



Bison Oil Well Cementing
 6143 S Willow Drive, Suite 400
 Greenwood Village, CO 80111

FIELD INVOICE #
 200210

FIELD INVOICE

WELL NO. AND FARM	COUNTY	STATE	DATE	Contractor
bison ridge y22-771	Weld	Colorado	12/19/2017	
CHARGE TO	WELL LOCATION			
Noble Energy Inc.	Section	TWP	RANGE	
	16	2n	64w	
Attn: Accounting	DELIVERED TO	LOCATION 1		CODE
	cr 55-20	SHOP		
1625 Broadway Ste 2000	SHIPPED VIA	LOCATION 2		CODE
	4028/4024	LOCATION		
Denver, CO 80202	TYPE AND PURPOSE OF JOB		LOCATION 3	CODE
	Two Cement		SHOP	
		WELL TYPE	CODE	
		gas		

ITEM	DESCRIPTION	UNITS		UNIT PRICE	AMOUNT
		QTY.	MEAS.		
PUMP CHARGE					\$ -
Two Cement		1		\$ 1,120.00	\$ 1,120.00
					\$ -
MILLEAGE CHARGE					\$ -
Pickup	\$1.50 per Mile	76		\$ 1.50	\$ 114.00
Truck/Equipment	\$4.00 per Mile	76		\$ 1.50	\$ 114.00
Truck/Equipment	\$4.00 per Mile	76		\$1.50	\$ 114.00
					\$ -
					\$ -
CEMENT CHARGE:					\$ -
BFN III	Lead	605		\$ 16.28	\$ 9,849.40
N-Gel-12	Tail	100		\$ 15.68	\$ 1,568.00
					\$ -
ADDITIVES CHARGE:					\$ -
Dye Hot Pink		16		\$ 12.00	\$ 192.00

FLOAT EQUIPMENT:	RIG NAME & NUMBER: H&P 517
	WELL NAME & NUMBER: Bison Ridge Y22-771
	AFE NUMBER: 204943
	TASK (DEL., COMP., W/O, P&A): DRL
	EXP TYPE: 320.10
OTHER CHARGES:	ACTG CODE: 0017
	DOLLAR TOTAL BEING APP'VD: 13,071.40
	FIELD APPROVAL DATE: WH Bm 12/19/17
	ROUTE TO APPROVER: Kim Fornal

SUB TOTAL	\$ 13,071.40
TAX 2.90%	\$ -
TOTAL	\$ 13,071.40

If this account is not paid within 30 days of invoice date a FINANCE CHARGE will be added, computed at a single monthly rate of 1 1/2% which is equal to an ANNUAL PERCENTAGE RATE OF 18%.

MAIL TO: NOBLE ENERGY INC
ATTN: ACCOUNTS PAYABLE
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
NO INVOICE WILL BE PAID W/O ALL
ATTACHED SIGNED FIELD TICKETS

SUBJECT TO CORRECTION

[Signature]
 Bison Oil Well Cementing, Inc. Representative

Customer or Agent

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



**Bison Oil Well Cementing
Tail & Lead**

Date: 12/19/2017

Invoice # 200210

API#

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: bison ridge y22-771

County: Weld

State: Colorado

Sec: 16

Twp: 2n

Range: 64w

Consultant: woody

Rig Name & Number: H&P 517

Distance To Location: 38

Units On Location: 3

Time Requested: 300 pm

Time Arrived On Location: 215 pm

Time Left Location: 6:30 pm

WELL DATA

Casing Size (in) : 9.625
 Casing Weight (lb) : 36
 Casing Depth (ft.) : 1,998
 Total Depth (ft) : 4043 *2043*
 Open Hole Diameter (in) : 13.50
 Conductor Length (ft) : 110
 Conductor ID : 16
 Shoe Joint Length (ft) : 41
 Landing Joint (ft) : 35

Sacks of Tail Requested: 100
 HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate: 8
 Max Pressure: 1500

Cement Data

Lead

Cement Name:
 Cement Density (lb/gal) : 13.5
 Cement Yield (cuft) : 1.7
 Gallons Per Sack : 9.00
 % Excess : 15%

Tail

Cement Name:
 Cement Density (lb/gal) : 15.2
 Cement Yield (cuft) : 1.27
 Gallons Per Sack : 5.89
 % Excess : 0%

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

Spacer Ahead Makeup

30BBL WATER DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead : 1629.56 ft
 Casing Depth - HOC Tail
Volume of Lead Cement : 796.41 cuft
 HOC of Lead X Open Hole Ann
Volume of Conductor : 98.01 cuft
 (Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X
 (Conductor Length ft)
Total Volume of Lead Cement : 894.42 cuft
 (cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement : 183.19 bbls
 (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement : 605.05 sk
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water : 129.65 bbls
 (Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement : 153.98 bbls
 (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe
 Length)
Total Water Needed: 347.66 bbls

Tail Calculated Results

Tail Cement Volume In Ann : 127.00 cuft
 (HOC Tail) X (OH Ann)
Total Volume of Tail Cement : 109.20 Cuft
 (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
bbls of Tail Cement : 22.62 bbls
 (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (%
 Excess)
HOC Tail : 223.44 ft
 (Tail Cement Volume) ÷ (OH Ann)
Sacks of Tail Cement : 100.00 sk
 (Total Volume of Tail Cement) ÷ (Cement Yield)
bbls of Tail Mix Water : 14.02 bbls
 (Sacks of Tail Cement X Gallons Per Sack) ÷ 42
 Pressure of cement in annulus
Hydrostatic Pressure : 585.23 PSI

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

[Signature]
 Authorization To Proceed



Bison Oil Well Cementing Tail & Lead

Cementing Customer Satisfaction Survey

Service Date	12/19/2017
Well Name	bison ridge y22-771
County	Weld
State	Colorado
SEC	16
TWP	2n
RNG	64w

Invoice Number	200210
API #	0
Job Type	Two Cement
Company Name	Noble Energy Inc.

Customer Representative: woody

Supervisor Name: Kirk Kallhoff

Employee Name (Including Supervisor)	Exposure Hours (Per Employee)
kirk	4.25
frank	4.25
jose	4.25
himi	4.25
dave	4.25
Total Exposure Hours	21.25

Did we encounter any problems on this job? Yes No

To Be Completed By Customer

Rating/Description

- 5 - Superior Performance (Established new quality/performance standards)
 - 4 - Exceeded Expectation (Provided more than what was required/expected)
 - 3 - Met Expectations (Did what was expected)
 - 2 - Below Expectations (Job problems/failures occurred - *Recovery made)
 - 1 - Poor Performance (Job problems/failures occurred - *Some recovery made)
- *Recovery: resolved issue(s) on jobsite in a timely and professional manner

RATING	CATEGORY
✓	Personnel -
✓	Equipment -
✓	Job Design -
✓	Product/Material -
✓	Health & Safety -
✓	Environmental -
✓	Timeliness -
✓	Condition/Appearance -
✓	Communication -

CUSTOMER SATISFACTION RATING

- Did our personnel perform to your satisfaction?
- Did our equipment perform to your satisfaction?
- Did we perform the job to the agreed upon design?
- Did our products and materials perform as you expected?
- Did we perform in a safe and careful manner (Pre/post mtgs, PPE, TSMR, etc..)?
- Did we perform in an environmentally sound manner (spills, leaks, cleanup, etc..)?
- Was job performed as scheduled (On time to site, accessible to customers, completed when expected)?
- Did the equipment condition and appearance meet your expectations?
- How well did our personnel communicate during mobilization, rig up and job execution?

Please Circle:

- Yes No Did an accident or injury occur?
- Yes No Did an injury requiring medical treatment occur?
- Yes No Did a first-aid injury occur?
- Yes No Did a vehicle accident occur?
- Yes No Was a post-job safety meeting held?

Please Circle:

- Yes No Was a pre-job safety meeting held?
- Yes No Was a job safety analysis completed?
- Yes No Were emergency services discussed?
- Yes No Did environmental incident occur?
- Yes No Did any near misses occur?

Additional Comments:

Good Job

THE INFORMATION HEREIN IS CORRECT -

[Signature]
Customer Representative's Signature

DATE: 12-19-17

Any additional Customer Comments or HSE concerns should be described on the back of this form

SERIES 2000

