



Woolsey Operating Company, LLC

Scale 1:600 (2"=100') Metric
Measured Depth Log

Well Name: Michel 1 H
Location: Section 7 - Township 34 South - Range 11 West
License Number: 15-007-24022-01-00 Region: Barber County, Kansas
Spud Date: June 7, 2013 Drilling Completed:
Surface Coordinates: 2246' FNL and 1480' FEL
Apx. NE SE SW NE
Bottom Hole Coordinates:
Ground Elevation (m): 1432' K.B. Elevation (m): 1449'
Logged Interval (m): 3700' To: Total Depth (m):
Formation: Heebner ----> Mississippian
Type of Drilling Fluid: Chemical Mud, Water/Flozan
Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Woolsey Operating Company, LLC
Address: 125 N. Market Suite 1000
Wichita, Kansas 67202

GEOLOGIST

Name: Bill Klaver
Company: Woolsey Operating Company, LLC
Address: 125 N. Market Suite 1000
Wichita, Kansas 67202

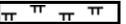
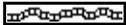
Remarks

Gas Detection: Woolsey Operating, Trailer #2
 Mud Systems: Mud Co. Brad Bortz, Terry Ibson Engineers
 Directional System: Calmena Energy, Heath Marshall, Mark Sanders, Directional Drillers
 MWD Hands: Shane Lewis, Caleb Consalvi
 Woolsey Operating Company Man: Mike Tharp

Rig Crews

Tool Pusher: Steve Ellington, Relief: Sammy Fry
 Day Drillers: Johnnie Stone, Jack Lambert
 Night Drillers: Tanner Barber, Terry Stark
 7 days on 7 days off, 12 hour tours

ROCK TYPES

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

ACCESSORIES

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

OTHER SYMBOLS

POROSITY

- E Earthy
- F Fenest
- F Fracture
- X Inter
- M Moldic
- O Organic
- P Pinpoint

V Vuggy

SORTING

- W Well
- M Moderate
- P Poor

ROUNDING

- R Rounded
- S Subrnd
- A Subang
- A Angular

OIL SHOW

- E Even

S Spotted

- Q Ques
- D Dead

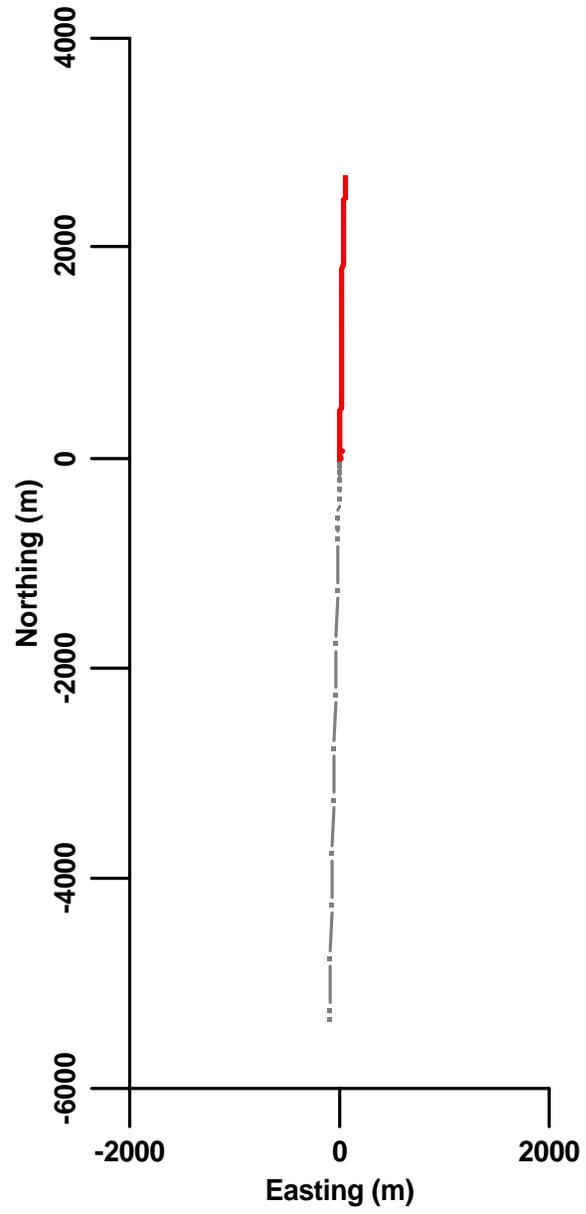
INTERVAL

- C Core
- D Dst

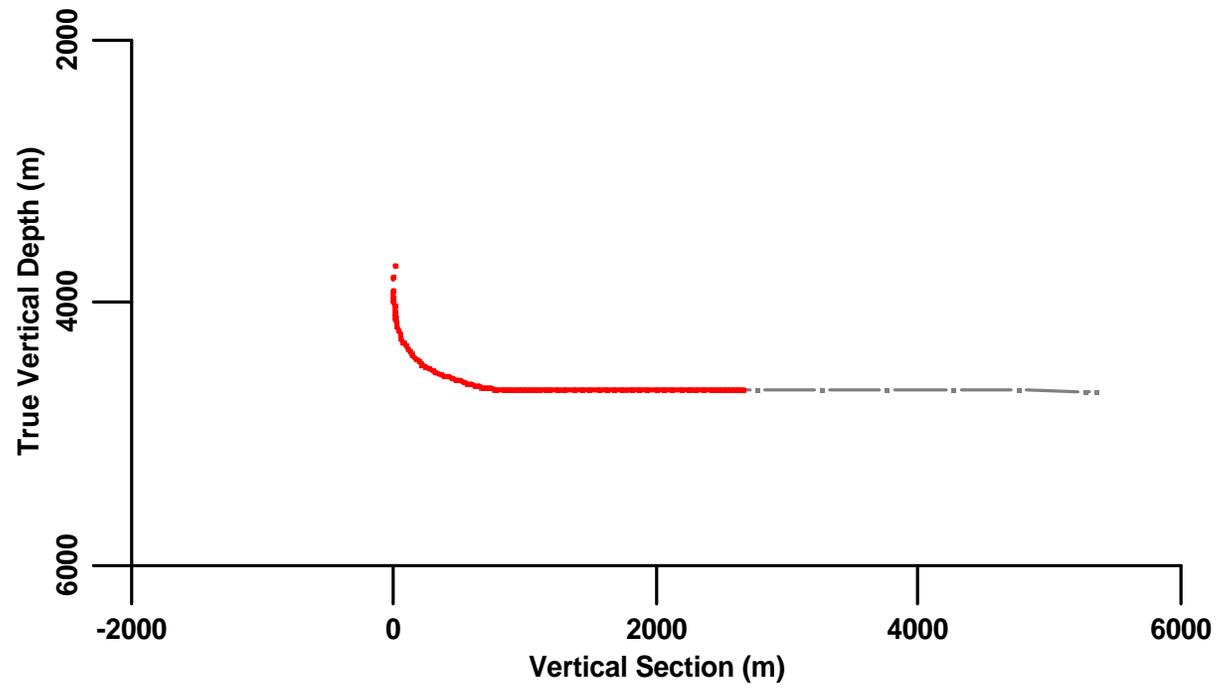
EVENT

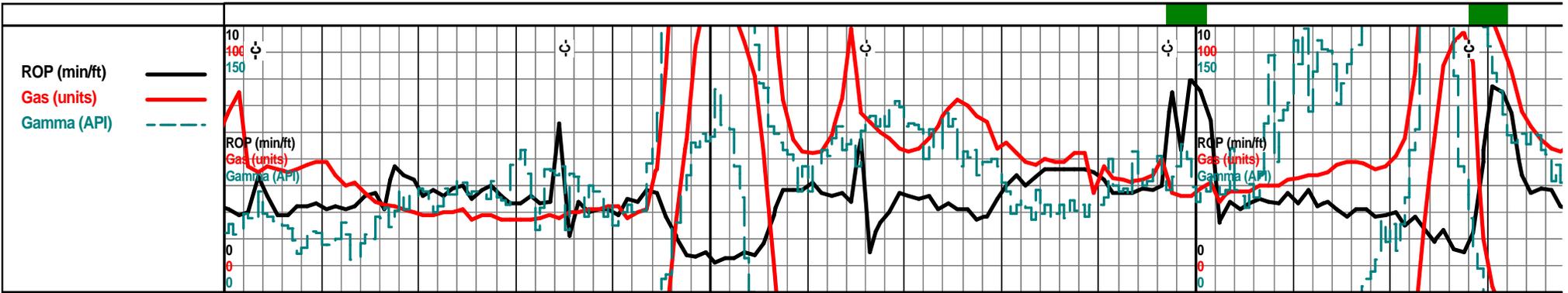
- R Rft
- S Sidewall

Plan



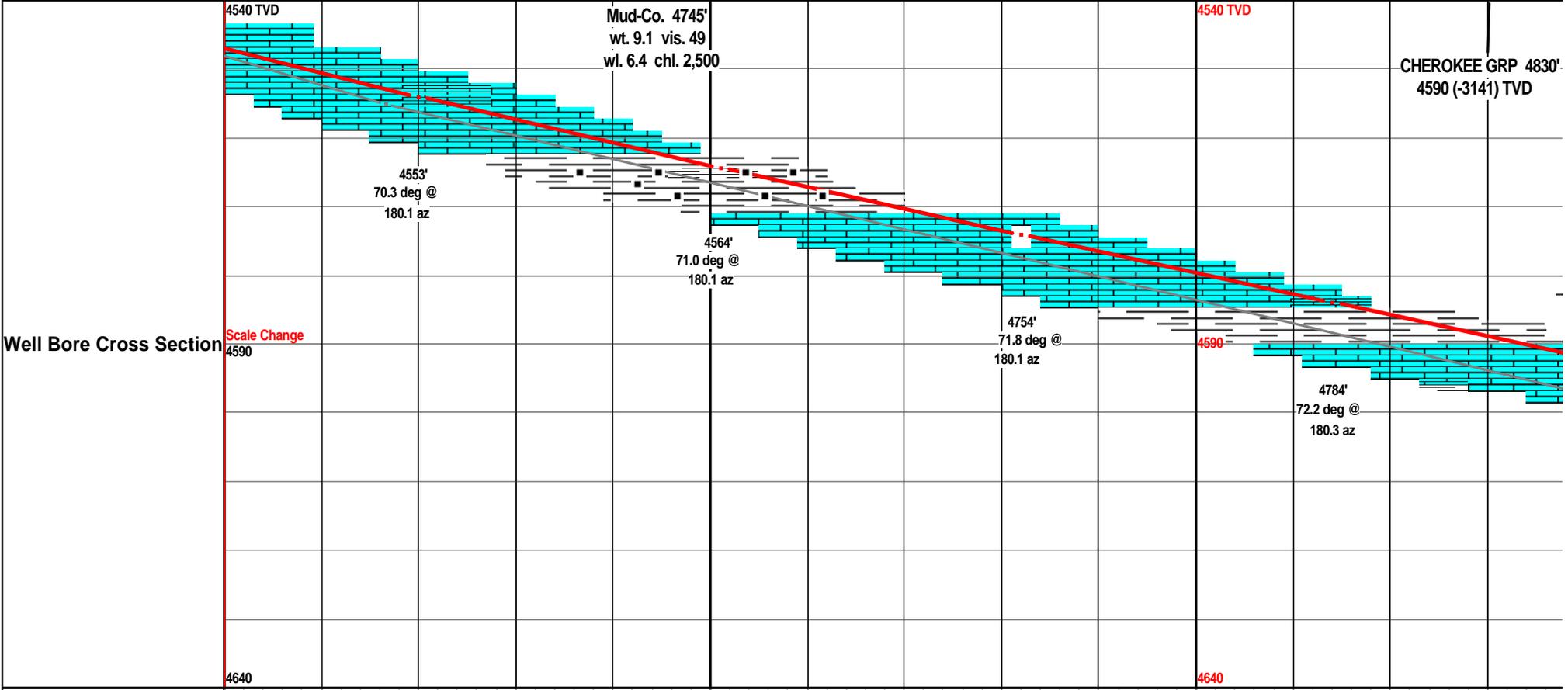
Elevation



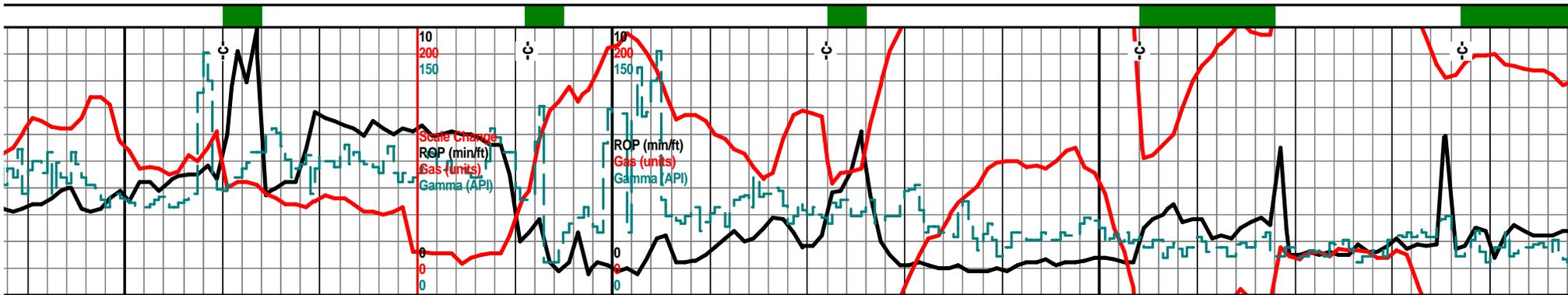


Oil Shows

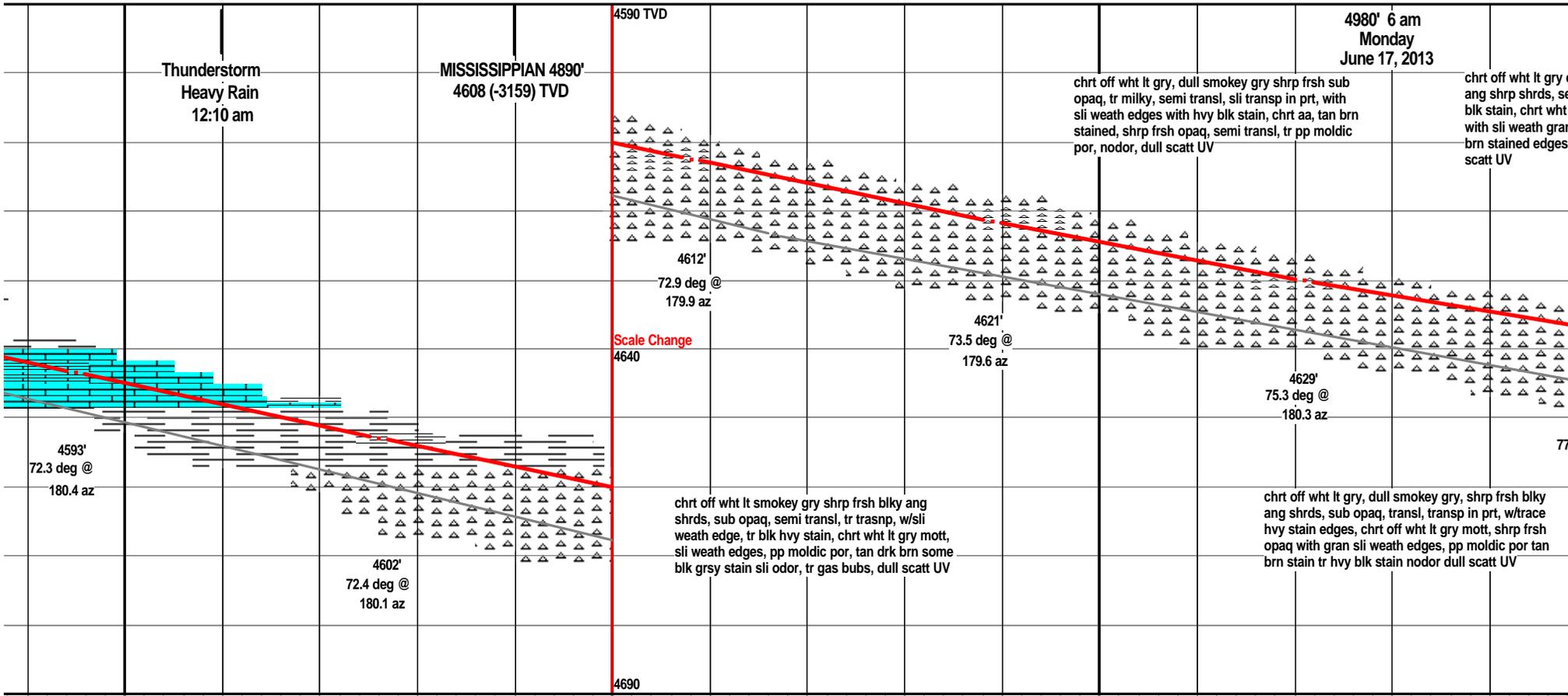
Depth 00 4720 4740 4760 4780 4800 4820

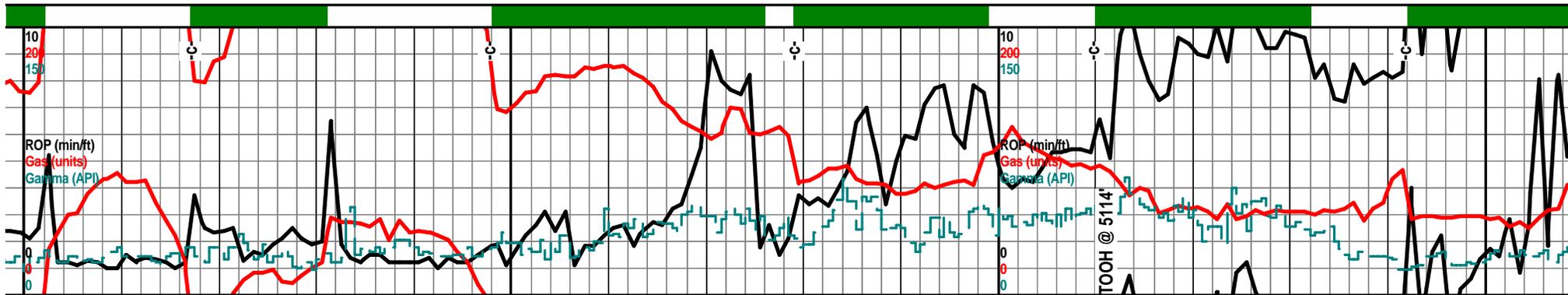


Porosity	24%
	18%
	12%
	6%
Porosity Type	



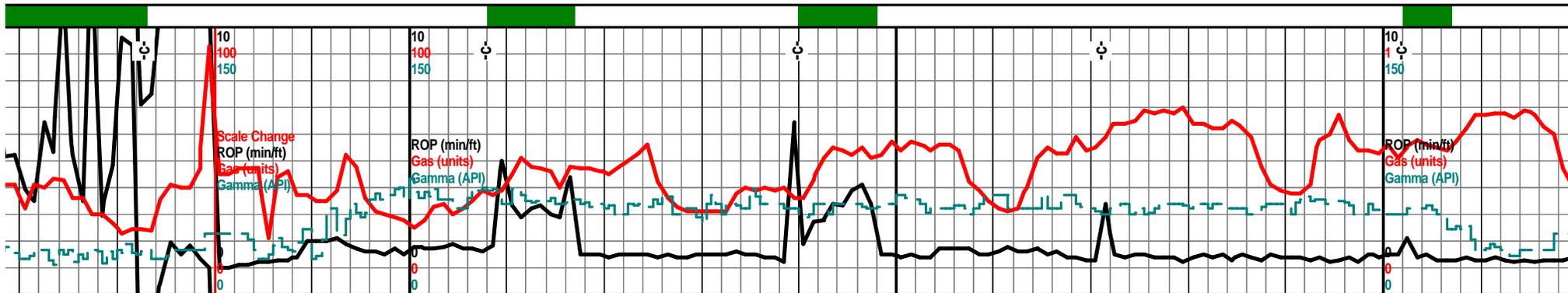
4840 4860 4880 4900 4920 4940 4960 4980





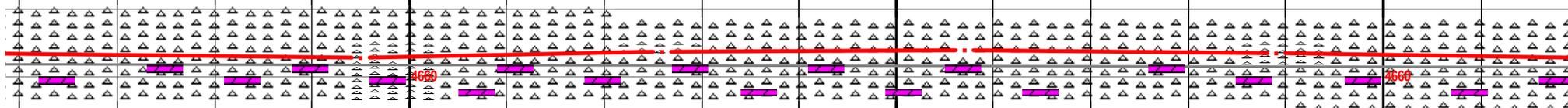
5000 5020 5040 5060 5080 5100 5120 5140

<p>4590 TVD</p> <p>dull smokey gry, shrp frsh blk mi transl, some transp, tr hvy off wht lt gry shrp frsh opa edge text pp moldic por, tan lt , tr blk hvy stain nodor dull</p>		<p>chrt off wht, lt gry dull lt smokey gry shrp frsh semi opa, sli transl in prt, tr transp, blk ang shrp shrds, chrt off wht lt gry with tan lt brn stained sli weath gran text edges, tr hvy blk stain, vis gas bubs, nodor, live UV shows</p>	<p>Mud-Co. 5080' wt. 9.2 vis. 51 wl. 8.0 chl. 3,000</p>	<p>4610 TVD</p> <p>TOOH at 5114' Downhole motor shelled out</p> <p>chrt off wht lt gry, dull smokey gry shrp frsh opa blk ang shrds, semi transl, transp in prt. chrt tan off wht lt gry frsh blk ang with tr sli weath gran sli trip text edges, pp moldic por, tan brn stain, live gas bubs, filmy SFO, nodor, tr blk hvy stain</p>	<p>chrt lt gry off wht lt milky ang shrds, semi transl, so wht lt gry shrp frsh opa trip text edge, pp moldic edge stain, gas bubs, live</p>
<p>4637' .0 deg @ 181.0 az</p>	<p>4643' 78.9 deg @ 181.3 az</p>	<p>4649' 81.4 deg @ 181.7 az</p>	<p>4653' 83.6 deg @ 181.7 az</p>	<p>Scale Change 4660'</p>	<p>4656' 85.8 deg @ 181.5 az</p>
<p>4690</p>	<p>chrt off wht lt gry, lt dull smokey gry shrp frsh semi opa, sli transl, some transp, blk ang shrds, with tr sli weath edge text, hvy grsy stain, chrt lt gry smokey gry, shrp frsh with sli weath gran edges, pp moldic por, sli tan lt brn stain, vis gas bubs, nodor</p>	<p>chrt wht off wht lt smokey gry, shrp frsh opa, sub opa, semi transl, tr transp, with gran weath sli trip text edges, pp moldic por, pp por, tan brn stained edges, hvy blk stain, filmy SFO, gas bubs, live UV, nodor</p>		<p>chrt off wht lt gry smokey, milky opa color, shrp frsh blk ang shrds, semi transl, some transp in prt, chrt off wht lt gry aa with sli weath gran edge text, pp moldic edge por, tan lt brn stain, gas bubs, scatt live UV, tr hvy blk stain</p>	<p>chr shr gry lt b grs</p>



5160 5180 5200 5220 5240 5260 5280 5300 5

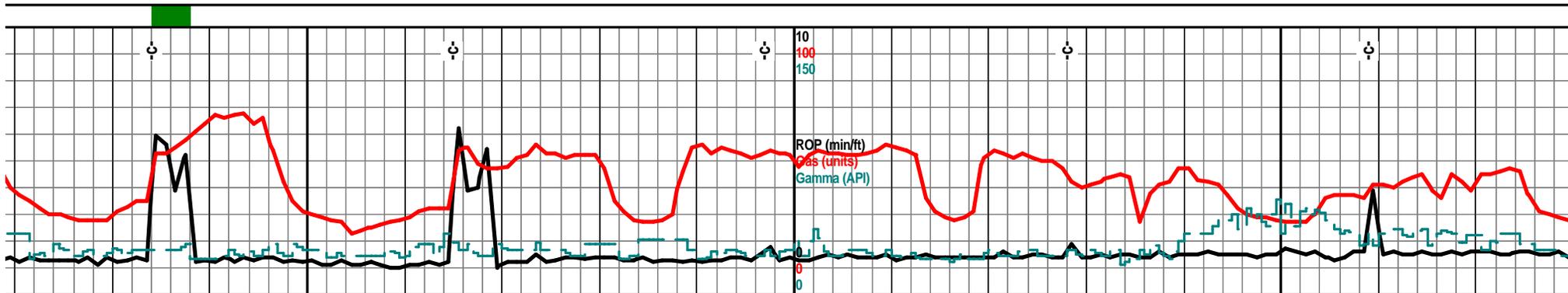
	7" Casing Depth 5180'	4610 TVD			5265' 6 am Friday June 21, 2013	@	4610 TVD	
opaq color, shrp blkly me rare transp, chrt off with sli weath gran sli dge por, drk tan lt brn UV, nodor		chrt off wth lt gry, milky smokey color, shrp blkly ang semi transl, with weath gran vry sli trip text edges, tan brn stain, tr hvy brn stain, gas bubs, dolo chrty dolo crm off wht lt gry/green f vf xln gran soft sub chlkly, pp inter xln por, tan drk tan brn stain, chrt inclu, dull scatt UV			chrt lt gry lt smokey gry, shrp frsh opaq transl, mstly transp, with weath gran trip text edges, pp moldic por, tan brn blk stain tr hv stain, gas bubs, dull UV, with off wht lt gry green dolo edge, inter xln por, tan brn blk stain, blk SFO, nodor			chi sel tex hv, sol sul



	4657' 180.4 az 92.4 deg @	4656' 91.3 deg @ 181.0 az	4656' 89.3 deg @ 180.6 az	4656' 88.9 deg @ 180.6 az	4656' 88.7 180
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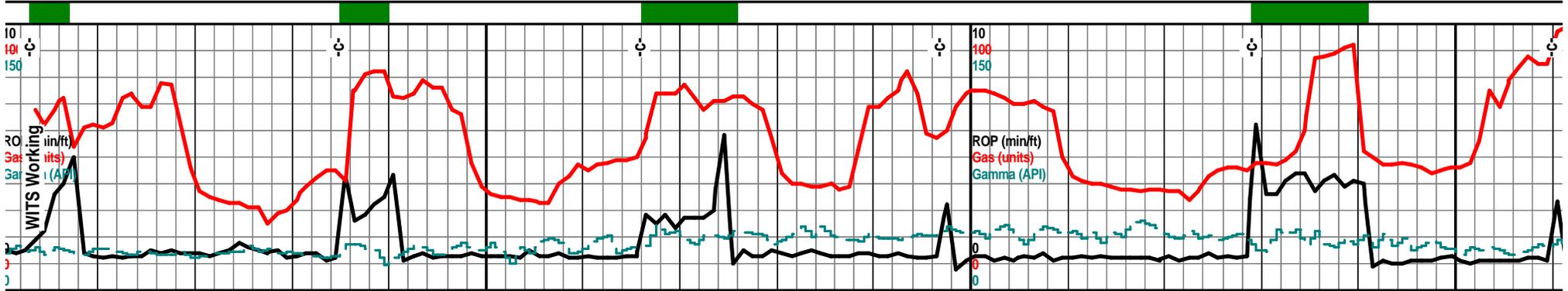
t off wht lt gry, gry wht mott, milky gry opa, p frsh opa, blkly ang shrds, with chrt off wht lt , weath gran edge text, pp moldic edge por, tan rn stained edges, tr gas bubs, tr hvy brn/blk y stain, scatt live UV		dolo crm off wht lt gry green, vf xln gran soft silty gritty in prt, with lt gry frsh shrp opaq blkly ang chrt inclu, tr weath gran edge, pp moldic por, stain drk hvy stain along chrt/dolo contact, chrt lt smokey gry shrp frsh blkly opa, with sli weath gran sli trip text edge, pp moldic por, stain, gas bubs		dolo off wht lt gry/green f vf xln gran soft blkly fnly sucr pcs, chrty in prt, chrt lt gry lt smokey gry, shrp frsh opaq semi transl, mstly transp, with weath gran sli trip text edges, pp moldic por, drk brn blk stained on edge, hvy blk SFO, gas bubs, scatt dull UV
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4710 4710



5320 5340 5360 5380 5400 5420 5440 5460 5480

4610 TVD																		
<p>rt off wht lt gry lt smokey gry, shrp frsh opa, mi-transl, mstly transp, with weath gran sli trip t edges, pp moldic por, tan brn to blk stain, y brn SFO, sli odor, tr gas bubs, dull UV, with me dolo off wht lt gry/green f vf xln gran dns b chlky, chrty with chrt inclu aa</p>			<p>chrt lt gry lt smokey gry to tan brn mott, frsh opa gran, with weath gran sli trip text pp moldic por, tan brn stain, drk hvy SFO, gas bubs, sli odor, dolo crm off wht lt gry green f vf xln gran soft sub chlky stain drk grsy stain drk SFO</p>				<p>dolo pff wt ;t gry/greenish, f vf xln gran blkly dns tr glau, pp inter xln por, drk tan brn stain, tr blk stain, chrt off wht lt gry to clr, opa transp in prt, weath gran sli trip edge, pp moldic por, brn blk stain, tr hvy blk stain, odor? tr gas bubs dull scatt UV</p>											
4650																		
<p>4657' deg @ 1.4 az</p>			<p>4657' 89.1 deg @ 180.8 az</p>				<p>4658' 90.0 deg @ 180.3 az</p>			<p>4658' 90.2 deg @ 180.8 az</p>			<p>4657' 90.2 deg @ 180.8 az</p>			<p>4657' 89.9 deg @ 180.8 az</p>		
<p>chrt off wht lt gry lt gry smokey with tan brn mott, shrp frsh opa, semi transl, mstly transp, blkly ang shrds with weath gran sli trip text edges, pp moldic por, tan brn stain, drk grsy SFO, gas bubs, dolo wht off wht lt gry green f vf xln dns blkly ang soft sub chlky, tr glau, some chrty, chrty inclu, tan brn stain, drk SFO/brkn</p>			<p>chrt lt gry off wht lt smokey with tan drk brn mott weath sli trip gran edges, pp moldic por, tan brn drk brn hvy stain, dolo off wht lt gry green f vf xln blkly ang sub chlky tr glau, pp interxln por tan brn stain, drk brn stain</p>				<p>dolo off wht lt gry gr sub chlky tr glau, so stain, chrt off wht lt gry ang blkly pcs, with sl tan brn some blk sta</p>											
4710																		



10 100 150
 10 100 150
 5820 5840 5860 5880 5900 5920 5940 5960

4610 TVD 4610 TVD

t gry, lt smokey gry, some off wht, shrp frsh, semi transl, some transp, biky ang pcs, with rn stained weath sli trip gran text edges, pp ic por, tan brn stain, VSSF0/brkn, gas bubs, crm lt gry green f vf xln gran gritty sndy text, with chrt inclu aa, tan brn stain, tr hvy grsy

chrt off wht lt gry lt smokey gry, shrp frsh opa, semi transl, some transp, with tan brn stained sli gran weath sli trip edge text, pp moldic por, drk brn SFO/brkn, tr gas bubs, chrt dolo off wh lt gry green vf xln gran gritty sndy chrt inclu aa, sli odor??

chrt off wht lt gry lt smokey gry, shrp frsh opa, with tan brn stained sli weath sli trip text edges, tan brn stain, drk SFO on brk, dolo tan brn mott f v fxin gran sndy gritty, chrt with tan brn stained weath chrt inclu, tan brn stain, dolo off wh lt gry/greenish, f vf xln gran gritty sndy tr glau, chert inclu NS



4656'
 88.3 deg @
 181.0 az

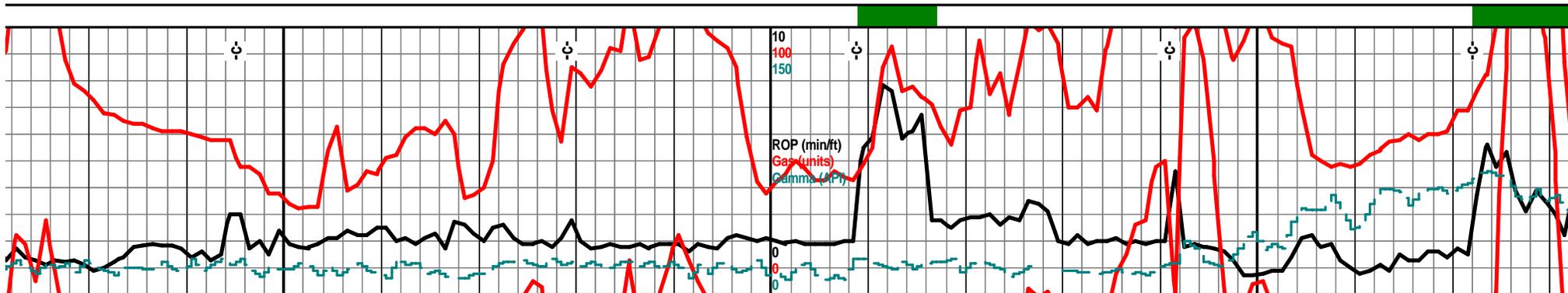
4657'
 89.9 deg @
 180.8 az

chrt off wht lt gry lt smokey gry shrp frsh with tan brn mott stained weath sli trip text edges, tan brn stain, SFO on brk, gas bubs, sli odor, some dolo off wh lt gry green, vf xln gran sndy gritty, chrt with chrt inclu aa, chrt dolo, spls more chrt less dolo!

chrt off wht lt gry shrp frsh opa semi transl, some tansp, shrp opa shrds, with tan brn colored gran sli weath sli trip text edges, tan brn stain drk brn SFO when brkn, gas bubs dull scatt UV, dolo, chrt dolo as before,

chrt off wht lt gry lt gr semi transl some transp dolomitic edge, tan br tr filmy SFO on spl w chrt, f xln gran sndy chrt inclu, tan brn stai

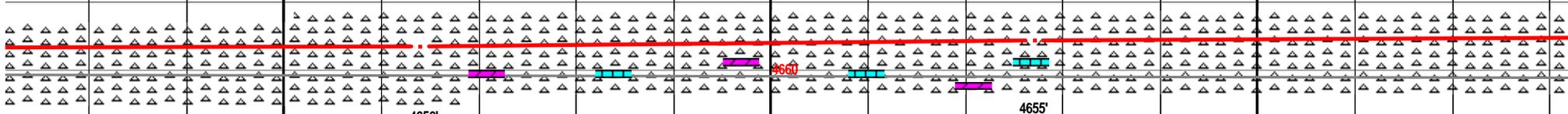
4710 4710



6140 6160 6180 6200 6220 6240 6260 6280

6 am 6145' Bit Trip
Sunday, June 23, 2013

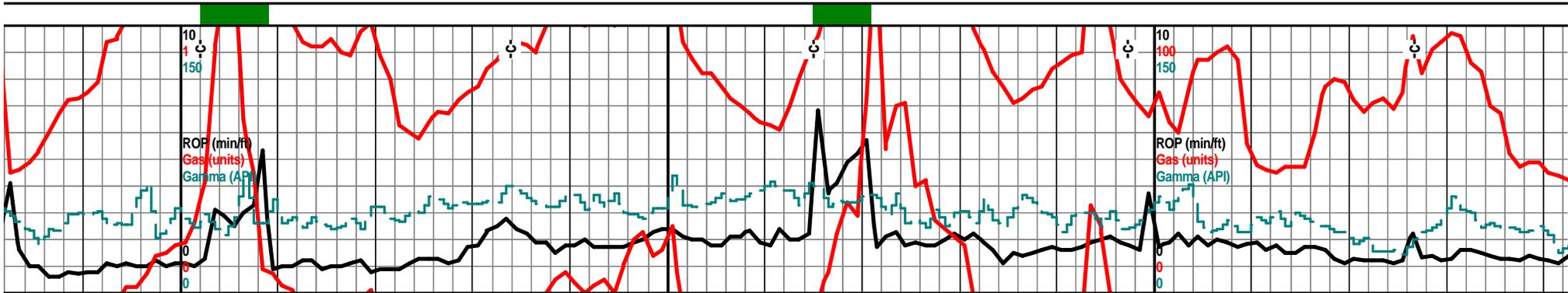
opaq semi ls, tr edge chrt off wht lt gry shrp frsh, blkly ang shrds, semi transl, mstly transp, with tr sli weath, gran vry sli trip text, pp moldic, some vis frac por, nodor, scatt dull UV 4610 TVD chrt off wht lt gry smokey gry, shrp frsh opaq semi transl, some transp, blkly ang shrds, with weath sli trip, some gran text, pp moldic por, tan brn stain along edge, w/chrty lst drk tan brn mott (fizz w/acid) f xln sub chlky with gry/smokey gry shrp chrt inclu with sli gran, sli weath chrt inclu AA chrt lt shrds, weath SFO, t



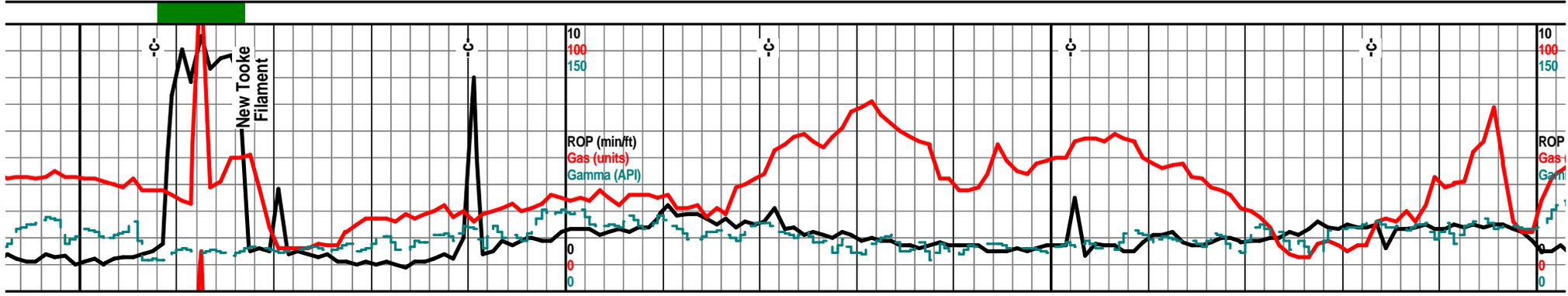
4656' 4655' 91.1 deg @ 182.7 az

chrt off wht lt gry milky gry, shrp frsh opaq, semi transl, mstly transp, shrp blkly ang shrds, tr weath gran edge, mstly frsh, tr edge stain dull scatt UV, some dolo wht off wht lt gry green f vf xln gran sndy text, tr glau, tr chrty with lt gry frsh chrt inclu. chrt off wht lt gry, lt smokey gry shrp frsh opaq, semi transl, mstly transp, with sli weath, gran sli trip text edge, pp moldic por, some vis frac por, tan brn stain along weath edge, pp moldic por, tr hvly brn stain, nodor, dull scatt UV chrt off wht lt gry, lt smokey gry, shrp frsh blkly ang shrds, semi transl, some transp, dolo/1st tan brn mott (acid +) f xln sub chlky with lt gry smokey gry weath sli gran some sli trip text chrt inclu, pp moldic por, tan brn stain, VSSFO/brkn, tr gas bubs, nodor, dull scatt UV

4710



6300	6320	6340	6360	6380	6400	6420	6440
<p>6300' 7 am Monday June 24, 2013</p>					<p>Mud-Co. 6401⁹ wt. 8.5 vis. 30 wl. N/C chl. 900</p>		
<p>gry vry lt smokey gry, off wht, shrp blkly ang semi transl, mstly all transp. with some sli trip edge text, drk brn stain, drk brn r gas bubs, dull UV, odor,</p>		<p>chrt off wht lt gry, lt smokey gry, shrp frsh opa, semi transl, mstly tranap, blkly ang shrps with sli weath edges, pp moldic por, drk tan, drk brn stain, gas bubs, dull UV</p>			<p>chrt lt gry lt smokey gry color, shrp frsh opa, blkly ang shrds, transl, mstly transp, chrt gry brn mott shrp frsh with weath sli trip text edges/sides, drk tan to drk brn stain, drk SFO w/brnkn, abun gas bubs, floating droplets</p>		
<p>4655' 89.4 deg @ 181.8 az</p>		<p>4655' 89.7 deg @ 182.0 az</p>			<p>4656' 88.9 deg @ 180.1 az</p>		
	<p>chrt off wht lt gry, milky, lt smokey color, shrp frsh blkly ang shrds, semi transl, mstly transp, with drk tan brn some blk stained sli weath edges, pp moldic por, brn drk brn stain, gas bubs, floating droplets, filmy SFO, fair odor, dull scatt UV</p>		<p>chrt off wht lt gry, smoke color gry, shrp frsh blkly opa ang shrds, semi transl, some to mstly transp, with si weath sli trip text edges, pp moldic por, drk tan brn stain, drk SFO, odor, dull UV</p>			<p>chrt gry, smokey gry, shrp transp, blkly ang shrds ang frsh with weath sli trip text stain, drk brn SFO, odor, j bubs, "floaters"</p>	
<p>4710</p>					<p>4710</p>		



6460 6480 6500 6520 6540 6560 6580 6600

4610 TVD 4610

chrt lt gry off wht milky/smokey color, shrp frsh semi transl, mstly transp, shrp blkly opaqr shrds, some brn drk brn stained sli trip text weath edges, pp moldic por, drk brn stain, VSS drk brn oil, nodor, dull scatt UV, incr chrt dolo, off wht lt green tint f vf xln dns hrd chrty glau

dolo crm off wht lt greenish, f vf xln dns hrd blkly, ang pcs, glau, chrty in prt, dolo chrt, chrt lt smokey gry shrp frsh opaqr shrds, semi transl, alot transp, with sli tr tan drk brn some blk stained weath sli trip text edges, pp moldic por, spls mstly dolo aa

dolo, chrty dolo, wht off wht f vf xln, snd text, tr glau, pp inter xln por, tan brn stain SFO, floaters, chrt lt gry shrp frsh opaqr, transl, mstly shrp frsh transp,



4656'
91.0 deg @
180.8 az

4655'
90.8 deg @
181.5 az

4656'
87.3 deg @
181.5 az

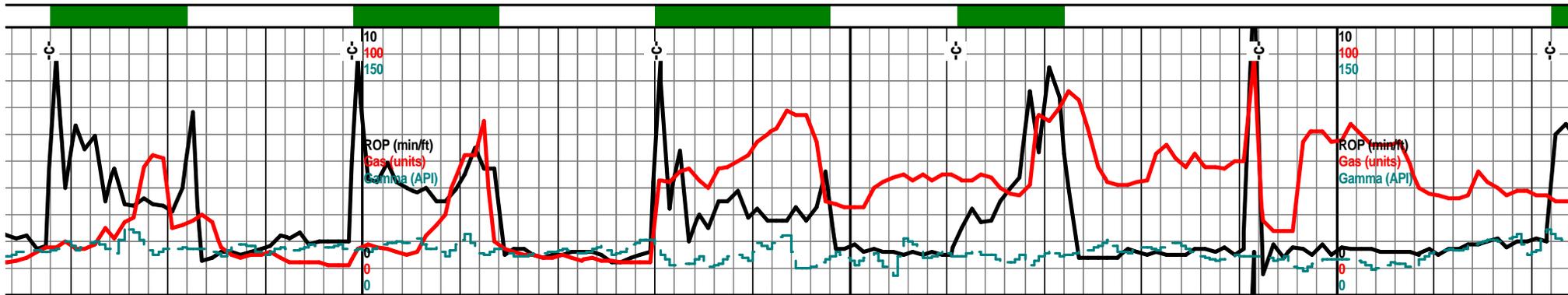
frsh opaqr semi transl, d chrt gry brn mott, shrp t edges/sides, drk brn pp moldic por, gas

chrt off wht lt gry, milky/smokey gry, shrp frsy semi transl, mstly transp, blkly ang shrp shrds, some with drk brn staind sli weath vsli trip text edges, tan brn stain tr gas bubs, chrty dolo crm lt green tint, f vf xln blkly ang hrd dns pcs, glau, chrt inclusiona NS

dolo crm tan off wht with tan lt brn mott in prt, f vf xln gran sndy gritty tr glau, pp inter xln por, tan lt brn stain, SSFO/brkn, chrt lt smokey gry, shrp frsh opaqr, transp, shrp blkly ang shrds NC in Chrt

4710

4710



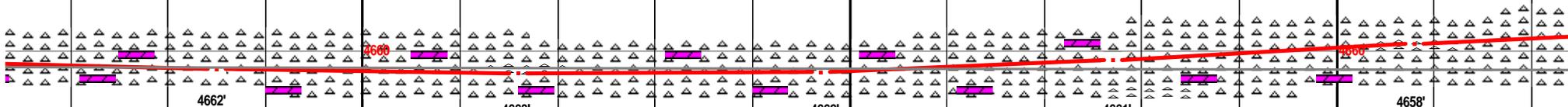
6780 6800 6820 6840 6860 6880 6900 6920

Day 3
 4610 TVD
 Bit Trip 6830'
 4610 TVD
 6920' 6 am Wednesday June 26, 201

chrt, lt blue/gry, some smokey, shrp frsh sl, some transp, some with drk tan brn mott f xln dolo edge, pp moldic inter xln m brn stain, drk SFO on brk, gas bubs, UV, dolo drk tan brn f vf xln gran, gritty ter xln por, drk tan brn stain, drk SFO on bubs dull UV

chrt off with lt gry smokey, tr blue gry shrp frsh opa, with tan drk brn wht mott f xln dolo edge, pp molic, inter xln por, mstly tite dns, drk SFO on brk, tan drk tan brn stain odor? scatt dull UV, dolo tn brn gry brn f vf xln blk ang dns gran tan drk brn stain,

chrt lt gry, lt milky smoke color, blue gry shrp frsh opa, some transp, with drk tan brn wht mott f xln dolo edge, pp moldic por, drk tan brn stain, drk SFO, filmy SFO, gas bubs odor,



4662'
87.9 deg @
181.7 az

4663'
89.2 deg @
181.5 az

4662'
92.1 deg @
181.5 az

4661'
94.3 deg @
182.0 az

4658'
94.3 deg @
182.2 az

chrt off wht lt gry shrp frsh opa semi transl, some transp, with drk crm tan brn mott weath dolo edges, tan brn stain, pp moldic por, inter xln por, tan drk brn stain, odor, drk brn SFO on brk, scatt dull UV,

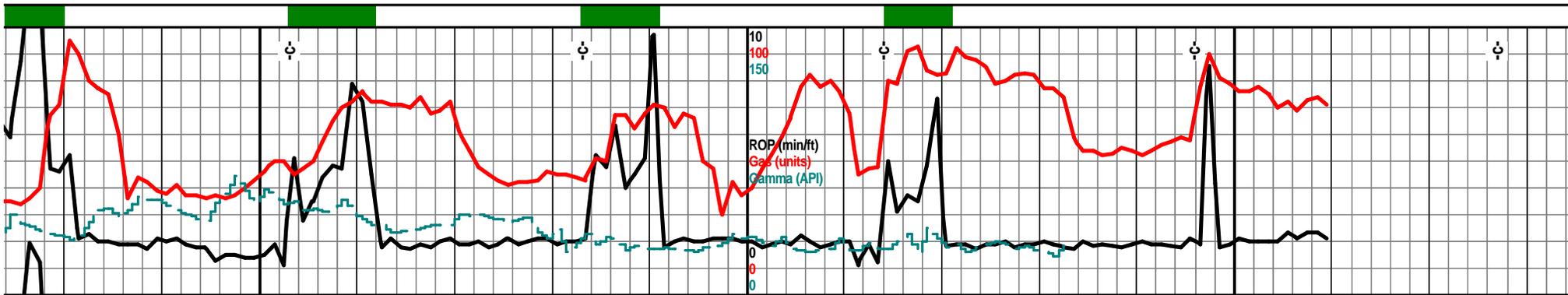
chrt off wht lt gry smokey color, shrp frsh opa, with tan drk tan brn off wht mott f xln edge, pp moldic por, inter xln por, dns tite, drk brn stain, filmy SFO, floating droplets, scat dull UV, odor,

chrt off wht lt gry shrp frsh blk ang shrds, semi transl, mstly all transp, some with drk tan brn f v xln dolo edge, pp moldic por, brn stain, scatt UV dolo lt gry green vf xln dns hrd pyritic, blk sub chiky pcs, glau in most

Mud-Co. 6830'
wt. 8.5 vis. 30
wl. N/C chl. 950

4710

4710



6940

6960

6980

7000

7020

7040

7060

7080

4610 TVD

3

chrt off wht lt gry vry lt milky/smokey gry, shrp frsh opa, semi transl, mstly transp, blk ang shrds, tr with tan drk brn gran dolo edge, tan brn stain, grsy hvy SFO, dolo lt gry green, f vf xln dns hrd blk sub chlky glau, mixed bag spl, has everything

chrt off whltt gry lt milky smokey gry, shrp frsh opa, semi transl, mstly transp, blk ang shrp shrds, tr weath gran tan drk brn stained dolo edges, pp moldic por, por, tan brn stain, tr hvy blk stain SSFO, tr gas bubs, filmy SFO, nodor

chrt off wht lt gry lt smokey color, shrp frsh blk ang shrds, semi transl, mstly transp, chrt wht tan brn mott gran sli weath text, tan brn stained, pp moldic por, nodor, scatt UV, dolo gry mstly green f vf xln dns hrd gran gritty, glau with chrt inclu aa



4630

4654'

90.6 deg @
181.0 az

4655'

88.8 deg @
180.8 az

4656'
93.2 deg @
181.3 az

4655'
91.8 deg @
181.3 az

i
r
l,

chrt off wht lt gry, lt milky smokey gry, shrp frsh opa, semi transl, mstly transp, blk ang shrp shrds, tr with weath gran tan drk brn stained dolo edges, pp moldic por, tan brn stain tr hvy blk SFO, tr gas bub dull scatt UV nodor

chrt lt gry lst smokey gry shrp frsh opa, semi transl, mstly transp, blk ang shrp shrds, with sli weath gran sli trip text tan brn mott edges, pp moldic por, drk tan brn stain, filmy SFO on brk, sli odor?, dull scatt UV

Mud-Co. 6990'
wt. 8.5 vis. 31
wl. N/C chl. 900

4710

