



Bison Oil Well Cementing Single Cement Surface Pipe

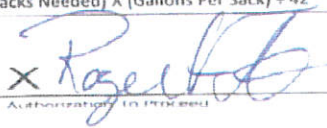
Date: 12/25/2013
Invoice #: 12605
API#: 05-123-37810
Foreman: Calvin Reimers

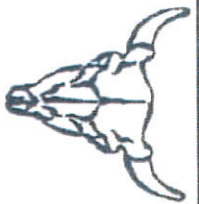
Customer: Noble
Well Name: Wells Ranch AA 21 65 HN

County: Weld
State: Colorado
Sec: 21
Twp: 6N
Range: 63W

Consultant: Roger F
Rig Name & Number: H&P 277
Distance To Location: 30 Miles
Units On Location: 3106/3211
Time Requested: 600am
Time Arrived On Location: 600am
Time Left Location: 1230pm

WELL DATA		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	36	Cement Density (lb/gal) :	15.2
Casing Depth (ft) :	900	Cement Yield (cuft) :	1.27
Total Depth (ft) :	934	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.75	% Excess:	10%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	20.0
Shoe Joint Length (ft) :	44	Fluid Ahead (bbls):	
Landing Joint (ft) :	28	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	0bbls H2O+KCL+Dye in 2nd 10bbls	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement:	68.34 bbls
cuft of Shoe		(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.0009714) X (Shoe Joint ft)		Pressure of cement in annulus	
cuft of Conductor		Hydrostatic Pressure:	710.68 PSI
(Conductor Width Squared) - (Casing Size OD Squared) X (.0009714) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing		Displacement:	369.09 psi
(Open Hole Squared) - (Casing Size Squared) X (.0009714) X (Casing Depth - Conductor Length)		Shoe Joint:	34.78 psi
Total Slurry Volume		Total	403.87 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	306.81 psi
bbls of Slurry		Lollapse PSI:	2020.00 psi
(Total Slurry Volume) X (.1781) X (% Excess Cement)		Burst PSI:	3520.00 psi
Sacks Needed		Total Water Needed	84.25 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water			
(Sacks Needed) X (Gallons Per Sack) ÷ 42			
 X Roger F Authorization on this well			
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

Customer
Well Name

Noble
Wells Ranch AA 21-65 HN

INVOICE #
LOCATION
FOREMAN
Date

12605
Weld
Calvin Reimers
12/25/2013

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting	941am	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	845am	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI
MIRU	1025am	0	1103am	100	0			0			0			0		
CIRCULATE		10	1106am	160	10			10			10			10		
Drop Plug		20	1108am	250	20			20			20			20		
		30	1110am	300	30			30			30			30		
		40	1112am	380	40			40			40			40		
		50	1113am	450	50			50			50			50		
M & P		60	1115am	470	60			60			60			60		
		70	1118am	370	70			70			70			70		
		80	Bump	640	80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
% Excess		130			130			130			130			130		
Mixed bbls	64.25	140			140			140			140			140		
Total Sacks	458	150			150			150			150			150		
bbl Returns	70															

Notes:

The day

Float Held Casing Psi Test 1010 psi at 1119am

to 1010 at 1134am

X Robert Foster X WSS X 12/25/13
Work Preferred Date