

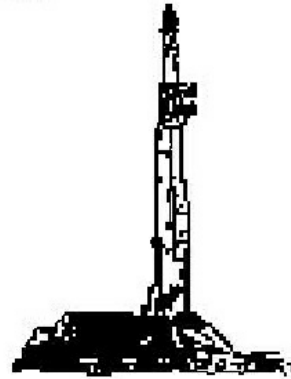
GOOLSBY BROTHERS and associates, inc.

575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office



Geological Wellsite Supervision

www.goolsbybrothers.com



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

Well Name: PRONGHORN #1

API: 05-121-11082

Location: SESE Sec 15 T3S R51W Washington County, CO.

License Number:

Region: Wild Cat

Spud Date: December 29, 2018

Drilling Completed: January 1, 2018

Surface Coordinates: 600' FSL, 300' FWL (SESE)

39.787700 N Latitude, -103.084680 W Longitude

Bottom Hole Same

Coordinates:

Ground Elevation (ft): 4,648'

K.B. Elevation (ft): 4,666'

Logged Interval (ft): 503'

To: 4190'

Total Depth (ft): 4198'

Formation: D SAND & J SAND TARGET

Type of Drilling Fluid: Gel Lime / native wtr. surf. ~ 2500 / GEL POLYMER ~2500' - 4198' DMTD

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

OPERATOR

Company: ST CROIX Operating Inc.

Address: Paul Melnychinko
PO Box 13799
Denver, CO. 80201

GEOLOGIST

Name: Phillip Willcox

Company: Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)

Address: 575 Union Blvd.
Suite 208,
Lakewood CO. 80228

Logs

Open Hole Logs Schlumberger Ran AI, LDT/CNL, ML, BHC

Casing

8 5/8" Surface Casing set @ 503'
Ran 5 1/2" Production casing 01/05/19

Contractors

1) Drilling Contractor: WW DRILLING INC.; Rig #20

Toolpusher: John Rouse

2) Company Man: Tom Thomas,
Technologies

Integrated Petroleum

3) Mud Company: Basin Fluids

Mud Engineer

Glen Halliday

4) Closed Loop Mud System:

4) Open Hole Logs Schlumberger: Ran AIT, TLD/CNL, ML
Engineer: Ali AlRamadhan / Even Grsecki

ROCK TYPES

	Bent
	Arg ss
	Cht
	Clyst
	Coal
	Congl
	Dol
	Gyp

	Ls
	Mrlst
	Sh
	Shcol
	Shgy
	Ss
	Cement
	Sltst

	Ss
	Chlk
	Mdstn
	Fracture
	Anhyd
	Mdstn
	Ss
	Sltly sh

	Arg dol
	Clybasedsltst
	Carb sh
	Carb chalk
	Arg lmy ss

ACCESSORIES

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

	Minxl
	Nodule
	Phos
	Pyr
	Salt
	Sandy
	Silt
	Sil
	Sulphur
	Tuff

FOSSIL	
	Algae
	Amph
	Belm
	Bioclst
	Brach
	Bryozoa
	Cephal
	Coral

	Crin
	Echin
	Fish
	Foram
	Fossil
	Gastro
	Oolite
	Ostra
	Pelec
	Pellet
	Pisolite
	Plant
	Strom

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

POROSITY TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOWS

- Uniform
- Spotted
- Quiescent
- Dead
- Patchy
- Vspotty

INTERVALS

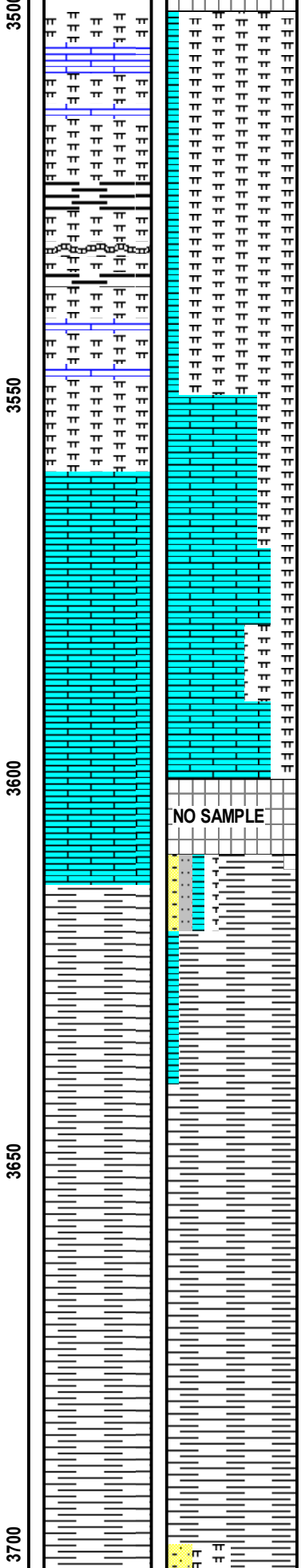
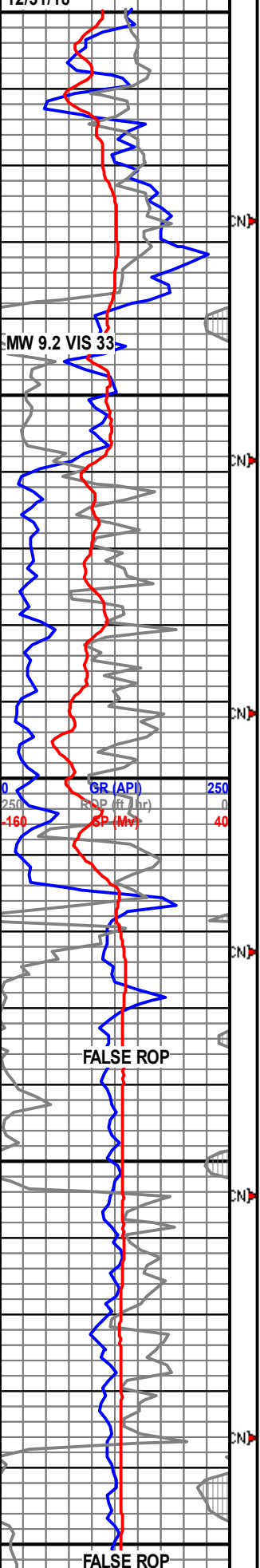
- Core
- Dst

EVENTS

- Trip_point
- New bit
- Connection(cn)
- Survey(mwd)
- Survey(dropped)
- Survey(wireline)
- Casing_shoe(1)
- Off bottom
- Sidewall core

ROP,GR				Events	Depth <small>DST Interval</small>	Lithology	Sorting	%Lith	Rounding	Geological Descriptions	Resistivity				Poros
GR (API)	ROP (ft / hr)	SP (Mv)									AT10 (ohmm)	AT30 (ohmm)	AT90 (ohmm)		
0	250	-160			3450					Drilling w/ Bit #2, 7 7/8", HTC, D505, in at 503', stabalizer, MM, .28 rpg	1	10	100		0.3 NPOR (d
											4	10	100		0.3 DPHZ (d
											4	10	100		0.3 X over
											1	10	100		6 HCAL
										<<Shallower Zones of Interest >>					
										Sharon Springs 3046' (+1620')					
										Niobrara 3097' (+1569)					
										WIPER TRIP at 3911'					

Wellsite Geologist on location and rigged up 12/31/18



Lag Off from Automated Pason Sampling 3520 - 3740. (Mud Report wrong lag time) Samples Lagged Manually 3520' - 3740'

CHLKY MARL: mttld dk gy - off wht - crm, spttd wht ip, chlky txt, blk - chnky, frm - mod hd, grdg to arg chl, tr lse arag needle clstrs, infer chl por ip, NSFOC

BENTONITE: gray, very very fine smooth texture, sub waxy luster, sub blocky, mod hard - firm, mineral fluorescence

FT HAYS 3559' MD (+1107' SSD)

LIMESTONE: very white, crypto crystalline - chalky, sub tabular, brittle - soft in parts, very clean, No Stain, Fluorescence, Oil, Cut, no visual porosity

LIMESTONE: very white - medium light gray, crypto crystalline, sub tabular, brittle, dense, very clean, No Stain, Fluorescence, Oil, Cut, no visual porosity

NO SAMPLE

CARLILE 3624' MD (+1042' SSD)

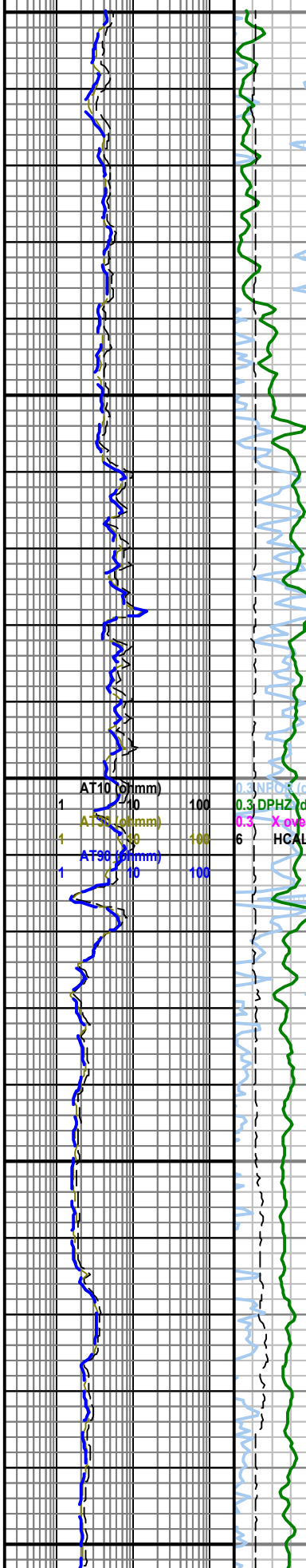
SILTY SANDY SHALE: medium brown gray, rough silty - sandy texture, blocky, soft, moderately calcareous, grading to argillaceous siltstone, trace black inclusions, no visual porosity,

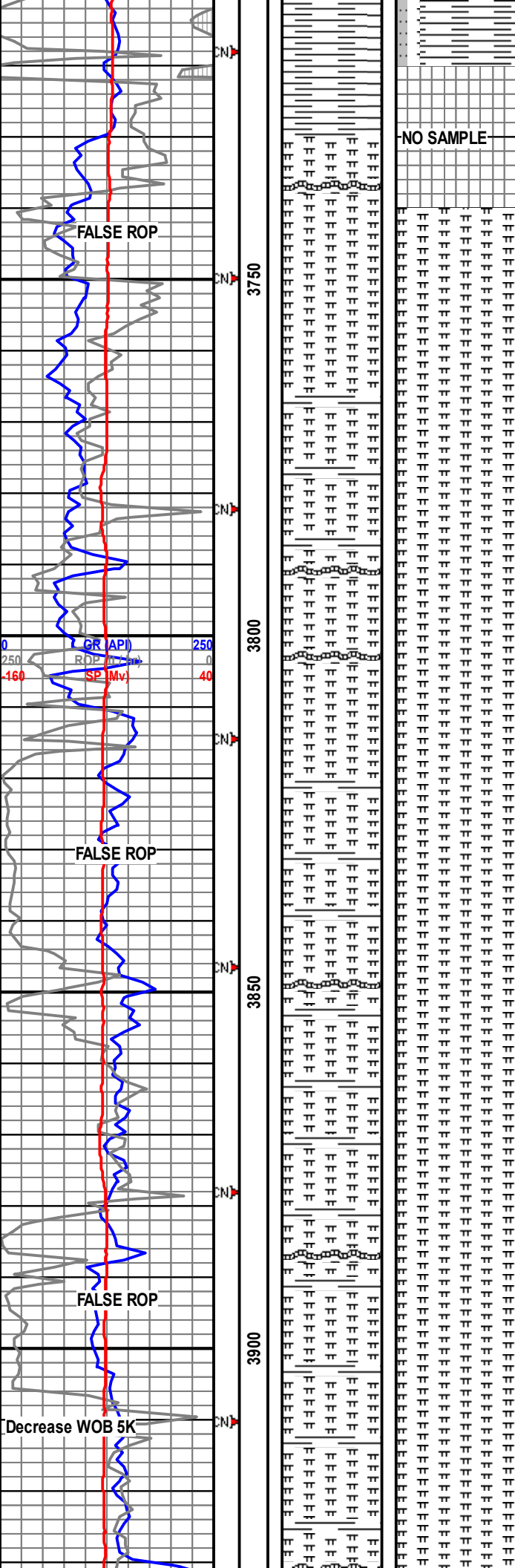
SHALE: medium - medium dark gray, fine smooth texture, blocky - sub platy - sub tabular, firm - soft, slightly - non calcareous, No Stain, Fluorescence, Oil, Cut

SHALE: medium - medium dark gray, fine smooth texture, blocky - sub platy - sub tabular, firm - soft, slightly - non calcareous, No Stain, Fluorescence, Oil, Cut

SHALE: medium - medium dark gray, fine smooth texture, blocky - sub platy - sub tabular, firm - soft, slightly - non calcareous, No Stain, Fluorescence, Oil, Cut

POOR SAMPLE





SHALE: medium dark gray, fine smooth texture, blocky - sub platy - sub tabular, firm - soft, slightly - non calcareous, some very fine grain argillaceous silty sandstone, No Stain, Fluorescence, Oil, Cut

GREENHORN 3729' MD (+937' SSD)

NO SAMPLE

ADJUST LAG - PASON'S AUTOMATED SAMPLE LAG NOW ON DEPTH, MANUALLY LAGGED SAMPLES ABOVE

MARL: medium dark gray, brown gray, mottled light gray - off white, firm, some argillaceous very fine grain sandstone, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

tr Tan Bentonite

MARL: medium dark gray, brown gray, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

MARL: medium dark gray, brown gray, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

MARL: medium dark gray, brown gray, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

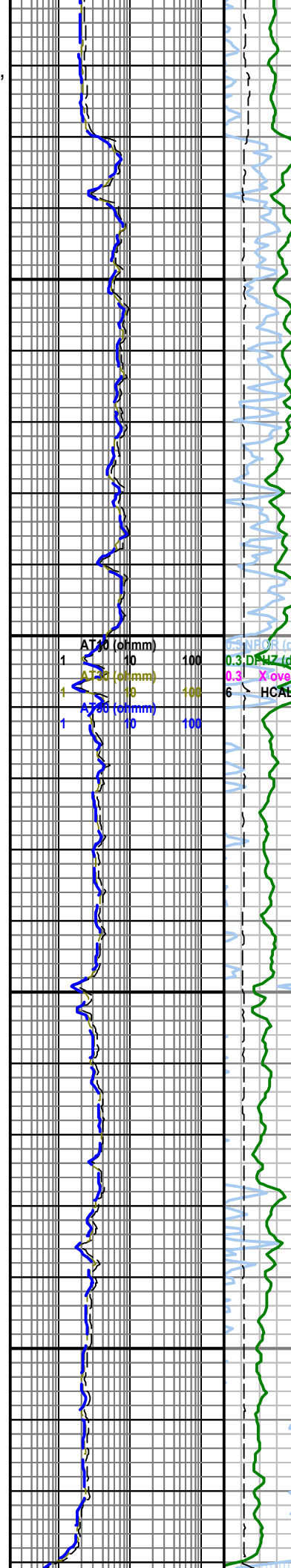
tr BENTONITE: cream - gray tan, very fine smooth texture, sub waxy luster, moderately hard, sub platy, mineral fluorescence

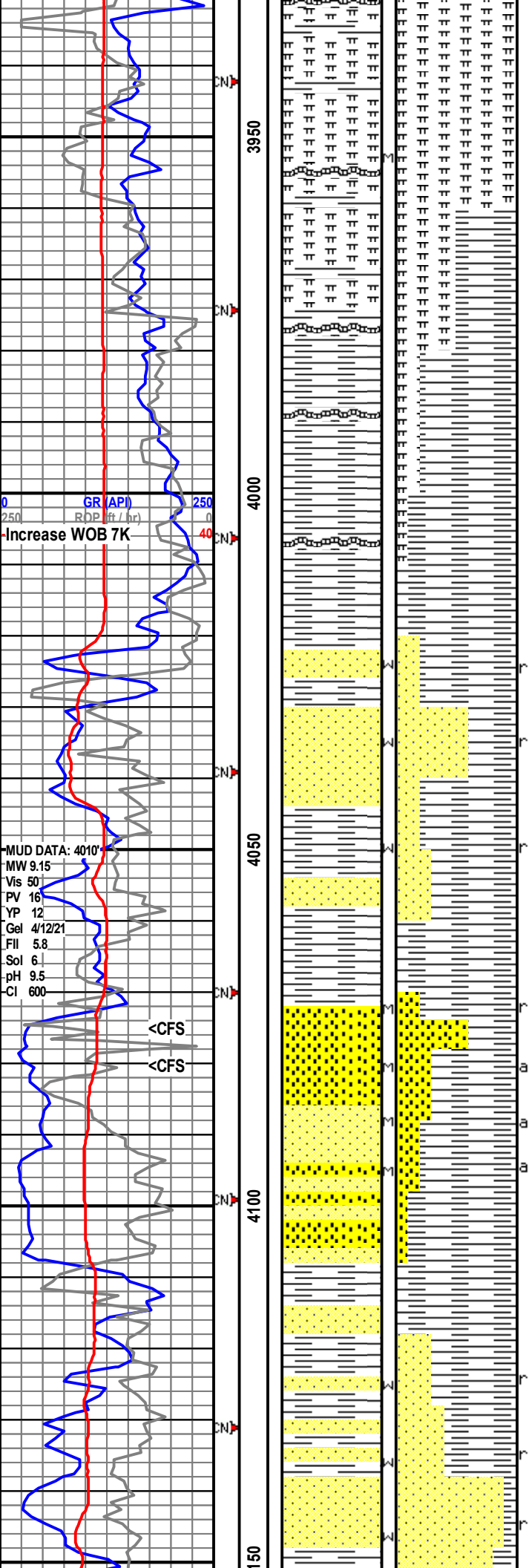
MARL: medium dark gray, brown gray, fine - rough texture, firm - soft, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

MARL: medium dark gray, brown gray, fine - rough texture, firm - soft, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

WIPER TRIP @ 3911', 9 stands, above Niobrara, decrease MW from 9.6 MW to 9.2 MW

MARL: medium dark gray, brown gray, fine - rough texture, firm - soft, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity





tr BENTONITE: light gray, very very fine smooth texture, sub waxy luster, sub platy, moderately hard - firm. mineral fluorescence

X BENTONITE 3954' MD (+712' SSD)

MÄRL: medium dark gray, brown gray, fine - rough texture, firm - soft, very calcareous, No Stain, Fluorescence, Oil, Cut, no visual porosity

SHALE: dark gray, fine smooth texture, platy - blocky, firm, non calcareous

SHALE: dark gray, fine smooth texture, platy - blocky, firm, non calcareous

SHALE: dark gray, fine smooth texture, platy - blocky, firm, trace pyrite, trace bentonite, non calcareous

D SAND 4021' MD (+645')

SS: lt gy, l vf gr - slit, sbrnd, w srtd, w cons, cln, tr mica, tr blk incls, no vis por, NSFOC

SS: lt gy, l - u vf gr, slit, sb rnd, w srtd, w - mod cons, sil, cln, no vis por - est 10% por, NSFOC

SS: lt gy, l - u vf gr, slit, sb rnd, w srtd, w - mod cons, sil, cln, no vis por - est 10% por, NSFOC

HUNTSMAN 4057' MD (+609')

SH: dk gy, fn smth txt, plty, frm, non calcareous

J1 SAND 4072' MD (+594' SSD)

SS: (4075') trnsl, l-u fn - u vf - l med gr, sbang, mod srtd, fri - , sil, cln, tr wht cly fl, est 25% vis por, 50% mod - brt gld yell ptchy - uni fluor, g strmg cldy yell cut, g yell res rng, 50% w/ ptchy brn o stn

SS: (4080') trnsl - clr, l-u fn - u vf - l med gr, sbang, mod srtd, uncon - fri, sil, cln, tr wht cly fl, est 25% vis por, 50% mod - brt yell gld ptchy - uni fluor, p - fr hzy yell cut, fr yell res rng, 15% w/ ptchy brn o stn

SS: (4090') trnsl - v lt gy wht, u vf - l fn gr, sbang, w srtd, w cons, sil, cln, tr wht cly fl, est 20% vis por, NSFOC

SS: trnsl, v lt gy - gy wht, l - u fn - u vf gr, sbang, mod srtd, mod cons - fri, sil, tr wht cly fl, est 23% vis por, NSFOC

SS: trnsl, v lt gy - gy wht, l - u fn - u vf gr, sbang, mod srtd, mod cons - fri, sil, est 23% vis por, NSFOC

SH: med - med dk gy, fn smth txt, sb plty, frm - sft, non calc

J2 SAND 4121' MD (+545' SSD)

ARG SS: mtltd med - lt gy, l - u vf gr, sbrnd, w srtd, w cons, arg w/ blk strks, tr pyrtc, est 15% vis por, NSFOC

SS: lt gy - lt tn gy, l - u vf gr, sb rnd, w srtd, w cons, sil, cln, est 15% vis por, NSFOC

SS: lt gy - lt tn gy, l - u vf gr, sb rnd, w srtd, w cons, sil, cln, est 15% vis por, NSFOC

