Casedhole Solutions

COMPENSATED DENSITY/NEUTRON PE LOG

Company	MULL DRILLING COMPANY, INC.
Well	RUTH #1-10
Field	DUST BOWL
County	CHEYENNE
State	COLORADO

Company MULL DRILLING COMPANY, INC.
Well RUTH #1-10
Field DUST BOWL
County CHEYENNE State COLORADO

Location: API # : 05-017-07802-00-00
1444' FSL & 632' FWL
NW - SW
SEC 10 TWP 16S RGE 46W

Other Services
DIL

Permanent Datum GROUND LEVEL Elevation 4218
Log Measured From KELLY BUSHING 13' A.G.L
Drilling Measured From KELLY BUSHING

Elevation
K.B. 4231
D.F. 4229
G.L. 4218

Date	9-17-15			
Run Number	ONE			
Depth Driller	5425			
Depth Logger	5425			
Bottom Logged Interval	5401			
Top Log Interval	3800			
Casing Driller	8 5/8 @ 555'			
Casing Logger	550'			
Bit Size	7 7/8			
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 3,000 PPM		
Density / Viscosity	9.1/61			
pH / Fluid Loss	9.5/8.0			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	0.90 @ 85F			
Rmf @ Meas. Temp	0.68 @ 85F			
Rmc @ Meas. Temp	1.08 @ 85F			
Source of Rmf / Rmc	MEASUREMENT			
Rm @ BHT	0.59 @ 129F			
Time Circulation Stopped	2 HOURS			
Time Logger on Bottom				
Maximum Recorded Temperature	129F			
Equipment Number	3802			
Location	HAYS, KANSAS			
Recorded By	IAN MABB			
Witnessed By	RUSTY MOURNING			

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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

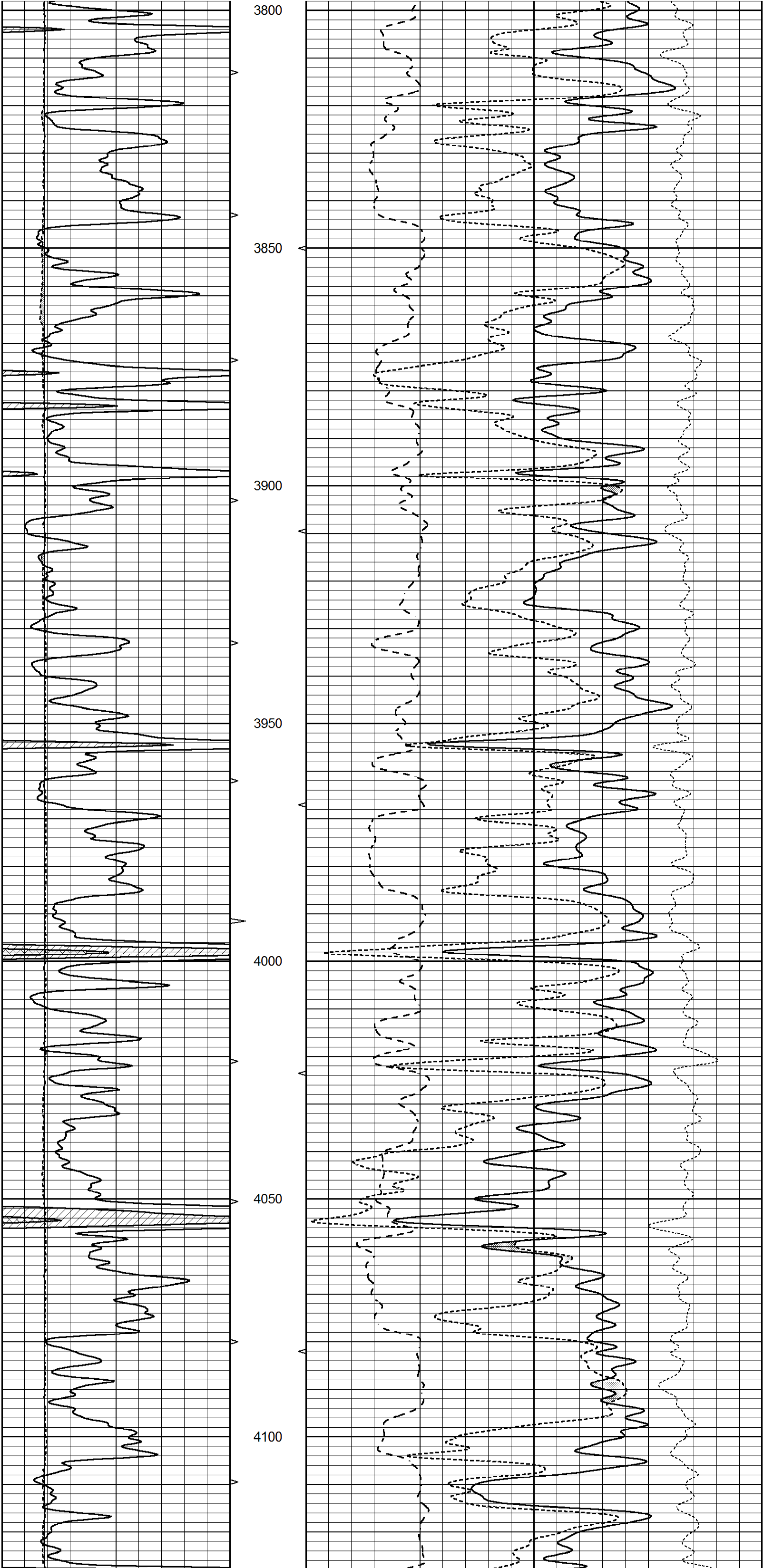
THANK YOU FOR USING C & J CASEDHOLE SOLUTIONS, HAYS, KS. (785) 628-6395
DIRECTIONS : CHEYENNE WELLS, CO - 11 MILES WEST TO FIRSTVIEW (RD 34) - SOUTH TO THE T (RD G) WEST 1/2 MILE - SOUTH 2 MILES - WEST INTO

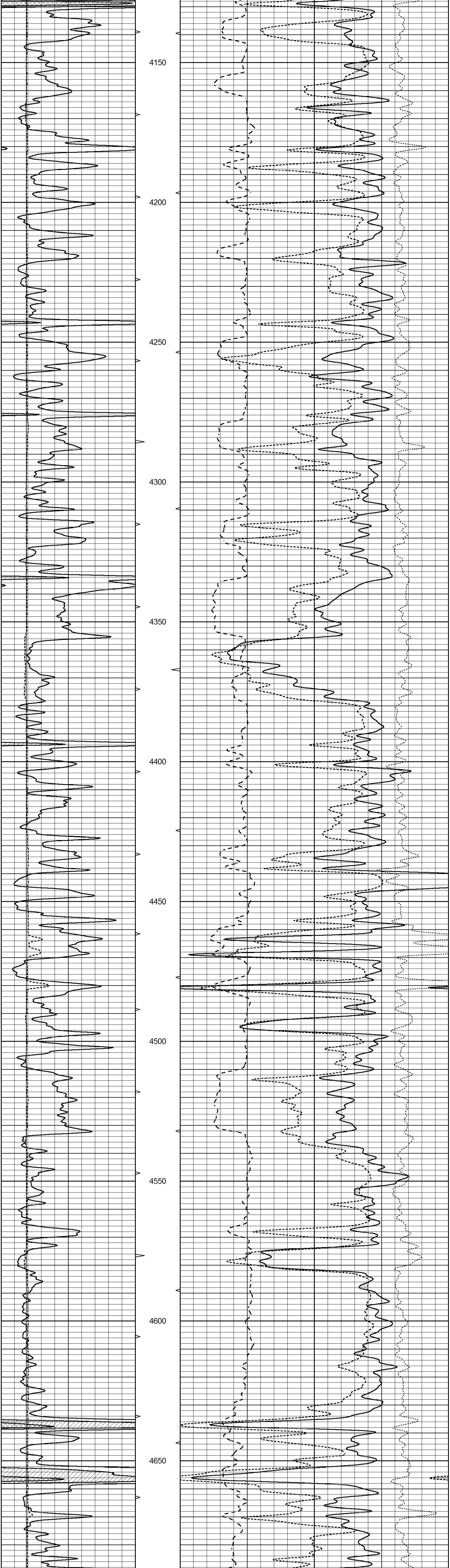
Casedhole Solutions

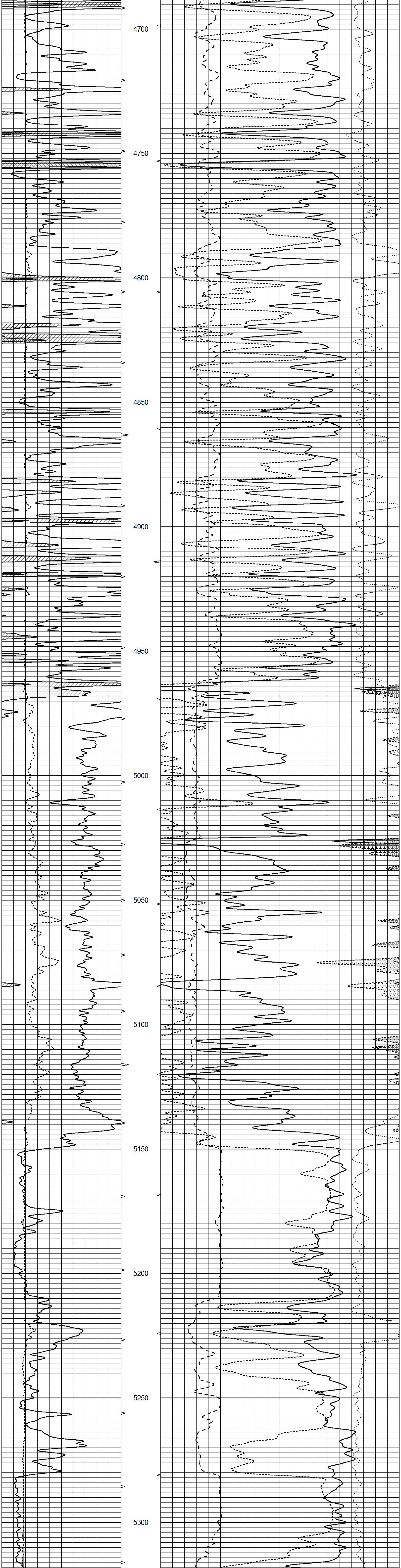
MAIN SECTION

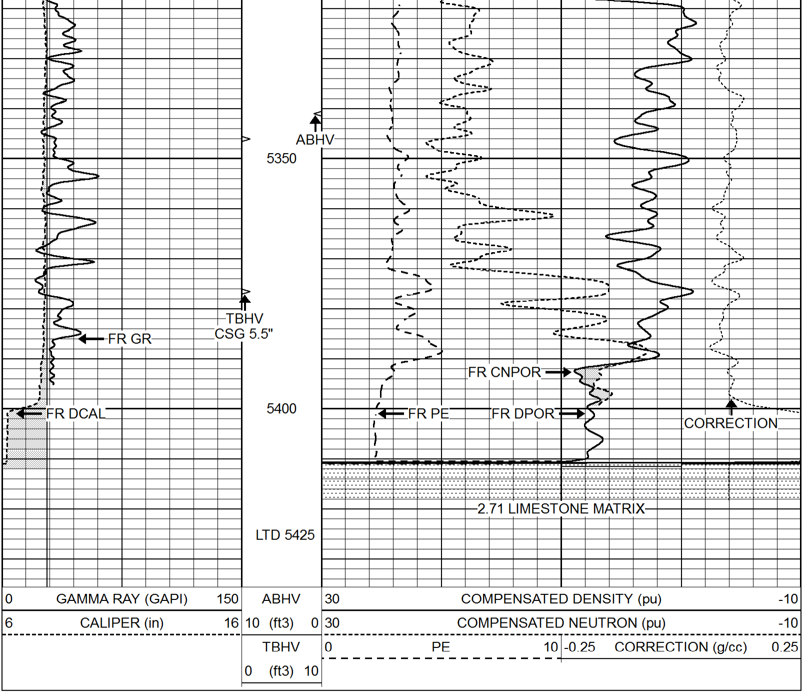
Database File	26610pe8.db
Dataset Pathname	pass3.1
Presentation Format	_ldt_neu
Dataset Creation	Fri Sep 18 02:06:22 2015
Charted by	Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 150	ABHV	30 COMPENSATED DENSITY (pu) -10
6 CALIPER (in) 16	10 (ft3) 0	30 COMPENSATED NEUTRON (pu) -10
	TBHV 0 (ft3) 10	0 PE 10 -0.25 CORRECTION (g/cc) 0.25









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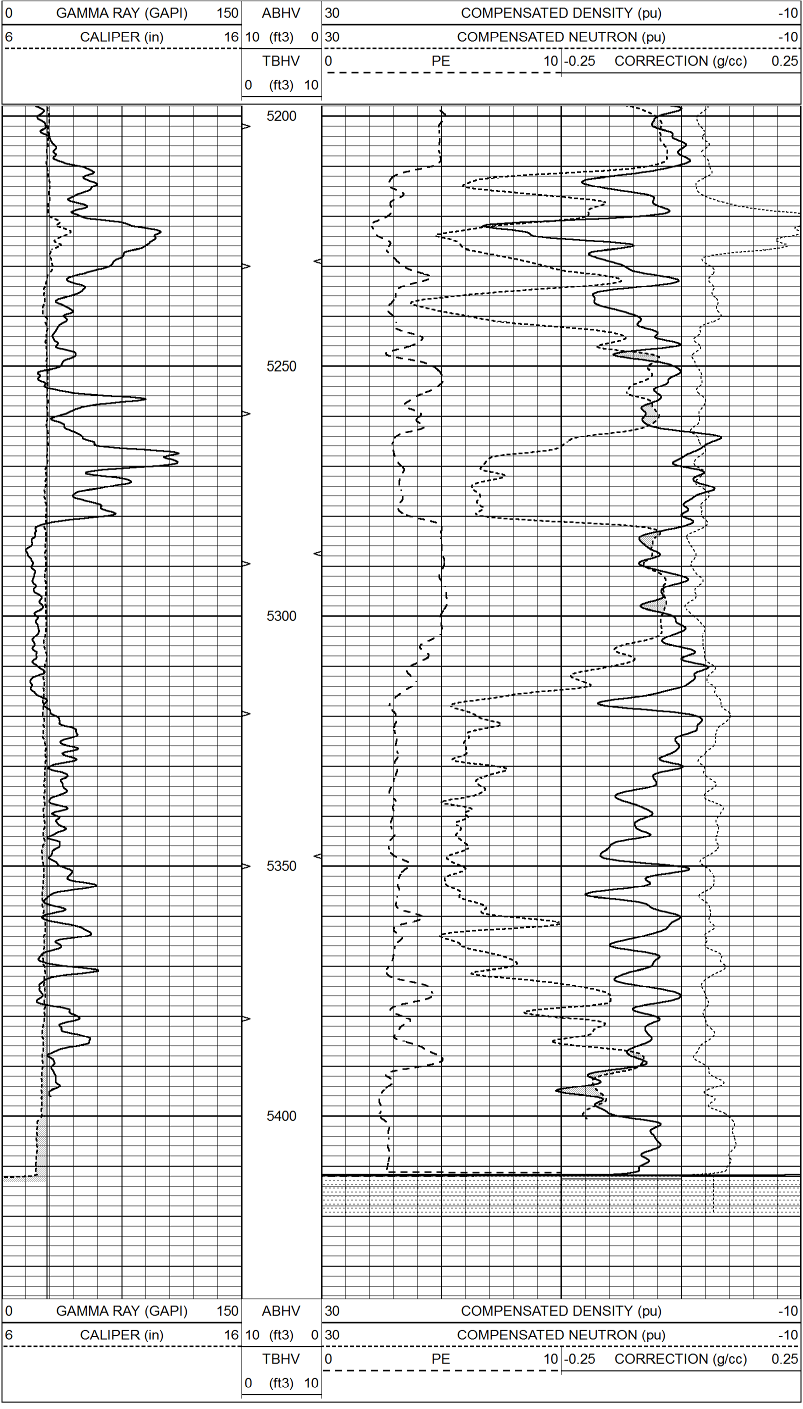
REPEAT SECTION

Database File	26610pe8.db
Dataset Pathname	pass2.2
Presentation Format	_ldt_neu
Dataset Creation	Fri Sep 18 01:25:21 2015
Charted by	Depth in Feet scaled 1:240



Calibration Report

Database File	26610pe8.db
Dataset Pathname	pass3.1
Dataset Creation	Fri Sep 18 02:06:22 2015

Dual Induction Calibration Report

Serial-Model:	FW1410-56-Probe
Surface Cal Performed:	Fri Mar 13 14:03:50 2015
Downhole Cal Performed:	Fri Mar 13 15:37:29 2015
After Survey Verification Performed:	Fri Mar 13 15:37:29 2015

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.008	0.765	V	1.000	400.000	mmho/m	527.061	-3.201
Medium	-0.056	0.761	V	1.000	464.000	mmho/m	567.187	32.510
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.005	0.624	V	0.000	400.000	mmho/m	645.611	-3.034
Medium	0.012	0.721	V	0.000	464.000	mmho/m	653.591	-7.532

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	-0.647	301.329	mmho/m	-0.780	336.378	mmho/m	1.117	-0.058
Medium	38.256	411.013	mmho/m	39.046	441.706	mmho/m	1.080	-2.280
LL3		7.471	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.085	V		6000.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.647	301.329	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	38.256	411.013	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1500.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		3745.000	mmho-m		

Litho Density Calibration Report

Serial: 140704
Model: V4_10P
Source Number: 74GBq-19

Master Calibration

Performed: Wed Feb 11 18:53:41 2015

	Background	Aluminum	Magnesium	
Window 1	613.01	6027.40	27508.60	cps
Window 2	48.21	1424.77	7132.66	cps
Window 4	266.48	1373.19	5767.15	cps
Window 5	622.07	10090.30	18937.90	cps
Window 6	49.07	1682.84	3271.18	cps
Window 8	298.04	3248.38	5980.58	cps
Bulk Density	-	2.6020	1.6830	g/cc
Pe	-	3.0000	2.5070	b/e

LS Alpha:	: -1.8451	SS Alpha:	: -0.7542	LS CPE:	: 1.0882
LS Beta:	: 138648.8473	SS Beta:	: 21960.9250	SS CPE:	: 1.5181

Before Survey Backround Counts Verification

Performed: Wed Dec 31 18:00:00 1969

Window 1	0.00	cps
Window 2	0.00	cps
Window 4	0.00	cps
Window 5	0.00	cps
Window 6	0.00	cps
Window 8	0.00	cps

After Survey Background Counts Verification

Performed: Wed Dec 31 18:00:00 1969

Window 1	0.00	cps
Window 2	0.00	cps
Window 4	0.00	cps
Window 5	0.00	cps
Window 6	0.00	cps
Window 8	0.00	cps

Lithodensity Caliper Calibration

Performed: Wed Feb 11 18:53:41 2015

Results Readings		References (in)			
Low	High	Low	High	Gain	Offset
5123.0	9461.6	8.5	14.0	0.0	1.6

Before Survey Caliper Verification

Performed:

	Reference	Reading
Caliper (in)		

After Survey Caliper Verification

Performed:

	Reference	Reading
Caliper (in)		

Compensated Neutron Calibration Report

Serial Number:	080620PMC
Tool Model:	NABORS

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	46001	
Tool Model:	Probe1	
Performed:	Mon Nov 24 09:45:18 2014	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.2600	GAPI/cps