



BISON

Bison Oil Well Cementing Inc.
1547 Gaylord Street
Denver, CO 80206
303-296-3010

Invoice

Date	Invoice #
10/15/2013	12720

Bill To
Noble Energy Inc. Attn: Accounting 1625 Broadway Ste 2000 Denver, CO 80202

Location	Well Name & No.	Terms	Job Type		
Weld CO	Wells Ranch AE20-68-IHN	Net 30	Surface Pipe		
Item	Description	Qty	U/M	Rate	Amount
Pump surface	PUMP Charge-surface pipe	1			
Discount 15%	Discount 15%				
MILEAGE	Mileage charge	360			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
HOURS	Wait Time	3			
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	515	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	7	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	oz		
Discount 15%	Discount 15%				
Sugar	Sugar	100	lb		
	Subtotal of Materials				

Please Remit Payment To:

Bison Oil Well Cementing, Inc.
P.O. Box 29671
Thornton, CO 80229

Subtotal	
Sales Tax (2.0%)	
Total	
Balance Due	

BISON OIL WELL CEMENTING, INC.

1547 Gaylord Street
Denver, Colorado 80206
Phone: 303-296-3010
Fax: 303-298-8143
E-mail: bisonoil1@qwestoffice.net



INVOICE #
LOCATION
FOREMAN

12720
68469

TREATMENT REPORT

DATE 10-15-13	WELL NAME WRAE20-68-1H/W	SECTION 2C	TWP 6N	RGE 62W	COUNTY weld
BILL TO Noble	CONSULTANT Josh				
OWNER	RIG NAME & NUMBER H+P 321				
MAILING ADDRESS	DISTANCE TO LOCATION 34.7		UNITS ON LOCATION 3103		
CITY	TIME REQUESTED 1100 PM		TIME ARRIVED ON LOCATION 1030		
STATE, ZIP	TIME LEFT LOCATION 500 AM				

WELL DATA

HOLE SIZE 13 3/4	TUBING SIZE	PERFORATIONS
TOTAL DEPTH 983	TUBING DEPTH	SHOTS/FT
CASING SIZE 9 5/8	TUBING WEIGHT	OPEN HOLE
CASING DEPTH 933	TUBING CONDITION	TREATMENT VIA
CASING WEIGHT 36	PACKER DEPTH	
CASING CONDITION Good		
Max Rate		
Max Pressure		

Cement Makeup

Cement Blend	BFN# 3% BCC-1, 2516 BFLA-1		
Cement - Specs	lbs 15.2	Yield 1.27	Water Requirements 5.89
Annulus Factor 0.5259	Capacity Factor 0.0773		

TYPE OF TREATMENT

<input checked="" type="checkbox"/> Surface Pipe	<input type="checkbox"/> Production	<input type="checkbox"/> Squeeze
<input type="checkbox"/> MISC Pump	<input type="checkbox"/> P&A	

HYD HHP = RATE X PRESSURE / 40.8

% Excess
BBL to Pit

15
20

DESCRIPTION OF JOB EVENTS

Safety meeting MTRU Pressure test Per Company man circulate 70 bbls Ahead with dye in 2nd 10 min + Pump 537 sks drop plug + disp 75.1 bbls H2O Bump plug 150 psi above 1-ft Pressure test casing to 1000 PSI for 15 min Release pressure Wash up Rig down

x Authorization To Proceed

Title

x 10-15-13 Date

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

BISON OIL WELL CEMENTING, INC.

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Denver, Colorado 80206
Phone: 303-296-3010
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E-mail: bisonoil1@qwestoffice.net



INVOICE #
LOCATION
FOREMAN

12720
63469
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Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting	130A	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
MIRU	1215	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI
CIRCULATE	210	0	300	300	0			0			0			0		
Drop Plug		10	300	90	10			10			10			10		
256		20	304	90	20			20			20			20		
		30	306	150	30			30			30			30		
		40	308	250	40			40			40			40		
M & P		50	310	240	50			50			50			50		
Time	Sacks	60	312	320	60			60			60			60		
223	515	70	315	320	70			70			70			70		
234 stop		70	317	550	80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		
m18 71 stuffy 116.48																

Notes:

Run 70 bbl spacer with dye En 2nd 10
mit 4 Pump 515 BLS cement at 15 90 excess
drop plug + Disp 72.6 bbls H₂O
Bump plug at 317 am at 550 PSI Hold 5 min
Run pressure up to 1000 lb + Hold 15 min
Release pressure wash up Rg down

X *[Signature]*
Work Performed

X
Title

X 10-15-13
Date



Bison Oil Well Cementing
Single Cement Surface Pipe

Customer
Well Name

noble
wr ae20-68-1hn

INVOICE #
12720
LOCATION
Weid County
FOREMAN
monte

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	Safety Meeting MIRU CIRCULATE Drop Plug 256	110 am 2:25 2:30	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
			BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI
			0	3:00	30	0			0			0			0		
			10	3:02	90	10			10			10			10		
			20	3:04	90	20			20			20			20		
			30	3:06	150	30			30			30			30		
			40	3:08	250	40			40			40			40		
			50	3:10	290	50			50			50			50		
	M & P		60	3:12	320	60			60			60			60		
	Time	Sacks	70	3:15	320	70			70			70			70		
	2:23	515	70	3:15	320	70			70			70			70		
	2:54		80	3:17	550	80			80			80			80		
			90			90			90			90			90		
			100			100			100			100			100		
			110			110			110			110			110		
			120			120			120			120			120		
	% Excess	15%	120			120			120			120			120		
	Mixed bbls	82.5	130			130			130			130			130		
	Total Sacks	315	140			140			140			140			140		
	bbl Returns	20	150			150			150			150			150		

Notes:

X
Work Performed

X
Title

X
Date 12-15-13



Bison Oil Well Cementing Single Cement Surface Pipe

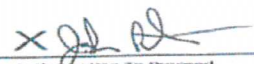
Invoice # 12720
API# 445564
Foreman: monte

Customer: noble
Well Name: wr ae20-68-1hn

County: Weld County
State: Colorado
Sec: 20
Twp: 6n
Range: 62w

Consultant: josh
Rig Name & Number: h & p 321
Distance To Location: 34.7
Units On Location: 3103 & 3211
Time Requested: 1000 PM
Time Arrived On Location: 1030 PM
Time Left Location: 5:00 PM

WELL DATA		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	36	Cement Density (lb/gal) :	15.2
Casing Depth (ft.) :	978	Cement Yield (cuft) :	1.27
Total Depth (ft) :	983	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.75	% Excess:	15%
Conductor Length (ft) :	130	Displacement Fluid lb/gal:	8.3
Conductor ID :	15.5	BBL to Pit:	
Shoe Joint Length (ft) :	42	Fluid Ahead (bbls):	
Landing Joint (ft) :	36	H2O Wash Up (bbls):	20.0
Max Rate:		Spacer Ahead Makeup	
Max Pressure:		10 fresh 10 dye 50 fresh	

Casing ID	8.921	Casing Grade	1-55 only used
Calculated Results		Displacement: 75.17 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	18.22 cuft	Pressure of cement in annulus	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		Hydrostatic Pressure: 772.23 PSI	
cuft of Conductor	104.66 cuft	Pressure of the fluids inside casing	
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Displacement: 403.59 psi	
cuft of Casing	445.95 cuft	Shoe Joint: 33.15 psi	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Total 436.74 psi	
Total Slurry Volume	568.83 cuft	Differential Pressure: 335.49 psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Collapse PSI: 2020.00 psi	
bbls of Slurry	116.50 bbls	Burst PSI: 3520.00 psi	
(Total Slurry Volume) X (.1781) X (% Excess Cement)		Total Water Needed: 92.23 bbls	
Sacks Needed	515 sk		
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	72.23 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			
 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.			