



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/31/2014
 Invoice # 12278
 API#
 Foreman: Kirk

Customer: encana
 Well Name: vogle geist 2e-5h-f267

County: weld
 State: Colorado
 Sec: 5
 Twp: 2n
 Range: 62w

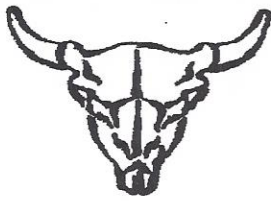
Consultant: quiz
 Rig Name & Number: h&p 278
 Distance To Location:
 Units On Location: 3103-3205
 Time Requested: 230 am
 Time Arrived On Location: 1200 am
 Time Left Location: 5:30 am

WELL DATA	Cement Data
Casing Size OD (in) : 9.6250	Cement Name: BFN III
Casing Weight (lb) : 40	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 826	Cement Yield (cuft) : 1.27
Total Depth (ft) : 865	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 30%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls):
Landing Joint (ft) : 25	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	

Calculated Results	Pressure Calculations
cuft of Shoe 18.78 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 61.18 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 80.51 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus Hydrostatic Pressure: 652.21 PSI
cuft of Casing 227.37 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: 337.13 psi Shoe Joint: 34.84 psi Total: 371.97 psi
Total Slurry Volume 326.66 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: 280.24 psi
bbls of Slurry 75.63 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Collapse PSI: 2570.00 psi Burst PSI: 3950.00 psi
Sacks Needed 334 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 66.89 bbls
Mix Water 46.89 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

X. J. [Signature]
 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

Cementing Customer Satisfaction Survey

Service Date	1/31/2014
Well Name	vogle geist 2e-5h-f267
County	weld
State	Colorado
SEC	5
TWP	2n
RNG	62w

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

Customer Representative quiz

Supervisor Name kirk

Employee Name (Including Supervisor)
chris
eric
tim

Exposure Hours (Per Employee)
5.5
5.5
5.5
16.5

Total Exposure Hours

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
<u>3</u>	Personnel -
<u>3</u>	Equipment -
<u>3</u>	Job Design -
<u>3</u>	Product/Material -
<u>3</u>	Health & Safety -
<u>3</u>	Environmental -
<u>3</u>	Timeliness -
<u>3</u>	Condition/Appearance -
<u>3</u>	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 -

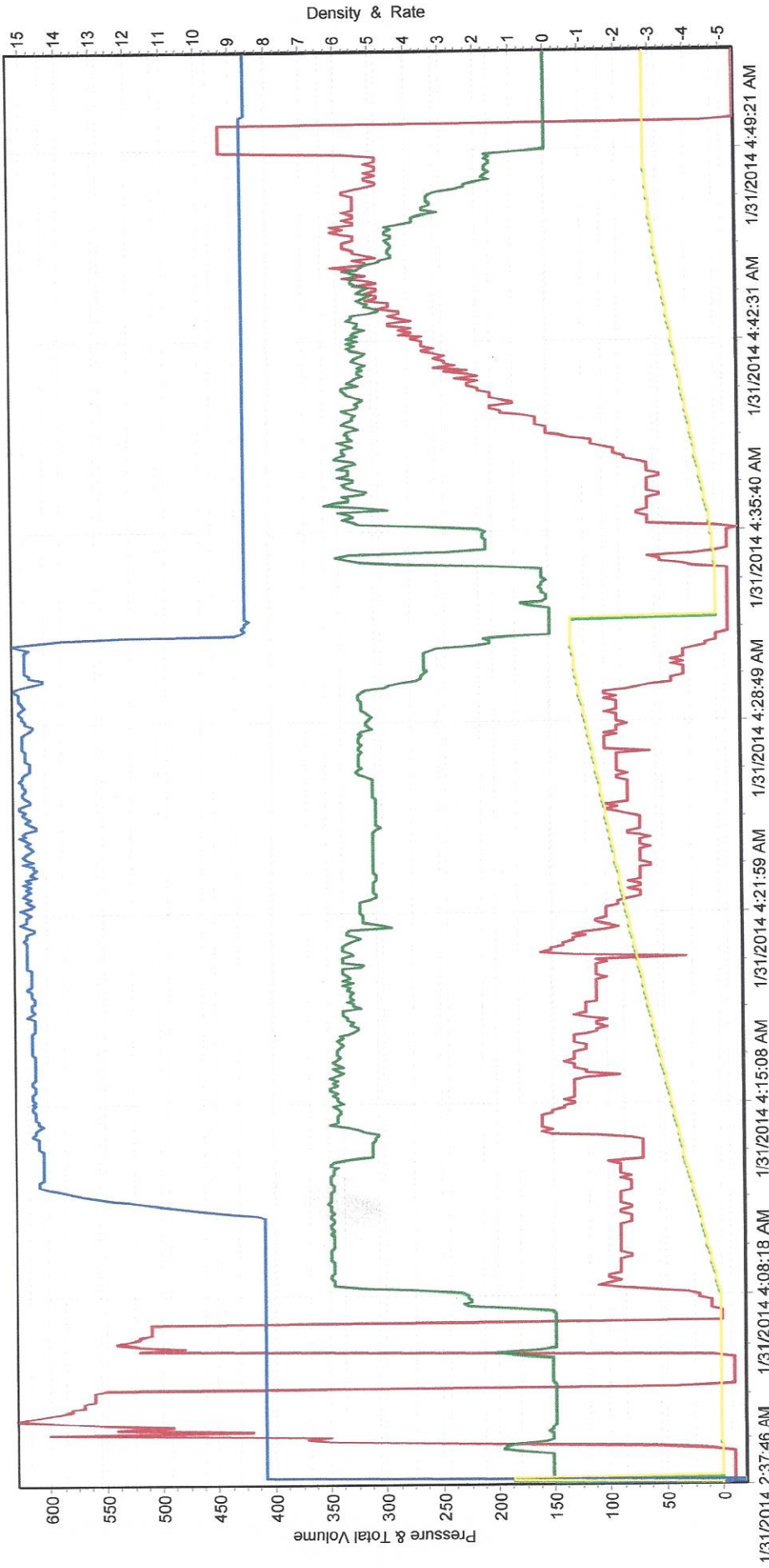
X Jim Swanson
Customer Representative's Signature

DATE: 1-31-14

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

M/D TOTCO 2000 SERIES

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





BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

ASK: SURFACE CASING CEMENTING		CEMENTER/SUPERVISOR: Kirk Kallhoff	PAGE 1	OF 3
NAME: vogle geist 2e-5h-f267		RIG #h&p 278	LOCATION:24-15	DATE: 1-31-14
ATOR:encana		CONSULTANT: quiz	INVOICE # 12278	
REQUIRED: <input type="checkbox"/> Hard Hat <input type="checkbox"/> Safety Glasses <input type="checkbox"/> Steel Toe Boots <input type="checkbox"/> Impact Gloves	<input type="checkbox"/> FR Coveralls <input type="checkbox"/> Reflective Vest	ADDITIONAL PPE (based on job specific hazards) <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
few JSA	Misunderstanding	Clarify job and associated hazards and safety concerns		kk
duct 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
ve 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 -Cementer 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
ce 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 -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
inect Cement head/swage/pin, chickens and es.	Working in a congested area, pinch points, swinging hammers, slippery rig floor	-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 -Cementer ensures pressure gauges are functioning properly		kk
ssure test lines	Test to: PSI- 500 Maximum pressure allowed for job: PSI- 2500	Equipment falling under high pressures	Pressure relief valve set to: PSI- 2000 Max. pump pressure: PSI- 3000	kk
ng Spacer (dye marker)/Mix and Pump tent	PSI- 2500	Serious injury from high pressure line failure or catastrophic equipment failure. Casing hydraulic failure from hole, causing injury. Burns or skin irritation from splashing cement, uncontrolled spills	-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 placement	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 hydraulizing 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
pump 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-	-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>General Precautions/Stop Work</p> <ul style="list-style-type: none"> - 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 EQUIPMENT NOT ADDRESSED ABOVE:</p>			
<p>NATED EMERGENCY MUSTER AREA: access rd</p> <p>COUNT-- 11</p>		<p>NEAREST EMERGENCY MEDICAL FACILITY (OTHER THAN 911): Longmont</p>	



BISON
Oil Well Cementing Inc.

PRE TRIP CEMENT CALL OUT SHEET

INVOICE # 12278 DATE/TIME 1-31-14
 WELL NAME Ugde Geist ZE-SA-F267 OPERATOR Chic
 CUSTOMER Encans
 LOCATION/RIG M&P 278
 DELIVERED TO 24-15

PRE CHECK CALL OUT 4024 - 3205

CHECK ITEMS	Supervisor Initials	Other Initials	BULK TRUCK DRIVER	Supervisor Initials	Other Initials
DRY SAMPLE #	HL		VACUUM BREAKER PORT CLEANED & INSPECTED & SPARE ON TRUCK	/	
REQUIRED CEMENT CONNECTIONS	KL		WATER JET AT MIX HEAD REMOVED, INSPECTED & CLEANED	/	
TYPE OF CEMENT <u>BFN III 3%</u>	KL		CEMENTING HEAD INSPECTED & CLEANED	/	
# OF LBS/SACKS <u>Full</u>	KL		MIX TUB INSPECTED & CLEANED	/	
FLOAT EQUIPMENT			CENTRIFUGALS GREASED, TIGHTENED & INSPECTED	/	
BEGINNING FUEL <u>3/4</u>	KL		DECK MOTORS STARTED	/	
STARTING MILEAGE			VERIFY ALL AIR VALVES ARE FUNCTIONAL	/	
PERSONAL PROTECTIVE EQUIPMENT	/		VERIFY ALL VALVES ARE FUNCTIONAL ON BULK TRUCK	/	
DRIVING DIRECTIONS	/		VERIFY BERMS ARE ON BULK TRUCK	/	
DRIVERS LOGS UPDATED PRIOR TO LEAVING YARD	/		VERIFY SPARE CEMENT HEAD IS ON BULK TRUCK		
TRUCK PRE TRIP COMPLETED	/		VERIFY 1" TUBING IS ON BULK TRUCK AND ADEQUATELY SECURED	/	
ROCK CATCHERS REMOVED & CLEANED	/		CHECK FOR ADEQUATE SUPPLY OF KCL, DYE AND DEFOAMER	/	
VACUUM BREAKER REMOVED & CLEANED	/		TOP OFF FUEL IN TRUCKS POST TRIP		
VERIFY CORRECT POP OFF PIN IN PLACE	/		VERIFY PARKING METER GAUGE IS ON TRUCK		<u>gone</u>
VERIFY PRESSURE TRANSDUCERS ARE CLEAN OF CEMENT	/		DRAIN AIR TANKS		
CLEAN TRUCKS					
TIGHTEN PACKING NUTS ON PLUNGERS					

CEMENT HEAD CHECK LIST

	Supervisor Initials	Other Initials
THREADS	KL	
VALVES	KL	
PIN	KL	

COMMENTS: