Company	RL INVESTMENT, LLC
Well	PFEFFER TRUST #2
Field	COLLYER TOWNSITE
County	TREGO
State	KANSAS
Date	10/04/2017
Operator	Jeff Bryant
Contractor	Eli Wireline Services
Rig Type	Mud Rotary
Elevation	KB: 2200 ft, GL: 2195 ft
Depth Reference	KB
Log Measured From	KB
Drilling Measured From	KB
Permanent Datum	GL
Log Date	10/04/2017
Log Time	08:00 CDT
Run Number	ONE
Depth Driller	4200 ft
Depth Logger	4202 ft
Bottom Logged Interval	4198 ft
Top Log Interval	200 ft
Open Hole Size	7.875 in
Drill Collar Size	2.25 in
Drill Pipe Size	4.5 in
Drill Pipe Length	3900 ft
Drill Collars Above	90 ft
Drill Collars Below	90 ft
Drilling Fluid Type	Chemical
Density	9.1 lb/gal
Viscosity	58 s
Fluid Loss	8.4 cc
Resistivity	0.08 ohm-m @ 75 F
Resistivity	0.07 ohm-m @ 75 F
Resistivity	0.09 ohm-m @ 75 F
Source	Mud Pit
Max Rec Temp	120 F
Equipment	9-7/8 Mud Motor
Recorded By	Jeff Bryant
Witnessed By	Mr. Rick Hiebert

COMPENSATED DENSITY/NEUTRON
CDR

PFEFFER TRUST #2-4
COLLYER TOWNSITE
TREGO
KANSAS
API #: 15-195-22955-0000
Lat: 38.8833333
Long: -99.7666667
S2 - T14 S - R 19 W FEL
S2 - T14 S - R 19 W FNL
Other Services:
DIL - DUAL INDUCTION LOG
MEL - MICRO ELECTRICAL LOG
SDL - SONIC DENSITY LOG
CNL - COMPENSATED NEUTRON LOG
CBL - CEMENT BOND LOG
Elevation: KB 2200 ft, GL 2195 ft
Log Measured From: KB, 5 ft above GL
Drilling Measured From: KB
Permanent Datum: GL
Log Date: 10/04/2017
Log Time: 08:00 CDT
Run Number: ONE
Depth Driller: 4200 ft
Depth Logger: 4202 ft
Bottom Logged Interval: 4198 ft
Top Log Interval: 200 ft
Open Hole Size: 7.875 in
Drill Collar Size: 2.25 in
Drill Pipe Size: 4.5 in
Drill Pipe Length: 3900 ft
Drill Collars Above: 90 ft
Drill Collars Below: 90 ft
Drilling Fluid Type: Chemical
Density: 9.1 lb/gal
Viscosity: 58 s
Fluid Loss: 8.4 cc
Resistivity: 0.08 ohm-m @ 75 F
Resistivity: 0.07 ohm-m @ 75 F
Resistivity: 0.09 ohm-m @ 75 F
Source: Mud Pit
Max Rec Temp: 120 F
Equipment: 9-7/8 Mud Motor
Recorded By: Jeff Bryant
Witnessed By: Mr. Rick Hiebert

THIS INTERPRETATION IS BASED ON OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION MADE BY US. WE WILL NOT BE LIABLE FOR ANY LOSS OR DAMAGE WHATSOEVER, WHETHER IN CONTRACT, TORT OR OTHERWISE, IN CONNECTION WITH THE PERFORMANCE OF THE SERVICES OR ANY INTERPRETATION MADE BY US. IN NO EVENT WILL WE BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

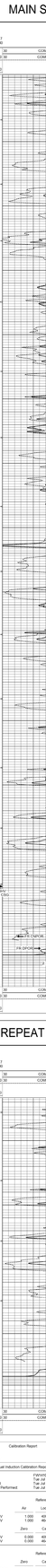
Comments

THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395
DIRECTIONS
I 70 & COLLYER EXIT - 1/2 NORTH - WEST INTO

MAIN SECTION

Database File: 180324ll.db
Dataset Pathname: pass1.1
Presentation Format: dbc_mn
Dataset Creation: Thu Dec 07 18:04:56 2017
Charted by: Depth in Feet scaled 1:240

G	GAMMA RAY (GAPI)	150	AVTX	30	COMPENSATED DENSITY (pu)	10
R	CALIPER (in)	16	10. (ES)	0.30	COMPENSATED NEUTRON (pu)	10
B	MINMR	20	BVTX		-0.25 CORRECTION (gcc)	0.25



G	GAMMA RAY (GAPI)	150	AVTX	30	COMPENSATED DENSITY (pu)	10
R	CALIPER (in)	16	10. (ES)	0.30	COMPENSATED NEUTRON (pu)	10
B	MINMR	20	BVTX		-0.25 CORRECTION (gcc)	0.25

REPEAT SECTION

Database File: 180324ll.db
Dataset Pathname: pass1.1
Presentation Format: dbc_mn
Dataset Creation: Thu Dec 07 17:19:26 2017
Charted by: Depth in Feet scaled 1:240

G	GAMMA RAY (GAPI)	150	AVTX	30	COMPENSATED DENSITY (pu)	10
R	CALIPER (in)	16	10. (ES)	0.30	COMPENSATED NEUTRON (pu)	10
B	MINMR	20	BVTX		-0.25 CORRECTION (gcc)	0.25

G	GAMMA RAY (GAPI)	150	AVTX	30	COMPENSATED DENSITY (pu)	10
R	CALIPER (in)	16	10. (ES)	0.30	COMPENSATED NEUTRON (pu)	10
B	MINMR	20	BVTX		-0.25 CORRECTION (gcc)	0.25

Calibration Report

Serial Model: FWHYIS-SB-Probe
Dual Induction Calibration Report: Tue Jul 25 12:10:27 2017
Calibration Performed: Tue Jul 25 12:10:28 2017
Dual Induction Calibration Report
Serial Model: FWHYIS-SB-Probe
Calibration Performed: Tue Jul 25 12:10:27 2017
Calibration Performed: Tue Jul 25 12:10:28 2017

Surface Calibration

	Readings Loop	Air	References Loop	Air	Results m	b
Deep	0.000	0.765 V	1.000	400.000 mmho/m	521.901	-2.051
Medium	-0.056	0.765 V	1.000	464.000 mmho/m	567.167	32.510

Internal

	Zero	Cal	Zero	Cal	m	b
Deep	0.002	0.604 V	0.000	400.000 mmho/m	663.611	2.034
Medium	0.000	0.724 V	0.000	464.000 mmho/m	639.345	-1.000

Downhole Calibration

	Readings Zero	Cal	References Zero	Cal	Results m'	b'
Deep	-0.047	301.320 mmho/m	-0.780	336.370 mmho/m	1.117	-0.058
Medium	36.256	451.015 mmho/m	36.040	447.785 mmho/m	1.000	-2.280
LL3		7.471 V		2520.000 Ohm-m		
		0.000 V		2520.000 Ohm-m		
		7.000 V		1000.000 mmho/m		

After Survey Verification

	Readings Zero	Cal	Targets Zero	Cal	Results m'	b'
Deep	0.000	0.000 mmho/m	-0.647	301.320 mmho/m	1.000	0.000
Medium	0.000	0.000 mmho/m	36.256	451.015 mmho/m	1.000	0.000
LL3		0.000 Ohm-m		1000.000 Ohm-m		
		0.000 Ohm-m		20.000 Ohm-m		
		0.000 mmho/m		2750.000 mmho/m		

Little Density Calibration Report
Tool Model: SDL-HS
Serial: 13_107
Source Number: 74Gbq-19

Master Calibration

Performed: Wed Feb 11 18:33:41 2015

	Background	Aluminum	Magnesium	
Window 1	813.01	6527.40	27308.83	cps
Window 2	1.00	1.00	1.00	cps
Window 4	266.48	1373.19	5767.10	cps
Window 5	622.07	10090.30	18007.90	cps
Window 6	49.07	1992.84	3371.18	cps
Window 8	268.04	3248.38	5985.58	cps
Sub Density	-	2.6020	1.6830	gcc
Pe	-	3.0000	2.5070	b/e
LJ Alpha -1.8401		SS Alpha -0.7542		LS CPE: 1.0862
LS Beta 13808.8473		SS Beta 21980.9250		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 Backgrround 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	
1107.5	7124.1	8.0	10.5	0.0	8.3	

Before Survey Caliper Verification

Performed:

Reference Reading

Caliper (in)

After Survey Caliper Verification

Performed:

Reference Reading

Caliper (in)

Compensated Neutron Calibration Report

Serial Number: 0700SM
Tool Model: DENSITHIC NAQ0R25

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: 0700SM
Tool Model: Probe1
Performed: Tue Jul 25 12:10:33 2017

Calibrator Value	1.0	GAPI
Background Reading	0.0	cps
Calibrator Reading	0.0	cps
Gain	0.4000	GAPI/cps