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1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
HOBBS OCD
AUG 16 2018

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

RECEIVED

Date: 4/3/2018

☒ Original

Operator & OGRID No.: COG Operating LLC. OGRID 229137

☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Little Bear Fed Com 9H	30-025- <i>45105</i>	M-33-20S- 34E	384' FSL & 1121' FWL	2,035 MCF		Gas will connect on proposed CTB.

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Versado, and will be connected to Monument low/high pressure gathering system located in Lea, County, New Mexico. It will require 0' to an undetermined amount of feet of pipeline to connect the facility to low/high pressure gathering system. COG Operating LLC provides (periodically) to Versado a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, COG Operating LLC and Versado have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Monument Processing Plant located in Sec 36, T19S, R36E Lea, County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

COG Operating, LLC - Little Bear Federal Com 9H

1. Geologic Formations

TVD of target	11,620' EOL	Pilot hole depth	NA
MD at TD:	19,108'	Deepest expected fresh water:	702'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1844	Water	
Top of Salt	1924	Salt	
Base of Salt	3573	Salt	
Yates	3714	Salt Water	
Capitan Reef	3977	Salt Water	
Base of Reef/ CYCN	5980	Oil/Gas	
Brushy Canyon	7073	Oil/Gas	
Bone Spring Lime	8814	Oil/Gas	
U. Avalon Shale	9135	Oil/Gas	
L. Avalon Shale	923	Oil/Gas	
1st Bone Spring Sand	9844	Oil/Gas	
2nd Bone Spring Sand	10393	Oil/Gas	
3rd Bone Spring Sand	11180	Oil/Gas	
Wolfcamp	11494	Target Oil/Gas	

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1870	13.375"	54.5	J55	STC	1.32	4.16	5.04
12.25"	0	6005	9.625"	40	L80	LTC	1.14	1.18	3.03
8.75"	0	19,108	5.5"	17	P110	LTC	1.24	2.18	2.25
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.

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