



Bison Oil Well Cementing  
 1547 Gaylord Street  
 Denver, CO 80206

FIELD INVOICE #  
 80541

**FIELD INVOICE**

WELL NO. AND FARM	COUNTY	STATE	DATE	Contractor
cook 2g-16hz	Weld	Colorado	10/9/2015	noble 2

CHARGE TO	WELL LOCATION		
Anadarko Petroleum Corporation	Section	TWP	RANGE
PO Box 4995	33	2n	66w
The Woodlands, TX 77387	DELIVERED TO	LOCATION 1	CODE
	41-22	shop	
	SHIPPED VIA	LOCATION 2	CODE
	4029-3106/4035-3203	41-22	
	TYPE AND PURPOSE OF JOB	LOCATION 3	CODE
	SURFACE	shop	
		WELL TYPE	CODE
		gas	

ITEM	DESCRIPTION	UNITS		UNIT PRICE	AMOUNT
		QTY.	MEAS.		
<b>PUMP CHARGE</b>					
SURFACE		1	ea		
<b>MILLEAGE CHARGE</b>					
Pickup		60	mile		
Truck/Equipment		60	mile		
Truck/Equipment		60	mile		
Truck/Equipment		60	mile		
<b>CEMENT CHARGE:</b>					
BFN III		737	sacks		
<b>ADDITIVES CHARGE:</b>					
KCL		3	qt		
Liquid Dye Rhodamine		15	oz		
Sugar			lbs		
<b>FLOAT EQUIPMENT:</b>					
<b>OTHER CHARGES:</b>					
DATA ACQUISITION FEE		1	ea		
Containment		1	ea		
Wait Time		1.75	hr		

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 to an ANNUAL PERCENTAGE RATE OF 18%.

TAX

COOK 2G-16HZ NOBLE 2  
 FRANK KINNEY USER ID: CUO741  
 CONSULTANT: *Hayden Stone*  
 AFE# 2116724 DATE: *10-9-15*  
 GL CODE: 800 *12080*

*Hayden Stone*  
 Customer or Agent

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: 10/9/2015

Invoice # 80541

API#

Foreman: Kirk Kallhoff

**Customer:** Anadarko Petroleum Corporation

**Well Name:** cook 2g-16hz

County: Weld

State: Colorado

Sec: 33

Twp: 2n

Range: 66w

Consultant: bryon

Rig Name & Number: noble 2

Distance To Location: 30

Units On Location: 4029-3106/4035-3203

Time Requested: 200 pm

Time Arrived On Location: 1245 pm

Time Left Location: 7:45 pm

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.) :	1,909	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1919	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	15%
Conductor Length (ft) :	40	Displacement Fluid lb/gal:	8.3
Conductor ID :	15.25	BBL to Pit:	
Shoe Joint Length (ft) :	38	Fluid Ahead (bbls):	50.0
Landing Joint (ft) :	10	H2O Wash Up (bbls):	10.0
Max Rate:		Spacer Ahead Makeup	
Max Pressure:			

Calculated Results	Displacement:	145.42 bbls
<b>cuft of Shoe</b> 16.49 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
<b>cuft of Conductor</b> 30.53 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Pressure of cement in annulus</b>	
<b>cuft of Casing</b> 1050.45 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Hydrostatic Pressure:</b>	1408.27 PSI
<b>Total Slurry Volume</b> 1097.47 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Pressure of the fluids inside casing</b>	
<b>bbls of Slurry</b> 195.46 bbls (Total Slurry Volume) X (.1781)	<b>Displacement:</b>	806.74 psi
<b>Sacks Needed</b> 737 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Shoe Joint:</b>	28.03 psi
<b>Mix Water</b> 131.18 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Total</b>	834.77 psi
	<b>Differential Pressure:</b>	573.50 psi
	<b>Collapse PSI:</b>	2020.00 psi
	<b>Burst PSI:</b>	3520.00 psi
	<b>Total Water Needed:</b>	336.59 bbls

X *Bryon Bryon*  
Authorization To Proceed



# M/D TOTCO 2000 SERIES

— PSI — Barrels / Minute — Barrels — Lbs / Gallon — Stage Volume

