Tucker ENERGY SERVICES

COMPOSITE LOG

Company CHIEFTAIN OIL COMPANY INC.
Well DIEL #6
Field ROUNDUP SOUTH
County BARBER
State KANSAS
Country USA
API No. 15-00724245

File No : TUL-58479
Company : CHIEFTAIN OIL COMPANY INC.
Well : DIEL #6
Field : ROUNDUP SOUTH
County : BARBER
State : KANSAS
Country : USA
API No : 15-00724245

Location :
3058' FSL & 2996' FEL
NW SE SE NW

LSD : **Sect :** 3 **Twp :** 34S **Rge :** 11W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB** 1362.00	Ft	CNT	PIT
Log Measured From:	KB	**DF** 1361.00	Ft	LDT	
Above Permanent Datum:	10.00 Ft	**GL** 1352.00	Ft	MLT	

Date	10-21-2014			
Run Number	1			
Depth--Driller	5165.0	Ft		
Depth--Logger	5166.0	Ft		
First Reading	5166.0	Ft		
Last Reading	333.0	Ft		
Casing--Driller	329.0	Ft		
Casing--Logger	333.0	Ft		
Bit Size	7.875	In		
Casing Size	13.375	In		
Hole Fluid Type	WBM			
Density	9.3			
Fluid Loss	8.0			
PH/Viscosity	10.0	59.0		
Sample Source	MEASURED			
RM@Measured Temp.	0.900 @ 70 F			
RMF@Measured Temp	0.770 @ 70 F			
RMC@Measured Temp.	1.090 @ 70 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	0.510 @ 130 F			
Time Circulation Stopped	10-21-2014 7:30 pm			
Max Recorded Temp.	133 F			
Equipment/Base	T-126	TULSA		
Recorded By	S.K. DAVIS			
Witnessed By	D. BARKER			

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
13.375	24.00	333.00	0.00

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	5166.00

Run Number	1
Date	10-21-2014
Date/Time On Bottom	10-22-2014 12:45 am
Depth to Fluid	0.0 Ft
Salinity	6000.000
RMF@BHT	0.430 @ 130 F
RMC@BHT	0.580 @ 130 F

Run Number 1

Comments

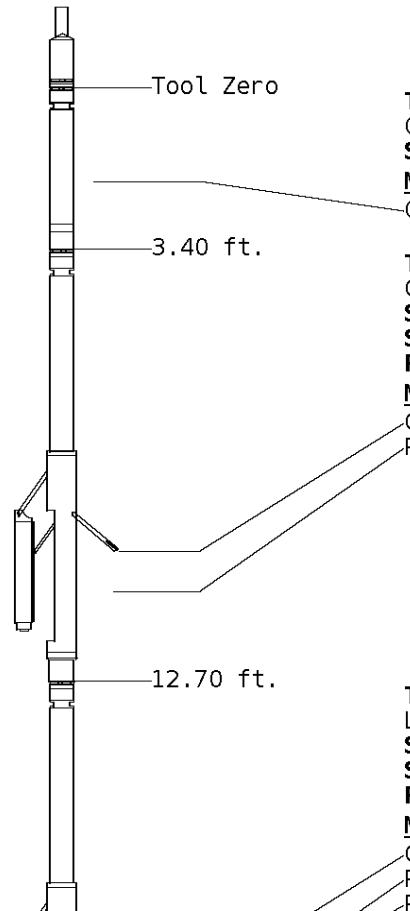
ALL PRESENTATION PER CUSTOMER REQUEST
GRT,CNT,LDT,PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR & BOREHOLE VOLUME CALCULATED USING 5.5 PRODUCTION CASING
PHIN IS CALIPER CORRECTED
DETAIL IS PRESENTED FROM TD TO 3400'
SALT/ANHYDRITE SECTION 1750' TO 1050' & 650' TO 530'
MLT CUT OFF AT 4418. NO REPEAT PER CUSTOMER REQUEST

GRT; GRP,
CNT; PHIN, CLCNIN
LDT; PORL, LCORN, PECLN, LDENN, CLLDIN
MLT; NOR.RF, INV.RF, MSCLPIN.
PIT; ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS;
M. DRUEPPEL
C. GONZALES

Tool String Schematic

Total Tool Length - 53.57 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 943.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BB-107

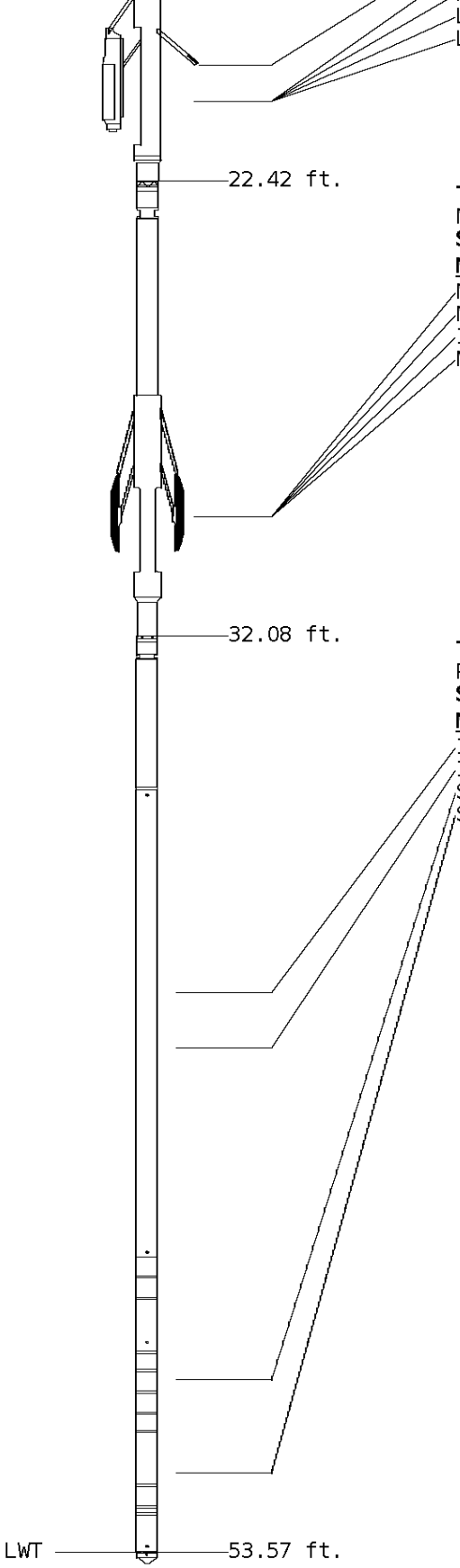
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BB-103
Source ID :N-1045
Pad ID :CNP-AA-116-

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	44.17
PHIN	6.80	10.20	43.37

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :PDT-GA-464
Source ID :2991GW
Pad ID :LDP-DA-067

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	34.45
PEL	7.42	20.12	33.45
PES	7.82	20.52	33.05



LDEN	7.62	20.32	33.25
LCOR	7.62	20.32	33.25

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC)
Sonde ID :MST-DA-26

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-CA-075

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	41.00	12.56
ILM	10.10	42.18	11.39
SFLU	17.49	49.57	4.00
SP	20.60	52.68	0.88

Well File: chief-die-6-mstk-oct-21 **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S3 MN **Acquired:** 2014-10/22 00:32 3.3.0-12702
Reference: 0 **Processed:** 2014-10/22 01:55 3.3.0-12702

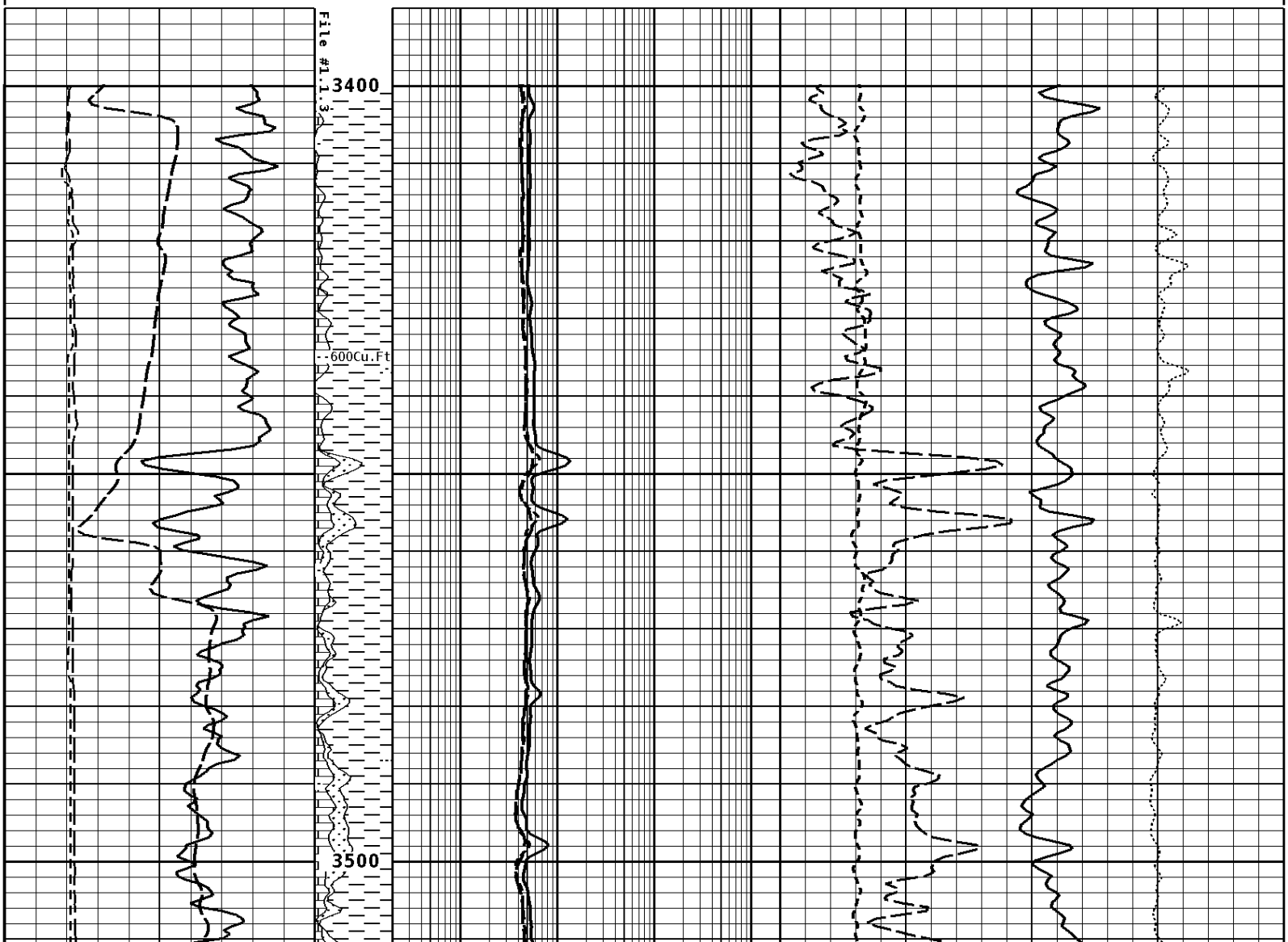
CALIPER MICRO
INCHES (IN)
16 26
6 16

BIT SIZE
INCHES (IN)

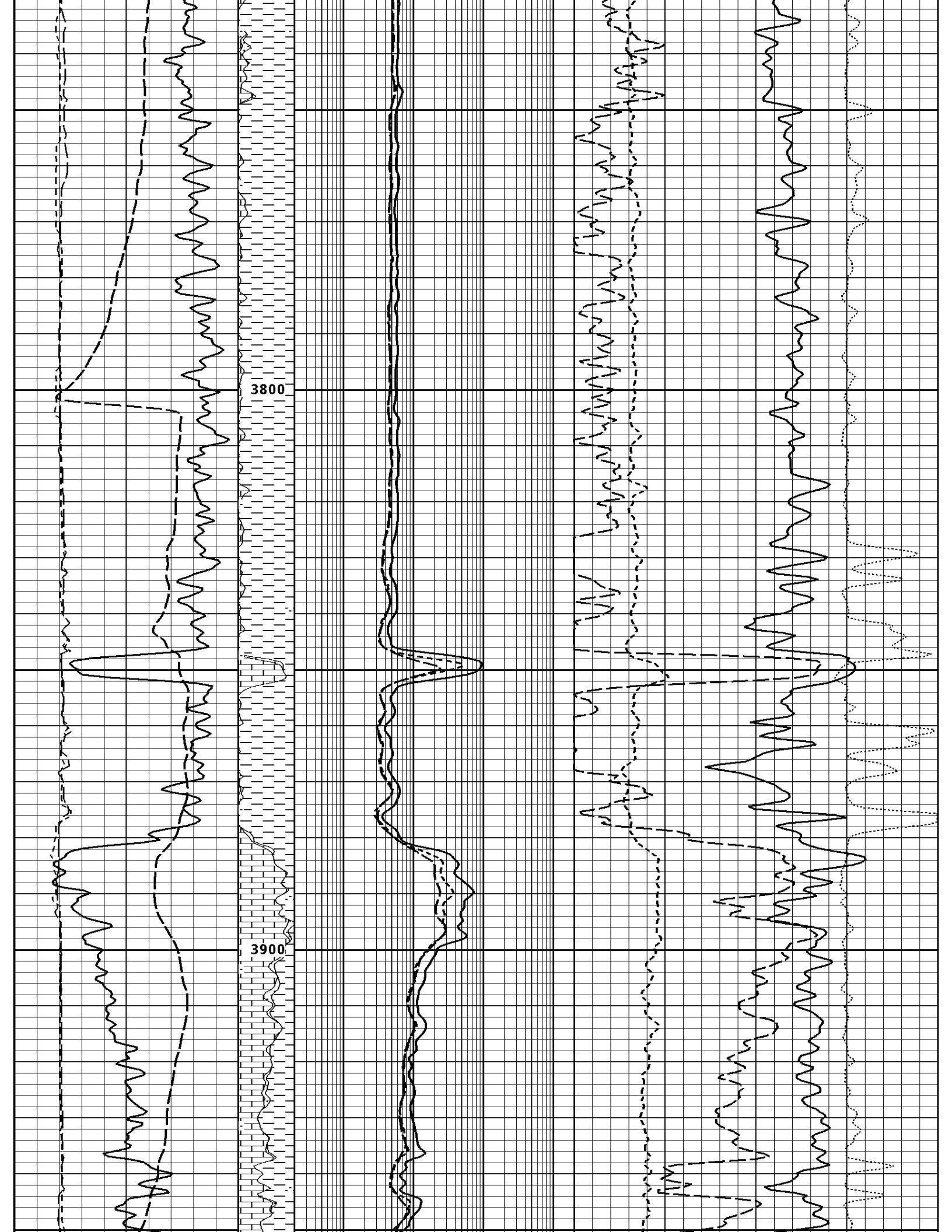
NORMAL
OHMM

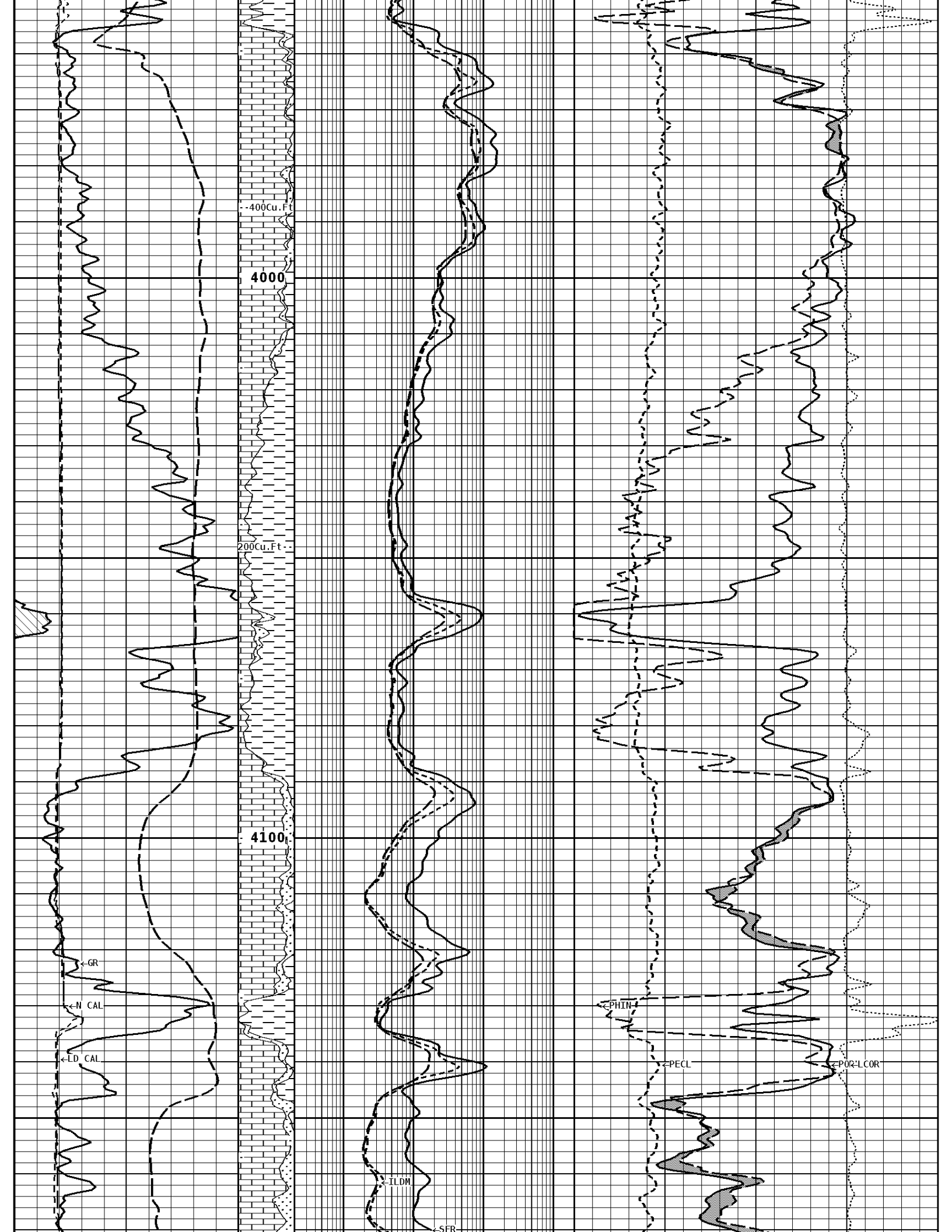
6 16			0 40
NEUTRON (Y) CALIPER INCHES (IN) 16 26 / 6 16			INVERSE OHMM 0 40
DENSITY (X) CALIPER INCHES (IN) 16 26 / 6 16	Volume Quartz		DENSITY CORRECTION G/CC -0.75 0.25
TENSION LBS 10000 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNS/ELECTRON 0 20
SPONTANEOUS POTENTIAL mV →| |←40	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

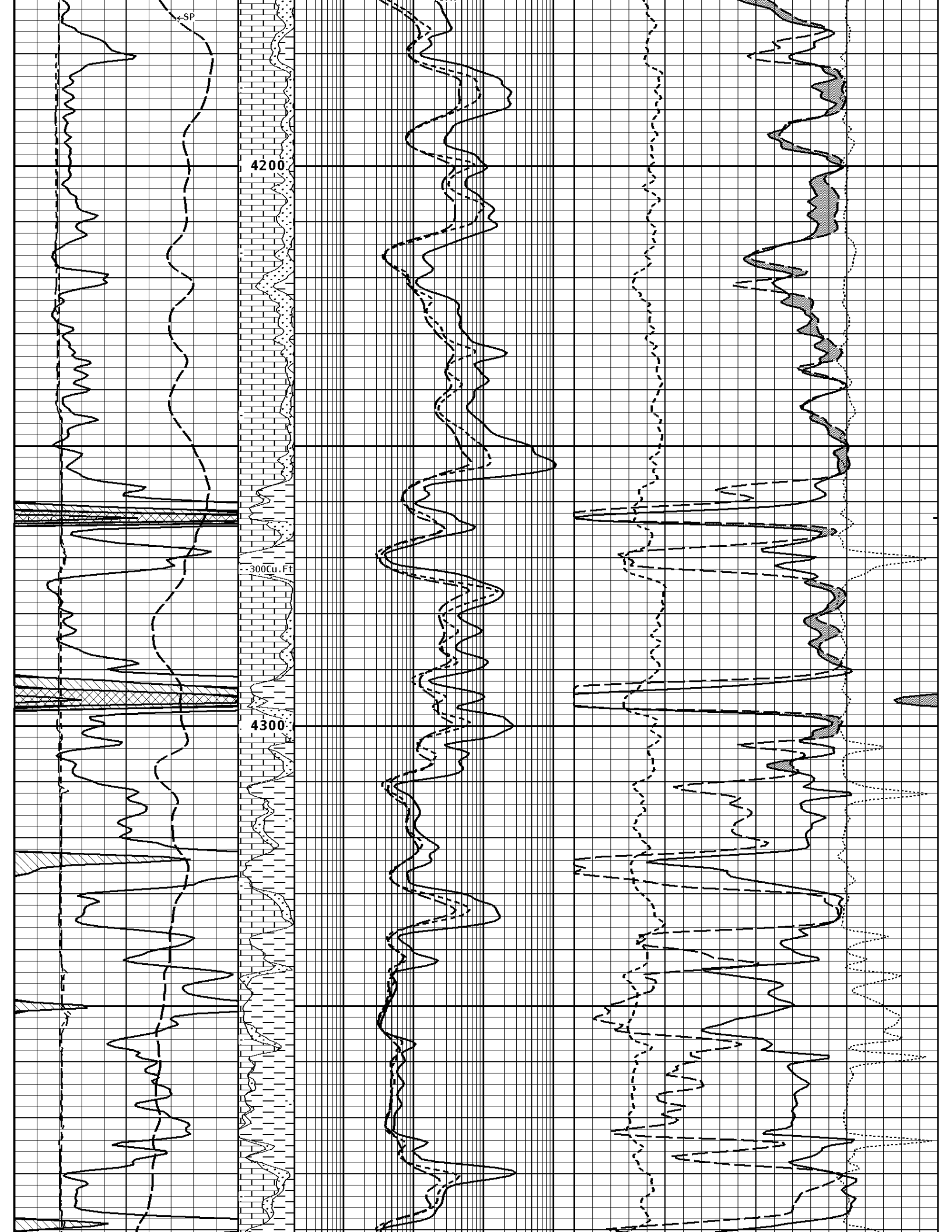
1:240 MAIN SECTION

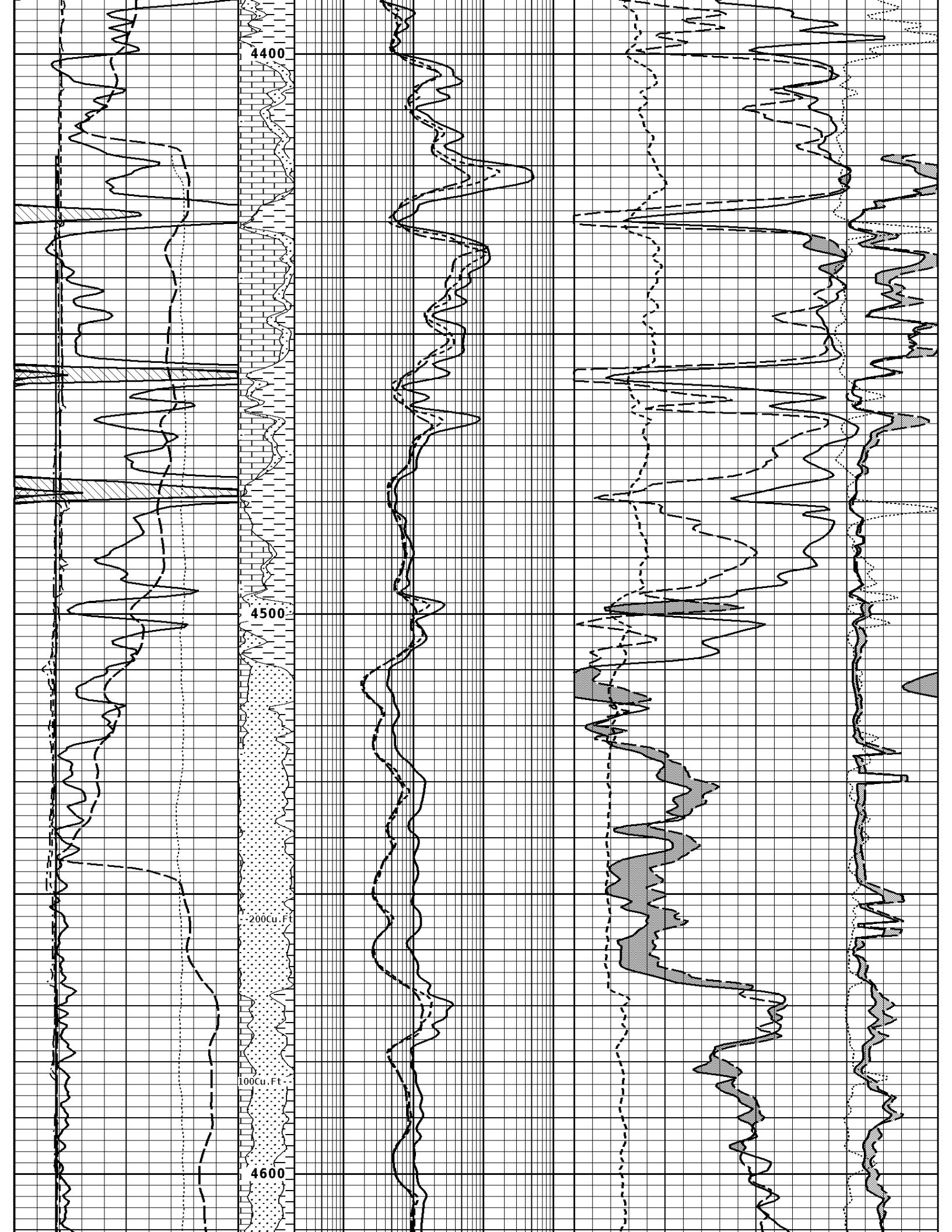



300Cu.Ft
3600
GR
N CAL
LD CAL
SP
ILD
SFR
PHIN
PECL
PORL
LCOR
3700
500Cu.Ft

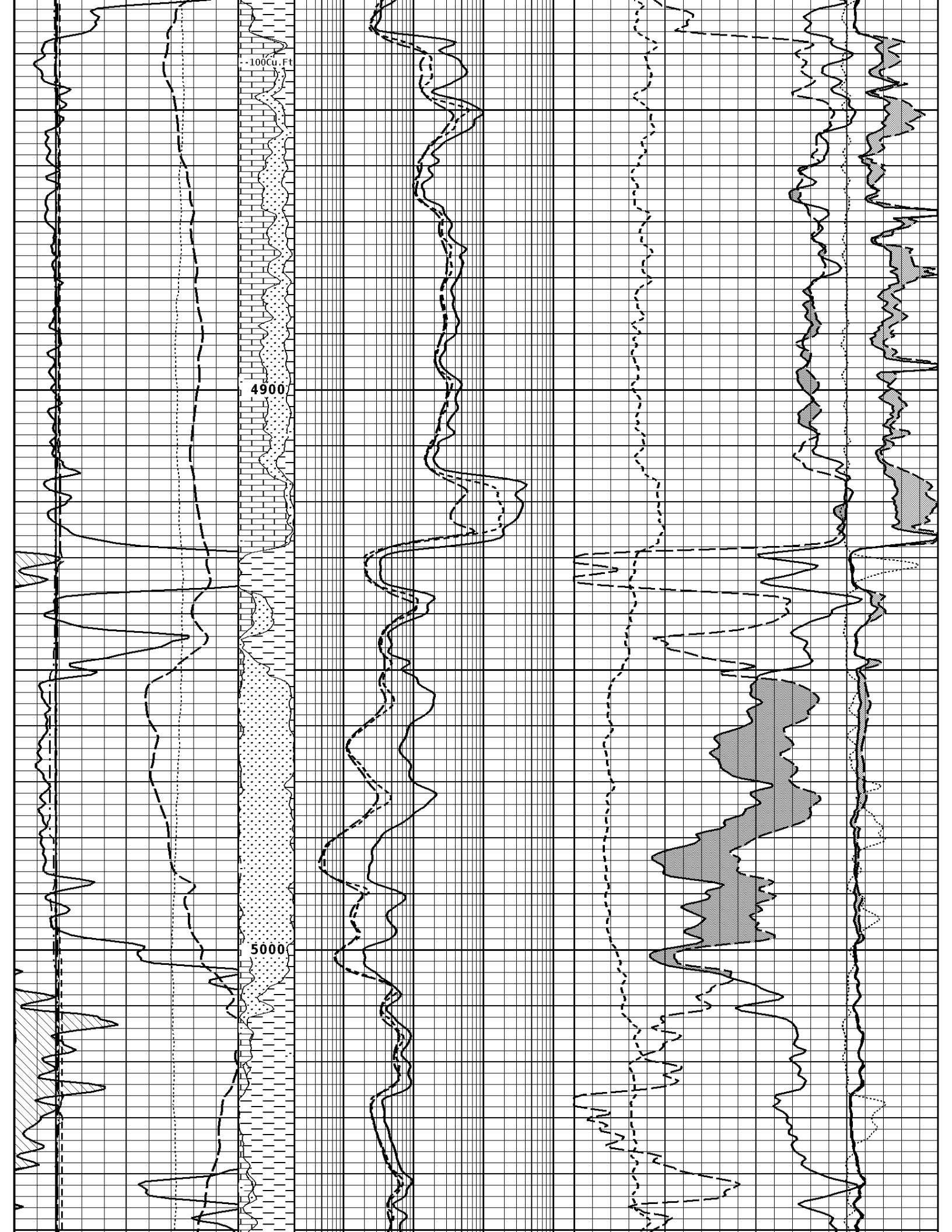

3800
3900

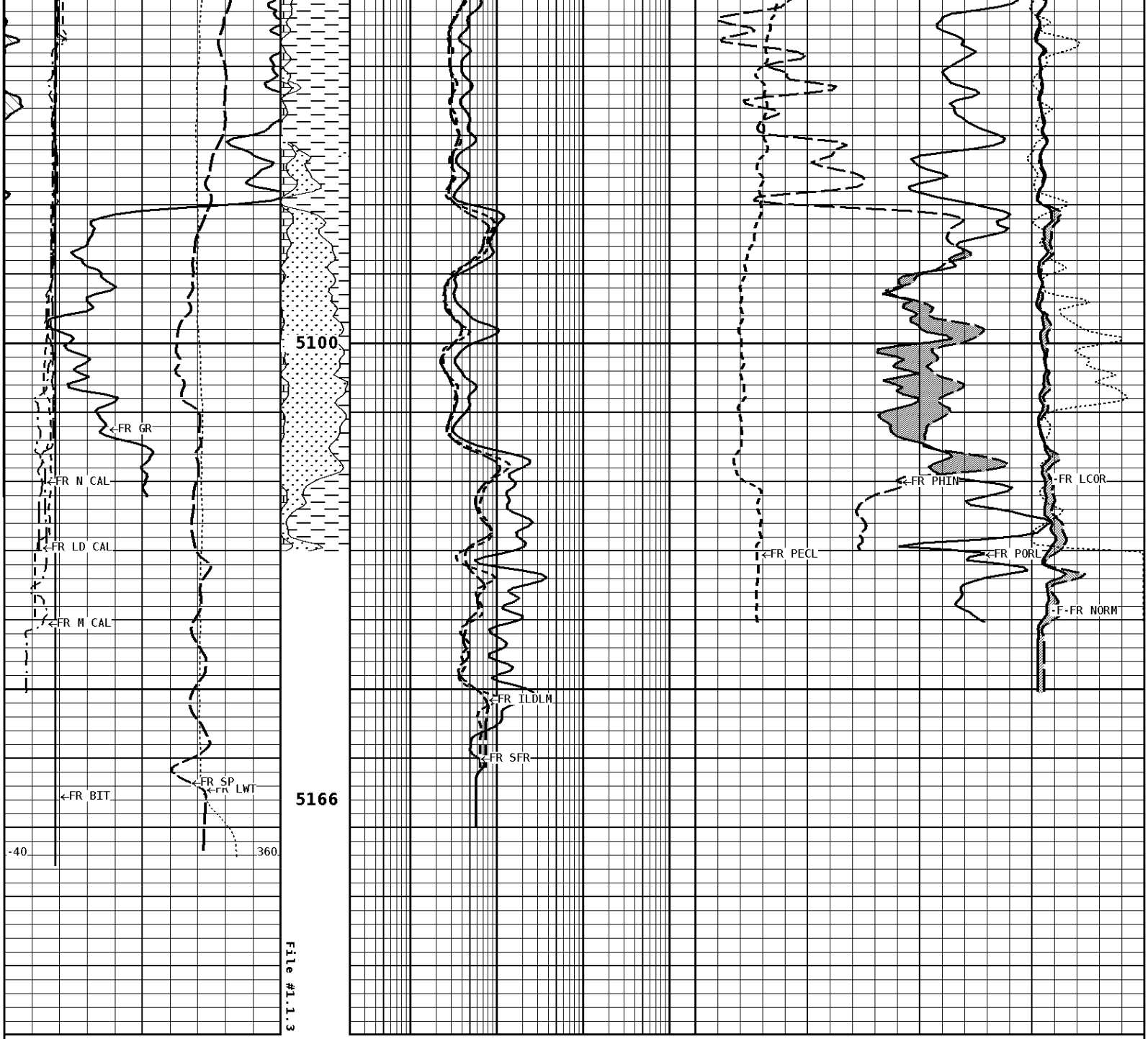

400Cu.Ft
4000
200Cu.Ft
4100
GR
N CAL
LD CAL
ILDM
SFR
PHIN
PECL
POR_LCOR


SP
4200
300Cu.Ft
4300


4400
4500
200Cu.Ft
100Cu.Ft
4600

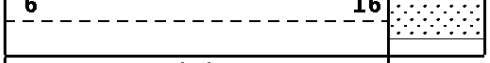

GR
N_CAL
LD_CAL
M_CAL
BIT
LWT
SP
ILDI
SFR
PECL
PHIN
PORL
LCOR
NORM
INV
4700
4800

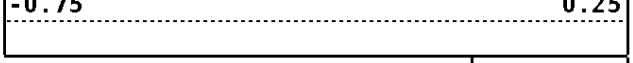

100Cu.Ft
4900
5000

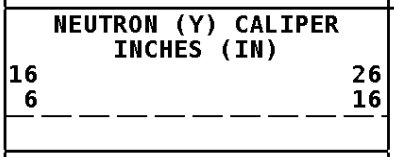


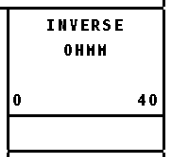
1:240 MAIN SECTION

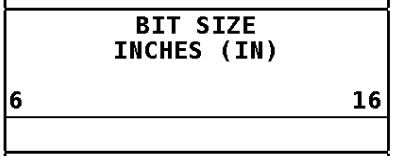
GAMMA RAY **API UNITS** 150 — 300 0 — 150	-BHV AHV- CU.FT	**MEDIUM INDUCTION** **OHMM** 0.2 — 2000.0	**NEUTRON POROSITY (LIMESTONE)** **PERCENT** 30 — -10
SPONTANEOUS POTENTIAL **mV** → | |← 40	Volume Dolo/Shale	**DEEP INDUCTION** **OHMM** 0.2 — 2000.0	**DENSITY POROSITY (2.71g/cc)** **PERCENT** 70 — 30 30 — -10 -10 — -50
TENSION **LBS** 10000 — 0	Volume Calcite	**SHALLOW FOCUSED RESISTIVITY** **OHMM** 0.2 — 2000.0	**PE CROSS-SECTION** **BARNS/ELECTRON** 0 — 20
DENSITY (X) CALIPER **INCHES (IN)** 16 — 26	Volume Quartz		**DENSITY CORRECTION** **G/CC** -0.25 — 0.25

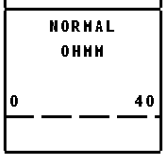


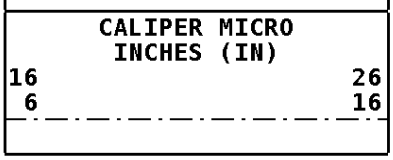












* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
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	5166.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.900	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	0.00	ohm/m

* Calibration Summary *

Shop Calibration
GRT-B

Performed : 21-APR-2014 Time : 11:21
Sensor Suite : GR-GR5 ID : GRT-BB-107

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	75	381	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 22-SEP-2014 Time : 10:50
Sensor Suite : CALI-BCN ID : NDT-BB-103

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	9.1	14.0	6.0	12.0	IN.

Performed : 22-Sep-2014 Time : 10:07
Sensor Suite : BHC NEUT ID : CNP-AA-116-
Source ID : N-1045

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.8497	3.6893	3.6848	
Porosity	23.0	20.5	20.4	%

Shop Calibration
LDT-DF

Performed : 07-OCT-2014 Time : 10:30
Sensor Suite : CALI-LTH ID : PDT-GA-464

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	7.8	11.3	6.0	12.0	IN.

Performed : 07-Oct-2014 Time : 10:22
Sensor Suite : BHCPELNG ID : LDP-DA-067
Source ID : 2991GW

Short Space

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	61	1039	1684	682	CPS
LSW2	66	1212	1927	876	CPS
LSW3	240	2777	4476	2364	CPS
LSW4	295	2602	3774	2281	CPS
LSW5	43	75	80	71	CPS
LSW6	58	65	66	65	CPS
LSW7	47	50	51	51	CPS
LSW8	12	15	16	14	CPS
QS	0.109	0.127	0.125	0.124	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	121	1212	4993	733	CPS
LLW2	153	2069	8151	1518	CPS
LLW3	482	3799	14491	3281	CPS
LLW4	520	1813	5803	1634	CPS
LLW5	59	63	111	60	CPS
LLW6	166	155	148	158	CPS
LLW7	105	98	96	98	CPS
LLW8	3	6	16	5	CPS
QL	0.228	0.223	0.215	0.234	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 16-OCT-2014 Time : 07:59
Sensor Suite : CALI-MSN ID : MST-DA-26

	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	7.1	11.2	6.0	12.0	IN.

Performed : 10-Sep-2014 Time : 10:01
Sensor Suite : MSTDA-NI ID : MST-DA-26

Internal

	Measured		Units	Calibrated		Units
	Zero	Reference		Zero	Reference	
INV-V	79.0	29879.9		0.00	1546.00	MV
NOR-V	0.0	29958.1		0.00	1546.00	MV
IN-C	0.0	30310.3		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Shop Calibration
PIT-CA

Performed : 10-Sep-2014 Time : 11:40
Sensor Suite : P-IND-T ID : PIT-CA-075

Medium

	Measured		Calibrated		Units
	R	X	R	X	
Air	131419	129931	1.4	0.2	MMHOS
Zero	131070	131067	-10.2	45.4	MMHOS
Reference	250682	249654	4989.8	5045.4	MMHOS
Loop	129961	216623	3595.7	3716.3	MMHOS
Sonde Error			0.5	-7.1	MMHOS
Cond			4989.8	5045.4	MMHOS

Deep

	Measured		Calibrated		Units
	R	X	R	X	
Air	128119	131856	0.3	-1.2	MMHOS
Zero	131062	131059	52.1	-18.8	MMHOS
Reference	238518	237019	2052.1	1981.2	MMHOS
Loop	126986	223844	1715.5	1756.2	MMHOS
Sonde Error			-6.7	0.1	MMHOS
Cond			2052.1	1981.2	MMHOS

Temperature

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

Performed : 10-Sep-2014 Time : 11:51
Sensor Suite : SFL ID : PIT-CA-075

Internal

Measured	Calibrated

	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
Im	32770.2	49049.9	0.0	7028.0	uA
Ib	32767.1	49093.1	0.0	1750.0	mA
MOM1	32794.6	56675.8	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

Performed : 10-SEP-2014 Time : 11:47
Sensor Suite : P-SP ID : PIT-CA-075

Internal

Measured		Calibrated		
Zero	Reference	Zero	Reference	Units
32768.0	58944.2	0.0	1000.0	mV

Tucker ENERGY SERVICES

Company: CHIEFTAIN OIL COMPANY INC.

Well: DIEL #6

Location: 3058' FSL & 2996' FEL

Logged: 10-21-2014

K.B. Elev: 1362.0 Ft