




Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/27/2014
Invoice #: 12077
API#: 05-123-38689
Foreman: JASON

Customer: NOBLE
Well Name: WELLS RANCH AE30-64-1AHNA

County: Weld County
State: Colorado
Sec: 29
Twp: 6N
Range: 62W
Consultant: KEVIN
Rig Name & Number: H&P 277
Distance To Location: 33
Units On Location: 4031-3106, 4022-3205
Time Requested: 700
Time Arrived On Location: 430
Time Left Location: 1530

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft) : 605	Cement Yield (cuft) : 1.27
Total Depth (ft) : 640	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 20%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 10.0
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 45.0
Landing Joint (ft) : 25	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	45 BBL H2O+KCL+DYE IN 2ND 10

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 45.30 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	19.14 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus	
cuft of Conductor	76.31 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 477.98 PSI	
cuft of Casing	318.91 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing	
Total Slurry Volume	414.36 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 242.00 psi	
bbls of Slurry	73.7 88.56 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Shoe Joint: 34.81 psi	
Sacks Needed	326 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 276.82 psi	
Mix Water	45.75 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 201.17 psi	
		Collapse PSI: 2020.00 psi	
		Burst PSI: 3520.00 psi	
		Total Water Needed: 156.05 bbls	
<div>X  Authorization to Proceed</div>			
Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.			



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Single Cement Surface Pipe

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FOREMAN
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DESCRIPTION OF JOB EVENTS

Safety Meeting MIRU CIRCULATE Drop Plug 1411 M & P Time 1351-1408 % Excess Mixed bbls Total Sacks bbl Returns Water Temp	1310	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	1230	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
		0	1412	0	0			0			0			0		
		10	1414	60	10			10			10			10		
		20	1416	150	20			20			20			20		
		30	1419	240	30			30			30			30		
		40	1421	360	40			40			40			40		
		50	1424	240	50			50			50			50		
		60	BUMP	430	60			60			60			60		
		70			70			70			70			70		
		80			80			80			80			80		
		90			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

PRESSURE TEST TO 1500 PSI, PUMPED 45 BBL WATER WITH DYE IN THE 2ND 10, MIXED AND PUMPED 326 SKS AT 15.2, 73.7 BBL, DISPLACED 45.3 BBLS

PRESSURING UP TO 430 PSI, PERFORMED CASING TEST AT 1000 PSI FOR 15 MINUTES, RELEASED PRESSURE AND GOT .25 BBL BACK

X Jason L. Lacy
Work Performed

X WSS
Title

X 27-Jun-14
Date