



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/22/2014  
 Invoice #: 65048  
 API#  
 Foreman: Lee Sharp

Customer: Anadarko Petroleum Corporation  
 Well Name: GreenLeaf 1C-2HZ

County: Weld  
 State: Colorado  
 Sec: 28  
 Twp: 3N  
 Range: 68W

Consultant: Randy  
 Rig Name & Number: Major 42  
 Distance To Location: 20  
 Units On Location: 4022-3212/ 4027-3106  
 Time Requested: 2:00 PM  
 Time Arrived On Location: 1:30  
 Time Left Location:

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.) :	1,283	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1293	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	12%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	15.326	BBL to Pit:	
Shoe Joint Length (ft) :	43	Fluid Ahead (bbls):	30.0
Landing Joint (ft) :	0	H2O Wash Up (bbls):	20.0
Max Rate:		Spacer Ahead Makeup	
Max Pressure:			

Calculated Results		Casing Grade	
Casing ID	8.921	J-55 only used	
<b>cuft of Shoe</b>	<b>18.77</b>	<b>Displacement:</b>	<b>95.87 bbls</b>
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
<b>cuft of Conductor</b>	<b>77.58</b>	<b>Pressure of cement in annulus</b>	
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		<b>Hydrostatic Pressure:</b>	<b>946.69 PSI</b>
<b>cuft of Casing</b>	<b>647.71</b>	<b>Pressure of the fluids inside casing</b>	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		<b>Displacement:</b>	<b>534.69 psi</b>
<b>Total Slurry Volume</b>	<b>744.06</b>	<b>Shoe Joint:</b>	<b>31.90 psi</b>
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		<b>Total</b>	<b>566.59 psi</b>
<b>bbls of Slurry</b>	<b>132.52</b>	<b>Differential Pressure:</b>	<b>380.10 psi</b>
(Total Slurry Volume) X (.1781)		<b>Collapse PSI:</b>	<b>2020.00 psi</b>
<b>Sacks Needed</b>	<b>499</b>	<b>Burst PSI:</b>	<b>3520.00 psi</b>
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		<b>Total Water Needed:</b>	<b>234.80 bbls</b>
<b>Mix Water</b>	<b>88.94</b>		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

X *LE Case*  
 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.



**Bison Oil Well Cementing  
Single Cement Surface Pipe**

Customer  
Well Name

Anadarko Petroleum Corporation  
GreenLeaf 1C-2HZ

INVOICE #  
LOCATION  
FOREMAN  
Date

65048  
Weld  
Lee Sharp  
12/22/2014

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**DESCRIPTION OF JOB EVENTS**

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI
Safety Meeting	4:15															
MIRU	2:45															
CIRCULATE	4:48	0	5:35	-10	0			0			0			0		
Drop Plug		10	5:36	20	10			10			10			10		
5:31		20	5:40	180	20			20			20			20		
		30	5:42	220	30			30			30			30		
		40	5:44	380	40			40			40			40		
M & P		50	5:46	380	50			50			50			50		
Time	Sacks	60	5:48	390	60			60			60			60		
4:55-5:31	499	70	5:50	410	70			70			70			70		
		80	5:52	420	80			80			80			80		
		90	5:54	380	90			90			90			90		
		100	landed	1390	100			100			100			100		
		110			110			110			110			110		
% Excess	12%	120			120			120			120			120		
Mixed bbls	89	130			130			130			130			130		
Total Sacks	500	140			140			140			140			140		
bbl Returns	15	150			150			150			150			150		
Water Temp	100															

Notes:

The day

Job completed with no issues

X

Work Preformed

X

Title

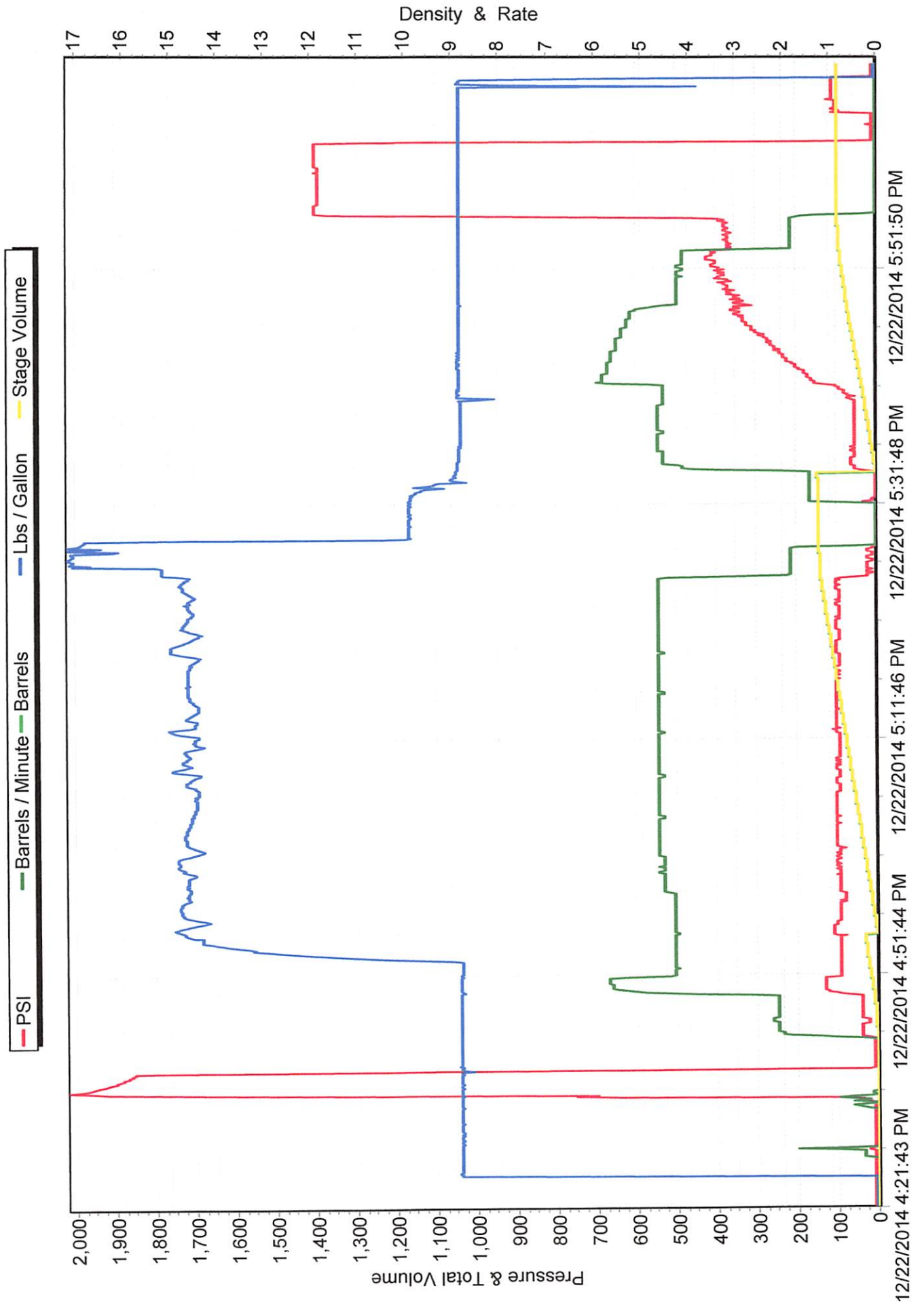
*L E Case*

X

Date

*12-22-14*

# GreenLeaf 1C-2HZ inv. 65048



## **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.