



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/6/2014
 Invoice # 25063
 API# 05-123-40178
 Foreman: Calvin Reimers

Customer: Anadarko Petroleum Corporation
 Well Name: Summit 36N-32HZ

County: Weld
 State: Colorado
 Sec: 29
 Twp: 2N
 Range: 65W

Consultant: Allen
 Rig Name & Number: Major 42
 Distance To Location: 18 Miles
 Units On Location: 4023-3104/4018-3204
 Time Requested: 530pm
 Time Arrived On Location: 400pm
 Time Left Location: 8:00 p.m.

WELL DATA		Cement Data	
Casing Size OD (in) :	<u>9.625</u>	Cement Name:	<u>BFN III</u>
Casing Weight (lb) :	<u>36.00</u>	Cement Density (lb/gal) :	<u>14.2</u>
Casing Depth (ft.) :	<u>1,096</u>	Cement Yield (cuft) :	<u>1.49</u>
Total Depth (ft) :	<u>1113</u>	Gallons Per Sack:	<u>7.48</u>
Open Hole Diameter (in.) :	<u>13.50</u>	% Excess:	<u>16%</u>
Conductor Length (ft) :		Displacement Fluid lb/gal:	<u>8.3</u>
Conductor ID :		BBL to Pit:	<u>26</u>
Shoe Joint Length (ft) :	<u>43</u>	Fluid Ahead (bbls):	<u>30.0</u>
Landing Joint (ft) :	<u>8</u>	H2O Wash Up (bbls):	<u>20.0</u>
Max Rate:	<u>7</u>	Spacer Ahead Makeup	
Max Pressure:	<u>2500</u>	30bbls H2O+Dye in 2nd 10bbls	

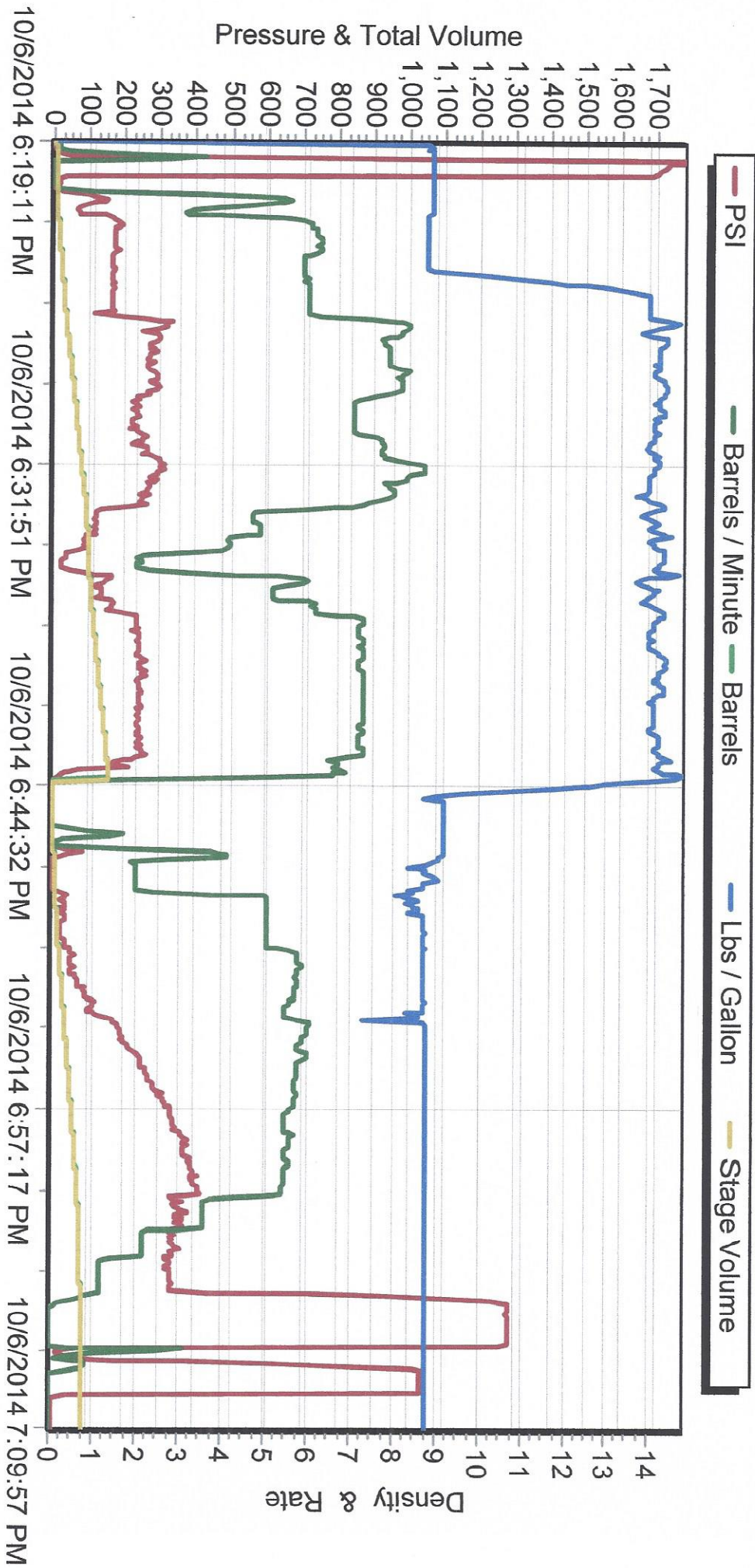
Casing ID 8.921 Casing Grade J-55 only used

Calculated Results			Displacement: 82.06 bbls	
cuft of Shoe	18.61	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	0.00	cuft	Hydrostatic Pressure: 808.78 PSI	
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)			Pressure of the fluids inside casing	
cuft of Casing	620.59	cuft	Displacement: 454.24 psi	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)			Shoe Joint: 31.63 psi	
Total Slurry Volume	639.20	cuft	Total 485.87 psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)			Differential Pressure: 322.91 psi	
bbls of Slurry	113.84	bbls	Collapse PSI: 2020.00 psi	
(Total Slurry Volume) X (.1781)			Burst PSI: 3520.00 psi	
Sacks Needed	429	sk	Total Water Needed: 208.46 bbls	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)				
Mix Water	76.40	bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42				

X [Signature]
 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.

SERIES 2000



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.