

Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/10/2014
 Invoice #: 45052
 API#: 05-123-40315
 Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation
 Well Name: THOMSEN 1C-18HZ

County: Weld
 State: Colorado
 Sec: 7
 Twp: 2N
 Range: 65W

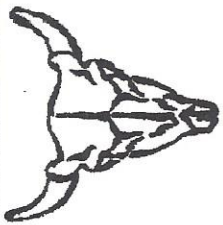
Consultant: TOBY
 Rig Name & Number: MAJORS 42
 Distance To Location: 15
 Units On Location: 4031-3106/ 4024-3203
 Time Requested: 1900
 Time Arrived: 1800
 Time Left Location: 2130

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) : 1348	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 15%
Conductor Length (ft) :	Displacement Fluid lb/gal: 8.3
Conductor ID :	BBL to Pit: 20.0
Shoe Joint Length (ft) : 38	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 6	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	30 BBL WATER, DYE IN 2ND 10

Calculated Results	Pressure of cement in annulus
Displacement: 100.95 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	Hydrostatic Pressure: 986.95 PSI
cuft of Shoe 16.54 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)	Pressure of the fluids inside casing Displacement: 560.44 psi Shoe Joint: 28.11 psi Total 588.54 psi
cuft of Casing 753.90 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	
Total Slurry Volume 770.43 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: 398.40 psi Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
bbls of Slurry 137.21 bbls (Total Slurry Volume) X (.1781)	
Sacks Needed 517 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 243.03 bbls
Mix Water 92.09 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

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.



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Single Cement Surface Pipe**

Customer
Well Name

Anadarko Petroleum Corporation
THOMSEN 1C-18HZ

INVOICE #
LOCATION
FOREMAN
Date

45052
Weld
JASON KELEHER
10/10/2014

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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	1850														
MIRU	1800														
CIRCULATE	1918														
Drop Plug															
1954															
M & P															
Time															
Sacks	60	2008	320	60			60			60			60		
1925-1951	70	2010	410	70			70			70			70		
	80	2012	460	80			80			80			80		
	90	2013	470	90			90			90			90		
	100	2019	440	100			100			100			100		
	110	BUMP	1440	110			110			110			110		
% Excess	15%			120			120			120			120		
Mixed bbls	92.1			130			130			130			130		
Total Sacks	517			140			140			140			140		
bbbl Returns	20			150			150			150			150		
Water Temp	60														

Notes:

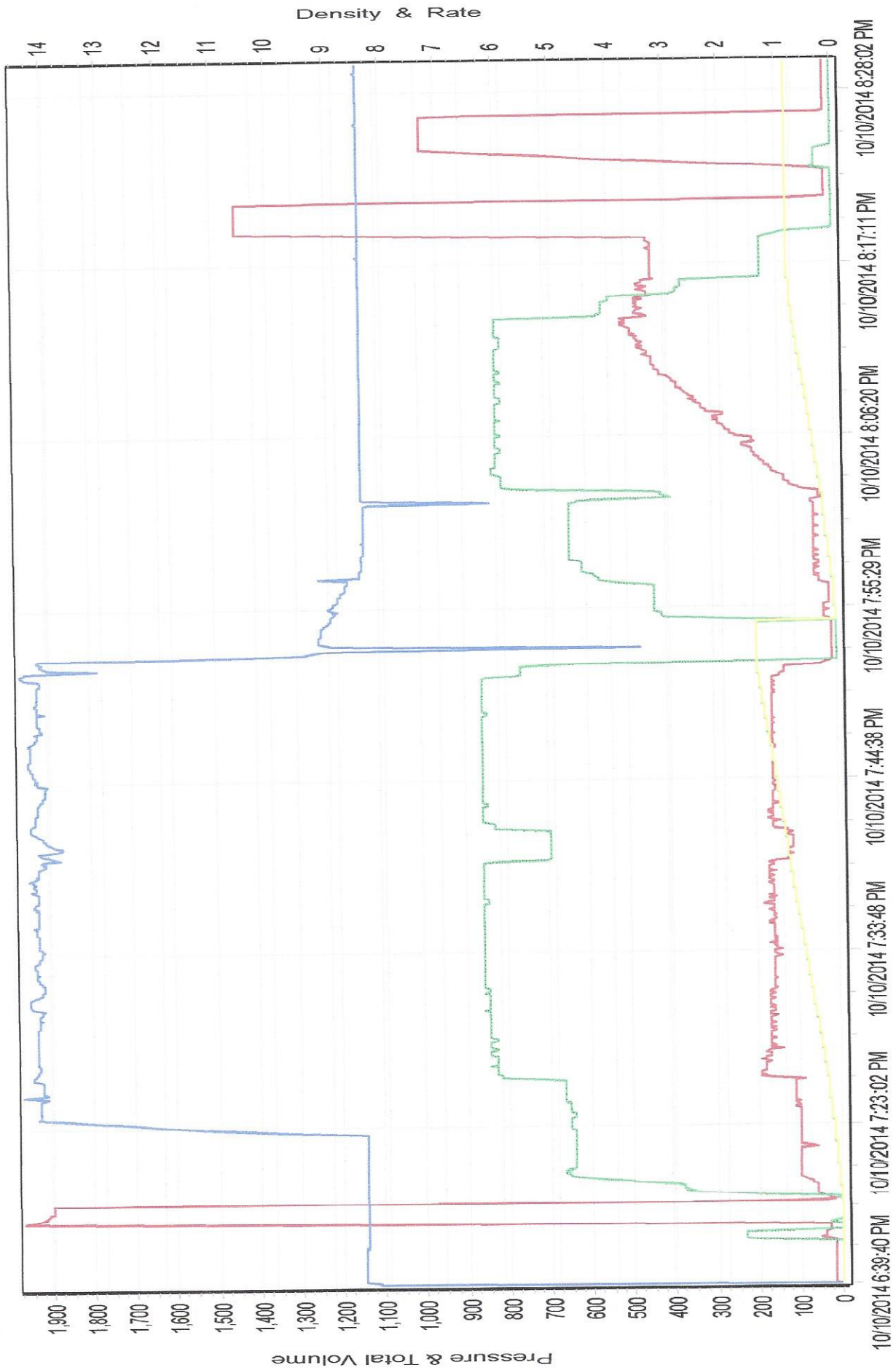
PERFORMED PRESSURE TEST TO 2000 PSI AT 1916, PUMPED 30 BBL WATER W/ DYE IN 2ND 10 AT 1918, MIXED AND PUMPED 517 SKS AT 14.2, 137.2 BBL AT 1925, SHUT DOWN AT 1951, STARTED DISPLACEMENT AT 1954, LANDED PLUG AT 440 PSI AT 2019 AND PRESSURED UP TO 1440 PSI, HELD FOR 2 MINUTES AND CHECKED FLOATS, GOT .5 BBL BACK, REPRESSURED WELL TO 1000 PSI FOR 2 MINUTES AND RELEASED.

X

X Co-Man
Title

X
Date

THOMSEN 1C-18HZ SURFACE





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Conductor ID :	
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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	16.54	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	753.90	cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		
Total Slurry Volume	770.43	cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		
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Differential Pressure:	398.40 psi
Collapse PSI:	2020.00 psi
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Total Water Needed:	243.03 bbls

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 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.

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.