

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

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

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

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

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

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Palomino Petroleum, Inc.
Well Name	NBS UNIT 1
Doc ID	1411558

Tops

Name	Top	Datum
Anhy.	1873	(+ 651)
Base Anhy.	1902	(+ 622)
Heebner	3810	(-1286)
Lansing	3854	(-1330)
Stark Sh.	4106	(-1582)
BKC	4168	(-1644)
Pawnee	4302	(-1778)
Ft. Scott	4364	(-1840)
Cherokee Sh.	4386	(-1862)
Miss.	4460	(-1936)





Home  
17851798-3400

Andrew Stenzel  
Geologist

Ness City, Kansas



Cell  
17851798-5977

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

Well Name: NBS Unit #1  
UWI: 15135260000100  
Location: SE-SW-SE-NW Sec. 23-17S-26W (Ness County)  
License Number: 15-135-26000-01-00  
Spud Date: 4/3/18  
Surface Coordinates: 2506' FNL & 1786' FWL Sec. 23-14S-26W  
Region: KANSAS  
Drilling Completed: 4/21/18

Bottom Hole  
Coordinates: 2509  
Ground Elevation (ft): 3840  
Logged Interval (ft): To: TD  
Formation: MISSISSIPPIAN  
Type of Drilling Fluid: Mud-Co Chemical  
K.B. Elevation (ft): 2524  
Total Depth (ft): 8644

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

OPERATOR

Company: Palomino Petroleum, Inc.  
Address: 4924 SE 84th St.  
Newton, KS 67114

GEOLOGIST

Name: Andrew Stenzel  
Company: Petroleum Geologist  
Address: 501 S. Franklin  
Ness City, KS 67560

Misc. Info.

RIG: WW Drilling, Rig #14  
MUD: MUDCO  
MWD, LWD: Schlumberger MWD, iDNSC  
DD: Schlumberger

Measured Depth	Formation Tops	True Vertical Depth (Sub Sea)
*Anhy. 1873		1873 (+651)
*Base Anhy. 1902		1902 (+622)
*Heebner 3810		3810 (-1286)
Lansing 3854		3854 (-1330)
Stark Sh 4121		4106 (-1582)
BKC 4195		4168 (-1644)
Pawnee 4375		4302 (-1778)
Ft. Scott 4469		4364 (-1840)
Cher. Sh. 4510		4386 (-1862)
Miss. 4700		4460 (-1936)
RTD 8644		

Formation Tops

True Vertical Depth (Sub Sea)

Measured Depth  
 \*Anhy. 1873  
 \*Base Anhy. 1902  
 \*Heebner 3810  
 Lansing 3854  
 Stark Sh 4121  
 BKC 4195  
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 Ft. Scott 4469  
 Cher. Sh. 4510  
 Miss. 4700  
 RTD 8644

1873 (+651)  
 1902 (+622)  
 3810 (-1286)  
 3854 (-1330)  
 4106 (-1582)  
 4168 (-1644)  
 4302 (-1778)  
 4364 (-1840)  
 4386 (-1862)  
 4460 (-1936)

\*Sample Tops

Drilling Report

4/3/18 MIRU, ran surface casing  
 4/4/18 Waiting on cement  
 4/5/18 Tripping out of hole for survey tool @ 1806'  
 4/6/18 Drilling @ 3400'  
 4/7/18 Tripping in hole w directional tools @ 3868'  
 4/8/18 Drilling @ 4004'  
 4/9/18 Drilling @ 4515'  
 4/10/18 Preparing to run 7" casing  
 4/11/18 Ran 7" casing  
 4/12/18 Drilling out plug @ 4810'  
 4/13/18 Tripping out for directional tools @ 4937'  
 4/14/18 Drilling @ 5276'  
 4/15/18 Drilling @ 5952'  
 4/16/18 Drilling @ 6590'  
 4/17/18 Drilling @ 7082'  
 4/18/18 Laying down directional tools @ 7399'  
 4/19/18 Drilling @ 7887'  
 4/20/18 Circulating to condition hole at TD @ 8644'  
 4/21/18 Circulating to condition hole @ 8644' preparing to run casing, packers, and sleeves.  
 4/22/18 Reamed hole, spotted oil, ran production casing

Casing Record

SURFACE Casing: Ran 5 jts new 9 5/8", 36# casing @ 215', cemented w 140 sx common, cement did circulate. Plug down @ 4:00 am 4/4/18.

INTERMEDIATE Casing: Ran 122 jts new 7", 26# casing @ 4843'. Lost circulation, approx 300 bbls. Cemented w 250sx SMD. Lost circulation 77 bbls into displacement, cement did not circulate. Plug down @ 6:00 am, pressured to 2400#, held.

PRODUCTION Casing: Ran 94 jts new 4 1/2", 11.6# N-80 casing set 9' off bottom at 8635'. Set packers and casing hanger.

Anhy  
 Bent  
 Brec  
 Cht

Clyst  
 Carb sh  
 Congl  
 Dol

Gyp  
 Igne  
 Lmst  
 Meta

Mrlst  
 Salt  
 Shale  
 Shcol

Shgy  
 Sltst  
 Ss  
 Till

FOSSIL

Algae  
 Amph  
 Belm  
 Bioclst  
 Brach  
 Bryozoa

Crin  
 Echin  
 Fish  
 Foram  
 Fossil  
 Gastro  
 Oolite

Pellet  
 Pisolite  
 Plant  
 Strom  
 STRINGER  
 Anhy

Coal  
 Dol  
 Gyp  
 Ls  
 Mrst  
 Sltstrg  
 Ssstrg

OIL SHOW  
 Good  
 Fair  
 Slight  
 Very slight

3854 (-1200)  
 3854 (-1330)  
 4106 (-1582)  
 4168 (-1644)  
 4302 (-1778)  
 4364 (-1840)  
 4386 (-1862)  
 4460 (-1936)

3854  
 4121  
 4195  
 4375  
 4469  
 4510  
 4700  
 8644

\*Sample Tops

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ROCK TYPES

Anhy	Clyst	Gyp	Mrlst	Shgy
Bent	Carb sh	Igne	Salt	Sltst
Brec	Congl	Lmst	Shale	Ss
Cht	Dol	Meta	Shcol	Till

ACCESSORIES

Crin	Pellet	Coal
Echin	Pisolite	Dol
Fish	Plant	Gyp
Foram	Strom	Ls
Fossil	<b>STRINGER</b>	Mrst
Gastro	Anhy	Sltstrg
Oolite	Arg	Ssstrg
Ostra	Bent	
Pelec		

**OIL SHOW**  
 Good  
 Fair  
 Slight  
 Very slight

ROP  
 ROP (ft/hr) \_\_\_\_\_  
 Gamma (API) \_\_\_\_\_

porosity and guard  
 Neutron Por. (NAPI) - \_\_\_\_\_  
 Density Por. \_\_\_\_\_

TG, C1-C5  
 TG (Units) \_\_\_\_\_  
 C1 (units) \_\_\_\_\_

\_\_\_\_\_

ROP ROP (ft/hr) ——— Gamma (API) - - - -	porosity and guard Neutron Por. (NAPI) - Density Por. ———	TG, C1-C5 TG (units) ——— C1 (units) - - - C2 (units) - - - C3 (units) - - - C4 (units) - - - C5 (units) - - -	Misc Info	Survey Data	Depth	% Lithology	Geological Descriptions
0 ROP (ft/hr) 200/40 0 Gamma (API) 150/40	Neutron Por. (NAPI) -10/1 Density Por. -10	TG, C1-C5 200		0 Inclination 90	3650		
0 ROP (ft/hr) 200/40 0 Gamma (API) 150/40	Neutron Por. (NAPI) -10/1 Density Por. -10	TG, C1-C5 200		0 Inclination 90	3650		
			20' samples @ 3700'		3700		Ls., erm-ft gy, vfnxn, mod hd, chky ip, nvp, ns, scatt Sh., gy-ft grn
							Ls., erm, vfnxn, soft, vy chky, nvp, ns



Ls., erm, vfnxln, soft, vy chiky, nvp, ns  
Ls., lt gy-erm, vfnxln, mod hd, foss ip,  
nvp, ns, scatt Sh., gy-dk gy, fss

Ls., fn-mottld brn ip, fnxln, mod hd, foss  
ip, some pr intrxin & rare voss por, ns,  
no odr, scatt Sh., dk gy-blk, carb ip

Ls., erm-ft gy, vfnxln, soft, vy chiky, some  
dns, hd, nvp, ns

Sh., blk, carb

Sh., lt grn, soft

Sh., gy-grn, Ls., erm-ftn, vfnxln, mod hd,  
foss ip, nvp, ns, scatt Chrt., wht, shp

Ls., erm-ft gy, vfn-fnxln, mod hd-hd, dns,  
nvp, ns, scatt Sh., gy-ft grn, abund Chrt.,  
lt gy-ftn, foss, weath ip

Ls., erm-ftn, vfnxln, soft, vy chiky, nvp, ns,  
scatt Sh., brn soft, clayey

Ls., fn-ft gy, vfnxln, hd, dns, ool ip, nvp,  
ns

Ls., aa, abund Sh., lt grn-gy

Ls., erm, vfnxln, soft, vy chiky, nvp, ns,  
scatt Sh., gy



3750

3800

3850

3900

3950

Inclination

MD 3832 TVD 3831.4  
INC 1.81 AZ 354.61

MD 3863 TVD 3862.34  
INC 2.51 AZ 359.32

MD 3895 TVD 3894.29  
INC 6.04 AZ 20.75

MD 3927 TVD 3925.92  
INC 11.2 AZ 25.81

MD 3959 TVD 3957.05  
INC 15.44 AZ 28.11

TG, G1-C5

-10.1

-10

ROP (ft/hr)

Gamma (API)

Neutron Por. (NAPI)

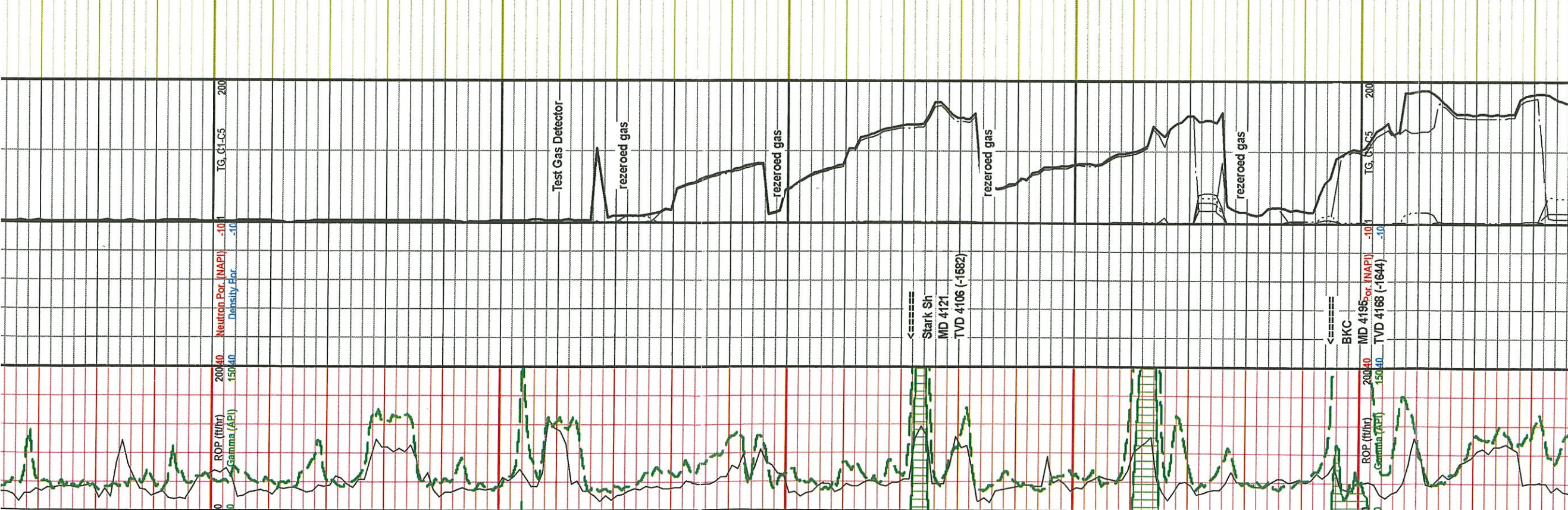
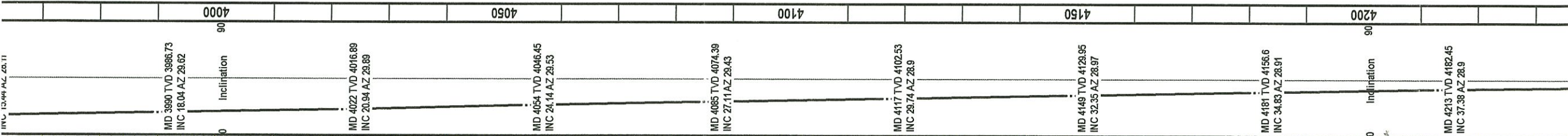
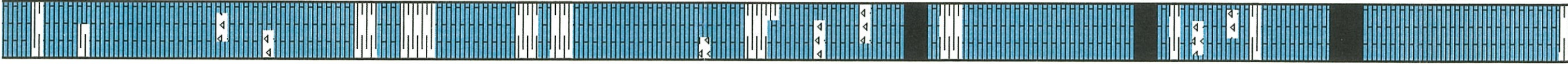
Density Log

Heebner  
MD 3810  
TVD 3810 (-1286)

Lansing  
MD 3854  
TVD 3854 (-1330)

CFS @ 3888',  
trip out for  
directional  
tools

10' samples @  
3870'



Ls., erm, vfxln, soft, vy chiky, nvp, ns, scatt Sh., gy

Ls., tn, fmxln, sli fri, ool ip, pr intrlxn & ooc por, ns, no odr

Ls., lt gy-tn, vfxln, hd, dns, foss ip, nvp, ns, scatt Chrt., erm, spic, shp, tr pyr

Sh., lt gy, soft, Ls., erm-tn, fmxln, sli fri-mod hd, chiky ip, nvp, ns

Ls., erm-tn, vfxln, sli fri, chiky ip, nvp, ns, abund Sh., gy-brn

Ls., erm-tn, vfxln, mod hd, dns, sli

Ls., tn-erm, fmxln, sli fri-mod hd, few pes w pr intrxin por, ns, no dor, scatt Sh., gy, fss, few pes Chrt., erm, sli weath

Ls., tn-t gy, vfxln, sli fri, chiky ip, foss ip, nvp, abund Chrt., erm-t gy, opq, weath ip

Sh., blk, carb

Ls., erm, vfxln, soft vy chiky, nvp, ns, abund Sh., gy-brn, soft

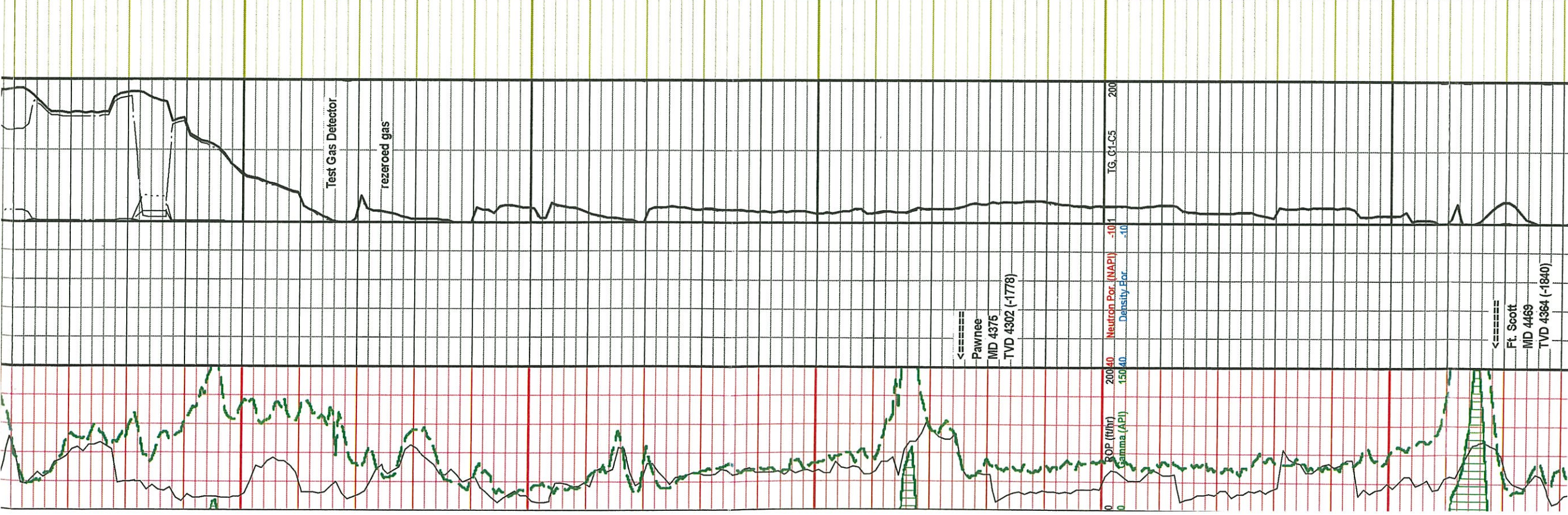
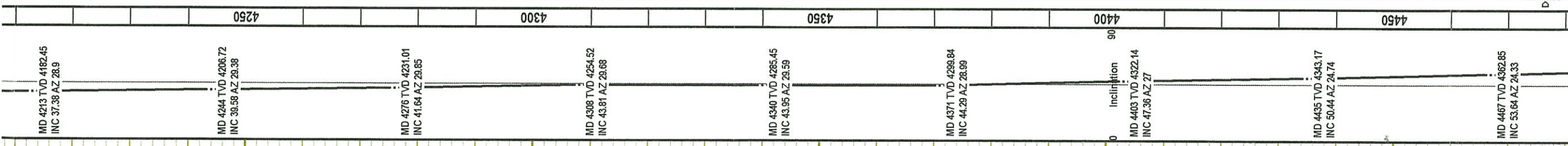
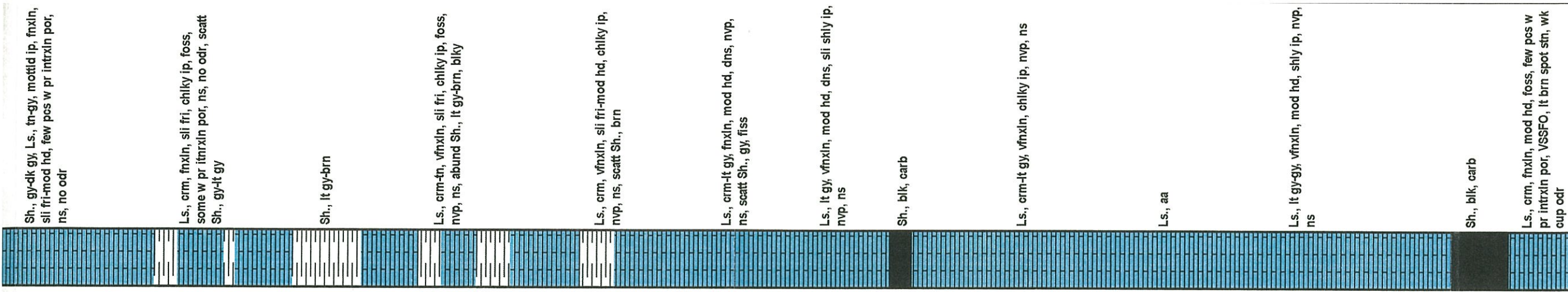
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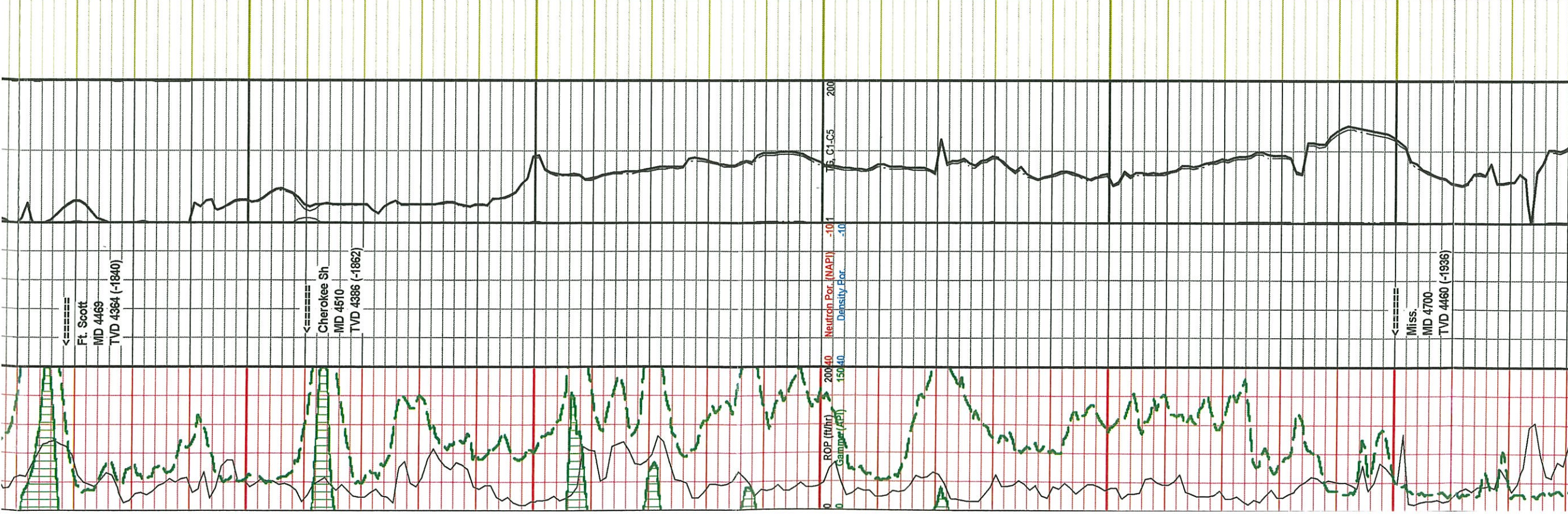
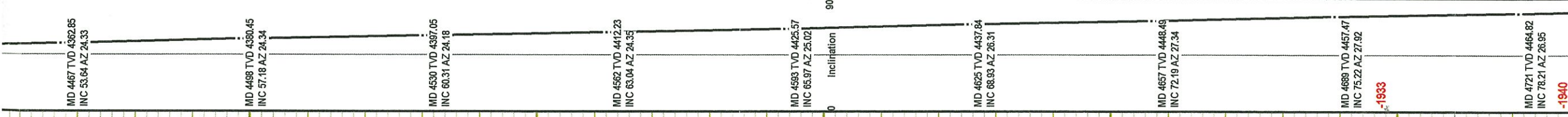
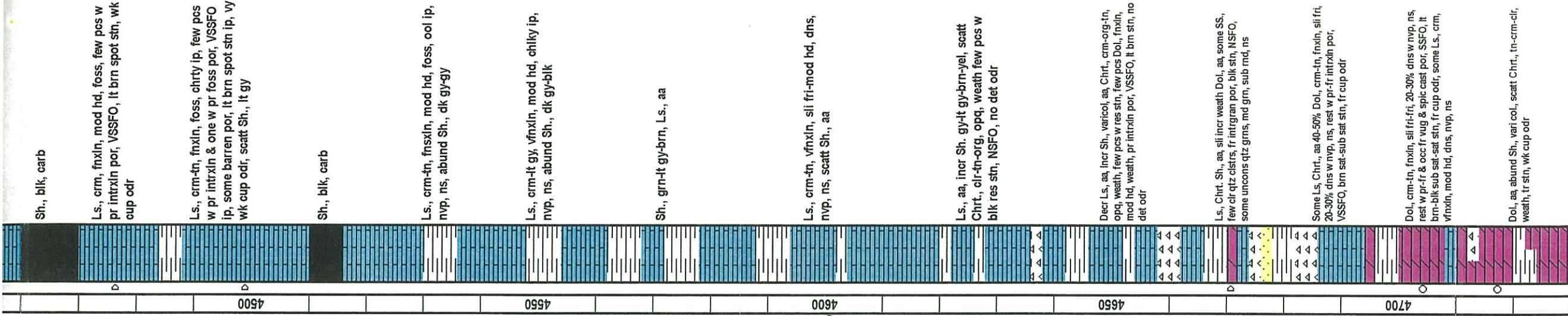
Sh., blk, carb

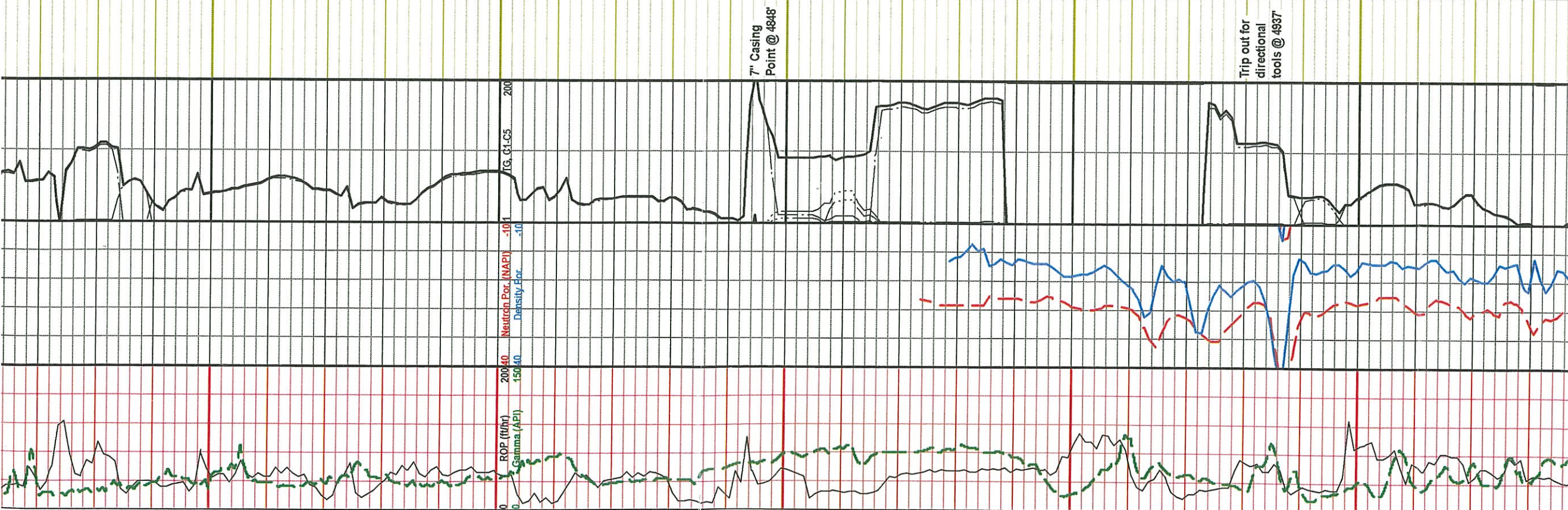
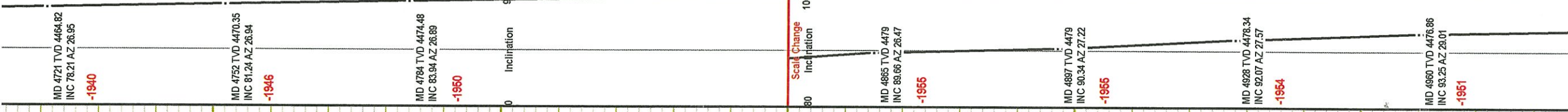
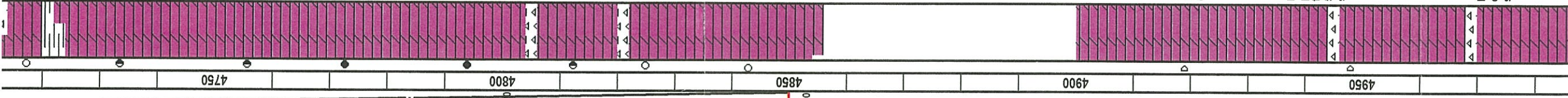
Ls., erm-tn, fmxln, sli fri, chiky ip, few chrt nods, some free chrt., erm, shp, nvp, ns, abund Sh., gy-blk, carb ip

Sh., blk, carb

Sh., gy-dk gy, Ls., tn-gy, mottld ip, fmxln, sli fri-mod hd, few pes w pr intrxin por, ns, no odr







Dol, aa, abund Sh., vari col., scatt Chrt., tn-crm-clr, weath, tr stn, wk cup odr

Dol, tn-crm-clr, brn ip, fmxln, fri, sucr ip, fr intrxln & vug por, occ fr spic cast por, FSFO, 70-80% w lt brn sat stn, few pcs w dk brn sat, slow bleed, gd cup odr, even yel fluoro, gd slow strm cut

Dol, aa, sucr ip, 20-30% tight w vy pr-nvp, rest w pr-fr intrxln & fr vug por, FSFO, 70-80% w brn sat stn, slow bleed, gd cup odr & fluoro

Dol, tn, fr-occ med xln, fri-vy fri, 10-20% w vy pr intrxln por, ns, rest sucr ip, fr-gd intrxln & vug por, GSFO, 80-90% brn sat stn, vy gd cup odr

Dol, tn, fmxln, sli fri-fri, 10-20% dns w vy-no vis por, rest w fr intrxln & fr-occ gd vug por, FSFO, abund lt brn sat stn, some spot/uneven stn, few pcs w blk res stn, gd cup odr, gd fluoro, scatt Chrt., crm-clr, opq, sli weath ip, tr free pyr

Dol, crm-tn, fmxln, sli fri-fri, 20-30% dns w nvp, ns, rest w fr-gd intrxln & vug por, SSFO, 40-50% lt brn sat-sub sat stn, incr amt w blk res stn, fr cup odr, Chrt., aa

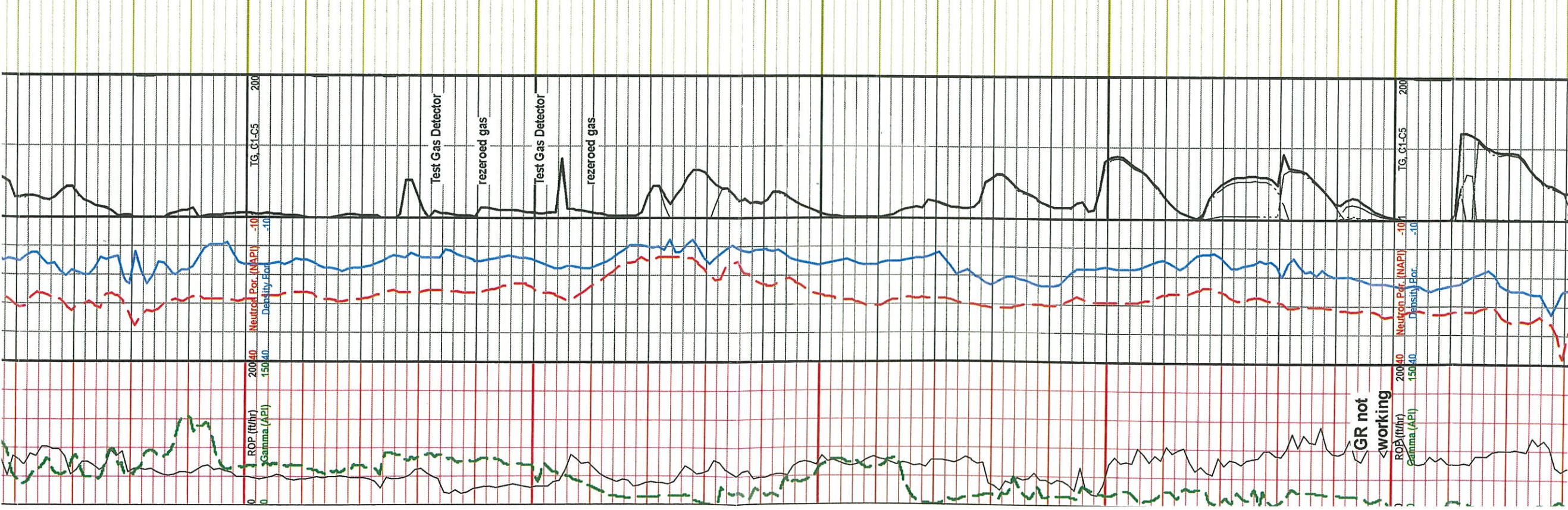
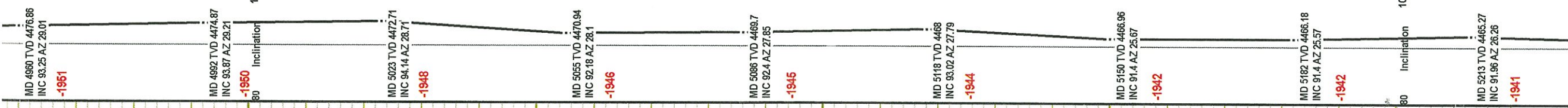
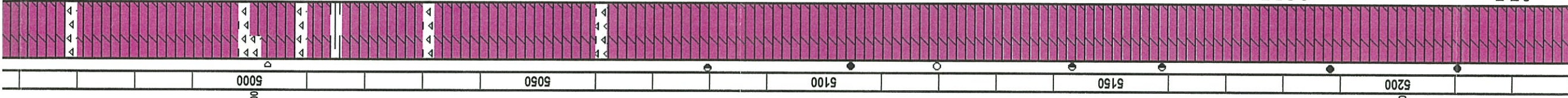
Dol, aa

No samples

Dol, crm-lt grm, vfrxln, sli fri, glauc ip, 70-80% w nvp, ns some clr Dol, xls, VSSFO, tr brn stn, no det odr

Dol, clr-crm-lt grm, vfrxln, 40-50% glauc ip w vy pr-no vis por, ns, rest clr dol, xls, fr-gd intrxln & occ fr vug por, SSFO in very few pcs, vy lt spot stn, 5-10% Chrt., clr, broken, pr vis por ip, VSSFO ip, some w lt brn stn, wk cup odr

Dol, 20-30% crm-lt grm, glauc ip, vy pr-nvp, ns, rest crm-clr, fri, pr-occ fr intrxln por, VSSFO in few pcs, some lt spot stn, Chrt., aa, tr free pyr



Dol., 20-30% crm-lt grm, glauc ip, ,vy pr-nvp, ns, rest crm-clr, fri, pr-occ fr intrxn por, VSSFO in few pcs, some lt spot stn, Chrt., aa, tr free pyr

Dol., 40-50% crm-grm, vfxnln, sli fri, glauc ip, nvp, ns, rest crm-clr, fr-gd intrxn & occ fr vug por, SSFO in vy few pcs, brn spot stn ip, wk cup odr, 10-15% Chrt., aa, <5% Sh., dk gy-dk brn

Dol., crm-tn-lt grm, fn-vfxnln, 60-70% glauc ip, nvp, ns, rest clr-crm, fnxln, sli fri, pr-occ fr intrxn por, few pcs w spot stn, NSFO, no det odr, scatt Chrt., clr-crm, opq, weath ip, nvp, ns,

Dol., tn-clr-crm, fnxln, sli fri, pr-rare fr intrxn por, most tight, tr blk-brn stn, NSFO, scatt Chrt., aa

Dol., tn-crm, fnxln, sli fri-fri, suc ip, most w fr intrxn & occ pr vug por, FSFO, 70-80% brn sat stn, some spot stn, gd cup odr

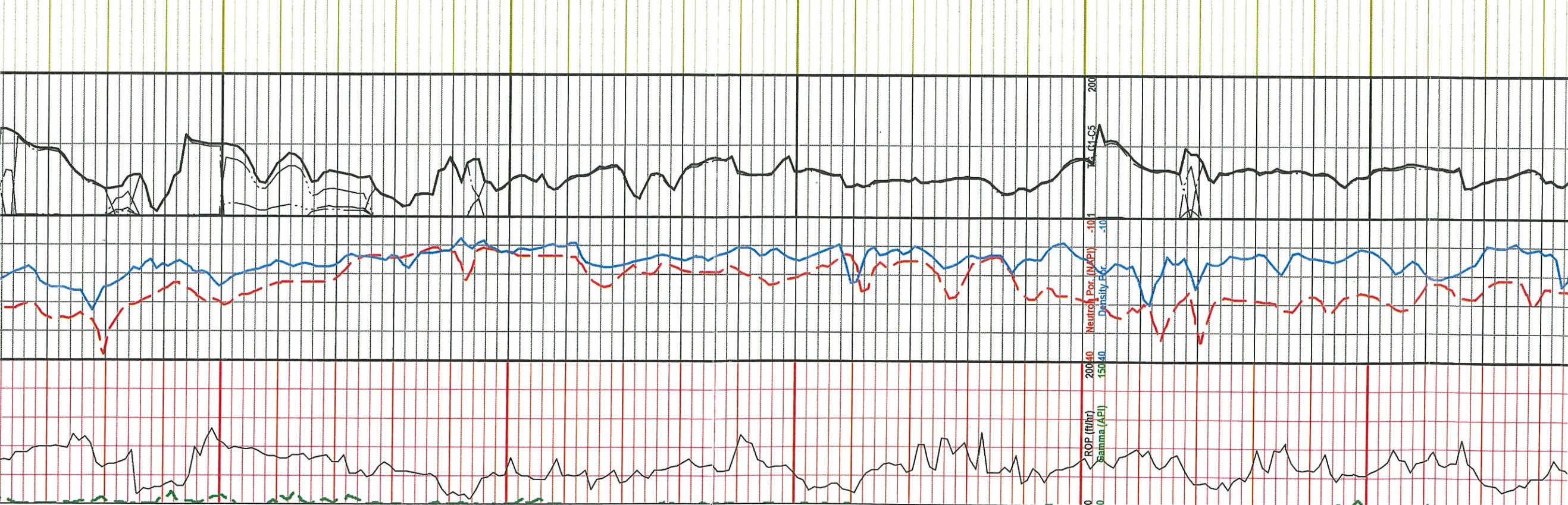
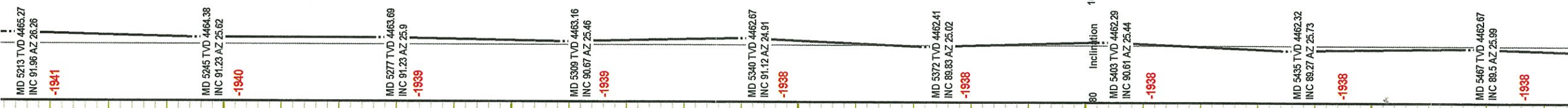
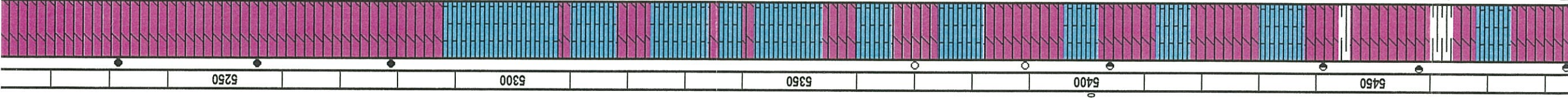
Dol., tn-brn, fnxln, sli fri-fri, suc ip, 20% crm, tight w nvp, ns, rest w fr-gd intrxn & fr vug por, GSFO, brn even sat stn, gd cup odr

Ls., crm-tn, fnxln, sli fri, 30-40% tight w vy pr-nvp, rest w pr-fr intrxn por, rare pr vug por, SSFO, lt brn sub sat stn, fr cup odr

Dol., tn-crm, fnxln, 20-30% tight w nvp, glauc ip, rest w fr intrxn & vug por, occ fr spic cast por, FSFO, brn sat stn in most, some spot stn, some blk stn, gd cup odr

Dol., tn-crm-brn, fnxln, sli fri-fri, 10-20% tight w nvp, rest w fr intrxn & fr-gd vug por, occ fr spic por, GSFO, brn sat stn, some lt brn spot stn, vy gd cup odr, some free oil in cup

Dol., tn-crm, fnxln, fri, suc ip, fr-gd intrxn & vug por, GSFO, brn sat stn, abund blk stn, vy gd cup odr, free oil film in cup



Dol., tn-crm, fmxln, fri, sucr ip, fr-gd intrxin & vug por, GSFO, brn sat stn, abund blk stn, vy gd cup odr, free oil film in cup

Dol., tn-brn, fmxln-med xln ip, fri, 20-30% w pr-fr intrxin por, rest w fr-gd intrxin & vug por, VGSSFO, brn-blk sat stn, vy gd cup odr, some free oil in cup

Dol., aa, vy sli decr in por, shows aa

Ls., crm, vfmxn, mod hd, chily ip, gluac ip, nvp, ns, 5-10% Dol., aa

Ls., aa, 20-30% Dol., tn, most dns w no-yy pr vis por, tr stn, few pcs w fr intrxin & vug por, SSFO, sat brn stn, no det odr

Ls., aa, slightly incr Dol., aa

Dol., 50-60%, tn-crm, fmxln, mod hd firm, 20-30% tight w nvp, ns, rest w pr-occ fr intrxin por, rare pr vug por, SSFO, brn sat stn, wk cup odr, rest Ls., crm, vfmxn, mod hd, nvp, ns

Dol., 50-60%, tn, fmxln, sli fri, most w fr intrxin & occ fr vug por, FSFO, even brn sat stn, fr cup odr, 40-50% Ls., crm-it grn, vfmxn, sli fri-mod hd, chily glauc ip, abund pyr, ns

Dol. & Ls., aa, sli incr Ls., wk cup odr

Dol., tn-brn, fmxln, sli fri, pr-fr intrxin & occ pr vug por, FSFO, brn even sat stn, wk cup odr, 40-50% crm, fmxln, nvp, ns, 10-20 pcs Sh., it grn-gy

Dol., tn-brn, fmxln, sli fri, pr-fr intrxin & vug por, FSFO, brn sat stn, fr cup odr, 10-20% Ls., aa, <5% Sh., it gy-gy

Dol., tn, fmxln, mod hd firm, fmxln, pr-rare fr intrxin

FSFO, brn sat stn, fr cup odr, 10-20% Ls, aa, <5% Sh., lt gy-gy

Dol., tn, fmxln, mod hdfirm, fmxln, pr-rare fr intrxln & vug por, FSFO, lt brn sat stn, wk cup odr, 30-40% Ls, crm-lt grn, vfxln, mod hd, glauc ip, nvp, ns

Dol., tn-brn, fmxln, sli fri, 20-30% w vy pr-pr intrxln por, rest w fr intrxln & occ gd intrxln & vug por, GSFO, brn even sat stn, gd cup odr, 10-20% Ls, aa

Dol., tn-lt brn, fmxln, sli fri, fr intrxln & vug por, FSFO, even lt brn-brn sat stn, gd cup odr, 10-20% Ls, aa

Dol., crm-tn, vfxln, mod hd-sli fri, 70-80% w vy pr-no vis por, few pcs w SSFO, vy lt brn sub sat stn, vy wk cup odr, 30% Sh., gy-lt grn, 5-10% Chrt, cft-lt yel-org, weath

Dol., crm, vfn-fmxln, most w nvp, ns, 5% w pr-fr intrxln & vug por, SSFO, spot brn stn, poss slough, no det cup odr, decr amt Sh., 20%, aa, few pcs Chrt., aa

Dol., aa

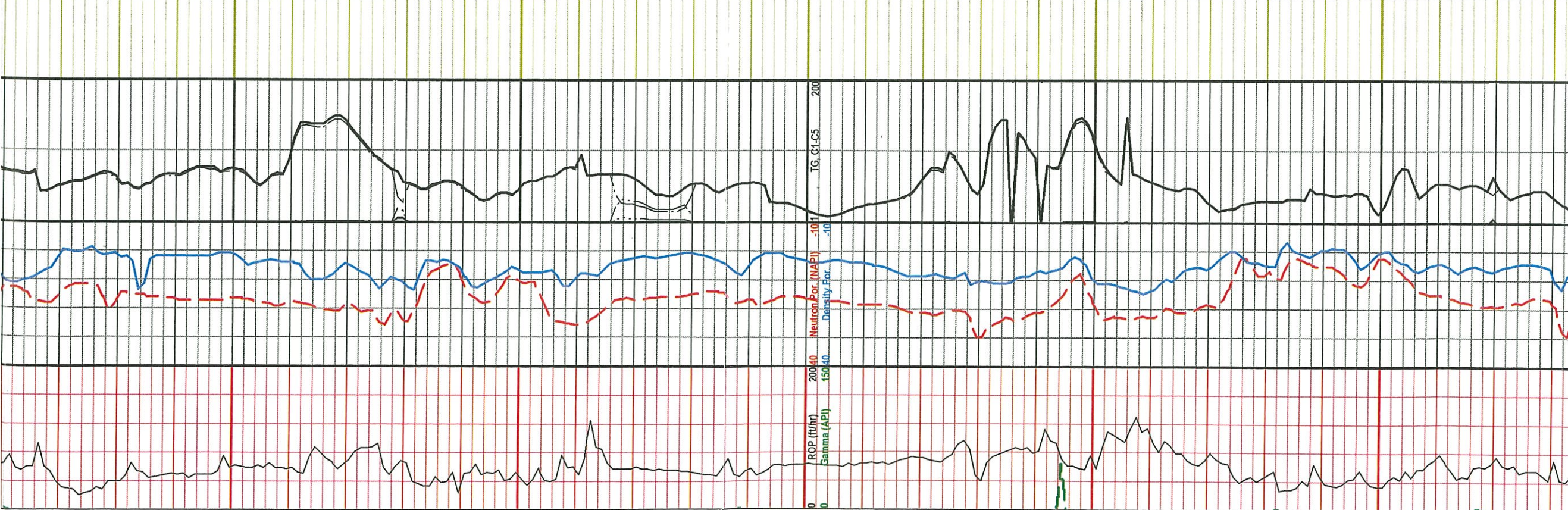
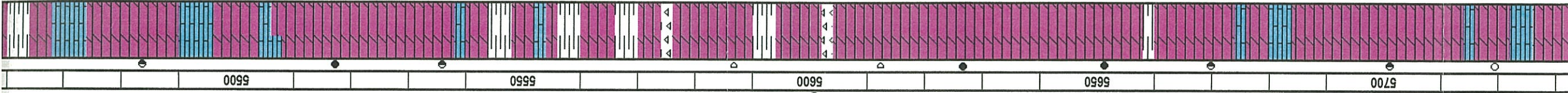
Dol., tn-crm, fmxln, fri-vy fri, suc ip, fr-gd intrxln & vug por, occ fr spic cast por, GSFO, lt brn-brn even sat stn, gd cup odr

Dol., tn-brn, fmxln, fri-vy fri, suc ip, fr intrxln & gd vug por, GSFO, brn even sat stn, vy gd cup odr, 10-15% Sh., gy

Dol., tn-crm-brn fmxln, fri-mod hd ip, 20% w nvp, ns, rest w fr intrxln & fr-occ gd vug por, FSFO, lt brn sat-spot stn, gd cup odr, some Ls, 10-20% crm-lt grn, vfxln, sli fri, chiky glauc, nvp, ns, Sh., 50-10%, gy

Dol., tn-crm, fmxln, sli fri-fri, suc ip, 20-30% w nvp, ns, rest w pr-fr intrxln & fr vug por, FSFO, lt brn even sat stn, fr cup odr

Dol., crm-tn, fn-vfxln, mod hd-sli fri, 60-70% dns w nvp, ns, rest w pr & rare fr intrxln por, SSFO ip, vt brn spot-sub sat stn ip, wk cup odr, 20-30% Ls, crm-lt grn, fmxln, sli fri, chiky ip, glauc ip, ns







Dol., cm-tn, fn-vfnxln, mod hd-sli fri, 60-70% dns w nvp, ns, rest w pr & rare fr intrxin por, SSFO ip, wy it brn spot-sub sat stn ip, wk cup odr, 20-30% Ls., crm-lt grn, fmxln, sli fri, chiky ip, glauc ip, ns

Dol., cm-tn, fmxln, fri, 30-40% dns w nvp, ns, rest w fr-occ gd vug & spic cast por, FSFO, lt brn spot-sub sat stn, fr cup odr, 5% Sh., gy

Dol., tn-brn, fmxln, fri, sucr ip, fr-gd intrxin & gd vug por, occ fr spic cast por, VGSFO, even brn sat stn, some free oil in cup, vy gd cup odr, Sh., aa

Dol., 40-50%, tn-brn, fmxln, sli fri, sucr, fr-occ gd intrxin & rare fr vug por, FSFO, even-spot brn stn, fr cup odr, 50% Ls., crm, vfnxln, mod hd, dns, nvp, ns, 5-10% Sh., gy-lt grn-brn

Dol., & Ls., aa, incr Sh., 20%, gy-brn

Dol., tn, vfn-fmxln, mod hd-sli fri, pr-fr intrxin por, SSFO, 80% w even lt brn sat stn, gd cup odr

Ls., 50-60%, crm, vfnxln, mod hd, dns, nvp, ns, Dol., 20-30% aa, 20% Sh., gy-brn

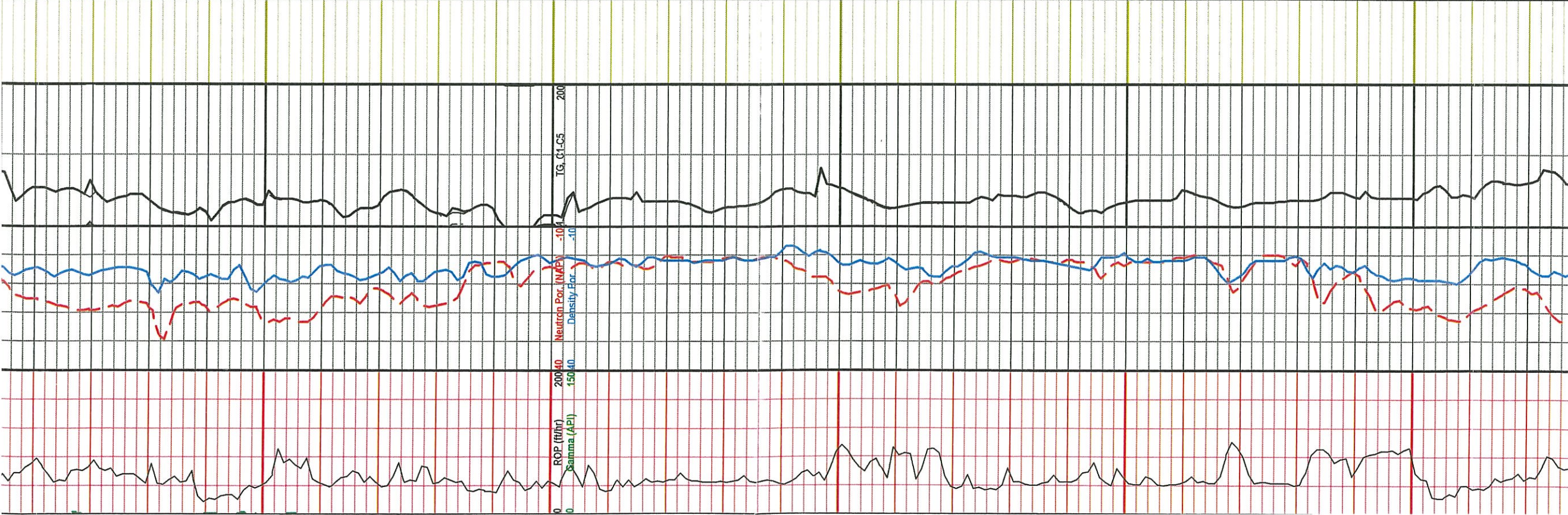
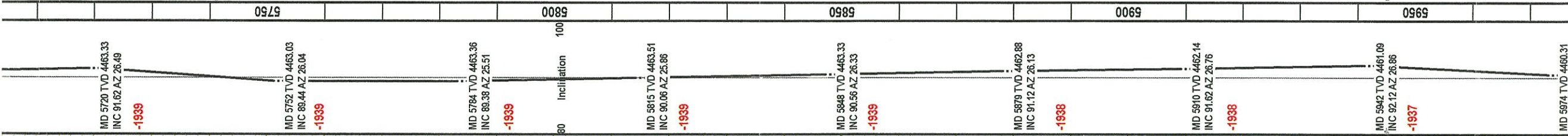
Dol., tn, fmxln, fri, sucr ip, fr intrxin & occ fr vug por, FSFO, lt brn even sat stn, fr cup odr

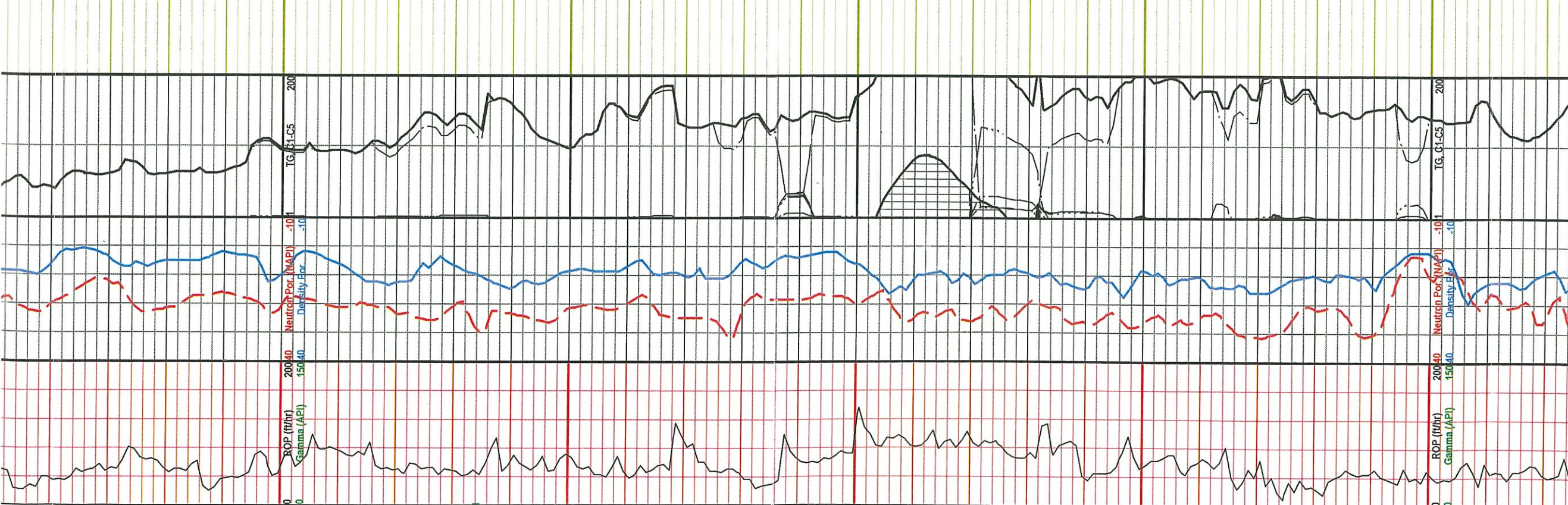
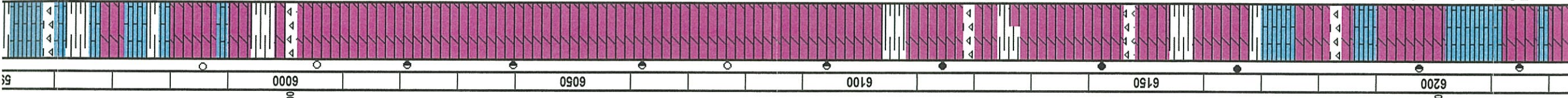
Ls., crm, vfnxln, sli fri, chiky ip, nvp, ns, 20-30% Dol., aa, 20% Sh., gy-brn

Ls., aa, Sh., 10% gy-brn

Ls., crm, vfnxln, mod hd-sli fri, nvp, ns, 10-15% Sh., gy-brn, 5% Chrt., clt-crm, opq, few pcs broken w pr vis por, blk res stn, NSFO, no det odr

Ls., 40-50% aa, 10% Sh., aa, Dol., crm, fmxln, sli fri, 20-30% dns w nvp, rest w fr vug & spic cast por, VSSFO, lt brn spot stn, wk cup odr





20-30% dns w nvp, rest w fr vug & spic cast por, VSSFO, lt brn spot stn, wk cup odr

Dol, cm, fmxln, sli fri-fri, 30-40% tight w vy pr-no vis por, rest w pr-occ fr vug & spic cast por, SSFO, lt brn spot stn, 5% Chrt., cl, broken, pr vis por, SSFO, brn stn in por, wk cup odr, decr Ls aa & Sh., 10-15%, gy-brn

Dol, cm-tn, fmxln, fr intrxn & fr-gd vug por, occ fr spic cast por, FSFO, brn spot stn, some even sat, gd cup odr, 5-10% Sh., gy-brn

Dol, cm-tn, fmxln, 20% mod hdfirm, tight w nvp, ns, rest fri-vy fri, fr-gd intrxn & vug por, occ fr spic cast por, FSFO, lt brn sat stn, gd cup odr

Dol, aa, 20-30% w nvp, ns, rest w fr intrxn & vug por, FSFO, lt brn spot stn, fr cup odr

Dol, cm-tn, 30-40% tight, nvp, ns, rest w fr-occ gd intrxn & vug por, FSFO, brn spot stn, abund even sat stn, wk cup odr

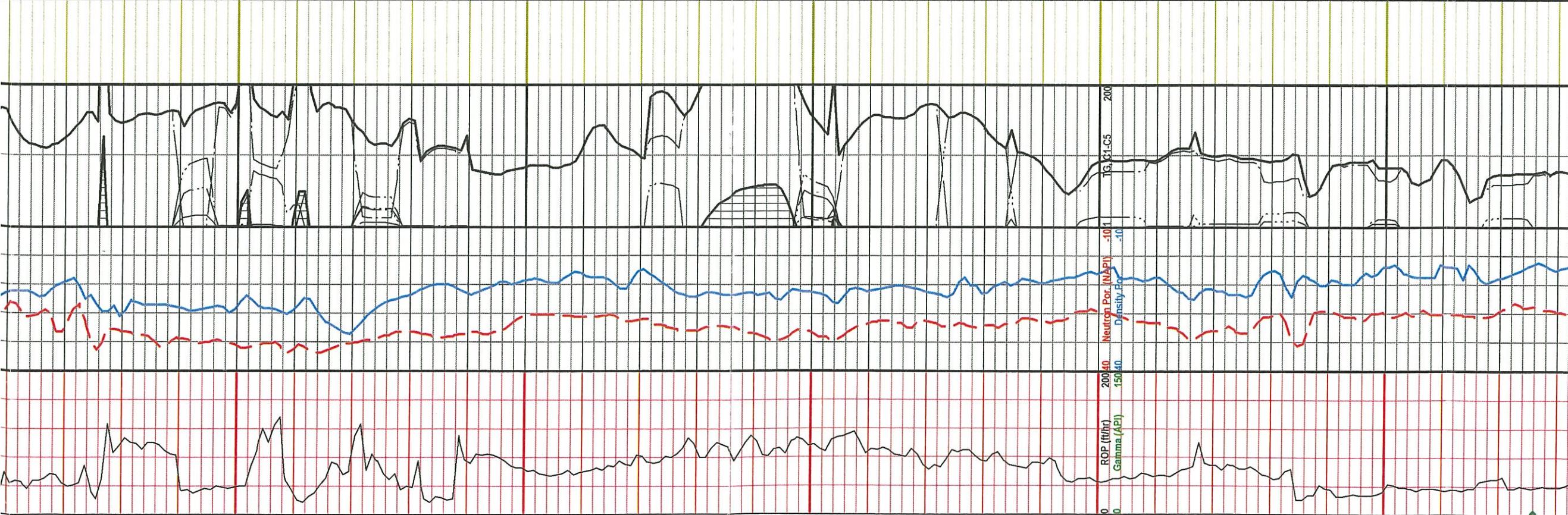
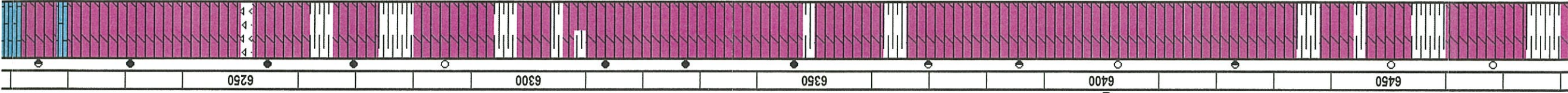
Dol, tn-brn, fmxln, fri-vy fri, gd vug & spic cast por, fr-gd intrxn por, GSFO, brn-dk brn even sat stn, vy gd cup odr, 30% Sh., gy-brn-lt gm, 10% Chrt., cl-cr, some org-lt yel, weath, pr-fr vis por, blk sub sat stn ip, FSFO in por

Dol, tn-brn-crm, fmxln, 10% tight w nvp, rest w gd intrxn & vug por, GSFO, even brn-dk brn sat, vy gd cup odr, decr Sh., 15-20%, gy-brn, Chrt., 10% aa w shows aa

Dol, 40-50%, brn-tn, fmxln, fri, gd intrxn & vug por, GSFO, brn-dk brn sat stn, 20-30% Ls, crm, vfxln, sli fri-mod hd, nvp, ns, 10-15% Chrt., cl-cr-orig, some w fr vis por, SSFO, blk stn, 10-20% Sh., gy-brn-brk red

Dol, 50-60% aa, 20% tight w nvp, ns, rest w fr intrxn & occ fr vug por, FSFO, brn-dk brn even sat, decr Ls, 10-20%, aa, Chrt. & Sh., aa, sil decr shales

Ls, 40-50%, crm, vfxln, sli fri, chily ip, nvp, ns, Dol, crm-tn, fmxln, fri, fr intrxn & vug/spic cast por, FSFO, lt brn spot stn, some brn sat stn, wk cup odr



Ls., 40-50%, crm, vfnxln, sli fri, chiky ip, nvp, ns, Dol., crm-tn, fnxln, fri, fr intrxln & vugspic cast por, FSFO, lt brn spot stn, some brn sat stn, wk cup odr  
 Dol., tn-brn-dk brn, fnxln, fri-vy fri, gd intrxln & vug por, VGSFO, vy gd even dk brn-brn stn, vy gd cup odr  
 Dol., tn-brn-crm, 30%, w pr intrxln por, VSSFO, spot stn, rest w gd intrxln & vug por, VSGFO, vy gd dk brn sat stn, vy gd cup odr, 10-20% Chrt., clr-crm, opa, sli weath, some w pr vis por, FSFO, dk brn stn  
 Dol., brn-crm, fnxln, sli fri-fri, 20% tight, vy pr-nvp, glauc, ns, rest w fr intrxln, vug & spic cast por, GSFO, lt-dk brn even sat stn, fr cup odr, incr amt Chrt., 20-30% crm-clr-lt yel, weath, few pcs w pr vis por, SSFO, blk stn, fr cup odr, abund Sh., 30-40% gy-brn  
 Dol., crm-tn, fnxln, sli fri, 70-80% dns, no-vy pr vis por, ns, rest w pr-fr intrxln & occ fr vug por, FSFO, lt brn spot-occ sub sat stn, wk cup odr, abund Sh., 20-30%, gy-brn  
 Dol., tn, fnxln, fri-vy fri, sucr, fr-gd intrxln & fr vug por, GSFO, lt brn even sat stn, vy gd cup odr, decr Sh., 10-15%, gy-brn  
 Dol., tn-crm, fnxln, vy fri, sucr, 10-15% tight w nvp, ns, rest w fr-gd intrxln & occ fr vug por, GSFO, some free oil in tray/cup, lt brn sat-sub sat stn, vy gd cup odr  
 Dol., crm-tn, fnxln, fri-vy fri, 20% w nvp, ns, rest w fr intrxln & spic cast & gd vug por, GSFO, lt brn sub sat stn some brn even sat, gd cup odr, 10% Sh., gy-brn, probable slough  
 Dol., crm-tn, fnxln, 20-30% tight w nvp, ns, rest fri, fr intrxln, vug, spic cast por, FSFO, lt brn sat-spot stn, 5% Chrt., clr-crm, weath ip, couple pcs w pr vis por, blk stn, 20% Sh. gy-brn, probable slough  
 Dol., crm-tn, fnxln, 40-50% mod hdfirm, dns, nvp, ns, rest w pr-fr intrxln & occ fr vug por, FSFO, lt brn spot stn, some lt sub sat stn, Chrt., aa  
 Dol., crm-tn, fnxln, sli fri-fri, 20-30% dns w nvp, ns, rest w fr intrxln & fr-gd vug por, FSFO, brn spot stn, few pcs w brn sat stn, fr cup odr, 20% Sh., gy-brn-lt grn  
 Dol., crm, fnxln, sli fri-mod hd ip, 60-70% dns, nvp, ns, rest w pr-fr intrxln & occ pr vug por, SSFO, spot brn-blk stn, wk cup odr, 30-40% Sh aa  
 Dol., 70% vel, fnxln, sli fri-fri, boss weath, vv or-no

Dol., 70% yel, fmxln, sli fri-fri, poss weath, vy pr-no vis por, some brn stn, NSFO, rest crm, fri, pr-fr intrxin por, rare pr vug por, FSFO, brn sat in most, some brn spot stn, wk cup odr, decr Sh., 20%, gy-brn

Dol., 60%, crm-tn, fmxln, sli fri-fri, 60-70% w no-vy pr vis por, ns, rest w pr-fr intrxin por, SSFO, brn-blk spot-sub sat stn, wk cup odr, Sh., sli inc, 30-40%, gy-brn-it grm, Chrt., 5-10% crm-clr-it yel, weath, some w pr vis por, blk stn, 5-10% Ls., crm, fmxln, sli fri, few pcs w vy pr ppt & intrxin por, blk stn

Dol., crm-tn, fmxln, fri, 30-40% w nvp, ns, rest w pr-occ fr intrxin por, FSFO, lt brn spot-sub sat stn, fr cup odr, decr Sh., 5-10%, gy-brn-it grm

Dol., in-crm, fmxln, fri, sucr, 20-30% nvp, ns, rest w fr-gd intrxin & occ fr vug por, FSFO, slight free oil in tray, lt brn sub sat stn, gd cup odr

Dol., crm-tn, fmxln, fri, 30-40% dns w nvp, ns, rest w fr intrxin & vug por, occ spic cast por, FSFO, brn-blk spot-sub sat stn, fr cup odr

Dol., tn-brn, fmxln, sucr ip, fr intrxin & gd vug, spic cast por, GSFO, gd even brn-dk brn sat, vy gd cup odr

Dol., crm-tn-brn, fmxln, sli fri, 20-30% w vy pr-no vis por, ns, rest w fr intrxin & spic cast, gd-vy gd vug por, GSFO, some free oil in tray, gd spot-sub sat stn, vy gd cup odr

Dol., crm-tn, fmxln, sli fri-fri, 20-30% dns w nvp, ns, rest w pr-fr intrxin por, fr vug & spic cast por, FSFO, slight show free oil in tray, gd spot-sub sat stn, 10% Chrt., clr-crm, weath ip, some w fr vis por, SSFO, dk brn stn, fr cup odr, 10-15% Sh., gy

Dol., crm-tn, fmxln, fri, 30-40% dns w nvp, ns, rest w pr-fr intrxin & fr vug por, FSFO, brn spot-sub sat stn, wk cup odr, 10% Sh., gy

Dol., crm, fmxln, 40-50% w vy pr-no vis por, rest w pr intrxin & occ fr vug por, SSFO, spot stn along por, wk cup odr, Sh., aa

Dol., crm-tn, fmxln, sli fri-fri, 20-30% dns w nvp, ns, rest w pr intrxin & fr vug por, FSFO, slight show in tray, lt brn subs sat stn, fr cup odr



6500

6550

6600

6650

6700

MD 6481 TVD 4464  
INC 90.56 AZ 26.14  
-1940

MD 6512 TVD 4464.15  
INC 90.95 AZ 25.93  
-1940

MD 6544 TVD 4463.39  
INC 91.74 AZ 25.77  
-1939

MD 6575 TVD 4462.54  
INC 91.4 AZ 24.95  
-1938

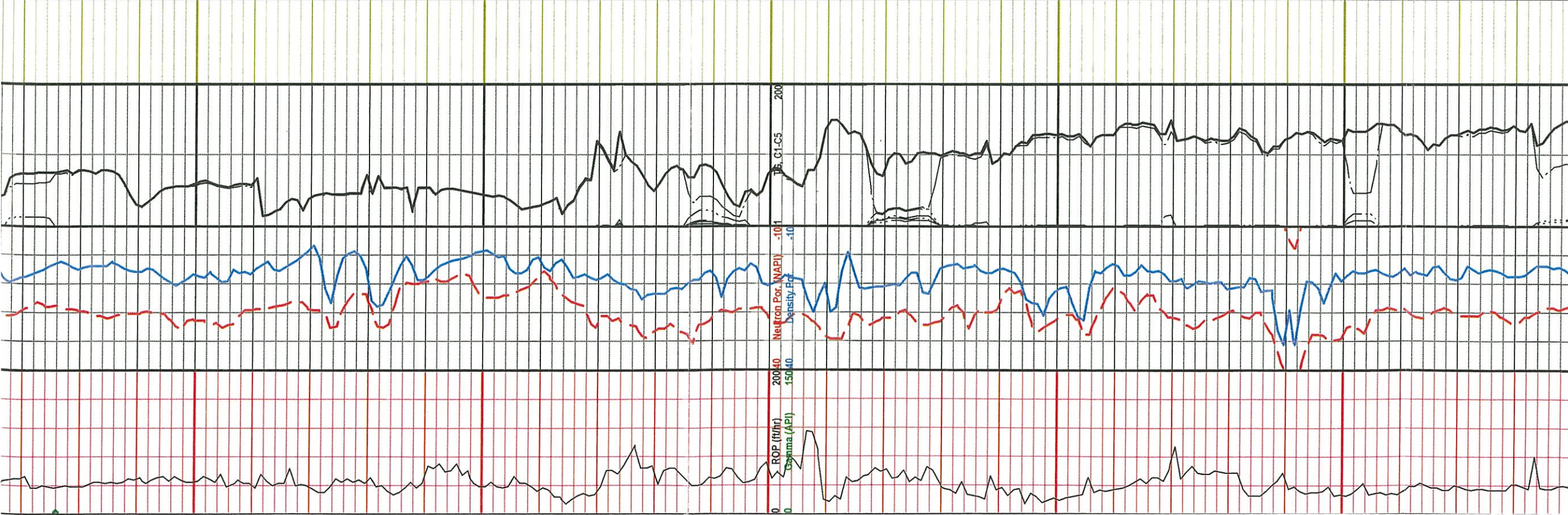
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INC 91.9 AZ 25.71  
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MD 6639 TVD 4460.42  
INC 92.41 AZ 25.91  
-1936

MD 6702 TVD 4458.73  
INC 90.78 AZ 26.01  
-1934

MD 6734 TVD 4458.22  
INC 91.01 AZ 26.21

Inclination

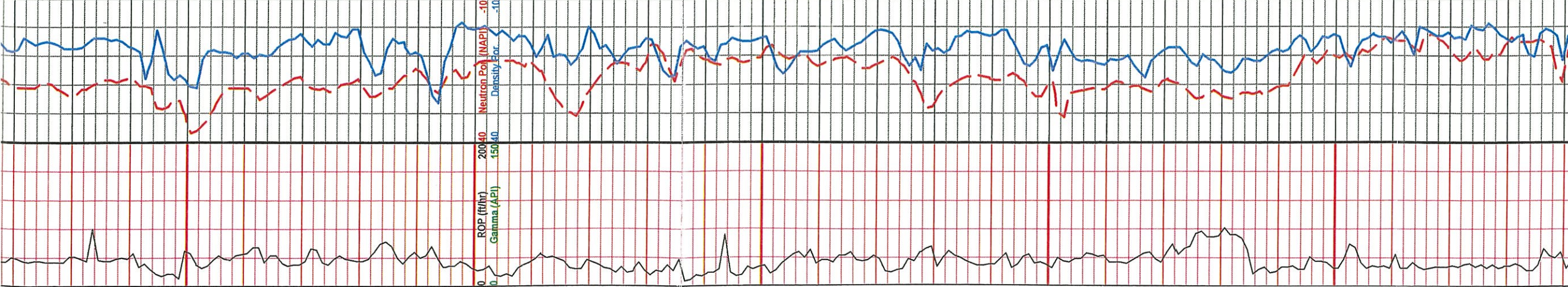
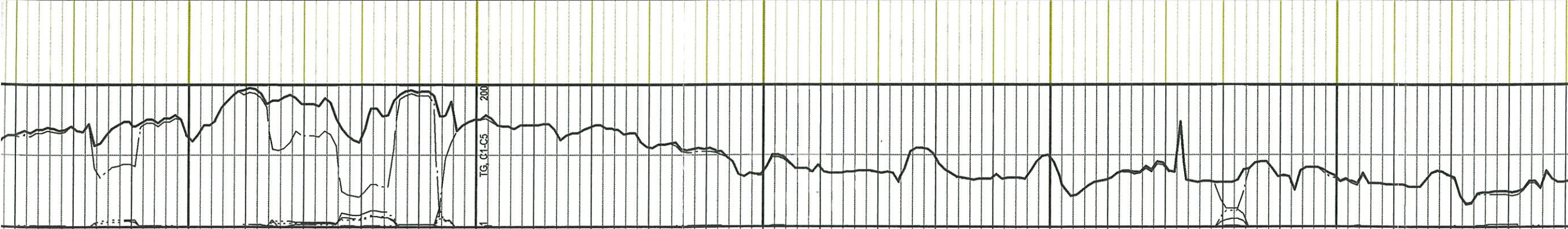
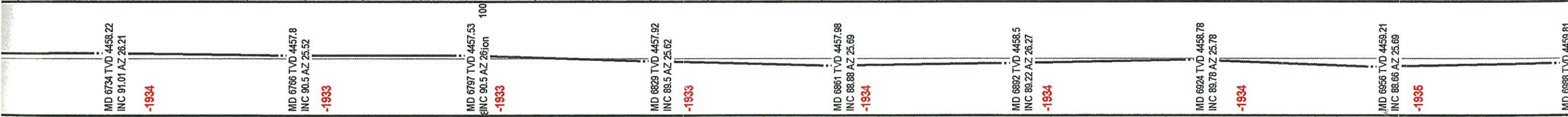
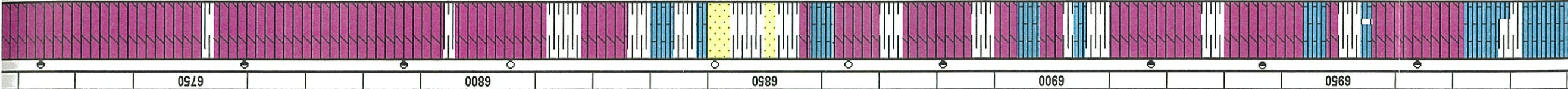


ROP (ft/hr)

Gamma (API)

Neutron Por. (NAPI)

Density (Pc)



Dol., cm-tn, fnxln, sli fri-fri, 20-30% dns w nvp, ns, rest w pr intrxn & fr vug por, FSFO, slight snow in tray, lt brn subs sat stn, fr cup odr

Dol., cm, fnxln, sli fri, 30-40% dns w nvp, ns, rest w printrxn & occ pr-fr vug por, FSFO, lt brn sat stn, fr cup odr, 10-15% Sh., gy

Dol., cm, fnxln, sli fri, 20-30% dns w nvp, ns, rest w pr intrxn & pr-fr vug por, FSFO, lt brn sub sat stn, fr cup odr

Dol., aa, 60-70% dns w nvp, ns, rest w printrxn & occ pr vug por, SSFO, lt brn sub sat stn, wk cup odr, 10-20% Ls., crm, fnxln, mod hd, dns, nvp, ns, 20% Sh., gy-brn

Sh., 60-70% gy-brn-it grn, Ls., 20%, crm-it yel, fnxln, weath, few pcs w vy pr ppl por, blk stn, 10% SS, cfr qtz clstns, md grn, sub ang, pr-fr intrgran por, SSFO, lt brn stn, wk cup odr

Sh., Ls., aa 50-60% overall sample, rest Dol., cm-tn, fnxln, sli fri, pr-rare fr intrxn & pr vug por, FSFO, lt brn sub sat stn, wk cup odr

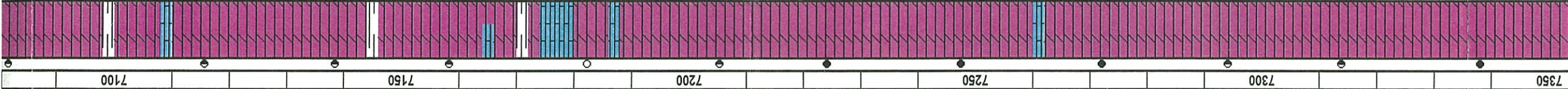
Dol., cm-tn, fnxln, fri, 30-40% dns w nvp, rest w pr-fr intrxn & occ fr vug por, FSFO, lt brn spot-sub sat stn, fr cup odr, Sh., 30%, aa

Dol., aa, 40% Sh. gy-brn-it grn, 20% Ls., crm-it yel, weath ip, nvp, ns

Dol., cm-tn, fnxln, fri, sucr ip, fr-gd intrxn & rare pr vug por, FSFO, lt brn sub sat-sat stn, gd cup odr, 20% Sh., gy-brn

Dol., tn-crm, fnxln, sli fri, 20-30% mod hddfirm, w nvp, ns, rest w fr-occ gd intrxn & rare fr vug por, FSFO, lt brn sat stn, fr cup odr, 20% Ls., crm, fnxln, sli fri-mod hd, chily ip, nvp, ns, 20-30% Sh., gy-brn-it grn

Dol., tn, fn, medxin in few pcs, sil fri, pr-fr intrxin & occ pr vug por, FSFO, lt brn even sat stn, fr cup odr



MD 7083 TVD 4461.17  
INC 88.66 AZ 25.84  
-1937

MD 7114 TVD 4462.08  
INC 87.98 AZ 25.76  
-1938

MD 7146 TVD 4463.13  
INC 88.27 AZ 26.07  
-1939

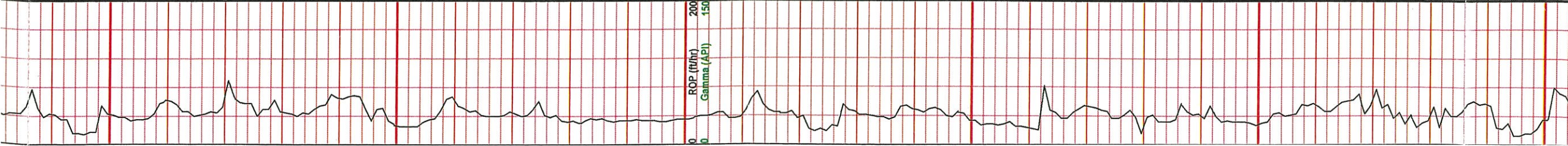
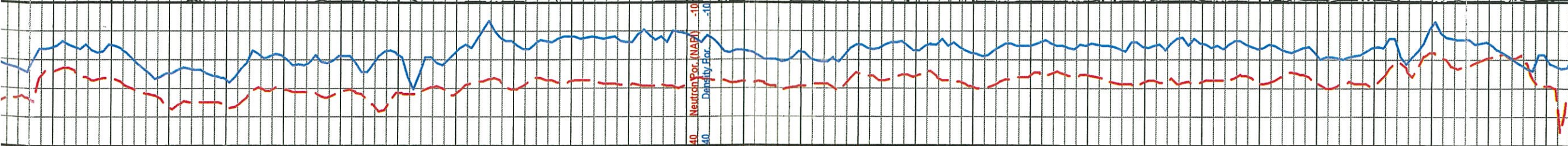
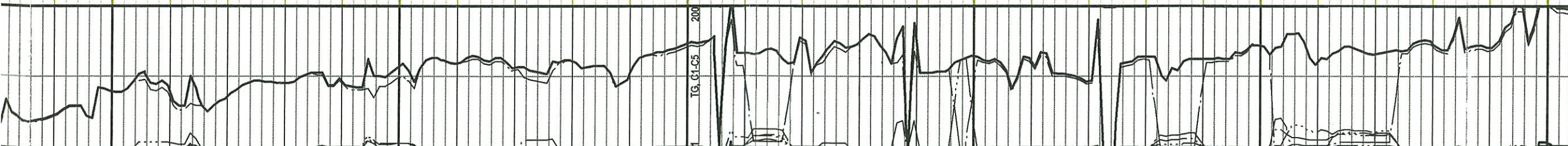
MD 7178 TVD 4464.09  
INC 88.27 AZ 26.14  
-1940

MD 7209 TVD 4464.91  
INC 88.71 AZ 26.55  
-1940

MD 7241 TVD 4465.29  
INC 88.94 AZ 26.53  
-1941

MD 7273 TVD 4464.85  
INC 91.62 AZ 26.83  
-1940

MD 7305 TVD 4463.76  
INC 92.29 AZ 27.07  
-1939



Dol., tn, fnxin, sil fri, pr-fr intrxin por, occ fr ppt por, FSFO, lt brn even sat, fr cup odr, 5-10% Ls. crm, vfnxin, sil fri-mod hd, sil chiky, nvp, ns 10-15% Sh., gy-brn, few pcs lt yel

Dol., 5-10% mod hd, dns w nvp, ns rest tn, fnxin, sil fri, fr intrxin por occ pr vug & pr-fr ppt por, FSFO, lt brn sat stn, fr cup odr, Sh., 10-15%, gy-lt gm

Dol., aa incr tight, 20-30%, rest w fr intrxin por, rare pr vug por, FSFO, lt brn sat stn, fr cup odr, few pcs Ls., crm, vfnxin, mod hd, dns, nvp, ns, Sh., aa

Dol., aa, incr Ls., 20-30%, aa

Dol., tn, fnxin, sil fri, fr-occ gd intrxin & occ fr vug por, FSFO, lt brn sat stn, gd cup odr

Dol., tn, fnxin, fri, fr-gd intrxin por, occ fr vug por, FSFO, gd lt brn even sat stn, gd cup odr

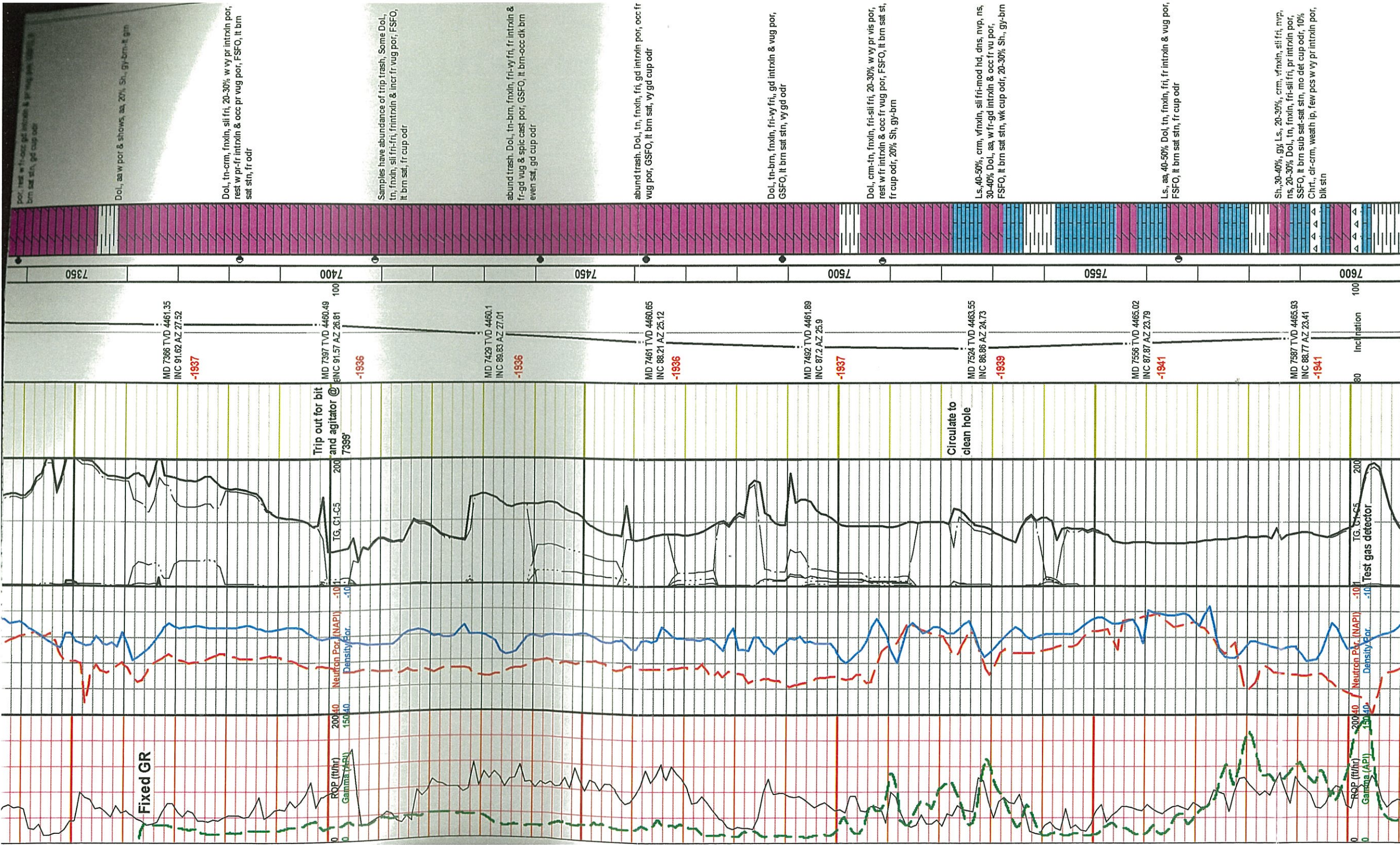
Dol., tn-brn, fnxin, fri, sucr ip, fr-gd intrxin & occ fr ppt& vug por, GSFO, slow bleed, gd even lt brn sat, vy gd cup odr

Dol., aa w shows & por aa, 5% Ls., crm, vfnxin, sil fri, glauc ip, nvp, ns

Dol., tn, fnxin, sil fri-fri, 10% w vy pr intrxin por, rest w fr intrxin & rare fr vug por, FSFO, lt brn even stn, fr cup odr

Dol., tn-crm, fnxin, sil fri, 20-30% w vy pr intrxin por, rest w fr-rare gd intrxin por, FSFO, lt brn spot-sat stn ip, fr cup odr

Dol., tn-crm, fnxin, sil fri-fri, 20-30% w vy pr-no vis por, rest w fr-occ gd intrxin & pr vug por, GSFO, lt brn sat stn, gd cup odr



por. rest w fr-intrn & pr intrn por. brn sat stn, fr odr

Dol., aa w por & shows, aa, 20% Sh., gy-brn & gn

Dol., tn-crm, fmxln, sli fri, 20-30% w vy pr intrn por, rest w pr fr intrn & occ pr vug por, FSFO, lt brn sat stn, fr odr

Samples have abundance of trip trash. Some Dol., tn, fmxln, sli fri-fr, frintrn & incr fr vug por, FSFO, lt brn sat, fr cup odr

abund trash. Dol., tn-brn, fmxln, fri-vy fri, fr intrn & fr-gd vug & spic cast por, GSFO, lt brn-occ dk brn even sat, gd cup odr

abund trash. Dol., tn, fmxln, fri, gd intrn por, occ fr vug por, GSFO, lt brn sat, vy gd cup odr

Dol., tn-brn, fmxln, fri-vy fri, gd intrn & vug por, GSFO, lt brn sat stn, vy gd odr

Dol., crm-tn, fmxln, fri-sli fri, 20-30% w vy pr vis por, rest w fr intrn & occ fr vug por, FSFO, lt brn sat st, fr cup odr, 20% Sh, gy-brn

Ls. 40-50%, crm, vfxln, sli fri-mod hd, dns, nvp, ns, 30-40% Dol., aa, w fr-gd intrn & occ fr vug por, FSFO, lt brn sat stn, wk cup odr, 20-30% Sh., gy-brn

Ls., aa, 40-50% Dol, tn, fmxln, fri, fr intrn & vug por, FSFO, lt brn sat stn, fr cup odr

Sh., 30-40%, gy, Ls., 20-30%, crm, vfxln, sli fri, nvp, ns, 20-30% Dol., tn, fmxln, fri-sli fri, pr intrn por, SSFO, lt brn sub sat stn, mo det cup odr, 10% Chrt., cl-crm, weath ip, few pos w vy pr intrn por, blk stn

S&P, 8 crm sub sat sat stn, mo det cup odr, 10%  
Chrt., dr-crm, weath ip, few pcs w vy pr intrxn por,  
blk stn

Dol., 40-50%, crm, vfnxn, sli fri, weath ip, pr-fr, vug &  
spic cast por, FSFO, blk hvy oil, blk tarry stn, wk cup  
odr, 40-50% Sh., gy-brn, few pcs Chrt. & Ls., aa

Sh., 40-50%, gy-brn-lt grn, Dol., 30-40% crm, vfnxn,  
mod hd-sli fri, weath ip, most dns w nvp, some w  
pr-fr vug & spic cast por, Chrt., 5% clt-tl-org/yel,  
weath

Sh., 30-40%, aa, Ls., 30-40%, crm, vfnxn, sli fri, chily,  
nvp, ns, 10-20% Dol., aa scatt Chrt., aa

Dol., 50-60%, tn-lt brn, fnxln, mod hd-sli fri ip, pr-fr  
intrxn & occ fr vug por, FSFO, even brn sat stn, fr  
cup odr, Sh., 40-50% gy-brn, sandy ip, few pcs Ls.,  
aa

Dol., 60-70%, crm-tn, fn-vfnxn, mod hd, 30-40% w  
no-vy pr vis por, rest w pr-fr intrxn & rare pr vug  
por, SSFO, lt brn sub sat stn, wk odr, 20-30% Sh., aa,  
10% Ls., crm, vfnxn, sli fri, chily ip, nvp, ns

Dol., crm-tn, incr por, 10-20% w vy pr-no vis por, rest  
sucr w fr intrxn & occ pr vug por, FSFO, lt brn sub  
sat-sat stn, fr cup odr

Dol., tn, fnxln, fri-vy fri, sucr, fr-gd intrxn/sucr por,  
occ fr vug por, GSFO, even lt brn sat, gd cup odr,  
30-40% Sh., gy-lt grn, possible slough

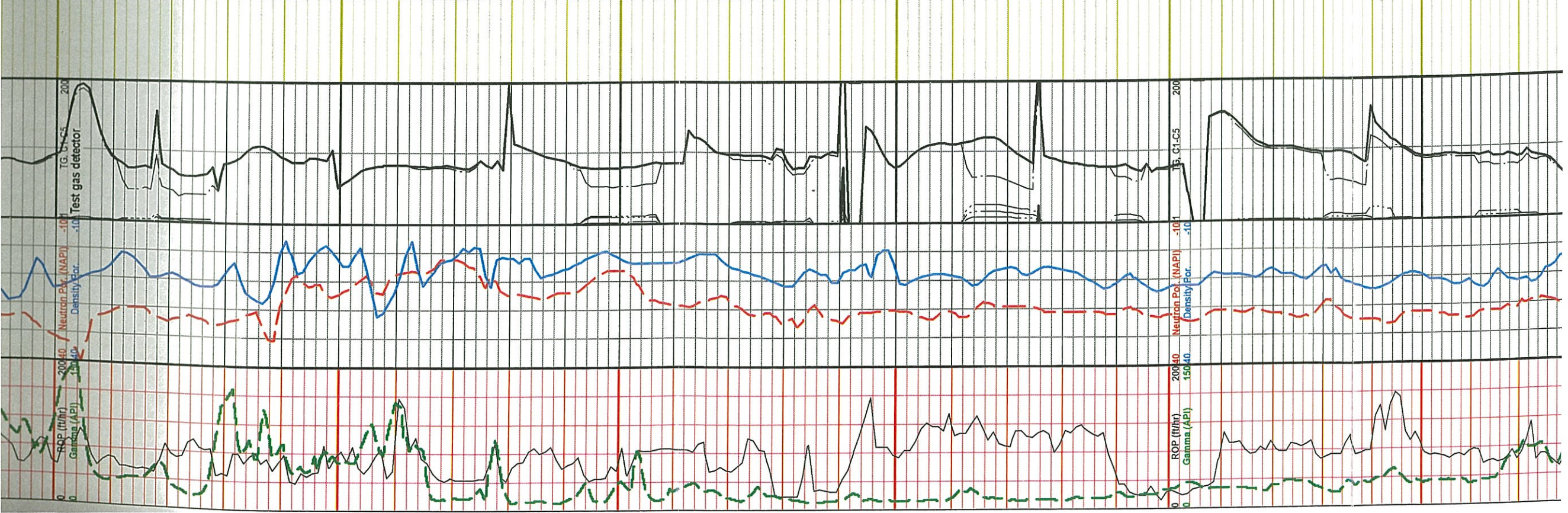
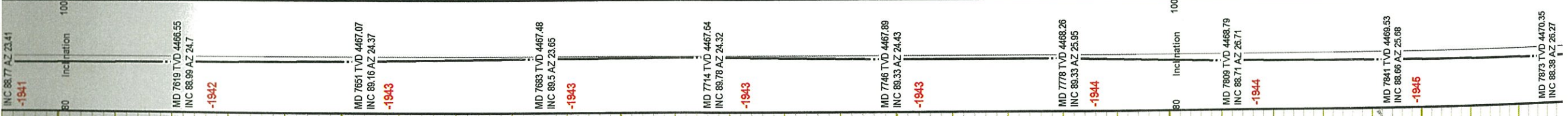
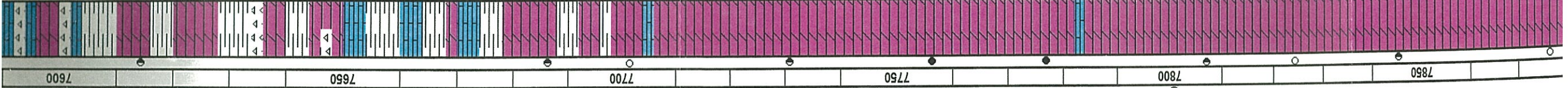
Dol., tn, fnxln, fri-vy fri, sucr, gd intrxn/sucr por,  
fr-gd vug por, GSFO, lt brn-brn even sat, gd cup  
odr, few pcs Ls., crm, vfnxn, mod hd, dns, nvp, ns

Dol., crm-tn, fnxln, mod hddfirm, sli fri ip, 40-50% w  
vy pr intrxn por, occ sub sat stn, rest w fr-occ gd  
intrxn & vug por, FSFO, even brn sat, fr cup odr

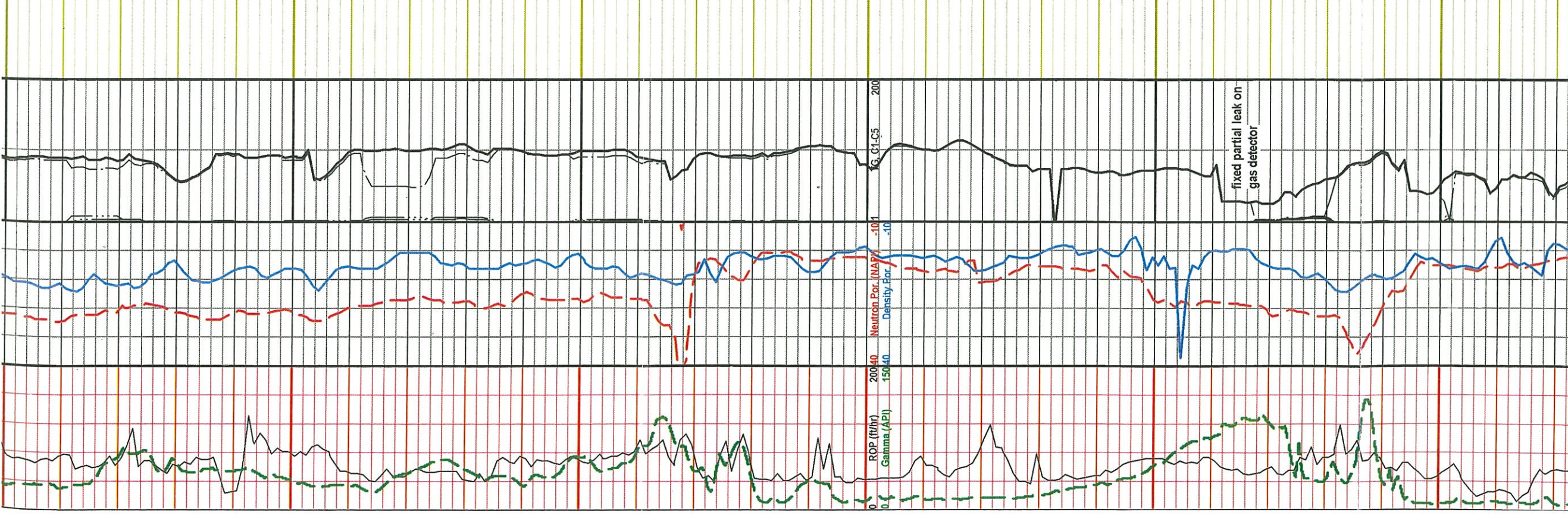
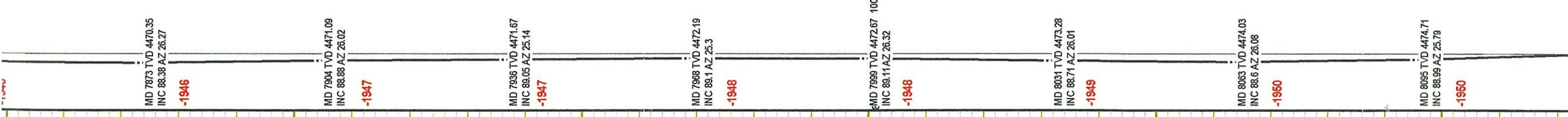
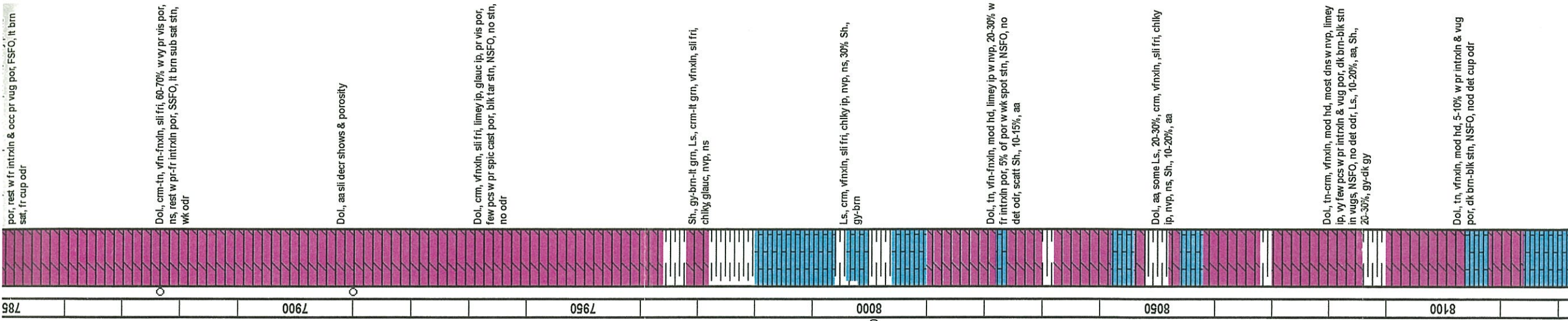
Dol., crm-tn, vfn-fnxln, mod hd, sucr ip, 50-60% w v  
pr vis por, sub sat stn ip, rest w pr-occ fr intrxn &  
rare pr vug por, SSFO, lt sub sat stn ip, wk cup odr,  
Sh., 30-40%, gy-lt grn, poss slough

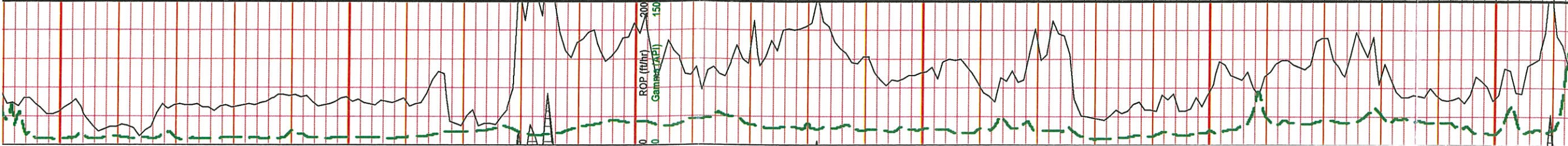
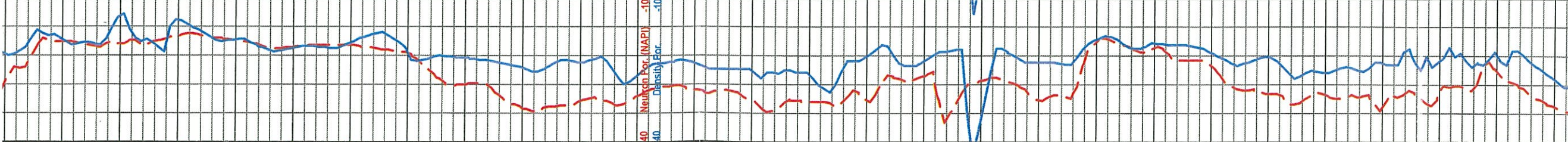
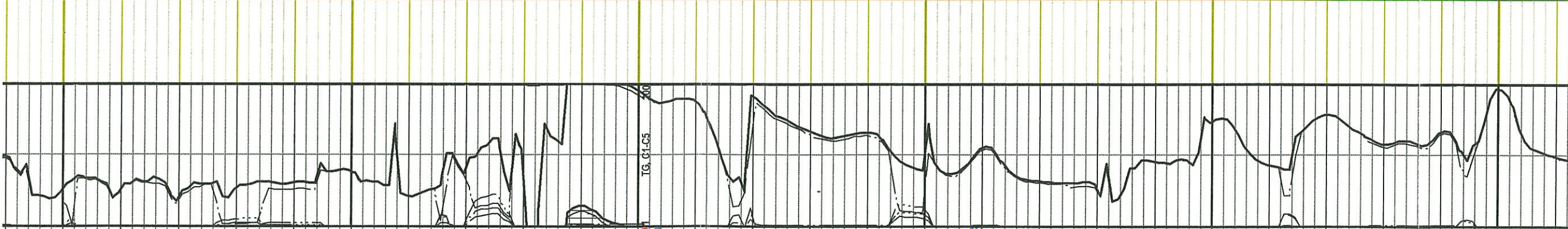
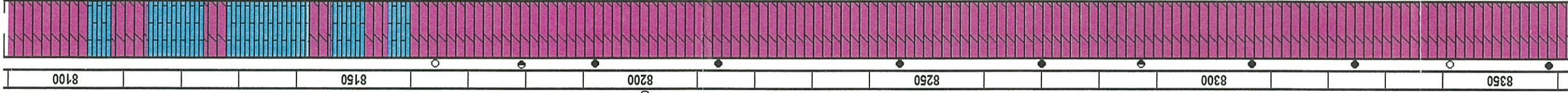
Dol., aa, sli incr in por & shows, 30-40%, w vy pr vis  
por, rest w fr intrxn & occ pr vug por, FSFO, lt brn  
sat, fr cup odr

Dol., crm-tn, vfn-fnxln, sli fri, 60-70%, w vy pr vis pr  
ns, rest w pr-fr intrxn por, SSFO, lt brn sub sat st









Dol, tn, vfnxln, mod hd, 5-10% w pr intrxn & vug por, dk brn-blk stn, NSFO, nod det cup odr

Ls., crm, vfnxln, sil fri, dns, nvp, ns, Dol, 20%, aa

Ls., aa, Dol, 20-30%, tn, vfnxln, mod hd, few pcs w pr intrxn & vug por, NSFO, dk brn stn in por, no det odr

Dol., crm-tn, fmxln, fri, most w pr intrxn por, few pcs w pr vug & spic cast por, SSFO, dk brn stn in por, wk cup odr

Dol, tn-clr-crm, fmxln, vy fri, sucr, gd-oc-vy gd intrxn/sucr por, some single dol xls, SSFO, vy gd lt brn-brn sat stn, gd cup odr

Dol, tn-occ clr, fmxln, vy fri, sucr, gd-oc-vy gd intrxn/sucr por, rare small vug por, FSFO, vy gd even lt brn sat, vy gd cup odr

Dol, tn, fmxln, vy fri, sucr, fr-gd intrxn & fr vug por, GSFO, even brn sat, vy gd cup odr

Dol, crm-tn, fmxln, fri, 20-30% dns w nvp, ns, rest w fr intrxn & vug por, FSFO, lt brn sat, vy gd cup odr

Dol, tn, fmxln, fri-vy fri, sucr, fr-gd intrxn & occ fr vug por, GSFO, even brn sat stn, gd cup odr

Dol., crm-tn, vfn-fmxln, mod hd, 30-40% w nvp, ns, rest w fr intrxn & occ fr vug por, FSFO, lt brn even sat, gd cup odr, some Ls., crm, vfnxln, sil fri, chiky ip, nvp, ns

Dol., crm-tn, vfn-fnxln, mod hd, 30-40% w nvp, ns  
rest w fr intrxn & occ fr vug por, FSFO, lt brn eve  
sat, gd cup odr, some Ls., crm, vfnxln, sli fri, chlk  
ip, nvp, ns

Dol., tn, fnxln, fri, sucr, gd-occ vy gd intrxn por,  
fr vug por, FSFO, gd even lt brn stn, vygd cup o

Dol., tn, fnxln, mod hd, sucr ip, occ fr intrxn & v  
por, SSFO, lt brn sat stn, wk cup odr, 30% Ls., cr  
vfnxln, sli fri, chiky ip, nvp, ns

Dol., tn, fnxln, mod hd-fri, sucr ip, 30-40% dns w  
pr vis por, l brn sub sat stn, rest w fr-gd  
intrxn/sucr por & occ fr vug por, FSFO, brn sat s  
fr cup odr, scatt Ls., 10% aa, Sh., 5-10%, dk gy

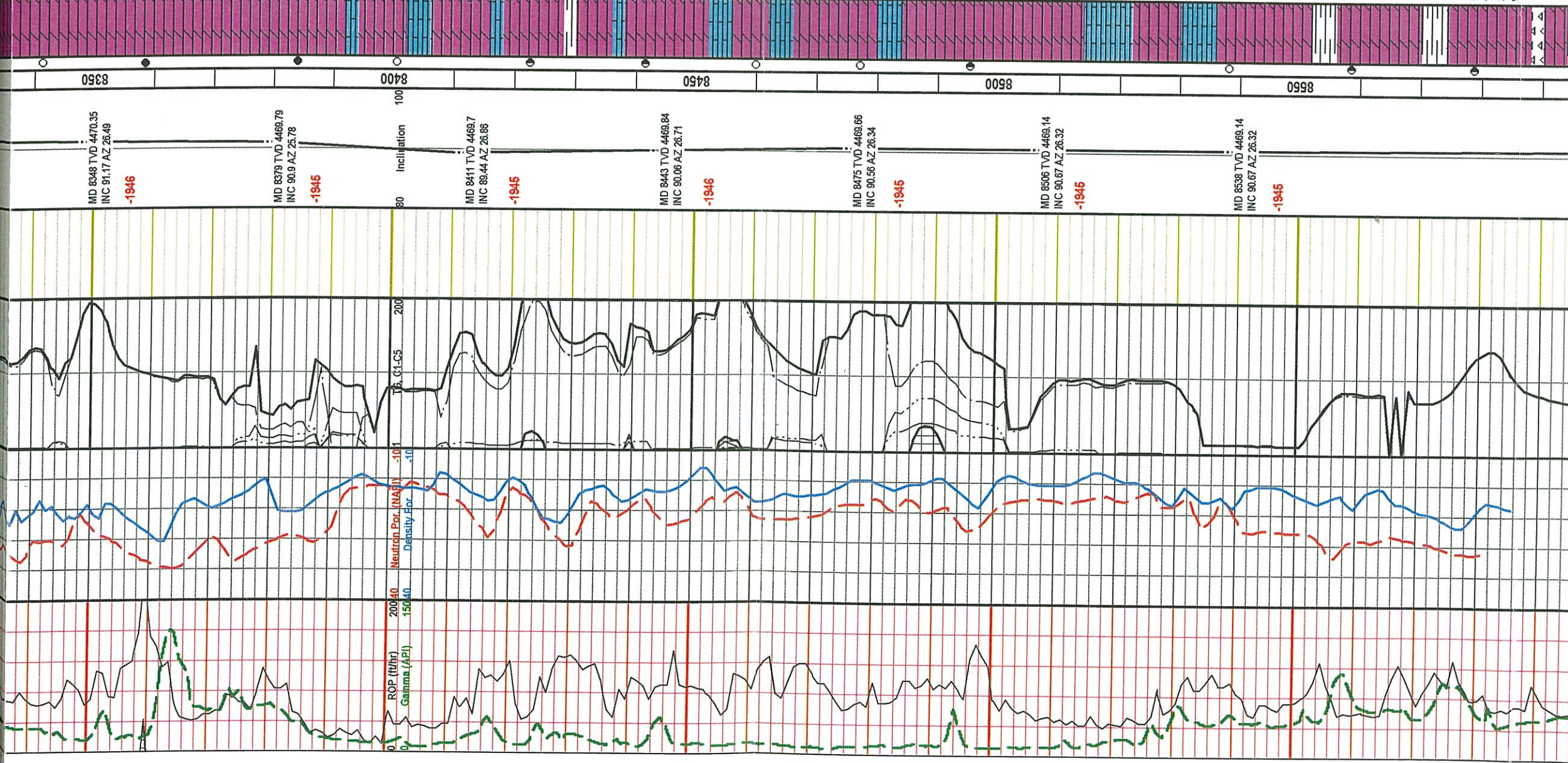
Dol., tn-crm, fn-vfnxln, mod hd-sli fri ip, 30-40% d  
w vy pr intrxn por, sub sat stn, rest w pr-occ fr  
intrxn & rare pr vug por, FSFO, lt brn sub sat stn,  
wk cup odr, incr Ls., 20%, aa

Dol., aa, 30-40% w vy pr-no vis por, rest w fr-rare g  
intrxn/sucr por, FSFO, sat lt brn stn, fr cup odr,  
decr Ls., aa

Dol., tn, vfnxln, mod hd, 40-50% w vy pr-no vis por,  
rest w pr-occ fr intrxn por, SSFO, lt brn sub sat st  
ip, abund Ls., 40-50%, crm, vfnxln, sli fri, dns, nvp,  
ns, scatt Chrt., clr, weath ip, nvp, ns

Dol., tn, fnxln, sli fri, 10-20% tight w nvp, rest sucr i  
fr-occ gd intrxn/sucr por, rare pr vug por, FSFO,  
brn sat stn, fr cup odr, Sh., 10-20%, dk gy-lt grn

Dol., tn, fnxln, sli fri-fri, sucr, fr-occ gd intrxn & fr  
vug por, FSFO, even brn sat stn, fr cup odr, 10-20%  
Sh., gy-brn-lt grn, scatt Chrt., 5%, clr-crm, broken,  
weath, blk stn in por.



MD 8348 TVD 4470.35  
INC 91.17 AZ 26.49  
-1946

MD 8379 TVD 4469.79  
INC 90.9 AZ 25.78  
-1946

MD 8411 TVD 4469.7  
INC 89.44 AZ 26.86  
-1946

MD 8443 TVD 4469.84  
INC 90.06 AZ 26.71  
-1946

MD 8475 TVD 4469.66  
INC 90.56 AZ 26.34  
-1946

MD 8506 TVD 4469.14  
INC 90.67 AZ 26.32  
-1946

MD 8538 TVD 4469.14  
INC 90.67 AZ 26.32  
-1946

ROP (ft/hr)  
Gamma (API)

Neutron Por. (NAFLY)  
Density (Dens)

Inclination

8350

8400

8450

8500

8550

Sh, 30-40%, n.v.l.e., 20-30%, crm, vntfxin, eli, fri, nvp

DoI, crm-tn, fnxin, mod hd, sucr, ip, 30-40%, dns w nvp, rest w pr-occ fr intrxin por, VSSFO, sub sat it brn stn ip, no det odr, Ls., crm, vntfxin, sli fri, chiky ip nvp, ns, incr Sh., 20-30%, aa

DoI, aa, sli incr in por & shows, incr in Ls., aa & sh, gy-brn-yel, Chrt., crm-yel-org, weath, nvp, ns

8600

8650

8700

8750

8800

100

Inclination

80

MD 8644 TVD 4467.11  
INC 91.17 AZ 28.15

-1943

100

Inclination

80

200

TG, G1-C5

-101

-10

Neutron Por. (NAPI)  
Density Por.

200/40

150/40

ROP (ft/hr)  
Gamma (API)

<=====  
RTD  
8644'

200

TG, G1-C5

-101

-10

Neutron Por. (NAPI)  
Density Por.

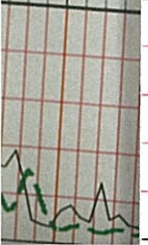
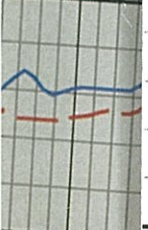
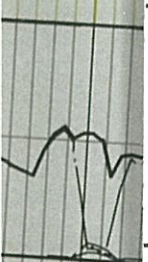
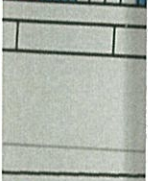
200/40

150/40

ROP (ft/hr)  
Gamma (API)

30-40% Dol, az w fr-gd intrxin & occ fr yu por,  
FSFO, it brn sat str, wk cup odr, 20-30% Sh, gy-brn

-1939

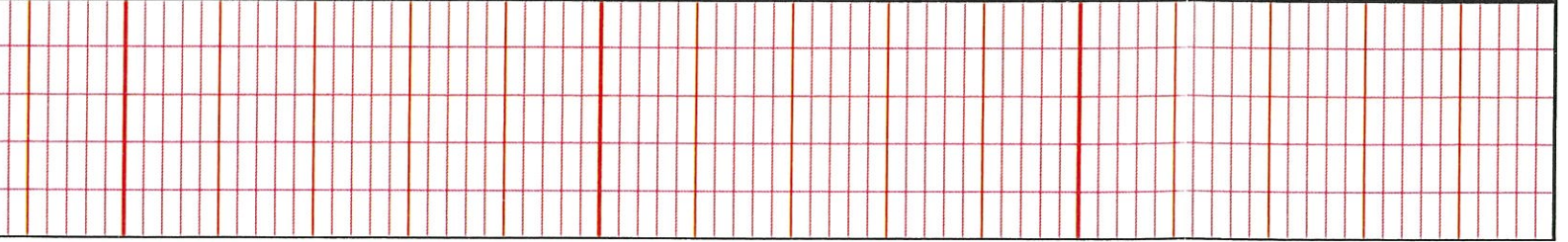
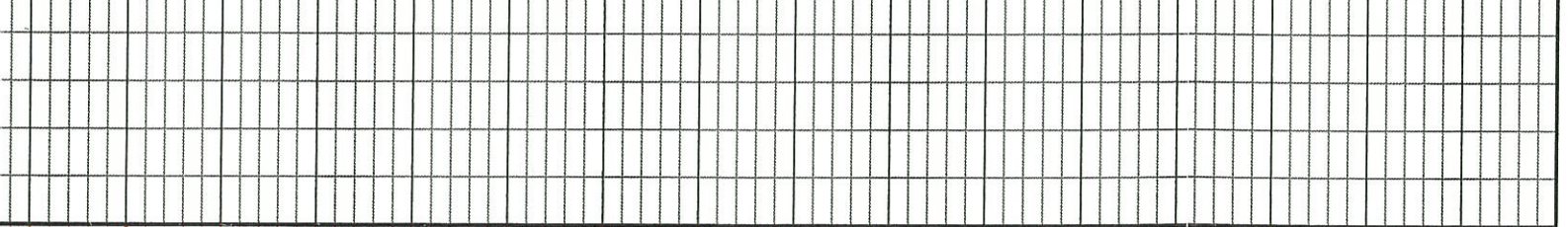


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# SWIFT

MAY 04 2018

## Invoice



P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



DATE	INVOICE #
4/30/2018	31449

BILL TO
Palomino Petroleum Inc. 4924 S E 84th Street Newton, KS 67114-8827

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	NBS Unit	Ness		Oil	Development	Cement	David K.

PRICE REF.	DESCRIPTION	QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way	35	Miles	5.00	175.00
577D	Pump Charge - Shallow Squeeze (< 1500 Ft.)	1	Job	875.00	875.00
328-4	60/40 Pozmix (4% Gel)	65	Sacks	10.60	689.00T
290	D-Air	1	Gallon(s)	42.00	42.00T
581D	Service Charge Cement	150	Sacks	1.75	262.50
582D	Minimum Drayage Charge	1	Each	250.00	250.00
	Subtotal				2,293.50
	Sales Tax Ness County			6.50%	47.52

<b>We Appreciate Your Business!</b>	<b>Total</b>	\$2,341.02
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JOB LOG

SWIFT Services, Inc.

DATE 4-30-18 PAGE NO. 1

CUSTOMER Palomino Petroleum WELL NO. #1 LEASE JBS Unit JOB TYPE Cement TICKET NO. 31449

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1330							on location 7" x 9 5/8"
	1345	4	35		✓		500	Pressure 7"
	1400	1	4		✓	400		Pump 15 sks 60/40 Pozmix down 9 5/8"
	1430		8-5					Plug RH - MH (30-20)
								*65 sks total*
	1500							Job Complete
								Thank You Dave Proton Isaac



# SWIFT



P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



## Invoice

DATE	INVOICE #
4/22/2018	31442

RECEIVED

APR 26 2018

- Acidizing
- Cement
- Tool Rental

BILL TO
Palomino Petroleum Inc. 4924 S E 84th Street Newton, KS 67114-8827

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	NBS Unit	Ness	WW Rig #14	Oil	Development	Set Packers	David K.

PRICE REF.	DESCRIPTION	QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way	40	Miles	5.00	200.00
578D-L	Pump Charge - Long String	1	Job	1,300.00	1,300.00
221	Liquid KCL (Clayfix)	20	Gallon(s)	25.00	500.00
	Subtotal				2,000.00
	Sales Tax Ness County			6.50%	0.00

**We Appreciate Your Business!**

**Total**

\$2,000.00



JOB LOG

SWIFT Services, Inc.

DATE 4-22-18 PAGE NO. 1

CUSTOMER Palomino Petroleum WELL NO. #1 LEASE WBS Unit JOB TYPE Set Packers TICKET NO. #31442

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0000							on location
								RTD- 8644
	0230							Break Circulation
	0340	4	90	✓		700		Pump KCL water
	0400							Drop ball
	0405	4	∅	✓		∅		Pump KCL water
		1/2	97	✓		1000		pressure up
		∅	97	✓		3000		set PKRS *Hold*
	0455	∅	∅		✓		1500	Tie on to B.O.P
								Test PKRS *Hold* 10 mins
	0510							Set Hanger Back off
								<del>Pressure - 1000 - 1000</del>
	0525	4	120	✓		500		circulate 7" clean
	0615							Job Complete
								Thank You Dave Preston

# SWIFT



P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



## Invoice

DATE	INVOICE #
4/10/2018	31376

BILL TO
Palomino Petroleum Inc. 4924 S E 84th Street Newton, KS 67114-8827

RECEIVED

APR 14 2018

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	NBS Unit	Ness	WW Rig #14	Oil	Development	Cement 7" Longs...	Blaine
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				40	Miles	5.00	200.00
579D	Pump Charge - Two-Stage & Top To Bottom LongString				1	Job	1,800.00	1,800.00
402-7	Centralizer 7"				4		120.00	480.00T
403-7	Cement Basket 7"				4		300.00	1,200.00T
406-7	Latch Down Plug & Baffle 7"				1		400.00	400.00T
407-7	Insert Float Shoe 7"				1		600.00	600.00T
409-7T	7" Turbolizer				8		90.00	720.00T
330	Swift Multi-Density Standard (MIDCON II)				625	Sacks	16.25	10,156.25T
276	Flocele				150	Lb(s)	2.50	375.00T
290	D-Air				2	Gallon(s)	42.00	84.00T
580	Additional Hours (If Circulate More Than 1 Hour)				3	Hours	250.00	750.00T
581D	Service Charge Cement				625	Sacks	1.75	1,093.75
583D	Drayage				1,243.87	Ton Miles	0.85	1,057.29
	Subtotal							18,916.29
	Sales Tax Ness County						6.50%	959.74

**We Appreciate Your Business!**

**Total**

\$19,876.03



**Services, Inc.**

CHARGE TO:

*Palomino Petroleum*

TICKET 031376

ADDRESS

CITY, STATE, ZIP CODE

PAGE 1 OF 2

1. SERVICE/LOCATIONS  
*Wm City KS*

WELL/PROJECT NO. *J*

LEASE

*NBS CRK*

COUNTY/PARISH

*Neos*

STATE

*KS*

CITY

*Utica*

DATE

*10 APR 18*

OWNER

2. TICKET TYPE

SERVICE  
 SALES

CONTRACTOR

WELL TYPE

*Oil*

RIG NAME/NO.

*14*

SHIPPED VIA

*CT*

DELIVERED TO

*Location*

ORDER NO.

*73-17-26*

3. REFERRAL LOCATION

WELL CATEGORY

*Development*

JOB PURPOSE

*convent 7" long string*

WELL PERMIT NO.

*73-17-26*

WELL LOCATION

*73-17-26*

PRICE REFERENCE

SECONDARY REFERENCE/  
PART NUMBER

ACCOUNTING  
LOC ACCT DF

DESCRIPTION

QTY. U/M

UNIT PRICE

AMOUNT

*575*

*1*

*1*

*MILEAGE TRK 114*

*40 mi*

*5*

*200*

*579*

*1*

*1*

*Pump Charge - top to bottom*

*1 ea*

*1800*

*1800*

*402*

*1*

*1*

*Centralizer Double Bore*

*7 in*

*4*

*120*

*840*

*406*

*1*

*1*

*Latex Ann Plug & Bellie*

*7 in*

*1*

*400*

*400*

*407*

*1*

*1*

*1 1/2" First Line w/ Ness*

*7 in*

*1*

*600*

*600*

*409*

*1*

*1*

*Turbolizer*

*7 in*

*1*

*90*

*720*

*580*

*1*

*1*

*Additional Hours*

*4 hr*

*250*

*1000*

**LEGAL TERMS:** Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.

P.O. BOX 466

NESS CITY, KS 67560

785-798-2300

SURVEY

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?

WE UNDERSTOOD AND MET YOUR NEEDS?

OUR SERVICE WAS PERFORMED WITHOUT DELAY?

WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?

ARE YOU SATISFIED WITH OUR SERVICE?

CUSTOMER DID NOT WISH TO RESPOND

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

DATE SIGNED

*6/20/18*

A.M.  
 P.M.

TIME SIGNED

*6:50*

PAGE TOTAL

*13516.09*

*18916.09*

*18916.09*

*18916.09*

*18916.09*

*18916.09*

SWIFT OPERATOR

*ASL*

APPROVAL

*ASL*

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

Thank You!



JOB LOG

SWIFT Services, Inc.

DATE 10 APR 18 PAGE NO. 1

CUSTOMER		WELL NO.		LEASE		JOB TYPE		TICKET NO.	
Palawind Petroleum		#1		NBS unit		Cement 7" long string		31376	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
									625 650 sk SMD cement w/ 1/4" flocc, 7" x 26" casing TD 4848' 120 joints 4844' sheet 43.45' Centralizers 1, 3, 7, 11, 15, 19, 23, 28, 33, 49 61, 73 baskets 38, 86, 98, 111
	1130								onloc TRK 114
	1900								start 7" x 26" casing in well
Apr 11	0100								circulate well - fine returns
	0345								improved circulation
	0355	5	111			200			mix SMD cement 250sk @ 11.8 PPG
		5	76			200			200sk @ 12.5 PPG
		4	31			200			100sk @ 13.5 PPG
		3	19			100			75sk @ 14.5 PPG
			236 total						good circulation - 625sk total
	0500								Drop latch down plug wash out pup & line
	0535	5	70			200			Displace plug - circ to pit / slower than mixing - lose returns returns
		2	150			1500			- increasing psi @ 2 BPM
		1 1/2	182			2300			- no returns
	0615	1 1/2	184			2400			Land plug
	0620								Release pressure to truck - dried up float welding 2 bbl to truck
	0625								wash truck pack up
	0700								job complete - checks Blow, Float & scratch



**QUALITY OILWELL CEMENTING, INC.**  
 PO Box 32 - 740 WEST WICHITA AVE, RUSSELL KS 67665  
 PHONE:785-324-1041 FAX:785-483-1087  
 EMAIL: cementing@ruraltel.net

Date: 4/4/2018  
 Invoice # 686  
 P.O.#:  
 Due Date: 5/4/2018  
 Division: Russell

RECEIVED

APR 09 2018

# Invoice

**Contact:**  
 Palomino Petroleum Inc  
**Address/Job Location:**

4924 SE 84th  
 Newton Ks 67114

**Reference:**  
 N B S UNIT 1 SEC 23-17-26

**Description of Work:**  
 SURFACE JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 609.31	No				
Common-Class A	112	\$ 1,575.65	Yes				
Calcium Chloride	5	\$ 191.22	Yes				
POZ Mix-Standard	28	\$ 133.85	Yes				
Pump Truck Mileage-Job to Nearest Camp	35	\$ 107.56	No				
Bulk Truck Matl-Material Service Charge	148	\$ 101.07	No				
Bulk Truck Mileage-Job to Nearest Bulk Plant	35	\$ 83.66	No				
Premium Gel (Bentonite)	3	\$ 59.41	Yes				

**Invoice Terms:**

Net 30

SubTotal: \$ 2,861.74  
 Discount Available ONLY if Invoice is Paid & Received  
 within listed terms of invoice: \$ (71.54)

SubTotal for Taxable Items:	\$ 1,911.13
SubTotal for Non-Taxable Items:	\$ 879.06
<b>Total:</b>	<b>\$ 2,790.20</b>
<b>Tax:</b>	<b>\$ 124.22</b>

6.50% Ness County Sales Tax

**Thank You For Your Business!**

**Amount Due: \$ 2,914.42**  
**Applied Payments:**  
**Balance Due: \$ 2,914.42**

Past Due Invoices are subject to a service charge (annual rate of 24%)  
 This does not include any applicable taxes unless it is listed.  
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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 686

Date	4-4-18	Sec.	23	Twp.	17	Range	26	County	NeSS	State	Ks	On Location		Finish	4:00 AM
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NBS unit

Location Utica - IE to ERd, 55 to 210 Rd

Lease		Well No.	1	Owner	W, S/Ints
Contractor	WW #14	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.			
Type Job	Surface	Charge To <u>Palamino Petroleum</u>			
Hole Size	12 1/4"	T.D.	215'	Street	
Csg.	9 5/8"	Depth	215'	City	
Tbg. Size		Depth		State	
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	15'	Shoe Joint	15'	Cement Amount Ordered <u>140 80/20 3+2</u>	
Meas Line		Displace	15 1/2 BLS		

**EQUIPMENT**

Pumptrk	20	No.	Cementer	Brett	Common	112
			Helper		Poz. Mix	28
Bulktrk	21	No.	Driver	Jordan	Gel.	3
			Driver		Calcium	5
Bulktrk	p.u.	No.	Driver	Rick		

**JOB SERVICES & REMARKS**

Remarks:	Cement did Circulate	Hulls	
Rat Hole		Salt	
Mouse Hole		Flowseal	
Centralizers		Kol-Seal	
Baskets		Mud CLR 48	
D/V or Port Collar		CFL-117 or CD110 CAF 38	
		Sand	
		Handling	148
		Mileage	

**FLOAT EQUIPMENT**

	Guide Shoe	
	Centralizer	
	Baskets	
	AFU Inserts	
	Float Shoe	
	Latch Down	

Pumptrk Charge Surface  
Mileage 35

X Signature John Green

Tax	
Discount	
Total Charge	