

Submit 1 Copy To Appropriate District Office
District I -- (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II -- (575) 748-1283
811 S. First St., Artesia, NM 88210
District III -- (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV -- (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico

Conservation and Natural Resources

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 10 2017
OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

RECEIVED

Form C-103

Revised July 18, 2013

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-015-43999
1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐		5. Indicate Type of Lease STATE ☐ FEE ☒
2. Name of Operator COG Operating LLC		6. State Oil & Gas Lease No.
3. Address of Operator 600 W. Illinois Ave., Midland, TX 79701		7. Lease Name or Unit Agreement Name Bone Yard 11 Fee
4. Well Location Unit Letter <u>N</u> : <u>150</u> feet from the <u>South</u> line and <u>2310</u> feet from the <u>West</u> line Section <u>2</u> Township <u>20S</u> Range <u>25E</u> NMPM County <u>EDDY</u>		8. Well Number 16H
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3387' GR		9. OGRID Number 229137
		10. Pool name or Wildcat N. Seven Rivers; Glorieta-Yeso 97565

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☒
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐
CLOSED-LOOP SYSTEM ☐
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐
OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

COG Operating LLC proposes to make the following changes to this well:

Change the location:

FROM: SHL: 150 FSL 2310 FWL, Sec 2, 20S, 25E, Unit N
BHL: 280 FSL 2310 FWL, Sec 11, 20S, 25E, Unit N

TO: SHL: 2375 FSL 2310 FWL, Sec 2, 20S, 25E, Unit K
*BHL: 10 FSL 2310 FWL, Sec 11, 20S, 25E, Unit N

Casing/Cement Program:

Drill a 12.25" hole to 1250' w/8.5ppg, 28 viscosity fresh water system. Set 9-5/8" 40# J-55 casing and cement to surface with 700sxs. Drill with cut brine a 8-3/4" hole to 2393' MD and kick off and drill curve to 2900' TVD 3202' MD. Drill with cut brine a 8-3/4" lateral to new BHL @ 3029' TVD 10621' MD. Run a tapered string of 7" 29# L-80 casing at TD and cement to surface with 1200sxs. Larger hole size and larger casing/tapered string is to allow for larger pump size.

Attached are the revised plat and directional plan.

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

TITLE

Regulatory Analyst

DATE

07/07/17

Type or print name

Robyn M. Russell

E-mail address:

Russell@concho.com

PHONE:

432-685-4385

For State Use Only

APPROVED BY:

TITLE

Geologist

DATE

7-10-17

Conditions of Approval (if any):

*Requires: NSL/NSP

NM OIL CONSERVATION

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1625 N. French Dr., Hobbs, NM 88240
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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 ARTESIA DISTRICT
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

RECEIVED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-43999		² Pool Code 97565		³ Pool Name N. Seven Rivers; Glorieta-Yeso	
⁴ Property Code 315130		⁵ Property Name BONE YARD 11 FEE			⁶ Well Number 16H
⁷ GRID NO. 229137		⁸ Operator Name COG OPERATING, LLC			⁹ Elevation 3425'

¹⁰ Surface Location

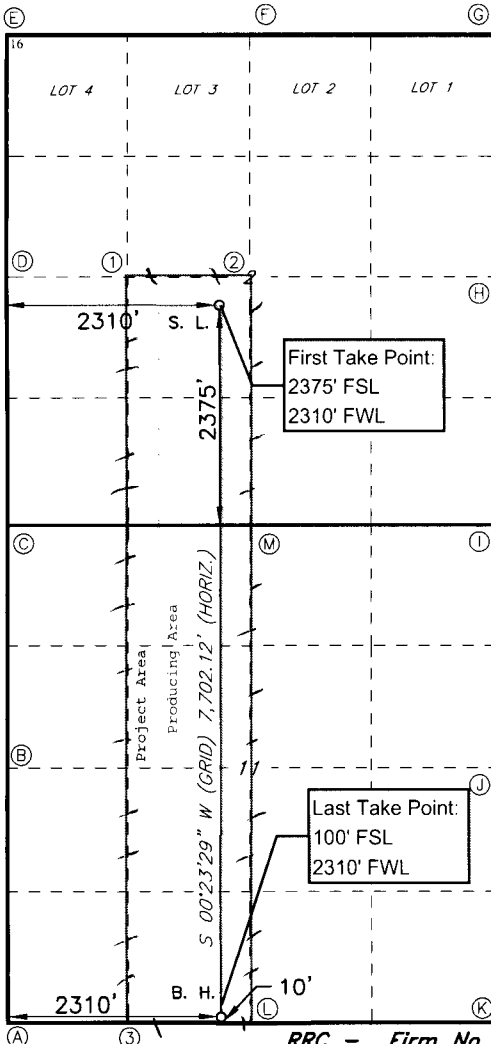
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
K	2	20S	25E		2375	SOUTH	2310	WEST	EDDY

¹¹ 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
N	11	20S	25E		10	SOUTH	2310	WEST	EDDY

¹² Dedicated Acres 240	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.



GEODETTIC DATA
NAD 27 GRID - NM EAST
N: 582630.5 - E: 462205.3
LAT: 32.6016961° N
LONG: 104.45606201° W

SURFACE LOCATION
N: 582691.1 - E: 503383.9
LAT: 32.60180960° N
LONG: 104.45658067° W

BOTTOM HOLE
N: 574930.4 - E: 462152.7
LAT: 32.58052997° N
LONG: 104.45620390° W

BOTTOM HOLE
N: 574990.8 - E: 503331.4
LAT: 32.58064341° N
LONG: 104.45672233° W

CORNER DATA

NAD 27 GRID - NM EAST

A: FOUND BRASS CAP "1947"
N: 574906.7 - E: 459843.2
B: FOUND BRASS CAP "1947"
N: 577592.0 - E: 459864.9
C: FOUND BRASS CAP "1947"
N: 580276.9 - E: 459887.3
D: FOUND BRASS CAP "1947"
N: 582882.5 - E: 459896.7
E: FOUND BRASS CAP "1947"
N: 585504.1 - E: 459906.0
F: FOUND BRASS CAP "1947"
N: 585511.7 - E: 462548.4
G: FOUND BRASS CAP "1947"
N: 585520.8 - E: 465190.9
H: FOUND BRASS CAP "1947"
N: 582874.9 - E: 465184.7
I: FOUND BRASS CAP "1947"
N: 580229.1 - E: 465177.8
J: FOUND BRASS CAP "1947"
N: 577584.2 - E: 465171.8
K: CALCULATED CORNER
N: 574939.6 - E: 465164.4
L: FOUND BRASS CAP "1947"
N: 574922.5 - E: 462503.3
M: FOUND BRASS CAP "1947"
N: 580253.1 - E: 462532.6

CALCULATED POINTS

1. N: 582880.6 - E: 461218.6
2. N: 582878.7 - E: 462540.5
3. N: 574914.6 - E: 461173.3

¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: Date: 06/01/17

Printed Name: Robyn M. Russell

E-mail Address: Rrussell@concho.com

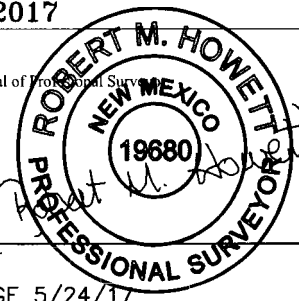
¹⁸ SURVEYOR CERTIFICATION

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.

3-08-2017

Date of Survey

Signature and Seal of Professional Surveyor



19680

Certificate Number

B.H. CHANGE 5/24/17



COG:HO

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 10 2017

RECEIVED

COG OPERATING, LLC

Eddy /Lea County, NM (NAD27) NMEZ

Bone Yard 11 Fee 16H

16H : Slot 2375' FSL, 2310'FWL Sec2

PP: 2091'FSL, 2308'FWL Sec2

Lateral

PLANNED BHL: 10'FSL, 2310'FWL Sec11



DIRECTIONAL SERVICES, LLC.



Planning Report

Database: VON_EDM
Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: Bone Yard 11 Fee 16H
Well: 16H
Wellbore: Lateral
Design: Plan #2

Local Co-ordinate Reference: Well 16H
TVD Reference: 3425+18 @ 3443.00ft (Planning)
MD Reference: 3425+18 @ 3443.00ft (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	Bone Yard 11 Fee 16H			
Site Position:		Northing:	582,630.50 ft	Latitude: 32° 36' 6.095 N
From:	Map	Easting:	462,205.30 ft	Longitude: 104° 27' 21.834 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence: -0.07 °

Well	16H			
Well Position	+N/-S	0.00 ft	Northing:	582,630.50 ft
	+E/-W	0.00 ft	Easting:	462,205.30 ft
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level: 3,425.00 ft

Wellbore	Lateral			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/11/17	7.39	60.27	48.068

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	180.39

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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
629.25	7.94	0.39	627.56	36.61	0.25	1.50	1.50	0.00	0.39	
1,754.92	7.94	0.39	1,742.44	192.07	1.31	0.00	0.00	0.00	0.00	
2,284.17	0.00	0.00	2,270.00	228.68	1.56	1.50	-1.50	0.00	180.00	
2,393.38	0.00	0.00	2,379.21	228.68	1.56	0.00	0.00	0.00	0.00	
3,202.47	89.00	180.39	2,900.00	-283.09	-1.92	11.00	11.00	0.00	180.39	
10,620.79	89.00	180.39	3,029.47	-7,700.10	-52.41	0.00	0.00	0.00	0.00	BoneYard11Fee#16H



Planning Report

Database: VON_EDM
Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: Bone Yard 11 Fee 16H
Well: 16H
Wellbore: Lateral
Design: Plan #2

Local Co-ordinate Reference: Well 16H
TVD Reference: 3425+18 @ 3443.00ft (Planning)
MD Reference: 3425+18 @ 3443.00ft (Planning)
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
BoneYard11Fee#16H SL									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	1.50	0.39	199.99	1.31	0.01	-1.31	1.50	1.50	0.00
300.00	3.00	0.39	299.91	5.23	0.04	-5.23	1.50	1.50	0.00
400.00	4.50	0.39	399.69	11.77	0.08	-11.77	1.50	1.50	0.00
500.00	6.00	0.39	499.27	20.92	0.14	-20.92	1.50	1.50	0.00
500.73	6.01	0.39	500.00	21.00	0.14	-21.00	1.50	1.50	0.00
Grayburg									
600.00	7.50	0.39	598.57	32.68	0.22	-32.68	1.50	1.50	0.00
629.25	7.94	0.39	627.56	36.61	0.25	-36.61	1.50	1.50	0.00
700.00	7.94	0.39	697.63	46.38	0.32	-46.38	0.00	0.00	0.00
800.00	7.94	0.39	796.67	60.19	0.41	-60.19	0.00	0.00	0.00
879.09	7.94	0.39	875.00	71.11	0.49	-71.11	0.00	0.00	0.00
San Andres									
900.00	7.94	0.39	895.71	74.00	0.51	-74.00	0.00	0.00	0.00
1,000.00	7.94	0.39	994.76	87.81	0.60	-87.81	0.00	0.00	0.00
1,100.00	7.94	0.39	1,093.80	101.62	0.69	-101.62	0.00	0.00	0.00
1,200.00	7.94	0.39	1,192.84	115.43	0.79	-115.44	0.00	0.00	0.00
1,300.00	7.94	0.39	1,291.88	129.24	0.88	-129.25	0.00	0.00	0.00
1,400.00	7.94	0.39	1,390.92	143.05	0.98	-143.06	0.00	0.00	0.00
1,500.00	7.94	0.39	1,489.96	156.87	1.07	-156.87	0.00	0.00	0.00
1,600.00	7.94	0.39	1,589.00	170.68	1.17	-170.68	0.00	0.00	0.00
1,700.00	7.94	0.39	1,688.05	184.49	1.26	-184.49	0.00	0.00	0.00
1,754.92	7.94	0.39	1,742.44	192.07	1.31	-192.08	0.00	0.00	0.00
1,800.00	7.26	0.39	1,787.12	198.04	1.35	-198.04	1.50	-1.50	0.00
1,900.00	5.76	0.39	1,886.48	209.38	1.43	-209.38	1.50	-1.50	0.00
2,000.00	4.26	0.39	1,986.09	218.11	1.49	-218.12	1.50	-1.50	0.00
2,014.53	4.04	0.39	2,000.58	219.17	1.50	-219.17	1.50	-1.50	0.00
BoneYard11Fee#16H Tgt									
2,100.00	2.76	0.39	2,085.90	224.24	1.53	-224.25	1.50	-1.50	0.00
2,200.00	1.26	0.39	2,185.84	227.75	1.56	-227.76	1.50	-1.50	0.00
2,284.17	0.00	0.00	2,270.00	228.68	1.56	-228.68	1.50	-1.50	0.00
2,300.00	0.00	0.00	2,285.83	228.68	1.56	-228.68	0.00	0.00	0.00
2,393.38	0.00	0.00	2,379.21	228.68	1.56	-228.68	0.00	0.00	0.00
2,400.00	0.73	180.39	2,385.83	228.64	1.56	-228.64	11.00	11.00	0.00
2,450.00	6.23	180.39	2,435.72	225.61	1.54	-225.61	11.00	11.00	0.00
2,500.00	11.73	180.39	2,485.09	217.81	1.49	-217.81	11.00	11.00	0.00
2,515.28	13.41	180.39	2,500.00	214.48	1.47	-214.49	11.00	11.00	0.00
Glorieta									
2,550.00	17.23	180.39	2,533.48	205.31	1.40	-205.32	11.00	11.00	0.00
2,600.00	22.73	180.39	2,580.45	188.23	1.29	-188.24	11.00	11.00	0.00
2,621.38	25.08	180.39	2,600.00	179.57	1.23	-179.57	11.00	11.00	0.00
Paddock									
2,650.00	28.23	180.39	2,625.57	166.73	1.14	-166.74	11.00	11.00	0.00
2,700.00	33.73	180.39	2,668.42	141.01	0.97	-141.01	11.00	11.00	0.00
2,750.00	39.23	180.39	2,708.61	111.30	0.76	-111.30	11.00	11.00	0.00
2,800.00	44.73	180.39	2,745.77	77.87	0.54	-77.87	11.00	11.00	0.00
2,850.00	50.23	180.39	2,779.55	41.03	0.28	-41.03	11.00	11.00	0.00
2,900.00	55.73	180.39	2,809.64	1.13	0.01	-1.13	11.00	11.00	0.00
2,950.00	61.23	180.39	2,835.78	-41.48	-0.28	41.48	11.00	11.00	0.00
3,000.00	66.73	180.39	2,857.70	-86.39	-0.58	86.39	11.00	11.00	0.00
3,050.00	72.23	180.39	2,875.22	-133.20	-0.90	133.20	11.00	11.00	0.00



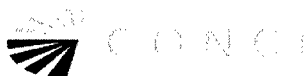
Planning Report

Database: VON_EDM
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MD Reference: 3425+18 @ 3443.00ft (Planning)
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)
3,100.00	77.73	180.39	2,888.18	-181.47	-1.23	181.47	11.00	11.00	0.00
3,150.00	83.23	180.39	2,896.45	-230.76	-1.57	230.77	11.00	11.00	0.00
3,202.47	89.00	180.39	2,900.00	-283.09	-1.92	283.10	11.00	11.00	0.00
BoneYard11Fee#16H LP									
3,300.00	89.00	180.39	2,901.70	-380.60	-2.59	380.61	0.00	0.00	0.00
3,400.00	89.00	180.39	2,903.45	-480.58	-3.27	480.59	0.00	0.00	0.00
3,500.00	89.00	180.39	2,905.19	-580.56	-3.95	580.58	0.00	0.00	0.00
3,600.00	89.00	180.39	2,906.94	-680.55	-4.63	680.56	0.00	0.00	0.00
3,700.00	89.00	180.39	2,908.68	-780.53	-5.31	780.55	0.00	0.00	0.00
3,800.00	89.00	180.39	2,910.43	-880.51	-5.99	880.53	0.00	0.00	0.00
3,900.00	89.00	180.39	2,912.17	-980.49	-6.67	980.52	0.00	0.00	0.00
4,000.00	89.00	180.39	2,913.92	-1,080.48	-7.35	1,080.50	0.00	0.00	0.00
4,100.00	89.00	180.39	2,915.67	-1,180.46	-8.03	1,180.49	0.00	0.00	0.00
4,200.00	89.00	180.39	2,917.41	-1,280.44	-8.71	1,280.47	0.00	0.00	0.00
4,300.00	89.00	180.39	2,919.16	-1,380.42	-9.39	1,380.46	0.00	0.00	0.00
4,400.00	89.00	180.39	2,920.90	-1,480.41	-10.07	1,480.44	0.00	0.00	0.00
4,500.00	89.00	180.39	2,922.65	-1,580.39	-10.75	1,580.43	0.00	0.00	0.00
4,600.00	89.00	180.39	2,924.39	-1,680.37	-11.43	1,680.41	0.00	0.00	0.00
4,700.00	89.00	180.39	2,926.14	-1,780.35	-12.11	1,780.39	0.00	0.00	0.00
4,800.00	89.00	180.39	2,927.88	-1,880.34	-12.79	1,880.38	0.00	0.00	0.00
4,900.00	89.00	180.39	2,929.63	-1,980.32	-13.47	1,980.36	0.00	0.00	0.00
5,000.00	89.00	180.39	2,931.37	-2,080.30	-14.15	2,080.35	0.00	0.00	0.00
5,100.00	89.00	180.39	2,933.12	-2,180.28	-14.84	2,180.33	0.00	0.00	0.00
5,200.00	89.00	180.39	2,934.86	-2,280.27	-15.52	2,280.32	0.00	0.00	0.00
5,300.00	89.00	180.39	2,936.61	-2,380.25	-16.20	2,380.30	0.00	0.00	0.00
5,400.00	89.00	180.39	2,938.35	-2,480.23	-16.88	2,480.29	0.00	0.00	0.00
5,500.00	89.00	180.39	2,940.10	-2,580.21	-17.56	2,580.27	0.00	0.00	0.00
5,600.00	89.00	180.39	2,941.84	-2,680.20	-18.24	2,680.26	0.00	0.00	0.00
5,700.00	89.00	180.39	2,943.59	-2,780.18	-18.92	2,780.24	0.00	0.00	0.00
5,800.00	89.00	180.39	2,945.33	-2,880.16	-19.60	2,880.23	0.00	0.00	0.00
5,900.00	89.00	180.39	2,947.08	-2,980.14	-20.28	2,980.21	0.00	0.00	0.00
6,000.00	89.00	180.39	2,948.83	-3,080.13	-20.96	3,080.20	0.00	0.00	0.00
6,100.00	89.00	180.39	2,950.57	-3,180.11	-21.64	3,180.18	0.00	0.00	0.00
6,200.00	89.00	180.39	2,952.32	-3,280.09	-22.32	3,280.17	0.00	0.00	0.00
6,300.00	89.00	180.39	2,954.06	-3,380.07	-23.00	3,380.15	0.00	0.00	0.00
6,400.00	89.00	180.39	2,955.81	-3,480.06	-23.68	3,480.14	0.00	0.00	0.00
6,500.00	89.00	180.39	2,957.55	-3,580.04	-24.36	3,580.12	0.00	0.00	0.00
6,600.00	89.00	180.39	2,959.30	-3,680.02	-25.04	3,680.11	0.00	0.00	0.00
6,700.00	89.00	180.39	2,961.04	-3,780.00	-25.72	3,780.09	0.00	0.00	0.00
6,800.00	89.00	180.39	2,962.79	-3,879.99	-26.41	3,880.08	0.00	0.00	0.00
6,900.00	89.00	180.39	2,964.53	-3,979.97	-27.09	3,980.06	0.00	0.00	0.00
7,000.00	89.00	180.39	2,966.28	-4,079.95	-27.77	4,080.04	0.00	0.00	0.00
7,100.00	89.00	180.39	2,968.02	-4,179.93	-28.45	4,180.03	0.00	0.00	0.00
7,200.00	89.00	180.39	2,969.77	-4,279.92	-29.13	4,280.01	0.00	0.00	0.00
7,300.00	89.00	180.39	2,971.51	-4,379.90	-29.81	4,380.00	0.00	0.00	0.00
7,400.00	89.00	180.39	2,973.26	-4,479.88	-30.49	4,479.98	0.00	0.00	0.00
7,500.00	89.00	180.39	2,975.00	-4,579.86	-31.17	4,579.97	0.00	0.00	0.00
7,600.00	89.00	180.39	2,976.75	-4,679.84	-31.85	4,679.95	0.00	0.00	0.00
7,700.00	89.00	180.39	2,978.49	-4,779.83	-32.53	4,779.94	0.00	0.00	0.00
7,800.00	89.00	180.39	2,980.24	-4,879.81	-33.21	4,879.92	0.00	0.00	0.00
7,900.00	89.00	180.39	2,981.98	-4,979.79	-33.89	4,979.91	0.00	0.00	0.00
8,000.00	89.00	180.39	2,983.73	-5,079.77	-34.57	5,079.89	0.00	0.00	0.00
8,100.00	89.00	180.39	2,985.48	-5,179.76	-35.25	5,179.88	0.00	0.00	0.00
8,200.00	89.00	180.39	2,987.22	-5,279.74	-35.93	5,279.86	0.00	0.00	0.00



Planning Report

Database: VON_EDM
Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: Bone Yard 11 Fee 16H
Well: 16H
Wellbore: Lateral
Design: Plan #2

Local Co-ordinate Reference: Well 16H
TVD Reference: 3425+18 @ 3443.00ft (Planning)
MD Reference: 3425+18 @ 3443.00ft (Planning)
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)
8,300.00	89.00	180.39	2,988.97	-5,379.72	-36.61	5,379.85	0.00	0.00	0.00
8,400.00	89.00	180.39	2,990.71	-5,479.70	-37.29	5,479.83	0.00	0.00	0.00
8,500.00	89.00	180.39	2,992.46	-5,579.69	-37.97	5,579.82	0.00	0.00	0.00
8,600.00	89.00	180.39	2,994.20	-5,679.67	-38.66	5,679.80	0.00	0.00	0.00
8,700.00	89.00	180.39	2,995.95	-5,779.65	-39.34	5,779.79	0.00	0.00	0.00
8,800.00	89.00	180.39	2,997.69	-5,879.63	-40.02	5,879.77	0.00	0.00	0.00
8,900.00	89.00	180.39	2,999.44	-5,979.62	-40.70	5,979.76	0.00	0.00	0.00
9,000.00	89.00	180.39	3,001.18	-6,079.60	-41.38	6,079.74	0.00	0.00	0.00
9,100.00	89.00	180.39	3,002.93	-6,179.58	-42.06	6,179.72	0.00	0.00	0.00
9,200.00	89.00	180.39	3,004.67	-6,279.56	-42.74	6,279.71	0.00	0.00	0.00
9,300.00	89.00	180.39	3,006.42	-6,379.55	-43.42	6,379.69	0.00	0.00	0.00
9,400.00	89.00	180.39	3,008.16	-6,479.53	-44.10	6,479.68	0.00	0.00	0.00
9,500.00	89.00	180.39	3,009.91	-6,579.51	-44.78	6,579.66	0.00	0.00	0.00
9,600.00	89.00	180.39	3,011.65	-6,679.49	-45.46	6,679.65	0.00	0.00	0.00
9,700.00	89.00	180.39	3,013.40	-6,779.48	-46.14	6,779.63	0.00	0.00	0.00
9,800.00	89.00	180.39	3,015.14	-6,879.46	-46.82	6,879.62	0.00	0.00	0.00
9,900.00	89.00	180.39	3,016.89	-6,979.44	-47.50	6,979.60	0.00	0.00	0.00
10,000.00	89.00	180.39	3,018.63	-7,079.42	-48.18	7,079.59	0.00	0.00	0.00
10,100.00	89.00	180.39	3,020.38	-7,179.41	-48.86	7,179.57	0.00	0.00	0.00
10,200.00	89.00	180.39	3,022.13	-7,279.39	-49.54	7,279.56	0.00	0.00	0.00
10,300.00	89.00	180.39	3,023.87	-7,379.37	-50.23	7,379.54	0.00	0.00	0.00
10,400.00	89.00	180.39	3,025.62	-7,479.35	-50.91	7,479.53	0.00	0.00	0.00
10,500.00	89.00	180.39	3,027.36	-7,579.34	-51.59	7,579.51	0.00	0.00	0.00
10,600.00	89.00	180.39	3,029.11	-7,679.32	-52.27	7,679.50	0.00	0.00	0.00
10,620.79	89.00	180.39	3,029.47	-7,700.10	-52.41	7,700.28	0.00	0.00	0.00

BoneYard11Fee#16H PBHL

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
BoneYard11Fee#16H SL - plan hits target center - Point	0.00	360.00	0.00	0.00	0.00	582,630.50	462,205.30	32° 36' 6.095 N	104° 27' 21.834 W
BoneYard11Fee#16H Tg - plan misses target center by 9.53ft at 2014.53ft MD (2000.58 TVD, 219.17 N. 1.50 E) - Point	0.00	360.00	2,000.00	228.68	1.56	582,859.18	462,206.86	32° 36' 8.358 N	104° 27' 21.819 W
BoneYard11Fee#16H LF - plan hits target center - Point	0.00	360.00	2,900.00	-283.09	-1.92	582,347.41	462,203.38	32° 36' 3.294 N	104° 27' 21.852 W
BoneYard11Fee#16H PE - plan misses target center by 0.19ft at 10620.79ft MD (3029.47 TVD, -7700.10 N. -52.41 E) - Point	0.00	360.00	3,029.47	-7,700.10	-52.60	574,930.40	462,152.70	32° 34' 49.896 N	104° 27' 22.345 W



Planning Report

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Wellbore: Lateral
Design: Plan #2

Local Co-ordinate Reference: Well 16H
TVD Reference: 3425+18 @ 3443.00ft (Planning)
MD Reference: 3425+18 @ 3443.00ft (Planning)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
500.73	500.00	Grayburg			
879.09	875.00	San Andres			
2,515.28	2,500.00	Glorieta			
2,621.38	2,600.00	Paddock			

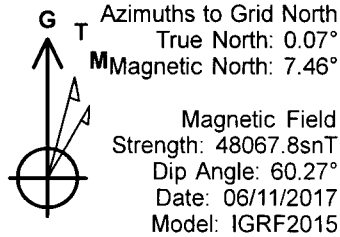
COG OPERATING, LLC

Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: Bone Yard 11 Fee 16H
Well: 16H
Wellbore: Lateral
Design: Plan #2

3425+18 @ 3443.00ft (Planning)
NAD 1927 (NADCON CONUS)

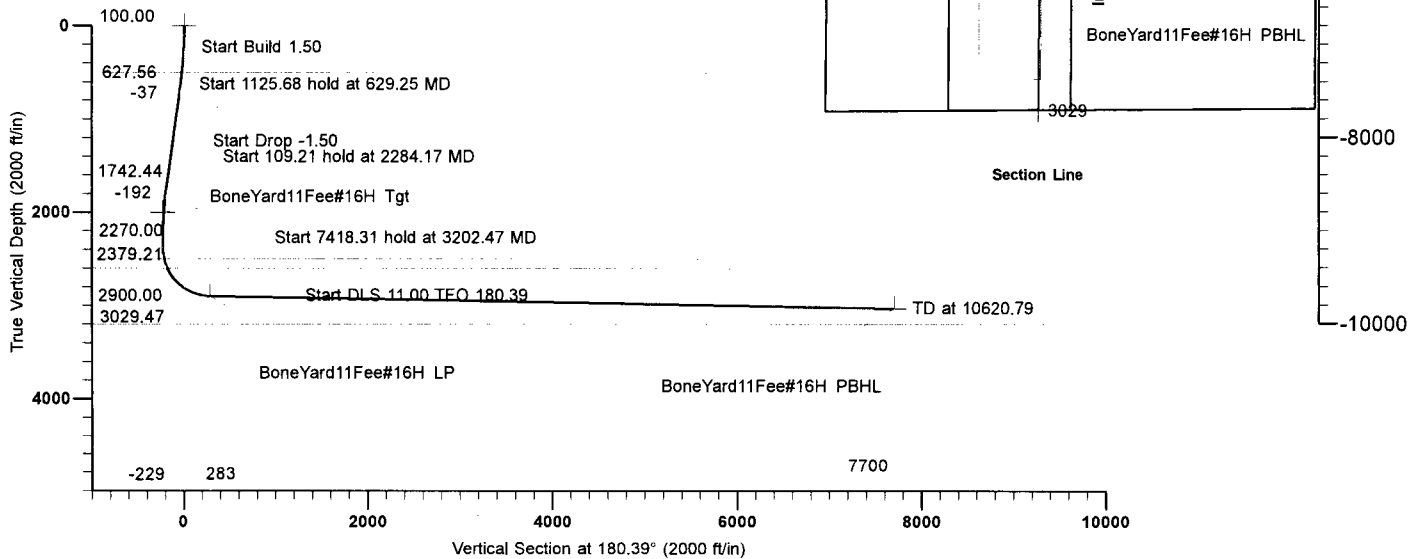


To convert a Magnetic Direction to a Grid Direction, Add 7.46°



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
500.00	500.73	Grayburg
875.00	879.09	San Andres
2500.00	2515.28	Glorieta
2600.00	2621.38	Paddock



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BoneYard11Fee#16H SL	0.00	0.00	0.00	582630.50	462205.30	Point
BoneYard11Fee#16H Tgt	2000.00	228.68	1.56	582859.18	462206.86	Point
BoneYard11Fee#16H LP	2900.00	-283.09	-1.92	582347.41	462203.38	Point
BoneYard11Fee#16H PBHL	3029.47	-7700.10	-52.60	574930.40	462152.70	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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
629.25	7.94	0.39	627.56	36.61	0.25	1.50	0.39	-36.61	
1754.92	7.94	0.39	1742.44	192.07	1.31	0.00	0.00	-192.08	
2284.17	0.00	0.00	2270.00	228.68	1.56	1.50	180.00	-228.68	
2393.38	0.00	0.00	2379.21	228.68	1.56	0.00	0.00	-228.68	
3202.47	89.00	180.39	2900.00	-283.09	-1.93	11.00	180.39	283.10	
10620.79	89.00	180.39	3029.47	-7700.10	-52.60	0.00	0.00	7700.28	BoneYard11Fee#16H PBHL

Plan: Plan #2 (16H/Lateral)
Created By: Mekka Williams
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mekka@esominawell.com
14:33, June 12 2017

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