STEP energy services

COMPOSITE LOG

Company BEREXCO, LLC
Well HINES UNIT #26X
Field FAIRPORT
County RUSSELL
State KANSAS
Country USA
API No. 15-167-24097-00-00

File No : HAYS-70386
Company : BEREXCO, LLC
Well : HINES UNIT #26X
Field : FAIRPORT
County : RUSSELL
State : KANSAS
Country : USA
API No : 15-167-24097-00-00

Location :
200' FNL & 440' FWL
NE NW NW NW

LSD : **Sect :** 16 **Twp :** 11S **Rge :** 15W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	1942.00 Ft	CNT	CST
Log Measured From:	KB	**DF**	1941.00 Ft	LDT	PIT
Above Permanent Datum:	6.00 Ft	**GL**	1936.00 Ft	MST	

Date	11-20-2019						
Run Number	0						
Depth--Driller	3550.0	Ft					
Depth--Logger	3550.0	Ft					
First Reading	3549.0	Ft					
Last Reading	264.0	Ft					
Casing--Driller	264.0	Ft					
Casing--Logger	264.0	Ft					
Bit Size	7.875	In					
Casing Size	8.625	In					
Hole Fluid Type	CHEMICAL						
Density	9.0						
Fluid Loss	8.0						
PH/Viscosity	9.5	64.0					
Sample Source	MEASURED						
RM@Measured Temp.	1.500	@ 60 F					
RMF@Measured Temp	1.280	@ 60 F					
RMC@Measured Temp.	1.730	@ 60 F					
Source RMF/RMC	CALCULATED	CALCULATED					
RM@BHT	0.930	@ 101 F					
Time Circulation Stopped	11-20-2019 14:34						
Max Recorded Temp.	101	F					
Equipment/Base	TRK-137	HAYS					
Recorded By	B.BAILEY						
Witnessed By	J.SMITH						

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	3550.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	32.00	264.00	0.00

Run Number	0
Date	11-20-2019
Date/Time On Bottom	11-20-2019 15:34
Depth to Fluid	0.0 Ft
Salinity	0.000
RMF@BHT	0.790 @ 101 F
RMC@BHT	1.070 @ 101 F

Run Number 0

Comments

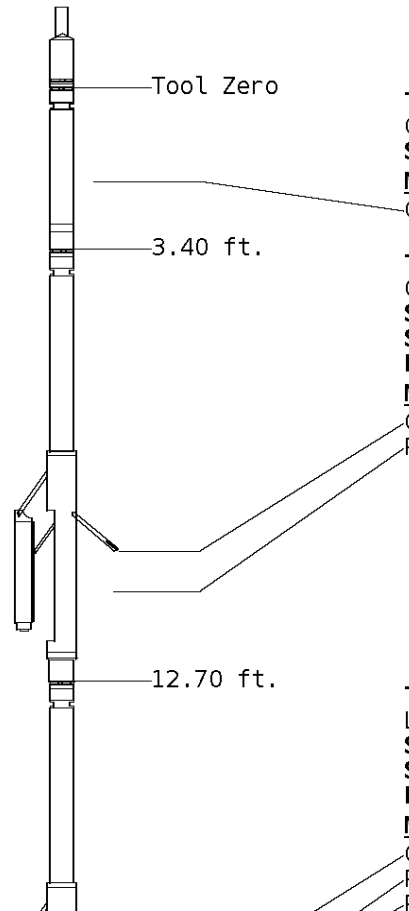
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT, CST, AND PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING
PHIN IS CALIPER CORRECTED

GRT: GRP.
CNT: PHIN, CLCNIN.
LDT: PORL, LCORN, PECLN, LDENN, CLLDIN.
CST: PORS, ITT, CDTF, TT1, TT2, TT3, TT4.
PIT : ILD,ILM,SPU,SFLAEC,CIRD,RXO/RT

OPERATORS:
D.RAGSDALE
J.VAUGH
D.LEGLEITER

Tool String Schematic

Total Tool Length - 67.37 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 1171.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BC-038

Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	65.37

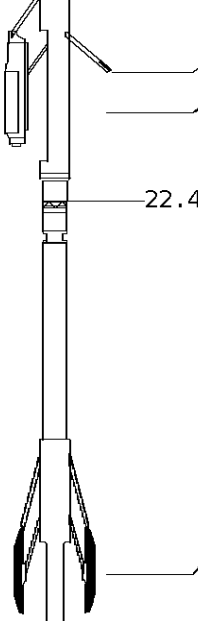
Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-AF-104
Source ID :N-1104
Pad ID :CNP-AE-41

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	57.97
PHIN	6.80	10.20	57.17

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :NDT-FA-404
Source ID :1637GW
Pad ID :LDP-DA-062

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	48.25
PEL	7.42	20.12	47.25
PES	7.82	20.52	46.85

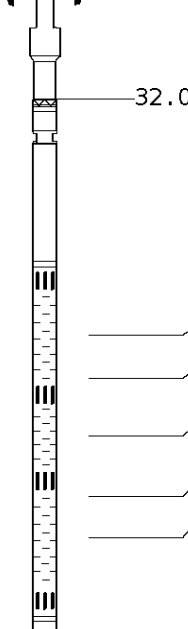
LDEN	7.62	20.32	47.05
LCOR	7.62	20.32	47.05



22.42 ft.

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC,D)
Sonde ID :MST-DA-13

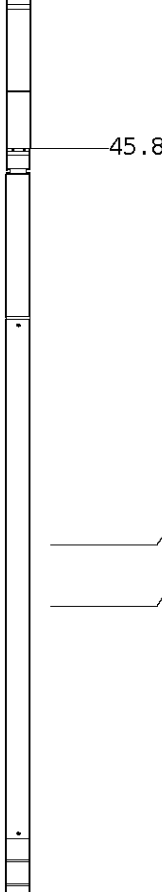
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	37.35
MSCLP	7.60	30.02	37.35
INV	7.60	30.02	37.35
NOR	7.60	30.02	37.35



32.08 ft.

Tool: CST-AD **Length:** 13.80 **ft.** **O.D.** 3.60 **in.**
Open Hole Sonic
Sonde ID :CST-AD-043

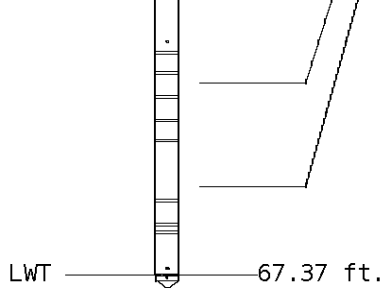
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	36.88	30.49
TT3	5.80	37.88	29.49
CDT	7.30	39.38	27.99
TT4	8.80	40.88	26.49
TT2	9.80	41.88	25.49



45.88 ft.

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AC-043

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.80	12.56
ILM	10.10	55.98	11.39
SFLU	17.49	63.37	4.00
SP	20.60	66.48	0.88



Well File: BEREXCO-HINES-26X_NOV20-QST
Segment: V1.D2.S8 Reprocess MAIN
Reference: 0

Scale: 1:240 **Format:** COMSAT
Acquired: 2019-11/20 16:48 3.4.1-13972
Processed: 2019-11/20 18:43 3.4.1-13972

CALIPER MICRO INCHES (IN)
16 — 26
6 — 16

BIT SIZE INCHES (IN)
6 — 16

NEUTRON (Y) CALIPER INCHES (IN)
16 — 26
6 — 16

DENSITY (X) CALIPER INCHES (IN)
16 — 26
6 — 16

TENSION LBS
10000 — 0

SPONTANEOUS POTENTIAL mV
→ | |← 20

GAMMA RAY API UNITS
150 — 300
0 — 150

Volume Quartz
Volume Calcite
Volume Dolo/Shale
BHV AHV- CU.FT

SHALLOW FOCUSED RESISTIVITY OHMM
0.2 — 2000.0

DEEP INDUCTION OHMM
0.2 — 2000.0

MEDIUM INDUCTION OHMM
0.2 — 2000.0

NORMAL OHMM
0 — 40

INVERSE OHMM
0 — 40

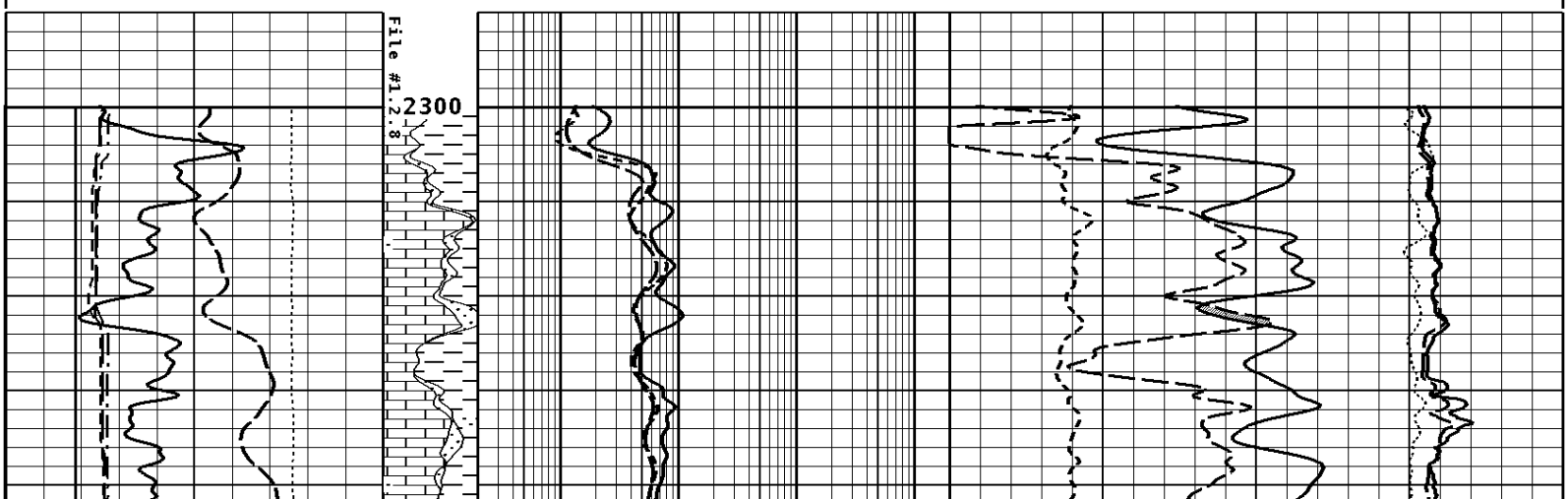
DENSITY CORRECTION G/CC
-0.75 — 0.25

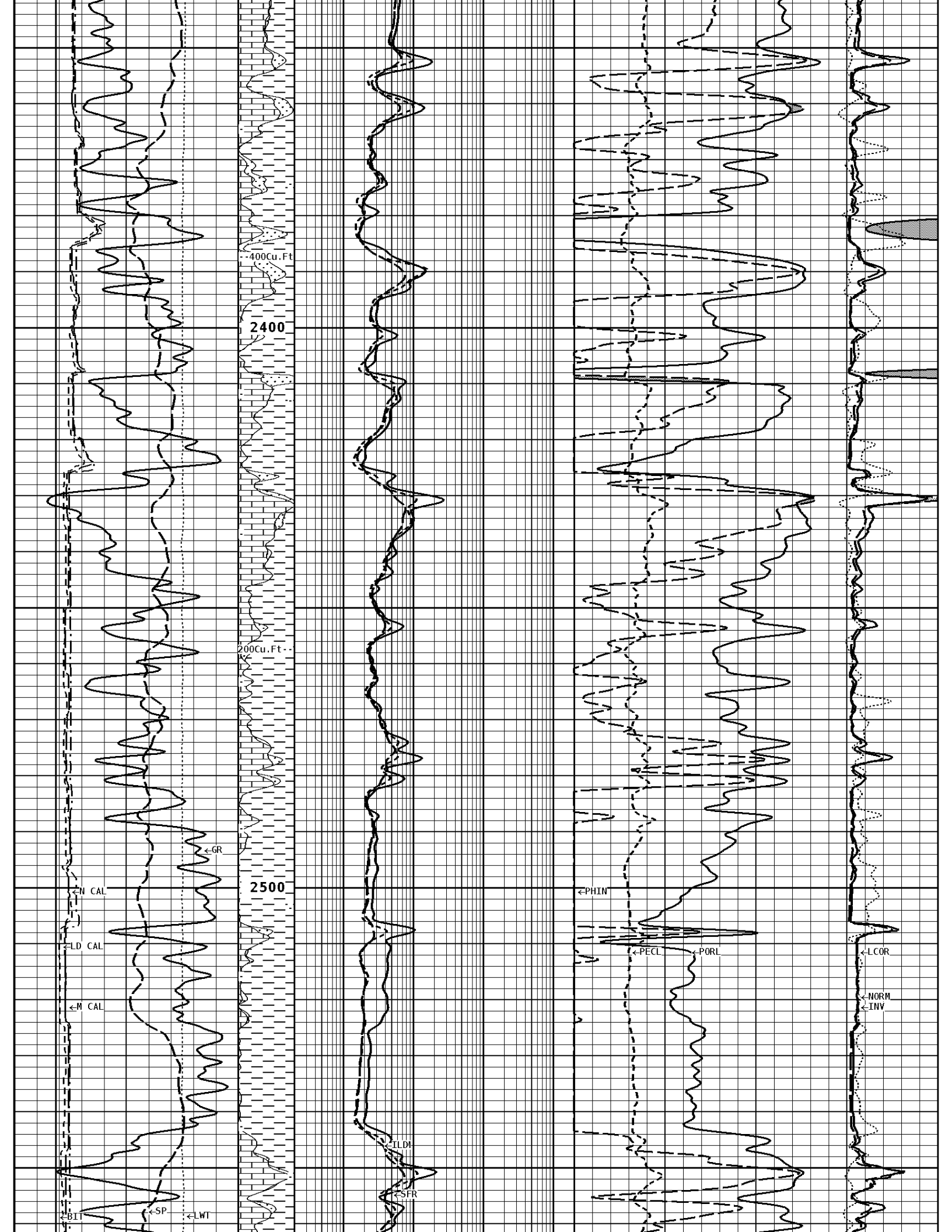
PE CROSS-SECTION BARNS/ELECTRON
0 — 20

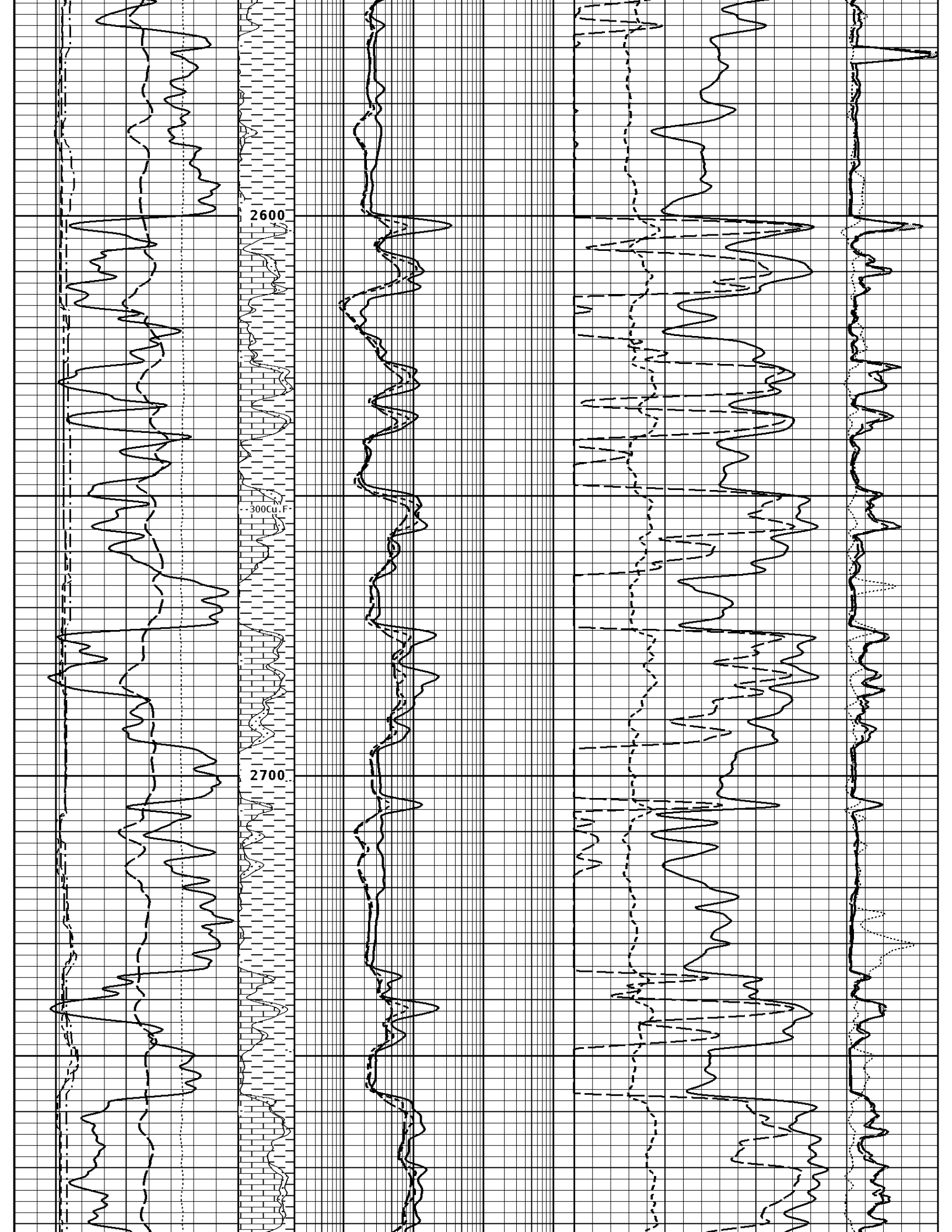
DENSITY POROSITY (2.71g/cc) PERCENT
70 — 30
30 — -10
-10 — -50

NEUTRON POROSITY (LIMESTONE) PERCENT
30 — -10

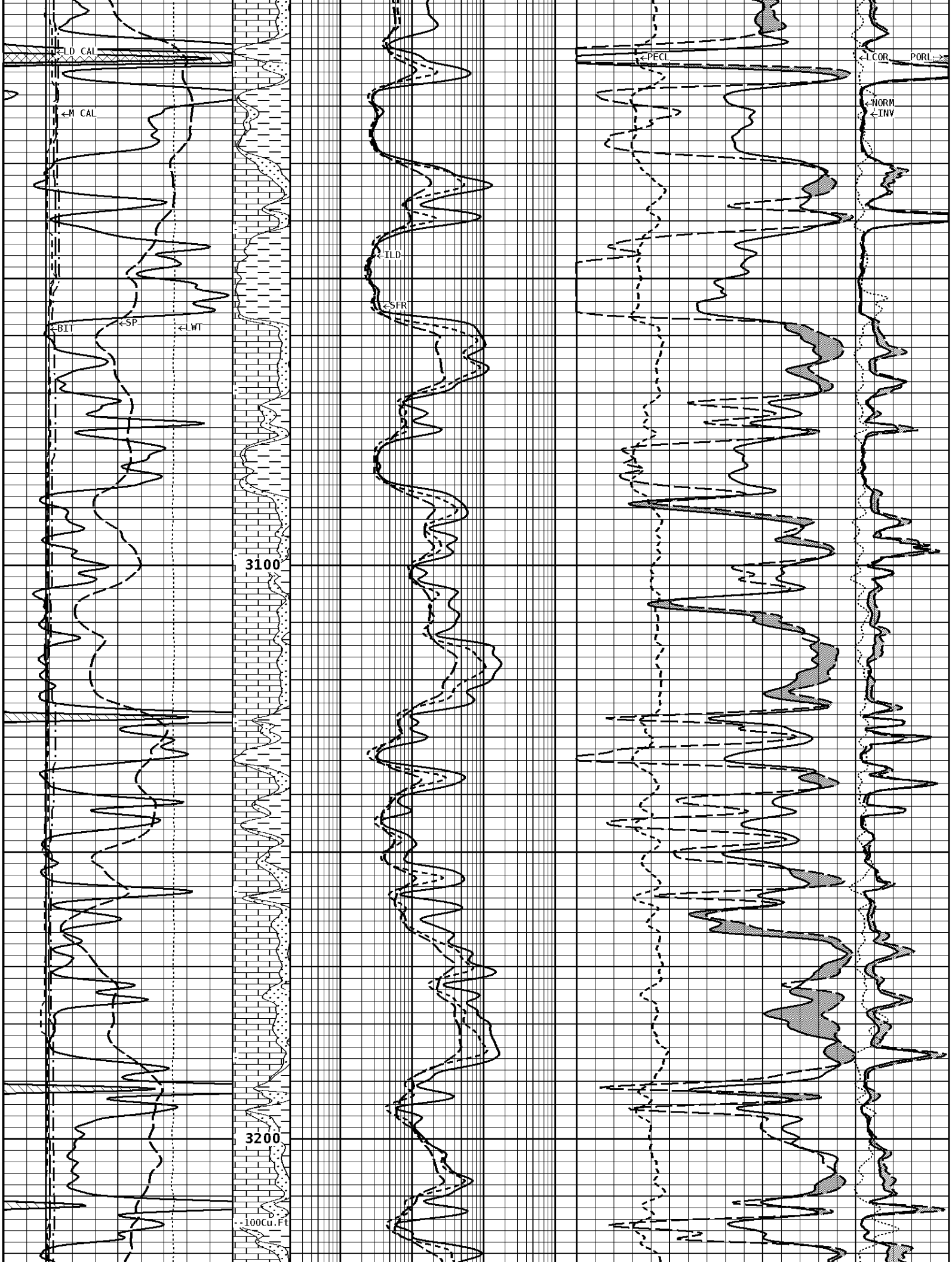
1:240 MAIN SECTION

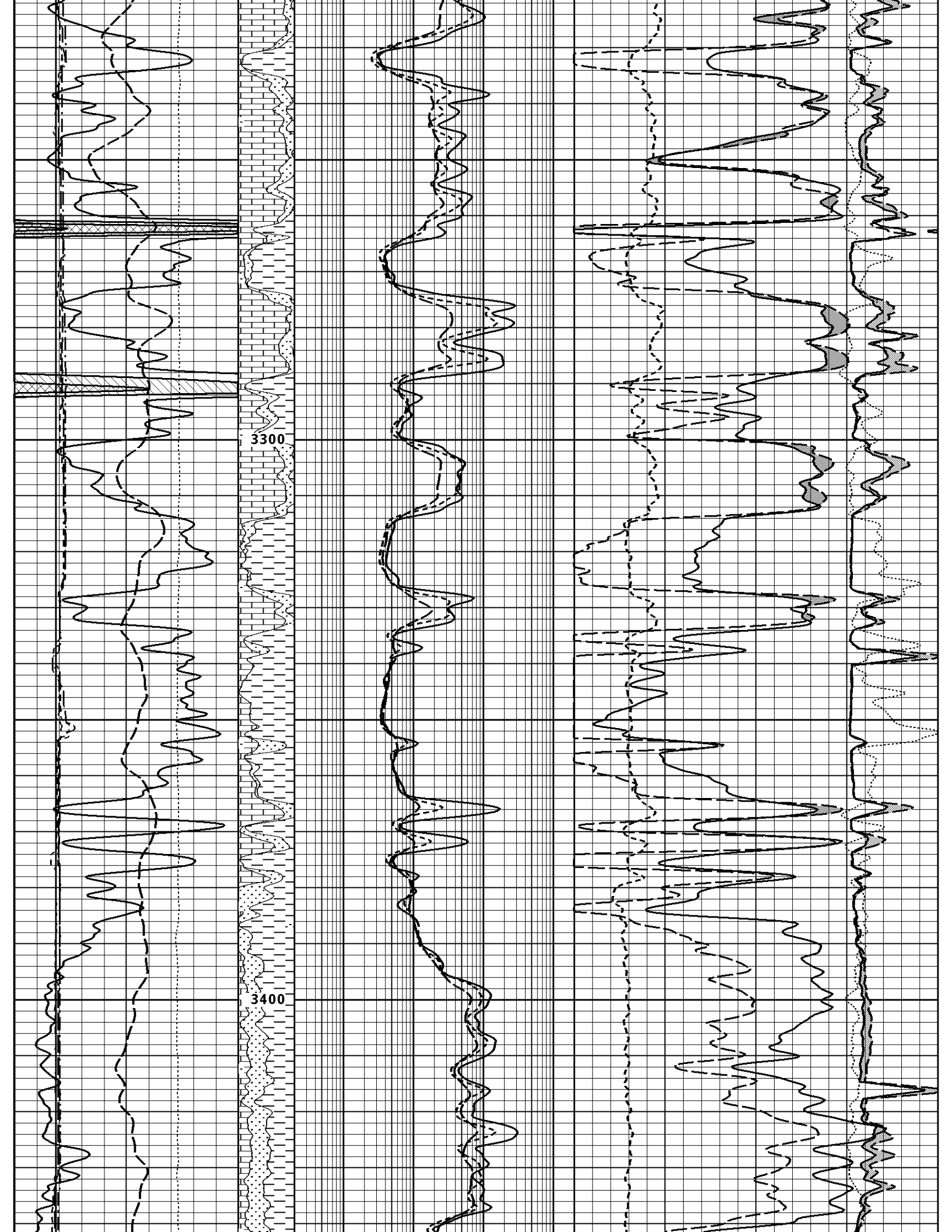


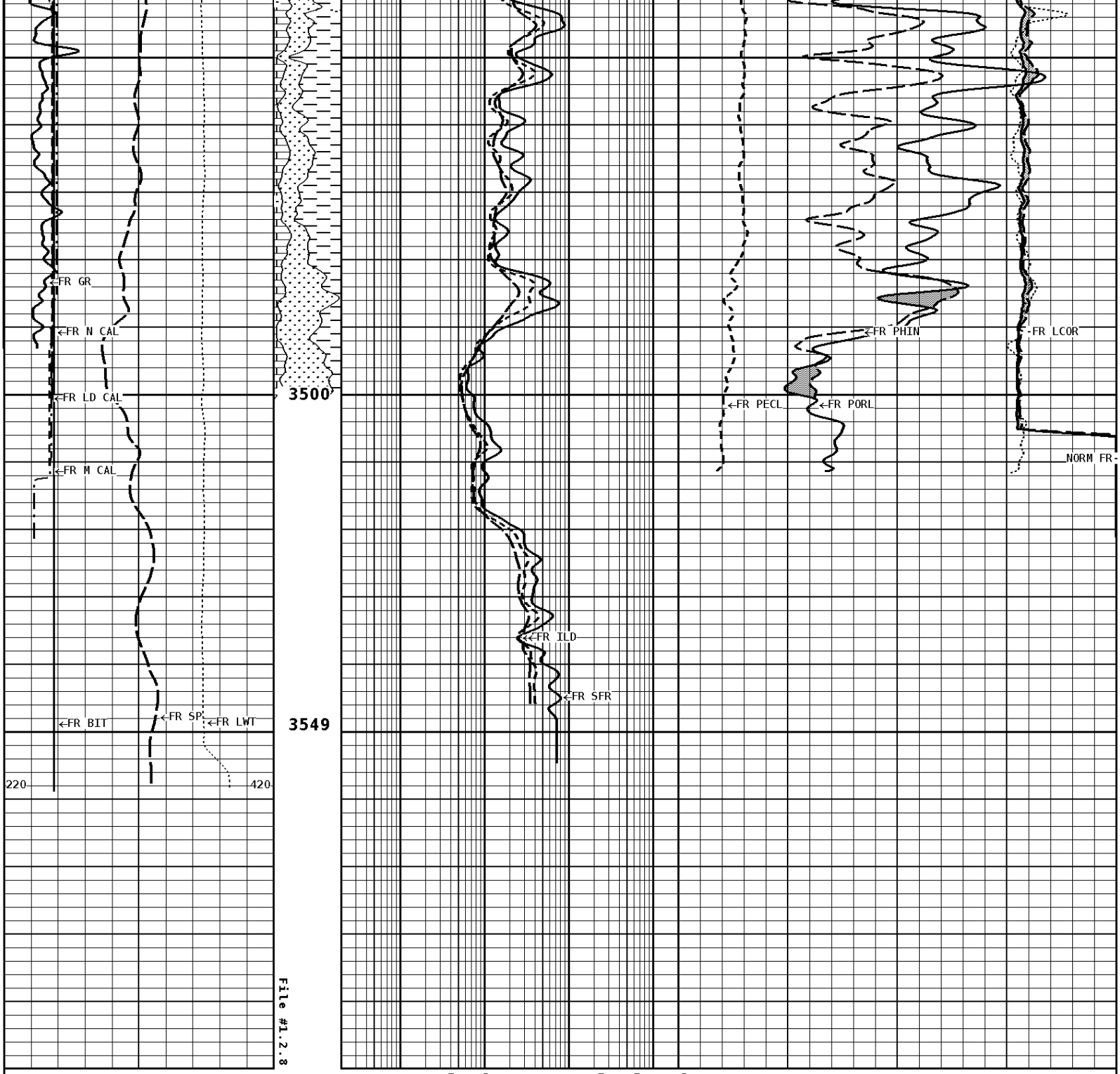

400Cu.Ft
2400
200Cu.Ft
GR
N CAL
2500
LD CAL
M CAL
BIT
SP
LWT
ILDI
SFR
PHIN
PECL
PORL
LCOR
NORM
INV


2600
300Cu.F
2700


2800
2900
200Cu.Ft
100Cu.Ft
←GR
←N CAL
3000
←PHIN


←LD CAL
←M CAL
←BIT
←SP
←LWT
←ILD
←SFR
←PECL
←LCOR
PORL→
←NORM
←INV
3100
3200
100Cu.Ft


3300
3400



1:240 MAIN SECTION

GAMMA RAY API UNITS	-BHV AHV- CU.FT	MEDIUM INDUCTION OHMM	NEUTRON POROSITY (LIMESTONE) PERCENT
150 300 0 150		0.2 2000.0	30 -10
SPONTANEOUS POTENTIAL mV	Volume Dolo/Shale	**DEEP INDUCTION** OHMM	**DENSITY POROSITY (2.71g/cc)** PERCENT
→| |←20		0.2 2000.0	70 30 30 -10 -10 -50
TENSION LBS	Volume Calcite	**SHALLOW FOCUSED RESISTIVITY** OHMM	**PE CROSS-SECTION** BARNS/ELECTRON
10000 0		0.2 2000.0	0 20

DENSITY (X) CALIPER
INCHES (IN)
16 26
6 16

Volume
Quartz

DENSITY CORRECTION
G/CC
-0.75 0.25

NEUTRON (Y) CALIPER
INCHES (IN)
16 26
6 16

INVERSE
OHMM
0 40

BIT SIZE
INCHES (IN)
6 16

NORMAL
OHMM
0 40

CALIPER MICRO
INCHES (IN)
16 26
6 16

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Matrix Transit Time	47.5	us/ft
Fluid Transit Time	189.0	us/ft
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	3550.000	ft
Borehole Temperature	95.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.500	ohmm
MSTNG Normal Correction	0.00	ohmm
MSTNG Inverse Correction	0.50	ohmm

Well File: BEREXCO-HINES-26X_NOV20-QST **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D2.S6 Reprocess REPEAT **Acquired:** 2019-11/20 16:30 3.4.1-13972
Reference: 0 **Processed:** 2019-11/20 18:40 3.4.1-13972

CALIPER MICRO
INCHES (IN)
16 26
6 16

BIT SIZE
INCHES (IN)
6 16

NORMAL
OHMM
0 40

NEUTRON (Y) CALIPER
INCHES (IN)
16 26
6 16

INVERSE
OHMM
0 40

DENSITY (X) CALIPER
INCHES (IN)
16 26
6 16

Volume
Quartz

DENSITY CORRECTION
G/CC
-0.75 0.25

TENSION
LBS
10000 0

Volume
Calcite

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

PE CROSS-SECTION
BARNS/ELECTRON
0 20

SPONTANEOUS POTENTIAL
mV
→| |←20

Volume
Dolo/Shale

DEEP INDUCTION
OHMM
0.2 2000.0

DENSITY POROSITY (2.71g/cc)
PERCENT
70 30
30 -10
-10 -50

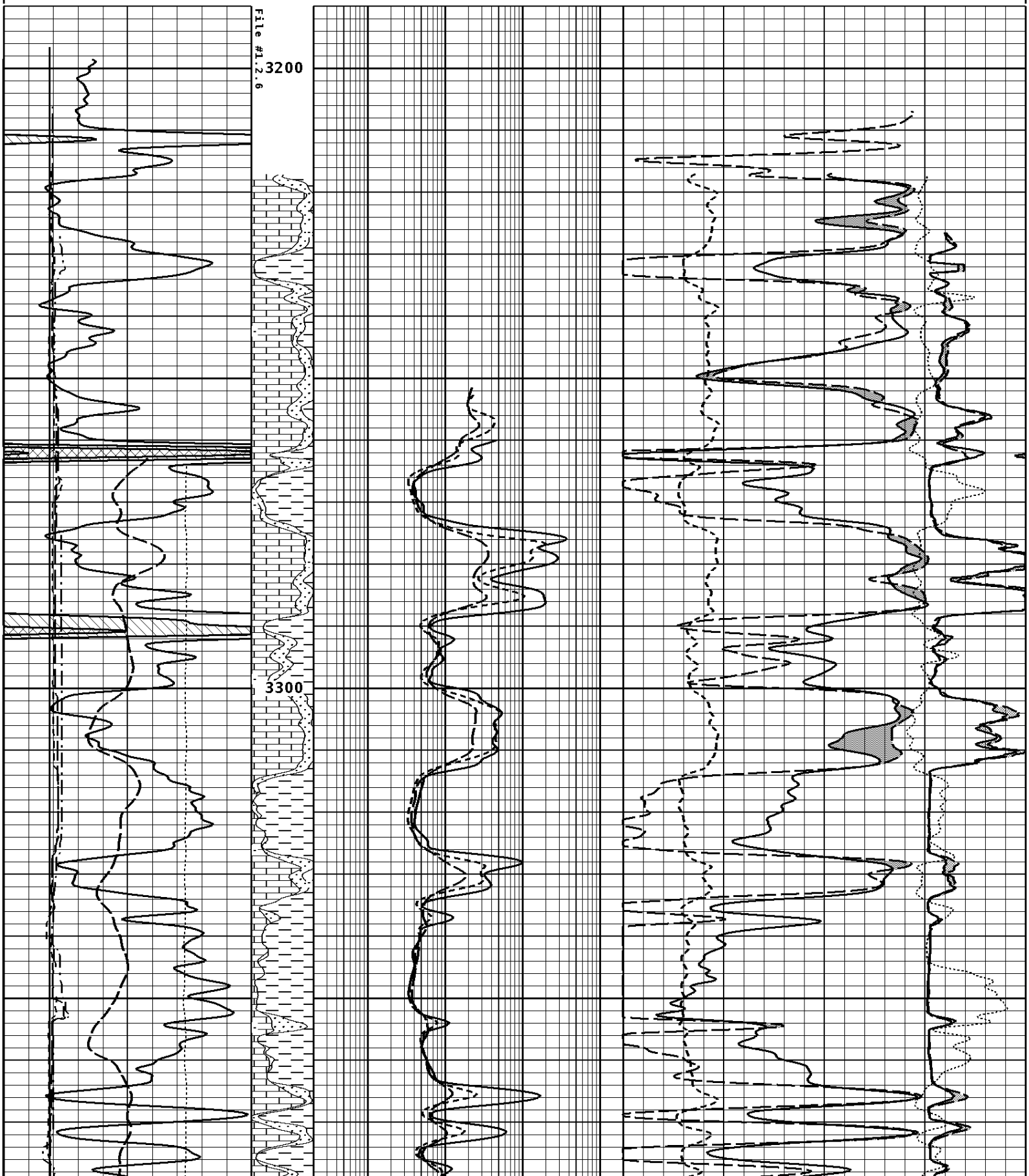
GAMMA RAY
API UNITS
150 300
0 150

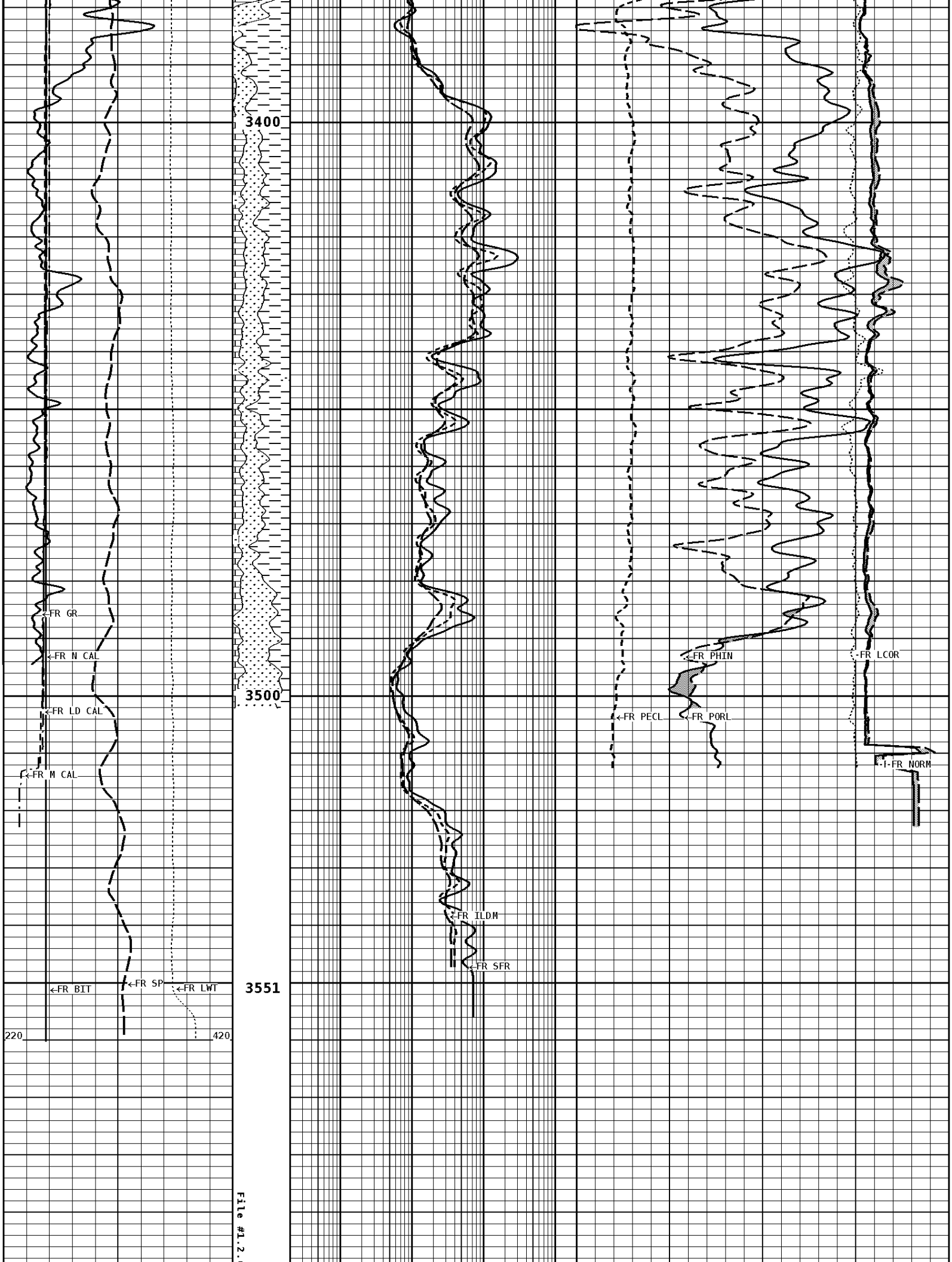
BHV AHV
CU.FT

MEDIUM INDUCTION
OHMM
0.2 2000.0

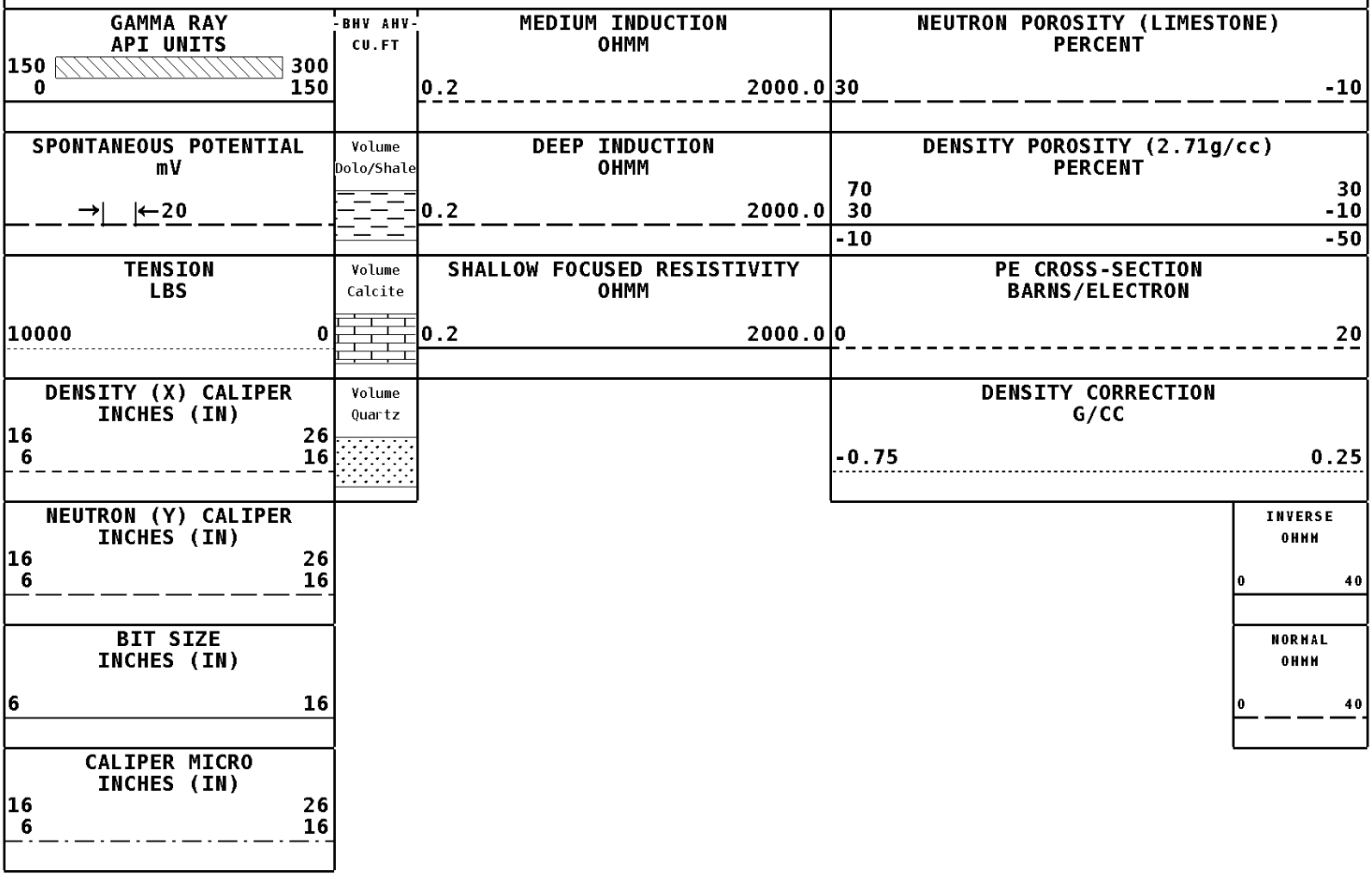
NEUTRON POROSITY (LIMESTONE)
PERCENT
30 -10

1:240 REPEAT SECTION




3400
3500
3551
FR GR
FR N CAL
FR LD CAL
FR M CAL
FR BIT
FR SP
FR LWT
220
420
FR ILDM
FR SFR
FR PHIN
FR PECL
FR PORL
FR LCOR
I-FR NORM
File #1.2.

1:240 REPEAT SECTION



*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Matrix Transit Time	47.5	us/ft
Fluid Transit Time	189.0	us/ft
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	-0.650	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	3550.000	ft
Borehole Temperature	95.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.500	ohmm
MSTNG Normal Correction	0.00	ohmm
MSTNG Inverse Correction	0.00	ohmm

*** Calibration Summary ***

Shop Calibration
GRT-B

Performed : 24-JUN-2019 Time : 12:20
Sensor Suite : GR-GR5 ID : GRT-BC-038

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	36	266	CPS	160	GRAPI

Shop Calibration
CNT-AA

Performed : 03-Jun-2019 Time : 11:06
Sensor Suite : CALI-BCN ID : NDT-AF-104

	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	8.3	13.2	6.0	12.0	IN.

Performed : 18-SEP-2019 Time : 16:10
Sensor Suite : BHC NEUT ID : CNP-AE-41
Source ID : N-1104

	Tank		Verification	Units
	Measured	Calibrated	Jig	
N/F	3.7537	3.6893	3.6964	
Porosity	21.5	20.5	20.6	%

Shop Calibration
LDT-DF

Performed : 03-Jun-2019 Time : 14:53
Sensor Suite : CALI-LTH ID : NDT-FA-404

	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	8.3	13.2	6.0	12.0	IN.

Performed : 18-SEP-2019 Time : 12:05
Sensor Suite : BHCPELNG ID : LDP-DA-062
Source ID : 1637GW

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	65	1048	1693	671	CPS
LSW2	68	1209	1923	869	CPS
LSW3	248	2723	4386	2317	CPS
LSW4	304	2339	3355	2060	CPS
LSW5	27	46	51	43	CPS
LSW6	87	88	86	86	CPS
LSW7	51	56	57	57	CPS
LSW8	1	3	4	3	CPS
QS	0.261	0.222	0.203	0.205	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	96	1171	4837	704	CPS
LLW2	106	2047	8062	1488	CPS
LLW3	404	3698	14047	3196	CPS
LLW4	517	1760	5509	1595	CPS
LLW5	59	67	114	66	CPS
LLW6	161	160	148	159	CPS
LLW7	108	104	99	106	CPS
LLW8	4	7	17	6	CPS
QL	0.195	0.215	0.198	0.198	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 22-OCT-2014 Time : 09:27
Sensor Suite : CALI-MSN ID : MST-DA-13

	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	6.6	11.6	6.0	12.0	IN.

Performed : 22-OCT-2014 Time : 09:20
Sensor Suite : MSTDA-NI ID : MST-DA-13

Internal

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	29663.4		0.00	1846.00	MV
NOR-V	5.5	29968.6		0.00	1346.00	MV
IN-C	0.0	60262.5		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Shop Calibration
CST-AD

Performed : 28-DEC-2018 Time : 10:32
Sensor Suite : SON-ANA ID : CST-AD-043

Transit Time

Transit Time

T/R Pair	Measured	Calibrated	Units
T1R1	208.5	208.5	uS
T2R2	208.5	208.5	uS
T1R2	322.5	322.5	uS
T2R1	322.5	322.5	uS

Amplitude

T/R Pair	Measured	Calibrated	Units
T1R1	90.00	90.00	mV
T2R2	90.00	90.00	mV
T1R2	78.00	78.00	mV
T2R1	78.00	78.00	mV

Shop Calibration
PIT-CA

Performed : 10-MAY-2019 Time : 11:27
Sensor Suite : P-IND-T ID : PIT-AC-043

Medium

	Measured		Calibrated		
	R	X	R	X	Units
Air	131492	129685	0.0	0.0	MMHOS
Zero	131066	131062	-18.1	59.6	MMHOS
Reference	244915	244454	4981.9	5059.6	MMHOS
Loop	130404	210498	3515.7	3611.2	MMHOS
Sonde Error			-0.5	-1.7	MMHOS
Cond			4981.9	5059.6	MMHOS

Deep

	Measured		Calibrated		
	R	X	R	X	Units
Air	131939	129230	0.0	-0.0	MMHOS
Zero	131079	131067	-15.6	35.3	MMHOS
Reference	220620	224092	1984.4	2035.3	MMHOS
Loop	129308	206166	1595.4	1712.8	MMHOS
Sonde Error			-0.6	-7.8	MMHOS
Cond			1984.4	2035.3	MMHOS

Temperature

Measured		Calibrated		
Low	High	Low	High	Units
16980.0	56920.0	70.0	350.0	DEGF

Performed : 10-May-2019 Time : 14:03
Sensor Suite : SFL ID : PIT-AC-043

Internal

Measured		Calibrated		
Zero	Reference	Zero	Reference	Units
Im	32732.6	48929.1	0.0	7028.0	uA
Ib	32768.6	49680.1	0.0	1750.0	mA
MOM1	32722.0	56290.6	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

Performed : 10-MAY-2019 Time : 11:16
Sensor Suite : P-SP ID : PIT-AC-043

Internal

Measured		Calibrated		
Zero	Reference	Zero	Reference	Units
32774.5	58935.9	0.0	1000.0	mV

STEP energy services

Company: BEREXCO, LLC

Well: HINES UNIT #26X

Location: 200' FNL & 440' FWL

Logged: 11-20-2019

K.B. Elev: 1942.0 Ft