



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/12/2014
Invoice #: 12067
API#: 05-123-39217
Foreman: JASON

Customer: ENCANA
Well Name: MUMBY STATE 4F-36H-P266

County: Weld County
State: Colorado
Sec: 36
Twp: 2N
Range: 66W

Consultant: ROY
Rig Name & Number: H&P 522
Distance To Location: 67
Units On Location: 4027-3106, 4020-3205
Time Requested: 2030
Time Arrived On Location: 1900
Time Left Location: 30

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 40.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft) : 1,073	Cement Yield (cuft) : 1.27
Total Depth (ft) : 1118	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 50%
Conductor Length (ft) : 82	Displacement Fluid lb/gal: 8.3
Conductor ID : 16	BBL to Pit: 15.0
Shoe Joint Length (ft) : 45	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 38	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	30 BBL H2O+KCL+DYE IN 2ND 10

Casing ID	8.835	Casing Grade	J-55 only used
Calculated Results	Displacement: 80.86 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)		
cuft of Shoe 19.00 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus		
cuft of Conductor 73.06 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 847.28 PSI		
cuft of Casing 465.56 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing		
Total Slurry Volume 557.63 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 443.43 psi		
bbls of Slurry 148.97 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Shoe Joint: 35.25 psi		
Sacks Needed 439 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 478.68 psi		
Mix Water 61.58 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 368.60 psi		
	Collapse PSI: 2570.00 psi		
	Burst PSI: 3950.00 psi		
	Total Water Needed: 192.44 bbls		

X *Ray Hu*
Authorization to Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.



**Bison Oil Well Cementing
Single Cement Surface Pipe**

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Well Name

ENCANA
MUMBY STATE 4F-36H-P266

INVOICE #
LOCATION
FOREMAN
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DESCRIPTION OF JOB EVENTS

Safety Meeting MIRU CIRCULATE Drop Plug 2303 M & P Time 2237-2300 % Excess Mixed bbls Total Sacks bbl Returns Water Temp	2200 2100 2303 439 0% 61.5 439 15 79	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
		0	2304	0	0			0			0			0		
		10	2304	120	10			10			10			10		
		20	2310	240	20			20			20			20		
		30	2311	350	30			30			30			30		
		40	2313	530	40			40			40			40		
		50	2315	600	50			50			50			50		
		60	2317	680	60			60			60			60		
		70	2319	480	70			70			70			70		
		80	2321	490	80			80			80			80		
		90	BUMP	760	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		

Notes:

The day

PUMPED 30 BBL H2O AHEAD, SECOND 10 WITH DYE, MIX AND PUMP 439 SKS AT 15.2, 99 BBLs OF SLURRY, AFTER BUMPING PLUG PRESSURE TESTED
CASING AT 1500 PSI FOR 15 MINUTES, RELEASE PRESSURE AND GOT .5 BBL BACK

X

Work Preformed

X

Title

WSC

X

Date

6-12-2014