

Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/18/2014

Invoice # 45056

API# 05-123-36460

Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation

Well Name: BUFFALO 36C-15HZ

County: Weld

State: Colorado

Sec: 15

Twp: 1N

Range: 68W

Consultant: TOBY

Rig Name & Number: MAJORS 42

Distance To Location: 30

Units On Location: 4031-3106/ 4018-3204

Time Requested: 1530

Time Arrived: 1500

Time Left Location: 2130

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 1,256
Total Depth (ft) : 1266
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) :
Conductor ID :
Shoe Joint Length (ft) : 41
Landing Joint (ft) : 6

Max Rate: 7
Max Pressure: 2500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 15%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 0.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

30 BBL WATER, DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 17.58 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 0.00 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 704.95 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 722.53 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 128.68 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 485 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 86.36 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 94.47 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 926.89 PSI

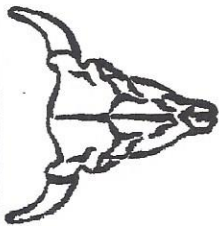
Pressure of the fluids inside casing

Displacement: 524.30 psi**Shoe Joint:** 29.88 psi**Total** 554.18 psi**Differential Pressure:** 372.71 psi**Collapse PSI:** 2020.00 psi**Burst PSI:** 3520.00 psi**Total Water Needed:** 230.83 bbls

X

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
BUFFALO 36C-15HZ

INVOICE #
LOCATION
FOREMAN
Date

45056

Weld

JASON KELEHER

10/18/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	1700	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	BLS	Time	PSI
Safety Meeting	1615	0	1757	0	0			0			0		0		
MIRU	1717	10	1800	30	10			10			10		10		
CIRCULATE		20	1802	50	20			20			20		20		
Drop Plug		30	1805	100	30			30			30		30		
		40	1807	180	40			40			40		40		
		50	1809	230	50			50			50		50		
M & P		60	1811	340	60			60			60		60		
Time	Sacks	70	1813	390	70			70			70		70		
1729-1755	485	80	1815	400	80			80			80		80		
1938-1953	57	90	1818	450	90			90			90		90		
		100	1819	440	100			100			100		100		
		110	BUMP	1440	110			110			110		110		
% Excess	15%	120			120			120			120		120		
Mixed bbls	86.3	130			130			130			130		130		
Total Sacks	485	140			140			140			140		140		
bbl Returns	0	150			150			150			150		150		
Water Temp	62														

Notes:

PERFORMED PRESSURE TEST TO 2000 PSI AT 1715, PUMPED 30 BBL WATER W/ DYE IN 2ND 10 AT 1717, MIXED AND PUMPED 485 SKS AT 14.2, 128.6

BBL AT 1729, SHUT DOWN AT 1755, STARTED DISPLACEMENT AT 1757, LANDED PLUG AT 440 PSI AT 1819 AND PRESSURED UP TO 1440 PSI, HELD FOR

2 MINUTES AND CHECKED FLOATS, GOT .75 BBL BACK, REPRESSURED WELL TO 1000 PSI FOR 2 MINUTES AND RELEASED.

PERFORMED TOP OUT-MIXED AND PUMPED 57 SKS AT 14.2, 15 BBL AT 1938, DISPLACED 1 BBL AT 1953 AND SHUT DOWN AT 1953

X

X

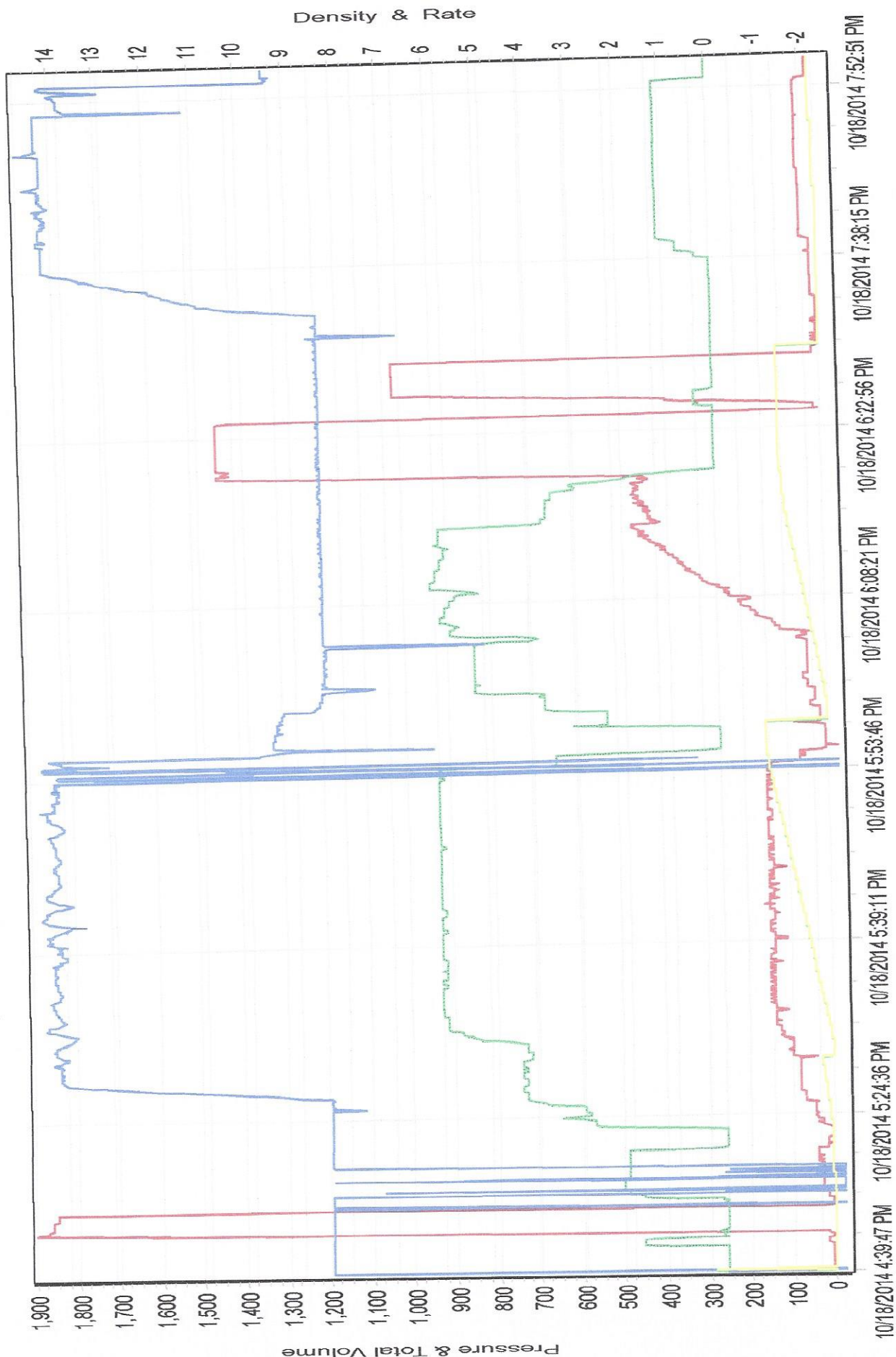
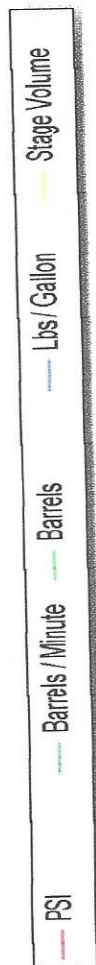
Title

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Date

Work Performed

BUFFALO 36C-15HZ SURFACE





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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.