

Micro Electric Log

Company	Okland Oil Company	Company	Okland Oil Company
Well	Liberty1-8	Well	Liberty1-8
Field	Willowdale NW	Field	Willowdale NW
County	Kingman	County	Kingman
State	Kansas	State	Kansas
Location:	1217' FNL & * 1626' FWL	API # :	15-095-22305
SEC 8	TWP 29S	RGE 9W	
Permanent Datum	G. L.	Elevation	1711 ft.
Log Measured From	K. B.	13 ft. above perm. datum	
Drilling Measured From	K. B.		
Other Services	CNL, LDT, IAT, MAS		
Elevation			
K.B.	1724 ft.		
D.F.	1723 ft.		
G.L.	1711 ft.		
Date	13-Sept-2016		
Run Number	One		
Depth Driller	4650'		
Depth Logger	4650'		
Bottom Logged Interval	4626'		
Top Log Interval	3250'		
Casing Driller	8.625" @ 223'		
Casing Logger	225'		
Bit Size	7.875"		
Type Fluid in Hole	WBM		
Density / Viscosity	9.3 / 64		
pH / Fluid Loss	10.5 / 8		
Source of Sample	Mud Pit		
Rm @ Meas. Temp	0.97 @ 85 °F		
Rmf @ Meas. Temp	0.73 @ 85 °F		
Rmc @ Meas. Temp	1.46 @ 85 °F		
Source of Rmf / Rmc	Calculated		
Rm @ BHT	0.70 @ 117 °F		
Time Circulation Stopped	15:30		
Time Logger on Bottom	16:30		
Maximum Recorded Temperature	117 °F		
Equipment Number	11007		
Location	OKC		
Recorded By	B. Oetting		
Witnessed By	G. Alletag / A. Watson		

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Equipment and Log Data

Service Order: 23348

Gamma		Density		Neutron		Sonic		IAT	
Run No.	One	Run No.	One	Run No.	One	Run No.	One	Run No.	One
Serial No.	47	Serial No.	110	Serial No.	71	Serial No.	38SS	Serial No.	106
O.D.	3.375 in.	Source No.	50129B	Source No.	50202G	Centralizers	2	Standoffs	2 @ 0.5"
		O.D.	4.5 in.	O.D.	3.375 in.	O.D.	3.375 in.	O.D.	3.875 in.

Logging Pass Data

General		Gamma		Density		Neutron		Sonic		IAT	
		Scales		Scales		Scales		Scales		Scales	
Run	Depths	Left	Right	Left	Right	Matrix	Left	Right	Matrix	Left	Right
One	TD CSG	0	150	0.3	-0.1	2.71 g/cc	0.3	-0.1	Lime	0.3	-0.1

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Toolstring ran as per tool sketch,
 2.71 g/cc Matrix Density used to calculate LDT porosity
 Limestone Matrix used to calculate Neutron porosity
 47.6 usec/ft Matrix used to calculate MAS porosity
 4.5" production casing used to calculate annular hole volume.

Chlorides: 3900 ppm
LCM 4 #/bbl
LCM can effect LDT and MEL readings

YOUR CREW TODAY: J. Bennett, B. Barton
THANK YOU FOR CHOOSING ALLIED WIRELINE. OKLAHOMA CITY, OK. (405) 445-7135.

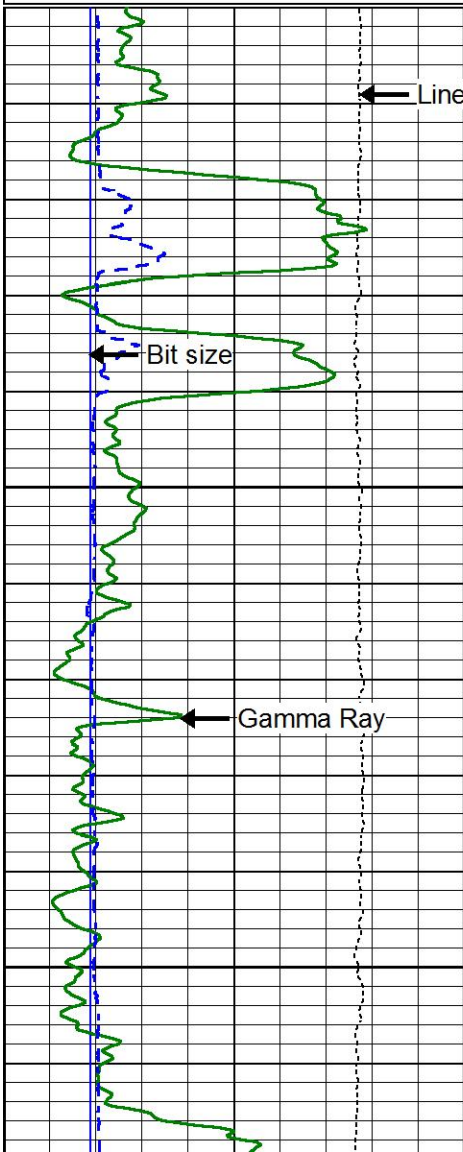


Main Pass

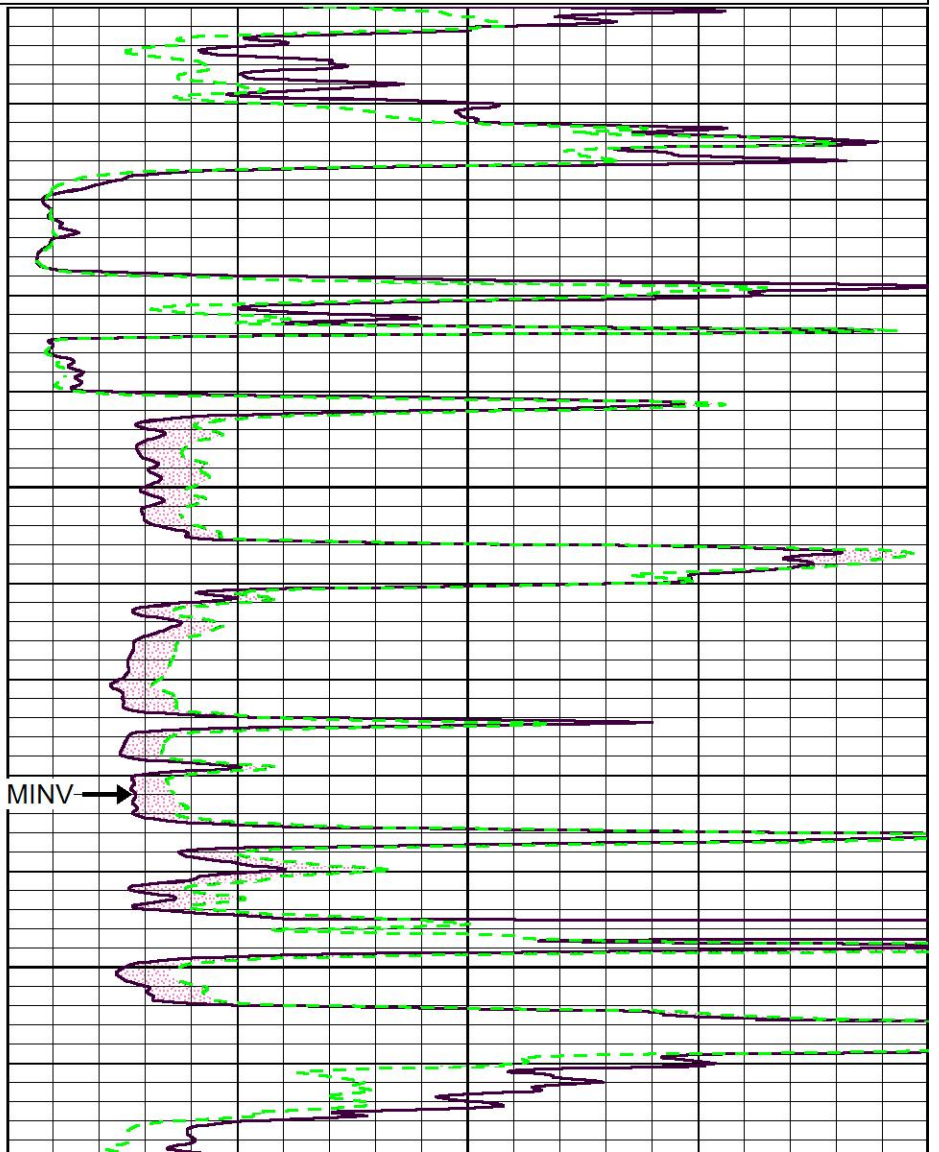
Database File okland_liberty_1-8.db
Dataset Pathname run2/pass8
Presentation Format OKC-ME~1
Dataset Creation Tue Sep 13 22:19:02 2016 by Calc Sondex
Charted by Depth in Feet scaled 1:240

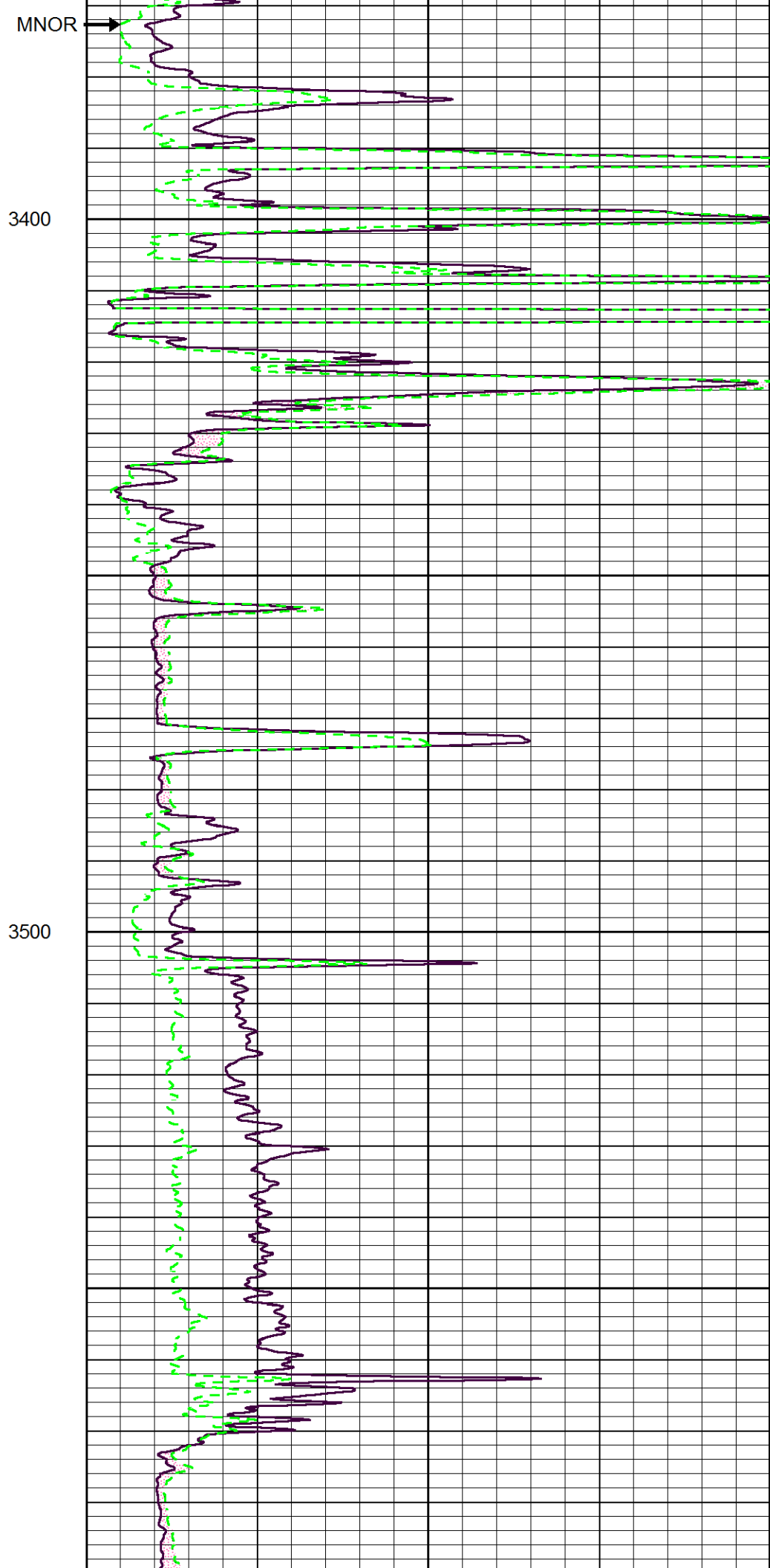
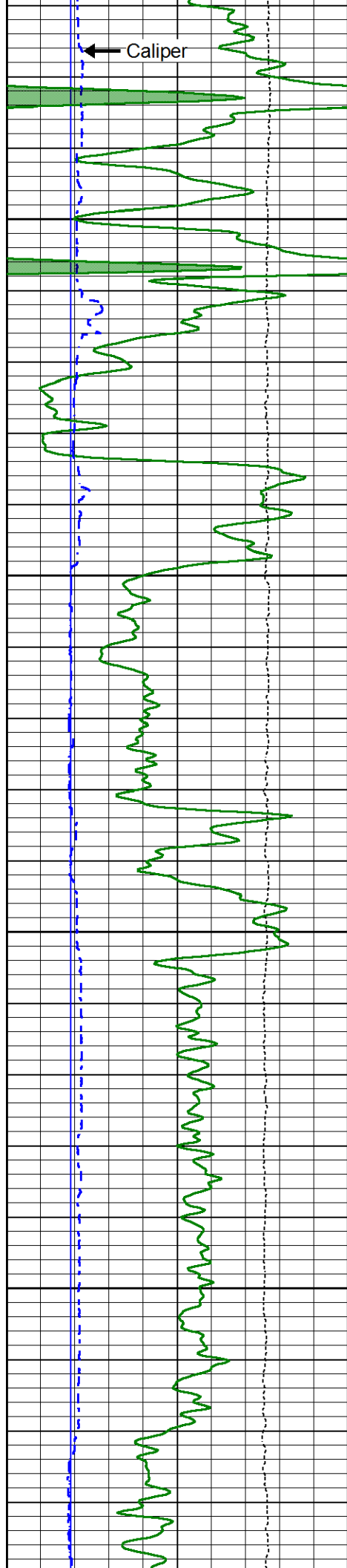
6	Bit size (in)	16
10000	Line Tension (lb)	0
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16

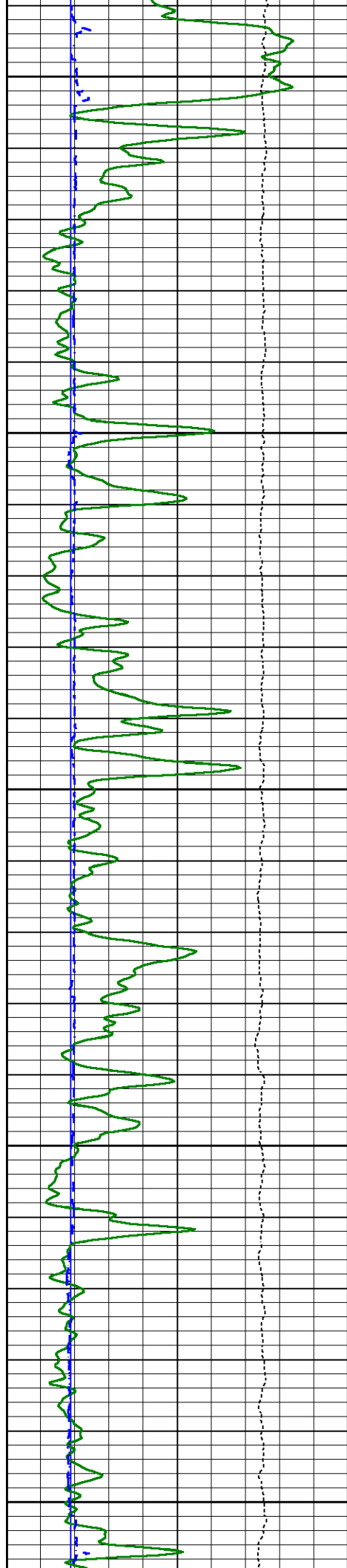
0	MINV (Ohm-m)	40
0	MNOR (Ohm-m)	40



3300



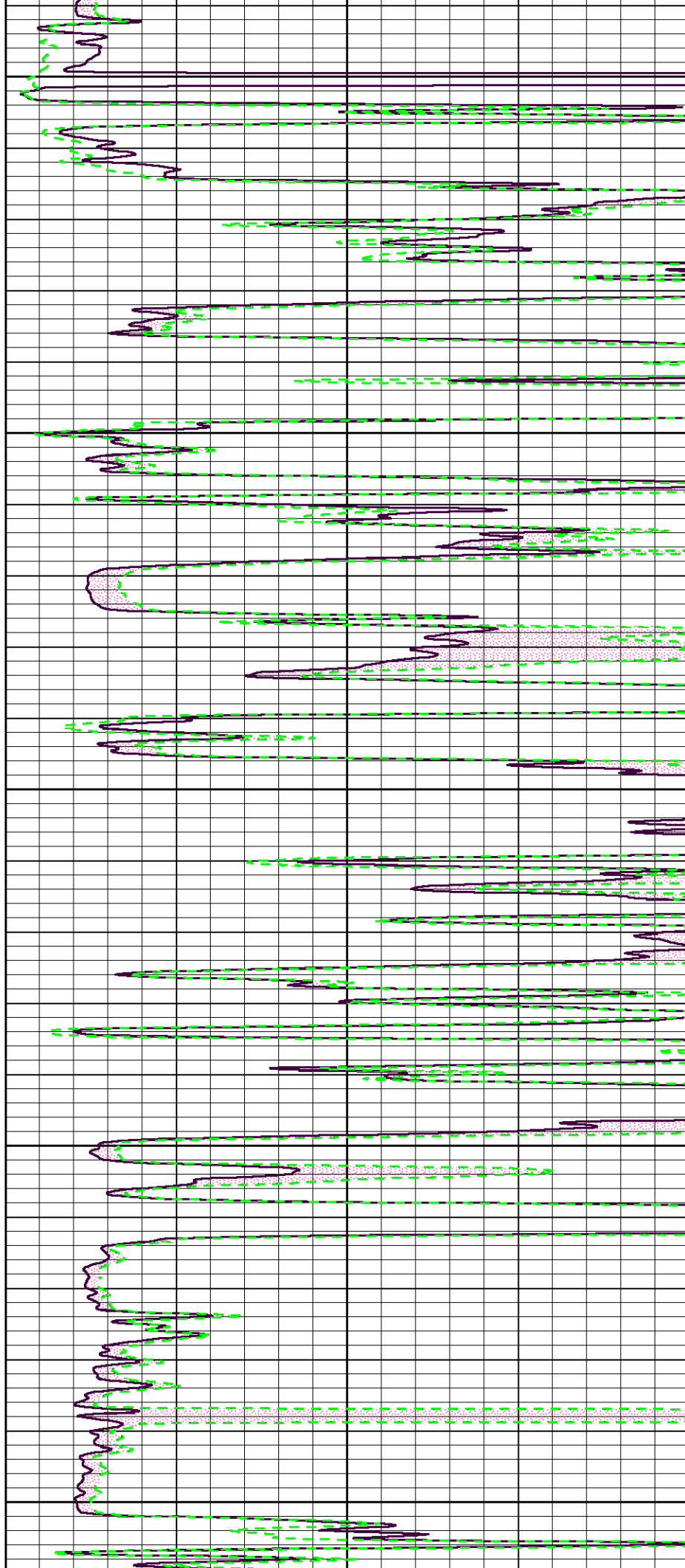


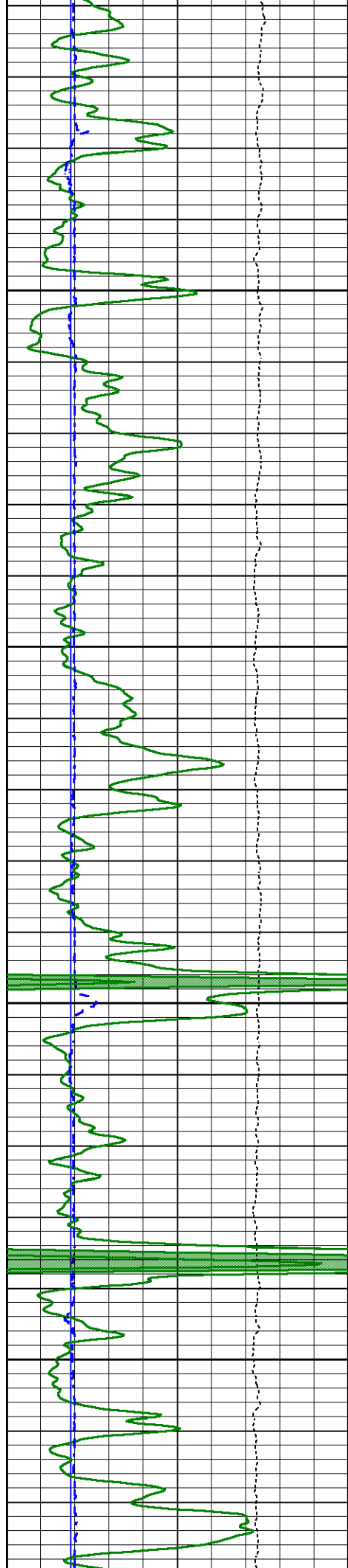


3600

3700

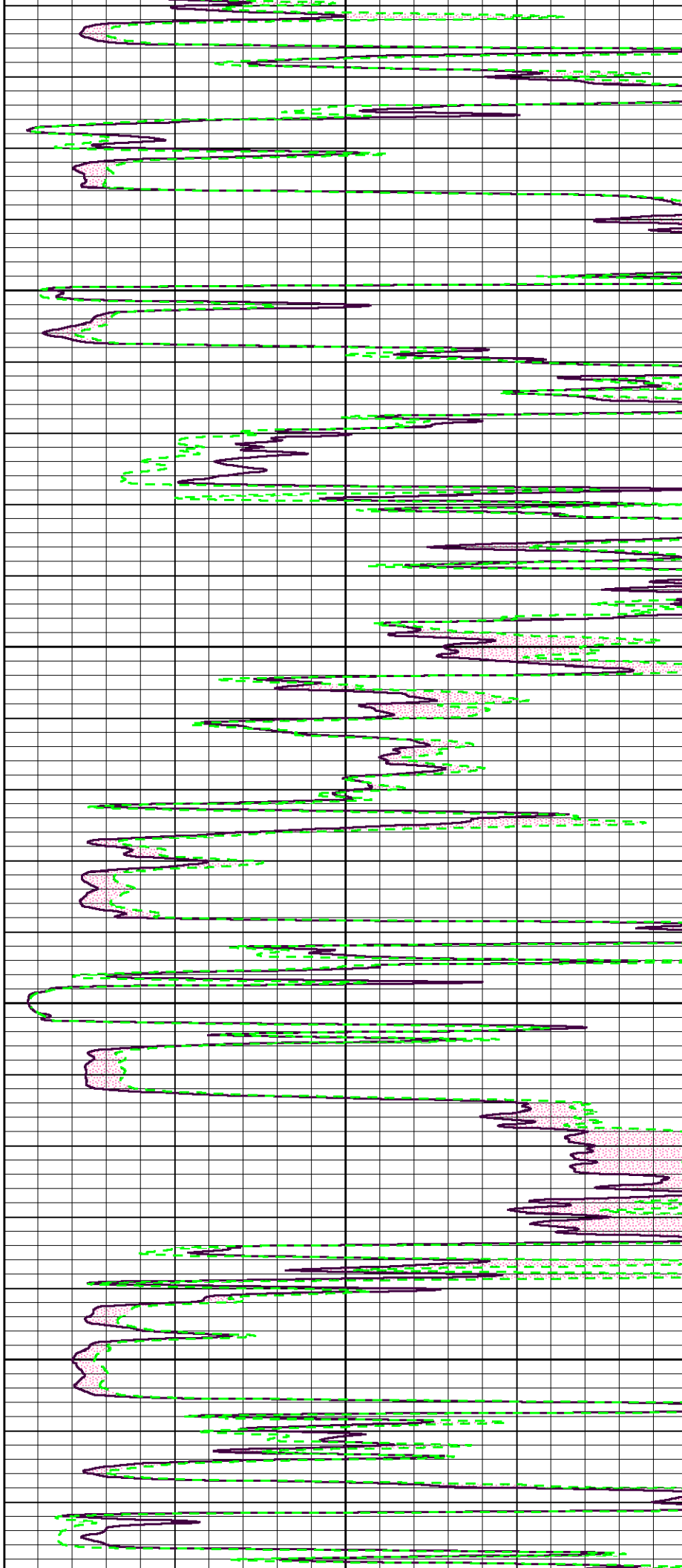
3800

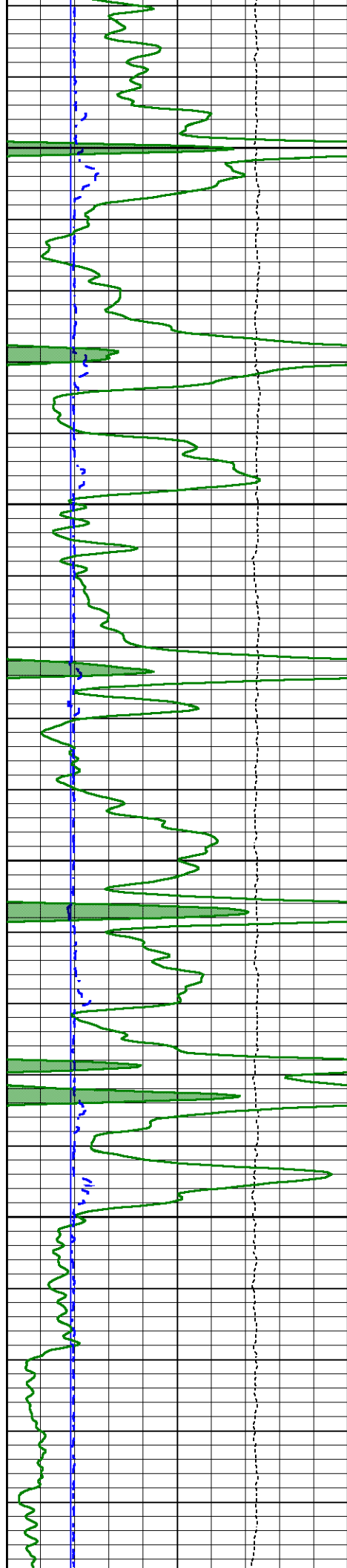




3900

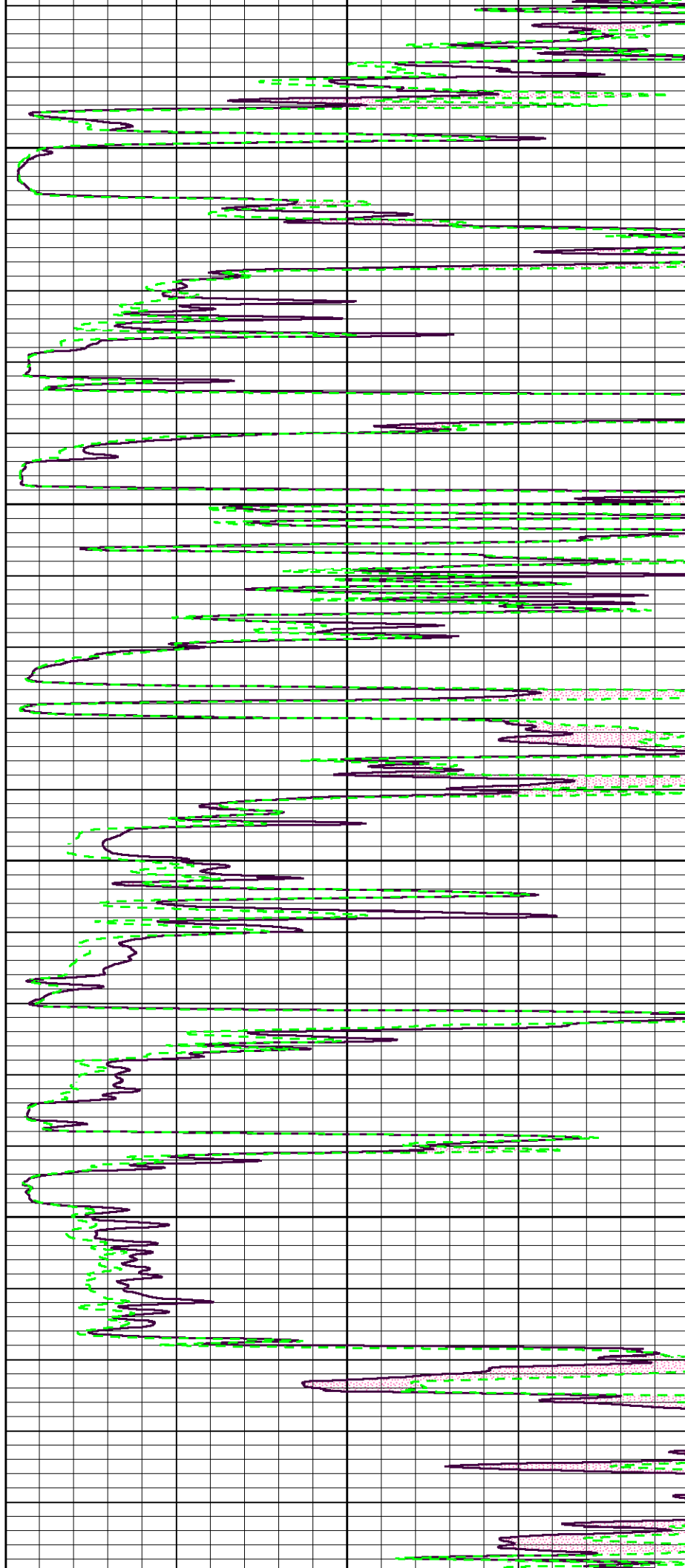
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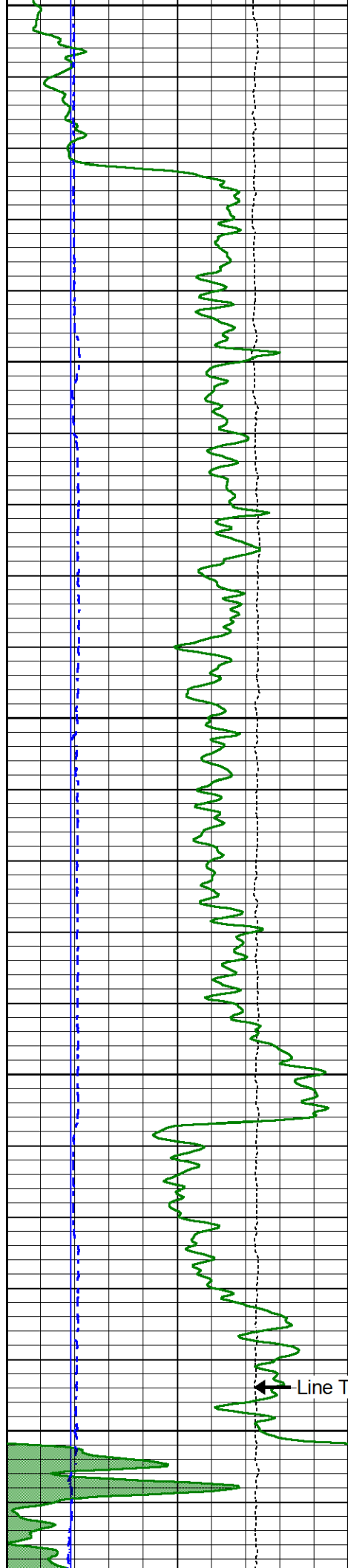




4100

4200

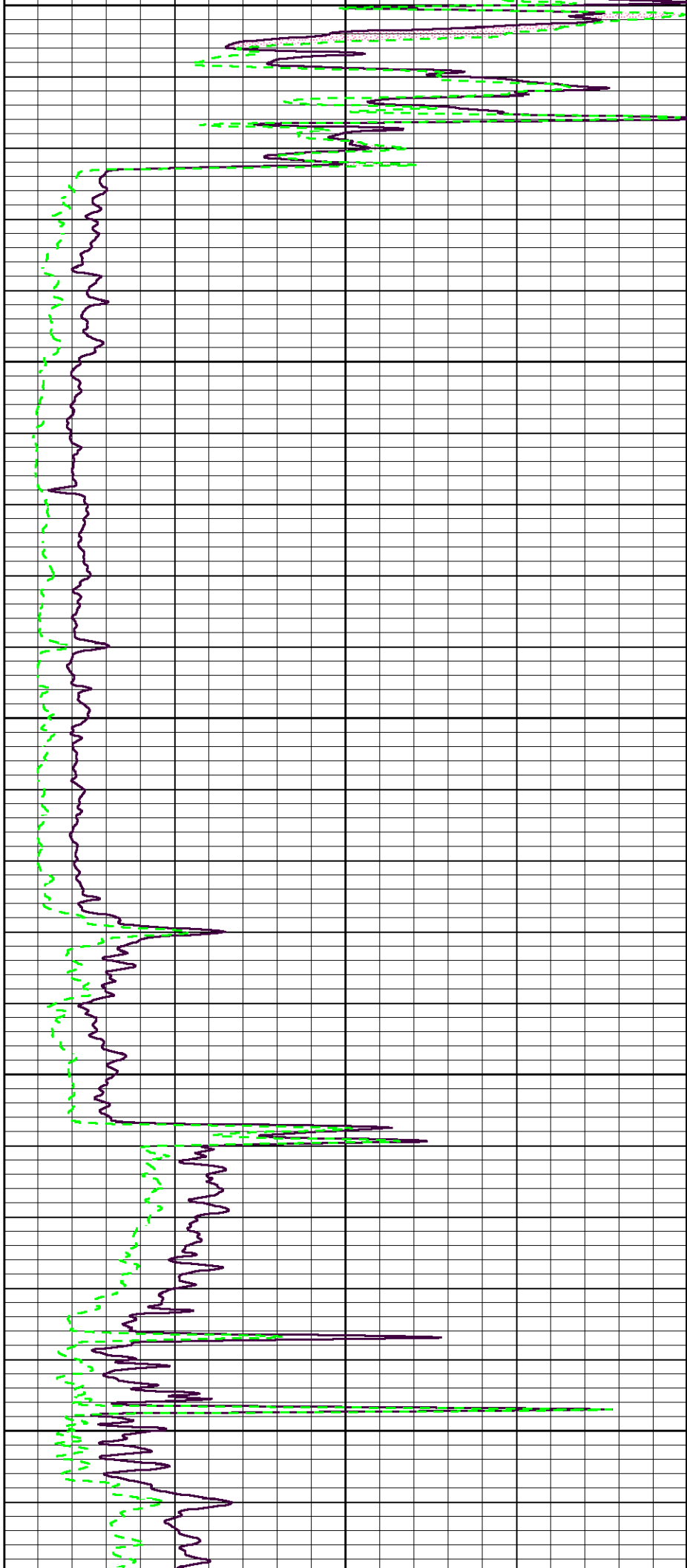


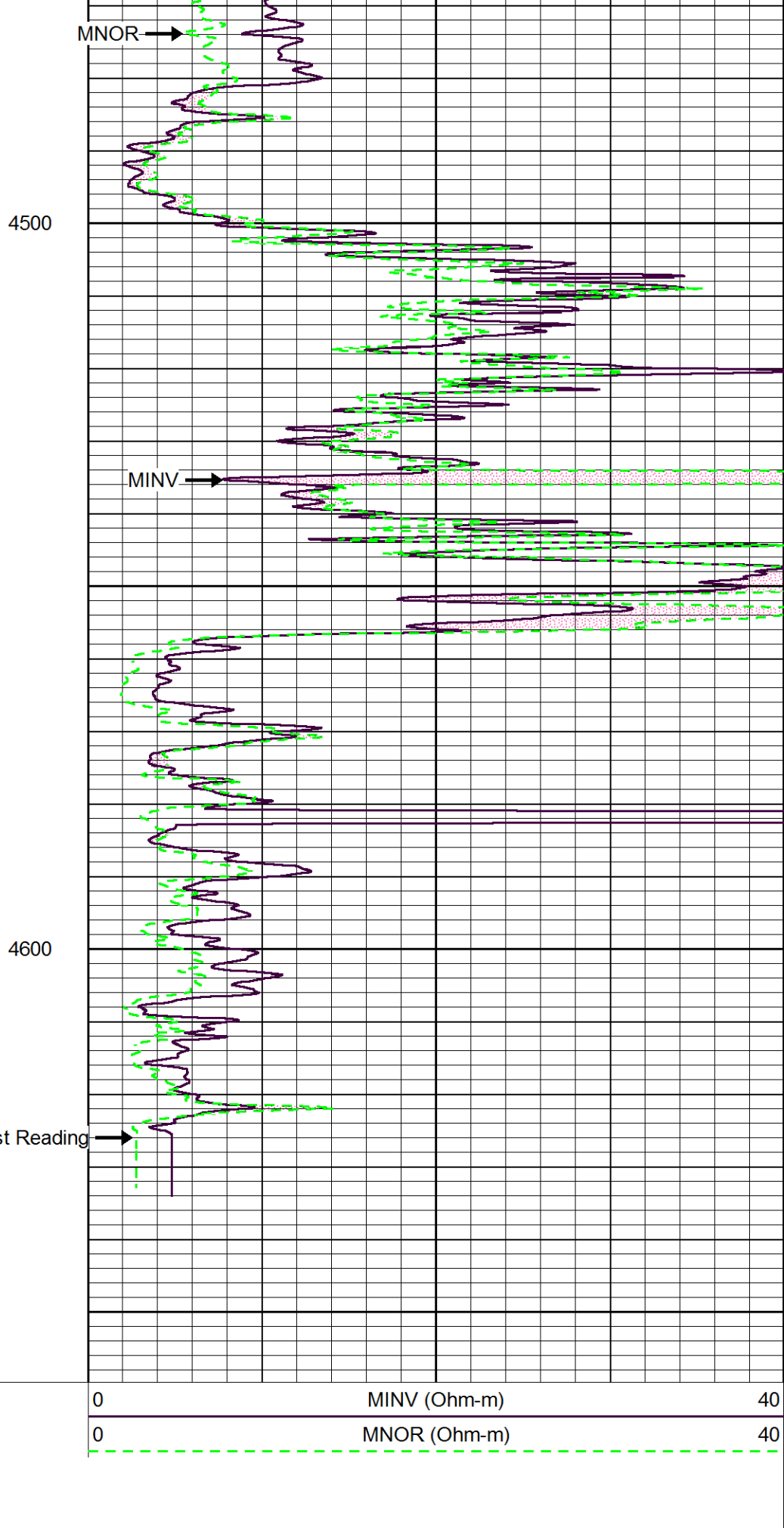
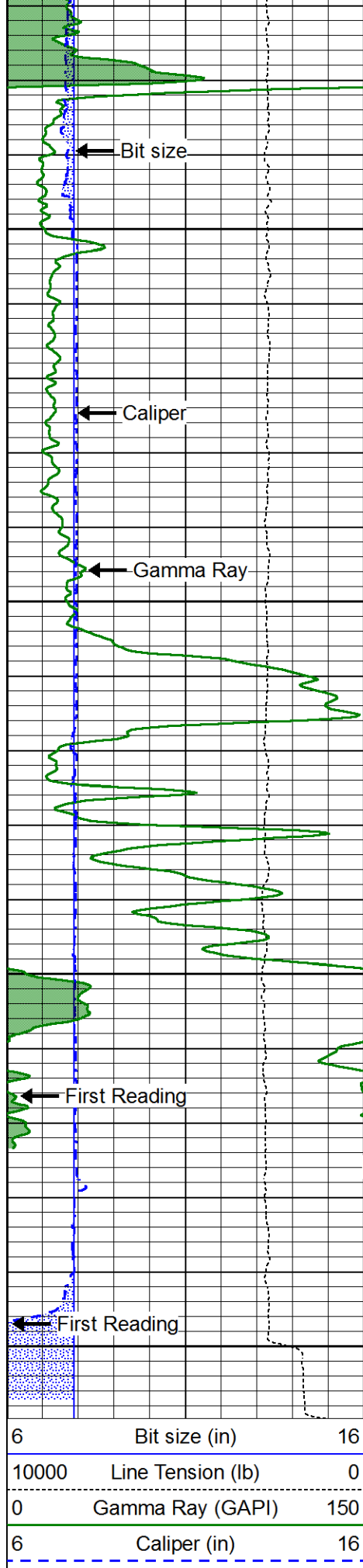


4300

4400

Line Tension



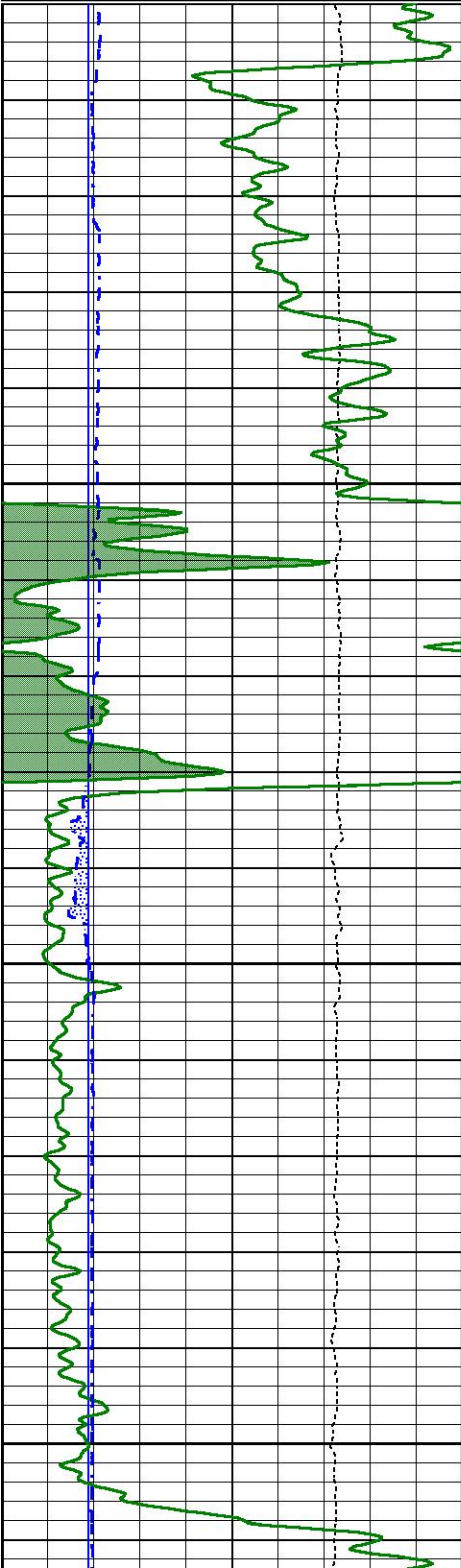


Repeat Pass

Database File okland_liberty_1-8.db
 Dataset Pathname run2/pass5
 Presentation Format OKC-ME~1
 Dataset Creation Tue Sep 13 21:09:08 2016 by Log Sondex
 Charted by Depth in Feet scaled 1:240

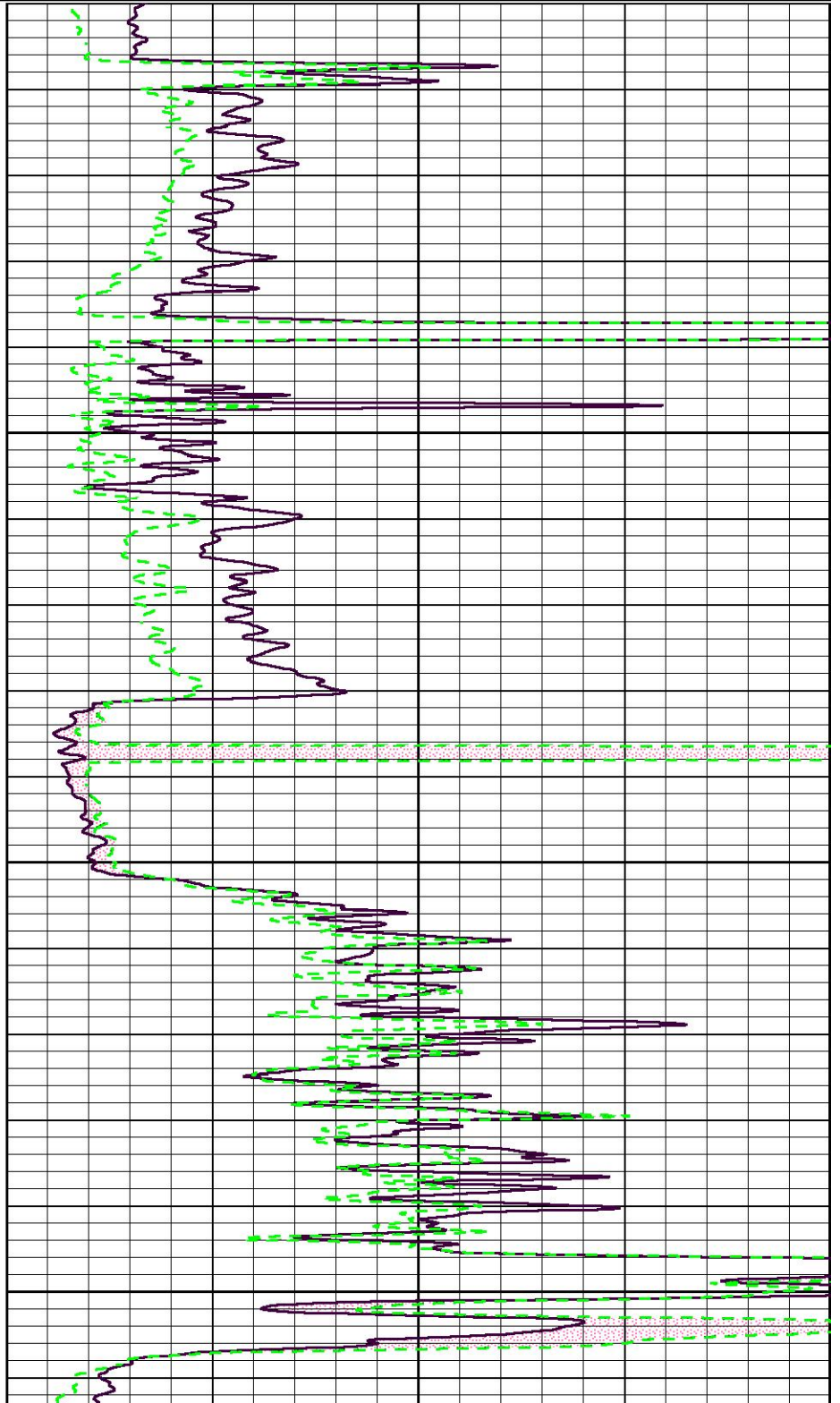
6	Bit size (in)	16
10000	Line Tension (lb)	0
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16

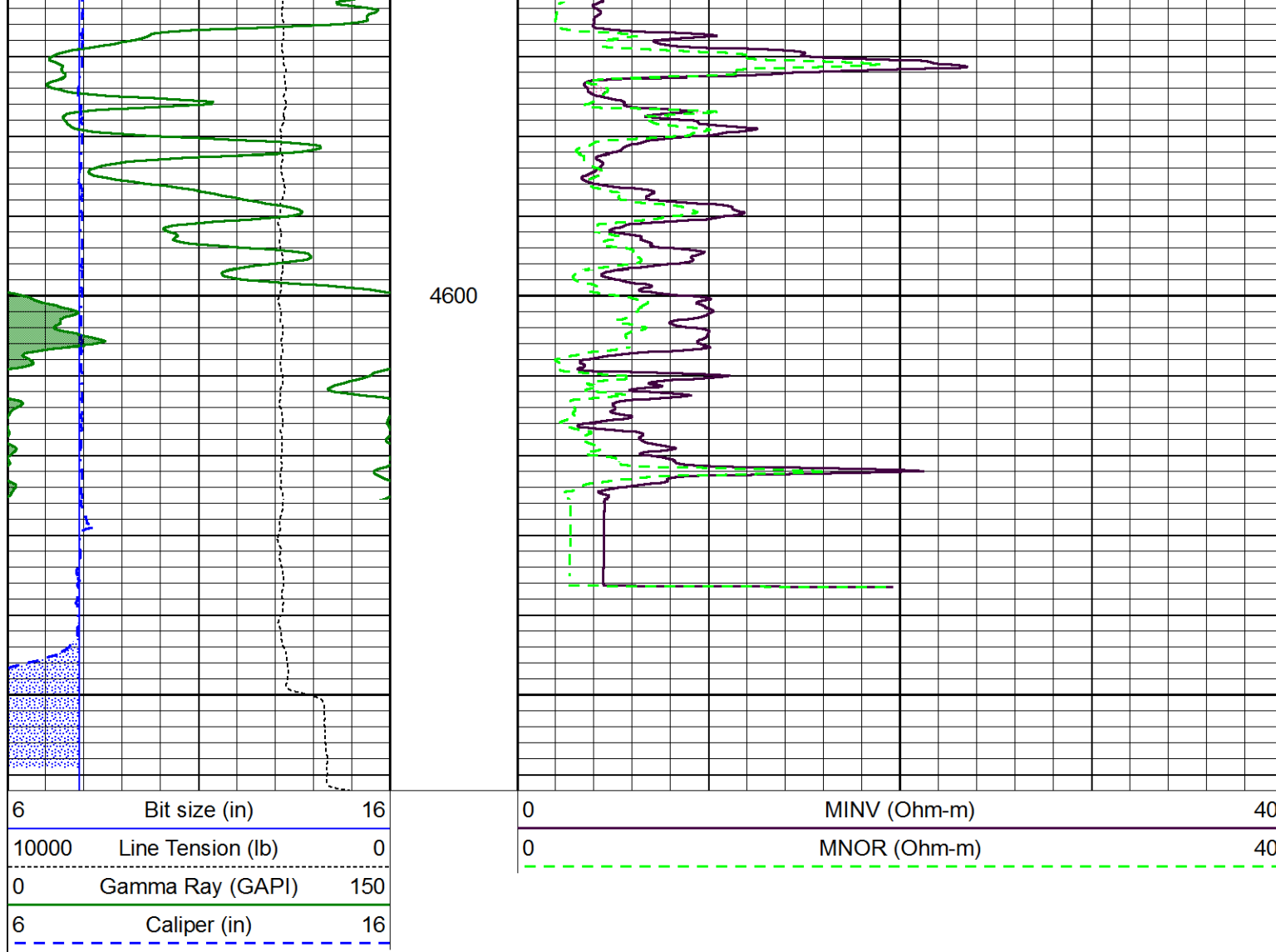
0	MINV (Ohm-m)	40
0	MNOR (Ohm-m)	40



4400

4500





Log Variables

DatabaseC:\Sondex\Sondex Warrior\Data\okland_liberty_1-8.db

Dataset field/well/run2/pass8/_vars_

Top - 223.00 ft

MAXAMPL mV 0	MINAMPL mV 1	MINATTN db/ft 0.8	COMPACT 1	SVFLUID usec/ft 189	SVMATRIX usec/ft 47.6	FRMSALIN kppm 0	MUDSALIN kppm 0
DEVI deg 0	SRFTEMP degF 68	SO in 0.25	DE-CENT Yes	CASED? Yes	CASEWGHT lb/ft 11.5	NPORSEL Limestone	AIR_HOLE? No
MudWgt lb/gal 9.3	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	SPSHIFT mV 0	CASETHCK in 0	CASEOD in 8.625	PERFS 0	TDEPTH ft 4650
BOTTEMP degF 114	BOREID in 7.875						

223.00 ft - Bottom

MAXAMPL mV 0	MINAMPL mV 1	MINATTN db/ft 0.8	COMPACT 1	SVFLUID usec/ft 189	SVMATRIX usec/ft 47.6	FRMSALIN kppm 0	MUDSALIN kppm 0

DEVI deg 0	SRFTEMP degF 68	SO in 0.25	DE-CENT Yes	CASED? No	CASEWGHT lb/ft 11.5	NPORSEL Limestone	AIR_HOLE? No
MudWgt lb/gal 9.3	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	SPSHIFT mV 0	CASETHCK in 0	CASEOD in 4.5	PERFS 0	TDEPTH ft 4650
BOTTEMP degF 114	BOREID in 7.875						

Calibration Report	
Database File	okland_liberty_1-8.db
Dataset Pathname	run2/pass8
Dataset Creation	Tue Sep 13 22:19:02 2016 by Calc Sondex

Litho Density Tool Calibration Report

Serial Number:	B10110S50129B
Tool Model:	002

Caliper Calibration Performed:			Tue Jul 19 14:03:54 2016	
	Diameter		Reading	
Small Ring:	6.000	in	1413.800	cps
Large Ring:	13.000	in	2155.900	cps
Gain:	0.0094			
Offset:	-7.4759			

Master Calibration Performed:		Mon Sep 12 12:45:40 2016		
Source Number:		50129B		
Medium:		Water		
Al Block Density:		2.5997 g/cc		
	Background	Al Block	Al Block + Fe	
SS1	739.2	4877.7	4698.6	cps
SS2	2049.0	30943.2	29554.8	cps
SSTOTAL	4829.2	49846.1	47125.9	cps
LITH	97.9	567.6	380.1	cps
LL	194.6	878.1	883.2	cps
LU	558.1	1130.0	1149.6	cps
LS	752.7	2008.1	2032.7	cps
LSTOTAL	1420.4	5002.0	4551.7	cps
SSHV	1571.1	1574.7	1575.0	V
LSHV	1506.4	1507.7	1508.7	V
SSFF	0.003	0.007	0.007	
LSFF	0.007	0.001	-0.003	

Before Survey Verification Performed:		Sun Sep 04 17:21:09 2016		
After Survey Verification Performed:		Mon Feb 08 13:56:44 2016		
	Master Background	Before Survey Background	After Survey Background	
SS1	739.2	745.6	749.7	cps
SS2	2049.0	2057.2	2060.3	cps
SSTOTAL	4829.2	4855.0	4869.9	cps
LITH	97.9	98.2	100.2	cps
LI	194.6	195.6	195.3	cps

LU	558.1	566.6	565.4	cps
LS	752.7	762.2	760.8	cps
LSTOTAL	1420.4	1427.0	1429.8	cps
SSHV	1571.1	1575.0	1573.4	V
LSHV	1506.4	1507.1	1508.9	V
SSFF	0.003	0.001	0.010	
LSFF	0.007	0.014	-0.006	

Tool Module Parameters				
Software Version:	8.0.0.3			
Borehole Size Source:	CALI			
Pad Type:	2			

Compensated Neutron Tool Calibration Report				
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Serial Number:	C10071			
Tool Model:	009			

Master Calibration Performed:	Mon Sep 05 11:45:48 2016			
Source Number:	50202G			
Short Spacing Counts:	7061.54	cps		
Long Spacing Counts:	245.69	cps		
High Voltage:	1363.95	V		
Target Ratio:	27.2000			
Ratio:	28.7420			
K-Factor:	0.9464			

Before Survey Verification Performed:	Mon Sep 05 11:51:48 2016			
After Survey Verification Performed:				
Verifier Number:	6489			
Verifier Values	Master Cal	Before Survey	After Survey	
Short Spacing Counts:	305.30	309.62		cps
Long Spacing Counts:	253.02	255.50		cps
High Voltage:	1363.82	1363.82		V
Ratio:	1.2066	1.2118		

Tool Module Parameters				
Software Version:	8.0.0.5			
Borehole Size Source:	BOREID			
Clip Crossplot Porosity:	YES			
Lithology Identification Parameters:	Calcite	Quartz	Dolomite	
Uma:	13.77	4.79	9.03	barns/cc
RHOMA:	2.71	2.65	2.88	g/cc

Micro Electric Log Calibration Report				
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Serial Number:	10022649			
Tool Model:	003			

Caliper Calibration Performed:	Wed Jun 01 11:16:39 2016			
	Pad Arm		Backup Arm	
	Radius	Reading	Radius	Reading
Small Jig:	4.000 in	1149.900	4.000 in	1273.100
Large Jig:	8.000 in	1990.600	8.000 in	1996.600
Gain:	0.0048		0.0055	
Offset:	-1.4712		-3.0386	

Pad Calibration				
Gain:	Inverse		Normal	
Offset:	1.0000		0.8500	
	0.0000		0.0000	
Tool Module Parameters				
Software Version:		8.0.0.3		
Gamma Ray Calibration Report				
Serial Number:		C10047		
Tool Model:		001		
Performed:		Tue Jul 19 11:02:37 2016		
Calibrator Value:		156.0	GAPI	
Background Reading:		78.5	cps	
Calibrator Reading:		529.3	cps	
Sensitivity:		0.3460	GAPI/cps	
Borehole Fluid Resistivity Calibration Report				
Serial Number:		P004		
Tool Model:		002		
Master Calibration Performed:		Mon Dec 05 18:05:39 2011		
Resistivity Polynomial Equation:		0.1429x^3 - 0.4495x^2 + 1.2097x - 0.2854		
Temperature Calibration:				
	Reference		Reading	
	71.60	degF	559.80	bits
	167.00	degF	659.50	bits
Head Tension Unit Calibration Report				
Serial Number:		00001		
Tool Model:		011		
Performed:		Mon Dec 15 11:20:16 2014		
Point #	Reference		Reading	
1	-19894.000	lb	8957.860	cps
2	-15010.000	lb	13965.100	cps
3	-9998.000	lb	19076.100	cps
4	-5007.000	lb	24133.000	cps
5	-1009.000	lb	28232.100	cps
6	1017.000	lb	30185.400	cps
7	5040.000	lb	34439.700	cps
8	9970.000	lb	39346.900	cps
9	14955.000	lb	44466.000	cps
10	19770.000	lb	49397.800	cps

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CHD-001 (000004) Cable Head	2.19	3.38	35.00
			XTLL-008 (C10067)	2.08	3.38	17.00

