



EMPIRICA

The Surface Logging Company

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

Well Name: 15077219310100_4J Ranch_3408_3-33H_SandRidge Energy, Inc.
Location: SEC: # 33, T-34S / R-8W-----HARPER CO., KANSAS
License Number: AFE # DC 12923 Region: JENNIFER WEST
Spud Date: 06/16/2013 Drilling Completed: 06/25/2013
Surface Coordinates: SURFACE: 220' FSL & 1,715' FWL of SEC: 33, T34S-R-8W, SPOT LOCATION: SE SE
SW SW, HARPER COUNTY KANSAS
Bottom Hole Coordinates: PBHL: 330' FNL & 1,980' FWL of SEC: 33, T34S-R-8W
Ground Elevation (ft): 1,251' K.B. Elevation (ft): 1,269' (+20' Est)
Logged Interval (ft): 950' To: 9,352' Total Depth (ft): 9,352' T.D.
Formation: MISSISSIPPIAN (HORIZONTAL WELL)
Type of Drilling Fluid: DRILLING ON WATER-BASE MUD FROM 935 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: Tammy Alcorn, Geologist
Company: SandRidge Energy, Inc. Oklahoma City, OK 73102
Address: 123 Robert S. Kerr Ave. Oklahoma City, OK 73102
Tammy Alcorn, Office Phone: (405) 429-5723
Cell Phone:(405)651-2825 talcorn@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: Tony Leija & Michael Kulchisky
TOOL PUSHER:

DRILLING CONTRACTOR



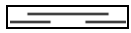

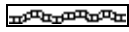

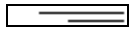

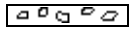

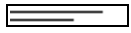

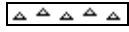



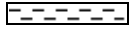




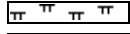

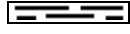



Unit Drilling

Operator License # 34192
 Texas Rig # 310
 API: # 15-077-21931-01-00
 AFE: # DC12923
 Drilled on Water Base Mud,
HORIZONTAL WELL






































































Comments

2 Manned Logging Services,
 Start Logging Date: 06/16/2013 @ 795'
 (Called in per CoMan)
SET 9.625 SURFACE CASING TO 785'
ON THE 06/23/2013 K.O.P. = 5,514 ft.
SET 7" INTERMEDIATE CASING @ ' 06/27/2013
 T.D. Depth @ 9,352 ft. M.D. --- T.D. on the 06/25/2013
RAN E-LOGS ON THE 06/26/2013
 (FINAL LOG PDF) sent out on the: 06/27/2013 Thank You!

ROCK TYPES

	Anhy		Dol		Shale		Siltstn
	Bent		Gyp		Shcol		Granwash
	Brec		Igne		Shgy		Dolowash
	Cht		Lmst		Sltst		Cement
	Clyst		Meta		Ss		Granite
	Coal		Mrlst		Till		Hotshale
	Congl		Salt		Sandstn		

ACCESSORIES

FOSSIL		Plant		Hvymin		Gyp			
	Algae		Strom		Kaol		Ls		
	Amph	MINERAL		Anhy		Marl		Mrst	
	Belm		Arggrn		Minxl		Nodule		Sltstrg
	Bioclst		Arg		Phos		Pyr		Ssstrg
	Brach		Bent		Salt		Sandy		
	Bryozoa		Bit		Silt		Sil	TEXTURE	
	Cephal		Brecfrag		Sulphur		Boundst		Chalky
	Coral		Calc		Tuff		Cryxln		Earthy
	Crin		Chtdk	STRINGER			Finexln		Gastro
	Echin		Chtlt		Anhy		Grainst		Lithogr
	Fish		Dol		Arg		Microxln		Mudst
	Foram		Feldspar		Bent		Packst		Wackest
	Fossil		Ferrpel		Coal				
	Gastro		Glau		Dol				
	Oolite								
	Ostra								
	Pelec								
	Pellet								
	Pisolite								

OTHER SYMBOLS

IMAGES 2

Core
Dst
3400
3600
3700
3800
4000
3500
3900
4100
4200
4300
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
5400
5500

5600
5700
5800
5900
6000
6100
6200
6300
6400
6500
6600
6700
6800
7000
6900
7100
7200
7300
7400
7500
7600
7700
7900
8000
8100

8200
8300
8400
8500
8600
8700
8800
8900
9000
9100
9200
9300

Vuggy

SORTING

Well
 Moderate
 Poor

ROUNDING

Rounded
 Subrnd
 Subang
 Angular

EVENTS

Rft
 Sidewall

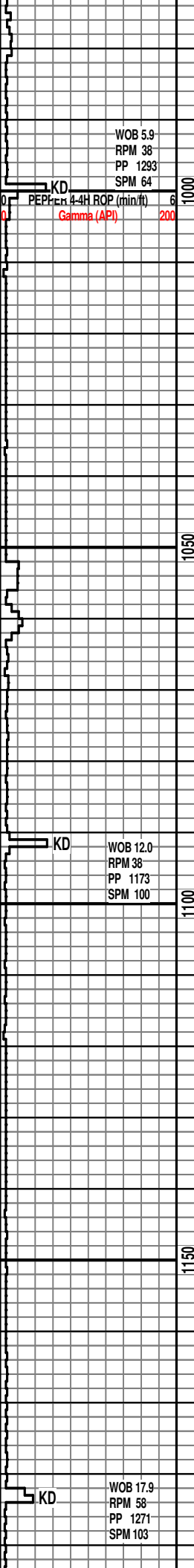
POROSITY TYPE

Earthy
 Fenest
 Fracture
 Inter
 Moldic
 Organic
 Pinpoint

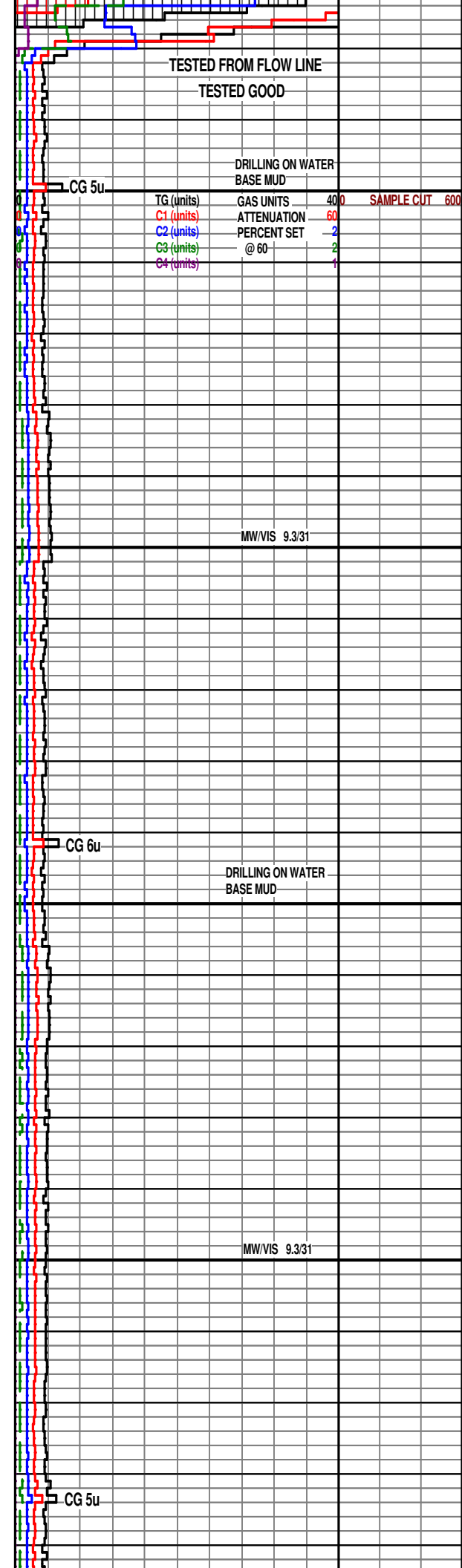
OIL SHOWS

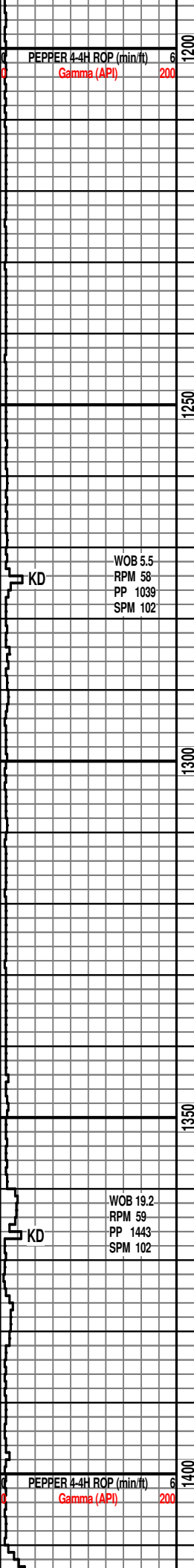
Even
 Spotted
 Ques
 Dead
 Poor
 Fair
 Good
 Excelent
 Csgshoe

Curve Track 1 PEPPER 4-4H ROP (min/ft) Gamma (API) - - - -	Depth	% Lithology	Porosity <small>24% 18% 12% 6%</small>	Lithology	Oil Shows	Geological Descriptions	IMAGES	TG, C1-C5 TG (units) C1 (units) C2 (units) C3 (units) C4 (units)	Sample Cut CUT
PEPPER 4-4H ROP (min/ft) 6 Gamma (API) 200						<p>SANDRIDGE ENERGY INC. 4 J Ranch 3408 3-33H SEC. # 33, T-34 S, R-8 W HARPER COUNTY, KANSAS. U.S.A.</p> <p>RIG - UNIT 310</p> <p>FIELD: JENNIFER WEST</p> <p>SPUD DATE: 06/16/2013</p> <p>SURFACE CASING SET @ 785'</p> <p>18 JOINTS OF 9 5/8" J-55 CEMENTED</p> <p>N.B.. # 2, HUGHES, TYPE -SMITH MDSI-516, SIZE - 8.75", S/N - 7035520, JETS - 6 X 16's DEPTH in @ 795'</p>			
API # 15-077-2193101-00								TG (units) 40 C1 (units) 60 C2 (units) 2 C3 (units) 2 C4 (units) 1	SAMPLE CUT 600
TWO-MAN LOGGING COMMENCED 06/17/2013	900							GL: 1,251' KB: 1,269'	
Called out by CoMan 06/16/2013								AFE # DC12923	
RATE OF PENETRATION (ROP)								SURFACE LOCATION: 220' FSL & 1,715' FWL SE SW SE SW	
KD=KELLY DOWN								TOTAL GAS UNITS SCALE 0 to 75 UNITS	
RIGGED UP ON NEW RIG 06/17/13 - 06/18/13								GAS UNITS ATTENUATION PERCENT SET @ 60	
TAGGED UP ON CEMENT @ 700 ft.								HOT WIRE GAS READINGS	
STARTED DRILLING OUT SURFACE CASING 06/18/2013	950							DRILLING ON WATER BASE MUD	
06/18/2013								TEST GAS 464u MAX @ 964 ft.	



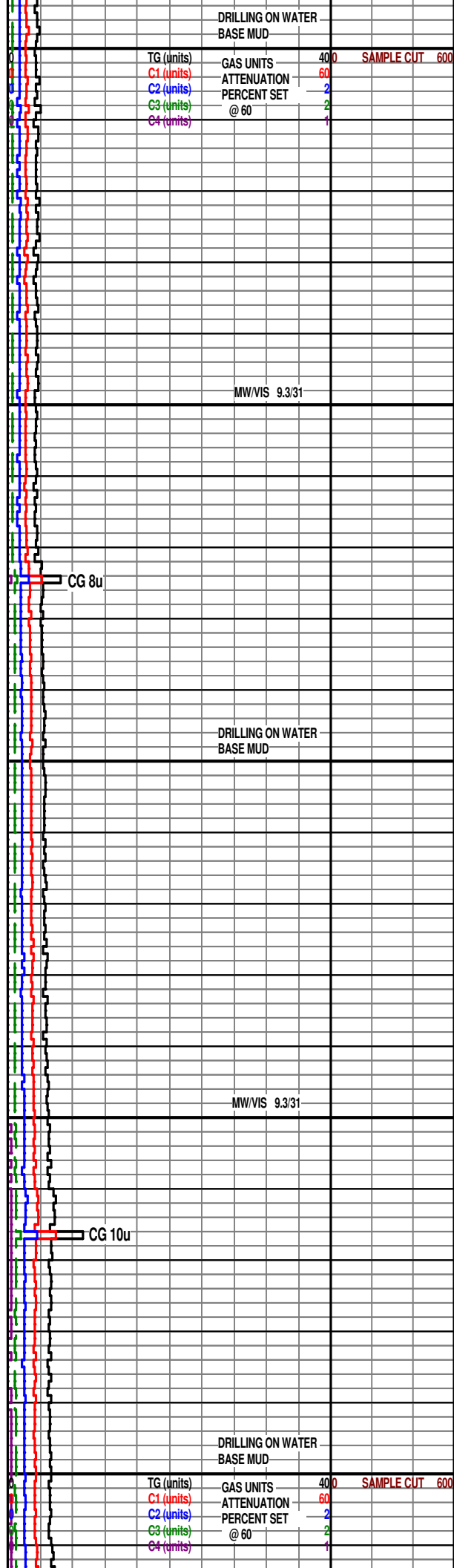
NO SAMPLE UNTILL 3,400'

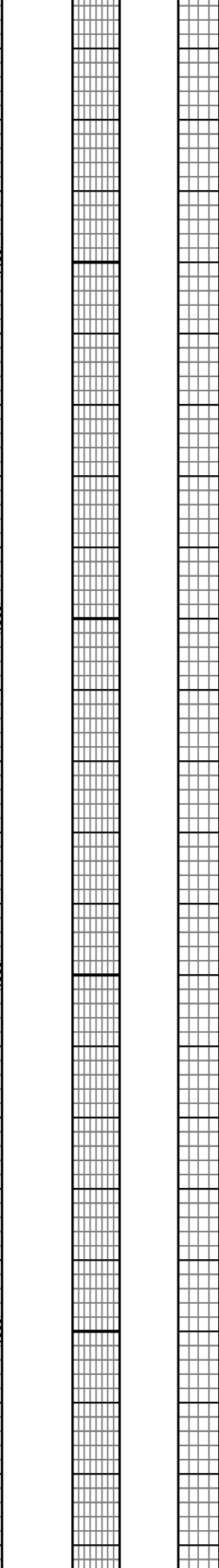
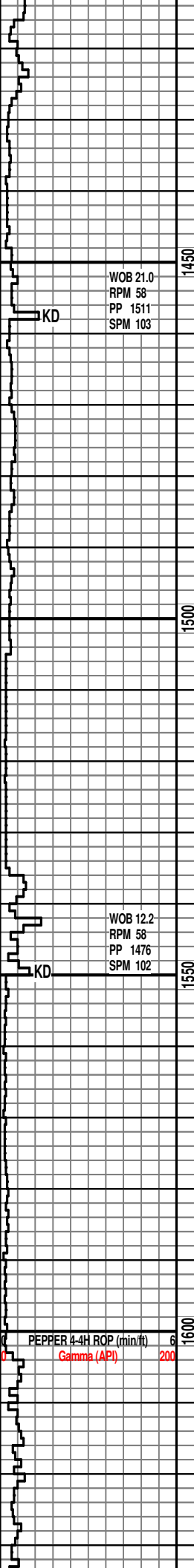




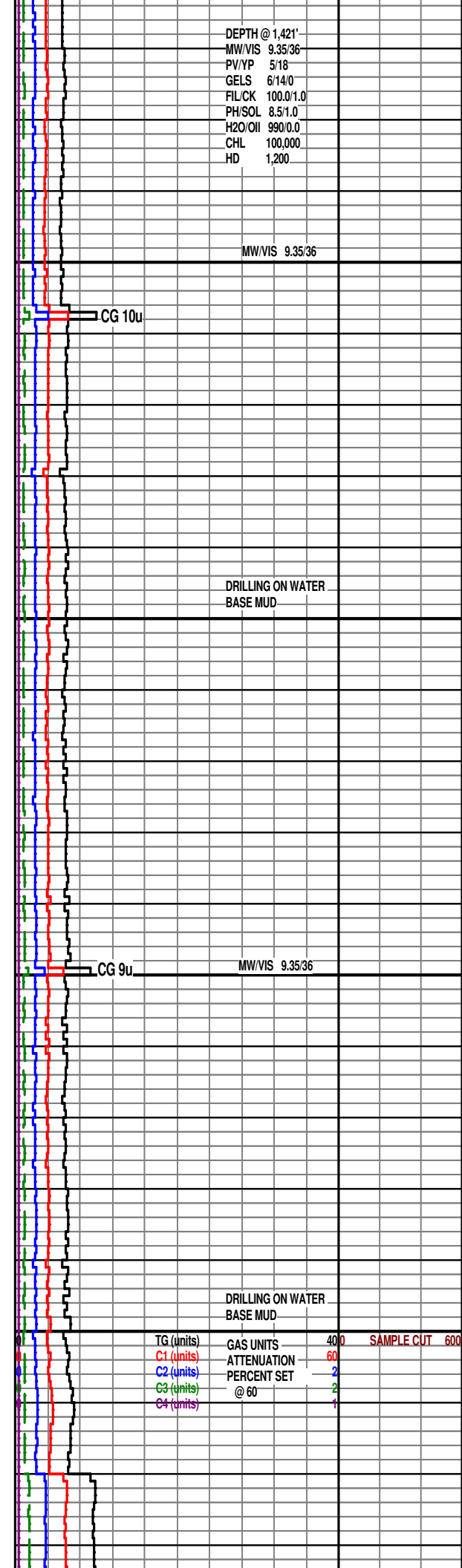
NO SAMPLE UNTILL 3,400'

NO SAMPLE UNTILL 3,400'





NO SAMPLE UNTILL 3,400'



DEPTH @ 1,421'
 MW/VIS 9.35/36
 PV/YP 5/18
 GELS 6/14/0
 FIL/CK 100.0/1.0
 PH/SOL 8.5/1.0
 H2O/OIL 990/0.0
 CHL 100,000
 HD 1,200

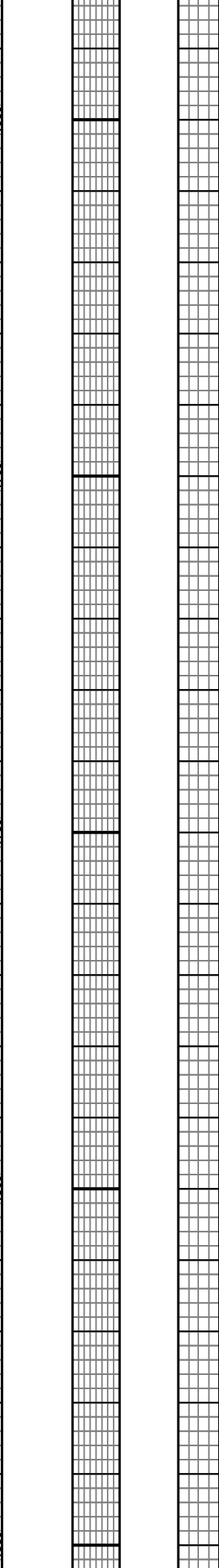
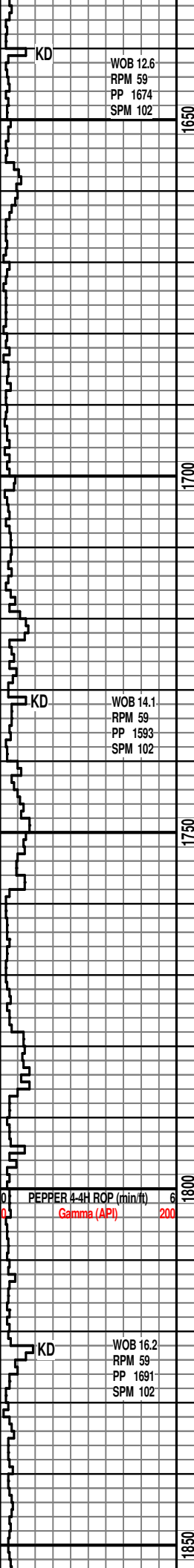
MW/VIS 9.35/36

DRILLING ON WATER
 BASE MUD

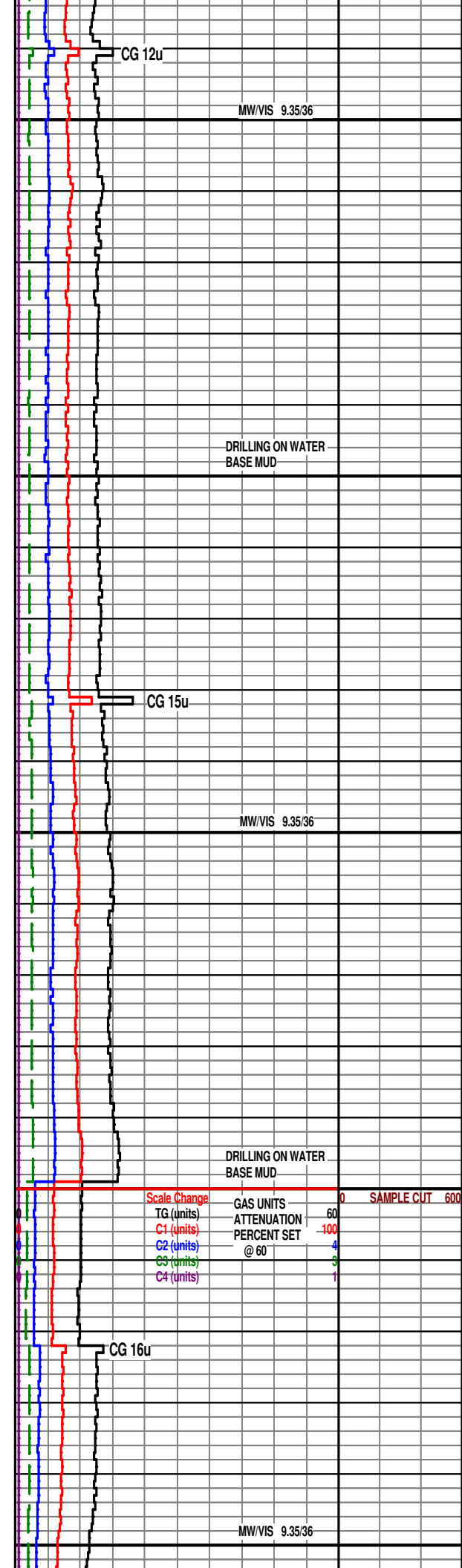
MW/VIS 9.35/36

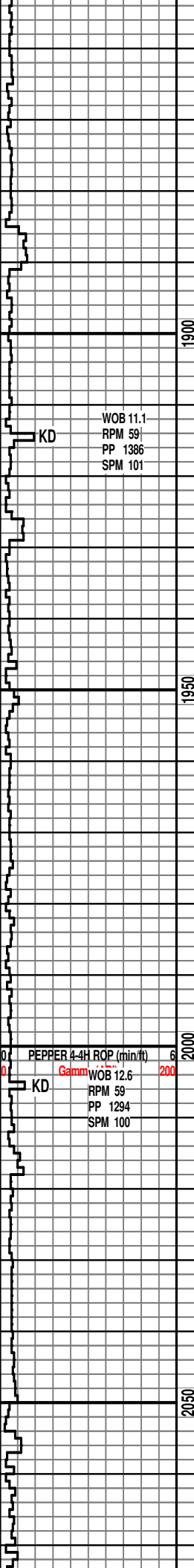
DRILLING ON WATER
 BASE MUD

TG (units)	GAS UNITS	400	SAMPLE CUT	600
C1 (units)	ATTENUATION	60		
C2 (units)	PERCENT SET	2		
C3 (units)	@ 60"	2		
C4 (units)		1		



NO SAMPLE UNTILL 3,400'





WOB 11.1
RPM 59
PP 1386
SPM 101

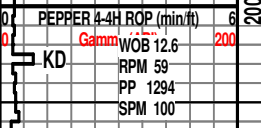
KD

1900

1950

2000

2050

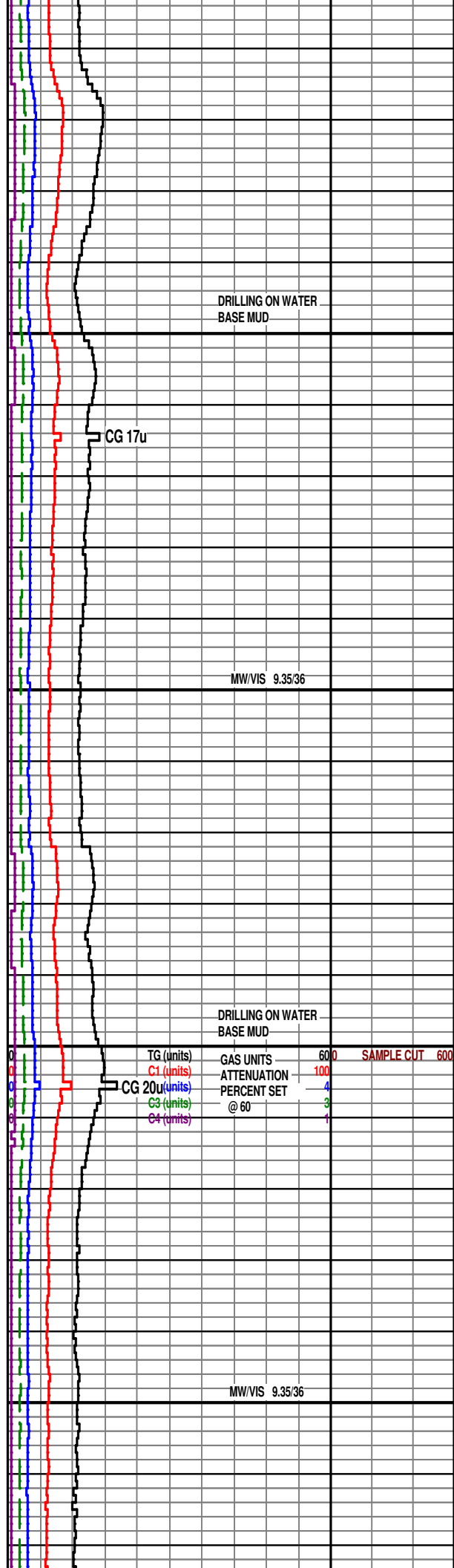


PEPPER 4-4H ROP (min/ft) 6

WOB 12.6
RPM 59
PP 1294
SPM 100

KD

NO SAMPLE UNTILL 3,400'



DRILLING ON WATER
BASE MUD

CG 17u

MW/VIS 9.35/36

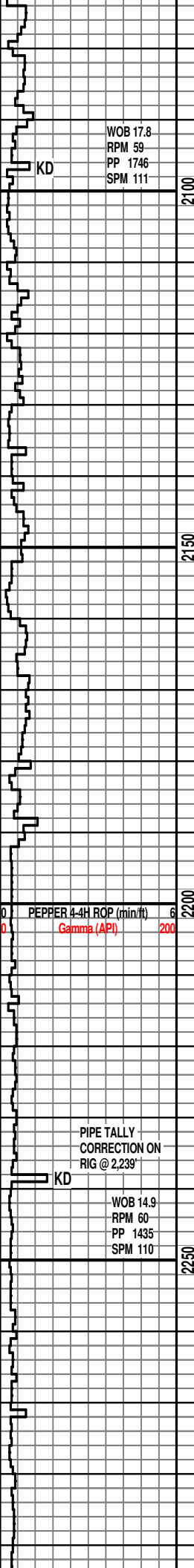
DRILLING ON WATER
BASE MUD

TG (units)
C1 (units)
CG 20u (units)
C3 (units)
C4 (units)

GAS UNITS 600
ATTENUATION 100
PERCENT SET 4
@ 60 3

SAMPLE CUT 600

MW/VIS 9.35/36



WOB 17.8
RPM 59
PP 1746
SPM 111

KD

21.00

21.50

22.00

PEPPER 4-4H ROP (min/ft)
Gamma (API)

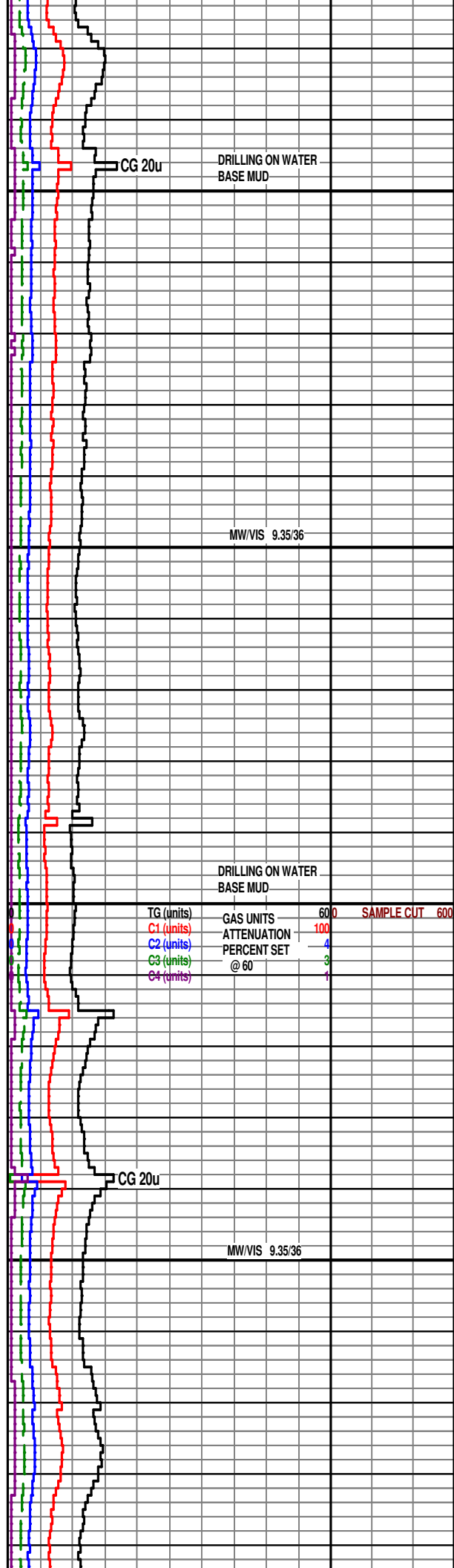
PIPE TALLY
CORRECTION ON
RIG @ 2,239'

KD

WOB 14.9
RPM 60
PP 1435
SPM 110

22.50

NO SAMPLE UNTILL 3,400'



CG 20u

DRILLING ON WATER
BASE MUD

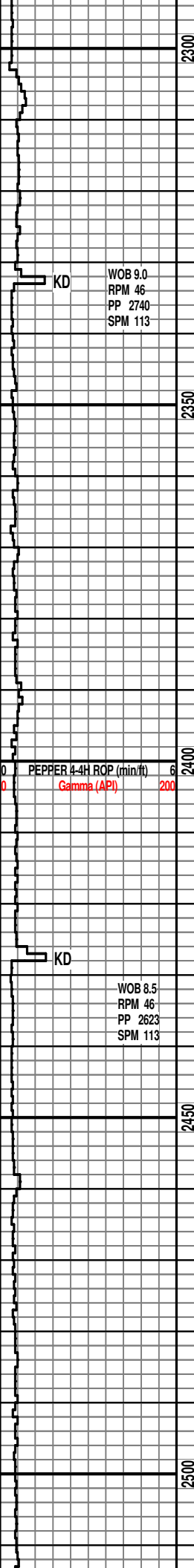
MW/VIS 9.35/36

DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	600	SAMPLE CUT	600
C1 (units)	ATTENUATION	100		
C2 (units)	PERCENT SET	4		
C3 (units)	@ 60	3		
C4 (units)		1		

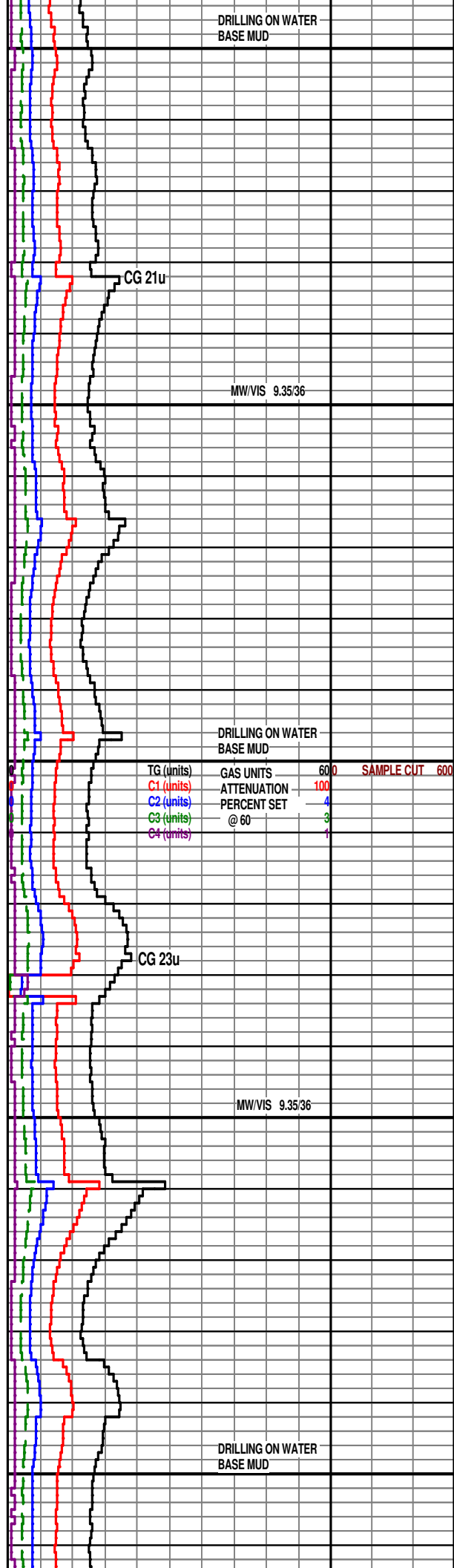
CG 20u

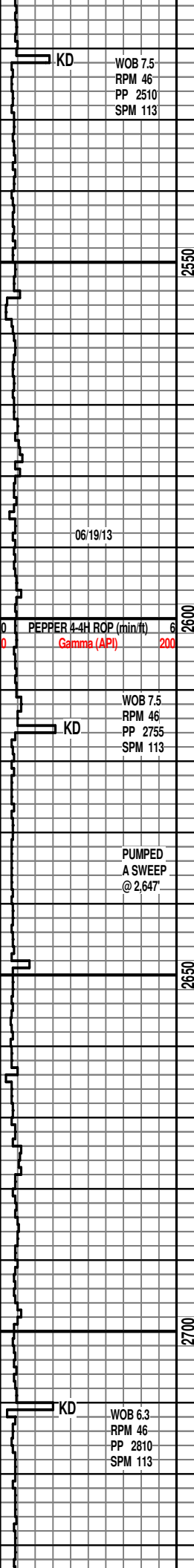
MW/VIS 9.35/36



NO SAMPLE UNTILL 3,400'

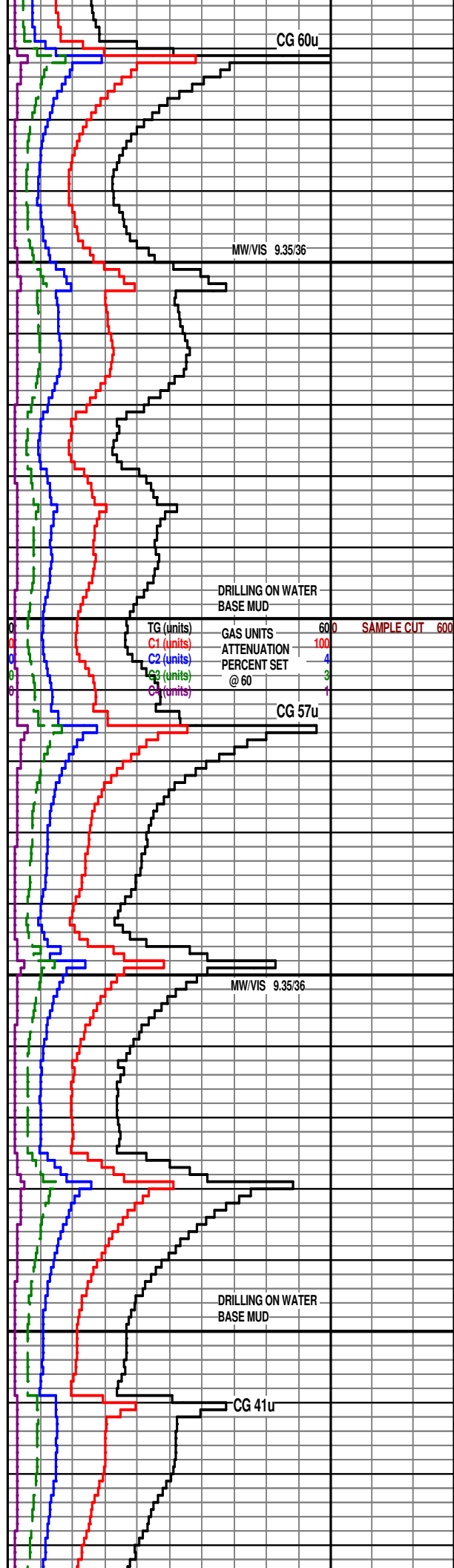
NO SAMPLE UNTILL 3,400'

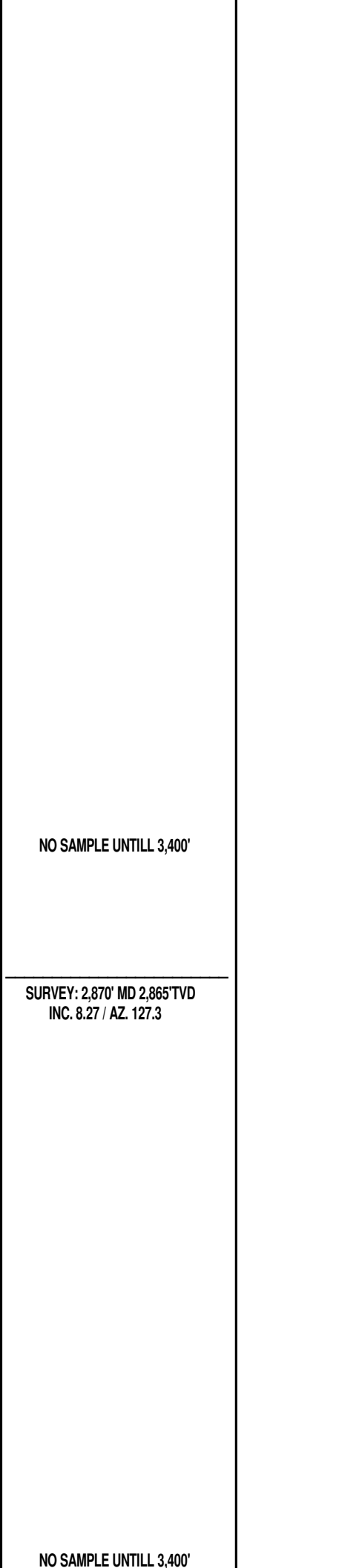
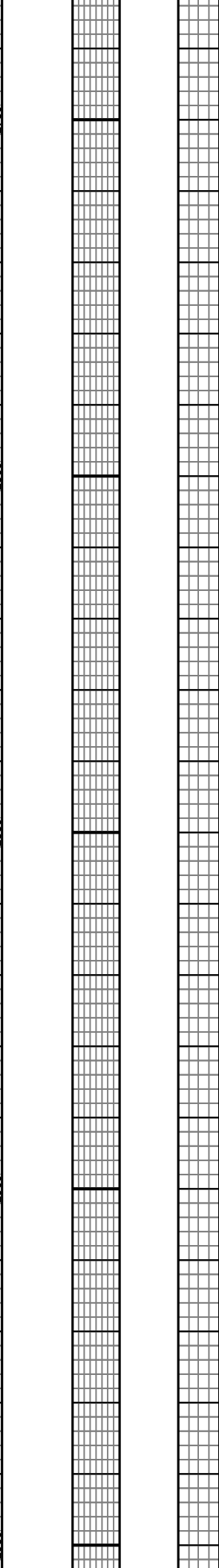
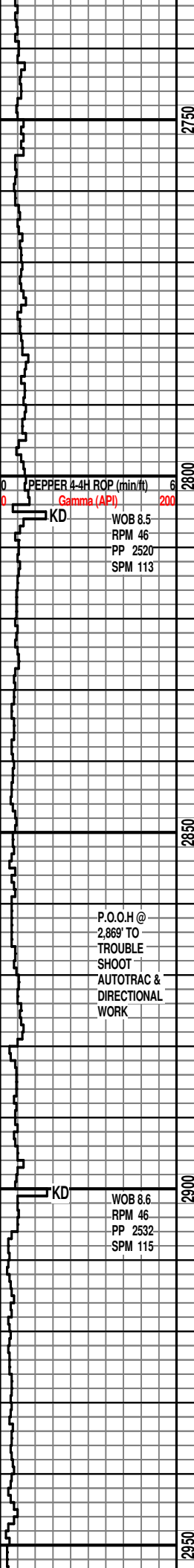




NO SAMPLE UNTILL 3,400'

NO SAMPLE UNTILL 3,400'





MW/VIS 9.35/36

DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	60.0	SAMPLE CUT	600
C1 (units)	ATTENUATION	100		
CG 22u (units)	PERCENT SET	4		
C3 (units)	@ 60	3		
C4 (units)		1		

DEPTH @ 2,839'
MW/VIS 9.6/31
PV/YP 3/10
GELS 3/7/0
FIL/CK 100.0/1.0
PH/SOL 8.5/5.0
H2O/OIL 95.0/0.0
CHL 92,000
HD 1,200

MW/VIS 9.6/31

FORMATOIN TRIP GAS
24u MAX @ 2,869,

TG 24u

DRILLING ON WATER
BASE MUD

CG 24u

MW/VIS 9.6/31

NO SAMPLE UNTILL 3,400'

SURVEY: 2,870' MD 2,865'TVD
INC. 8.27 / AZ. 127.3

NO SAMPLE UNTILL 3,400'

PEPPER 4-4H ROP (min/ft) 6
Gamma (API) 200
KD
WOB 8.5
RPM 46
PP 2520
SPM 113

P.O.O.H @
2,869' TO
TROUBLE
SHOOT
AUTOTRAC &
DIRECTIONAL
WORK

KD
WOB 8.6
RPM 46
PP 2532
SPM 115

SURVEY: 2,965' MD 2,959'TVD
INC. 7.68 / AZ. 128.3

WOB 9.1
RPM 47
PP 2568
SPM 115

KD

PEPPER 4-4H ROP (min/ft) 6
Gamma (API) 200

30.00

30.50

SURVEY: 3,061' MD 3,054'TVD
INC. 7.50 / AZ. 130.05

WOB 9.5
RPM 50
PP 2656
SPM 116

KD

31.00

31.50

SURVEY: 3,156' MD 3,148'TVD
INC. 7.52 / AZ. 128.61

CG 25u

DRILLING ON WATER
BASE MUD

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

GAS UNITS 600
ATTENUATION 100
PERCENT SET 4
@ 60 3
1

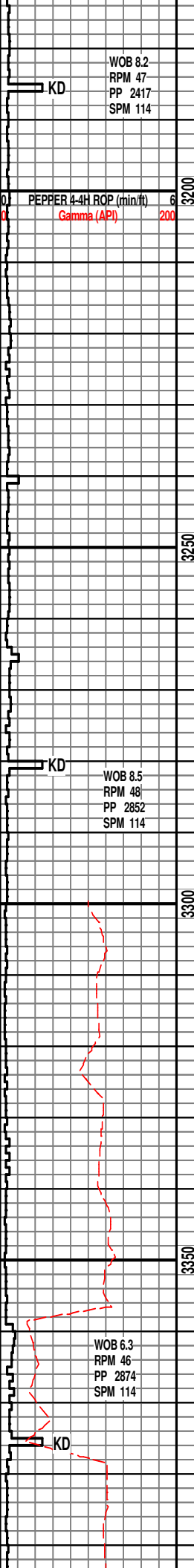
SAMPLE CUT 600

MW/VIS 9.6/31

CG 44u

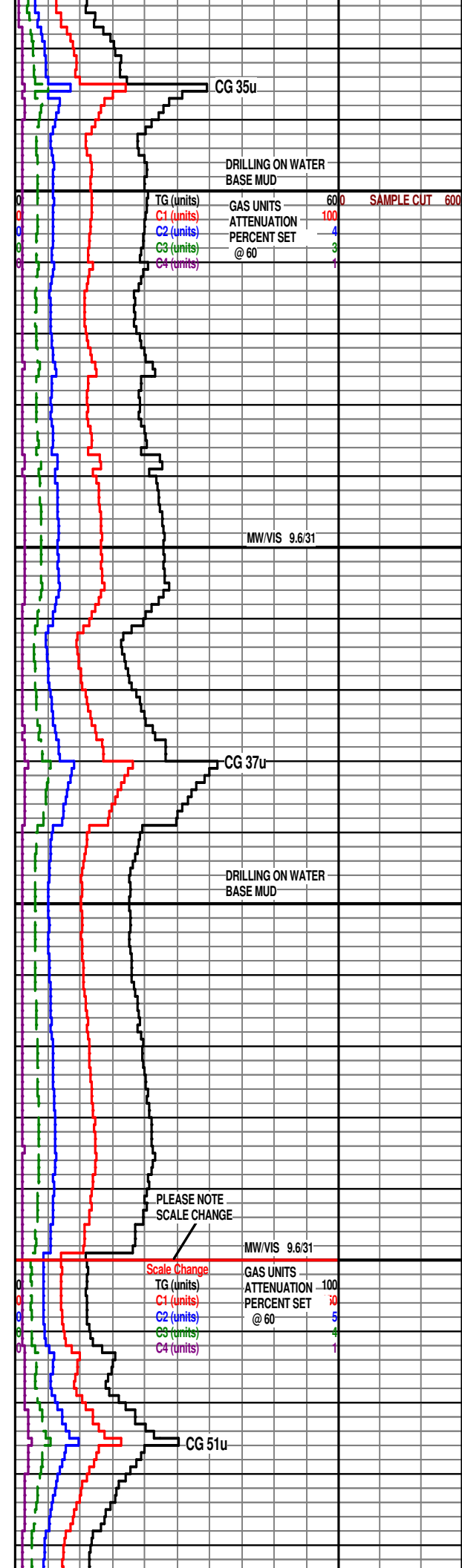
DRILLING ON WATER
BASE MUD

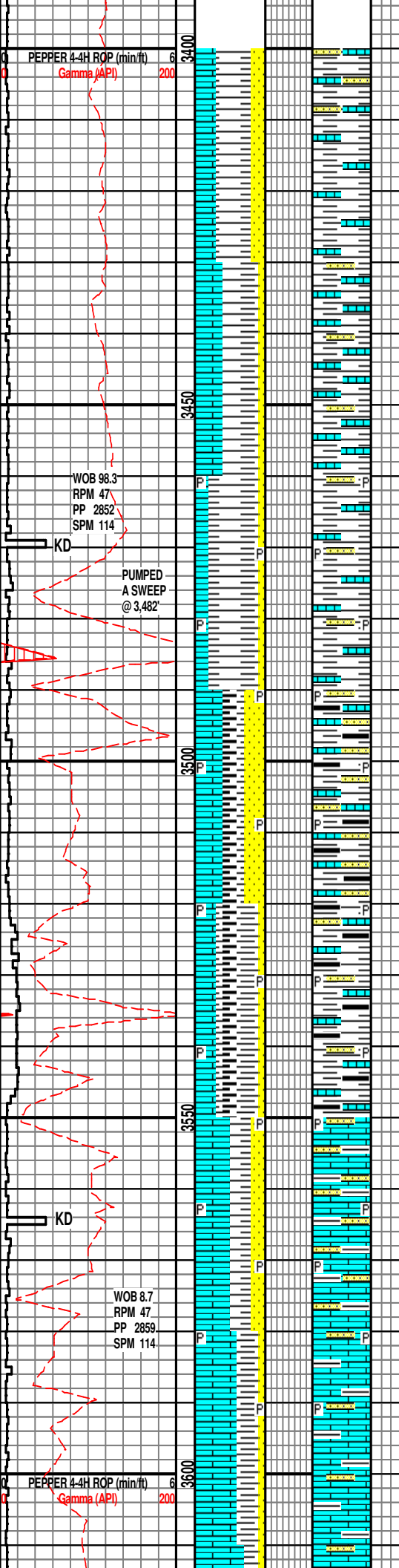
MW/VIS 9.6/31



SURVEY: 3,250' MD 3,241'TVD
INC. 7.43 / AZ. 126.53

SURVEY: 3,345' MD 3,335'TVD
INC. 7.26 / AZ. 126.97





SH: ABUN GRV-LT GRV, SME DRK GRV, SCAT REDISH BRN, SME BLK, SMTH-SUB WXY TO RGH TXT, SFT-MOD FRM, PRED BLKY-PLTY, NO VIS FLOR, NO VIS CUT, NO RESD RING, LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, MICRO-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING

SURVEY: 3,440' MD 3,430'TVD
INC. 7.44 / AZ. 127.59

SH: DK GRV, BLK GRV, SCAT LT GRV, ORG RCH, CALC, SPLTY, INCRS BLK CARB, SMTH- SUB WXY LSTR, MOD FRM-FRM, SS: OFF WHT TO WHT, VF GRN, W/CONSOL, SUB-RND, MOD HD, CALC CMT, LS: PRED LT TAN- MED TAN, OCC DRK TA, CRM, SME MTTLD TAN FN-MED XLN, MOD FRM-FRM, NO VIS FLOR, NO VIS CUT, NO RESD RING, TRS PYR

Carbonaceous Shale

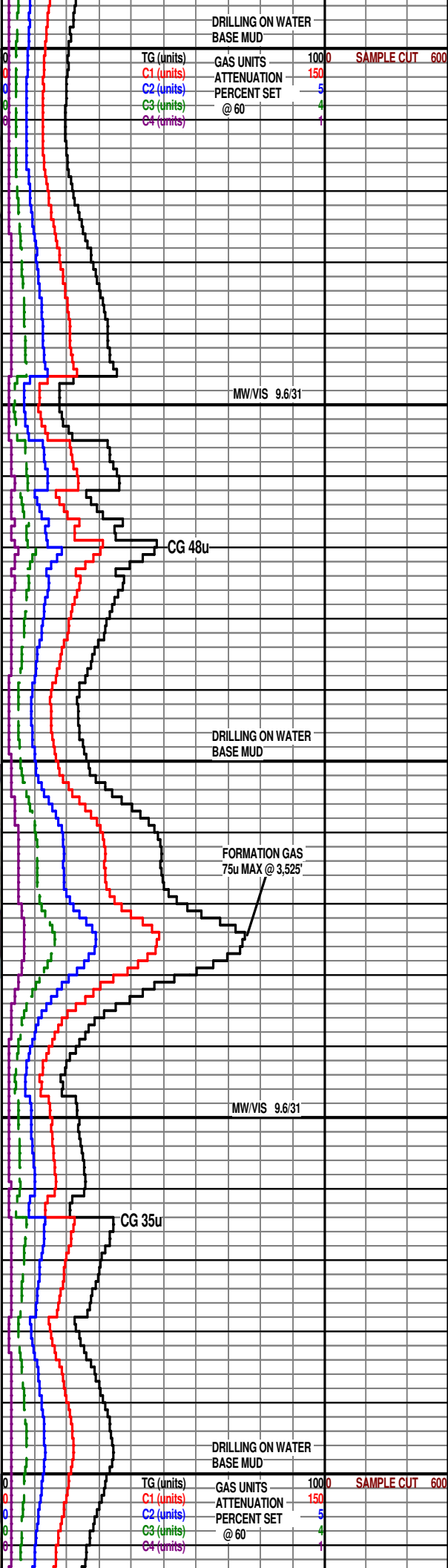
**BASE HEEBNER SHALE
3,499' MD/TVD 3,488'**

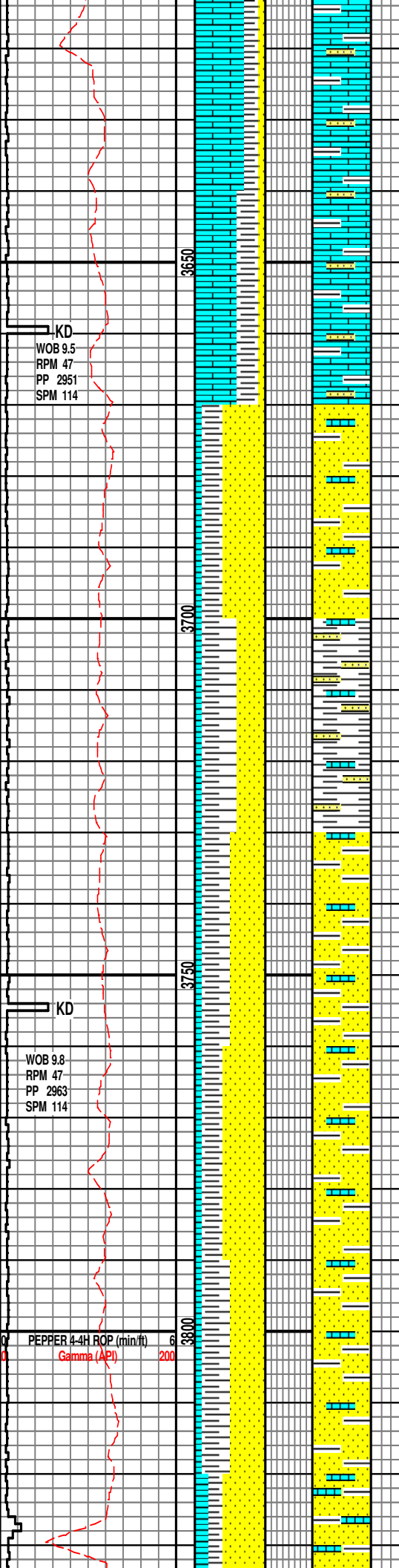
SH: DK GRV, BLK GRV, SCAT LT GRV, ORG RCH, CALC, SPLTY, INCRS BLK CARB, SMTH- SUB WXY LSTR, MOD FRM-FRM, SS: OFF WHT TO WHT, VF GRN, W/CONSOL, SUB-RND, SUB-ANG, MOD HD, CALC CMT, LS: PRED LT TAN- MED TAN, OCC DRK TA, CRM, SME MTTLD TAN FN-MED XLN, MOD FRM-FRM, NO VIS FLOR, NO VIS CUT, NO RESD RING, TRS PYR

SURVEY: 3,535' MD 3,524'TVD
INC. 8.00 / AZ. 127.41

SH: DK GRV, BLK GRV, SCAT LT GRV, ORG RCH, CALC, SPLTY, CARB, SMTH-SUB WXY LSTR, MOD FRM-FRM, SS: OFF WHT TO WHT, VF GRN, W/CONSOL, SUB-RND, SUB-ANG, MOD HD, CALC CMT, LS: PRED LT TAN- MED TAN, OCC DRK TA, CRM, SME MTTLD TAN FN-MED XLN, MOD FRM-FRM, NO VIS FLOR, NO VIS CUT, NO RESD RING, TRS PYR

SH: DK GRV, BLK GRV, SCAT LT GRV, SME ORG RCH, CALC, SPLTY, SME BLK CARB, SMTH- SUB WXY LSTR, MOD FRM, LS: LT TAN- MED TAN, OCC DRK TAN, MICRO-XLN, MOD FRM-FRM, NO VIS FLOR, NO VIS CUT, NO RESD RING





NO RESD RING

SURVEY: 3,630' MD 3,618'TVD
INC. 7.45 / AZ. 128.94

SH: DK GRY, BLK GRY, SCAT LT GRY,
SME ORG RCH, CALC, SPLTY, SME
BLK CARB, SMTH- SUB WXY LSTR,
MOD FRM, LS: LT TAN- MED TAN,
OCC DRK TAN, MICRO-XLN, MOD
FRM-FRM, NO VIS FLOR, NO VIS CUT,
NO RESD RING

SH: DK GRY, BLK GRY, SCAT LT GRY,
SME ORG RCH, CALC, SPLTY, SME
BLK CARB, SMTH- SUB WXY LSTR,
MOD FRM, LS: LT TAN- MED TAN,
OCC DRK TAN, MICRO-XLN, MOD
FRM-FRM, NO VIS FLOR, NO VIS CUT,
NO RESD RING

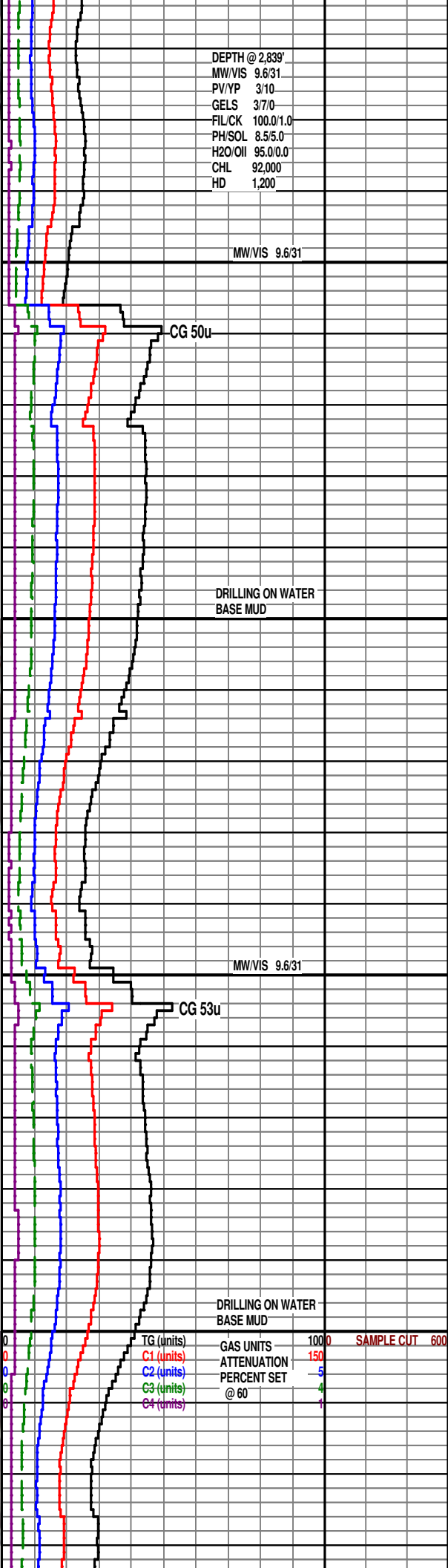
SURVEY: 3,725' MD 3,712'TVD
INC. 7.34 / AZ. 125.35

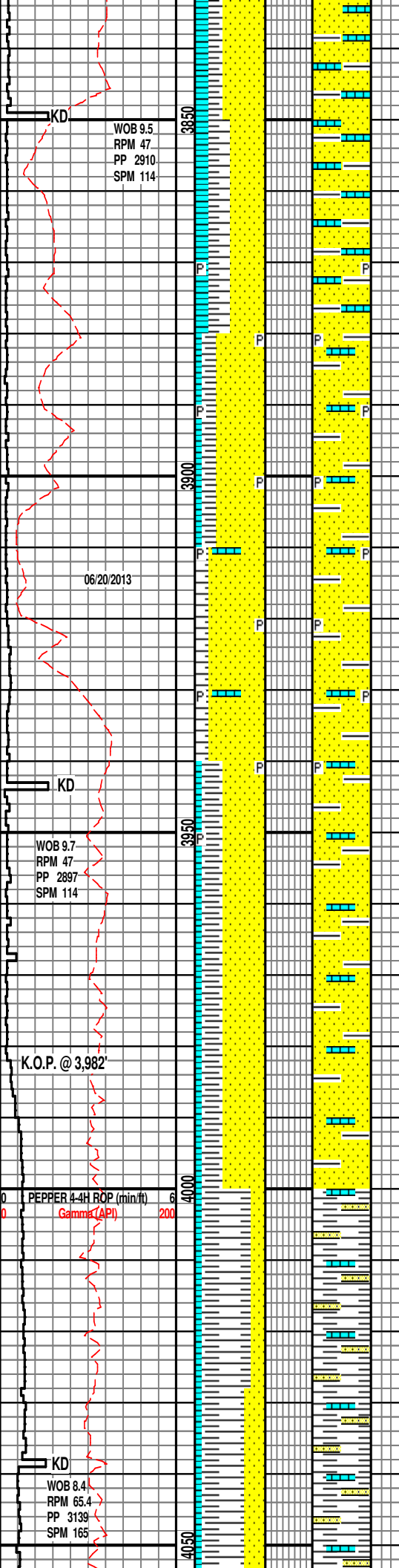
SH: DK GRY, BLK GRY, SCAT LT GRY,
SME ORG RCH, CALC, SPLTY, SME
BLK CARB, SMTH- SUB WXY LSTR,
MOD FRM, LS: LT TAN- MED TAN,
OCC DRK TAN, MICRO-XLN, MOD
FRM-FRM, NO VIS FLOR, NO VIS CUT,
NO RESD RING

SH: DK GRY, BLK GRY, SCAT LT GRY,
SME ORG RCH, CALC, SPLTY, SME
BLK CARB, SMTH- SUB WXY LSTR,
MOD FRM, LS: LT TAN- MED TAN,
OCC DRK TAN, MICRO-XLN, MOD
FRM-FRM, NO VIS FLOR, NO VIS CUT,
NO RESD RING

SURVEY: 3,820' MD 3,806'TVD
INC. 7.53 / AZ. 124.50

SH: DK GRY, BLK GRY, SCAT LT GRY,





SME ORG RCH, SPLY, SME
BLK CARB, SMTH- SUB WXY LSTR,
MOD FRM, LS: LT TAN- MED TAN,
OCC DRK TAN, MICRO-XLN, MOD
FRM-FRM, NO VIS FLOR, NO VIS CUT,
NO RESD RING

LANSING LIMESTONE
3,858' MD/TVD 3,844'

LS: MSTLY OFF WHT-WHT, SME LT
TAN, PRED BLKY, TR SPLNTY,
MICRO-XLN, MOD FRM- FRM, OCC
BRIT, SNDY, SS: OFF WHT TO WHT,
F-MED GRN, W/CONSOL, SUB-RND,
SUB-ANG, MOD HD TO HD, CALC CMT,
SH: GY-DRK GY, OCC BLK, CHNKY,
MOD FRM, SMTH TXT, TRS PYR, NO
CUT NO RING

SURVEY: 3,914' MD 3,900'TVD
INC. 7.62 / AZ. 123.04

LS: MSTLY MED TAN- LT TAN,
SME OFF WHT, PRED BLKY, CHNKY
TR SPLNTY, MICRO-XLN, MOD FRM-
FRM, OCC BRIT, SNDY, SS: OFF WHT
TO WHT, F-MED GRN, W/CONSOL,
SUB-RND, SUB-ANG, MOD HD TO HD,
SH: GY-DRK GY, OCC BLK, CHNKY,
MOD FRM, SMTH TXT, TRS PYR

SURVEY: 3,946' MD 3,931'TVD
INC. 7.36 / AZ. 119.40

LS: MSTLY MED TAN- LT TAN,
SME OFF WHT, PRED BLKY, CHNKY
TR SPLNTY, MICRO-XLN, MOD FRM-
FRM, OCC BRIT, SME OOL, SNDY, SS:
OFF WHT TO WHT, F-MED GRN,
W/CONSOL, SUB-RND, SUB-ANG, MOD
HD TO HD, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT

(K.O.P. @ 3,982 ft.)

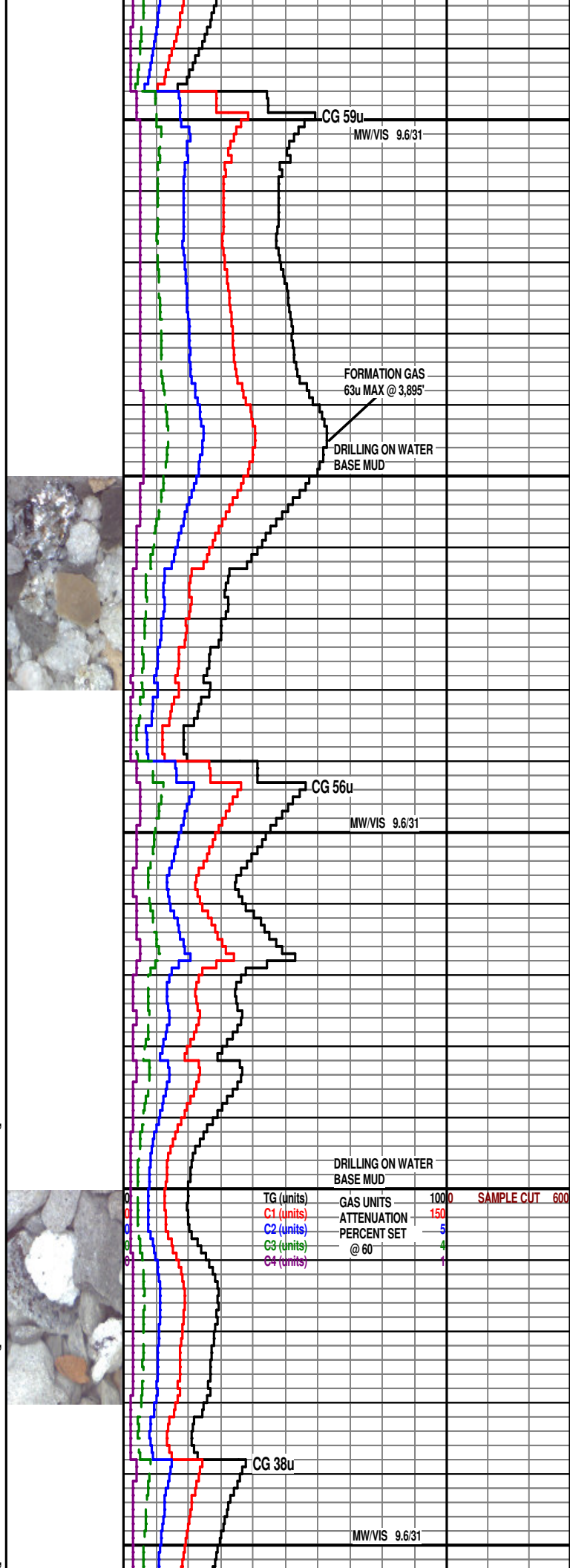
LS: MSTLY CRM,SME OFF WHT, PRED
BLKY, CHNKY TR SPLNTY, MICRO-XLN,
MOD FRM- FRM, OCC BRIT, SNDY, SS:
OFF WHT TO WHT, F-MED GRN,
W/CONSOL, SUB-RND, SUB-ANG, MOD
HD TO HD, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT

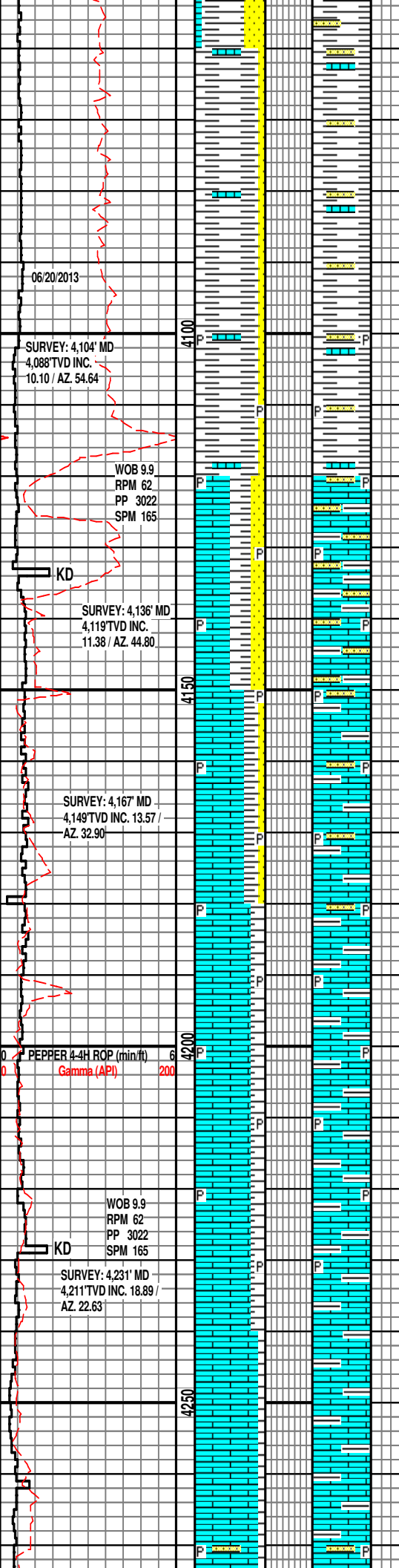
SURVEY: 4,009' MD 3,994'TVD
INC. 7.25 / AZ. 97.97

LS: MSTLY CRM,SME OFF WHT, PRED
BLKY, CHNKY TR SPLNTY, MICRO-XLN,
MOD FRM- FRM, OCC BRIT, SNDY, SS:
OFF WHT TO WHT, F-MED GRN,
W/CONSOL, SUB-RND, SUB-ANG, MOD
HD TO HD, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT

SURVEY: 4,041' MD 4,025'TVD
INC. 8.11 / AZ. 79.92

LS: MSTLY CRM,SME OFF WHT, PRED
BLKY, CHNKY TR SPLNTY, MICRO-XLN,





MOD FRM- FRM, OCC BRIT, SNDY, SS:
OFF WHT TO WHT, F-MED GRN,
W/CONSOL, SUB-RND, SUB-ANG, MOD
HD TO HD, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT

SURVEY: 4,072' MD 4,056'TVD
INC. 9.09 / AZ. 64.44

LS: MSTLY CRM, SME OFF WHT, PRED
BLKY, CHNKY TR SPLNTY, MICRO-XLN,
MOD FRM- FRM, OCC BRIT, SNDY, SS:
OFF WHT TO WHT, F-MED GRN,
W/CONSOL, SUB-RND, SUB-ANG, MOD
HD TO HD, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT

LS: MSTLY CRM, SME OFF WHT, PRED
BLKY, CHNKY TR SPLNTY, MICRO-XLN,
MOD FRM- FRM, OCC BRIT, SNDY, SS:
OFF WHT TO WHT, F-MED GRN,
W/CONSOL, SUB-RND, SUB-ANG, MOD
HD TO HD, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT, TRS
PYR, NO CUT NO RING

COTTAGE GROVE
4,138' MD/TVD 4,121'

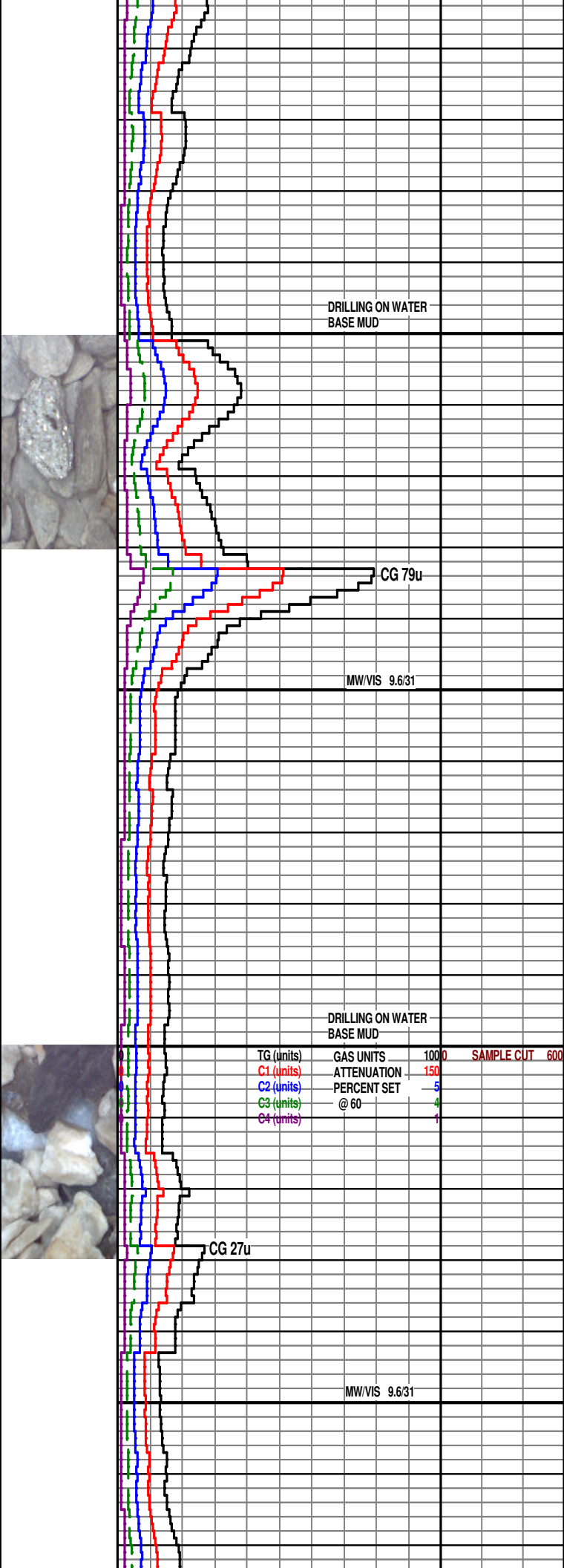
LS: MSTLY CRM, SME OFF WHT, PRED
BLKY, SME SL/OOL, CHNKY, TR
SPLNTY, MICRO-XLN, YELSH/BRN
STN, MOD FRM- FRM, OCC BRIT, DNS,
SS: OFF WHT TO WHT, TAN, SME
SL/TRNSL-TRNSP, F-MED GRN,
W/CONSOL, W/CMT, SUB-RND,
SUB-ANG, MOD HD TO HD, SH:
GY-DRK GY, OCC BLK, SPLIN, FLKY,
MOD FRM, CRSE TXT, ABDT MICA, TRS
EMBD PYR, NO CUT NO RING

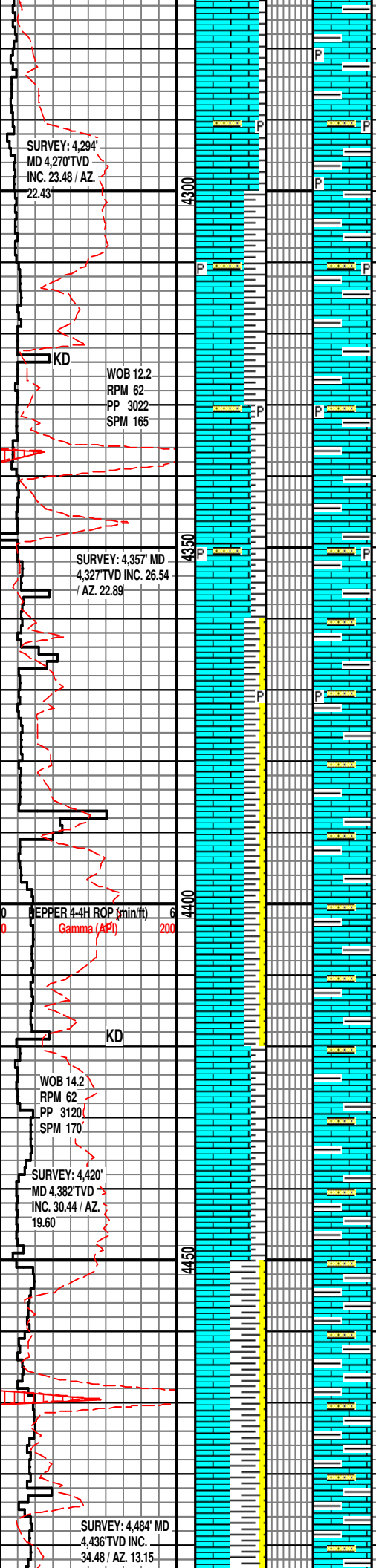
SURVEY: 4,199' MD 4,180'TVD
INC. 15.81 / AZ. 54.64

LS: MSTLY CRM, SME OFF WHT, PRED
BLKY, SME SL/OOL, CHNKY, TR
SPLNTY, MICRO-XLN, YELSH/BRN
STN, MOD FRM- FRM, OCC BRIT, DNS,
SH: GY-DRK GY, OCC BLK, SPLIN,
FLKY, MOD FRM, CRSE TXT, ABDT
MICA, TRS EMBD PYR, NO CUT NO
RING

LS: MSTLY CRM, SME OFF WHT, PRED
BLKY, SME SL/OOL, CHNKY, TR
SPLNTY, MICRO-XLN, YELSH/BRN
STN, MOD FRM- FRM, OCC BRIT, DNS,
SH: GY-DRK GY, OCC BLK, SPLIN,
FLKY, MOD FRM, CRSE TXT, ABDT
MICA, TRS EMBD PYR, NO CUT NO
RING

SURVEY: 4,262' MD 4,240'TVD
INC. 21.77 / AZ. 22.37





LS: MSTLY CRM, SME OFF WHT, PRED BLKY, SL/OOL, CHNKY, TR SPLNTY, MICRO-XLN, YELSH/BRN STN, MOD FRM- FRM, OCC BRIT, DNS, SL/TRS SS: OFF WHT TO WHT, TAN, SME SL/TRNSL-TRNSP, F-MED GRN, W/CONSOL, W/CMT, SUB-RND, SUB-ANG, MOD HD TO HD, SH: GY-DRK GY, OCC BLK, SPLIN, FLKY, MOD FRM, CRSE TXT, ABDT MICA, SL/TRS EMBD PYR, NO CUT NO RING

SURVEY: 4,326' MD 4,299'TVD
INC. 24.99 / AZ. 22.95

LS: MSTLY CRM, SME OFF WHT, PRED BLKY, SME SL/OOL, CHNKY, TR SPLNTY, MICRO-XLN, YELSH/BRN STN, MOD FRM- FRM, OCC BRIT, DNS, TRS SS: OFF WHT TO WHT, TAN, SME SL/TRNSL-TRNSP, F-MED GRN, W/CONSOL, W/CMT, SUB-RND, SUB-ANG, MOD HD TO HD, SH: GY-DRK GY, OCC BLK, SPLIN, FLKY, MOD FRM, CRSE TXT, ABDT MICA, SL/TRS EMBD PYR, NO CUT NO RING

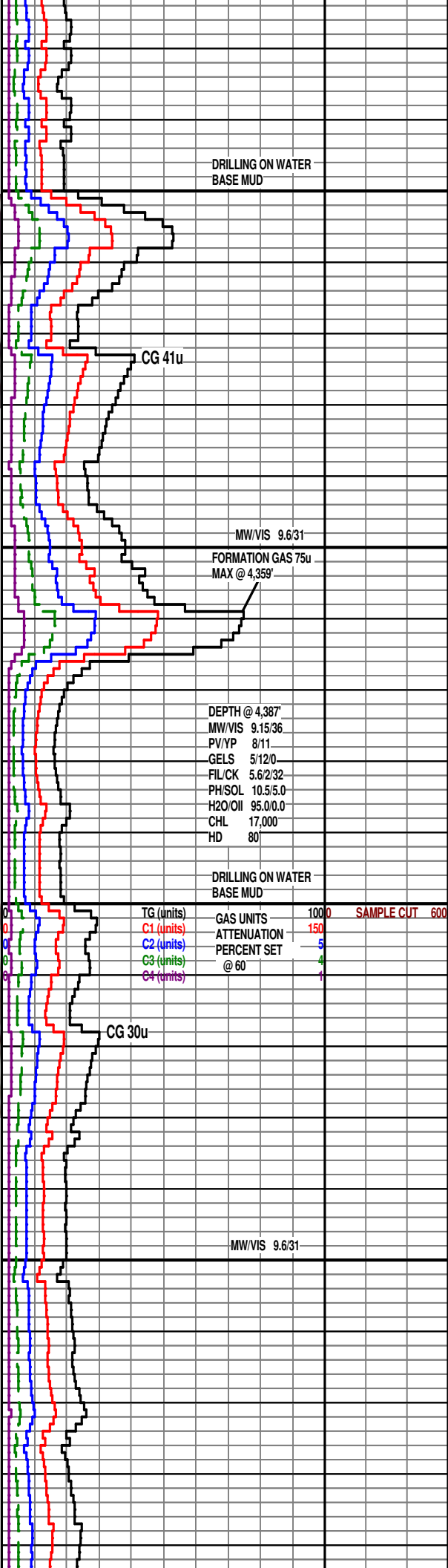
SURVEY: 4,389' MD 4,355'TVD
INC. 28.32 / AZ. 22.06

LS: MSTLY CRM, SME OFF WHT, PRED BLKY, SME SL/OOL, CHNKY, TR SPLNTY, MICRO-XLN, YELSH/BRN STN, MOD FRM- FRM, OCC BRIT, DNS, SS: OFF WHT TO WHT, TAN, SME SL/TRNSL-TRNSP, F-MED GRN, W/CONSOL, W/CMT, SUB-RND, SUB-ANG, MOD HD TO HD, SH: GY-DRK GY, OCC BLK, SPLIN, FLKY, MOD FRM, CRSE TXT, ABDT MICA, NO CUT NO RING

SURVEY: 4,452' MD 4,409'TVD
INC. 32.21 / AZ. 16.44

**OSWEGO
4,473' MD/TVD 4,427'**

LS: MOSTLY LT-MED-DRK GRY, SME OFF WHT, CRM, BLKY, F-MED-XLN, SME CRSE ANG GRN, MOD FRM- FRM, SL/OOL, SNDY, DNS, SH: LT-MED-DRK GY, OCC BLK, SPLIN, FLKY, MOD FRM, CRSE TXT, ABDT MICA, NO CUT NO RING



DRILLING ON WATER
BASE MUD

CG 41u

MW/VIS 9.6/31

FORMATION GAS 75u
MAX @ 4,359'

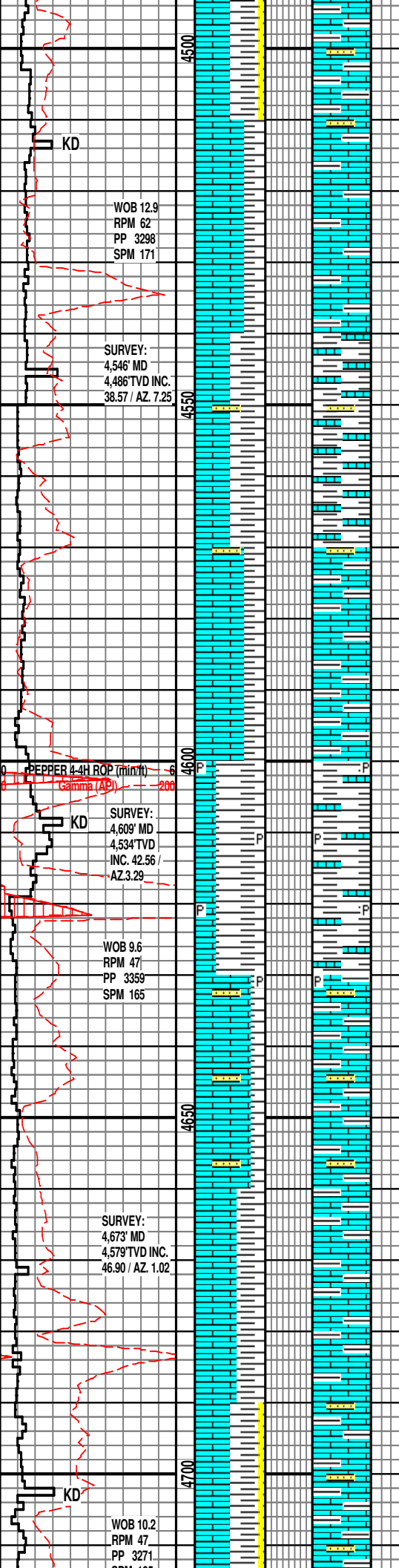
DEPTH @ 4,387'
MW/VIS 9.15/36
PV/YP 8/11
GELS 5/120
FIL/CK 5.6/2/32
PH/SOL 10.5/5.0
H2O/OIL 95.0/0.0
CHL 17,000
HD 80'

DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	100.0	SAMPLE CUT	600
C1 (units)	ATTENUATION	150		
C2 (units)	PERCENT SET	5		
C3 (units)	@ 60	4		
C4 (units)		1		

CG 30u

MW/VIS 9.6/31



LT-MED-DRK GRY, SME GRY BLK, RGH
TXT, MICA, SPLIN, SS: OFF WHT TO
WHT, TAN, SME SL/TRNSL-TRNSP,
F-MED GRN, W/CONSOL, W/CMT,
SUB-RND, SUB-ANG, MOD HD TO HD

SURVEY: 4,515' MD 4,461'TVD
INC. 36.60 / AZ. 9.66

LS: MOSTLY LT-MED-DRK GRY, SME
OFF WHT, CRM, BLKY, F-MED-XLN,
SME CRSE ANG GRN, MOD FRM- FRM,
SL/OOL, SNDY, DNSE, SH:
LT-MED-DRK GRY, SME GRY BLK, RGH
TXT, MICA, SPLIN,

LS: MOSTLY LT-MED-DRK GRY, SME
OFF WHT, CRM, BLKY, F-MED-XLN,
SME CRSE ANG GRN, MOD FRM- FRM,
SL/OOL, SNDY, DNSE, SH:
LT-MED-DRK GRY, SME GRY BLK, RGH
TXT, MICA, SPLIN, SL/SS: OFF WHT TO
WHT, TAN, SME SL/TRNSL & TRNSP,
F-MED GRN, W/CONSOL, W/CMT,
SUB-RND, SUB-ANG, MOD HD TO HD
SL/QZT

SURVEY: 4,578' MD 4,511'TVD
INC. 40.39 / AZ. 5.20

CHEROKEE GROUP
4,598' MD/TVD 4,526'

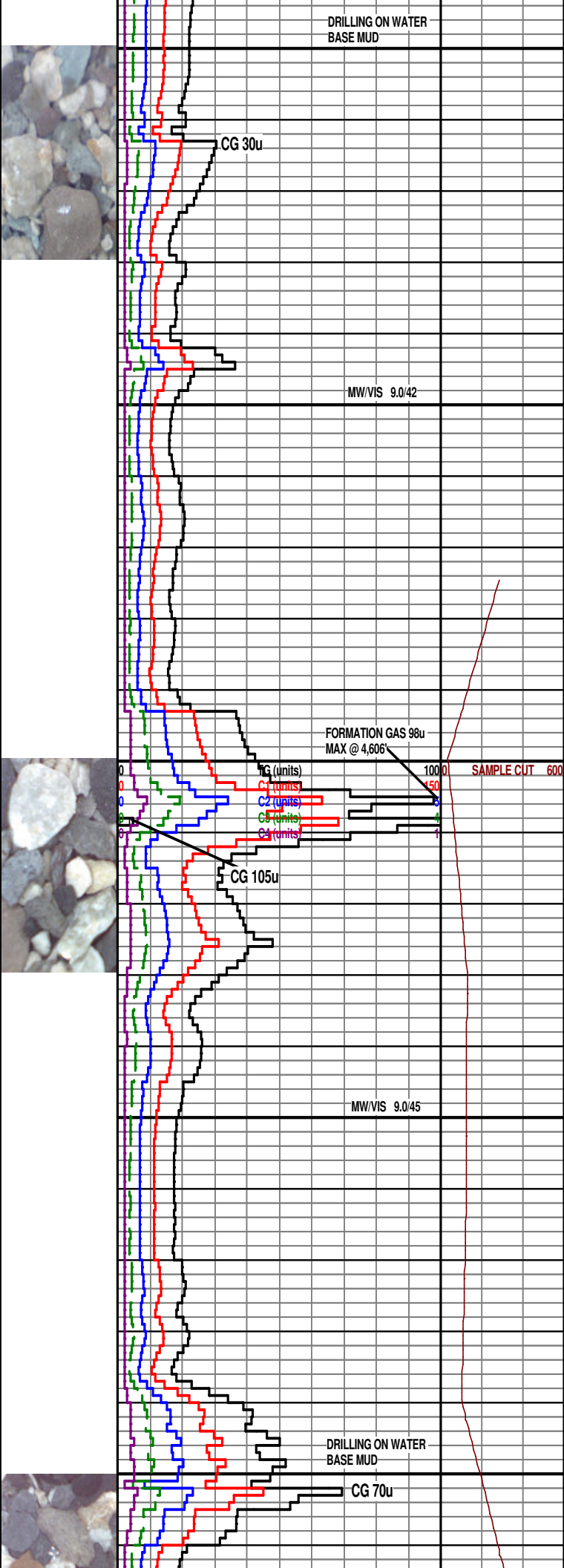
LS: OFF WHT-WHT, CRM, BLKY,
F-MED-XLN, SME CRSE ANG GRN, MOD
FRM- FRM, SNDY, DNSE, SH:
LT-MED-DRK GRY, SME RED, ABDT
BLK, ORG RCH, INCRS BLK CARB,
RGH TXT, MICA, SPLIN, SL/TRS EMBD
PYR

SURVEY: 4,641' MD 4,557'TVD
INC. 44.80 / AZ. 2.12

LS: OFF WHT-WHT, CRM, BLKY,
F-MED-XLN, SME CRSE ANG GRN, MOD
FRM- FRM, SNDY, DNSE, SH:
LT-MED-DRK GRY, SME RED, ABDT
BLK, ORG RCH, INCRS BLK CARB,
RGH TXT, MICA, SPLIN, SL/SS: OFF
WHT TO WHT, TAN, SME SL/TRNSL &
TRNSP, F-MED GRN, W/CONSOL,
W/CMT, SUB-RND, SUB-ANG, MOD HD
TO HD

LS: OFF WHT-WHT, CRM, BLKY,
F-MED-XLN, SME CRSE ANG GRN, MOD
FRM- FRM, SNDY, DNSE, SH:
LT-MED-DRK GRY, SME RED, ABDT
BLK, ORG RCH, INCRS BLK CARB,
RGH TXT, MICA, SPLIN,

SURVEY: 4,704' MD 4,600'TVD
INC. 49.95 / AZ. 0.58



SURVEY: 4,736'
MD 4,620'TVD
INC. 52.54 / AZ. 0.47

SURVEY: 4,798'
MD 4,656'TVD INC.
.56.81 / AZ. 0.41

SURVEY: 4,862'
MD 4,688'TVD
INC. 62.0 / AZ. 0.32

SURVEY: 4,925'
MD 4,715'TVD
INC. 68.14 / AZ.359.82

LS: OFF WHT-WHT, CRM, BLKY, F-MED-XLN, SME CRSE ANG GRN, MOD FRM- FRM, SNDY, DNSE, SH: LT-MED-DRK GRY, SME RED, ABDT BLK, ORG RCH, INCRS BLK CARB, RGH TXT, MICA, SPLIN, SS: OFF WHT TO WHT, TAN, SME SL/TRNSL & TRNSP, F-MED GRN, W/CONSOL, W/CMT, SUB-RND, SUB-ANG, MOD HD TO HD

SURVEY: 4,767' MD 4,638'TVD
INC. 54.72 / AZ. 0.40

LS: OFF WHT-WHT, CRM, BLKY, F-MED-XLN, SME CRSE ANG GRN, MOD FRM- FRM, SNDY, DNSE, SH: LT-MED-DRK GRY, SME RED, ABDT BLK, ORG RCH, INCRS BLK CARB, RGH TXT, MICA, SPLIN, SS: OFF WHT TO WHT, TAN, SME SL/TRNSL & TRNSP, F-MED GRN, W/CONSOL, W/CMT, SUB-RND, SUB-ANG, MOD HD TO HD

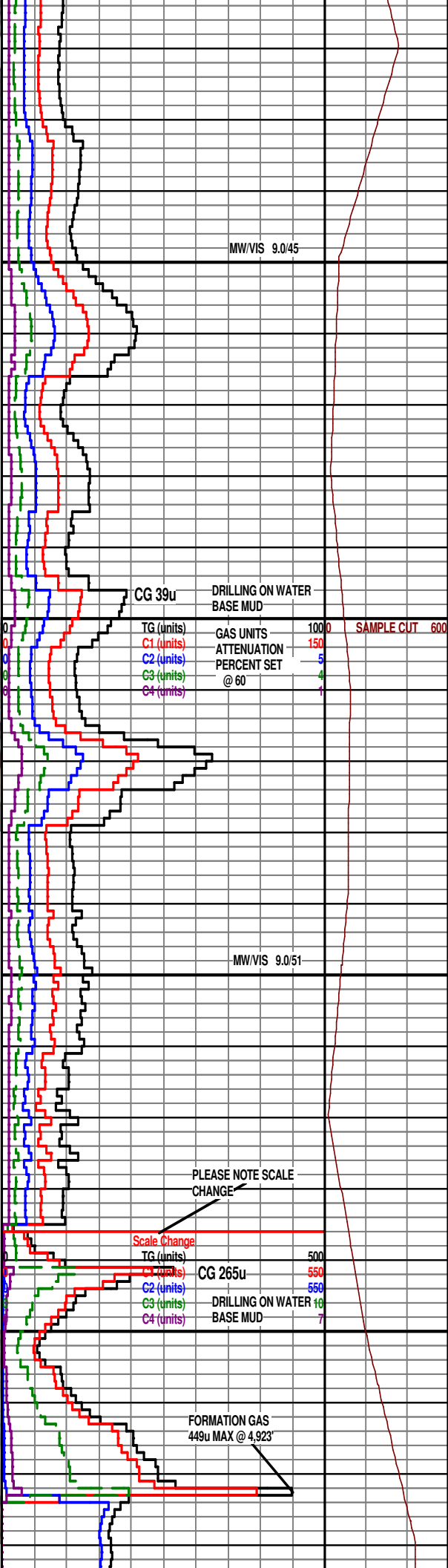
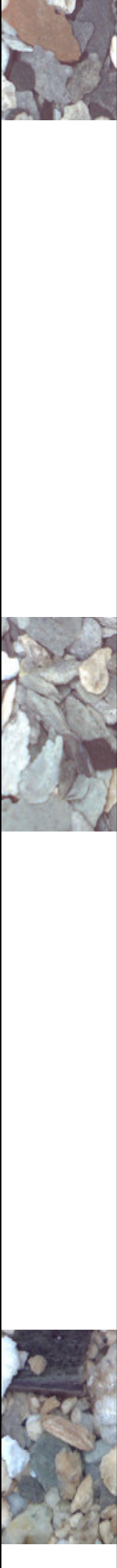
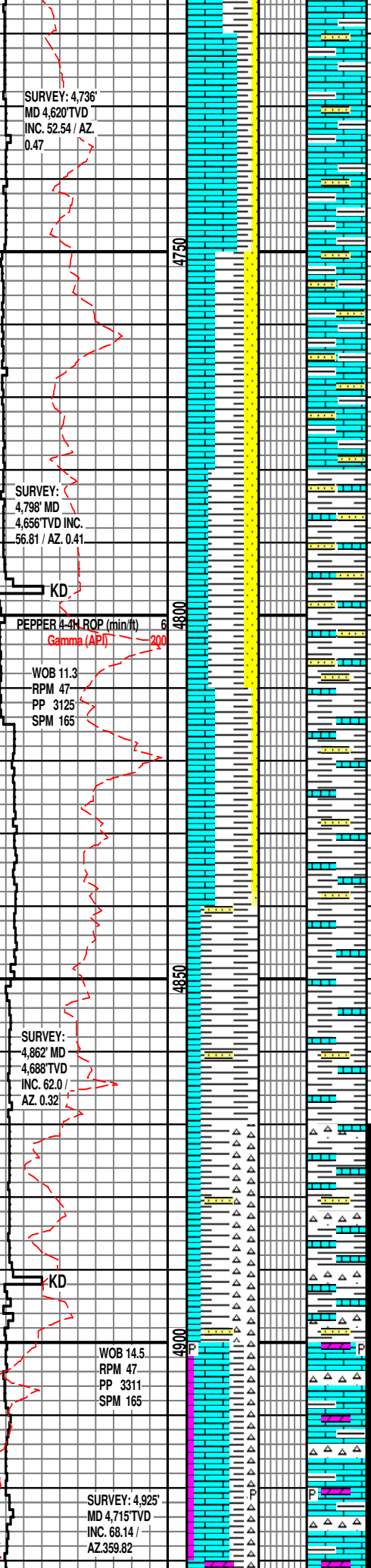
SURVEY: 4,830' MD 4,673'TVD
INC. 59.45 / AZ. 0.36

LS: SME CRM, RDISH/BRN VF/F-XLN, SME MICRO/XLN, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS FREE & EMBD PYR, THIN BLU-GRN RESD RING, WK MKY CUT

SURVEY: 4,893' MD 4,702'TVD
INC. 65.22 / AZ. 0.26

MISSISSIPPI UNCONFORMITY
4,903' MD/TVD 4,705'

LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, DOL: OFF WHT-WHT, MICRO-XLN, MOD HD. BLKY, TRS OIL

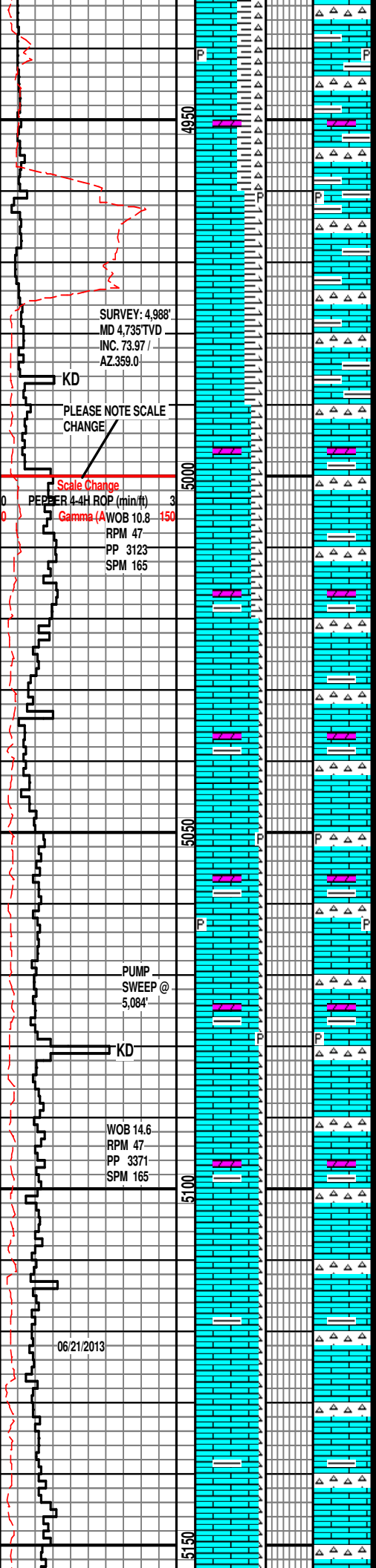


TG (units)	100	SAMPLE CUT 600
C1 (units)	150	
C2 (units)	5	
C3 (units)	4	
C4 (units)	1	

Scale Change

TG (units)	500
C1 (units)	550
C2 (units)	550
C3 (units)	550
C4 (units)	7

FORMATION GAS
449u MAX @ 4,923'



ON PITS, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS FREE & EMBD PYR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 4,956' MD 4,726'TVD
INC. 70.87 / AZ. 359.45

LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS FREE & EMBD PYR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, TRS DOL, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, TRS FREE & EMBD PYR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

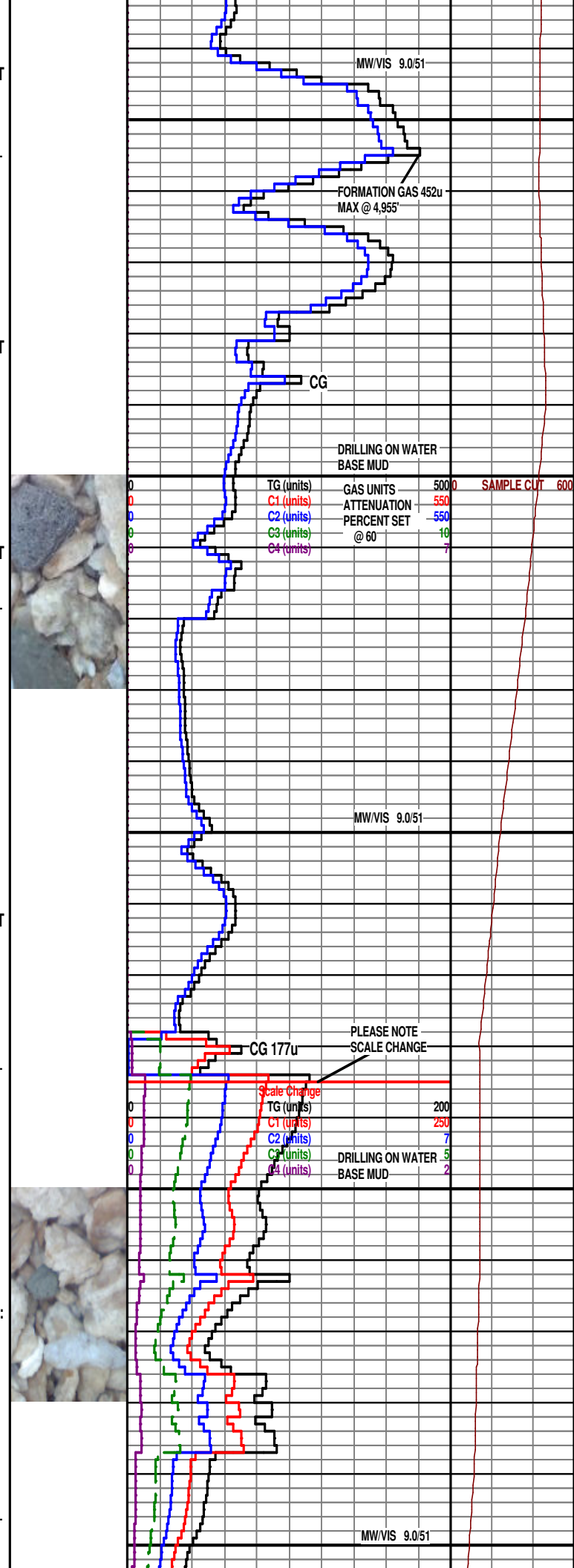
SURVEY: 5,020' MD 4,743'TVD
INC. 76.58 / AZ. 358.92

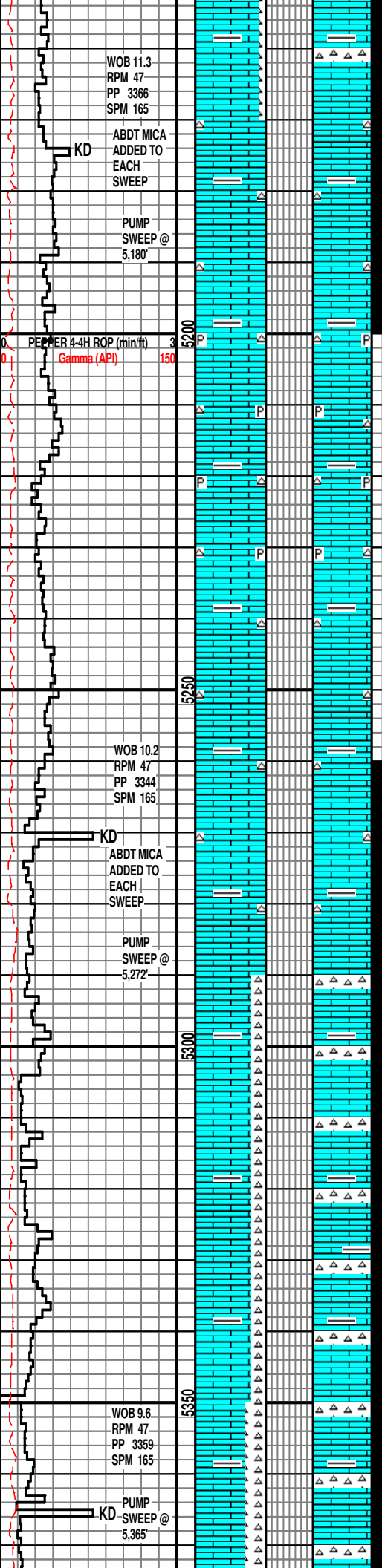
LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, TRS DOL: OFF WHT-WHT, MICRO-XLN, MOD HD, BLKY, TRS OIL ON PITS, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS FREE & EMBD PYR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 5,083' MD 4,756'TVD
INC. 81.04 / AZ. 358.17

LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, TRS DOL: OFF WHT-WHT, MICRO-XLN, MOD HD, BLKY, TRS OIL ON PITS, FALLING OUT @ 5,110' CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, THICK BLU-GRN RESD RING, FR MKY CUT

SURVEY: 5,146' MD 4,763'TVD
INC. 84.98 / AZ. 357.65





LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, TRS CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THIN BLU-GRN RESD RING, WK MKY CUT

LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO-XLN, SME MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, TRS CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, NO RING, NO CUT

SURVEY: 5,241' MD 4,771'TVD
INC. 85.10 / AZ. 357.20

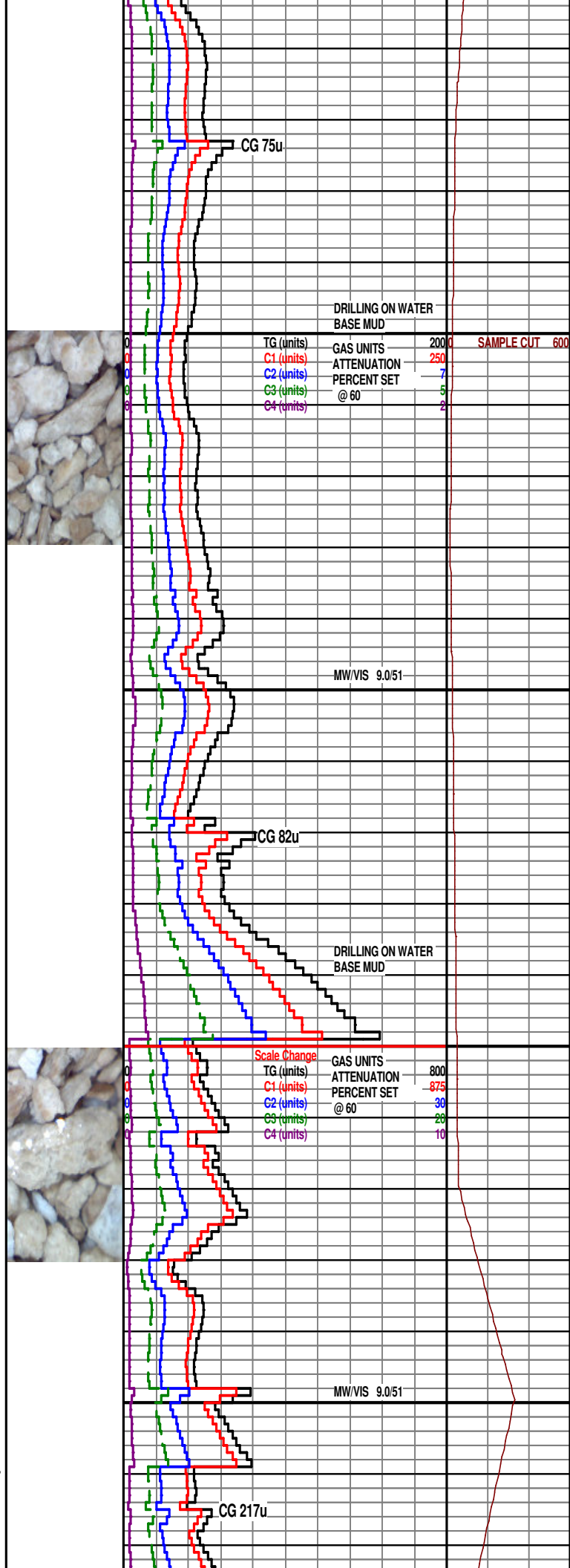
LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, TRS CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THIN BLU-GRN RESD RING, WK MKY CUT

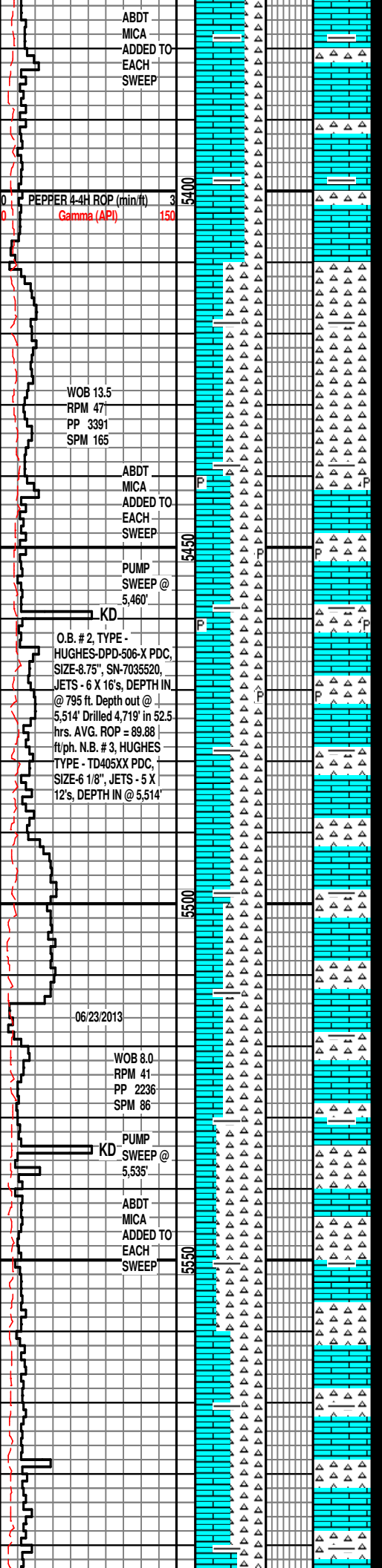
LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THIN BLU-GRN RESD RING, WK-FR MKY CUT

SURVEY: 5,336' MD 4,779'TVD
INC. 85.47 / AZ. 357.30

LS: SME CRM, RDISH/BRN VF/F-XLN, MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: SME CRM, RDISH/BRN VF/F-XLN,





SME MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THIN BLU-GRN RESD RING, WK-FR MKY CUT

LS: SME CRM, RDISH/BRN VF/F-MED-XLN, SME MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THICK BLU-GRN RESD RING, EX MKY CUT

SURVEY: 5,430' MD 4,787'TVD
INC. 85.72 / AZ. 357.25

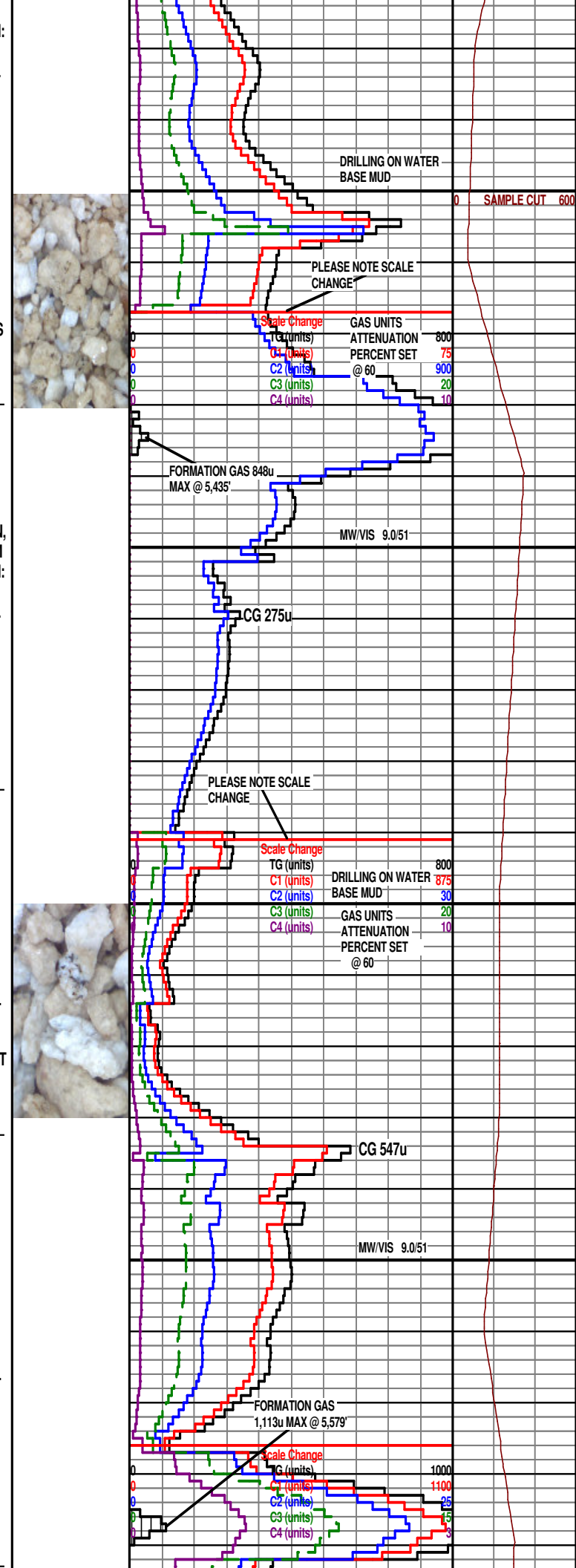
LS: SME CRM, RDISH/BRN F-MED-XLN, SME MICRO/SUC, BLKY, SL/DOL, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: SME BLK, RED, GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, OFF WHT, SL TRNSL, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, THICK BLU-GRN RESD RING, EX MKY CUT

SURVEY: 5,484' MD 4,790'TVD
INC. 88.21 / AZ. 357.25

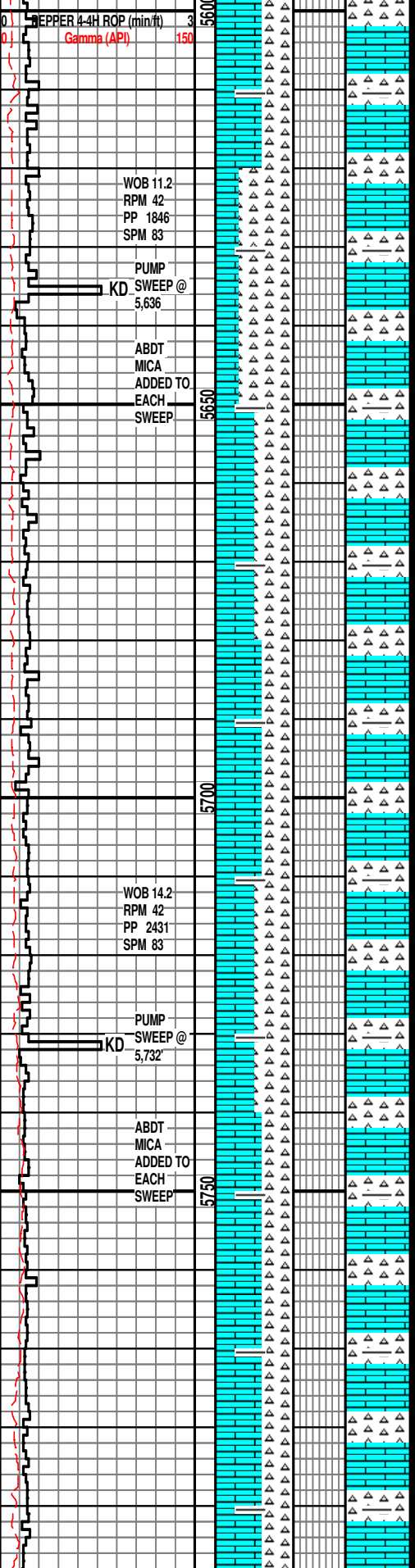
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: LT-DK GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 5,532' MD 4,790'TVD
INC. 90.69 / AZ. 356.95

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, TRS SH: LT-DK GRY, MOD FRM, RGH TXT, SPLIN, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, V/GD-EX MKY CUT



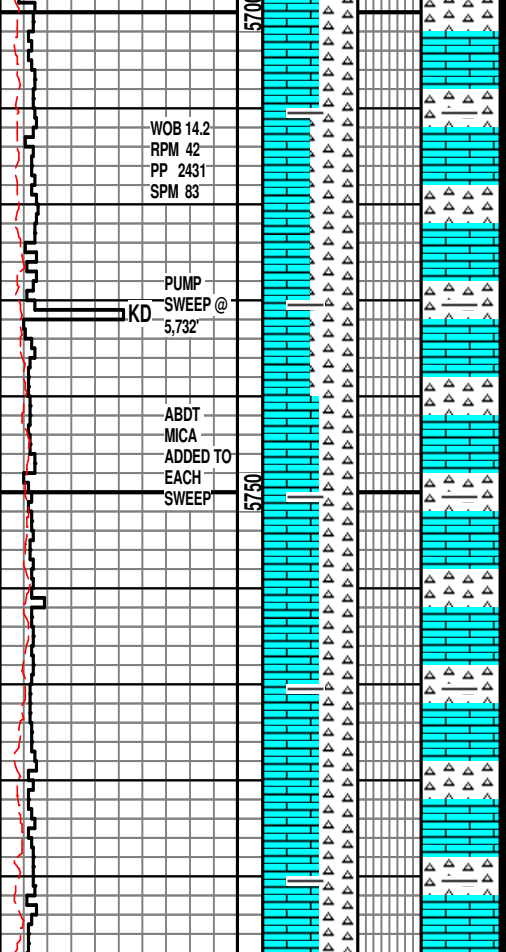
SURVEY: 5,593' MD 4,789'TVD
INC. 90.56 / AZ. 357.27



LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, TRS SH:
LT-DK GRY, MOD FRM, RGH TXT,
SPLIN, CHRT: TRIP, WTHD, OFF
WHT-WHT, MICR-XLN, MOD HD-HD, HL
FRAC, TRS OIL ON PITS,
BLUISH/GREEN FLUOR, THICK
BLU-GRN RESD RING, V/GD-EX MKY
CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, TRS SH:
LT-DK GRY, MOD FRM, RGH TXT,
SPLIN, CHRT: TRIP, WTHD, OFF
WHT-WHT, MICR-XLN, MOD HD-HD, HL
FRAC, TRS OIL ON PITS,
BLUISH/GREEN FLUOR, THICK
BLU-GRN RESD RING, FR MKY CUT

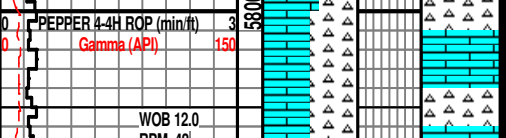
SURVEY: 5,688' MD 4,788'TVD
INC. 90.93 / AZ. 357.47



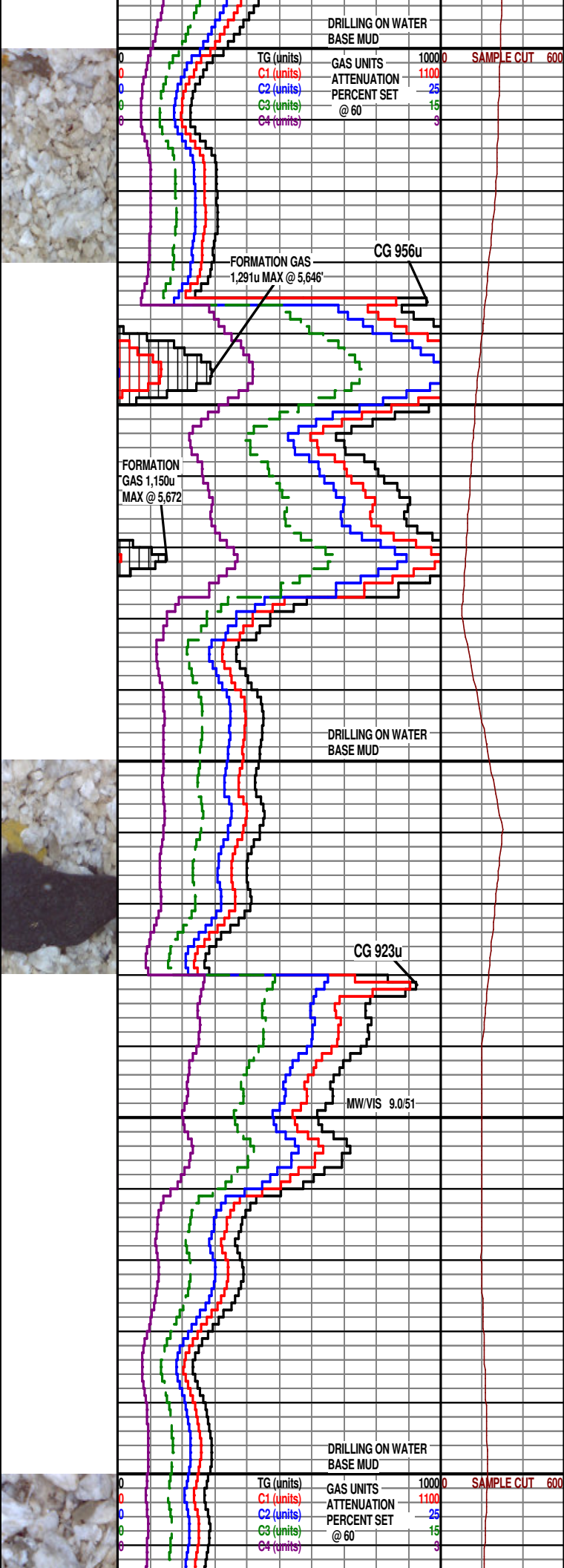
LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, TRS SH:
LT-DK GRY, MOD FRM, RGH TXT,
SPLIN, CHRT: TRIP, WTHD, OFF
WHT-WHT, MICR-XLN, MOD HD-HD, HL
FRAC, TRS OIL ON PITS,
BLUISH/GREEN FLUOR, THICK
BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, TRS SH:
LT-DK GRY, MOD FRM, RGH TXT,
SPLIN, CHRT: TRIP, WTHD, OFF
WHT-WHT, MICR-XLN, MOD HD-HD, HL
FRAC, TRS OIL ON PITS,
BLUISH/GREEN FLUOR, THICK
BLU-GRN RESD RING, FR MKY CUT

SURVEY: 5,783' MD 4,787'TVD
INC. 90.574 / AZ. 356.73



LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC. TRS



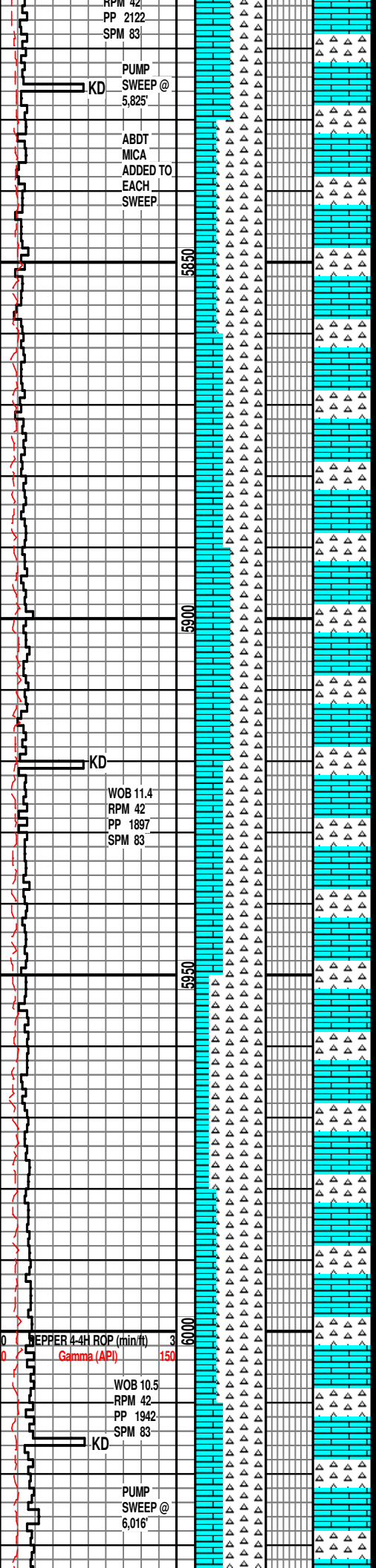
DRILLING ON WATER
BASE MUD
GAS UNITS 1000
ATTENUATION 1100
PERCENT SET 25
@ 60 15
9

SAMPLE CUT 600

DRILLING ON WATER
BASE MUD

DRILLING ON WATER
BASE MUD
GAS UNITS 1000
ATTENUATION 1100
PERCENT SET 25
@ 60 15
9

SAMPLE CUT 600



OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 5,878' MD 4,786'TVD
INC. 90.46 / AZ. 356.81

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

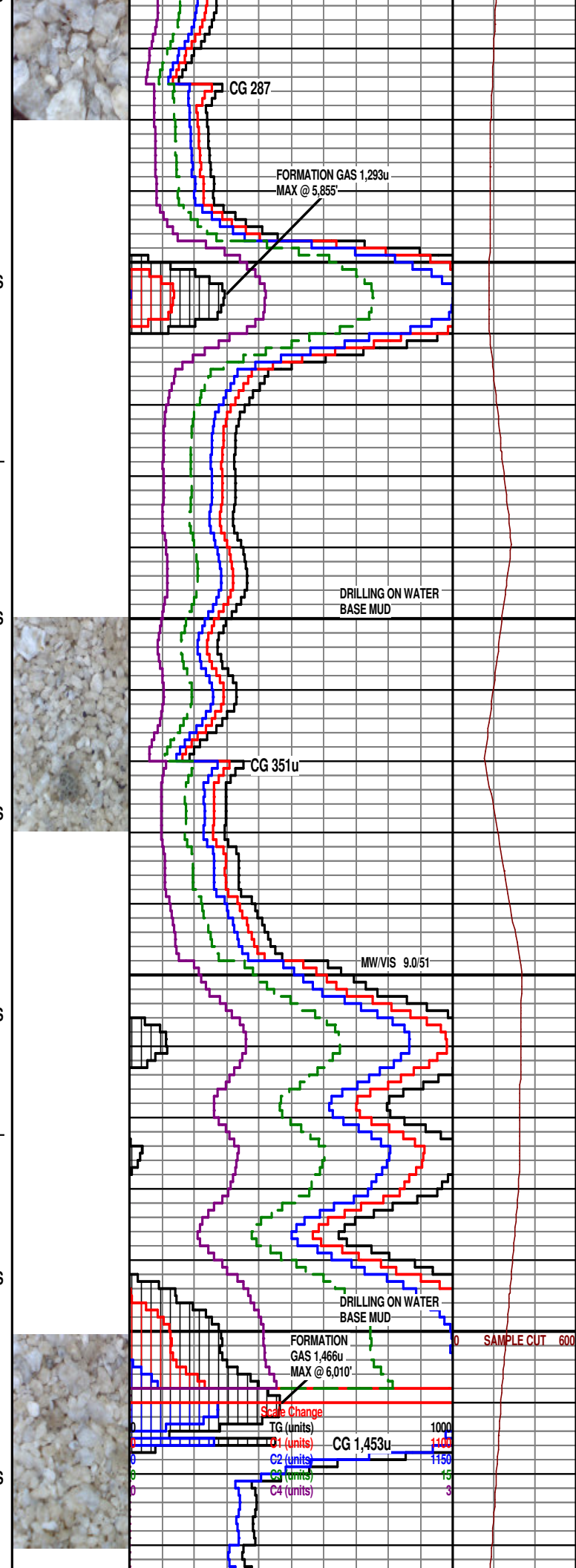
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

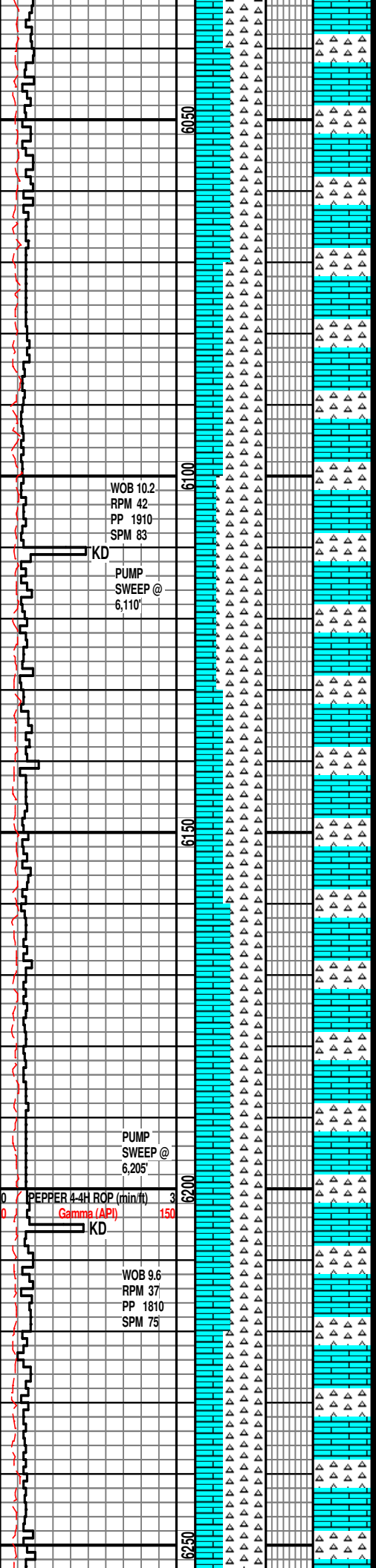
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 5,972' MD 4,785'TVD
INC. 91.04 / AZ. 358.03

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT





LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR MKY
CUT

SURVEY: 6,068' MD 4,784'TVD
INC. 90.16 / AZ. 357.83

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, GD-EX
MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, GD-EX
MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, GD MKY
CUT

SURVEY: 6,162' MD 4,783'TVD
INC. 91.02 / AZ. 357.83

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR MKY
CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR MKY
CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, GD MKY
CUT

MW/VIS 8.50/527

DEPTH @ 5,983'
MW/VIS 8.50/27
PV/YP 1/1
GELS 1/1/0
FIL/CK 100.0/2
PH/SOL 12.0/1.3
H2O/OIL 98.7/0.0
CHL 34,000
HD 1200

DRILLING ON WATER
BASE MUD

CG 1,550u

FORMATION GAS 1,389u
MAX @ 6,135'

MW/VIS 8.50/527

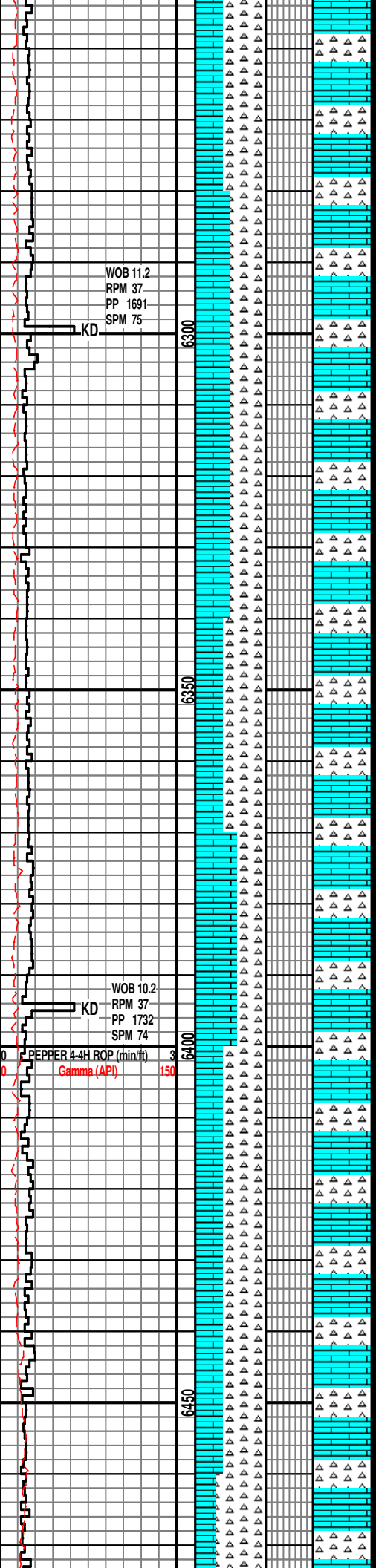
DRILLING ON WATER
BASE MUD

TG (units) 1000
C1 (units) 1100
C2 (units) 1150
C3 (units) 15
C4 (units) 3

CG 420u

SAMPLE CUT 600

MW/VIS 9.0/51



SURVEY: 6,257' MD 4,781'TVD
INC. 91.02 / AZ. 357.96

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, GD MKY
CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR MKY
CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR MKY
CUT

SURVEY: 6,352' MD 4,779'TVD
INC. 91.66 / AZ. 359.77

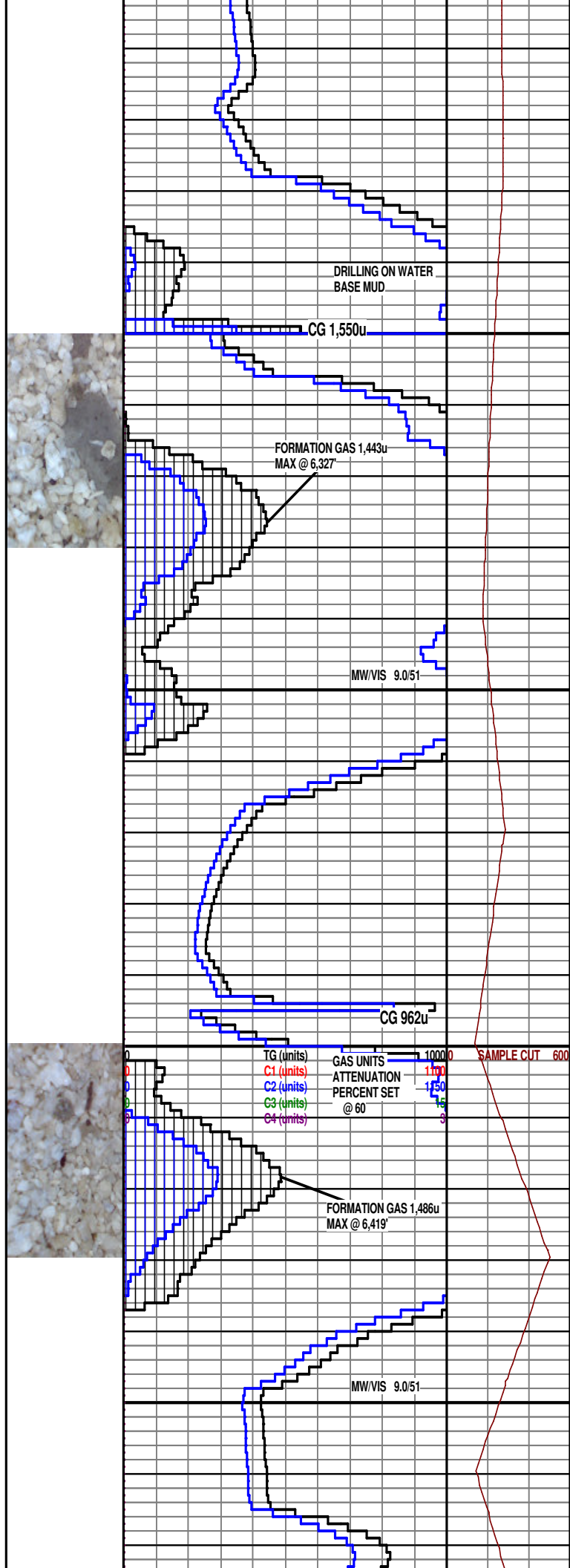
LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THIN BLU-GRN RESD RING, WK-FR
MKY CUT

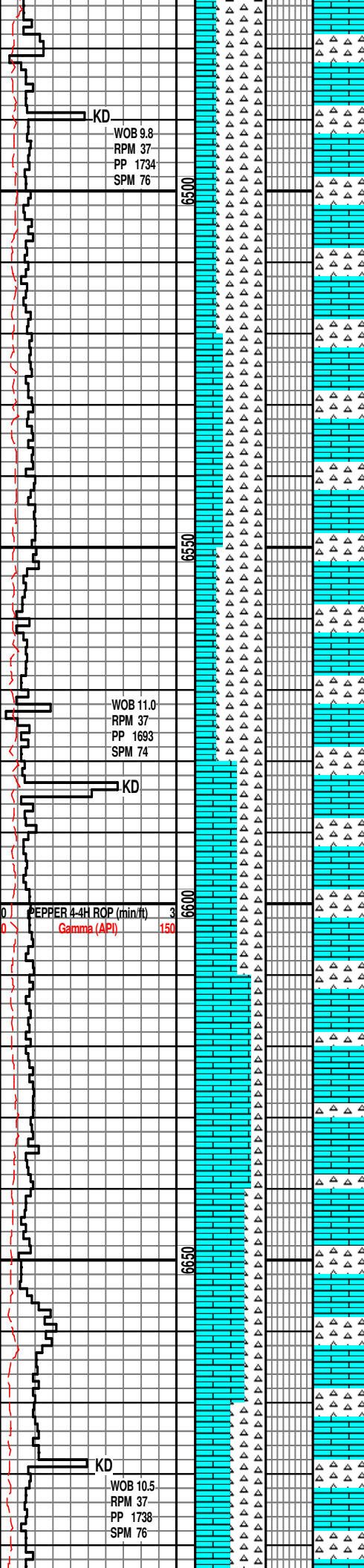
LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR-GD
MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR,
THICK BLU-GRN RESD RING, FR-GD
MKY CUT

SURVEY: 6,446' MD 4,776'TVD
INC. 92.16 / AZ. 359.12

LS: OFF WHT, LT BRN, F-MED-XLN,
SME MICRO/XLN, BLKY, FRM TO
SL/BRIT, TRS OIL ON PITS, CHRT:
TRIP, WTHD, OFF WHT-WHT,
MICR-XLN, MOD HD-HD, HL FRAC, TRS
OIL ON PITS, BLUISH/GREEN FLUOR.





THICK BLU-GRN RESD RING, GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 6,541' MD 4,773'TVD
INC. 91.42 / AZ. 358.70

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

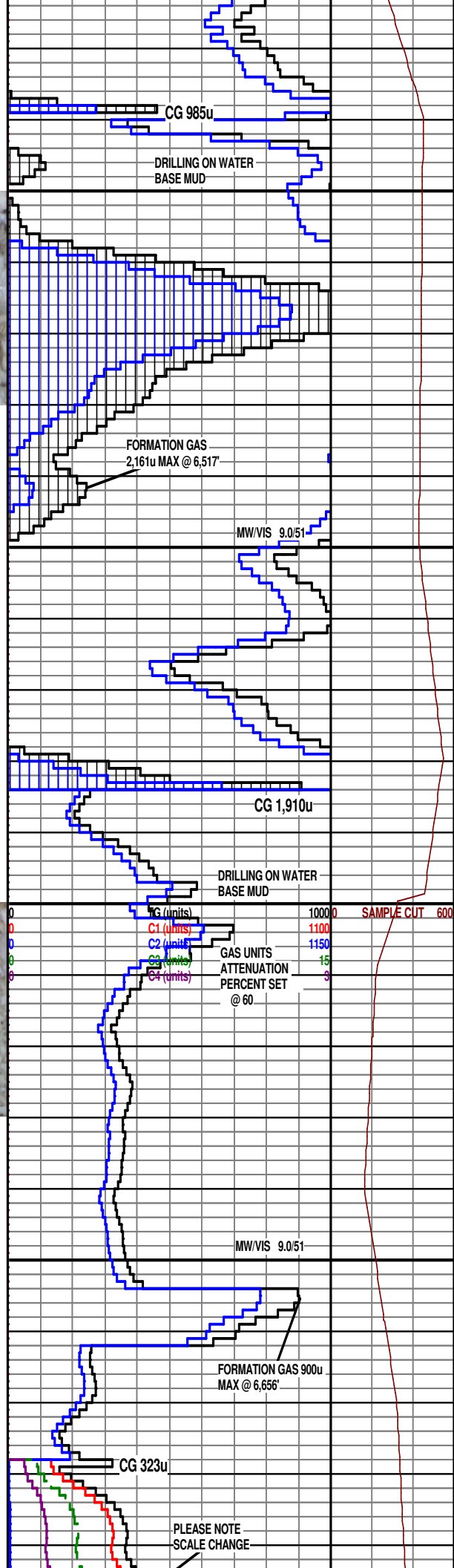
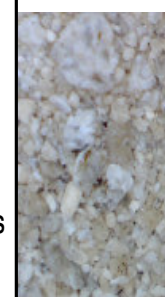
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

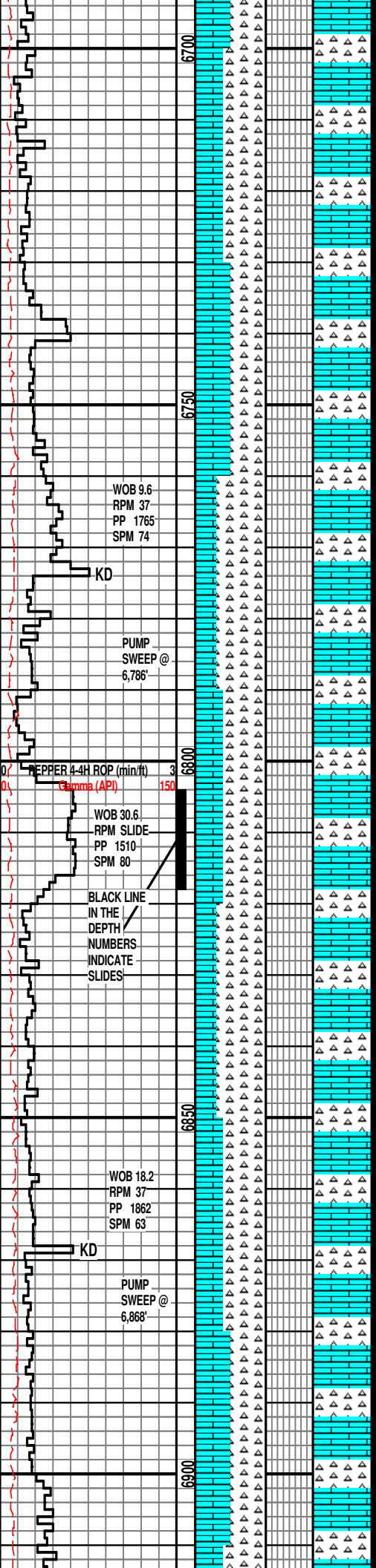
SURVEY: 6,635' MD 4,771'TVD
INC. 90.43 / AZ. 357.81

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT



SAMPLE CUT 600



LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 6,730' MD 4,771'TVD
INC. 89.57 / AZ. 357.34

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

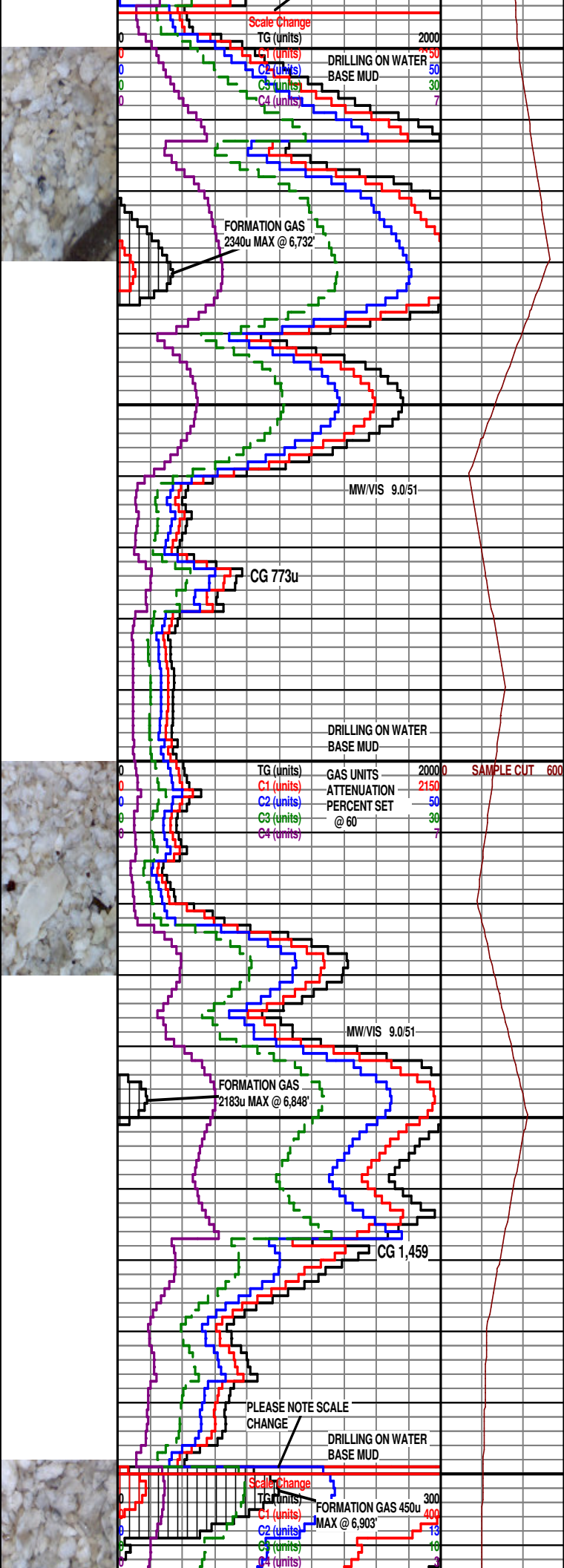
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

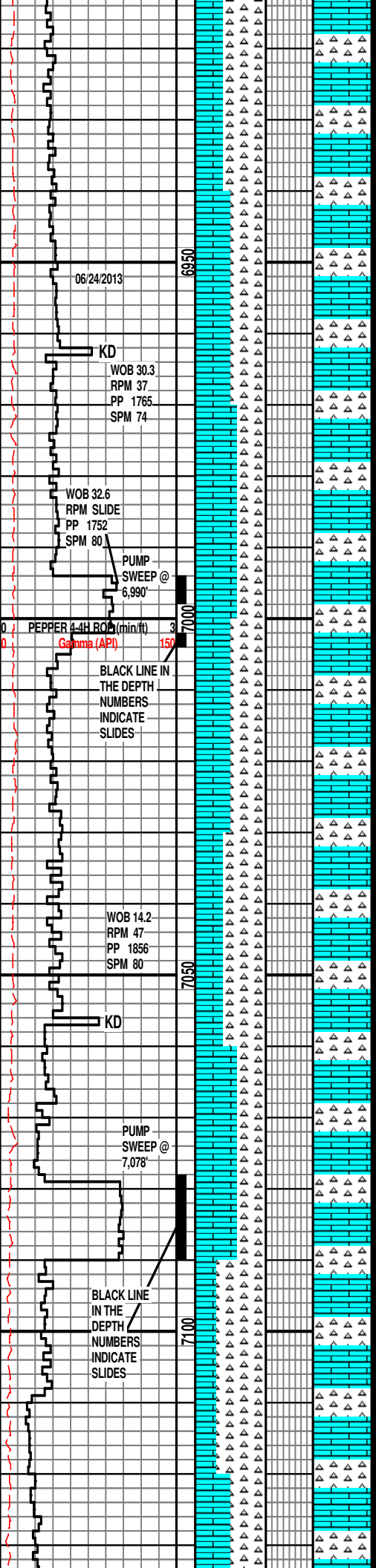
SURVEY: 6,825' MD 4,772'TVD
INC. 89.81 / AZ. 358.45

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT





SURVEY: 6,920' MD 4,772'TVD
INC. 90.00 / AZ. 358.68

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 7,014' MD 4,769'TVD
INC. 93.63 / AZ. 358.01

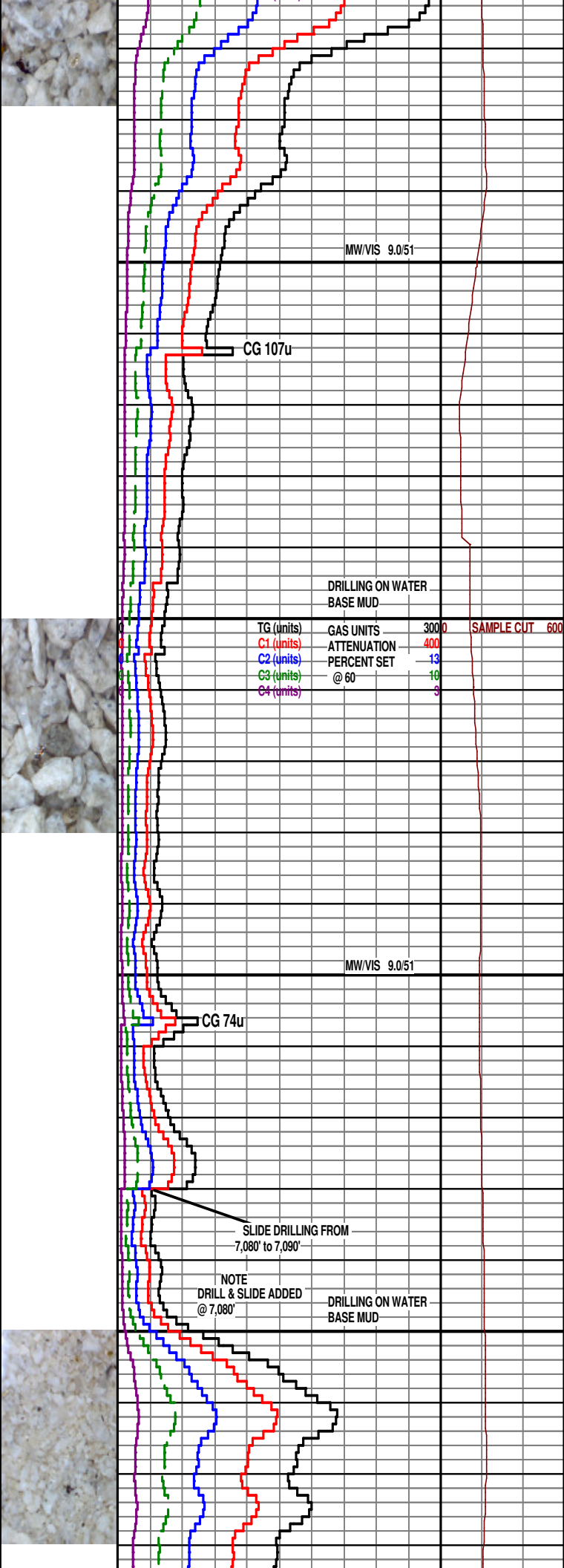
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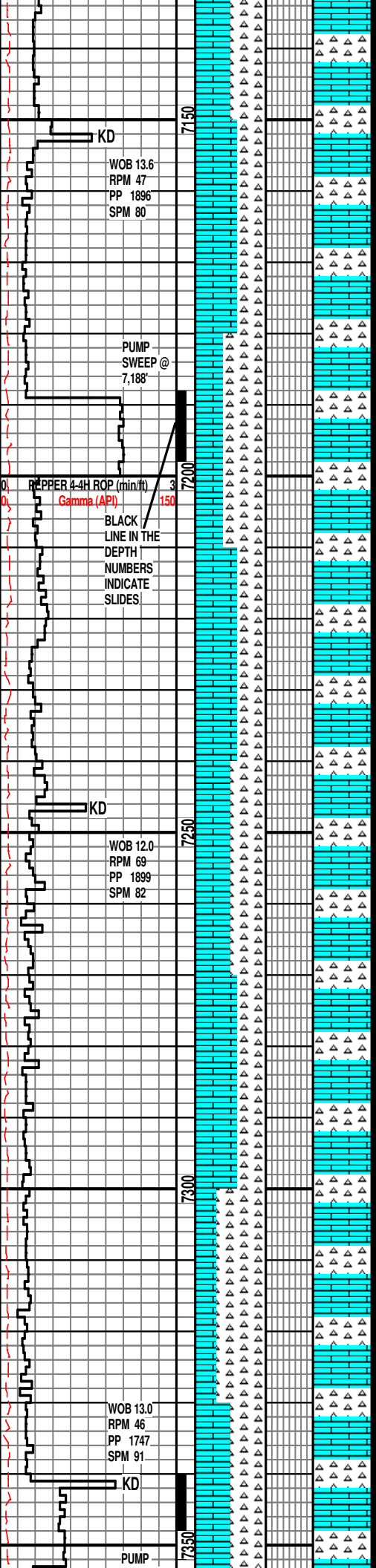
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 7,109' MD 4,764'TVD
INC. 92.66 / AZ. 357.25

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT





LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 7,204' MD 4,759'TVD
INC. 92.80 / AZ. 357.34

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

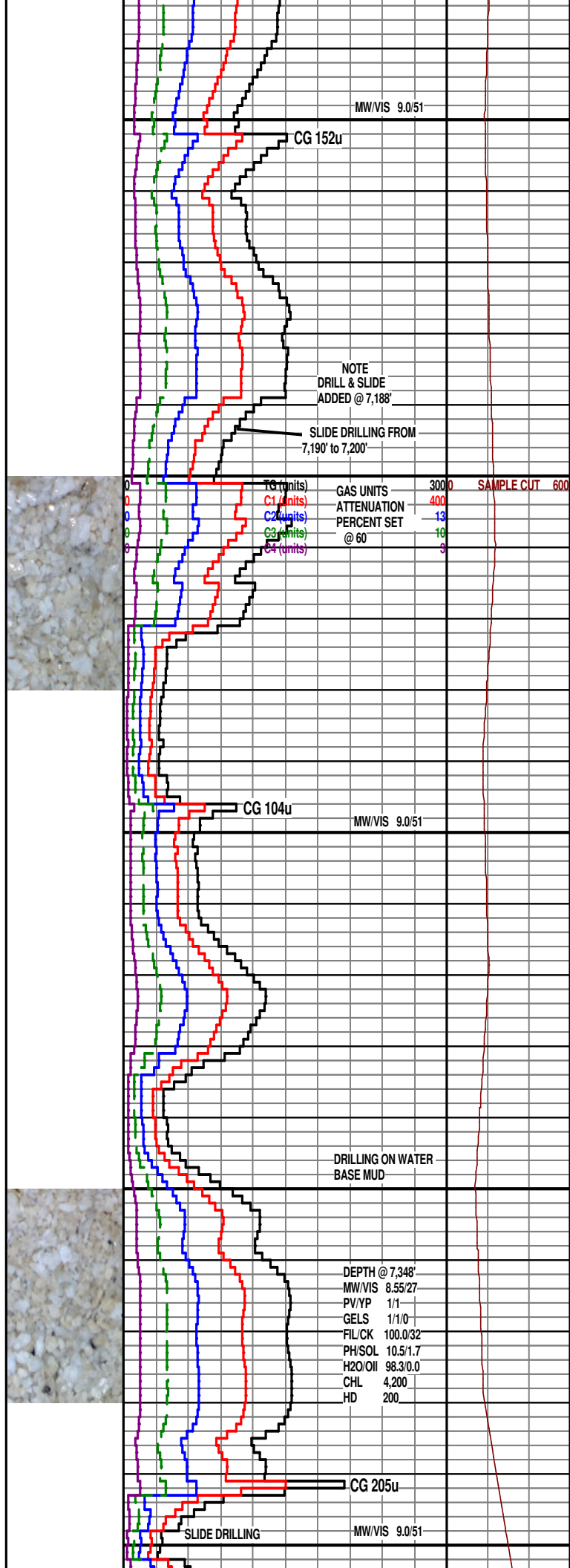
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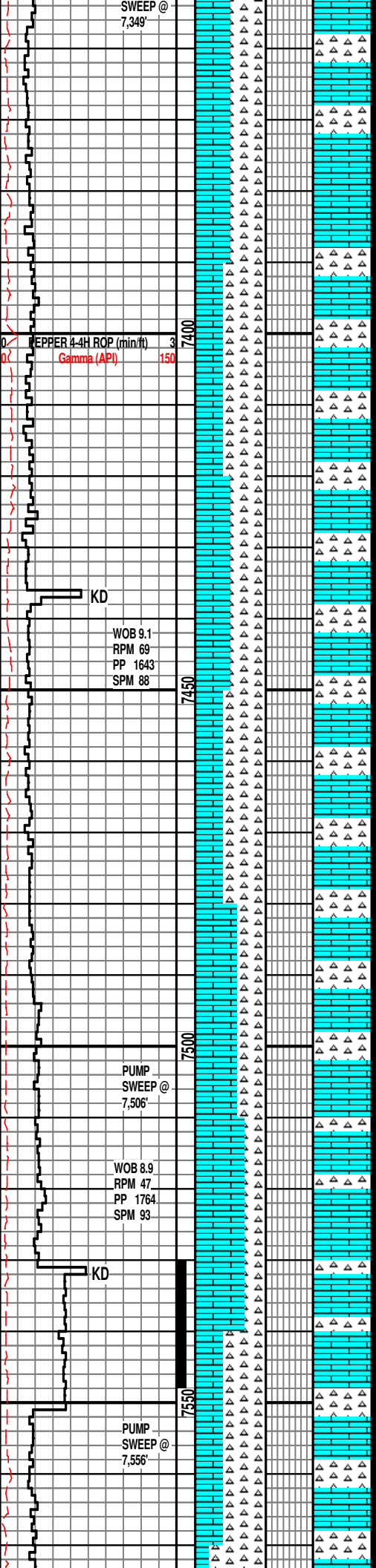
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

SURVEY: 7,299' MD 4,755'TVD
INC. 92.61 / AZ. 357.39

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT





SURVEY: 7,362' MD 4,752'TVD
INC. 91.50 / AZ. 357.93

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 7,394' MD 4,751'TVD
INC. 91.57 / AZ. 356.87

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

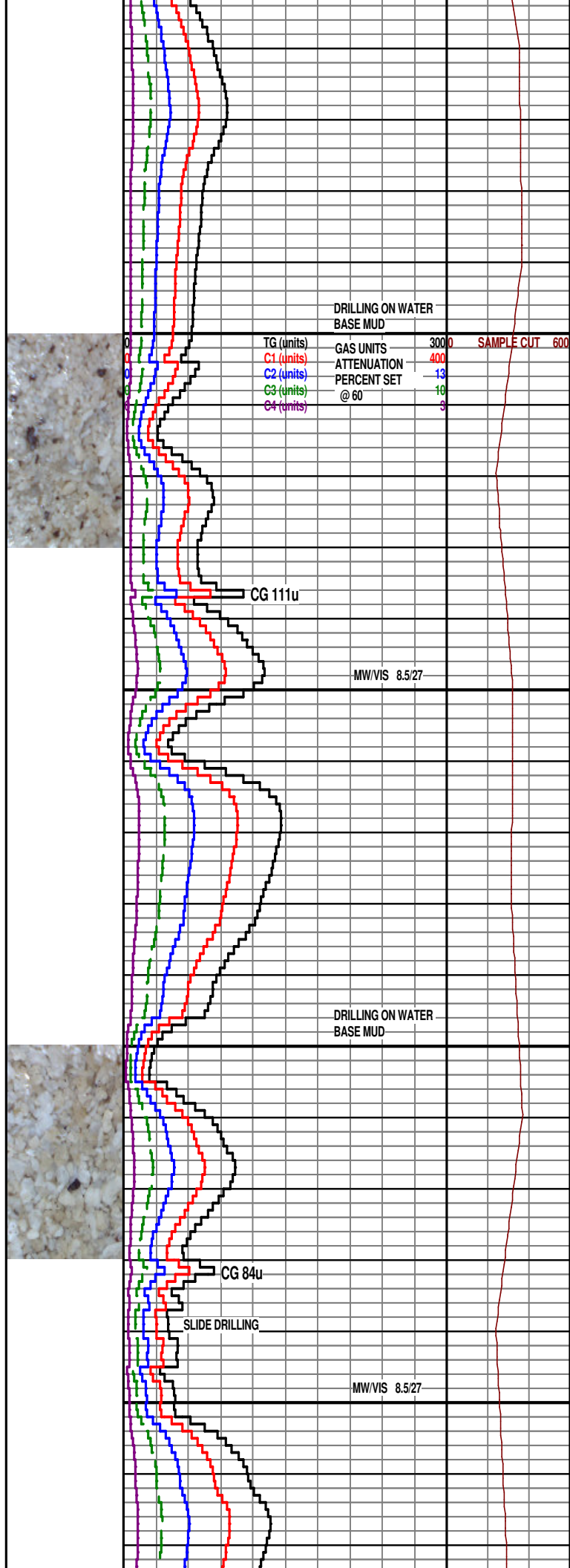
SURVEY: 7,489' MD 4,748'TVD
INC. 92.50 / AZ. 356.92

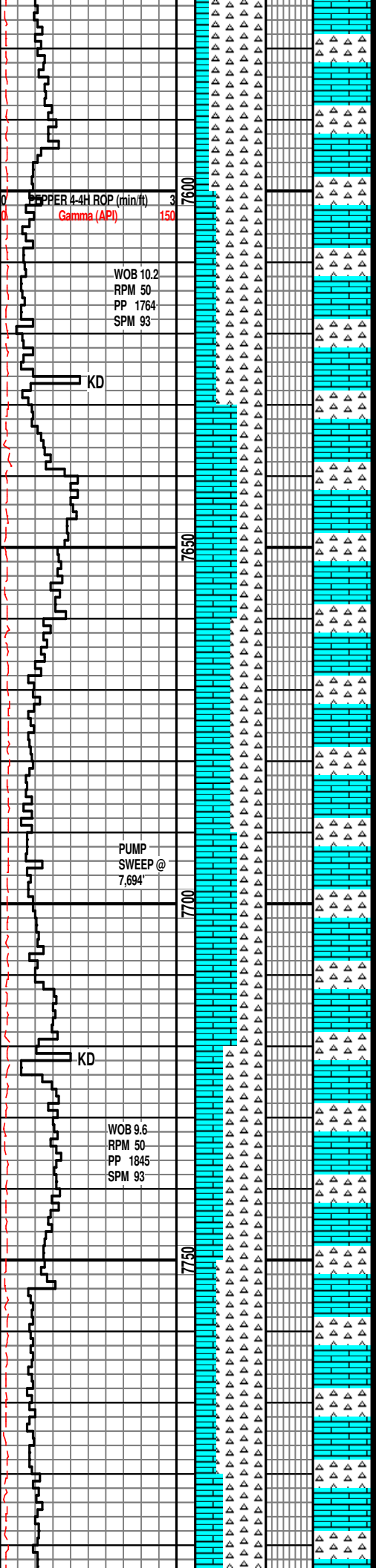
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LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 7,552' MD 4,747'TVD
INC. 90.25 / AZ. 358.01

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS





OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 7,584' MD 4,746'TVD
INC. 91.21 / AZ. 358.34

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

SURVEY: 7,679' MD 4,745'TVD
INC. 90.40 / AZ. 358.35

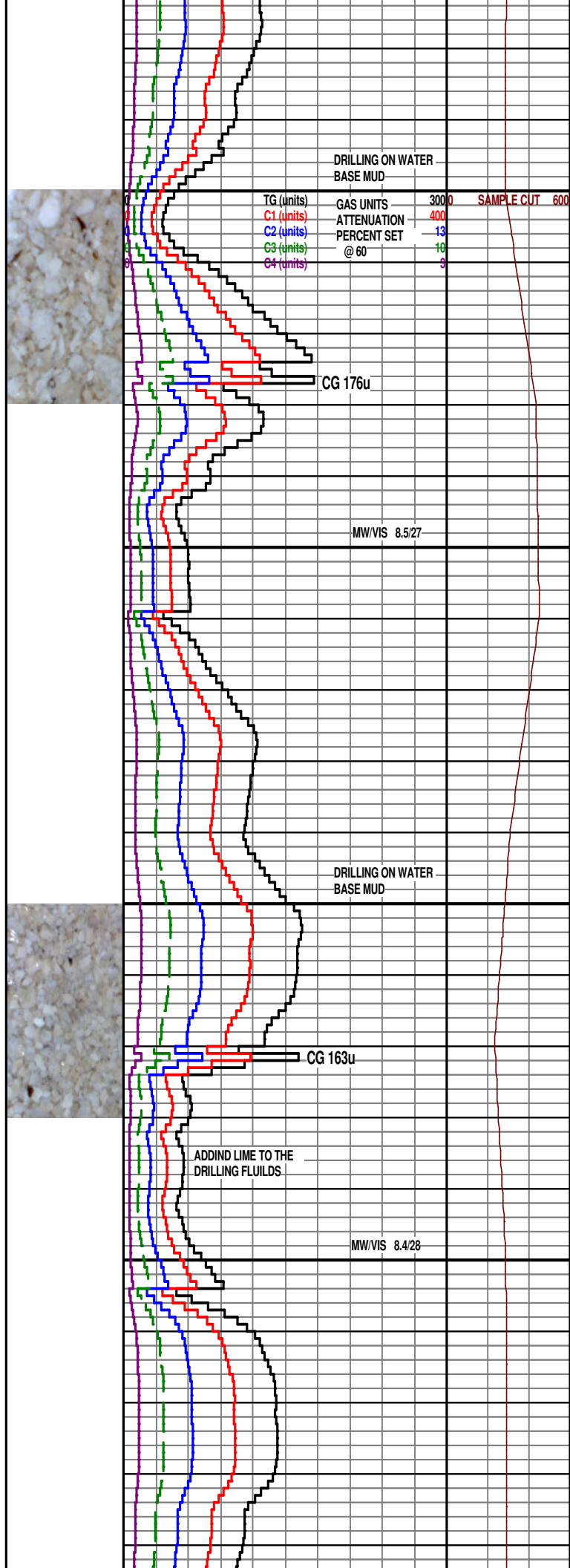
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LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 7,774' MD 4,744'TVD
INC. 90.37 / AZ. 357.80

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT,



DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	3000	SAMPLE CUT	600
C1 (units)	ATTENUATION	400		
C2 (units)	PERCENT SET	13		
C3 (units)	@ 60	10		
C4 (units)		9		

CG 176u

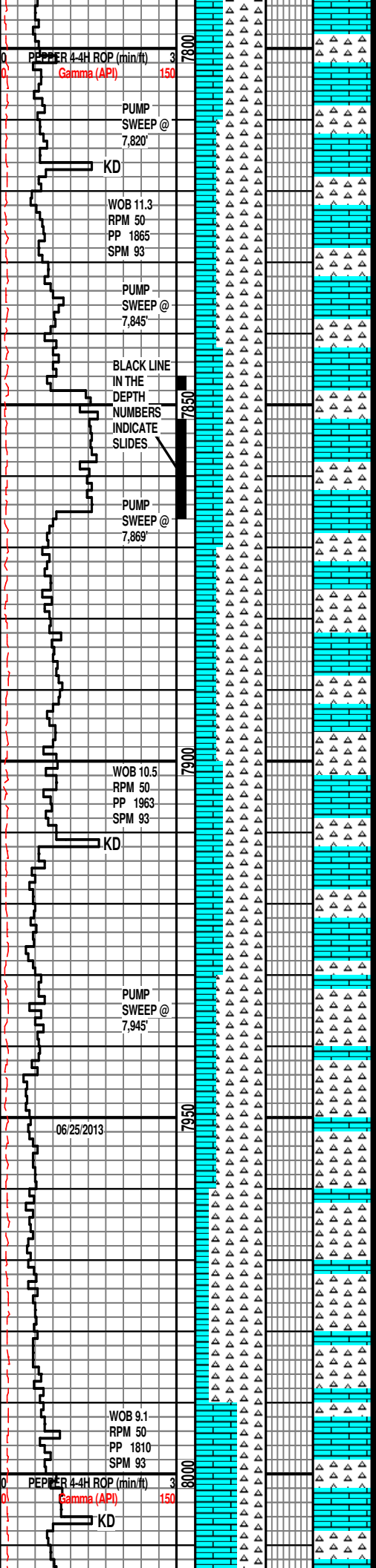
MW/VIS 8.5/27

DRILLING ON WATER
BASE MUD

CG 163u

ADDIND LIME TO THE
DRILLING FLUIDS.

MW/VIS 8.4/28



MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 7,869' MD 4,745'TVD INC. 89.20 / AZ. 357.80

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

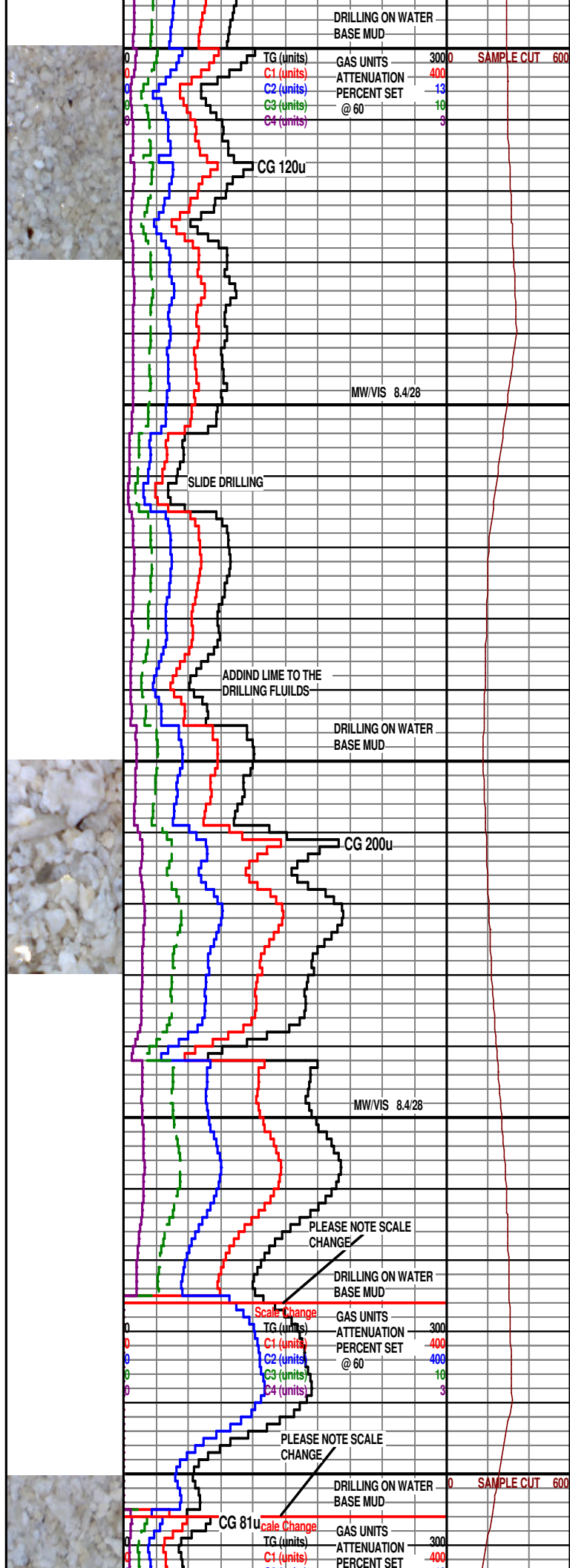
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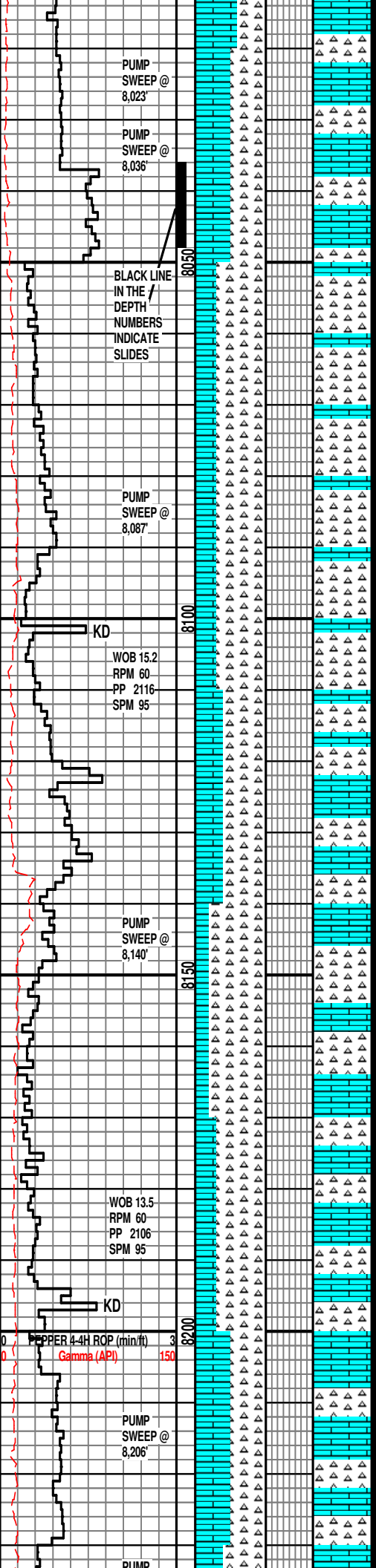
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SURVEY: 7,964' MD 4,746'TVD INC. 89.11 / AZ. 357.73

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT





MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

SURVEY: 8,059' MD 4,748'TVD
INC. 88.11 / AZ. 358.45

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

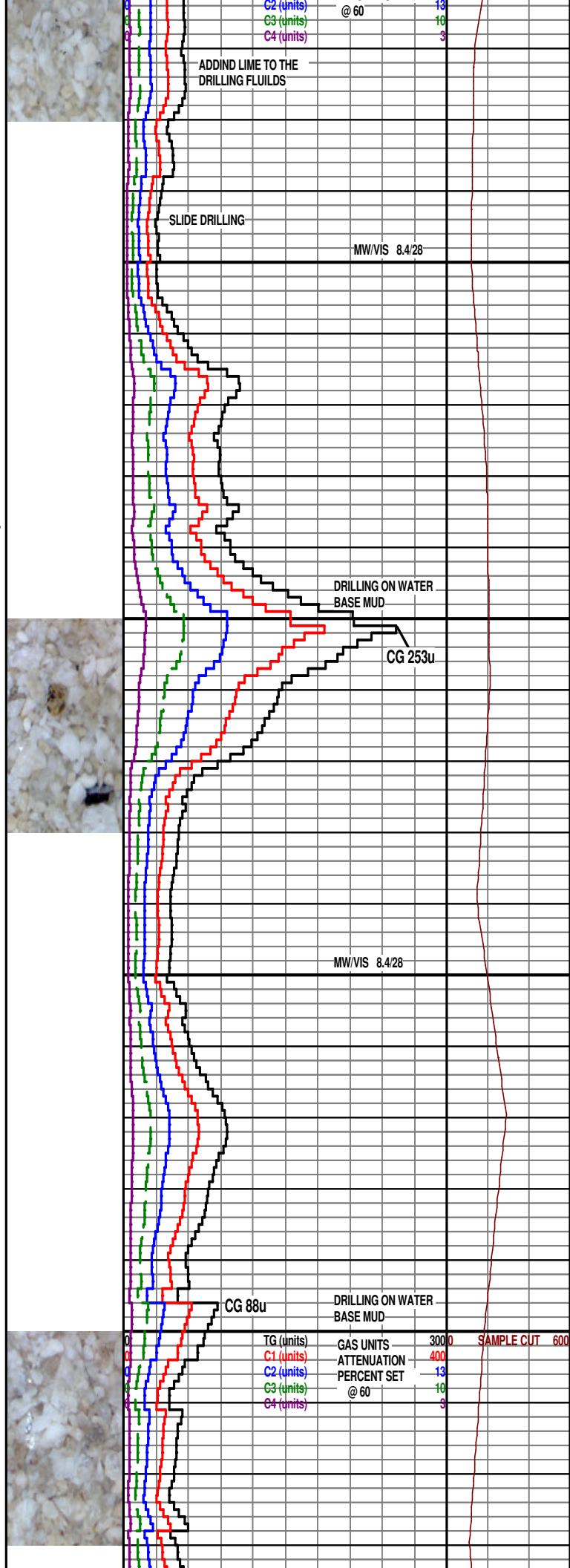
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

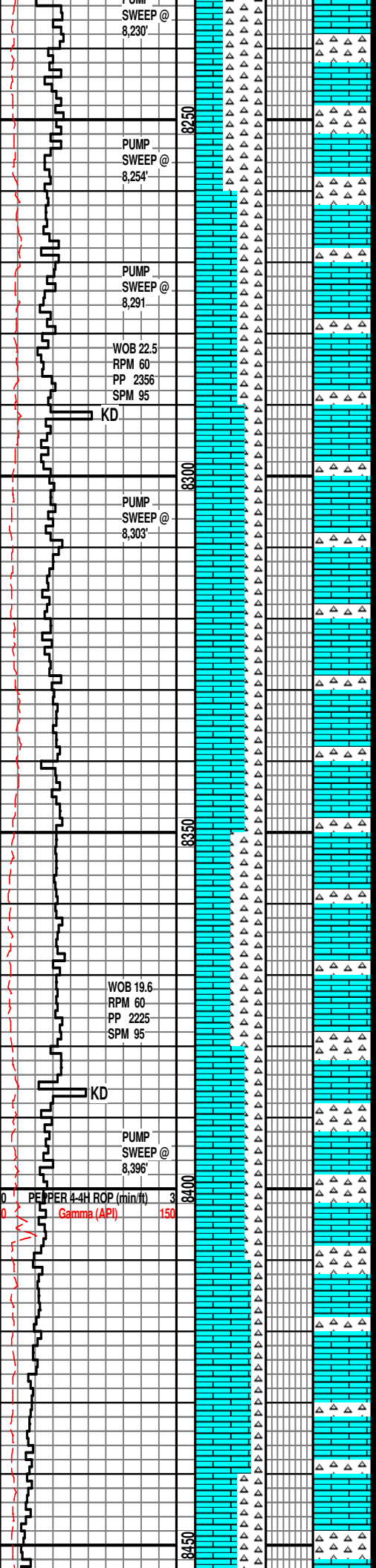
SURVEY: 8,153' MD 4,751'TVD
INC. 88.18 / AZ. 358.40

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD,





HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 8,249' MD 4,754'TVD INC. 88.64 / AZ. 358.38

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

SURVEY: 8,344' MD 4,756'TVD INC. 88.63 / AZ. 358.27

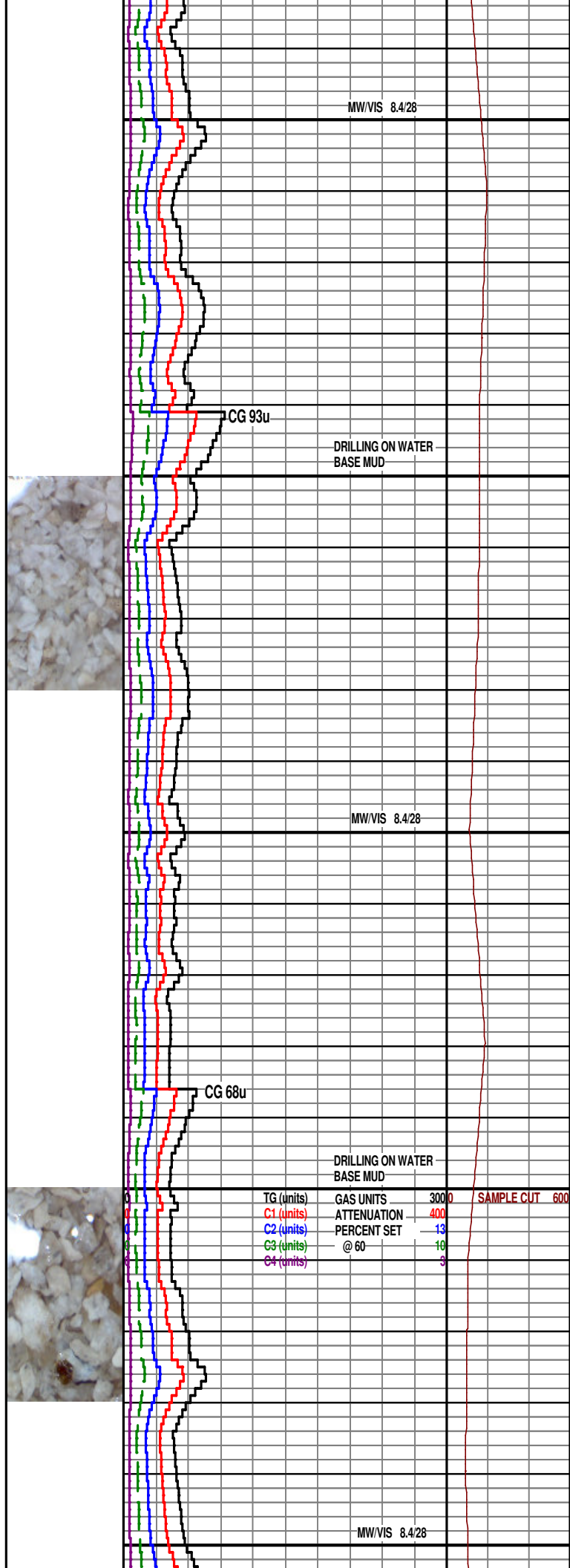
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, WEAK-FAIR MKY CUT

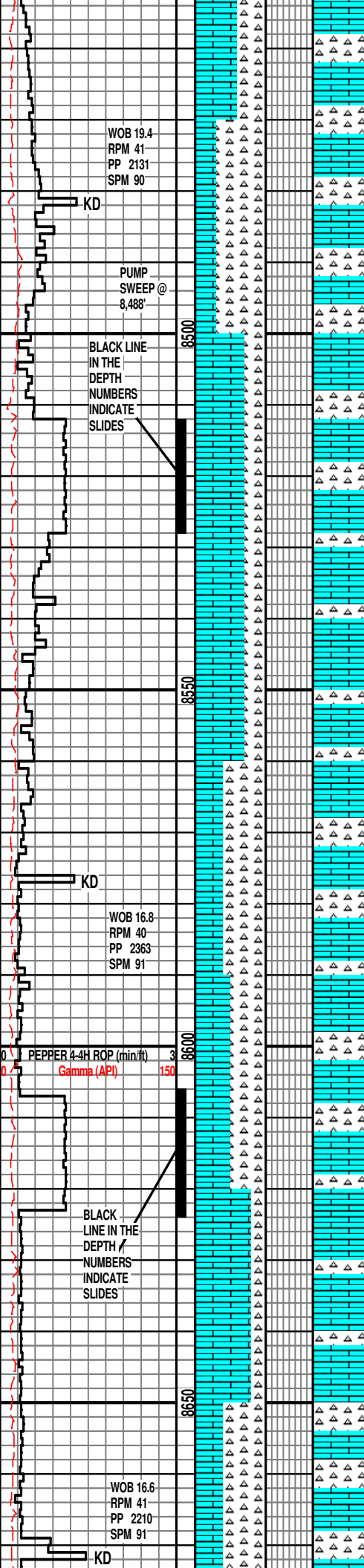
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, WK MKY CUT

SURVEY: 8,439' MD 4,759'TVD INC. 87.54 / AZ. 357.85

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, WK MKY CUT



TG (units)	GAS UNITS	300	SAMPLE CUT	600
C1 (units)	ATTENUATION	400		
C2 (units)	PERCENT SET	13		
C3 (units)	@ 60	10		
C4 (units)		9		



SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, WEAK-FAIR MKY CUT

SURVEY: 8,534' MD 4,763'TVD INC. 88.16 / AZ. 358.20

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, WEAK-FAIR MKY CUT

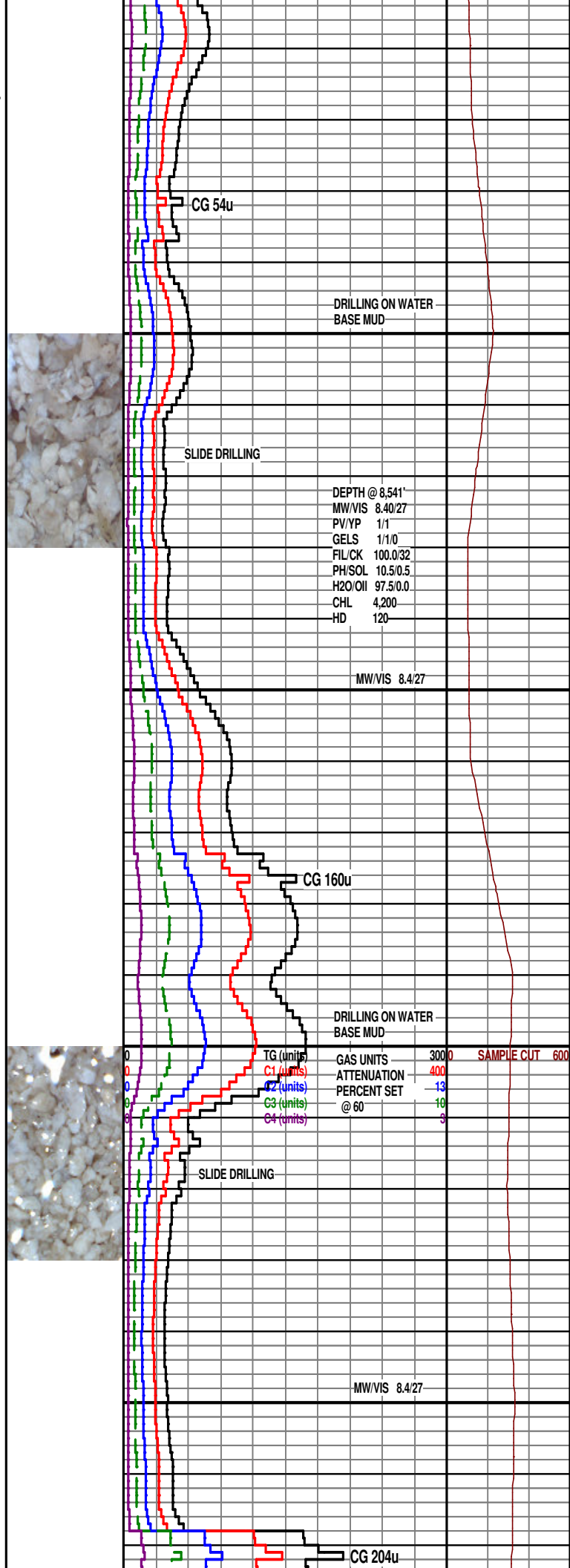
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, FAIR MKY CUT

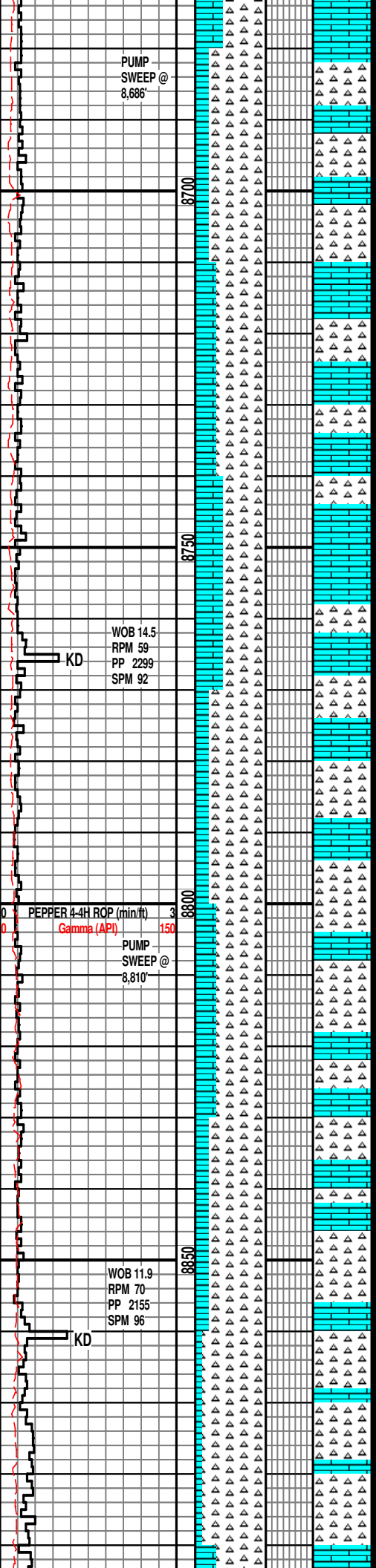
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 8,628' MD 4,765'TVD INC. 89.23 / AZ. 358.02

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, TRS OIL ON PITS, CHRT:





TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

SURVEY: 8,723' MD 4,765'TVD
INC. 90.55 / AZ. 358.77

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, FR MKY CUT

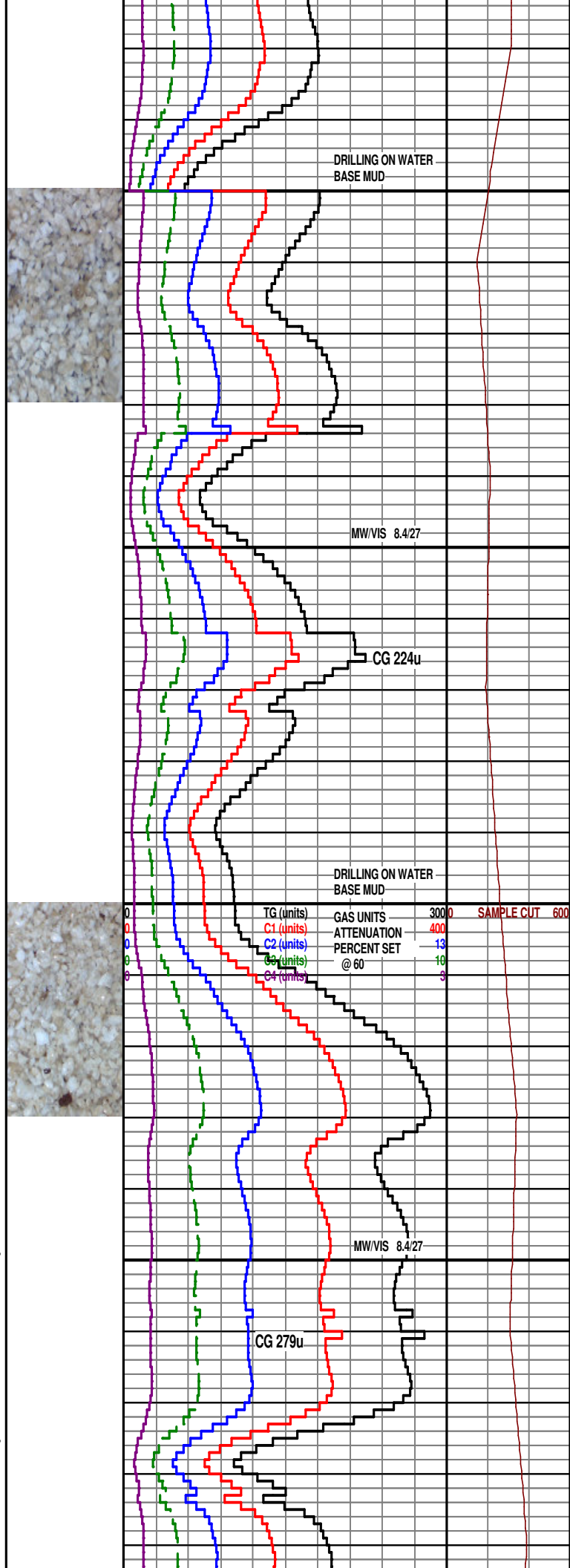
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, SL/TRS BLK SHALE, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THIN BLU-GRN RESD RING, FR MKY CUT

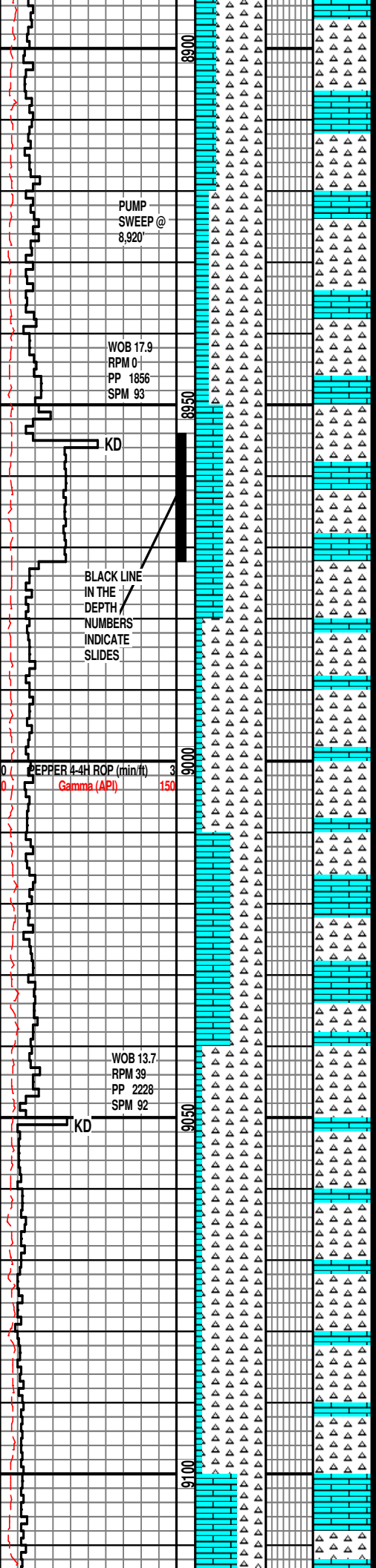
SURVEY: 8,818' MD 4,763'TVD
INC. 92.01 / AZ. 359.77

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF





WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, TRS OIL ON PITS, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

SURVEY: 8,913' MD 4,760'TVD INC. 92.02 / AZ. 0.15

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 9,007' MD 4,759'TVD INC. 88.67 / AZ. 357.98

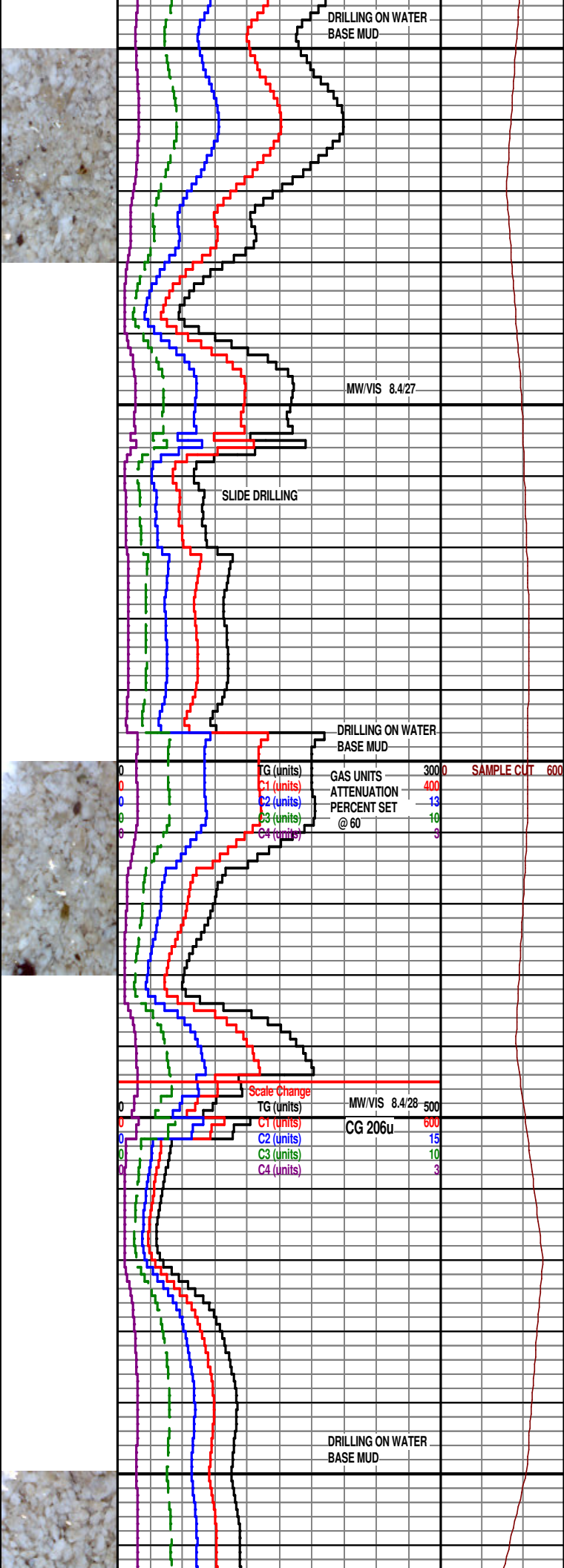
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

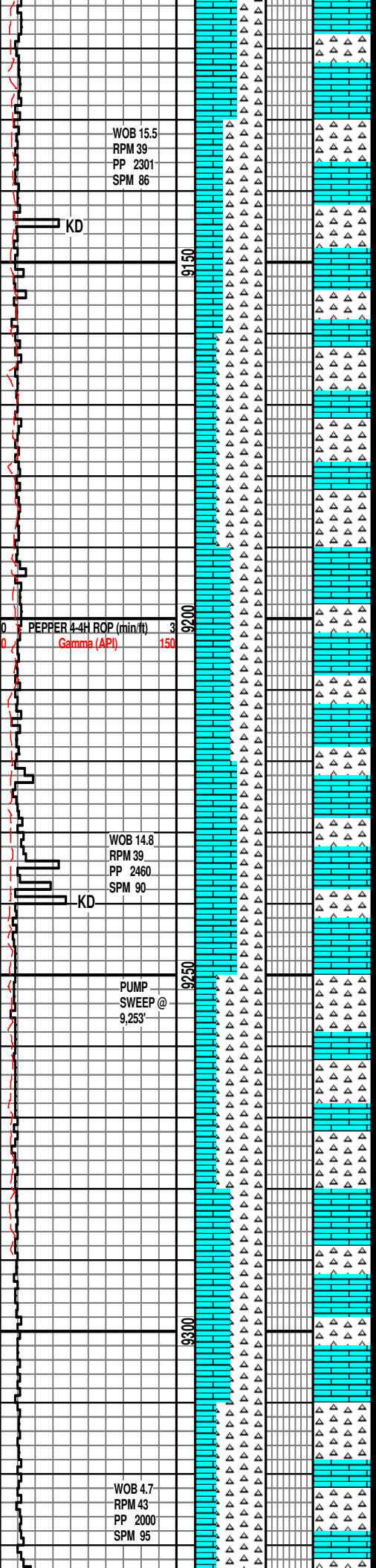
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 9,102' MD 4,761'TVD INC. 88.73 / AZ. 358.41

LS: OFF WHT, LT BRN, F-MED-XLN,





SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, FR-GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD MKY CUT

SURVEY: 9,197' MD 4,764'TVD
INC. 88.72 / AZ. 358.96

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

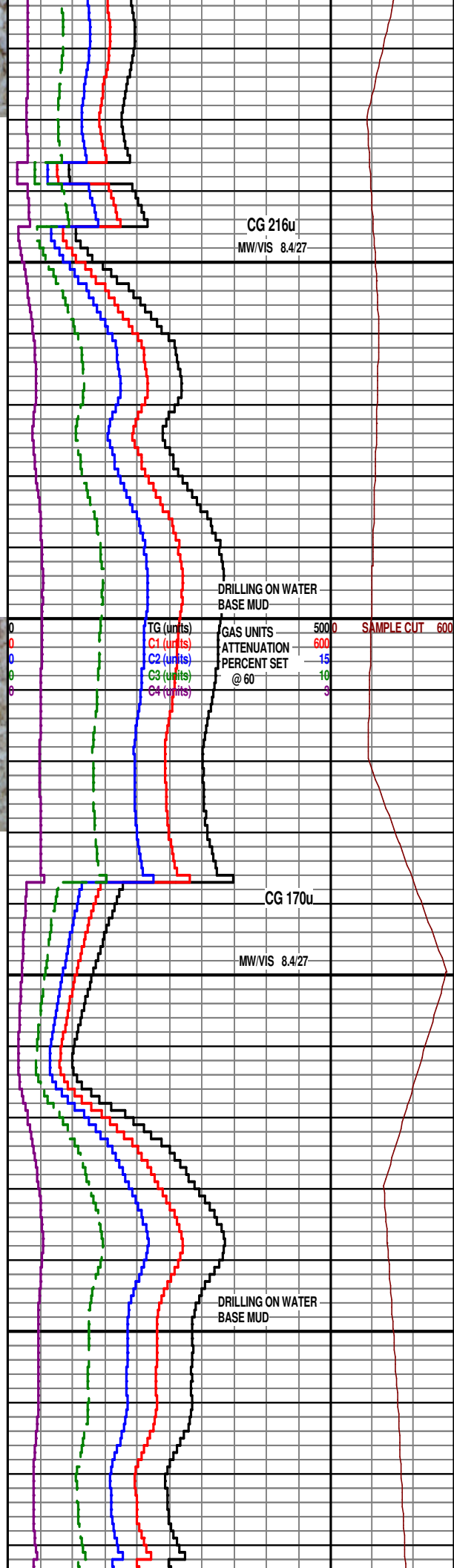
LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

SURVEY: 9,292' MD 4,766'TVD
INC. 88.10 / AZ. 357.39

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT

LS: OFF WHT, LT BRN, F-MED-XLN, SME MICRO/XLN, BLKY, FRM TO SL/BRIT, CHRT: TRIP, WTHD, OFF WHT-WHT, MICR-XLN, MOD HD-HD, HL FRAC, BLUISH/GREEN FLUOR, THICK BLU-GRN RESD RING, GD-EX MKY CUT



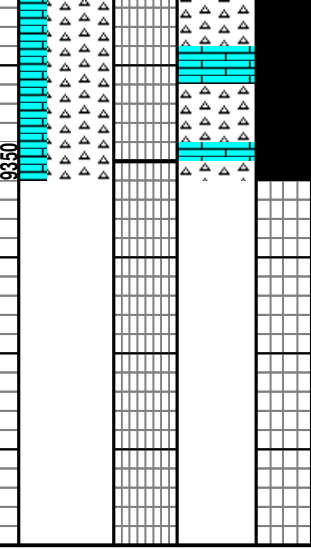
KD

WELL T.D. @ 9,352'
 M.D./T.V.D. 5,516' @ 21:30
 Hrs. ON THE
 06/25/2013

PUMP
 SWEEP @
 9,352'

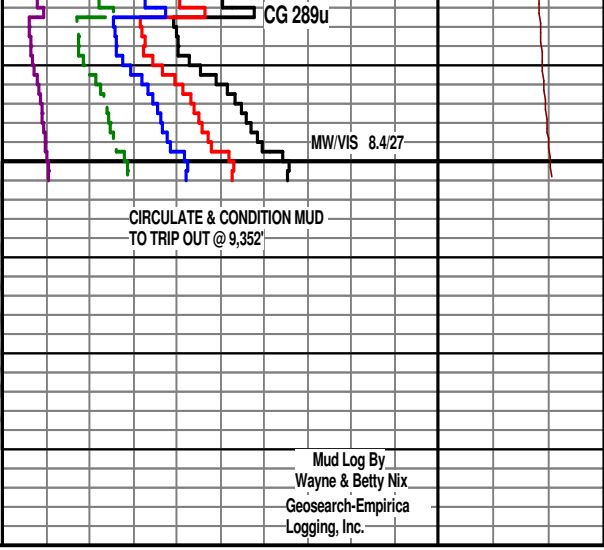
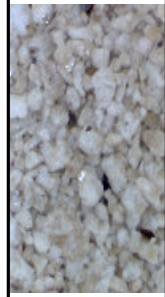
O.B. # 3, HUGHES TYPE -
 TD405XX PDC, SIZE-8.75", JETS -
 5 X 12's, DEPTH IN @ 5,514'
 DEPTH OUT @ 9,352' Drilled
 3,838' in 58.50 hrs. AVG. ROP =
 65.60 ft/ph.

RAN OPEN HOLE LOGS
 ON THE 06/26/2013



SL/BHT, CHRT: TRIP, WITHD, OFF
 WHT-WHT, MICR-XLN, MOD HD-HD, HL
 FRAC, BLUISH/GREEN FLUOR, THICK
 BLU-GRN RESD RING, EX MKY CUT

SURVEY: 9,352' MD 4,768'TVD
 PTB INC. 88.30/ AZ. 357.16



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