COMPENSATED NEUTRON DENSITY INSTITUTION LOG

Company	PIONEERELL DRILLING CO. INC
Field	POUNDER
Well	TOWNEN
County	KEARNY
State	KANSAS
Location	1980 FSL 1980 FEL
Sec.	16
Twp.	24 S
Rge.	34 W
Elevation	KB 3000 DF 2992 GL 2987
Date	12-Dec-2017
Run No.	ONE
Depth Driller	5100
Depth Logger	5102
Bottom Log Interval	5100
Top Log Interval	3400
Casing Driller	8.625 @ 1000
Casing Logger	1000
Bit Size	7.875
Type Fluid in Hole	CHEMICAL GEL
Density / Viscosity	9.2 / 58
PH / Fluid Loss	10.5 / 8.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp.	0.7 @ 75
Rmf @ Meas. Temp.	0.6 @ 75
Rmc @ Meas. Temp.	0.9 @ 75
Source Rmf / Rmc	CALCULATED / CALCULATED
Rm @ BHT	0.4 @ 120
Time Since Circulation	9 HRS
Time Since Stop in Hole	1.5 HRS
Max. Recorded Temp.	120
Equipment / Location	5 MILES SOUTH OF LAKIN, KANSAS
Recorded By	BRIAN HAYS
Witnessed By	MR. DAVID TOWNEN

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 standard terms and conditions as set forth in our current price schedule.

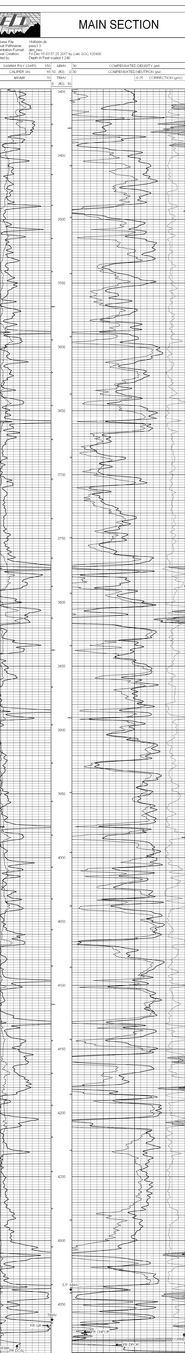
COMMENTS

THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395
DIRECTIONS:
BAZINE, KS., 8 1/2S 2W INTO 96 E. INTO

MAIN SECTION

Database File	12dec-ob
Dataset Pathname	pass1.2
Presentation Format	dual_por
Dataset Creation	Mon Jul 23 10:07:20 2018 by Calib SOC 1D4W8
Created by	Depth in Feet scaled 1:240

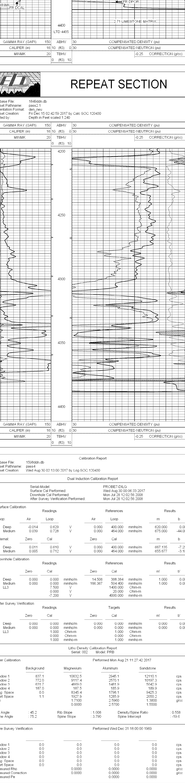
X: CURVES (FILT. OFF) YN: ABHN DC: COMPENSATED DENSITY .gcc YN:
X: CALIPER (in) YN: RD: JRD DC: COMPENSATED NEUTRON .gcc YN:
MIXMP: DC: TRHN: RD: JRD: YN: CORRECTION (gcc) DC: CORRECTION (gcc) YN:



REPEAT SECTION

Database File	12dec-ob
Dataset Pathname	pass1.2
Presentation Format	dual_por
Dataset Creation	Mon Jul 23 10:42:39 2018 by Calib SOC 1D4W8
Created by	Depth in Feet scaled 1:240

X: CURVES (FILT. OFF) YN: ABHN DC: COMPENSATED DENSITY .gcc YN:
X: CALIPER (in) YN: RD: JRD DC: COMPENSATED NEUTRON .gcc YN:
MIXMP: DC: TRHN: RD: JRD: YN: CORRECTION (gcc) DC: CORRECTION (gcc) YN:



Calibration Report

Database File	12dec-ob
Dataset Pathname	pass4.1
Dataset Creation	Wed Aug 30 02:10:00 2017 by Calib SOC 1D4W8

Dual Induction Calibration Report

Serial Number	PEL3BE CDLG
Surface Cal Performed	Wed Aug 30 02:06:10 2017
Internal Calibration Performed	Wed Aug 30 02:08:10 2017
After Survey Verification Performed	Mon Jul 24 02:12:00 2006

Surface Calibration

	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	630.000	0.000
Medium	0.024	0.128	V	0.000	400.000	mmho/m	670.000	-64.000
Internal	Zero	Cal		Zero	Cal		m	b
Deep	0.000	1.070	V	0.000	400.000	mmho/m	447.197	0.000
Medium	0.000	1.170	V	0.000	400.000	mmho/m	455.812	0.000

Overview Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m	b
Deep	0.000	0.000	mmho/m	194.529	194.529	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	0.000	304.400	mmho/m	0.000	0.000
N/A		0.000	mmho/m		0.000	mmho/m		
		0.000	mmho/m		0.000	mmho/m		
					400.000	mmho/m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m	b
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
N/A		0.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		

Lithy Density Calibration Report
Serial: 152 Model: PEB

Performed Mon Aug 21 17:27:42 2017

Master Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	37.1	1653.0	3247.1	1210.1	cps
Window 2	372.5	3117.4	2573.1	16337.1	cps
Window 3	97.1	1877.8	2270.5	3187.1	cps
Window 4	18.1	927.7	1451.9	1154.1	cps
Long Spacing	0.0	6247.4	1758.1	3425.1	cps
Long Ratio	0.0	1.8	1.3	0.3	ratio
Short Spacing	0.0	1000.0	1000.0	1000.0	cps
Phi		0.000	0.000	0.000	pu
Phi Angle	45.0	Phi Slope	1.000	Density Curve Pulse	3.709
Spine Angle	45.0	Spine Slope	1.000	Spine Intercept	10.0

Before Survey Verification

Performed Wed Dec 31 19:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Spacing	0.0	0.0	0.0	0.0	cps
Long Ratio	0.0	0.0	0.0	0.0	ratio
Short Spacing	0.0	0.0	0.0	0.0	cps
Phi		0.000	0.000	0.000	pu
Measured Pe		0.000	0.000	0.000	pu

After Survey Verification

Performed Wed Dec 31 19:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Spacing	0.0	0.0	0.0	0.0	cps
Long Ratio	0.0	0.0	0.0	0.0	ratio
Short Spacing	0.0	0.0	0.0	0.0	cps
Measured Pe		0.000	0.000	0.000	pu
Measured Correction		0.000	0.000	0.000	pu
Measured Pe			0.000	0.000	

Compensated Neutron Calibration Report

Serial Number	07390R
Tool Model	Probe

PRE-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
Short Space		n/a		
Long Space		n/a	zu	zu

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
Short Space		n/a		
Long Space		n/a	zu	zu

Gamma Ray Calibration Report

Serial Number	07390R
Calibration Date	Wed Mar 31 00:00:00 2017
Performed	Wed May 31 00:00:00 2017
Calibration Value	1.0 GAPI
Background Reading	0.0 GAPI
Calibration Reading	1.0 n/a
	1.0 GAPI
Sensitivity	0.2400 GAPI/cps