



COG OPERATING LLC

Graham Nash State COM 5H

Section 33 & 28 - T26S-28E

Eddy County, New Mexico



BEFORE THE OIL CONSERVATION DIVISION  
EXAMINER HEARING MAY 2, 2019

CASE NO. 20418



**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

**APPLICATION OF COG OPERATING LLC  
FOR COMPULSORY POOLING,  
EDDY COUNTY, NEW MEXICO.**

**CASE NO. 20418**

**AFFIDAVIT OF BUCK UNDERWOOD**

Buck Underwood, of lawful age and being first duly sworn, declares as follows:

1. My name is Buck Underwood. I work for COG Operating LLC ("COG") as a Landman.
2. I have not previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum land matters. I graduated from the University of Texas with a B.A. in Finance in 2008 and from the University of Oklahoma with an MBA in Energy in 2017. Since 2017, I have worked with COG as a Senior Landman, including in the Permian Basin. Prior to joining COG, I also worked for three years as a petroleum landman at University Lands. I seek to have my credentials accepted by the Division as an expert petroleum landman.
3. I am familiar with the applications filed by COG in these matters, and I am familiar with the status of the lands in the subject areas.
4. None of the parties proposed to be pooled in these cases has indicated opposition, therefore I do not expect any opposition at the hearing.
5. COG seeks an order pooling all uncommitted interests in the Bone Spring formation (Hay Hollow; Bone Spring Pool (30215)) underlying a 223.73-acre standard horizontal spacing unit comprised of the E/2 E/2 of Section 28 and NE/4 N/E4 and Lot 4 of Section 33, Township 26 South, Range 28 East, Eddy County, New Mexico. This

horizontal spacing unit will be dedicated to the proposed **Graham Nash State Com 5H** well to be drilled from a surface hole location in Lot 4 of Section 33 to a bottom hole location in the NE/4 NE/4 (Unit A) of Section 28.

6. The completed interval for this well will remain within the standard setback as required by the Statewide rules for oil wells.

7. **COG Exhibit No. 1A** contains Form C-102s for the proposed well.

8. **COG Exhibit No. 1B** identifies the tracts of land comprising the proposed spacing and proration unit in this case. This exhibit also identifies the interest ownership by tract and ultimately by spacing unit. COG is seeking to pool the interests identified under the Pooling Notification List in the exhibit. COG is seeking to pool working interest owners and overriding royalty interest owners.

9. All interest owners that COG seeks to pool are locatable. COG has conducted a diligent search of all public records in Eddy County, including phone directories and computer databases.

10. **COG Exhibit No. 1C** contains a sample of the well proposal letter along with an AFE provided to the working interest owners COG is seeking to pool. In addition to this letter, COG has made a diligent effort to reach agreement with the parties it is seeking to pool.

11. The costs reflected in the AFE are consistent with what other operators have incurred for drilling similar horizontal wells in the area in each of these formations.

12. In my opinion, COG has made good faith efforts to reach agreement with the parties it is seeking to pool. If COG reaches an agreement with any of the proposed pool parties

before the Division enters an order, I will let the Division know that COG is no longer seeking to pool those parties.

13. No ownership depth severances exist within these proposed spacing and proration units, and there are no unleased mineral interests in the subject acreage.

14. COG has estimated the overhead and administrative costs for drilling and producing the proposed wells at \$7,000 per month while drilling and \$700 per month while producing. These costs are consistent with what other operators are charging in this area for similar wells.

15. I provided the law firm of Holland & Hart LLP a list of names and addresses for the owners that COG seeks to pool and instructed that they be notified of this hearing.

16. COG Exhibit Nos. 1A through 1C were either prepared by me or compiled under my direction and supervision.

FURTHER AFFIANT SAYETH NOT.

Buck Underwood  
BUCK UNDERWOOD

STATE OF TEXAS )  
COUNTY OF mipland )

SUBSCRIBED and SWORN to before me this 29 day of April 2019 by Buck Underwood.

Brittney Smith  
NOTARY PUBLIC

My Commission Expires:

8/10/2021



DISTRICT I  
1625 N. FRENCH DR., HOBBS, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. FIRST ST., ARTESIA, NM 88210  
Phone: (575) 746-1263 Fax: (575) 746-0720

DISTRICT III  
1000 RIO BRAZOS RD., AZTEC, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number	Pool Code	Pool Name
Property Code	Property Name <b>GRAHAM NASH STATE COM</b>	Well Number 5H
OGRID No.	Operator Name <b>COG OPERATING, LLC</b>	Elevation 3057.5

**Surface Location**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	33	26-S	28-E		280	SOUTH	760	EAST	EDDY

**Bottom Hole Location If Different From Surface**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	28	26-S	28-E		200	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<b>BEFORE THE OIL CONSERVATION DIVISION</b> Santa Fe, New Mexico Exhibit No. 1-A Case No. 20418 Submitted by: COG OPERATING, LLC Hearing Date: May 2, 2019		<b>OPERATOR CERTIFICATION</b> <i>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i>  Signature _____ Date _____  Printed Name _____  E-mail Address _____
		<b>SURVEYOR CERTIFICATION</b> <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i>  MARCH 8, 2014 Date of Survey  Signature & Seal of Professional Surveyor
		6/26/17 Certificate No. CHAD HARCROW 17777 W.O. # 17-772 DRAWN BY: CD

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1625 N. FRENCH DR., HOBBS, NM 88240  
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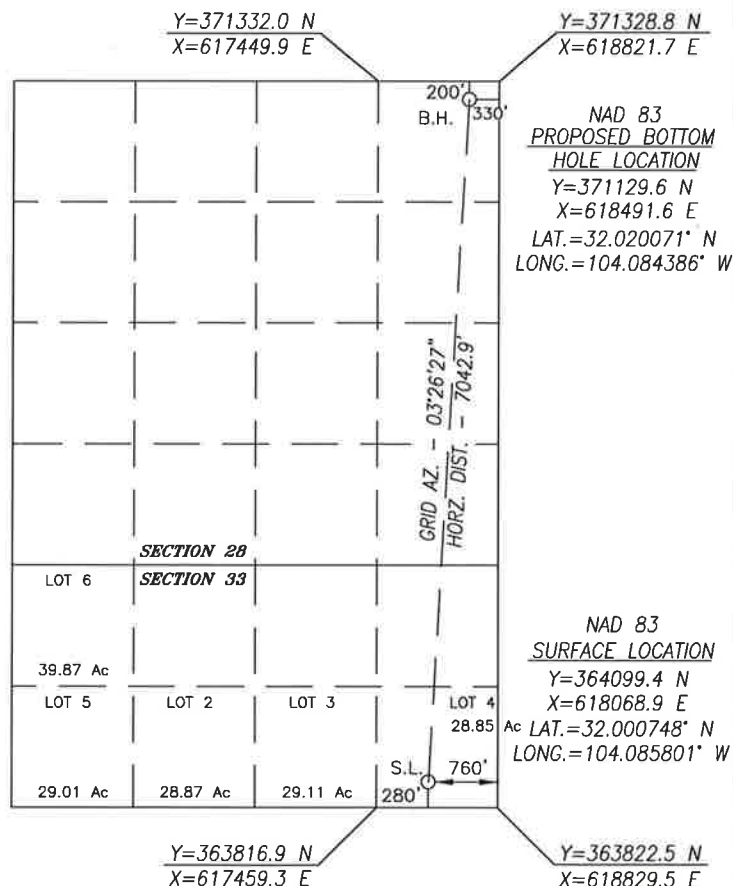
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Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

**NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION**



**OPERATOR CERTIFICATION**

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name \_\_\_\_\_

E-mail Address \_\_\_\_\_

**SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MARCH 8, 2014

Date of Survey

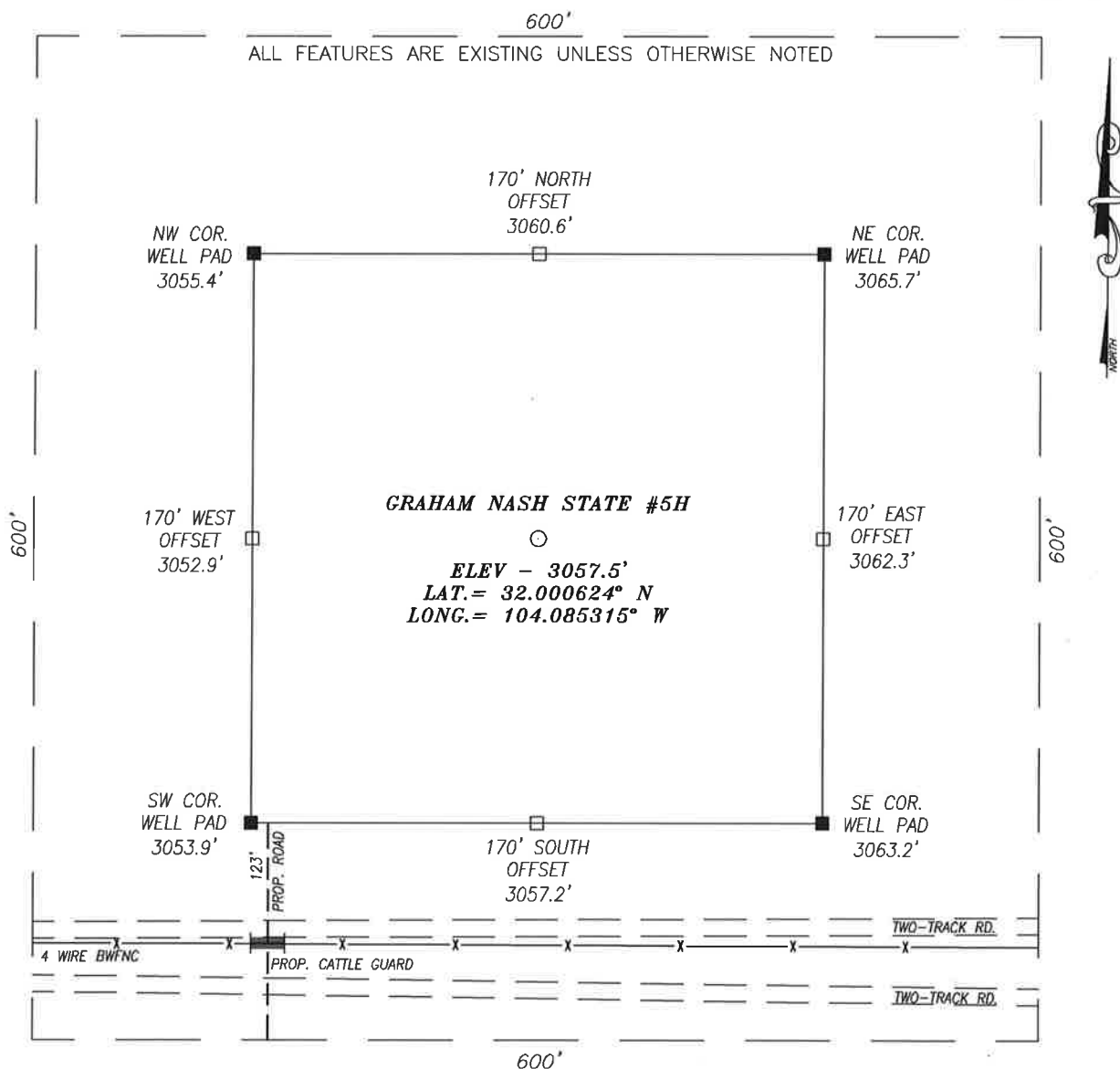
Signature & Seal of Professional Surveyor

Chad L. HARCROW  
NEW MEXICO  
17777  
LICENSED PROFESSIONAL SURVEYOR  
6/26/17  
Certificate No. CHAD HARCROW 17777  
W.O. # 17-772 DRAWN BY: CD

# SECTION 33, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,

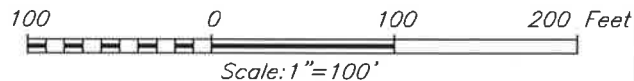
EDDY COUNTY

NEW MEXICO



## DIRECTIONS TO LOCATION

HEADING SOUTH ON HWY 285 TURN RIGHT (WEST) ONTO CR # 724 (WHITES CITY RD.) AND GO APPROX. 3.1 MILES; THEN TURN LEFT (SOUTH) AND GO APPROX. 4.4 MILES; THEN TURN LEFT (EAST) AND GO APPROX. 1.9 MILES; THEN PROPOSED WELL IS APPROX. 340 FEET NORTHEAST.



## HARCROW SURVEYING, LLC

2314 W. MAIN ST, ARTESIA, N.M. 88210

PH: (575) 513-2570 FAX: (575) 746-2158

chad\_harcrow77@yahoo.com



## COG OPERATING, LLC

GRAHAM NASH ST. #5H WELL  
LOCATED 280 FEET FROM THE SOUTH LINE  
AND 760 FEET FROM THE EAST LINE OF SECTION 33,  
TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO

SURVEY DATE: 04/08/2014

PAGE: 1 OF 1

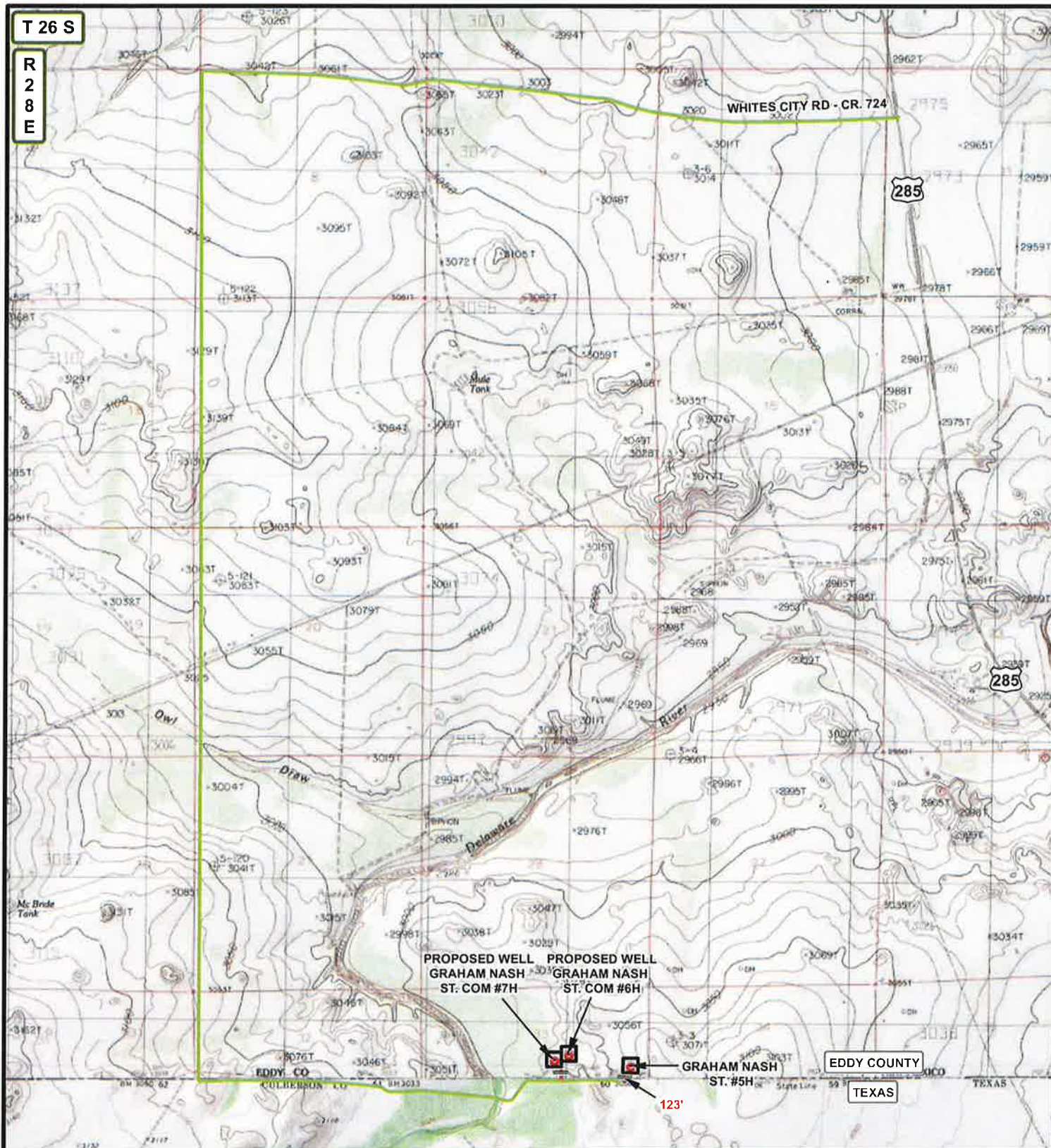
DRAFTING DATE: 03/10/2014

APPROVED BY: CH

DRAWN BY: SP

FILE: 14-153





# LEGEND

- WELL
- WELLPAD
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED CATTLE GUARD

## GRAHAM NASH ST. #5H

SEC: 33 TWP: 26 S. RGE: 28 E. ELEVATION: 3057.5'

STATE: NEW MEXICO COUNTY: EDDY 280' FSL & 760' FEL

W.O. # 14-153 LEASE: GRAHAM NASH ST. SURVEY: N.M.P.M

0 2,500 5,000 7,500 FEET

0 0.2 0.4 0.8 Miles 1 IN = 3,000 FT

LOCATION MAP

TOPO

03/11/2014

S.P.





**CONCHO**  
COG OPERATING, LLC

HARCROW SURVEYING, LLC  
1107 WATSON, ARTESIA N.M. 88210  
PH: (575) 513 2570 FAX: (575) 746 2138  
chad\_harcrow7@yahoo.com





## LEGEND

-  WELL  
 WELLPAD  
 EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED CATTLE GUARD

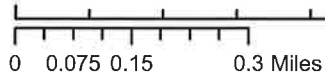
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W.O. # 14-153    LEASE: GRAHAM NASH ST.    SURVEY: N.M.P.M

0 2,500 FEET



1 IN = 1,250 FT

### LOCATION MAP

TOPO

03/11/2014

S.P



**HARCROW SURVEYING, LLC**  
1107 WATSON, ARTESIA N.M. 88210  
PH: (375) 513-2570 FAX: (375) 746-2158  
chad\_harcrow77@yahoo.com







# LEGEND

-  WELL
-  WELLPAD
-  EXISTING ROAD
-  PROPOSED ROAD
-  PROPOSED CATTLE GUARD

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W.O. # 14-153 LEASE: GRAHAM NASH ST. SURVEY: N.M.P.M

0 2,500 5,000 7,500 FEET

0 0.2 0.4 0.8 Miles 1 IN = 3,000 FT

LOCATION MAP

IMAGERY

03/11/2014

S.P.



**CONCHO**  
COG OPERATING, LLC

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chad\_harcrow77@yahoo.com





T 26 S

R  
2  
8  
E

29

28

27

32

PROPOSED WELL  
GRAHAM NASH  
ST. COM #7H

PROPOSED WELL  
GRAHAM NASH  
ST. COM #6H

GRAHAM NASH  
ST. #5H

33

34

EDDY COUNTY

TEXAS

123'

## LEGEND



WELL



WELLPAD

EXISTING ROAD

PROPOSED ROAD

PROPOSED  
CATTLE GUARD

## GRAHAM NASH ST. #5H

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STATE: NEW MEXICO COUNTY: EDDY 280' FSL & 760' FEL

W.O. # 14-153 LEASE: GRAHAM NASH ST. SURVEY: N.M.P.M

0 2,500 FEET

0 0.075 0.15 0.3 Miles

1 IN = 1,250 FT

LOCATION MAP

IMAGERY

03/11/2014

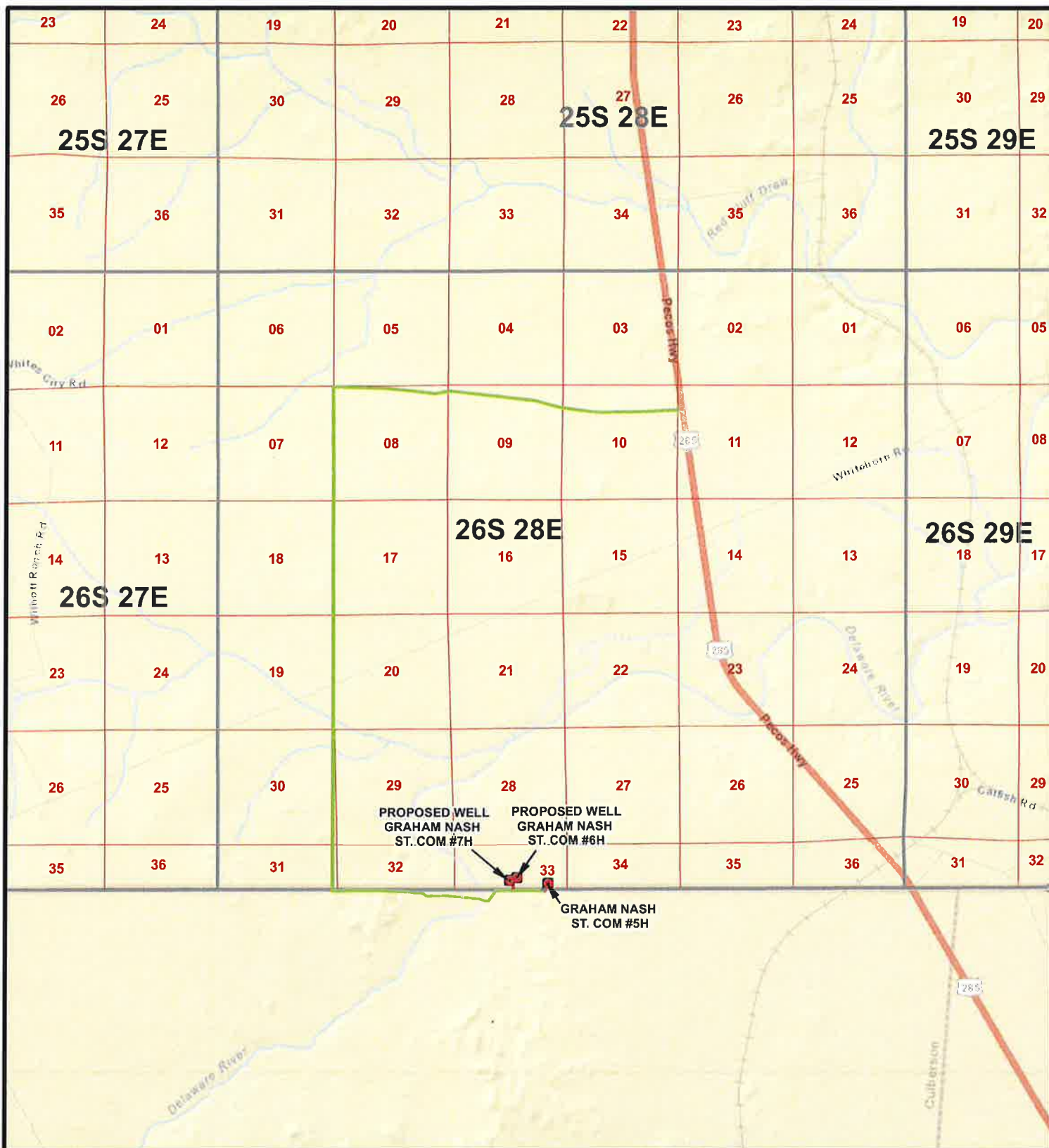
S.P.

  
CONCHO  
COG OPERATING, LLC

HARCROW SURVEYING, LLC  
1107 WATSON, ARTESIA N.M. 88210  
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chad\_harcrow77@yahoo.com







# LEGEND

- WELL
- WELLPAD
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED CATTLE GUARD

## GRAHAM NASH ST. COM #5H

SEC: 33 TWP: 26 S. RGE: 28 E. ELEVATION: 3057.5'  
 STATE: NEW MEXICO COUNTY: EDDY 280' FSL & 760' FEL  
 W.O. # 14-153 LEASE: GRAHAM NASH ST. SURVEY: N.M.P.M

0 2,500 5,000 7,500 10,000 12,500 15,000 FEET

0 0.4 0.8 1.6 Miles

1 IN = 6,000 FT

VICINITY MAP

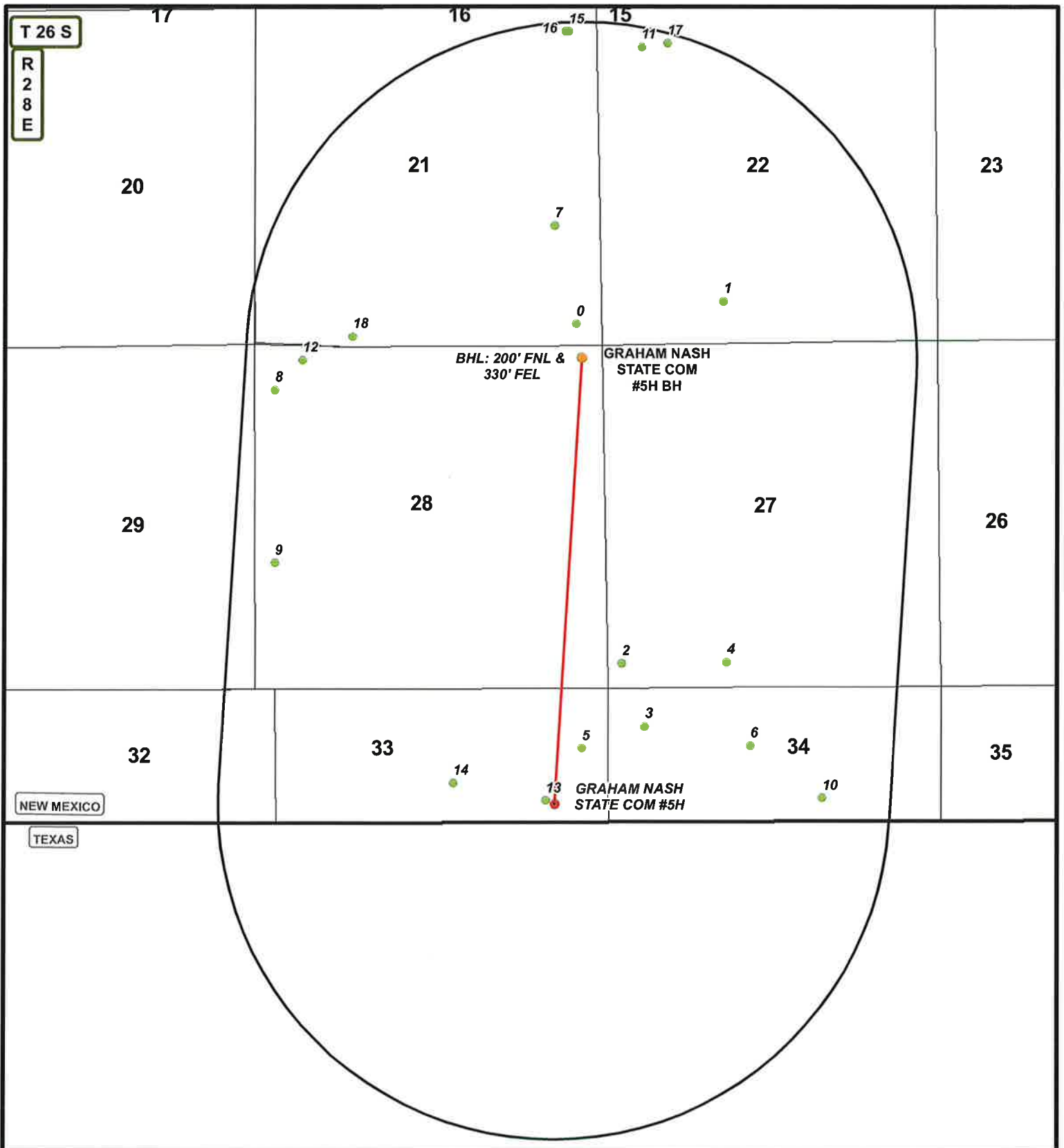
03/11/2014

S.P.

**CONCHO**  
 COG OPERATING, LLC

HARCROW SURVEYING, LLC  
 1107 WATSON, ARTESIA NM 88210  
 PH: (575) 513 2570 FAX: (575) 746 2156  
 chad\_harcrow77@yahoo.com





### LEGEND

- WELL
- BOTTOMHOLE
- WELLS WITHIN 1 MI.
- 1 MI. BUFFER

### GRAHAM NASH STATE COM #5H

SEC: 33 TWP: 26 S. RGE: 28 E. ELEVATION: 3057.5'  
 STATE: NEW MEXICO COUNTY: EDDY 280' FSL & 760' FEL  
 W.O. # 17-772 LEASE: GRAHAM NASH ST. COM SURVEY: N.M.P.M

0 2,500 5,000 FEET

0 0.125 0.25 0.5 Miles 1 IN = 2,000 FT

LOCATION MAP

1 MILE MAP

06/23/2017

C.D.



COG OPERATING, LLC



HARCROW SURVEYING, LLC.  
 2314 W. MAIN ST, ARTESIA, NM 88210  
 PH: (575) 746-2158 FAX: (575) 746-2158  
 c.harcrow@harcrowsurveying.com

<b>Sec. 28</b>	<b>Tract 1</b> <b>State of NM</b> <b>V-7474</b> <b>160.00 Ac</b>  <b>WI Ownership:</b> <b>COG Operating,</b> <b>LLC, Concho Oil</b> <b>&amp; Gas LLC, The</b> <b>Allar Company,</b> <b>EOG Resources,</b> <b>Inc., OXY Y-1</b> <b>Company,</b> <b>Sharbro Energy,</b> <b>LLC</b>
<b>Sec. 33</b>	<b>Tract 2</b> <b>State of NM</b> <b>VB-1948</b> <b>63.73 Ac</b>  <b>WI Ownership:</b> <b>COG Production</b> <b>LLC, COG</b> <b>Acreage LP,</b> <b>OXY USA Inc.</b>

<b>Sec. 28</b>	<b>State Com #5H Spacing</b>
<b>Sec. 33</b>	<b>Graham Nash</b>

#### Graham Nash State Com 5H - Compulsory Pooling Info

Sec 28: E2E2, Sec 33: Lot 4, NE4NE4, T26S-R28E - Bone Spring

<b>Proposal</b>	Completed	<b>WI Parties:</b>	
<b>JOA</b>	Completed	COG Operating LLC	X
<b>COM</b>	Completed	Concho Oil & Gas LLC	X
		COG Production LLC	X
		COG Acreage LP	X
		The Allar Company	No info received
		EOG Resources, Inc.	No info received
		OXY Y-1 Company	No info received
		Sharbro Energy LLC	No info received

Pooling

<b>Leasehold Ownership</b>									
	<b>COG Op WI</b>	<b>Concho WI</b>	<b>Allar WI</b>	<b>EOG WI</b>	<b>Oxy Y-1 WI</b>	<b>Sharbro WI</b>	<b>COG Prod. WI</b>	<b>COG Ac. WI</b>	<b>OXY USA WI</b>
<b>Tract 1 - Sec 28: E2E2</b>	37.06044%	1.95055%	30.76923%	21.53159%	7.55495%	1.13324%	0.00000%	0.00000%	0.00000%
<b>Tract 2 - Sec 33: Lot 4, NE4NE4</b>	0.00000%	0.00000%	0.00000%	0.00000%	0.00000%	0.00000%	46.07739%	3.92261%	50.00000%

#### Unit Recapitulation

<b>Owner</b>	<b>Working Interest</b>
COG Operating LLC	26.503689%
COG Production LLC	13.125250%
Concho Oil & Gas LLC	1.394931%
COG Acreage LP	1.117364%
The Allar Company	22.004545%
EOG Resources, Inc.	15.398270%
OXY USA Inc.	14.242614%
Oxy Y-1 Company	5.402902%
Sharbro Energy, LLC	0.810435%

BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. 1-B

Case No. 20418

Submitted by: COG OPERATING, LLC

Hearing Date: May 2, 2019



March 5, 2019

*Via Federal Express*  
**The Allar Company**  
735 Elm Street  
Graham, TX 76450  
Attn: Jack Graham

**Re: Graham Nash State Com 5H**  
E2E2 of Section 28 and NENE and Lot 4 of Section 33, T26S-R28E  
Eddy County, New Mexico

Dear Mr. Graham:

COG Operating, LLC ("COG") hereby proposes the drilling of the Graham Nash State Com 5H, to be drilled to a depth sufficient to test the Bone Spring formation at a total measured depth of 15,670'. The surface location for this well is proposed at a legal location in Lot 4 of Section 33, T26S-R28E, and a bottom hole location at a legal location in Unit A of Section 28, T26S-R28E. The dedicated project area will be the E2E2 of Section 28 and NENE and Lot 4 of Section 33, T26S-R28E, Eddy County, New Mexico. The total estimated cost to drill and complete said well is \$8,070,000.00, as shown on the attached Authority for Expenditure ("AFE").

COG is proposing this well under the terms of a new Operating Agreement which will follow under separate cover.

If we do not reach an agreement within 30 days of the date of this letter, COG will apply to the New Mexico Oil Conservation Division for compulsory pooling of your interest into a spacing unit for the proposed well.

Please indicate your participation election in the space provided below, sign and return this letter, along with a signed copy of the enclosed AFE and a copy of your geologic requirements, to my attention at the letterhead address or by email to [bunderwood@concho.com](mailto:bunderwood@concho.com). Should you have any questions, please do not hesitate to contact me at 432.688.6644.

Sincerely,

**COG Operating LLC**

Buck Underwood  
Senior Landman

BU:bh  
Enc

BEFORE THE OIL CONSERVATION DIVISION  
Santa Fe, New Mexico  
Exhibit No. 1-C  
Case No. 20418  
Submitted by: **COG OPERATING, LLC**  
Hearing Date: May 2, 2019



March 5, 2019  
Page 2

\_\_\_\_\_ I/We hereby elect to participate in the drilling and completion of the  
**Graham Nash State Com 5H.**

\_\_\_\_\_ I/We hereby elect **not** to participate in the drilling and completion of the  
**Graham Nash State Com 5H.**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

**COG OPERATING LLC  
AUTHORITY FOR EXPENDITURE  
Drill & Complete**

Well Name GRAHAM NASH STATE COM 05H SHL SEC 33 280 FSL 760 FEL BHL SEC 28 200' FNL 330 FEL Formation BONE SPRING Legal 26S-28E-33 AFE Numbers	Prospect ATLAS 2628 State & County NEW MEXICO, EDDY Objective Drill & Complete Depth 15,670 TVD 7980
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Cost Description	Code	Cost	Revision	Total
<b>Tangible Costs</b>				
D-Surface Casing	401	\$17,604.35	\$0.00	\$17,604.35
D-Intermed Csg	402	\$47,783.23	\$0.00	\$47,783.23
D-Production Casing/Liner	403	\$205,384.04	\$0.00	\$205,384.04
D-Wellhead Equip	405	\$20,957.56	\$0.00	\$20,957.56
C-Tubing	504	\$32,274.63	\$0.00	\$32,274.63
C-Wellhead Equip	505	\$11,065.59	\$0.00	\$11,065.59
PEQ-Pumping Unit	506	\$80,393.18	\$0.00	\$80,393.18
PEQ-Rods	508	\$32,274.63	\$0.00	\$32,274.63
TB-Tanks	510	\$62,872.67	\$0.00	\$62,872.67
TB-Flowlines/Pipelines	511	\$8,383.02	\$0.00	\$8,383.02
TB-Hlr Trlr/Seprlr	512	\$88,021.73	\$0.00	\$88,021.73
TB-Electrical System/Equipment	513	\$62,872.67	\$0.00	\$62,872.67
C-Pckrs/Anchors/Hgrs	514	\$4,191.51	\$0.00	\$4,191.51
TB-Couplings/Fittings/Valves	515	\$192,809.51	\$0.00	\$192,809.51
TB-Gas Lfr/Compression	516	\$20,957.56	\$0.00	\$20,957.56
TB-Pumps-Surface	521	\$20,957.56	\$0.00	\$20,957.56
TB-Meters/Lacts	525	\$25,149.07	\$0.00	\$25,149.07
TB-Flares/Combusters/Emission	526	\$37,723.60	\$0.00	\$37,723.60
C-Gas Lfr/Compression	527	\$8,383.02	\$0.00	\$8,383.02
PEQ-Instrumentation/SCADA/POC	529	\$3,688.53	\$0.00	\$3,688.53
PEQ-Wellhead Equipment	531	\$2,766.40	\$0.00	\$2,766.40
PEQ-Pumps	532	\$7,377.06	\$0.00	\$7,377.06
<b>Total Tangible Costs</b>		<b>\$993,891.09</b>	<b>\$0.00</b>	<b>\$993,891.09</b>

<b>Intangible Costs</b>				
PS-Title/Permits	201	\$9,221.32	\$0.00	\$9,221.32
D-Insurance	202	\$3,353.21	\$0.00	\$3,353.21
PS-Damages/ROW	203	\$4,191.51	\$0.00	\$4,191.51
PS-Survey/Stake Lctn	204	\$5,029.81	\$0.00	\$5,029.81
D-Lctn/Pits/Roads	205	\$100,596.26	\$0.00	\$100,596.26
D-Drilling Overhead	206	\$5,029.81	\$0.00	\$5,029.81
D-Daywork Contract	209	\$342,027.30	\$0.00	\$342,027.30
D-Directional Drftg Services	210	\$137,481.56	\$0.00	\$137,481.56
D-Fuel & Power	211	\$60,357.76	\$0.00	\$60,357.76
D-Water	212	\$44,430.02	\$0.00	\$44,430.02
D-Bits	213	\$54,489.64	\$0.00	\$54,489.64
D-Mud & Chemicals	214	\$75,447.20	\$0.00	\$75,447.20
D-Cement Surface	217	\$13,412.84	\$0.00	\$13,412.84
D-Cement Intermed	218	\$21,795.86	\$0.00	\$21,795.86
D-Prod-2nd Int Cmt	219	\$111,494.19	\$0.00	\$111,494.19
D-Float Equipment & Centralizers	221	\$33,532.09	\$0.00	\$33,532.09
D-Csg Crews & Equip	222	\$26,825.67	\$0.00	\$26,825.67
D-Contract Labor	225	\$5,868.12	\$0.00	\$5,868.12
D-Company Sprvsn	226	\$30,178.88	\$0.00	\$30,178.88
D-Contract Sprvsn	227	\$53,651.34	\$0.00	\$53,651.34
D-Tstg Csg/Tbg	228	\$16,766.04	\$0.00	\$16,766.04
D-Mud Logging Unit	229	\$17,604.35	\$0.00	\$17,604.35
D-Perf/Wireline Svc	231	\$3,353.21	\$0.00	\$3,353.21
D-Rentals-Surface	235	\$96,404.75	\$0.00	\$96,404.75
D-Rentals-Subsrfc	236	\$75,447.20	\$0.00	\$75,447.20
D-Trucking/Forklift/Rtg Mob	237	\$108,979.29	\$0.00	\$108,979.29
D-Welding Services	238	\$2,514.91	\$0.00	\$2,514.91
D-Contingency	243	\$29,340.58	\$0.00	\$29,340.58
D-Envmntl/Clsd Loop	244	\$150,894.40	\$0.00	\$150,894.40
C-Lctn/Pits/Roads	305	\$10,227.29	\$0.00	\$10,227.29
C-Fuel Delivery & Services	311	\$4,191.51	\$0.00	\$4,191.51
C-Water	312	\$948,361.83	\$0.00	\$948,361.83
C-Bits	313	\$3,772.36	\$0.00	\$3,772.36
C-Mud & Chemicals	314	\$20,957.56	\$0.00	\$20,957.56
C-Contract Labor	325	\$33,532.09	\$0.00	\$33,532.09
C-Company Sprvsn	326	\$25,149.07	\$0.00	\$25,149.07
C-Contract Sprvsn	327	\$79,638.71	\$0.00	\$79,638.71
C-Tstg Csg/Tbg	328	\$8,383.02	\$0.00	\$8,383.02
C-Perf/Wireline Svc	331	\$364,661.46	\$0.00	\$364,661.46
C-Stimulation/Treating	332	\$3,159,561.01	\$0.00	\$3,159,561.01
C-Completion Unit	333	\$36,046.99	\$0.00	\$36,046.99
C-Rentals-Surface	335	\$198,677.62	\$0.00	\$198,677.62
C-Trucking/Forklift/Rtg Mob	337	\$33,532.09	\$0.00	\$33,532.09
C-Welding Services	338	\$4,191.51	\$0.00	\$4,191.51
C-Water Disposal	339	\$50,298.13	\$0.00	\$50,298.13
C-Contingency	343	\$209,575.55	\$0.00	\$209,575.55
C-Envmntl/Clsd Loop	344	\$4,191.51	\$0.00	\$4,191.51
C-Flowback Crews & Equip	347	\$106,464.38	\$0.00	\$106,464.38
TB-Location/Pits/Roads	353	\$71,255.69	\$0.00	\$71,255.69
TB-Contract Labor	356	\$67,064.18	\$0.00	\$67,064.18
TB-Water Disposal	362	\$75,447.20	\$0.00	\$75,447.20
PEQ-Contract Supervision	376	\$4,610.66	\$0.00	\$4,610.66
PEQ-Completion Unit	381	\$6,454.93	\$0.00	\$6,454.93
PEQ-Rentals-Surface	383	\$5,532.79	\$0.00	\$5,532.79
PEQ-Trng/Forklift/Rtg Mobilization	385	\$4,610.66	\$0.00	\$4,610.66
<b>Total Intangible Costs</b>		<b>\$7,076,108.91</b>	<b>\$0.00</b>	<b>\$7,076,108.91</b>

<b>Total Gross Cost</b>	<b>\$8,070,000.00</b>	<b>\$0.00</b>	<b>\$8,070,000.00</b>
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*Note: The above costs are estimates only. Actual costs will be billed as incurred*

COG Operating LLC

By: \_\_\_\_\_

Date Prepared: \_\_\_\_\_

We approve:  
% Working Interest

COG Operating LLC

By: \_\_\_\_\_

Company  
By: \_\_\_\_\_

Printed Name: \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

This AFE is only an estimate. By signing you agree to pay your share of the actual costs incurred.

**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

**APPLICATION OF COG OPERATING LLC  
FOR COMPULSORY POOLING,  
EDDY COUNTY, NEW MEXICO.**

**CASE NO. 20418**

**AFFIDAVIT OF TRAVIS SPARKS**

Travis Sparks, of lawful age and being first duly sworn, declares as follows:

1. My name is Travis Sparks. I work for COG Operating LLC ("COG") as a geologist.
2. I have previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum geology. My credentials as a petroleum geology have been accepted by the Division and made a matter of record.
3. I am familiar with the applications filed by COG in these cases and I have conducted a geologic study of the targeted Second Bone Spring shale within the Bone Spring formation underlying the subject acreage.
4. COG is targeting Second Bone Spring shale within the Bone Spring formation with its proposed **Graham Nash State Com 5H**.
5. **COG Exhibit No. 2A** is a project locator map showing COG's acreage in yellow. the path of the proposed wellbore for the **Graham Nash State Com 5H** well is depicted by a dashed orange line.
6. **COG Exhibit No. 2B** is a subsea structure map that I prepared for the Second Bone Spring shale that is representative of the targeted intervals within the Bone Spring formation. The proposed well is depicted by a dashed orange line. Existing producing wells

in the Second Bone Spring shale are represented by solid orange lines. The structure map shows that the formation is gently dipping to the southeast in this area. I do not observe any faulting, pinchouts, or other geologic impediments to developing the targeted Second Bone Spring shale with a horizontal well in this area.

7. **COG Exhibit No. 2C** overlays a cross-section line in red consisting of three wells penetrating the Bone Spring formation that I used to construct a stratigraphic cross-section from A to A'. I consider these wells to be representative of the geology in the area.

8. **COG Exhibit No. 2D** is a cross section using the representative wells depicted on Exhibit 2B. Each well in the cross-section contains gamma ray, resistivity, and porosity logs. The proposed target intervals in the Second Bone Spring shale are labeled and depicted as the lateral interval on the exhibit. The cross-section demonstrates that the targeted intervals extend across the proposed spacing and proration unit in all cases.

9. In my opinion the stand-up orientation of the proposed wells is the preferred orientation for horizontal well development in this area and is appropriate to efficiently and effectively develop the subject acreage.

10. Based on my geologic study, the Bone Spring formation underlying the subject area, including the targeted Second Bone Spring shale, is suitable for development by horizontal wells and the acreage comprising the proposed spacing and proration units will contribute more-or-less equally to the production from the wellbores.


11. In my opinion, the granting of COG's application will be in the best interest of conservation, the prevention of waste, and protection of correlative rights.

**FURTHER AFFIANT SAYETH NOT.**

  
\_\_\_\_\_  
TRAVIS SPARKS

STATE OF TEXAS                    )  
  )  
COUNTY OF Midland            )

SUBSCRIBED and SWORN to before me this 30 day of April 2019 by  
Travis Sparks.

  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:

4/20/2022



# Bone Spring Pool

## Graham Nash State Com 5H Location Map

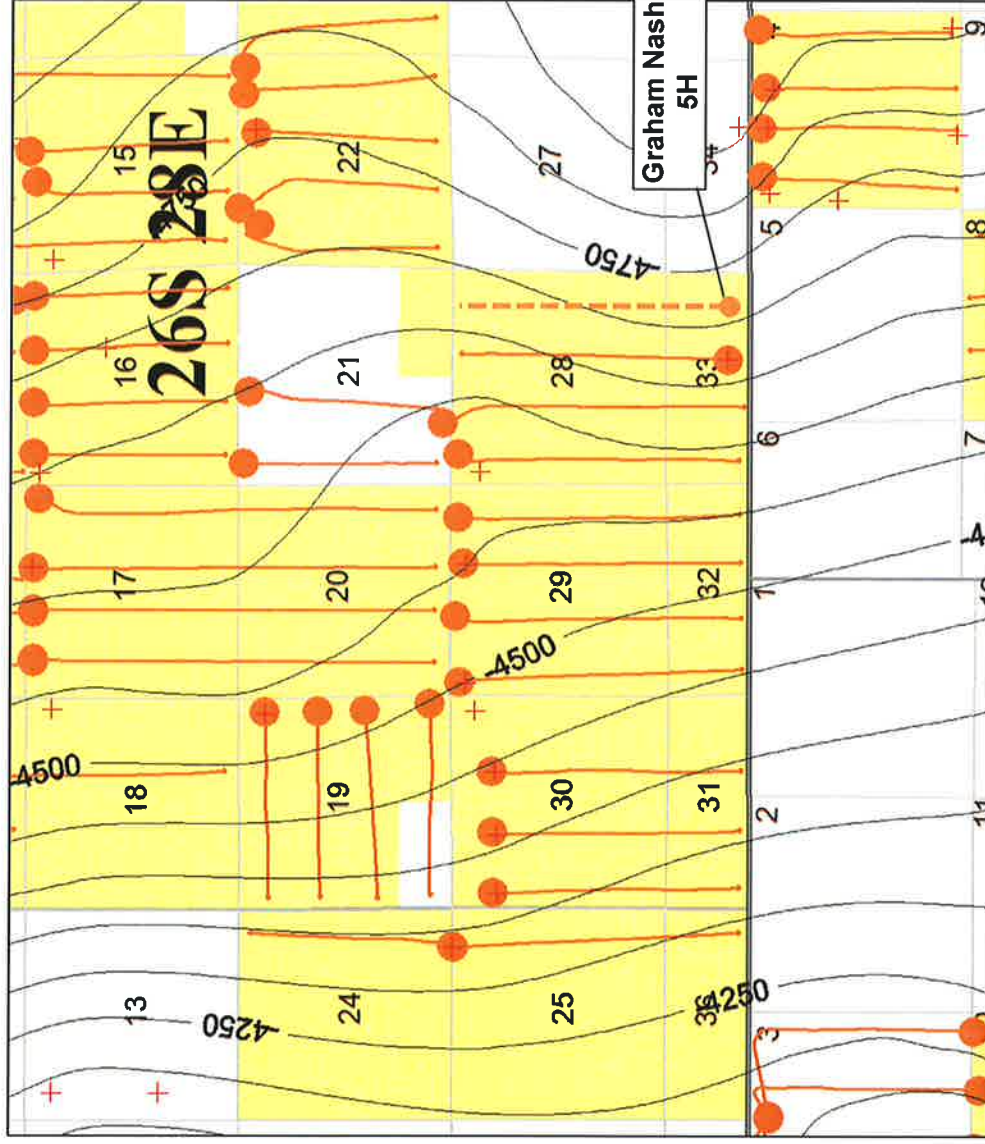


### Map Legend

- SHL
- BHL
- COG – Proposed Graham Nash Horizontal Location
- Producing SBSG Horizontals
- COG Acreage

# Bone Spring Pool

## Second Bone Spring Subsea Structure Map



### Map Legend

SHL

COG – Proposed Graham Nash Horizontal Location

BHL

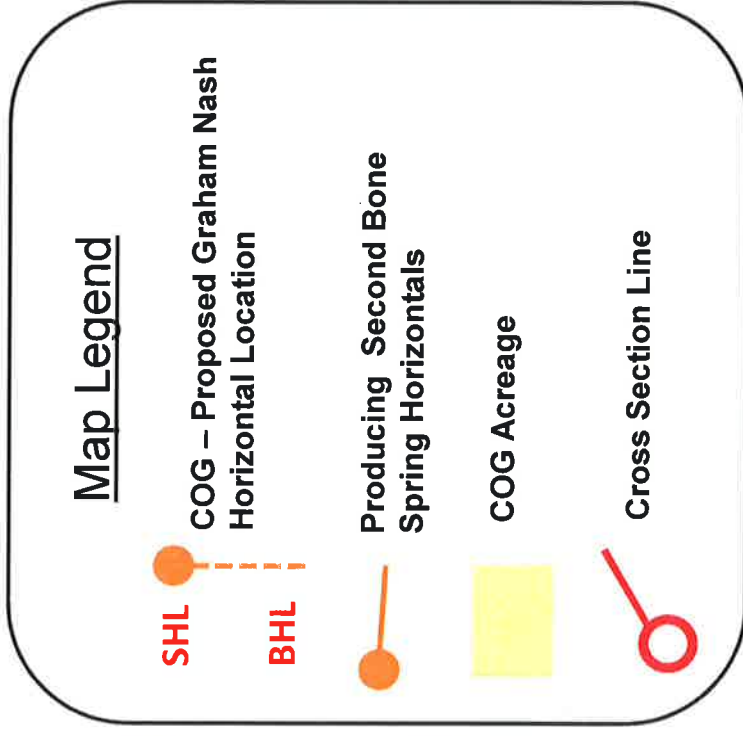
Producing Second Bone Spring Horizontals

COG Acreage

Second Bone Spring Subsea Structural Contours  
CI: 10'

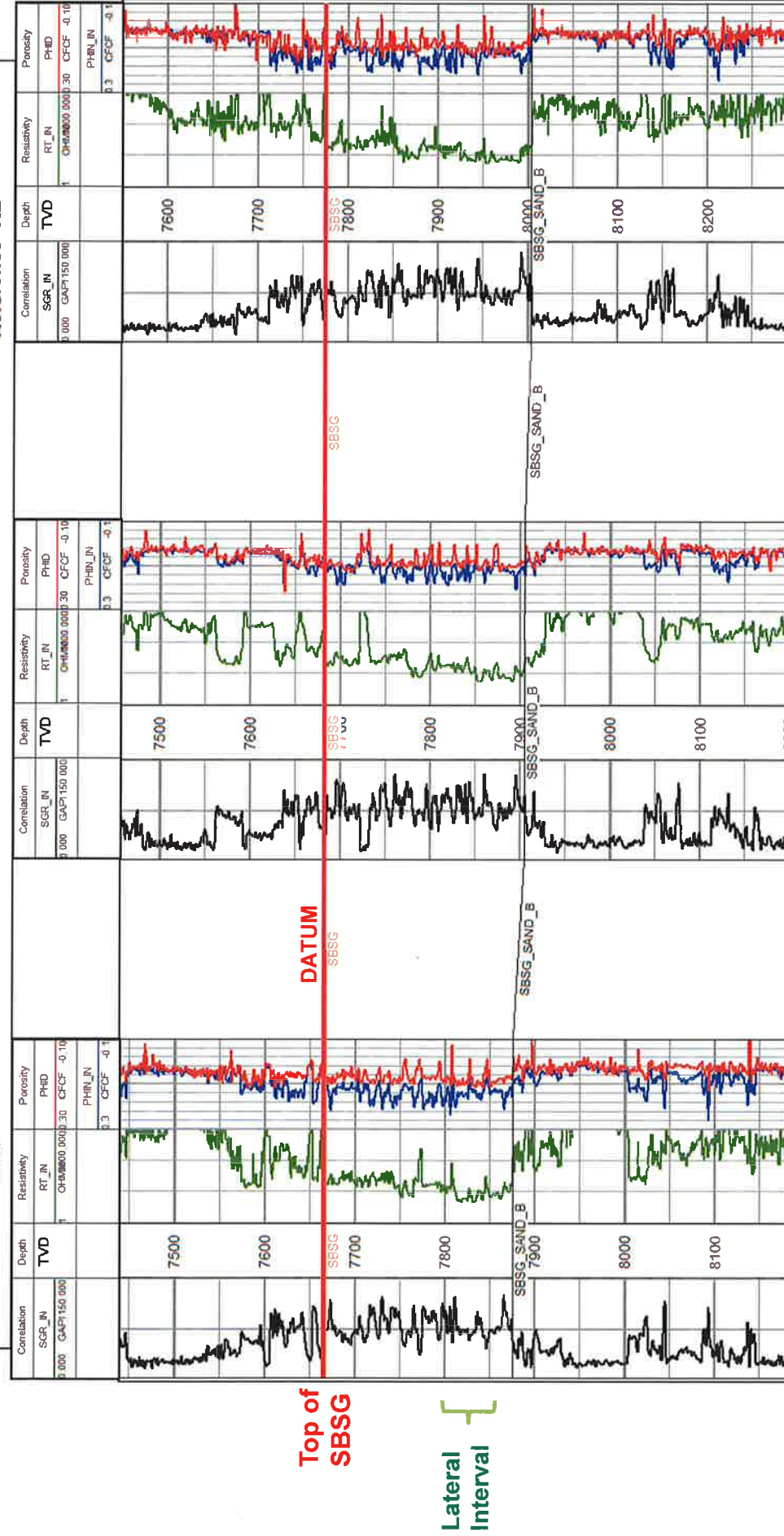
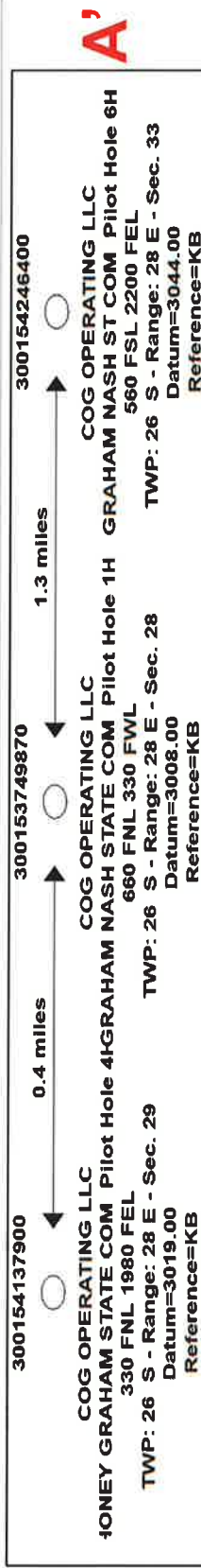
Data point

# Bone Spring Pool Cross Section Location Map





# Stratigraphic Cross Section A – A'



**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

**APPLICATION OF COG OPERATING LLC  
FOR COMPULSORY POOLING,  
EDDY COUNTY, NEW MEXICO.**

**CASE NO. 20418**

**AFFIDAVIT**

STATE OF NEW MEXICO   )  
  ) ss.  
COUNTY OF SANTA FE    )

Kaitlyn A. Luck, attorney in fact and authorized representative of COG Operating, LLC,  
the Applicant herein, being first duly sworn, upon oath, states that the above-referenced  
Application has been provided under the notice letters and proof of receipts attached hereto.



Kaitlyn A. Luck

SUBSCRIBED AND SWORN to before me this 18<sup>th</sup> day of May 2019 by Kaitlyn A.

Luck.



Notary Public

My Commission

Expires:

August 26, 2021

COG / Graham Nash State Com #5 H  
20418

Barcode	Recipient	Status
9.21489E+21	Sharbro Energy LLC 423 W Main St Artesia NM 88210	Delivered Signature Received POD Viewed
9.21489E+21	OXY USA Inc OXY Y-1 Corporation 5 Greenway Plaza Houston TX 77046	Delivered Signature Received
9.21489E+21	John Lawrence Thoma Trustee of the Cornerstone Family Trust - ORRI PO BOX 17565 Golden CO 80402	Delivered Signature Received
9.21489E+21	Crownrock Minerals LP - ORRI PO BOX 53310 Midland TX 79710	Delivered Signature Received
9.21489E+21	EG3 Inc - ORRI PO BOX 1567 Graham TX 76450	Delivered Signature Received
9.21489E+21	The Allar Company PO BOX 1567 Graham TX 76450	Delivered Signature Received
9.21489E+21	EOG Resources Inc 5509 Champions Drive Midland TX 79706	Delivered Signature Received



**Michael H. Feldewert**  
Recognized Specialist in the  
Area of Natural Resources –  
Oil and Gas Law – New Mexico Board  
of Legal Specification  
mfeldewert@hollandhart.com

April 12, 2019

**VIA CERTIFIED MAIL**  
**CERTIFIED RECEIPT REQUESTED**

**TO: ALL INTEREST OWNERS SUBJECT TO POOLING PROCEEDINGS**

**Re: Application of COG Operating LLC for compulsory pooling,  
Eddy County, New Mexico.  
Graham Nash State Com 5H Well**

Ladies & Gentlemen:

This letter is to advise you that COG Operating Inc. has filed the enclosed application with the New Mexico Oil Conservation Division. A hearing has been requested before a Division Examiner on May 2, 2019, and the status of the hearing can be monitored through the Division's website at <http://www.emnrd.state.nm.us/ocd/>. Division hearings will commence at 8:15 a.m. in Porter Hall at the Oil Conservation Division's Santa Fe Offices located at 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505. You are not required to attend this hearing, but as an owner of an interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date.

Parties appearing in cases are required by Division Rule 19.15.4.13.B to file a Pre-hearing Statement four business days in advance of a scheduled hearing. This statement must be filed at the Division's Santa Fe office at the above specified address and should include: the names of the parties and their attorneys; a concise statement of the case; the names of all witnesses the party will call to testify at the hearing; the approximate time the party will need to present its case; and identification of any procedural matters that are to be resolved prior to the hearing.

If you have any questions about this matter, please contact Buck Underwood at (432) 688-6644 or [bunderwood@concho.com](mailto:bunderwood@concho.com).

Sincerely,

Michael H. Feldewert  
**ATTORNEY FOR COG OPERATING LLC**



## Shipment Confirmation Acceptance Notice

### A. Mailer Action

**Note to Mailer:** The labels and volume associated to this form online, **must** match the labeled packages being presented to the USPS® employee with this form.

Graham Nash State Com #5 H 20418  
COG/OCD 51500.0010

5.59

Shipment Date: 04/10/2019

Shipped From:

Name: HOLLAND & HART LLP

Address: 110 N GUADALUPE ST # 1

City: SANTA FE

State: NM ZIP+4® 87501

Type of Mail	Volume
Priority Mail Express®*	
Priority Mail®	0
First-Class Package Service®	
Returns	
International*	
Other	7
Total	7

\*Start time for products with service guarantees will begin when mail arrives at the local Post Office™ and items receive individual processing and acceptance scans.

### B. USPS Action

Note to RSS Clerk:

1. Home screen > Mailing/Shipping > More
2. Select Shipment Confirm
3. Scan or enter the barcode/label number from PS Form 5630
4. Confirm the volume count message by selecting Yes or No
5. Select Pay and End Visit to complete transaction

USPS EMPLOYEE: Please scan upon pickup or receipt of mail.  
Leave form with customer or in customer's mail receptacle.

USPS SCAN AT ACCEPTANCE



9275 0901 1935 6200 0013 7910 86





Firm Mailing Book For Accountable Mail

Name and Address of Sender Holland & Hart LLP 110 N Guadalupe St # 1 Santa Fe NM 87501		Check type of mail or service <input type="checkbox"/> Adult Signature Required <input type="checkbox"/> Adult Signature Restricted Delivery <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Certified Mail Restricted Delivery <input type="checkbox"/> Collect on Delivery (COD) <input type="checkbox"/> Insured Mail <input type="checkbox"/> Priority Mail <input type="checkbox"/> Priority Mail Express <input type="checkbox"/> Registered Mail <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Signature Confirmation <input type="checkbox"/> Signature Confirmation Restricted Delivery		Affix Stamp Here (if issued as an international certificate of mailing or for additional copies of this receipt). Postmark with Date of Receipt.												
USPS Tracking/Article Number		Addressee (Name, Street, City, State, & ZIP Code™)		Postage	(Extra Service) Fee	Handling Charge	Actual Value if Registered	Insured Value	Due Sender if COD	ASR Fee	ASRD Fee	RD Fee	RR Fee	SC Fee	SCRD Fee	SH Fee
1.	9214 8901 9403 8381 2878 32	Shadbro Energy LLC 423 W Main St Artesia NM 88210		0.49	3.50								1.60			
2.	9214 8901 9403 8381 2878 49	OXY USA Inc OXY Y-1 Corporation 5 Greenway Plaza Houston TX 77046		0.49	3.50								1.60			
3.	9214 8901 9403 8381 2878 56	John Lawrence Thoma Trustee of the Cornerstone Family Trust - ORRI PO BOX 17565 Golden CO 80402		0.49	3.50								1.60			
4.	9214 8901 9403 8381 2878 63	Crownrock Minerals LP - ORRI PO BOX 53310 Midland TX 79710		0.49	3.50								1.60			
5.	9214 8901 9403 8381 2878 70	EG3 Inc - ORRI PO BOX 1567 Graham TX 76450		0.49	3.50								1.60			
6.	9214 8901 9403 8381 2878 87	The Allier Company PO BOX 1567 Graham TX 76450		0.49	3.50								1.60			
7.	9214 8901 9403 8381 2878 94	EOG Resources Inc 5508 Champions Drive Midland TX 79706		0.49	3.50								1.60			
Total Number of Pieces Listed by Sender 7		Postmaster, Per (Name of receiving employee)														