

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
APPLICATION FOR PERMIT TO DRILL OR REENTER

HOBBS OCD  
AUG 28 2018  
RECEIVED

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM0000082
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 [229137]		7. If Unit or CA Agreement, Name and No.
3a. Address 600 West Illinois Ave Midland TX 79701		8. Lease Name and Well No. [322258] LITTLE BEAR FEDERAL COM 2H
3b. Phone No. (include area code) (432)683-7443		9. API Well No. 30-025-45149
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface SESE / 406 FSL / 565 FEL / LAT 32.523443 / LONG -103.558473 At proposed prod. zone NESE / 2440 FSL / 745 FEL / LAT 32.543194 / LONG -103.559082		10. Field and Pool, or Exploratory [5535] WILDCAT / BONE SPRING
11. Sec., T. R. M. or Blk. and Survey or Area SEC 33 / T20S / R34E / NMP		12. County or Parish LEA
13. State NM		14. Distance in miles and direction from nearest town or post office* 15 miles
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 405 feet	16. No. of acres in lease 600	17. Spacing Unit dedicated to this well 240
18. Distance from proposed location* to nearest well, drilling, completed, 3143 feet applied for, on this lease, ft.	19. Proposed Depth 11416 feet / 18730 feet	20. BLM/BIA Bond No. on file FED: NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3815 feet	22. Approximate date work will start* 09/01/2017	23. Estimated duration 30 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:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification.
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature (Electronic Submission)	Name (Printed/Typed) Mayle Reyes / Ph: (575)748-6945	Date 07/17/2017
Title Regulatory Analyst		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 07/13/2018
Title Assistant Field Manager Lands & Minerals		
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)

GCP received 08/28/2018

APPROVED WITH CONDITIONS  
Approval Date: 07/13/2018

KZ  
08/28/2018

## 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 / 406 FSL / 565 FEL / TWSP: 20S / RANGE: 34E / SECTION: 33 / LAT: 32.523443 / LONG: -103.558473 ( TVD: 0 feet, MD: 0 feet )  
PPP: SENE / 2640 FNL / 745 FEL / TWSP: 20S / RANGE: 34E / SECTION: 33 / LAT: 32.529586 / LONG: -103.559065 ( TVD: 11359 feet, MD: 13700 feet )  
PPP: SESE / 330 FSL / 745 FEL / TWSP: 20S / RANGE: 34E / SECTION: 33 / LAT: 32.523234 / LONG: -103.559057 ( TVD: 6000 feet, MD: 6000 feet )  
BHL: NESE / 2440 FSL / 745 FEL / TWSP: 20S / RANGE: 34E / SECTION: 28 / LAT: 32.543194 / LONG: -103.559082 ( TVD: 11416 feet, MD: 18730 feet )

### BLM Point of Contact

Name: Priscilla Perez

Title: Legal Instruments Examiner

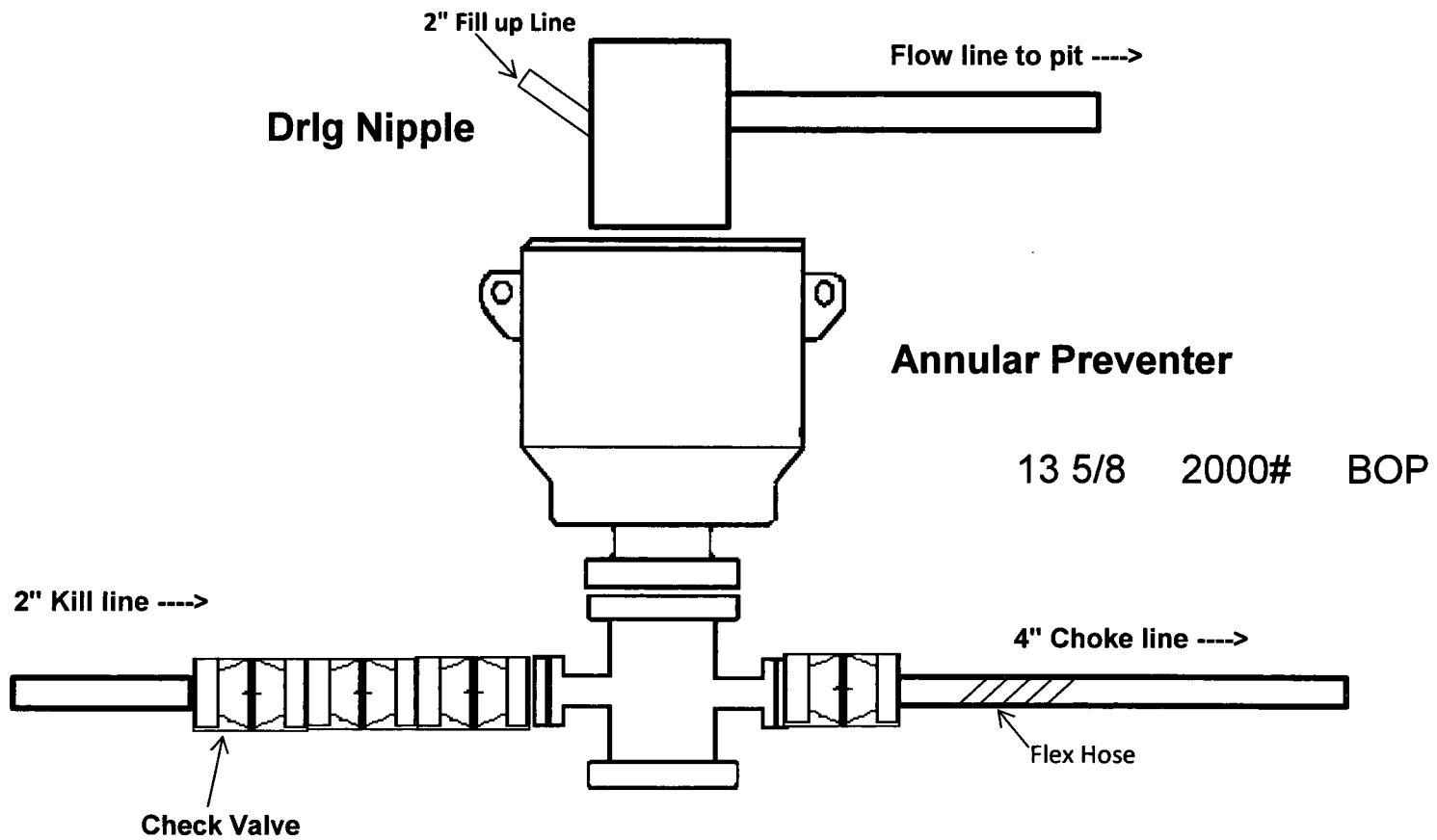
Phone: 5752345934

Email: pperez@blm.gov

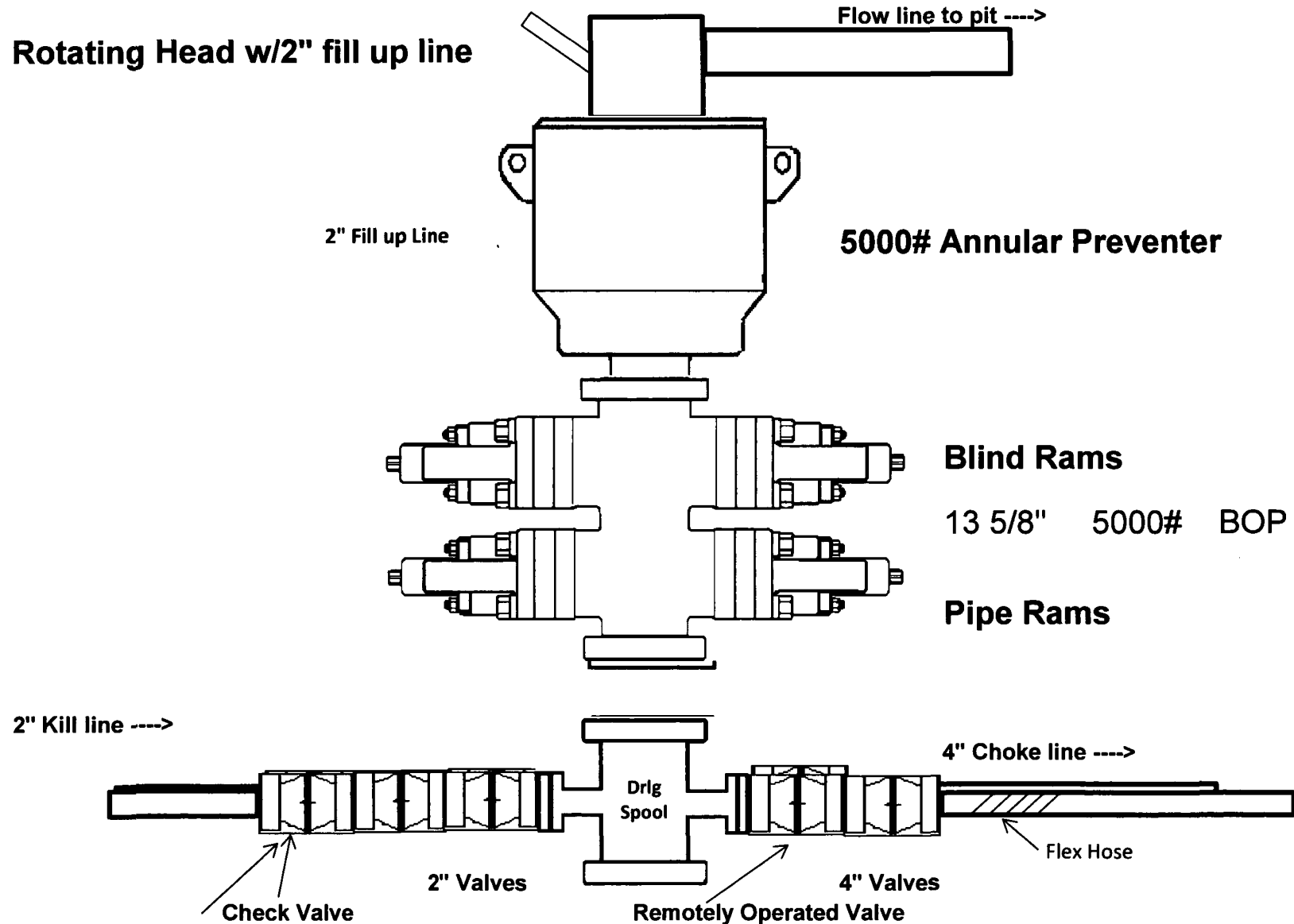
### **Review and Appeal Rights**

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.

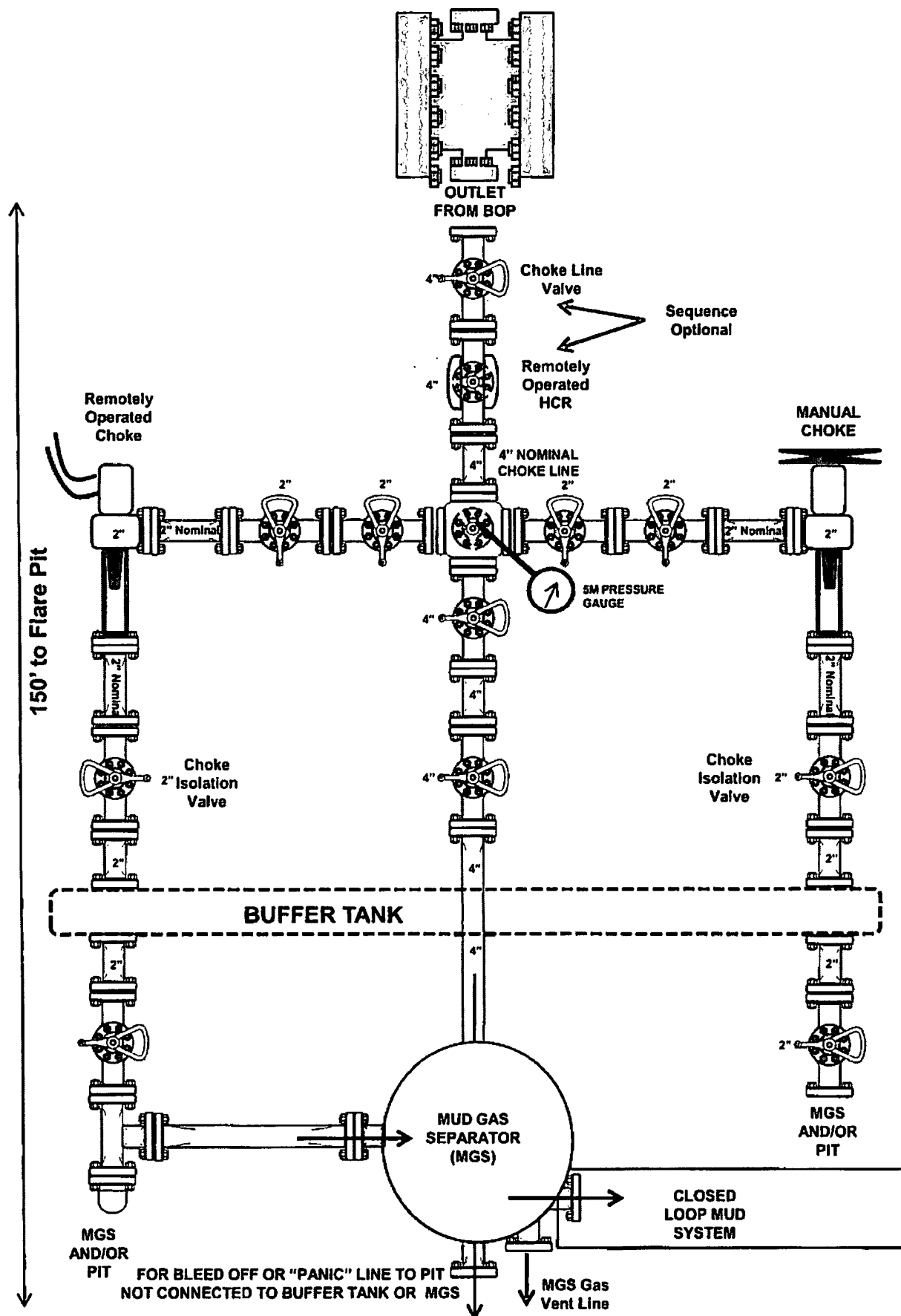
# 2,000 psi BOP Schematic



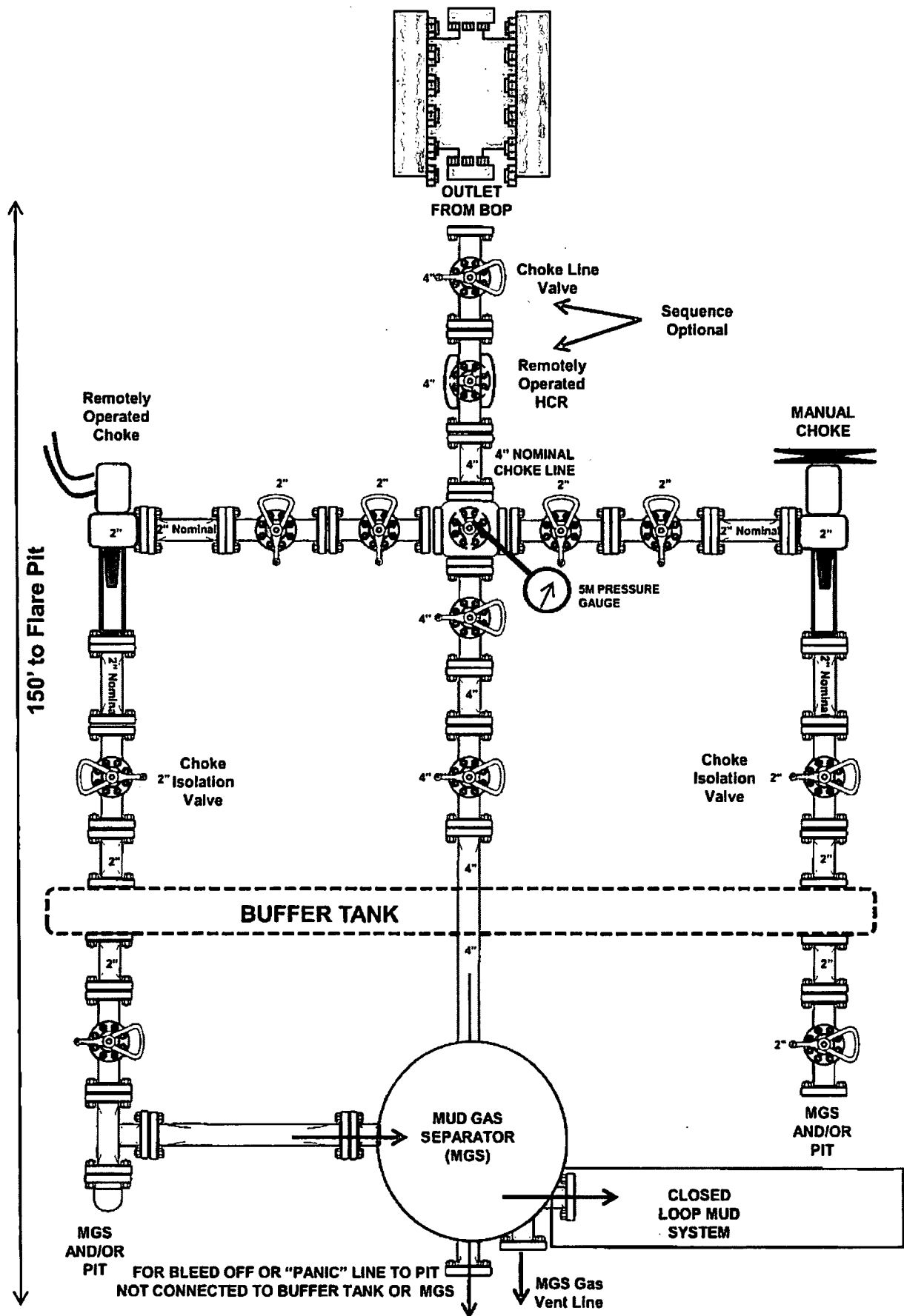
# 5,000 psi BOP Schematic



## 2M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)





APD ID: 10400016390

Submission Date: 07/17/2017

Operator Name: COG OPERATING LLC

Federal/Indian APD: FED

Well Name: LITTLE BEAR FEDERAL COM

Well Number: 2H

Highlighted data  
reflects the most  
recent changes

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Application

Section 1 - General

APD ID: 10400016390

Tie to previous NOS?

Submission Date: 07/17/2017

BLM Office: CARLSBAD

User: Mayte Reyes

Title: Regulatory Analyst

Federal/Indian APD: FED

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

Lease number: NMNM0000082

Lease Acres: 600

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: COG OPERATING LLC

Operator letter of designation:

HOEDS OCD  
AUG 28 2018  
RECEIVED

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

Mater Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Well API Number:**

**Field/Pool or Exploratory?** Field and Pool

**Field Name:** WILDCAT

**Pool Name:** BONE SPRING

**Is the proposed well in an area containing other mineral resources?** POTASH

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N

**Use Existing Well Pad?** NO

**New surface disturbance?**

**Type of Well Pad:** SINGLE WELL

**Multiple Well Pad Name:**

**Number:**

**Well Class:** HORIZONTAL

**Number of Legs:**

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** EXPLORATORY (WILDCAT)

**Describe sub-type:**

**Distance to town:** 15 Miles

**Distance to nearest well:** 3143 FT

**Distance to lease line:** 405 FT

**Reservoir well spacing assigned acres Measurement:** 240 Acres

**Well plat:** COG\_Little\_Bear\_2H\_C102\_07-16-2017.pdf

**Well work start Date:** 09/01/2017

**Duration:** 30 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 Leg #1	406	FSL	565	FEL	20S	34E	33	Aliquot SESE	32.52344 3	- 103.5584 73	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000008 2	381 5	0	0
KOP Leg #1	406	FSL	565	FEL	20S	34E	33	Aliquot SESE	32.52344 3	- 103.5584 73	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000008 2	381 5	0	0
PPP Leg #1	330	FSL	745	FEL	20S	34E	33	Aliquot SESE	32.52323 4	- 103.5590 57	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000008 2	- 218 5	600 0	600 0

Approval Date: 07/13/2018

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**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

	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 Leg #1	2640	FNL	745	FEL	20S	34E	33	Aliquot SENE	32.529586	-103.559065	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 128368	-7544	13700	11359
EXIT Leg #1	2310	FSL	745	FEL	20S	34E	28	Aliquot NESE	32.543194	-103.559082	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 0039256	-7449	18600	11264
BHL Leg #1	2440	FSL	745	FEL	20S	34E	28	Aliquot NESE	32.543194	-103.559082	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 0039256	-7601	18730	11416

## Drilling Plan

### Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	3717	0	0		NONE	No
2	RUSTLER	1951	1766	1766		NONE	No
3	TOP SALT	1856	1861	1861		NONE	No
4	BASE OF SALT	116	3601	3601		NONE	No
5	YATES	-34	3751	3751		NONE	No
6	CAPITAN REEF	-204	3921	3921		NONE	No
7	---	-1994	5711	5711		NONE	No
8	DELAWARE	-2154	5871	5871		NATURAL GAS,OIL	No
9	BONE SPRING	-5064	8781	8781		NATURAL GAS,OIL	No
10	UPPER AVALON SHALE	-5424	9141	9141		NATURAL GAS,OIL	No
11	---	-5539	9256	9256		NATURAL GAS,OIL	No
12	BONE SPRING 1ST	-6149	9866	9866		NATURAL GAS,OIL	No

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
13	BONE SPRING 2ND	-6654	10371	10371		NATURAL GAS,OIL	No
14	BONE SPRING 3RD	-7524	11241	11241		NATURAL GAS,OIL	Yes
15	WOLFCAMP	-7699	11416	11416		NATURAL GAS,OIL	No

## Section 2 - Blowout Prevention

**Pressure Rating (PSI):** 2M

**Rating Depth:** 5750

**Equipment:** Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

**Requesting Variance?** YES

**Variance request:** 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.

**Testing Procedure:** 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 of the components installed will be functional and tested.

**Choke Diagram Attachment:**

COG\_Little\_Bear\_2H\_2M\_Choke\_07-16-2017.pdf

**BOP Diagram Attachment:**

COG\_Little\_Bear\_2H\_2M\_BOP\_07-16-2017.pdf

COG\_Little\_Bear\_2H\_Flex\_Hose\_20180323073811.pdf

**Pressure Rating (PSI):** 5M

**Rating Depth:** 11416

**Equipment:** Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

**Requesting Variance?** NO

**Variance request:** 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.

**Testing Procedure:** 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 of the components installed will be functional and tested.

**Choke Diagram Attachment:**

COG\_Little\_Bear\_2H\_5M\_Choke\_20180323073947.pdf

**BOP Diagram Attachment:**

COG\_Little\_Bear\_2H\_5M\_BOP\_20180323073953.pdf

Approval Date: 07/13/2018

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**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

COG\_Little\_Bear\_2H\_5M\_Choke\_20180323073947.pdf

COG\_Little\_Bear\_2H\_Flex\_Hose\_20180323074001.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	1800	0	1800	-7544	-9229	1800	J-55	54.5	STC	1.32	1	DRY	5.24	DRY	5.24
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	4500	0	4500	-7544	-13304	4500	J-55	40	OTHER - BTC	1.125	0.83	DRY	2.74	DRY	2.74
3	PRODUCTION	8.75	5.5	NEW	API	N	0	18730	0	18730	-7544	-23817	18730	P-110	17	OTHER - BTC	1.37	1	DRY	2.81	DRY	2.81

#### Casing Attachments

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

COG\_Little\_Bear\_2H\_Casing\_Plan\_07-16-2017.pdf

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

#### Casing Attachments

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

COG\_Little\_Bear\_2H\_Casing\_Plan\_07-16-2017.pdf

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

COG\_Little\_Bear\_2H\_Casing\_Plan\_07-16-2017.pdf

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

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

COG\_Little\_Bear\_2H\_Casing\_Plan\_07-16-2017.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	1800	900	1.75	13.5	1575	50	Lead: Class C	4% Gel
SURFACE	Tail		0	1800	250	1.34	14.8	335	50	C	2% CaCl
INTERMEDIATE	Lead		0	5750	300	1.98	12.7	594	50	Lead: 35:65:6 C Blend	No additives
INTERMEDIATE	Tail		0	5750	250	1.34	14.8	335	50	Tail: Class C	2% CaCl

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	1873 0	800	2.5	11.9	2000	35	Lead: 50:50:10 H Blend	No additives
PRODUCTION	Tail		0	1873 0	2050	1.24	14.4	2542	35	Tail: 50:50:2 Class H Blend	No additives

### 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
5750	5760	OTHER : Saturated Brine	10	10.2							Saturated Brine
5750	1873 0	OTHER : Cut Brine	8.9	9.2							Cut Brine
0	1800	OTHER : FW gel	8.4	8.6							FW Gel

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

## Section 6 - Test, Logging, Coring

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

None planned

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

CNL,GR

**Coring operation description for the well:**

None planned

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 5461

**Anticipated Surface Pressure:** 2949.48

**Anticipated Bottom Hole Temperature(F):** 170

**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:**

COG\_Little\_Bear\_2H\_H2S\_Schem\_07-16-2017.pdf

COG\_Little\_Bear\_2H\_H2S\_SUP\_07-16-2017.pdf

## Section 8 - Other Information

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

COG\_Little\_Bear\_2H\_Directional\_07-16-2017.pdf

**Other proposed operations facets description:**

None

**Other proposed operations facets attachment:**

COG\_Little\_Bear\_2H\_Drilling\_Plan\_20180323074021.pdf

**Other Variance attachment:**

SUPO

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

## Section 1 - Existing Roads

**Will existing roads be used?** YES

**Existing Road Map:**

COG\_Little\_Bear\_2H\_Existing\_Rd\_07-17-2017.pdf

**Existing Road Purpose:** ACCESS

**Row(s) Exist?** NO

**ROW ID(s)**

**ID:**

**Do the existing roads need to be improved?** YES

**Existing Road Improvement Description:** The Location Verification Map shows that 6,644.2' of new access road will be required for this location, If any road is required it will be constructed as follows: The maximum width of the running surface will be 14'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 4 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

**Existing Road Improvement Attachment:**

## Section 2 - New or Reconstructed Access Roads

**Will new roads be needed?** YES

**New Road Map:**

COG\_Little\_Bear\_2H\_Maps\_Plats\_07-17-2017.pdf

**New road type:** RESOURCE

**Length:** 6644.2 Feet

**Width (ft.):** 30

**Max slope (%):** 33

**Max grade (%):** 1

**Army Corp of Engineers (ACOE) permit required?** NO

**ACOE Permit Number(s):**

**New road travel width:** 14

**New road access erosion control:** Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

**New road access plan or profile prepared?** NO

**New road access plan attachment:**

**Access road engineering design?** NO

**Access road engineering design attachment:**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Access surfacing type:** OTHER

**Access topsoil source:** ONSITE

**Access surfacing type description:** Caliche

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:**

**Onsite topsoil removal process:** Blading

**Access other construction information:** No turnouts are planned. Re-routing access road around proposed well location.

**Access miscellaneous information:**

**Number of access turnouts:**

**Access turnout map:**

### **Drainage Control**

**New road drainage crossing:** OTHER

**Drainage Control comments:** None necessary

**Road Drainage Control Structures (DCS) description:** None needed.

**Road Drainage Control Structures (DCS) attachment:**

### **Access Additional Attachments**

**Additional Attachment(s):**

## **Section 3 - Location of Existing Wells**

**Existing Wells Map?** YES

**Attach Well map:**

COG\_Little\_Bear\_2H\_1Mile\_Data\_07-17-2017.pdf

**Existing Wells description:**

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

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

**Estimated Production Facilities description:** A tank battery and facilities will be constructed as shown on the Production Facility Layout. The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

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

### **Water Source Table**

Approval Date: 07/13/2018

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**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Water source use type:** ICE PAD CONSTRUCTION & MAINTENANCE, STIMULATION, SURFACE CASING  
**Describe type:** Fresh Water

**Water source type:** OTHER

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Source land ownership:** PRIVATE

**Water source transport method:** PIPELINE

**Source transportation land ownership:** PRIVATE

**Water source volume (barrels):** 337500

**Source volume (acre-feet):** 43.50142

**Source volume (gal):** 14175000

**Water source use type:** INTERMEDIATE/PRODUCTION CASING

**Water source type:** OTHER

**Describe type:** Brine Water

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Source land ownership:** COMMERCIAL

**Water source transport method:** TRUCKING

**Source transportation land ownership:** COMMERCIAL

**Water source volume (barrels):** 22500

**Source volume (acre-feet):** 2.9000947

**Source volume (gal):** 945000

**Water source and transportation map:**

COG\_Little\_Bear\_2H\_Fresh\_H2O\_07-17-2017.pdf

COG\_Little\_Bear\_2H\_Brine\_H2O\_07-17-2017.pdf

**Water source comments:** Fresh water will be furnished by Danny Berry water well located in Section 34, T20S, R34E, the water will be purchased from Danny Berry 575-369-5266, or if a commercial fresh water source is nearby, fast line may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location. Brine water will be provided by Salty Dog Brine Station, located in Section 5, T19S, R36E. or if necessary commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in road maps.

**New water well?** NO

**New Water Well Info**

**Well latitude:**

**Well Longitude:**

**Well datum:**

**Well target aquifer:**

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

**Est thickness of aquifer:**

**Aquifer comments:**

Approval Date: 07/13/2018

Page 11 of 22

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**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:** Caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from Danny Berry caliche pit, pit, located in Section 28, T20S, R34E.

**Construction Materials source location attachment:**

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

**Waste type:** SEWAGE

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

**Amount of waste:** 1000 gallons

**Waste disposal frequency :** One Time Only

**Safe containment description:** Waste will be properly contained and disposed of properly at a state approved disposal facility.

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility

**Waste type:** DRILLING

**Waste content description:** Drilling fluids and produced oil land water while drilling and completion operations

**Amount of waste:** 6000 barrels

**Waste disposal frequency :** One Time Only

**Safe containment description:** All drilling waste will be stored safely and disposed of properly

**Safe containmant attachment:**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

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

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility

**Waste type:** GARBAGE

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

**Amount of waste:** 500 pounds

**Waste disposal frequency :** One Time Only

**Safe containment description:** Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility.

### Reserve Pit

**Reserve Pit being used?** NO

**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** Roll off cutting containers on tracks

**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**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Cuttings area liner specifications and installation description**

**Section 8 - Ancillary Facilities**

**Are you requesting any Ancillary Facilities?:** YES

**Ancillary Facilities attachment:**

COG\_Little\_Bear\_2H\_GCP\_07-17-2017.pdf

**Comments:** Gas Capture Plan attached

**Section 9 - Well Site Layout**

**Well Site Layout Diagram:**

COG\_Little\_Bear\_2H\_Prod\_Facility\_07-17-2017.pdf

**Comments:** A tank battery and facilities will be constructed as shown on the Production Facility Layout. The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

**Section 10 - Plans for Surface Reclamation**

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:**

**Multiple Well Pad Number:**

**Recontouring attachment:**

**Drainage/Erosion control construction:** Due to the topography, there will be a need to construct a total of 900' of waddles across the south, east, and portions of the northwest corner of the location. A individual well battery will be located and bermed on the north and northwest side of the location which will prevent surface runoff.

**Drainage/Erosion control reclamation:** N/A

**Wellpad long term disturbance (acres):** 3.03

**Wellpad short term disturbance (acres):** 3.67

**Access road long term disturbance (acres):** 2.14

**Access road short term disturbance (acres):** 2.14

**Pipeline long term disturbance (acres):** 0

**Pipeline short term disturbance (acres):** 0

**Other long term disturbance (acres):** 0

**Other short term disturbance (acres):** 0

**Total long term disturbance:** 5.17

**Total short term disturbance:** 5.81

**Disturbance Comments:**

**Reconstruction method:** Portions of the pad 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. The stockpiled topsoil will be spread out over reclaimed area and reseeded with BLM approved seed mixture.

**Topsoil redistribution:** East 70'

**Soil treatment:** None

**Existing Vegetation at the well pad:** Shinnery Oak/Mesquite grassland

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

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

**Existing Vegetation Community at the road:** Shinnery Oak/Mesquite grassland

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

**Existing Vegetation Community at the pipeline:** Shinnery Oak/Mesquite grassland

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

**Existing Vegetation Community at other disturbances:** N/A

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

**Non native seed used?** NO

**Non native seed description:**

**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**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Seed reclamation attachment:**

**Operator Contact/Responsible Official Contact Info**

**First Name:** Rand

**Last Name:** French

**Phone:** (432)254-5556

**Email:** rfrench@concho.com

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** N/A

**Weed treatment plan attachment:**

**Monitoring plan description:** N/A

**Monitoring plan attachment:**

**Success standards:** N/A

**Pit closure description:** N/A

**Pit closure attachment:**

COG\_Little\_Bear\_2H\_Closed\_Loop\_07-17-2017.pdf

**Section 11 - Surface Ownership**

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

## Section 12 - Other Information

**Right of Way needed?** NO

**Use APD as ROW?**

**ROW Type(s):**

### ROW Applications

**SUPO Additional Information:**

**Use a previously conducted onsite?** YES

**Previous Onsite information:** Onsite completed on 04/12/2017 by Gerald Herrera (COG); Jeff Robertson (BLM) and James Rutley (BLM).

### Other SUPO Attachment

COG\_Little\_Bear\_2H\_Certification\_07-17-2017.pdf

PWD

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

## 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?**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**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:**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

## 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:**

**Injection well name:**

**Assigned injection well API number?**

**Injection well API number:**

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

**Minerals protection information:**

**Mineral protection attachment:**

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

**UIC Permit attachment:**

## 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:**

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**

## Bond Info

### 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 Certification

### Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Mayte Reyes

**Signed on:** 07/16/2017

**Title:** Regulatory Analyst

**Street Address:** 2208 W Main Street

**City:** Artesia

**State:** NM

**Zip:** 88210

**Phone:** (575)748-6945

**Email address:** Mreyes1@concho.com

**Operator Name:** COG OPERATING LLC

**Well Name:** LITTLE BEAR FEDERAL COM

**Well Number:** 2H

### Field Representative

**Representative Name:** Rand French

**Street Address:** 2208 West Main Street

**City:** Artesia

**State:** NM

**Zip:** 88210

**Phone:** (575)478-6940

**Email address:** rfrench@concho.com

### Payment Info

#### Payment

**APD Fee Payment Method:** PAY.GOV

**pay.gov Tracking ID:** 263M0ER7

## COG Operating, LLC, Little Bear Fed Com 2H

### 1. Geologic Formations

TVD of target	11,416'	Pilot hole depth	11,700'
MD at TD:	18,730'	Deepest expected fresh water:	702'

#### Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	1766	Water	
Top of Salt	1861	Salt	
BOS (Castile)	3601	Anhydrite	
Yates	3751	Barren	
Reef	3921	Water	
Base of Reef (BLCN)	5711	Water	
Top of Delaware	5871	Oil/Gas	
Bone Spring (BSGL)	8781	Oil/Gas	
U Avalon Shale	9141	Oil/Gas	
L Avalon Shale	9256	Oil/Gas	
1 <sup>st</sup> Bone Spring Sand	9866	Oil/Gas	
2 <sup>nd</sup> Bone Spring Sand	10371	Oil/Gas	
3 <sup>rd</sup> Bone Spring Sand	11241	Target Oil/Gas	
Wolfcamp	11416	Oil/Gas	

### 2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17 1/2"	0'	1,800'	13 3/8"	54.5	J55	STC	1.32	1.0	5.24
12 1/4"	0'	4,500'	9 5/8"	40	J55	BTC	1.125	0.83	2.74
12 1/4"	4500'	5,750'	9 5/8"	40	L80	BTC	1.125	1.06	2.74
8 3/4"	0'	18,730'	5 1/2"	17	P110	BTC	1.37	1.94	2.81
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

- Burst SF on J-55 Int is 0.83 > 0.7
- Intermediate casing will be kept 1/3 full to avoid approaching collapse rating.
- Plug back PH with Class H ( 17.2 ppg, 0.98 cf/sk) cement.

**HOBBS OCD**  
**AUG 28 2018**  
**RECEIVED**

## COG Operating, LLC, Little Bear Fed Com 2H

	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). (Assumption bulleted above)	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 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(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?	N

### 2. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft <sup>3</sup> /sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	900	13.5	1.75	9.6	12	Lead: Class C + 4% Gel
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl
Inter. Stage 1	300	12.7	1.98	10.6	16	Lead: 35:65:6 C Blend
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl
DV @ 3800'						
Inter. Stage 2	800	12.7	2	10.6	16	Lead: Class C + 4% Gel + 1% CaCl <sub>2</sub>
	100	14.8	1.35	6.34	8	Tail: Class C + 2% CaCl
5.5 Prod	800	11.9	2.5	19	72	Lead: 50:50:10 H Blend
	2050	14.4	1.24	5.7	19	Tail: 50:50:2 H Blend
Casing String				TOC		% Excess
Surface				0'		50%
Intermediate Stage				0'		50%
Production				0'		35%

## COG Operating, LLC, Little Bear Fed Com 2H

### 4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
--	--

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	X	2000 psi
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	5M	Annular	X	50% testing pressure
			Blind Ram	X	5M
			Pipe Ram	X	
			Double Ram		
			Other*		

\*Specify if additional ram is utilized.

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.

## COG Operating, LLC, Little Bear Fed Com 2H

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.	
N	Are anchors required by manufacturer?	
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.  See attached schematic.	

### 5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.4	28-29	N/C
surf	Int shoe	Saturated Brine	10	28-29	N/C
Int Shoe	Lateral TD	Cut Brine	8.9-9.2	28-29	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
---	-----------------------------

## COG Operating, LLC, Little Bear Fed Com 2H

### 6. Logging and Testing Procedures

Logging, Coring and Testing.	
Y	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.
N	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain
N	Coring? If yes, explain – NA

### 7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5461 psi
Abnormal Temperature	No

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

### 8. Other facets of operation

Is this a walking operation? NO. If yes, describe.

Will be pre-setting casing? NO. If yes, describe.

Attachments

☐ Y Directional Plan

☐ Anti-collision plan

☐ Anti-collision plot