



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/11/2018
 Invoice #: 300128
 API#: 05-123-46440
 Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation

Well Name: GRACIE 24-11HZ

County: Weld
 State: Colorado
 Sec: 24
 Twp: 2N
 Range: 66W

Consultant: BRYAN
 Rig Name & Number: CARTEL 88
 Distance To Location: 31
 Units On Location: 1044-3106,4024-3201,4030-3211
 Time Requested: 1030
 Time Arrived On Location: 930
 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) : 14.2
Casing Depth (ft.) : 1,848	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1858	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 10%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 14.0
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 8	H2O Wash Up (bbls): 10.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 BBL WATER, DYE IN 2ND 10

Calculated Results	Displacement: 140.22 bbls
cuft of Shoe 18.53 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing 950.73 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: 1363.62 PSI
Total Slurry Volume 1030.31 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry 183.50 bbls (Total Slurry Volume) X (.1781)	Displacement: 778.62 psi
Sacks Needed 696 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: 31.49 psi
Mix Water 123.98 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total 810.11 psi
	Differential Pressure: 553.51 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 304.20 bbls

X Authorization To Proceed

GRACIE 24-11HZ SURFACE

