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SECRETARY'S POTASH

Form 3160-3
(March 2012)

ATS-15-63

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. Fee Lease & NMNM077054, State LO66910002, BO156500 12

6. If Indian, Allotee or Tribe Name (H)

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. (313452)
Gay Nineties Federal Com #4H

2. Name of Operator BC Operating, Inc. (160825)

9. API Well No.
30-025-43140

3a. Address P.O. Box 50820
Midland, Texas 79710

3b. Phone No. *(include area code)*
432-684-9696

10. Field and Pool, or Exploratory
Gem; Bone Spring (27220)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 2010' FSL & 2256' FEL of Unit Letter 'J', Section 36, T-19S, R-32E
At proposed prod. zone 240' FSL & 360' FWL of Unit Letter 'M', Section 1, T-20S, R-32E
UNORTHODOX LOCATION

11. Sec., T. R. M. or Blk. and Survey or Area
Section 36, T-19S, R-32E
Section 1, T-20S, R-32E

14. Distance in miles and direction from nearest town or post office*
30 miles East of Carlsbad

12. County or Parish
Lea

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
240'	Fee: 320 State: 2038.86 Fed: 798.8 Total: 3157.66	238.45
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
100'	17,324' MD / 9900' TVD	NM2572
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3569' GL	03/01/2015	45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
Pam Stevens	Pam Stevens	08/26/2014

Title
Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/S/ JEANETTE MARTINEZ		MAR 22 2016

Title	Office
FOR FIELD MANAGER	BLM-CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

SEE ATTACHED FOR CONDITIONS OF APPROVAL

KZ 03/28/16

Witness Surface & Intermediate Casing

Capitan Controlled Water Basin

MAR 28 2016

BC Operating, Inc. Gay Nineties Federal Com #4H

1. Geologic Formations

TVD of target	9900	Pilot hole depth	N/A
MD at TD:	17324	Deepest expected fresh water:	460

Reef

Formation	Depth (TVD) from KB)	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Alluvium	Surface	Water	
Rustler	1170	Water	
Top of Salt	1310	Salt	
Tansill	2730	Base Salt	
Yates	3010	Oil	
Capitan Reef	3375	Water	
Delaware Group	4700	Oil/Gas	
Bone Spring	7850	Oil/Gas	
SBSG Sand	9500	Oil/Gas TGT 9900	
3rd Bone Spring Lime	10000		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
26"	0	1195	20"	106.5	J55	STC	1.49	2.62	7.17
16"	0	3325	13.375"	68	J55	STC	1.23	1.35	3.07
12.25"	0	4500	9.625"	40	J55	LTC	1.19	1.14	2.89
8.5"	0	17324	5.5"	17	P110	TTRs1	1.51	1.4	3.24
				BLM Minimum Safety Factor 5.5" Tejas TTRS1 example			1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	Y
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

SEE COA

SEE COA

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	1620	13.7	1.66	8.7	10	Lead: Class C + 4.0% Bentonite + 1% CaCl2 + 0.5% Cello-Flake
	680	14.8	1.329	6.4	8	Tail: Class C + 0.2%FLO-1 + 1% CaCl2 + 0.1% TWR-2
Inter. 1	730	12.8	1.84	9.8	15	Lead: 35:65 C Blend + 6% Bentonite + 0.25% Cello-Flake + 0.2% FLO-1 + 5% sodium Chloride
	560	14.8	1.352	6.4	11	Tail: Class C + 0.1% MTR-150 + 0.1% TWR-2 + 1% CaCl2
Inter. 2	1100	12.8	1.84	9.8	15	Lead: 35:65 C Blend + 6% Bentonite + 0.25% Cello-Flake + 0.2% FLO-1 + 5% sodium Chloride
	590	14.8	1.352	8	11	Tail: Class C + 0.1% MTR-150 + 0.1% TWR-2 + 1% CaCl2
Prod.	890	11.8	2.31	12.84	24	Lead: 50:50 C Blend + 0.3% Cello-flake + 10% Bentonite + 5% PSE-2 + 0.3% CFR-13 + 0.2% CFL-20 + 0.65% MTR-150 + 0.15% TWR-2
	1320	12.6	1.93	10.46	11	Tail: THS 12.6 + 0.6% CFL-6 + 0.2% MTR-150 + 0.1% TWR-2 + 0.3% CFR-13

Extremely Low Cement see COA

Optional DV tool depth(s) ~~will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. If used, DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe~~. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

See COA

Casing String	TOC	%Excess
Surface	0'	100%
1st Intermediate	0'	50%
2nd Intermediate	0'	100%
Production	2275'	30%

Will not drill pilot hole on this well.
Pilot hole depth
KOP

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type
				16.4	1.06	4.3	Class H
				16.4	1.06	4.3	Class H

4. Pressure Control Equipment

See COA

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
17-1/2"	20"	2M	Annular	x	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
12-1/4"	13-5/8"	2M	Annular	x	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other *		
8-½" ~~8-3/4"~~ Per Casing Program	11"	3M	Annular	x	50% testing pressure
			Blind Ram	x	3M
			Pipe Ram	x	
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

See COA

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	Y/N	Are anchors required by manufacturer?
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here See attached schematic.	

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.5-8.6	28-32	N/C
Surf csg	Int 1 shoe	Saturated Brine	10.0-10.2	28-29	N/C
Int 1 csg	Int 2 shoe	Cut Brine	8.5-9.3	28-34	N/C
Int 2 csg	8000	FW gel then Xan PX	8.4-8.5 8.4-8.6	28-29 34-36	N/C <12
8000	TD Hz	Cut Brine	8.6-8.9	46-50	<10

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures. No Pilot Hole. No logging in vertical. * See COA

Logging, Coring and Testing.	
Y	Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain
N	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
	CBL	Production casing
Y	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

see COA

Condition	Specify what type and where?
BH Pressure at deepest TVD	3400 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

see COA

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
Y	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? No. If yes, describe.
Will be pre-setting casing? No. If yes, describe.

Attachments
___ Directional Plan
___ Specification sheet for TTRS1 connection
___ Other, describe