

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)</i> <i>(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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PRESSURE PUMPING LLC

REMIT TO
QES Pressure Pumping LLC
Dept:970
P.O.Box 4346
Houston,TX 77210-4346

MAIN OFFICE

P.O.Box884
Chanute,KS 66720
620/431-9210,1-800/467-8676
Fax 620/431-0012

Invoice

Invoice#

814734

Invoice Date: 12/18/18

Terms: Net 30

Page 1

SNR Kansas Operating, LLC

P.O. Box 18251
Oklahoma City OK 73154
USA
405-608-5702

HENDERSON BOLANDER 33 #2
15-035-24690-00-00

Part No	Description	Quantity	Unit Price	Discount(%)	Total
CE0452	Cement Pump Charge 3001' - 4000'	1.000	2,300.0000	38.000	1,426.00
CE0002	Equipment Mileage Charge - Heavy Equipment	45.000	7.1500	38.000	199.49
CE0711	Minimum Cement Delivery Charge	2.000	660.0000	38.000	818.40
CE1201	5 1/2" Cement Head	1.000	350.0000	38.000	217.00
CC5829	Lite-Weight Blend V (60:40:4)	120.000	16.0000	38.000	1,190.40
CC5831	Lite-Weight Blend VII (60:40:8)	250.000	17.5000	38.000	2,712.50
CC5325	Calcium Chloride	622.000	1.2500	38.000	482.05
CC6077	Kolseal	2,600.000	0.5000	38.000	806.00
CC6079	PhenoSeal Formica Flakes	178.000	1.3500	38.000	148.99
CC5325	Calcium Chloride	50.000	1.2500	38.000	38.75
CC5970	Sodium Metasilicate	100.000	2.5500	38.000	158.10
CP8254	5 1/2" Latch Down Plug & Assembly	1.000	400.0000	38.000	248.00
CP8727	5 1/2" Packer Shoe 7 3/8" to 8"	1.000	2,355.0000	38.000	1,460.10
CP8554	5 1/2" Centralizer	6.000	81.0000	38.000	301.32
CP8651	5 1/2" Cement Basket Reciprocating	5.000	360.0000	38.000	1,116.00

Company: SNR KS

AFE/Prop #: 2018-005

Cost Code: ~~7020919~~ 2100300-319

Approval:



PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

12182
12062

TICKET NUMBER 54374

LOCATION 180 Eldorado

FOREMAN Jacob Storm

FIELD TICKET & TREATMENT REPORT

INVOICE # 814734

CEMENT Aoi 15-035-24690-00-00

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
12/16/18	7496	Henderson Bolander 33 #2	33	32	S	Cowley
CUSTOMER SNA Kansas			TRUCK #	DRIVER	TRUCK #	DRIVER
MAILING ADDRESS P.O. Box 18251			446	Brad	725	Fuzzy
CITY Oklahoma City			775	coy		
STATE OK			713	Jimmy Knowles		
ZIP CODE 73154			577	Jacob		

JOB TYPE long string HOLE SIZE 7 7/8 HOLE DEPTH 3706 CASING SIZE & WEIGHT 5/2
 CASING DEPTH 3592 DRILL PIPE N/A TUBING N/A OTHER pipe total 3617
 SLURRY WEIGHT 12.5/13.8 SLURRY VOL 147.8 WATER gal/sk _____ CEMENT LEFT in CASING 5ft
 DISPLACEMENT 86.08 DISPLACEMENT PSI 1200 MIX PSI 400 RATE 4.5 bpm

REMARKS: Softy meeting, centralizer on 1, 4, 6, 15, 20, 30 Baskets on 2, 5, 15, 25, 35
 lead pipe, circulate Hole with drilling mud for 45 min, drop ball open
 packer shoe at psi, pump, 5bbl water 5bbl 2%cc water, 5bbl water,
 10 bbl 2% sodium metasilicate, 5bbl water, mix 225 sks 60/40 po2 8% gel 2%cc
 8pps kol-seal, 1/2pps pheno-seal, trail with 120 sks 60/40 po2 4% gel 2%cc 5pps
 kol-seal 1/2pps pheno-seal, wash pump and lines, drop plug and displaced with
 86.08 bbl landing plug at 1650 psi, check float, float held
 plug Bat Hole with 25 sks 60/40 8% gel

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE0452	1	PUMP CHARGE	2,300.00	2,300.00
CE0002	45	MILEAGE	7.15	321.75
CE0711	2	min bulks delivery	660.00	1,320.00
CE1201	1	5 1/2 plug container	350.00	350.00
CC5829	120	60/40 4% gel	16.00	1,920.00
CC5831	250	60/40 8% gel	17.50	4,375.00
CC5325	622	calcium chloride	1.25	777.50
CC6077	2600	kol-seal	.50	1,300.00
CC6079	178	pheno-seal	1.35	240.30
CC5325	50	calcium chloride - Flush	1.25	62.50
CC5970	100	sodium metasilicate - Flush	2.55	255.00
CP8254	1	5 1/2 hatchdown plug	400.00	400.00
CP8727	1	5 1/2 packer shoe	2,355.00	2,355.00
CP8554	6	5 1/2 centralizer	81.00	486.00
CP8651	5	5 1/2 Baskets	360.00	1,800.00
CP7800	5	5 1/2 15.5 lb shoe joint 5ft	20.00	100.00
		Subtotal		18,363.05
		Disc 38%		6,977.96
		SALES TAX		567.07
		ESTIMATED TOTAL		11,952.17

SCANNED 11,385.10

Revin 3737

AUTHORIZATION

T. Poff

TITLE

DATE

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

SNR Kansas Operating, LLC

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

Well Name: Henderson Bolander 33-2
 API: 15-035-24690-00-00
 Location: 2250 FSL, 2250 FEL, 33325E
 License Number: 35586
 Spud Date: 12/12/2018
 Surface Coordinates: -96.886884
 37.221451
 Bottom Hole
 Coordinates:
 Ground Elevation (ft): 1255 K.B. Elevation (ft): 1266
 Logged Interval (ft): 1000 To: 3706 Total Depth (ft): 3706
 Formation: Arbuckle
 Type of Drilling Fluid: Water Base Mud
 Region: Cowley
 Drilling Completed: 12-15-18

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

OPERATOR



















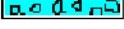





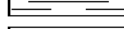







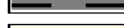













Company: SNR Kansas Operating, LLC
 Address: 301 NW 63rd Street
 Oklahoma City, OK 73116

GEOLOGIST


Name: Troy Phillips
 Company:
 Address: 733 N Baltimore
 Derby, KS 67037

COMMENTS

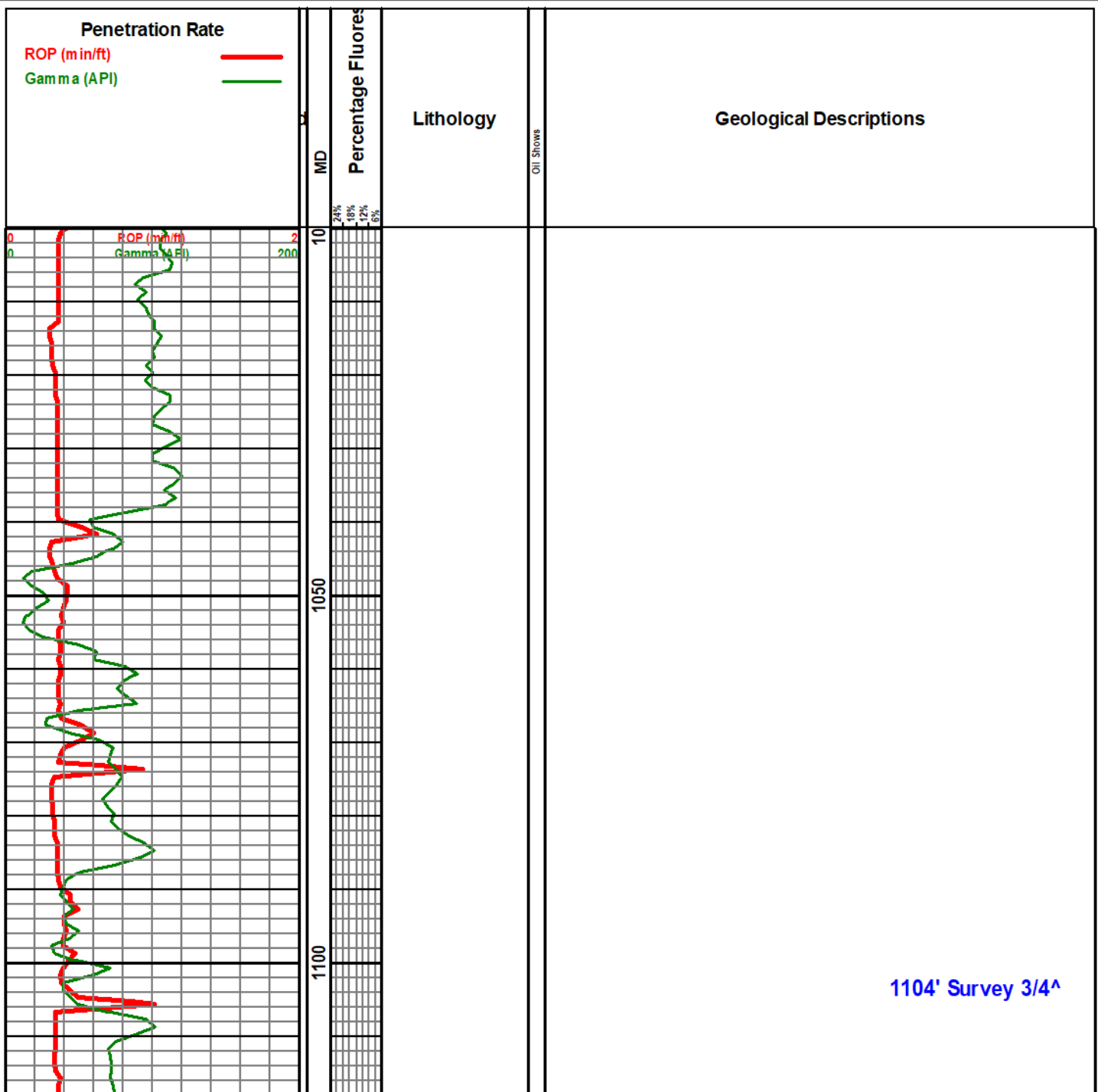
ROCK TYPES

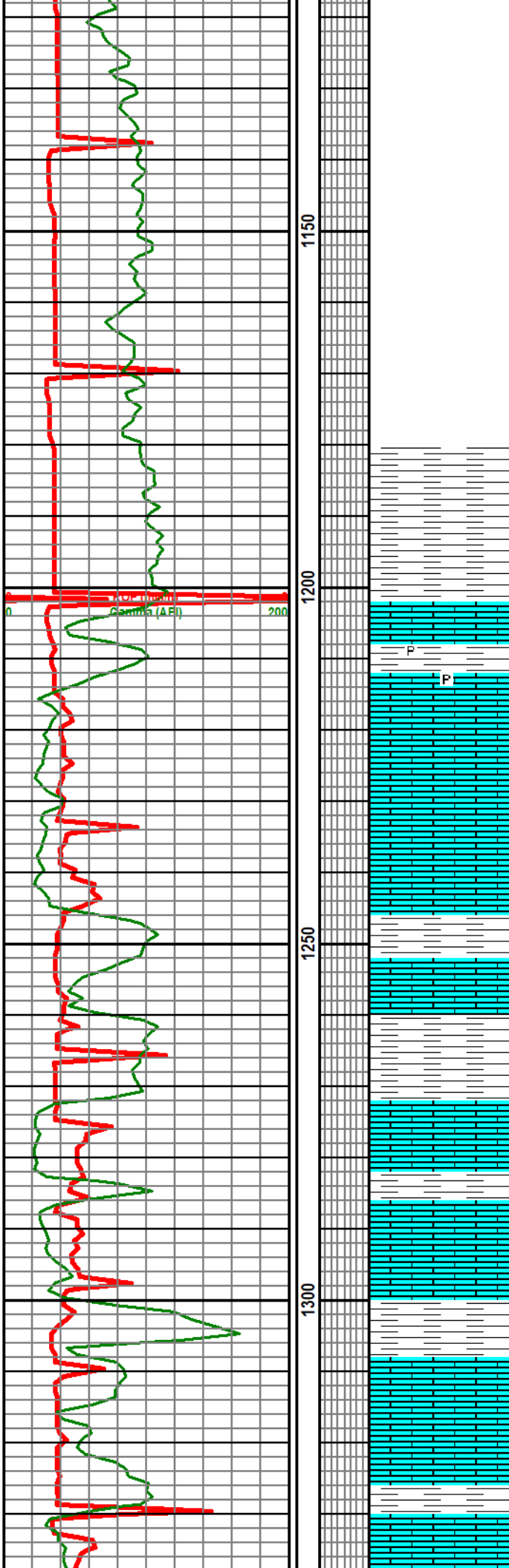
 Anhydrite	 Shaly_ss_ii	 Cherty_dolo	 Qtz_wash
 Arkose	 Sandstone	 Dolomite	 Qtz_wash_ii
 Ark_shale	 Shaly_limy_ss	 Limy_dolo	 Argil_qtz_wash
 Granite	 Washy_limy_ss	 Cement	 Ark_qtz_wash
 Coal	 Limy_ss	 Carb_wash	 Sdy_gw
 Limy_sh	 Sdy_ls	 Sdy_carb_wash	 Shaly_gw
 Shale	 Limestone	 Shaly_sdy_carb_wash	 Gw_a
 Hot_shale	 Dolo_ls	 Shaly_limy_qtz_wash	 Gw_b
 Hot_shale_ii	 Shaly_ls	 Shaly_limy_qtz_wash	 Gw_c
 Siltstone	 Carb_shaly_ls	 Limy_qtz_wash	 Gw_d
 Siltstone_ii	 Cherty_ls	 Limy_qtz_wash_ii	
 Shaly_ss	 Chert	 Limy_qtz_wash_iii	

ACCESSORIES

FOSSIL	MINERAL	 Phos	 Limestone
 Algae	 Anhy	 Pvr	 Limy ss str

Amph	Arggrn	Salt	Qtz wash str
Belm	Arg	Sandy	Limy qtz wash str
Bioclst	Bent	Silt	Sandy ls str
Brach	Bit	Sil	Shale
Bryozoa	Brecfrag	Sulphur	Siltstone
Cephal	Calc	Tuff	Sandstone
Coral	Carb		
Crin	Chtdk	STRINGER	TEXTURE
Echin	Chttt	Arkosic inclusion	Boundst
Fish	Dol	Chert inclusion	Chalky
Foram	Feldspar	Anhydrite	Cryxln
Fossil	Ferrpel	Arkosic qtz str	Earthy
Gastro	Ferr	Arkosic qtz str ii	Finexln
Oolite	Glau	Arkosic str	Grainst
Ostra	Gyp	Arkosic str ii	Lithogr
Pelec	Hvymin	Carb wash str	Lithogr
Pellet	Kaol	Sandy carb wash str	Microxln
Pisolite	Marl	Coal/carb sh	Mudst
Plant	Minxl	Dolomite	Packst
Strom	Nodule	Granite str	Wackest





1220 Sh, gry, dkgry. Ls, gry fxln, pvio, NS sm pyr

1250 Sh gry. LS crm, f-m xln, chky in prt, sprs pptO, dull flour

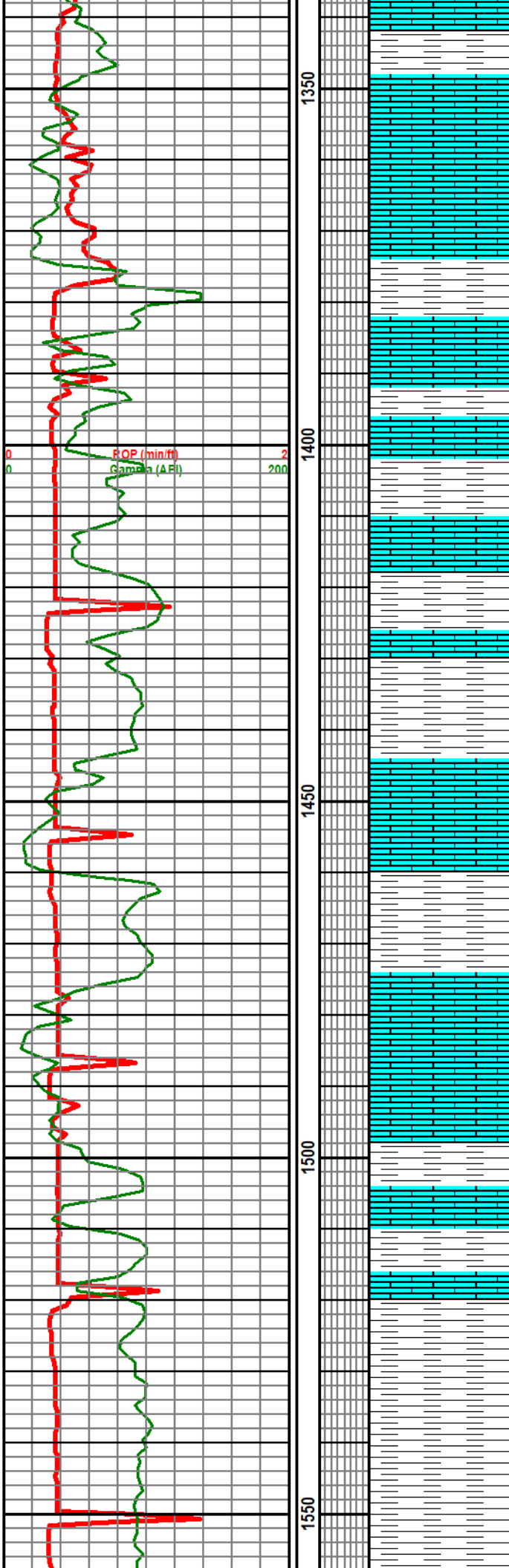


H-B 33-2 1250.jpg

1310 Ls, crm, lt gry, f xln, chty, pvio, sev pcs pyr, dull flour



H-B 33-2 1310.jpg



1389 Sh, gry, dkgry



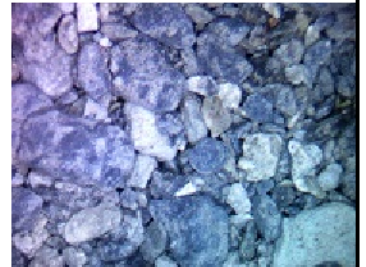
H-B 33-2 1389.jpg

1421 ShA A



H-B 33-2 1421.jpg

1455 Ls crm-ft gry, dns-fxln, pvis O, NS. Sh gry



H-B 33-2 1455.jpg

1485 LS, ShA A, few pcs Sd, lt gry, fgrn, sub rd, fIGO, NS



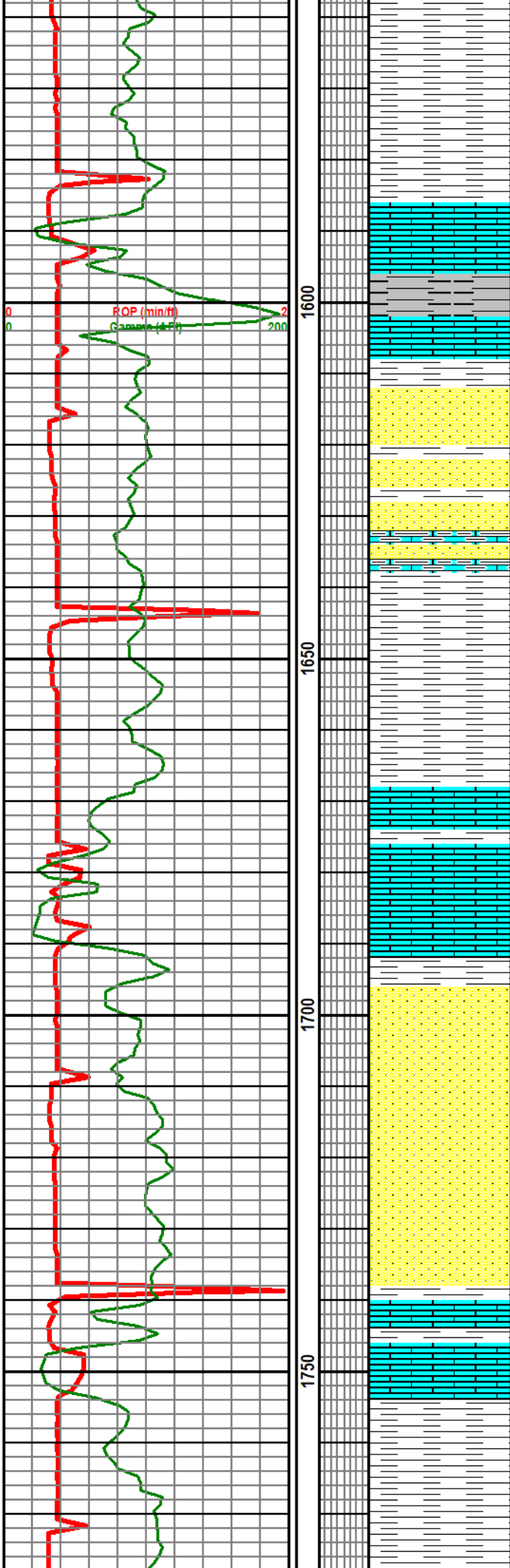
H-B 33-2 1485.jpg

1560 Ls crm, tan, f-m xln flxO, NS



H-B 33-2 1560.jpg

NO SAMPLES



1590 Sh gry



H-B 33-2 1590.jpg

1612 Survey 3/4^

1620 Sh, gry; Ls, lt tan, fxln, nvisO, NS; few pcs Sd, gry, vgrn, sub rd, pvisO, NS



H-B 33-2 1620.jpg

1650 A A



H-B 33-2 1650.jpg

1680 Sh lt gry



H-B 33-2 1680.jpg

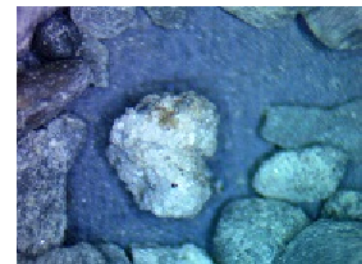
1710 Sh, gry; Ls, wht, fxln, nvisO, NS



H-B 33-2 1710.jpg

Mud Up 1707

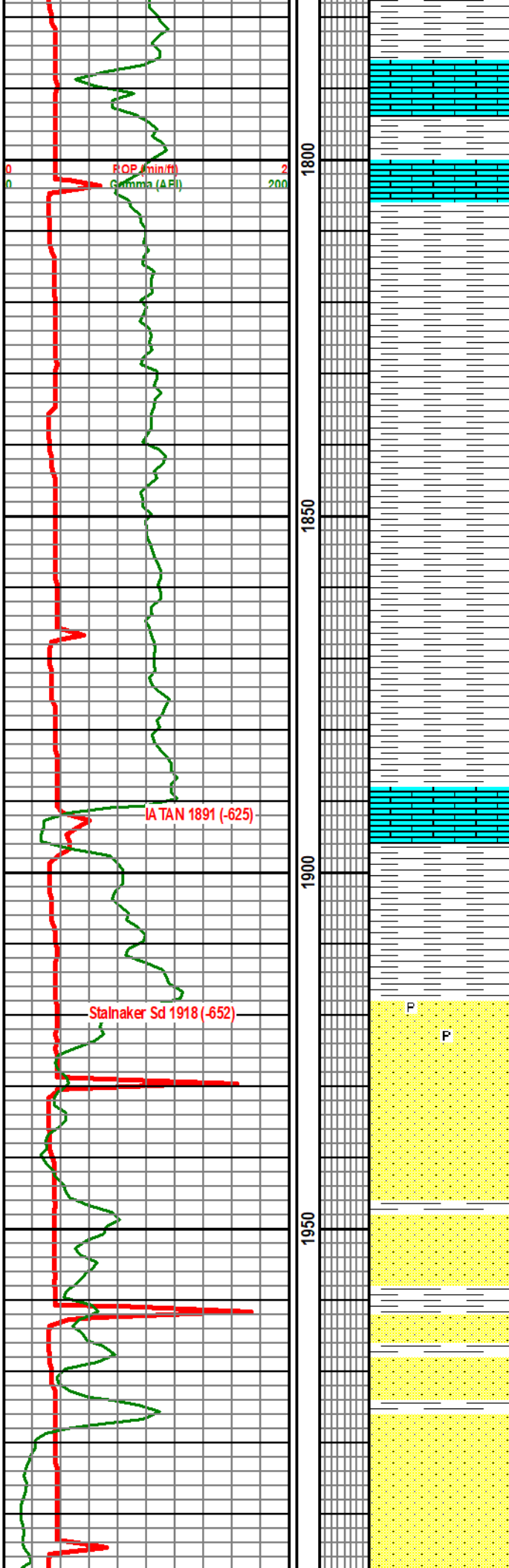
1740 A A; Sd, wh, fgrn, sub rd, well srtid, FIGO, NS



H-B 33-2 1740.jpg

1770 Sh, gry, rd brn





1800 Sh, gry, rd brn



H-B 33-2 1800.jpg

1830 Sh, gry, rd brn



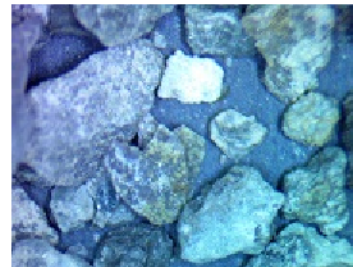
H-B 33-2 1830.jpg

1860 Sh, gry, brn



H-B 33-2 1860.jpg

1890 Sh, gry; Ls gry, fxln, nvisO, NS



H-B 33-2 1890.jpg

1920 Sh gry, brn; Ls ltgry, fxln, nvisO, pyr, NS; few pcs Sd, wh, vfgrn, well rd, calc cmt, pvisO, NS



H-B 33-2 1920.jpg

1950 Ls gry, tan, fxln, dns, pvis O, NS; Sh, gry



H-B 33-2 1950.jpg

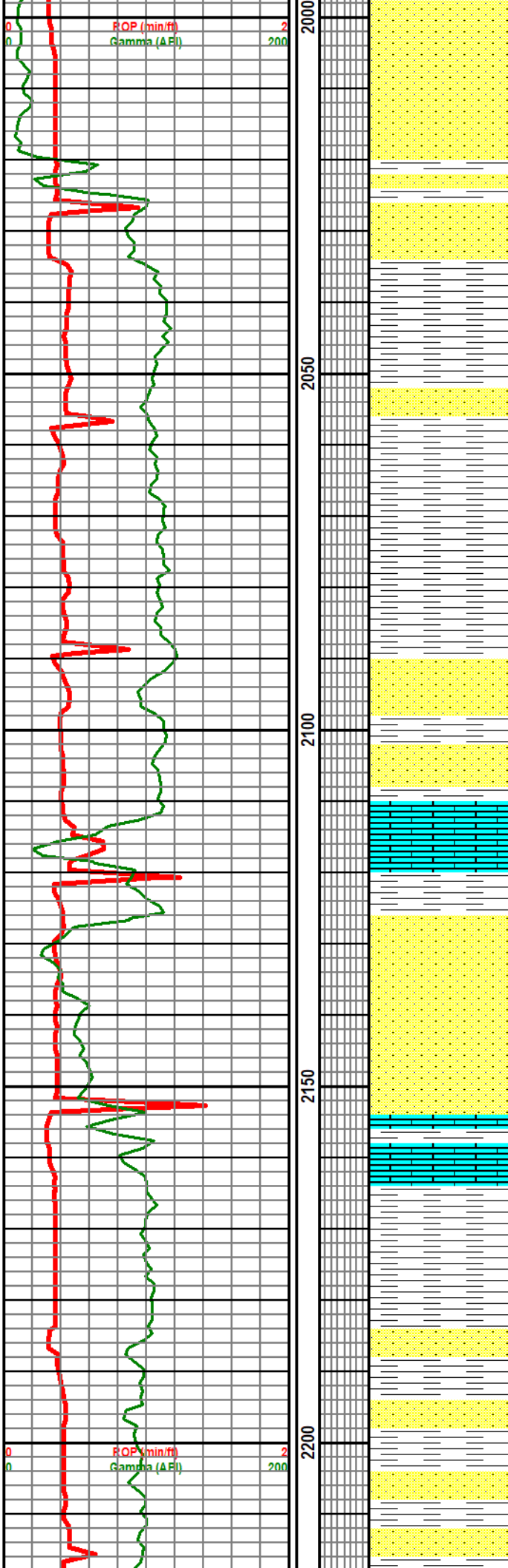
1980 Sh, gry; Ls gry, fxln, nvisO, NS, few pcs sdy



H-B 33-2 1980.jpg

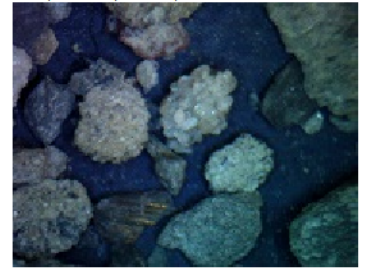
2010 Sd, wh, vfn grn to fn grn, sub rd, FIGO,





H-B 33-2 2010.jpg

2040 Sd, wh, fn grn, few clusters md grn, wll rd, well srt, frvis O, NS



H-B 33-2 2040.jpg

2070 Sh, gry, tan; Sd, wh, vyfn-fn grn, sub rd, gd srt p-fig O, NS



H-B 33-2 2070.jpg

2082 WT-9.4 / MS-34 / LCM-0

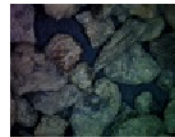
2100 Sh, gry, dk gry; Sd, few clusters, wh, qtz, flGO, sub rd, NS



H-B 33-2 2100.jpg

Survey 2119 3/4^

2130 Sh, gry; Sd, wh, md grn, sev clusters. flGO, NS



H-B 33-2 2130.jpg

2160 Sd, wh, md grn, sub ang, gd lGO, more clusters, NS

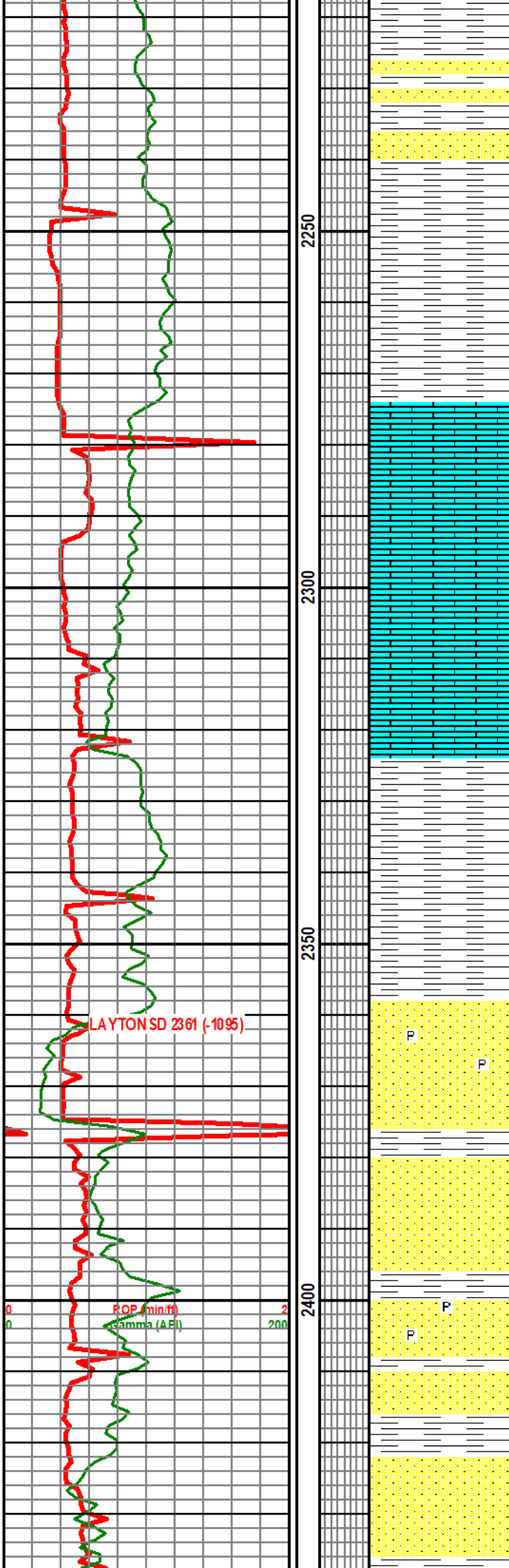


H-B 33-2 2160.jpg

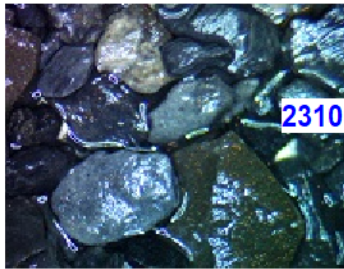
2190 Sh gry; Ls lt gry, fxln, pvls O, NS; Sd, wh, md-csgrn, gd lGO, NS



H-B 33-2 2190.jpg



2310 Sh, gry, dkgry; Ls, gry, tan, sm mott, fsif, nvisO, NS

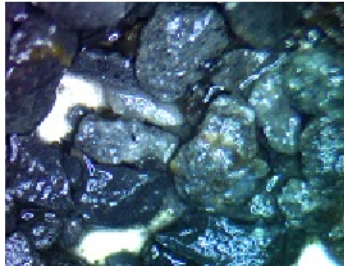


2310 START WET/DRY SMPLS

H-B 33-2 2310.jpg

CHANGE SWAB ON PUMP 2373

2373 Sh, gry; Ls, gry, mxln, fsif, pyr, nvisO, NS; few pcs Sd, gry



H-B 33-2 2373.jpg



H-B 33-2 2405.jpg

2405 Sh, gry, dkgry; Sd, wh-ltgry, vyfn grn, nvisO, NS, pyr, sli mic

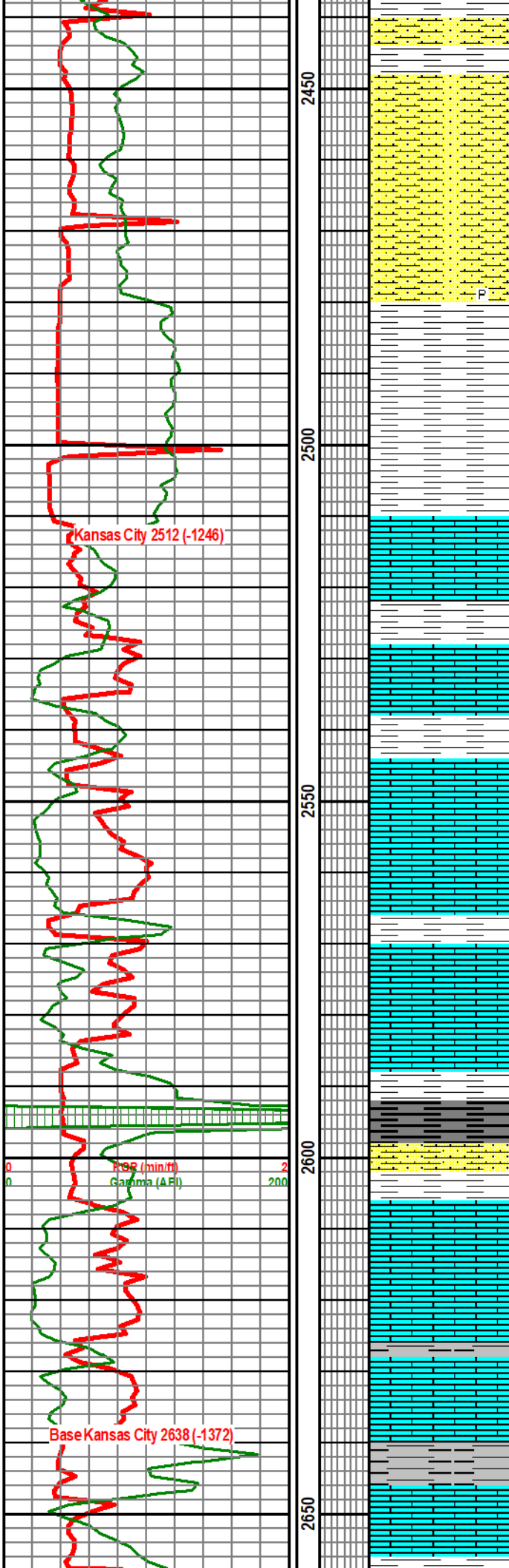


H-B 33-2 2436.jpg

2436 Sd, vy fngnr, sub rd, nvisO, NS

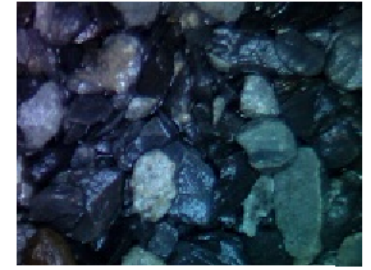
2428 WT-9.3 / VIS-44 / LCM-0





H-B 33-2 2468.jpg

2468 Sd, wh-lt gry, fn grn, pvisO, sub rd, mic, N S

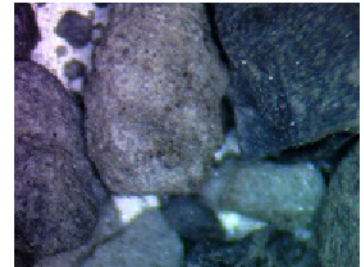


2500 Sh, gry, dkgry

2499 WT-9.3 / VIS-44 / LCM-0

2530 Sh, gry, dkgry

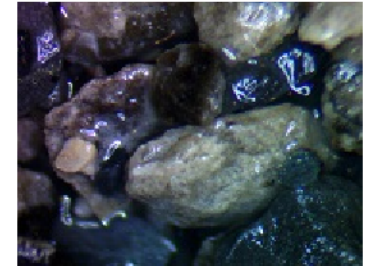
2562 Ls, lt gry, dolm, fxln, pvis O, NS



H-B 33-2 2562.jpg

2592 Ls tan, brn, sm mott, f-mxn, fsif, fvisO, <1% flour; Sh, gry

Survey 2595 1^



H-B 33-2 2592.jpg

2627 Sh, blkish, gry; Ls crm, fxln, chly in prt, pvisO, 1 pc flour, odor when break fs if



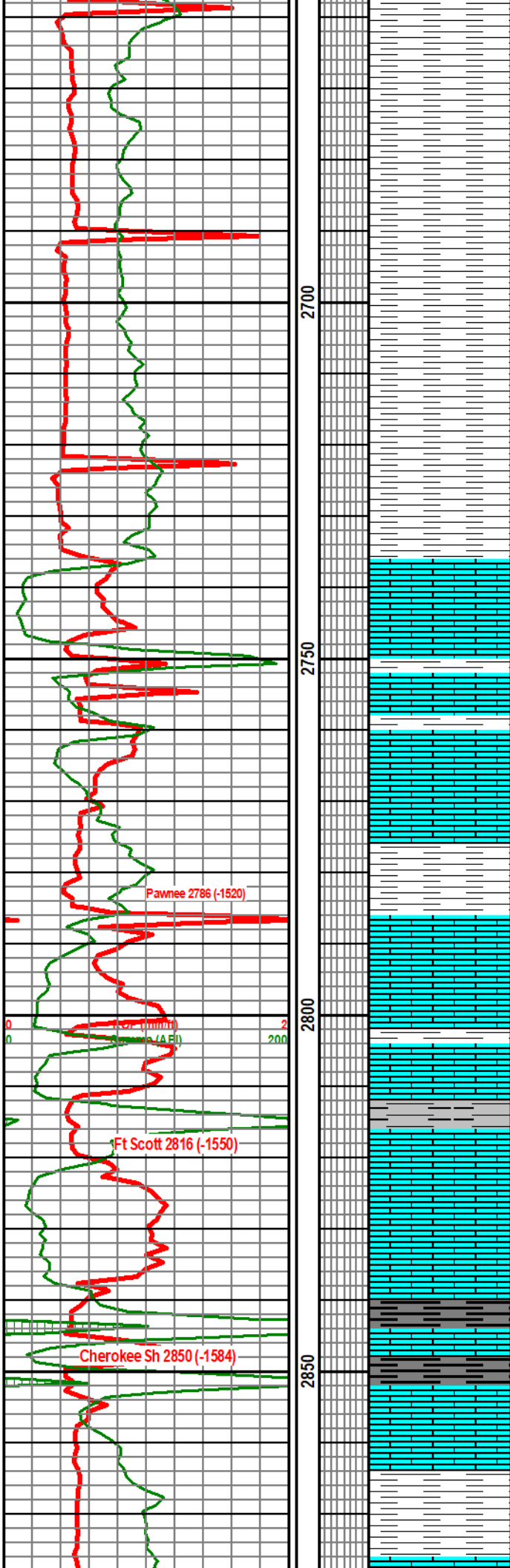
H-B 33-2 2627-2.jpg



H-B 33-2 2627-1.jpg

2658 Sh, blk; Ls crm, gry, brn, f-mxn, fex xl's, fsif, pvisO, N S





H-B 33-2 2658.jpg

2680 Ls, crm, fxln, nvisO, 1pc flour; Ls tan, lt gry, f-m xln, fvisO, fsif, NS



H-B 33-2 2680-1.jpg



H-B 33-2 2680-2.jpg

2722 Sh, gr, sdy, few pcs blk



H-B 33-2 2722.jpg

2753 Ls, crm, fxln, dns, nvisO, fsif, 1 pc dull flour; Sh, gry, dkgr, blkish



H-B 33-2 2753.jpg



H-B 33-2 2785.jpg

2785 Ls, crm, f-mxln, fsif, pvisO, NS; Sh gry, dk gry

Pawnee 2786 (-1520)

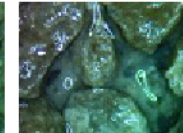
2812 Ls, crm, dns-fxln, p-fvisO, 10% flour, few gas bubbles, gd odor



H-B 33-2 2812-3.jpg



H-B 33-2 2812-2.jpg



H-B 33-2 2812-1.jpg

Ft Scott 2816 (-1550)

2848 Ls, crm, f-m xln, fsif, 10% tray yel flour, Odor; Sh, gry, dk gry



H-B 2848.jpg



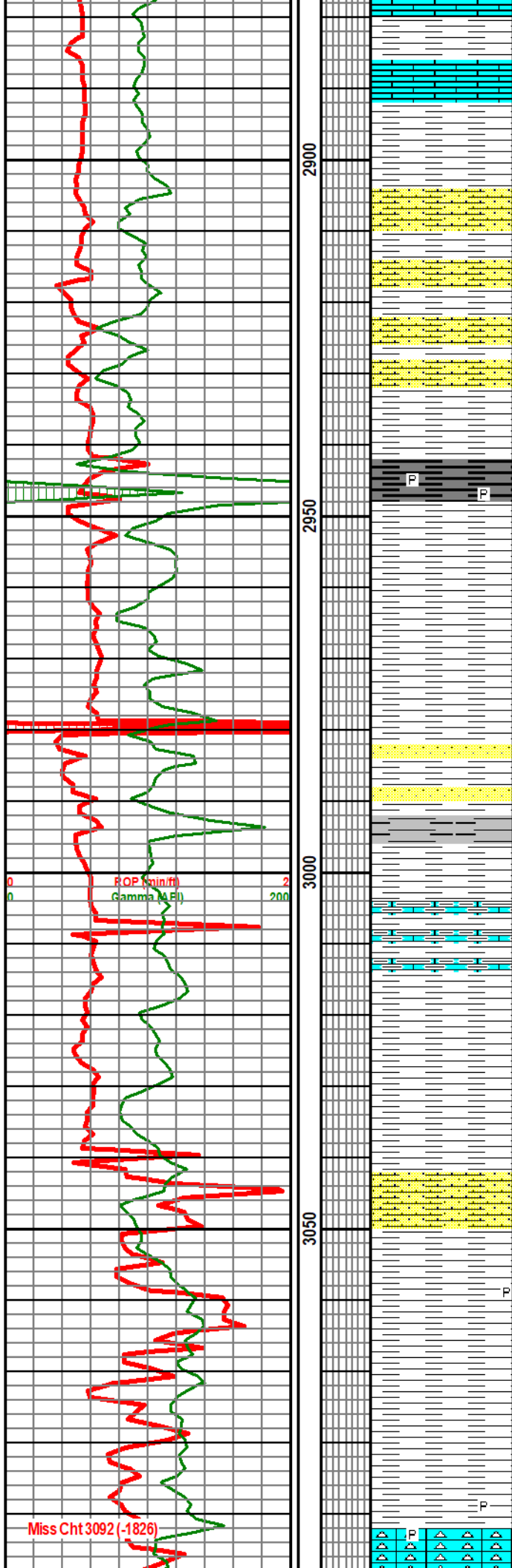
H-B 2848-2.jpg

Cherokee Sh 2850 (-1584)

2880 Ls, crm, fxln-dns, fsif, chty, pvisO, sev pcs flour; Sh, gry; sevpcs blk sh



H-B 33-2 2880.jpg



2912 Ls, Lt brown ,soft, pvisO, fnt odor, 5% flor

2949 Sh, gry, sandy, soft, few pcs. brn ls w/dull flor

2979 Sh gry-blk, some pyr, ns

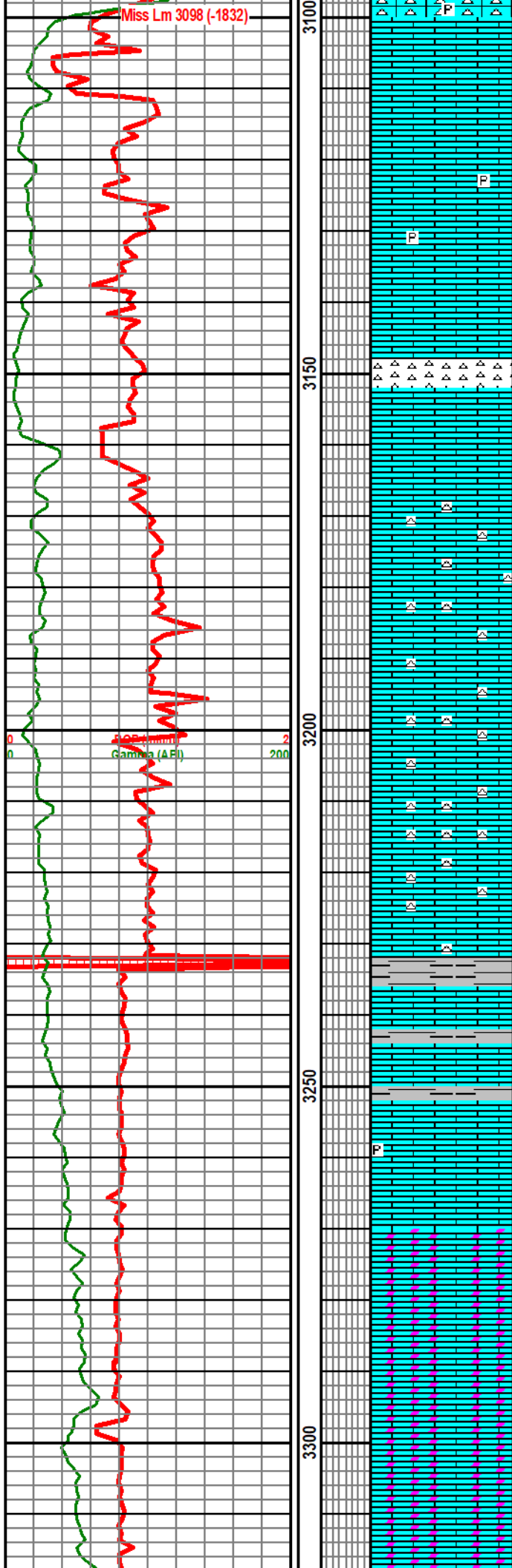
3005 Sh gry & lt gry

3039 Sh Gry limey w/ some rd & blk

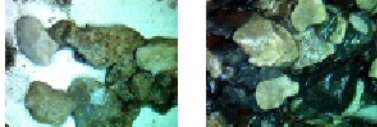
3072 Sh rd & gry sandy

3102 Very few pcs. wh fresh chert & wtrd stained chert good for no odor. Mainly red & grey shales

Miss Cht 3092 (-1826)



3134 Wh fresh & wtrd chertedgestain faint odor good yellow flor,



H-B 33-2 3134.jpg H-B 33-2 3134-2.jpg

3165 Cht, wht, crm, sev pcs fresh with edge weathering, fnt odor, sev pcs flour, sprs edge strn. Fresh is wht



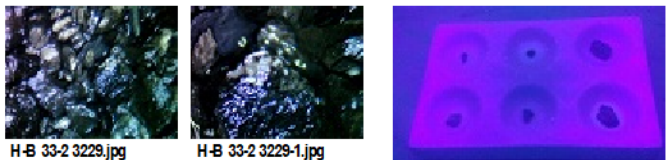
H-B 33-2 3165-4.jpg H-B 33-2 3165.jpg H-B 33-2 3165-2.jpg

3197 dk brown arg ls, chert incl, qtz xl in frac, sl ffsf, few edge stain on wtrd cht, faint odor, few pcs w/ flor. wht ring cut



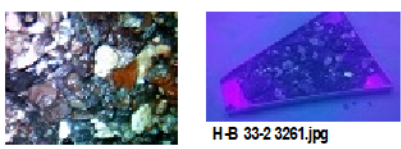
H-B 33-2 3197.jpg H-B 33-2 3197-1.jpg H-B 33-2 3197 45 min cut.jpg

3229 aa increasing chert, some dull yellow flor, very faint odor,



H-B 33-2 3229.jpg H-B 33-2 3229-1.jpg H-B 33-2 3229 2 min cut.jpg

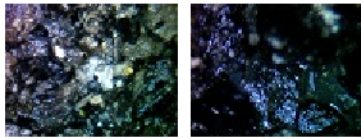
3261 Sh, gry, dk gry, rd brn, prpl, rusty; Ls crm, fxln, sm cs xln, pf in xlnO, yel spotty flour,



H-B 33-2 3261-1.jpg H-B 33-2 3261.jpg

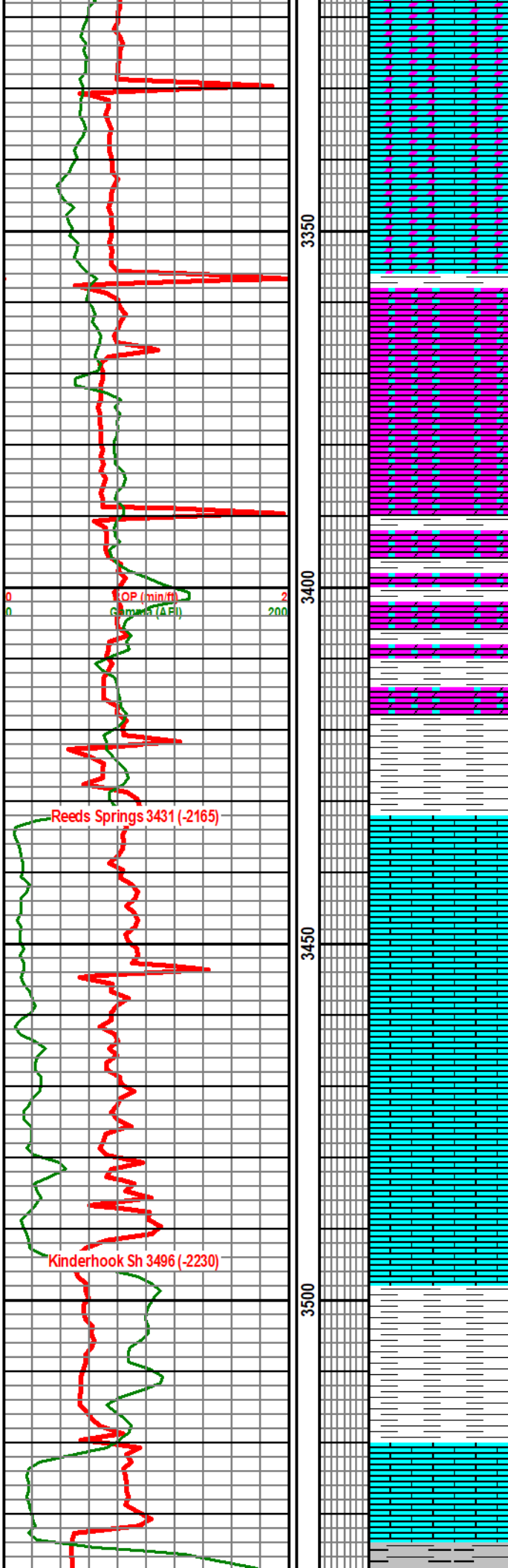
3261 9.3WT, 49VIS, 4# LCM

3293 Ls, wh crm, f-mxln, p visO, 4 pcs yel flour; Ls, dk gry, m xln, xl ind, vry dull y lw flour



H-B 33-2 3293.jpg H-B 33-2 3293-1.jpg

3325 Ls, dk gry-blk, mxln, dolm, fxlnO, xl incl, lt cut after 20min, on top of smpl NS; Ls crm, fxln, xl inc, 1 pc flour, sli gassy odor,



H-B 33-2 3325.jpg



H-B 33-2 3325-1.jpg

3356 Ls, dk gry, dolm, fxl, pvisO, ltgsy odor, NS



H-B 33-2 3356.jpg

3388 Dol, dk gry, lmy, f-mxln, pvisO, NS



H-B 33-2 3388.jpg

3420 Sh, gry, silty; dol, gry, f-vyfxln, p visO, NS



H-B 33-2 3420.jpg



H-B 33-2 3420-2.jpg

3420, 9.3WT,44VIS,4# LCM

3452 Ls drk gry, dense finextln, ns



H-B 33-2 3420.jpg

3484 Ls, wh med xtn mineral flor ns no odor: ls drk gry dense



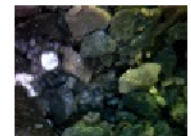
H-B 33-2 3484.jpg

3484, 9.3WT 47VIS, 4# LCM

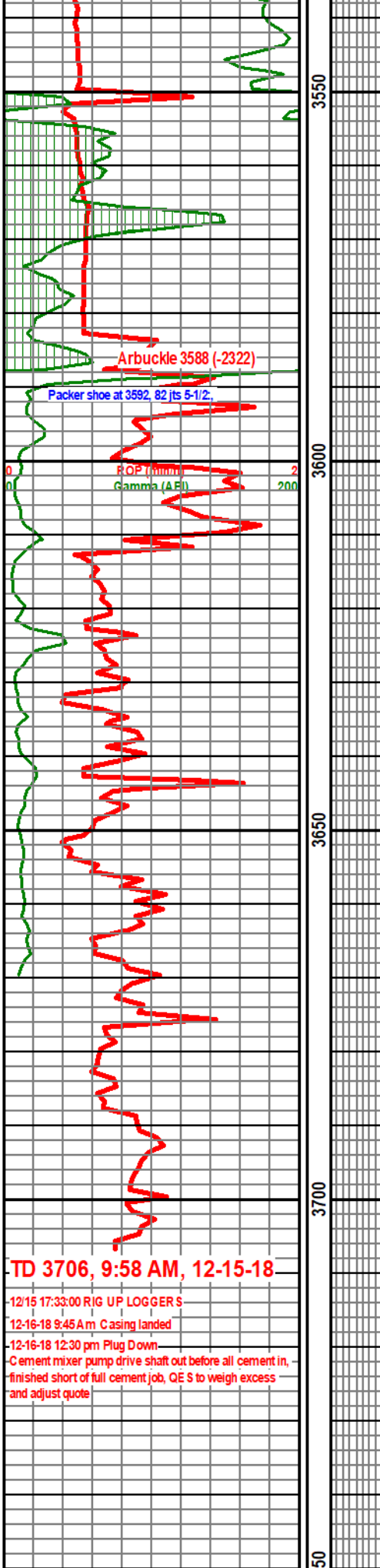
3515 Ls, lt gry, md xln, hard ns, no odor,

Fud Mud check 3518, 9.5#, 42 Vis, pH 9.5, 5# LCM

3547 Ls, crm, lt gry, fxl, p-n visO, NS; Sh lt gry, sft



H-B 33-2 3547.jpg



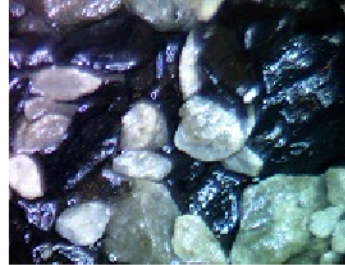
3579 Ls, brn, fm xln, xl incl, pvio, fnt odor NS; few pcs Sd, wh, f grn, sub ang, pIGO

3611 Sh, lt gry, sft; Sh Blk, pyr



H-B 33-2 3611.jpg

3643 Sh, Blk, pyr; Dol, crm, gry, m-cs xln, chty, fr lxnO, vy dull flour, wk odor



H-B 33-2 3643.jpg

3674 Dol, crm, lt gry, chty, pyr, frO, vy wk odor, vy dull flour.



H-B 33-2 3679.jpg

3706 Dol, crm, gry, f-mxn, f-gixlnO, wk odor, vy dull flour; Cht wh, blue, frsh



H-B 33-2 3706.jpg

Survey 3706 1/2^

SNR Kansas Operating, LLC

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

Well Name: Henderson Bolander 33-2
 API: 15-035-24690-00-00
 Location: 2250 FSL, 2250 FEL, 33325E
 License Number: 35586
 Spud Date: 12/12/2018
 Surface Coordinates: -96.886884
 37.221451
 Bottom Hole
 Coordinates:
 Ground Elevation (ft): 1255 K.B. Elevation (ft): 1266
 Logged Interval (ft): 1000 To: 3706 Total Depth (ft): 3706
 Formation: Arbuckle
 Type of Drilling Fluid: Water Base Mud

Region: Cowley
 Drilling Completed: 12-15-18

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

OPERATOR



















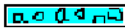




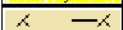
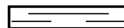






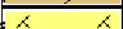




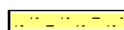









Company: SNR Kansas Operating, LLC
 Address: 301 NW 63rd Street
 Oklahoma City, OK 73116

GEOLOGIST

Name: Troy Phillips
 Company:
 Address: 733 N Baltimore
 Derby, KS 67037

COMMENTS

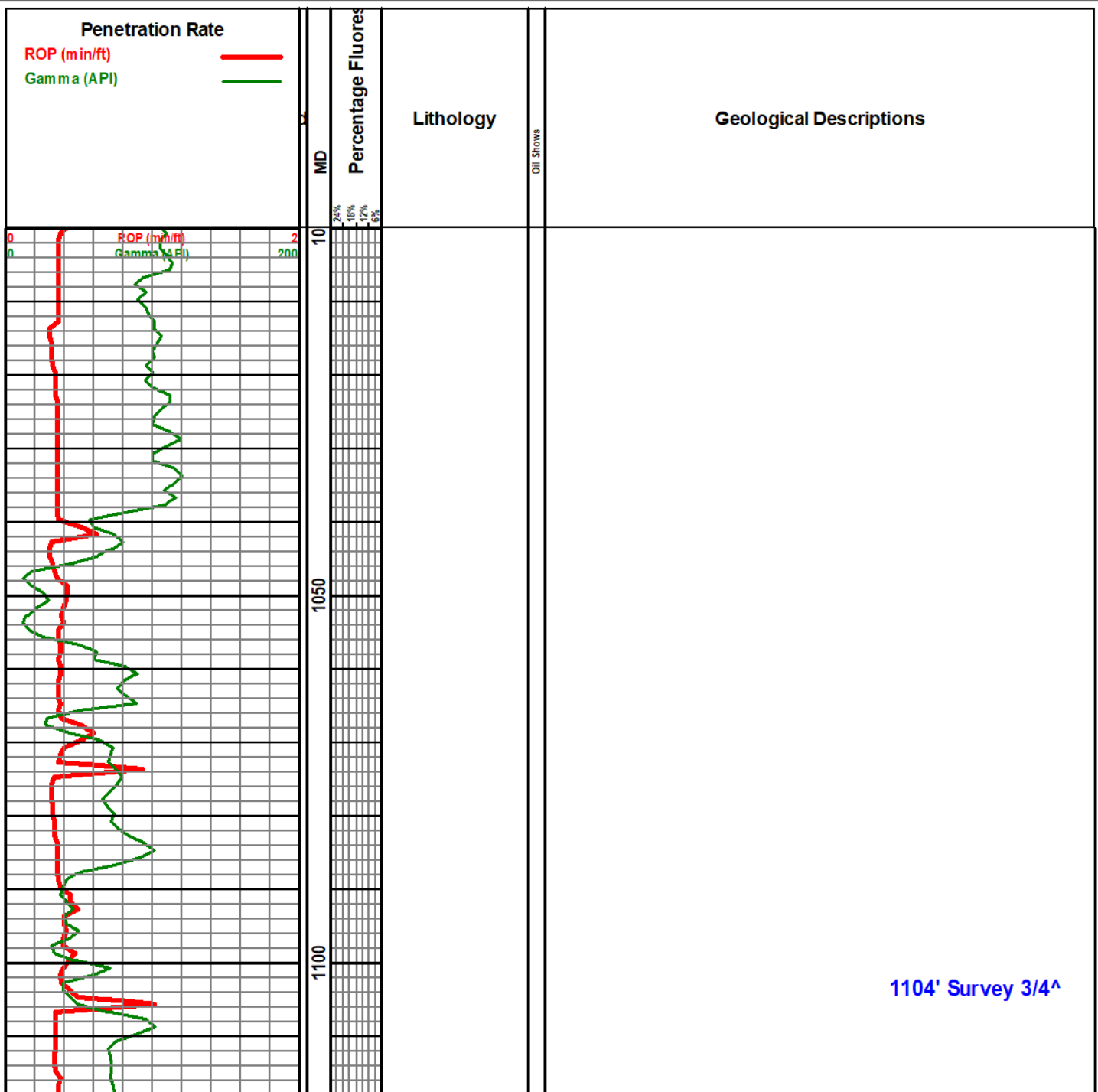
ROCK TYPES

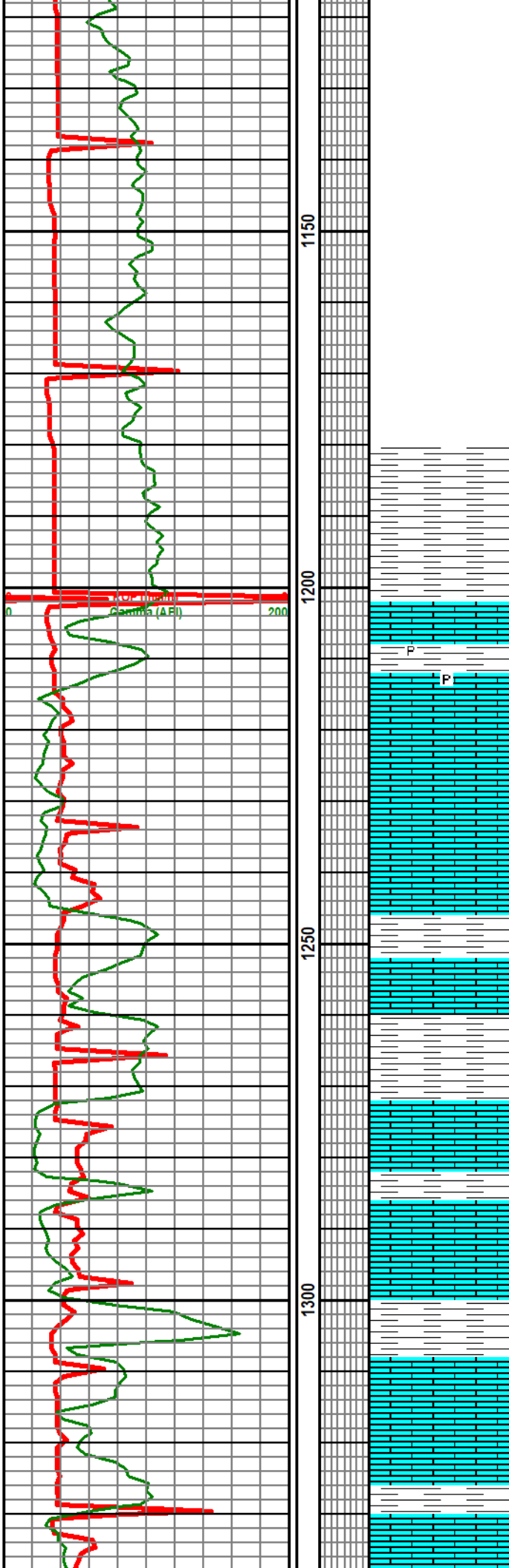
 Anhydrite	 Shaly_ss_ii	 Cherty_dolo	 Qtz_wash
 Arkose	 Sandstone	 Dolomite	 Qtz_wash_ii
 Ark_shale	 Shaly_limy_ss	 Limy_dolo	 Argil_qtz_wash
 Granite	 Washy_limy_ss	 Cement	 Ark_qtz_wash
 Coal	 Limy_ss	 Carb_wash	 Sdy_gw
 Limy_sh	 Sdy_ls	 Sdy_carb_wash	 Shaly_gw
 Shale	 Limestone	 Shaly_sdy_carb_wash	 Gw_a
 Hot_shale	 Dolo_ls	 Shaly_limy_qtz_wash	 Gw_b
 Hot_shale_ii	 Shaly_ls	 Shaly_limy_qtz_wash	 Gw_c
 Siltstone	 Carb_shaly_ls	 Limy_qtz_wash	 Gw_d
 Siltstone_ii	 Cherty_ls	 Limy_qtz_wash_ii	
 Shaly_ss	 Chert	 Limy_qtz_wash_iii	

ACCESSORIES

FOSSIL	MINERAL	 Phos	 Limestone
 Algae	 Anhy	 Pvr	 Limy ss str

Amph	Arggrn	Salt	Qtz wash str
Belm	Arg	Sandy	Limy qtz wash str
Bioclst	Bent	Silt	Sandy ls str
Brach	Bit	Sil	Shale
Bryozoa	Brecfrag	Sulphur	Siltstone
Cephal	Calc	Tuff	Sandstone
Coral	Carb		
Crin	Chtdk	STRINGER	TEXTURE
Echin	Chtlt	Arkosic inclusion	Boundst
Fish	Dol	Chert inclusion	Chalky
Foram	Feldspar	Anhydrite	Cryxln
Fossil	Ferrpel	Arkosic qtz str	Earthy
Gastro	Ferr	Arkosic qtz str ii	Finexln
Oolite	Glau	Arkosic str	Grainst
Ostra	Gyp	Arkosic str ii	Lithogr
Pelec	Hvymin	Carb wash str	Lithogr
Pellet	Kaol	Sandy carb wash str	Microxln
Pisolite	Marl	Coal/carb sh	Mudst
Plant	Minxl	Dolomite	Packst
Strom	Nodule	Granite str	Wackest





1220 Sh, gry, dkgry. Ls, gry fxln, pvio, NS sm pyr

1250 Sh gry. LS crm, f-m xln, chky in prt, sprs pptO, dull flour

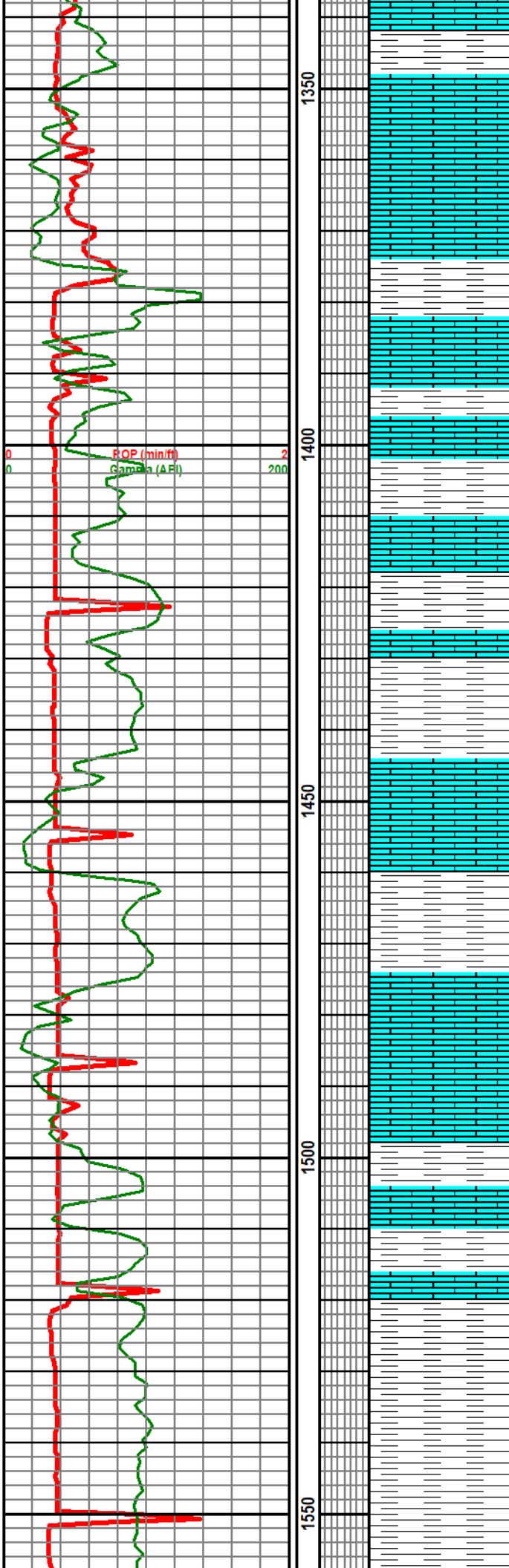


H-B 33-2 1250.jpg

1310 Ls, crm, lt gry, f xln, chty, pvio, sev pcs pyr, dull flour



H-B 33-2 1310.jpg



1389 Sh, gry, dkgry



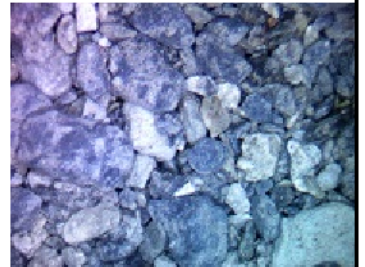
H-B 33-2 1389.jpg

1421 Sh A A



H-B 33-2 1421.jpg

1455 Ls crm-lt gry, dns-fxln, pvis O, NS. Sh gry



H-B 33-2 1455.jpg

1485 LS, Sh A, few pcs Sd, lt gry, fgrn, sub rd, fIGO, NS



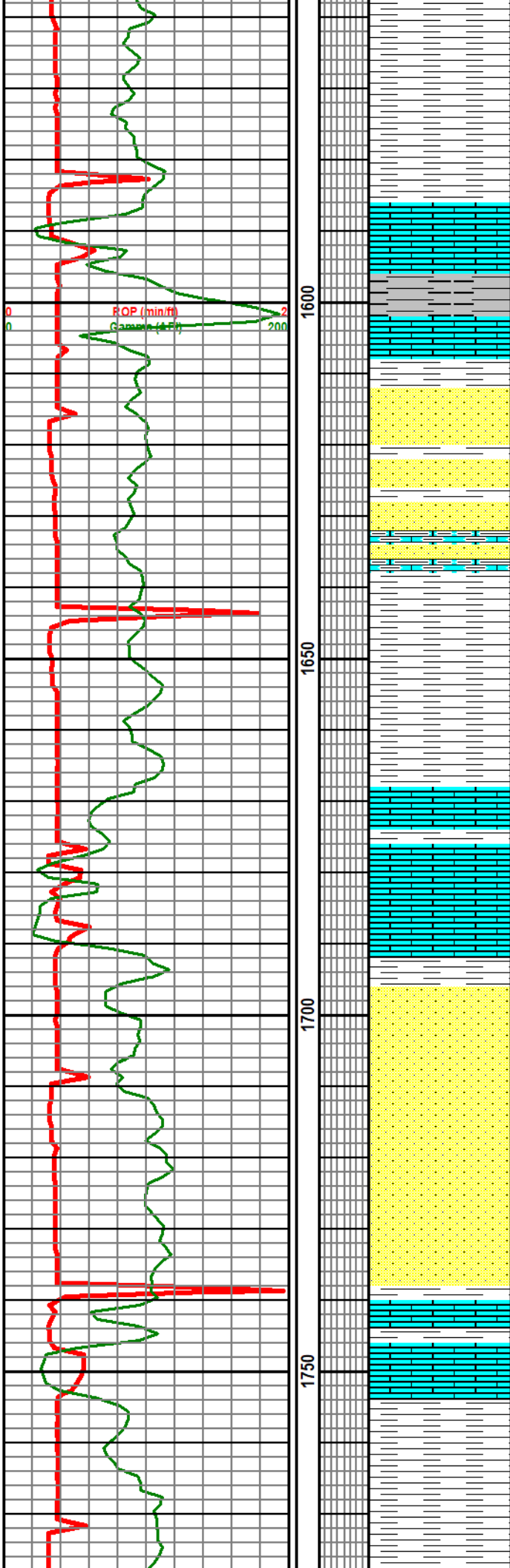
H-B 33-2 1485.jpg

1560 Ls crm, tan, f-m xln flxO, NS



H-B 33-2 1560.jpg

NO SAMPLES



1590 Sh gry



H-B 33-2 1590.jpg

1612 Survey 3/4^

1620 Sh, gry; Ls, lt tan, fxln, nvisO, NS; few pcs Sd, gry, vgrn, sub rd, pvioO, NS



H-B 33-2 1620.jpg

1650 A A



H-B 33-2 1650.jpg

1680 Sh lt gry



H-B 33-2 1680.jpg

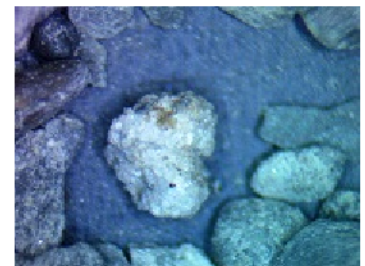
1710 Sh, gry; Ls, wht, fxln, nvisO, NS



H-B 33-2 1710.jpg

Mud Up 1707

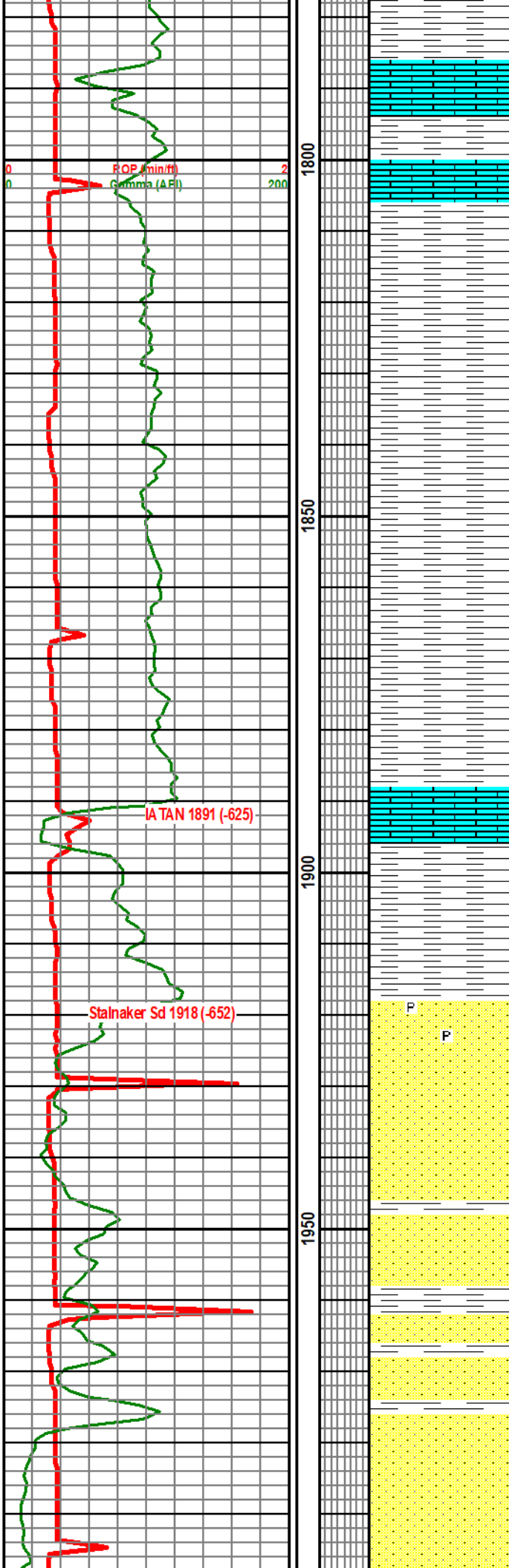
1740 A A; Sd, wh, fgrr, sub rd, well srtid, FIGO, NS



H-B 33-2 1740.jpg

1770 Sh, gry, rd brn





1800 Sh, gry, rd brn



H-B 33-2 1800.jpg

1830 Sh, gry, rd brn



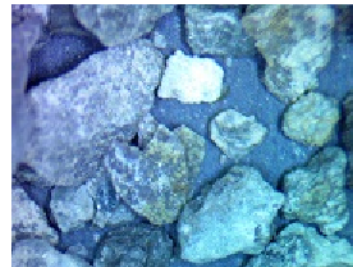
H-B 33-2 1830.jpg

1860 Sh, gry, brn



H-B 33-2 1860.jpg

1890 Sh, gry; Ls gry, fxln, nvisO, NS



H-B 33-2 1890.jpg

1920 Sh gry, brn; Ls ltgry, fxln, nvisO, pyr, NS; few pcs Sd, wh, vfgrn, well rd, calc cmt, pvisO, NS



H-B 33-2 1920.jpg

1950 Ls gry, tan, fxln, dns, pvis O, NS; Sh, gry



H-B 33-2 1950.jpg

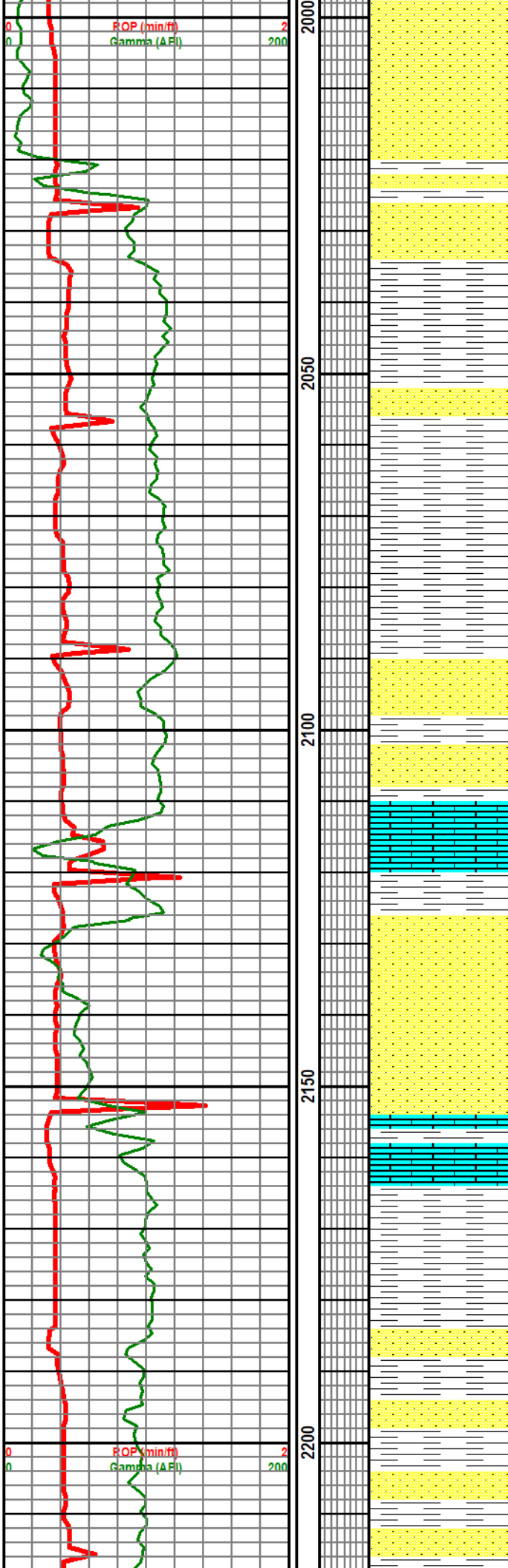
1980 Sh, gry; Ls gry, fxln, nvisO, NS, few pcs sdy



H-B 33-2 1980.jpg

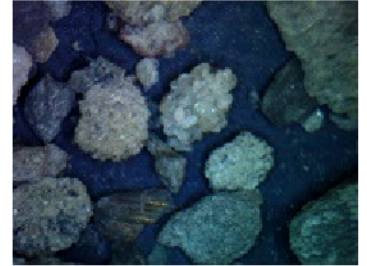
2010 Sd, wh, vfn grn to fn grn, sub rd, FIGO,





H-B 33-2 2010.jpg

2040 Sd, wh, fn grn, few clusters md grn, wll rd, well srt, frvis O, NS



H-B 33-2 2040.jpg

2070 Sh, gry, tan; Sd, wh, vyfn-fn grn, sub rd, gd srt p-fig O, NS



H-B 33-2 2070.jpg

2082 WT-9.4 / MS-34 / LCM-0

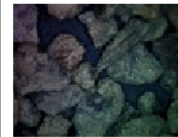
2100 Sh, gry, dk gry; Sd, few clusters, wh, qtz, flGO, sub rd, NS



H-B 33-2 2100.jpg

Survey 2119 3/4^

2130 Sh, gry; Sd, wh, md grn, sev clusters. flGO, NS



H-B 33-2 2130.jpg

2160 Sd, wh, md grn, sub ang, gd lGO, more clusters, NS

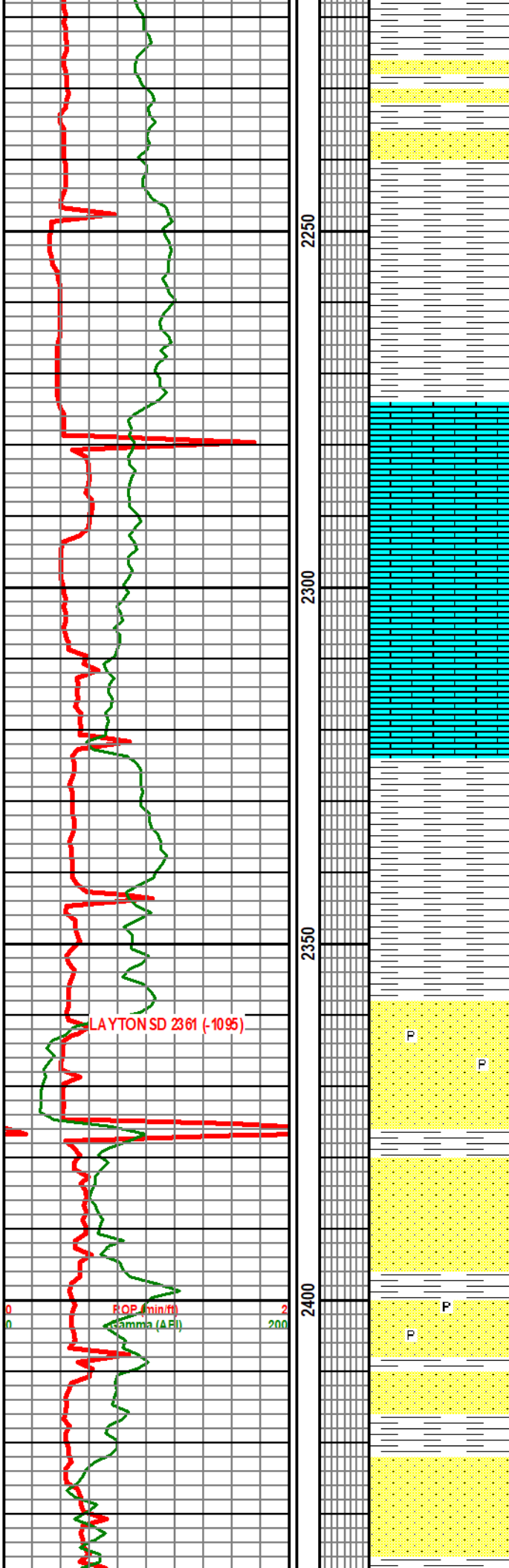


H-B 33-2 2160.jpg

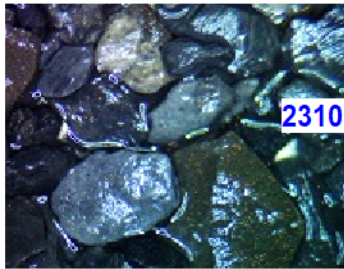
2190 Sh gry; Ls lt gry, fxln, pvls O, NS; Sd, wh, md-csgrn, gd lGO, NS



H-B 33-2 2190.jpg



2310 Sh, gry, dkgry; Ls, gry, tan, sm mott, fsif, nvisO, NS

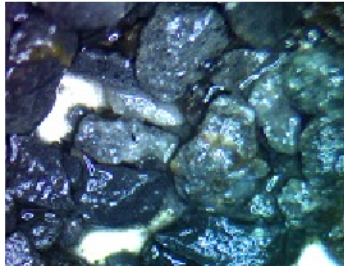


2310 START WET/DRY SMPLS

H-B 33-2 2310.jpg

CHANGE SWAB ON PUMP 2373

2373 Sh, gry; Ls, gry, mxln, fsif, pyr, nvisO, NS; few pcs Sd, gry



H-B 33-2 2373.jpg



H-B 33-2 2405.jpg

2405 Sh, gry, dkgry; Sd, wh-ltgry, vyfn grn, nvisO, NS, pyr, sli mic

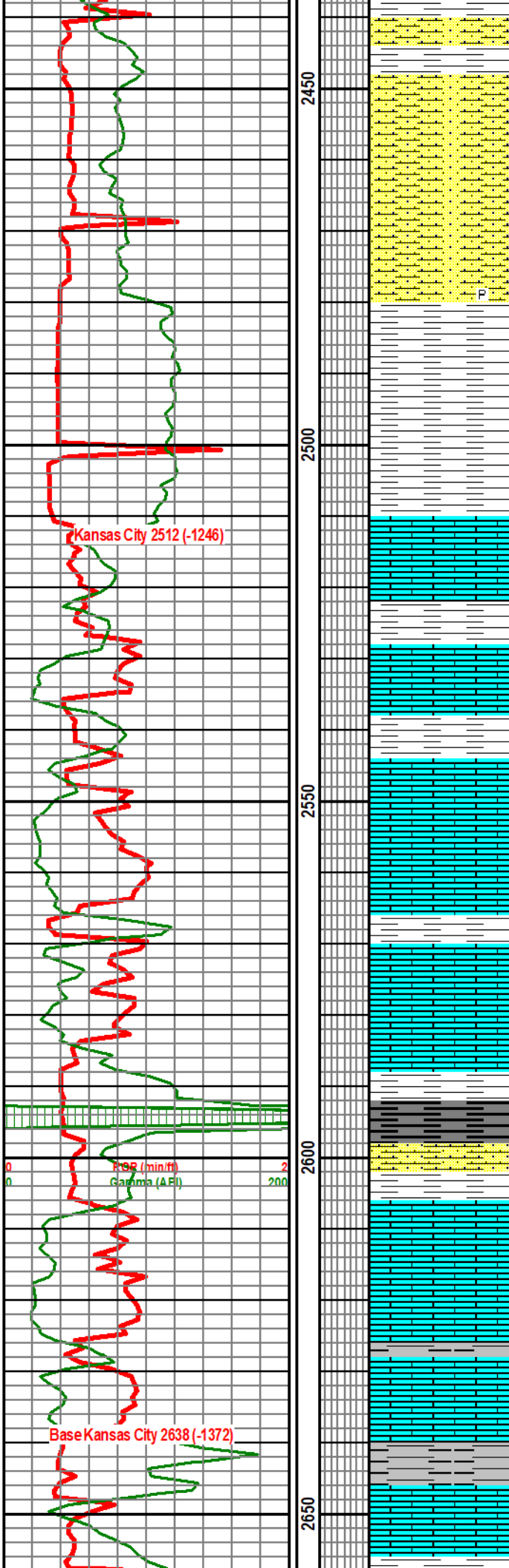


H-B 33-2 2436.jpg

2436 Sd, vy fngn, sub rd, nvisO, NS

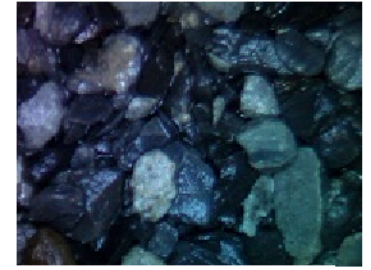
2428 WT-9.3 / VIS-44 / LCM-0





H-B 33-2 2468.jpg

2468 Sd, wh-lt gry, fn grn, pvisO, sub rd, mic, N S

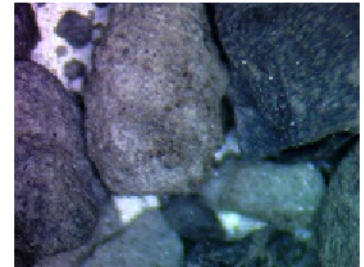


2500 Sh, gry, dkgry

2499 WT-9.3 / VIS-44 / LCM-0

2530 Sh, gry, dkgry

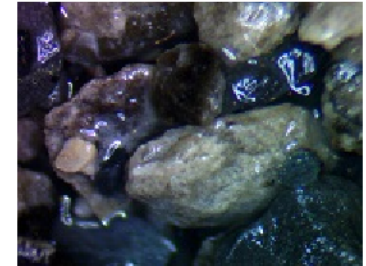
2562 Ls, lt gry, dolm, fxln, pvis O, NS



H-B 33-2 2562.jpg

2592 Ls tan, brn, sm mott, f-mxn, fslf, fvisO, <1% flour; Sh, gry

Survey 2595 1^



H-B 33-2 2592.jpg

2627 Sh, blkish, gry; Ls crm, fxln, chly in prt, pvisO, 1 pc flour, odor when break fs lf



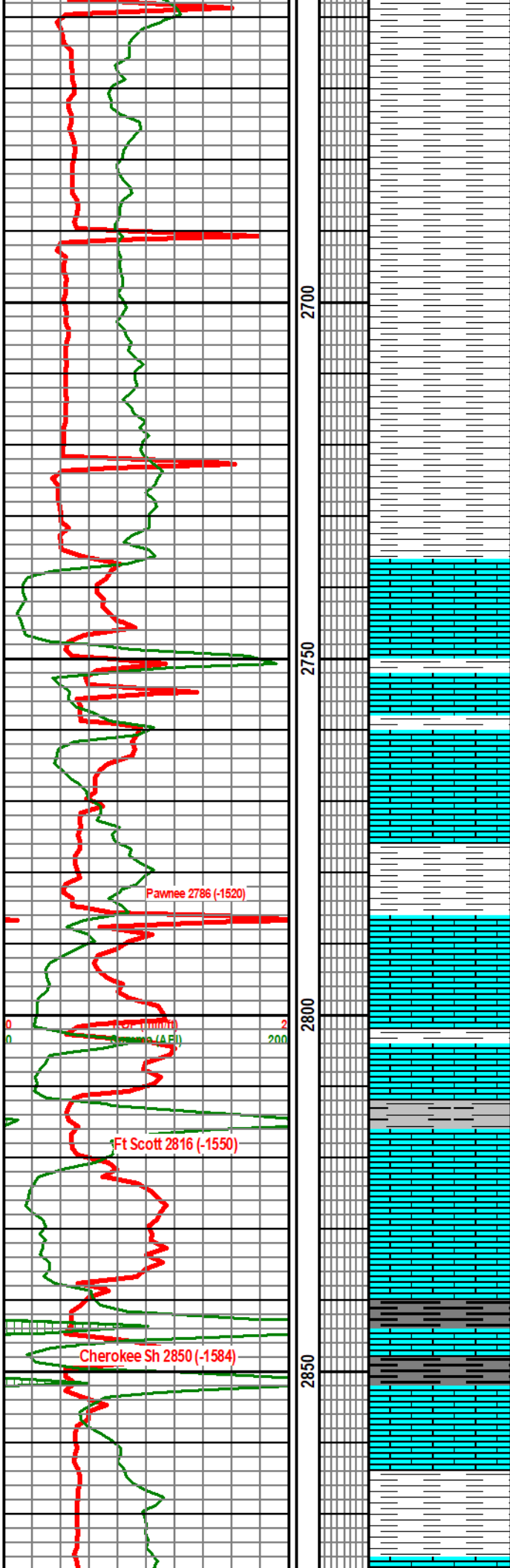
H-B 33-2 2627-2.jpg



H-B 33-2 2627-1.jpg

2658 Sh, blk; Ls crm, gry, brn, f-mxn, fex xl's, fslf, pvisO, N S





H-B 33-2 2658.jpg

2680 Ls, crm, fxln, nvisO, 1pc flour; Ls tan, lt gry, f-m xln, fvisO, fsif, NS



H-B 33-2 2680-1.jpg



H-B 33-2 2680-2.jpg

2722 Sh, gr, sdy, few pcs blk



H-B 33-2 2722.jpg

2753 Ls, crm, fxln, dns, nvisO, fsif, 1 pc dull flour; Sh, gry, dkgr, blkish



H-B 33-2 2753.jpg



H-B 33-2 2785.jpg

2785 Ls, crm, f-mxln, fsif, pvisO, NS; Sh gry, dk gry

Pawnee 2786 (-1520)

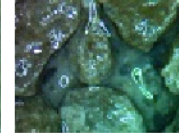
2812 Ls, crm, dns-fxln, p-fvisO, 10% flour. few gas bubbles, gd odor



H-B 33-2 2812-3.jpg



H-B 33-2 2812-2.jpg



H-B 33-2 2812-1.jpg

Ft Scott 2816 (-1550)

2848 Ls, crm, f-m xln, fsif, 10% tray yel flour, Odor; Sh, gry, dk gry



H-B 2848.jpg



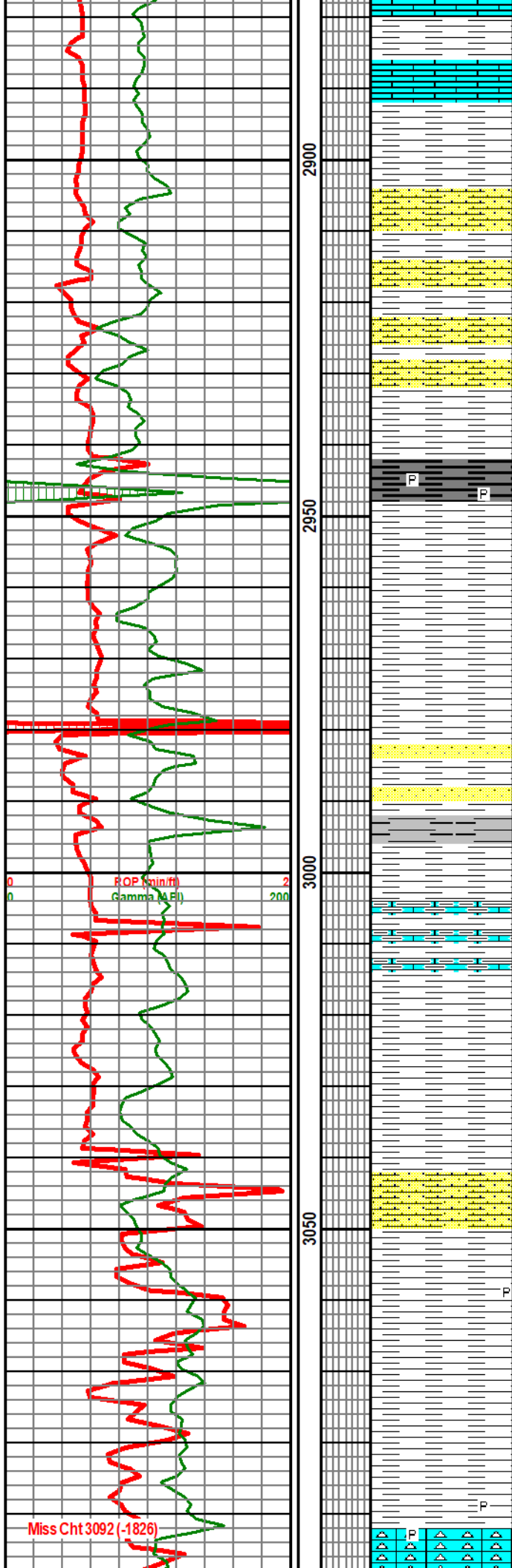
H-B 2848-2.jpg

Cherokee Sh 2850 (-1584)

2880 Ls, crm, fxln-dns, fsif, chty, pvisO, sev pcs flour; Sh, gry; sevpcs blk sh



H-B 33-2 2880.jpg



2912 Ls, Lt brown ,soft, pvisO, fnt odor, 5% flor

2949 Sh, gry, sandy, soft, few pcs. brn ls w/dull flor

2979 Sh gry-blk, some pyr, ns

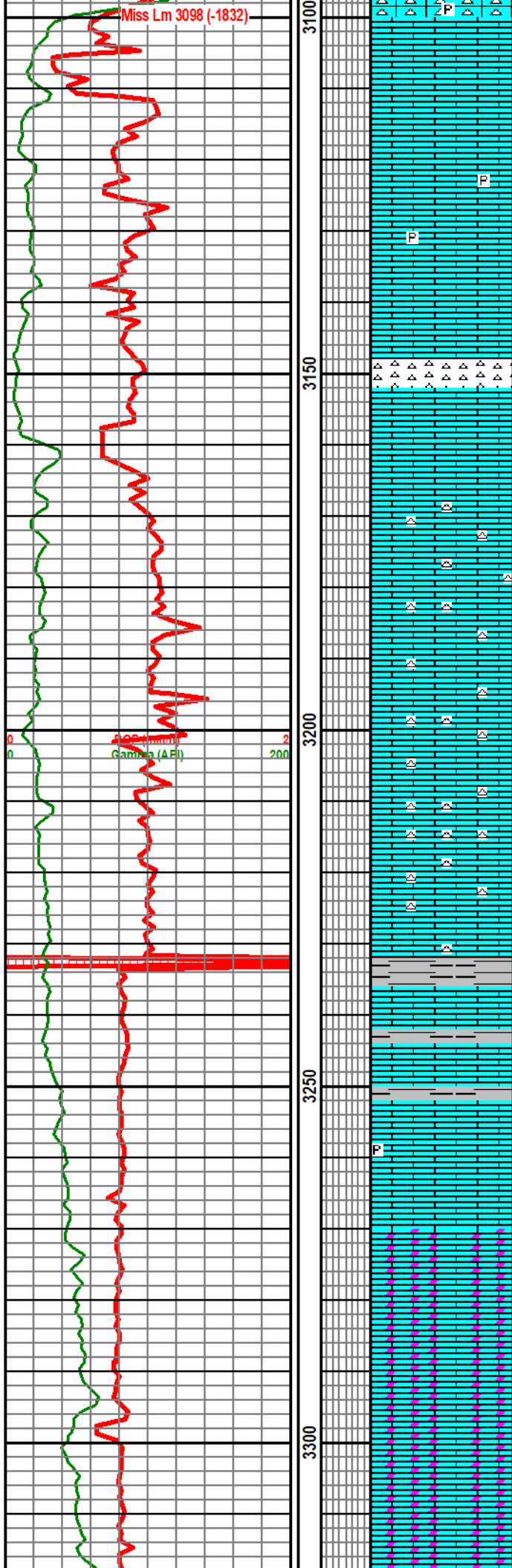
3005 Sh gry & lt gry

3039 Sh Gry limey w/ some rd & blk

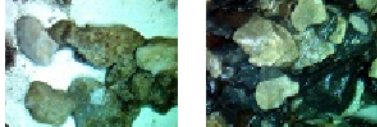
3072 Sh rd & gry sandy

3102 Very few pcs. wh fresh chert & wtrd stained chert good for no odor. Mainly red & grey shales

Miss Cht 3092 (-1826)



3134 Wh fresh & wtrd chertedgestain faint odor good yellow flor,



H-B 33-2 3134.jpg H-B 33-2 3134-2.jpg

3165 Cht, wht, crm, sev pcs fresh with edge weathering, fnt odor, sev pcs flour, sprs edge strn. Fresh is wht



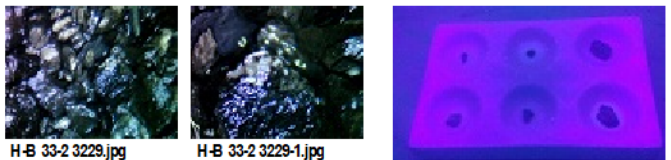
H-B 33-2 3165-4.jpg H-B 33-2 3165.jpg H-B 33-2 3165-2.jpg

3197 dk brown arg ls, chert incl, qtz xl in frac, sl ffls, few edge stain on wtrd cht, faint odor, few pcs w/ flor. wht ring cut



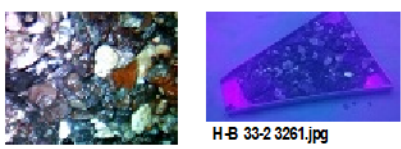
H-B 33-2 3197.jpg H-B 33-2 3197-1.jpg H-B 33-2 3197 45 min cut.jpg

3229 aa increasing chert, some dull yellow flor, very faint odor,



H-B 33-2 3229.jpg H-B 33-2 3229-1.jpg H-B 33-2 3229 2 min cut.jpg

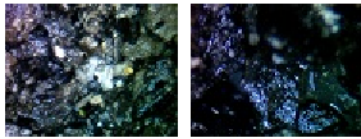
3261 Sh, gry, dk gry, rd brn, prpl, rusty; Ls crm, fxln, sm cs xln, pf inxlnO, yel spotty flour,



H-B 33-2 3261-1.jpg H-B 33-2 3261.jpg

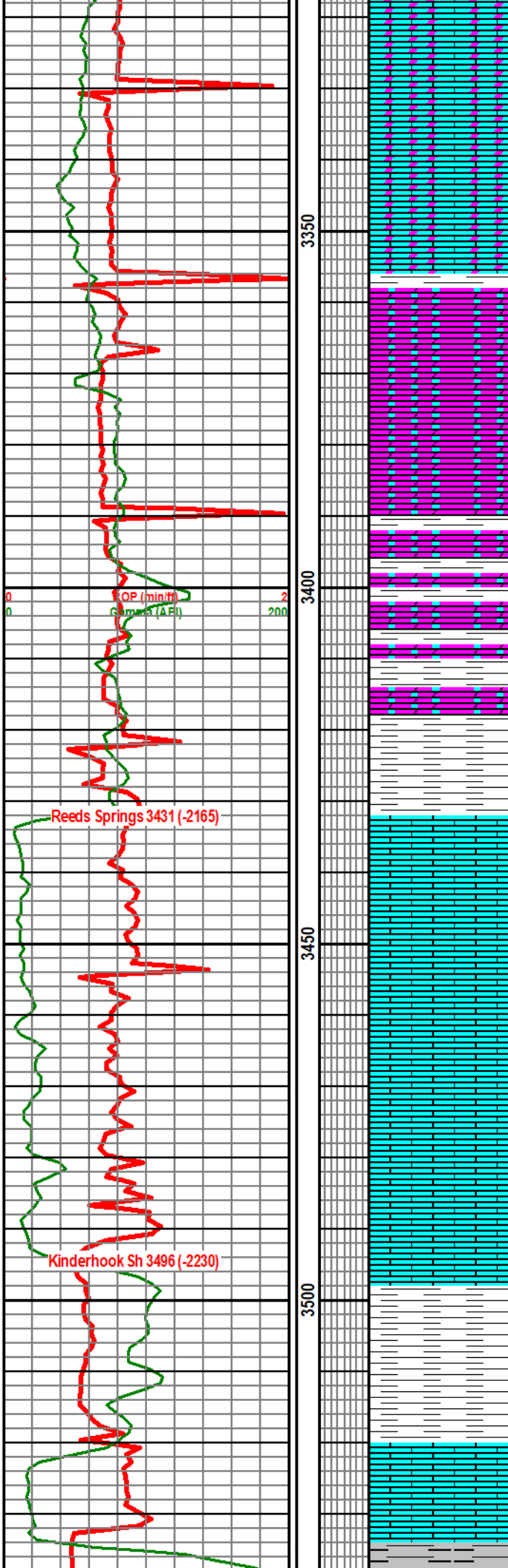
3261 9.3WT, 49VIS, 4# LCM

3293 Ls, whcrm, f-mxln, p visO, 4 pcs yel flour; Ls, dk gry, m xln, xl ind, vry dull y lw flour



H-B 33-2 3293.jpg H-B 33-2 3293-1.jpg

3325 Ls, dk gry-blk, mxln, dolm, fxlnO, xl incl, lt cut after 20min, on top of smpl NS; Ls crm, fxln, xl inc, 1 pc flour, sli gassy odor,



H-B 33-2 3325.jpg



H-B 33-2 3325-1.jpg

3356 Ls, dk gry, dolm, fxl, pvisO, ltgsy odor, NS



H-B 33-2 3356.jpg

3388 Dol, dk gry, lmy, f-mxln, pvisO, NS



H-B 33-2 3388.jpg

3420 Sh, gry, silty; dol, gry, f-vyfxln, p visO, NS



H-B 33-2 3420.jpg



H-B 33-2 3420-2.jpg

3420, 9.3WT,44VIS,4# LCM

3452 Ls drk gry, dense finextln, ns



H-B 33-2 3420.jpg

3484 Ls, wh med xtn mineral flor ns no odor: ls drk gry dense



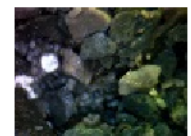
H-B 33-2 3484.jpg

3484, 9.3WT 47VIS, 4# LCM

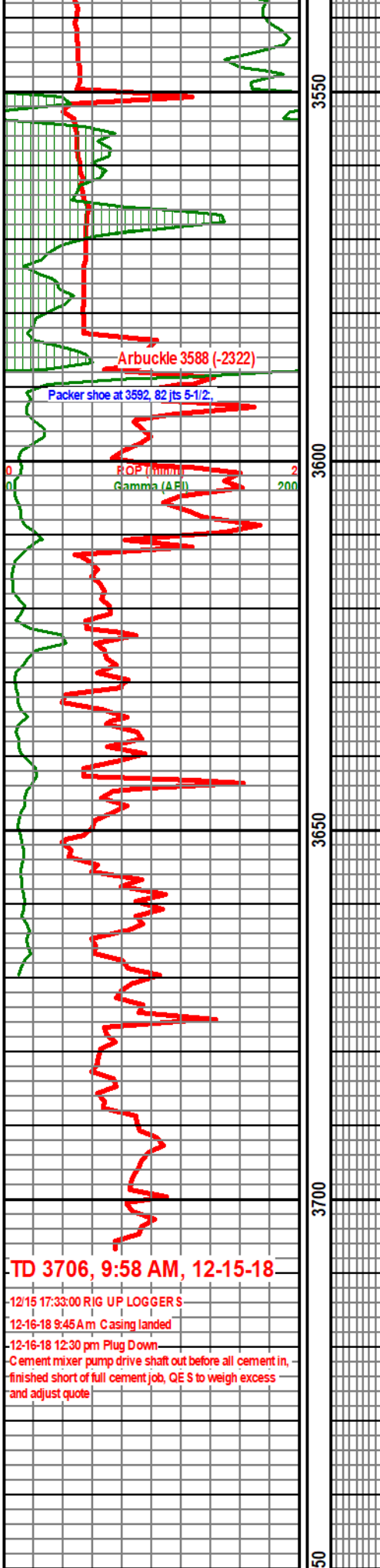
3515 Ls, lt gry, md xln, hard ns, no odor,

Fud Mud check 3518, 9.5#, 42 Vis, pH 9.5, 5# LCM

3547 Ls, crm, lt gry, fxl, p-n visO, NS; Sh lt gry, sft



H-B 33-2 3547.jpg



3579 Ls, brn, fm xln, xl incl, pvio, fnt odor NS; few pcs Sd, wh, f grn, sub ang, pIGO

3611 Sh, lt gry, sft; Sh Blk, pyr



H-B 33-2 3611.jpg

3643 Sh, Blk, pyr; Dol, crm, gry, m-cs xln, chty, fr lxnO, vy dull flour, wk odor



H-B 33-2 3643.jpg

3674 Dol, crm, lt gry, chty, pyr, frO, vy wk odor, vy dull flour.



H-B 33-2 3679.jpg

3706 Dol, crm, gry, f-mxn, f-gixInO, wk odor, vy dull flour; Cht wh, blue, frsh



H-B 33-2 3706.jpg

Survey 3706 1/2^