



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/30/2015
Invoice #: 80422
API#: 05-123-41586
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Wells Ranch Greyson LD 28-753AA 11-654

County: Weld
State: Colorado
Sec: 28
Twp: 9N
Range: 58W
Consultant: JW / Bo
Rig Name & Number: H&P 343
Distance To Location: 75 Miles
Units On Location: 4023-3104/4033-3212
Time Requested: 600am
Time Arrived On Location: 545am
Time Left Location: 9:00 AM

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 14.2
Casing Depth (ft) : 1,101	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1135	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 30%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 16	BBL to Pit: 34
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 29	H2O Wash Up (bbls): 10.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	40bbls H2O with Dye in 2nd 10bbls

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement:	84.06 bbls
cuft of Shoe	18.65 cuft	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		Pressure of cement in annulus	
cuft of Conductor	89.10 cuft	Hydrostatic Pressure:	812.44 PSI
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing	636.18 cuft	Displacement:	456.34 psi
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Shoe Joint:	<u>31.69</u> psi
Total Slurry Volume	743.92 cuft	Total	488.03 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	324.40 psi
bbls of Slurry	132.49 bbls	Collapse PSI:	2020.00 psi
(Total Slurry Volume) X (.1781)		Burst PSI:	3520.00 psi
Sacks Needed	499 sk	Total Water Needed:	222.98 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	88.92 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

X *SW Turner*
Authorization To Proceed



INVOICE #
LOCATION
FOREMAN
Date

80422	Weld	in Reim	30/201
-------	------	---------	--------

Customer
Well Name

Noble Energy Inc.
Greyson LD 28-753

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

[illegible]

X Tw Irwin
Work Performed

X W.S.S	Title
---------	-------

X 7-30-15
Date