Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

P/P

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM123530

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
BASEBALL CAP FEDERAL COM
601H 319803

2. Name of Operator
COG OPERATING LLC 229137

9. API Well No.
30-025-45783

3a. Address
600 West Illinois Ave Midland TX 79701

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

10. Field and Pool, or Exploratory
WILDCAT / BONE SPRING 96434

4. Location of Well *(Report location clearly and in accordance with any State requirements. *)*
At surface SESE / 430 FSL / 1080 FEL / LAT 32.182232 / LONG -103.418678
At proposed prod. zone NENE / 200 FNL / 760 FEL / LAT 32.209718 / LONG -103.41762

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 25 / T24S / R34E / NMP

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

12. County or Parish
LEA

13. State
NM

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

16. No of acres in lease
240

17. Spacing Unit dedicated to this well
320

HOBBS OCD
APR 01 2019
RECEIVED

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

19. Proposed Depth
12642 feet / 22656 feet

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3377 feet

22. Approximate date work will start*
05/01/2019

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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 requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Mayte Reyes / Ph: (575)748-6945	10/30/2018

Title
Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	03/21/2019

Title	Office
Assistant Field Manager Lands & Minerals	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.

GCP Rec 04/01/19

R.M.

KZ 04/01/19

APPROVED WITH CONDITIONS

Approval Date: 03/21/2019

(Continued on page 2)

*(Instructions on page 2)

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 I: 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 wen, 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 directionany 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.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

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 wen 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 win 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 conects this information to anow 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 Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

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Additional Operator Remarks

Location of Well

1. SHL: SESE / 430 FSL / 1080 FEL / TWSP: 24S / RANGE: 34E / SECTION: 25 / LAT: 32.182232 / LONG: -103.418678 (TVD: 0 feet, MD: 0 feet)
   PPP: SESE / 0 FSL / 760 FEL / TWSP: 24S / RANGE: 34E / SECTION: 24 / LAT: 32.195747 / LONG: -103.417633 (TVD: 12525 feet, MD: 17600 feet)
   PPP: SESE / 330 FSL / 760 FEL / TWSP: 24S / RANGE: 34E / SECTION: 25 / LAT: 32.18186 / LONG: -103.417646 (TVD: 12642 feet, MD: 13000 feet)
   BHL: NENE / 200 FNL / 760 FEL / TWSP: 24S / RANGE: 34E / SECTION: 24 / LAT: 32.209718 / LONG: -103.41762 (TVD: 12642 feet, MD: 22656 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.

AFMSS

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

APD Print Report

03/26/2019

APD ID: 10400035715
Submission Date: 10/30/2018

Operator Name: COG OPERATING LLC
Federal/Indian APD: FED

Well Name: BASEBALL CAP FEDERAL COM
Well Number: 601H

Show Final Text

Well Type: OIL WELL
Well Work Type: Drill

Application

Section 1 - General

APD ID: 10400035715
Tie to previous NOS?
Submission Date: 10/30/2018

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: NMNM123530
Lease Acres: 240

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:

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: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H **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? USEABLE WATER

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: MULTIPLE WELL **Multiple Well Pad Name:** BASEBALL CAP FEDERAL COM **Number:** 601H, 701H AND 702H

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: 12 Miles **Distance to nearest well:** 587 FT **Distance to lease line:** 200 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: COG_Baseball_601H_C102_20181030084907.pdf

Well work start Date: 05/01/2019 **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	430	FSL	1080	FEL	24S	34E	25	Aliquot SESE	32.182232	-103.418678	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 123531	3377	0	0
KOP Leg #1	430	FSL	1080	FEL	24S	34E	25	Aliquot SESE	32.182232	-103.418678	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 123531	3377	0	0
PPP Leg #1	330	FSL	760	FEL	24S	34E	25	Aliquot SESE	32.18186	-103.417646	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 123531	-9265	13000	12642

Operator Name: COG OPERATING

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

	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	0	FSL	760	FEL	24S	34E	24	Aliquot SESE	32.195747	-103.417633	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 123530	-9148	17600	12525
EXIT Leg #1	330	FNL	760	FEL	24S	34E	24	Aliquot NENE	32.209361	-103.41762	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-9023	22550	12400
BHL Leg #1	200	FNL	760	FEL	24S	34E	24	Aliquot NENE	32.209718	-103.41762	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-9265	22656	12642

Drilling Plan

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	UNKNOWN	3377	0	0		NONE	No
2	RUSTLER	2475	902	902		NONE	No
3	TOP SALT	1978	1399	1399		NONE	No
4	BASE OF SALT	-1820	5197	5197		NONE	No
5	LAMAR	-2117	5494	5494		NONE	No
6	BELL CANYON	-2153	5530	5530		NONE	No
7	CHERRY CANYON	-3150	6527	6527		NATURAL GAS,OIL	No
8	BRUSHY CANYON	-4736	8113	8113		NATURAL GAS,OIL	No
9	BONE SPRING LIME	-6038	9415	9415		NATURAL GAS,OIL	No
10	UPPER AVALON SHALE	-6246	9623	9623		NATURAL GAS,OIL	No
11	—	-6564	9941	9941		NATURAL GAS,OIL	No
12	BONE SPRING 1ST	-7217	10594	10594		NATURAL GAS,OIL	No

Operator Name: COG OPERATING

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
13	BONE SPRING 2ND	-7929	11306	11306		NATURAL GAS,OIL	No
14	BONE SPRING 3RD	-8859	12236	12236		NATURAL GAS,OIL	Yes
15	WOLFCAMP	-9315	12692	12692		NATURAL GAS,OIL	No

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M **Rating Depth:** 12642

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_Baseball_601H_10M_Choke_20181030091516.pdf

BOP Diagram Attachment:

COG_Baseball_601H_10M_BOP_20181030091525.pdf

COG_Baseball_601H_Flex_Hose_20181030091536.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 11840

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_Baseball_601H_5M_Choke_20181030091547.pdf

BOP Diagram Attachment:

COG_Baseball_601H_5M_BOP_20181030091554.pdf

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

COG_Baseball_601H_5M_Choke_20181030091547.pdf

COG_Baseball_601H_Flex_Hose_20181030091605.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	
1	SURFACE	17.5	13.375	NEW	API	N	0	1285	0	1285	-9530	-10415	1285	J-55	54.5	STC	1.97	5.48	DRY	7.34	DRY	7.
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	11840	0	11840	-9530	-21730	11840	HCL-80	47	OTHER - BTC	1.49	1.06	DRY	2.02	DRY	2.
3	PRODUCTION	8.5	5.5	NEW	API	N	0	22656	0	22656	-9530	-32300	22656	P-110	23	OTHER - BTC	1.77	2.09	DRY	2.49	DRY	2.

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Baseball_601H_Casing_Prog_20181030091736.pdf

Operator Name: COG OPERATING

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Baseball_601H_Casing_Prog_20181030091725.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Baseball_601H_Casing_Prog_20181030091717.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	1285	580	1.75	13.5	1015	50	Class C	4% Gel
SURFACE	Tail		0	1285	250	1.34	14.8	335	50	Class C	2% CaCl2
INTERMEDIATE	Lead		0	11840	950	2.8	11	2660	50	NeoCem	No Additives
INTERMEDIATE	Tail		0	11840	300	1.1	16.4	330	50	Class H	No Additives

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	22656	400	2	12.7	800	35	Lead: 35:65:6 H Blend	No additives
PRODUCTION	Tail		0	22656	2980	1.24	14.4	3695	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
1285	11840	OTHER : Diesel Brine Emulsion	8.6	9.4							Diesel Brine Emulsion
11840	22656	OIL-BASED MUD	10.5	12.5							OBM
0	1285	OTHER : Fresh water gel	8.4	8.6							Fresh water gel

Operator Name: COG OPERATING L[illegible]

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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: 8220 **Anticipated Surface Pressure:** 5438.76

Anticipated Bottom Hole Temperature(F): 180

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

COG_Baseball_601H_H2S_Schem_20181030092436.pdf

COG_Baseball_601H_H2S_SUP_20181030092446.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

COG_Baseball_601H_AC_Rpt_20181030092503.pdf

COG_Baseball_601H_Direct_Plan_20181030092519.pdf

Other proposed operations facets description:

None

Other proposed operations facets attachment:

COG_Baseball_601H_Drill_Prog_20181030092526.pdf

Other Variance attachment:

COG_5M_Variance_Well_Plan_20180817102532.pdf

SUPO

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

COG_Baseball_601H__Ext._Rd_20181030092543.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? YES

New Road Map:

COG_Baseball_601H__Maps_Plats_20181030092616.pdf

New road type: RESOURCE

Length: 430.5 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:

Access surfacing type: OTHER

Access topsoil source: ONSITE

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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_Baseball_601H__1Mile_Data_20181030092644.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 Central Tank Battery and facilities will be permitted and constructed at a later date, once the well is completed. The battery and facilities will be installed according to API specifications.

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Water source use type: ICE PAD CONSTRUCTION & MAINTENANCE, STIMULATION, SURFACE CASING
Water source type: OTHER
Describe type: Fresh water will be furnished by Dinwiddle Cattle Co., CP-1285 water well located in Section 5, T26S, R36E.
Source longitude:
Source latitude:
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): 450000
Source volume (acre-feet): 58.001892
Source volume (gal): 18900000

Water source use type: INTERMEDIATE/PRODUCTION CASING
Water source type: OTHER
Describe type: Brine water will be provided by Malaga Brine Station II, located in section 12. T23S. R28E.
Source longitude:
Source latitude:
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): 30000
Source volume (acre-feet): 3.866793
Source volume (gal): 1260000

Water source and transportation map:

COG_Baseball_601H_BrineH20_20181030092706.pdf

COG_Baseball_601H_FreshH20_20181030092721.pdf

Water source comments: Fresh water will be furnished by Dinwiddle Cattle Co., CP-1285 water well located in Section 5, T26S, R36E. Brine water will be provided by Malaga Brine Station II, located in section 12. T23S. R28E.
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:

Aquifer documentation:

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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 source will be from Quail Ranch LLC (CONCHO) caliche pit located in Section 6. T24S. R35E. Phone: 575-748-6940

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: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: YES

Ancillary Facilities attachment:

COG_Baseball_601H_GCP_20181030092748.pdf

Comments: Gas Capture Plan attached

Section 9 - Well Site Layout

Well Site Layout Diagram:

COG_Baseball_601H__Layout_20181030092811.pdf

COG_Baseball_601H_Reclamation_20190208074846.pdf

Comments: A Central Tank Battery and facilities will be permitted and constructed at a later date, once the well is completed. The battery and facilities will be installed according to API specifications.

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: BASEBALL CAP FEDERAL COM

Multiple Well Pad Number: 601H, 701H AND 702H

Recontouring attachment:

Drainage/Erosion control construction: Immediately following construction approximately 200' of straw waddles will be placed on the north side of the notheast corner, 200' on the east side starting on the northeast corner, and 200' on the south side eastern side extending from the southeast corner back to the west of the location, to reduce sediment impacts to fragile/sensitive soils.

Drainage/Erosion control reclamation: N/A

Well pad proposed disturbance (acres): 3.67

Well pad interim reclamation (acres): 0.15

Well pad long term disturbance (acres): 2.35

Road proposed disturbance (acres): 0.15

Road interim reclamation (acres): 0.15

Road long term disturbance (acres): 0.15

Powerline proposed disturbance (acres): 0

Powerline interim reclamation (acres): 0

Powerline long term disturbance (acres): 0

Pipeline proposed disturbance (acres): 0

Pipeline interim reclamation (acres): 0

Pipeline long term disturbance (acres): 0

Other proposed disturbance (acres): 0

Other interim reclamation (acres): 0

Other long term disturbance (acres): 0

Total proposed disturbance: 3.82

Total interim reclamation: 0.3

Total long term disturbance: 2.5

Disturbance Comments:

Reconstruction method: If needed, 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.

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Topsoil redistribution: Due to future wells being located on this location, no reclamation will be necessary.

Soil treatment: None

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

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:

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Seed Summary	
Seed Type	**Pounds/Acre**

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Gerald **Last Name:** Herrera

Phone: (432)260-7399 **Email:** gherrera@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_Baseball_601H_Closed_Loop_20181030092854.pdf

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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:**

Fee Owner: Quail Ranch LLC **Fee Owner Address:** 600 W. Illinois Ave Midland, TX 79701

Phone: (575)748-6940 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Bert Madera sold Pitchfork Ranch to Quail Ranch LLC (Concho)

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: Surface Use & Operating Plan.

Use a previously conducted onsite? YES

Previous Onsite information: Onsite completed on 8/07/2018 by Gerald Herrera (COG) and Jeff Robertson (BLM).

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Other SUPO Attachment

COG_Baseball_601H_SUP_20181030092943.pdf
COG_Baseball_601H_C102_20181030092954.pdf
COG_Baseball_601H_Certif_20181030093006.pdf
COG_Baseball_601H__1Mile_Data_20181030093013.pdf
COG_Baseball_601H__Ext._Rd_20181030093036.pdf
COG_Baseball_601H__Layout_20181030093047.pdf
COG_Baseball_601H__Maps_Plats_20181030093058.pdf
COG_Baseball_601H_BrineH20_20181030093118.pdf
COG_Baseball_601H_Closed_Loop_20181030093131.pdf
COG_Baseball_601H_FreshH20_20181030093150.pdf
COG_Baseball_601H_Reclamation_20190208074906.pdf

PWD

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:

Operator Name: COG OPERATING L[illegible]

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

Precipitated solids disposal:

Decribe 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:

Decribe 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:

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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: **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

Operator Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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:

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 Name: COG OPERATING LLC

Well Name: BASEBALL CAP FEDERAL COM **Well Number:** 601H

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:** 10/29/2018

Title: Regulatory Analyst

Street Address: 2208 W Main Street

City: Artesia **State:** NM **Zip:** 88210

Phone: (575)748-6945

Email address: Mreyes1@concho.com

Field Representative

Representative Name: Gerald Herrera

Street Address: 2208 West Main Street

City: Artesia **State:** NM **Zip:** 88210

Phone: (575)748-6940

Email address: gherrera@concho.com

Payment Info

Payment

APD Fee Payment Method: PAY.GOV

pay.gov Tracking ID: 26D646LF

BASEBALL CAP FEDERAL COM #601H 1 MILE WELL DATA

FID	WELL_NAME	OPERATOR	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	LATITUDE	LONGITUDE	COMPL_STAT
0	JOHNSON FEDERAL 001	E P CAMPBELL	3002508492	13	24.0S	34E	660	S	660	W	32.212101	-103.430056	Plugged
1	PITCHFORK 36 STATE 001	ENRON OIL & GAS CO	3002528135	36	24.0S	34E	1980	N	1980	W	32.175789	-103.425755	Plugged
2	MADERA 19 COM 001	HNG FOSSIL FUELS CO	3002528762	19	24.0S	35E	660	S	1980	E	32.197564	-103.40448	Plugged
3	YELLOW RAIDER BPW STATE COM 001	ENDURANCE RESOURCES LLC	3002539713	36	24.0S	34E	660	N	330	E	32.179348	-103.416101	Plugged
4	TELECASTER BASS 36 STATE 004H	COG OPERATING LLC	3002542376	36	24.0S	34E	150	N	990	E	32.180763	-103.418245	New (Not drilled or compl)
5	TELECASTER BASS 36 STATE 001H	COG OPERATING LLC	3002542990	36	24.0S	34E	330	N	425	W	32.180341	-103.430699	New (Not drilled or compl)
6	TELECASTER BASS 36 STATE 002H	COG OPERATING LLC	3002542991	36	24.0S	34E	330	N	1980	W	32.180311	-103.425648	New (Not drilled or compl)
7	FASCINATOR FEE COM 002H	COG OPERATING LLC	3002543023	30	24.0S	35E	210	S	1980	E	32.181768	-103.404332	New (Not drilled or compl)
8	FASCINATOR FEE 001H	COG OPERATING LLC	3002543037	30	24.0S	35E	210	S	1090	E	32.181777	-103.401441	New (Not drilled or compl)
9	SOMBRERO FEDERAL COM 004H	COG OPERATING LLC	3002543286	13	24.0S	34E	460	S	380	W	32.211562	-103.430856	New (Not drilled or compl)
10	FASCINATOR FEE 024H	COG OPERATING LLC	3002543855	19	24.0S	35E	2420	S	2210	E	32.202388	-103.405123	New (Not drilled or compl)
11	VEXING FEE WCA 001H	COG OPERATING LLC	3002544014	25	24.0S	34E	490	S	2030	E	32.182542	-103.421617	New (Not drilled or compl)
12	VEXING FEE WCA 002H	COG OPERATING LLC	3002544015	25	24.0S	34E	490	S	1930	E	32.18254	-103.421292	New (Not drilled or compl)
13	VEXING FEE WCXY 001H	COG OPERATING LLC	3002544016	25	24.0S	34E	490	S	1980	E	32.182541	-103.421455	New (Not drilled or compl)
14	SUPER FEE WCA 001H	COG OPERATING LLC	3002544029	25	24.0S	34E	433	S	1930	W	32.18241	-103.425809	New (Not drilled or compl)
15	SUPER FEE WCA 002H	COG OPERATING LLC	3002544030	25	24.0S	34E	434	S	2030	W	32.182411	-103.425484	New (Not drilled or compl)
16	SUPER FEE WCXY 001H	COG OPERATING LLC	3002544031	25	24.0S	34E	434	S	1980	W	32.182412	-103.425647	New (Not drilled or compl)
17	BASEBALL CAP FEDERAL COM 024H	COG OPERATING LLC	3002544152	25	24.0S	34E	360	S	1980	E	32.182184	-103.421456	New (Not drilled or compl)
18	BASEBALL CAP FEDERAL COM 026H	COG OPERATING LLC	3002544153	25	24.0S	34E	320	S	1980	W	32.182098	-103.425648	
19	MOOMAW SWD 001	DELAWARE ENERGY, LLC	3002544661	25	24.0S	34E	1646	N	2294	E	32.191207	-103.422434	New (Not drilled or compl)
20	BLUEBERRY HILL FEE 24 35 19 TB 003H	MARATHON OIL PERMIAN LLC	3002544662	19	24.0S	35E	2416	N	1346	E	32.2036	-103.402326	New (Not drilled or compl)
21	BLUEBERRY HILL FEE 24 35 19 TB 010H	MARATHON OIL PERMIAN LLC	3002544663	19	24.0S	35E	2417	N	1256	E	32.203598	-103.402034	New (Not drilled or compl)
22	BLUEBERRY HILL FEE 24 35 19 WA 005H	MARATHON OIL PERMIAN LLC	3002544664	19	24.0S	35E	2415	N	1376	E	32.203603	-103.402423	New (Not drilled or compl)
23	BLUEBERRY HILL FEE 24 35 19 WA 006H	MARATHON OIL PERMIAN LLC	3002544665	19	24.0S	35E	2417	N	1286	E	32.203598	-103.402131	New (Not drilled or compl)
24	BLUEBERRY HILL FEE 24 35 19 WXY 004H	MARATHON OIL PERMIAN LLC	3002544666	19	24.0S	35E	2416	N	1316	E	32.2036	-103.402229	New (Not drilled or compl)

COG Operating, LLC - Baseball Cap Federal Com 601H

1. Geologic Formations

TVD of target	12,642'	Pilot hole depth	NA
MD at TD:	22,656'	Deepest expected fresh water:	300'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	902	Water	
Top of Salt	1399	Salt	
Base of Salt	5197	Salt	
Lamar	5494	Salt Water	
Bell Canyon	5530	Salt Water	
Cherry Canyon	6527	Oil/Gas	
Brushy Canyon	8113	Oil/Gas	
Bone Spring Lime	9415	Oil/Gas	
U. Avalon Shale	9623	Oil/Gas	
L. Avalon Shale	9941	Oil/Gas	
1st Bone Spring Sand	10594	Oil/Gas	
2nd Bone Spring Sand	11306	Oil/Gas	
3rd Bone Spring Sand	12236	Target Oil/Gas	
Wolfcamp	12692	Not Penetrated	

2. Casing Program

Hole Size	Casing From	Casing To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	1285	13.375"	54.5	J55	STC	1.97	5.48	7.34
12.25"	0	11840	9.625"	47	HCL80	BTC	1.49	1.05	2.02
8.5	0	22,656	5.5"	23	P110	BTC	1.77	2.09	2.49
			BLM Minimum Safety Factor				1.125	1	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

COG Operating, LLC - Baseball Cap Federal Com 601H

	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).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary?	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	580	13.5	1.75	9	12	Lead: Class C + 4% Gel
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
Inter. Stage1	950	11	2.8	19	48	Lead: NeoCem
	300	16.4	1.1	5	8	Tail: Class H
DV Tool @ 5490'						
Inter. Stage2	760	11	2.8	19	48	Lead: NeoCem
	100	14.8	1.35	6.34	8	Tail: Class C + 2% Cacl
5.5 Prod	400	12.7	2	10.6	16	Lead: 35:65:6 H Blend
	2980	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results
Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
1st Intermediate	0'	50%
Production	10,840'	35%

4. Pressure Control Equipment

N	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?	Min. Required WP	Type	x	Tested to:
12-1/4"	13-5/8"	5M	Annular	x	2500 psi
			Blind Ram		5M
			Pipe Ram	x	
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	10M	5M Annular	x	5000 psi
			Blind Ram		10M
			Pipe Ram	x	
			Double Ram	x	
			Other*		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

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.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe	FW Gel	8.4 - 8.6	28-29	N/C
Surf csg	Int shoe	Diesel Brine Emul	8.6 - 9.4	30-40	N/C
Int shoe	Lateral TD	OBM	10.5 - 12.5	30-40	20

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

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	Are Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain.
N	Coring? If yes, explain.

Additional logs planned		**Interval**
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8220 psi at 12642' TVD
Abnormal Temperature	NO 180 Deg. F.

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other Facets of Operation

Y	Is it a walking operation?
N	Is casing pre-set?

x	H2S Plan.
x	BOP & Choke Schematics.
x	Directional Plan
x	5M Annular Variance

CONCHO

COG Operating LLC

Lea County, NM (NAD27 NME)
Baseball Cap Federal Com
601H

OH

Plan: Plan 1 10-18-18

Standard Planning Report

18 October, 2018

PHOENIX
TECHNOLOGY SERVICES

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 601H
Company:	COG Operating LLC	**TVD Reference:**	RKB @ 3407.00usft (Scandrill Quest)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3407.00usft (Scandrill Quest)
Site:	Baseball Cap Federal Com	**North Reference:**	Grid
Well:	601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 10-18-18		

Project	Lea County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Baseball Cap Federal Com				
Site Position:		**Northing:**	431,112.90 usft	**Latitude:**	32° 10' 55.04431 N
From:	Map	**Easting:**	782,226.20 usft	**Longitude:**	103° 25' 16.03702 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.49 °

Well	601H					
Well Position	**+N/-S**	62.00 usft	**Northing:**	431,174.90 usft	**Latitude:**	32° 10' 55.58209 N
	+E/-W	900.80 usft	**Easting:**	783,127.00 usft	**Longitude:**	103° 25' 5.55038 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,377.00 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	MVHD	11/15/2018	6.68	59.84	47,862.69311030

Design	Plan 1 10-18-18				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	1.39	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,750.19	5.00	126.28	2,749.88	-6.46	8.80	2.00	2.00	0.00	126.28	
7,076.93	5.00	126.28	7,060.12	-229.75	313.05	0.00	0.00	0.00	0.00	
7,327.13	0.00	0.00	7,310.00	-236.21	321.85	2.00	-2.00	0.00	180.00	
12,086.36	0.00	0.00	12,069.23	-236.21	321.85	0.00	0.00	0.00	0.00	
13,000.90	91.45	359.56	12,642.00	351.27	317.32	10.00	10.00	-0.05	359.56	
22,655.12	91.45	359.56	12,397.00	10,002.10	242.90	0.00	0.00	0.00	0.00	BHL - Baseball Cap F

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Site:	Baseball Cap Federal Com	**North Reference:**	Grid
Well:	601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1.10-18-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
902.00	0.00	0.00	902.00	0.00	0.00	0.00	0.00	0.00	0.00
RUSTLER									
1,399.00	0.00	0.00	1,399.00	0.00	0.00	0.00	0.00	0.00	0.00
TOS									
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
2,600.00	2.00	126.28	2,599.98	-1.03	1.41	-1.00	2.00	2.00	0.00
2,700.00	4.00	126.28	2,699.84	-4.13	5.63	-3.99	2.00	2.00	0.00
2,750.19	5.00	126.28	2,749.87	-6.46	8.80	-6.24	2.00	2.00	0.00
Hold 5.00° Inc at 126.28° Azm									
2,800.00	5.00	126.28	2,799.49	-9.03	12.30	-8.73	0.00	0.00	0.00
2,900.00	5.00	126.28	2,899.11	-14.19	19.34	-13.72	0.00	0.00	0.00
3,000.00	5.00	126.28	2,998.73	-19.35	26.37	-18.71	0.00	0.00	0.00
3,100.00	5.00	126.28	3,098.35	-24.51	33.40	-23.69	0.00	0.00	0.00
3,200.00	5.00	126.28	3,197.97	-29.67	40.43	-28.68	0.00	0.00	0.00
3,300.00	5.00	126.28	3,297.59	-34.83	47.46	-33.67	0.00	0.00	0.00
3,400.00	5.00	126.28	3,397.21	-39.99	54.50	-38.66	0.00	0.00	0.00
3,500.00	5.00	126.28	3,496.82	-45.16	61.53	-43.65	0.00	0.00	0.00
3,600.00	5.00	126.28	3,596.44	-50.32	68.56	-48.64	0.00	0.00	0.00
3,700.00	5.00	126.28	3,696.06	-55.48	75.59	-53.63	0.00	0.00	0.00
3,800.00	5.00	126.28	3,795.68	-60.64	82.62	-58.61	0.00	0.00	0.00
3,900.00	5.00	126.28	3,895.30	-65.80	89.65	-63.60	0.00	0.00	0.00
4,000.00	5.00	126.28	3,994.92	-70.96	96.69	-68.59	0.00	0.00	0.00
4,100.00	5.00	126.28	4,094.54	-76.12	103.72	-73.58	0.00	0.00	0.00
4,200.00	5.00	126.28	4,194.16	-81.28	110.75	-78.57	0.00	0.00	0.00
4,300.00	5.00	126.28	4,293.78	-86.44	117.78	-83.56	0.00	0.00	0.00
4,400.00	5.00	126.28	4,393.39	-91.60	124.81	-88.54	0.00	0.00	0.00
4,500.00	5.00	126.28	4,493.01	-96.76	131.85	-93.53	0.00	0.00	0.00
4,600.00	5.00	126.28	4,592.63	-101.92	138.88	-98.52	0.00	0.00	0.00
4,700.00	5.00	126.28	4,692.25	-107.08	145.91	-103.51	0.00	0.00	0.00
4,800.00	5.00	126.28	4,791.87	-112.24	152.94	-108.50	0.00	0.00	0.00
4,900.00	5.00	126.28	4,891.49	-117.41	159.97	-113.49	0.00	0.00	0.00
5,000.00	5.00	126.28	4,991.11	-122.57	167.00	-118.48	0.00	0.00	0.00
5,100.00	5.00	126.28	5,090.73	-127.73	174.04	-123.46	0.00	0.00	0.00
5,200.00	5.00	126.28	5,190.35	-132.89	181.07	-128.45	0.00	0.00	0.00
5,209.93	5.00	126.28	5,200.24	-133.40	181.77	-128.95	0.00	0.00	0.00
BOS (Fletcher)									
5,300.00	5.00	126.28	5,289.96	-138.05	188.10	-133.44	0.00	0.00	0.00
5,400.00	5.00	126.28	5,389.58	-143.21	195.13	-138.43	0.00	0.00	0.00
5,500.00	5.00	126.28	5,489.20	-148.37	202.16	-143.42	0.00	0.00	0.00
5,508.45	5.00	126.28	5,497.62	-148.81	202.76	-143.84	0.00	0.00	0.00
LMAR (Top Deleware									
5,544.63	5.00	126.28	5,533.66	-150.67	205.30	-145.64	0.00	0.00	0.00
BLCN									
5,600.00	5.00	126.28	5,588.82	-153.53	209.19	-148.41	0.00	0.00	0.00
5,700.00	5.00	126.28	5,688.44	-158.69	216.23	-153.39	0.00	0.00	0.00
5,800.00	5.00	126.28	5,788.06	-163.85	223.26	-158.38	0.00	0.00	0.00
5,900.00	5.00	126.28	5,887.68	-169.01	230.29	-163.37	0.00	0.00	0.00
6,000.00	5.00	126.28	5,987.30	-174.17	237.32	-168.36	0.00	0.00	0.00
6,100.00	5.00	126.28	6,086.92	-179.33	244.35	-173.35	0.00	0.00	0.00
6,200.00	5.00	126.28	6,186.53	-184.49	251.39	-178.34	0.00	0.00	0.00
6,300.00	5.00	126.28	6,286.15	-189.66	258.42	-183.33	0.00	0.00	0.00

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Site:	Baseball Cap Federal Com	**North Reference:**	Grid
Well:	601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 10-18-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,400.00	5.00	126.28	6,385.77	-194.82	265.45	-188.31	0.00	0.00	0.00
6,500.00	5.00	126.28	6,485.39	-199.98	272.48	-193.30	0.00	0.00	0.00
6,546.71	5.00	126.28	6,531.92	-202.39	275.77	-195.63	0.00	0.00	0.00
CYCN									
6,600.00	5.00	126.28	6,585.01	-205.14	279.51	-198.29	0.00	0.00	0.00
6,700.00	5.00	126.28	6,684.63	-210.30	286.54	-203.28	0.00	0.00	0.00
6,800.00	5.00	126.28	6,784.25	-215.46	293.58	-208.27	0.00	0.00	0.00
6,900.00	5.00	126.28	6,883.87	-220.62	300.61	-213.26	0.00	0.00	0.00
7,000.00	5.00	126.28	6,983.49	-225.78	307.64	-218.25	0.00	0.00	0.00
7,076.93	5.00	126.28	7,060.12	-229.75	313.05	-222.08	0.00	0.00	0.00
Begin 2.00°/100' Drop									
7,100.00	4.54	126.28	7,083.11	-230.89	314.60	-223.18	2.00	-2.00	0.00
7,200.00	2.54	126.28	7,182.92	-234.54	319.58	-226.71	2.00	-2.00	0.00
7,300.00	0.54	126.28	7,282.87	-236.13	321.75	-228.25	2.00	-2.00	0.00
7,327.13	0.00	0.00	7,310.00	-236.21	321.85	-228.33	2.00	-2.00	0.00
Begin Vertical Hold									
8,135.87	0.00	0.00	8,118.74	-236.21	321.85	-228.33	0.00	0.00	0.00
BYCN									
9,437.87	0.00	0.00	9,420.74	-236.21	321.85	-228.33	0.00	0.00	0.00
BONE SPRG									
9,645.87	0.00	0.00	9,628.74	-236.21	321.85	-228.33	0.00	0.00	0.00
U AVALON SH - B AVALON SH									
9,963.87	0.00	0.00	9,946.74	-236.21	321.85	-228.33	0.00	0.00	0.00
L AVALON SH - FBSG_sand									
10,481.87	0.00	0.00	10,464.74	-236.21	321.85	-228.33	0.00	0.00	0.00
SBSG_sand									
10,616.87	0.00	0.00	10,599.74	-236.21	321.85	-228.33	0.00	0.00	0.00
SBSG_sand_Base									
11,328.87	0.00	0.00	11,311.74	-236.21	321.85	-228.33	0.00	0.00	0.00
TBSG_sand									
11,659.87	0.00	0.00	11,642.74	-236.21	321.85	-228.33	0.00	0.00	0.00
WFMP									
12,086.36	0.00	0.00	12,069.23	-236.21	321.85	-228.33	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
12,100.00	1.36	359.56	12,082.87	-236.05	321.85	-228.16	10.00	10.00	0.00
12,200.00	11.36	359.56	12,182.13	-224.98	321.77	-217.10	10.00	10.00	0.00
12,260.89	17.45	359.56	12,241.08	-209.83	321.65	-201.96	10.00	10.00	0.00
WFMP B									
12,300.00	21.36	359.56	12,277.96	-196.84	321.55	-188.98	10.00	10.00	0.00
12,400.00	31.36	359.56	12,367.44	-152.49	321.21	-144.65	10.00	10.00	0.00
12,500.00	41.36	359.56	12,447.87	-93.27	320.75	-85.46	10.00	10.00	0.00
12,600.00	51.36	359.56	12,516.79	-20.99	320.19	-13.21	10.00	10.00	0.00
12,700.00	61.36	359.56	12,572.11	62.16	319.55	69.90	10.00	10.00	0.00
12,800.00	71.36	359.56	12,612.15	153.65	318.85	161.34	10.00	10.00	0.00
12,900.00	81.36	359.56	12,635.69	250.70	318.10	258.35	10.00	10.00	0.00
13,000.00	91.36	359.56	12,642.03	350.37	317.33	357.97	10.00	10.00	0.00
13,000.90	91.45	359.56	12,642.00	351.27	317.32	358.87	9.98	9.98	0.00
LP, Hold 91.45° Inc at 359.56° Azm									
13,100.00	91.45	359.56	12,639.49	450.34	316.56	457.89	0.00	0.00	0.00
13,200.00	91.45	359.56	12,636.95	550.30	315.79	557.81	0.00	0.00	0.00
13,300.00	91.45	359.56	12,634.41	650.27	315.02	657.72	0.00	0.00	0.00
13,400.00	91.45	359.56	12,631.88	750.23	314.25	757.64	0.00	0.00	0.00
13,500.00	91.45	359.56	12,629.34	850.20	313.47	857.56	0.00	0.00	0.00

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Site:	Baseball Cap Federal Com	**North Reference:**	Grid
Well:	601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 10-18-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,600.00	91.45	359.56	12,626.80	950.16	312.70	957.47	0.00	0.00	0.00
13,700.00	91.45	359.56	12,624.26	1,050.13	311.93	1,057.39	0.00	0.00	0.00
13,800.00	91.45	359.56	12,621.72	1,150.09	311.16	1,157.31	0.00	0.00	0.00
13,900.00	91.45	359.56	12,619.19	1,250.06	310.39	1,257.22	0.00	0.00	0.00
14,000.00	91.45	359.56	12,616.65	1,350.02	309.62	1,357.14	0.00	0.00	0.00
14,100.00	91.45	359.56	12,614.11	1,449.99	308.85	1,457.06	0.00	0.00	0.00
14,200.00	91.45	359.56	12,611.57	1,549.95	308.08	1,556.97	0.00	0.00	0.00
14,300.00	91.45	359.56	12,609.04	1,649.92	307.31	1,656.89	0.00	0.00	0.00
14,400.00	91.45	359.56	12,606.50	1,749.88	306.54	1,756.81	0.00	0.00	0.00
14,500.00	91.45	359.56	12,603.96	1,849.84	305.77	1,856.72	0.00	0.00	0.00
14,600.00	91.45	359.56	12,601.42	1,949.81	304.99	1,956.64	0.00	0.00	0.00
14,700.00	91.45	359.56	12,598.88	2,049.77	304.22	2,056.56	0.00	0.00	0.00
14,800.00	91.45	359.56	12,596.35	2,149.74	303.45	2,156.47	0.00	0.00	0.00
14,900.00	91.45	359.56	12,593.81	2,249.70	302.68	2,256.39	0.00	0.00	0.00
15,000.00	91.45	359.56	12,591.27	2,349.67	301.91	2,356.31	0.00	0.00	0.00
15,100.00	91.45	359.56	12,588.73	2,449.63	301.14	2,456.22	0.00	0.00	0.00
15,200.00	91.45	359.56	12,586.20	2,549.60	300.37	2,556.14	0.00	0.00	0.00
15,300.00	91.45	359.56	12,583.66	2,649.56	299.60	2,656.06	0.00	0.00	0.00
15,400.00	91.45	359.56	12,581.12	2,749.53	298.83	2,755.97	0.00	0.00	0.00
15,500.00	91.45	359.56	12,578.58	2,849.49	298.06	2,855.89	0.00	0.00	0.00
15,600.00	91.45	359.56	12,576.04	2,949.46	297.29	2,955.81	0.00	0.00	0.00
15,700.00	91.45	359.56	12,573.51	3,049.42	296.52	3,055.72	0.00	0.00	0.00
15,800.00	91.45	359.56	12,570.97	3,149.39	295.74	3,155.64	0.00	0.00	0.00
15,900.00	91.45	359.56	12,568.43	3,249.35	294.97	3,255.56	0.00	0.00	0.00
16,000.00	91.45	359.56	12,565.89	3,349.32	294.20	3,355.47	0.00	0.00	0.00
16,100.00	91.45	359.56	12,563.36	3,449.28	293.43	3,455.39	0.00	0.00	0.00
16,200.00	91.45	359.56	12,560.82	3,549.25	292.66	3,555.31	0.00	0.00	0.00
16,300.00	91.45	359.56	12,558.28	3,649.21	291.89	3,655.22	0.00	0.00	0.00
16,400.00	91.45	359.56	12,555.74	3,749.18	291.12	3,755.14	0.00	0.00	0.00
16,500.00	91.45	359.56	12,553.20	3,849.14	290.35	3,855.06	0.00	0.00	0.00
16,600.00	91.45	359.56	12,550.67	3,949.11	289.58	3,954.97	0.00	0.00	0.00
16,700.00	91.45	359.56	12,548.13	4,049.07	288.81	4,054.89	0.00	0.00	0.00
16,800.00	91.45	359.56	12,545.59	4,149.04	288.04	4,154.81	0.00	0.00	0.00
16,900.00	91.45	359.56	12,543.05	4,249.00	287.26	4,254.72	0.00	0.00	0.00
17,000.00	91.45	359.56	12,540.52	4,348.97	286.49	4,354.64	0.00	0.00	0.00
17,100.00	91.45	359.56	12,537.98	4,448.93	285.72	4,454.56	0.00	0.00	0.00
17,200.00	91.45	359.56	12,535.44	4,548.89	284.95	4,554.47	0.00	0.00	0.00
17,300.00	91.45	359.56	12,532.90	4,648.86	284.18	4,654.39	0.00	0.00	0.00
17,400.00	91.45	359.56	12,530.36	4,748.82	283.41	4,754.31	0.00	0.00	0.00
17,500.00	91.45	359.56	12,527.83	4,848.79	282.64	4,854.22	0.00	0.00	0.00
17,600.00	91.45	359.56	12,525.29	4,948.75	281.87	4,954.14	0.00	0.00	0.00
17,700.00	91.45	359.56	12,522.75	5,048.72	281.10	5,054.06	0.00	0.00	0.00
17,800.00	91.45	359.56	12,520.21	5,148.68	280.33	5,153.97	0.00	0.00	0.00
17,900.00	91.45	359.56	12,517.67	5,248.65	279.56	5,253.89	0.00	0.00	0.00
18,000.00	91.45	359.56	12,515.14	5,348.61	278.78	5,353.81	0.00	0.00	0.00
18,100.00	91.45	359.56	12,512.60	5,448.58	278.01	5,453.72	0.00	0.00	0.00
18,200.00	91.45	359.56	12,510.06	5,548.54	277.24	5,553.64	0.00	0.00	0.00
18,300.00	91.45	359.56	12,507.52	5,648.51	276.47	5,653.56	0.00	0.00	0.00
18,400.00	91.45	359.56	12,504.99	5,748.47	275.70	5,753.47	0.00	0.00	0.00
18,500.00	91.45	359.56	12,502.45	5,848.44	274.93	5,853.39	0.00	0.00	0.00
18,600.00	91.45	359.56	12,499.91	5,948.40	274.16	5,953.31	0.00	0.00	0.00
18,700.00	91.45	359.56	12,497.37	6,048.37	273.39	6,053.22	0.00	0.00	0.00
18,800.00	91.45	359.56	12,494.83	6,148.33	272.62	6,153.14	0.00	0.00	0.00
18,900.00	91.45	359.56	12,492.30	6,248.30	271.85	6,253.06	0.00	0.00	0.00

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 601H
Company:	COG Operating LLC	**TVD Reference:**	RKB @ 3407.00usft (Scandrill Quest)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3407.00usft (Scandrill Quest)
Site:	Baseball Cap Federal Com	**North Reference:**	Grid
Well:	601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1.10-18-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,000.00	91.45	359.56	12,489.76	6,348.26	271.08	6,352.97	0.00	0.00	0.00
19,100.00	91.45	359.56	12,487.22	6,448.23	270.31	6,452.89	0.00	0.00	0.00
19,200.00	91.45	359.56	12,484.68	6,548.19	269.53	6,552.81	0.00	0.00	0.00
19,300.00	91.45	359.56	12,482.15	6,648.16	268.76	6,652.72	0.00	0.00	0.00
19,400.00	91.45	359.56	12,479.61	6,748.12	267.99	6,752.64	0.00	0.00	0.00
19,500.00	91.45	359.56	12,477.07	6,848.09	267.22	6,852.55	0.00	0.00	0.00
19,600.00	91.45	359.56	12,474.53	6,948.05	266.45	6,952.47	0.00	0.00	0.00
19,700.00	91.45	359.56	12,471.99	7,048.02	265.68	7,052.39	0.00	0.00	0.00
19,800.00	91.45	359.56	12,469.46	7,147.98	264.91	7,152.30	0.00	0.00	0.00
19,900.00	91.45	359.56	12,466.92	7,247.95	264.14	7,252.22	0.00	0.00	0.00
20,000.00	91.45	359.56	12,464.38	7,347.91	263.37	7,352.14	0.00	0.00	0.00
20,100.00	91.45	359.56	12,461.84	7,447.87	262.60	7,452.05	0.00	0.00	0.00
20,200.00	91.45	359.56	12,459.31	7,547.84	261.83	7,551.97	0.00	0.00	0.00
20,300.00	91.45	359.56	12,456.77	7,647.80	261.05	7,651.89	0.00	0.00	0.00
20,400.00	91.45	359.56	12,454.23	7,747.77	260.28	7,751.80	0.00	0.00	0.00
20,500.00	91.45	359.56	12,451.69	7,847.73	259.51	7,851.72	0.00	0.00	0.00
20,600.00	91.45	359.56	12,449.15	7,947.70	258.74	7,951.64	0.00	0.00	0.00
20,700.00	91.45	359.56	12,446.62	8,047.66	257.97	8,051.55	0.00	0.00	0.00
20,800.00	91.45	359.56	12,444.08	8,147.63	257.20	8,151.47	0.00	0.00	0.00
20,900.00	91.45	359.56	12,441.54	8,247.59	256.43	8,251.39	0.00	0.00	0.00
21,000.00	91.45	359.56	12,439.00	8,347.56	255.66	8,351.30	0.00	0.00	0.00
21,100.00	91.45	359.56	12,436.47	8,447.52	254.89	8,451.22	0.00	0.00	0.00
21,200.00	91.45	359.56	12,433.93	8,547.49	254.12	8,551.14	0.00	0.00	0.00
21,300.00	91.45	359.56	12,431.39	8,647.45	253.35	8,651.05	0.00	0.00	0.00
21,400.00	91.45	359.56	12,428.85	8,747.42	252.58	8,750.97	0.00	0.00	0.00
21,500.00	91.45	359.56	12,426.31	8,847.38	251.80	8,850.89	0.00	0.00	0.00
21,600.00	91.45	359.56	12,423.78	8,947.35	251.03	8,950.80	0.00	0.00	0.00
21,700.00	91.45	359.56	12,421.24	9,047.31	250.26	9,050.72	0.00	0.00	0.00
21,800.00	91.45	359.56	12,418.70	9,147.28	249.49	9,150.64	0.00	0.00	0.00
21,900.00	91.45	359.56	12,416.16	9,247.24	248.72	9,250.55	0.00	0.00	0.00
22,000.00	91.45	359.56	12,413.63	9,347.21	247.95	9,350.47	0.00	0.00	0.00
22,100.00	91.45	359.56	12,411.09	9,447.17	247.18	9,450.39	0.00	0.00	0.00
22,200.00	91.45	359.56	12,408.55	9,547.14	246.41	9,550.30	0.00	0.00	0.00
22,300.00	91.45	359.56	12,406.01	9,647.10	245.64	9,650.22	0.00	0.00	0.00
22,400.00	91.45	359.56	12,403.47	9,747.07	244.87	9,750.14	0.00	0.00	0.00
22,500.00	91.45	359.56	12,400.94	9,847.03	244.10	9,850.05	0.00	0.00	0.00
22,600.00	91.45	359.56	12,398.40	9,947.00	243.32	9,949.97	0.00	0.00	0.00
22,655.12	91.45	359.56	12,397.00	10,002.10	242.90	10,005.04	0.00	0.00	0.00
TD at 22655.12									

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 601H
Company:	COG Operating LLC	**TVD Reference:**	RKB @ 3407.00usft (Scandrill Quest)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3407.00usft (Scandrill Quest)
Site:	Baseball Cap Federal Com	**North Reference:**	Grid
Well:	601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 10-18-18		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL - Baseball Cap Fed - plan hits target center - Point	0.00	0.00	12,397.00	10,002.10	242.90	441,177.00	783,369.90	32° 12' 34.53400 N	103° 25' 1.73276 W
LTP - Baseball Cap Fed - plan misses target center by 0.03usft at 22525.08usft MD (12400.30 TVD, 9872.10 N, 243.90 E) - Point	0.00	0.00	12,400.33	9,872.10	243.90	441,047.00	783,370.90	32° 12' 33.24755 N	103° 25' 1.73402 W
FTP - Baseball Cap Fed - plan misses target center by 167.73usft at 12600.00usft MD (12516.79 TVD, -20.99 N, 320.19 E) - Point	0.00	0.00	12,642.00	-132.60	320.60	431,042.30	783,447.60	32° 10' 54.24299 N	103° 25' 1.83345 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
902.00	902.00	RUSTLER		-1.44	1.39
1,399.00	1,399.00	TOS		-1.44	1.39
5,209.93	5,200.24	BOS (Fletcher)		-1.44	1.39
5,508.45	5,497.62	LMAR (Top Deleware		-1.44	1.39
5,544.63	5,533.66	BLCN		-1.44	1.39
6,546.71	6,531.92	CYCN		-1.44	1.39
8,135.87	8,118.74	BYCN		-1.44	1.39
9,437.87	9,420.74	BONE SPRG		-1.44	1.39
9,645.87	9,628.74	U AVALON SH		-1.44	1.39
9,645.87	9,628.74	B AVALON SH		-1.44	1.39
9,963.87	9,946.74	L AVALON SH		-1.44	1.39
9,963.87	9,946.74	FBSG_sand		-1.44	1.39
10,481.87	10,464.74	SBSG_sand		-1.44	1.39
10,616.87	10,599.74	SBSG_sand_Base		-1.44	1.39
11,328.87	11,311.74	TBSG_sand		-1.44	1.39
11,659.87	11,642.74	WFMP		-1.44	1.39
12,260.89	12,241.08	WFMP B		-1.44	1.39

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,500.00	2,500.00	0.00	0.00	KOP, Begin 2.00°/100' Build
2,750.19	2,749.87	-6.46	8.80	Hold 5.00° Inc at 126.28° Azm
7,076.93	7,060.12	-229.75	313.05	Begin 2.00°/100' Drop
7,327.13	7,310.00	-236.21	321.85	Begin Vertical Hold
12,086.36	12,069.23	-236.21	321.85	KOP2, Begin 10.00°/100' Build
13,000.90	12,642.00	351.27	317.32	LP, Hold 91.45° Inc at 359.56° Azm
22,655.12	12,397.00	10,002.10	242.90	TD at 22655.12

RKB @ 3407.00usft (Scandrill Quest)

Ground Level 3377.00

CONCHO

Project: Lea County, NM (NAD27 NME)
Site: Baseball Cap Federal Com
Well: 601H
Wellbore: OH
Design: Plan 1 10-18-18
Rig: Scandrill Quest

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.49°
Magnetic North: 6.20°

Magnetic Field
Strength: 47862.7snT
Dip Angle: 59.84°
Date: 11/15/2018
Model: MVHD

WELL DETAILS

3377.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	431174.90	783127.00	32° 10' 55.58209 N	103° 25' 5.55038 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - Baseball Cap Fed Com 601H	12397.00	10002.10	242.90	441177.00	783369.90	32° 12' 34.53400 N	103° 25' 1.73276 W
LTP - Baseball Cap Fed Com 601H	12400.33	9872.10	243.90	441047.00	783370.90	32° 12' 33.24755 N	103° 25' 1.73402 W
FTP - Baseball Cap Fed Com 601H	12642.00	-132.60	320.60	431042.30	783447.60	32° 10' 54.24299 N	103° 25' 1.83345 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00		KOP, Begin 2.00°/100' Build
3	2750.19	5.00	126.28	2749.88	-6.46	8.80	2.00	126.28	-6.24		Hold 5.00° Inc at 126.28° Azm
4	7076.93	5.00	126.28	7060.12	-229.75	313.05	0.00	0.00	-222.08		Begin 2.00°/100' Drop
5	7327.13	0.00	0.00	7310.00	-236.21	321.85	2.00	180.00	-228.33		Begin Vertical Hold
6	12086.36	0.00	0.00	12069.23	-236.21	321.85	0.00	0.00	-228.33		KOP2, Begin 10.00°/100' Build
7	13000.90	91.45	359.56	12642.00	351.27	317.32	10.00	359.56	358.87		LP, Hold 91.45° Inc at 359.56° Azm
8	22655.12	91.45	359.56	12397.00	10002.10	242.90	0.00	0.00	10005.05	BHL - Baseball Cap Fed Com 601H	TD at 22655.12

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Well 601H, Grid North

Latitude: 32° 10' 55.58209 N
Longitude: 103° 25' 5.55038 W

Grid East: 783127.00
Grid North: 431174.90
Scale Factor: 1.000

Geomagnetic Model: MVHD
Sample Date: 15-Nov-18
Magnetic Declination: 6.68°
Dip Angle from Horizontal: 59.84°
Magnetic Field Strength: 47862.69311030nT

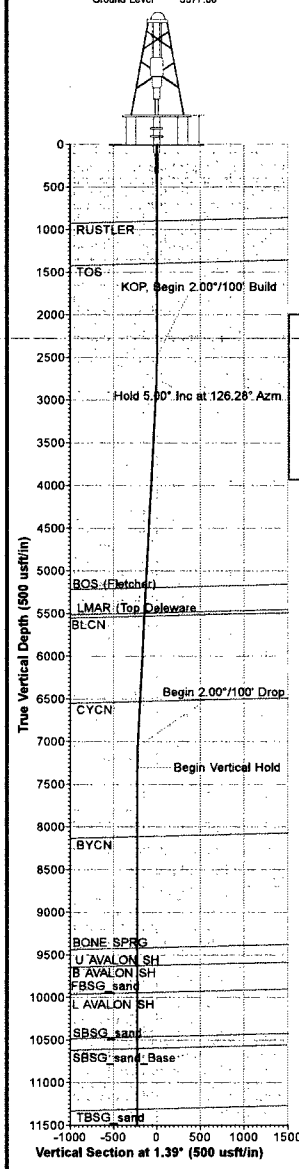
To convert a Magnetic Direction to a Grid Direction, Add 6.19°
To convert a Magnetic Direction to a True Direction, Add 6.68° East
To convert a True Direction to a Grid Direction, Subtract 0.49°

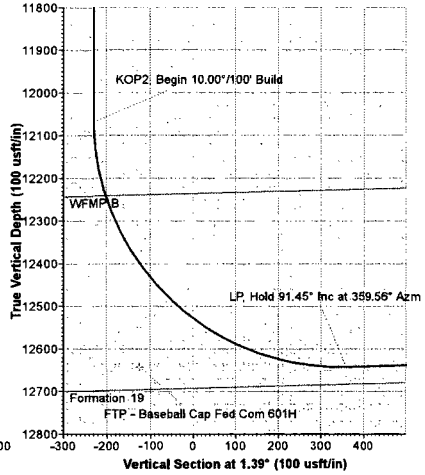
FORMATION TOP DETAILS

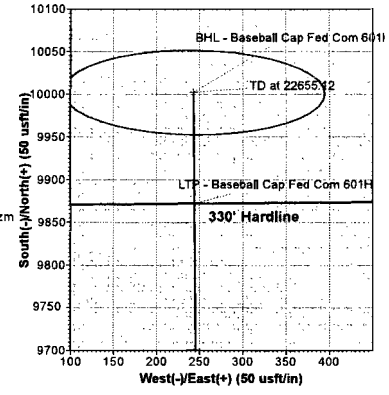
TVDPath	MDPath	Formation	DipAngle	DipDir
902.00	902.00	RUSTLER	-1.44	1.39
1399.00	1399.00	TOS	-1.44	1.39
5200.24	5209.93	BOS (Fletcher)	-1.44	1.39
5497.62	5508.45	LMAR (Top Deleware	-1.44	1.39
5533.66	5544.63	BLCN	-1.44	1.39
6531.92	6546.71	CYCN	-1.44	1.39
8118.74	8135.87	BYCN	-1.44	1.39
9420.74	9437.87	BONE SPRG	-1.44	1.39
9628.74	9645.87	B AVALON SH	-1.44	1.39
9628.74	9645.87	U AVALON SH	-1.44	1.39
9946.74	9963.87	FBSG_sand	-1.44	1.39
9946.74	9963.87	L AVALON SH	-1.44	1.39
10464.74	10481.87	SBSG_sand	-1.44	1.39
10599.74	10616.87	SBSG_sand_Base	-1.44	1.39
11311.74	11328.87	TBSG_sand	-1.44	1.39
11642.74	11659.87	WFMP	-1.44	1.39
12241.08	12260.89	WFMP B	-1.44	1.39

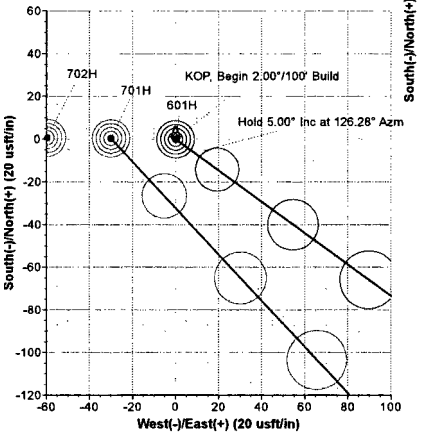
LEGEND

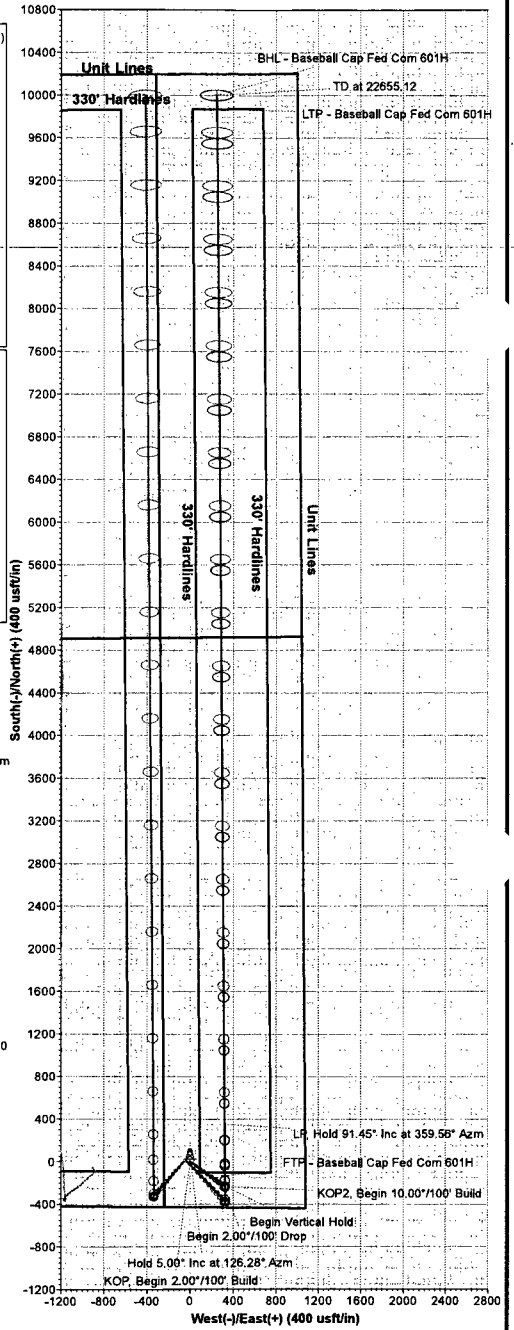
- 24H, OH / 63006, Surveys (Scandrill Quest) V0
- 24H, ST01 / 63006, Surveys (Scandrill Quest) V0
- 702H, OH, Plan 1 10-18-18 V0
- 701H, OH, Plan 1 10-18-18 V0
- Plan 1 10-18-18

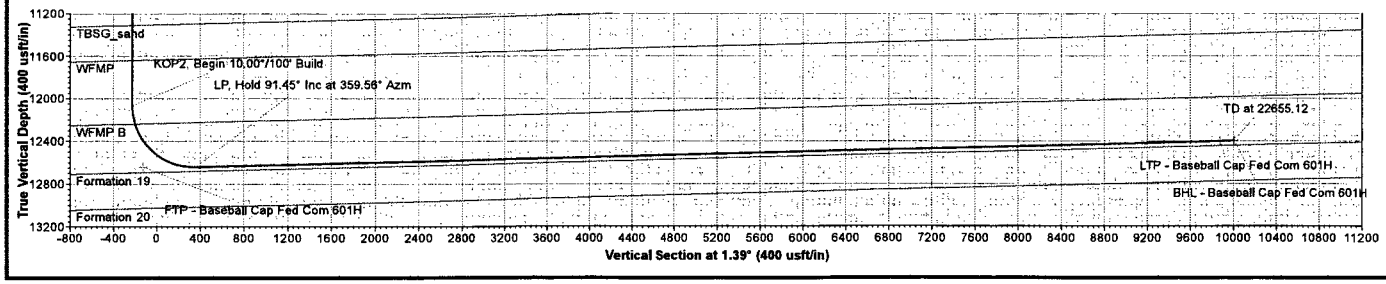






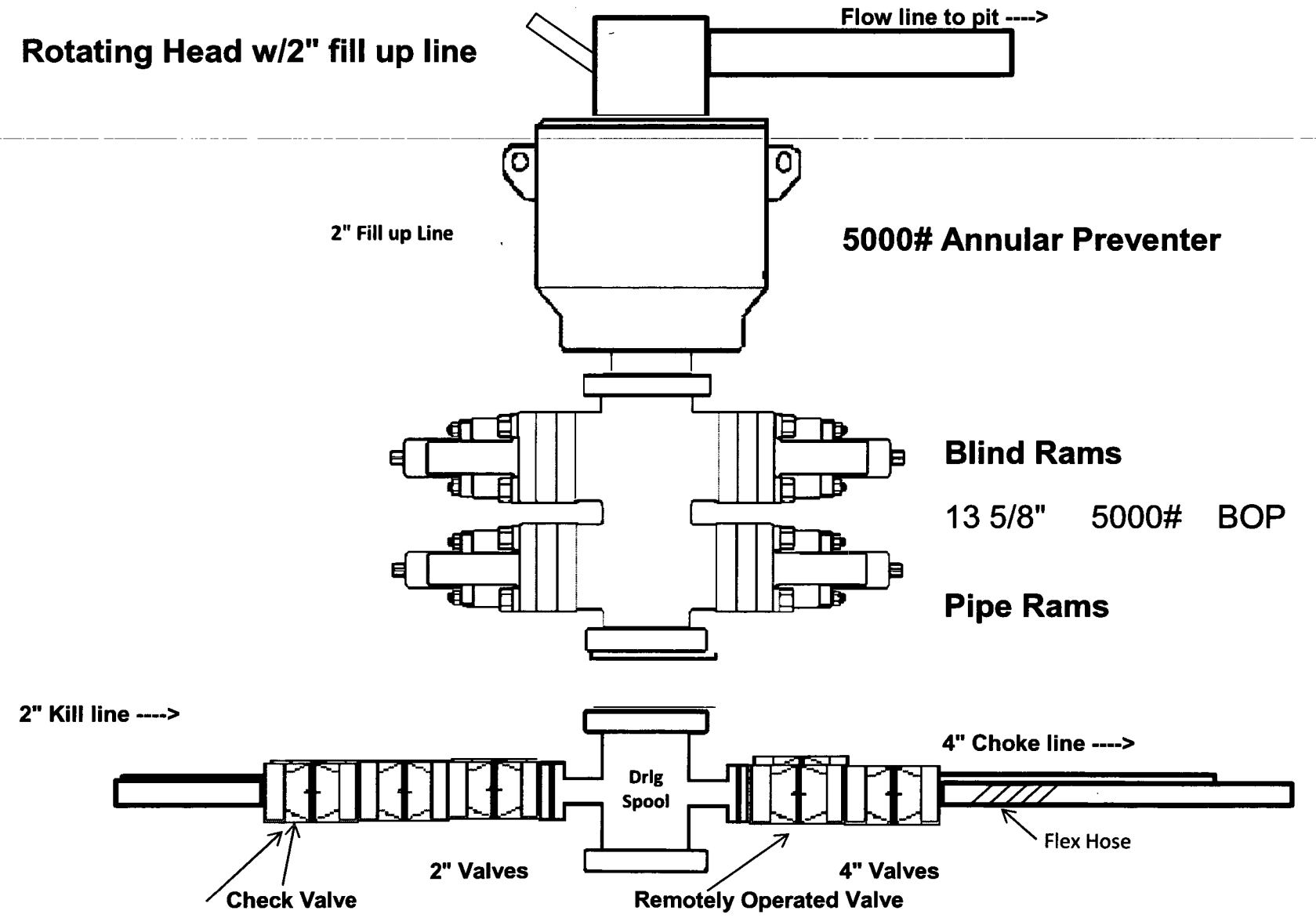






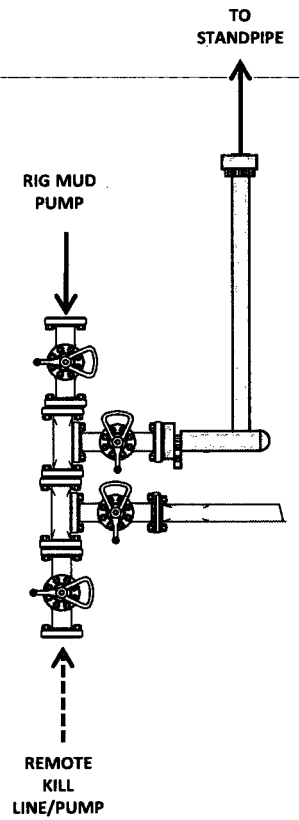
Created By: Gustavo Moya Date: 9:07, October 18 2018

5,000 psi BOP Schematic

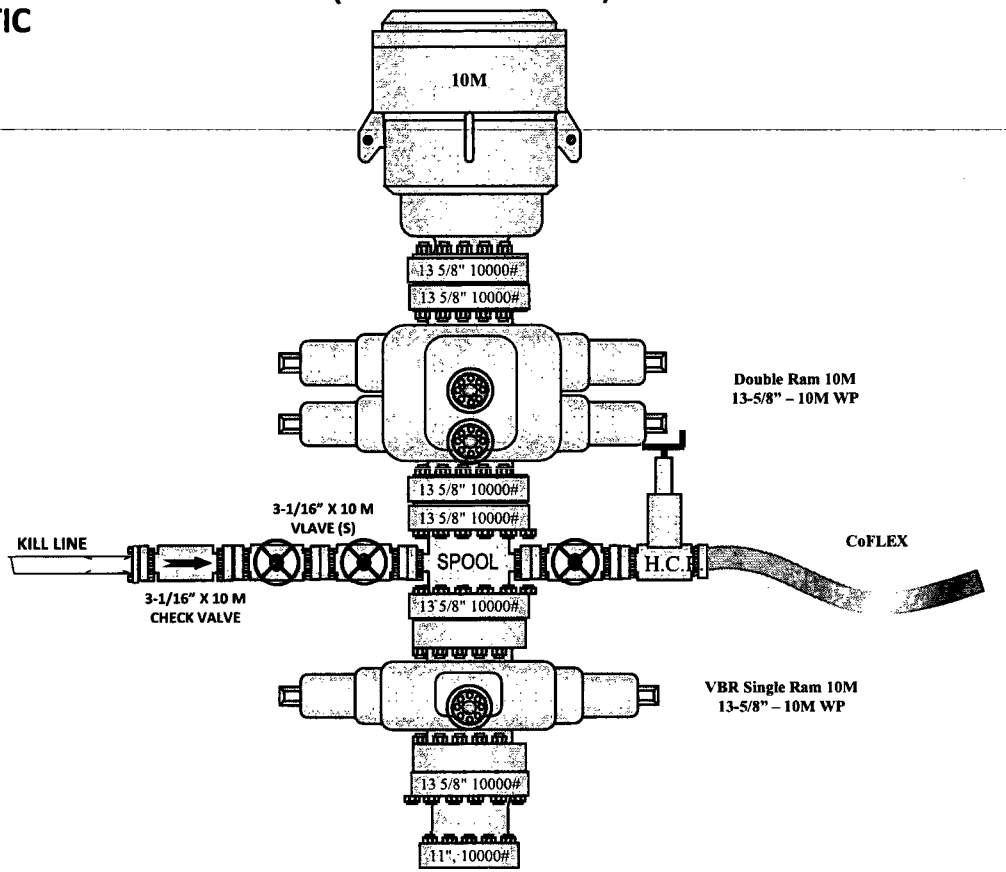


10M BOP Stack

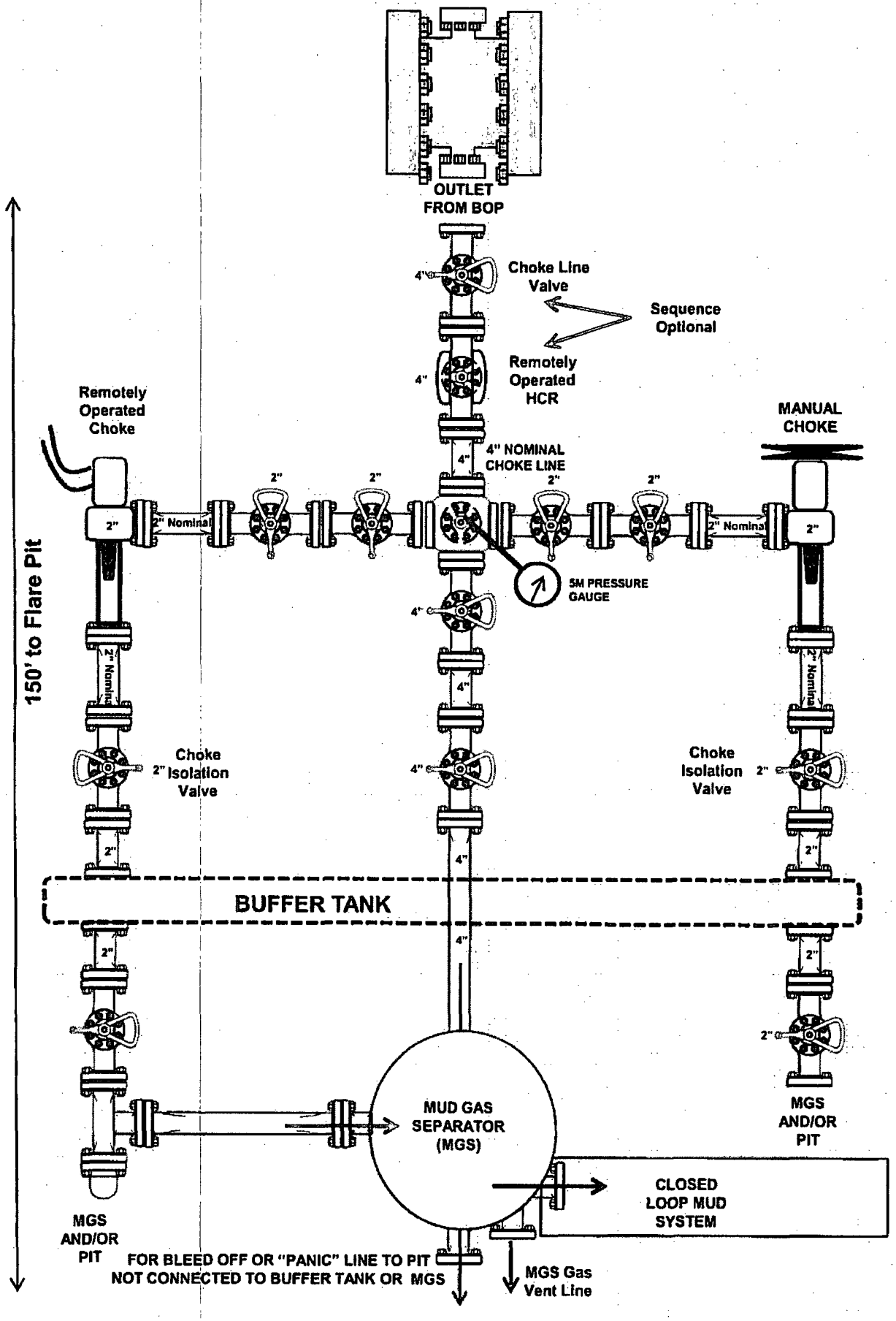
10M REMOTE KILL SCHEMATIC



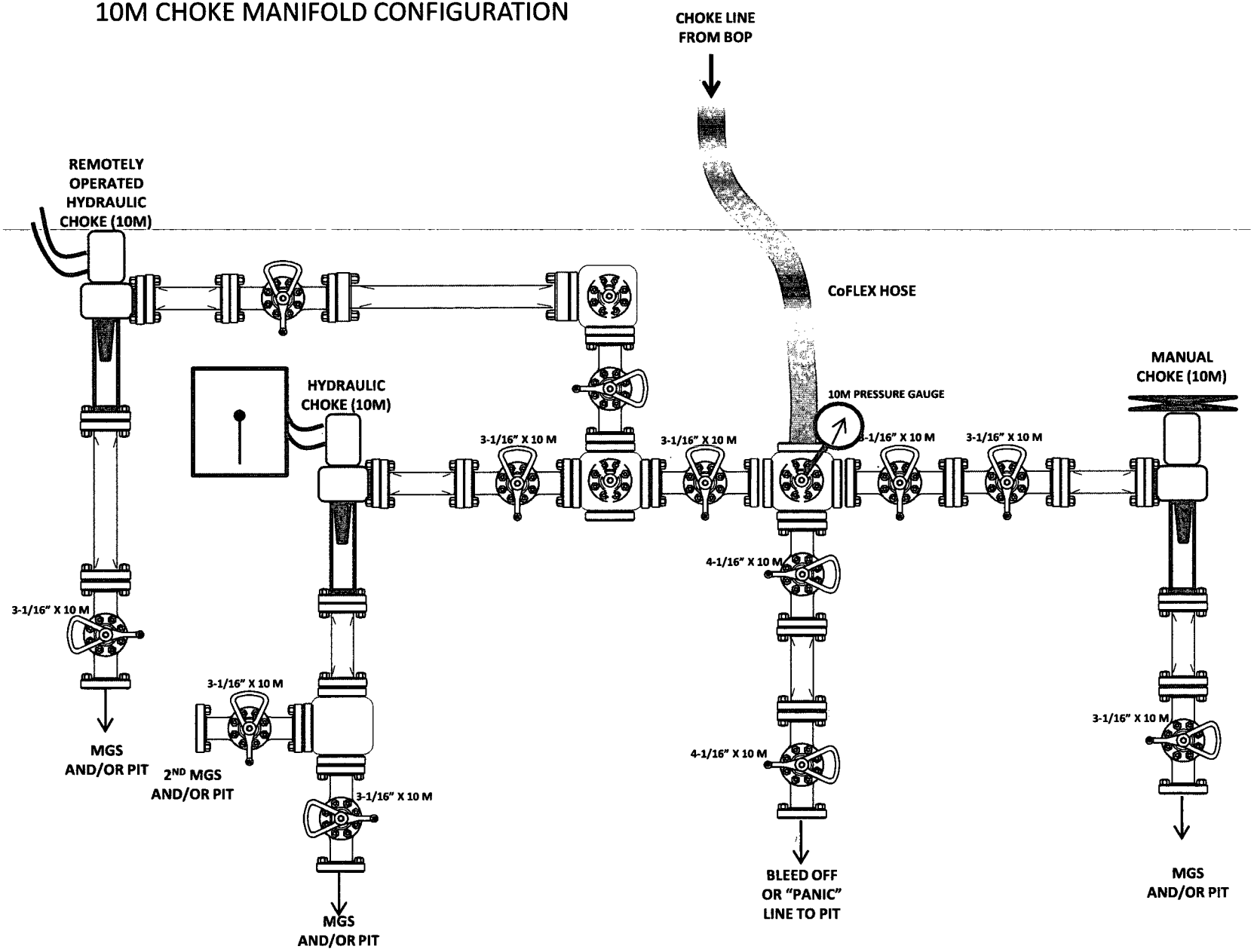
10M BOP Stack
(10M Annular)



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



10M CHOKE MANIFOLD CONFIGURATION



ContiTech

QUALITY CONTROL	No.: QC-DB- 351 / 2016
	Page : 1 / 88
Hose No.: 72879	Revision : 0
	Date: 05. September 2016.
	Prepared by :
	Appr. by:

CHOKE AND KILL HOSE

id.: 3" 69 MPa x 13,72 m (45 ft)

DATA BOOK

Purchaser: SCANDRILL

Purchaser Order No.: 143799

ContiTech Rubber Order No.: 543951

ContiTech Oil & Marine Corp. Order No.: 4500795683 COM880841

NOT DESIGNED FOR WELL TESTING

ContiTech

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

CERT. N°: 1050

PURCHASER:	ContiTech Oil & Marine Corp.	P.O. N°:	4500795683
CONTITECH RUBBER order N°:	543951	HOSE TYPE:	3" ID Choke and Kill Hose
HOSE SERIAL N°:	72879	NOMINAL / ACTUAL LENGTH:	13,72 m / 13,80 m
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi	Duration: 60 min.

Pressure test with water at ambient temperature

See attachment (1 page)

COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	2587	AISI 4130	J5251
3 1/16" 10K API Swivel Flange end		AISI 4130	036809
Hub		AISI 4130	J6433
3" coupling with	2584	AISI 4130	J5251
3 1/16" 10K API b.w. Flange end		AISI 4130	62580

Not Designed For Well Testing

API Spec 16 C 2nd Edition– FSL2

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

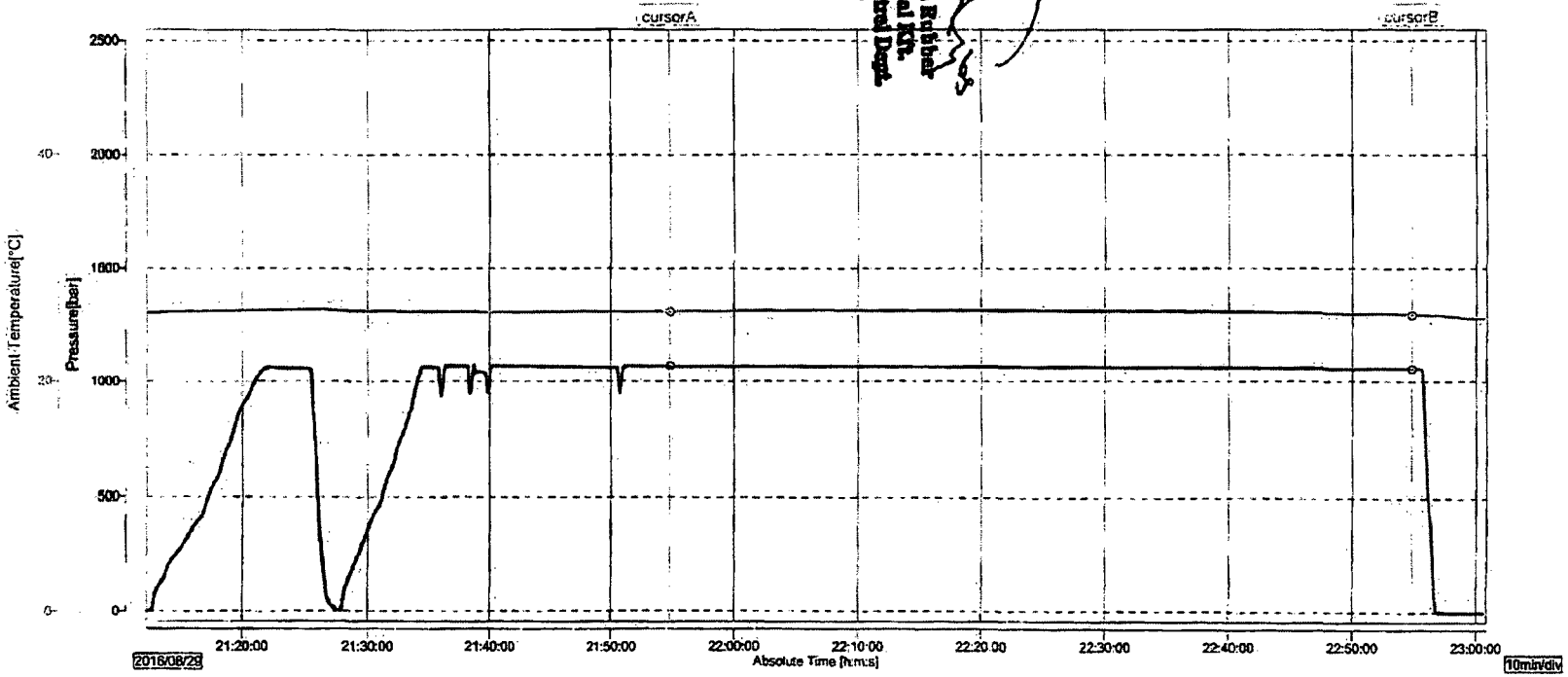
Date:	Inspector	Quality Control
30. August 2016.		ContiTech Rubber Industrial Kft. Quality Control Dept.

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE No: 1050

File Name	: 014986_72879.GEV,...,014996_72879.GEV		
File Message	: 72879		
Device Type	: GX10	Sampling Int.	: 5.000 sec
Serial No.	: S5P606399	Start Time	: 2016/08/29 21:12:25.000
Data Count	: 1302	Stop Time	: 2016/08/29 23:00:50.000
Print Group	: Press-Temp		
Print Range	: 2016/08/29 21:12:25.000 - 2016/08/29 23:00:50.000		
Comment	: 142056635		

	Cursor A	Cursor B	Difference
Data No.	509	1229	720
Absolute Time	2016/08/29 21:54:50.000	2016/08/29 22:54:50.000	01:00:00.000
Tag Comment	Value A	Value B	Value B-A
Pressure[bar]	1068.16	1054.43	-13.73
Ambient Temperature[°C]	26.17	25.88	-0.29

CentiTech Rubber Industrial Kft.
Quality Control Dept.



CONTITECH RUBBER Industrial Kft.

No: QC-DB- 351 / 2016

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Hose Data Sheet

CRI Order No.	543951
Customer	ContiTech Oil & Marine Corp.
Customer Order No	4500795683 COM880841
Item No.	1
Hose Type	Flexible Hose
Standard	**API SPEC 16C 2ND EDITION FSL2**
Inside dia in inches	3
Length	45 ft
Type of coupling one end	FLANGE 3.1/16" 10K API SPEC 6A TYPE 6BX, BUTT WELDED, BX154ST.ST. LINED R.GR. SOUR
Type of coupling other end	FLANGE 3.1/16" 10K API SPEC 17D SV SWIVEL FLANGE, BX154 ST.ST. LINED R.GR. SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	CONTINENTAL CONTITECH
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	Yes
Lifting collar	Yes
Element C	Yes
Safety chain	Yes
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
Min. Bend Radius operating [m]	0,90
Min. Bend Radius storage [m]	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

ContiTech Rubber
Industrial Kft.
QC 2

Continental

ContiTech Fluid Technology

ContiTech Oil & Marine Corp. # 11535 Brittmoore Park Dr., Houston, TX 77041-6916 USA

ScanDrill Inc.
9395 HWY 2767
TYLER TX 75708

Delivery Note

Document No.	**83352143**
Document Date	**10/05/2016**
Customer Number	15483
Customer VAT No.	
Supplier Number	
N° EORI:	FR41027953300021
Purchase Order No.	143799
Purchase Order Date	07/01/2016
Sales Order Number	880841
Sales Order Date	07/05/2016
Unloading Point	

Page 1 of 3

Transport-Details - Shipping

Conditions	
Shipping Conditions	0 days
Inco Terms	EXW Houston, TX Ex Works

Weights (Gross / Net)

Total Weight	2,323 LB
Net Weight	1,643 LB

Buyer: Joe Ward
E-mail: jward@scandrill.com
Tel: 903.597.5368

Payment Terms:
50% Due at order Placement
50% Due Prior to Dispatch

Rev 01 - 092116 - Sales Tax added to the order.

Item	Material/Description	Quantity	Weight
10	HCK3FA45IPSIVS 3" x 45ft, Choke and Kill Hose, WP 10K End A: 3.1/16" 10K Flange, API Spec. 6A Type 6BX, Butt Welded, BX154 Stainless Steel 316 Lined Ring Groove - Sour End B: 3.1/16" 10K Flange, API Spec 17D SV Swivel Flange, BX154 Stainless Steel 316 Lined Ring Groove - Sour Standard: API SPEC 16C 2ND EDITION FSL2 - Monogrammed Working Pressure: 10000 psi Test Pressure: 15000 psi Fire Rated: No Armoured: Yes - Stainless Steel 316L Interlock Design Temperature: -20 to 100°C High Temperature Exposure / Survival @ 177 Deg C (internal in a kick situation) As Per API 16C B.12.5!	1 PC	1,643 LB

Continental

ContiTech Fluid Technology

Conditions		**Delivery Note**
Shipping Conditions	0 days	Document No. 83352143
Inco Terms	EXW Houston, TX Ex Works	Document Date 10/05/2016

Brand Name: Continental ContiTech

serial no:72879

Supplied with:
2 x Safety Clamps
2 x Lifting Collars Double Eyed
2 x Safety Chains c/w Shackles Each End x 8ft

Packing to ISPM-15 Heat Treated
Packing type: Wooden Crate.
Gross weight: 1056 kg / 2323 lbs
Dimensions: 2870 x 640 x 2800 mm (L x W x H)
113 x 25.2 x 110.2 inch
To be handled/shipped in a vertical position

HTS# 4009.42.0050
ECCN: EAR99
COO: Hungary

20	00TAX-SALES	1 PC	0 LB	
	SALES TAX %8.25			

Buyer: Joe Ward
E-mail: jward@scandrill.com
Tel: 903.597.5368

Payment Terms:
50% Due at order Placement
50% Due Prior to Dispatch

Rev 01 - 092116 - Sales Tax added to the order.

Order/Item 880841/20 07/05/2016
Customer's PO no./item 143799

Inner packages

Continental

ContiTech Fluid Technology

Conditions		**Delivery Note**	
Shipping Conditions	0 days	Document No.	83352143
Inco Terms	EXW Houston, TX	Document Date	10/05/2016
	Ex Works	Page 3 of 3	

Quantity	Packaging	Material	Charge
1	113 X 25.2 X 110.2 INCH -Wooden crate	HCK3FA45IPSIVS	1

Package number 118448718

(1) Ship-to party
ScanDrill Inc.
9395 HWY 2767
TYLER TX 75708

(2) Unloading point - storage location - usage

(3) Delivery note no.
83352143

(4) Vendor address (short name, plant, ZIP, city)
ContiTech Oil & Marine Corp.
11535 Brittmoore Park Drive
Houston TX 77041-6916

(8) Supplier ref. no.

(9) Quantity
SN: 72879

(5) Net weight
1,643 LB

(6) Gross weight
2,323 LB

(7) Number of packages
1

(10) Description of delivery, service

(12) ContiTech Sales order no.

(13) Packing date
10/07/16

(14) Engineering change status

(15) Package no.
118448718

(16) Customer PO no.
143799

Material label VDA 4902 Vers. 4

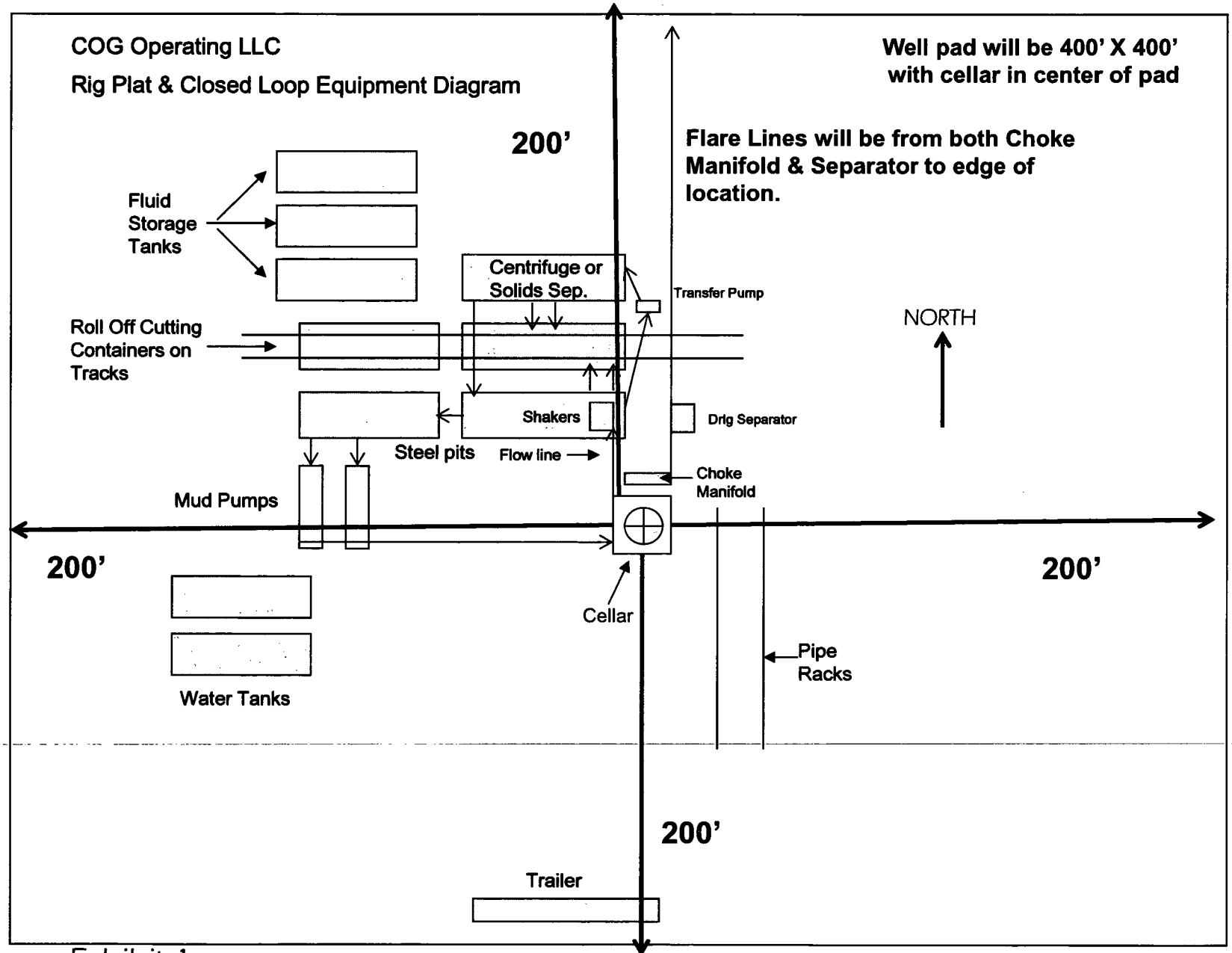
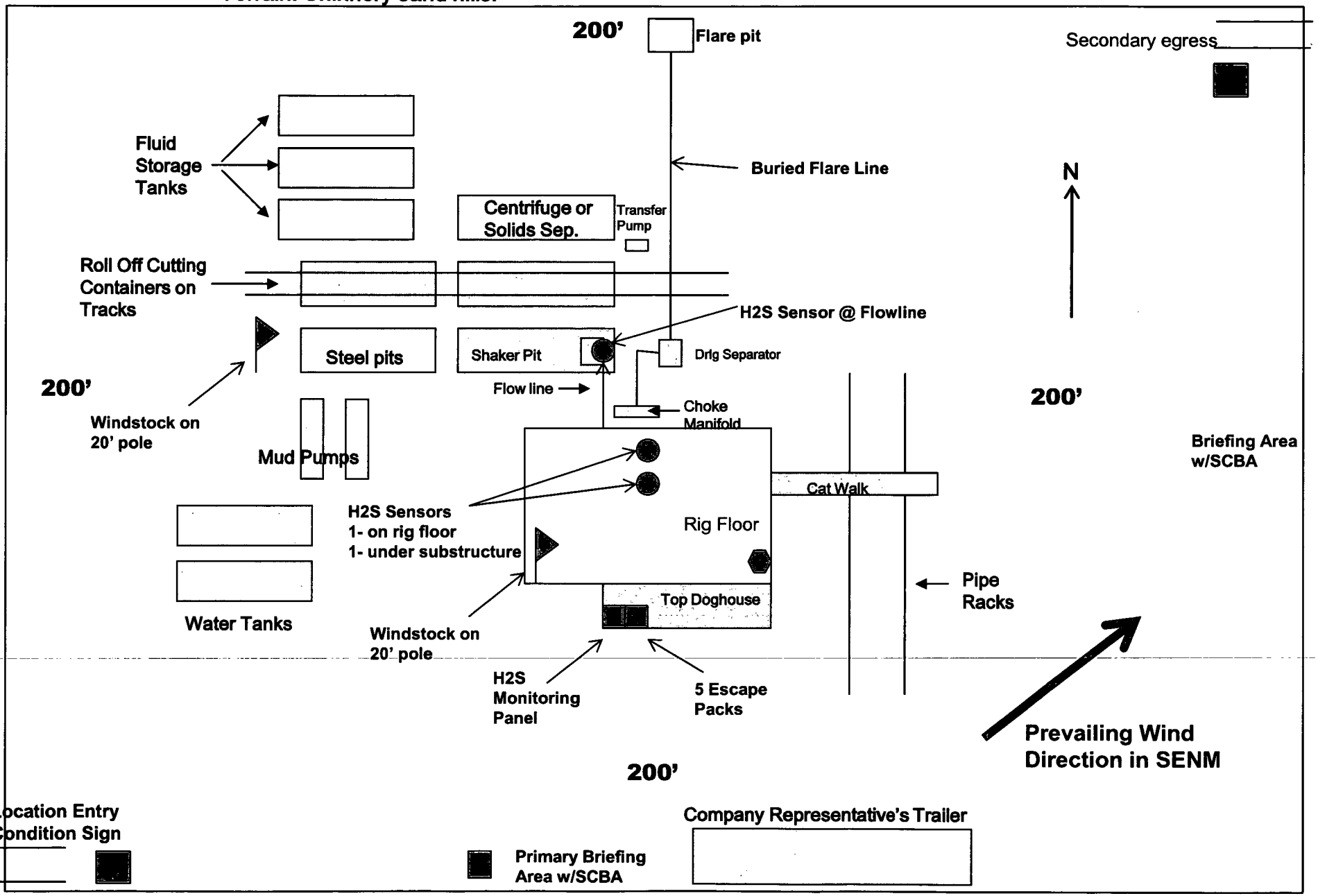


Exhibit 1

"I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

COG Operating LLC
H_2S Equipment Schematic
Terrain: Shinnery sand hills.

Well pad will be 400' x 400' with cellar in center of pad



COG OPERATING LLC
HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

a. The hazards and characteristics of hydrogen sulfide (H_2S).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

2. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S. If H2S greater than 100 ppm is encountered in the gas stream we will shut in and install H2S equipment.

a. Well Control Equipment:
   Flare line.
   Choke manifold with remotely operated choke.
   Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

c. H2S detection and monitoring equipment:
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

WARNING

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

COG OPERATING LLC

1-575-748-6940

EMERGENCY CALL LIST

	OFFICE	MOBILE
COG OPERATING LLC OFFICE	575-748-6940	
SETH WILD	432-683-7443	432-528-3633
WALTER ROYE	575-748-6940	432-934-1886

EMERGENCY RESPONSE NUMBERS

	OFFICE
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
WELL NAME & NO.:	Baseball Cap Federal Com 601H
SURFACE HOLE FOOTAGE:	430'/S & 1080'/E
BOTTOM HOLE FOOTAGE	200'/N & 760'/E
LOCATION:	Section 25, T.24 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	
Other	☐4 String Area	☐Capitan Reef	☐WIPP

A. HYDROGEN SULFIDE

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13 3/8** inch surface casing shall be set at approximately **1285** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate casing is:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. The minimum required fill of cement behind the **5 1/2** inch production casing is:

- Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9 5/8** intermediate casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use 5M Annular, which shall be tested to 5000 psi.**

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will

include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

MHH 03202019

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
WELL NAME & NO.:	Baseball Cap Federal Com 601H
SURFACE HOLE FOOTAGE:	430'/S & 1080'/E
BOTTOM HOLE FOOTAGE	200'/N & 760'/E
LOCATION:	Section 25, T.24 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

Approval Date: 03/21/2019

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Timing Limitation Exceptions:
The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

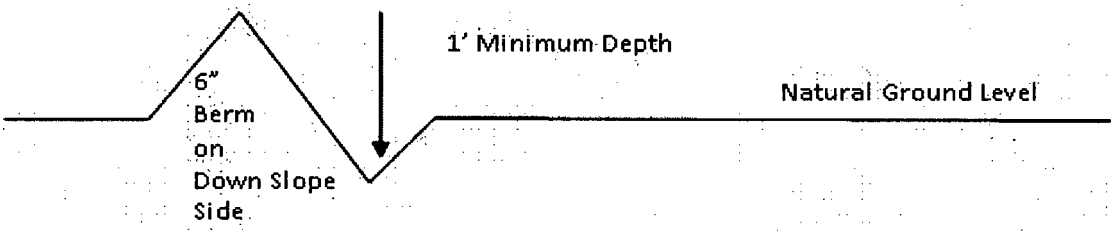
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

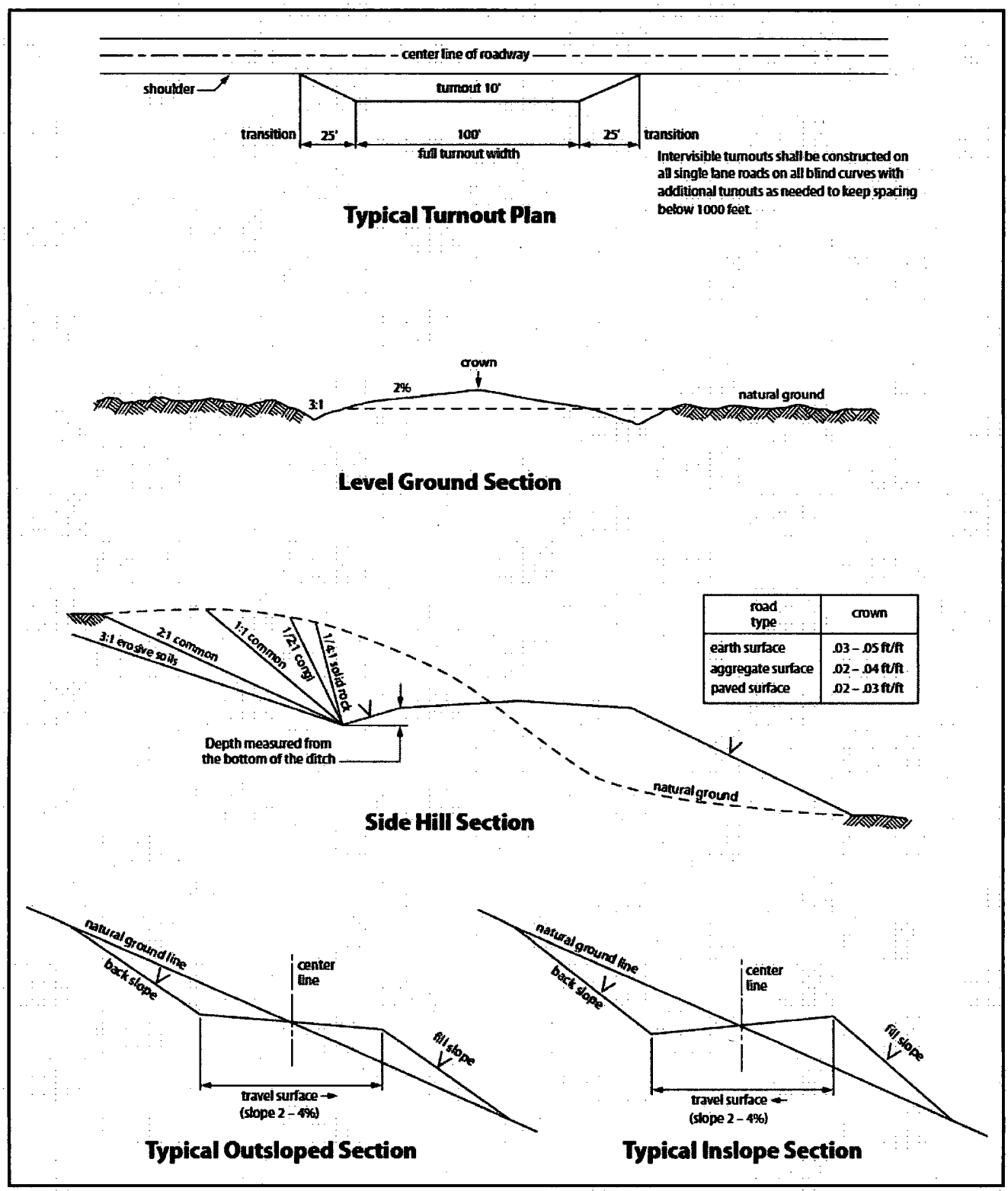


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed