Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 7/16/2017
Invoice # 900136
API# 05-123-44766
Foreman: Corey B.

Customer: Anadarko Petroleum Corporation
Well Name: RW 27N-5HZ

County: Weld
State: Colorado

Sec: 29
Twp: 3N
Range: 65W

Consultant: Matt
Rig Name & Number: Cartel 88
Distance To Location: 20
Units On Location: 027/3103-4033/3212-4020/321
Time Requested: 1800
Time Arrived On Location: 1715
Time Left Location:

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,835
Total Depth (ft) :	1845
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	44
Landing Joint (ft) :	15
Max Rate:	8
Max Pressure:	2000

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.48
Gallons Per Sack:	7.40
% Excess:	4%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
30 bbl with Die in @nd 10

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 19.10 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 61.05 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 892.03 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 972.18 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 173.14 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 657 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 115.74 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 139.62 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1353.68 PSI

Pressure of the fluids inside casing

Displacement: 772.25 psi
Shoe Joint: 32.46 psi
Total 804.70 psi

Differential Pressure: 548.98 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 305.35 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.

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Customer	Anadarko Petroleum Corporation
Well Name	RW 27N-5HZ

INVOICE #	900136
LOCATION	Weld
FOREMAN	Corey B.
Date	7/16/2017

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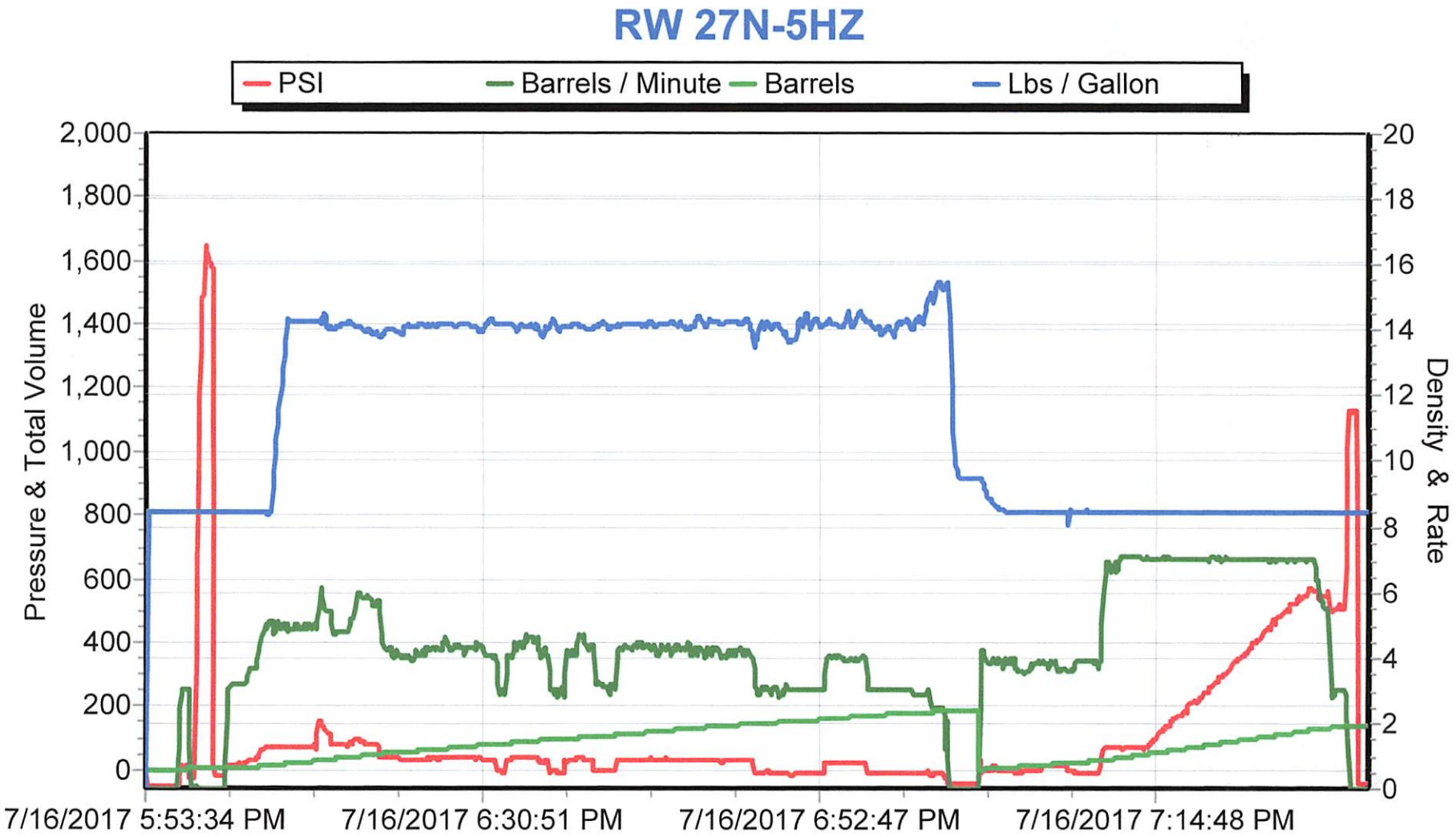
DESCRIPTION OF JOB EVENTS

Amount Pumped		Time	Event	Description	Rate	BBLs	Pressure
% Excess	3%	1715	What rig is doing upon Bison Arrival	Running casing			
Mixed bbls	114.71	1720	JSA	Bison Crew			
Total Sacks	651	1725	Rig up				
bbl Returns	10	1750	Safety Meeting	Bison and Rig crew			
Water Temp	65	1802	Start Job				
		1810	Pressure Test				
Notes:							
		1812	Spacer Ahead	2nd 10 with die	5	30	70
		1818	Lead Cement	14.2 ppg	5	173	70
		1900	Shutdown				
		1902	Drop Plug	Preloaded in plug container			
		1905	Start Displacement		7	90	320
		1925	Bump Plug	500 over final lift 1060 psi	2	139	500
		1927	Floats Held	Held for 1MIN with 1/2 bll back			
		1930	End Job				
		1935	Rig Down				
		2000	Leave Location				

X [signature] Work Preformed

X WSC Title

X 7/16/17 Date


RW 27N-5HZ
PSI
Barrels / Minute
Barrels
Lbs / Gallon
Pressure & Total Volume
Density & Rate
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
20
18
16
14
12
10
8
6
4
2
0
7/16/2017 5:53:34 PM
7/16/2017 6:30:51 PM
7/16/2017 6:52:47 PM
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