

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER RECEIVED

SECRETARY'S POTASH  
HOBBS OCD  
JAN 28 2016

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator COG Operating LLC. <b>229137</b>		7. If Unit or CA Agreement, Name and No.	
3a. Address 2208 West Main Street Artesia, NM 88210		8. Lease Name and Well No. <b>38682</b> Airbonita 12 Federal #7H	
3b. Phone No. (include area code) 575-748-6940		9. API Well No. <b>30-025-43048</b>	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 190' FSL & 2010' FWL Unit Letter N (SESW) SHL At proposed prod. Zone 330' FNL & 1980' FWL Unit Letter C (NENW) BHL		10. Field and Pool, or Exploratory <b>41683</b> 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		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) 190		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 #3H) BHL: 1585'	
19. Proposed Depth TVD: 10774' MD: 15325'		20. BLM/BIA Bond No. on file NMB000740 & NMB000215	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3658.2' 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.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan  | 5. Operator certification  |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Mayte Reyes</i>	Name (Printed/Typed) Mayte Reyes	Date 5-6-15
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Title Regulatory Analyst		Name (Printed/Typed)		Date
Approved by (Signature) /s/George MacDonell		Name (Printed/Typed)		Date JAN 22 2016
Title FIELD MANAGER		Office BLM-CARLSBAD FIELD OFFICE		

Application approval does not warrant or certify that the applicant holds legan 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  
ATTACHEDSEE ATTACHED FOR  
CONDITIONS OF APPROVALK  
01/29/16

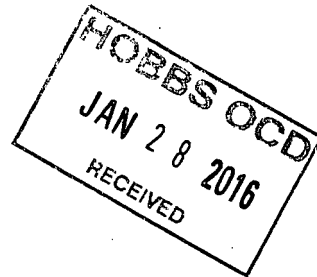
FEB 01 2016

Witness Surface &  
Intermediate Casing

Carlsbad Controlled Water Basin

AIRBONITA 12 FED #7H

FID	OPERATOR	WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
0	CABOT CORP	NEW MEXICO K STATE 001	32.400885	-103.617759	3E+09	7 22.05	33E	660 S	660 W		4999	Plugged		
1	OXY USA INC	WBR FEDERAL 001	32.393621	-103.623119	3E+09	13 22.05	32E	1980 N	990 E		15261	Active		
2	COG OPERATING LLC	PROHIBITION FEDERAL UNIT 001	32.408109	-103.634871	3E+09	12 22.05	32E	1980 N	660 W		15112	Active		
3	COG OPERATING LLC	PROHIBITION FEDERAL UNIT 002	32.404438	-103.647301	3E+09	11 22.05	32E	1980 S	2080 W		10100	Active		
4	COG OPERATING LLC	PROHIBITION FEDERAL UNIT 003	32.40814	-103.623143	3E+09	12 22.05	32E	1980 N	990 E		13780	Active		
5	COG OPERATING LLC	PROHIBITION FEDERAL UNIT 004	32.392656	-103.64344	3E+09	14 22.05	32E	2310 N	1980 E		9000	Active		
6	COG OPERATING LLC	PROHIBITION FEDERAL UNIT 006	32.392655	-103.640217	3E+09	14 22.05	32E	2310 N	990 E		9000	Active		
7	EOG RESOURCES INC	REDCHECKER 14 FEDERAL 002	32.389024	-103.640211	3E+09	14 22.05	32E	1650 S	990 E		8905	Active		
8	OXY USA INC	WBR FEDERAL 003	32.389036	-103.635914	3E+09	13 22.05	32E	1650 S	330 W		10100	Active		
9	POGO PRODUCING CO	FLUNT 6 STATE 001	32.421757	-103.617793	3E+09	6 22.05	33E	2310 N	660 W		5100	Plugged		
10	OXY USA INC	NBR 7 STATE 001	32.400883	-103.616685	3E+09	7 22.05	33E	660 S	990 W		15140	Active		
11	OXY USA INC	WBR FEDERAL 005	32.386337	-103.629464	3E+09	13 22.05	32E	660 S	2310 W		15445	Active		
12	OXY USA INC	BOOTLEG RIDGE 14 FEDERAL COM 001	32.389934	-103.639138	3E+09	14 22.05	32E	1980 S	660 E		0			
13	OXY USA INC	WBR FEDERAL 007	32.389965	-103.62947	3E+09	13 22.05	32E	1980 S	2310 W		10150	Active		
14	OXY USA INC	WBR FEDERAL 009	32.393107	-103.629671	3E+09	13 22.05	32E	2160 N	2250 W		10050	Active		
15	OXY USA INC	WBR FEDERAL 010	32.396736	-103.629482	3E+09	13 22.05	32E	840 N	2310 W		10050	Active		
16	OXY USA INC	BOOTLEG 11 FEDERAL COM 001	32.404589	-103.642386	3E+09	11 22.05	32E	2030 S	1650 E		15160	Active		
17	OXY USA INC	WBR FEDERAL 012	32.39286	-103.634423	3E+09	13 22.05	32E	2245 N	790 W		10080	Active		
18	YATES PETROLEUM CORPORATION	MICRO BREW BEU FEDERAL 001	32.387251	-103.627405	3E+09	13 22.05	32E	990 S	2310 E		10200	Active		
19	OXY USA INC	WBR FEDERAL 004	32.387502	-103.626331	3E+09	13 22.05	32E	1080 S	1980 E		0			
20	OXY USA INC	WBR FEDERAL 008	32.385415	-103.633759	3E+09	13 22.05	32E	330 S	990 W		0			
21	OXY USA INC	WBR FEDERAL 011D	32.398126	-103.633781	3E+09	13 22.05	32E	330 N	990 W		0			
22	COG OPERATING LLC	PROHIBITION 12 FEDERAL 008	32.404609	-103.635028	3E+09	12 22.05	32E	2030 S	610 W		8998	Active		
23	COG OPERATING LLC	PROHIBITION 12 FEDERAL 007	32.408392	-103.631648	3E+09	12 22.05	32E	1880 N	1650 W		8960	Active		
24	COG OPERATING LLC	PROHIBITION 12 FEDERAL 010	32.404485	-103.630567	3E+09	12 22.05	32E	1980 S	1980 W		8990	Active		
25	COG OPERATING LLC	PROHIBITION 12 FEDERAL 012	32.400856	-103.630562	3E+09	12 22.05	32E	660 S	1980 W		8990	Active		
26	COG OPERATING LLC	PROHIBITION 12 FEDERAL 013	32.407716	-103.62744	3E+09	12 22.05	32E	2130 N	2310 E		0			
27	OXY USA INC	WBR FEDERAL 011	32.398119	-103.635929	3E+09	13 22.05	32E	330 N	330 W		10050	Active		
28	COG OPERATING LLC	PROHIBITION 12 FEDERAL 014	32.404496	-103.626751	3E+09	12 22.05	32E	1980 S	2100 E		0			
29	COG OPERATING LLC	PROHIBITION 12 FEDERAL 015	32.400868	-103.626745	3E+09	12 22.05	32E	660 S	2100 E		0			
30	COG OPERATING LLC	AIRBONITA 12 FEDERAL COM 002	32.400085	-103.626353	3E+09	12 22.05	32E	375 S	1980 E		14110	New (Not drilled or compl)		
31	OXY USA INC	WBR 13 SWD 001	32.389974	-103.622159	3E+09	13 22.05	32E	1974 S	697 E		0	New (Not drilled or compl)		
32	COG OPERATING LLC	AIRBONITA 12 FEDERAL COM 001H	32.399593	-103.62098	3E+09	12 22.05	32E	190 S	330 E		11937	New (Not drilled or compl)		
33	OXY USA INC	SPEAK EASY UNIT 002H	32.418496	-103.635961	3E+09	1 22.05	32E	1800 S	330 W		12735	New (Not drilled or compl)		
34	OXY USA INC	RUM RUNNER 2 FEDERAL COM 001H	32.422615	-103.638115	3E+09	2 22.05	32E	1980 N	330 E		13774	New (Not drilled or compl)		
35	OXY USA INC	RIDGE RUNNER 7 STATE 001H	32.403746	-103.619375	3E+09	7 22.05	33E	1700 S	165 W		0	New (Not drilled or compl)		



# COG Operating LLC, Airbonita 12 Federal 7H

## 1. Geologic Formations

TVD of target	10774'	Pilot hole depth	N/A
MD at TD:	15325'	Deepest expected fresh water:	580'

### Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	868'	Water	
Top of Salt	952'	Salt	
Lamar	4708'		
Delaware Group	4807'	Oil/Gas	
Bone Spring	8579'	Oil/Gas	
Second Bone Spring	10360'	Target Zone	
Wolfcamp	11901'	Will Not Penetrate	

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

## 2. Casing Program

See COA

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	920' 910'	13.375"	54.5	J55	STC	2.62	1.23	10.25
12.25"	0	4300	9.625"	40	J55	BTC	1.28	0.78*	3.32
12.25"	4350	4750	9.625"	40	L80	BTC	1.39	1.14	50.89
8.75"	0	15325	5.5"	17	P110	LTC	1.48	2.11	1.71D
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
- \*Explanation for SF's below BLM's minimum standards:
  - 9-5/8" Burst SF @ 0.78 – used BLM's frac gradient scenario to qualify
    - $3950 \text{ psi} / 4750' = 0.83 > 0.7$

	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 7H**

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 <sup>rd</sup> 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 <sup>nd</sup> 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 <sup>3</sup> /sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	425	13.5	1.75	9.15	5.5	Lead: Class C + 4.0% Gel + 2.0% CaCl <sub>2</sub>
	240	14.8	1.35	6.57	7	Tail: Class C + 2.0% CaCl <sub>2</sub>
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.	1050	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
	1200	14.4	1.25	5.69	19	Tail: Class H + 0.5% HALAD-9 + 0.05% SA-1015 + 1% NaCL + 2% Gel

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

# COG Operating LLC, Airbonita 12 Federal 7H

## 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:
12-1/4"	13-5/8"	2M	Annular	X	WP
			Blind Ram		WP
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	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.

N	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 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.

## COG Operating LLC, Airbonita 12 Federal 7H

### 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	TD	Cut Brine	8.8-9.2	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
PEX	

### 7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5,052 psi @ 10795' TVD
Abnormal Temperature	No

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

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S 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 <sub>2</sub> S is present
Y	H <sub>2</sub> S Plan attached

See  
COM

COG Operating LLC, Airbonita 12 Federal 7H

8. Other facets of operation

Is this a walking operation? Yes

Will be pre-setting casing? No

*No, if drilling multiple wells,  
submit sundries*

Attachments

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