



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/9/2014
 Invoice #: 45035
 API#: 05-123-37613
 Foreman: JASON KELEHER

Customer: EnCana Oil & Gas (USA) Inc.
 Well Name: DRIETH 4D-6H-I368

County: Weld
 State: Colorado
 Sec: 6
 Twp: 3N
 Range: 68W
 Consultant: KEVIN
 Rig Name & Number: H&P 522
 Distance To Location: 27
 Units On Location: 4031-3106/ 4019-3213
 Time Requested: 900
 Time Arrived On Location: 830
 Time Left Location: 1230

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.) : 834	Cement Yield (cuft) : 1.27
Total Depth (ft) : 880	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 20%
Conductor Length (ft) : 110	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 8
Shoe Joint Length (ft) : 45	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 39	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	30BBL H2O W/KCL, Dye in 2nd 10

Casing ID: 8.835 Casing Grade: J-55 only used

Calculated Results	Pressure of cement in annulus
cuft of Shoe 19.18 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 62.80 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 83.94 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 658.91 PSI
cuft of Casing 272.27 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 375.40 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 340.38 psi
bbls of Slurry 66.86 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 35.58 psi
Sacks Needed 296 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 375.96 psi
Mix Water 41.45 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 282.94 psi
	Collapse PSI: 2570.00 psi
	Burst PSI: 3950.00 psi
	Total Water Needed: 154.26 bbls

X *Kevin Berger*
 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.