

District I1625 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) 748-1283 Fax:(575) 748-9720**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) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form C-101

August 1, 2011

Permit 196608

ARTESIA DISTRICT

DEC 11 2014

RECEIVED

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address COG OPERATING LLC One Concho Center Midland, TX 79701		2. OGRID Number 229137
4. Property Code 313860		3. API Number 30-015-42881
5. Property Name HALBERD 27 STATE		6. Well No. 002H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
L	26	17S	28E		2182	S	39	W	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
L	27	17S	28E	L	2281	S	330	W	Eddy

9. Pool Information

RED LAKE; GLORIETA-YESO, NORTHEAST	96836
------------------------------------	-------

Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 3630
16. Multiple N	17. Proposed Depth 8715	18. Formation Yeso Formation	19. Contractor	20. Spud Date 5/1/2015
Depth to Ground water 110		Distance from nearest fresh water well > 1000		Distance to nearest surface water > 1000

☒ We will be using a closed-loop system in lieu of lined pits**21. Proposed Casing and Cement Program**

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	48	350	400	0
Int1	12.25	9.625	40	900	400	0
Int2	8.75	5.5	17	4302	0	
Prod	7.875	5.5	17	8715	1400	

Casing/Cement Program: Additional Comments

COG proposes to drill a 17 1/2" hole to 350' with 8.5ppg, 28 viscosity fresh water system. Set 13 3/8" casing and cement to surface. Drill a 12 1/4" hole to 900' with a 10 ppg, 30 viscosity brine water mud system. Set 9 5/8" casing and cement to surface. Drill an 8 3/4" hole to 3480' MD and kick off and drill an 8 3/4" curve to 4302' MD. Drill a 7-7/8" lateral to new BHL @ 3962' TVD 8715' MD. Run a 5 1/2" 17# L-80 casing to TD cement to surface.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	2000	2000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
 I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☐ if applicable.

Signature: 

Printed Name: Kelly J Holly

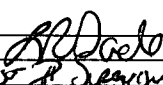
Title: Permitting Tech

Email Address: kholly@concho.com

Date: 12-10-14

Phone: 432

685-4384

OIL CONSERVATION DIVISIONApproved By: 

Title: Dist. E. Seay

Approved Date: 12/23/2014

Expiration Date: 12/23/2016

Conditions of Approval Attached

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) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, 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, NM 87505

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

☐ AMENDED REPORT

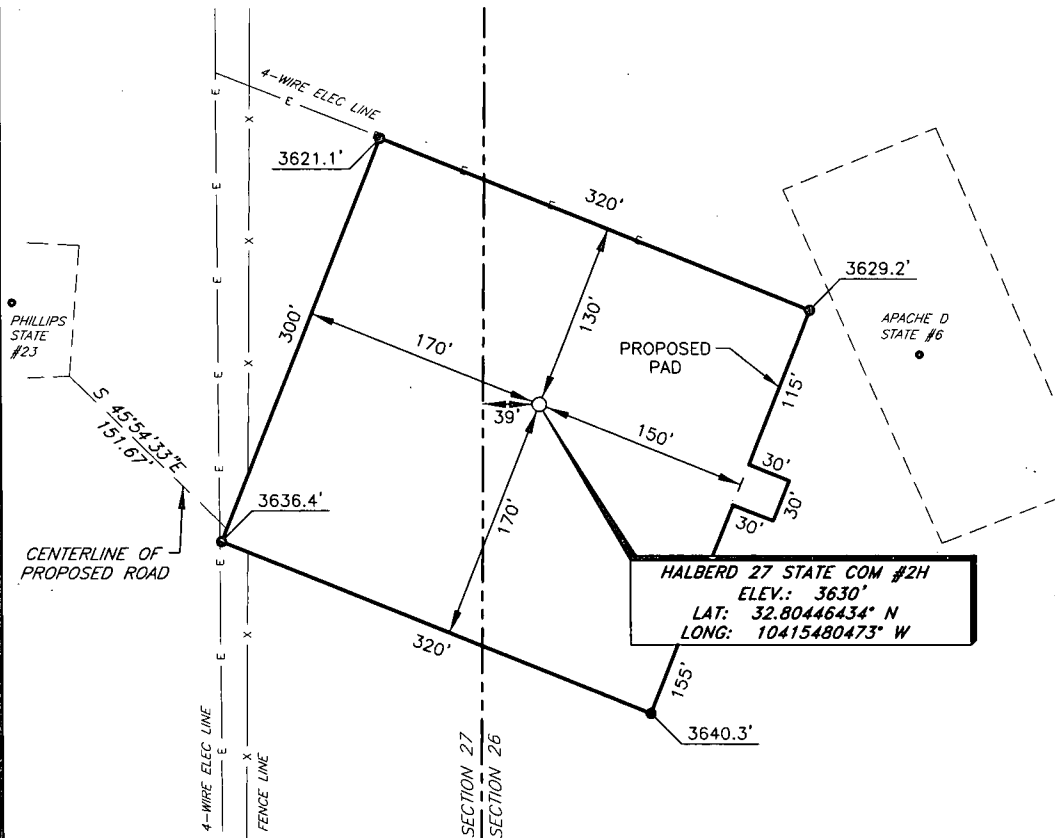
WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015- 42881		² Pool Code 96836		³ Pool Name Red Lake; Glorieta Yeso Northeast					
⁴ Property Code 313860		⁵ Property Name HALBERD 27 STATE COM						⁶ Well Number 2H	
⁷ OGRID NO. 229137		⁸ Operator Name COG OPERATING, LLC						⁹ Elevation 3630'	
¹⁰ Surface Location									
UL or lot no. L	Section 26	Township 17S	Range 28E	Lot Idn	Feet from the 2182	North/South line SOUTH	Feet From the 39	East/West line WEST	County EDDY
¹¹ Bottom Hole Location If Different From Surface									
UL or lot no. L	Section 27	Township 17S	Range 28E	Lot Idn	Feet from the 2281	North/South line SOUTH	Feet from the 330	East/West line WEST	County EDDY
¹² Dedicated Acres 160		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

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.

¹⁶ Estimated Completed Interval: 2184 FSL 330 FEL		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: 12-10-14 Printed Name: Kelly J. Holly E-mail Address: kholly@concho.com
CORNER DATA NAD 27 GRID - NM EAST GEODETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N 656421.5 - E 554854.3 LAT: 32.80446434° N LONG: 104.15480473° W BOTTOM LOCATION N 656454.6 - E 549916.2		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. 9-15-2014 Date of Survey Signature and Seal of Professional Surveyor: 19680 Certificate Number

COG OPERATING, LLC
 HALBERD 27 STATE COM #2H
 (2182' FSL & 39' FWL)
 SECTION 26, T17S, R28E
 N. M. P. M., EDDY CO., NEW MEXICO



HALBERD 27 STATE COM #2H
 ELEV.: 3630'
 LAT: 32.80446434° N
 LONG: 104.15480473° W

DIRECTIONS TO LOCATION

From the intersection of U.S. Hwy. 82 and CR-360 (Bluestem),
 go East on U.S. Hwy. 82 approx. 0.6 miles to a lease road;
 Turn left on lease road and go North approx. 0.5 miles to
 a lease road;
 Turn right on a lease road and go Southeast approx 0.1 miles
 to the Phillips State #23;
 Location is approx. 372 feet East of the existing well.

SCALE: 1" = 100'
 0 50 100
 BEARINGS ARE
 NAD 27 GRID - NM EAST
 DISTANCES ARE
 GROUND.

Firm No.: TX 10193838 NM 4655451

Copyright 2014 - All Rights Reserved

NO.	REVISION	DATE
JOB NO.:	LS140389	
DWG. NO.:	140389PAD	

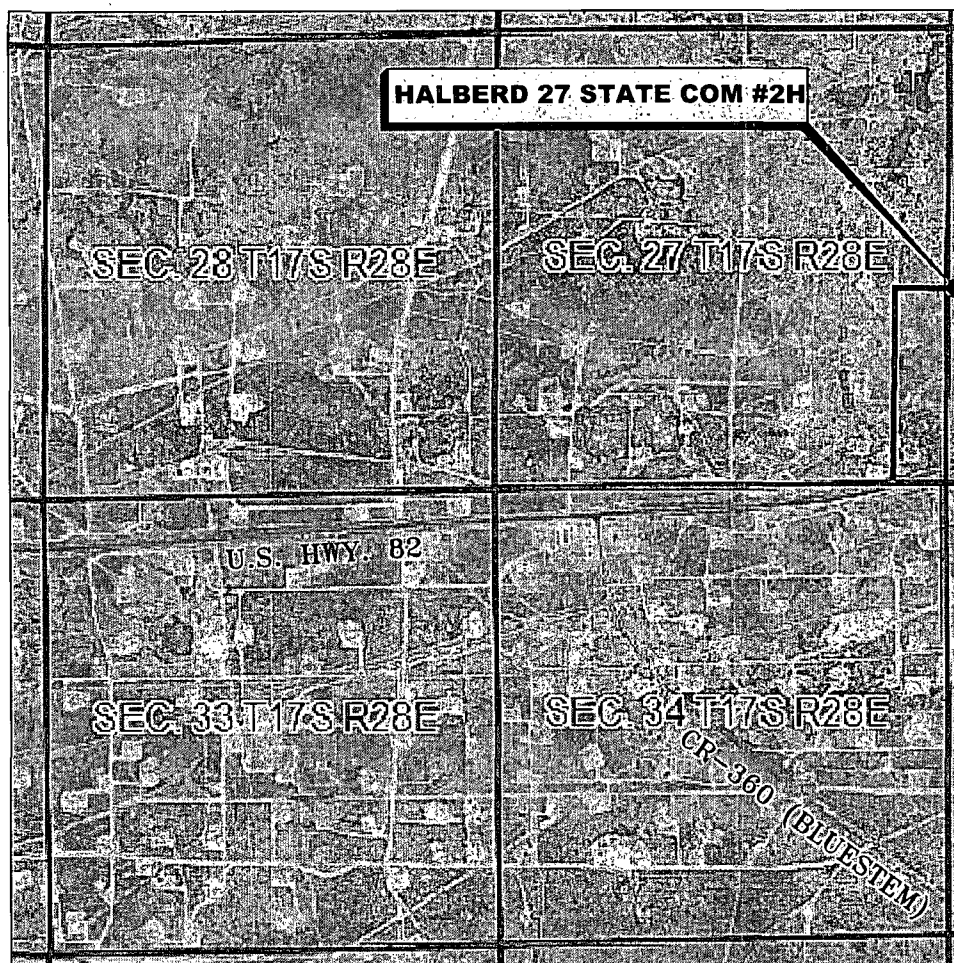
RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 9-15-2014
SURVEYED BY: GB/IE
DRAWN BY: ARJ
APPROVED BY: RMH
SHEET : 1 OF 1

VICINITY MAP

NOT TO SCALE



*SECTION 26, TWP. 17 SOUTH, RGE. 28 EAST,
N. M. P. M., EDDY CO., NEW MEXICO*

OPERATOR: COG Operating, LLC
LEASE: Halberd 27 State Com
WELL NO.: 2H

LOCATION: 2182' FSL & 39' FWL
ELEVATION: 3630'

Firm No.: TX 10193838 NM 4655451

Copyright 2014 - All Rights Reserved

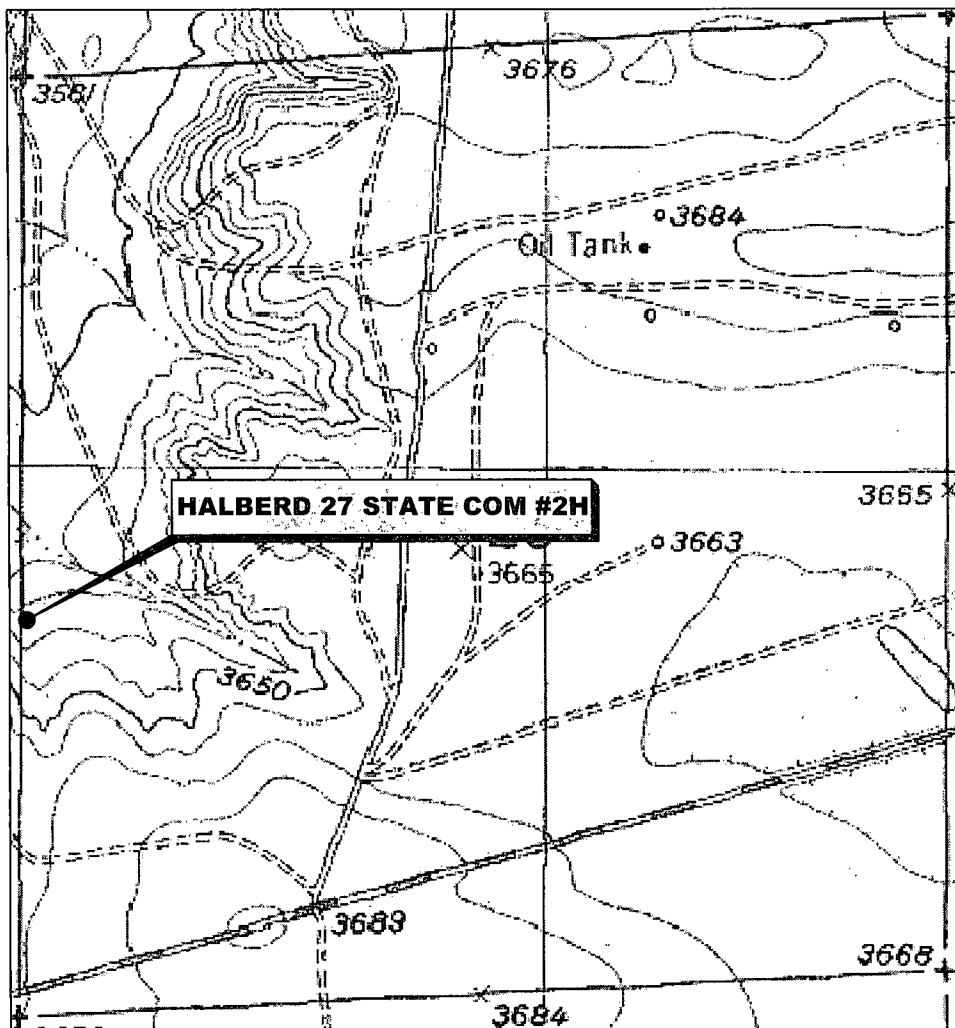
NO.	REVISION	DATE
JOB NO.: LS140389		
DWG. NO.: 140389VM		

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: NTS
DATE: 9-15-2014
SURVEYED BY: GB/IE
DRAWN BY: ARJ
APPROVED BY: RMH
SHEET : 1 OF 1

LOCATION VERIFICATION MAP



*SECTION 26, TWP. 17 SOUTH, RGE. 28 EAST,
N. M. P. M., EDDY CO., NEW MEXICO*

OPERATOR: COG Operating, LLC
LEASE: Halberd 27 State Com
WELL NO.: 2H
ELEVATION: 3630'

LOCATION: 2182' FSL & 39' FWL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Red Lake, N.M. (1955)

Firm No.: TX 10193838 NM 4655451

Copyright 2014 - All Rights Reserved

NO.	REVISION	DATE
JOB NO.:	LS140389	
DWG. NO.:	140389LVM	

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 9-15-2014
SURVEYED BY: GB/IE
DRAWN BY: ARJ
APPROVED BY: RMH
SHEET : 1 OF 1



COG Operating LLC

Eddy County, NM (NAD27 NME)

Halberd 27 State

#2H

WB1

Plan: Plan #1 11-14-14

Surface: 2182' FSL, 39' FWL, Sec 26, T17S, R28E, Unit L

PP: 2184' FSL, 330' FEL, Sec 27, T17S, R28E, Unit I

BHL: 2281' FSL, 330' FWL, Sec 27, T17S, R28E, Unit L

Standard Planning Report

14 November, 2014





Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	KB @ 3648.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3648.00usft (Silver Oak 3)
Site:	Halberd 27 State	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #1 11-14-14		

Project:	Eddy 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:	Halberd 27 State		
Site Position:	Map	Northings:	657,322.00 usft
From:		Easting:	554,777.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 48' 24.98418 N
		Longitude:	104° 9' 18.18172 W
		Grid Convergence:	0.10 °

Well	#2H					
Well Position	+N-S	-900.50 usft	Northing:	656,421.50 usft	Latitude:	32° 48' 16.07208 N
	+E-W	77.00 usft	Easting:	554,854.30 usft	Longitude:	104° 9' 17.29734 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,630.00 usft

Wellbore:	WB1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010_14	11/14/2014	7.48	60.54	48,558

Design:	Plan #1 11-14-14				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	270.38	

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	
3,479.57	0.00	0.00	3,479.57	0.00	0.00	0.00	0.00	0.00	0.00	
4,302.30	90.50	270.38	4,000.42	3.52	-525.40	11.00	11.00	0.00	270.38	
8,715.26	90.50	270.38	3,961.91	33.10	-4,938.10	0.00	0.00	0.00	0.00	BHL-Halberd 27 St #2

Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	KB @ 3648.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3648.00usft (Silver Oak 3)
Site:	Halberd 27 State	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #1.11-14-14		

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
3,479.57	0.00	0.00	3,479.57	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 11°/100' Build									
3,500.00	2.25	270.38	3,499.99	0.00	-0.40	0.40	11.00	11.00	0.00
3,600.00	13.25	270.38	3,598.93	0.09	-13.86	13.86	11.00	11.00	0.00
3,700.00	24.25	270.38	3,693.48	0.31	-45.95	45.95	11.00	11.00	0.00
3,800.00	35.25	270.38	3,780.17	0.64	-95.49	95.49	11.00	11.00	0.00
3,900.00	46.25	270.38	3,855.81	1.08	-160.66	160.66	11.00	11.00	0.00
4,000.00	57.25	270.38	3,917.63	1.60	-239.07	239.07	11.00	11.00	0.00
4,100.00	68.25	270.38	3,963.35	2.20	-327.83	327.84	11.00	11.00	0.00
4,143.64	73.05	270.38	3,977.81	2.47	-368.99	369.00	11.00	11.00	0.00
PP-Halberd 27 St #2H									
4,200.00	79.25	270.38	3,991.29	2.84	-423.68	423.69	11.00	11.00	0.00
4,299.99	90.25	270.38	4,000.43	3.51	-523.10	523.11	11.00	11.00	0.00
TL, 4005' TVD @ 0 VZ, 90.5° Inc									
4,300.00	90.25	270.38	4,000.43	3.51	-523.11	523.12	11.00	11.00	0.00
4,302.30	90.50	270.38	4,000.42	3.52	-525.40	525.42	11.00	11.00	0.00
LP, Hold 90.5° Inc, 270.38° Azm									
4,400.00	90.50	270.38	3,999.57	4.18	-623.10	623.12	0.00	0.00	0.00
4,500.00	90.50	270.38	3,998.69	4.85	-723.10	723.11	0.00	0.00	0.00
4,600.00	90.50	270.38	3,997.82	5.52	-823.09	823.11	0.00	0.00	0.00
4,700.00	90.50	270.38	3,996.95	6.19	-923.08	923.10	0.00	0.00	0.00
4,800.00	90.50	270.38	3,996.08	6.86	-1,023.08	1,023.10	0.00	0.00	0.00
4,900.00	90.50	270.38	3,995.20	7.53	-1,123.07	1,123.10	0.00	0.00	0.00
5,000.00	90.50	270.38	3,994.33	8.20	-1,223.07	1,223.09	0.00	0.00	0.00
5,100.00	90.50	270.38	3,993.46	8.87	-1,323.06	1,323.09	0.00	0.00	0.00
5,200.00	90.50	270.38	3,992.59	9.54	-1,423.05	1,423.09	0.00	0.00	0.00
5,300.00	90.50	270.38	3,991.71	10.21	-1,523.05	1,523.08	0.00	0.00	0.00
5,400.00	90.50	270.38	3,990.84	10.88	-1,623.04	1,623.08	0.00	0.00	0.00
5,500.00	90.50	270.38	3,989.97	11.55	-1,723.04	1,723.07	0.00	0.00	0.00
5,600.00	90.50	270.38	3,989.10	12.22	-1,823.03	1,823.07	0.00	0.00	0.00
5,700.00	90.50	270.38	3,988.22	12.89	-1,923.02	1,923.07	0.00	0.00	0.00
5,800.00	90.50	270.38	3,987.35	13.56	-2,023.02	2,023.06	0.00	0.00	0.00
5,900.00	90.50	270.38	3,986.48	14.23	-2,123.01	2,123.06	0.00	0.00	0.00
6,000.00	90.50	270.38	3,985.60	14.90	-2,223.01	2,223.06	0.00	0.00	0.00
6,100.00	90.50	270.38	3,984.73	15.57	-2,323.00	2,323.05	0.00	0.00	0.00
6,200.00	90.50	270.38	3,983.86	16.24	-2,422.99	2,423.05	0.00	0.00	0.00
6,300.00	90.50	270.38	3,982.99	16.91	-2,522.99	2,523.04	0.00	0.00	0.00
6,400.00	90.50	270.38	3,982.11	17.58	-2,622.98	2,623.04	0.00	0.00	0.00
6,500.00	90.50	270.38	3,981.24	18.25	-2,722.98	2,723.04	0.00	0.00	0.00
6,600.00	90.50	270.38	3,980.37	18.92	-2,822.97	2,823.03	0.00	0.00	0.00
6,700.00	90.50	270.38	3,979.50	19.59	-2,922.96	2,923.03	0.00	0.00	0.00
6,800.00	90.50	270.38	3,978.62	20.26	-3,022.96	3,023.02	0.00	0.00	0.00
6,900.00	90.50	270.38	3,977.75	20.93	-3,122.95	3,123.02	0.00	0.00	0.00
7,000.00	90.50	270.38	3,976.88	21.60	-3,222.94	3,223.02	0.00	0.00	0.00
7,100.00	90.50	270.38	3,976.01	22.27	-3,322.94	3,323.01	0.00	0.00	0.00
7,200.00	90.50	270.38	3,975.13	22.94	-3,422.93	3,423.01	0.00	0.00	0.00
7,300.00	90.50	270.38	3,974.26	23.61	-3,522.93	3,523.01	0.00	0.00	0.00
7,400.00	90.50	270.38	3,973.39	24.28	-3,622.92	3,623.00	0.00	0.00	0.00
7,500.00	90.50	270.38	3,972.52	24.95	-3,722.91	3,723.00	0.00	0.00	0.00
7,600.00	90.50	270.38	3,971.64	25.62	-3,822.91	3,822.99	0.00	0.00	0.00
7,700.00	90.50	270.38	3,970.77	26.30	-3,922.90	3,922.99	0.00	0.00	0.00
7,800.00	90.50	270.38	3,969.90	26.97	-4,022.90	4,022.99	0.00	0.00	0.00
7,900.00	90.50	270.38	3,969.02	27.64	-4,122.89	4,122.98	0.00	0.00	0.00

Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	KB @ 3648.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3648.00usft (Silver Oak 3)
Site:	Halberd 27 State	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #1 11-14-14		

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)
8,000.00	90.50	270.38	3,968.15	28.31	-4,222.88	4,222.98	0.00	0.00	0.00
8,100.00	90.50	270.38	3,967.28	28.98	-4,322.88	4,322.98	0.00	0.00	0.00
8,200.00	90.50	270.38	3,966.41	29.65	-4,422.87	4,422.97	0.00	0.00	0.00
8,300.00	90.50	270.38	3,965.53	30.32	-4,522.87	4,522.97	0.00	0.00	0.00
8,400.00	90.50	270.38	3,964.66	30.99	-4,622.86	4,622.96	0.00	0.00	0.00
8,500.00	90.50	270.38	3,963.79	31.66	-4,722.85	4,722.96	0.00	0.00	0.00
8,600.00	90.50	270.38	3,962.92	32.33	-4,822.85	4,822.96	0.00	0.00	0.00
8,700.00	90.50	270.38	3,962.04	33.00	-4,922.84	4,922.95	0.00	0.00	0.00
8,715.26	90.50	270.38	3,961.91	33.10	-4,938.10	4,938.21	0.00	0.00	0.00
TD at 8715.26' MD - BHL-Halberd 27 St #2H									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL-Halberd 27 St #2H - hit/miss target - Shape - Point	0.00	0.00	3,961.91	33.10	-4,938.10	656,454.60	549,916.20	32° 48' 16.47839 N	104° 10' 15.15398 W
PP-Halberd 27 St #2H - plan hits target center - Point	0.00	0.00	3,977.81	2.47	-369.00	656,423.98	554,485.30	32° 48' 16.10270 N	104° 9' 21.62067 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,299.99	4,000.43	TL, 4005' TVD @ 0 VZ, 90.5° Inc		-0.50	270.38	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Comment
3,479.57	3,479.57	0.00	0.00	KOP, Begin 11°/100' Build
4,302.30	4,000.42	3.52	-525.40	LP, Hold 90.5° Inc, 270.38° Azm
8,715.26	3,961.91	33.10	-4,938.10	TD at 8715.26' MD