15-894

Form 3160-3
(March 2012)

UNORTHODOX LOCATION

HOBBS OCD
APR 21 2016
RECEIVED

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.
SHL: NMNM043564
BHL: NMNM043565

6. If Indian, Allotee or Tribe Name

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. (316103)
Squints Federal Com #3H

2. Name of Operator
COG Operating LLC. (229137)

9. API Well No.
30-025-43166

3a. Address
2208 West Main Street
Artesia, NM 88210

3b. Phone No. *(include area code)*
575-748-6940

10. Field and Pool, or Exploratory
OJO Chiso; Bone Spring

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface: 190' FSL & 1980' FWL Unit Letter N (SESW) Sec. 27.T22S.R34E SHL
At proposed prod. Zone: 330' FNL & 1980' FWL Unit Letter C (NENW) Sec 22.T22S.R34E BHL

11. Sec., T.R.M. or Blk and Survey or Area
Sec. 27 - T22S - R34E

14. Distance in miles and direction from nearest town or post office*
About 17 miles from Eunice

12. County or Parish
Lea County

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
190'	NMNM043565: 640 NMNM043564: 1,920	320
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
SHL: 30' (Prop. Squints #7H) BHL: 6608'	TVD: 11,225' MD: 21,062'	NMB000740 &NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3404.6' GL	10/1/2015	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
Mayte Reyes	Mayte Reyes	7-20-15

Title: Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/S/ STEPHEN J. CAFFEY		APR 14 2016

Title	Office
FIELD MANAGER	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 theron.
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)

The NMOCD Gas Capture Plan notice has been posted on the web site under Announcements/Notice to Operators. A copy of the GCP form is included with the notice and is also in the Forms section under Unnumbered forms. Please submit accordingly in a timely manner.

Capitan Controlled Water Basin

KZ 04/21/16

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

Witness Surface & Intermediate Casing

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APR 22 2016

Squints Federal Com #3H

FID	OPERATOR	WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
0	MARLAND OIL CO	L B MERCHANT PERMIT 001	32.392497	-103.450437	3002508479	15	22.0S	34E	2340	N	380	E	4053	Plugged
1	J W SORRELLS	SORRELLS 001	32.357233	-103.455758	3002508481	27	22.0S	34E	660	S	1980	E	4202	Plugged
2	MARLAND OIL CO	L B MERCHANT PERMIT 001	32.392497	-103.450274	3002512566	15	22.0S	34E	2340	N	330	E	690	Plugged
3	BYRON,MCKNIGHT & NO	JACQUIE ANN 001	32.383521	-103.450303	3002524146	22	22.0S	34E	330	N	330	E	3881	Plugged
4	AMERICAN QUASAR PET	OJO CHISO 001	32.378983	-103.447096	3002524459	23	22.0S	34E	1980	N	660	W	14739	Plugged
5	AMERICAN QUASAR PET	OJO CHISO UNIT 002	32.38987	-103.45598	3002524780	15	22.0S	34E	1980	S	2080	E	13575	Plugged
6	APACHE CORP	FEDERAL 22 001	32.375364	-103.452478	3002529795	22	22.0S	34E	1980	S	990	E	13435	Plugged
7	BTA OIL PRODUCERS, LLC	MAXUS B 8026 JV-P 002	32.343644	-103.460025	3002530032	34	22.0S	34E	990	S	1980	W	13428	Active
8	BTA OIL PRODUCERS, LLC	MADDOX FEDERAL B 8016 JV-P 002	32.349969	-103.44719	3002530128	35	22.0S	34E	1980	N	660	W	12500	Active
9	COG OPERATING LLC	SUN FEDERAL COM 001	32.35737	-103.455757	3002530603	27	22.0S	34E	710	S	1980	E	12780	Active
10	BTA OIL PRODUCERS	MAXUS B 8026 JV-P 003	32.353603	-103.454695	3002530661	34	22.0S	34E	660	N	1650	E	13500	Plugged
11	ORYX ENERGY CO	ANTELOPE FEDERAL COM 001	32.365388	-103.45889	3002530687	27	22.0S	34E	1650	N	2310	W	13530	Plugged
12	BTA OIL PRODUCERS, LLC	OJO CHISO FED. 003	32.358133	-103.446089	3002530733	26	22.0S	34E	990	S	990	W	13572	Active
13	PETROGULF CORPORATION	FEDERAL 15-43 001I	32.389873	-103.45136	3002538747	15	22.0S	34E	1981	S	661	E	0	
14	MEWBOURNE OIL CO	PERRO LOCO 22 B3OB FEDERAL 001H	32.370431	-103.455715	3002542288	22	22.0S	34E	185	S	1980	E	0	New (Not drilled or compl)

COG Operating LLC, Squints Federal 3H

1. Geologic Formations

TVD of target	11225'	Pilot hole depth	NA
MD at TD:	21062'	Deepest expected fresh water:	605'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1688'	Water	
Top of Salt	1884'	Salt	
Tansill	3624'	Barren	
Yates	3703'	Oil/Gas	
Capitan Reef	4032'	Water	Possible lost circ
Delaware Group	5300'	Oil/Gas	Possible lost circ
Bone Spring	8521'	Oil/Gas	
3rd Bone Spring Sand	10962'	Target Zone	
Wolfcamp	11330'	Oil/Gas	

2. Casing Program

See COA

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0'	1840'	13.375"	54.5	J55	STC	1.30	1.03	5.13
12.25"	0'	5420' ~~5600'~~	9.625"	40	L80	BTC	1.17	1.08	4.09
8.75"	0'	21062'	5-1/2"	17	P110	BTC	1.41	2.00	*1.52D
				BLM Minimum Safety Factor			1.125	1.00	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 were used on all SF calculations.
- Used 9.1 PPG for pore pressure calculations
- Will set DV tool within 100' of the top of the Capitan Reef. Estimated setting depth is 3940'.
- *Explanation for SF's below BLM's minimum standards:
  - 5-1/2" 17# P110 BTC SF Tension = 1.52D.

    Approximately 49% of the string length is below the KOP; therefore most of the string weight below the KOP will be supported by the bottom of the hole. The net effect on tension for this portion of the string would be the friction factor (~ 0.30 – 0.45) of the lateral times the supported string weight.

	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
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.	N
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?	N
If yes, are the first three strings cemented to surface?	
Is 2nd 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?	

2. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	790	13.5	1.75	9.2	13	Lead: Class C + 4% Gel + 2% CaCl2
	275	14.8	1.34	6.4	6	Tail: Class C + 2% CaCl2
Inter. Stg 1	280	12.9	1.92	10.0	12	Lead: Class C Lite (65:35:6) + 4% Salt + 5# Kolseal
	200	14.8	1.34	6.4	6	Tail: Class C
Inter. Stg 2	970	12.9	1.92	10.0	12	Lead: Class C Lite (65:35:6) + 4% Salt + 5# Kolseal
	200	14.8	1.34	6.4	6	Tail: Class C
Prod.	1090	10.3	3.52	21.3	75	Lead: Halliburton Tuned Lite w/ 2# kolseal, 1.5# salt, 1/4# D-Air 5000, 1/8# PEF, etc
	2470	14.4	1.25	5.7	22	Tail:50:50:2 H blend (FR, Retarder, FL adds as necessary)

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	36%
Intermediate – Stage 1	3940'	51%
Intermediate – Stage 2	0'	124%
Production	0'	39%

Pilot hole depth: NA
KOP: 10748'

4. Pressure Control Equipment

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

See COA

* Actual equipment is 13-5/8" 5M Hydril Annular, will use for 2M WP System.

** - Actual equipment is 13-5/8" 5M Hydril Annular & 13-5/8" 10M Cameron triple ram, will use for ~~3M~~ WP System.

5M must test to 5,000 psi.

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~~ 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 Manifold. See attached for specs and hydrostatic test chart. Are anchors required by manufacturer? No.
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.

See COA

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.6 – 9.0	28-34	N/C
Surf csg	Int shoe	*Saturated Brine	10.0 - 10.2	28-34	N/C
Int shoe	TMD	Cut Brine	8.6 - 9.4	28-34	N/C

See COA

*If lost circulation is encountered, will switch to fresh water.

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?	Pason PVT

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
X	Mud log	Production

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5312 psi – 3rd Bone Spring Sand (11225' TVD)
Abnormal Temperature	No

Mitigation measure for abnormal conditions.

- Lost circulation material/sweeps/mud scavengers.
- Maintain stock of LCM and weighting materials onsite.

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	H2S is present
Y	H2S Plan attached

8. Other facets of operation

See COA

Is this a walking operation? Yes.
Will be pre-setting casing? No.
Will well be hydraulically fractured? Yes.

Attachments

- Directional Plan
- Anticollision Report
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H2S schematic
- H2S contingency plan
- Interim reclamation plat