Job Summary

C&J ENERGY SERVICES — O-TEX CEMENTING

Ticket Number	Ticket Date
TN# FL3143	2/24/2018

COUNTY	COMPANY	API Number
Weld	**PDC Energy, Inc.**	**05-123-44093**
WELL NAME	RIG	JOB TYPE
Bunting 26Q-304	**Ensign 161**	**Production**
SURFACE WELL LOCATION	O-TEX Field Supervisor	CUSTOMER REP
SWSE 26 5N 65W	**Cheal, Sam**	**Brady Sharp**

EMPLOYEES

McFarland, James		*Roark, Kenneth*
St. John, Gary		
Cadena, Darius		

WELL PROFILE

Max Treating Pressure (psi):	5000	Bottom Hole Static Temperature (°F):	210
Bottom Hole Circulating Temperature (°F):		Well Type:	Oil

Open Hole

1	Size (in)	TMD From (ft)		TMD to (ft)		TVD From (Ft)	TVD to (Ft)
	8 1/2	1626		14743		1626	6910

Casing/Tubing/Drill Pipe

Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
Surface	9 5/8	36	J-55	0	1626	0	1626
Production	5 1/2	20	P-110	0	14741	0	6910

CEMENT DATA

Stage 1: Type: **Single Slurry**

From Depth (ft): 2445 To Depth (ft): 14741

Volume (sacks): 1565 Volume (bbls): 501.7

Cement & Additives:	Density (ppg)	Yield (ft^3/sk)	Water Req.
100% 35:65:0(POZ:G:GEL)+0.4% ASM-3+0.3% CFR+0.6% C-17+25% Silica Flour	13.5	1.80	8.77

SUMMARY

				Stage 1	
Preflushes:	40	bbls of	SAPP	Calculated Displacement (bbl):	326.5	
	50	bbls of	Weighted Spacer	Actual Displacement (bbl):	328	
	10	bbls of	Fresh Water			

TotalPreflush/Spacer Volume (bbl): 100 Plug Bump (Y/N): Yes Bump Pressure (psi): 2650

Total Slurry Volume (bbl): 501.7 Lost Returns (Y/N): No (if Y, when)

Total Fluid Pumped 929.7

Returns to Surface: Mud

Job Notes (fluids pumped / procedures / tools / etc.):

Cement production casing - Pumped 40bbls pre-flush (400lbs SAPP + 8gal Plexaid 803), Pumped 50bbls Weighted Spacer @12.5ppg, Pumped 10bbls fresh water spacer, Mixed / pumped 501.7bbls Single Slurry Cement @13.5ppg, Displaced with treated fresh water to bump, Pressured up well to open WSS, Displaced another 5bbls. Job pumped through C & J 5 1/2" cement head. Retunrs pumped through flow line. Estimated cement coverage **2,445 - 14,741ft.** TVD @ **6,910ft** / WSS @ **14,708ft** / Shoe @ **14,741ft** / TD @ **14,743ft.** Pumped job as per program / customers request. Detailed disciption of events in Job Log.

Customer Representative Signature:

Thank You For Using O-TEX Cementing

C&J ENERGY SERVICES
O-TEX CEMENTING

EQUIPMENT SHEET

Date: 2/24/2018

Job Site Leader: *Cheal, Sam*

Max Pressure: 5,000 PSI

Company - Lease - Well #: PDC Energy, Inc. / Bunting 26Q-304

Ticket #: FL3143

	Employee Name *** Please Print ***	Employee Number	Unit Number	Trailer Number	Location	Company Name
1	Cheal, Sam	120193	201356	449084	Brighton, CO	C & J Energy
	Bonus Amount:	$100.00		Coordinator Signature:		
2	McFarland, James	120219	745052	445052	Brighton, CO	C & J Energy
	Bonus Amount:	$50.00		Coordinator Signature:		
3	St. John, Gary	120234	745024	445024	Brighton, CO	C & J Energy
	Bonus Amount:	$50.00		Coordinator Signature:		
4	Roark, Kenneth	120229	749069	449069	Brighton, CO	C & J Energy
	Bonus Amount:	$50.00		Coordinator Signature:		
5	Cadena, Darius	120191	880172	920088 "660" Bulk	Brighton, CO	C & J Energy
	Bonus Amount:	$25.00		Coordinator Signature:		

Job Safety Leader: Sam Cheal

Report all Minor Injuries, Accidents, Vehicle Accidents or Environmental Spills Immediately.

C&J ENERGY SERVICES — O-TEX CEMENTING

CEMENTING JOB LOG

Project Number	Job Date
FL3143	2/24/2018

O-Tex Location	Customer	State	County
Brighton, Colorado 303-857-7948	PDC Energy, Inc.	CO	Weld

Lease Name	Well No.	O-Tex Field Supervisor	Customer Representative	Phone
Bunting 26Q-304		Cheal, Sam	Brady Sharp	970-396-9376

Job Type	Man Hours	API Number
Production	55	05-123-44093

USE THIS FORM TO NOTE ANY ISSUES ENCOUNTERED WITH THE PERFORMANCE OF THIS JOB.
THIS MAY INCLUDE TIME AT THE SHOP, ON THE ROAD OR DELAYS WITH DRILLING CONTRACTOR.

DATE	TIME	VOLUME	RATE	PRESS CSG	PRESS Tbg.	JOB PROCEDURES
2/24/2018	1:00					Leave Yard
	2:00					Arrive on location
	2:05					Tailgate meeting (talk about spotting trucks) / sign in
	2:10					Set spill containment / Spot SCM pump units / Batch mixer
	2:15					Rig in / Test cement mix water
	3:30					Wait for rig to circulate 2x bottoms up
	4:30					Safety meeting with O-Tex crew / rig crew / third party crew
	6:26	1 bbl	4.00		670	Fill lines
	6:30				5000	Pressure test iron
	6:31	40 bbl	6.00		1200	Pump pre-flush (400lbs SAPP + 8gal Plexaid 803)
	6:43	50 bbl	7.00		1300	Pump Weighted Spacer into SCM unit then down hole
	6:50	10 bbl	7.00		600	Pump fresh water spacer
	6:55	501.7 bbl	9.00		980	Mix / Pump SingleSlurry cement @13.5ppg
	8:00				0	Shutdown / wash pump unit / clear line
	8:10					Drop plug
	8:11	328 bbl	8.00		2000	Displace with treated fresh water
	8:55		4.00		2100	Slow pump rate to bump plug
	9:00		4.00		2650	Bump plug
	9:01				2700	Hold pressure for 5 min.
	9:06	1 bbl	1.50		3987	Pressure up well to open WSS
	9:07	5 bbl	4.00		1670	Displace with treated fresh water
	9:10				0	Check float (2bbls back)
	9:30					Rig out / Move laydown bins
	10:30					AAR
	11:00					Leave location

JOB CALCULATIONS

Estimated cement coverage **2,445 - 14,741ft.**

TVD @ **6,759ft.** / WSS @ **17,289ft.** / Shoe @ **14,741ft.** / TD @ **14,743ft.**

CASING DATA

Surface casing 9 5/8" 36# **0 - 1,626ft.** (ann. 0.0479)

Production casing 5 1/2" 20# **0 - 14,741ft.** (cap. 0.0222)

ANNULAR DATA

OH 8 1/2" **1,626 - 14,743** (ann. 0.0408)

0% excess for Single Slurry cement

PLEASE NOTE ANY CONTRACTOR ISSUES OR COMMENTS BELOW

C&J ENERGY SERVICES
O-TEX CEMENTING

Field Cementing Water Analysis

Company: PDC Energy, Inc.
Test Date: 2/24/2018
Well: Bunting 26Q-304
Ticket Number: FL3143

Ion	Sample Volume	Titer	Factor	Concentration	Units	Limit
pH				8		6 - 8
Calcium	50	170	0.801	136.17	mg/l	<300
Total Hardness				250	mg/l	<600
Chlorides				92	mg/l	<500
Alkalinity				350	mg/l $CaCO^3$	<600
Slurry Temperature				87	°F	50-80°F

Water Analysis Limits		
	Limits	**Potential Impact of Excess**
pH	6 - 8	Accelerate or Retard Set Time, Short & Long Term Stability Issues
Calcium	<300	Accelerate Set Times and Higher Mixing Viscosities
Total Hardness	<600	Accelerate or Retard Set Time and Higher Mixing Viscosities
Chlorides	<500	Accelerate Set Time, Higher Mixing Visc, Interfere with fluid loss chemical
Alkalinity	<600	Accelerate or Retard Set Time,Lower Compressive Strength,Higher Visc
Slurry Temperature	50-80°F	Blend will not perform as designed

O-Tex Supervisor Signature: _____

Company Supervisor Signature: _____

C&J ENERGY SERVICES
O-TEX CEMENTING

Form 1-B

Job Safety Analysis Worksheet

DATE:	2/24/2018			
LEASE NAME AND JOB TYPE:	Bunting 26Q-304	Production	JOB NUMBER:	FL3143
EMPLOYEE NAME AND JOB TITLE:	Cheal, Sam	Supervisor	***"HAS YOUR IRON BEEN INSPECTED RECENTLY?"***	

PERSONAL PROTECTIVE EQUIPMENT RECOMMENDED OR REQUIRED:

Hard Hat - Safety Toe Shoes/Boots - Safety Glasses - FR Apparel (worn on outer most layer) - Gloves - Hearing Protection

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
LOCATION HAZARD ASSESMENT / SITE WALK AROUND	Slips, Trips, Falls - Driving or walking obstructions - Environmental conditions (Ice, snow, mud, water, etc.) - Emergency evacuation route.	Hold Pre Rig Up Safety meeting to discuss hazards. Be cautious of your surroundings. Avoid cluttered work/walk areas. Practice good "house keeping" in work areas. Keep walking and emergency routes clear of obstruction.
SPOT EQUIPMENT	Over head obstructions - Running into or over unseen persons/items - Blind backing of equipment - Improper equipment placement	ALWAYS use designated spotters when moving any vehicle. Do not move equipment before a walk around. Do not spot equipment near high risk areas. Do not obstruct evacuation route or road ways. Remember to chock vehicle wheels and set fire extinguishers one equipment is parked.
RIGGING UP IRON AND HOSES	Slips, trips, falls - Pinching, smashing, or crushing of body parts - Lifting injuries - Un safe condition of, or incorrect use of tools.	Keep work area as clean as reasonable. Avoid carrying hardware through hazardous walking conditions. ALWAYS team lift to avoid un necessary strains. Be continuously aware of pinch points/body placement. Use the proper tool for the job. Do not use excessively worn or damaged tools.
RIGGING UP IRON AND HOSES (Cont'd)	Iron inspection up to date	Inspect tag on iron to assure the inspection date is within the last 12 months
RAISING AND LOWERING HARDWARE AND EQUIPMENT TO RIG FLOOR	Falling or unsecured loads - Pinching or crushing injury - Damaged lifting equipment	Do not walk or work under any elevated load. Always inspect lifting straps, cables, hooks, etc. before and after use. Discard damaged items. Use a tag line when possible to control movement of lifted items. Be aware of body placement/pinch points in relation to moving lifted objects. Always ensure load is secure. Never leave lifted load unattended.
CASING / WELL CONNECTIONS	Body placement - Congested work area - Raising/lowering items - Well control conditions	If working on rig floor, be cautious of slippery conditions (drilling mud, ice, etc.). Before removing any casing/well connections, ensure all pressure is released. When making a casing connection, watch pinch points. Use extra care when hoisting cement head onto casing. When working in cellar, have a spotter. Obey the same rules as on floor. Be cautious of poor footing, difficult walking or standing conditions.
PRE JOB SAFETY MEETING	All potential job related hazards	Conduct a pre job safety meeting with rig crew and any other 3rd party contractors on location involved with the task at hand. Discuss operation procedures and safety hazards involved with pressure pumping operations. Set up a contingency plan incase of emergency, including muster points, first aid, safety vehicles, nearest hospital, safety contacts, etc.
PRESSURE TESTING LINES AND HARDWARE	High Pressure - Loose connections - Lines separating - Hardware blow outs	Ensure ALL personnel are aware of testing operations. Clear everyone from working area. Keep open and clear communication while testing. Before beginning test, move all personnel to a safe zone at reasonable distance from iron and hardware. Do not attempt to access or repair any issues while equipment is under pressure. Confirm release of ALL pressure before continuing any operations.
FLUID PUMPING	Blow outs - Hardware failure - Improper valve operations - Leaks or spills	Always be aware of your self and those around you. Do not interact with the iron while pumps are in operation. If you see an issue, make all personnel aware and stop operations before attempting corrections. Double check all valve positions and function. Be aware of what is being pumped and its direction of flow. Report and identify any spills immediately.
WASHING UP / FLUID DISPOSAL	Loose connections - Lines blowing out of wash up tank - leaks/spills - Pumping into wrong disposal container - Over flowing pits	Have someone visually inspect lines and hardware before and during clean up. Check valve placement and fluid flow to ensure all are going in the proper direction. Make sure connection at disposal container is secure. Stop operation immediately and report to supervisor if a leak or spill occurs.
RIGGING DOWN THE JOB	Slips, trips, falls - Pinching, smashing, or crushing of body parts - Lifting injuries - Un safe condition of, or incorrect use of tools.	Keep work area as clean as reasonable. Avoid carrying hardware through hazardous walking conditions. ALWAYS team lift to avoid un necessary strains. Be continuously aware of pinch points/body placement. Use the proper tool for the job. Do not use excessively worn or damaged tools.
EXITING LOCATION AFTER JOB	Over head obstructions - Running into or over unseen persons/items - Blind backing of equipment - Improper equipment placement	Use a spotter when moving equipment. Do not move vehicles until you have completed a walk around. Be aware of direction travel and any obstacles along the way. Do NOT rush. Before leaving location, ensure good "house keeping" procedures. Clean any trash or unused items from work zone. Report and tend to any spills or damages that may occurred during operations.

Any and ALL personnel retain the right to "STOP JOB AUTHORITY". This means that it is not only your right, but your responsibility to warn others of any situation that you find to be a potential safety hazard. You have the right to request the shut down of operations at any time you see the safety of yourself or your fellow workers in jeopardy. It is the responsibility of everyone on location to ensure a safe, successful job and work environment. Safety first.