

HOBBS OCD  
FEB 26 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.  
NMNM0315712

6. If Indian, Allottee or Tribe Name

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator  
COG OPERATING LLC (229137)

3a. Address  
600 West Illinois Ave Midland TX 79701

3b. Phone No. (include area code)  
(432)683-7443

4. Location of Well (Report location clearly and in accordance with any State requirements.)  
At surface SESE / 330 FSL / 200 FEL / LAT 32.8573223 / LONG -103.7806828  
At proposed prod. zone SESW / 330 FSL / 2630 FWL / LAT 32.8572687 / LONG -103.754297

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

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

8. Lease Name and Well No. (320822)  
SHOVEL HEAD FEDERAL COM 18H

9. API Well No.  
30-025-44518

10. Field and Pool, or Exploratory  
MALJAMAR / YESO, WEST

11. Sec., T. R. M. or Blk. and Survey or Area  
SEC 5 / T17S / R32E / NMP

12. County or Parish  
LEA

13. State  
NM

15. Distance from proposed\*  
location to nearest 200 feet  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)

16. No. of acres in lease  
760

17. Spacing Unit dedicated to this well  
200

18. Distance from proposed location\*  
to nearest well, drilling, completed, 1 feet  
applied for, on this lease, ft.

19. Proposed Depth  
5780 feet / 13659 feet

20. BLM/BIA Bond No. on file  
FED: NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
4090 feet

22. Approximate date work will start\*  
07/14/2018

23. Estimated duration  
20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must 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 must 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 BLM.

25. Signature  
(Electronic Submission)

Name (Printed/Typed)  
Robyn Odom / Ph: (432)685-4385

Date  
11/17/2017

Title  
Regulatory Analyst

Approved by (Signature)  
(Electronic Submission)

Name (Printed/Typed)  
Cody Layton / Ph: (575)234-5959

Date  
02/16/2018

Title  
Supervisor Multiple Resources

Office  
CARLSBAD

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.

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)

APPROVED WITH CONDITIONS  
Approval Date: 02/16/2018

KE  
02/26/18  
Requires NSL  
order

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM 1:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications.

Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## **Additional Operator Remarks**

### **Location of Well**

- I. SHL: SESE / 330 FSL / 200 FEL / TWSP: 17S / RANGE: 32E / SECTION: 5 / LAT: 32.8573223 / LONG: -103.7806828 ( TVD: 0 feet, MD: 0 feet )  
PPP: SWSE / 330 FSL / 1319 FEL / TWSP: 17S / RANGE: 32E / SECTION: 4 / LAT: 32.8573223 / LONG: -103.7806828 ( TVD: 5780 feet, MD: 9700 feet )  
PPP: SWSE / 330 FSL / 2639 FEL / TWSP: 17S / RANGE: 32E / SECTION: 4 / LAT: 32.8573223 / LONG: -103.7806828 ( TVD: 5780 feet, MD: 8200 feet )  
PPP: SWSW / 330 FSL / 100 FWL / TWSP: 17S / RANGE: 32E / SECTION: 4 / LAT: 32.8573223 / LONG: -103.7806828 ( TVD: 5350 feet, MD: 5350 feet )  
BHL: SESW / 330 FSL / 2630 FWL / TWSP: 17S / RANGE: 32E / SECTION: 3 / LAT: 32.8572687 / LONG: -103.754297 ( TVD: 5780 feet, MD: 13659 feet )

## **BLM Point of Contact**

Name: Priscilla Perez

Title: Legal Instruments Examiner

Phone: 5752345934

Email: pperez@blm.gov

## **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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**Approval Date: 02/16/2018**

(Form 3160-3, page 4)



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Application Data Report

02/19/2018

APD ID: 10400023299

Submission Date: 11/17/2017

Highlighted data  
reflects the most  
recent changes

Operator Name: COG OPERATING LLC

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - General

APD ID: 10400023299

Tie to previous NOS? 10400021255

Submission Date: 11/17/2017

BLM Office: CARLSBAD

User: Robyn Odom

Title: Regulatory Analyst

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM0315712

Lease Acres: 760

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO

APD Operator: COG OPERATING LLC

Operator letter of designation:

### Operator Info

Operator Organization Name: COG OPERATING LLC

Operator Address: 600 West Illinois Ave

Zip: 79701

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)683-7443

Operator Internet Address: RODOM@CONCHO.COM

### Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: MALJAMAR

Pool Name: YESO, WEST

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N    **Use Existing Well Pad?** YES    **New surface disturbance?** Y

**Type of Well Pad:** MULTIPLE WELL

**Multiple Well Pad Name:**    **Number:** 8

**Well Class:** HORIZONTAL

SHOVEL HEAD FEDERAL COM

**Number of Legs:** 1

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** INFILL

**Describe sub-type:**

**Distance to town:** 1 Miles

**Distance to nearest well:** 1 FT

**Distance to lease line:** 200 FT

**Reservoir well spacing assigned acres Measurement:** 200 Acres

**Well plat:** Shovel\_Head\_Federal\_Com\_18H\_C102\_20171012134453.pdf

**Well work start Date:** 07/14/2018

**Duration:** 20 DAYS

### Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83

**Vertical Datum:** NAVD88

**Survey number:**

|                  | NS-Foot | NS Indicator | EW-Foot | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract   | Latitude       | Longitude            | County | State             | Meridian          | Lease Type | Lease Number        | Elevation     | MD       | TVD      |
|------------------|---------|--------------|---------|--------------|------|-------|---------|---------------------|----------------|----------------------|--------|-------------------|-------------------|------------|---------------------|---------------|----------|----------|
| SHL<br>Leg<br>#1 | 330     | FSL          | 200     | FEL          | 17S  | 32E   | 5       | Aliquot<br>SESE     | 32.85732<br>23 | -<br>103.7806<br>828 | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMLCO<br>29406B     | 409<br>0      | 0        | 0        |
| KOP<br>Leg<br>#1 | 330     | FSL          | 200     | FEL          | 17S  | 32E   | 5       | Aliquot<br>SESE     | 32.85732<br>23 | -<br>103.7806<br>828 | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMLCO<br>29406B     | -<br>121<br>0 | 530<br>0 | 530<br>0 |
| PPP<br>Leg<br>#1 | 330     | FSL          | 100     | FWL          | 17S  | 32E   | 4       | Aliquot<br>SWS<br>W | 32.85732<br>23 | -<br>103.7806<br>828 | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMNM<br>031571<br>2 | -<br>126<br>0 | 535<br>0 | 535<br>0 |



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Drilling Plan Data Report

02/19/2018

APD ID: 10400023299

Submission Date: 11/17/2017

Highlighted data  
reflects the most  
recent changes

Operator Name: COG OPERATING LLC

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - Geologic Formations

| Formation ID | Formation Name | Elevation | True Vertical Depth | Measured Depth | Lithologies         | Mineral Resources      | Producing Formation |
|--------------|----------------|-----------|---------------------|----------------|---------------------|------------------------|---------------------|
| 1            | UNKNOWN        | 4090      | 0                   | 0              | ALLUVIUM            | USEABLE WATER          | No                  |
| 2            | RUSTLER        | 3120      | 970                 | 970            | ANHYDRITE           | OTHER : Brackish Water | No                  |
| 3            | TOP SALT       | 2935      | 1155                | 1155           | SALT                | OTHER : Salt           | No                  |
| 4            | TANSILL        | 1915      | 2175                | 2175           | DOLOMITE            | NONE                   | No                  |
| 5            | YATES          | 1810      | 2280                | 2280           | SANDSTONE,DOLOMITE  | NATURAL GAS,OIL        | No                  |
| 6            | SEVEN RIVERS   | 1470      | 2620                | 2620           | SANDSTONE,DOLOMITE  | NATURAL GAS,OIL        | No                  |
| 7            | QUEEN          | 850       | 3240                | 3240           | SANDSTONE           | NATURAL GAS,OIL        | No                  |
| 8            | GRAYBURG       | 400       | 3690                | 3690           | DOLOMITE,ANHYDRITE  | NATURAL GAS,OIL        | No                  |
| 9            | SAN ANDRES     | 115       | 3975                | 3975           | DOLOMITE,ANHYDRITE  | NATURAL GAS,OIL        | No                  |
| 10           | PADDOCK        | -1245     | 5335                | 5335           | DOLOMITE            | NATURAL GAS,OIL        | Yes                 |
| 11           | GLORIETA       | -1385     | 5475                | 5475           | SANDSTONE,SILTSTONE | NATURAL GAS,OIL        | No                  |
| 12           | BLINEBRY       | -1870     | 5960                | 5960           | DOLOMITE            | NATURAL GAS,OIL        | No                  |
| 13           | TUBB           | -2790     | 6880                | 6880           | SANDSTONE           | NATURAL GAS,OIL        | No                  |

### Section 2 - Blowout Prevention

Operator Name: COG OPERATING LLC

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

Pressure Rating (PSI): 2M

Rating Depth: 9500

Equipment: All required equipment per Federal and State regulations to be in place prior to drilling out the Surface casing.

Requesting Variance? NO

Variance request:

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure of 2000 psi per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure of 2000 psi. 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.

Choke Diagram Attachment:

2M\_Choke\_Schematic\_20171012113556.pdf

BOP Diagram Attachment:

2M\_ANNULAR\_BOP\_20171012113604.pdf

### Section 3 - Casing

| Casing ID | String Type  | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|-----------|--------------|-----------|----------|-----------|----------|----------------|------------|---------------|-------------|----------------|-------------|----------------|-----------------------------|-------|--------|------------|-------------|----------|---------------|----------|--------------|---------|
| 1         | SURFACE      | 17.5      | 13.375   | NEW       | API      | N              | 0          | 1010          | 0           | 1010           |             |                | 1010                        | H-40  | 48     | STC        | 1.79        | 3.28     | DRY           | 8.4      | DRY          | 14.1    |
| 2         | INTERMEDIATE | 12.25     | 9.625    | NEW       | API      | N              | 0          | 2320          | 0           | 2320           |             |                | 2320                        | J-55  | 40     | LTC        | 2.47        | 1.44     | DRY           | 6.1      | DRY          | 7.4     |
| 3         | PRODUCTION   | 8.75      | 7.0      | NEW       | API      | N              | 0          | 5259          | 0           | 5259           |             |                | 5259                        | L-80  | 29     | LTC        | 3.17        | 1.33     | DRY           | 3.77     | DRY          | 4.27    |
| 4         | PRODUCTION   | 8.75      | 5.5      | NEW       | API      | N              | 5259       | 6077          | 5259        | 5780           |             |                | 818                         | L-80  | 17     | LTC        | 2.29        | 1.26     | DRY           | 4.28     | DRY          | 5.03    |
| 5         | PRODUCTION   | 8.75      | 5.5      | NEW       | API      | N              | 6077       | 13660         | 5780        | 5780           |             |                | 7583                        | L-80  | 17     | LTC        | 2.29        | 1.26     | DRY           | 4.28     | DRY          | 5.03    |

Casing Attachments



**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

---

**Casing Attachments**

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**Casing ID:** 1      **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Casing\_Design\_Attachement\_20171117073601.pdf

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**Casing ID:** 2      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Casing\_Design\_Attachement\_20171117073629.pdf

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**Casing ID:** 3      **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Casing\_Design\_Attachement\_20171117074051.pdf

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Operator Name: COG OPERATING LLC

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

#### Casing Attachments

Casing ID: 4 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing\_Design\_Attachement\_20171117074235.pdf

Casing ID: 5 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing\_Design\_Attachement\_20171117074331.pdf

#### Section 4 - Cement

| String Type  | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft   | Excess% | Cement type           | Additives                        |
|--------------|-----------|------------------|--------|-----------|--------------|-------|---------|---------|---------|-----------------------|----------------------------------|
| SURFACE      | Lead      |                  | 0      | 1010      | 550          | 1.75  | 13.5    | 962.5   | 76      | Class C               | 4%Gel+2%<br>CaCl2+0.25pps CF     |
| SURFACE      | Tail      |                  |        |           | 200          | 1.32  | 14.8    | 264     |         | Class C               | 2% CaCl2+0.25pps CF              |
| INTERMEDIATE | Lead      |                  | 0      | 2320      | 425          | 2.45  | 11.8    | 1041.25 | 125     | 50:50:10<br>C:Poz:Gel | 5%Salt+5pps<br>LCM+0.25pps CF    |
| INTERMEDIATE | Tail      |                  |        |           | 200          | 1.32  | 14.8    | 264     |         | Class C               | 2% CaCl2                         |
| PRODUCTION   | Lead      |                  | 0      | 5259      | 600          | 2.01  | 12.5    | 1206    | 214     | 35:65:6<br>C:Poz:Gel  | 5%Salt+5pps<br>LCM+0.2%SMS+1%FL- |

Operator Name: COG OPERATING LLC

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type          | Additives   |
|-------------|-----------|------------------|--------|-----------|--------------|-------|---------|-------|---------|----------------------|---|
|             |           |                  |        |           |              |       |         |       |         |                      | Ba-58+0.3%FL-52A+0.125pps CF                        |
| PRODUCTION  | Tail      |                  |        |           | 400          | 1.37  | 14      | 548   |         | 50:50:2<br>C:Poz:Gel | 5%salt+3pps<br>LCM+0.6%SMS+1%FL-25+1%Ba-58+0.125pps |
| PRODUCTION  | Lead      |                  | 5259   | 1366<br>0 | 0            | 0     | 0       | 0     |         | Isolation Packers    | See attached<br>Production Cement<br>Breakdown      |

|            |      |  |      |           |   |   |   |   |  |                   |  |
|------------|------|--|------|-----------|---|---|---|---|--|-------------------|--|
| PRODUCTION | Lead |  | 5259 | 1366<br>0 | 0 | 0 | 0 | 0 |  | Isolation Packers | See attached<br>Production Cement<br>Breakdown |
|------------|------|--|------|-----------|---|---|---|---|--|-------------------|--|

## Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

## Circulating Medium Table

| Top Depth | Bottom Depth | Mud Type        | Min Weight (lbs/gal) | Max Weight (lbs/gal) | Density (lbs/cu ft) | Gel Strength (lbs/100 sqft) | PH | Viscosity (CP) | Salinity (ppm) | Filtration (cc) | Additional Characteristics |
|-----------|--------------|-----------------|----------------------|----------------------|---------------------|-----------------------------|----|----------------|----------------|-----------------|----------------------------|
| 0         | 2320         | SALT SATURATED  | 10                   | 10.2                 |                     |                             |    |                |                |                 |                            |
| 2320      | 1365<br>9    | WATER-BASED MUD | 8.5                  | 9.2                  |                     |                             |    |                |                |                 |                            |

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

| Top Depth | Bottom Depth | Mud Type        | Min Weight (lbs/gal) | Max Weight (lbs/gal) | Density (lbs/cu ft) | Gel Strength (lbs/100 sqft) | PH | Viscosity (CP) | Salinity (ppm) | Filtration (cc) | Additional Characteristics |
|-----------|--------------|-----------------|----------------------|----------------------|---------------------|-----------------------------|----|----------------|----------------|-----------------|----------------------------|
| 0         | 1010         | WATER-BASED MUD | 8.6                  | 8.8                  |                     |                             |    |                |                |                 |                            |

### Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

Interval Perforating, Fracture stimulating, Flowback testing

**List of open and cased hole logs run in the well:**

CNL,MUDLOG

**Coring operation description for the well:**

N/A

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 2543

**Anticipated Surface Pressure:** 1271.4

**Anticipated Bottom Hole Temperature(F):** 113

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

H2S\_Plan\_20171012115508.pdf

Shovel\_Head\_Federal\_Com\_18H\_H2S\_Schematic\_20171012115522.pdf

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

### **Section 8 - Other Information**

**Proposed horizontal/directional/multi-lateral plan submission:**

Shovel\_Head\_Federal\_Com\_18H\_L1\_p1\_20171012115600.pdf

**Other proposed operations facets description:**

7" to be run from surface to kickoff point and changed over to 5 ½" with DV Tool and ECP at kickoff point. 5 ½" casing will be run from kickoff point to td and isolation packers set throughout curve and lateral. 7" to be cemented from kickoff point to surface.

**Other proposed operations facets attachment:**

Closed\_Loop\_Schematic\_20171012115630.pdf

Shovel\_Head\_Federal\_Com\_18H\_GCP\_20171012115710.pdf

Shovel\_Head\_Federal\_Com\_18H\_Contingent\_Multi\_Stage\_Cmt\_Plan\_20171117075510.pdf

Shovel\_Head\_Fed\_Com\_18H\_Production\_Cement\_Breakdown\_20171117075520.pdf

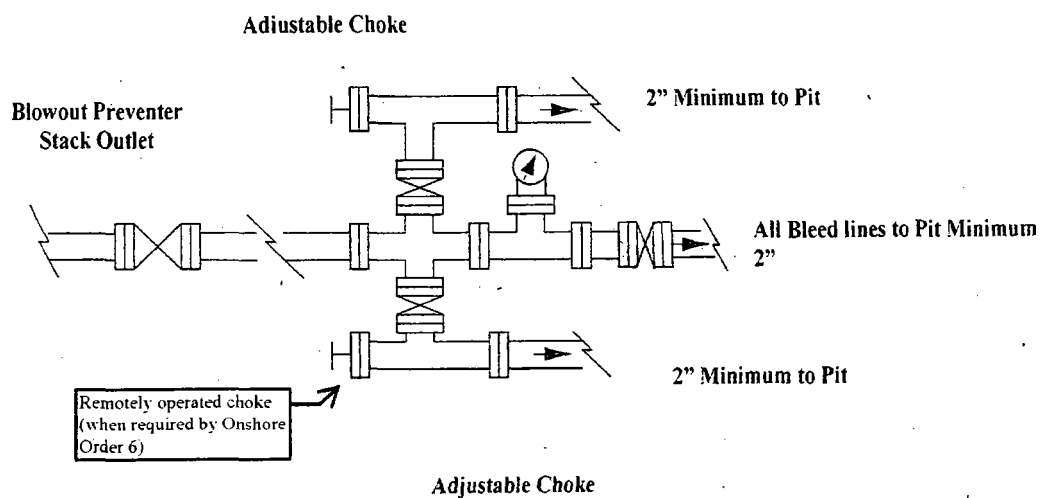
**Other Variance attachment:**

# COG Operating LLC

## Exhibit #9

### Choke Schematic

Choke Manifold Requirement (2000 psi WP)



## **NOTES REGARDING THE BLOWOUT PREVENTERS**

### **Master Drilling Plan Eddy County, New Mexico**

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

## Shovel Head Federal Com #18H

### Contingent Multi-Stage Cement Discussion:

COG does not anticipate losing circulation or encountering water flows while drilling this well. If these situations arise, COG requests approval in this APD to set DV tools where necessary immediately without having to shut down the rig and wait for sundry approval.

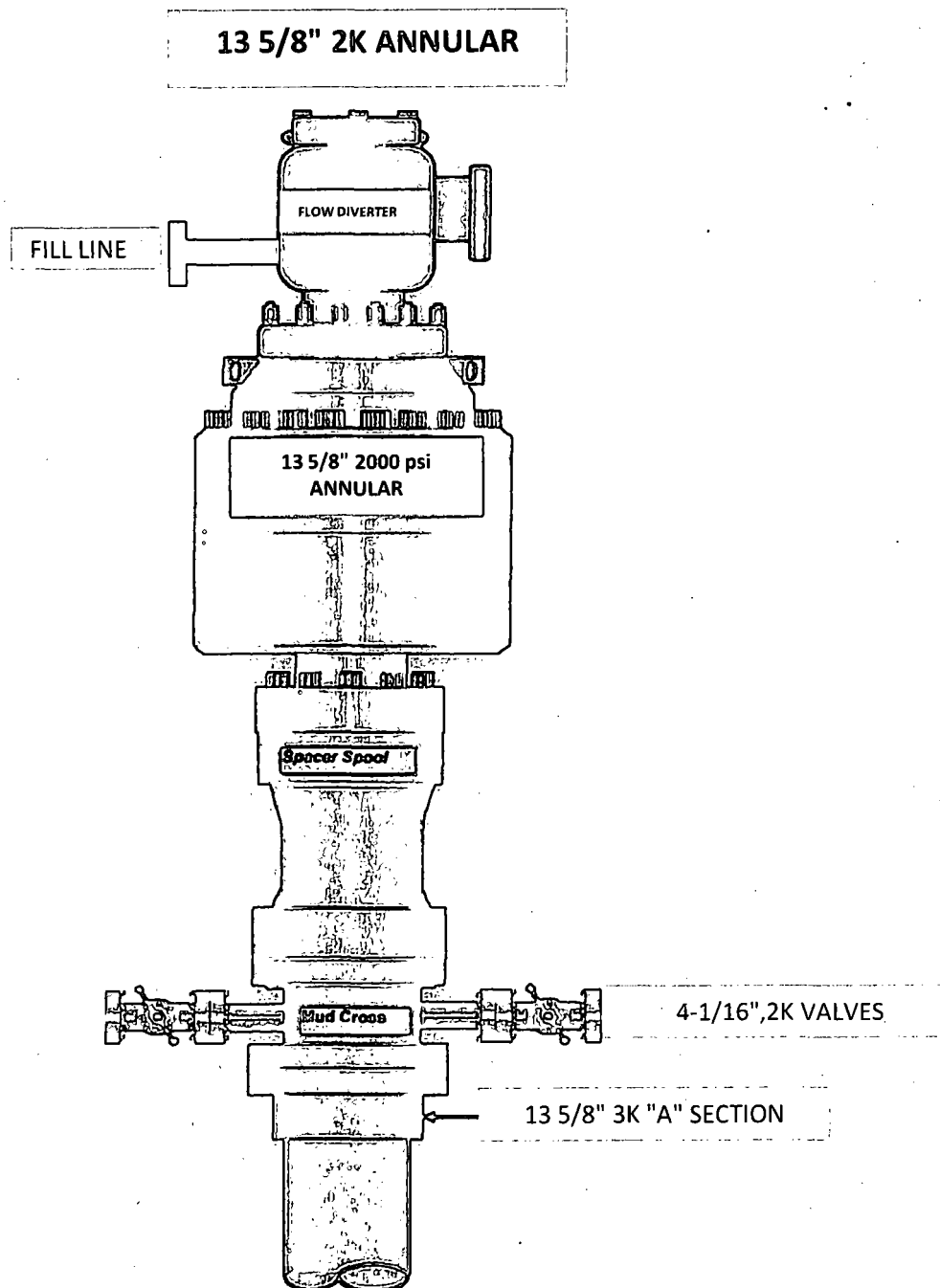
#### Lost Circulation or Water flow Contingent DV Tool Cement Plans are as follows:

1. If lost circulation occurs while drilling the 12 1/4" intermediate hole, it may become necessary to set a DV tool in the 9 5/8" casing. The DV tool depth will be based on hole conditions and cement volumes will be adjusted proportionally. If the DV Tool is needed, it will be set a minimum of 50 feet below the previous casing and a minimum of 200 feet above the current shoe.
  
2. If water flows in the San Andres are encountered, it may become necessary to set a DV tool in the 7" casing. These water flows normally occur in areas where produced water disposal is happening. This dense cement is used to combat water flows. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by cement. The DV tool depth will be based on hole conditions and cement volumes will be adjusted proportionally. If the DV tool is needed, it will be set a minimum of 50 feet below the previous casing and a minimum of 200 feet above the current shoe.

| Casing             | Bottom MD of Segment | Lead or Tail         | Cement Type         | Additives   | Quantity (Sks) | Yield (cu.ft./sk) | Density (lbs./gal) |
|--------------------|----------------------|----------------------|---------------------|---|----------------|-------------------|--------------------|
| Inter. Multi-Stage | +/- 1060'            | 1 <sup>st</sup> Lead | 50:50:10 C: Poz:Gel | 5% Salt + 5 pps LCM + 0.25 pps CF   | 150            | 2.45              | 11.8               |
|                    |                      | 1 <sup>st</sup> Tail | Class C             | 2% Cacl2  | 200            | 1.32              | 14.8               |
|                    |                      | 2 <sup>nd</sup> Lead | 50:50:10 C: Poz:Gel | 5% Salt + 5 pps LCM + 0.25 pps CF   | 200            | 2.45              | 11.8               |
| Prod. Multi-Stage  | +/- 4000'            | 1 <sup>st</sup> Lead | 35:65:6 C:Poz Gel   | 5% salt+5 pps LCM+0.2% SMS + 1% FL-25+1% BA-58+0.3% FL-52A+ 0.125 pps CF        | 400            | 2.01              | 12.5               |
|                    |                      | 1 <sup>st</sup> Tail | Class C             | 0.3% R-3 + 1.5% CD-32   | 1850           | 1.37              | 14                 |
|                    |                      | 2 <sup>nd</sup> Lead | 35:65:6 C:Poz Gel   | 5% salt + 5 pp LCM + 0.2% SMS + 1% FL-25+ 1% BA-58 + 0.3% FL-52A + 0.125 pps CF | 650            | 2.01              | 12.5               |
|                    |                      | 2 <sup>nd</sup> Tail | 50:50:2 C: PozGel   | 5% salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.125 pps CF             | 150            | 0.99              | 16.8               |



# Exhibit #10



#### Casing Program

|                           | Collapse SF | Burst SF | Tension SF         |
|---------------------------|-------------|----------|--------------------|
| BLM Minimum Safety Factor | 1.125       | 1        | 1.6 Dry<br>1.8 Wet |

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

Assumed 9.0ppg MW equivalent pore pressure from 9 5/8" shoe to deepest TVD in wellbore.

BLM standard formulas were used on all SF calculations.

Casing design does meet and/or exceed BLM's minimum standards.

The pipe will be kept at a minimum 1/3 fluid fill to avoid approaching the collapse pressure rating of the casing.

This well is not located within the Capitan Reef.

This well is not located in the SOPA or in the R-111-P.

This well is not located in a high or critical Cave/Karst area.

This is not a walking operation.

We will not be pre-setting casing.

All completion intervals are planned to be fracture stimulated.

#### Casing Program

|                           | Collapse SF | Burst SF | Tension SF         |
|---------------------------|-------------|----------|--------------------|
| BLM Minimum Safety Factor | 1.125       | 1        | 1.6 Dry<br>1.8 Wet |

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#### Casing Program

|                           | Collapse SF | Burst SF | Tension SF         |
|---------------------------|-------------|----------|--------------------|
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|                           | Collapse SF | Burst SF | Tension SF         |
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This is not a walking operation.

We will not be pre-setting casing.

All completion intervals are planned to be fracture stimulated.

## Production Cement Breakdown

Well: Shovel Head Fed Com #18H

| Hole Volumes |                       |        |                                    |       |             |          |
|--------------|-----------------------|--------|------------------------------------|-------|-------------|----------|
| Hole         | Hole Section (Length) | Casing | Capacity (ft <sup>3</sup> /Lin.ft) | Cu.Ft | Total Cu.Ft | % Excess |
| Prod         | 0-2320 (2320)         | 7"     | 0.1585                             | 367.6 | 367.7       | 0        |
| Prod         | 2320-5259 (2939)      | 7"     | 0.1503                             | 441.7 | 441.7       | 214      |
| Prod         |                       |        |                                    |       |             |          |
| Prod         |                       |        |                                    |       |             |          |

| Cement Volumes |              |       |        |        |              |
|----------------|--------------|-------|--------|--------|--------------|
| Blend          | Cement Sacks | Yield | Weight | Volume | Total Volume |
| 35:65:6        | 600          | 2.01  | 12.5   | 1206   | 1754         |
| 50:50:02       | 400          | 1.37  | 14     | 548    |              |

| % Excess Calculation |        |  |             |
|----------------------|--------|--|-------------|
| Total Volume         | 1754   |  | 1386.3      |
| Cu.Ft                | -367.7 |  | /441.7      |
|                      | 1386.3 |  | 214% Excess |

**7" to be run from surface to kickoff point and changed over to 5 1/2" with DV Tool and ECP at kickoff point. 5 1/2" casing will be run from kickoff point to td and isolation packers set throughout curve and lateral. 7" to be cemented from kickoff point to surface.**

**AFMSS**

U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

**SUPO Data Report**

02/19/2018

**APD ID:** 10400023299**Submission Date:** 11/17/2017

Highlighted data  
reflects the most  
recent changes

**Operator Name:** COG OPERATING LLC**Well Name:** SHOVEL HEAD FEDERAL COM**Well Number:** 18H[Show Final Text](#)**Well Type:** OIL WELL**Well Work Type:** Drill**Section 1 - Existing Roads****Will existing roads be used?** YES**Existing Road Map:**

Shovel\_Head\_Federal\_Com\_18H\_Vicinity\_Plat\_20171012125153.pdf

**Existing Road Purpose:** ACCESS, FLUID TRANSPORT**Row(s) Exist?** NO**ROW ID(s)****ID:****Do the existing roads need to be improved?** NO**Existing Road Improvement Description:****Existing Road Improvement Attachment:****Section 2 - New or Reconstructed Access Roads****Will new roads be needed?** NO**Section 3 - Location of Existing Wells****Existing Wells Map?** YES**Attach Well map:**

Shovel\_Head\_Federal\_Com\_18H\_1mileRadius\_Map\_20171012115828.pdf

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Existing Wells description:**

#### Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:** If the well is productive, contemplated facilities will be as follows: Two (2) proposed flowlines, will follow an archaeologically approved route to the Shovel Head Federal Com 28H tank battery located in Section 5 in T17S R32E. The flowlines will be SDR 7 3" poly line laid on the surface and will be approximately 1055 feet in length. Normal working pressure of the flowlines will be below 70 psi and carry a mixture of produced oil, water, and gas. Flowlines will follow existing well-traveled or proposed roads. The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

**Production Facilities map:**

Shovel\_Head\_Federal\_Com\_18H\_Flowlines\_Map\_20171012115840.pdf

#### Section 5 - Location and Types of Water Supply

##### Water Source Table

**Water source use type:** DUST CONTROL,  
INTERMEDIATE/PRODUCTION CASING, SURFACE CASING  
**Describe type:**

**Water source type:** GW WELL

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Source land ownership:** COMMERCIAL

**Water source transport method:** PIPELINE, TRUCKING

**Source transportation land ownership:** COMMERCIAL

**Water source volume (barrels):** 8000

**Source volume (acre-feet):** 1.0311447

**Source volume (gal):** 336000

**Water source and transportation map:**

Caswell\_Ranch\_Water\_Supply\_20171012120548.pdf

Loco\_Hills\_Water\_Disposal\_Co\_Water\_Supply\_20171012120555.pdf

**Water source comments:** The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. Water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Vicinity Map. A fresh water source is nearby and fast line may be laid along existing road ROW's and fresh water pumped to the well. Water will originate from 1 and/or all of the 3 private wells location described on the attached "Caswell Ranch Water Supply" Map. No water well will be drilled on the location. A secondary water source will be from private wells location depicted on the attached "Loco Hills Water Disposal Co" map attached to this APD. James R. Maloney, 575-677-2118.

**New water well?** NO

##### New Water Well Info



**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Well latitude:**

**Well Longitude:**

**Well datum:**

**Well target aquifer:**

**Est. depth to top of aquifer(ft):**

**Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):**

**Well casing type:**

**Well casing outside diameter (in.):**

**Well casing inside diameter (in.):**

**New water well casing?**

**Used casing source:**

**Drilling method:**

**Drill material:**

**Grout material:**

**Grout depth:**

**Casing length (ft.):**

**Casing top depth (ft.):**

**Well Production type:**

**Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## **Section 6 - Construction Materials**

**Construction Materials description:** Surfacing material will consist of native caliche. Caliche will be obtained from the actual well site if available. Secondary candidate source will be Caswell Ranch owned Caliche Pit located in NESE of Sec 9, T17S, R32E. A third candidate source will be NMSLO Caliche Pit located in S2/SW4 of Sec 32, T16S, R30E.

**Construction Materials source location attachment:**

Construction\_Turn\_Over\_Procedure\_20171012120653.pdf

Caswell\_Ranch\_Caliche\_Pit\_20171012120700.pdf

NMSLO\_Caliche\_Pit\_20171012120708.pdf

## **Section 7 - Methods for Handling Waste**

**Waste type:** PRODUCED WATER

**Waste content description:** Produced Water

**Amount of waste:** 100 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** Steel Tanks

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY

**Disposal location ownership:** STATE

**Disposal type description:**

**Disposal location description:** NMOCD approved commercial disposal facility. R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Waste type:** GARBAGE

**Waste content description:** Garbage and trash produced during drilling and completion operations.

**Amount of waste:** 100 pounds

**Waste disposal frequency :** Weekly

**Safe containment description:** Trash Bin

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** STATE

**Disposal type description:**

**Disposal location description:** Garbage and trash to be collected in trash bin and hauled to Lea Landfill LLC. Located at mile marker 64, Highway 62-180 East, PO Box 3247, Carlsbad, NM 88221. No toxic waste or hazardous chemicals will be produced by this operation.

**Waste type:** DRILLING

**Waste content description:** Drill cuttings and drilling fluids

**Amount of waste:** 100 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** Closed Loop System

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** FEDERAL

**Disposal type description:**

**Disposal location description:** R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.

**Waste type:** SEWAGE

**Waste content description:** Human waste and grey water

**Amount of waste:** 100 gallons

**Waste disposal frequency :** Weekly

**Safe containment description:** Portable septic system and/or portable waste gathering system.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** Hauled to NMOCD approved waste disposal facility.

### **Reserve Pit**

**Reserve Pit being used?** NO

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Temporary disposal of produced water into reserve pit?**

**Reserve pit length (ft.)**

**Reserve pit width (ft.)**

**Reserve pit depth (ft.)**

**Reserve pit volume (cu. yd.)**

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

### **Cuttings Area**

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** YES

**Description of cuttings location** Closed Loop Mud System: Roll-off Style Mud Box

**Cuttings area length (ft.)**

**Cuttings area width (ft.)**

**Cuttings area depth (ft.)**

**Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

### **Section 8 - Ancillary Facilities**

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:**

### **Section 9 - Well Site Layout**

**Well Site Layout Diagram:**

Shovel\_Head\_Federal\_Com\_18H\_Well\_Site\_Plant\_20171012123311.pdf

Shovel\_Head\_Federal\_Com\_18H\_Interim\_Reclamation\_Plant\_20171012123321.pdf

**Comments:**

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

### Section 10 - Plans for Surface Reclamation

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:** SHOVEL HEAD FEDERAL COM

**Multiple Well Pad Number:** 8

**Recontouring attachment:**

**Drainage/Erosion control construction:** No sedimentation or erosion control will be necessary on this location as it is generally flat with little to no slope or cut and fill.

**Drainage/Erosion control reclamation:** No sedimentation or erosion control will be necessary on this location as it is generally flat with little to no slope or cut and fill.

|  |   |   |
|--|---|---|
| <b>Well pad proposed disturbance (acres):</b>  | <b>Well pad interim reclamation (acres):</b> 4.68     | <b>Well pad long term disturbance (acres):</b> 3.51     |
| <b>Road proposed disturbance (acres):</b>      | <b>Road interim reclamation (acres):</b> 0            | <b>Road long term disturbance (acres):</b> 0            |
| <b>Powerline proposed disturbance (acres):</b> | <b>Powerline interim reclamation (acres):</b>         | <b>Powerline long term disturbance (acres):</b>         |
| <b>Pipeline proposed disturbance (acres):</b>  | <b>Pipeline interim reclamation (acres):</b> 0.726584 | <b>Pipeline long term disturbance (acres):</b> 0.726584 |
| <b>Other proposed disturbance (acres):</b>     | <b>Other interim reclamation (acres):</b> 0           | <b>Other long term disturbance (acres):</b> 0           |
| <b>Total proposed disturbance:</b>             | <b>Total interim reclamation:</b> 5.406584            | <b>Total long term disturbance:</b> 4.236584            |

**Reconstruction method:** After well is completed, the pad will be downsized by reclaiming the areas not needed for production operations. The portions of the pad that are not needed for production operations will be re-contoured to its original state as much as possible. The caliche that is removed will be reused to either build another pad site or for road repairs within the lease.

**Topsoil redistribution:** The stockpiled topsoil will be spread out on reclaimed area and reseeded with a BLM approved seed mixture.

**Soil treatment:** Interim reclamation as identified during on-site.

**Existing Vegetation at the well pad:** Grassland area with sandy topsoil. Vegetation is moderately sparse with Native prairie grasses, some mesquite and shinnery oak.

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:** Grassland area with sandy topsoil. Vegetation is moderately sparse with Native prairie grasses, some mesquite and shinnery oak.

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:** Grassland area with sandy topsoil. Vegetation is moderately sparse with Native prairie grasses, some mesquite and shinnery oak.

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:** Grassland area with sandy topsoil. Vegetation is moderately sparse with Native prairie grasses, some mesquite and shinnery oak.

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** NO

**Non native seed description:**

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** NO

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?** NO

**Seed harvest description:**

**Seed harvest description attachment:**

### Seed Management

#### Seed Table

**Seed type:**

**Seed source:**

**Seed name:**

**Source name:**

**Source address:**

**Source phone:**

**Seed cultivar:**

**Seed use location:**

**PLS pounds per acre:**

**Proposed seeding season:**

#### Seed Summary

**Total pounds/Acre:**

**Seed Type**

**Pounds/Acre**

**Seed reclamation attachment:**

#### Operator Contact/Responsible Official Contact Info

**First Name:**

**Last Name:**

**Phone:**

**Email:**

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Weed treatment plan description:** Approved EPA and BLM requirements and policies for weed control methods will be followed.

**Weed treatment plan attachment:**

**Monitoring plan description:** Evaluation of growth will be made after the completion of one full growing season after seeding. -OR- BLM representative will be contacted prior to commencing construction of well pad and road. BLM representative will also be contacted prior to commencing reclamation work.

**Monitoring plan attachment:**

**Success standards:** 80% coverage by 2nd growing season of native species with less than 5% invasive species.

**Pit closure description:** N/A

**Pit closure attachment:**

## **Section 11 - Surface Ownership**

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Fee Owner:** Olane Caswell

**Phone:** (806)637-7004

**Surface use plan certification:** YES

**Surface use plan certification document:**

Shovel\_Head\_Federal\_Com\_18H\_Surface\_Use\_Plan\_Certification\_20171117082213.pdf

**Fee Owner Address:** 1702 Gillham Rd., Brownfield, TX  
79316

**Email:**

**Surface access agreement or bond:** Agreement

**Surface Access Agreement Need description:** A Surface Use Agreement has been reached with the Surface Owner.

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

**Disturbance type:** PIPELINE

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Fee Owner:** Olane Caswell

**Phone:** (806)637-7004

**Surface use plan certification:** YES

**Surface use plan certification document:**

Shovel\_Head\_Federal\_Com\_18H\_Surface\_Use\_Plan\_Certification\_20171117082221.pdf

**Fee Owner Address:** 1702 Gillham Rd., Brownfield, TX  
79316

**Email:**

**Surface access agreement or bond:** Agreement

**Surface Access Agreement Need description:** A Surface Use Agreement has been reached with the Surface Owner.

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

**Disturbance type:** EXISTING ACCESS ROAD

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**



**Operator Name:** COG OPERATING LLC

**Well Name:** SHOVEL HEAD FEDERAL COM

**Well Number:** 18H

**Fee Owner:** Olane Caswell

**Phone:** (806)637-7004

**Surface use plan certification:** YES

**Surface use plan certification document:**

Shovel\_Head\_Federal\_Com\_18H\_Surface\_Use\_Plan\_Certification\_20171117082228.pdf

**Fee Owner Address:** 1702 Gillham Rd., Brownfield, TX  
79316

**Email:**

**Surface access agreement or bond:** Agreement

**Surface Access Agreement Need description:** A Surface Use Agreement has been reached with the Surface Owner.

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

## Section 12 - Other Information

**Right of Way needed?** NO

**Use APD as ROW?**

**ROW Type(s):**

### ROW Applications

**SUPO Additional Information:** 1. It will be necessary to run electric power if this well is productive. Power will be provided by CVE. There will be no necessary electric line construction for this well. CVE operates an existing primary line parallel to the well pad; therefor no poles will be set off the well pad disturbance. There is no permanent or live water in the immediate area. 2. There are no dwellings within 2 miles of this location. 3. If needed, a Cultural Resources Examination is being prepared by Boone Arch Services of New Mexico, LLC. Carlsbad, NM, 88220. 506 E Chapman Rd., phone # 575.887.7667 and the results will be forwarded to your office in the near future. Otherwise, COG will be participating in the Permian Basin MOA Program.

**Use a previously conducted onsite?** YES

**Previous Onsite information:** Previous on-site performed on 09/05/17 by Jeff Robertson(BLM), Tim Baker(COG), Bryan Chaves(RRC).

### Other SUPO Attachment



November 17, 2017

Bureau of Land Management  
620 E. Greene St.  
Carlsbad, NM 8820

RE: Shovel Head Federal Com #18H  
SL: 330' FSL & 200' FEL  
Section 5, T17S, R32E, Unit P

To Whom It May Concern:

COG Operating LLC has a Private Surface Owner Agreement with Olane Caswell whose address is 1702 Gillham Rd., Brownfield, TX 79316, for the Shovel Head Federal Com 18H well pad, pipelines and access road in Unit P of Section 5, T17S, R32E, Lea County, New Mexico.

Sincerely,

Robyn M. Russell  
Regulatory Analyst  
COG Operating LLC  
Ph. (432) 685-4385  
Email: [Russell@concho.com](mailto:Russell@concho.com)



November 17, 2017

Bureau of Land Management  
620 E. Greene St.  
Carlsbad, NM 8820

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**SL: 330' FSL & 200' FEL**  
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Sincerely,

Robyn M. Russell  
Regulatory Analyst  
COG Operating LLC  
Ph: (432) 685-4385  
Email: [Russell@concho.com](mailto:Russell@concho.com)



November 17, 2017

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Carlsbad, NM 8820

RE: **Shovel Head Federal Com #18H**  
**SL: 330' FSL & 200' FEL**  
**Section 5, T17S, R32E, Unit P**

To Whom It May Concern:

COG Operating LLC has a Private Surface Owner Agreement with Olane Caswell whose address is 1702 Gillham Rd., Brownfield, TX 79316, for the Shovel Head Federal Com 18H well pad, pipelines and access road in Unit P of Section 5, T17S, R32E, Lea County, New Mexico.

Sincerely,

Robyn M. Russell  
Regulatory Analyst  
COG Operating LLC  
Ph: (432) 685-4385  
Email: Russell@concho.com



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## PWD Data Report

02/19/2018

### Section 1 - General

Would you like to address long-term produced water disposal? NO

### Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

### **Section 3 - Unlined Pits**

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

### **Section 4 - Injection**

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

**Injection well type:**

**Injection well number:**

**Assigned injection well API number?**

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection attachment:**

**Underground Injection Control (UIC) Permit?**

**UIC Permit attachment:**

**Injection well name:**

**Injection well API number:**

### **Section 5 - Surface Discharge**

**Would you like to utilize Surface Discharge PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

### **Section 6 - Other**

**Would you like to utilize Other PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Bond Info Data Report

02/19/2018

### Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000215

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:



Operator Name: COG OPERATING LLC

Well Name: SHOVEL HEAD FEDERAL COM

Well Number: 18H

|                   | NS-Foot | NS Indicator | EW-Foot  | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract | Latitude       | Longitude            | County | State             | Meridian          | Lease Type | Lease Number   | Elevation     | MD        | TVD      |
|-------------------|---------|--------------|----------|--------------|------|-------|---------|-------------------|----------------|----------------------|--------|-------------------|-------------------|------------|----------------|---------------|-----------|----------|
| PPP<br>Leg<br>#1  | 330     | FSL          | 263<br>9 | FEL          | 17S  | 32E   | 4       | Aliquot<br>SWSE   | 32.85732<br>23 | -<br>103.7806<br>828 | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMNM<br>09015  | -<br>169<br>0 | 820<br>0  | 578<br>0 |
| PPP<br>Leg<br>#1  | 330     | FSL          | 131<br>9 | FEL          | 17S  | 32E   | 4       | Aliquot<br>SWSE   | 32.85732<br>23 | -<br>103.7806<br>828 | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | FEE            | -<br>169<br>0 | 970<br>0  | 578<br>0 |
| EXIT<br>Leg<br>#1 | 330     | FSL          | 254<br>0 | FWL          | 17S  | 32E   | 3       | Aliquot<br>SESW   | 32.85726<br>87 | -<br>103.7542<br>97  | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMLC0<br>59576 | -<br>169<br>0 | 136<br>59 | 578<br>0 |
| BHL<br>Leg<br>#1  | 330     | FSL          | 263<br>0 | FWL          | 17S  | 32E   | 3       | Aliquot<br>SESW   | 32.85726<br>87 | -<br>103.7542<br>97  | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMLC0<br>59576 | -<br>169<br>0 | 136<br>59 | 578<br>0 |