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Nº 12562

WELL NO. AND FARM Helton 5-63-27-4956-CDH	COUNTY weld	STATE CO	DATE 12-11-13	
CHARGE TO Bill Barrett	WELL LOCATION SEC. 27 TWP. 5N RANGE 63W		CONTRACTOR Major 413	
	DELIVERED TO 344-63		LOCATION 1 shop	CODE
	SHIPPED VIA 3103-3211		LOCATION 2 344-63	CODE
	TYPE AND PURPOSE OF JOB Surface Pipe		LOCATION 3 shop	CODE
			WELL TYPE Gas	CODE

[illegible]

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 REFERENCES

**SUB TOTAL**

TAX

**"TAXES WILL BE ADDED AT CORPORATE OFFICE"**

TOTAL

**SUBJECT TO CORRECTION**

Customer or His Agent

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 reverse side hereof which include the release and indemnity.



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/11/2013  
Invoice #: 12562  
API#:   
Foreman: Kirk

Customer: bill barrett  
Well Name: helton 5-63-27-4956 cdh

County: weld  
State: Colorado  
Sec: 27  
Twp: 5n  
Range: 63w

Consultant: casey  
Rig Name & Number: major 43  
Distance To Location:   
Units On Location: 3103-3211  
Time Requested: 630 am  
Time Arrived On Location: 430 am  
Time Left Location: 10:00 am

## WELL DATA

Casing Size OD (in) : 9.6250  
Casing Weight (lb) : 36  
Casing Depth (ft.) : 774  
Total Depth (ft) : 800  
Open Hole Diameter (in.) : 13.50  
Conductor Length (ft) :   
Conductor ID :   
Shoe Joint Length (ft) : 41  
Landing Joint (ft) : 8

Max Rate:   
Max Pressure:

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack: 5.89  
% Excess: 30%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit:   
Fluid Ahead (bbls):   
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 17.80 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** 378.28 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

**Total Slurry Volume** 396.07 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

**bbls of Slurry** 91.70 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)

**Sacks Needed** 405 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

**Mix Water** 56.86 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 57.29 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 611.15 PSI

## Pressure of the fluids inside casing

**Displacement:** 316.06 psi

**Shoe Joint:** 32.37 psi

**Total** 348.43 psi

**Differential Pressure:** 262.72 psi

**Collapse PSI:** 2020.00 psi

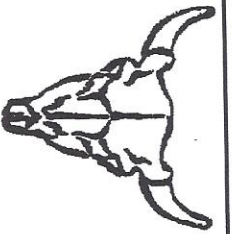
**Burst PSI:** 3520.00 psi

**Total Water Needed:** 76.86 bbls

X Casey Law  
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.





**Bison Oil Well Cementing**  
**Single Cement Surface Pipe**

Customer  
Well Name

bill barrett  
helton 5-63-27-4956 cdh

INVOICE #  
LOCATION  
FOREMAN  
Date

12562  
weld  
Kirk  
12/11/2013

Treatment Report Page 2

**DESCRIPTION OF JOB EVENTS**

Safety Meeting MIRU CIRCULATE Drop Plug 905 am M & P	818am 800am 834am	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI
		0	905	20	0			0			0			0		
		10	907	50	10			10			10			10		
		20	909	80	20			20			20			20		
		30	911	180	30			30			30			30		
		40	913	240	40			40			40			40		
		50	915	250	50			50			50			50		
		60			60			60			60			60		
Time	Sacks	70			70			70			70			70		
845 am	374	80			80			80			80			80		
903 am stop		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
% Excess	20%	130			130			130			130			130		
Mixed bbls	52.5	140			140			140			140			140		
Total Sacks	374	150			150			150			150			150		
bbl Returns	19															

Notes:

bumped plug at 919 am 420 psi 84.5 bbls slurry

X *Copy for* \_\_\_\_\_ X *Co-man.* \_\_\_\_\_ X *12-11-13*  
Work Performed \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_



# Bison Oil Well Cementing Single Cement Surface Pipe

## Cementing Customer Satisfaction Survey

Service Date	12/11/2013
Well Name	helton 5-63-27-4956 cdh
County	weld
State	Colorado
SEC	27
TWP	5n
RNG	63w

Invoice Number	20511
API #	0
Job Type	Single Cement Surface Pipe
Company Name	bill barrett

Customer Representative casey

Supervisor Name kirk

Employee Name (Including Supervisor)
chris
eric
zack

Exposure Hours (Per Employee)

5.5
5.5
5.5

Total Exposure Hours

16.5

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
5	Personnel -
5	Equipment -
5	Job Design -
5	Product/Material -
5	Health & Safety -
5	Environmental -
5	Timeliness -
5	Condition/Appearance -
5	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:

THE INFORMATION HEREIN IS CORRECT -

X Casey  
Customer Representative's Signature

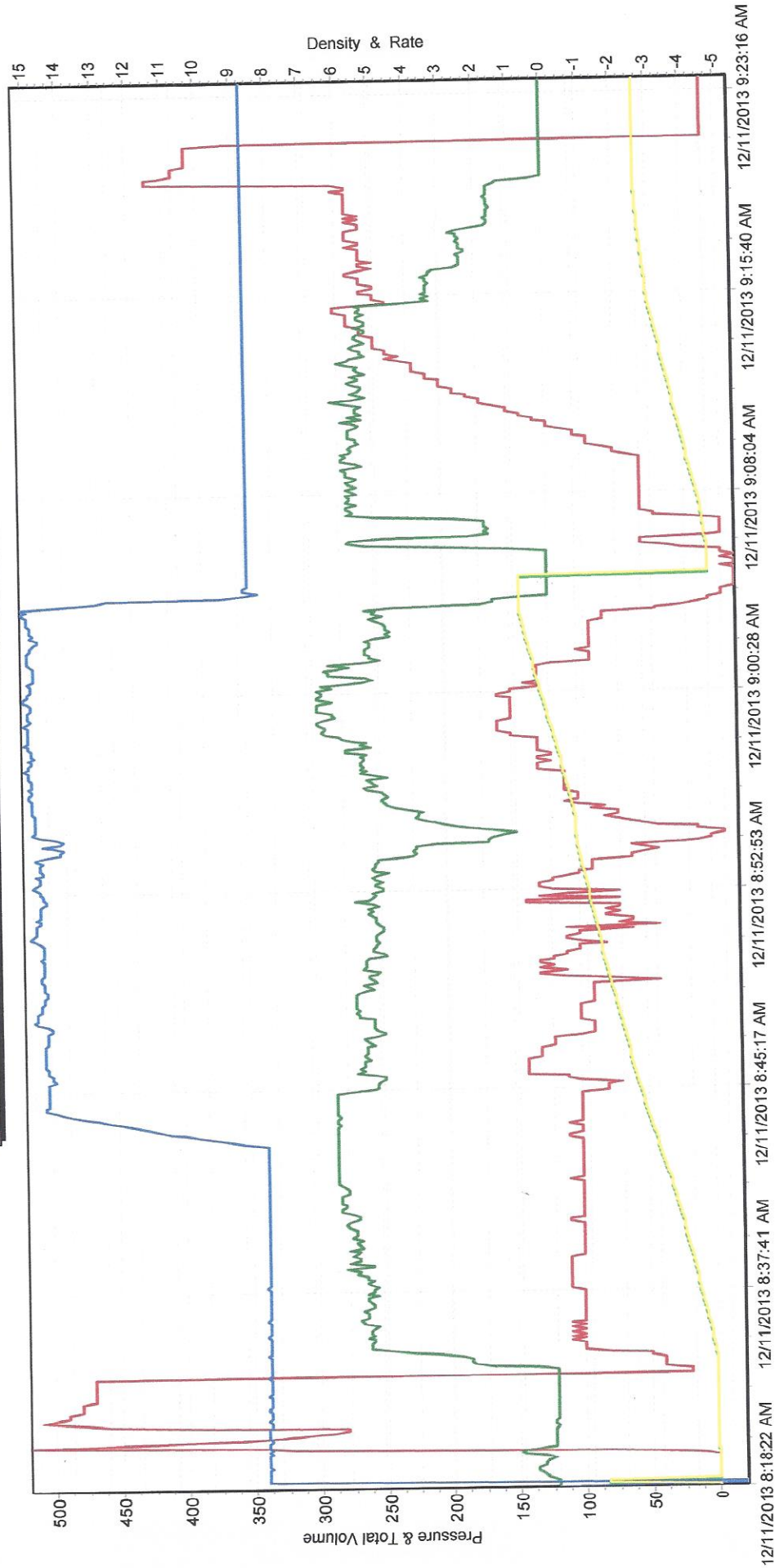
DATE:

12-11-13

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



# M/D TOTCO 2000 SERIES





**BISON**  
Oil Well Cementing Inc.

## PRE TRIP CEMENT CALL OUT SHEET

INVOICE # 12562

DATE/TIME 12-11-13

WELL NAME Heldan 5-63-27-4956 CDH

OPERATOR Casey

CUSTOMER Bill Barrett

LOCATION/RIG major 43

DELIVERED TO 394-63

### PRE CHECK CALL OUT

CHECK ITEMS	Supervisor Initials	Other Initials	BULK TRUCK DRIVER	Supervisor Initials	Other Initials
DRY SAMPLE #	<u>KK</u>		VACUUM BREAKER PORT CLEANED & INSPECTED	<u>/</u>	
REQUIRED CEMENT CONNECTIONS	<u>KK</u>		WATER JET AT MIX HEAD REMOVED, INSPECTED & CLEANED	<u>/</u>	
TYPE OF CEMENT <u>BFW 30%</u>	<u>KK</u>		CEMENTING HEAD INSPECTED & CLEANED	<u>/</u>	
# OF LBS/SACKS <u>Full</u>	<u>KK</u>		MIX TUB INSPECTED & CLEANED	<u>/</u>	
FLOAT EQUIPMENT			CENTRIFUGALS GREASED, TIGHTENED & INSPECTED	<u>/</u>	
BEGINNING FUEL <u>3/4</u>	<u>KK</u>		DECK MOTORS STARTED	<u>/</u>	
STATING MILAGE			VERIFY ALL AIR VALVES ARE FUNCTIONAL	<u>/</u>	
PERSONAL PROTECTIVE EQUIPMENT	<u>/</u>		VERIFY ALL VALVES ARE FUNCTIONAL ON BULK TRUCK	<u>/</u>	
DRIVING DIRECTIONS	<u>/</u>		VERIFY BERMS ARE ON BULK TRUCK	<u>/</u>	
DRIVERS LOGS	<u>/</u>		VERIFY SPARE CEMENT HEAD IS ON BULK TRUCK	<u>/</u>	
TRUCK PRE TRIP COMPLETED	<u>/</u>		VERIFY 1" TUBING IS ON BULK TRUCK	<u>/</u>	
ROCK CATCHERS REMOVED & CLEANED	<u>/</u>		VERIFY 1" IS ADEQUATELY SECURED ON BULK TRUCK	<u>/</u>	
VACUUM BREAKER REMOVED & CLEANED	<u>/</u>		VERIFY SPARE VACUUM BREAKER IS IN PUMP TRUCK	<u>/</u>	
VERIFY CORRECT POP OFF PIN IN PLACE	<u>/</u>		TOP OFF FUEL IN TRUCKS POST TRIP		
VERIFY PRESSURE TRANSDUCERS ARE CLEAN OF CEMENT	<u>/</u>				

### CEMENT HEAD CHECK LIST

	Supervisor Initials	Other Initials
THREADS	<u>KK</u>	
VALVES	<u>KK</u>	
PIN	<u>KK</u>	

COMMENTS: Spare head need manifold





## BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

ASK:	SURFACE CASING CEMENTING		CEMENTER/SUPERVISOR:	Kirk Kalihoff	PAGE	1	OF	3
NAME: helton 5-63-27-4956 cdh		RIG #major 43	LOCATION:394-63		DATE: 12-11-13		INVOICE # 12562	
ATOR:bill barrett		CONSULTANT: casey						
EQUIPMENT: <input type="checkbox"/> Hard Hat <input type="checkbox"/> Safety Glasses <input type="checkbox"/> Steel Toe Boots <input type="checkbox"/> Impact Gloves		ADDITIONAL PPE (based on job specific hazards) <input type="checkbox"/> FR Coveralls <input type="checkbox"/> Reflective Vest		<input type="checkbox"/> Goggles <input type="checkbox"/> Faceshield <input type="checkbox"/> Chemical Resistant Gloves <input type="checkbox"/> Chemical Resistant Clothing <input type="checkbox"/> Air Purifying Respirator <input type="checkbox"/> Supplied Air Respirator <input type="checkbox"/> Personal H2S Monitor <input type="checkbox"/> Personal Methane Monitor				
JOB STEPS		POTENTIAL HAZARDS		RECOMMENDED ACTION OR PROCEDURE				REVIEWED BY
Review JSA	Misunderstanding			Clarify job and associated hazards and safety concerns				kk
Conduct pre job safety meeting	Misunderstanding			-Hold safety meeting with all personnel on location, ensure everyone pays attention to ensure they understand their role and responsibility during the job -Review treatment report with consultant and attain signature for authorization to proceed -Identify and address short service employees (SSE) who are on location				kk
Move trucks in and rig up equipment	Other traffic on location, overhead lines, pinch points, heavy lifting, slips/falls			-Coordinate with well site supervisor for directions on where and when to park the equipment -All Bison crew members walk the location prior to driving in to access specific hazards -Utilize spotters when trucks are in motion -Establish buffer zone around equipment utilizing cones and caution tape -Cementor follows up to ensure connections are secure -Lift with your legs and use teamwork when rigging up -Utilize reflective vests and wands to increase visibility at night -Deploy spill berms and buckets				kk
Cement head and hoses to rig floor	Overhead work, improper hookup/load not properly secured, poor communication between ground personnel and crane/tugger operator			-Inspect slings, chains and hooks prior to lift -Ensure line of sight with crane/tugger operator is maintained throughout the lift and hand signals are understood -Ensure no personnel are under suspended equipment -Utilize a tag line to control the load				kk
Inject Cement head/swage/pin, chickens and es.	Working in a congested area, pinch points, swinging hammers, slippery rig floor			-Only Bison personnel install the cement head and hoses -Maintain line of sight and communication with crane/tugger operator -Remove non-essential personnel from rig floor, wait until other activity is done -Rig crew does not install chains until head and hoses are installed -Ensure a clear path when swinging a hammer -Ensure all fittings and hoses have proper pressure rating for the job and fall within the parameters of the <i>Bison Oilwell Iron Inspection Program</i>				kk
Pressure test lines	Equipment failing under high pressures			-Ensure rig floor is clear and personnel are away from hoses prior to test -Establish buffer area around high pressure hoses -Lines are checked from a distance and using pressure gauges -Cementor ensures pressure gauges are functioning properly				kk
Open Spacer (dye marker)/Mix and Pump	Maximum pressure allowed PSI- 2500			Pressure relief valve set to: PSI- 2000 Max. pump pressure: PSI- 3000				kk
Pressure test	PSI- 2500			-Pressure test prior to job, utilize heavy duty hose hobbles and pressure relief valve -Keep rig floor and buffer area clear while pumping -Utilize proper PPE -Have access to water to rinse affected skin -Deploy spill berms and buckets				kk

# BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET



**BISON**

p plug	Slips, trips, falls. Miscommunication between pump operator and cementer, pressure against a closed stop	-Utilize 3 points of contact while descending/climbing ladder and stairs -Have visual contact between cementer and pump operator before pump is engaged	kk
placement	Unexpected pressure associated with resuming of pumping, casing hydraulic from hole, serious injury from high pressure line failure or catastrophic equipment failure.	-Ensure rig floor remains clear and non-essential personnel stay clear from buffer area -Pump operator monitors pump pressure constantly -Utilize proper PPE	kk
imp plug- Test float and release pressure	Pressure jumps before expected (calculated) displacement. Pressure jumps rapidly and higher than expected.	-Pump operator slows rate to 2 BPM when 5 bbls from calculated displacement and down to 1 bpm within 2 bbls of calculated displacement -Pump operator monitors pressure constantly -Pressure relief valve installed on pump	kk
pressure test casing (required)	Test to: PSI- FOR: MIN- Serious injury from high pressure line or catastrophic equipment failure	-Ensure rig floor remains clear and non-essential personnel stay clear from the buffer area	kk
dash up / rig down	Splashing cement slurry, heavy lifting, pinch points, unsecured hoses	-Utilize stakes or portable tank manifold to secure hoses -Use proper lifting technique (2 man lift, lift with legs, plan your route)	kk
part location	Other traffic and personnel and location, overhead lines	-All Bison crew member walk the planned exit route to access possible obstacles and hazards -Utilize spotters while backing	kk
<p><b>General Precautions/Stop Work</b></p> <p>- If you see a leaking connection, notify the cementer. Do not attempt to hammer up a leaking connection as there may be pressure on the lines. -Any person on location, regardless of their position or experience level has the authority and responsibility to stop the job if they witness an unsafe act or condition.</p>			
OTHER HAZARDS SPECIFIC TO LOCATION OR COMMENT NOT ADDRESSED ABOVE:			
<p>NATED EMERGENCY MUSTER AREA: access rd</p> <p>COUNT-- 1/</p>		<p>NEAREST EMERGENCY MEDICAL FACILITY (OTHER THAN 911): greely</p>	





Signature and Company	
<i>[Signature]</i> Bison	
<i>[Signature]</i> Nov	
<i>[Signature]</i> Bison	
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<i>[Signature]</i> BBL	