

FORM  
2

Rev  
12/05

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

400282990

Date Received:

06/07/2012

PluggingBond SuretyID

20040060

APPLICATION FOR PERMIT TO:

1. ☒ Drill, ☐ Deepen, ☐ Re-enter, ☐ Recomplete and Operate

2. TYPE OF WELL

OIL ☐ GAS ☒ COALBED ☐ OTHER ☐  
SINGLE ZONE ☒ MULTIPLE ☐ COMMINGLE ☐

Refiling ☒

Sidetrack ☐

3. Name of Operator: BARRETT CORPORATION\* BILL

4. COGCC Operator Number: 10071

5. Address: 1099 18TH ST STE 2300

City: DENVER State: CO Zip: 80202

6. Contact Name: Megan Finnegan Phone: (303)299-9949 Fax: (303)291-0420

Email: mfinnegan@billbarrettcorp.com

7. Well Name: Cox Well Number: 2N-12-39-18

8. Unit Name (if appl):  Unit Number:

9. Proposed Total Measured Depth: 11241

WELL LOCATION INFORMATION

10. QtrQtr: NWNE Sec: 12 Twp: 39N Rng: 18W Meridian: N

Latitude: 37.660080 Longitude: -108.780320

Footage at Surface: 250 feet FNL 1927 feet FEL

11. Field Name: Wildcat Field Number: 99999

12. Ground Elevation: 6801 13. County: DOLORES

14. GPS Data:

Date of Measurement: 05/07/2009 PDOP Reading: 2.2 Instrument Operator's Name: Gerald Huddleston

15. If well is ☐ Directional ☒ Horizontal (highly deviated) **submit deviated drilling plan.**

Footage at Top of Prod Zone: 229 FSL 1929 FEL 460 FNL 1980 FEL  
Sec: 1 Twp: 39N Rng: 18W Sec: 1 Twp: 39N Rng: 18W

16. Is location in a high density area? (Rule 603b)? ☐ Yes ☒ No

17. Distance to the nearest building, public road, above ground utility or railroad: 224 ft

18. Distance to nearest property line: 250 ft 19. Distance to nearest well permitted/completed in the same formation(BHL): 955 ft

20. LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
Gothic	GOSH	389-5	1391	Sec 1 & Sec 12

21. Mineral Ownership: ☒ Fee ☐ State ☐ Federal ☐ Indian Lease #:

22. Surface Ownership: ☒ Fee ☐ State ☐ Federal ☐ Indian

23. Is the Surface Owner also the Mineral Owner? ☒ Yes ☐ No Surface Surety ID#:

23a. If 23 is Yes: Is the Surface Owner(s) signature on the lease? ☒ Yes ☐ No

23b. If 23 is No: ☐ Surface Owners Agreement Attached or ☐ \$25,000 Blanket Surface Bond ☐ \$2,000 Surface Bond ☐ \$5,000 Surface Bond

24. Using standard QtrQtr, Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):

Spacing Unit No. #4 T39N, R18W Section 1: Lots 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16, S½. Section 12: All

25. Distance to Nearest Mineral Lease Line: 460 ft

26. Total Acres in Lease: 1391

### DRILLING PLANS AND PROCEDURES

27. Is H2S anticipated? ☐ Yes ☒ No If Yes, attach contingency plan.

28. Will salt sections be encountered during drilling? ☐ Yes ☒ No

29. Will salt (>15,000 ppm TDS CL) or oil based muds be used during drilling? ☐ Yes ☒ No

30. If questions 28 or 29 are yes, is this location in a sensitive area (Rule 901.e)? ☐ Yes ☒ No

31. Mud disposal: ☐ Offsite ☒ Onsite

If 28, 29, or 30 are "Yes" a pit permit may be required.

Method: ☐ Land Farming ☐ Land Spreading ☐ Disposal Facility Other: Evaporation & Backfilling

Note: The use of an earthen pit for Recompletion fluids requires a pit permit (Rule 905b). If air/gas drilling, notify local fire officials.

Casing Type	Size of Hole	Size of Casing	Wt/Ft	Csg/Liner Top	Setting Depth	Sacks Cmt	Cmt Btm	Cmt Top
CONDUCTOR	26	16	65	0	80		80	0
SURF	12+1/4	9+5/8	36	0	2,000	760	2,000	0
1ST	6+1/8	4+1/2	11.6	0	11,241	1,460	11,241	

32. BOP Equipment Type: ☒ Annular Preventer ☒ Double Ram ☐ Rotating Head ☐ None

33. Comments This APD is being submitted to request an extension to the permit that expires 6/29/2012. Nothing has been changed since last reviewed/approved. Rule 305/306 consultations were waived. No existing improvement within 200' of the proposed wellhead. Height of rig is 136' (1 1/2 times =204')

34. Location ID: 418076

35. Is this application in a Comprehensive Drilling Plan ? ☐ Yes ☐ No

36. Is this application part of submitted Oil and Gas Location Assessment ? ☐ Yes ☒ No

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: \_\_\_\_\_ Print Name: Megan Finnegan

Title: Permit Analyst Date: 6/7/2012 Email: mfinnegan@billbarrettcorp.com

Operator must have a valid water right or permit allowing for industrial use or purchased water from a seller that has a valid water right or permit allowing for industrial use, otherwise an application for a change in type of use is required under Colorado law. Operator must also use the water in the location set forth in the water right decree or well permit, otherwise an application for a change in place of use is required under Colorado law. Section 37-92-103(5), C.R.S. (2011).

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved:  Director of COGCC Date: 7/26/2012

API NUMBER

05 033 06159 00

Permit Number: \_\_\_\_\_ Expiration Date: 7/25/2014

### CONDITIONS OF APPROVAL, IF ANY:

All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.

### NOTICE TO OPERATOR

Hydrogen Sulfide Gas – Precautions to be taken

Prepared and authorized by,

Mark Weems, P.E.  
Regional Engineer – SW Colorado  
Colorado Oil and Gas Conservation Commission

50 Long Hollow Lane  
Durango, Co 81301  
(970) 259-4787  
mark.weems@state.co.us

This notice applies to any drilling and completion activities by Bill Barrett Corporation (“BBC”) in the Gothic Shale, a member of the Hermosa Group, which have the potential to release Hydrogen Sulfide Gas (H<sub>2</sub>S) to the atmosphere. The Conditions of Permit Approval (COA) applicable to this notice will apply to all wells laterally drilled and fracture stimulated. Colorado Oil and Gas Conservation Commission Rule 607 – Hydrogen Sulfide Gas is attached for your reference.

BBC has recently been active with its new gas discovery and development of its Gothic Shale play, located in Dolores and Montezuma counties. Because of a recent detection of H<sub>2</sub>S in the Oliver 13H-21-38-16 well (see appendix below), the COGCC is requiring certain precautions for future drilling and completions. To date, there has only been a detection of H<sub>2</sub>S in one of twelve wells drilled and fractured stimulated. The amount and concentration of H<sub>2</sub>S found falls below the 50 foot radius of exposure which would trigger a comprehensive H<sub>2</sub>S Public Safety Plan (United States Department of the Interior, Bureau of Land Management, Onshore Order No. 6, November 23, 1990 [incorporated by reference in COGCC Rule 607]). However, until the nature and extent of H<sub>2</sub>S in this area is further evaluated, the COGCC is requiring added precautions.

BBC’s chief geologist for the Gothic Shale play has presented evidence indicating that the H<sub>2</sub>S source is likely from the lower Barker Creek shale which is located in the lower portion of the Paradox member of the Hermosa formation or from the Mississippian at a depth of approximately 8000 feet to 9000 feet. The Gothic Shale is located at an approximate depth of 6000 feet. No H<sub>2</sub>S gas has been encountered at shallower depths. BBC’s seismic data has shown a fault, which is present near the Oliver 13H-21-38-16 well at depths ranging from approximately 9000 feet to 6000 feet deep. H<sub>2</sub>S gas was not encountered while drilling, but it was observed during one of the fracture stimulation jobs on the Oliver 13H-21-38-16 well. BBC contends that the fracture stimulation may have connected with the lower Barker Creek shale independently, through the fault, or through a combination of these processes. BBC does not have facilities capable of processing H<sub>2</sub>S, and therefore, BBC has plugged back the Oliver 13H-21-38-16 well. BBC intends to use the well for salt water disposal in shallower zones, pending COGCC approval of an Underground Injection Control permit. COGCC understands that BBC intends to plug any other Gothic Shale wells near the Oliver 13H-21-38-16 well which encounters H<sub>2</sub>S.

Revised 23 Feb 10 – MEW  
Revised 15 Jun 12 – MEW

#### APPENDIX Example Calculation for Radius of Exposure

Oliver 13H-21-38-16  
SWSW 21 38N 16W  
05-083-06659-01

H<sub>2</sub>S showing  
400 ppm  
320 MCFD

Radius of exposure calculation calculates to be 28 feet or less than the 50 feet when it is required for a Public Safety Plan

Radius of Exposure Calculation:

$X = ((1.589) \times (\text{H}_2\text{S concentration}) \times (Q))$  this product is then raised to the power of 0.6258

$X = ((1.589) \times (400\text{ppm}/1\text{EE}6) \times (325,000))$  to the power of 0.6258

$X = 28.1 \text{ ft}$

- 1) Conditions stated in the NOTICE TO OPERATOR dated January 29, 2010 will apply (see attachment)
  - 2) Minimal H2S operational procedures and equipment is required (see H2S Safety Plan – Low Risk Probability)
  - 3) Spud Notice – Submit COGCC eform 42 providing seventy-two (72) hours notice prior to MIRU.
  - 4) Frac Notice- Submit COGCC eform 42 providing seventy-two (72) hours notice prior to frac job(s)
  - 5) It is the operator's responsibility to ensure that the well bore/perfs complies with setback requirements in Commission orders and/or rules prior to producing the well.
  - 6) Run and submit directional survey(s) for the directional portion of the well
  - 7) The deepest water well within a one (1) mile radius is 000 'deep
  - 8) Conditions of Approval for Optional Casing Designs
- Option A
- 7" intermediate casing cemented to surface
  - 4 ½" production casing is not cemented and external swell packers in place
- Run CBL on 7" casing (rule 317 o.)
- Option B
- 7" intermediate casing cemented to surface
  - 4 ½" production casing is cemented to surface
- Run temperature survey on the 7" intermediate casing after cementing (rule 207 a.)
- Run CBL on 4 ½" production casing (rule 317 o.)
- Option C
- 7" intermediate casing cemented to surface
  - 4 ½" liner is cemented in place
- Run CBL on both 7" intermediate and 4 ½" casings (rule 317 o.)

(1) H2S monitoring equipment will be on site while drilling and completing. Submit plans for H2S monitoring via sundry notice.

(2) A map shall be posted at the well site showing all facilities within a half (1/2) mile radius where the public is likely to be present (applicable to both drilling and fracturing operations). Also, post names, addresses and as available, phone numbers of the public who normally live, work or congregate within a half (1/2) mile of the well site.

(3) 72 hours prior both to spud & fracturing operations, notify COGCC via eform 42

Provide the following information: Operator Name, Well Name and Number, API #, Spud Date, Contact Name, Contact Phone #, Email Address

(4) 72 hours prior to spud & fracturing operations, notify county dispatch & Local Governmental Designee of potential for H2S

(5) Have H2S scavenger on site at time of drilling out surface casing shoe

(6) If H2S is encountered, collect a sample that is representative of the reservoir conditions and have a lab determine the H2S concentration in ppm as soon as practicable. Measure or estimate absolute open flow potential of the well. Report the results and calculations to the COGCC verbally first and ASAP then by email and Sundry Notice.

(7) If H2S is encountered, shut in well and cease operations

(8) If H2S is encountered, notify county dispatch, COGCC, & local governmental designee of H2S presence

(8) If H2S is encountered and the radius of exposure equals or exceeds 50 feet, submit for COGCC approval PUBLIC H2S PROTECTION PLAN prior to resuming operations

(9) Submit H2S Operations Plan for approval & Implement prior to resuming operations

### **Attachment Check List**

Att Doc Num	Name
1698902	CORRESPONDENCE
1857255	CORRESPONDENCE
1857257	CORRESPONDENCE
400282990	FORM 2 SUBMITTED

Total Attach: 4 Files

### **General Comments**

<b><u>User Group</u></b>	<b><u>Comment</u></b>	<b><u>Comment Date</u></b>
Permit	"If location not built by 2A expiration 6/29/2013, Refile Form 2A will be approved prior to construction." Final Review passed 7/9/2012 NKP	7/9/2012 3:33:42 PM

Total: 1 comment(s)

### **BMP**

<b><u>Type</u></b>	<b><u>Comment</u></b>

Total: 0 comment(s)