

SECRETARY'S POTASH

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

HOBBS OCD

FEB 08 2016

RECEIVED

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

5. Lease Serial No.

NMNM85937

6. If Indian, Allotée or Tribe Name

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

8. Lease Name and Well No.

Airbonita 12 Federal #4H

9. API Well No.

70-025-43062

10. Field and Pool, or Exploratory

Red Tank; Bone Spring

11. Sec., T.R.M. or Blk and Survey or Area

Sec. 12 - T22S - R32E

12. County or Parish

Lea County

13. State

NM

1a. Type of Work: ☒ DRILL☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other☒ Single Zone☐ Multiple Zone

2. Name of Operator

COG Operating LLC.

3a. Address

2208 West Main Street
Artesia, NM 88210

3b. Phone No. (include area code)

575-748-6940

4. Location of Well (Report location clearly and in accordance with any State requirements.)*

At surface

60' FSL & 590' FWL Unit Letter M (SWSW) SHL

At proposed prod. Zone

330' FNL & 380' FWL Unit Letter D (NWNW) BHL

14. Distance in miles and direction from nearest town or post office*

About 25 miles from Malaga

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. Unit line, if any)

60'

16. No. of acres in lease

800

17. Spacing Unit dedicated to this well

160

18. Distance from location*

to nearest well, drilling, completed,
applied for, on this lease, ft.

SHL: 30' (Proposed Airbonita #8H)

BHL: 1674'

19. Proposed Depth

TVD: 11860' MD: 16544'

PH: 12450'

20. BLM/BIA Bond No. on file

NMB000740 & NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

3677.2' GL

22. Approximate date work will start*

9/1/2015

23. Estimated duration

30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall 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 shall 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
authorized officer.

25. Signature

Name (Printed/Typed)

Date

Title

Mayte Reyes

5-6-15

Regulatory Analyst

Approved by (Signature)

/s/George MacDonell

Name (Printed/Typed)

Date

FEB - 3 2016

Title

FIELD MANAGER

Office

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)

Carlsbad Controlled Water Basin

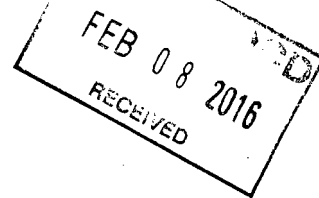
Kz
02/10/16SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special Stipulations Attached

FEB 11 2016

AIRBONITA 12 FED #4H

FID OPERATOR

WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
0 OXY USA INC	32.393621	-103.623119	3002530137	13	22.05	32E	1980	N	990	E	15261	Active
1 COG OPERATING LLC	32.408109	-103.634871	3002531137	12	22.05	32E	1980	N	660	W	15112	Active
2 COG OPERATING LLC	32.404438	-103.647301	3002531716	11	22.05	32E	1980	S	2080	W	10100	Active
3 COG OPERATING LLC	32.40814	-103.623143	3002532142	12	22.05	32E	1980	N	990	E	13780	Active
4 EOG RESOURCES INC	32.389006	-103.647112	3002532528	14	22.05	32E	1650	S	2135	W	8900	Active
5 EOG RESOURCES INC	32.389016	-103.643434	3002532545	14	22.05	32E	1650	S	1980	E	10100	Active
6 COG OPERATING LLC	32.392656	-103.64344	3002532758	14	22.05	32E	2310	N	1980	E	9000	Active
7 MARALO LLC	32.392647	-103.647049	3002532759	14	22.05	32E	2310	N	2155	W	8714	Plugged
8 COG OPERATING LLC	32.392665	-103.640217	3002532760	14	22.05	32E	2310	N	990	E	9000	Active
9 EOG RESOURCES INC	32.389024	-103.640211	3002532765	14	22.05	32E	1650	S	990	E	8905	Active
10 OXY USA INC	32.385408	-103.635908	3002532999	13	22.05	32E	330	S	330	W	10070	Active
11 OXY USA INC	32.389036	-103.635914	3002533026	13	22.05	32E	1650	S	330	W	10100	Active
12 OXY USA INC	32.386337	-103.629464	3002532526	13	22.05	32E	660	S	2310	W	15445	Active
13 OXY USA INC	32.389934	-103.639138	3002533530	14	22.05	32E	1980	S	660	E	0	
14 OXY USA INC	32.389965	-103.62947	3002533722	13	22.05	32E	1980	S	2310	W	10150	Active
15 OXY USA INC	32.393107	-103.629671	3002536063	13	22.05	32E	2160	N	2250	W	10050	Active
16 OXY USA INC	32.396736	-103.629482	3002536064	13	22.05	32E	840	N	2310	W	10050	Active
17 OXY USA INC	32.404589	-103.642386	3002536265	11	22.05	32E	2030	S	1650	E	15160	Active
18 OXY USA INC	32.39286	-103.634423	3002536415	13	22.05	32E	2245	N	790	W	10080	Active
19 YATES PETROLEUM CORPORATION	32.387251	-103.627405	3002536883	13	22.05	32E	1080	S	2310	E	10200	Active
20 OXY USA INC	32.387502	-103.626331	3002537007	13	22.05	32E	330	S	990	W	0	
21 OXY USA INC	32.385415	-103.633759	3002537008	13	22.05	32E	330	S	990	W	0	
22 OXY USA INC	32.398126	-103.633781	3002537009	13	22.05	32E	330	N	990	W	0	
23 OXY USA INC	32.408075	-103.64763	3002537083	11	22.05	32E	1980	N	1980	W	15203	Active
24 COG OPERATING LLC	32.404609	-103.635028	3002537227	12	22.05	32E	2030	S	610	W	8998	Active
25 COG OPERATING LLC	32.408392	-103.631648	3002537228	12	22.05	32E	1880	N	1650	W	8960	Active
26 COG OPERATING LLC	32.404485	-103.630567	3002537819	12	22.05	32E	1980	S	1980	W	8990	Active
27 COG OPERATING LLC	32.400856	-103.630562	3002537821	12	22.05	32E	660	S	1980	W	8990	Active
28 COG OPERATING LLC	32.407716	-103.62744	3002537822	12	22.05	32E	2130	N	2310	E	0	
29 OXY USA INC	32.398119	-103.635929	3002537929	13	22.05	32E	330	N	330	W	10050	Active
30 COG OPERATING LLC	32.404496	-103.626751	3002538238	12	22.05	32E	1980	S	2100	E	0	
31 COG OPERATING LLC	32.400868	-103.626745	3002538239	12	22.05	32E	660	S	2100	E	0	
32 COG OPERATING LLC	32.400085	-103.626353	3002540179	12	22.05	32E	375	S	1980	E	14110	New (Not drilled or compl)
33 OXY USA INC	32.389974	-103.622159	3002541380	13	22.05	32E	1974	S	697	E	0	New (Not drilled or compl)
34 COG OPERATING LLC	32.399593	-103.62098	3002541491	12	22.05	32E	190	S	330	E	11937	New (Not drilled or compl)
35 OXY USA INC	32.418496	-103.635961	3002540306	1	22.05	32E	1800	S	330	W	12735	New (Not drilled or compl)
36 OXY USA INC	32.422615	-103.638115	3002540095	2	22.05	32E	1980	N	330	E	13774	New (Not drilled or compl)
37 OXY USA INC	32.403746	-103.619375	3002541646	7	22.05	33E	1700	S	165	W	0	New (Not drilled or compl)



COG Operating LLC, Airbonita 12 Federal 4H

1. Geologic Formations

TVD of target	11860	Pilot hole depth	12450
MD at TD:	16544	Deepest expected fresh water:	580

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards
Quaternary Fill	Surface	Water	
Rustler	886	Water	
Top of Salt	970	Salt	
Lamar	4726		
Delaware Group	4825	Oil/Gas	
Bone Spring	8597	Oil/Gas	
Third Bone Spring	11572	Target Zone	
Wolfcamp	11919		

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

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	940 980	13.375"	54.5	J55	STC	2.57	1.23	10.03
12.25"	0	4300	9.625"	40	J55	BTC	1.28	0.66*	3.32
12.25"	4350	4750	9.625"	40	L80	BTC	1.39	0.97*	50.89
8.75"	0	16544	5.5"	17	P110	BTC	1.35	1.92	1.94D
BLM Minimum Safety Factor							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
- BLM standard formulas used on all safety factor calculations
- Assumed 9 ppg MW equivalent pore pressure through Bone Spring & 9.2 in Wolfcamp.
- *Explanation for SF's below BLM's minimum standards:
 - 9-5/8" J55 Burst SF @ 0.66 – used BLM's frac gradient scenario to qualify
 - $3950 \text{ psi} / 4750' = 0.83 > 0.7$
 - 9-5/8" L80 Burst SF @ 0.99 – used BLM's frac gradient scenario to qualify
 - $5750 \text{ psi} / 4750' = 1.21 > 0.7$

	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).	N

COG Operating LLC, Airbonita 12 Federal 4H

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?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
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?	

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	440	13.5	1.75	9.15	5.5	Lead: Class C + 4.0% Gel + 2.0% CaCl ₂
	240	14.8	1.35	6.57	7	Tail: Class C + 2.0% CaCl ₂
Inter.	1080	13.5	1.73	9.15	5.5	Lead: Class C + 4.0% Gel
	350	14.8	1.34	6.47	5.5	Tail: Class C
Prod.	1160	10.3	3.5	21.16	90	Lead: Tuned Lite + 2 lb/sk Kol-Seal + 0.125 lb/sk. Pol-E-Flake + 0.5 lb/sk HALAD-9 + 0.25 lb/sk D-Air 5000
	1220	14.4	1.25	5.69	19	Tail: Class H + 0.5% HALAD-9 + 0.05% SA-1015 + 1% NaCL + 2% Gel

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft ³ /sack	Water gal/sk	Slurry Description and Cement Type
11130	11800	15	330	17.2	0.98	3.62	Class H
11800	12450	15	320	17.2	0.98	3.62	Class H

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Casing String	TOC	% Excess
Surface	0'	66%
Intermediate	0'	66%
Production	0'	45%

Pilot hole depth 12450'

KOP 11383'

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
See COA 12-1/4"	13-5/8"	2M	Annular	X	WP
			Blind Ram		WP
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	5M	Annular	X	50% WP
			Blind Ram	X	WP
			Pipe Ram	X	
			Double Ram		
			Other*		

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.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke

See COA

COG Operating LLC, Airbonita 12 Federal 4H

	Manifold. See attached for specs and hydrostatic test chart.
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. See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.4-9.4	32-34	N/C
Surf csg	Int shoe	Saturated Brine	10.0-10.2	28-30	N/C
Int shoe	PHTD	Cut Brine	8.8-9.5	28-32	N/C
KOP	TD	Cut Brine	9.0-9.3	28-30	N/C

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
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6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD 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.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
Resistivity	
Density	
CBL	
X Mud log	Production
X PEX	PHTD - ICP

7. Drilling Conditions

See
COA

Condition	Specify what type and where?
BH Pressure at deepest TVD	5956 psi @ PH TVD
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe: No abnormal drilling conditions are expected to occur.

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.

N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? Yes No, if drilling multiple wells, submit sundry
Will be pre-setting casing? No

Attachments

- Directional Plan
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H₂S schematic
- H₂S contingency plan
- Interim reclamation plat
- Variance for Flex Hose