Company: Canadian Natural Resources Ltd.
Well: 102/06-29-085-17W6M
Field: Bear Lake
Province: Alberta
Country: Canada
Date: 2-Jan-2011
Time: 14:00
Depth Unit: Metres
Time Unit: Minutes
Depth Type: Measured Depth
Time Type: Elapsed Time
Logging Company: Schlumberger
Logging Date: 2-Jan-2011
Logging Time: 14:00
Logging Unit: Unit 1
Logging Type: Primary
Logging Method: Conveyed
Logging Direction: Down
Log Interval: 1 Metre
Log Type: Raw
Log Quality: Good
Log Comment: Logged with Tension Control

Schlumberger

Canadian Natural Resources

THIS CALIPER DATA IS CONSIDERED SUCCESSFUL WITH 0% OR LESS OF THE LOGGED INTERVAL EXCEEDING 12.7 CM (5 INCHES) OR 25% OR LESS OF THE LOGGED INTERVAL EXCEEDING 8.9 CM (3.5 INCHES).

Company: Canadian Natural Resources Ltd.
Well: 102/06-29-085-17W6M
Field: Bear Lake
Province: Alberta
Country: Canada
Date: 2-Jan-2011
Time: 14:00
Depth Unit: Metres
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Schlumberger

Canadian Natural Resources

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Company: Canadian Natural Resources Ltd.
Well: 102/06-29-085-17W6M
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Schlumberger

Canadian Natural Resources

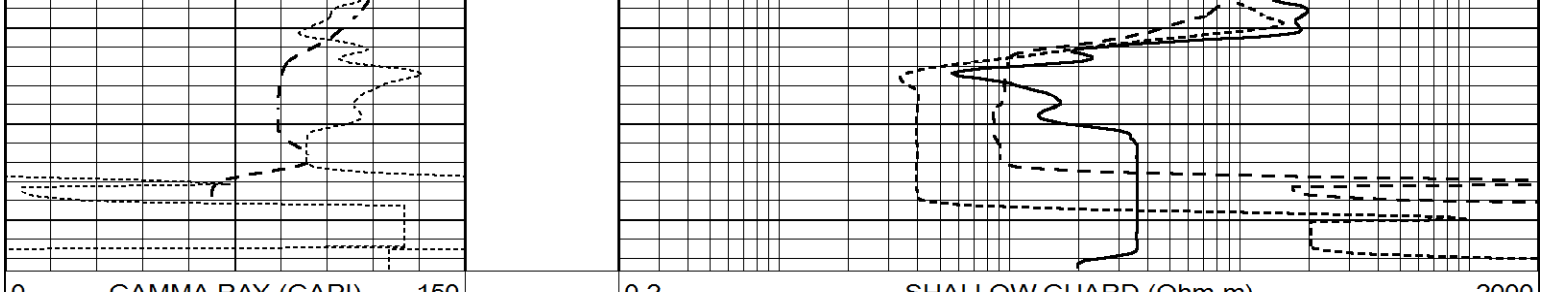
MAIN SECTION

Company: Canadian Natural Resources Ltd.
Well: 102/06-29-085-17W6M
Field: Bear Lake
Province: Alberta
Country: Canada
Date: 2-Jan-2011
Time: 14:00
Depth Unit: Metres
Time Unit: Minutes
Depth Type: Measured Depth
Time Type: Elapsed Time
Logging Company: Schlumberger
Logging Date: 2-Jan-2011
Logging Time: 14:00
Logging Unit: Unit 1
Logging Type: Primary
Logging Method: Conveyed
Logging Direction: Down
Log Interval: 1 Metre
Log Type: Raw
Log Quality: Good
Log Comment: Logged with Tension Control

Schlumberger

Canadian Natural Resources

REPEAT SECTION



0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	MEDIUM INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	DEEP INDUCTION (Ohm-m)	2000

Calibration Report

Database File 26619ddn8.db
Dataset Pathname pass3.2
Dataset Creation Thu Nov 19 04:11:20 2015

Dual Induction Calibration Report

Serial-Model: FW1410-55-Probe
Surface Cal Performed: Thu Mar 12 09:27:11 2015
Downhole Cal Performed: Thu Mar 12 09:29:20 2015
After Survey Verification Performed: Thu Mar 12 09:29:20 2015

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	1.000	400.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V	1.000	464.000	mmho/m	632.856	1.197
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.007	0.649	V	0.000	400.000	mmho/m	623.784	-4.595
Medium	0.004	0.743	V	0.000	464.000	mmho/m	627.284	-2.251

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	-0.824	395.917	mmho/m	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	mmho/m	3.468	471.590	mmho/m	1.001	-0.099
LL3		7.503	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.481	V		3745.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	3.565	471.327	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: 140703
Model: V4_10P
Source Number: 74GBq-19

Master Calibration — Performed: Wed Feb 11 16:57:09 2015

	Background	Aluminum	Magnesium	
Window 1	594.39	6349.98	29204.00	cps
Window 2	47.14	1460.46	7334.94	cps
Window 4	261.52	1478.45	6338.23	cps
Window 5	633.19	10381.10	19565.80	cps
Window 6	49.78	1758.01	3436.39	cps
Window 8	302.39	3297.16	6093.06	cps
Bulk Density	-	2.6020	1.6830	g/cc
Pe	-	3.0000	2.5070	b/e

LS Alpha: : -1.8570 SS Alpha: : -0.7600 LS CPE: : 1.1652
LS Beta: : 157430.0395 SS Beta: : 22665.8398 SS CPE: : 1.4739

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 16:57:09 2015

Results	Readings	References (in)			
Low	High	Low	High	Gain	Offset
5280.9	9455.1	8.6	14.0	0.0	1.3

Before Survey Caliper Verification — Performed:

	Reference	Reading
Caliper (in)		

After Survey Caliper Verification — Performed:

	Reference	Reading
Caliper (in)		

Compensated Neutron Calibration Report

Serial Number: 080621PMC
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: 070558
Tool Model: Probe1
Performed: Tue Jun 10 17:54:10 2014

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.3000 GAPI/cps