



EMPIRICA

The Surface Logging Company

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

Well Name: 15033216900100_BROTHERS_3119_1-16H_SandRidge Energy, Inc.
Location: SEC: # 6, T-31S / R-19W-----COMANCHE CO., KANSAS
License Number: AFE # DC 11741 Region: UNNAMED
Spud Date: 02/19/2013 Drilling Completed: 03/10/2013
Surface Coordinates: SURFACE: 375' FNL & 1.080' FWL, of SEC: 7, T31S-R-19W, SPOT LOCATION: NE NE
NW NW, COMANCHE COUNTY KANSAS
Bottom Hole Coordinates: PBHL: 330' FSL & 1,000' FWL of SEC: 6, T-31S-R-19W, COMANCHE COUNTY,
KANSAS
Ground Elevation (ft): 2,163' K.B. Elevation (ft): 2,183' (+20' Est)
Logged Interval (ft): 1,008' To: 10,070' Total Depth (ft): 10,070' T.D.
Formation: MISSISSIPPIAN (HORIZONTAL WELL)
Type of Drilling Fluid: DRILLING ON WATER-BASE MUD FROM 1,008 ft.

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

OPERATOR

Company: SANDRIDGE ENERGY, INC.
Address: 123 ROBERT S KERR AVE
OKLAHOMA CITY, OK 73102-6406

GEOLOGIST

Name: Maggie Roden, Client Geologist
Company: SandRidge Energy, Inc. Oklahoma City, OK 73102
Address: 123 Robert S. Kerr Ave. Oklahoma City, OK 73102
Maggie Roden, Office Phone: (405) 429-6676
Cell Phone: (405) 316-0351 mroden@sandridgeenergy.com;

WELL SITE GEOLOGIST

Wayne Nix Cell----- (870)-826-6197
Betty Nix Cell----- (870)-826-6196
wnix@empirica-logging.com;
bnix@empirica-logging.com
Empirica Logging, Inc.
P.O. Box 6005
Edmond, OK 73083-6005
PHONE: (405) 340-5545
FAX: (405) 348-8303

COMPANY MAN

COMPANY MEN: Louey Solis & Quincey Loven
TOOL PUSHER: Art & Lenard

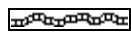
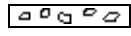
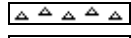
DRILLING CONTRACTOR

Lariat Inc.
Operator License # 34192
LARIAT RIG # 41
API: # 15-033-21690-01-00
AFE: # DC11741
Drilled on Water Base Mud,
HORIZONTAL WELL

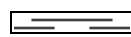
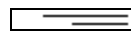
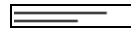
Comments

2 Manned Logging Services,
Start Logging Date: 02/20/2013 @ 1,008'
(Called in per CoMan)
SET 9.625 SURFACE CASING TO 1,008'
ON THE 02/20/2013 K.O.P. = 4,205 ft.
SET 7" INTERMEDIATE CASING @ 5,572' 03/02/2013
T.D. Depth @ 10,070 ft. M.D. --- T.D. on the 03/10/2013
RAN E-LOGS ON THE 03/11/2013
(FINAL LOG PDF) sent out on the: 03/11/2013
Released Logging Date: 03/11/2013 Thank You!

ROCK TYPES

 Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal
 Congl

 Dol
 Gyp
 Igne
 Lmst
 Meta
 Mrlst
 Salt

 Shale
 Shcol
 Shgy
 Sltst
 Ss
 Till
 Sandstn

 Siltstn
 Granwash
 Dolowash
 Cement
 Granite
 Hotshale

ACCESSORIES

FOSSIL
 Algae
 Amph
 Belm
 Bioclst
 Brach
 Bryozoa
 Cephal
 Coral
 Crin
 Echin
 Fish
 Foram
 Fossil
 Gastro
 Oolite
 Ostra
 Pelec
 Pellet
 Pisolite

 Plant
 Strom

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

 Hvymn
 Kaol
 Marl
 Minxl
 Nodule
 Phos
 Pyr
 Salt
 Sandy
 Silt
 Sil
 Sulphur

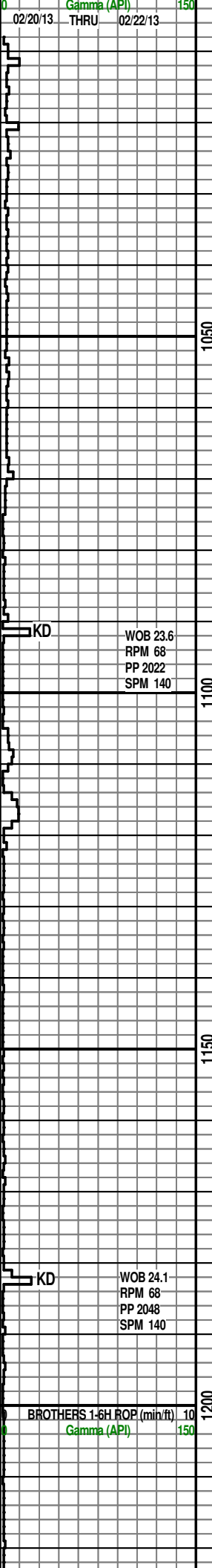
STRINGER

 Anhy
 Arg
 Bent
 Coal
 Dol

 Gyp
 Ls
 Mrst
 Sltstrg
 Ssstrg

TEXTURE

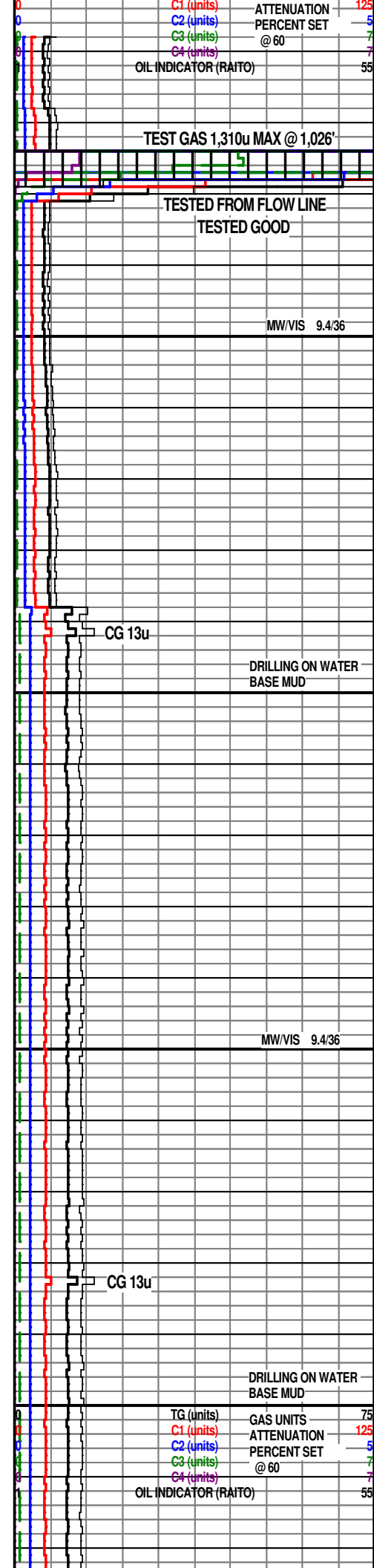
 Boundst
 Chalky
 Cryxln
 Earthy
 Finexln
 Grainst
 Lithogr
 Microxln
 Mudst
 Packst
 Wackest

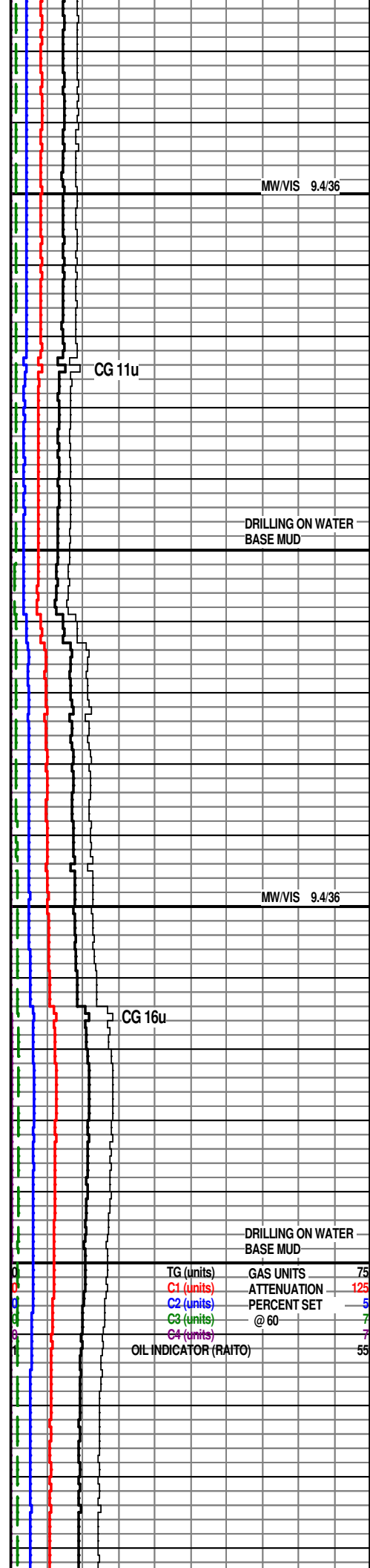
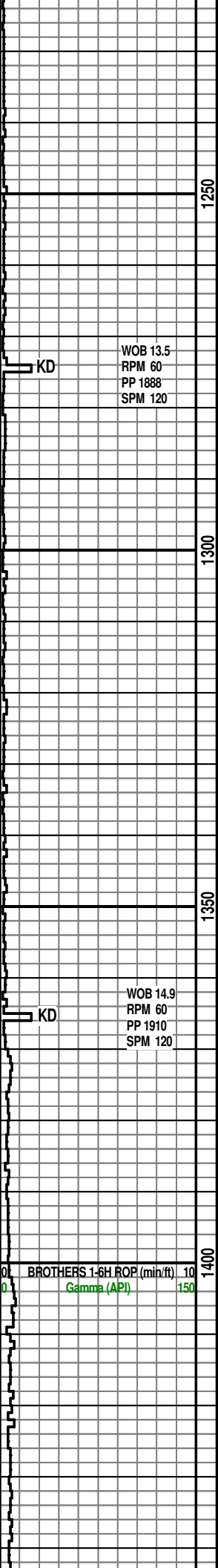


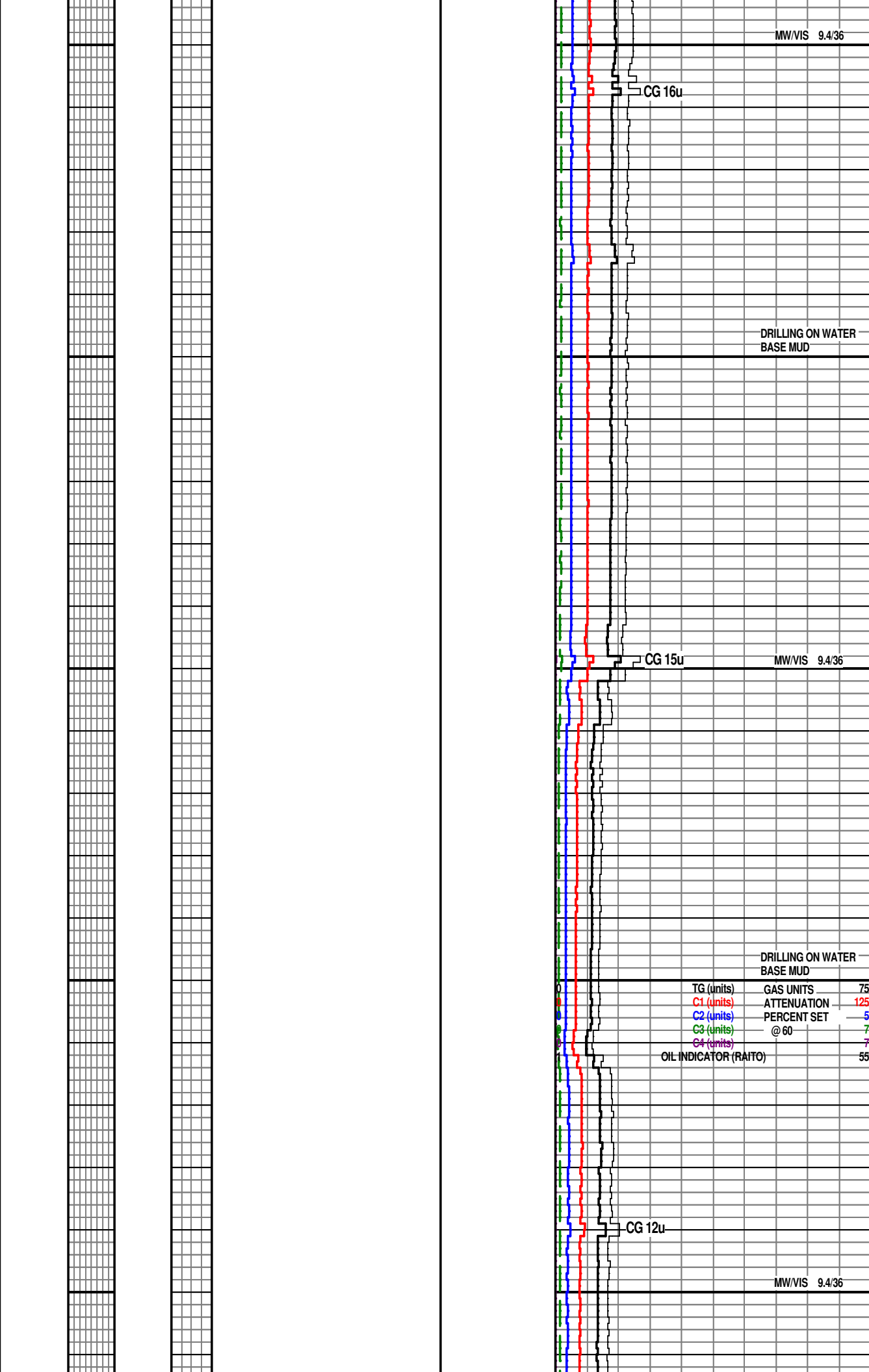
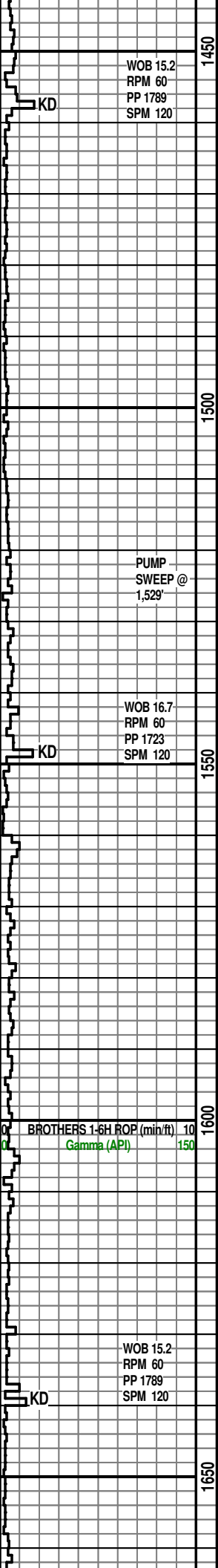
N.B. # 3, HALIBURTON,
TYPE -FX55M, SIZE - 8.75", S/N
-11966885, JETS - 5 X 12's
DEPTH in @ 1,008'

(NO SAMPLES TILL 2,250')

SURVEY: 1,219" MD 1,218" TVD







02/23/2013

SURVEY: 1,676" MD 1,676"TV
INC. 1.20 / AZ. 240.8

DRILLING ON WATER
BASE MUD

KD

WOB 14.1
RPM 60
PP 1632
SPM 120

CG 13u

MW/VIS 9.4/36

02/23/13

BROTHERS 1-6H ROP (min/ft) 10
Gamma (API) 150

DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	75
C1 (units)	ATTENUATION	125
C2 (units)	PERCENT SET	5
C3 (units)	@ 60	7
C4 (units)		7

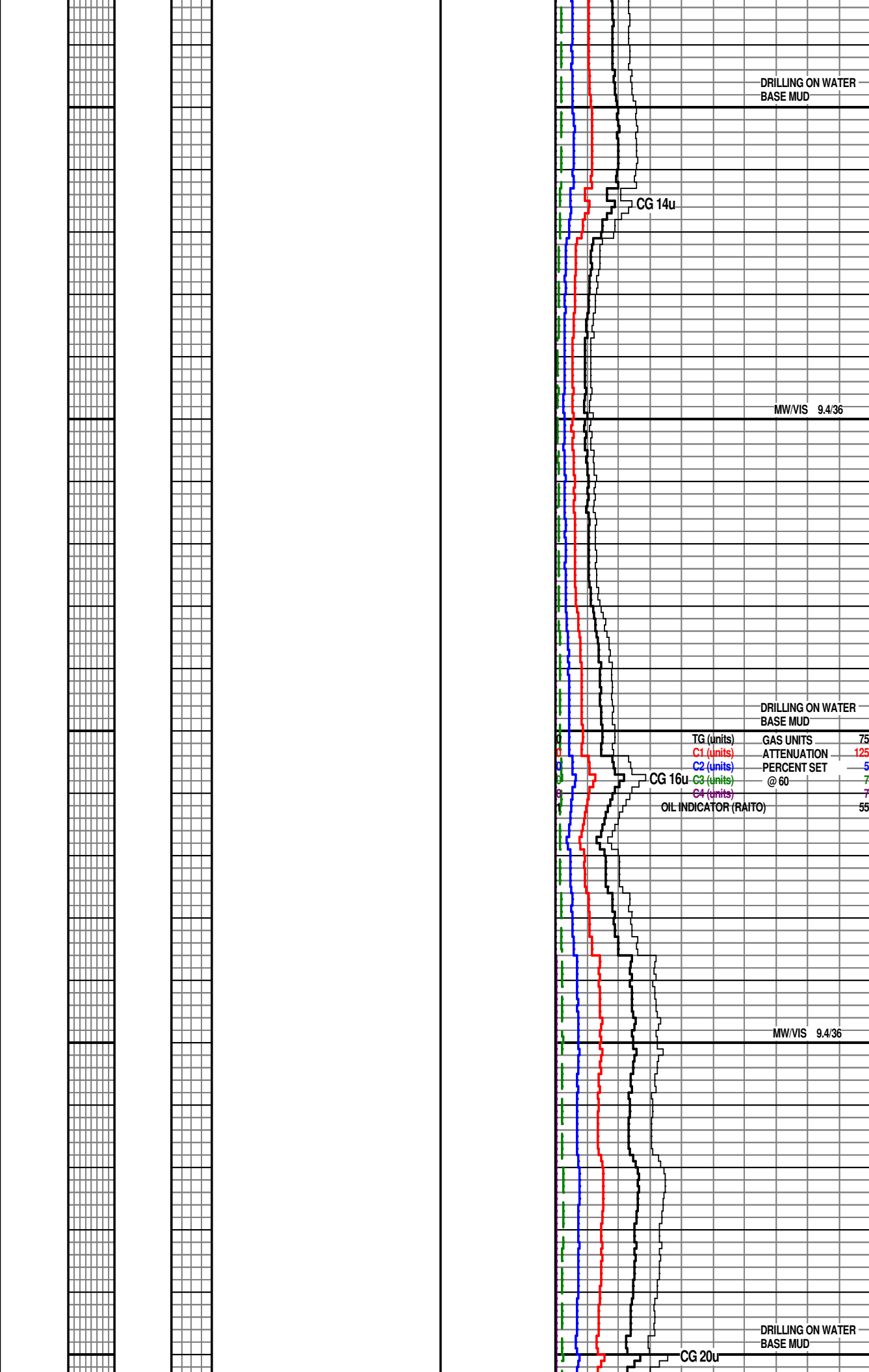
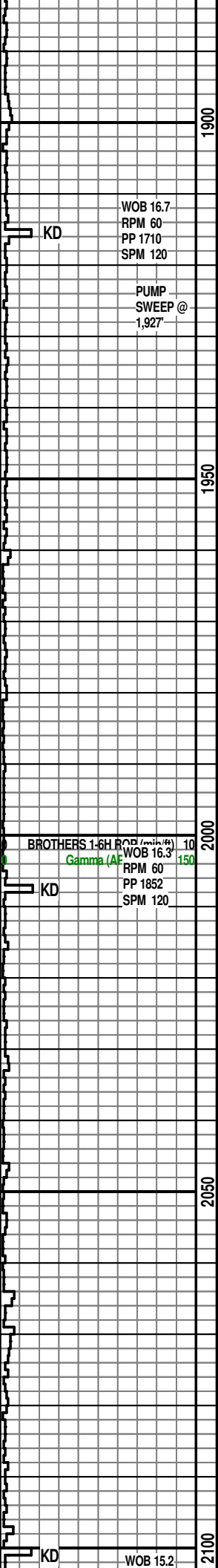
OIL INDICATOR (RAITO) 55

KD

WOB 15.2
RPM 60
PP 1789
SPM 120

CG 15u

MW/VIS 9.4/36



RPM 60
PP 1789
SPM 120

SURVEY: 2,137' MD 2,136'TVD
INC. 1.70 / AZ. 243.4

MW/VIS 9.4/36

KD
WOB 15.2
RPM 62
PP 2198
SPM 122
BROTHERS 1-6H ROP (min/ft) 10
Gamma (API) 150

CG 19u

DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	75
C1 (units)	ATTENUATION	125
C2 (units)	PERCENT SET	5
C3 (units)	@ 60	7
C4 (units)		7
OIL INDICATOR (RAITO)		55

MW/VIS 9.4/36

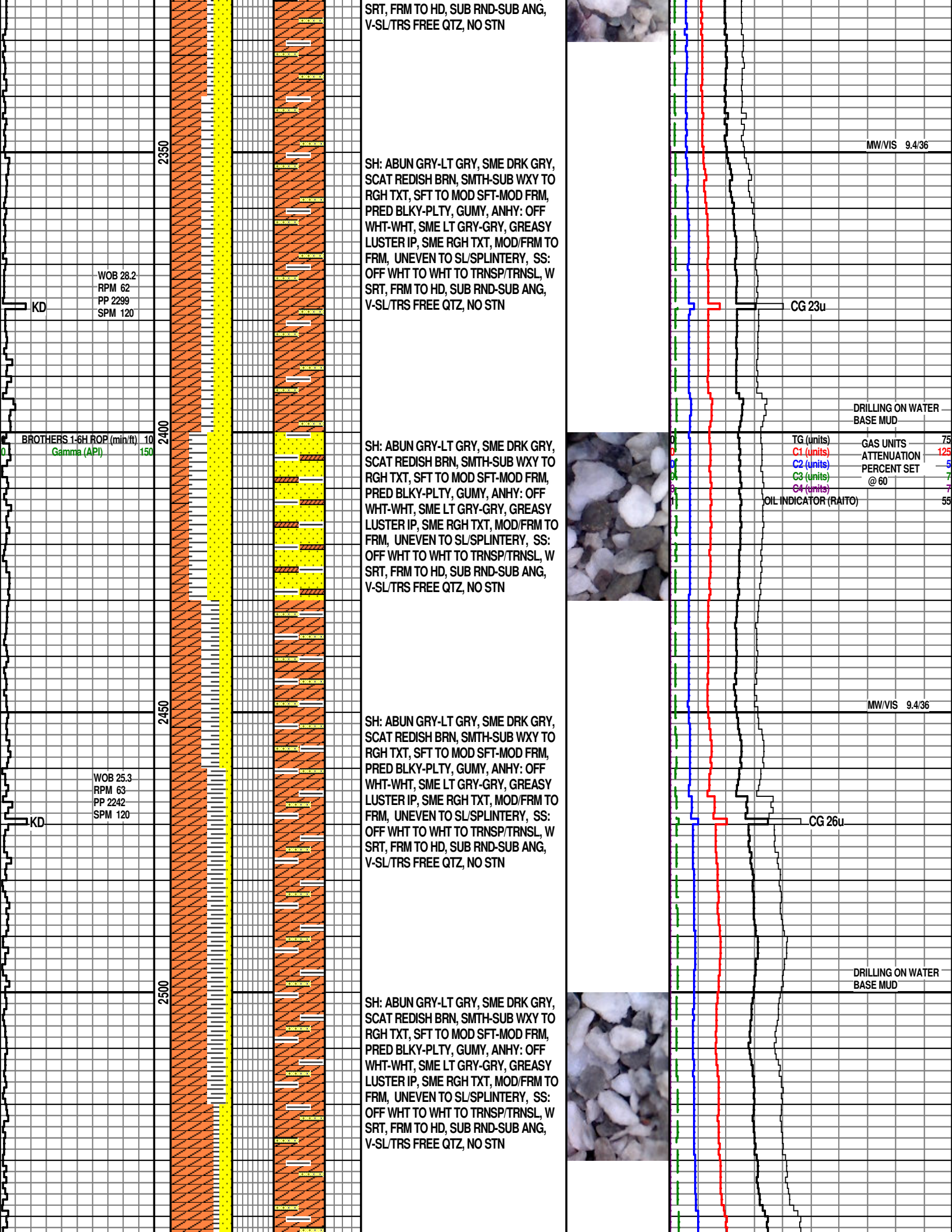
KD
WOB 15.3
RPM 63
PP 2231
SPM 121

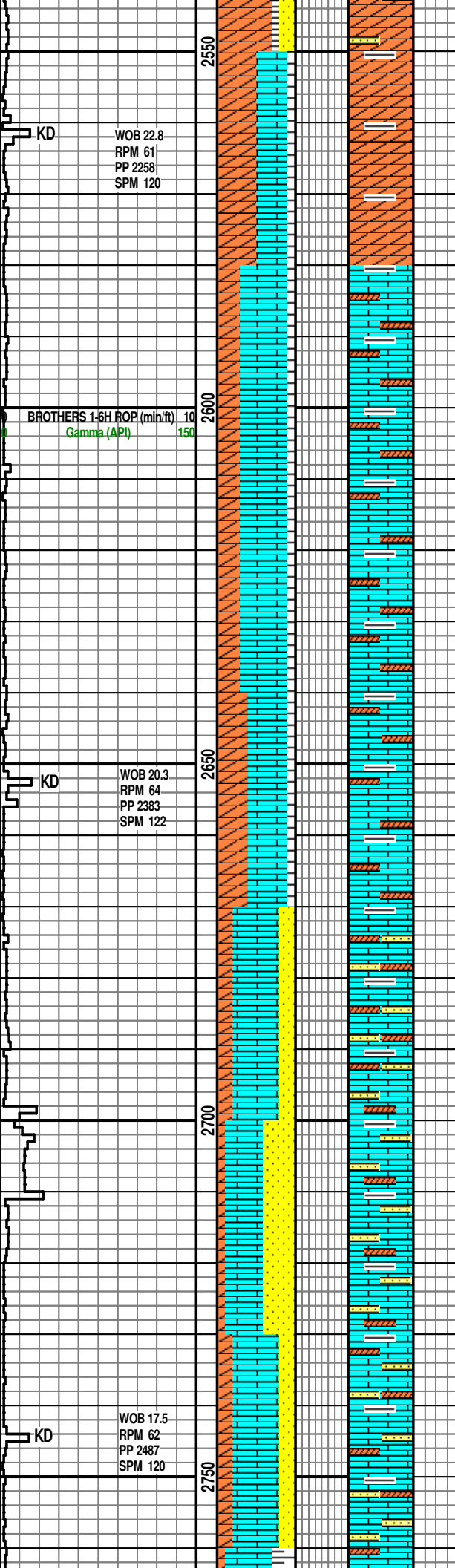
CG 18u

DRILLING ON WATER
BASE MUD

SH: ABUN GRY-LT GRY, SME DRK GRY,
REDISH BRN, SMTH-SUB WXY TO RGH
TXT, SFT TO MOD SFT-MOD FRM, PRED
BLKY-PLTY, GUMY, ANHY: OFF
WHT-WHT, SME LT GRY-GRY, GREASY
LUSTER IP, SME RGH TXT, MOD/FRM TO
FRM, UNEVEN TO SL/SPLINTERY, SS:
OFF WHT TO WHT TO TRNSP/TRNSL, W
SRT, FRM TO HD, SUB RND-SUB ANG,
SL/TRS FREE QTZ, NO STN

SH: ABUN GRY-LT GRY, SME DRK GRY,
SCAT REDISH BRN, SMTH-SUB WXY TO
RGH TXT, SFT TO MOD SFT-MOD FRM,
PRED BLKY-PLTY, GUMY, ANHY: OFF
WHT-WHT, SME LT GRY-GRY, GREASY
LUSTER IP, SME RGH TXT, MOD/FRM TO
FRM, UNEVEN TO SL/SPLINTERY, SS:
OFF WHT TO WHT TO TRNSP/TRNSL, W



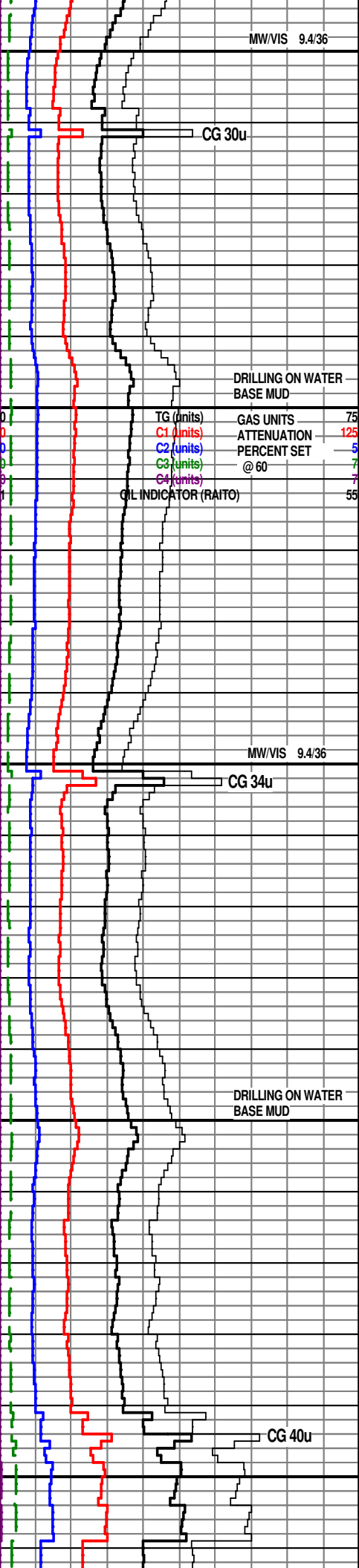
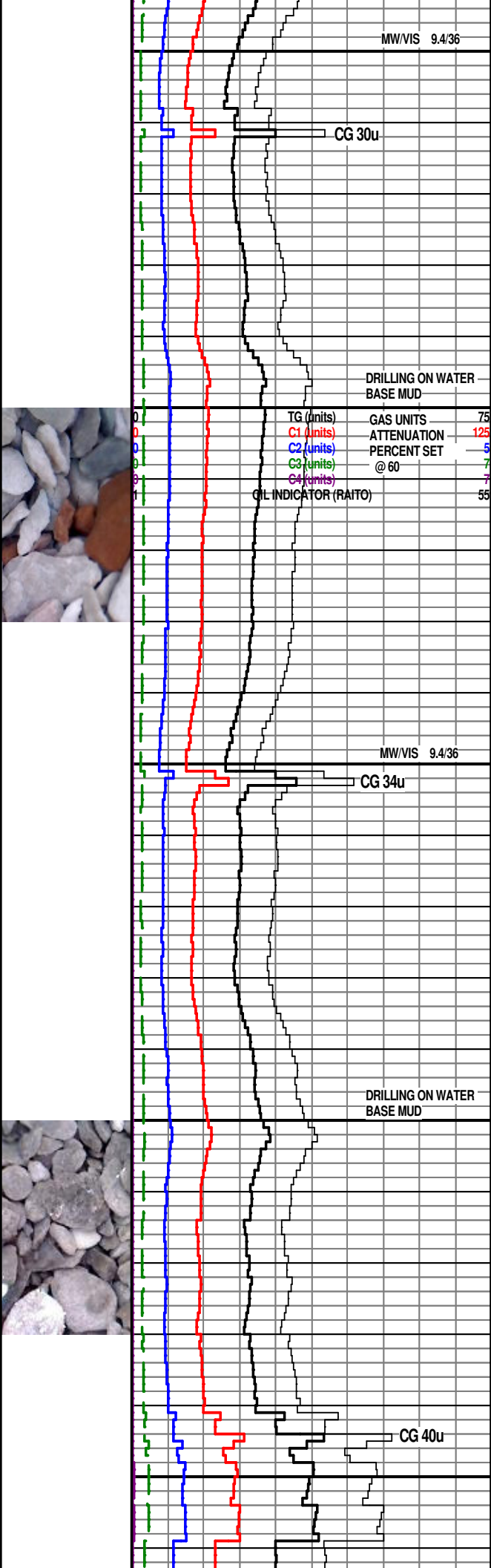


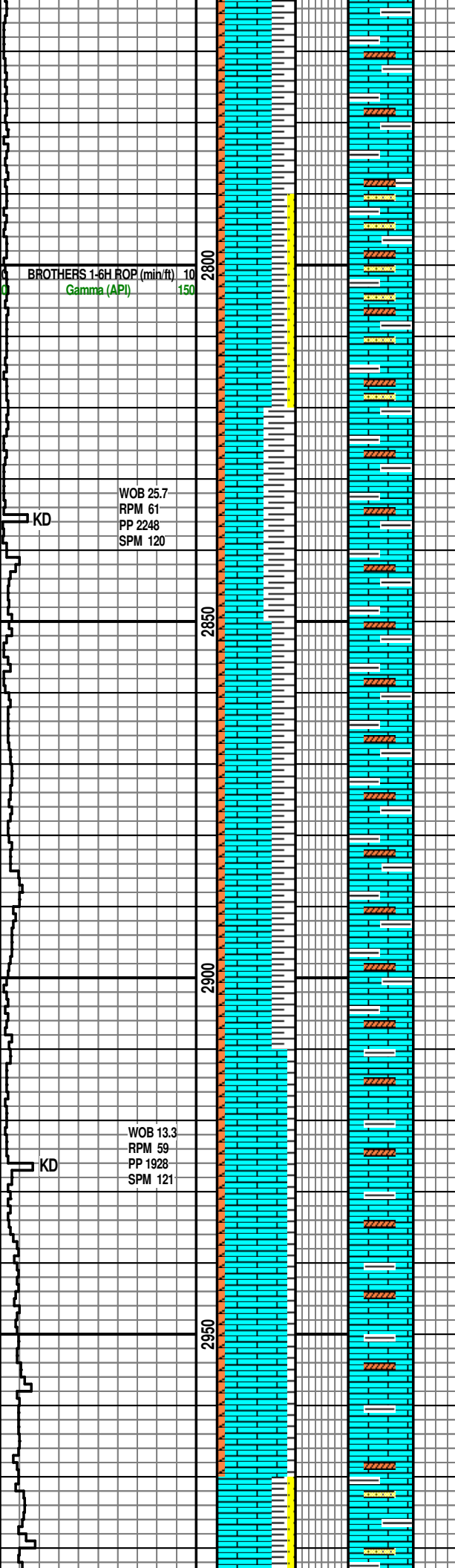
LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY, SS: OFF WHT TO WHT TO TRNSP/TRNSL, SME TAN, VF GRN, W/CONSOL, MOD HD TO V/HD, CALC CMT, SUB-ANG, SUB-RND

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY, SS: OFF WHT TO WHT TO TRNSP/TRNSL



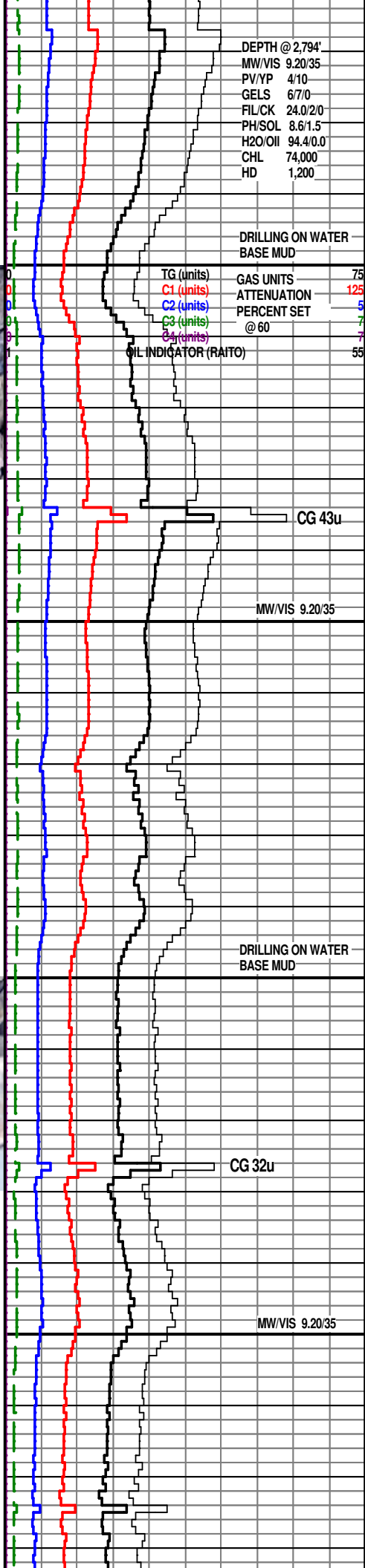


SME TAN, VF GRN, W/CONSOL, MOD HD TO V/HD, CALC CMT, SUB-ANG, SUB-RND

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY, SS: OFF WHT TO WHT TO TRNSP/TRNSL, SME TAN, VF GRN, W/CONSOL, MOD HD TO V/HD, CALC CMT, SUB-ANG, SUB-RND

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY



DEPTH @ 2,794'
MW/VIS 9.20/35
PV/YP 4/10
GELS 6/7-0
FIL/CK 24.0/20
PH/SOL 8.6/1.5
H2O/OIL 94.4/0.0
CHL 74,000
HD 1,200

DRILLING ON WATER BASE MUD

GAS UNITS ATTENUATION PERCENT SET @ 60
OIL INDICATOR (RAITO)

TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

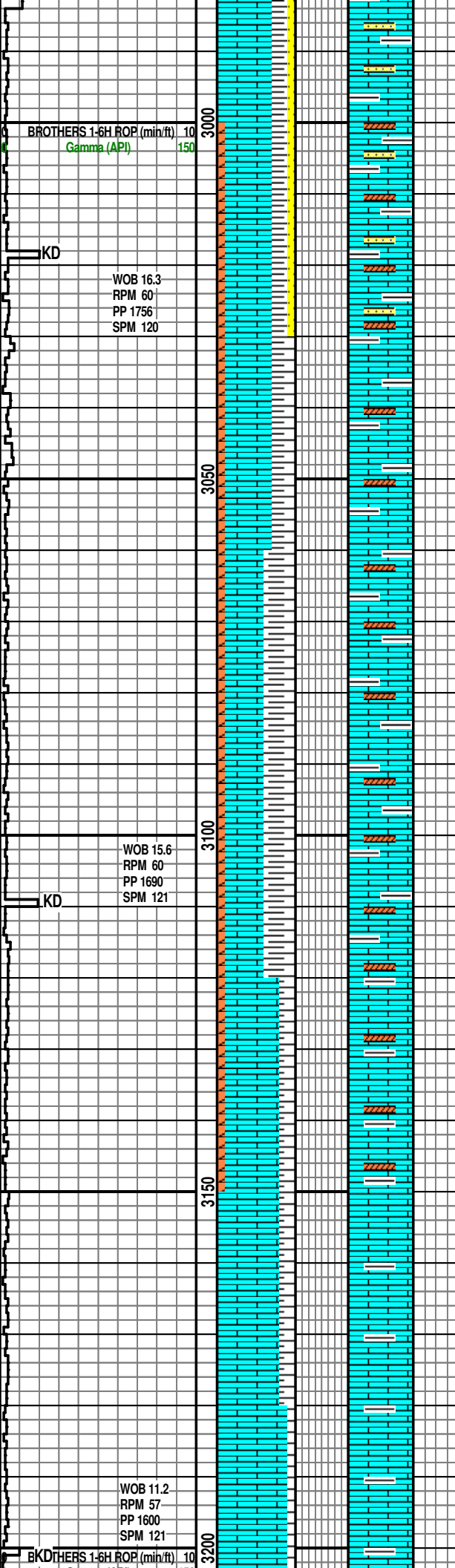
CG 43u

MW/VIS 9.20/35

DRILLING ON WATER BASE MUD

CG 32u

MW/VIS 9.20/35

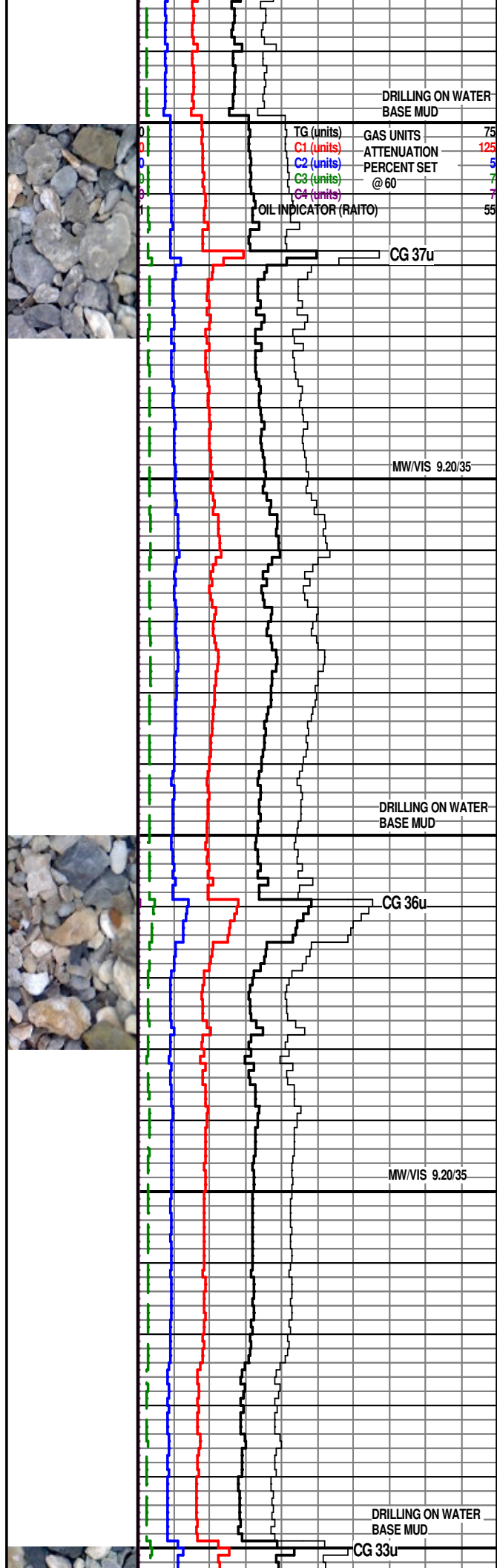


LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY, SS: OFF WHT TO WHT, SME TAN, VF GRN, W/CONSOL, MOD HD TO V/HD, CALC CMT, SUB-ANG, SUB-RND

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY

LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, CRP-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY

SH: ABUN DRK GRY- GRY, INCRS BLK CARB, SCAT LT GRY, SMTH- SUB WXY LSTR, MOD FRM-FRM, LS: PRED LT TAN- MED TAN, OCC DRK TANCNM, SME MTTLD TAN FNMED XLN, MOD FRM-FRM, NO VIS FLOR, NO VIS CUT, NO RESD RING



DRILLING ON WATER BASE MUD

TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

GAS UNITS
ATTENUATION
PERCENT SET
@ 60

OIL INDICATOR (RAITO)

CG 37u

MW/VIS 9.20/35

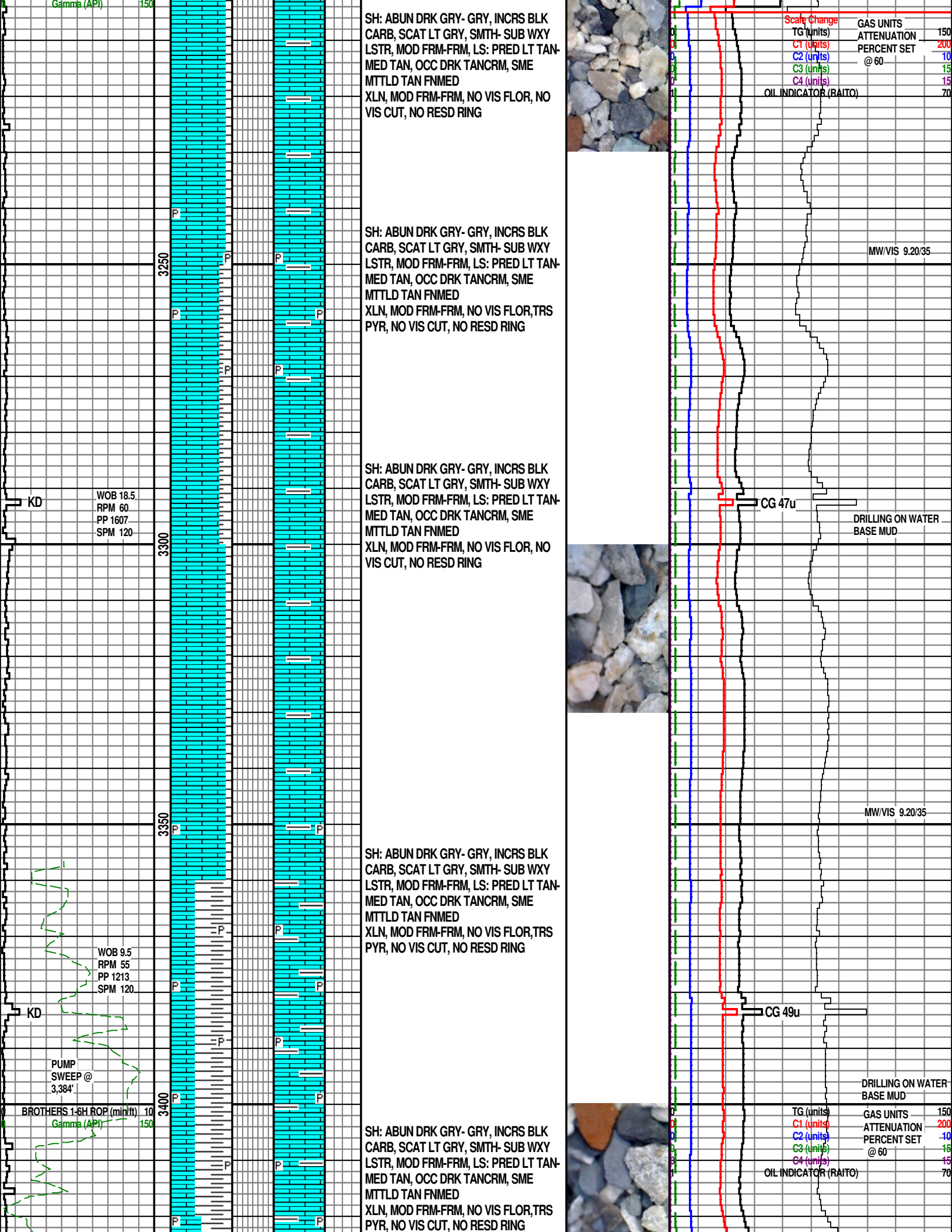
DRILLING ON WATER BASE MUD

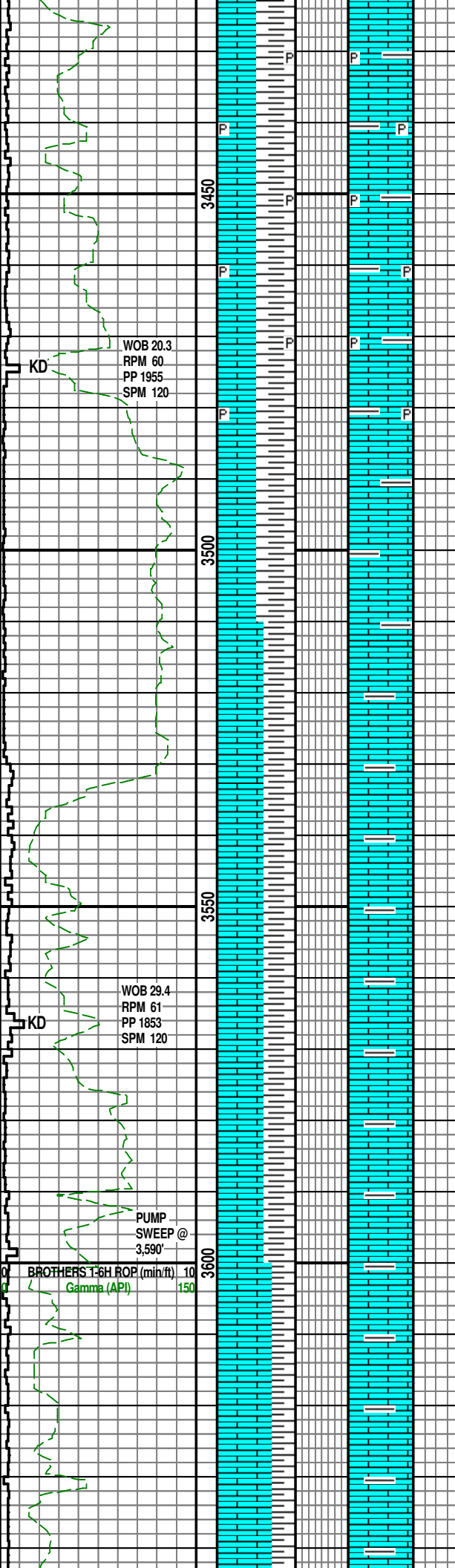
CG 36u

MW/VIS 9.20/35

DRILLING ON WATER BASE MUD

CG 33u





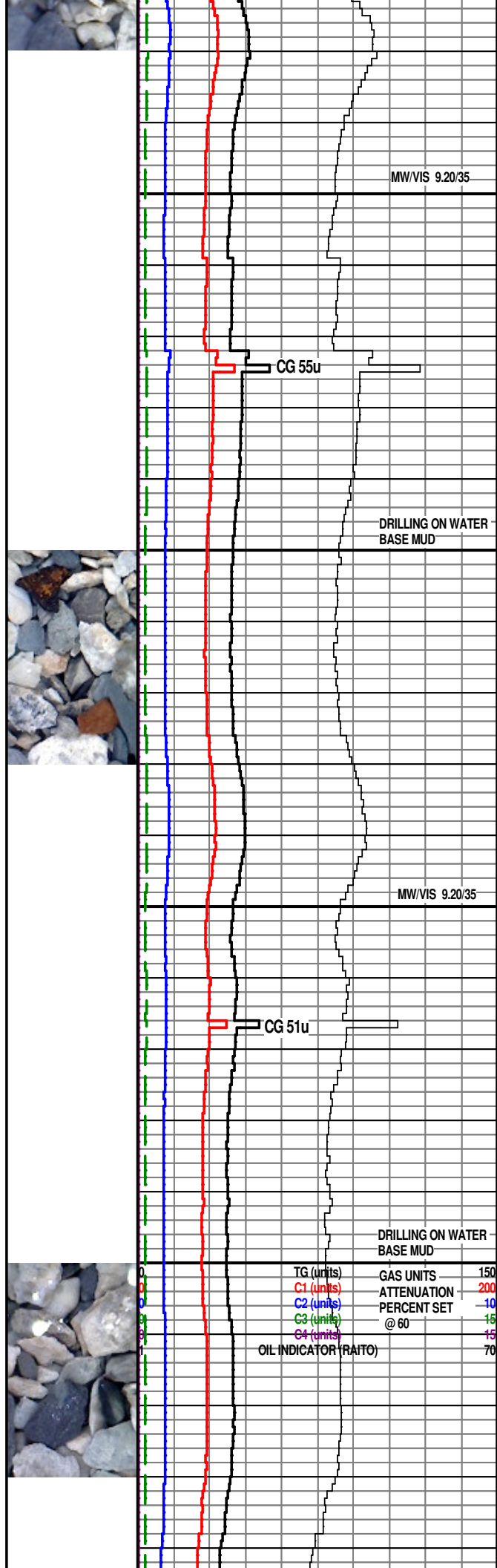
SH: ABUN DRK GRY- GRY, INCRS BLK
CARB, SCAT LT GRY, SMTH- SUB WXY
LSTR, MOD FRM-FRM, LS: PRED LT TAN-
MED TAN, OCC DRK TANC RM, SME
MTTLD TAN FN MED
XLN, MOD FRM-FRM, NO VIS FLOR, TRS
PYR, NO VIS CUT, NO RESD RING

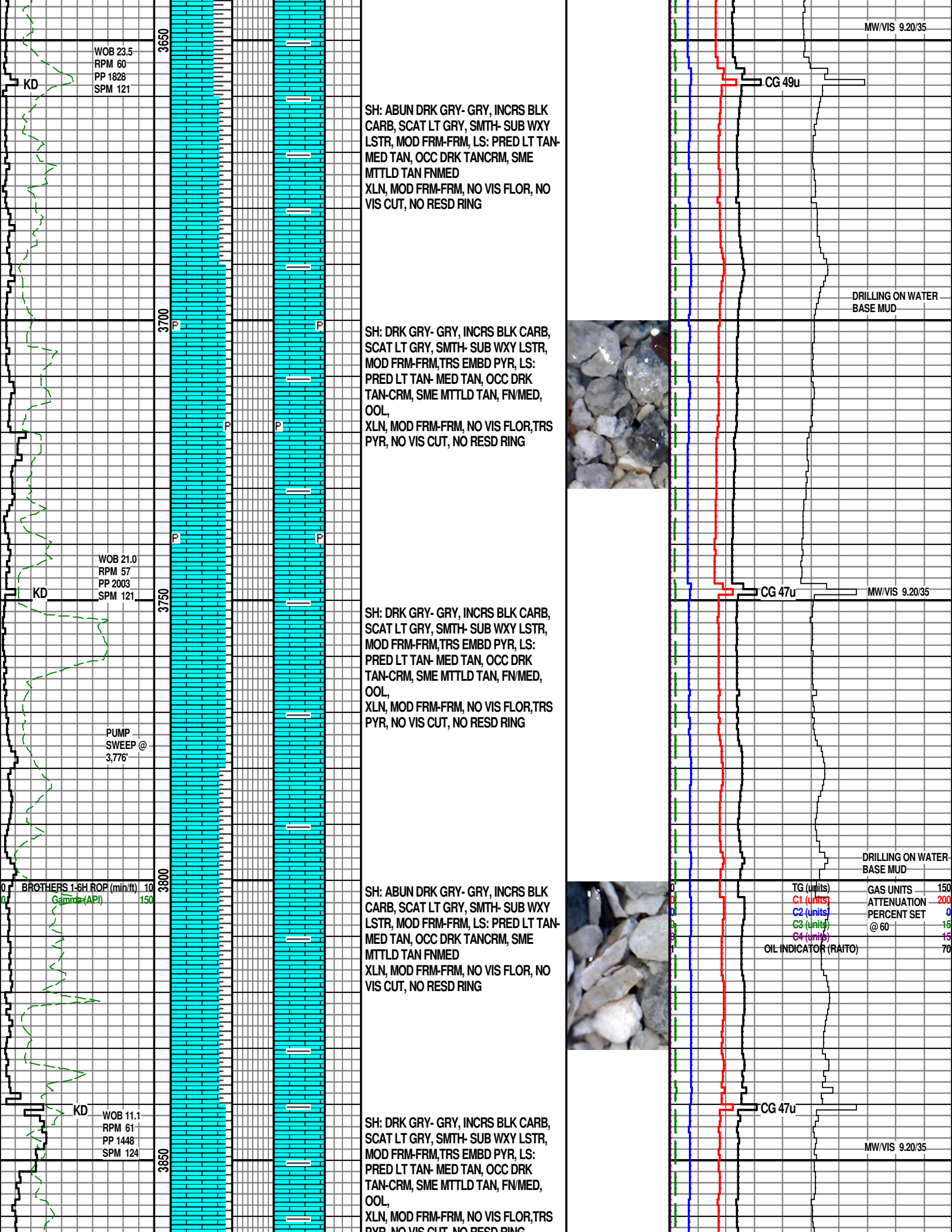
SURVEY: 3,511' MD 3,510' TVD
INC. 0.70 / AZ. 80.10

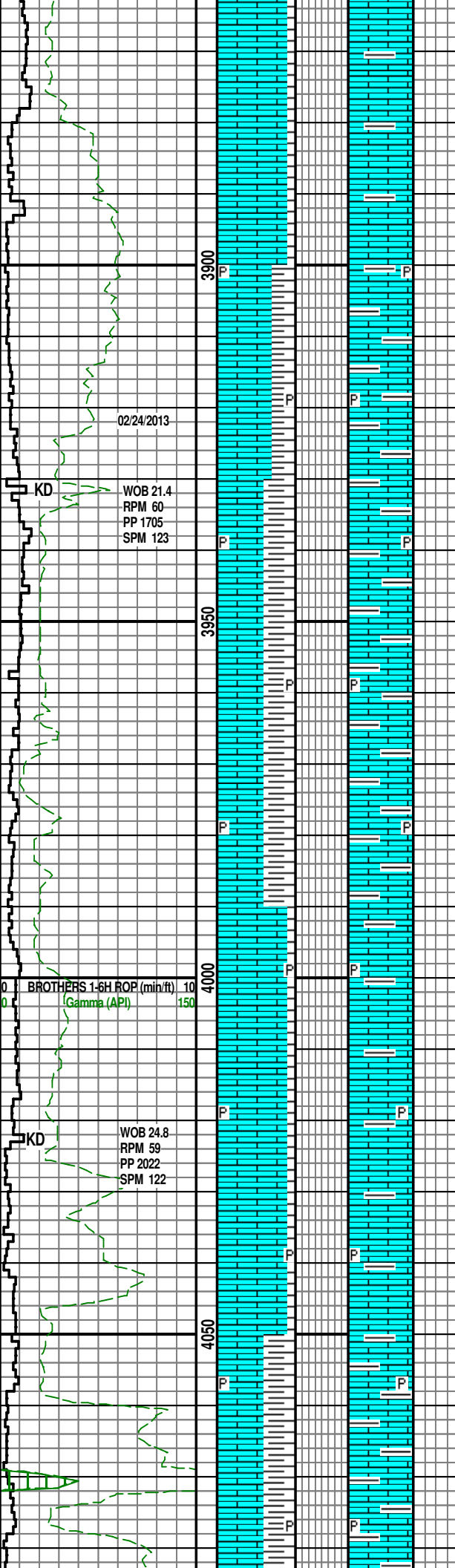
SH: ABUN DRK GRY- GRY, INCRS BLK
CARB, SCAT LT GRY, SMTH- SUB WXY
LSTR, MOD FRM-FRM, LS: PRED LT TAN-
MED TAN, OCC DRK TANC RM, SME
MTTLD TAN FN MED
XLN, MOD FRM-FRM, NO VIS FLOR, NO
VIS CUT, NO RESD RING

SH: ABUN DRK GRY- GRY, INCRS BLK
CARB, SCAT LT GRY, SMTH- SUB WXY
LSTR, MOD FRM-FRM, LS: PRED LT TAN-
MED TAN, OCC DRK TANC RM, SME
MTTLD TAN FN MED
XLN, MOD FRM-FRM, NO VIS FLOR, NO
VIS CUT, NO RESD RING

SH: ABUN DRK GRY- GRY, INCRS BLK
CARB, SCAT LT GRY, SMTH- SUB WXY
LSTR, MOD FRM-FRM, LS: PRED LT TAN-
MED TAN, OCC DRK TANC RM, SME
MTTLD TAN FN MED
XLN, MOD FRM-FRM, NO VIS FLOR, NO
VIS CUT, NO RESD RING







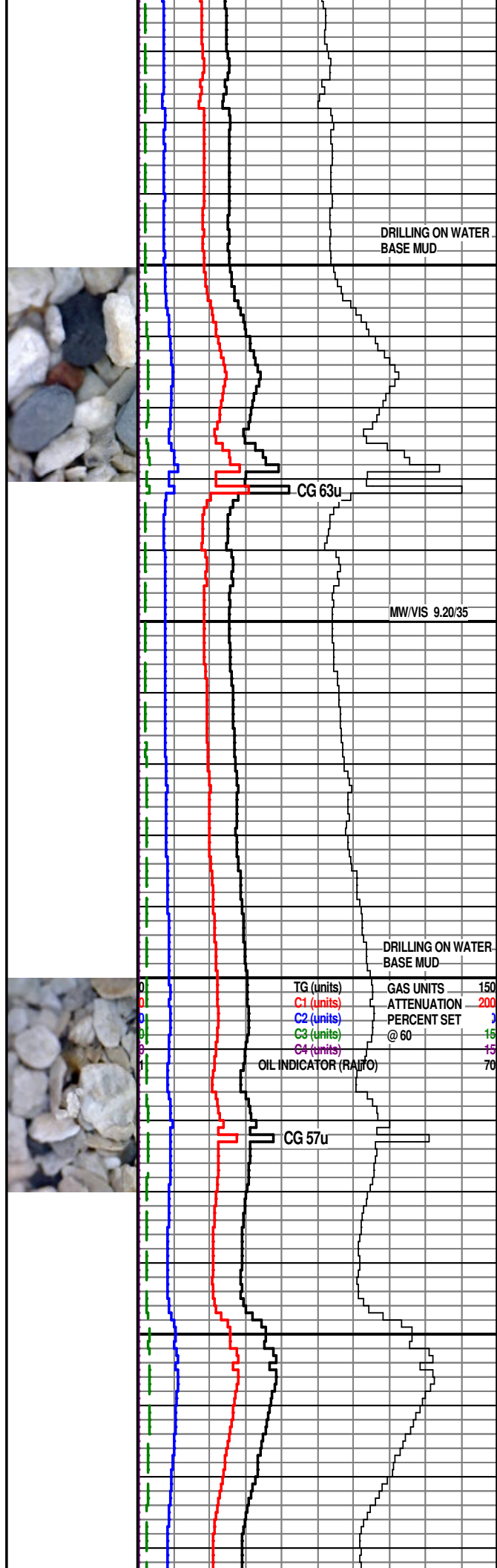
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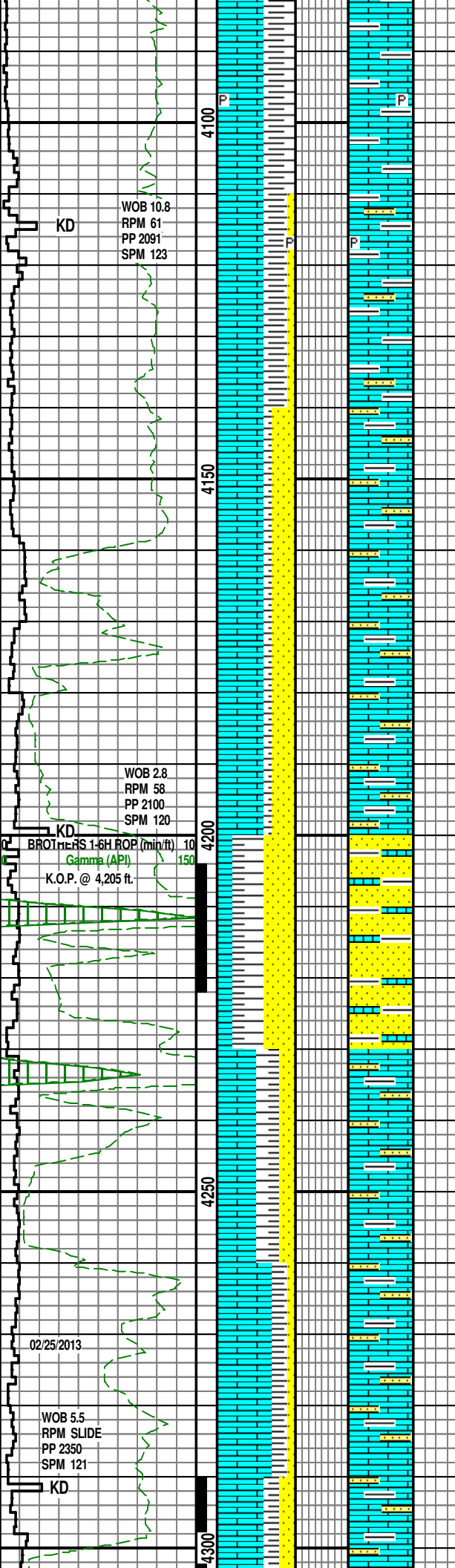
SH: ABUN DRK GRY- GRY, INCRS BLK CARB, SCAT LT GRY, SMTH- SUB WXY LSTR, MOD FRM-FRM,TRS EMBD PYR, LS: PRED LT TAN- MED TAN, OCC DRK TAN-CRM, SME MTTLD TAN, FN/MED, OOL XLN, MOD FRM-FRM, NO VIS FLOR,TRS PYR, NO VIS CUT, NO RESD RING

SURVEY: 3,967' MD 3,966' TVD
INC. 1.70 / AZ. 80.10

SH: DRK GRY- GRY, INCRS BLK CARB, SCAT LT GRY, SMTH- SUB WXY LSTR, MOD FRM-FRM,TRS EMBD PYR, LS: PRED LT TAN- MED TAN, OCC DRK TAN-CRM, SME MTTLD TAN, FN/MED, OOL, XLN, MOD FRM-FRM, NO VIS FLOR,TRS PYR, NO VIS CUT, NO RESD RING

SH: ABUN DRK GRY- GRY, INCRS BLK CARB, SCAT LT GRY, SMTH- SUB WXY LSTR, MOD FRM-FRM,TRS EMBD PYR, LS: PRED LT TAN- MED TAN, OCC DRK TAN-CRM, SME MTTLD TAN, FN/MED, OOL XLN, MOD FRM-FRM, NO VIS FLOR,TRS PYR, NO VIS CUT, NO RESD RING





SH: ABUN DRK GRY- GRY, INCRS BLK CARB, SCAT LT GRY, SMTH- SUB WXY LSTR, MOD FRM-FRM, TRS EMBD PYR, LS: PRED LT TAN- MED TAN, OCC DRK TAN-CRM, SME MTTLD TAN, FN/MED, OOL
XLN, MOD FRM-FRM, NO VIS FLOR, TRS PYR, NO VIS CUT, NO RESD RING

SH: GRY, BLK, LT GRY, SUB WXY LSTR, MOD FRM, LS: OFF WHT-WHT, CRM, FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF WHT, LT-MED GRY, VF GRN, W/CONSOL, MOD FRM, CALC CMT, SL/QZT, SUBANG

SH: GRY, BLK, LT GRY, SUB WXY LSTR, MOD FRM, LS: OFF WHT-WHT, CRM, FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF WHT, LT-MED GRY, VF GRN, W/CONSOL, MOD FRM, CALC CMT, SL/QZT, SUBANG

SURVEY: 4,181' MD 4,180' TVD
INC. 1.2 / AZ. 52.6
SH: GRY, BLK, LT GRY, SUB WXY LSTR, MOD FRM, LS: OFF WHT-WHT, CRM, FN-XLN, MOD FRM, SL/OOL, NO CUT, NO RING, SS: OFF WHT, LT-MED GRY, VF GRN, W/CONSOL, MOD FRM, CALC CMT, QZT, SUBANG

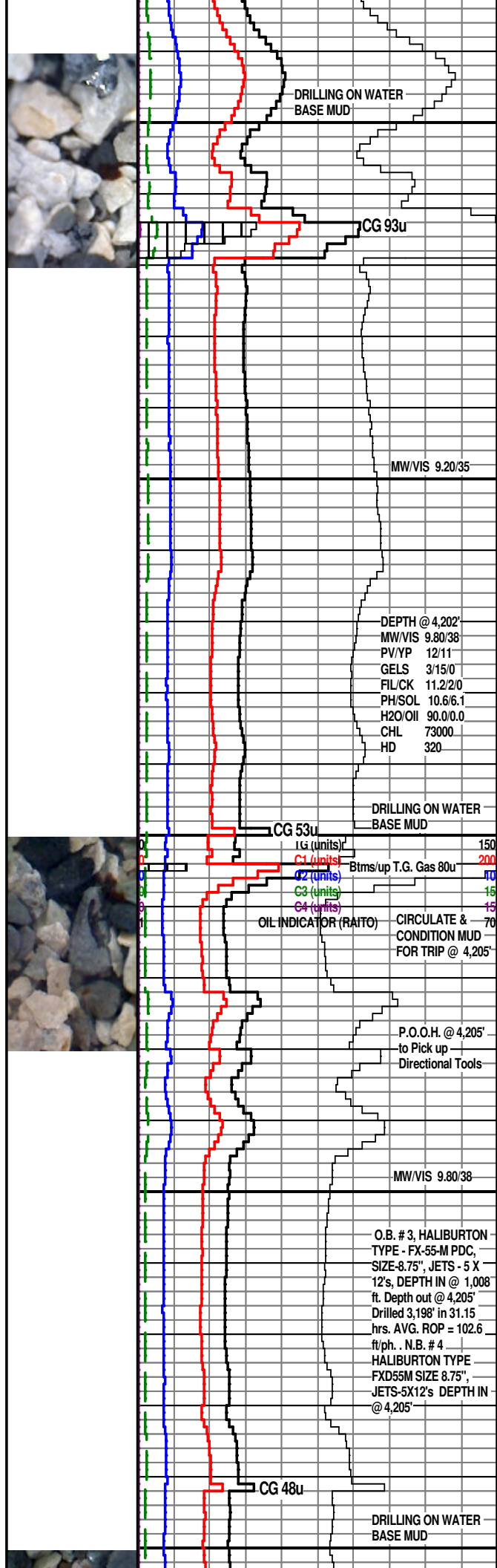
KOP - 4.205'

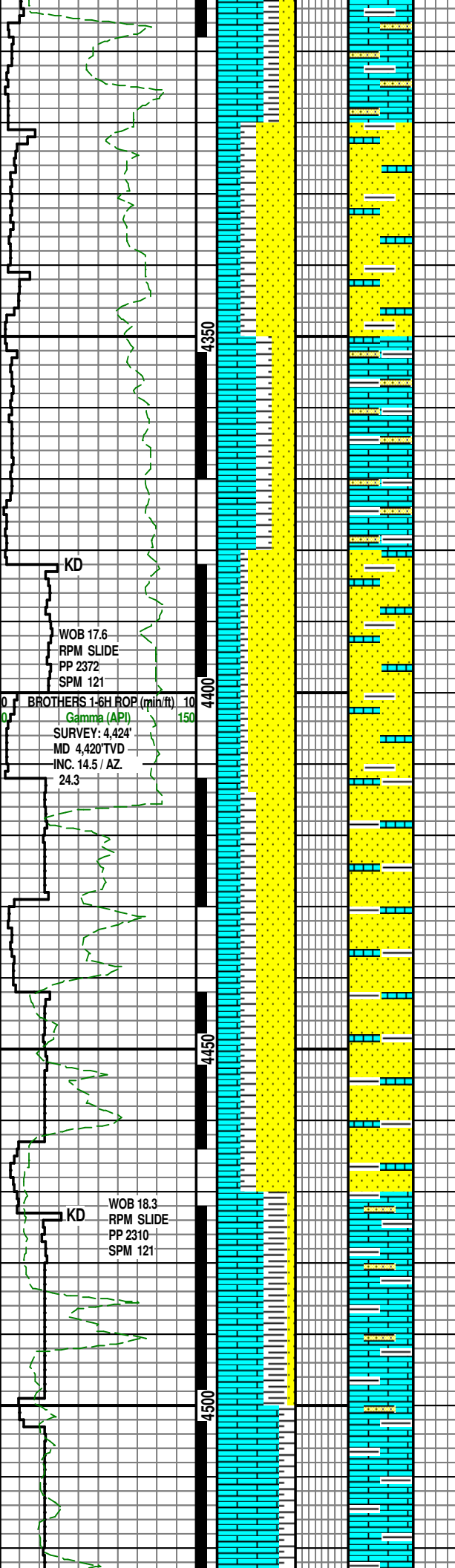
BASE HEEBNER SHALE 4,208' MD/TVD 4,208'

SH: GRY, BLK, LT GRY, SUB WXY LSTR, MOD FRM, LS: OFF WHT-WHT, CRM, FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF WHT, LT-MED GRY, VF GRN, W/CONSOL, MOD FRM, CALC CMT, SL/QZT SUBRND, SUBANG,

SURVEY: 4,242' MD 4,241' TVD
INC. 5.2 / AZ. 23.9
SH: GRY, BLK, LT GRY, SUB WXY LSTR, MOD FRM, LS: OFF WHT-WHT, CRM, FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF WHT, LT-MED GRY, VF GRN, W/CONSOL, MOD FRM, CALC CMT, SL/QZT SUBRND, SUBANG,

SURVEY: 4,272' MD 4,271' TVD
INC. 7.4 / AZ. 26.1
SH: GRY, BLK, LT GRY, SUB WXY LSTR, MOD FRM, LS: OFF WHT-WHT, CRM, FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF WHT, LT-MED GRY, VF GRN, W/CONSOL, MOD FRM, CALC CMT, SL/QZT SUBRND, SUBANG,





SURVEY: 4,303' MD 4,302' TVD
INC. 9.3 / AZ. 25.7
SH: GRY, BLK, LT GRY, SUB WXY LSTR,
MOD FRM, LS: OFF WHT-WHT, CRM,
FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF
WHT, LT-MED GRY, VF GRN, W/CONSOL,
MOD FRM, CALC CMT, SL/QZT SUBRND,
SUBANG,

SURVEY: 4,333' MD 4,331' TVD
INC. 10.7 / AZ. 29.5
SH: GRY, BLK, LT GRY, SUB WXY LSTR,
MOD FRM, LS: OFF WHT-WHT, CRM,
FN/MED XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF
WHT, LT-MED GRY, VF GRN, W/CONSOL,
MOD FRM, CALC CMT, SL/QZT SUBRND,
SUBANG

SURVEY: 4,363' MD 4,366' TVD
INC. 12.1 / AZ. 29.9
SH: GRY, BLK, LT GRY, RGH TXT, MOD
FRM, LS: OFF WHT-WHT, CRM, FN/MED
XLN, SL/OOL,
MOD FRM, NO CUT, NO RING, SS: OFF
WHT, LT-MED GRY, VF GRN, W/CONSOL,
MOD FRM, CALC CMT, SL/QZT SUBRND,
SUBANG

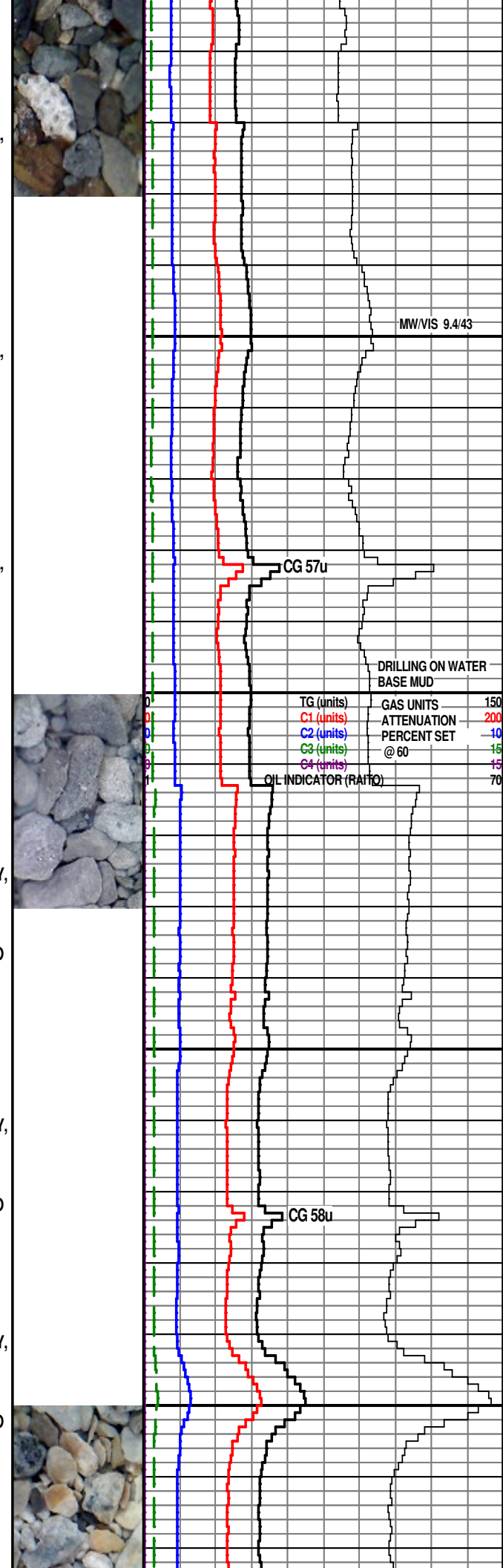
SURVEY: 4,394' MD 4,391' TVD
INC. 13.6 / AZ. 27.8
SS: OFF WHT, LT-MED GRY, VF GRN,
W/CONSOL, MOD FRM, CALC CMT,
SL/QZT SUBRND, SUBANG

LANSING LIMESTONE
4,416' MD/TVD 4,413'
SH: LT-MED GRY, SME RED, BLK, SPLTY,
RGH/SNDY TXT, MOD FRM, W/V-SL/TRS
EMBD LS, MICA, LS: LT-MED GRY, OFF
WHT WHT, CRS ANG GRN, DNS, MICRO-
XLN, OOL, SL/HD, NO FLOR, NO CUT, NO
RING, SS: VF-F GRN, W/SRT, SUB-ANG,
SUB-RND, MOD HD, CALC CMT

SURVEY: 4,454' MD 4,449' TVD
INC. 15.3 / AZ. 19.8
SH: LT-MED GRY, SME RED, BLK, SPLTY,
RGH/SNDY TXT, MOD FRM, W/V-SL/TRS
EMBD LS, MICA, LS: LT-MED GRY, OFF
WHT WHT, CRS ANG GRN, DNS, MICRO-
XLN, OOL, SL/HD, NO FLOR, NO CUT, NO
RING, SS: VF-F GRN, W/SRT, SUB-ANG,
SUB-RND, MOD HD, CALC CMT

SURVEY: 4,485' MD 4,479' TVD
INC. 17.2 / AZ. 13.0
SH: LT-MED GRY, SME RED, BLK, SPLTY,
RGH/SNDY TXT, MOD FRM, W/V-SL/TRS
EMBD LS, MICA, LS: LT-MED GRY, OFF
WHT WHT, CRS ANG GRN, DNS, MICRO-
XLN, OOL, SL/HD, NO FLOR, NO CUT, NO
RING, SS: VF-F GRN, W/SRT, SUB-ANG,
SUB-RND, MOD HD, CALC CMT

SURVEY: 4,515' MD 4,507' TVD
INC. 20.0 / AZ. 9.1



LT-MED GRAY, SME RED, BLK, SPLTY,
 RGH/SDNY TXT, MOD FRM, W/V-SL/TRS
 EMBD LS, MICA, NO FLOR, NO CUT, NO
 RING

SURVEY: 4,758' MD 4,717' TVD
 INC. 38.6 / AZ. 359.0

LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, MOD FRM, W/V-SL/TRS
 EMBD LS, MICA, NO FLOR, NO CUT, NO
 RING

SURVEY: 4,789' MD 4,741' TVD
 INC. 39.9 / AZ. 359.3

LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, MOD FRM, MICA
 CHT: SL/TRS SCAT CLR MICR-XLN,
 BLKY, SME SPLIN, V/HD, NO FLOR, NO
 CUT, NO RING

SURVEY: 4,819' MD 4,764' TVD
 INC. 41.1 / AZ. 359.2

LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, MOD FRM, MICA

SURVEY: 4,850' MD 4,787' TVD
 INC. 42.4 / AZ. 359.1

LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, MOD FRM, MICA
 CHT: SL/TRS SCAT CLR MICR-XLN,
 BLKY, SME SPLIN, V/HD, NO FLOR, NO
 CUT, NO RING

SURVEY: 4,880' MD 4,809' TVD
 INC. 44.0 / AZ. 358.8

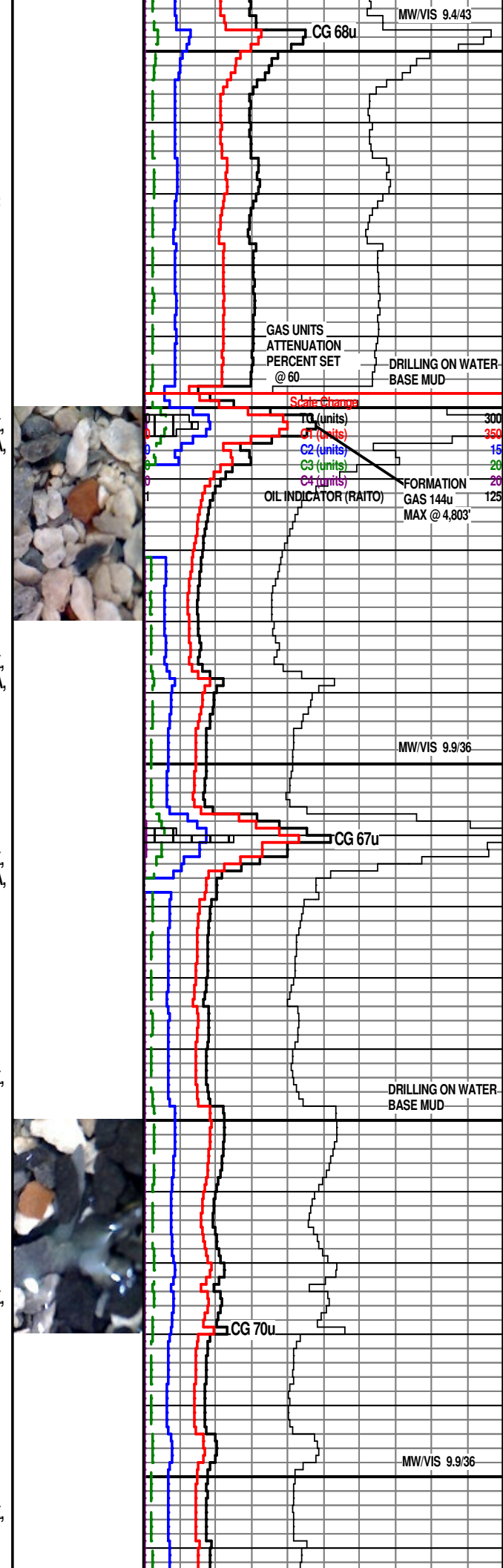
LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, SME SM TXT,
 MOD FRM, MICA, CHT: TRS CLR
 MICR-XLN, BLKY, V/HD, NO FLOR, NO
 CUT, NO RING

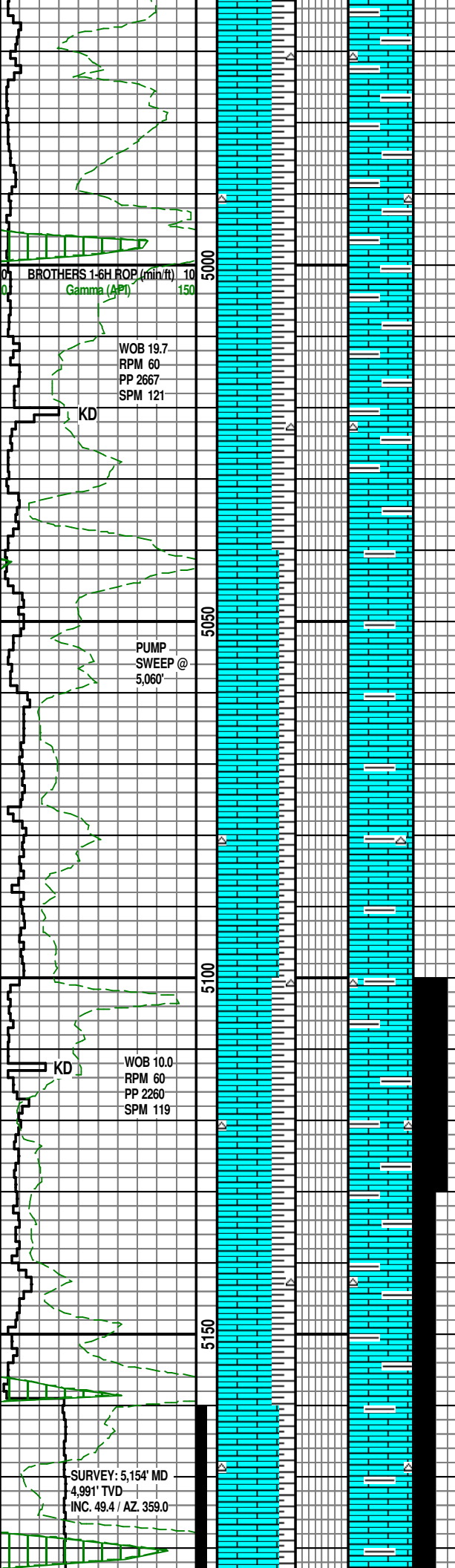
SURVEY: 4,911' MD 4,831' TVD
 INC. 45.9 / AZ. 358.8

LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, SME SM TXT,
 MOD FRM, MICA, CHT: TRS CLR
 MICR-XLN, BLKY, V/HD, NO FLOR, NO
 CUT, NO RING

SURVEY: 4,941' MD 4,851' TVD
 INC. 48.0 / AZ. 358.8

LS: LT-MED GRAY, OFF WHT WHT, CRS
 ANG GRN, DNS, MICRO- XLN, OOL,
 SL/HD, SH: LT-MED GRAY, SME RED, BLK,
 SPLTY, RGH/SDNY TXT, SME SM TXT,
 MOD FRM, MICA, CHT: TRS CLR





SURVEY: 4,971' MD 4,871' TVD
INC. 49.0 / AZ. 358.8

LS: LT-MED GRY, OFF WHT WHT, CRS
ANG GRN, DNS, MICRO- XLN, OOL,
SL/HD, SH: LT-MED GRY, SME RED, BLK,
SPLTY, RGH/SNDY TXT, SME SM TXT,
MOD FRM, MICA, CHT: TRS CLR
MICR-XLN, BLKY, V/HD, NO FLOR, NO
CUT, NO RING

SURVEY: 5,002' MD 4,892' TVD
INC. 49.1 / AZ. 358.2

LS: LT-MED GRY, OFF WHT WHT, CRS
ANG GRN, DNS, MICRO- XLN, OOL,
SL/HD, SH: LT-MED GRY, SME RED, BLK,
SPLTY, RGH/SNDY TXT, SME SM TXT,
MOD FRM, MICA, CHT: TRS CLR
MICR-XLN, BLKY, V/HD, NO FLOR, NO
CUT, NO RING

SURVEY: 5,032' MD 4,911' TVD
INC. 48.8 / AZ. 358.1

LS: LT-MED GRY, OFF WHT WHT, CRS
ANG GRN, DNS, MICRO- XLN, OOL,
SL/HD, SH: LT-MED GRY, SME RED, BLK,
SPLTY, RGH/SNDY TXT, SME SM TXT,
MOD FRM, MICA, CHT: TRS CLR
MICR-XLN, BLKY, V/HD, NO FLOR, NO
RING

SURVEY: 5,063' MD 4,932' TVD
INC. 48.9 / AZ. 358.3

LS: LT-MED GRY, OFF WHT WHT, CRS
ANG GRN, DNS, MICRO- XLN, OOL,
SL/HD, SH: LT-MED GRY, SME RED, BLK,
SPLTY, RGH/SNDY TXT, SME SM TXT,
MOD FRM, MICA, CHT: TRS CLR
MICR-XLN, BLKY, V/HD, NO FLOR, NO
CUT, NO RING

SURVEY: 5,093' MD 4,952' TVD
INC. 48.8 / AZ. 358.7

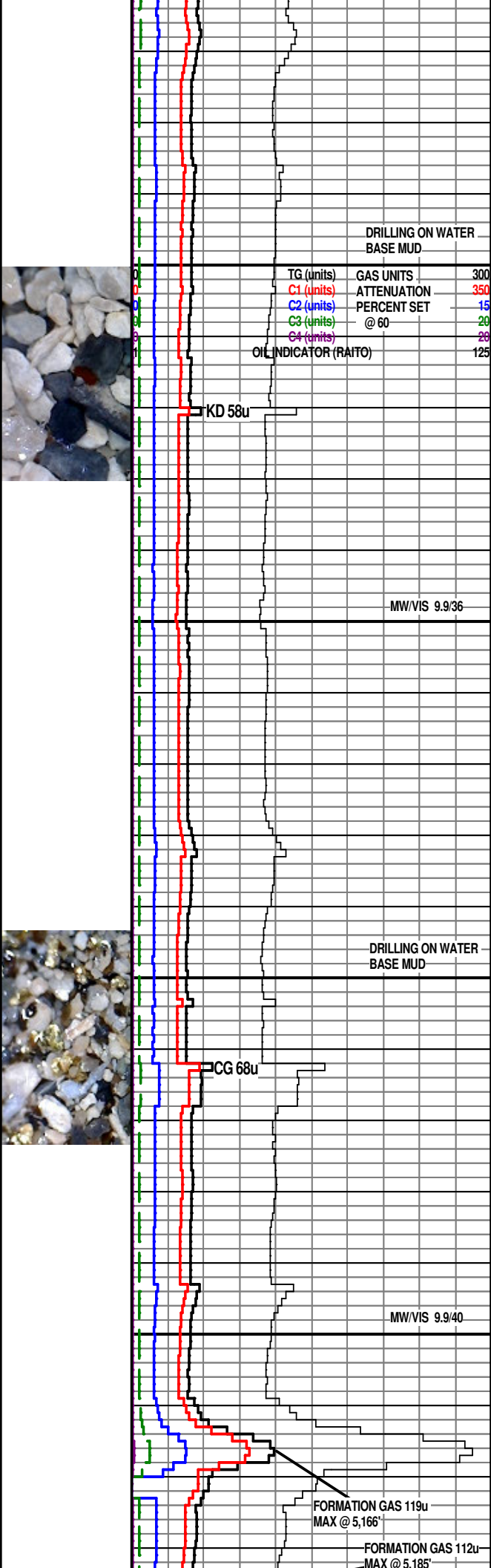
LS: OFF WHT, TAN, SME LT/MED GRY,
MED/MICRO-XLN, TRS FOSS, OOL, BLKY,
FRM-HD, SH: LT-V/DK GRY, SL/SLT,
SUB/BLKY-BLKY, SFT, TRS CHRT: OFF
WHT, OP, HD, ABDT LCM, GD SLO MKY
CUT, THIN WHT-BLUIISH GRN RES RING

SURVEY: 5,124' MD 4,972' TVD
INC. 49.1 / AZ. 358.5

LS: OFF WHT, TAN, SME LT/MED GRY,
MED/MICRO-XLN, TRS FOSS, OOL, BLKY,
FRM-HD, SH: LT-V/DK GRY, SL/SLT,
SUB/BLKY-BLKY, SFT, TRS CHRT: OFF
WHT, OP, HD, ABDT LCM, FR SLO MKY
CUT, THIN WHT-BLUIISH GRN RES RING

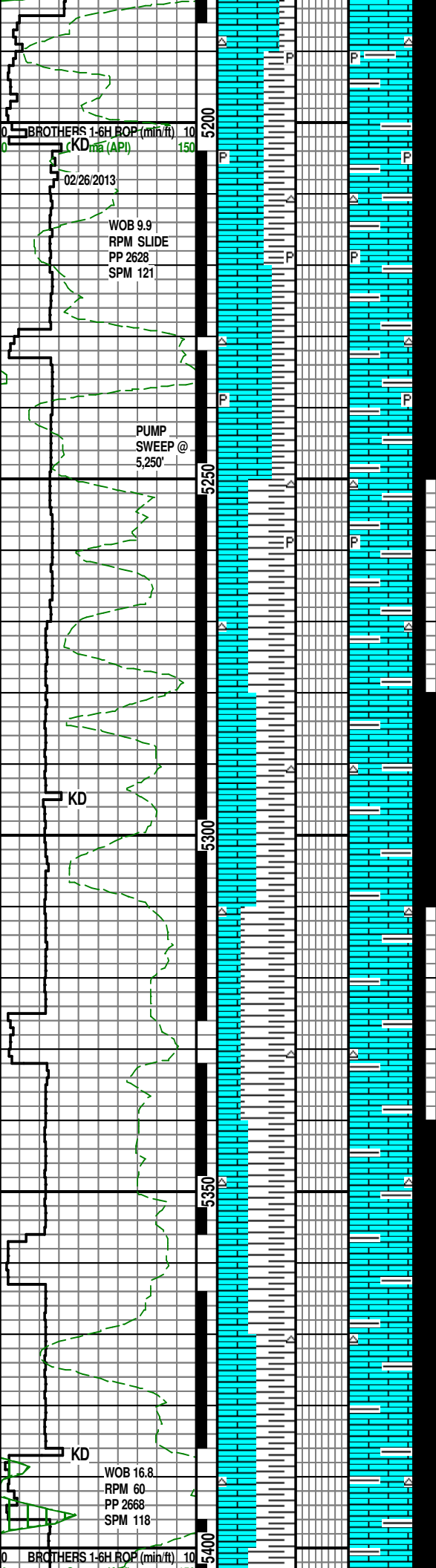
CHEROKEE GROUP
5,152' MD/TVD 4,990'

LS: OFF WHT, TAN, SME LT/MED GRY,
MED/MICRO-XLN, TRS FOSS, OOL, BLKY,
FRM-HD, SH: LT-V/DK GRY, SL/SLT,
SUB/BLKY-BLKY, SFT, TRS CHRT: OFF
WHT, OP, HD, ABDT LCM, FR SLO MKY
CUT, MED WHT-BLUIISH GRN RES RING



DRILLING ON WATER BASE MUD		
TG (units)	GAS UNITS	300
C1 (units)	ATTENUATION	350
C2 (units)	PERCENT SET	15
C3 (units)	@ 60	20
C4 (units)		20
OIL INDICATOR (RAITO)		125





SURVEY: 5,185' MD 5,011' TVD
INC. 51.0 / AZ. 359.5
LS: OFF WHT, TAN, SME LT/MED GRY,
MED/MICRO-XLN, TRS FOSS, OOL, BLKY,
FRM-HD, SH: LT-V/DK GRY, SL/SLT,
SUB/BLKY-BLKY, SFT, TRS CHRT: OFF
WHT, OP, HD, SME LCM, FR SLO MKY
CUT, MED WHT-BLUSH GRN RES RING

SURVEY: 5,215' MD 5,029' TVD
INC. 53.0 / AZ. 359.6
SH: LT-DK GRY,BLK, BLU, RD BRN, RD,
SME SL/SLT, SPLIN-BLKY, SFT, LS: OFF
WHT, TAN, MICRO-CRSE XLN, TRS FOSS,
BLKY-S/BLKY, FRM-HD, TRS CHRT: OFF
WHT, LT GRY, OP, HD, SME LCM, GD SLO
MKY CUT, THIN BLU-GRN RING

SURVEY: 5,245' MD 5,047' TVD
INC. 55.6 / AZ. 359.7
SH: LT-DK GRY,BLK, BLU, RD BRN, RD,
SME SL/SLT, SPLIN-BLKY, SFT, LS: OFF
WHT, TAN, MICRO-CRSE XLN, TRS FOSS,
BLKY-S/BLKY, FRM-HD, TRS CHRT: OFF
WHT, LT GRY, OP, HD, SME LCM, PR SLO
MKY CUT, THIN BLU-GRN RING

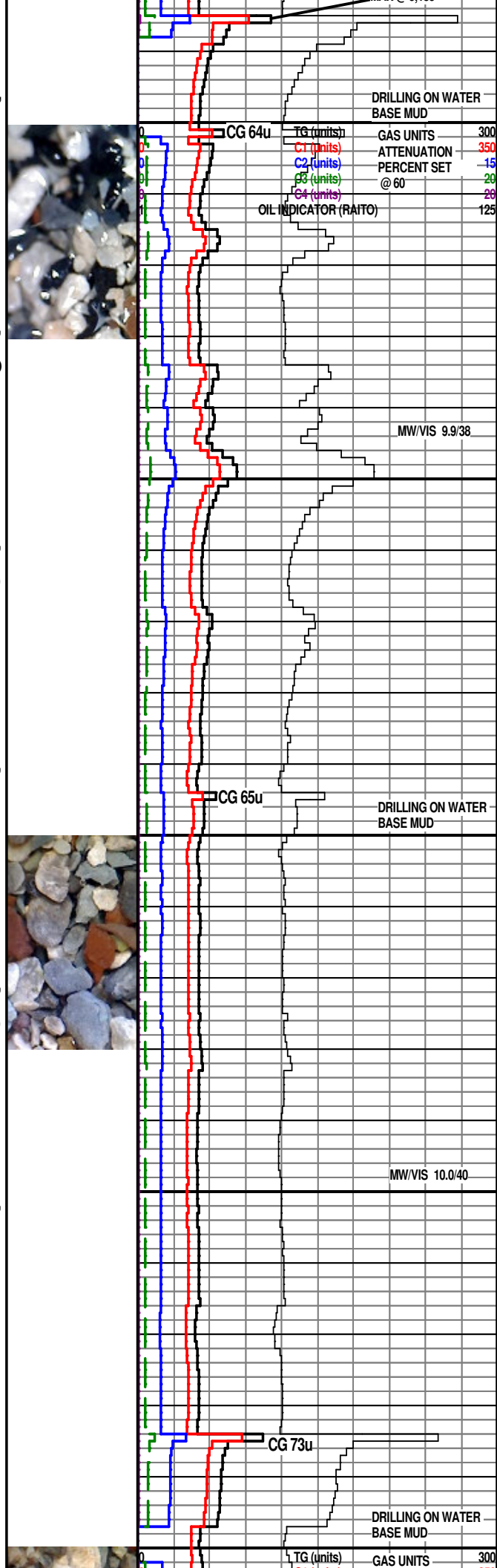
SURVEY: 5,276' MD 5,064' TVD
INC. 59.3 / AZ. 359.8
SH: LT-DK GRY,BLK, BLU, RD BRN, RD,
SME SL/SLT, SPLIN-BLKY, SFT, LS: OFF
WHT, TAN, MICRO-CRSE XLN, TRS FOSS,
BLKY-S/BLKY, FRM-HD, TRS CHRT: OFF
WHT, LT GRY, OP, HD, SME LCM, PR SLO
MKY CUT, MED BLU-GRN RING

SURVEY: 5,307' MD 5,079' TVD
INC. 63.0 / AZ. 359.2
SH: LT-DK GRY,BLK, BLU, RD BRN, RD,
SME SL/SLT, SPLIN-BLKY, SFT, LS: OFF
WHT, TAN, MICRO-CRSE XLN, TRS FOSS,
BLKY-S/BLKY, FRM-HD, TRS CHRT: OFF
WHT, LT GRY, OP, HD, SME LCM, PR SLO
MKY CUT, MED BLU-GRN RING

SURVEY: 5,337' MD 5,092' TVD
INC. 66.1 / AZ. 359.5
SH: LT-DK GRY,BLK, BLU, RD BRN, RD,
SME SL/SLT, SPLIN-BLKY, SFT, LS: OFF
WHT, TAN, MICRO-CRSE XLN, TRS FOSS,
BLKY-S/BLKY, FRM-HD, TRS CHRT: OFF
WHT, LT GRY, OP, HD, SME LCM, FR SLO
MKY CUT, THIN BLU-GRN RING

SURVEY: 5,368' MD 5,104' TVD
INC. 68.8 / AZ. 359.9
SH: LT-DK GRY, MAUVE, BLU/GRY,
RD/BRN, RD, SME SL/SLT, BLKY-SPLIN,
SFT, LS: OFF WHT, TAN, MICRO-CRSE
XLN, TRS FOSS, BLKY-S/BLKY, FRM-HD,
TRS CHRT: OFF WHT, LT GRY, CLR-OP,
HD, GD SLO MKY CUT, MED BLU-GRN
RING

SURVEY: 5,398' MD 5,114' TVD
INC. 71.3 / AZ. 0.4



DRILLING ON WATER
BASE MUD
GAS UNITS 300
ATTENUATION 350
PERCENT SET -15
@ 60 20
OIL INDICATOR (RAITO) 20
125

CG 64u
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

MW/VIS 9.9/38

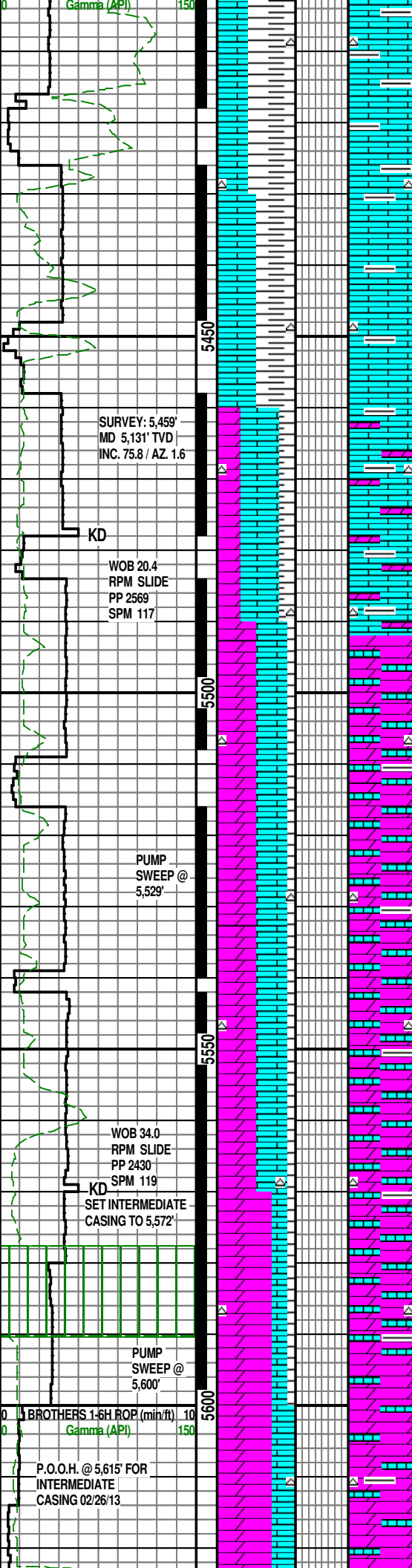
DRILLING ON WATER
BASE MUD

CG 65u

MW/VIS 10.0/40

DRILLING ON WATER
BASE MUD
GAS UNITS 300

CG 73u



SH: LT-DK GRY, MAUVE, BLU/GRY,
RD/BRN, RD, SME SL/SLT, BLKY-SPLN,
SFT, LS: OFF WHT, TAN, MICRO-CRSE
XLN, TRS FOSS, BLKY-S/BLKY, FRM-HD,
TRS CHRT: OFF WHT, LT GRY, CLR-OP,
HD, GD SLO MKY CUT, MED BLU-GRN
RING

SURVEY: 5,428' MD 5,123' TVD
INC. 73.3 / AZ. 1.1

SH: LT-DK GRY, MAUVE, BLU/GRY,
RD/BRN, RD, SME SL/SLT, BLKY-SPLN,
SFT, LS: OFF WHT, TAN, MICRO-CRSE
XLN, TRS FOSS, BLKY-S/BLKY, FRM-HD,
TRS CHRT: OFF WHT, LT GRY, CLR-OP,
HD, GD SLO MKY CUT, MED BLU-GRN
RING

MISSISSIPPI LIME 5,454' MD/TVD 5,130'

LS: OFF WHT, MICRO-MED XLN, SME
SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED
TAN, MICRO/SUC, OIL STN-SAT, S/BLKY,
SFT-MED FRM, SH: MOSTLY UPPER
HOLE CAVINGS, TRS CHRT: MLKY, OP,
HD, GD MKY FLASH CUT, MED BLU-GRN
RING

SURVEY: 5,489' MD 5,138' TVD
INC. 78.2 / AZ. 1.3

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, SH: LT-DK
GRY, GRY-GN, SME RD-BRN/MAUVE,
S/BLKY, SFT, TRS CHRT: WHT, MKY, OP,
EX MKY FLASH CUT, THICK BLU-GRN
RING

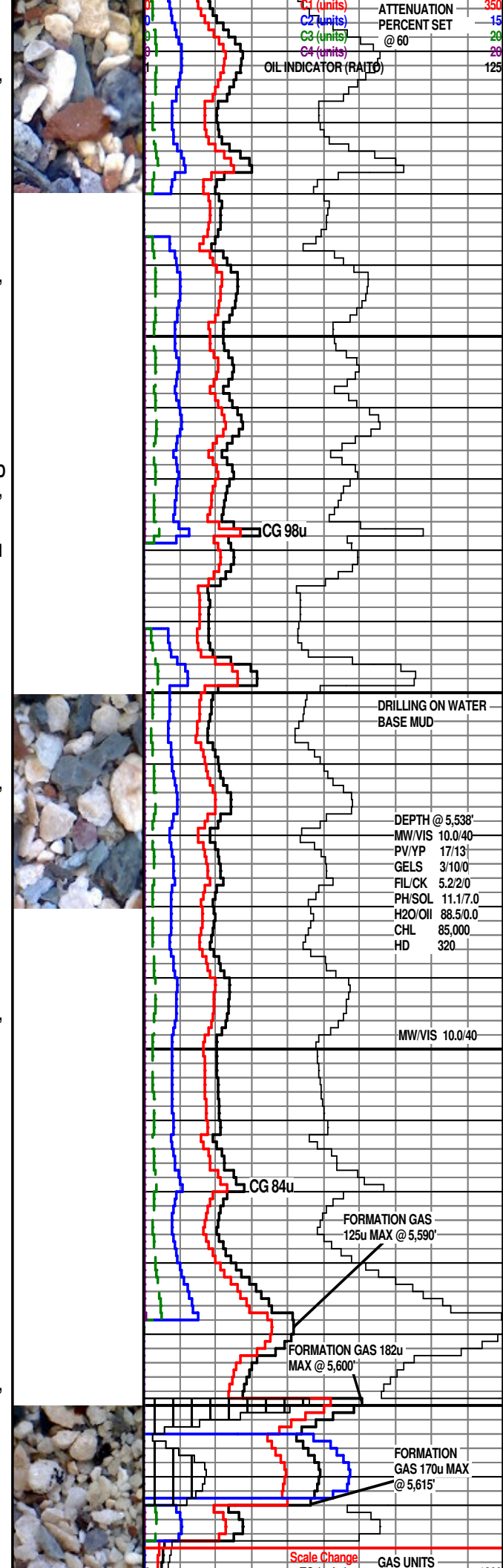
SURVEY: 5,520' MD 5,144' TVD
INC. 80.7 / AZ. 1.4

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, SH: LT-DK
GRY, GRY-GN, SME RD-BRN/MAUVE,
S/BLKY, SFT, TRS CHRT: WHT, MKY, OP,
EX MKY FLASH CUT, THICK BLU-GRN
RING

SURVEY: 5,565' MD 5,149' TVD
INC. 86.0 / AZ. 0.30

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, SH: LT-DK
GRY, GRY-GN, SME RD-BRN/MAUVE,
S/BLKY, SFT, TRS CHRT: WHT, MKY, OP,
EX MKY FLASH CUT, THICK BLU-GRN
RING

SURVEY: 5,616' MD 5,150' TVD
INC. 90.7 / AZ. 359.50



ATTENUATION
PERCENT SET
@ 60
350
15
20
25
125

CG 98u

DRILLING ON WATER
BASE MUD

DEPTH @ 5,538'
MW/VIS 10.0/40
PV/YP 17/13
GELS 3/10/0
FIL/CK 5.2/2/0
PH/SOL 11.1/7.0
H2O/OIL 88.5/0.0
CHL 85,000
HD 320

MW/VIS 10.0/40

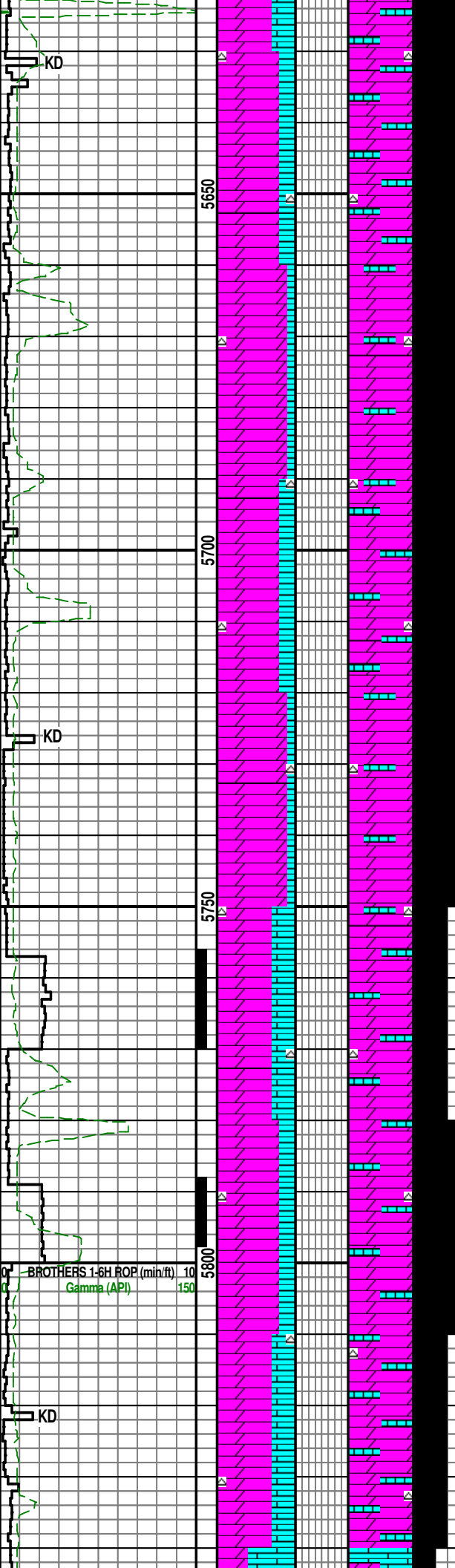
CG 84u

FORMATION GAS
125u MAX @ 5,590'

FORMATION GAS 182u
MAX @ 5,600'

FORMATION
GAS 170u MAX
@ 5,615'

Scale Change
GAS UNITS



DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, EX MKY FLASH CUT, THICK
BLU-GRN RING

SURVEY: 5,647' MD 5,150' TVD
INC. 90.9 / AZ. 359.70

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, EX MKY FLASH CUT, THICK
BLU-GRN RING

SURVEY: 5,679' MD 5,149' TVD
INC. 91.1 / AZ. 359.40

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, EX MKY FLASH CUT, THICK
BLU-GRN RING

SURVEY: 5,711' MD 5,149' TVD
INC. 91.8 / AZ. 359.10

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, EX MKY FLASH CUT, THICK
BLU-GRN RING

SURVEY: 5,742' MD 5,148' TVD
INC. 91.9 / AZ. 359.30

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, EX MKY FLASH CUT, THICK
BLU-GRN RING

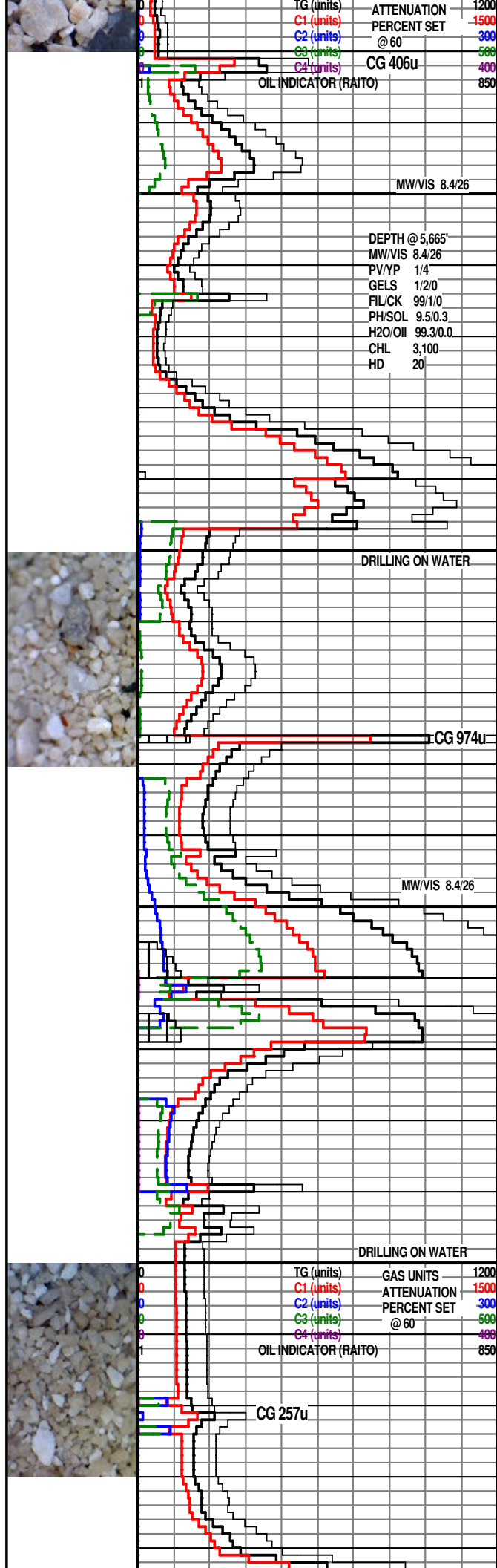
SURVEY: 5,774' MD 5,147' TVD
INC. 90.2 / AZ. 358.90

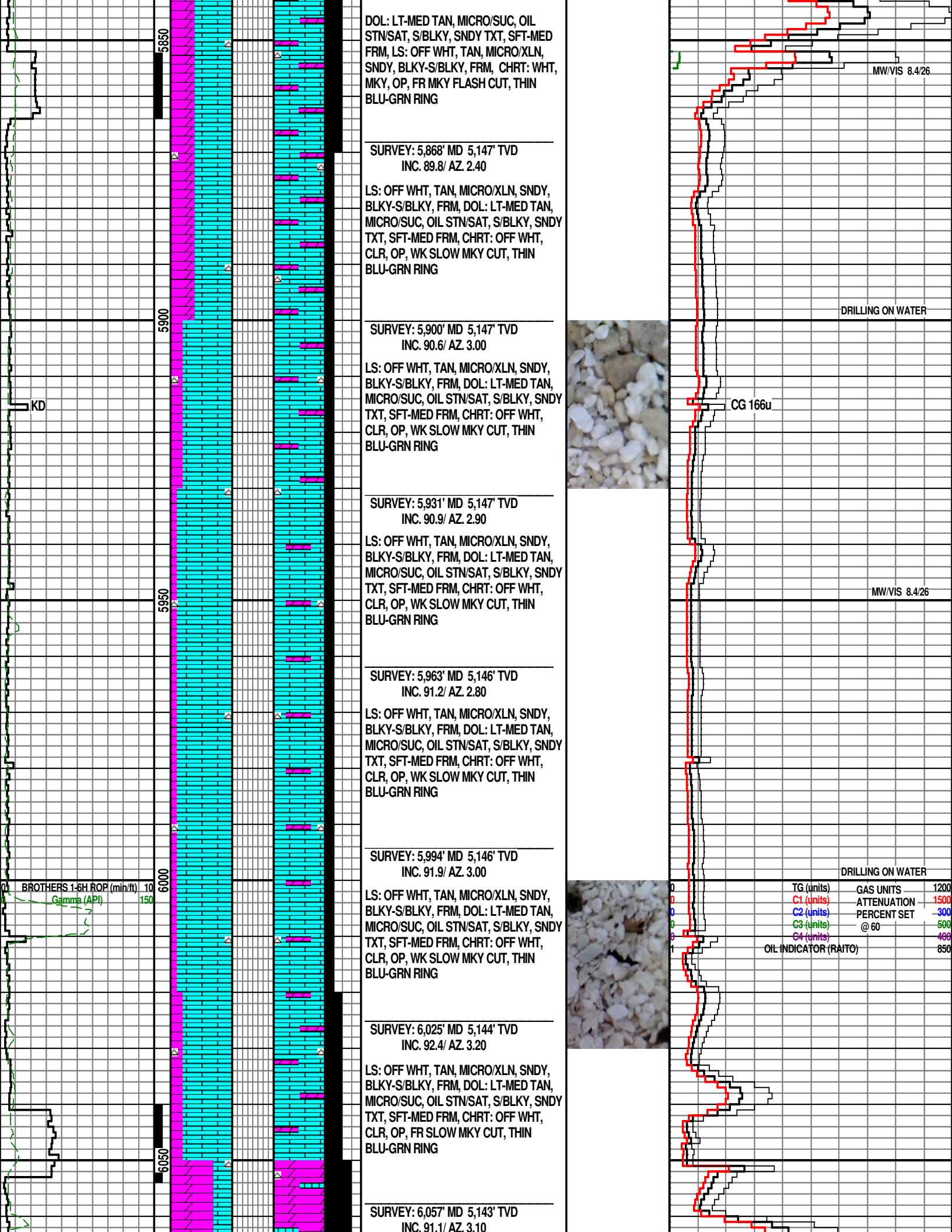
DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, EX MKY FLASH CUT, THICK
BLU-GRN RING

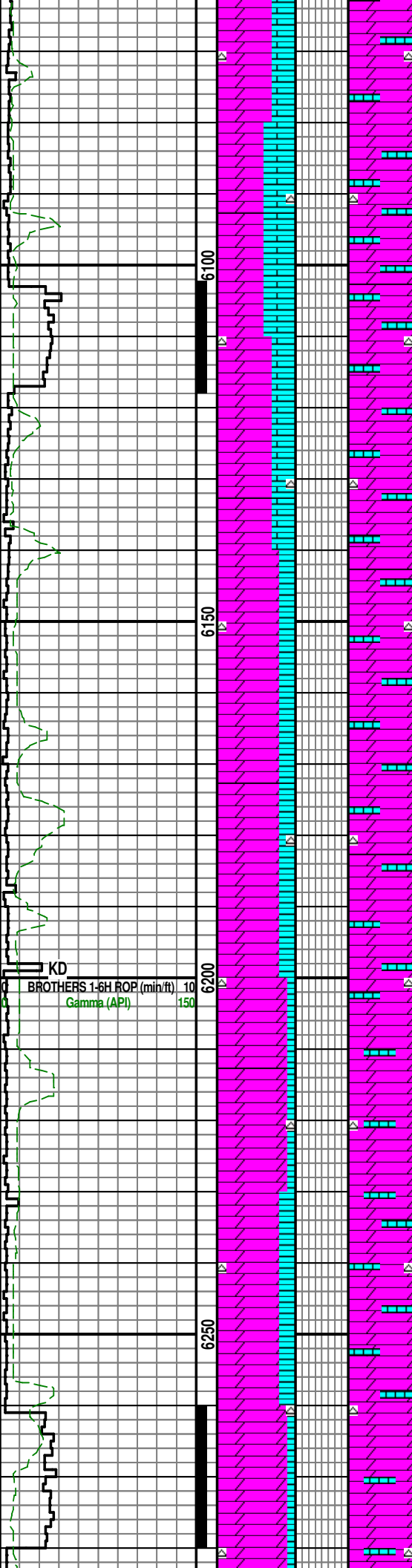
SURVEY: 5,805' MD 5,147' TVD
INC. 89.3 / AZ. 0.10

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: WHT,
MKY, OP, GD MKY FLASH CUT, THICK
BLU-GRN RING

SURVEY: 5,837' MD 5,147' TVD
INC. 89.8 / AZ. 0.80







DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, GD MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,088' MD 5,143' TVD
INC. 91.2/ AZ. 3.30

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, GD MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,120' MD 5,143' TVD
INC. 88.8/ AZ. 2.60

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, GD MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,152' MD 5,144' TVD
INC. 88.2/ AZ. 2.40

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, EX MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,183' MD 5,145' TVD
INC. 88.4/ AZ. 1.50

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, EX MKY FLASH CUT,
THICK BLU-GRN RING

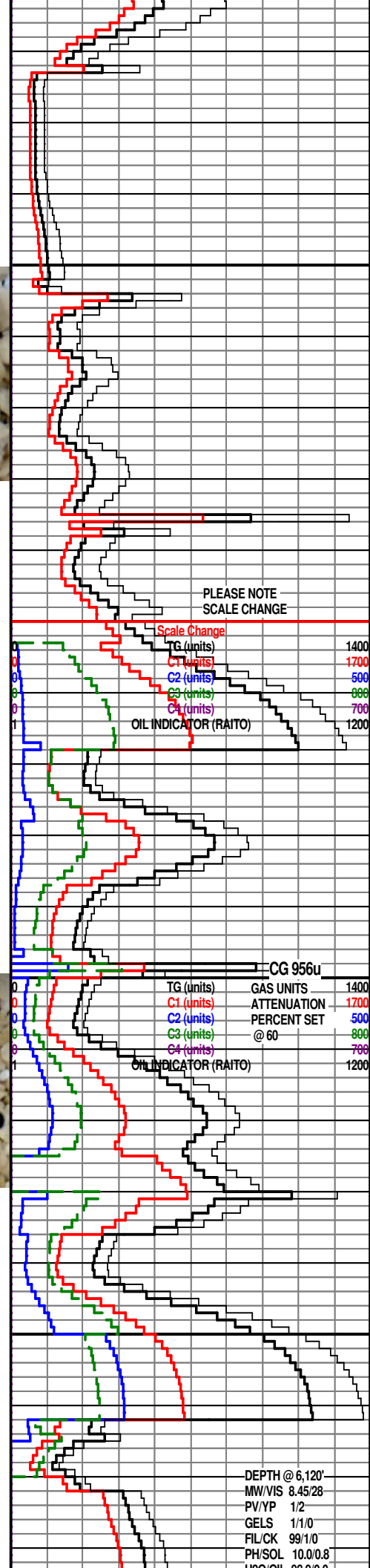
SURVEY: 6,214' MD 5,145' TVD
INC. 89.0/ AZ. 1.70

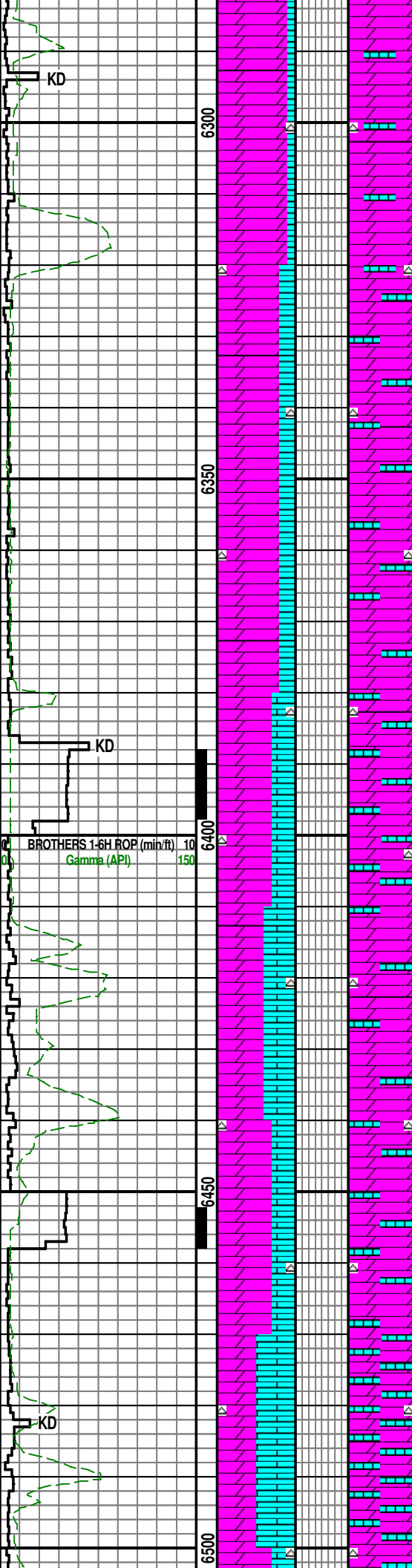
DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, EX MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,246' MD 5,146' TVD
INC. 89.4/ AZ. 1.70

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, EX MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,277' MD 5,146' TVD
INC. 88.6/ AZ. 2.20





DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, EX MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,309' MD 5,147' TVD
INC. 88.8/ AZ. 2.70

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, GD SLOW MKY CUT,
THICK BLU-GRN RING

SURVEY: 6,340' MD 5,147' TVD
INC. 89.7/ AZ. 3.60

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, SFT-MED FRM, CHRT: OFF WHT,
CLR, OP, GD SLOW MKY CUT, THIN
BLU-GRN RING

SURVEY: 6,372' MD 5,147' TVD
INC. 90.1/ AZ. 3.90

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, EX MKY FLASH CUT,
THICK BLU-GRN RING

SURVEY: 6,403' MD 5,148' TVD
INC. 88.9/ AZ. 3.00

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, FR SLOW MKY CUT, THIN
BLU-GRN RING

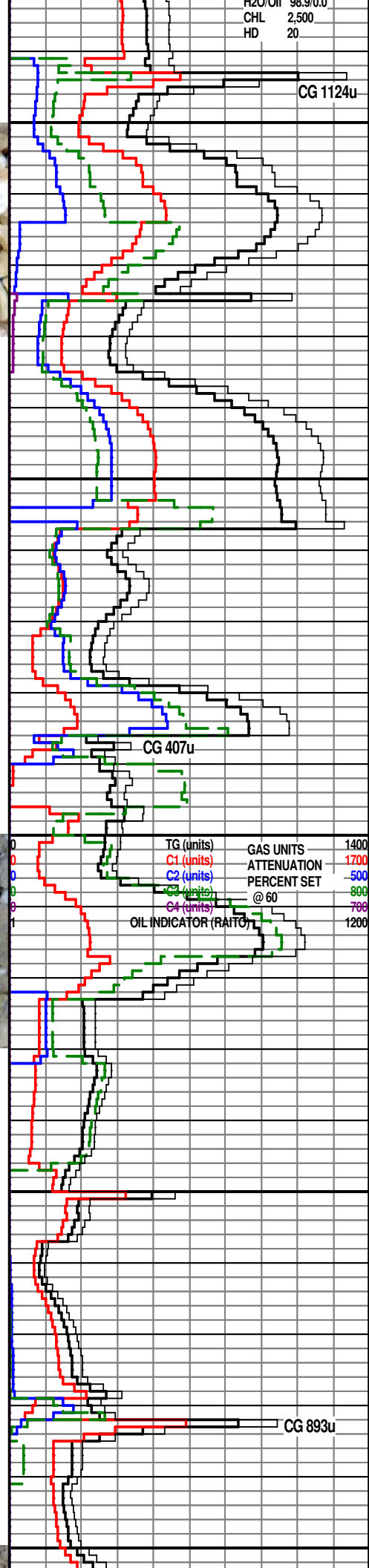
SURVEY: 6,435' MD 5,148' TVD
INC. 88.8/ AZ. 2.80

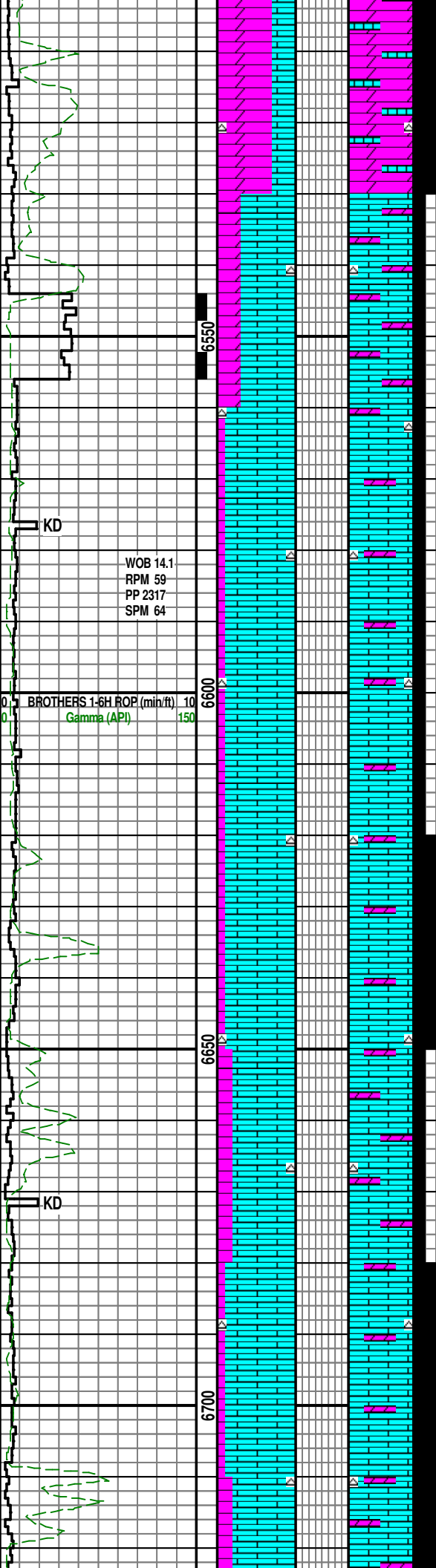
DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, FR SLOW MKY CUT, THIN
BLU-GRN RING

SURVEY: 6,466' MD 5,149' TVD
INC. 88.8/ AZ. 2.20

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, FR SLOW MKY CUT, THIN
BLU-GRN RING

SURVEY: 6,498' MD 5,150' TVD
INC. 88.5/ AZ. 2.20





DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, FR SLOW MKY CUT, THIN
BLU-GRN RING

SURVEY: 6,529' MD 5,150' TVD
INC. 88.1/ AZ. 2.90

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, WK SLOW CUT, THIN
BLU-GRN RING

SURVEY: 6,561' MD 5,151' TVD
INC. 89.9/ AZ. 2.40

DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, SFT-MED
FRM, LS: OFF WHT, TAN, MICRO/XLN,
SNDY, BLKY-S/BLKY, FRM, CHRT: OFF
WHT, CLR, OP, WK SLOW POSS CUT,
THIN BLU-GRN RING

SURVEY: 6,592' MD 5,151' TVD
INC. 90.1/ AZ. 1.90

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, SFT-MED FRM, CHRT: OFF WHT,
CLR, OP, WK SLOW CUT, THIN BLU-GRN
RING

SURVEY: 6,624' MD 5,151' TVD
INC. 90.4/ AZ. 2.30

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, SFT-MED FRM, CHRT: OFF WHT,
CLR, OP, FR SLOW CUT, THIN BLU-GRN
RING

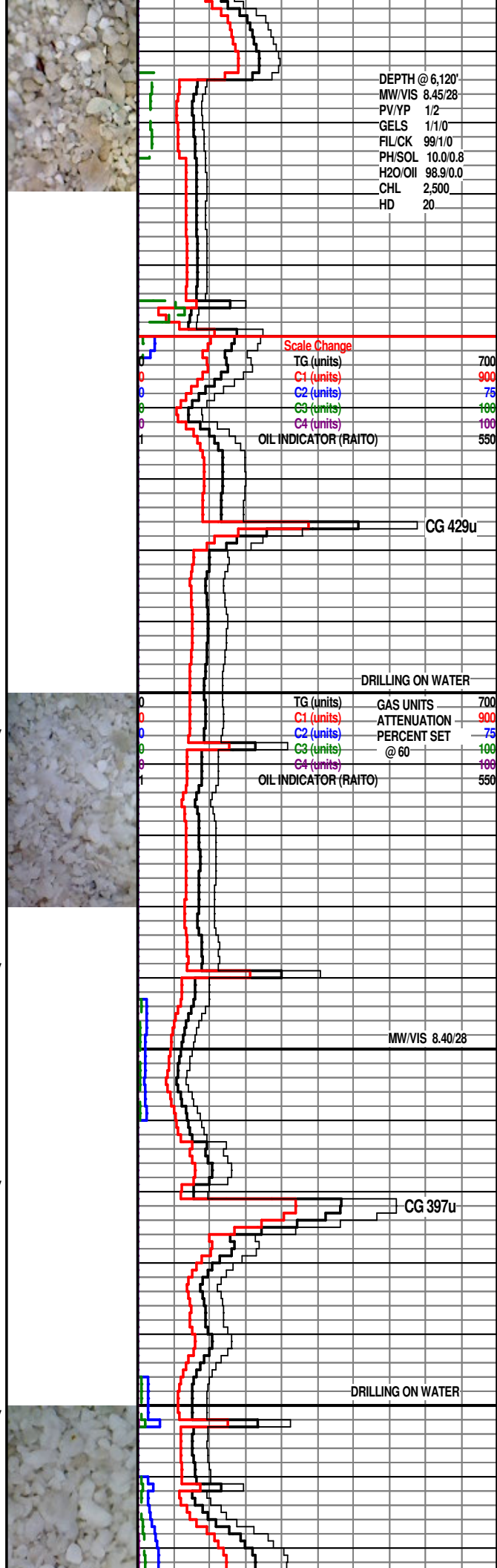
SURVEY: 6,655' MD 5,150' TVD
INC. 89.9/ AZ. 1.70

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, SFT-MED FRM, CHRT: OFF WHT,
CLR, OP, WK SLOW CUT, THIN BLU-GRN
RING

SURVEY: 6,687' MD 5,150' TVD
INC. 90.2/ AZ. 2.00

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, SFT-MED FRM, CHRT: OFF WHT,
CLR, OP, GD FLASH CUT, THICK
BLU-GRN RING

SURVEY: 6,718' MD 5,150' TVD
INC. 89.9/ AZ. 2.10



DEPTH @ 6,120'
MW/VIS 8.45/28
PV/YP 1/2
GELS 1/1/0
FIL/CK 99/1/0
PH/SOL 10.0/0.8
H2O/OIL 98.9/0.0
CHL 2,500
HD 20

Scale Change

TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

OIL INDICATOR (RAITO)

700
900
75
100
100
550

CG 429u

DRILLING ON WATER

TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

OIL INDICATOR (RAITO)

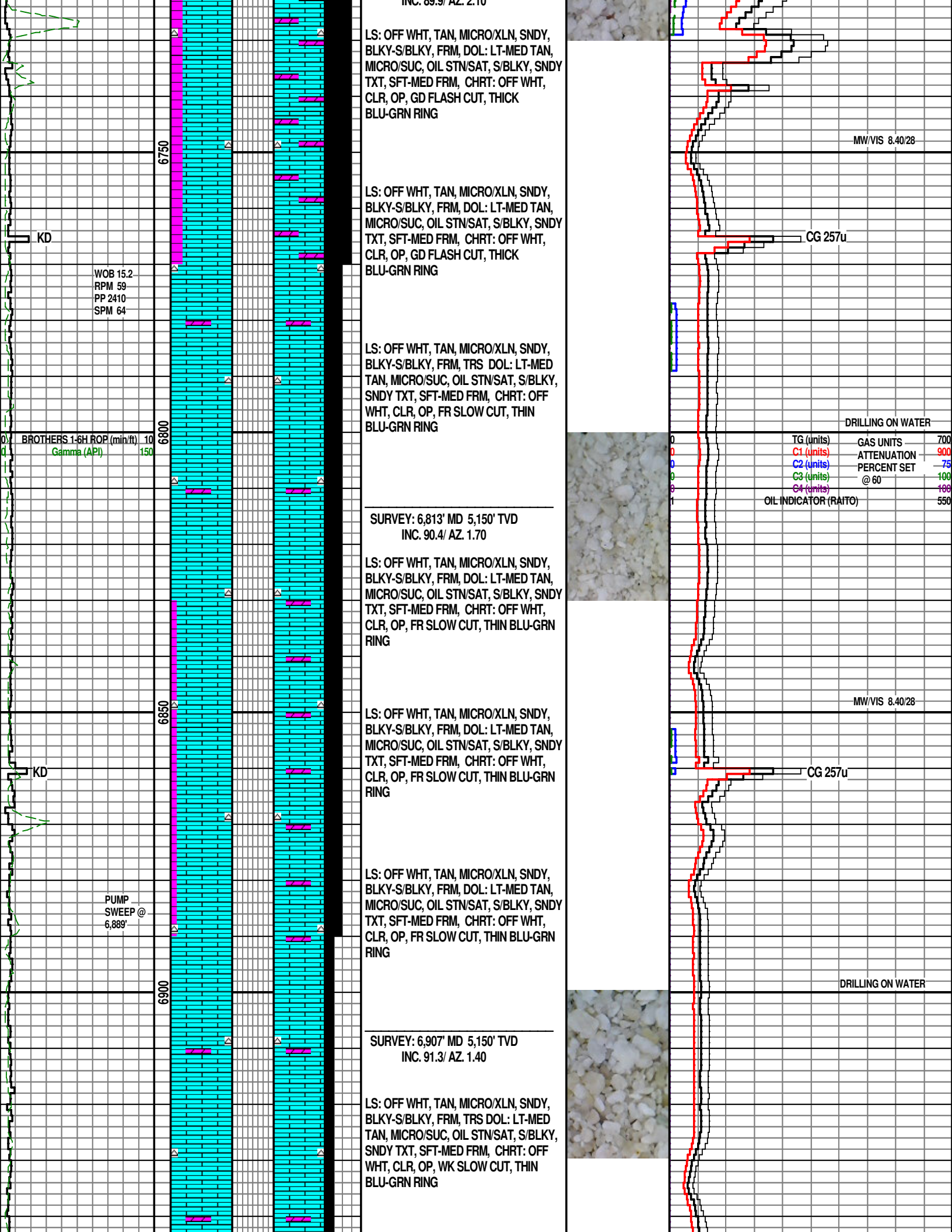
GAS UNITS
ATTENUATION
PERCENT SET
@ 60

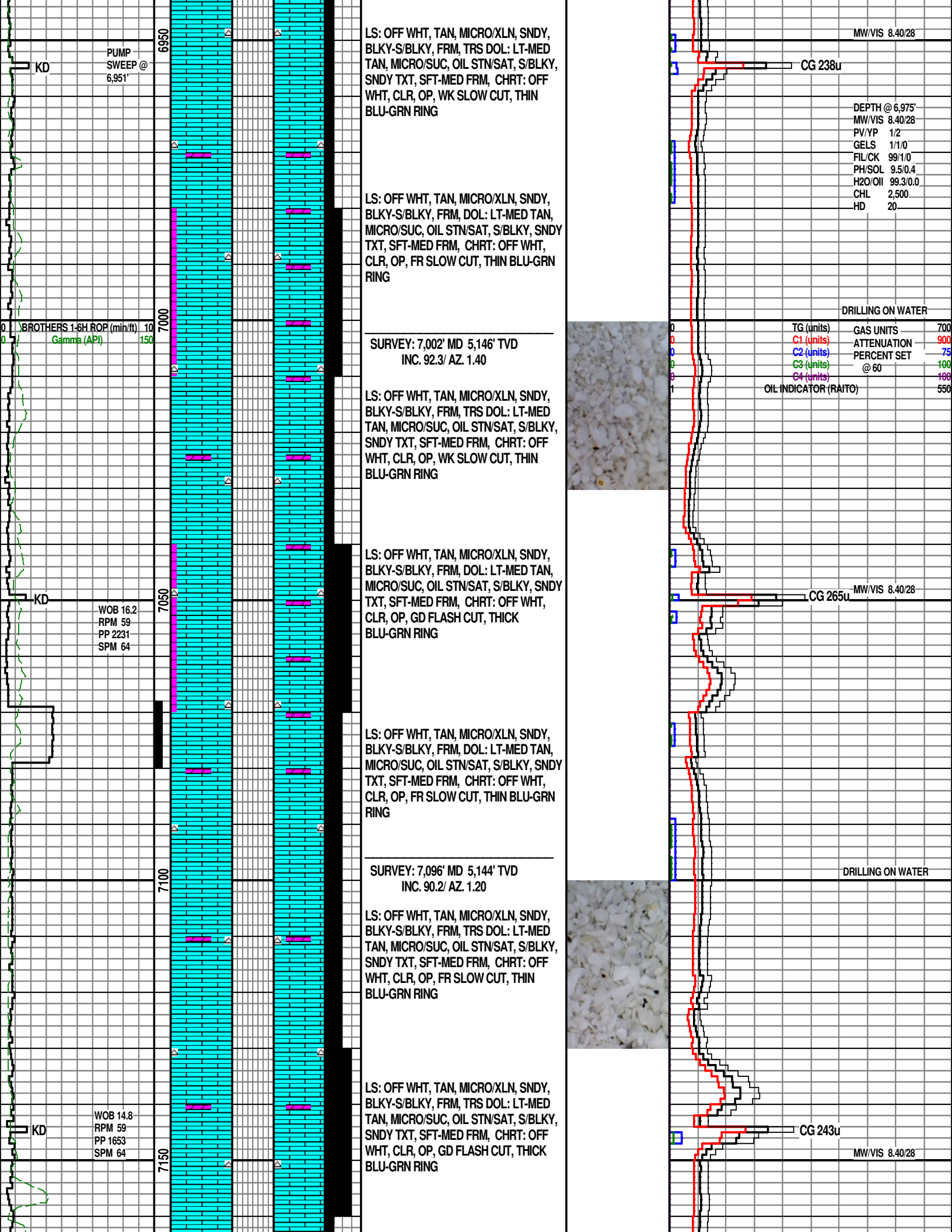
700
900
75
100
100
550

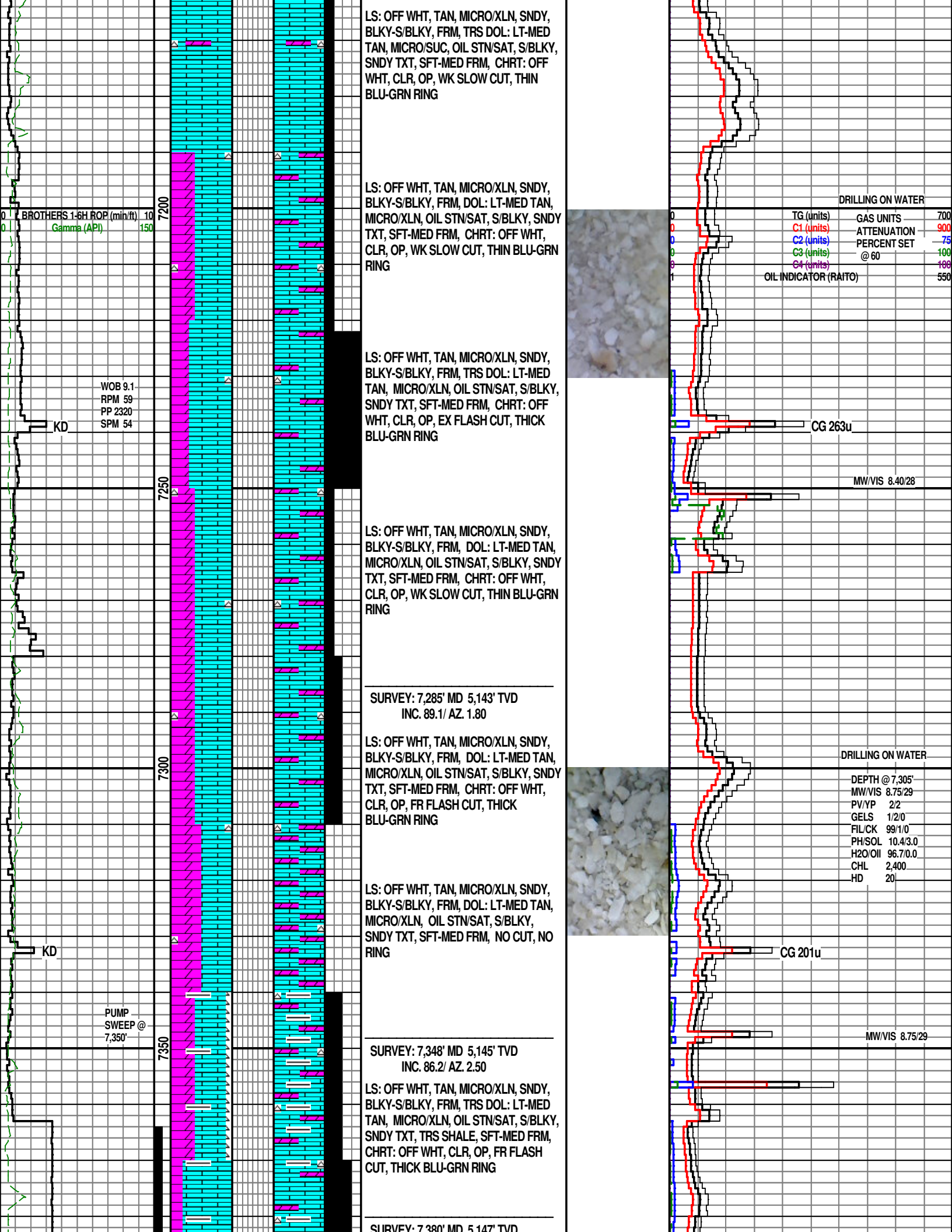
MW/VIS 8.40/28

CG 397u

DRILLING ON WATER



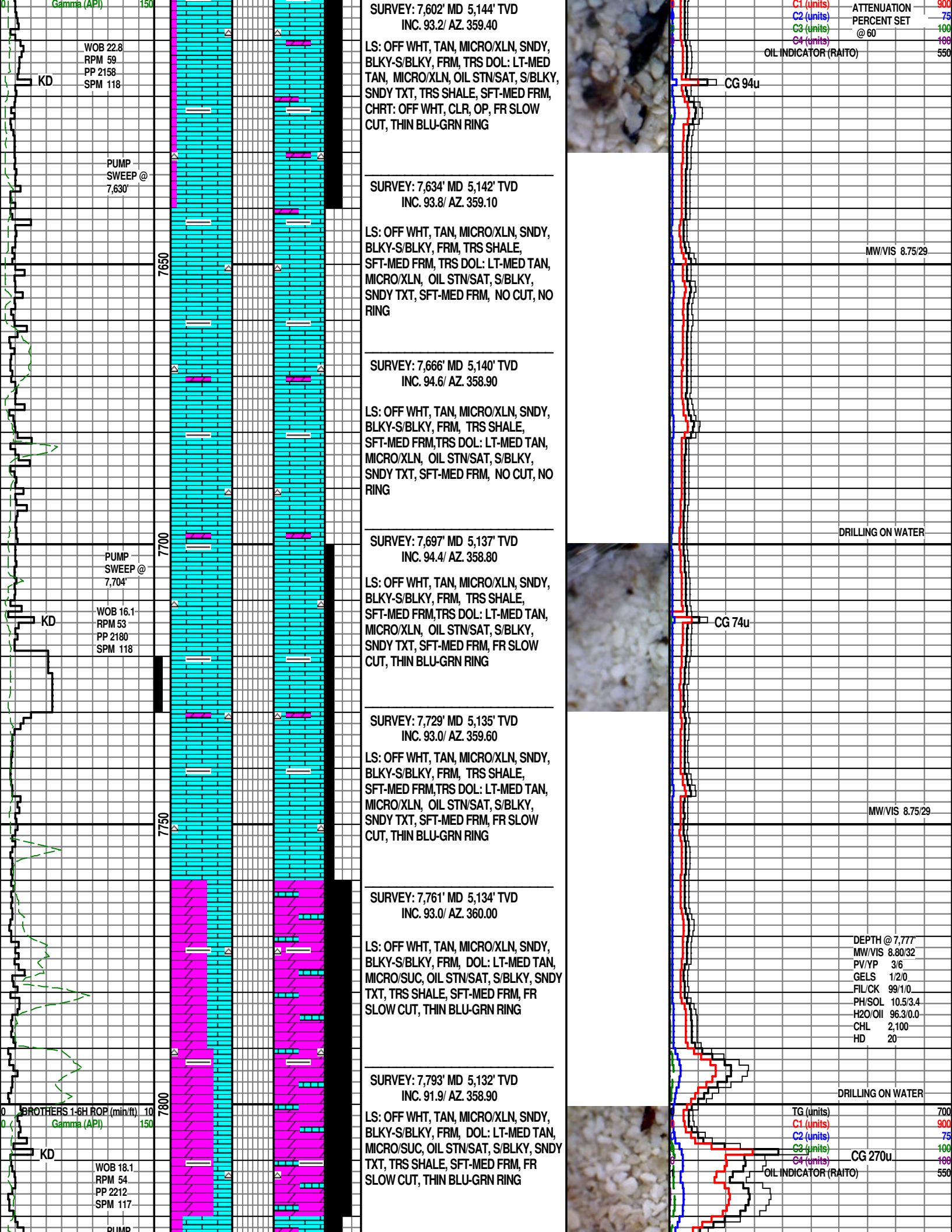


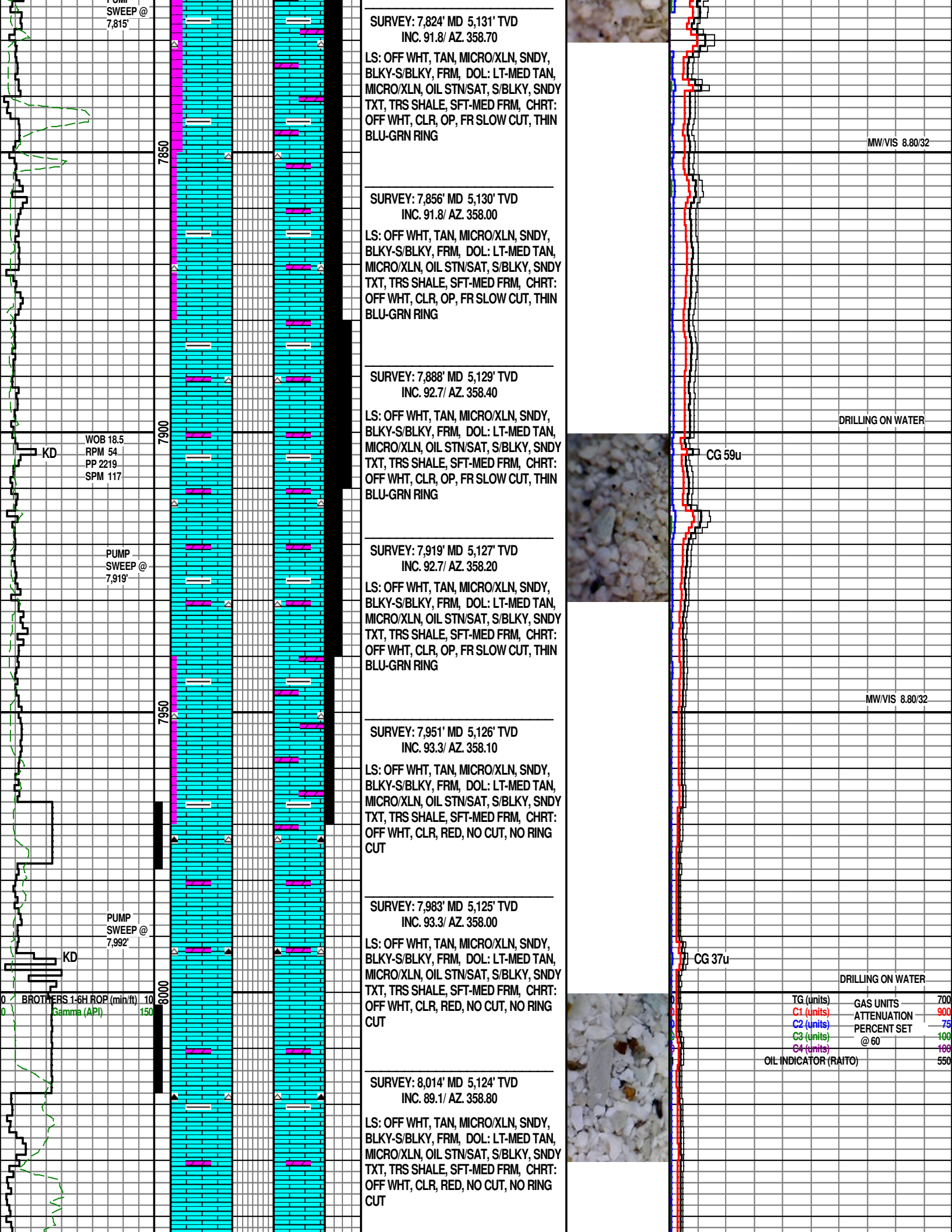


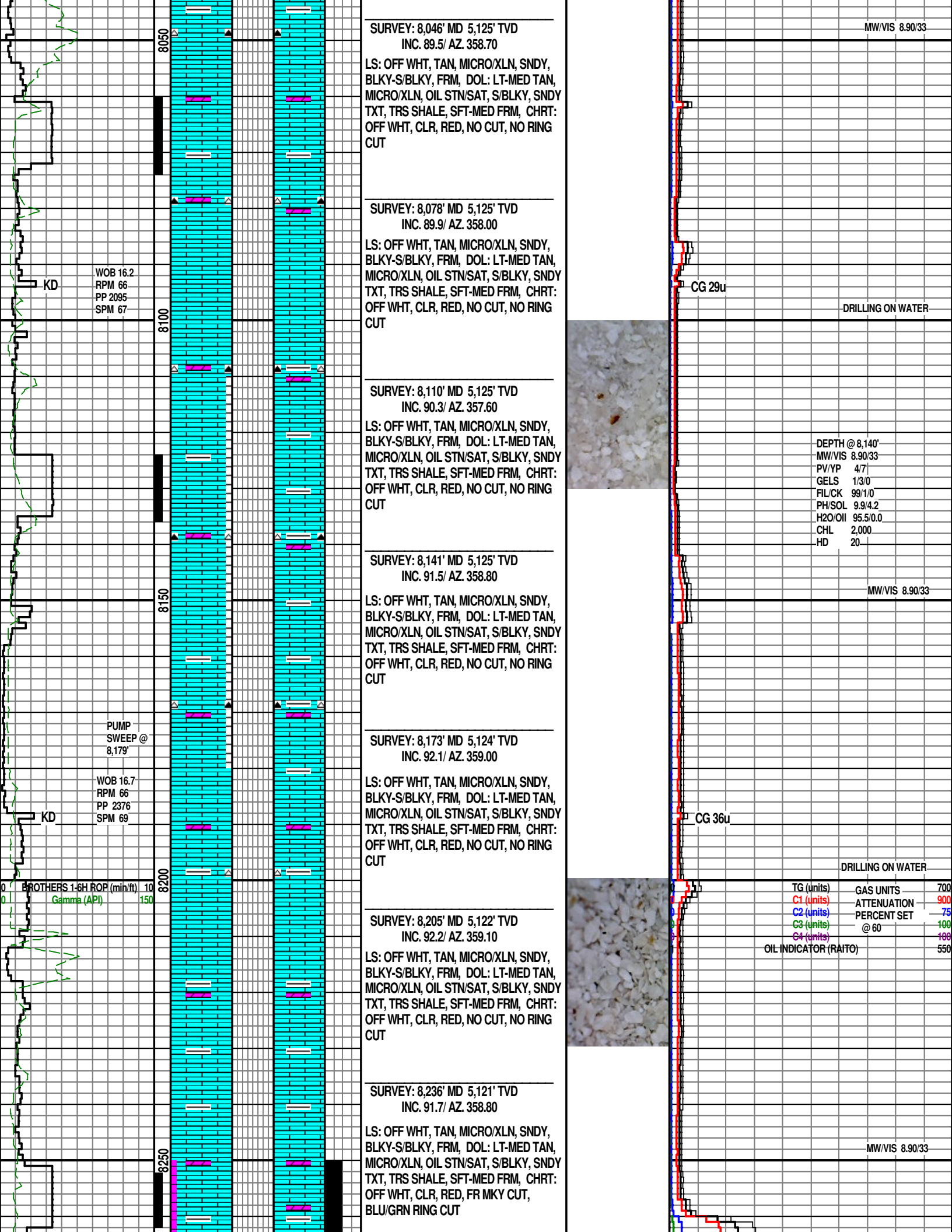
LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, TRS DOL: LT-MED
TAN, MICRO/XLN, OIL STN/SAT, S/BLKY,
SNDY TXT, TRS SHALE, SFT-MED FRM,
CHRT: OFF WHT, CLR, OP, FR SLOW
CUT. THIN BLU-GRN RING

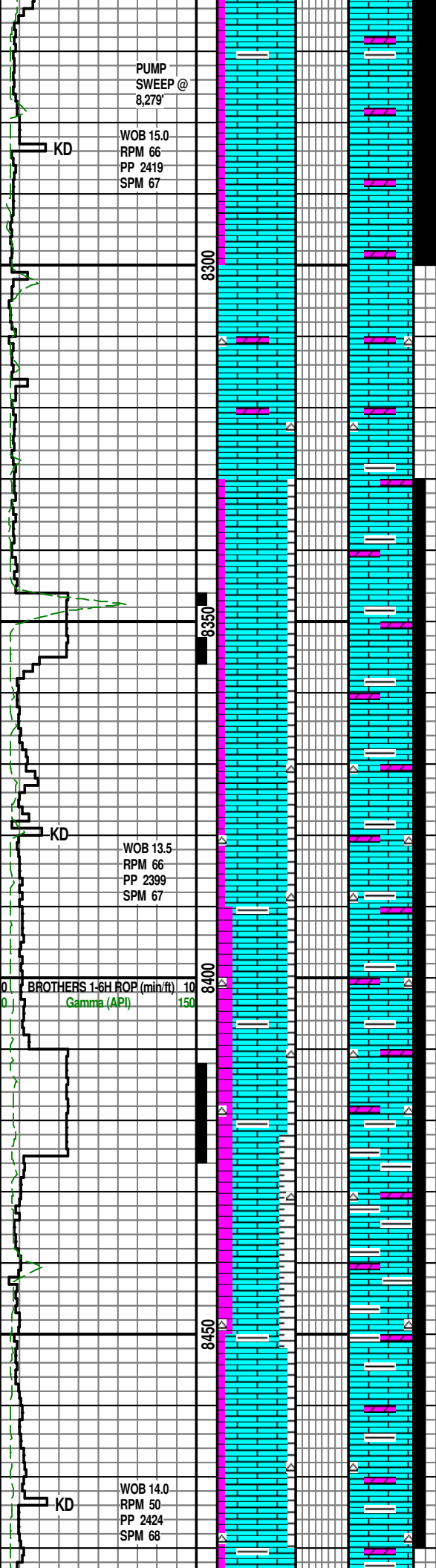
DRILLING ON WATER

TG (units)	GAS UNITS	700
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SURVEY: 8,268' MD 5,120' TVD
INC. 91.8/ AZ. 0.70

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, FR MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,300' MD 5,119' TVD
INC. 92.3/ AZ. 0.50

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, NO CUT, NO RING
CUT

SURVEY: 8,332' MD 5,118' TVD
INC. 92.8/ AZ. 0.70

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,363' MD 5,117' TVD
INC. 91.5/ AZ. 0.70

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,394' MD 5,116' TVD
INC. 91.2/ AZ. 0.40

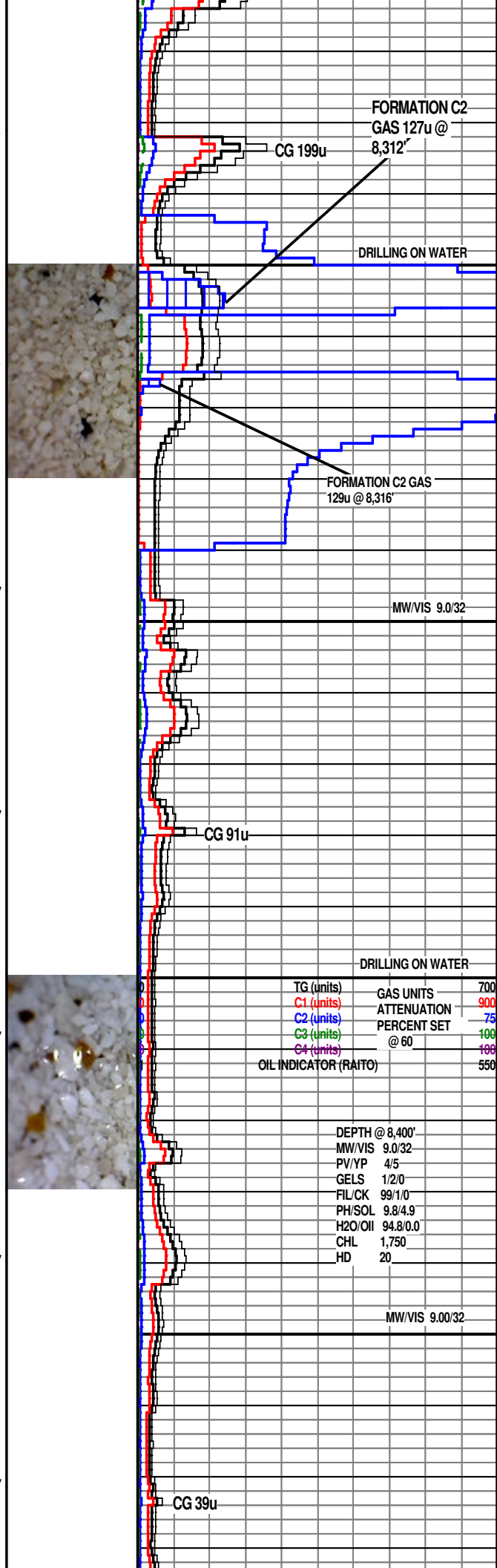
LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,426' MD 5,116' TVD
INC. 89.8/ AZ. 1.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,457' MD 5,116' TVD
INC. 89.7/ AZ. 1.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT



FORMATION C2
GAS 127u @
8,312'

CG 199u

DRILLING ON WATER

FORMATION C2 GAS
129u @ 8,316'

MW/VIS 9.0/32

CG 91u

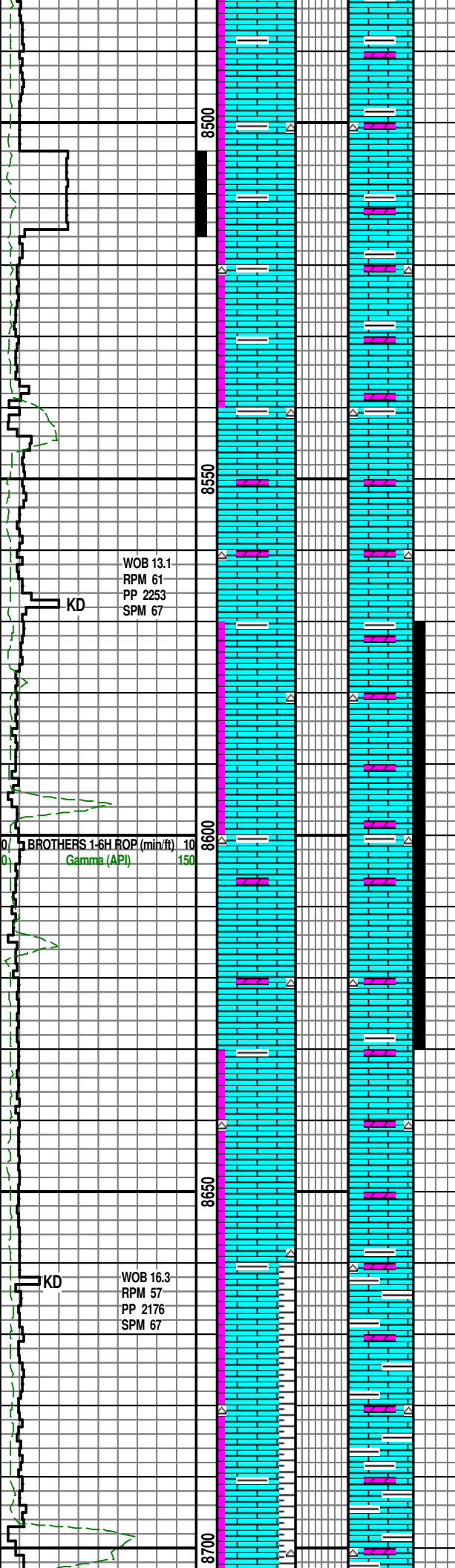
DRILLING ON WATER

TG (units)	700
C1 (units)	900
C2 (units)	75
C3 (units)	100
C4 (units)	100
OIL INDICATOR (RAITO)	550

DEPTH @ 8,400'
MW/VIS 9.0/32
PV/YP 4/5
GELS 1/2/0
FIL/CK 99/1/0
PH/SOL 9.8/4.9
H2O/OIL 94.8/0.0
CHL 1,750
HD 20

MW/VIS 9.00/32

CG 39u



SURVEY: 8,489' MD 5,116' TVD
INC. 89.9/ AZ. 1.40

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE TRNSL, ABDT LCM

SURVEY: 8,520' MD 5,116' TVD
INC. 89.3/ AZ. 1.70

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE TRNSL, ABDT LCM

SURVEY: 8,552' MD 5,117' TVD
INC. 88.8/ AZ. 1.70

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,583' MD 5,117' TVD
INC. 88.9/ AZ. 1.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,615' MD 5,118' TVD
INC. 88.9/ AZ. 1.70

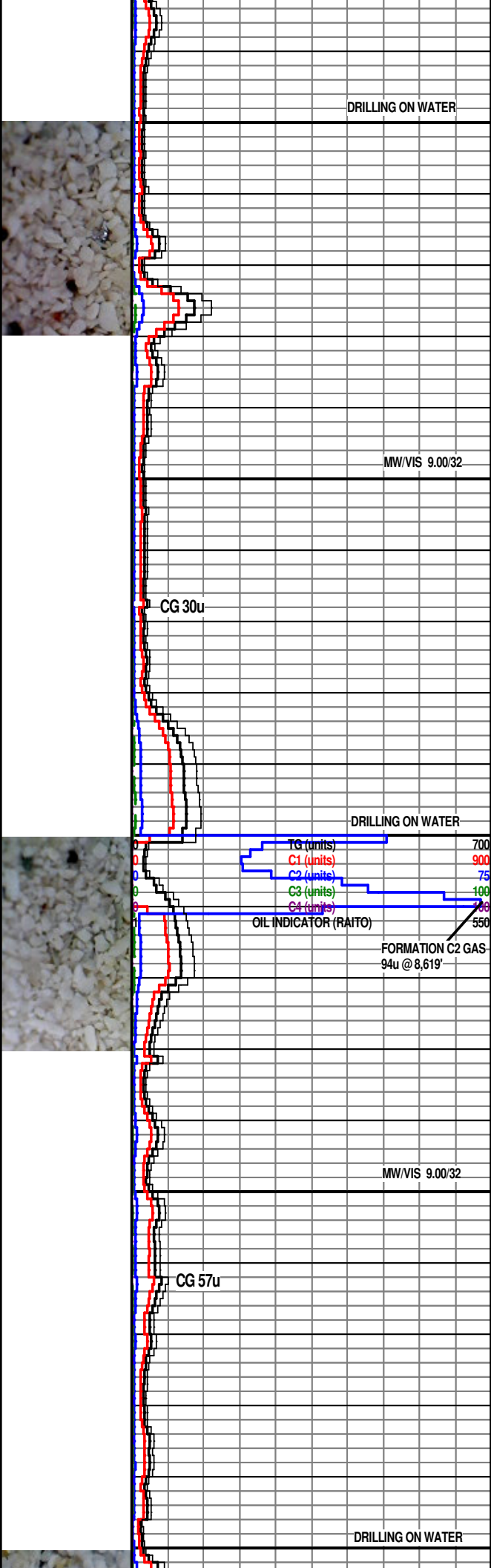
LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE, WK MKY CUT, BLU-GRN
RING

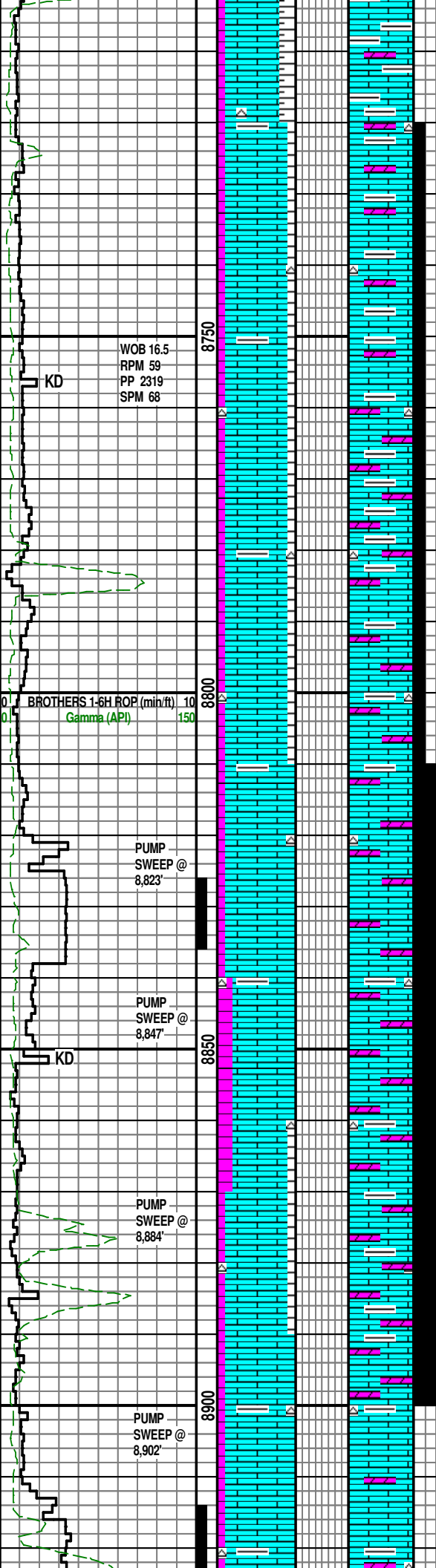
SURVEY: 8,646' MD 5,118' TVD
INC. 89.3/ AZ. 1.70

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE TRNSL, ABDT LCM

SURVEY: 8,678' MD 5,119' TVD
INC. 89.8/ AZ. 2.00

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE TRNSL, ABDT LCM





SURVEY: 8,709' MD 5,119' TVD
INC. 90.0/ AZ. 2.20

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE, WK MKY CUT, BLU-GRN
RING

SURVEY: 8,741' MD 5,119' TVD
INC. 90.3/ AZ. 2.10

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE, WK MKY CUT, BLU-GRN
RING

SURVEY: 8,772' MD 5,118' TVD
INC. 90.9/ AZ. 2.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,804' MD 5,118' TVD
INC. 90.9/ AZ. 2.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, FR MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,835' MD 5,117' TVD
INC. 90.2/ AZ. 2.60

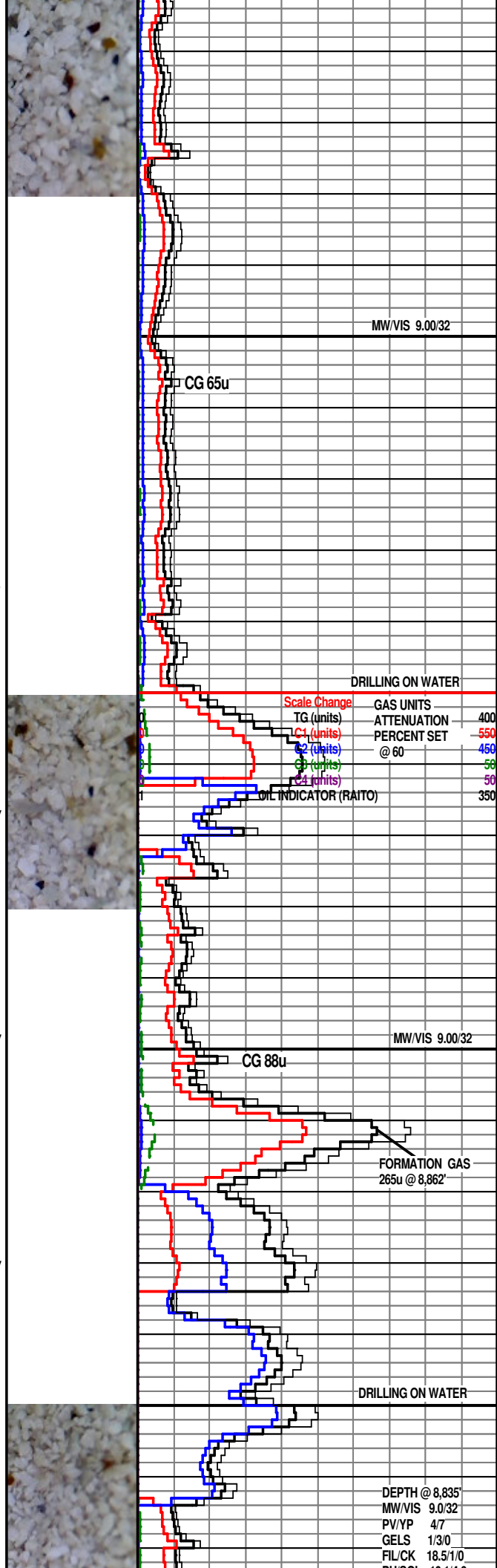
LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, FR MKY CUT,
BLU/GRN RING CUT

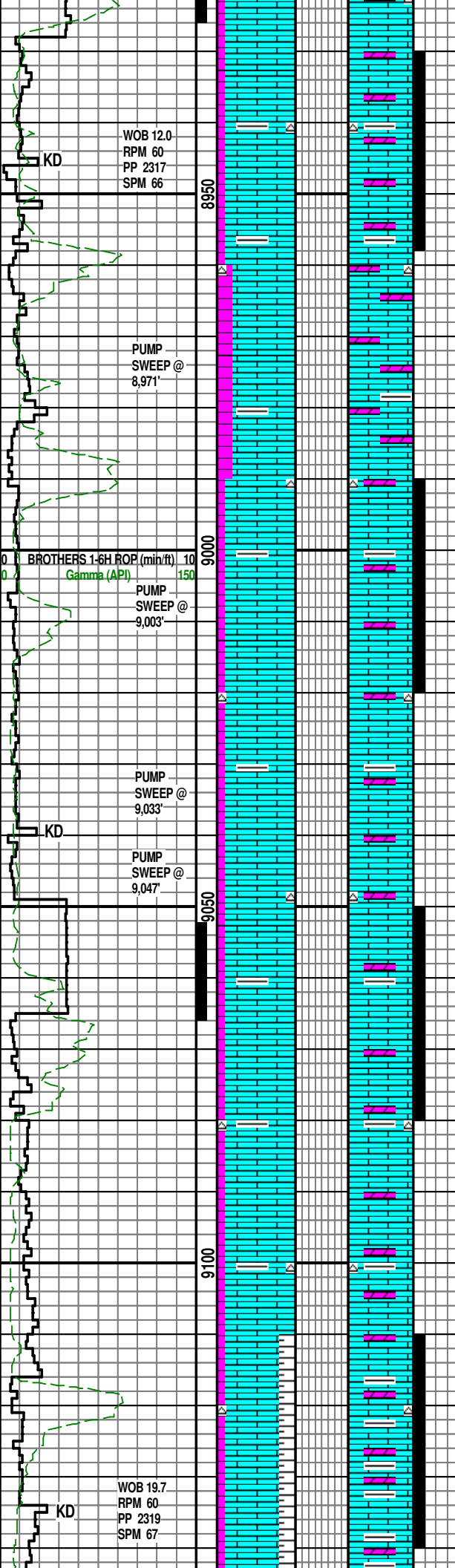
SURVEY: 8,867' MD 5,117' TVD
INC. 90.3/ AZ. 2.60

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, FR MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,898' MD 5,117' TVD
INC. 89.9/ AZ. 2.70

LS: OFF WH TO GY, SME TN, MICROXLN,
MOD-V/HD TO BRTL,
BLKY, TRC SH DOL: OFF WHT, LT GY,
VF-FXLN, V-HD, DNS, CHTY, SL/TRS-SH:
GRY TO BLK, FNE TEXT, CHT: WHT TO
MILKY-WHITE TRNSL NO CUT NO RING





SURVEY: 8,930' MD 5,117' TVD
INC. 89.4/ AZ. 2.30

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,961' MD 5,118' TVD
INC. 89.5/ AZ. 2.00

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 8,993' MD 5,118' TVD
INC. 89.5/ AZ. 2.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 9,024' MD 5,118' TVD
INC. 89.7/ AZ. 2.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, WK MKY CUT, BLU/GRN
RING CUT

SURVEY: 9,056' MD 5,118' TVD
INC. 89.4/ AZ. 2.50

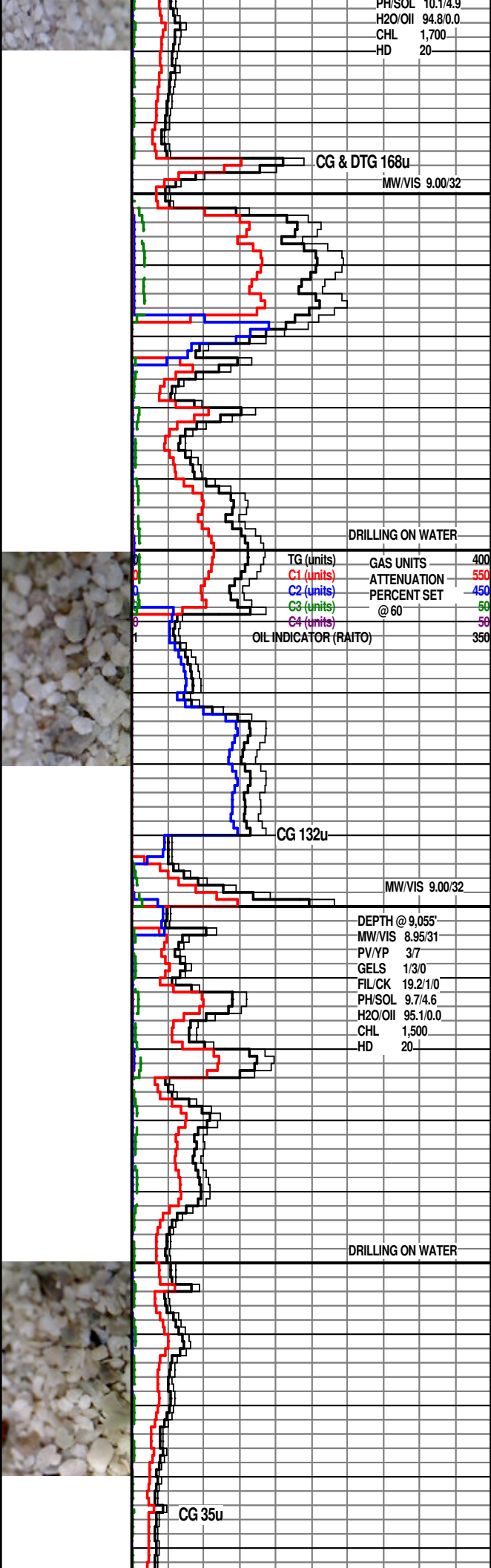
LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, WK MKY CUT, BLU/GRN
RING CUT

SURVEY: 9,087' MD 5,119' TVD
INC. 89.3/ AZ. 2.40

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, WK MKY CUT, BLU/GRN
RING CUT

SURVEY: 9,119' MD 5,119' TVD
INC. 89.6/ AZ. 2.10

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, WK MKY CUT, BLU/GRN
RING CUT



CG & DTG 168u
MW/VIS 9.00/32

DRILLING ON WATER

TG (units)	GAS UNITS
C1 (units)	400
C2 (units)	550
C3 (units)	450
C4 (units)	50

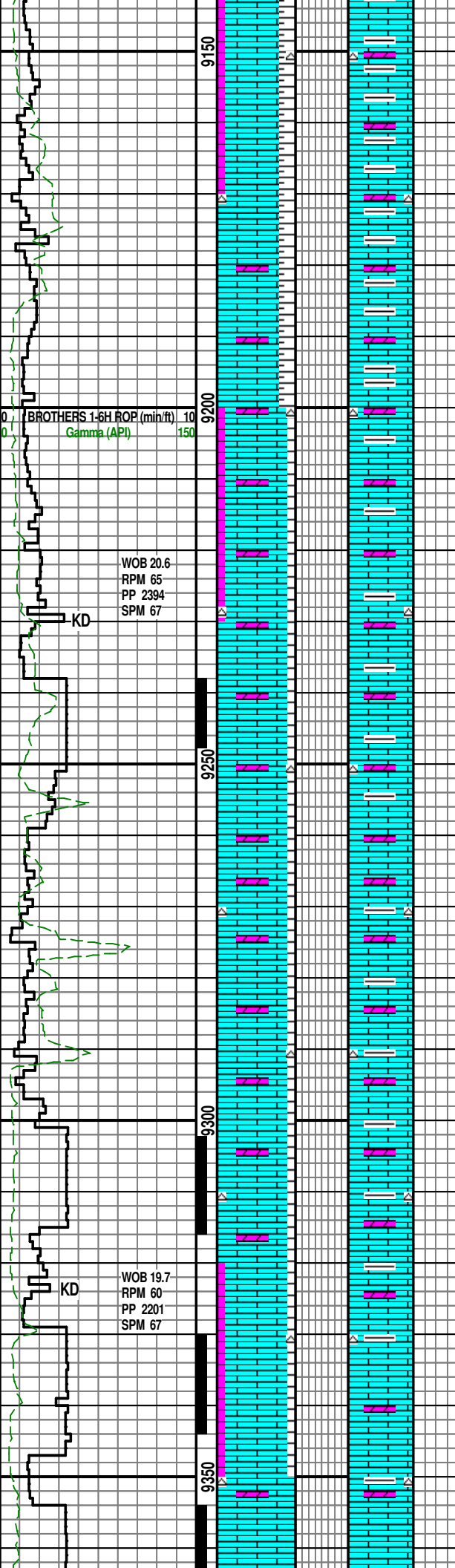
OIL INDICATOR (RAITO)

ATTENUATION PERCENT SET @ 60
350

DEPTH @ 9,055'
MW/VIS 8.95/31
PV/YP 3/7
GELS 1/3/0
FIL/CK 19.2/1/0
PH/SOL 9.7/4.6
H2O/OIL 95.1/0.0
CHL 1,500
HD 20

DRILLING ON WATER

CG 35u



SURVEY: 9,150' MD 5,119' TVD
INC. 89.3/ AZ. 1.90

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,182' MD 5,120' TVD
INC. 87.1/ AZ. 1.10

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,213' MD 5,122' TVD
INC. 86.5/ AZ. 1.00

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,245' MD 5,124' TVD
INC. 86.8/ AZ. 0.80

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,276' MD 5,126' TVD
INC. 86.8/ AZ. 0.40

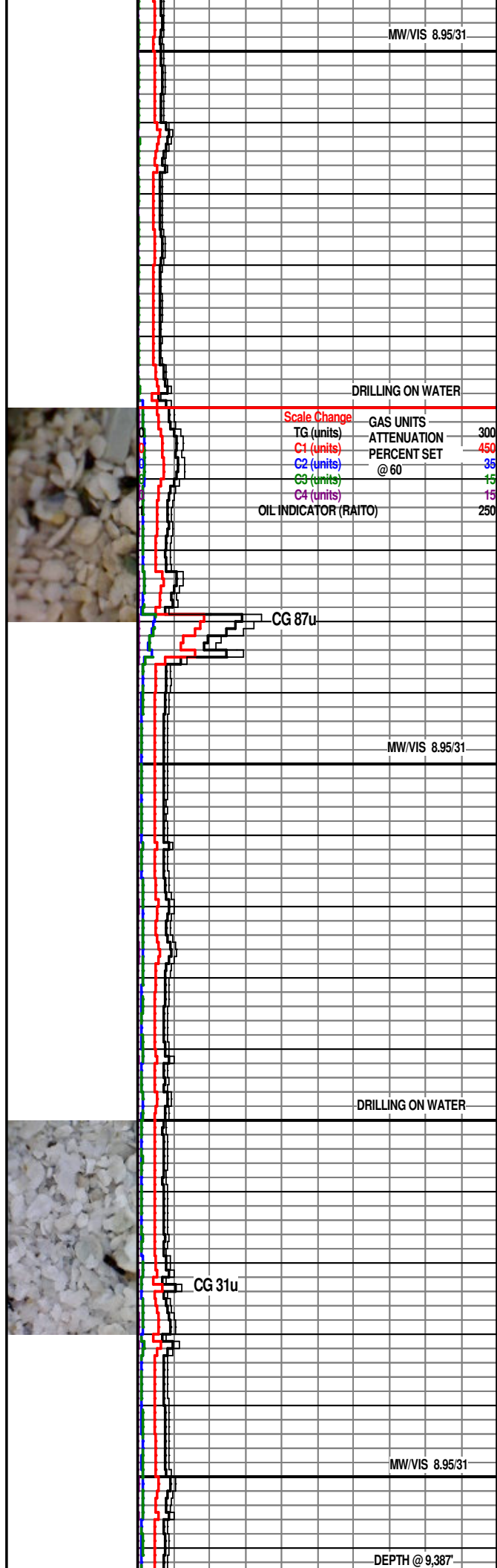
LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,307' MD 5,127' TVD
INC. 87.6/ AZ. 359.5

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,339' MD 5,128' TVD
INC. 88.4/ AZ. 359.0

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING



MW/VIS 8.95/31

DRILLING ON WATER

Scale Change
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
OIL INDICATOR (RAITO)

GAS UNITS
ATTENUATION
PERCENT SET
@ 60

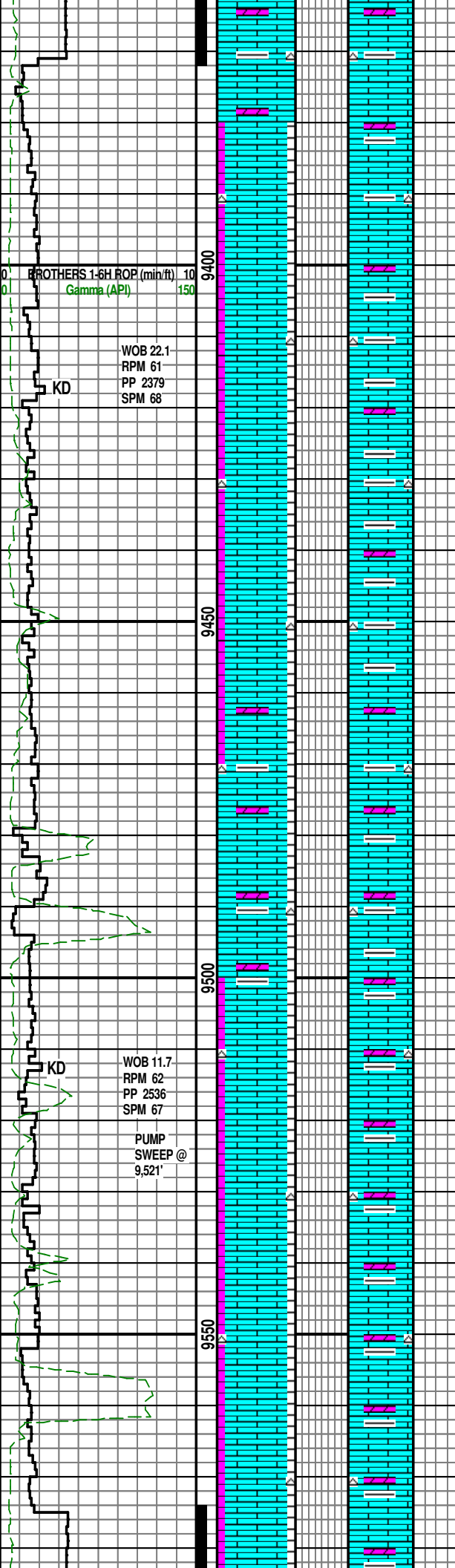
300
450
35
15
250

MW/VIS 8.95/31

DRILLING ON WATER

MW/VIS 8.95/31

DEPTH @ 9,387'



SURVEY: 9,370' MD 5,129' TVD
INC. 90.7/ AZ. 358.8

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,402' MD 5,128' TVD
INC. 91.8/ AZ. 358.1

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,433' MD 5,127' TVD
INC. 92.0/ AZ. 358.2

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,465' MD 5,126' TVD
INC. 92.4/ AZ. 358.3

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, GREEN SPLIN, SHALE, SFT-MED
FRM, CHRT: OFF WHT, CLR, NO CUT, NO
RING

SURVEY: 9,496' MD 5,124' TVD
INC. 92.0/ AZ. 357.7

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,528' MD 5,126' TVD
INC. 92.2/ AZ. 357.7

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,559' MD 5,122' TVD
INC. 92.6/ AZ. 357.7

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO

MW/VIS 9.00/31
PV/YP 4/6
GELS 1/3/0
FIL/CK 18.2/1/0
PH/SOL 10.2/5.0
H2O/OIL 94.8/0.0
CHL 1,300
HD 20

DRILLING ON WATER

TG (units) 300
C1 (units) 450
C2 (units) 35
C3 (units) 15
C4 (units) 15
OIL INDICATOR (RAITO) 250

GAS UNITS
ATTENUATION
PERCENT SET
@ 60

CG 40u

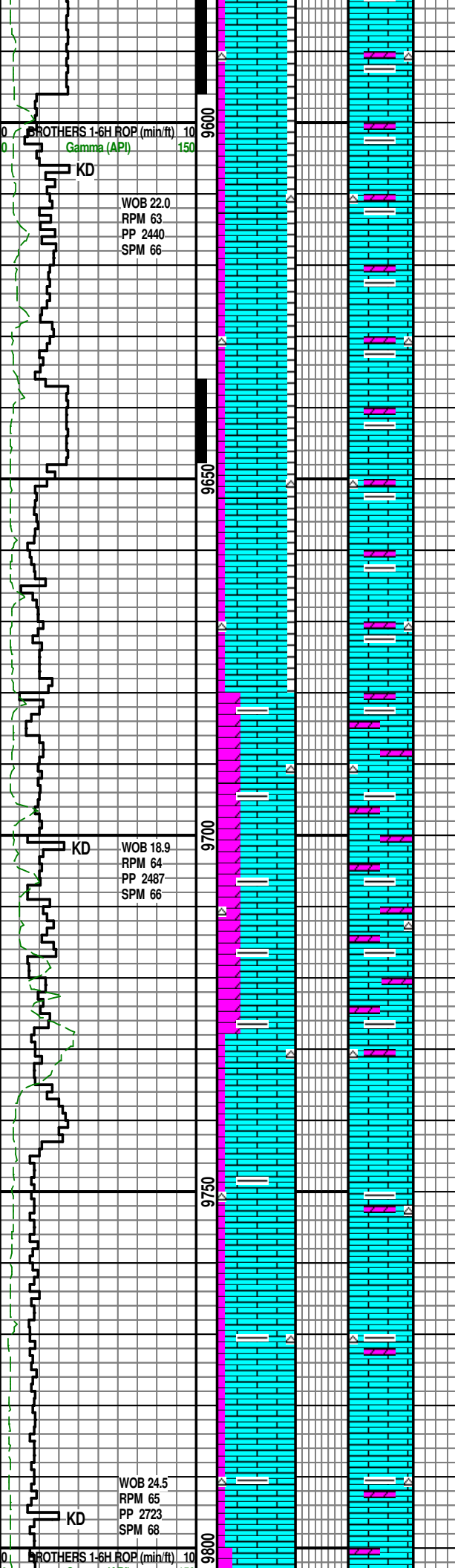
MW/VIS 9.00/31

DRILLING ON WATER

CG 65u

MW/VIS 9.00/31

DEPTH @ 9,576'
MW/VIS 9.10/33
PV/YP 4/7
GELS 1/3/0
FIL/CK 18.6/1/0
PH/SOL 10.2/5.7
H2O/OIL 94.0/0.0
CHL 1,300
HD 20



SURVEY: 9,591' MD 5,121' TVD
INC. 91.3/ AZ. 357.2

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,622' MD 5,120' TVD
INC. 91.0/ AZ. 356.9

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,654' MD 5,120' TVD
INC. 89.7/ AZ. 357.0

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,685' MD 5,120' TVD
INC. 89.8/ AZ. 357.5

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,717' MD 5,120' TVD
INC. 90.2/ AZ. 357.3

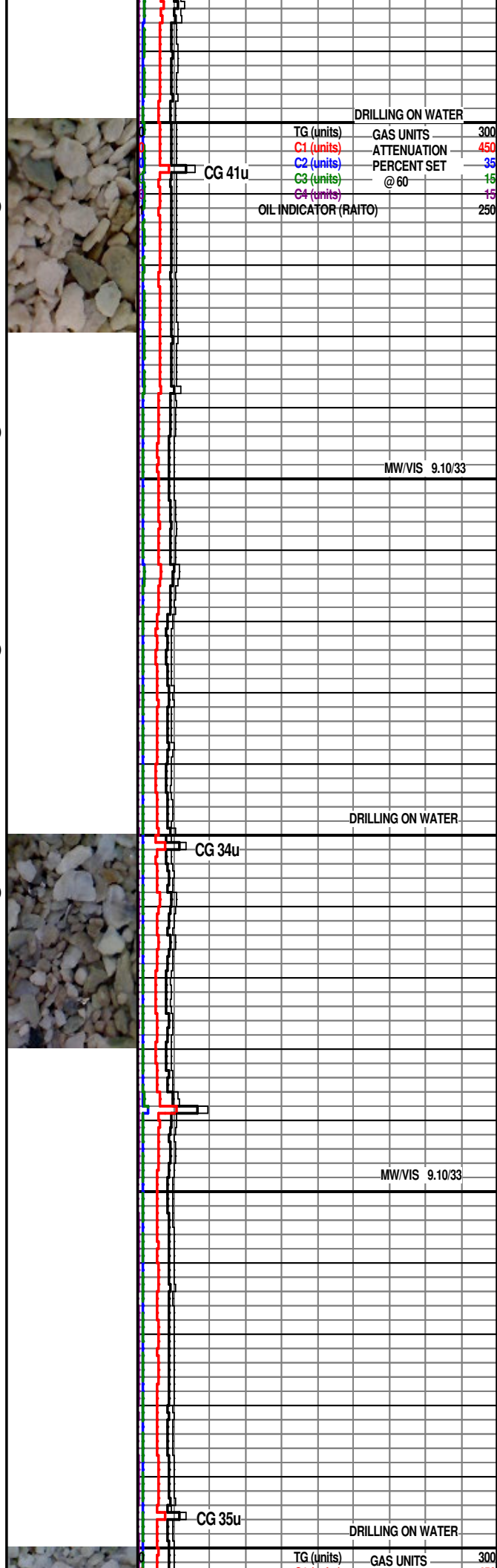
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BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, NO CUT, NO RING

SURVEY: 9,748' MD 5,120' TVD
INC. 90.5/ AZ. 357.0

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, NO CUT, NO RING

SURVEY: 9,780' MD 5,120' TVD
INC. 90.5/ AZ. 357.4

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/XLN, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, NO CUT, NO RING



DRILLING ON WATER

TG (units)	GAS UNITS	300
C1 (units)	ATTENUATION	450
C2 (units)	PERCENT SET	35
C3 (units)	@ 60	15
C4 (units)		15
OIL INDICATOR (RAITO)		250

CG 41u

MW/VIS 9.10/33

DRILLING ON WATER

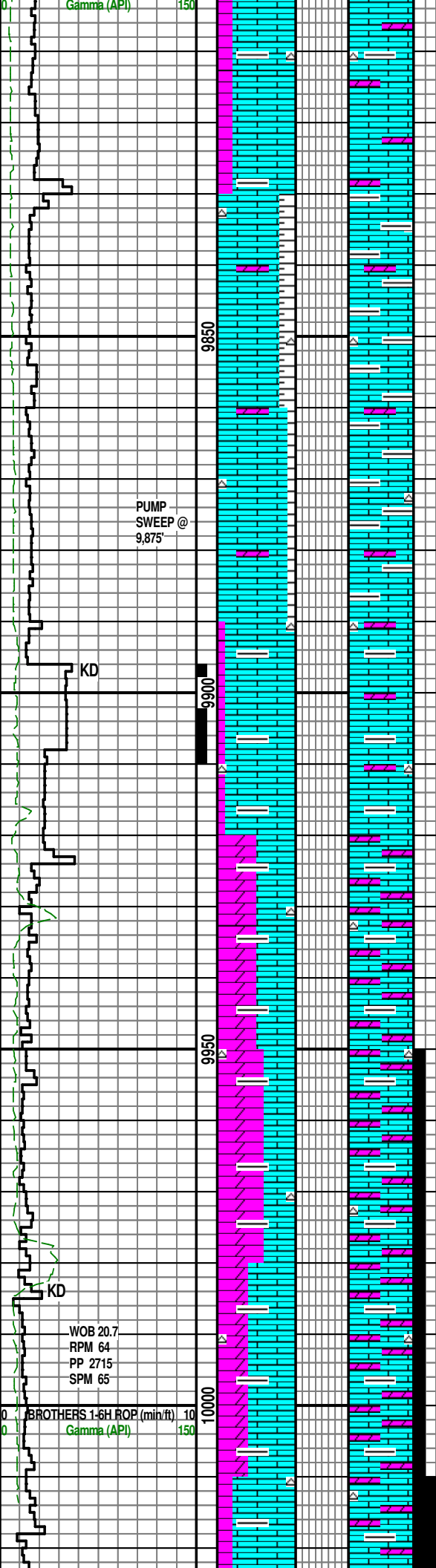
CG 34u

MW/VIS 9.10/33

DRILLING ON WATER

CG 35u

TG (units)	GAS UNITS	300
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SURVEY: 9,811' MD 5,119' TVD
INC. 90.9/ AZ. 357.3

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUR, SL/OIL STN, S/BLKY, SNDY
TXT, TRS GREEN SPLIN, SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR, NO
CUT, NO RING

SURVEY: 9,843' MD 5,119' TVD
INC. 91.3/ AZ. 357.5

LS: OFF WHT, TAN, BLKY-S/BLKY, FRM,
TRS DOL: LT-MED TAN, MICRO/XLN, OIL
STN, S/BLKY, SNDY TXT, TRS SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR,
OP, NO RING CUT

SURVEY: 9,874' MD 5,118' TVD
INC. 91.8/ AZ. 357.3

LS: OFF WHT, TAN, BLKY-S/BLKY, FRM,
TRS DOL: LT-MED TAN, MICRO/SUC, OIL
STN, S/BLKY, SNDY TXT, TRS SHALE,
SFT-MED FRM, CHRT: OFF WHT, CLR,
OP, NO RING CUT

SURVEY: 9,906' MD 5,117' TVD
INC. 91.4/ AZ. 358.5

LS: OFF WHT, TAN, BLKY-S/BLKY, FRM,
TRS DOL: LT-MED TAN, MICRO/SUC, OIL
STN/SAT, S/BLKY, SNDY TXT, TRS
SHALE, SFT-MED FRM, CHRT: OFF WHT,
CLR, OP, NO RING CUT

SURVEY: 9,937' MD 5,116' TVD
INC. 90.9/ AZ. 358.2

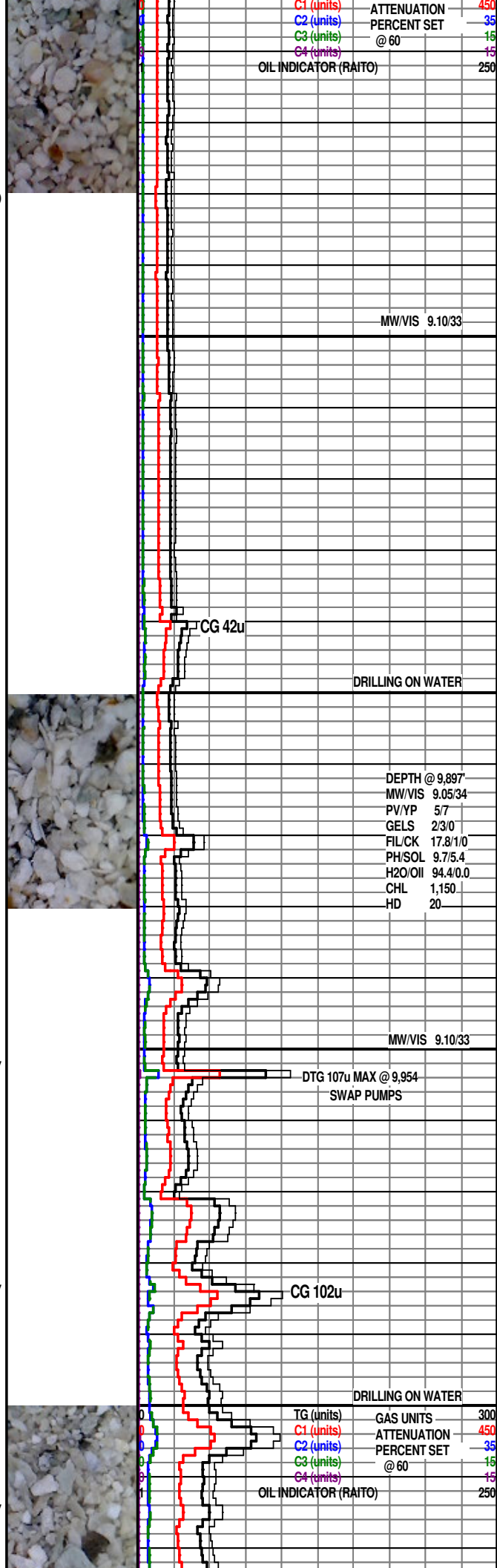
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BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

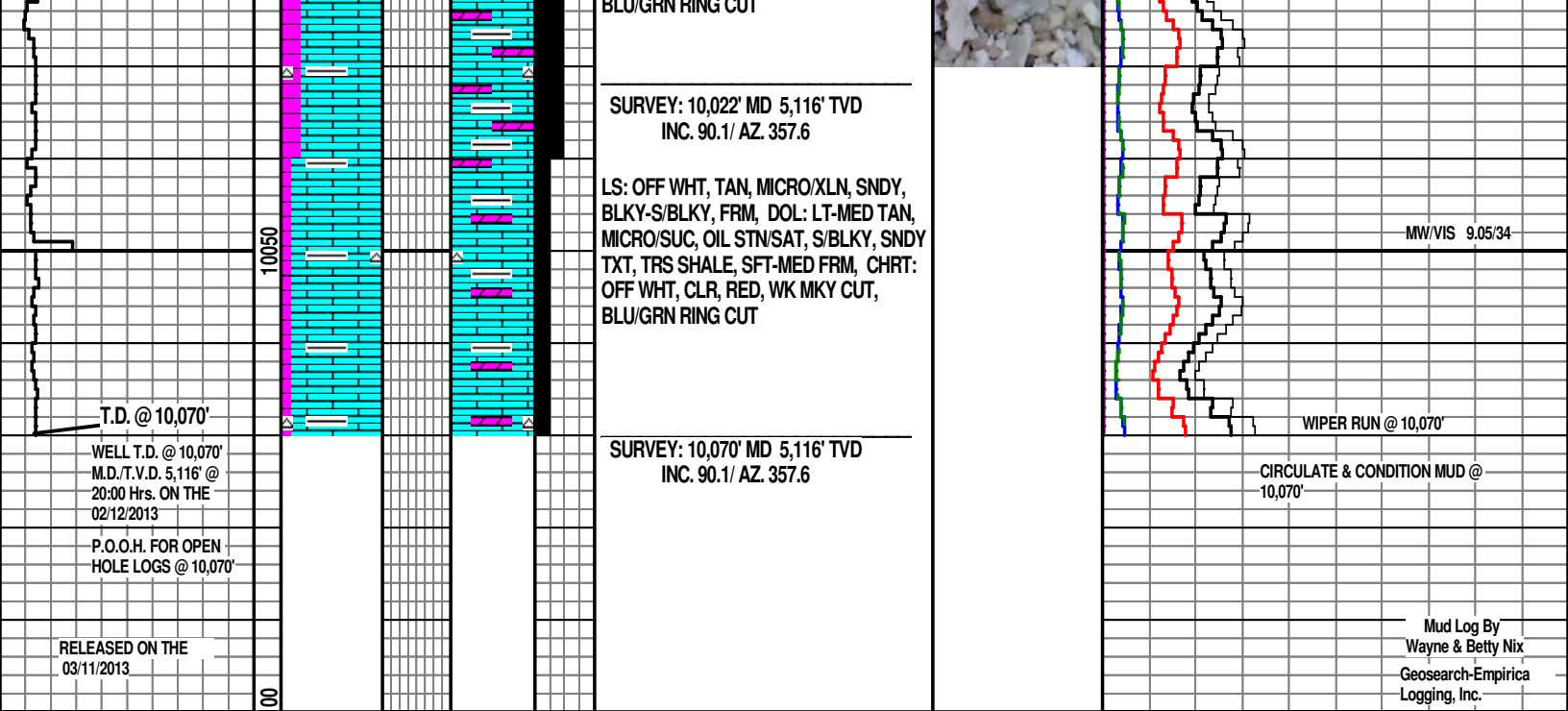
SURVEY: 9,969' MD 5,116' TVD
INC. 90.1/ AZ. 357.5

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 10,000' MD 5,116' TVD
INC. 89.9/ AZ. 357.6

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, FR MKY CUT,
BLU/GRN RING CUT





T.D. @ 10,070'

WELL T.D. @ 10,070'
M.D./T.V.D. 5,116' @
20:00 Hrs. ON THE
02/12/2013
P.O.O.H. FOR OPEN
HOLE LOGS @ 10,070'

RELEASED ON THE
03/11/2013

SURVEY: 10,022' MD 5,116' TVD
INC. 90.1/ AZ. 357.6

LS: OFF WHT, TAN, MICRO/XLN, SNDY,
BLKY-S/BLKY, FRM, DOL: LT-MED TAN,
MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY
TXT, TRS SHALE, SFT-MED FRM, CHRT:
OFF WHT, CLR, RED, WK MKY CUT,
BLU/GRN RING CUT

SURVEY: 10,070' MD 5,116' TVD
INC. 90.1/ AZ. 357.6

MW/VIS 9.05/34

WIPER RUN @ 10,070'

CIRCULATE & CONDITION MUD @
10,070'

Mud Log By
Wayne & Betty Nix
Geosearch-Empirica
Logging, Inc.