Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 8/24/2017
Invoice # 666191
API# 05-123-43475
Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
Well Name: Wagner 1N-E10HZ

County: Weld
State: Colorado
Sec: 22
Twp: 1N
Range: 67W

Consultant: Matt/Brian
Rig Name & Number: Cartel 88
Distance To Location: 34 Miles
Units On Location: 4023/4020/4041
Time Requested: 15:30
Time Arrived On Location: 14:50
Time Left Location:

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,867
Total Depth (ft) :	1877
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	46
Landing Joint (ft) :	10
Max Rate:	8
Max Pressure:	2000

Cement Data

Cement Name: BFN III

Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	10%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
Dye in second 10 bbl

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 19.97 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 960.70 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1041.71 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 185.53 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 699 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 124.51 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 141.55 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1377.29 PSI

Pressure of the fluids inside casing

Displacement:	785.18 psi
Shoe Joint:	33.93 psi
Total	819.11 psi
Differential Pressure:	558.17 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	316.06 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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LOCATION	Weld
FOREMAN	Nick Vigil
Date	8/24/2017

Customer: nadarko Petroleum Corporatio
Well Name: Wagner 1N-E10HZ

Treatment Report Page 2

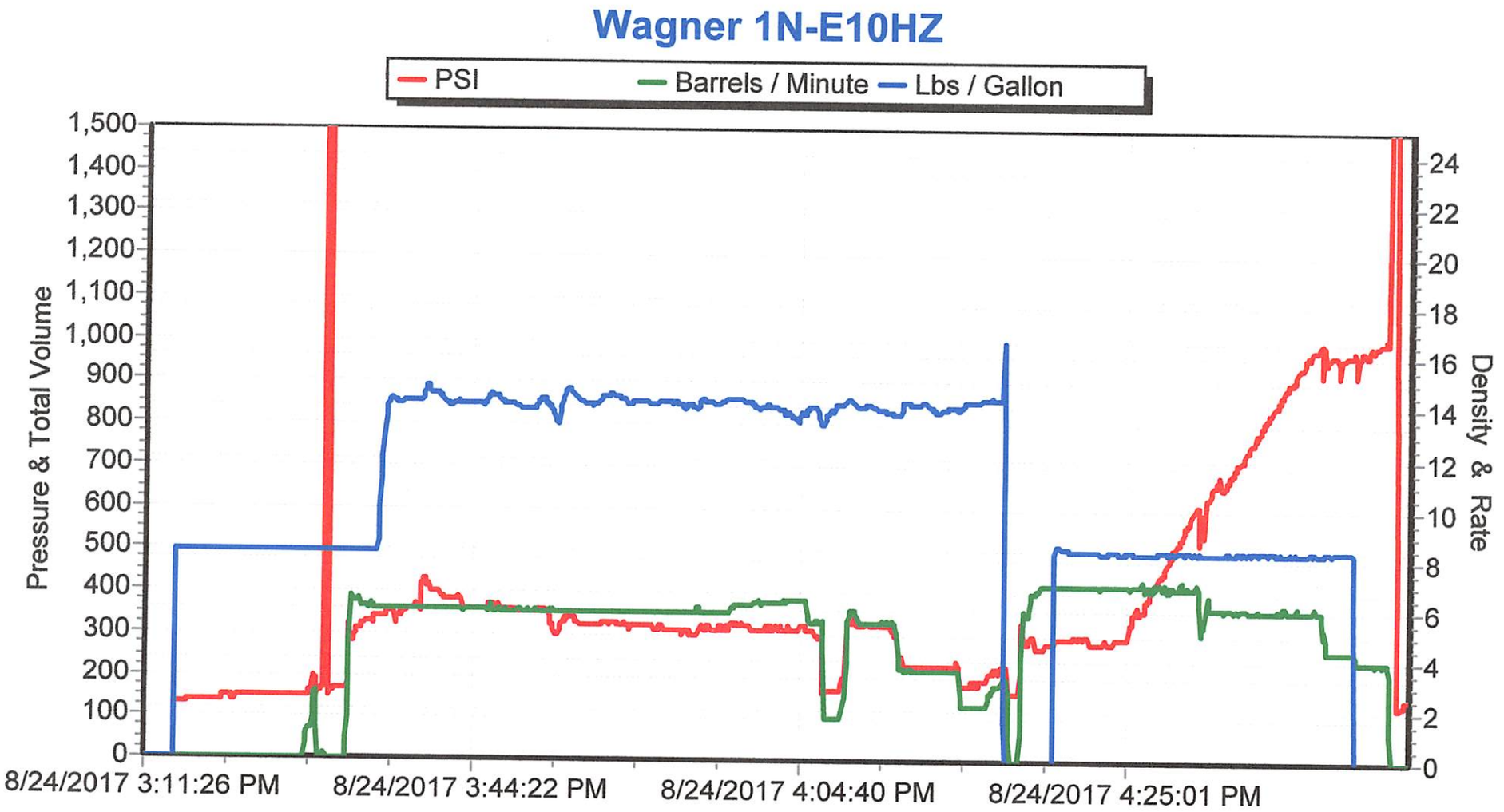
DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	10%	14:50	Arrive On Location	Rig was landing casing.			
Mixed bbls	185.5	14:55	Well Site Assesment	Hazard hunt, Rig up safety meeting			
Total Sacks	699	15:00	Rig Up Equipment				
bbl Returned	28	15:25	JSA	Held Safety meeting with all personel involved in job.			
Water Temp	60	15:33	Pressure Test Lines	Pressure tested lines to 1500 psi.			
		15:36	Spacer Ahead	Fresh water with dye in second 10 bbl.	6.2	30	310
Notes:		15:40	Pump Cement	14.2 ppg Cement	6.2	185.5	320
		16:16	Shut Down				
		16:17	Drop Plug	Plug was pre loaded.			
		16:17	Pump Displacement	Fresh water	7	70	600
		16:40	Bump Plug	Bumped plug 600 psi over final lift. (1600 psi)	2.8	141.5	1000
		16:41	Check Floats	Floats held Flowed back .5 bbl.			
		16:42	End Job	Rig down safety meeting.			
		16:45	Rig Down Equipment				
		17:00	Crew Left Location				

X _____ Work Preformed

X _____ Title

X _____ Date


Wagner 1N-E10HZ
PSI
Barrels / Minute
Lbs / Gallon
Pressure & Total Volume
Density & Rate
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
24
22
20
18
16
14
12
10
8
6
4
2
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