



EMPIRICA

The Surface Logging Company

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

Well Name: 15033216960100_ROCK_3319_1-16H_SandRidge Energy, Inc.
Location: SEC: # 16, T-33S / R-19W-----COMANCHE CO., KANSAS
License Number: AFE # DC 12155 Region: PONY
Spud Date: 03/16/2013 Drilling Completed: 03/30/2013
Surface Coordinates: SURFACE: 330' FNL & 660' FWL, of SEC: 16, T33S-R-19W, SPOT LOCATION: S2 S2
SW SW, COMANCHE COUNTY KANSAS
Bottom Hole Coordinates: PBHL: 200' FSL & 660' FWL of SEC: 16, T-33S-R-19W, COMANCHE COUNTY,
KANSAS
Ground Elevation (ft): 1,979' K.B. Elevation (ft): 1,999' (+20' Est)
Logged Interval (ft): 960' To: 9,615' Total Depth (ft): 9,615' 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: Darrel Wilson

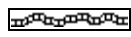
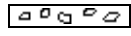
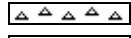
DRILLING CONTRACTOR

Lariat Inc.
 Operator License # 34192
 LARIAT RIG # 41
 API: # 15-033-21696-01-00
 AFE: # DC 12155
 Drilled on Water Base Mud,
 HORIZONTAL WELL

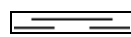
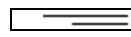
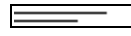
Comments

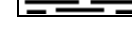
2 Manned Logging Services,
 Start Logging Date: 03/17/2013 @ 960'
 (Called in per CoMan)
 SET 9.625 SURFACE CASING TO 960'
 ON THE 02/20/2013 K.O.P. = 4,440 ft.
 SET 7" INTERMEDIATE CASING @ ' 03/26/2013
 T.D. Depth @ 9,615 ft. M.D. --- T.D. on the 03/30/2013
 RAN E-LOGS ON THE 03/31/2013
 (FINAL LOG PDF) sent out on the: 03/11/2013
 Released Logging Date: 04/01/2013 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
 Tuff

STRINGER

 Anhy
 Arg
 Bent
 Coal
 Dol

 Gyp
 Ls
 Mrst
 Sltstrg
 Ssstrg

TEXTURE

 Boundst
 Chalky
 Cryxln
 Earthy
 Finexln
 Grainst
 Lithogr
 Microxln
 Mudst
 Packst
 Wackest

OTHER SYMBOLS

IMAGES 2

Core
Dst
2400
2800
2700
2600
2500
4000
3900
3500
3400
3300
3200
3100
3000
2900
3800
3700
3600
4100
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4200
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8200
8100
8000
7900
8800
8700
8600
8500
8900
9200
9100
9000
9500
9400
9300
9600

Inter
Moldic
Organic
Pinpoint
Vuggy

SORTING

Well
Moderate
Poor

ROUNDING

Rounded
Subrnd
Subang
Angular

OIL SHOWS

Even
Spotted
Ques
Dead
Poor
Fair
Good
Excelent
Csgshoe

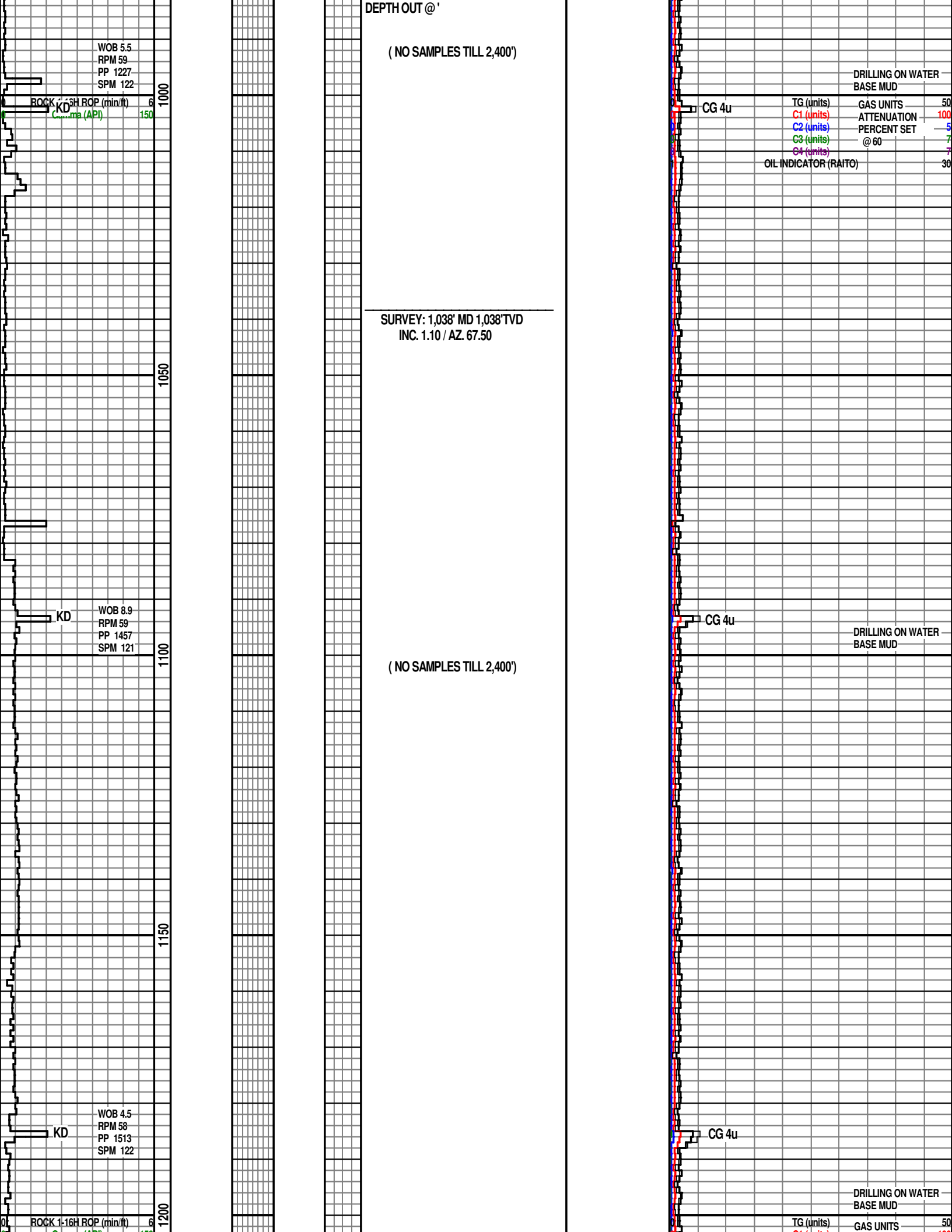
EVENTS

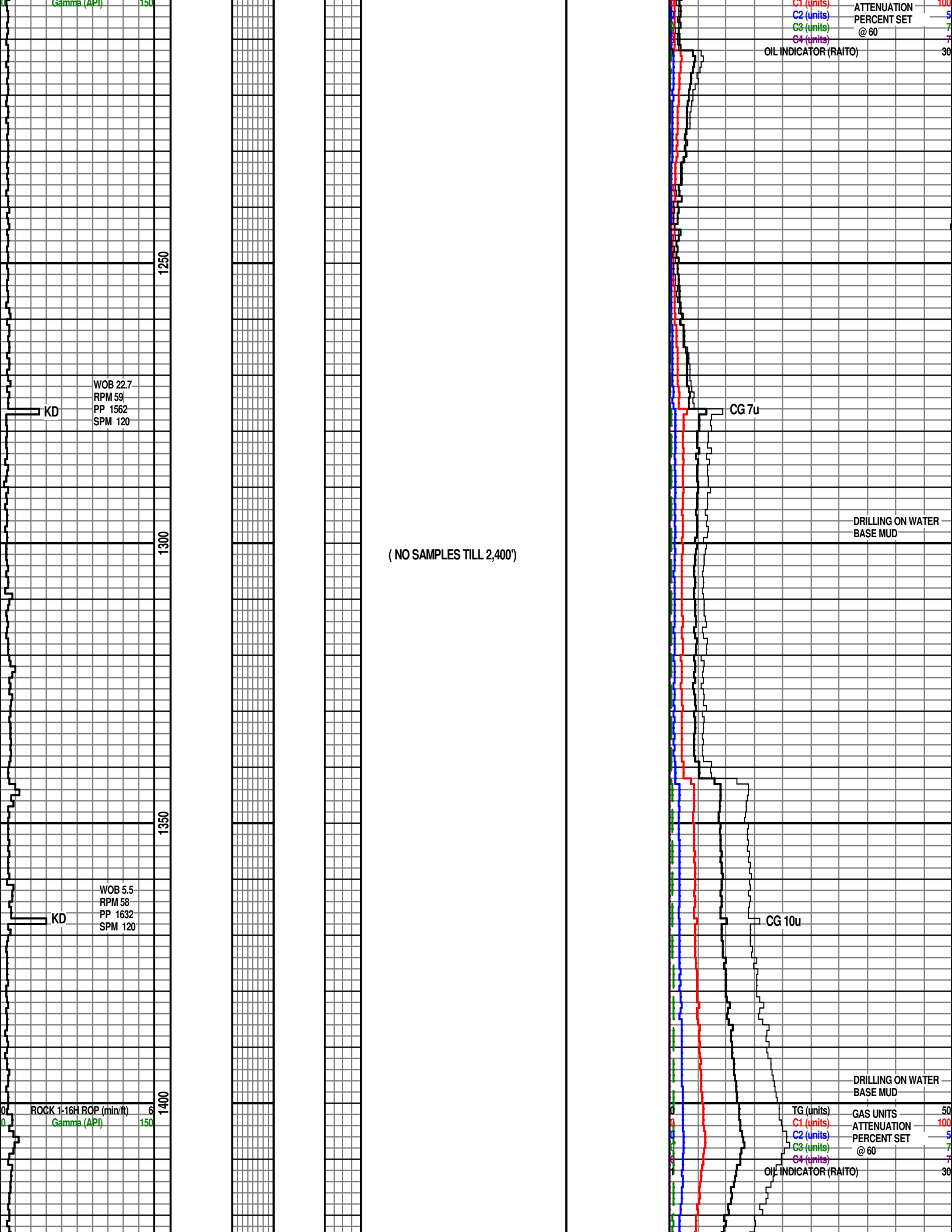
Rft
Sidewall

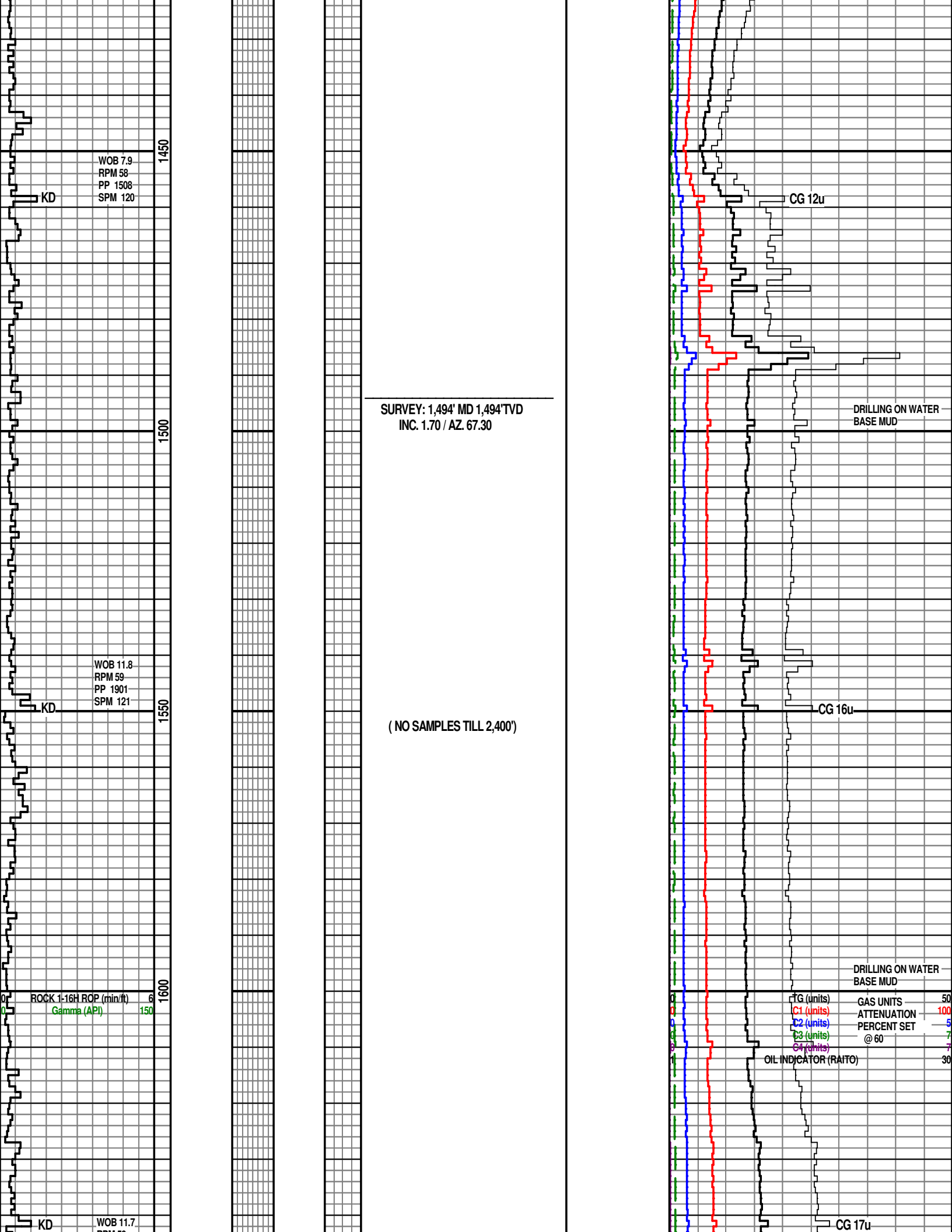
POROSITY TYPE

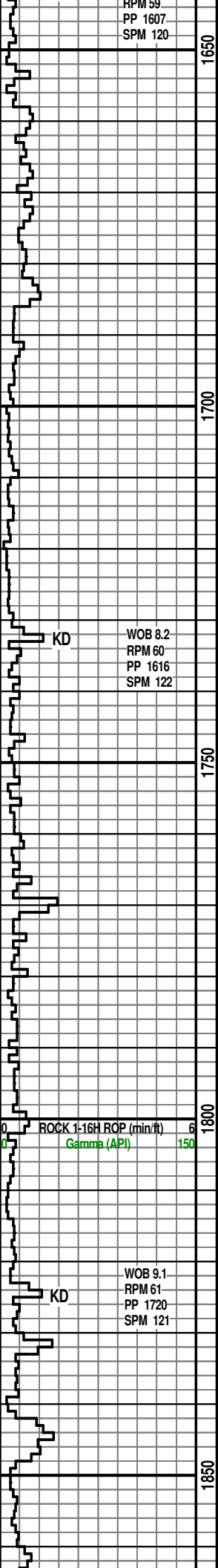
Earthy
Fenest
Fracture

Curve Track 1 ROCK 1-16H ROP (min/ft) Gamma (API) -----		Depth	% Lithology	Porosity	Lithology	Oil Shows	Geological Descriptions	IMAGES	TG, C1-C5	
									TG (units)	
				24% 18% 12% 6%					C1 (units)	
									C2 (units)	
									C3 (units)	
									C4 (units)	
									OIL INDICATOR (RAITO)	
ROCK 1-16H ROP (min/ft)	6	9					SANDRIDGE ENERGY INC.		TG (units)	50
Gamma (API)	150						ROCK 3319 1-16H		C1 (units)	100
API # 15-033-21696-01-00							SEC. 16, T-33 S, R-19 W		C2 (units)	5
							COMANCHE COUNTY, KANSAS.		C3 (units)	7
									C4 (units)	7
TWO-MAN LOGGING COMMENCED 03/17/2013							U.S.A.		OIL INDICATOR (RAITO)	30
									SURFACE LOCATION:	
Called out by CoMan							LARIAT # 41		330' FNL & 660' FWL	
03/16/13									S2 S2 SW SW	
							FIELD: PONY		TOTAL GAS UNITS SCALE 0 to 75 UNITS	
KD=KELLY DOWN							SPUD DATE: 3/16/2013		GAS UNITS ATTENUATION PERCENT SET @ 60	
									HOT WIRE GAS READINGS	
RATE OF PENETRATION (ROP)		950					SURFACE CASING SET @ 760'		DRILLING ON WATER BASE MUD	
							11 JOINTS OF 13.37" N-80 CEMENTED			
							BIT. # 4, HALIBURTON,			
							TYPE -PDC, SIZE - 8.75",			
							S/N - MM55DM,			
							JETS - 5 X 12's			
							DEPTH in @ 960'			

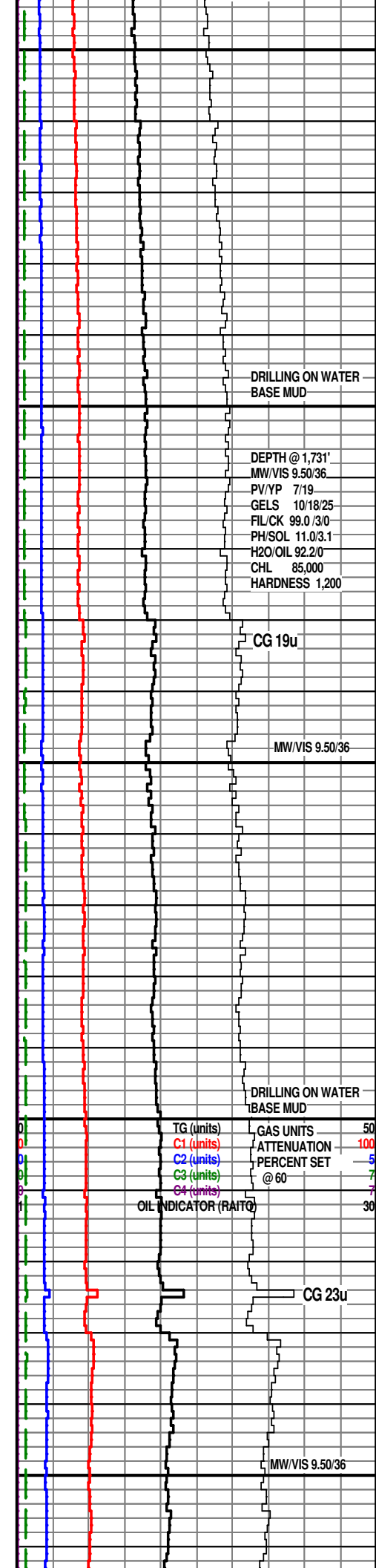


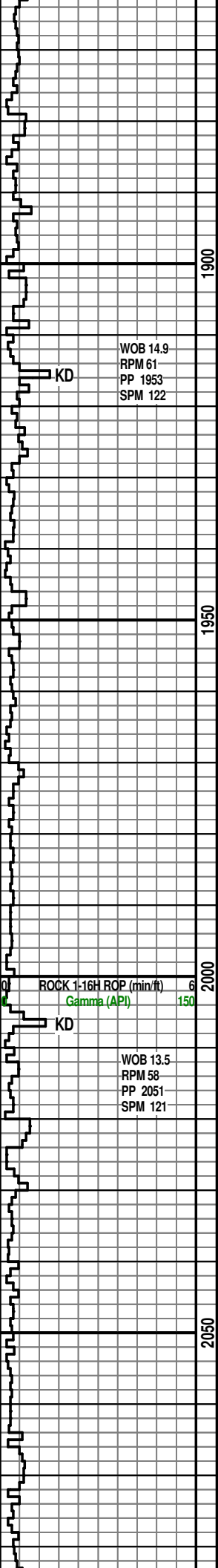






(NO SAMPLES TILL 2,400')





1900

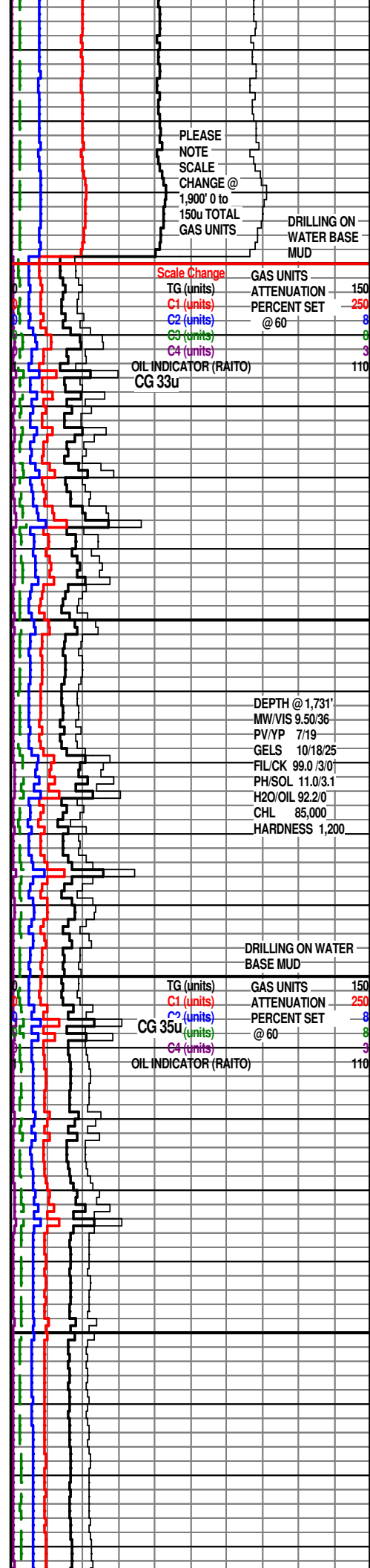
1950

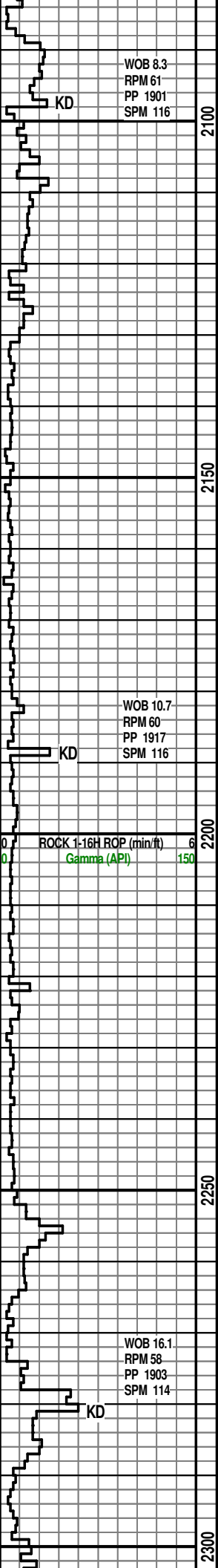
2000

2050

(NO SAMPLES TILL 2,400')

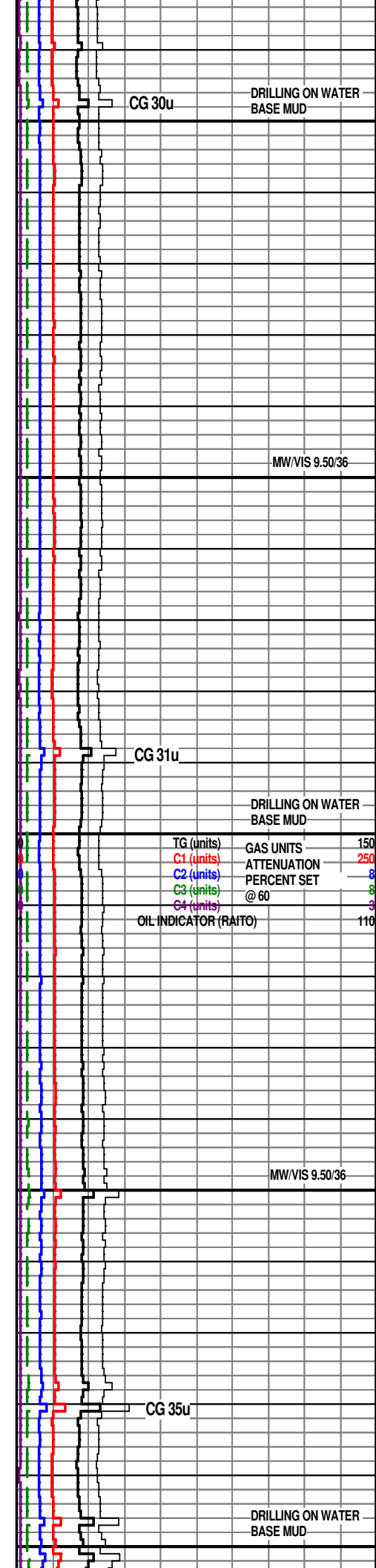
SURVEY: 1,951' MD 1,951'TVD
INC. 1.30 / AZ. 189.30

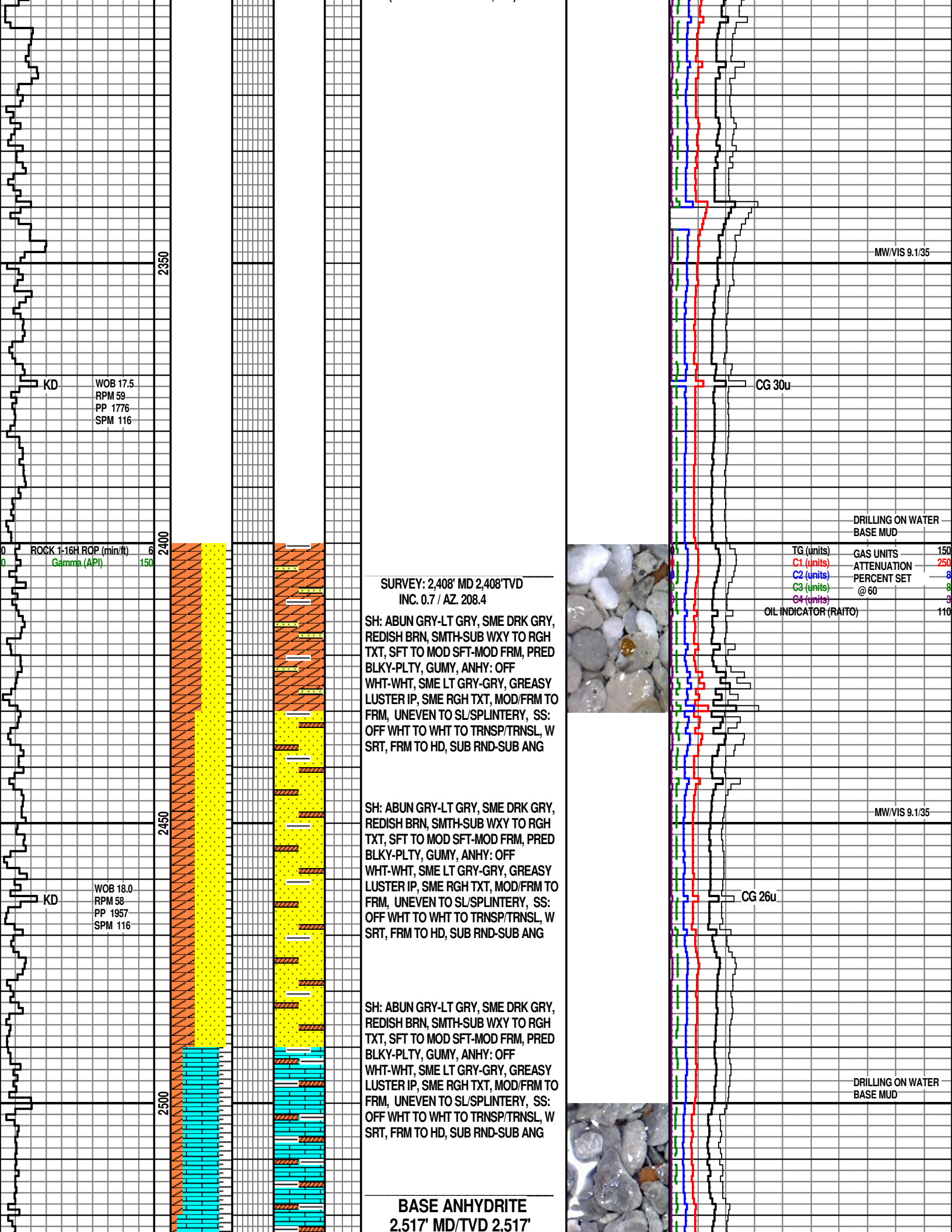


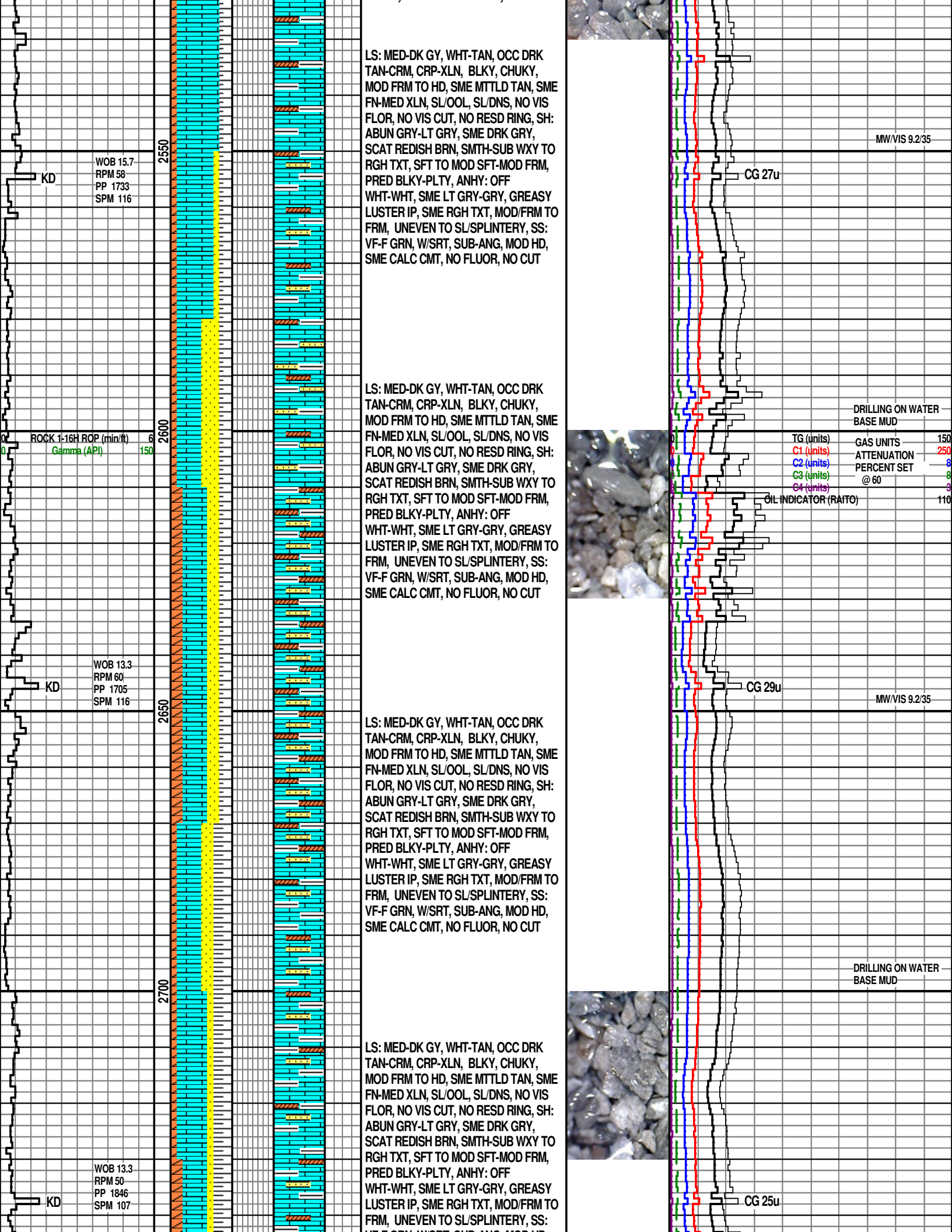


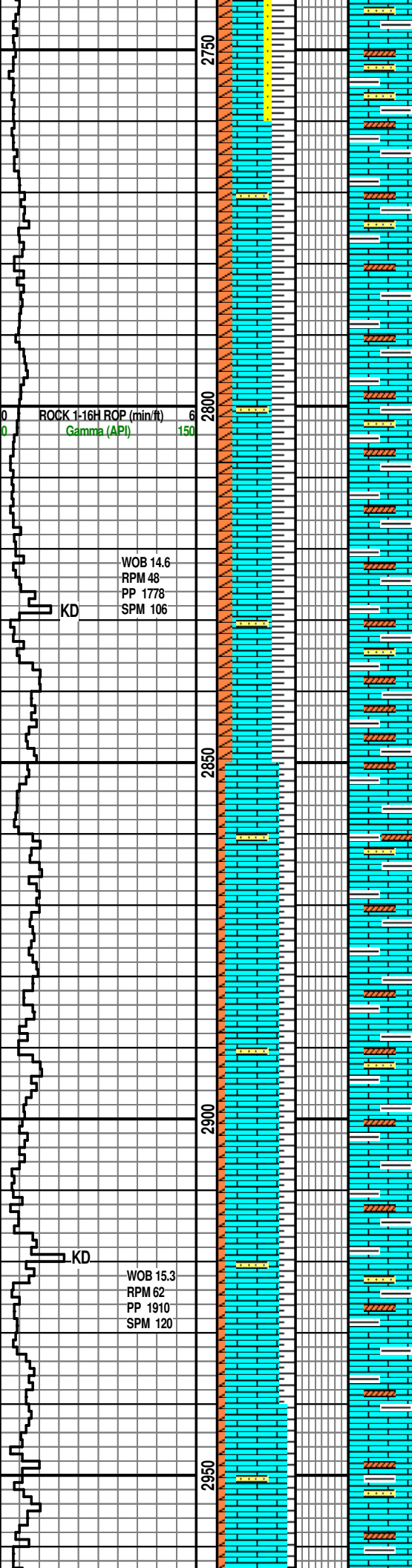
(NO SAMPLES TILL 2,400')

(NO SAMPLES TILL 2,400')









VF-F GRN, W/SRT, SUB-ANG, MOD HD,
SME CALC CMT, NO FLUOR, NO CUT

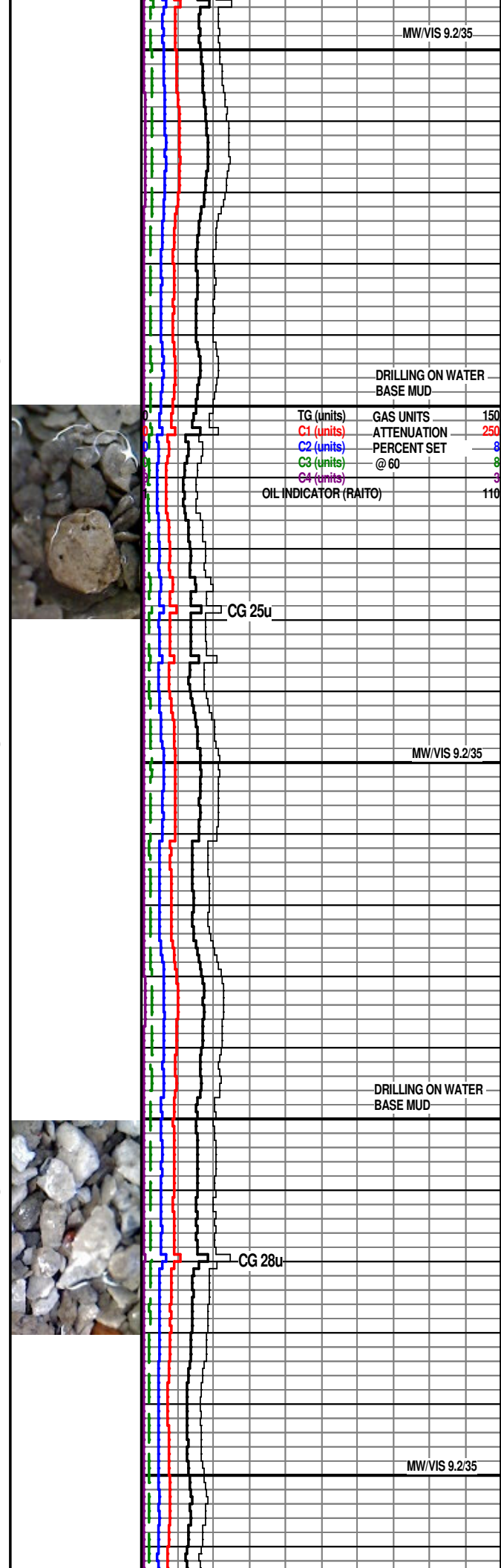
LS: MED-DK GY, WHT-TAN, OCC DRK
TAN-CRM, CRP-XLN, BLKY, CHUKY,
MOD FRM TO HD, SME MTTLD TAN, SME
FN-MED XLN, SL/OOL, SL/DNS, NO VIS
FLOR, NO VIS CUT, NO RESD RING, SH:
ABUN GRY-LT GRY, SME DRK GRY,
SCAT REDISH BRN, SMTH-SUB WXY TO
RGH TXT, SFT TO MOD SFT-MOD FRM,
PRED BLKY-PLTY, ANHY: OFF
WHT-WHT, SME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

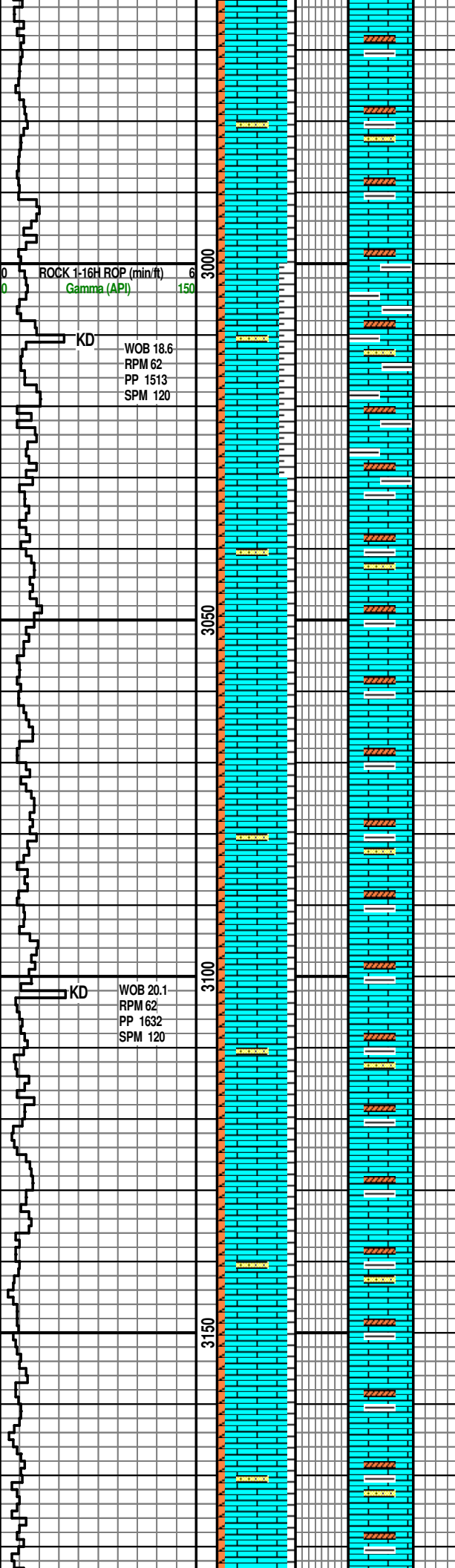
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MOD FRM TO HD, SME MTTLD TAN, SME
FN-MED XLN, SL/OOL, SL/DNS, NO VIS
FLOR, NO VIS CUT, NO RESD RING, SH:
ABUN GRY-LT GRY, SME DRK GRY,
SCAT REDISH BRN, SMTH-SUB WXY TO
RGH TXT, SFT TO MOD SFT-MOD FRM,
PRED BLKY-PLTY, ANHY: OFF
WHT-WHT, SME LT GRY-GRY,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

SURVEY: 2,864' MD 2,864'TVD
INC. 1.20 / AZ. 248.80

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, TRS
SS WHT, OFF WHT SME GRY, F-MED
GRN, NO FLUOR, NO CUT, NO RING

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:



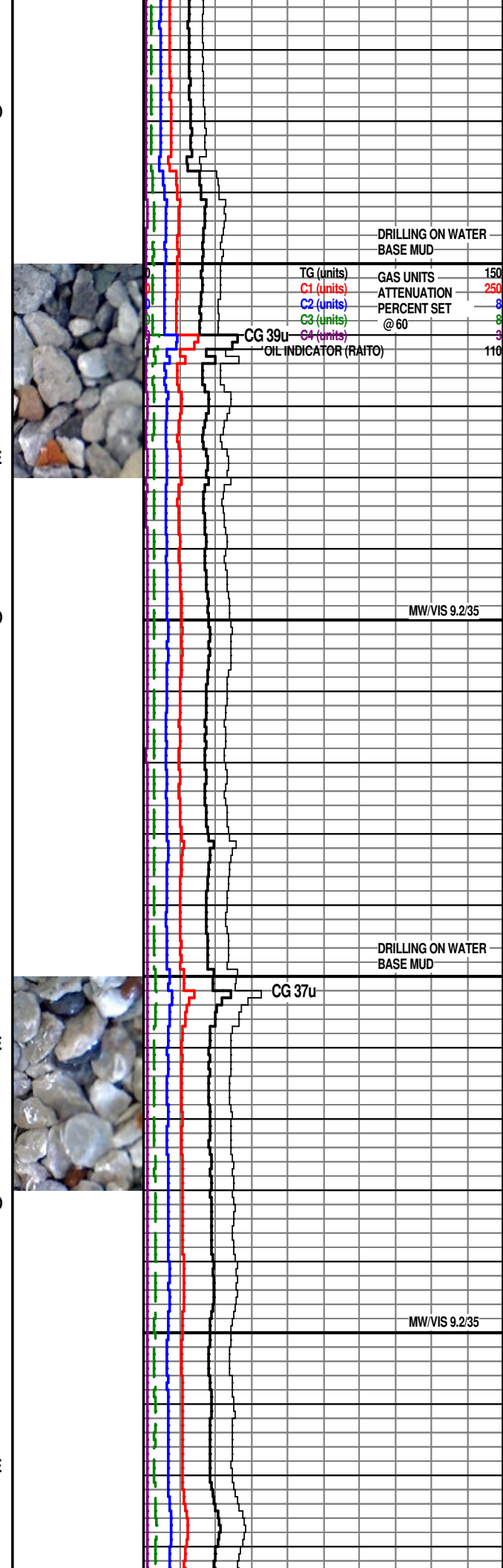


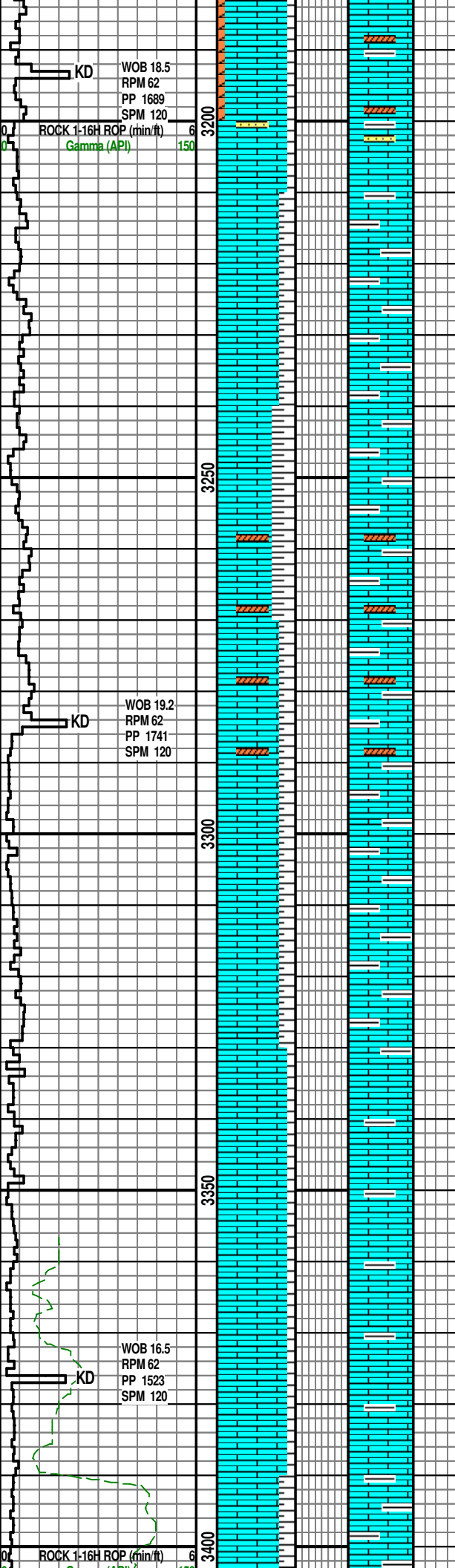
ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SMTH-SUB WXY TO RGH TXT, SFT TO MOD SFT-MOD FRM, PRED BLKY-PLTY, ANHY: OFF WHT-WHT, SME LT GRY-GRY, GREASY LUSTER IP, SME RGH TXT, MOD/FRM TO FRM, UNEVEN TO SL/SPLINTERY, TRS SS WHT, OFF WHT SME GRY, F-MED GRN, NO FLUOR, NO CUT, NO RING

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, TRS SS WHT, OFF WHT SME GRY, F-MED GRN, NO FLUOR, NO CUT, NO RING

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, TRS SS WHT, OFF WHT SME GRY, F-MED GRN, NO FLUOR, NO CUT, NO RING

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, SET TO MOD SET-MOD FRM





RGH TXT, OFF TO MODS: F-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, TRS
SS WHT, OFF WHT SME GRY, F-MED
GRN, NO FLUOR, NO CUT, NO RING

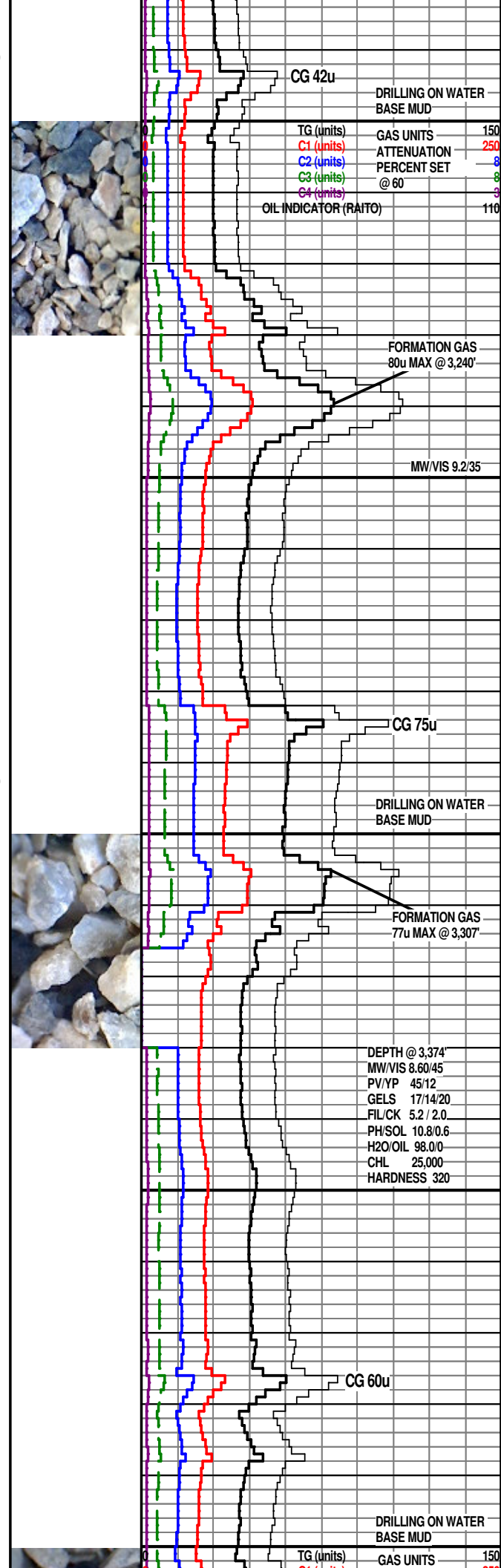
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TAN-CRM, MICRO-XLN, BLKY, CHUKY,
MOD FRM TO HD, SME MTTLD TAN, SME
FN-MED XLN, SL/OOL, SL/DNS, NO VIS
FLOR, NO VIS CUT, NO RESD RING, SH:
ABUN GRY-LT GRY, SME DRK GRY,
SCAT REDISH BRN, SME BLK,
SMTH-SUB WXY TO RGH TXT, SFT-MOD
FRM, PRED BLKY-PLTY,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

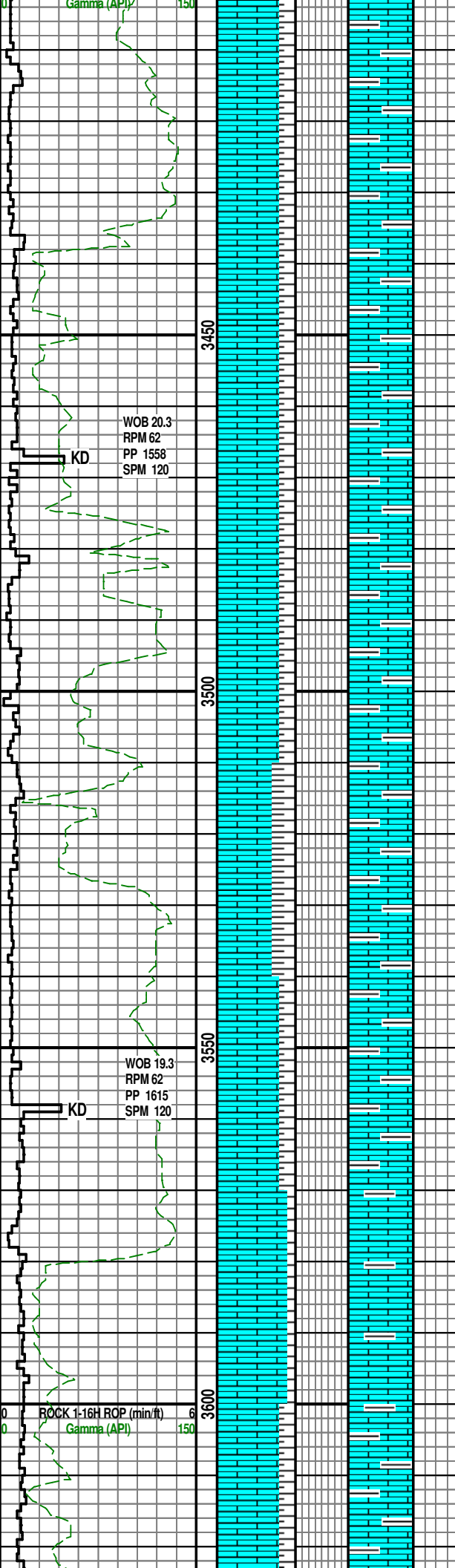
LS: MED-DK GY, WHT-TAN, OCC DRK
TAN-CRM, MICR-XLN, BLKY, CHUKY,
MOD FRM TO HD, SME MTTLD TAN, SME
FN-MED XLN, SL/OOL, SL/DNS, NO VIS
FLOR, NO VIS CUT, NO RESD RING, SH:
ABUN GRY-LT GRY, SME DRK GRY,
SCAT REDISH BRN, SMTH-SUB WXY TO
RGH TXT, SFT TO MOD SFT-MOD FRM,
PRED BLKY-PLTY, ANHY: OFF
WHT-WHT, SME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

SURVEY: 3,321' MD 3,320'TVD
INC. 1.80 / AZ. 244.10

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/OOL, SL/DNS, NO VIS
FLOR, NO VIS CUT, NO RESD RING, SH:
ABUN GRY-LT GRY, SME DRK GRY,
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

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TAN-CRM, MICRO-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, SME BLK,
SMTH-SUB WXY TO RGH TXT, SFT-MOD
FRM, PRED BLKY-PLTY, NO VIS FLOR,
NO VIS CUT, NO RESD RING





WOB 20.3
RPM 62
PP 1558
SPM 120

WOB 19.3
RPM 62
PP 1615
SPM 120

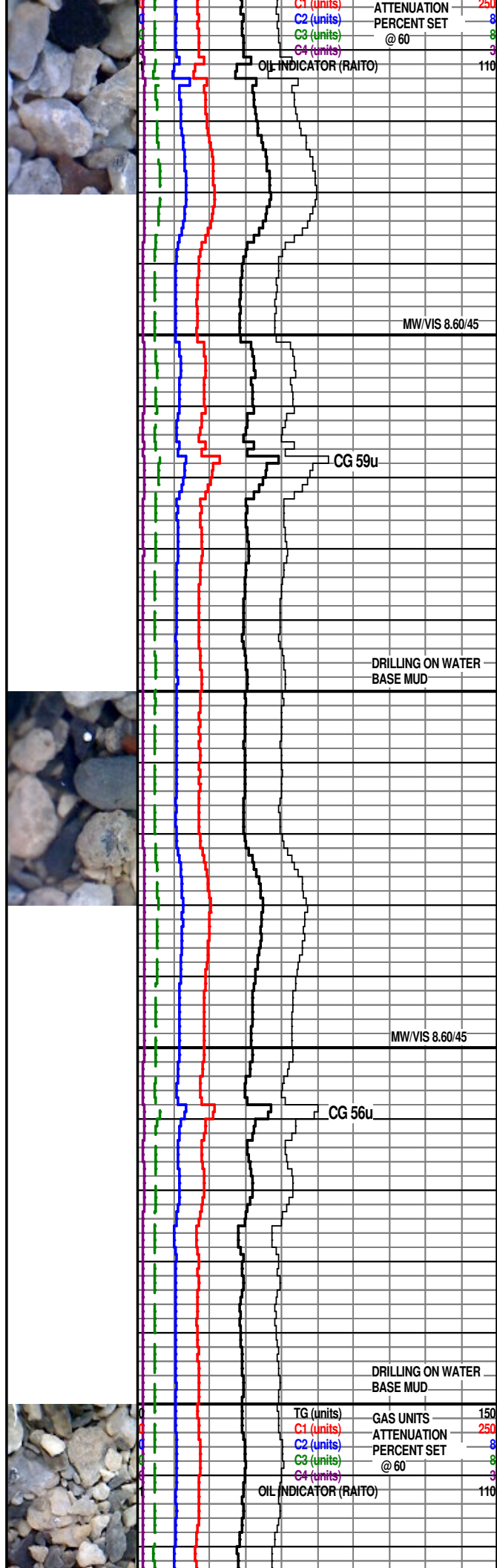
ROCK 1-16H ROP (min/ft)
Gamma (API)

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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, 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

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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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SME BLK, SMTH-SUB WXY TO RGH TXT, SFT-MOD



ATTENUATION
PERCENT SET
@ 60
OIL INDICATOR (RAITO)

CG 59u

DRILLING ON WATER
BASE MUD

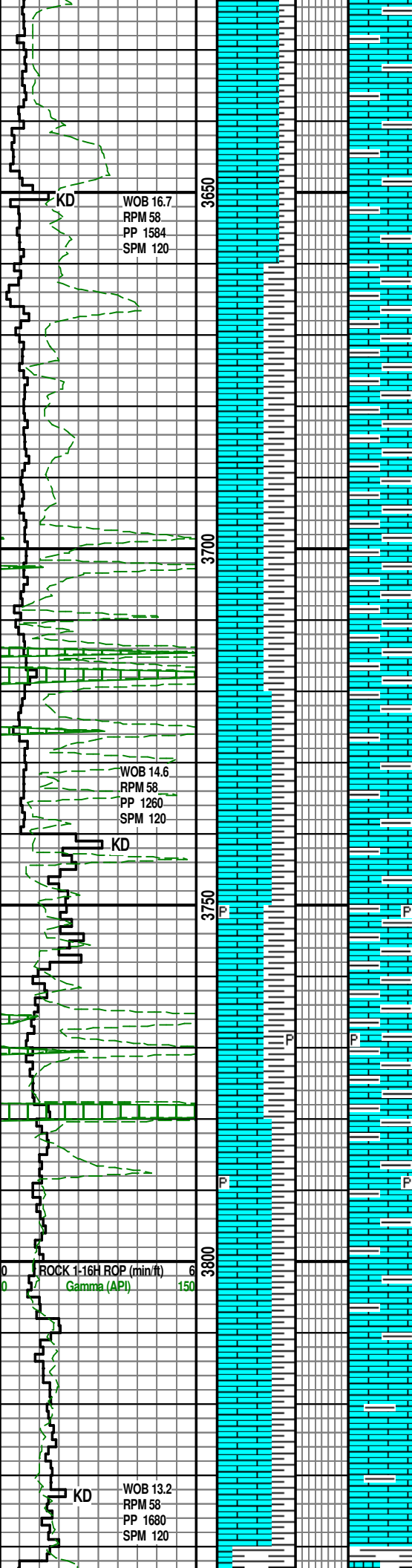
MW/VIS 8.60/45

CG 56u

DRILLING ON WATER
BASE MUD

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

GAS UNITS
ATTENUATION
PERCENT SET
@ 60



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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, 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

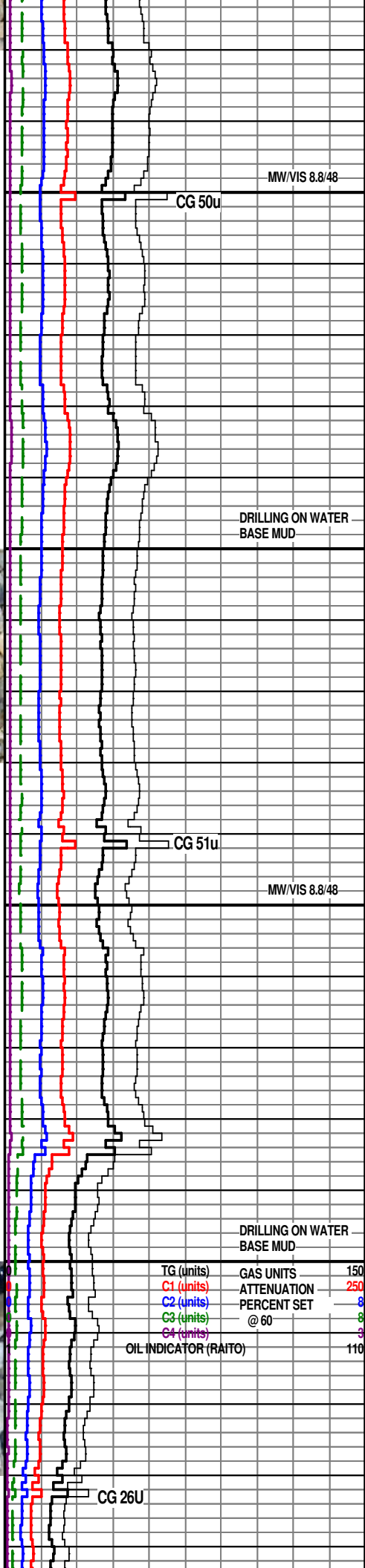
LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, MICRO-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SME BLK, SMTH-SUB WXY TO RGH TXT, SFT-MOD FRM, PRED BLKY-PLTY, NO VIS FLOR, NO VIS CUT,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

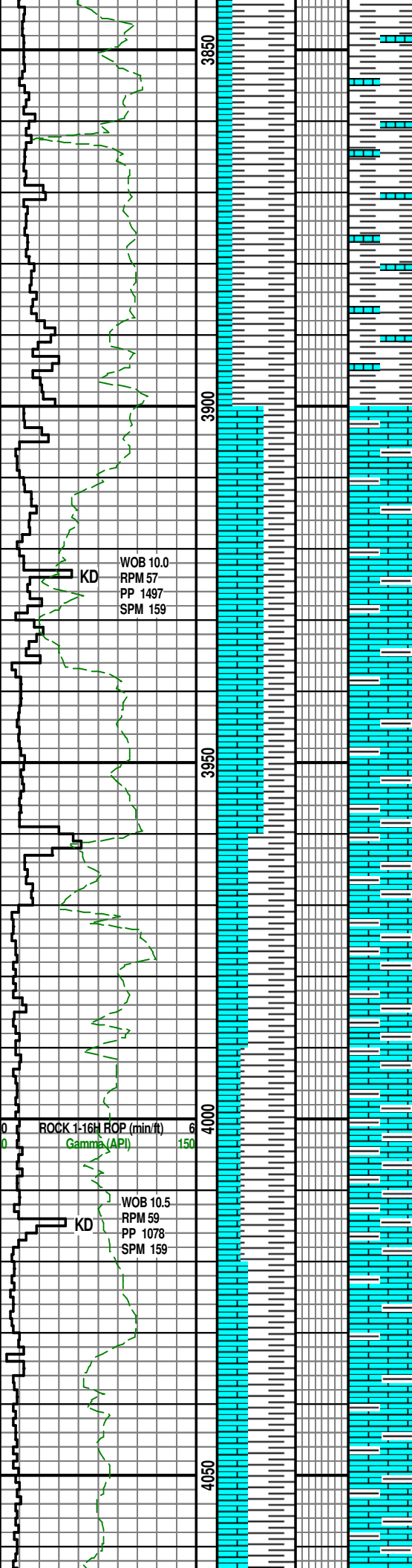
LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, MICRO-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SME BLK, SMTH-SUB WXY TO RGH TXT, SFT-MOD FRM, PRED BLKY-PLTY, TRS PYR, NO VIS FLOR,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

SURVEY: 3,777' MD 3,776'TVD
INC. 2.10 / AZ. 2.10

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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH: ABUN GRY-LT GRY, SME DRK GRY, 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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING, SH:





ABUN GRY-LT GRY, SME DRK GRY,
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

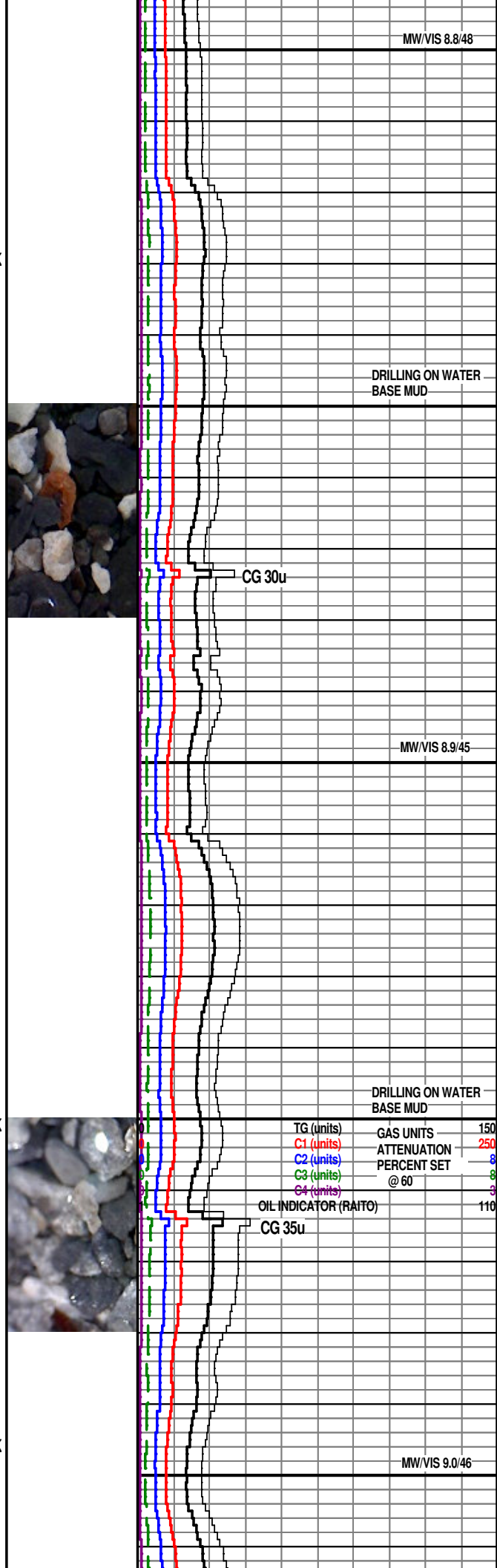
SH: ABUN GRY-LT GRY, SME DRK GRY,
SCAT REDISH BRN, SME BLK,
SMTH-SUB WXY TO RGH TXT, SFT-MOD
FRM, PRED BLKY-PLTY, NO VIS FLOR,
NO VIS CUT, NO RESD RING, LS: MED-DK
GY, WHT-TAN, OCC DRK TAN-CRM,
MICRO-XLN, BLKY, CHUKY, MOD FRM
TO HD, SME MTTLD TAN, SME FN-MED
XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO
VIS CUT,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

SH: ABUN GRY-LT GRY, SME DRK GRY,
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/OOL, SL/DNS, NO VIS FLOR, NO
VIS CUT, NO RESD RING,

SH: ABUN GRY-LT GRY, SME DRK GRY,
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/OOL, SL/DNS, NO VIS FLOR, NO
VIS CUT, NO RESD RING,



MW/VIS 8.8/48

DRILLING ON WATER
BASE MUD

CG 30u

MW/VIS 8.9/45

DRILLING ON WATER
BASE MUD

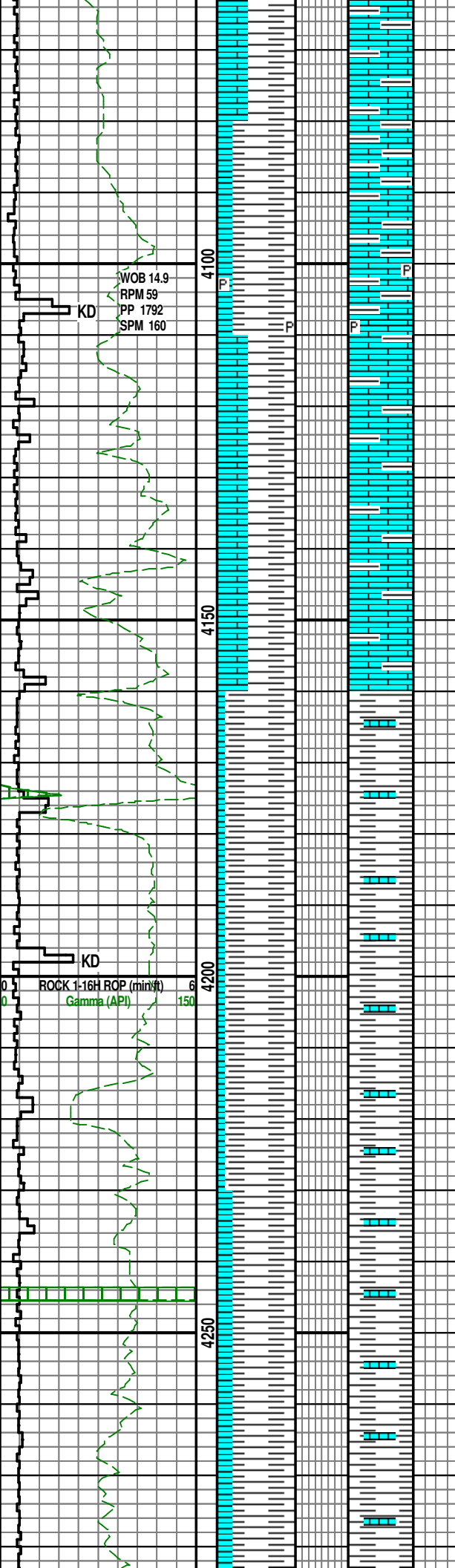
TG (units) 150
C1 (units) 250
C2 (units) 8
C3 (units) 8
C4 (units) 9
OIL INDICATOR (RAITO) 110

GAS UNITS
ATTENUATION
PERCENT SET
@ 60

OIL INDICATOR (RAITO)

CG 35u

MW/VIS 9.0/46



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

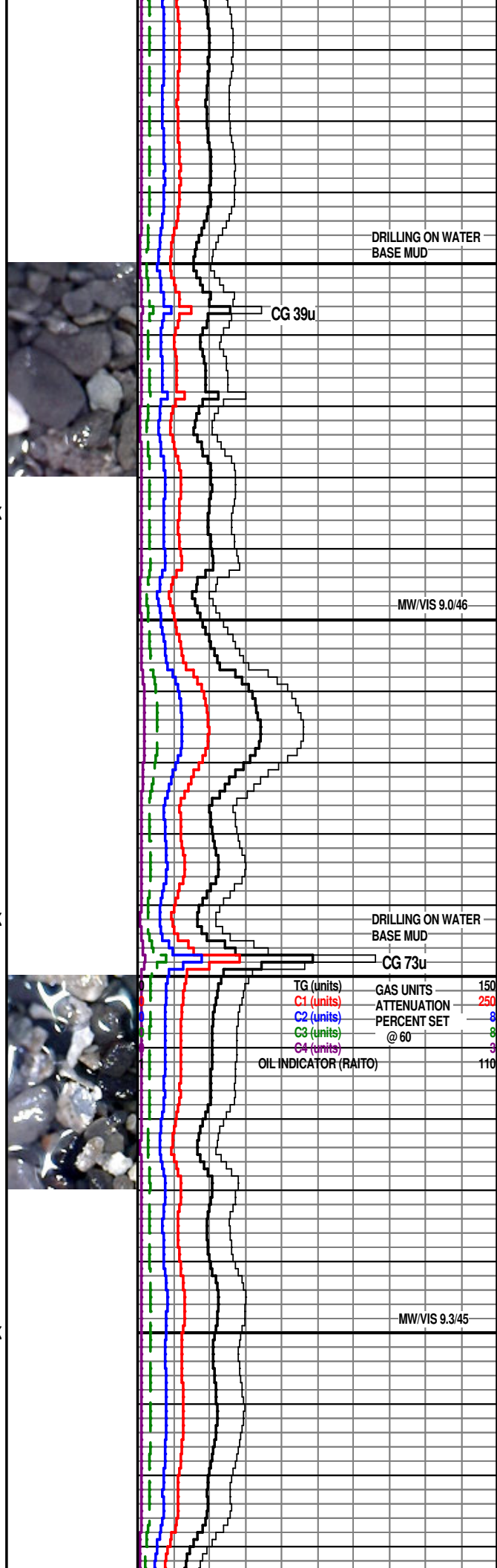
SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SME BLK, SMTH-SUB WXY TO RGH TXT, SFT-MOD FRM, PRED BLKY-PLTY, NO VIS FLOR, NO VIS CUT, NO RESD RING, LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, MICRO-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT,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

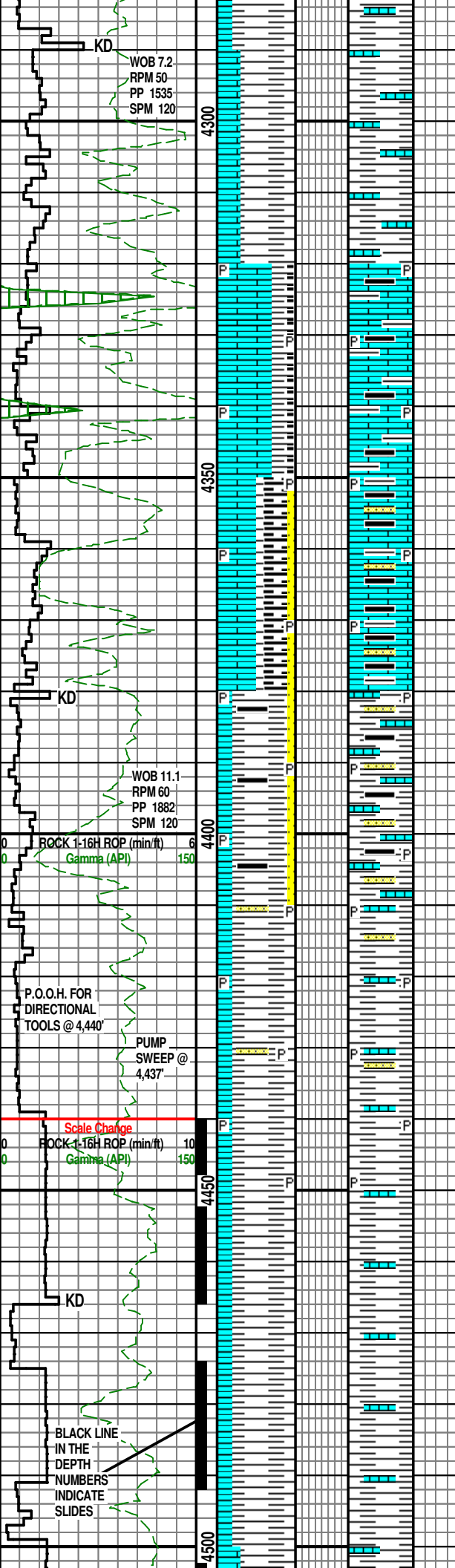
SH: ABUN GRY-LT GRY, SME DRK GRY, SCAT REDISH BRN, SME BLK, SMTH-SUB WXY TO RGH TXT, SFT-MOD FRM, PRED BLKY-PLTY, NO VIS FLOR, NO VIS CUT, NO RESD RING, LS: MED-DK GY, WHT-TAN, OCC DRK TAN-CRM, MICRO-XLN, BLKY, CHUKY, MOD FRM TO HD, SME MTTLD TAN, SME FN-MED XLN, SL/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT,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

SURVEY: 4,234' MD 4,233'TVD
INC. 0.8 / AZ. 17.8

SH: ABUN GRY-LT GRY, SME DRK GRY, 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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING

SH: ABUN GRY-LT GRY, SME DRK GRY, 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/OOL, SL/DNS, NO VIS FLOR, NO VIS CUT, NO RESD RING

SH: DK GRY, BLK GRY, SCAT LT GRY, ORG RCH, CALC, SPLTY, INCRS BLK CARB, SMTH- SUB WXY LSTR, MOD FRM-FRM, SS: OFF WHT TO WHT, VF GRN, W/CONSOL, SUBRND, 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

BASE HEEBNER SHALE
4,344' MD/TVD 4,344'

SH: DK GRY, BLK GRY, SCAT LT GRY, ORG RCH, CALC, SPLTY, INCRS BLK CARB, SMTH- SUB WXY LSTR, MOD FRM-FRM, SS: OFF WHT TO WHT, VF GRN, W/CONSOL, SUBRND, 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: 4,389' MD 4,388'TVD
INC. 0.9 / AZ. 7.2

SH: DK GRY, BLK GRY, SCAT LT GRY, SME ORG RCH, CALC, SPLTY, SME BLK CARB, SMTH WXY LSTR, MOD FRM, LS: LT TAN- MED TAN, OCC DRK TAN, MICRO-XLN, MOD FRM

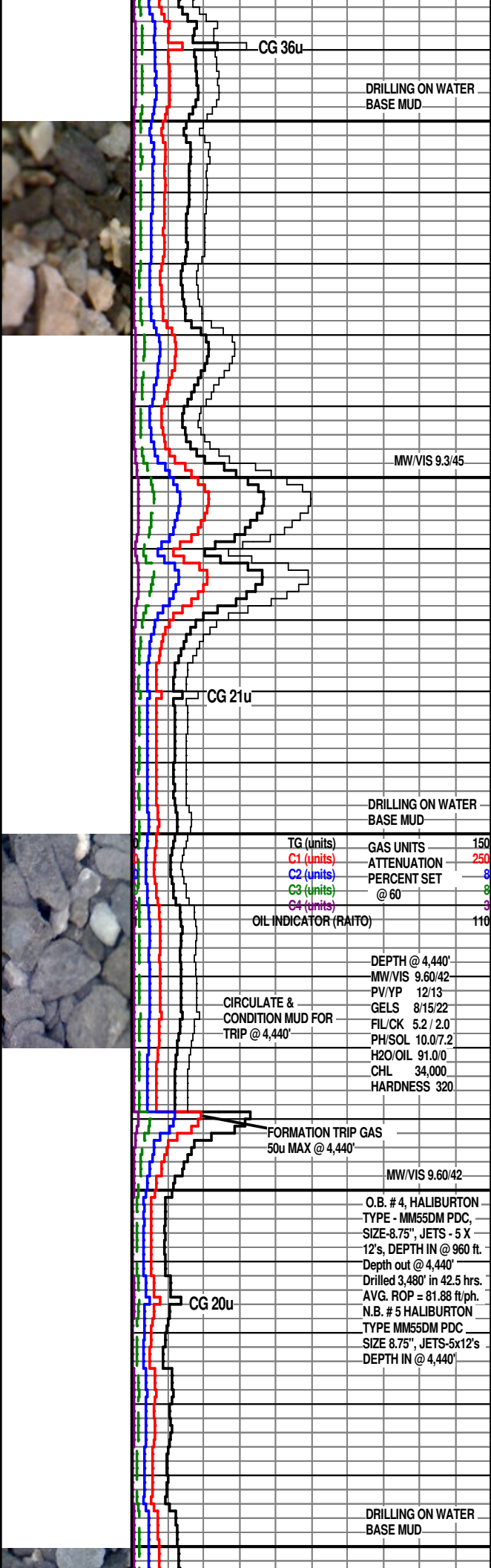
SURVEY: 4,415' MD 4,414'TVD
INC. 0.8 / AZ. 12.2

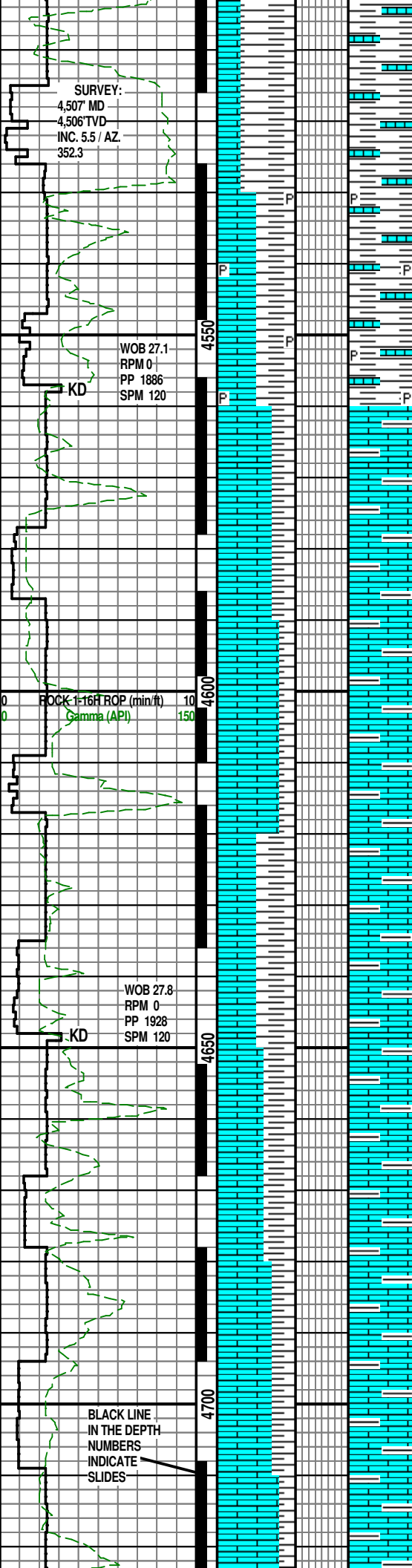
SH: DK GRY, BLK GRY, SCAT LT GRY, SME ORG RCH, CALC, SPLTY, SME BLK CARB, SMTH- SUB WXY LSTR, MOD FRM, LS: LT TAN- MED TAN, OCC DRK TAN, MICRO-XLN, MOD FRM-FRM, NO VIS FLOR, NO VIS CUT, NO RESD RING

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: 4,476' MD 4,475'TVD
INC. 3.6 / AZ. 358.3

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

LANSING LIMESTONE 4,528' MD/TVD 4,527'

SURVEY: 4,537' MD 4,536'TVD
INC. 7.70 / AZ. 347.9

LS: MSTLY MED TAN- LT TAN,
SME OFF WHT, PRED BLKY, CHNKY
TR SPLNTY, MICRO-XLN, MOD FRM-
FRM, OCC BRIT, SME OOL, SNDY, SH:
GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, TRS PYR, NO CUT NO
RING

SURVEY: 4,568' MD 4,566'TVD
INC. 10.2 / AZ. 344.9

LS: MSTLY OFF WHT, SME LT TAN
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT, MICA, NO
CUT NO RING

SURVEY: 4,598' MD 4,595'TVD
INC. 12.6 / AZ. 346.6

LS: MSTLY OFF WHT, SME LT TAN
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT, MICA, NO
CUT NO RING

SURVEY: 4,629' MD 4,625'TVD
INC. 15.4 / AZ. 348.0

LS: MSTLY OFF WHT, SME LT TAN
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT, MICA, NO
CUT NO RING

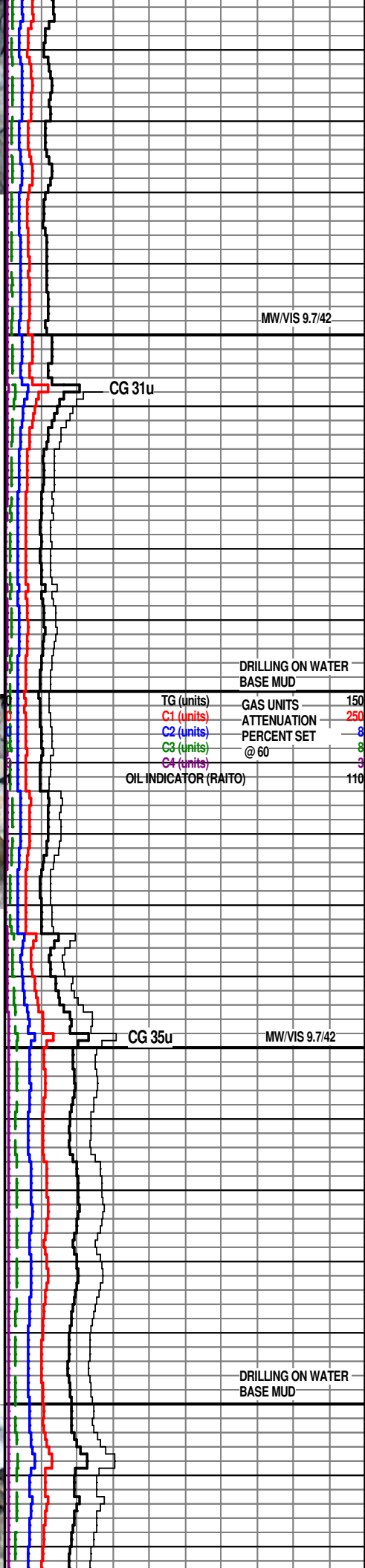
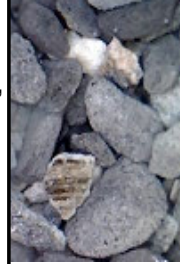
SURVEY: 4,659' MD 4,654'TVD
INC. 17.4 / AZ. 348.7

LS: MSTLY OFF WHT, SME LT TAN
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT, MICA, NO
CUT NO RING

SURVEY: 4,690' MD 4,684'TVD
INC. 19.3 / AZ. 351.1

LS: OFF WHT, LT TAN, SME GRY,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, SH: GY-DRK GY, OCC BLK,
CHNKY, MOD FRM, SMTH TXT, MICA, NO
CUT NO RING

SURVEY: 4,720' MD 4,712'TVD



MW/VIS 9.7/42

CG 31u

DRILLING ON WATER
BASE MUD

TG (units)	GAS UNITS	150
C1 (units)	ATTENUATION	250
C2 (units)	PERCENT SET	8
C3 (units)	@ 60	8
C4 (units)		9
OIL INDICATOR (RAITO)		110

OIL INDICATOR (RAITO)

CG 35u

MW/VIS 9.7/42

DRILLING ON WATER
BASE MUD

SURVEY:
4,507' MD
4,506'TVD
INC. 5.5 / AZ.
352.3

WOB 27.1
RPM 0
PP 1886
SPM 120

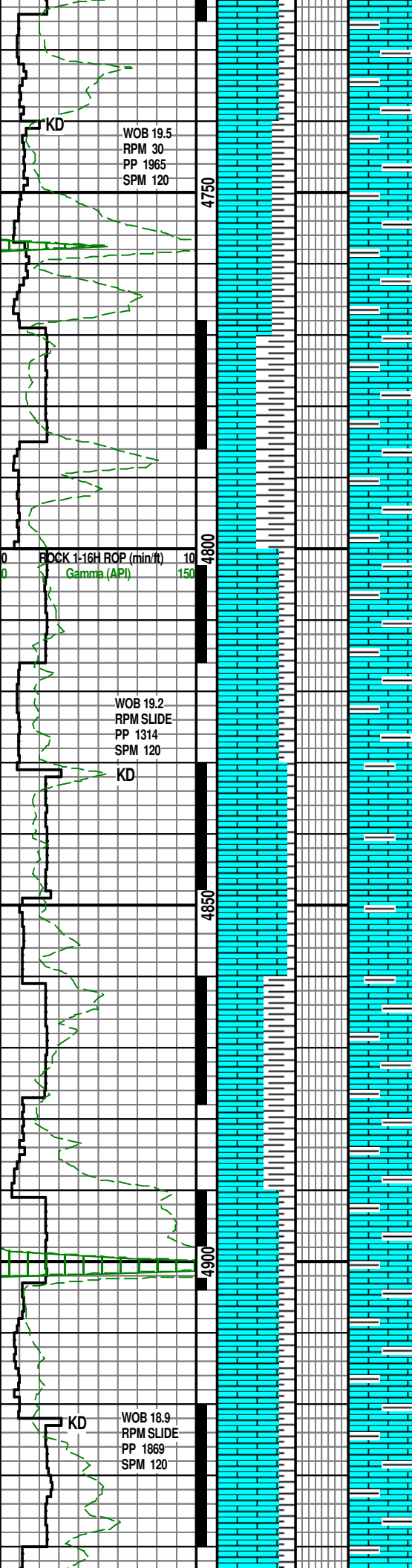
KD

ROCK 1-16H ROP (min/ft)
Gamma (API)

WOB 27.8
RPM 0
PP 1928
SPM 120

KD

BLACK LINE
IN THE DEPTH
NUMBERS
INDICATE
SLIDES



INC. 21.1 / AZ. 352.3

LS: OFF WHT, LT TAN, SME GRY, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,750' MD 4,740'TVD
INC. 22.9 / AZ. 354.0

LS: OFF WHT, LT TAN, SME GRY, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,781' MD 4,768'TVD
INC. 24.8 / AZ. 355.2

LS: MSTLY OFF WHT, SME LT TAN PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,811' MD 4,795'TVD
INC. 26.8 / AZ. 355.6

LS: MSTLY OFF WHT, SME LT TAN PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,842' MD 4,822'TVD
INC. 29.3 / AZ. 358.4

LS: MSTLY OFF WHT, SME LT TAN PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,872' MD 4,849'TVD
INC. 30.5 / AZ. 358.4

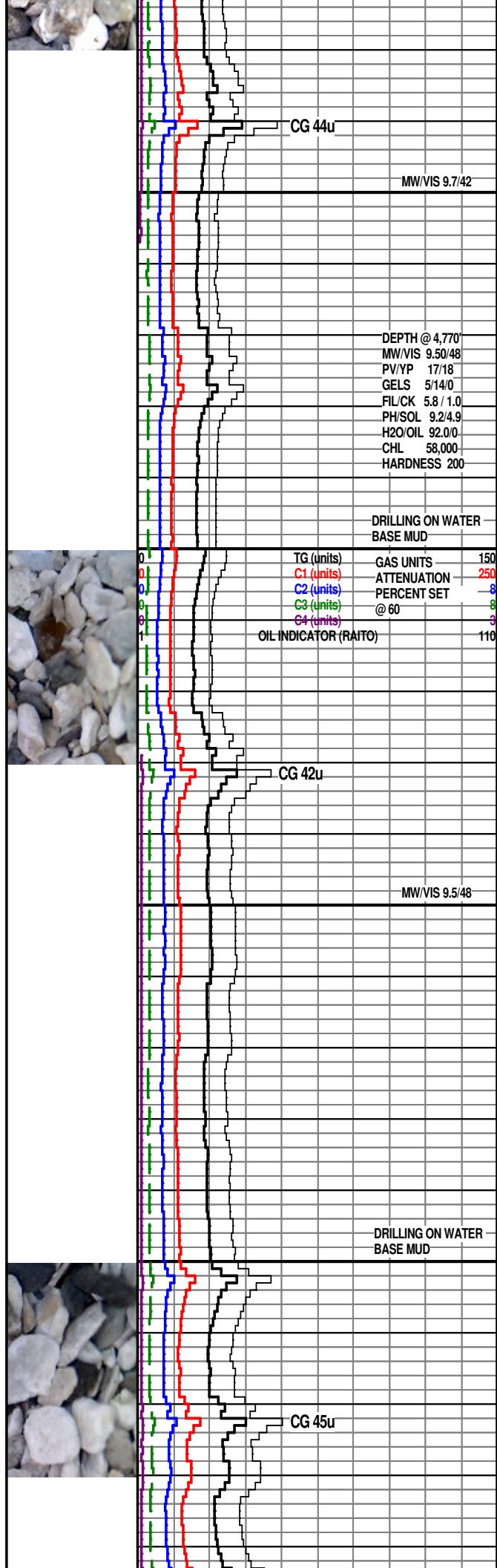
LS: MSTLY OFF WHT, SME LT TAN PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

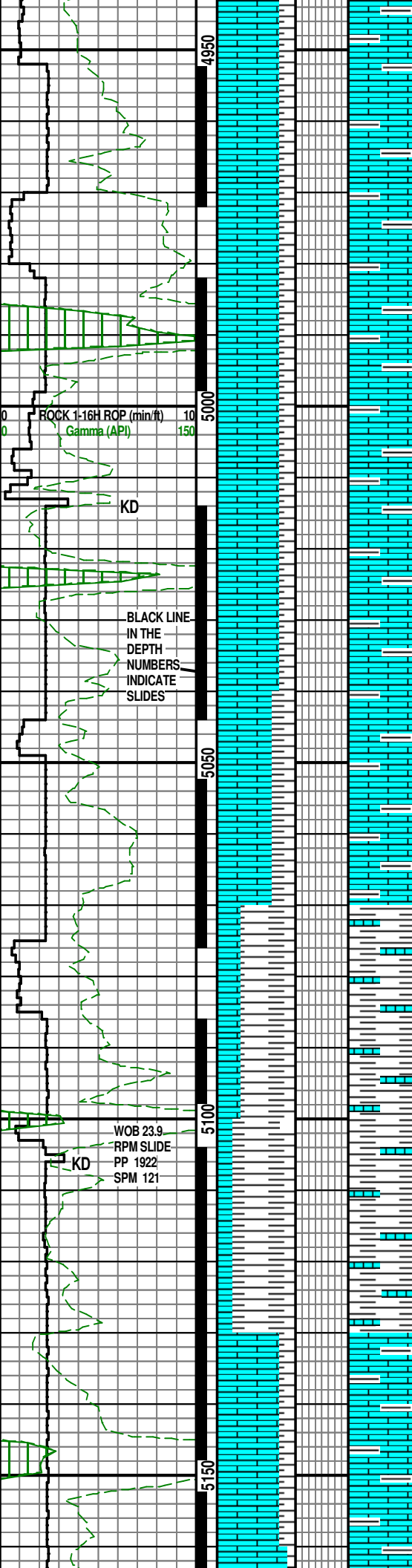
SURVEY: 4,903' MD 4,875'TVD
INC. 31.2 / AZ. 0.40

LS: MSTLY OFF WHT, SME LT TAN PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,933' MD 4,901'TVD
INC. 32.5 / AZ. 0.50

LS: MSTLY OFF WHT, SME LT TAN





PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,963' MD 4,926'TVD
INC. 33.9 / AZ. 359.8

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 4,994' MD 4,952'TVD
INC. 35.0 / AZ. 359.0

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 5,024' MD 4,976'TVD
INC. 36.6 / AZ. 358.4

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 5,055' MD 5,000'TVD
INC. 39.5 / AZ. 357.1

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, NO CUT NO RING

SURVEY: 5,085' MD 5,023'TVD
INC. 40.7 / AZ. 356.0

SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, MILKY CUT, BLUE-WHITE RESIDUAL RING

SURVEY: 5,116' MD 5,046'TVD
INC. 42.5 / AZ. 354.9

SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, MILKY CUT, BLUE-WHITE RESIDUAL RING

SURVEY: 5,146' MD 5,068'TVD
INC. 44.7 / AZ. 355.5

SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, LS: MSTLY OFF WHT, SME LT TAN,

MW/VIS 9.5/48

DRILLING ON WATER BASE MUD

TC (units)
CT (units)
C2 (units)
C3 (units)
C4 (units)
OIL INDICATOR (RAIT) CG 57u

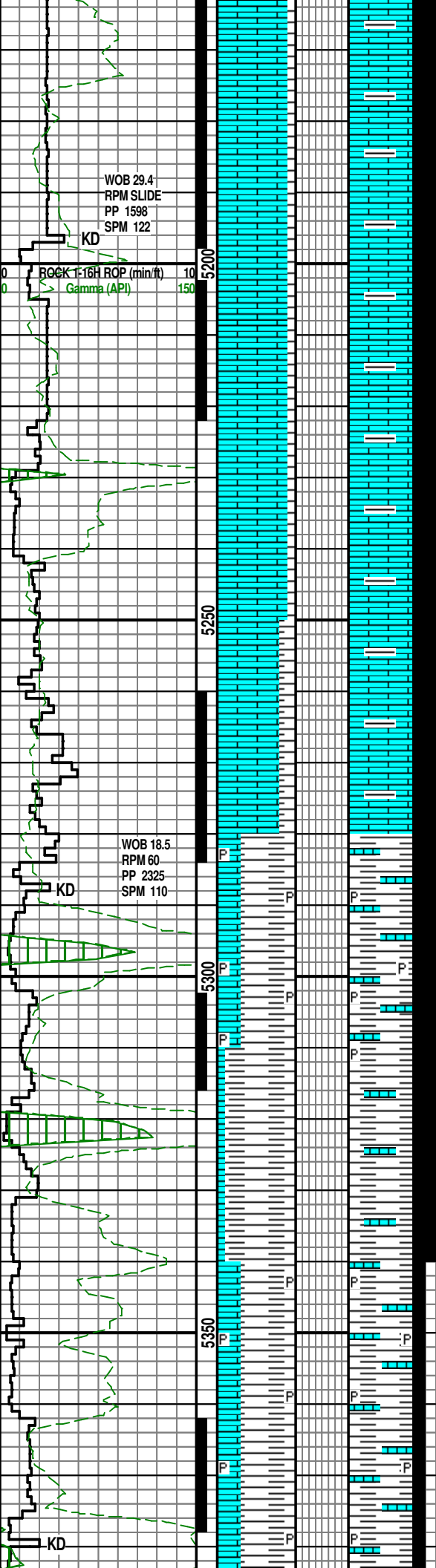
FORMATION GAS
121u MAX @ 5,003'

MW/VIS 9.7/42

DRILLING ON WATER BASE MUD

CG 50u

MW/VIS 9.2/45



PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

SURVEY: 5,177' MD 5,090'TVD
INC. 47.8 / AZ. 357.6
SH: GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, MICA, LS: MSTLY OFF
WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

SURVEY: 5,207' MD 5,109'TVD
INC. 51.3 / AZ. 358.3
SH: GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, MICA, LS: MSTLY OFF
WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

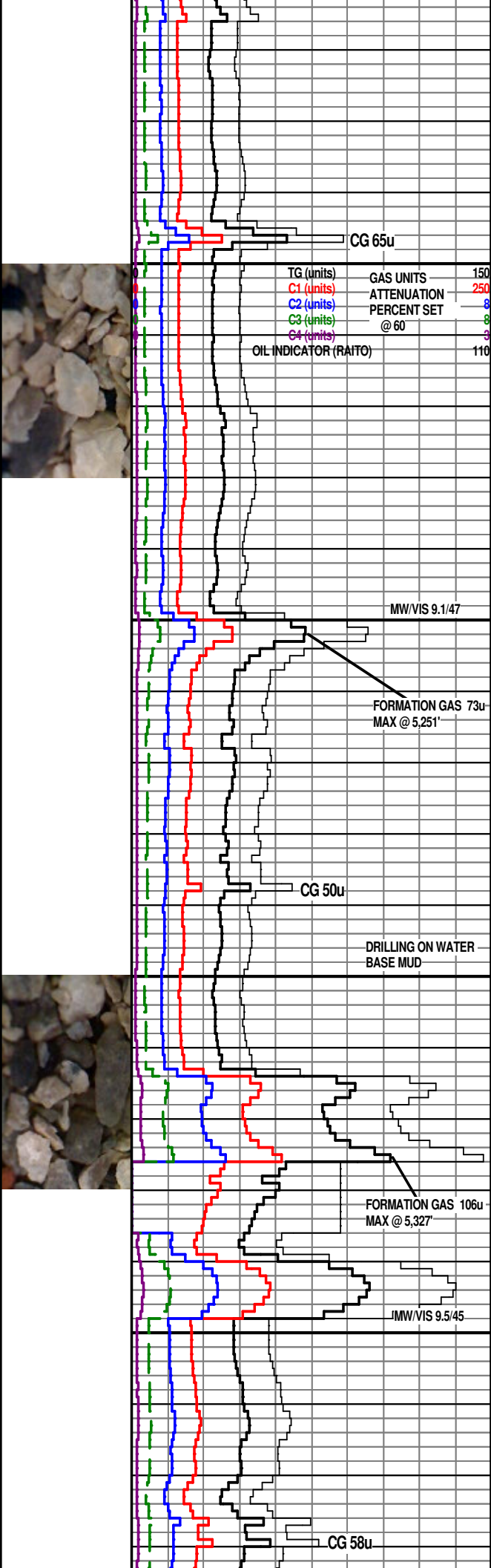
SURVEY: 5,237' MD 5,128'TVD
INC. 52.5 / AZ. 358.4
SH: GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, MICA, LS: MSTLY OFF
WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

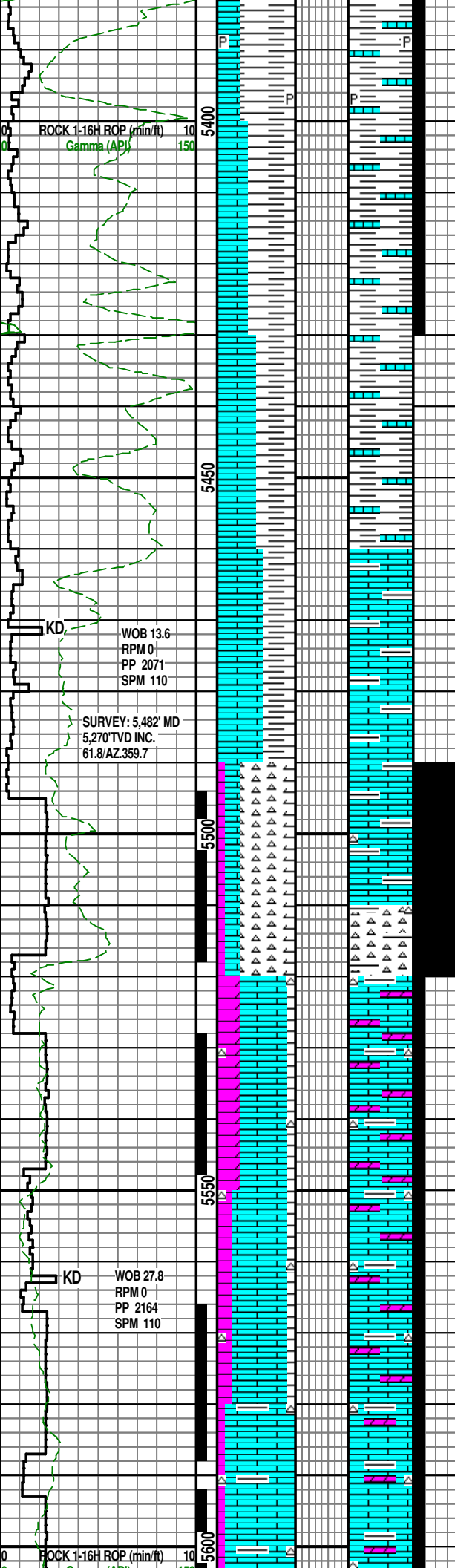
SURVEY: 5,268' MD 5,146'TVD
INC. 52.9 / AZ. 358.3
SH: GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, MICA, LS: MSTLY OFF
WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

SURVEY: 5,298' MD 5,164'TVD
INC. 53.1 / AZ. 357.7
SH: GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, MICA, LS: MSTLY OFF
WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

SURVEY: 5,329' MD 5,183'TVD
INC. 52.7 / AZ. 357.6
SH: GY-DRK GY, OCC BLK, CHNKY,
MOD FRM, SMTH TXT, MICA, LS: MSTLY
OFF WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING

SURVEY: 5,360' MD 5,202'TVD
INC. 52.7 / AZ. 357.4
SH: GY-DRK GY, OCC BLK, CHNKY, MOD
FRM, SMTH TXT, MICA, LS: MSTLY OFF
WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT,BLUE-WHITE
RESIDUAL RING





RESIDUAL RING

SURVEY: 5,390' MD 5,220'TVD
INC. 52.7 / AZ. 357.6

SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, MICA, LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, MILKY CUT, BLUE-WHITE RESIDUAL RING

SURVEY: 5,421' MD 5,238'TVD
INC. 55.2 / AZ. 358.6

SH: GY-DRK GY, OCC BLK, CHNKY, MOD FRM, SMTH TXT, LS: MSTLY MED TAN- LT TAN, SME OFF WHT, PRED BLKY, CHNKY TR SPLNTY, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SME OOL, SNDY, NO CUT NO RING

SURVEY: 5,451' MD 5,255'TVD
INC. 58.9 / AZ. 359.1

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, NO CUT NO RING

MISSISSIPPI UNCONFORMITY
5,482' MD/TVD 5,270'

SURVEY: 5,512' MD 5,284'TVD
INC. 64.4 / AZ. 0.20

MISSISSIPPI LIME
5,518' MD/TVD 5,285'

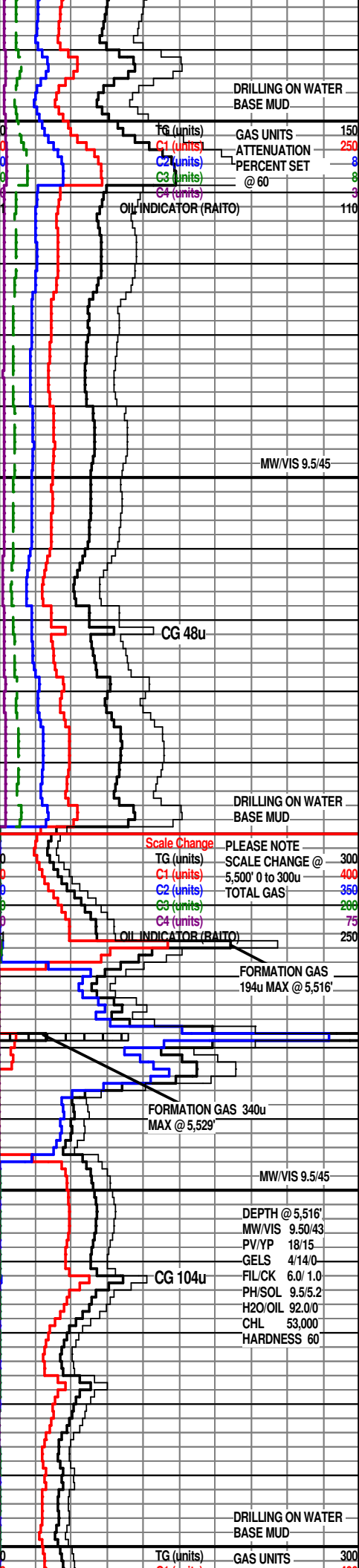
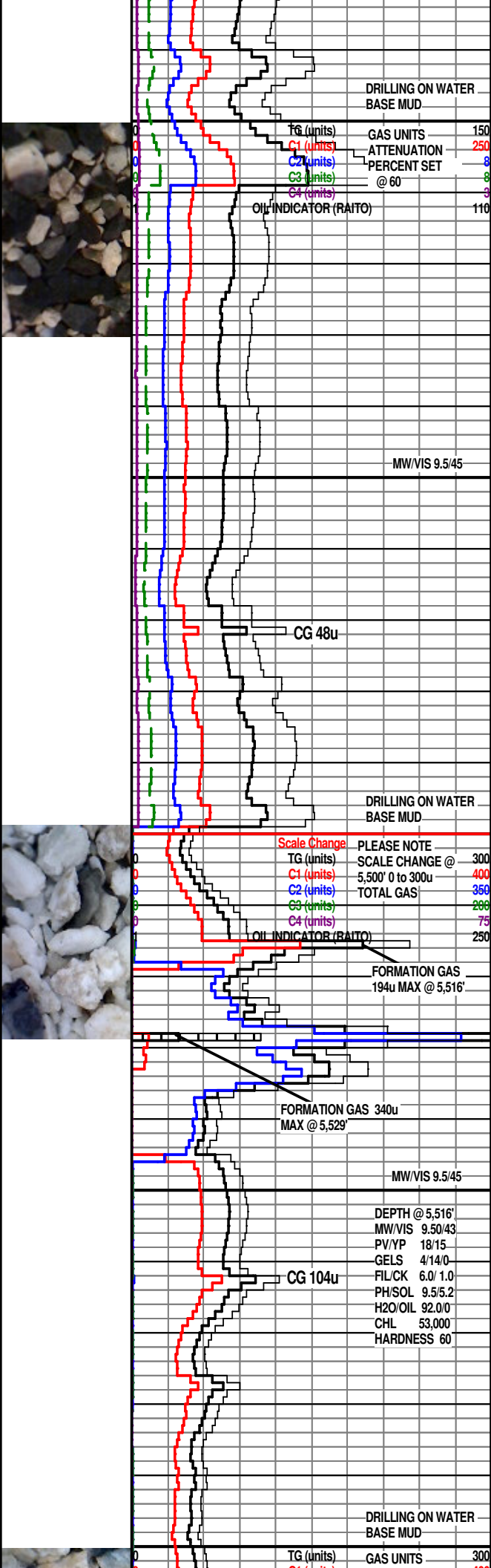
LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED TAN, MICRO/SUC, OIL STN/SAT, S/BLKY, SNDY TXT, TRS SHALE, SFT-MED FRM, CHRT: OFF WHT, CLR, WEAK MILKY CUT, THIN

SURVEY: 5,543' MD 5,296'TVD
INC. 66.1 / AZ. 0.50

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, WEAK MILKY CUT, THIN WH-BLU-WH-RESIDUAL RING

SURVEY: 5,573' MD 5,309'TVD
INC. 66.5 / AZ. 0.80

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, WEAK MILKY CUT, THIN WH-BLU-WH-RESIDUAL RING



DRILLING ON WATER BASE MUD

GAS UNITS ATTENUATION PERCENT SET @ 60

OIL INDICATOR (BAITO)

MW/VIS 9.5/45

CG 48u

DRILLING ON WATER BASE MUD

PLEASE NOTE SCALE CHANGE @ 5,500' 0 to 300u

TOTAL GAS

OIL INDICATOR (BAITO)

FORMATION GAS 194u MAX @ 5,516'

FORMATION GAS 340u MAX @ 5,529'

MW/VIS 9.5/45

DEPTH @ 5,516'

MW/VIS 9.50/43

PV/YP 18/15

GELS 4/14-0

FIL/CK 6.0/ 1.0

PH/SOL 9.5/5.2

H2O/OIL 92.0/0

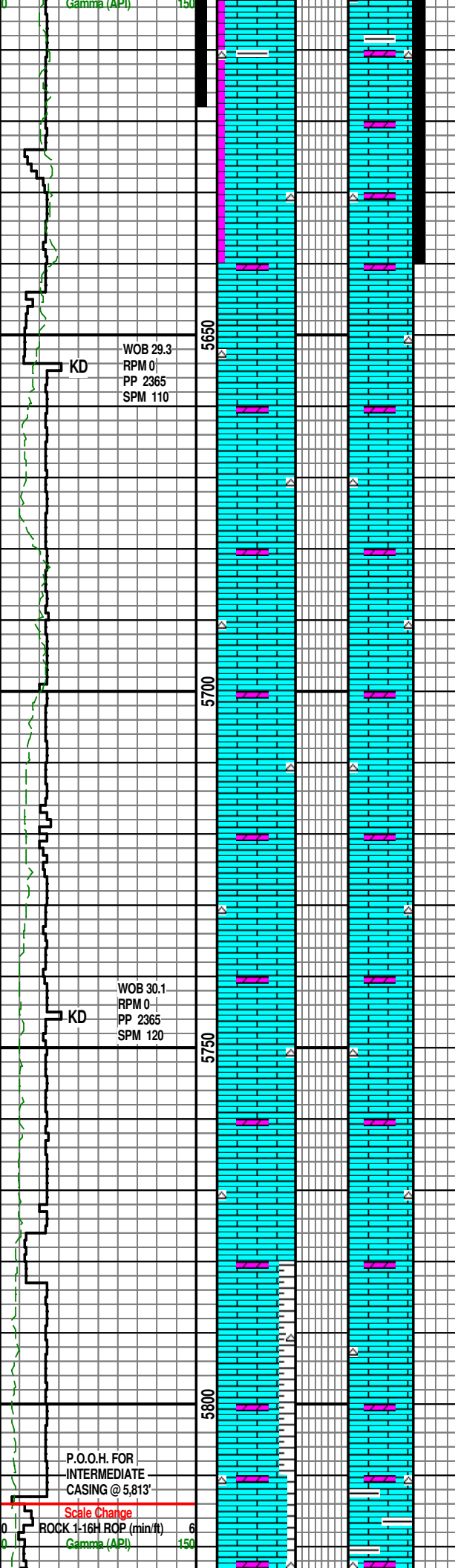
CHL 53,000

HARDNESS 60

CG 104u

DRILLING ON WATER BASE MUD

TG (units) GAS UNITS



SURVEY: 5,634' MD 5,320'TVD
INC. 68.7 / 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, TRS SHALE, SFT-MED FRM, CHRT: OFF WHT, CLR,WEAK MILKY CUT,THIN WH-BLU-WH-RESIDUAL RING

SURVEY: 5,634' MD 5,331'TVD
INC. 70.5 / AZ. 2.50

LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED TAN, MICRO/SUC, M-XLN OIL STN/SAT, S/BLKY, SNDY TXT, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, HD

SURVEY: 5,665' MD 5,341'TVD
INC. 72.9 / AZ. 2.50

LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED TAN, M-XLN, S/BLKY, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, HD

SURVEY: 5,695' MD 5,348'TVD
INC. 76.4 / AZ. 2.20

LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED TAN, M-XLN, S/BLKY, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, HD

SURVEY: 5,726' MD 5,355'TVD
INC. 80.1 / AZ. 2.00

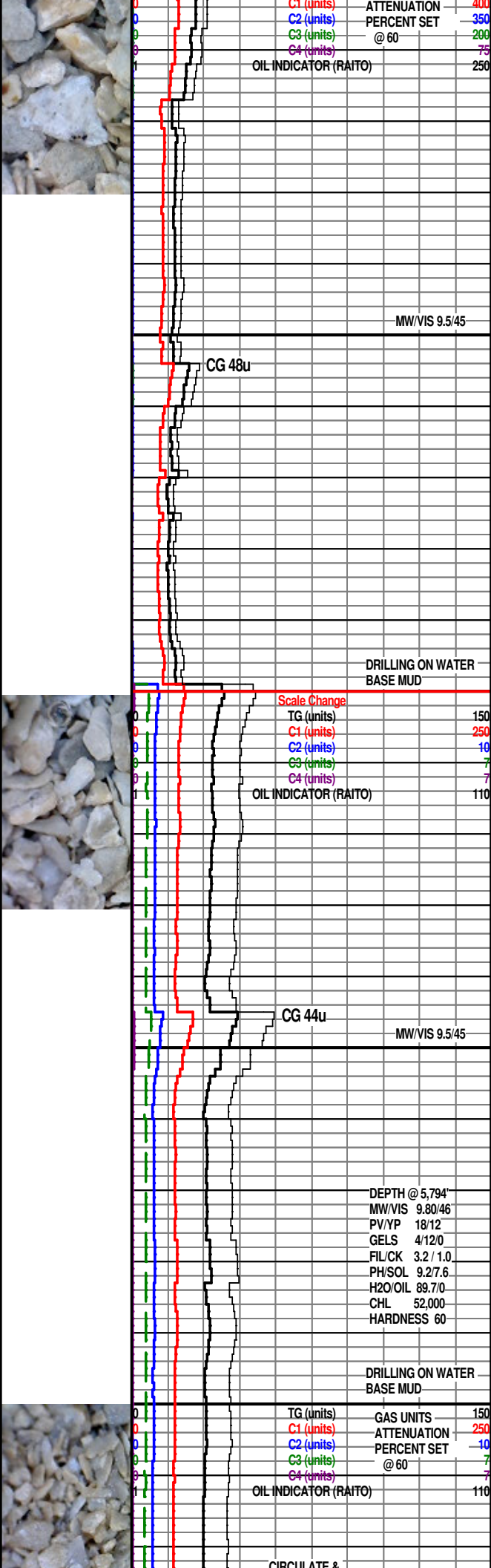
LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED TAN, M-XLN, S/BLKY, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, HD

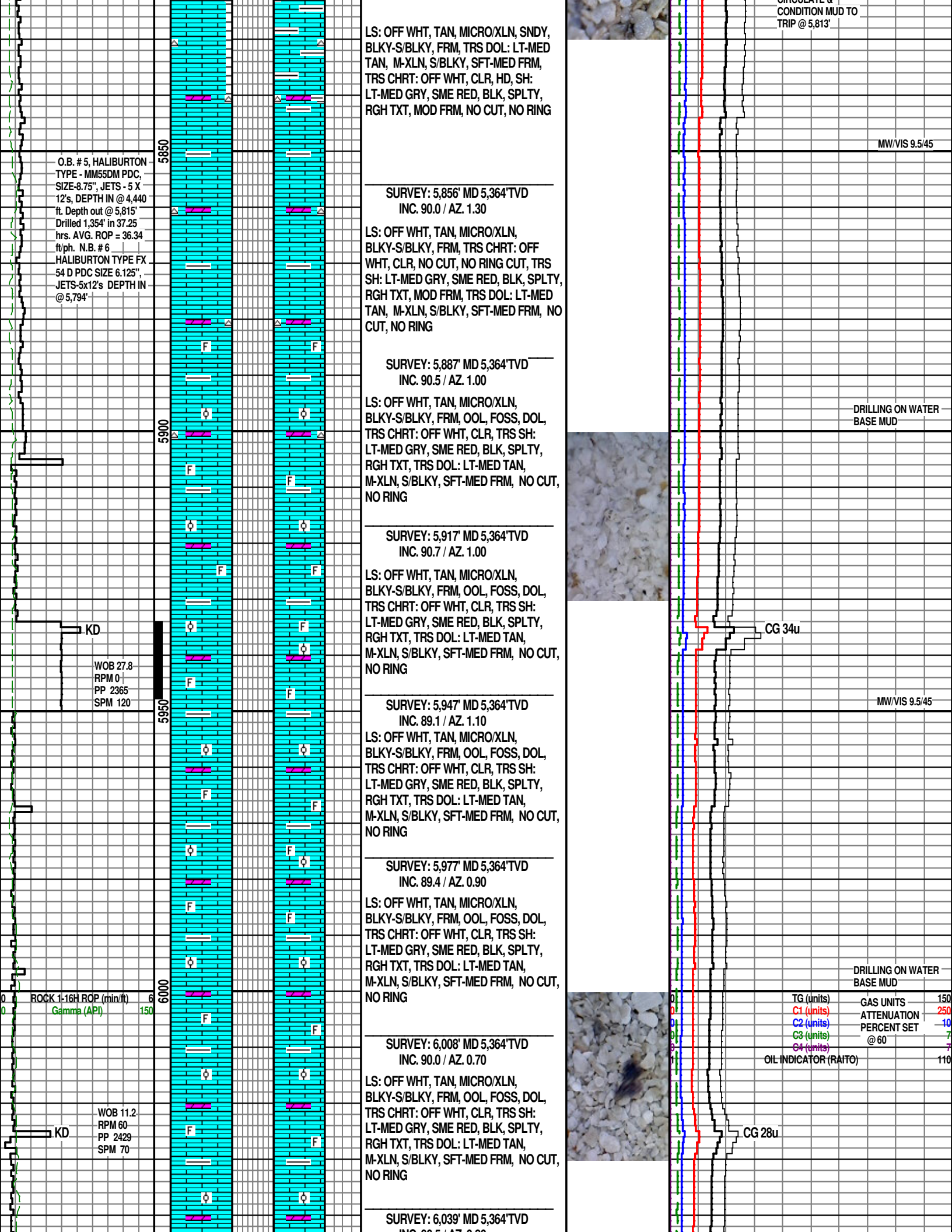
SURVEY: 5,756' MD 5,359'TVD
INC. 84.1 / AZ. 1.20

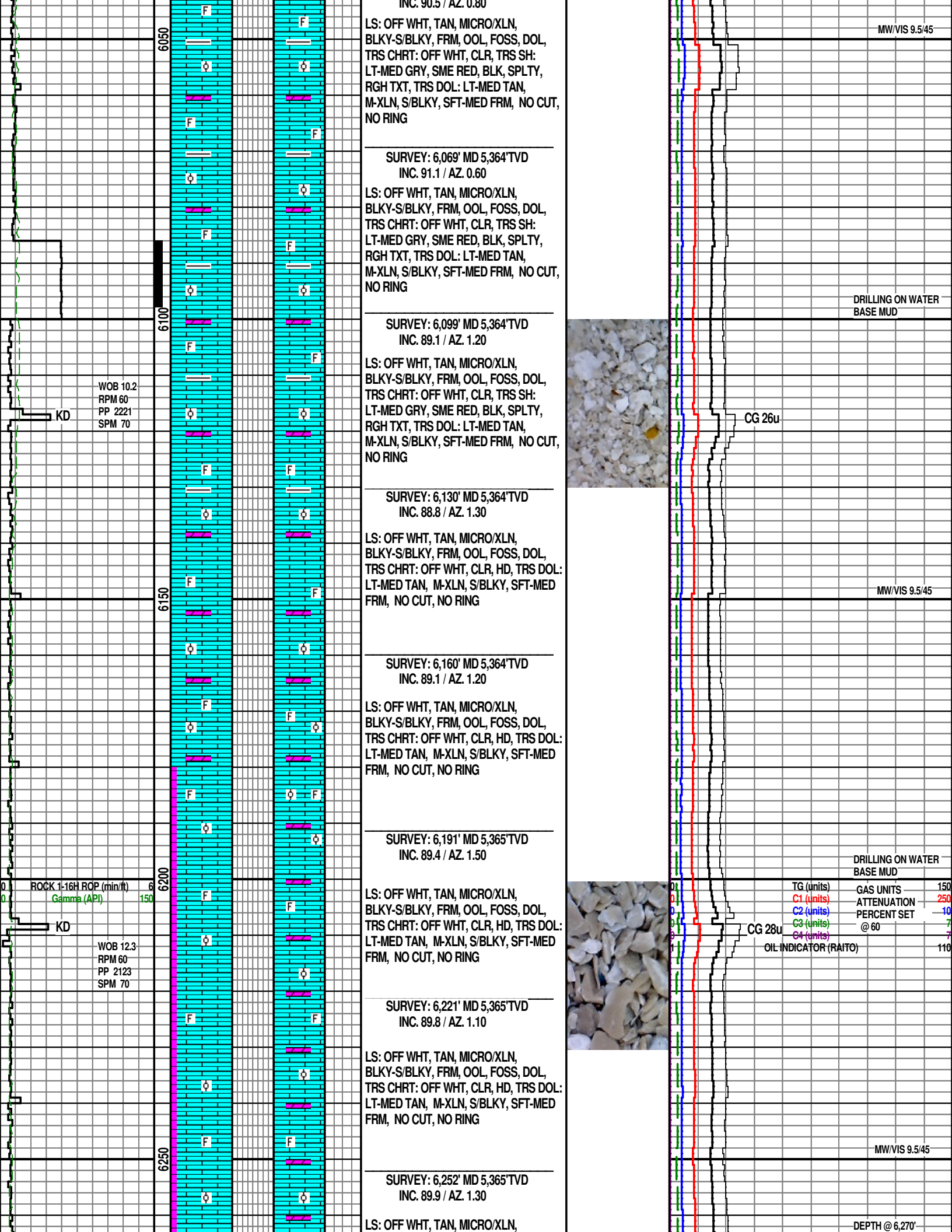
LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, DOL: LT-MED TAN, M-XLN, S/BLKY, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, HD

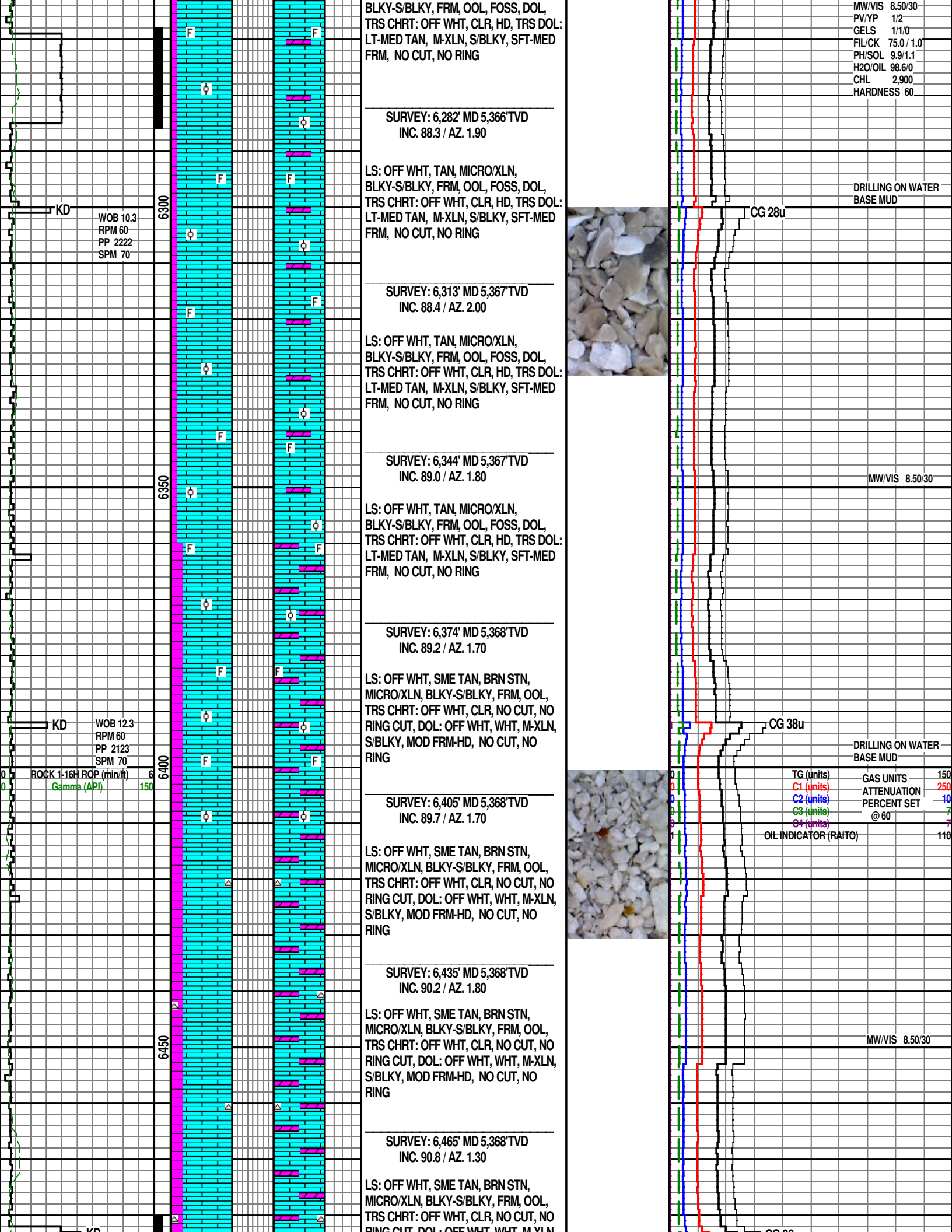
SURVEY: 5,794' MD 5,361'TVD
INC. 90.0 / AZ. 1.20

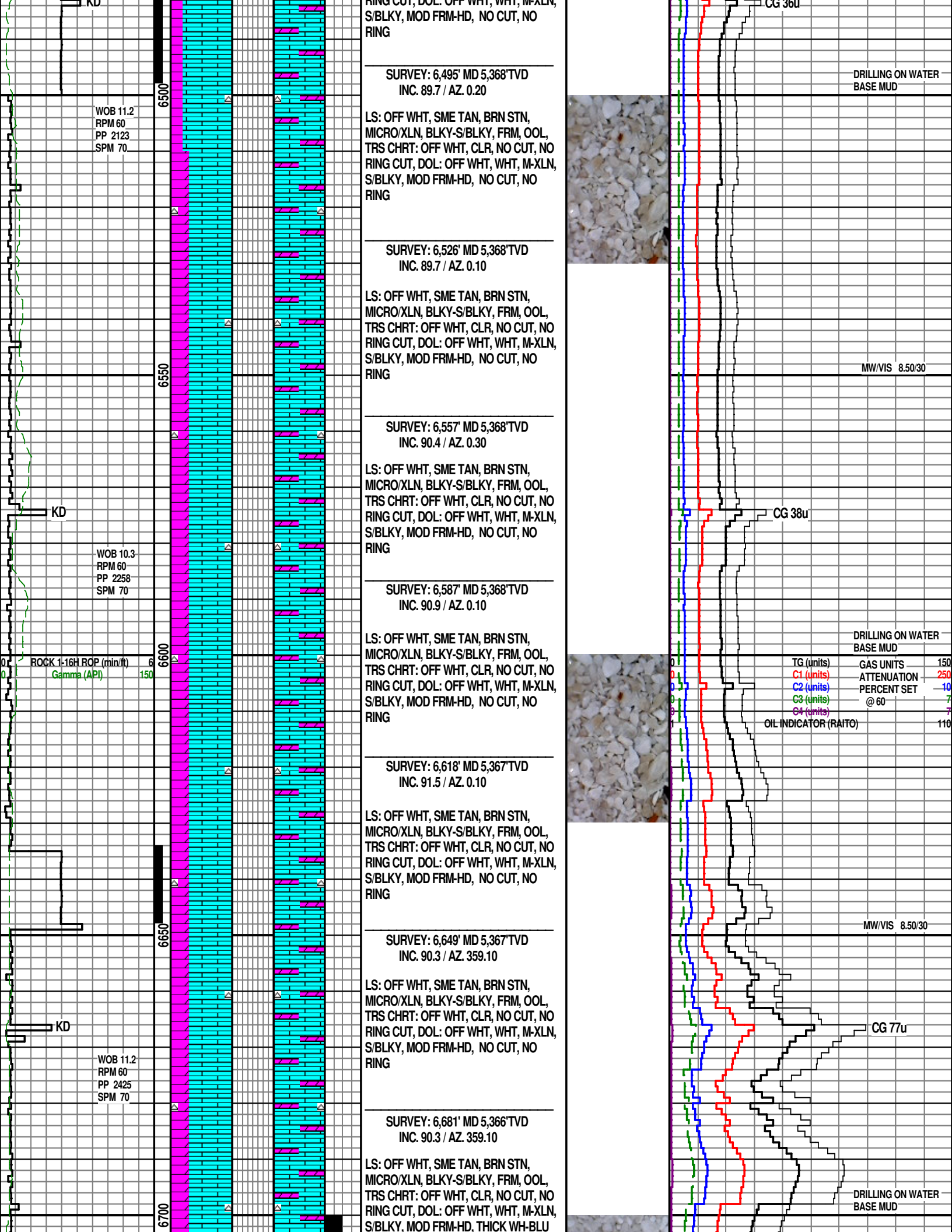
LS: OFF WHT, TAN, MICRO/XLN, SNDY, BLKY-S/BLKY, FRM, TRS DOL: LT-MED TAN, M-XLN, S/BLKY, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, HD, SH: LT-MED GRY, SME RED, BLK, SPLTY, RGH TXT, MOD FRM, NO CUT, NO RING

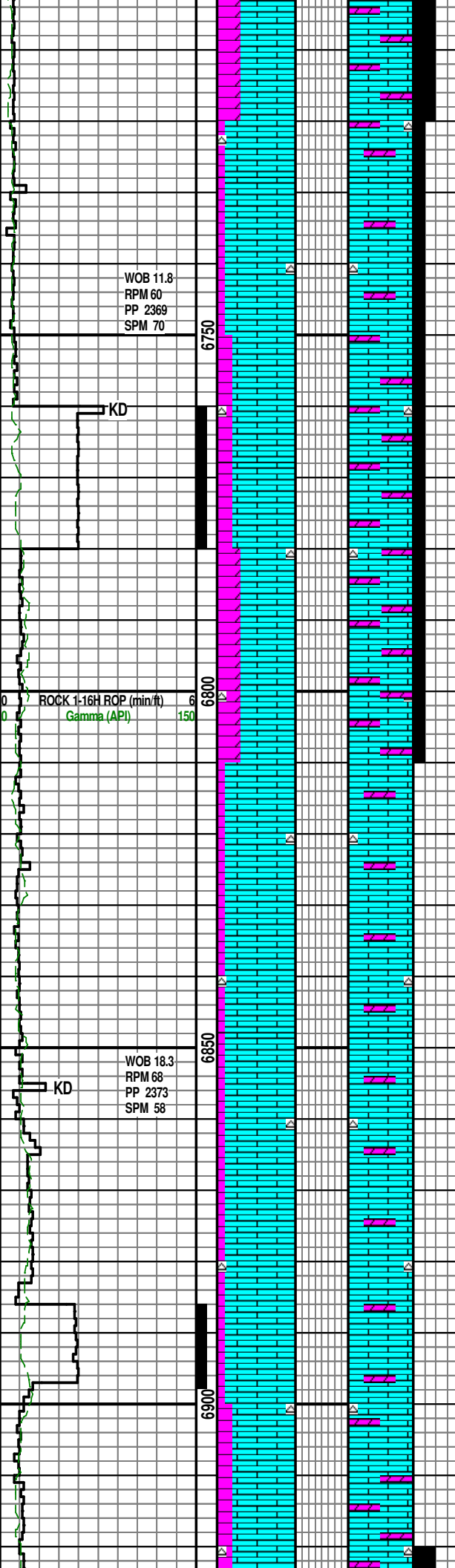












RING CUT

SURVEY: 6,712' MD 5,366'TVD
INC. 90.9 / AZ. 358.80

LS: MSTLY OFF WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT, THIN BLUE-WHITE
RESIDUAL RING

SURVEY: 6,744' MD 5,365'TVD
INC. 91.5 / AZ. 358.60

LS: MSTLY OFF WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT, THIN BLUE-WHITE
RESIDUAL RING

SURVEY: 6,775' MD 5,365'TVD
INC. 89.8 / AZ. 358.50

LS: MSTLY OFF WHT, SME LT TAN,
PRED BLKY, TR SPLNTY, SME OOL,
MICRO-XLN, MOD FRM- FRM, OCC BRIT,
SNDY, MILKY CUT, THIN BLUE-WHITE
RESIDUAL RING

SURVEY: 6,807' MD 5,365'TVD
INC. 89.8 / AZ. 358.60

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, OOL,
TRS CHRT: OFF WHT, CLR, NO CUT, NO
RING CUT, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 6,838' MD 5,365'TVD
INC. 90.3 / AZ. 358.60

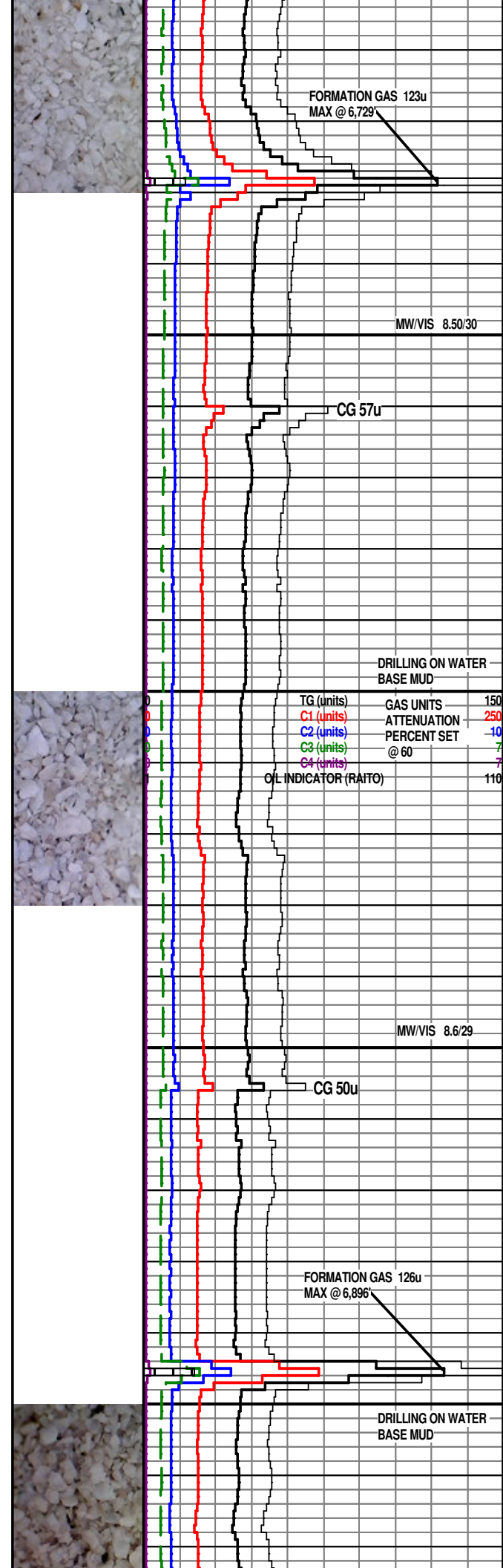
LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, OOL,
TRS CHRT: OFF WHT, CLR, NO CUT, NO
RING CUT, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

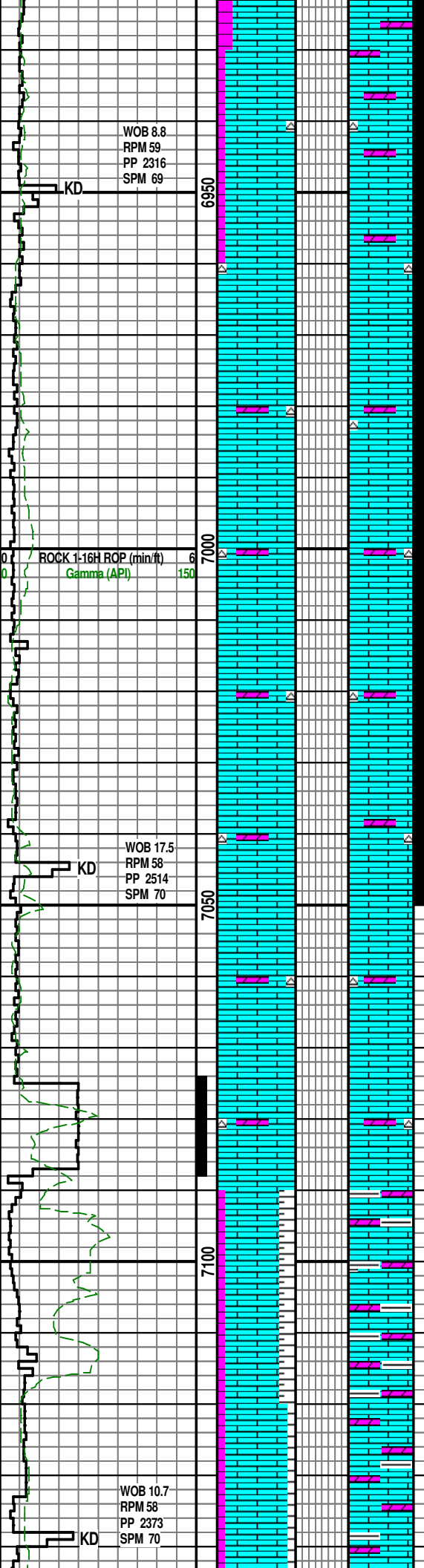
SURVEY: 6,870' MD 5,365'TVD
INC. 90.9 / AZ. 358.60

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, OOL,
TRS CHRT: OFF WHT, CLR, NO CUT, NO
RING CUT, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 6,901' MD 5,365'TVD
INC. 89.4 / AZ. 358.80

LS: MSTLY OFF WHT, SME LT TAN,
PRED BLKY, DOL: OFF WHT, WHT,
M-XLN, S/BLKY, MOD FRM-HD, TR
SPLNTY, SME OOL, MICRO-XLN, MOD
FRM- FRM, OCC BRIT, SNDY, MILKY





CUT, THICK BLUE-WHITE RESIDUAL RING, FR CUT

SURVEY: 6,933' MD 5,365'TVD
INC. 89.3 / AZ. 358.90

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, DOL: OFF WHT, WHT, M-XLN, S/BLKY, MOD FRM-HD, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, MILKY CUT, THIN BLUE-WHITE RESIDUAL RING, FR CUT

SURVEY: 6,964' MD 5,365'TVD
INC. 89.7 / AZ. 358.90

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, DOL: OFF WHT, WHT, M-XLN, S/BLKY, MOD FRM-HD, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, THIN BLU/GRN RESIDUAL RING, WK CUT

SURVEY: 6,996' MD 5,365'TVD
INC. 90.0 / AZ. 358.60

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, DOL: OFF WHT, WHT, M-XLN, S/BLKY, MOD FRM-HD, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, THIN BLU/GRN RESIDUAL RING, WK CUT

SURVEY: 7,027' MD 5,365'TVD
INC. 90.8 / AZ. 358.70

LS: MSTLY OFF WHT, SME LT TAN, PRED BLKY, DOL: OFF WHT, WHT, M-XLN, S/BLKY, MOD FRM-HD, TR SPLNTY, SME OOL, MICRO-XLN, MOD FRM- FRM, OCC BRIT, SNDY, THIN BLU/GRN RESIDUAL RING, WK CUT

SURVEY: 7,059' MD 5,365'TVD
INC. 91.1 / AZ. 358.60

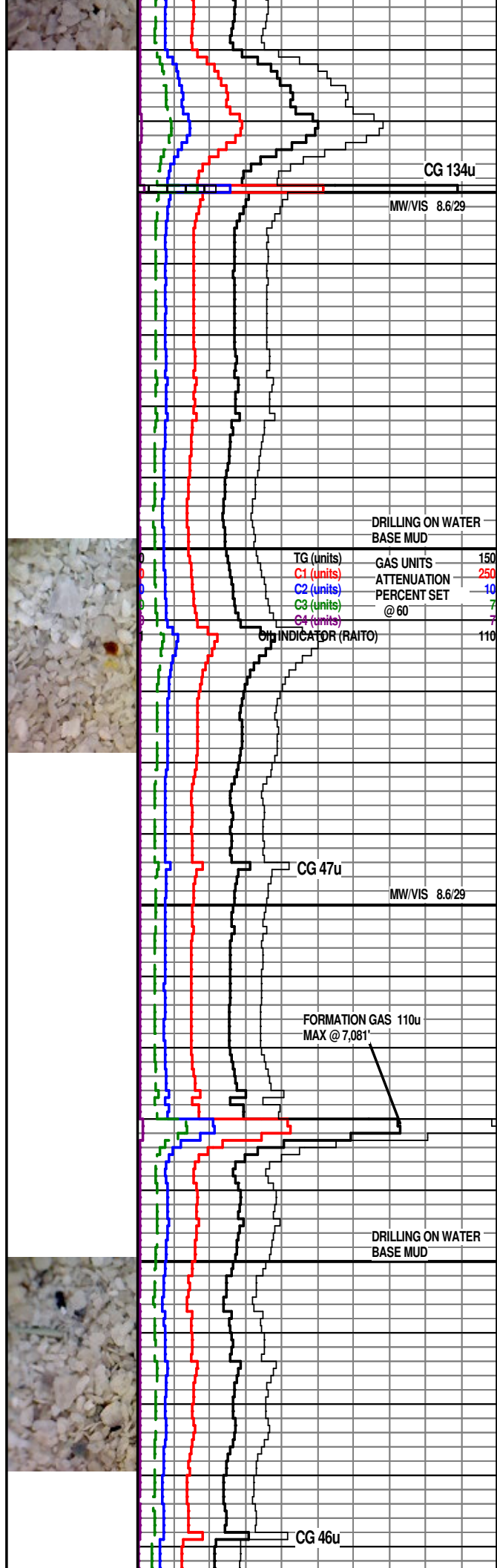
LS: OFF WHT, SME TAN, BRN STN, MICRO/XLN, BLKY-S/BLKY, FRM, TRS SHALE, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, DOL: OFF WHT, WHT, M-XLN, S/BLKY, MOD FRM-HD, NO CUT, NO RING

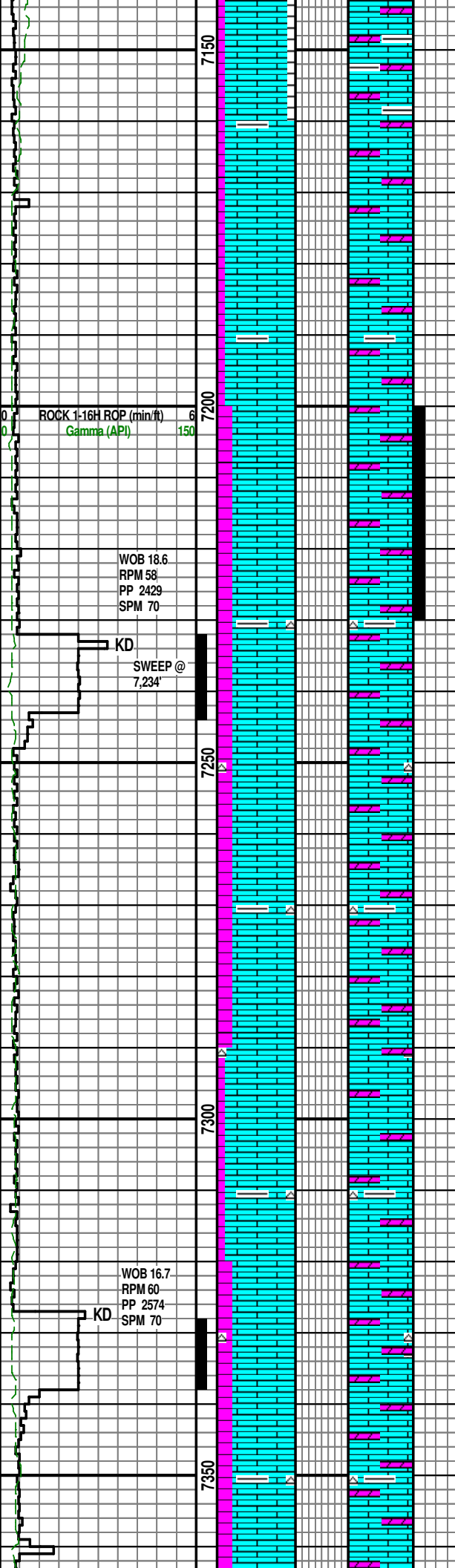
SURVEY: 7,090' MD 5,364'TVD
INC. 89.7 / AZ. 357.20

LS: OFF WHT, SME TAN, BRN STN, MICRO/XLN, BLKY-S/BLKY, FRM, TRS SHALE, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, DOL: OFF WHT, WHT, M-XLN, S/BLKY, MOD FRM-HD, NO CUT, NO RING

SURVEY: 7,122' MD 5,365'TVD
INC. 89.4 / AZ. 356.80

LS: OFF WHT, SME TAN, BRN STN, MICRO/XLN, BLKY-S/BLKY, FRM, TRS SHALE, SFT-MED FRM, TRS CHRT: OFF WHT, CLR, DOL: OFF WHT, WHT, M-XLN,





S/BLKY, MOD FRM-HD, NO CUT, NO RING

SURVEY: 7,153' MD 5,365'TVD
INC. 90.2 / AZ. 357.10

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,185' MD 5,365'TVD
INC. 90.6 / AZ. 356.70

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, THIN BLU-GRN RING, WK CUT

SURVEY: 7,216' MD 5,364'TVD
INC. 91.4 / AZ. 356.90

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, THIN BLU-GRN
RING, WK CUT

SURVEY: 7,248' MD 5,364'TVD
INC. 90.0 / AZ. 357.10

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,279' MD 5,364'TVD
INC. 90.2 / AZ. 356.90

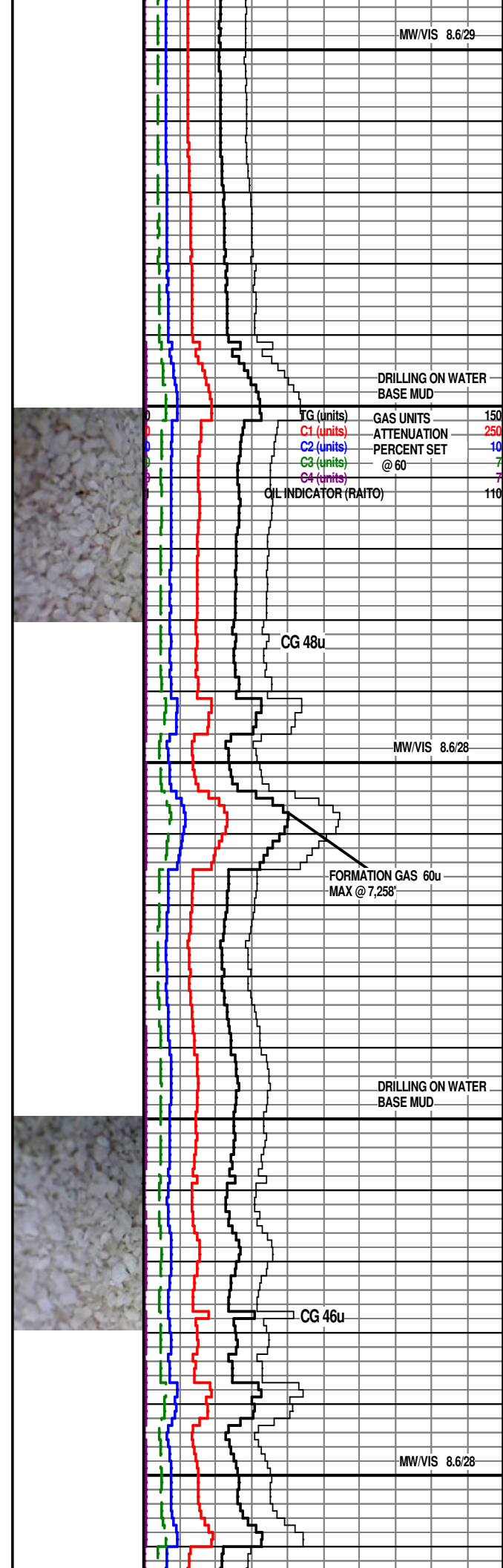
LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

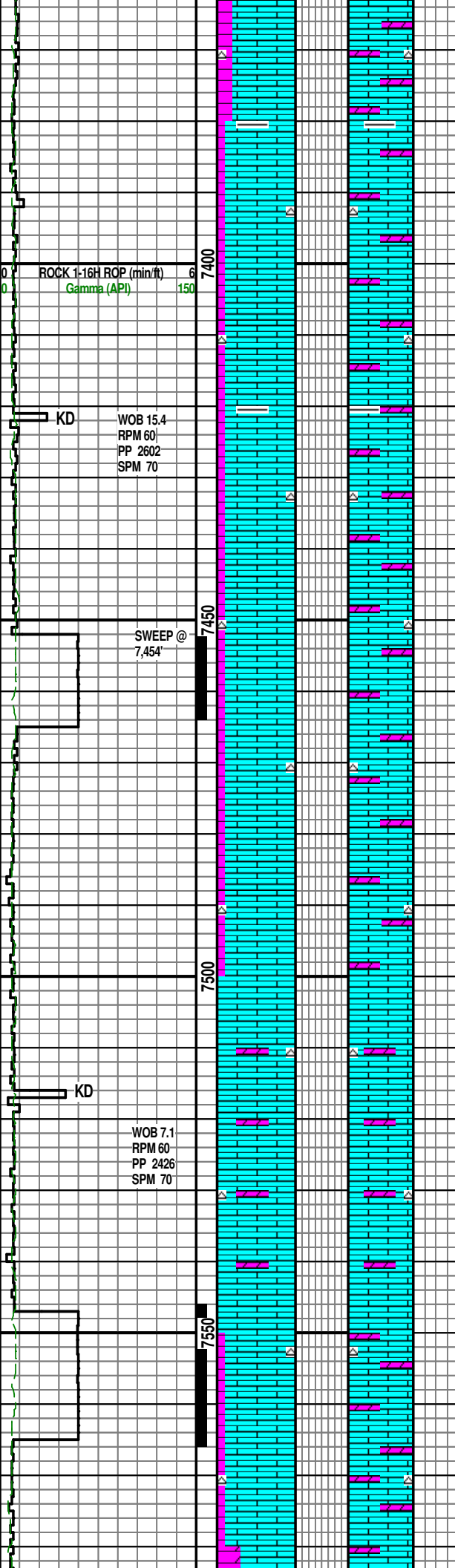
SURVEY: 7,311' MD 5,364'TVD
INC. 90.7 / AZ. 356.50

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,342' MD 5,363'TVD
INC. 89.4 / AZ. 357.60

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM,TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING





S/BLKY, MOD FRM-HD, NO CUT, NO RING

SURVEY: 7,373' MD 5,364'TVD
INC. 89.2 / AZ. 357.70

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,405' MD 5,364'TVD
INC. 89.8 / AZ. 357.60

LS: OFF WHT, SME TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
SHALE, SFT-MED FRM, TRS CHRT: OFF
WHT, CLR, DOL: OFF WHT, WHT, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,436' MD 5,364'TVD
INC. 90.3 / AZ. 357.40

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,468' MD 5,364'TVD
INC. 89.1 / AZ. 358.0

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,499' MD 5,364'TVD
INC. 89.5 / AZ. 358.2

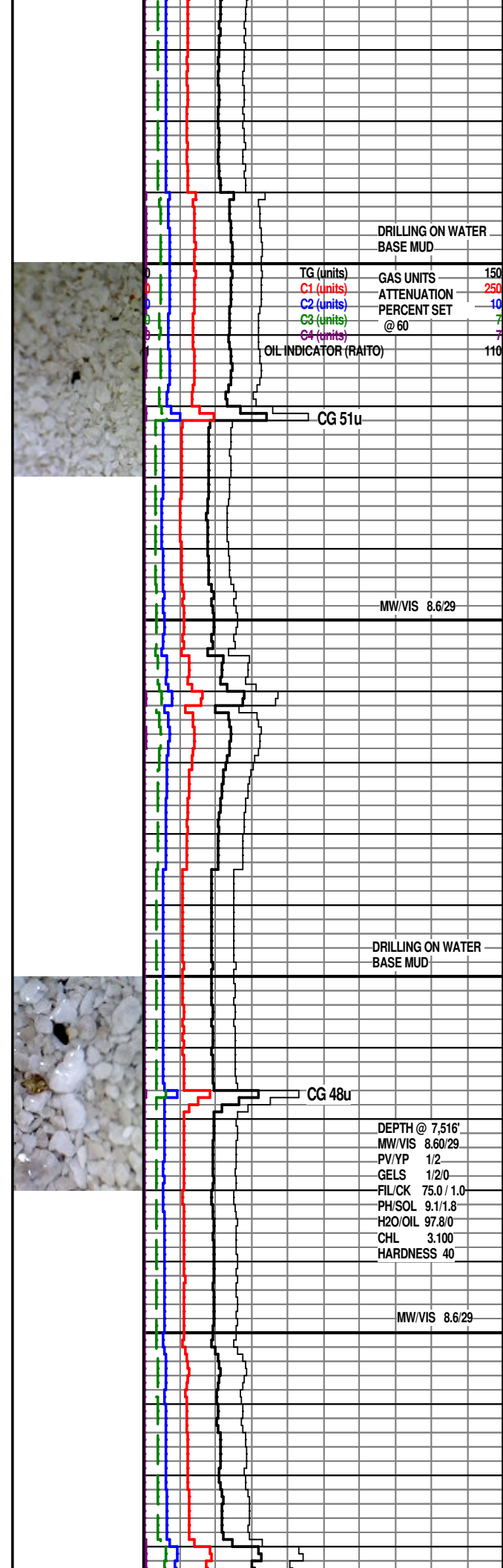
LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,531' MD 5,364'TVD
INC. 90.6 / AZ. 358.4

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,562' MD 5,364'TVD
INC. 89.8 / AZ. 359.1

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD



DRILLING ON WATER
BASE MUD

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

GAS UNITS
ATTENUATION
PERCENT SET
@ 60

CG 51u

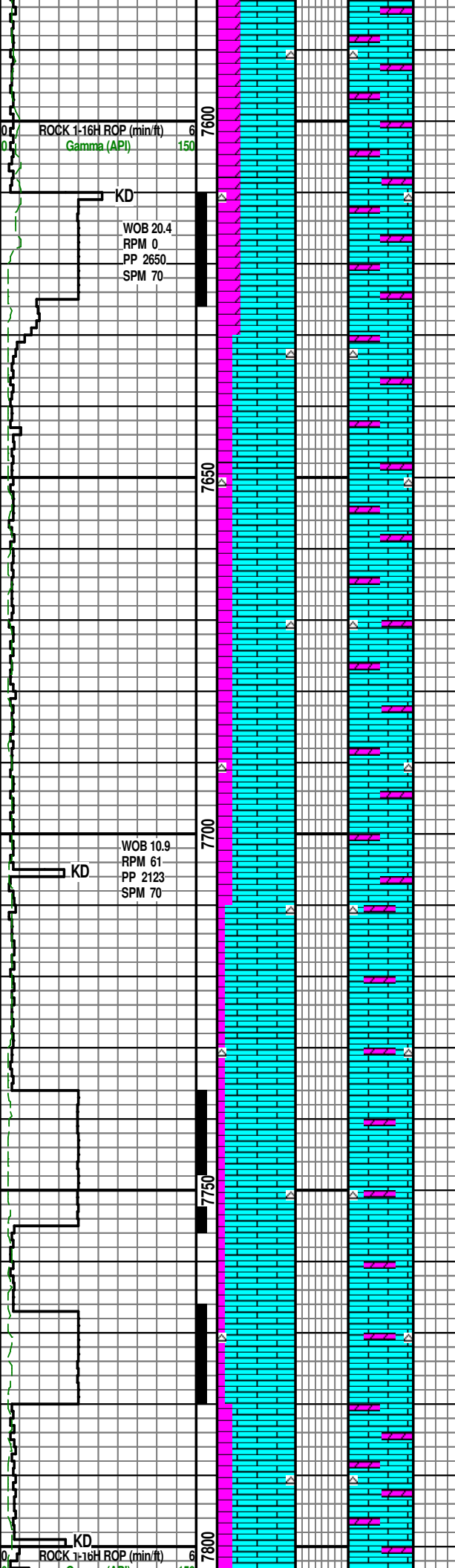
MW/VIS 8.6/29

DRILLING ON WATER
BASE MUD

CG 48u

DEPTH @ 7,516'
MW/VIS 8.60/29
PV/YP 1/2
GELS 1/20
FIL/CK 75.0/1.0
PH/SOL 9.1/1.8
H2O/OIL 97.8/0
CHL 3.100
HARDNESS 40

MW/VIS 8.6/29



FRM-HD, NO CUT, NO RING

SURVEY: 7,594' MD 5,364'TVD
INC. 90.2 / AZ. 359.3

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, SL/MICRO-SUC, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,625' MD 5,364'TVD
INC. 89.4 / AZ. 0.20

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, SL/MICRO-SUC, M-XLN,
S/BLKY, MOD FRM-HD, NO CUT, NO
RING

SURVEY: 7,657' MD 5,365'TVD
INC. 89.5 / AZ. 0.50

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,688' MD 5,365'TVD
INC. 89.5 / AZ. 0.30

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,720' MD 5,364'TVD
INC. 91.0 / AZ. 0.20

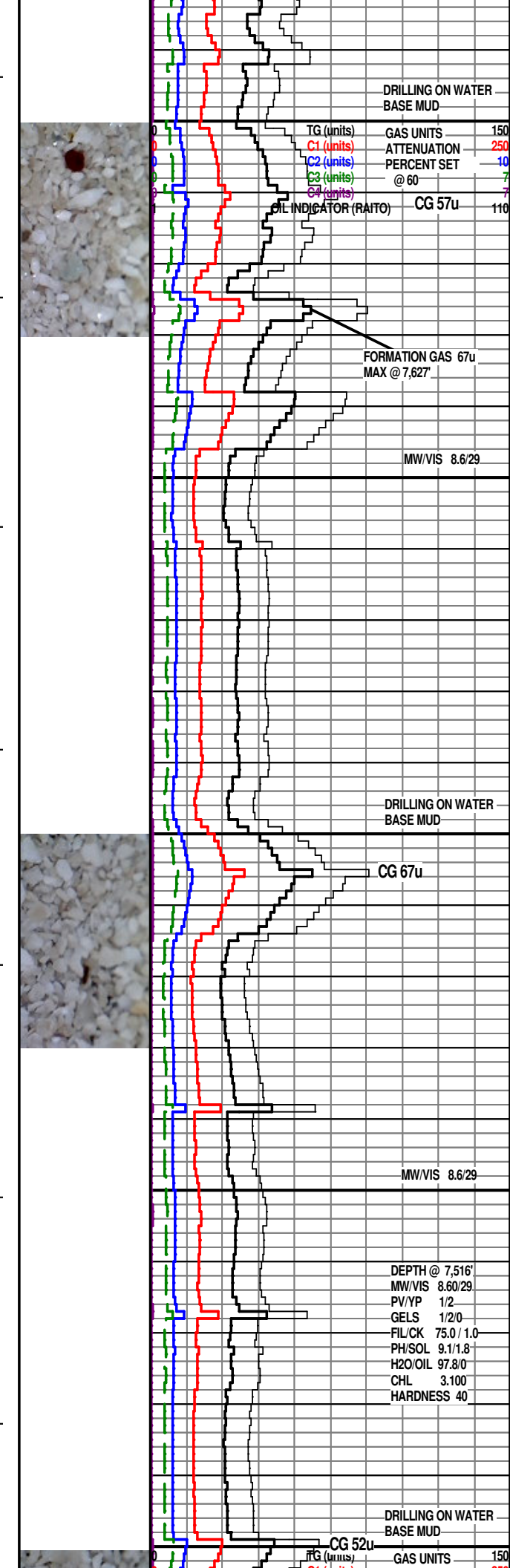
LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

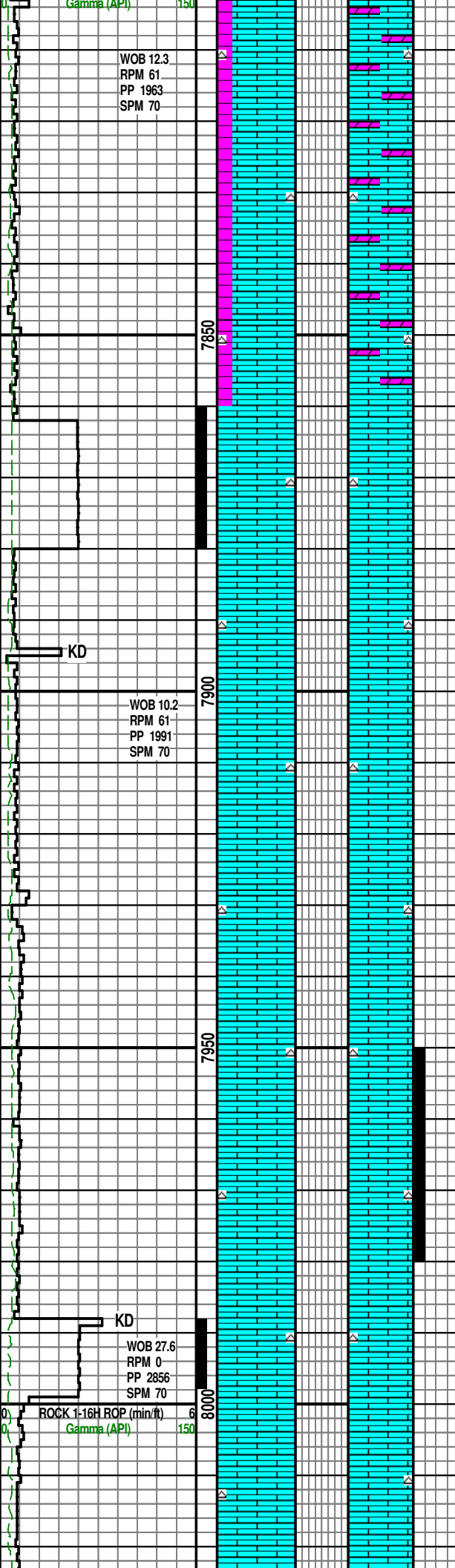
SURVEY: 7,751' MD 5,364'TVD
INC. 89.6 / AZ. 0.10

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,783' MD 5,365'TVD
INC. 87.8 / AZ. 0.70

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD





FRM-HD, NO CUT, NO RING

SURVEY: 7,814' MD 5,366'TVD
INC. 87.9 / AZ. 0.70

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,846' MD 5,367'TVD
INC. 88.7 / AZ. 0.50

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,877' MD 5,368'TVD
INC. 87.3 / AZ. 359.9

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,909' MD 5,370'TVD
INC. 87.6 / AZ. 359.8

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO CUT, NO RING

SURVEY: 7,940' MD 5,371'TVD
INC. 88.4 / AZ. 359.8

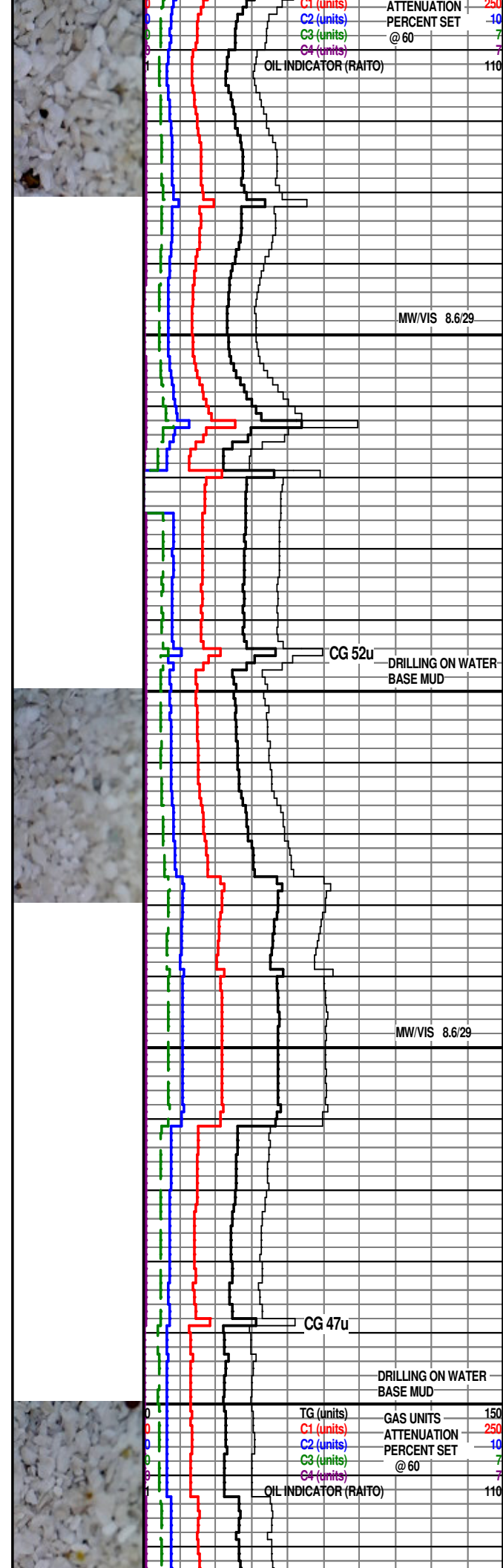
LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, THIN BLU-GRN RING, WK CUT

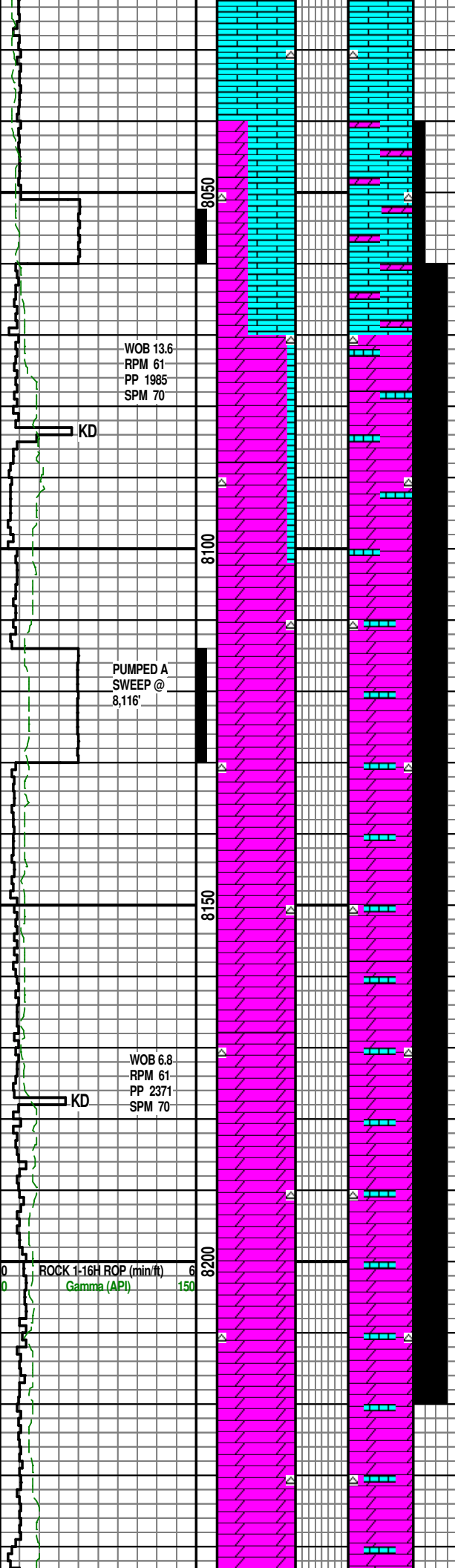
SURVEY: 7,972' MD 5,371'TVD
INC. 89.1 / AZ. 359.6

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD
FRM-HD, NO RING, NO CUT

SURVEY: 8,003' MD 5,372'TVD
INC. 87.8 / AZ. 359.8

LS: OFF WHT, TAN, BRN STN,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, WHT, M-XLN, S/BLKY, MOD





FRM-HD, NO CUT, NO RING

SURVEY: 8,035' MD 5,374'TVD
INC. 87.7 / AZ. 359.8

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, LT BRN, M-XLN, MICRO/SUC, OIL
STN/SAT, SNDY, S/BLKY, MOD FRM-HD,
THIN BLU-GRN RING, WK CUT

SURVEY: 8,066' MD 5,375'TVD
INC. 87.8 / AZ. 0.20

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: OFF
WHT, LT BRN, M-XLN, MICRO/SUC, OIL
STN/SAT, SNDY, S/BLKY, MOD FRM-HD,
THICK BLU-GRN RING, GD MKY CUT

SURVEY: 8,098' MD 5,376'TVD
INC. 87.9 / AZ. 0.10

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT-MED
BRN, MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,129' MD 5,378'TVD
INC. 86.3 / AZ. 359.50

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT-MED
BRN, MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,161' MD 5,380'TVD
INC. 86.2 / AZ. 359.10

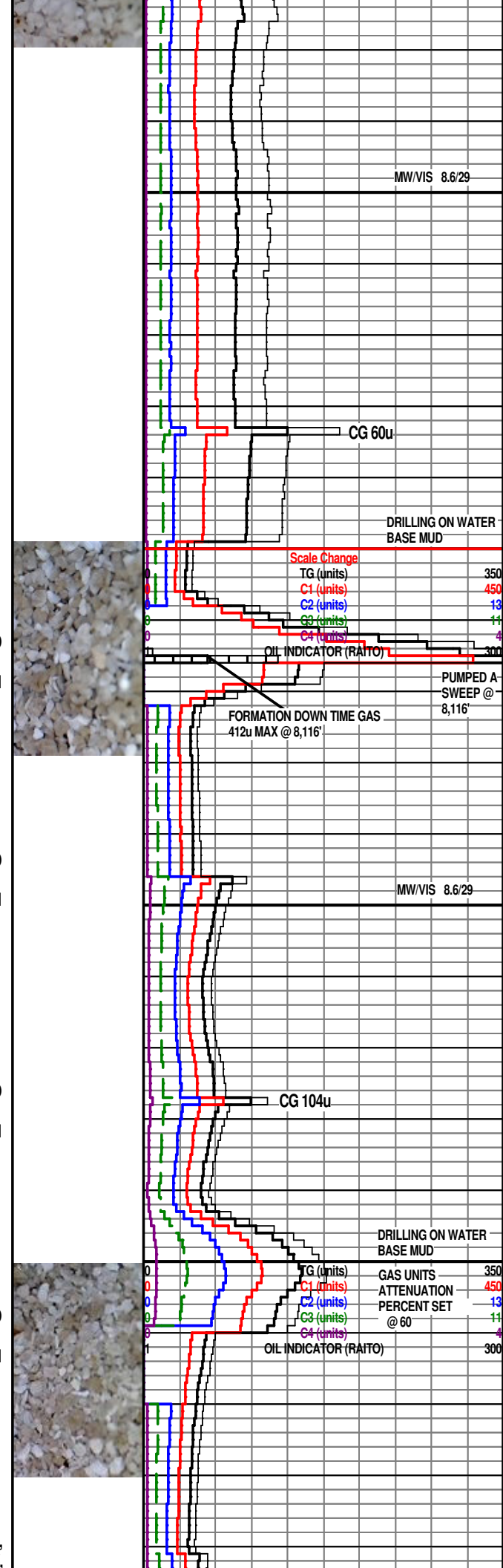
LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT-MED
BRN, MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

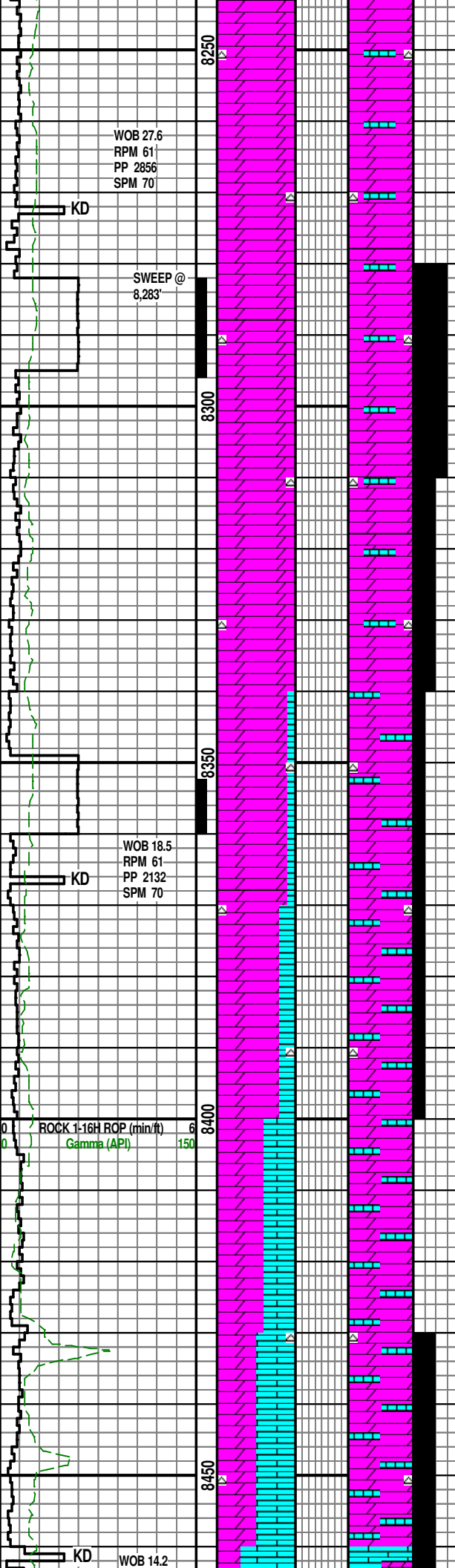
SURVEY: 8,192' MD 5,382'TVD
INC. 86.7 / AZ. 359.50

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT-MED
BRN, MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,224' MD 5,383'TVD
INC. 87.0 / AZ. 359.60

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, MICRO/XLN, SNDY, S/BLKY,





MOD FRM-HD, NO CUT, NO RING

SURVEY: 8,255' MD 5,385'TVD
INC. 86.3 / AZ. 359.70

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, MICRO/XLN, SNDY, S/BLKY,
MOD FRM-HD, NO CUT, NO RING

SURVEY: 8,287' MD 5,386'TVD
INC. 87.6 / AZ. 359.10

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT-MED
BRN, MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,318' MD 5,387'TVD
INC. 87.7 / AZ. 358.80

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT-MED
BRN, MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THIN BLU-GRN
RING, FR MKY CUT

SURVEY: 8,350' MD 5,388'TVD
INC. 88.9 / AZ. 359.50

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THIN BLU-GRN
RING, WK MKY CUT

SURVEY: 8,381' MD 5,389'TVD
INC. 90.1 / AZ. 359.80

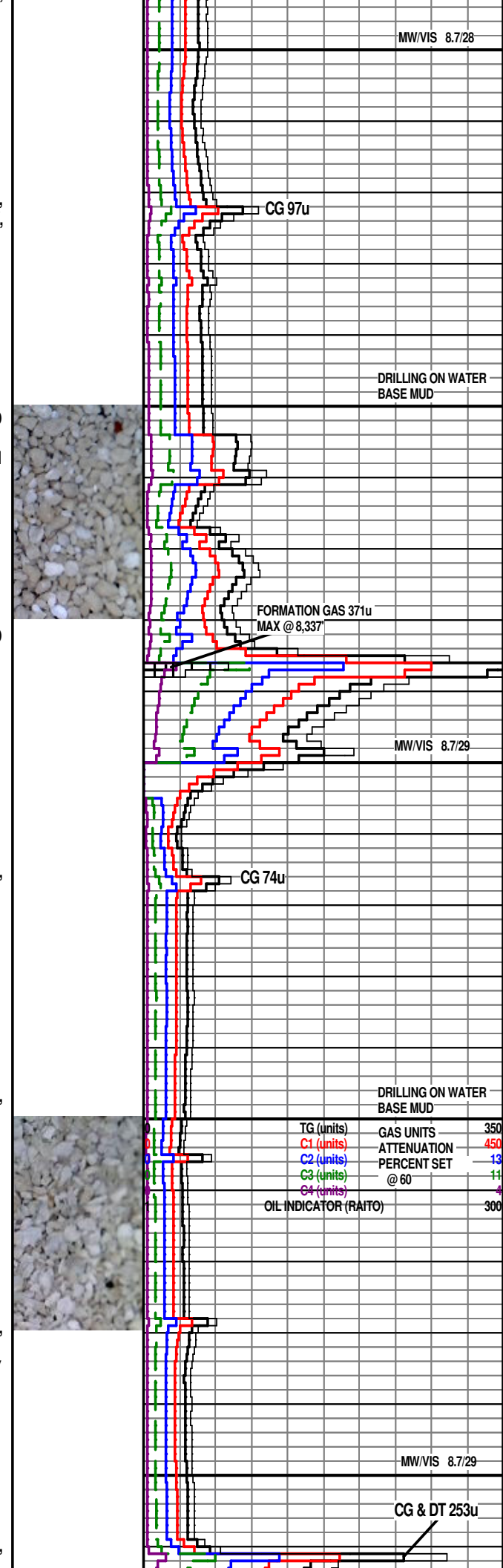
LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, MICRO/XLN,
SNDY, S/BLKY, MOD FRM-HD, THIN
BLU-GRN RING, WK MKY CUT

SURVEY: 8,413' MD 5,389'TVD
INC. 89.9 / AZ. 359.30

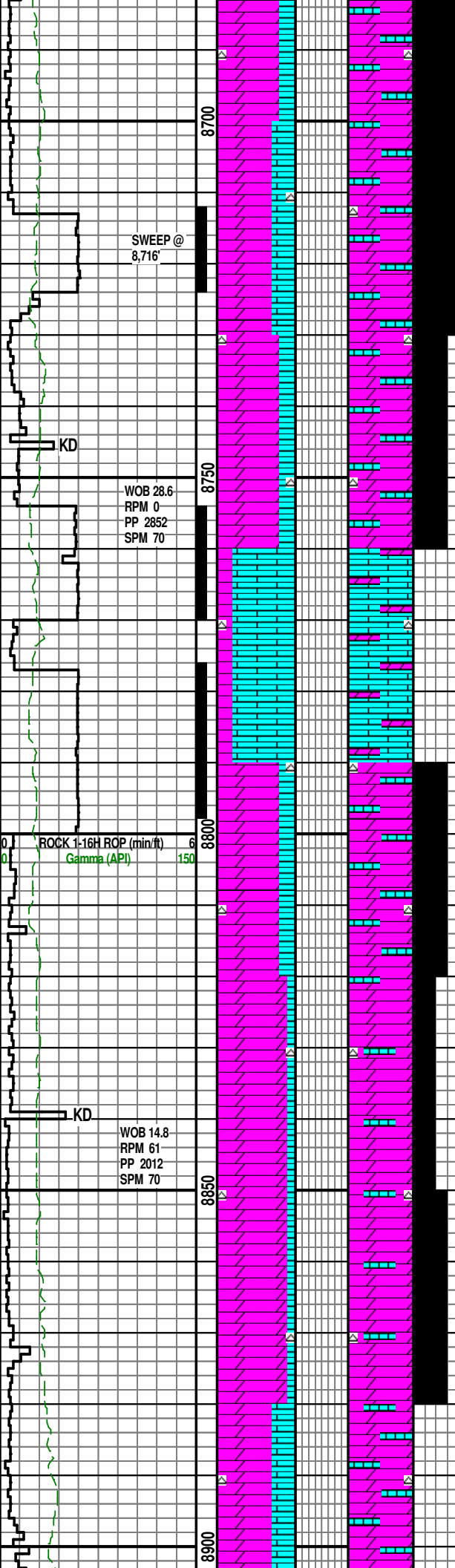
LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, SNDY, S/BLKY, MOD
FRM-HD, THICK BLU-GRN RING, FR MKY
CUT

SURVEY: 8,445' MD 5,388'TVD
INC. 91.2 / AZ. 359.30

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY



Scale Change



MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, EX MKY CUT

SURVEY: 8,697' MD 5,380'TVD
INC. 92.4 / AZ. 3.90

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, EX MKY CUT

SURVEY: 8,728' MD 5,379'TVD
INC. 93.6 / AZ. 5.40

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,760' MD 5,377'TVD
INC. 92.6 / AZ. 4.10

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/XLN, SNDY, S/BLKY, MOD
FRM-HD, NO RING, NO CUT

SURVEY: 8,791' MD 5,376'TVD
INC. 89.7 / AZ. 2.10

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,823' MD 5,377'TVD
INC. 88.1 / AZ. 0.10

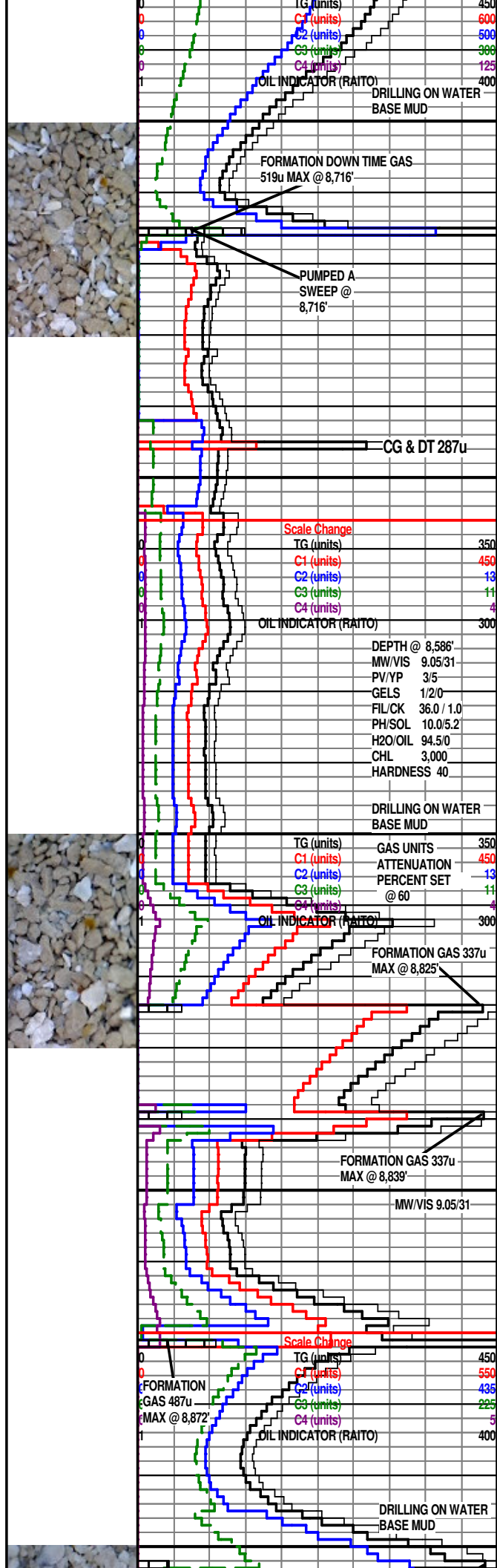
LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, FR MKY CUT

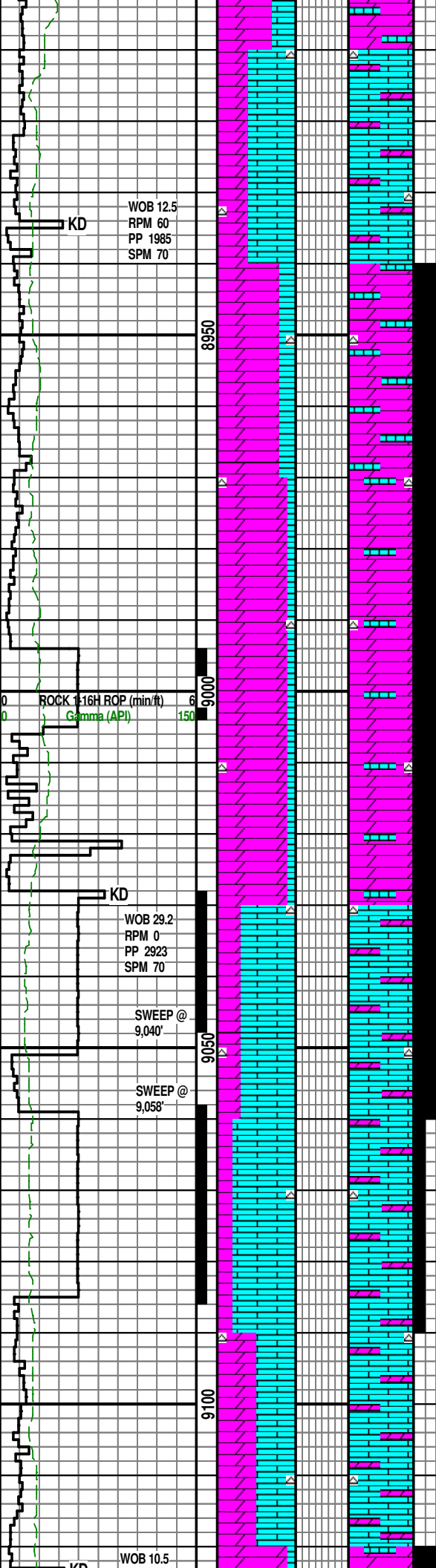
SURVEY: 8,854' MD 5,378'TVD
INC. 88.7 / AZ. 359.9

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 8,886' MD 5,379'TVD
INC. 88.2 / AZ. 359.1

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY, S/BLKY,





MICRO/SUC, MICRO/XLN, SNDY, S/BLKY,
MOD FRM-HD, NO RING, NO CUT

SURVEY: 8,917' MD 5,379'TVD
INC. 89.3 / AZ. 359.8

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, MICRO/XLN, SNDY, S/BLKY,
MOD FRM-HD, NO RING, NO CUT

SURVEY: 8,949' MD 5,379'TVD
INC. 91.6 / AZ. 1.00

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, FR MKY CUT

SURVEY: 8,980' MD 5,377'TVD
INC. 94.5 / AZ. 4.50

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 9,012' MD 5,375'TVD
INC. 95.2 / AZ. 4.30

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, GD MKY CUT

SURVEY: 9,043' MD 5,373'TVD
INC. 93.1 / AZ. 3.10

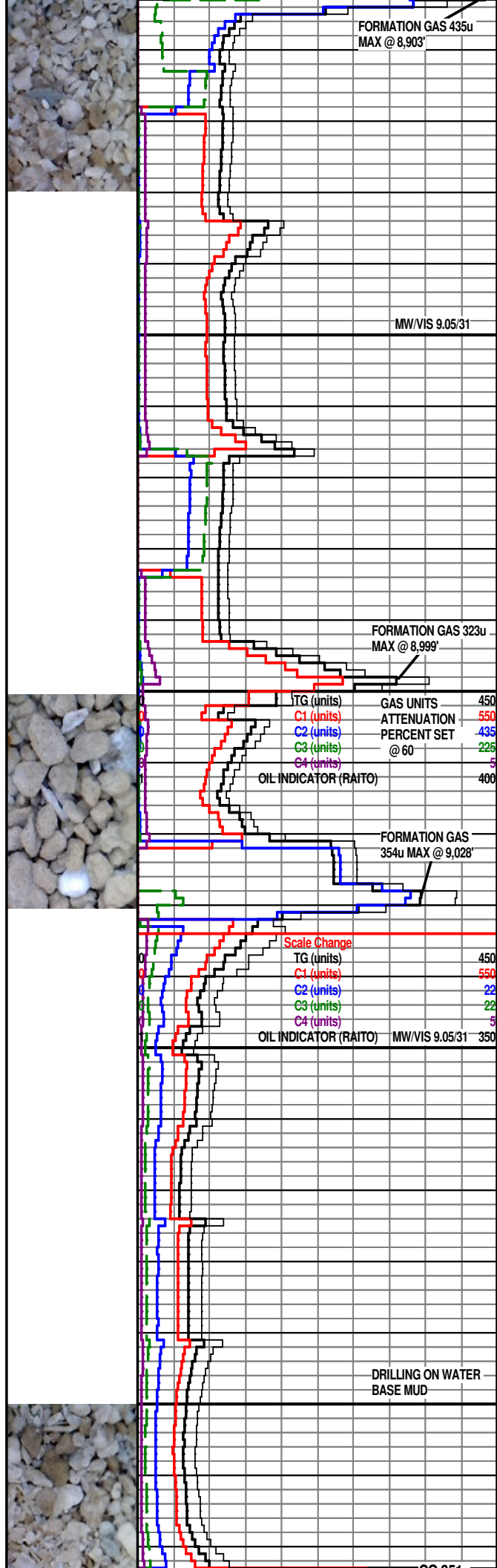
LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, OIL STN/SAT, SNDY,
S/BLKY, MOD FRM-HD, THICK BLU-GRN
RING, WK-FR MKY CUT

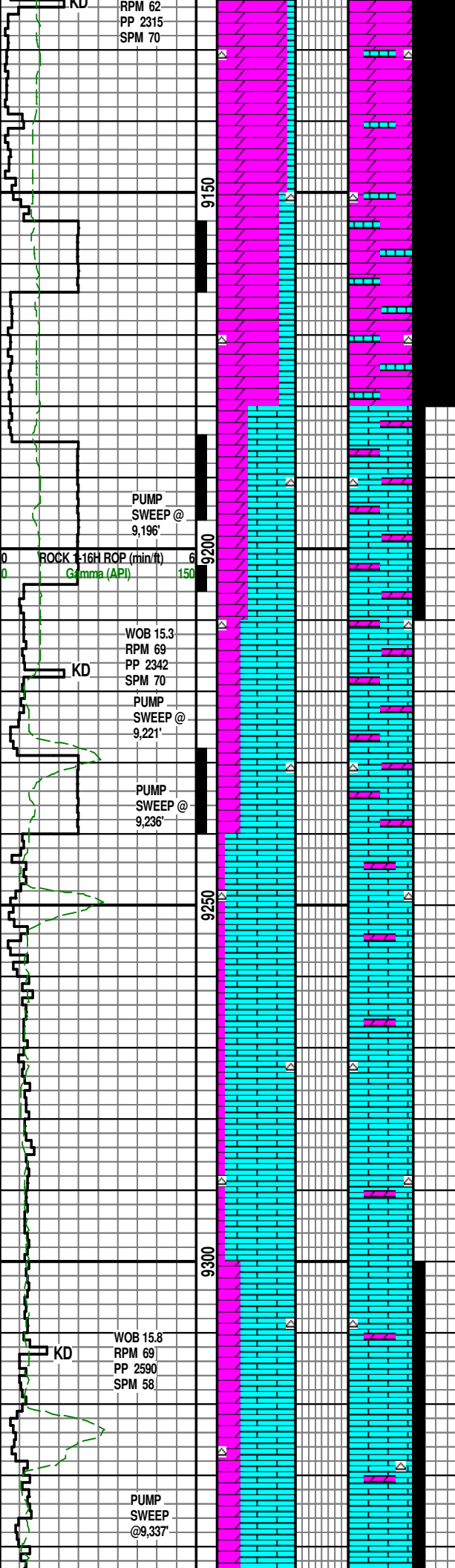
SURVEY: 9,075' MD 5,371'TVD
INC. 93.1 / AZ. 3.10

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,
MICRO/SUC, MICRO/XLN, SNDY, S/BLKY,
MOD FRM-HD, V-THIN BLU-GRN RING,
V-WK MKY CUT

SURVEY: 9,106' MD 5,371'TVD
INC. 90.0 / AZ. 2.00

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN,





MICRO/SUC, OIL STN/SAT, SNDY, S/BLKY, MOD FRM-HD, THICK BLU-GRN RING, GD-EX MKY CUT

SURVEY: 9,138' MD 5,371'TVD
INC. 89.5 / AZ. 1.10

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/SUC, OIL STN/SAT, SNDY, S/BLKY, MOD FRM-HD, THICK BLU-GRN RING, GD-EX MKY CUT

SURVEY: 9,169' MD 5,371'TVD
INC. 90.6 / AZ. 1.40

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/SUC, MICRO/XLN, OIL STN/SAT, SNDY, S/BLKY, MOD FRM-HD, V-THIN BLU-GRN RING, V-WK MKY CUT

SURVEY: 9,201' MD 5,371'TVD
INC. 89.3 / AZ. 0.50

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

SURVEY: 9,232' MD 5,372'TVD
INC. 87.7 / AZ. 359.0

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

SURVEY: 9,264' MD 5,374'TVD
INC. 86.6 / AZ. 358.10

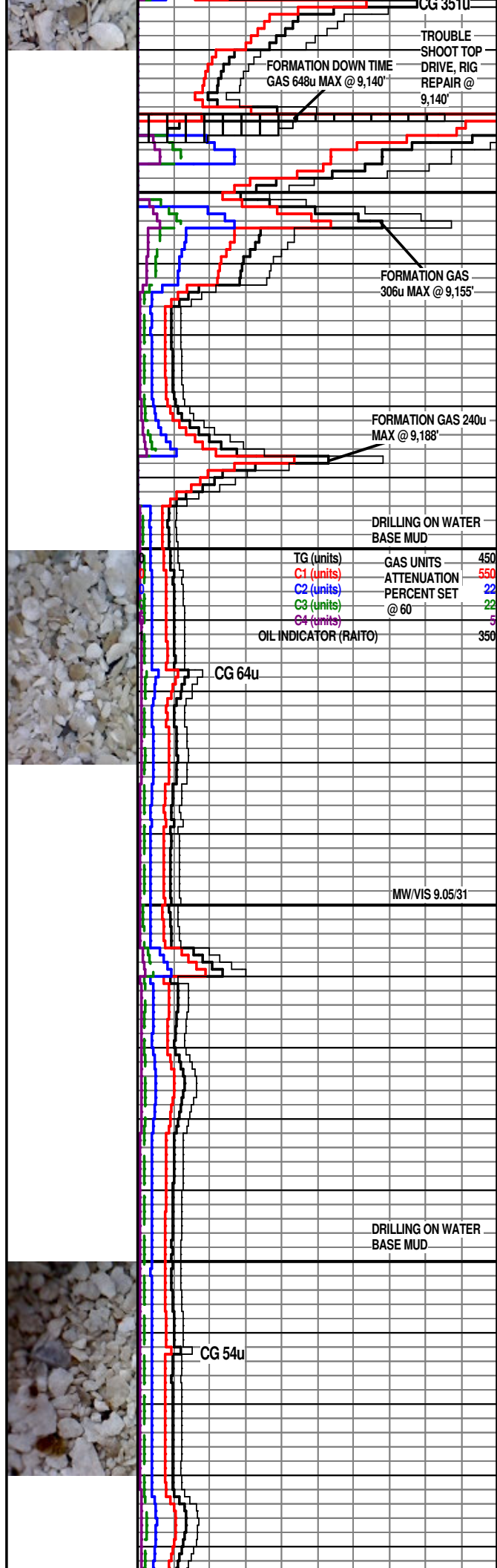
LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

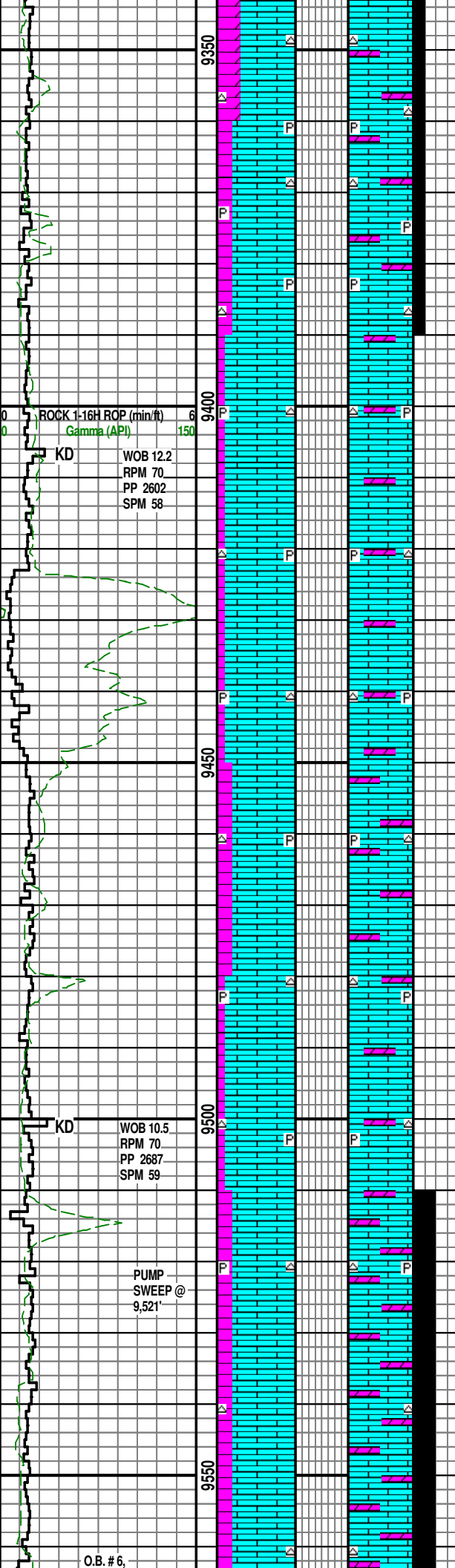
SURVEY: 9,295' MD 5,376'TVD
INC. 86.8 / AZ. 357.60

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/SUC, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, V-THIN BLU-GRN RING, V-WK CUT

SURVEY: 9,327' MD 5,377'TVD
INC. 87.1 / AZ. 357.60

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS





CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/SUC, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, V-THIN BLU-GRN RING, V-WK CUT

SURVEY: 9,358' MD 5,379'TVD
INC. 87.4 / AZ. 358.40

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
PYR, TRS CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/SUC, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, V-THIN BLU-GRN RING, V-WK CUT

SURVEY: 9,390' MD 5,380'TVD
INC. 87.6 / AZ. 357.50

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
PYR, TRS DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

SURVEY: 9,421' MD 5,381'TVD
INC. 88.1 / AZ. 357.30

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
PYR, TRS DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

SURVEY: 9,452' MD 5,382'TVD
INC. 88.7 / AZ. 356.70

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
PYR, TRS DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

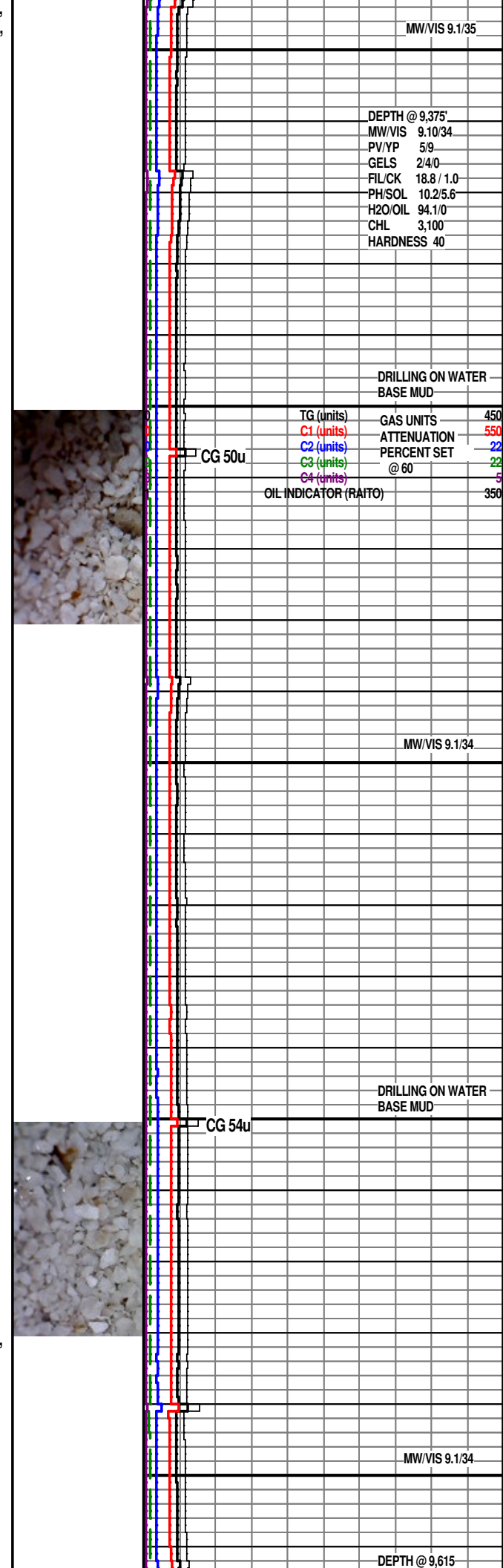
SURVEY: 9,484' MD 5,383'TVD
INC. 89.1 / AZ. 356.50

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
PYR, TRS DOL: LT BRN, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, NO RING, NO CUT

SURVEY: 9,515' MD 5,383'TVD
INC. 89.1 / AZ. 357.10

LS: OFF WHT, TAN, BRN STN, OOL, MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, DOL: LT BRN, MICRO/SUC, OIL STN/SAT, MICRO/XLN, SNDY, S/BLKY, MOD FRM-HD, V-THIN BLU-GRN RING, FR-WK MKY CUT

SURVEY: 9,547' MD 5,384'TVD
INC. 89.4 / AZ. 357.30



DEPTH @ 9,375'
MW/VIS 9.10/34
PV/YP 5/9
GELS 2/4/0
FIL/CK 18.8 / 1.0
PH/SOL 10.2/5.6
H2O/OIL 94.1/0
CHL 3,100
HARDNESS 40

DRILLING ON WATER
BASE MUD

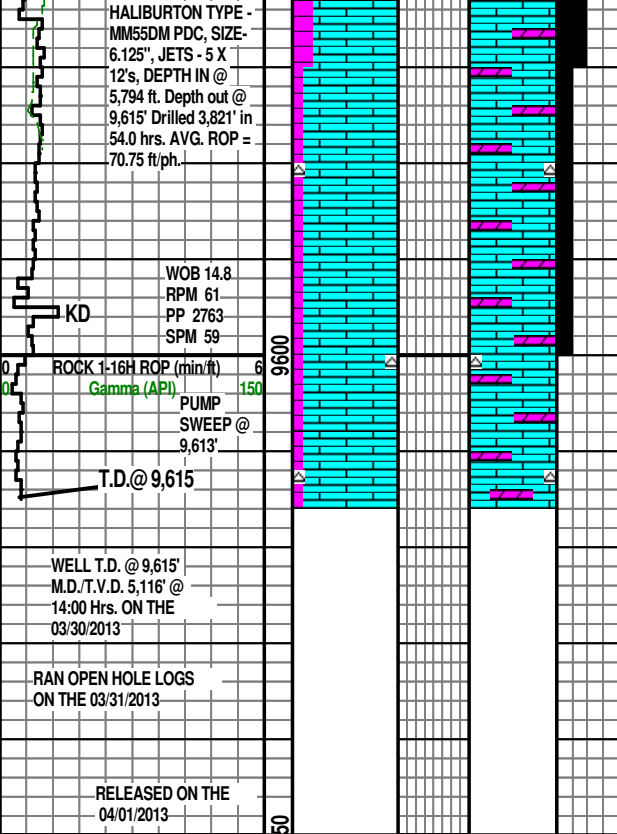
TG (units) 450
C1 (units) 550
C2 (units) 22
C3 (units) 22
C4 (units) 5
OIL INDICATOR (RAITO) 350

MW/VIS 9.1/34

DRILLING ON WATER
BASE MUD

MW/VIS 9.1/34

DEPTH @ 9,615'



SURVEY: 9,566' MD 5,384'TVD
INC. 89.6 / AZ. 357.20

LS: OFF WHT, TAN, BRN STN, OOL,
MICRO/XLN, BLKY-S/BLKY, FRM, TRS
CHRT: OFF WHT, CLR, HD, TRS DOL: LT
BRN, MICRO/SUC, MICRO/XLN, SNDY, OIL
STN/SAT, S/BLKY, MOD FRM-HD, V-THIN
BLU-GRN RING, V-WK CUT

SURVEY: 9,615' MD 5,384'TVD
INC. 90.0 / AZ. 357.20

