Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	7/19/2014
Invoice #	45003
API#	05-123-39497
Foreman:	JASON

Customer: Anadarko Petroleum Corporation

Well Name: GWARDAR 1N-22HZ

County:	Weld	Consultant:	ELLIS
State:	Colorado	Rig Name & Number:	MAJORS 42
		Distance To Location:	22
Sec:	24	Units On Location:	4033-3106/ 4024-3203
Twp:	3N	Time Requested:	1930
Range:	66W	Time Arrived On Location:	1830
		Time Left Location:	30

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,335
Total Depth (ft) :	1345
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	
Conductor ID :	
Shoe Joint Length (ft) :	41
Landing Joint (ft) :	8
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:	20%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	15.0
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup

30 BBL H2O, 2ND 10 WITH DYE

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 17.71 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 784.25 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 801.96 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 142.83 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 538 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 95.86 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 100.67 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 984.83 PSI

Pressure of the fluids inside casing

Displacement:	558.03 psi
Shoe Joint:	30.10 psi
Total	588.13 psi
Differential Pressure:	396.70 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	246.53 bbls

x Ellis Jones
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

INVOICE #	45003
LOCATION	Weld
FOREMAN	JASON
Date	7/19/2014

Customer	Anadarko Petroleum Corporation
Well Name	GWARDAR 1N-22HZ

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
Safety Meeting	2140															
MIRU	1845	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
CIRCULATE	2211	0	2308	0	0	2337	0	0			0			0		
Drop Plug		10	2311	20	10	2339	1000	10			10			10		
2307		20	2313	100	20			20			20			20		
		30	2315	190	30			30			30			30		
		40	2318	290	40			40			40			40		
M & P		50	2320	430	50			50			50			50		
Time	**Sacks**	60	2322	440	60			60			60			60		
2222-2303	538	70	2325	450	70			70			70			70		
		80	2327	470	80			80			80			80		
		90	2329	490	90			90			90			90		
		100	2331	450	100			100			100			100		
		110	BUMP	1010	110			110			110			110		
% Excess	20%	120			120			120			120			120		
Mixed bbls	95.8	130			130			130			130			130		
Total Sacks	538	140			140			140			140			140		
bbl Returns	15	150			150			150			150			150		
Water Temp	68															

Notes:

The day

PRESSURE TESTED TO 1500 PSI @ 2207, PUMPED 30 BBL WATER WITH DYE IN 2ND 10 @ 2211, MIX AND PUMPED 536 SKS AT 14.2, 142.7 BBLS AT 2222,

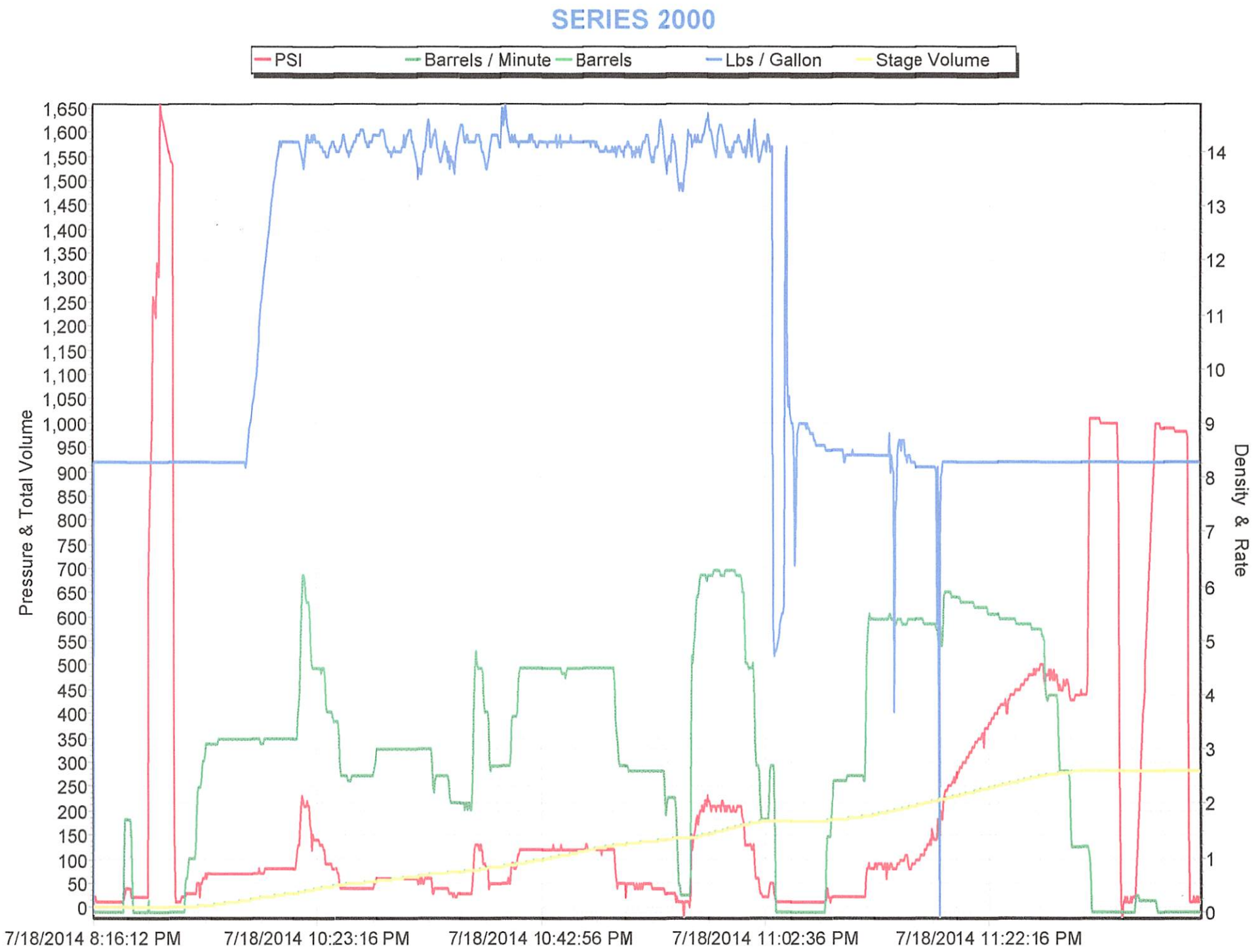
PLUG LANDED AT 450 PSI AT 2331 AND PRESSURED UP TO 1010 PSI AND HELD FOR 2 MINUTES, RELEASED PRESSURE AND GOT .25 BBL BACK,

PRESSURED UP AGAIN TO 1000 PSI AT 2337 FOR 2MINUTES AND RELEASED

X Work Preformed

X Title

X Date


SERIES 2000
PSI
Barrels / Minute
Barrels
Lbs / Gallon
Stage Volume
Pressure & Total Volume
Density & Rate
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
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14
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