



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/17/2014
 Invoice #: 45074
 API#: 05-123-38886
 Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation
Well Name: BARCLAY 16C-26HZ

County: Weld
 State: Colorado
 Sec: 14
 Twp: 2N
 Range: 67W

Consultant: ELLIS
 Rig Name & Number: MAJORS 29
 Distance To Location: 20
 Units On Location: 4031-3106/ 4022-3213
 Time Requested: 1900
 Time Arrived: 1800
 Time Left Location: 2300

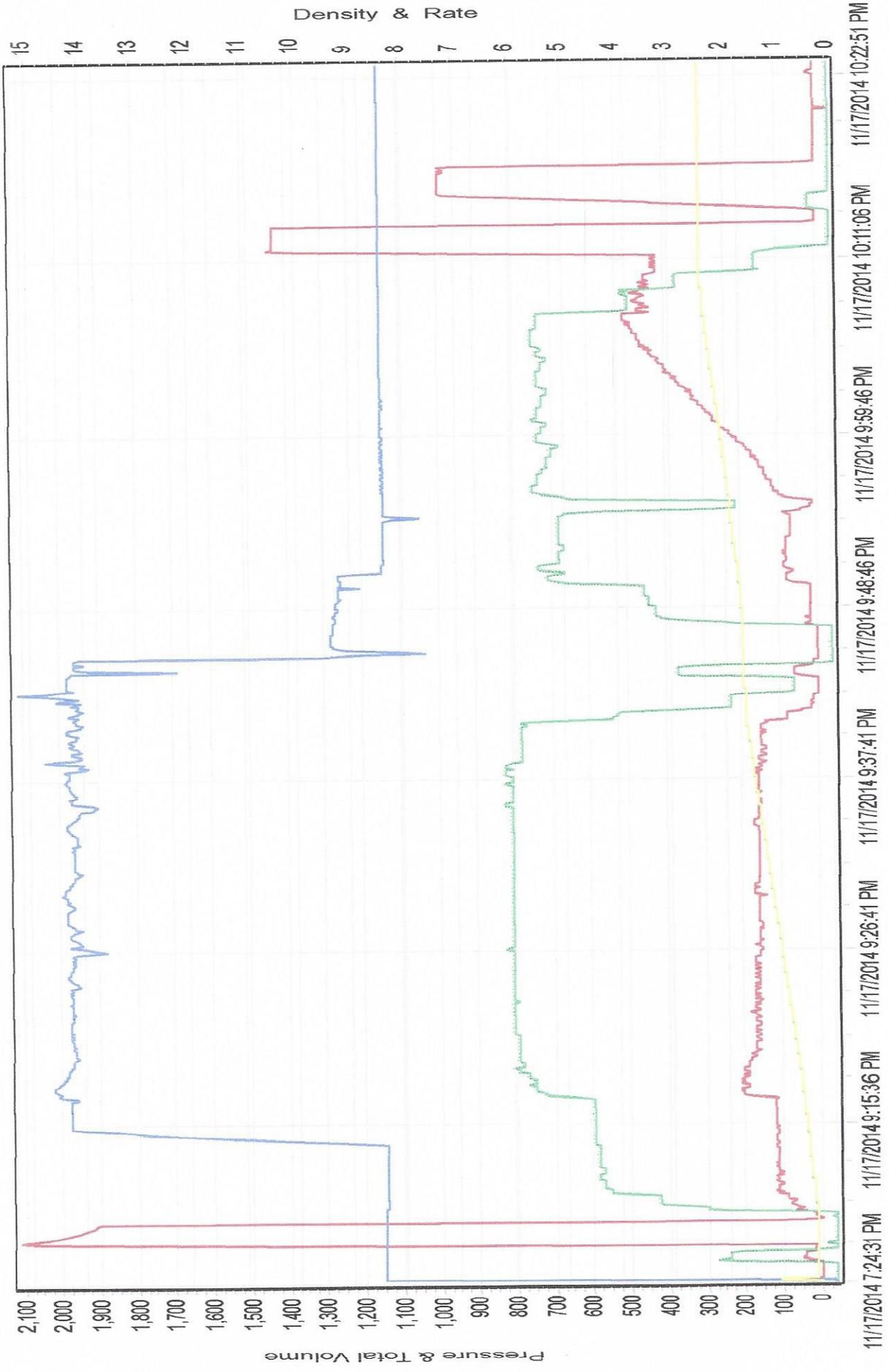
WELL DATA		Cement Data	
Casing Size OD (in) :	9.625	Cement Name:	BFN III
Casing Weight (lb) :	36.00	Cement Density (lb/gal) :	14.2
Casing Depth (ft.) :	1,338	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1354	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	21%
Conductor Length (ft) :		Displacement Fluid lb/gal:	8.3
Conductor ID :		BBL to Pit:	17.0
Shoe Joint Length (ft) :	43	Fluid Ahead (bbls):	30.0
Landing Joint (ft) :	8	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	30 BBL WATER, DYE IN 2ND 10	

Calculated Results	Displacement: 100.75 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 18.52 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus
cuft of Conductor 0.00 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 987.01 PSI
cuft of Casing 793.18 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 811.70 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 558.50 psi
bbls of Slurry 144.56 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 31.48 psi
Sacks Needed 545 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 589.98 psi
Mix Water 97.02 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 397.03 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 247.77 bbls

X *Ellis* Major 29
 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.

BARCLAY 16C-26HZ SURFACE





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Casing Depth (ft.) : 1,338	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1354	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 21%
Conductor Length (ft) :	Displacement Fluid lb/gal: 8.3
Conductor ID :	BBL to Pit:
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 8	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	30 BBL WATER, DYE IN 2ND 10

Casing ID: 8.921 Casing Grade: J-55 only used

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X *Mr. Jason Maje 29*
 Authorization To Proceed

Release and Indemnification

Customer acknowledges and assumes the risks associated with oil well drilling, cementing and acidizing, including, without limitation, destabilization, loss of production, contamination, fracturing and loss of well control. Customer agrees to release Bison Oil Well Cementing, Inc., Bison Energy Services, Inc., its agents, employees and assigns, from any and all liability for any and all damages whatsoever to property of any kind owned by, in the possession of, or leased by customer and those persons or entities customer has the ability to bind by contract. Customer also agrees to indemnify and hold harmless Bison Oil Well Cementing, Inc., Bison Energy Services, Inc., its agents, employees and assigns, from and against any and all liability, claims, costs, expenses, attorneys fees and damages whatsoever for claims, costs, expenses, attorneys fees and damages whatsoever for personal injury, illness, death, property damage and loss resulting from: loss or reduction of production, destabilization loss of oil well control, failure of or contamination by acid stimulation, hydraulic fracturing, cementing, pumping services, incompatible fluid or other processes to stimulate, complete or end production, and/or any other condition. Customer's release, indemnity and hold harmless obligation shall apply even if the liability and claims are caused by the sole, concurrent, active or passive negligence, fault, or strict liability of Bison Oil Well Cementing, Inc. and/or Bison Energy Services, Inc. or any defect in the data, products, supplies, materials or equipment furnished by Bison Oil Well Cementing, Inc. whether in the design, manufacturing, maintenance, or marketing thereof or from failure to warn of such defect. In the event that any portion of this release and indemnity is found by a court of competent jurisdiction to be inoperable or unenforceable, the remaining portions and provisions shall apply, and customer agrees that the contract price herein shall be the limit of Bison Oil Well Cementing, Inc.'s liability, if any.