

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***Carlsbad Field Office**
OCD Hobbs
Indian, Allottee or Tribe Name**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		7. If Unit or CA/Agreement, Name and/or No.
2. Name of Operator COG OPERATING LLC		8. Well Name and No. BRANEX-COG FEDERAL COM 17H
3a. Address ONE CONCHO CENTER 600 W ILLINOIS AVENUE MIDLAND, TX 79701-4287		9. API Well No. 30-025-43743-00-X1
3b. Phone No. (include area code) Ph: 432-685-4385		10. Field and Pool or Exploratory Area MALJAMAR
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 8 T17S R32E SESE 990FSL 25FEL 32.844631 N Lat, 103.780136 W Lon		11. County or Parish, State LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

COG Operating LLC respectfully requests to change the bottom hole location of this well.

From: 989 FSL 989 FWL, Sec 10, T17S, R32E
To: 989 FSL 1310 FWL, Sec 10, T17S, R32E

This change is to maximize the returns and reduce waste of the reservoir. Attached is a revised plat and directional plan.

- All previous LOAN DRILL apply; additional LOA is not required.

14. I hereby certify that the foregoing is true and correct. Electronic Submission #380898 verified by the BLM Well Information System For COG OPERATING LLC, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 07/20/2017 (17PP0502SE)	
Name (Printed/Typed) ROBYN RUSSELL	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 07/10/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

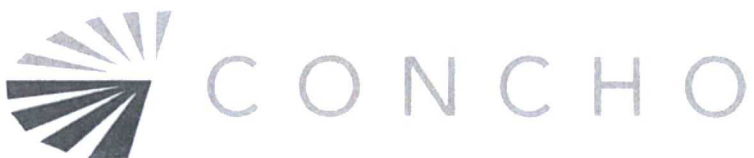
Approved By <u>Mustafa Haguel</u>	Title	Date <u>7-31-2017</u>
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office <u>CFO</u>	

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.

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

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COG OPERATING, LLC

Eddy /Lea County, NM (NAD27) NMEZ

Branex-COG Federal COM 17H

#17H - SL 990'FSL, 25'FEL, Sec 8

PP - 990'FSL, 496'FWL, Sec 9

Lateral

Planned BHL - 989'FSL, 1310'FWL



Database: VON_EDM
Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: Branex-COG Federal COM 17H
Well: #17H
Wellbore: Lateral
Design: Plan #1

Local Co-ordinate Reference: Well #17H
TVD Reference: 4055+18 @ 4073.00ft (Planning)
MD Reference: 4055+18 @ 4073.00ft (Planning)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy /Lea County, NM (NAD27) NMEZ		
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	Branex-COG Federal COM 17H		
Site Position:		Northing:	671,390.10 ft
From:	Map	Easting:	670,054.50 ft
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in
		Latitude:	32° 50' 40.228 N
		Longitude:	103° 46' 46.683 W
		Grid Convergence:	0.30 °

Well	#17H		
Well Position	+N/-S	0.00 ft	Northing: 671,390.10 ft
	+E/-W	0.00 ft	Easting: 670,054.50 ft
Position Uncertainty	0.00 ft	Wellhead Elevation:	Latitude: 32° 50' 40.228 N
			Longitude: 103° 46' 46.683 W
			Ground Level: 4,055.00 ft

Wellbore	Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	07/07/17	7.09	60.60	48,274

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	89.82

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,229.13	0.00	0.00	5,229.13	0.00	0.00	0.00	0.00	0.00	0.00	
6,047.31	90.00	89.82	5,750.00	1.68	520.87	11.00	11.00	10.98	89.82	
12,142.88	90.00	89.82	5,750.00	21.30	6,616.40	0.00	0.00	0.00	0.00	BranexCOG 17H PB+

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 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
880.00	0.00	0.00	880.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,090.00	0.00	0.00	1,090.00	0.00	0.00	0.00	0.00	0.00	0.00
Top of Salt									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,980.00	0.00	0.00	1,980.00	0.00	0.00	0.00	0.00	0.00	0.00
Tansill									
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,210.00	0.00	0.00	2,210.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	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
2,550.00	0.00	0.00	2,550.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,180.00	0.00	0.00	3,180.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen									
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,590.00	0.00	0.00	3,590.00	0.00	0.00	0.00	0.00	0.00	0.00
Grayburg									
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
San Andres									
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,229.13	0.00	0.00	5,229.13	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	7.80	89.82	5,299.78	0.02	4.81	4.81	11.00	11.00	0.00
5,400.00	18.80	89.82	5,396.95	0.09	27.78	27.78	11.00	11.00	0.00
5,446.23	23.88	89.82	5,440.00	0.14	44.59	44.59	11.00	11.00	0.00
Glorieta									
5,500.00	29.80	89.82	5,487.96	0.22	68.86	68.86	11.00	11.00	0.00
5,513.99	31.33	89.82	5,500.00	0.24	75.97	75.97	11.00	11.00	0.00
Paddock									
5,600.00	40.80	89.82	5,569.45	0.41	126.55	126.55	11.00	11.00	0.00
5,700.00	51.80	89.82	5,638.44	0.64	198.73	198.73	11.00	11.00	0.00
5,800.00	62.80	89.82	5,692.38	0.91	282.75	282.75	11.00	11.00	0.00
5,900.00	73.80	89.82	5,729.31	1.21	375.51	375.51	11.00	11.00	0.00
6,000.00	84.80	89.82	5,747.85	1.52	473.62	473.62	11.00	11.00	0.00
6,047.31	90.00	89.82	5,750.00	1.68	520.87	520.87	11.00	11.00	0.00
6,100.00	90.00	89.82	5,750.00	1.85	573.56	573.56	0.00	0.00	0.00
6,200.00	90.00	89.82	5,750.00	2.17	673.56	673.56	0.00	0.00	0.00
6,300.00	90.00	89.82	5,750.00	2.49	773.55	773.56	0.00	0.00	0.00
6,400.00	90.00	89.82	5,750.00	2.81	873.55	873.56	0.00	0.00	0.00
6,500.00	90.00	89.82	5,750.00	3.13	973.55	973.56	0.00	0.00	0.00
6,600.00	90.00	89.82	5,750.00	3.46	1,073.55	1,073.56	0.00	0.00	0.00
6,700.00	90.00	89.82	5,750.00	3.78	1,173.55	1,173.56	0.00	0.00	0.00
6,800.00	90.00	89.82	5,750.00	4.10	1,273.55	1,273.56	0.00	0.00	0.00
6,900.00	90.00	89.82	5,750.00	4.42	1,373.55	1,373.56	0.00	0.00	0.00
7,000.00	90.00	89.82	5,750.00	4.74	1,473.55	1,473.56	0.00	0.00	0.00
7,100.00	90.00	89.82	5,750.00	5.07	1,573.55	1,573.56	0.00	0.00	0.00
7,200.00	90.00	89.82	5,750.00	5.39	1,673.55	1,673.56	0.00	0.00	0.00
7,300.00	90.00	89.82	5,750.00	5.71	1,773.55	1,773.56	0.00	0.00	0.00
7,400.00	90.00	89.82	5,750.00	6.03	1,873.55	1,873.56	0.00	0.00	0.00
7,500.00	90.00	89.82	5,750.00	6.35	1,973.55	1,973.56	0.00	0.00	0.00
7,600.00	90.00	89.82	5,750.00	6.68	2,073.55	2,073.56	0.00	0.00	0.00
7,700.00	90.00	89.82	5,750.00	7.00	2,173.55	2,173.56	0.00	0.00	0.00
7,800.00	90.00	89.82	5,750.00	7.32	2,273.55	2,273.56	0.00	0.00	0.00
7,900.00	90.00	89.82	5,750.00	7.64	2,373.55	2,373.56	0.00	0.00	0.00
8,000.00	90.00	89.82	5,750.00	7.96	2,473.55	2,473.56	0.00	0.00	0.00
8,100.00	90.00	89.82	5,750.00	8.28	2,573.55	2,573.56	0.00	0.00	0.00
8,200.00	90.00	89.82	5,750.00	8.61	2,673.55	2,673.56	0.00	0.00	0.00
8,300.00	90.00	89.82	5,750.00	8.93	2,773.54	2,773.56	0.00	0.00	0.00
8,400.00	90.00	89.82	5,750.00	9.25	2,873.54	2,873.56	0.00	0.00	0.00

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,500.00	90.00	89.82	5,750.00	9.57	2,973.54	2,973.56	0.00	0.00	0.00
8,600.00	90.00	89.82	5,750.00	9.89	3,073.54	3,073.56	0.00	0.00	0.00
8,700.00	90.00	89.82	5,750.00	10.22	3,173.54	3,173.56	0.00	0.00	0.00
8,800.00	90.00	89.82	5,750.00	10.54	3,273.54	3,273.56	0.00	0.00	0.00
8,900.00	90.00	89.82	5,750.00	10.86	3,373.54	3,373.56	0.00	0.00	0.00
9,000.00	90.00	89.82	5,750.00	11.18	3,473.54	3,473.56	0.00	0.00	0.00
9,100.00	90.00	89.82	5,750.00	11.50	3,573.54	3,573.56	0.00	0.00	0.00
9,200.00	90.00	89.82	5,750.00	11.83	3,673.54	3,673.56	0.00	0.00	0.00
9,300.00	90.00	89.82	5,750.00	12.15	3,773.54	3,773.56	0.00	0.00	0.00
9,400.00	90.00	89.82	5,750.00	12.47	3,873.54	3,873.56	0.00	0.00	0.00
9,500.00	90.00	89.82	5,750.00	12.79	3,973.54	3,973.56	0.00	0.00	0.00
9,600.00	90.00	89.82	5,750.00	13.11	4,073.54	4,073.56	0.00	0.00	0.00
9,700.00	90.00	89.82	5,750.00	13.44	4,173.54	4,173.56	0.00	0.00	0.00
9,800.00	90.00	89.82	5,750.00	13.76	4,273.54	4,273.56	0.00	0.00	0.00
9,900.00	90.00	89.82	5,750.00	14.08	4,373.54	4,373.56	0.00	0.00	0.00
10,000.00	90.00	89.82	5,750.00	14.40	4,473.54	4,473.56	0.00	0.00	0.00
10,100.00	90.00	89.82	5,750.00	14.72	4,573.54	4,573.56	0.00	0.00	0.00
10,200.00	90.00	89.82	5,750.00	15.05	4,673.53	4,673.56	0.00	0.00	0.00
10,300.00	90.00	89.82	5,750.00	15.37	4,773.53	4,773.56	0.00	0.00	0.00
10,400.00	90.00	89.82	5,750.00	15.69	4,873.53	4,873.56	0.00	0.00	0.00
10,500.00	90.00	89.82	5,750.00	16.01	4,973.53	4,973.56	0.00	0.00	0.00
10,600.00	90.00	89.82	5,750.00	16.33	5,073.53	5,073.56	0.00	0.00	0.00
10,700.00	90.00	89.82	5,750.00	16.66	5,173.53	5,173.56	0.00	0.00	0.00
10,800.00	90.00	89.82	5,750.00	16.98	5,273.53	5,273.56	0.00	0.00	0.00
10,900.00	90.00	89.82	5,750.00	17.30	5,373.53	5,373.56	0.00	0.00	0.00
11,000.00	90.00	89.82	5,750.00	17.62	5,473.53	5,473.56	0.00	0.00	0.00
11,100.00	90.00	89.82	5,750.00	17.94	5,573.53	5,573.56	0.00	0.00	0.00
11,200.00	90.00	89.82	5,750.00	18.26	5,673.53	5,673.56	0.00	0.00	0.00
11,300.00	90.00	89.82	5,750.00	18.59	5,773.53	5,773.56	0.00	0.00	0.00
11,400.00	90.00	89.82	5,750.00	18.91	5,873.53	5,873.56	0.00	0.00	0.00
11,500.00	90.00	89.82	5,750.00	19.23	5,973.53	5,973.56	0.00	0.00	0.00
11,600.00	90.00	89.82	5,750.00	19.55	6,073.53	6,073.56	0.00	0.00	0.00
11,700.00	90.00	89.82	5,750.00	19.87	6,173.53	6,173.56	0.00	0.00	0.00
11,800.00	90.00	89.82	5,750.00	20.20	6,273.53	6,273.56	0.00	0.00	0.00
11,900.00	90.00	89.82	5,750.00	20.52	6,373.53	6,373.56	0.00	0.00	0.00
12,000.00	90.00	89.82	5,750.00	20.84	6,473.53	6,473.56	0.00	0.00	0.00
12,100.00	90.00	89.82	5,750.00	21.16	6,573.52	6,573.56	0.00	0.00	0.00
12,142.88	90.00	89.82	5,750.00	21.30	6,616.40	6,616.43	0.00	0.00	0.00

Database: VON_EDM
Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: Branex-COG Federal COM 17H
Well: #17H
Wellbore: Lateral
Design: Plan #1

Local Co-ordinate Reference: Well #17H
TVD Reference: 4055+18 @ 4073.00ft (Planning)
MD Reference: 4055+18 @ 4073.00ft (Planning)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

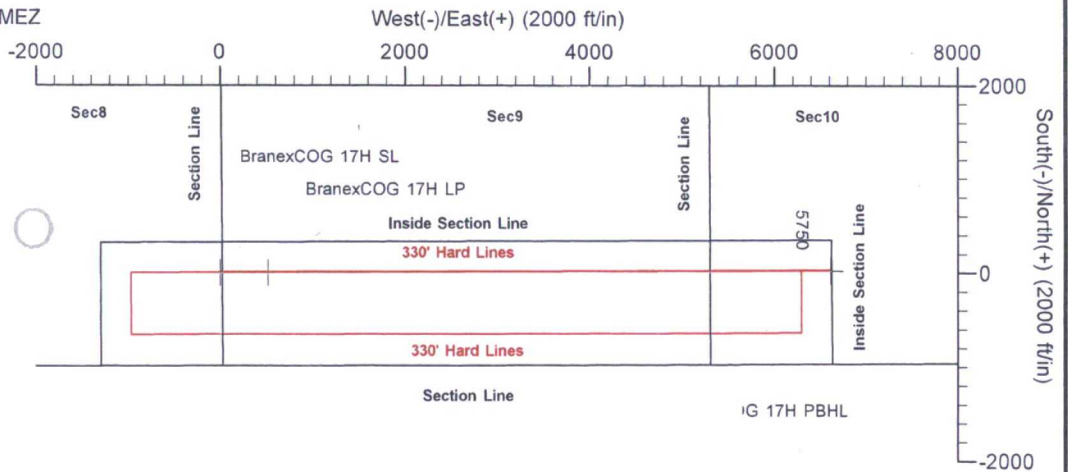
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BranexCOG 17H SL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	671,390.10	670,054.50	32° 50' 40.228 N	103° 46' 46.683 W
BranexCOG 17H PBHL - plan hits target center - Point	0.00	0.00	5,750.00	21.30	6,616.40	671,411.40	676,670.90	32° 50' 40.089 N	103° 45' 29.129 W
BranexCOG 17H LP - plan hits target center - Point	0.00	0.00	5,750.00	1.68	520.87	671,391.78	670,575.37	32° 50' 40.217 N	103° 46' 40.577 W

Formations

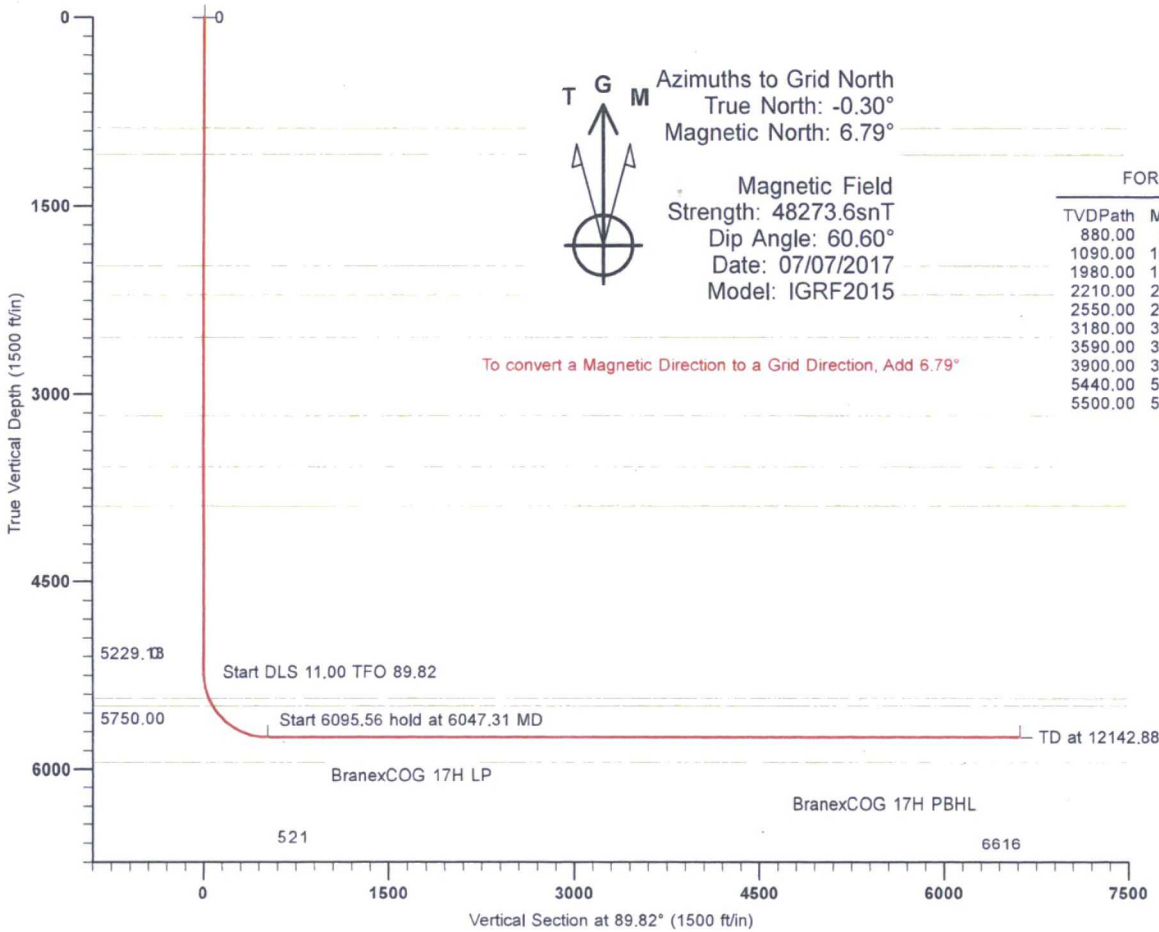
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
880.00	880.00	Rustler			
1,090.00	1,090.00	Top of Salt			
1,980.00	1,980.00	Tansill			
2,210.00	2,210.00	Yates			
2,550.00	2,550.00	Seven Rivers			
3,180.00	3,180.00	Queen			
3,590.00	3,590.00	Grayburg			
3,900.00	3,900.00	San Andres			
5,446.23	5,440.00	Gloneta			
5,513.99	5,500.00	Paddock			

COG OPERATING, LLC

Project: Eddy /Lea County, NM (NAD27) NMEZ
 Site: Branex-COG Federal COM 17H
 Well: #17H
 Wellbore: Lateral
 Design: Plan #1



4055+18 @ 4073.00ft (Planning
 NAD 1927 (NADCON CONUS))



Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 6.79°

Magnetic Field
 Strength: 48273.6snT
 Dip Angle: 60.60°
 Date: 07/07/2017
 Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.79°

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
880.00	880.00	Rustler
1090.00	1090.00	Top of Salt
1980.00	1980.00	Tansill
2210.00	2210.00	Yates
2550.00	2550.00	Seven Rivers
3180.00	3180.00	Queen
3590.00	3590.00	Grayburg
3900.00	3900.00	San Andres
5440.00	5446.23	Glorieta
5500.00	5513.99	Paddock

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BranexCOG 17H SL	0.00	0.00	0.00	671390.10	670054.50	Point
BranexCOG 17H LP	5750.00	1.68	520.87	671391.78	670575.37	Point
BranexCOG 17H PBHL	5750.00	21.30	6616.40	671411.40	676670.90	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5229.13	0.00	0.00	5229.13	0.00	0.00	0.00	0.00	0.00	
6047.31	90.00	89.82	5750.00	1.68	520.87	11.00	89.82	520.87	
12142.88	90.00	89.82	5750.00	21.30	6616.40	0.00	0.00	6616.43	BranexCOG 17H PBHL

Plan: Plan #1 (#17H/Lateral)
 Created By: Mekka Williams
 eSomina Well Design
 mekka@esominawell.com
 15.28, July 07 2017

VON DIRECTIONAL
 12074 FM 3083 Conroe, Texas 77301
 936-756-2400

