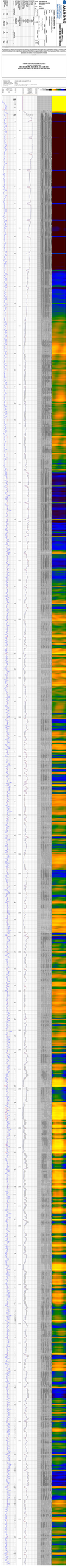

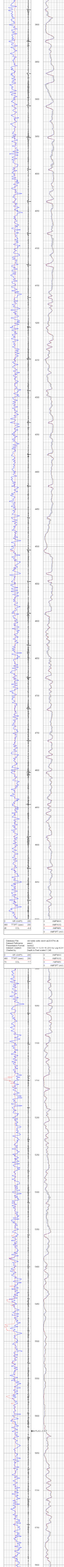

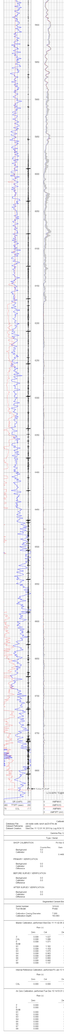

NABORS
COMPLETION & PRODUCTION SERVICES CO.

GAMMA RAY CCL
CEMENT BOND SECTOR VDL

Company	NOBLE ENERGY INC.
Well	WELLS RANCH AE20-67HN
Field	WATTENBERG
County	WELD
State	COLORADO

Company NOBLE ENERGY INC.
Well WELLS RANCH AE20-67HN
Field WATTENBERG
County WELD State COLORADO

Location: API #: 0512337212
BHL: 1320' FNL & 535' FEL
NW/NW
SEC 20 TWP 6N RGE 62W

Other Services

			Elevation
Permanent Datum	GL	Elevation 4841	K.B. 4871
Log Measured From	KB		D.F.
Drilling Measured From	KB		G.L. 4841

Date	DECEMBER 11, 2013
Run Number	ONE
Depth Driller	10861
Depth Logger	6830
Bottom Logged Interval	6830
Top Log Interval	SURFACE
Open Hole Size	8-3/4
Type Fluid	WATER
Density / Viscosity	N/A
Max. Recorded Temp.	223°F
Estimated Cement Top	430
Time Well Ready	PORTABLE MAST
Time Logger on Bottom	2-3/4 PROBE 101020/785
Equipment Number	4838
Location	45
Recorded By	GREG NOLAN
Witnessed By	BILL MANSFIELD

Borehole Record				Tubing Record		
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	9-5/8	36# J-55	30	973.6
Prot. String				
Production String	7	26# P-110 IC	30	6971.8
Liner	4-1/2	11.6# P-110 IC	6870.2	10846

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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 CHOOSING NCPS!!!!
LOG NOT CORRELATED
WCR 67 & WCR 68, E.2, S.25, E3, W.5, E.8, N INTO
FOURTH WELL FROM THE SOUTH OF AN 8 WELL PAD

Database File:	cbl noble wells ranch ae20-67hn.db
Dataset Pathname:	pass3
Presentation Format:	sector2
Dataset Creation:	Wed Dec 11 12:18:06 2013 by Log SCH 120430
Charted by:	Depth in Feet scaled 1:240

Database File:	cbl noble wells ranch ae20-67hn.db
Dataset Pathname:	pass2
Presentation Format:	sector2
Dataset Creation:	Wed Dec 11 12:01:16 2013 by Log SCH 120430
Charted by:	Depth in Feet scaled 1:240

Calibration Report

Database File:	cbl noble wells ranch ae20-67hn.db
Dataset Pathname:	pass2
Dataset Creation:	Wed Dec 11 12:01:16 2013 by Log SCH 120430

Gamma Ray Calibration Report

Type / Serial: Probe275dig / 110785

SHOP CALIBRATION	Fri Nov 08 09:38:30 2013				
	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	1.0				cps
		0.4400			GAPI/cps
PRIMARY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
AFTER SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

Segmented Cement Bond Log Calibration Report

Serial Number:	101020	
Tool Model:	Probe	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	163.883	ft

Master Calibration, performed Wed Dec 11 11:42:06 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	1.027	1.500	62.165	59.506	1.039
CAL	0.008	1.088				
5'	0.008	1.071	1.500	62.165	57.055	1.063
SUM						
S1	0.008	1.182	0.000	62.165	52.946	-0.412
S2	0.008	1.154	0.000	62.165	54.258	-0.425
S3	0.008	1.075	0.000	62.165	58.233	-0.457
S4	0.008	0.963	0.000	62.165	65.031	-0.491
S5	0.008	0.865	0.000	62.165	72.517	-0.551
S6	0.007	0.860	0.000	62.165	72.913	-0.516
S7	0.008	0.990	0.000	62.165	63.291	-0.479
S8	0.008	1.137	0.000	62.165	55.052	-0.452

Internal Reference Calibration, performed Fri Jan 13 14:30:16 2012:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.008	1.088	1.000	0.000

Air Zero Calibration, performed Tue Dec 10 14:53:01 2013:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000