



Bison Oil Well Cementing  
 1547 Gaylord Street  
 Denver, CO 80206

FIELD INVOICE #  
 90051

**FIELD INVOICE**

WELL NO. AND FARM	COUNTY	STATE	DATE	Contractor
Wilson Ranch 31N-27HZ	Weld	Colorado	10/26/2015	Noble 2
CHARGE TO	WELL LOCATION			
Anadarko Petroleum Corporation	Section	TWP	RANGE	
	26	4N	68W	
PO Box 4995	DELIVERED TO		LOCATION 1	CODE
	cr.40& I-25		Greeley	
The Woodlands, TX 77387	SHIPPED VIA		LOCATION 2	CODE
	4024/3210/4007/3106/3105/3204		Cr.40 & I-25	
	TYPE AND PURPOSE OF JOB		LOCATION 3	CODE
	SURFACE		Greeley	
			WELL TYPE	CODE
			Oil	

ITEM	DESCRIPTION	UNITS		UNIT PRICE	AMOUNT
		QTY.	MEAS.		
<b>PUMP CHARGE</b>					
SURFACE		1			
<b>MILLEAGE CHARGE</b>					
Pickup		60	mile		
Truck/Equipment		60	mile		
Truck/Equipment		60	mile		
<b>CEMENT CHARGE:</b>					
BFN III		715	sack		
<b>ADDITIVES CHARGE:</b>					
Red Dye		16	oz		
<b>FLOAT EQUIPMENT:</b>					
RUBBER PLUG - 9 5/8"					
<b>OTHER CHARGES:</b>					
DATA ACQUISITION FEE		1			
Containment		1			
Wait Time		0	hour		

SUB TOTAL  
 TAX 2.90%  
 TOTAL

If this account is not paid within 30 days of invoice date a FINANCE CHARGE will be made. Computed at a single monthly rate of 1 1/2% which is equal

WILSON RANCH 31N-27HZ NOBLE  
 FRANK KINNEY USER ID: CU0741  
 CONSULTANT: *[Signature]*  
 AFE# 2097547 DATE: 10-26-15  
 GL CODE: 800 12090

SUBJECT TO CORRECTION

*[Signature]*  
 Bison Oil Well Cementing, Inc. Representative

Customers hereby acknowledges and specifically agrees to the terms and conditions on this work order, including, without limitation, the provisions on the riverside hereof which include the release and indemnity.



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/26/2015

Invoice # 90051

API# 05-123-41294

Supervisor Nick

Customer: Anadarko Petroleum Corporation

Well Name: Wilson Ranch 31N-27HZ

County: Weld

State: Colorado

Sec: 26

Twp: 4N

Range: 68W

Consultant: Chris/Sean

Rig Name & Number: Noble 2

Distance To Location: 30

Units On Location: 024/3210/4007/3106/3105/320

Time Requested: 0:30

Time Arrived On Location: 23:15

Time Left Location: 4:10

## WELL DATA

Casing Size OD (in) : 9.625  
 Casing Weight (lb) : 36.00  
 Casing Depth (ft.) : 1,850  
 Total Depth (ft) : 1860  
 Open Hole Diameter (in.) : 13.50  
 Conductor Length (ft) : 40  
 Conductor ID : 15.25  
 Shoe Joint Length (ft) : 42  
 Landing Joint (ft) : 10

Max Rate: 7  
 Max Pressure: 1250

## 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: 23.0  
 Fluid Ahead (bbls): 30.0  
 H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup  
 30 bbl dye in second 10

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 18.23 cuft  
 (Casing ID Squared) X (.005454) X (Shoe Joint ft)

**cuft of Conductor** 30.53 cuft  
 (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

**cuft of Casing** 1017.29 cuft  
 (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

**Total Slurry Volume** 1066.05 cuft  
 (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

**bbls of Slurry** 189.86 bbls  
 (Total Slurry Volume) X (.1781)

**Sacks Needed** 715 sk  
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

**Mix Water** 127.42 bbls  
 (Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 140.55 bbls  
 (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 1364.75 PSI

## Pressure of the fluids inside casing

**Displacement:** 779.58 psi

**Shoe Joint:** 30.98 psi

**Total** 810.56 psi

**Differential Pressure:** 554.19 psi

**Collapse PSI:** 2020.00 psi

**Burst PSI:** 3520.00 psi

**Total Water Needed:** 317.97 bbls

X   
 Authorization To Proceed



# Wilson Ranch 31N-27HZ

