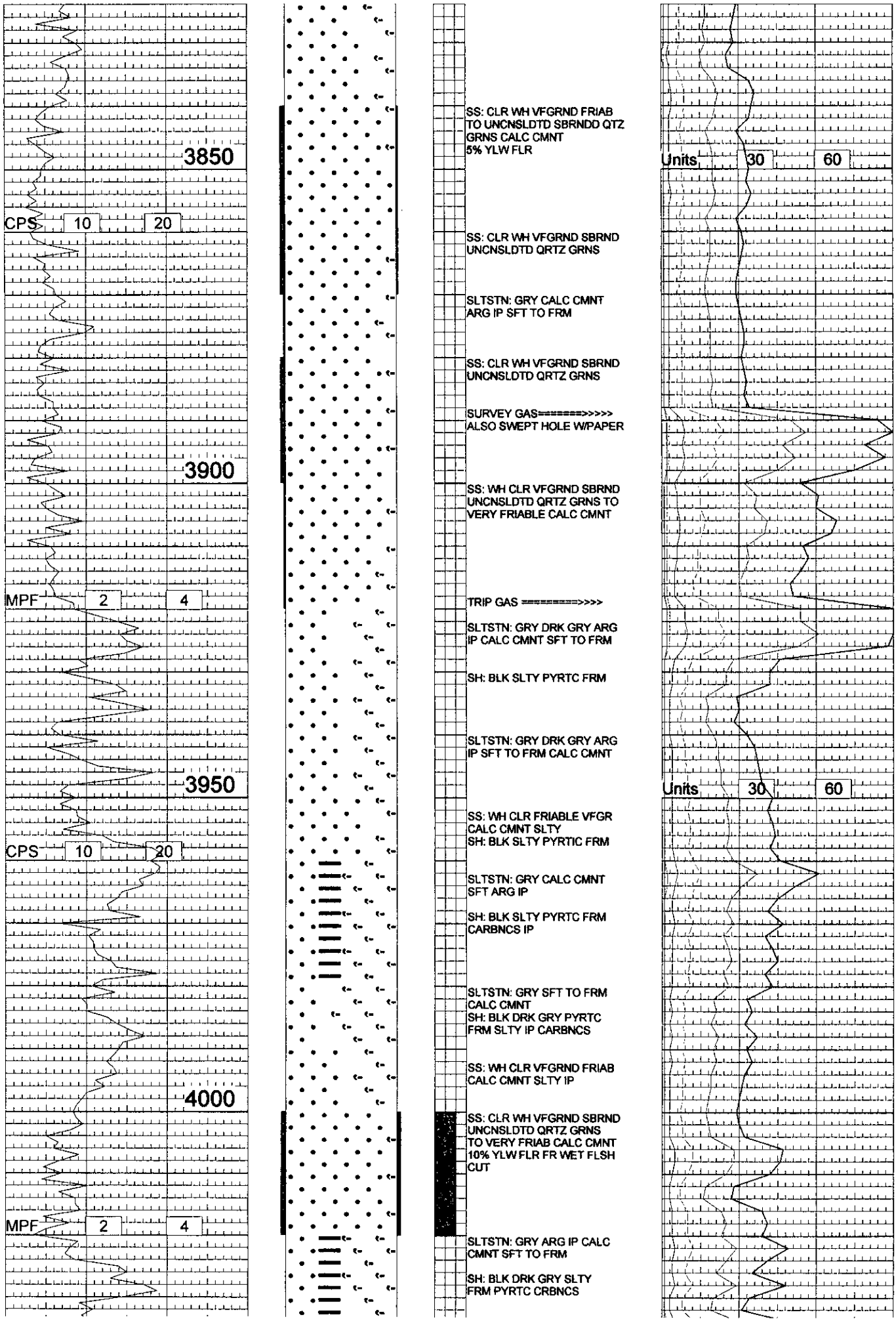

3200
MPF
2
4
3250
CPS
10
20
3300
MPF
2
4
3350
CPS
10
20
3400
ANHY: WH OFF WH CLR SFT TO MODHRD CALC IP FRSTD IP VFXLN TO MDXLN
SALT: ROUNDED CLR FRM FRSTD
BASE OF SALT 3250'
ANHY: WH CLR GRY OFF WH VFXLN TO MDXLN SFT TO BRTTL SOME CALCRS
ANHY: CLR WH OFF WH GRY VFXLN TO MDXLN SFT TO BRTTL SME CALCRS SALT CAVINGS
ANHY: GRY WH CLR SFT TO BRTL SOME CALC VFXLN TO MDXLN SALT CAVINGS
ANHY: WH OFF WH CLR GRY SFT TO BRTL MD HRD RNDD ANG VFXLN TO MDXLN CALC CLR RNDD SALT CAVINGS
TEST GAS==========>>>
ANHY: WH OFF WH GRY CLR RNDD ANGLR VFXLN TO MDXLN SFT TO MOD HRD BRTTL CALC IP CLR RNDD SALT CAVINGS
Units
30
60
Units
30
60



DEV SURV
@ 3448'
2 DEGREES

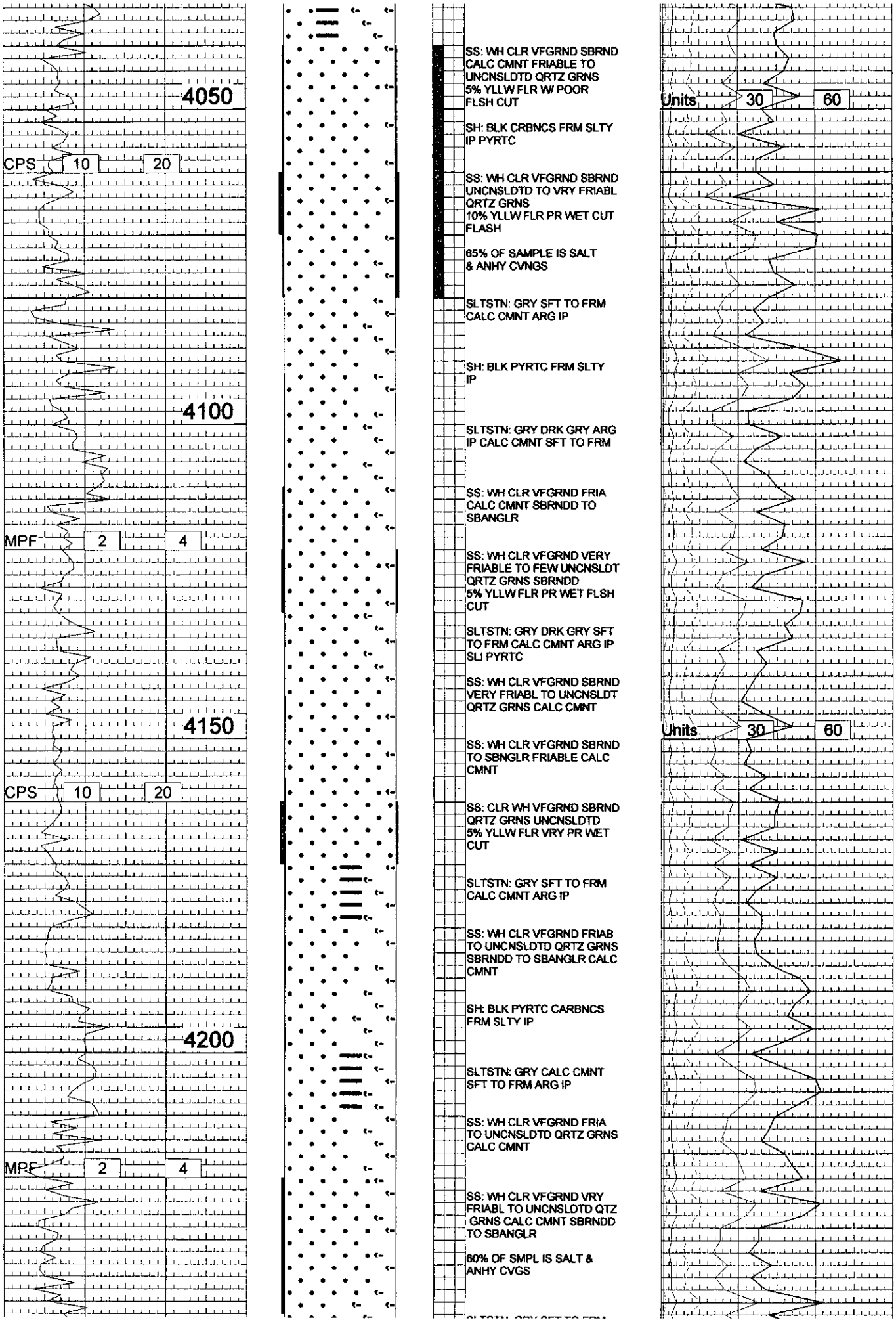
11/29/03
WOB 45K
PP 1250
RPM 65
SPM 58
****
MUD
PROPERTIES
****
W 9.8
30
PH 10.5

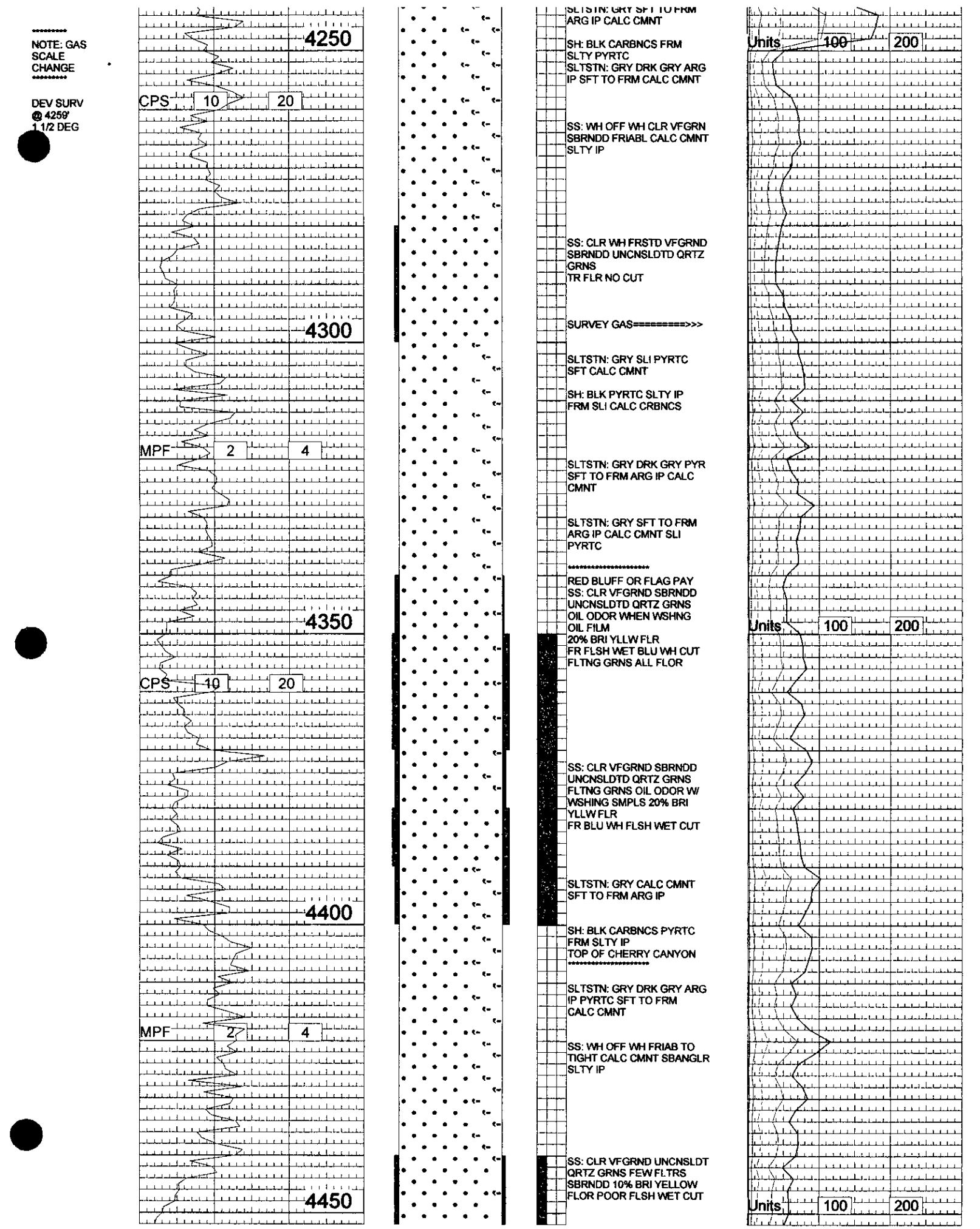

MPF
2
4
3650
CPS
10
20
3700
MPF
2
4
3750
CPS
10
20
3800
MPF
2
4
SBANGLR TO SBRNDD SLTY
SH: BLK DRK GRY PYRTC FRM SLTY IP
SLTSTN: GRY DRK GRY ARG IP SFT TO FRM CALC CMNT
NOTE: ABNDNT ANHY & SLT CVGS IN SMPLES
SS: WH CLR VFGRND FRIA CALC CMNT SBANGLR TO SBRNDD SLTY IP
SS: CLR WH VFGRND FRIAB CALC CMNT SOME UNCNSLDT FLTNG QRTZ GRNS 15% YLW FLR PR WET CUT
RAN LOST CIRC MTRL IN MUD
SLTSTN: GRY DRK GRY ARG IP CALC CMNT SFT TO FRM
SS: CLR WH VFGRND FRIA CALC CMNT SBANGLR TO SBRNDD 10% YLW FLR FR FLSH WET CUT BLU WH
SS: CLR WH VFGRND FRIA TO UNCNSLDTD QRTZ GRNS SBANGLR TO SBRNDD CALC CMNT 5% YLW FLR PR WET CUT
SS: CLR WH VFGRND SBRND TO SBANGLR UNCNSLDTD QRTZ GRNS 5% YLW FLR NO CUT
SS: CLR WH VFGRND SBRND TO SBANGLR FRIABL TO UNCNSLDTD QRTZ GRNS CALC CMNT
SLTSTN: GRY DRK GRY ARG IP CALC CMNT SFT TO FRM
SS: WH CLR VFGRND FRIAB TO UNCNSLDTD SBANGLR TO SBRNDD
SH: BLK DRK GRY PYRTC FRM CALC IP CARBNCS SLTY IP
SS: WH CLR VFGRND FRIAB TO UNCNSLDTD SBANGLR TO SBRNDD 5% YLW FLR NO WT CUT
TEST GAS ==========>>>>
TEST GAS=======>>>>>>>
SS:
SLTSTN: GRY SFT TO FRM ARG IP CALC CMNT
Units
30
60
Units
30
60

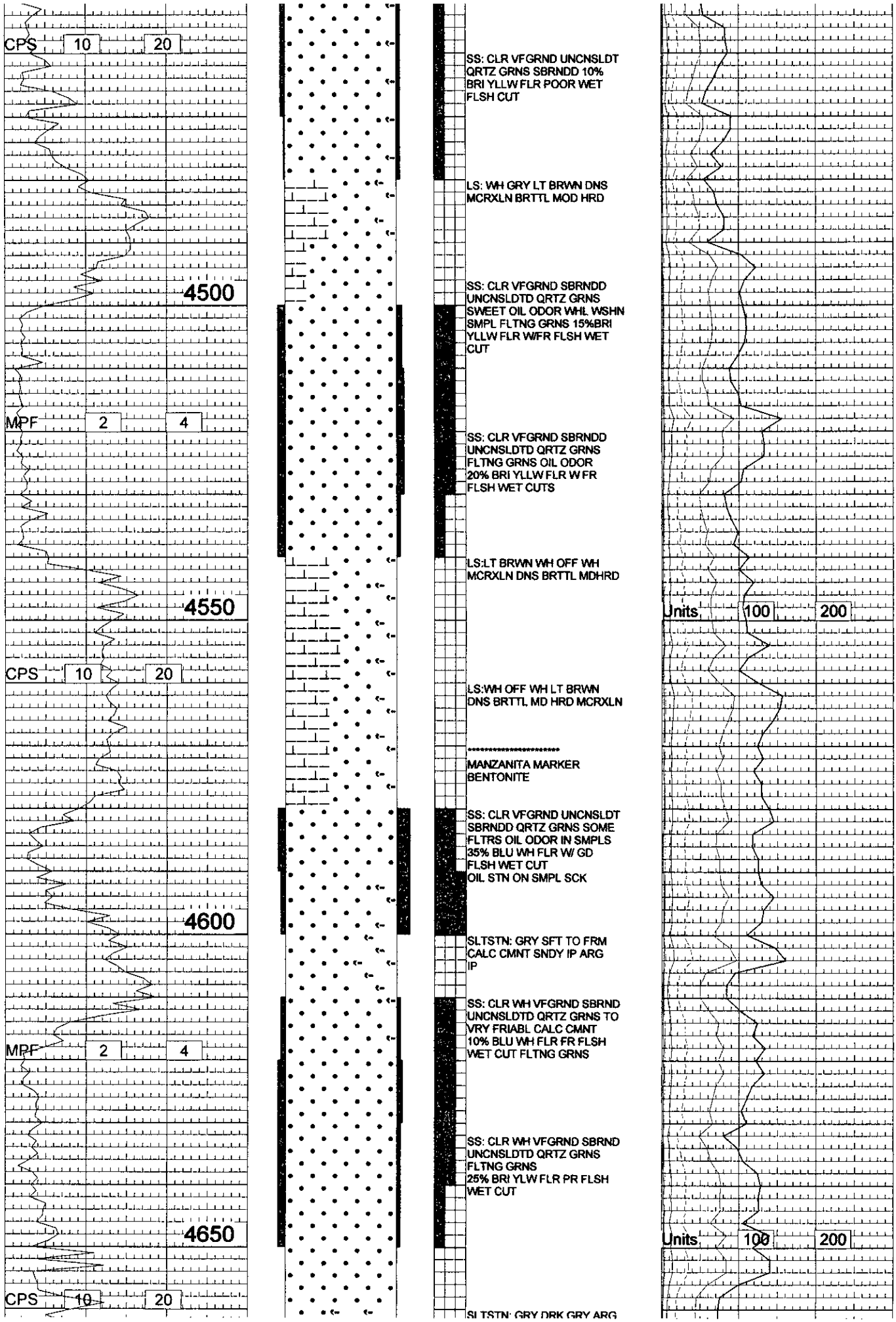


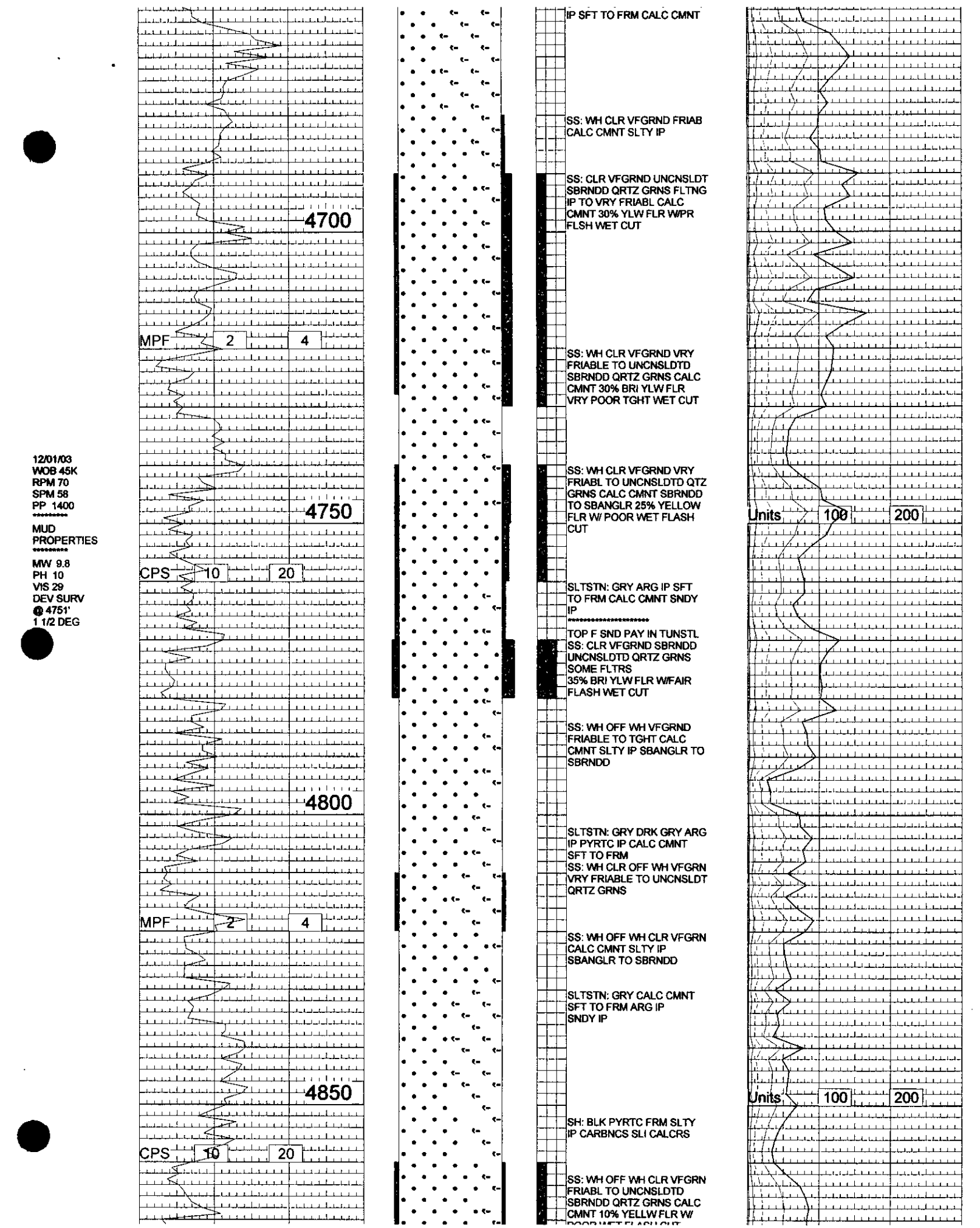
DEV SURV
@ 3913'
3 DEGREES

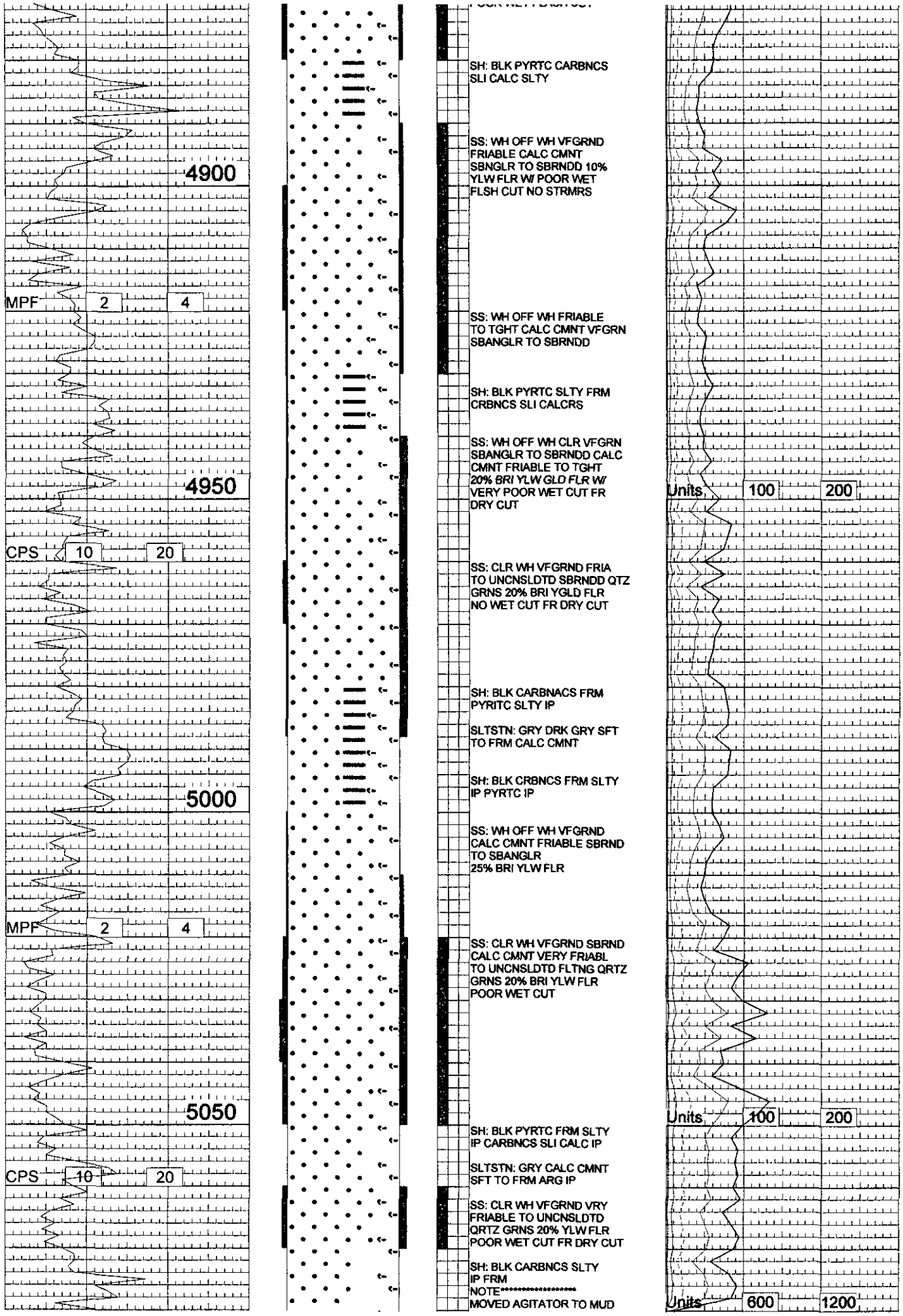
11/30/03
WOB 55K
RPM 65
SPM 58
PP 1400
****
MUD
PROPERTIES
****
MW 9.8
PH 10.5
VIS 29


4050
CPS
10
20
4100
MPF
2
4
4150
CPS
10
20
4200
MPF
2
4
SS: WH CLR VFGRND SBRND CALC CMNT FRIABLE TO UNCNSLDTD QRTZ GRNS 5% YLLW FLR W/ POOR FLSH CUT
SH: BLK CRBNCS FRM SLTY IP PYRTC
SS: WH CLR VFGRND SBRND UNCNSLDTD TO VRY FRIABL QRTZ GRNS 10% YLLW FLR PR WET CUT FLASH
65% OF SAMPLE IS SALT & ANHY CVNGS
SLTSTN: GRY SFT TO FRM CALC CMNT ARG IP
SH: BLK PYRTC FRM SLTY IP
SLTSTN: GRY DRK GRY ARG IP CALC CMNT SFT TO FRM
SS: WH CLR VFGRND FRIA CALC CMNT SBRNDD TO SBANGLR
SS: WH CLR VFGRND VERY FRIABLE TO FEW UNCNSLDT QRTZ GRNS SBRNDD 5% YLLW FLR PR WET FLSH CUT
SLTSTN: GRY DRK GRY SFT TO FRM CALC CMNT ARG IP SLI PYRTC
SS: WH CLR VFGRND SBRND VERY FRIABL TO UNCNSLDT QRTZ GRNS CALC CMNT
SS: WH CLR VFGRND SBRND TO SBNGLR FRIABLE CALC CMNT
SS: CLR WH VFGRND SBRND QRTZ GRNS UNCNSLDTD 5% YLLW FLR VRY PR WET CUT
SLTSTN: GRY SFT TO FRM CALC CMNT ARG IP
SS: WH CLR VFGRND FRIAB TO UNCNSLDTD QRTZ GRNS SBRNDD TO SBANGLR CALC CMNT
SH: BLK PYRTC CARBNCS FRM SLTY IP
SLTSTN: GRY CALC CMNT SFT TO FRM ARG IP
SS: WH CLR VFGRND FRIA TO UNCNSLDTD QRTZ GRNS CALC CMNT
SS: WH CLR VFGRND VRY FRIABL TO UNCNSLDTD QTZ GRNS CALC CMNT SBRNDD TO SBANGLR
60% OF SMPL IS SALT & ANHY CVGS
Units
30
60
Units
30
60

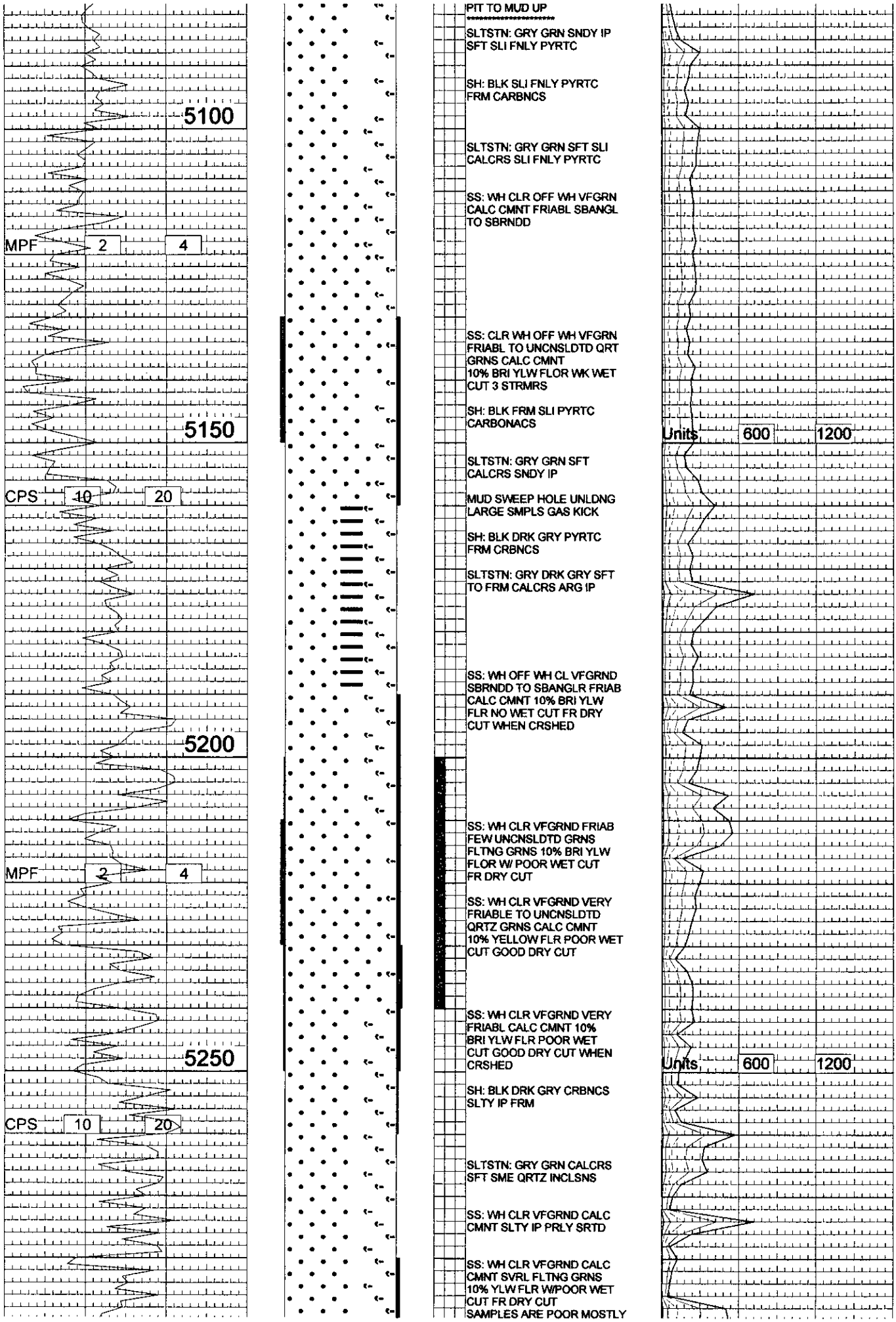

NOTE: GAS SCALE CHANGE
DEV SURV @ 4259' 1 1/2 DEG
4250
CPS 10 20
4300
MPF 2 4
4350
CPS 10 20
4400
MPF 2 4
4450
SLTSTN: GRY SFT TO FRM ARG IP CALC CMNT
SH: BLK CARBNCS FRM SLTY PYRTC SLTSTN: GRY DRK GRY ARG IP SFT TO FRM CALC CMNT
SS: WH OFF WH CLR VFGRN SBRNDD FRIABL CALC CMNT SLTY IP
SS: CLR WH FRSTD VFGRND SBRNDD UNCNSLDTD QRTZ GRNS TR FLR NO CUT
SURVEY GAS==========>>>
SLTSTN: GRY SLI PYRTC SFT CALC CMNT
SH: BLK PYRTC SLTY IP FRM SLI CALC CRBNCS
SLTSTN: GRY DRK GRY PYR SFT TO FRM ARG IP CALC CMNT
SLTSTN: GRY SFT TO FRM ARG IP CALC CMNT SLI PYRTC
****
RED BLUFF OR FLAG PAY
SS: CLR VFGRND SBRNDD UNCNSLDTD QRTZ GRNS OIL ODOR WHEN WSHNG OIL FILM
20% BRI YLLW FLR FR FLSH WET BLU WH CUT FLTNG GRNS ALL FLOR
SS: CLR VFGRND SBRNDD UNCNSLDTD QRTZ GRNS FLTNG GRNS OIL ODOR W/ WSHING SMPLS 20% BRI YLLW FLR FR BLU WH FLSH WET CUT
SLTSTN: GRY CALC CMNT SFT TO FRM ARG IP
SH: BLK CARBNCS PYRTC FRM SLTY IP
TOP OF CHERRY CANYON
****
SLTSTN: GRY DRK GRY ARG IP PYRTC SFT TO FRM CALC CMNT
SS: WH OFF WH FRIAB TO TIGHT CALC CMNT SBANGLR SLTY IP
SS: CLR VFGRND UNCNSLDT QRTZ GRNS FEW FLTRS SBRNDD 10% BRI YELLOW FLOR POOR FLSH WET CUT
Units 100 200
Units 100 200
Units 100 200

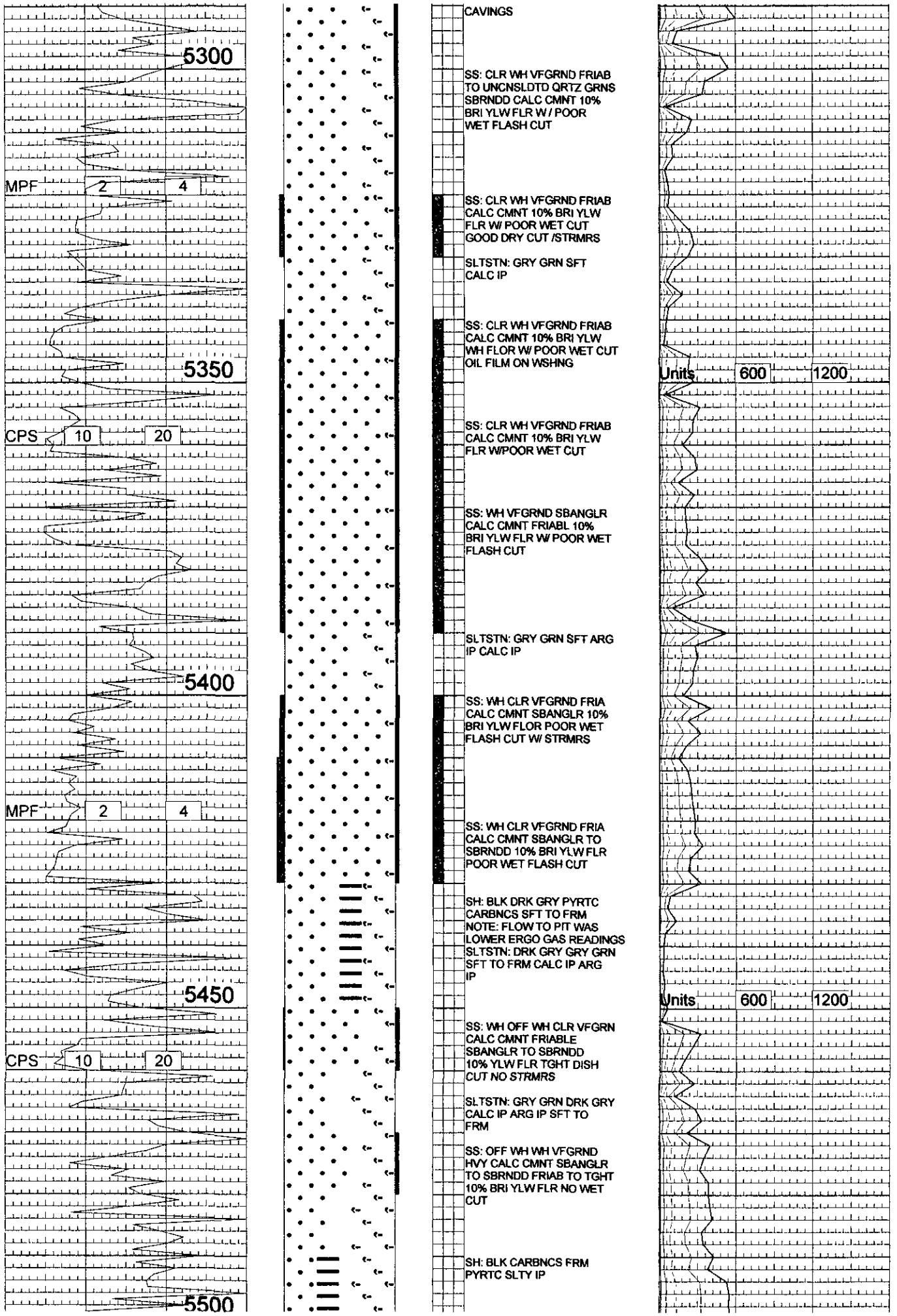

CPS
10
20
4500
MPF
2
4
4550
CPS
10
20
4600
MPF
2
4
4650
CPS
10
20
SS: CLR VFGRND UNCNSLDT QRTZ GRNS SBRNDD 10% BRI YLLW FLR POOR WET FLSH CUT
LS: WH GRY LT BRWN DNS MCRXLN BRTTL MOD HRD
SS: CLR VFGRND SBRNDD UNCNSLDTD QRTZ GRNS SWEET OIL ODOR WHL WSHN SMPL FLTNG GRNS 15%BRI YLLW FLR W/FR FLSH WET CUT
SS: CLR VFGRND SBRNDD UNCNSLDTD QRTZ GRNS FLTNG GRNS OIL ODOR 20% BRI YLLW FLR W FR FLSH WET CUTS
LS:LT BRWN WH OFF WH MCRXLN DNS BRTTL MDHRD
LS:WH OFF WH LT BRWN DNS BRTTL MD HRD MCRXLN
****
MANZANITA MARKER
BENTONITE
SS: CLR VFGRND UNCNSLDT SBRNDD QRTZ GRNS SOME FLTRS OIL ODOR IN SMPLS 35% BLU WH FLR W/ GD FLSH WET CUT
OIL STN ON SMPL SCK
SLTSTN: GRY SFT TO FRM CALC CMNT SNDY IP ARG IP
SS: CLR WH VFGRND SBRND UNCNSLDTD QRTZ GRNS TO VRY FRIABL CALC CMNT 10% BLU WH FLR FR FLSH WET CUT FLTNG GRNS
SS: CLR WH VFGRND SBRND UNCNSLDTD QRTZ GRNS FLTNG GRNS 25% BRI YLW FLR PR FLSH WET CUT
SLTSTN: GRY DRK GRY ARG
Units
100
200
Units
100
200


12/01/03
WOB 45K
RPM 70
SPM 58
PP 1400
****
MUD
PROPERTIES
****
MW 9.8
PH 10
VIS 29
DEV SURV
@ 4751'
1 1/2 DEG
4700
MPF
2
4
4750
CPS
10
20
4800
MPF
2
4
4850
CPS
10
20
IP SFT TO FRM CALC CMNT
SS: WH CLR VFGRND FRIAB CALC CMNT SLTY IP
SS: CLR VFGRND UNCNSLDT SBRNDD QRTZ GRNS FLTNG IP TO VRY FRIABL CALC CMNT 30% YLW FLR W/PR FLSH WET CUT
SS: WH CLR VFGRND VRY FRIABLE TO UNCNSLDTD SBRNDD QRTZ GRNS CALC CMNT 30% BRI YLW FLR VRY POOR TGHT WET CUT
SS: WH CLR VFGRND VRY FRIABL TO UNCNSLDTD QTZ GRNS CALC CMNT SBRNDD TO SBANGLR 25% YELLOW FLR W/ POOR WET FLASH CUT
SLTSTN: GRY ARG IP SFT TO FRM CALC CMNT SNDY IP
****
TOP F SND PAY IN TUNSTL
SS: CLR VFGRND SBRNDD UNCNSLDTD QRTZ GRNS SOME FLTRS 35% BRI YLW FLR W/FAIR FLASH WET CUT
SS: WH OFF WH VFGRND FRIABLE TO TGHT CALC CMNT SLTY IP SBANGLR TO SBRNDD
SLTSTN: GRY DRK GRY ARG IP PYRTC IP CALC CMNT SFT TO FRM
SS: WH CLR OFF WH VFGRN VRY FRIABLE TO UNCNSLDT QRTZ GRNS
SS: WH OFF WH CLR VFGRN CALC CMNT SLTY IP SBANGLR TO SBRNDD
SLTSTN: GRY CALC CMNT SFT TO FRM ARG IP SNDY IP
SH: BLK PYRTC FRM SLTY IP CARBNCS SLI CALCRS
SS: WH OFF WH CLR VFGRN FRIABL TO UNCNSLDTD SBRNDD QRTZ GRNS CALC CMNT 10% YELLW FLR W/
Units
100
200
Units
100
200


4900
MPF
2
4
SH: BLK PYRTC CARBNCS SLI CALC SLTY
SS: WH OFF WH VFGRND FRIABLE CALC CMNT SBNGLR TO SBRNDD 10% YLW FLR W/ POOR WET FLSH CUT NO STRMRS
SS: WH OFF WH FRIABLE TO TGHT CALC CMNT VFGRN SBANGLR TO SBRNDD
SH: BLK PYRTC SLTY FRM CRBNCS SLI CALCRS
4950
CPS
10
20
SS: WH OFF WH CLR VFGRN SBANGLR TO SBRNDD CALC CMNT FRIABLE TO TGHT 20% BRI YLW GLD FLR W/ VERY POOR WET CUT FR DRY CUT
Units
100
200
SS: CLR WH VFGRND FRIA TO UNCNSLDTD SBRNDD QTZ GRNS 20% BRI YGLD FLR NO WET CUT FR DRY CUT
SH: BLK CARBNACS FRM PYRITC SLTY IP
SLTSTN: GRY DRK GRY SFT TO FRM CALC CMNT
SH: BLK CRBNCS FRM SLTY IP PYRTC IP
5000
SS: WH OFF WH VFGRND CALC CMNT FRIABLE SBRND TO SBANGLR 25% BRI YLW FLR
MPF
2
4
SS: CLR WH VFGRND SBRND CALC CMNT VERY FRIABL TO UNCNSLDTD FLTNG QRTZ GRNS 20% BRI YLW FLR POOR WET CUT
Units
100
200
5050
SH: BLK PYRTC FRM SLTY IP CARBNCS SLI CALC IP
SLTSTN: GRY CALC CMNT SFT TO FRM ARG IP
CPS
10
20
SS: CLR WH VFGRND VRY FRIABLE TO UNCNSLDTD QRTZ GRNS 20% YLW FLR POOR WET CUT FR DRY CUT
SH: BLK CARBNCS SLTY IP FRM
NOTE**********
MOVED AGITATOR TO MUD
Units
600
1200

****
CHANGED
GAS
SCALE
****

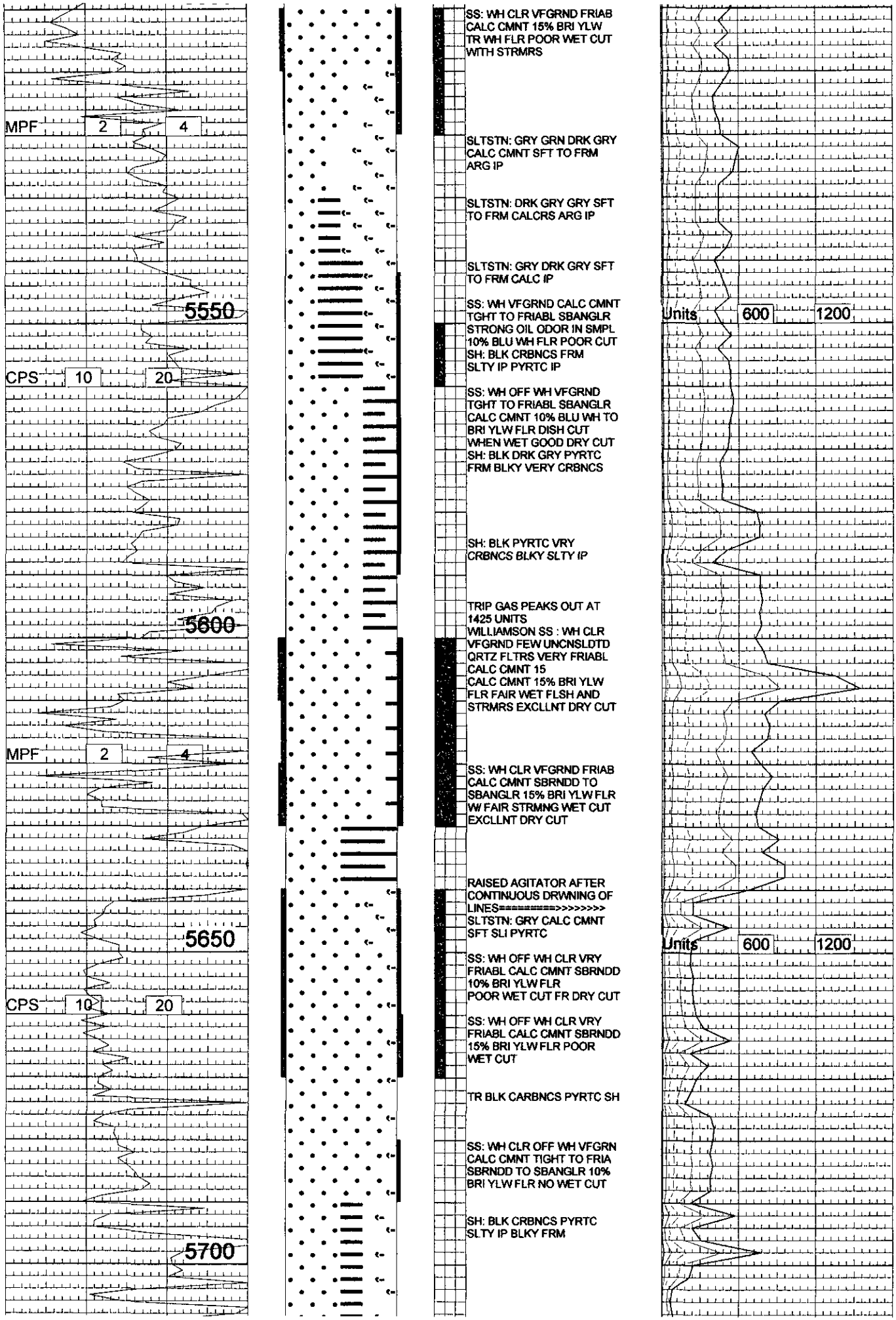




12/02/03
WOB 55K
RPM 70
SPM 58
PP 1500

MUD PROPERTIES

MW 10
VIS 36
PH 10
WL 15



12/03/03
WOB 45K
SPM 58
70
550

MUD PROPERTIES

MW 10
WL 25
PH 10
VIS 34
BIT NO 3
VAREL CH47
194043

MPF 2 4

TD AT 5712' THANKS FOR
USING RILEY GEOLOGICAL.