

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
ARTESIA DISTRICT
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

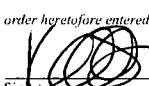
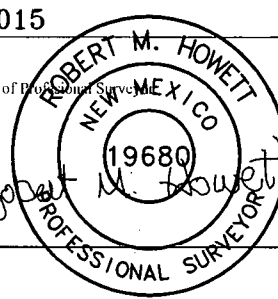
RECEIVED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

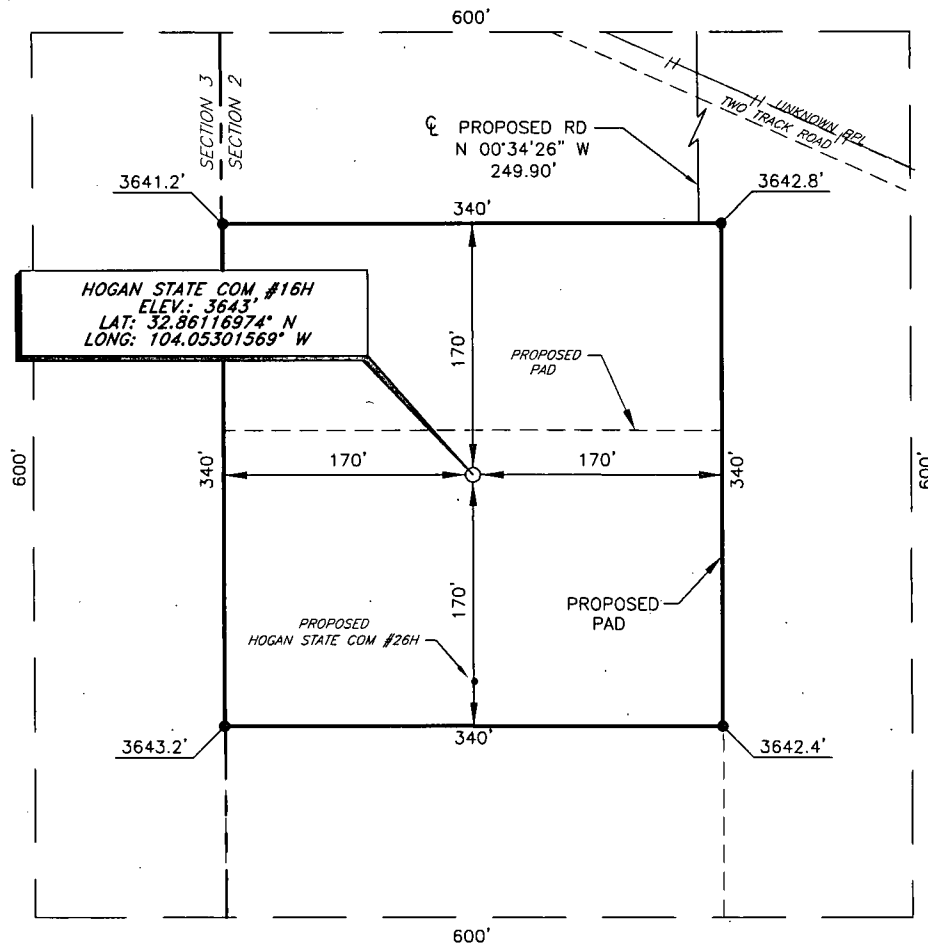
¹ API Number 30-015- 43335		² Pool Code 96610		³ Pool Name Empire; Glorieta Yeso East					
⁴ Property Code 39291		⁵ Property Name HOGAN STATE COM						⁶ Well Number 16H	
⁷ OGRID NO. 229137		⁸ Operator Name COG OPERATING, LLC						⁹ Elevation 3643'	
¹⁰ Surface Location									
UL or lot no. L	Section 2	Township 17S	Range 29E	Lot Idn	Feet from the 1790	North/South line SOUTH	Feet From the 170	East/West line WEST	County EDDY
¹¹ Bottom Hole Location If Different From Surface									
UL or lot no. I	Section 2	Township 17S	Range 29E	Lot Idn	Feet from the 1650	North/South line SOUTH	Feet from the 330	East/West line EAST	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 GEODETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N 677119.1 - E 586075.2 LAT: 32.86116974° N LONG: 104.05301569° W BOTTOM HOLE N 676972.5 - E 590869.6		¹⁷ CORNER DATA NAD 27 GRID - NM EAST A: FOUND 1/2" REBAR N 675329.9 - E 585912.5 B: FOUND BRASS CAP "1914" N 677971.0 - E 585901.6 C: FOUND BRASS CAP "1914" N 680600.2 - E 585904.0 D: FOUND BRASS CAP "1914" N 680599.8 - E 588550.2 E: FOUND BRASS CAP "1916" N 680599.9 - E 591196.5 F: FOUND BRASS CAP "1914" N 677961.6 - E 591198.9 G: FOUND BRASS CAP "1914" N 675322.5 - E 591200.4 H: FOUND BRASS CAP "1914" N 675322.9 - E 588553.7		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: 9-2-15 Printed Name: Kelly J. Holly E-mail Address: kholly@concho.com	
¹⁸ GEODETIC DATA NAD 27 GRID - NM EAST 1: CALCULATED CORNER N 676650.5 - E 585907.0 2: CALCULATED CORNER N 676642.0 - E 591199.7		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. Date of Survey: 6-19-2015 Signature and Seal of Professional Surveyor:  Certificate Number: 19680			

Project Area
Producing Area
S 88°14'53" E (GRID)
4,797.86' (HORIZ.)
Estimated Completed Interval: 1785 FSL 330 FWL
1790'
330'
170'
330'
1650'

COG OPERATING, LLC
HOGAN STATE COM #16H
(1790' FSL & 170' FWL)
SECTION 2, T17S, R29E
N. M. P. M., EDDY CO., NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of CR-215 (Keweenaw Road) and US Hwy. 82;
Go North on CR-215 approx. 3.0 miles to a two track road;
Turn left and go Southwest approx. 0.6 miles;
Turn right and continue Northwest on two tract road approx. 0.5 miles;
Location is approx. 327 feet South of the two tract road.

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

Firm No.: TX 10193838 NM 4655451

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NO.	REVISION	DATE
JOB NO.: LS1505261		
DWG. NO.: 1505261PAD		

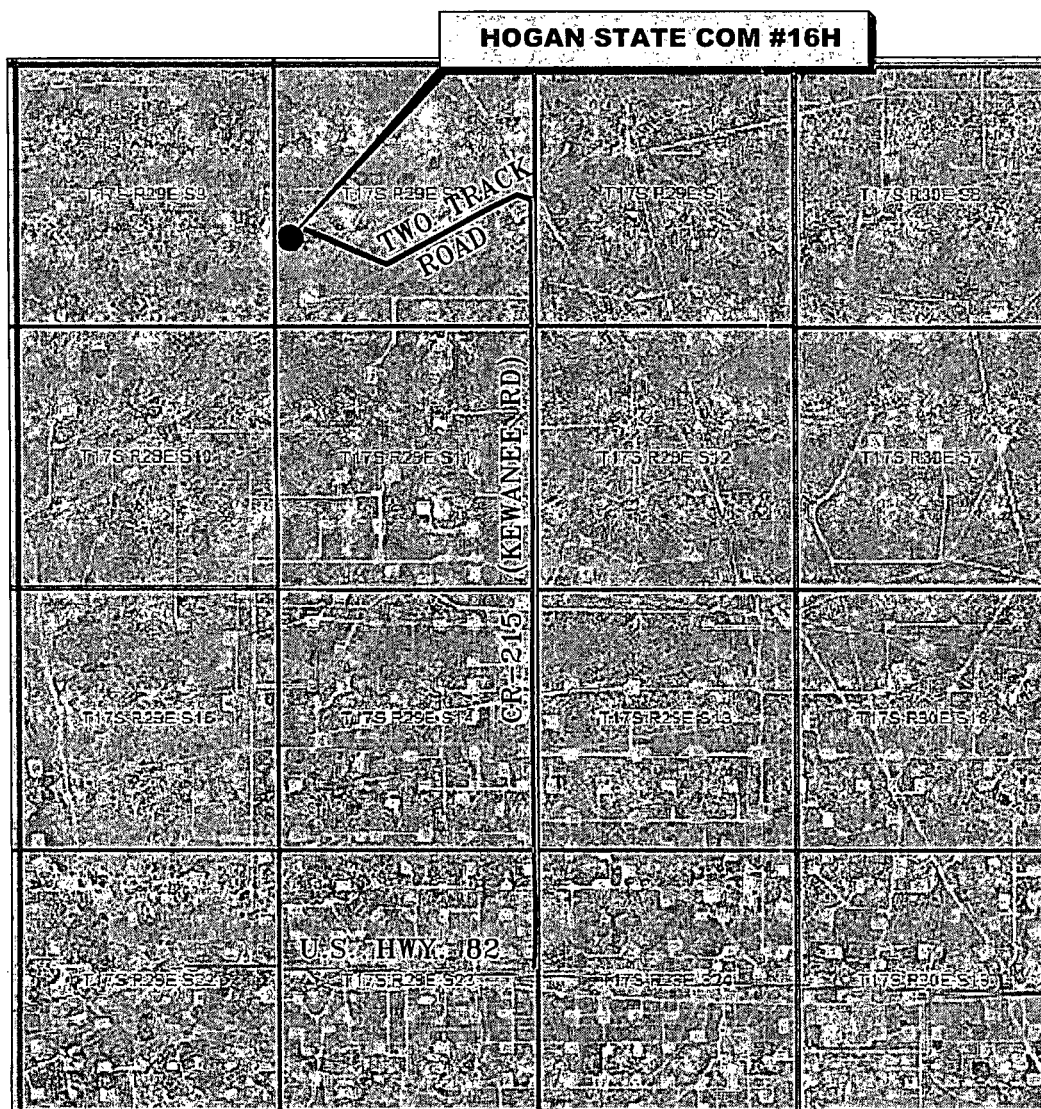
RRC

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

SCALE: 1" = 100'
DATE: 6-19-15
SURVEYED BY: GB/CG
DRAWN BY: JC
APPROVED BY: RMH
SHEET : 1 OF 1

VICINITY MAP

NOT TO SCALE



SECTION 2, TWP. 17 SOUTH, RGE. 29 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: COG Operating, LLC
LEASE: Hogan State Com
WELL NO.: 16H

LOCATION: 1790' FSL & 170' FWL
ELEVATION: 3643'

Firm No.: TX 10193838 NM 4655451

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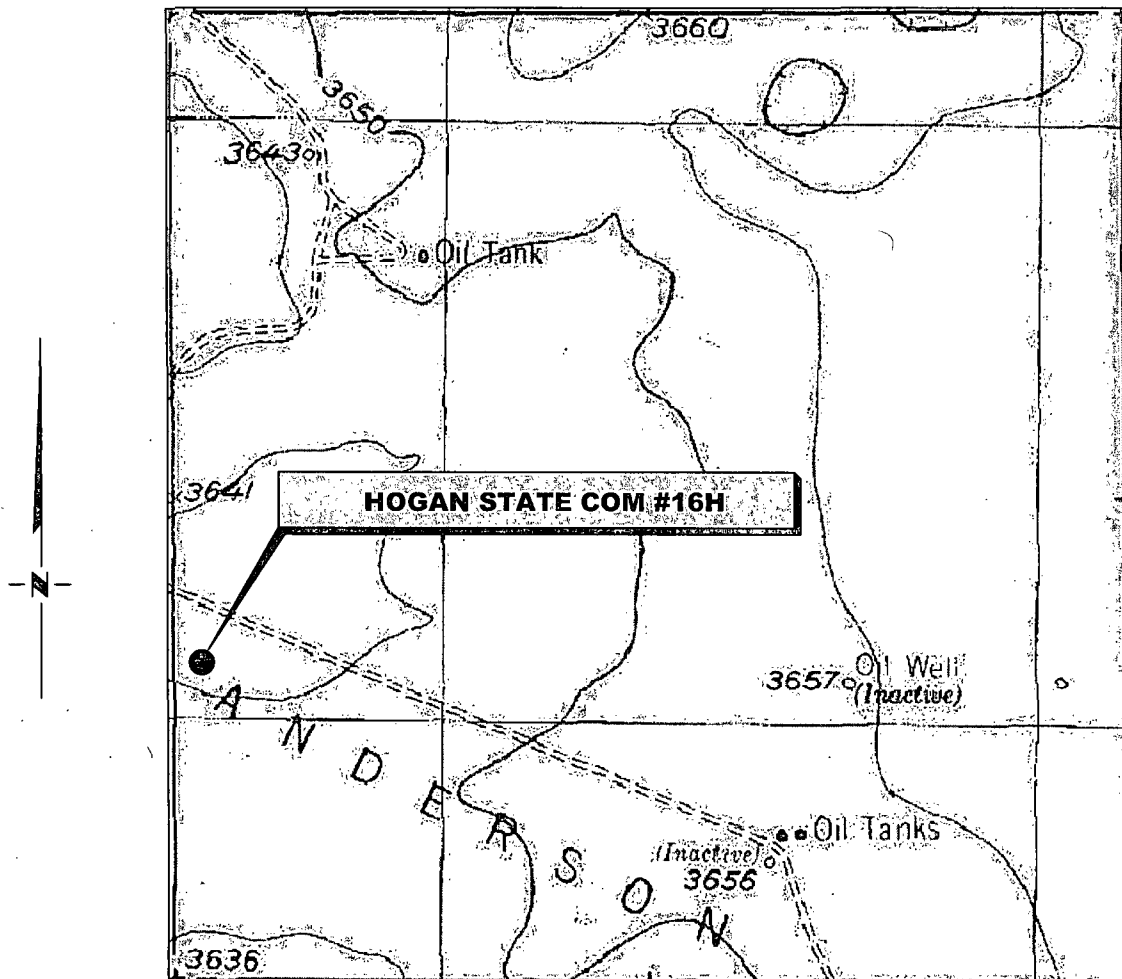
NO.	REVISION	DATE
JOB NO.: LS1505261		
DWG. NO.: 1505261VM		

RRC

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

SCALE: N.T.S.
DATE: 6-19-15
SURVEYED BY: ER/BC
DRAWN BY: JC
APPROVED BY: RMH
SHEET : 1 OF 1

LOCATION VERIFICATION MAP



SECTION 2, TWP. 17 SOUTH, RGE. 29 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: COG Operating, LLC
LEASE: Hogan State Com
WELL NO.: 16H
ELEVATION: 3643'

LOCATION: 1790' FSL & 170' FWL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Red Lake SE, NM (1955)

Firm No.: TX 10193838 NM 4655451

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NO.	REVISION	DATE
JOB NO.: LS1505261		
DWG. NO.: 1505261LVM		

RRC

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

SCALE: 1" = 1000'
DATE: 6-19-15
SURVEYED BY: GB/CG
DRAWN BY: JC
APPROVED BY: RMH
SHEET : 1 OF 1



COG Operating LLC

Eddy County, NM

Hogan State Com #16H

SHL: 1790' FSL, 170' FWL, Sec 2, T17S, R29E, Unit L

PP: 1785.3' FSL, 330' FWL, Sec 2, T17S, R29E, Unit L

BHL: 1650' FSL, 330' FEL, Sec 2, T17S, R29E, Unit I

Plan: Plan #1

Standard Planning Report

12 August, 2015





TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site: Hogan State Com #16H
Company:	COG Operating LLC	TVD Reference:	KB @ 3655.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3655.0usft (United 43)
Site:	Hogan State Com #16H	North Reference:	Grid
Well:	SHL 1790' FSL 170' FWL Sec 2 T17S R29E Unit L	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL 1650' FSL 330' FEL Sec 2 T17S R29E Unit L		
Design:	Plan #1		

Project: Eddy County, NM			
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: Hogan State Com #16H					
Site Position:		Northing:	677,119.10 usft	Latitude:	32° 51' 40.211 N
From:	Map	Easting:	586,075.20 usft	Longitude:	104° 3' 10.856 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well	SHL 1790' FSL 170' FWL Sec 2 T17S R29E Unit L					
Well Position	+N/-S	0.0 usft	Northing:	677,119.10 usft	Latitude:	32° 51' 40.211 N
	+E/-W	0.0 usft	Easting:	586,075.20 usft	Longitude:	104° 3' 10.856 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,643.0 usft

Wellbore	BHL 1650' FSL 330' FEL Sec 2 T17S R29E Unit I				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/12/2015	7.42	60.59	48,454

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	91.75

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,829.2	0.00	0.00	3,829.2	0.0	0.0	0.00	0.00	0.00	0.00	
4,656.5	91.00	91.75	4,350.0	-16.2	529.7	11.00	11.00	11.09	91.75	
8,923.8	91.00	91.75	4,275.5	-146.6	4,794.4	0.00	0.00	0.00	0.00	BHL (HSC #16H/OH I



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Hogan State Com #16H
Company:	COG Operating LLC	TVD Reference:	KB @ 3655.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3655.0usft (United 43)
Site:	Hogan State Com #16H	North Reference:	Grid
Well:	SHL: 1790' FSL; 170' FWL Sec 2, T17S, R29E, Unit L	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 1650' FSL, 330' FEL, Sec 2, T17S, R29E, Unit I		
Design:	Plan #1		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,829.2	0.00	0.00	3,829.2	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start DLS 11.00 TFO 91.75									
3,850.0	2.29	91.75	3,850.0	0.0	0.4	0.4	11.00	11.00	0.00
3,900.0	7.79	91.75	3,899.8	-0.1	4.8	4.8	11.00	11.00	0.00
3,950.0	13.29	91.75	3,948.9	-0.4	13.9	13.9	11.00	11.00	0.00
4,000.0	18.79	91.75	3,997.0	-0.8	27.7	27.8	11.00	11.00	0.00
4,050.0	24.29	91.75	4,043.4	-1.4	46.1	46.1	11.00	11.00	0.00
4,100.0	29.79	91.75	4,088.0	-2.1	68.8	68.8	11.00	11.00	0.00
4,150.0	35.29	91.75	4,130.1	-2.9	95.7	95.7	11.00	11.00	0.00
4,200.0	40.79	91.75	4,169.5	-3.9	126.4	126.5	11.00	11.00	0.00
4,250.0	46.29	91.75	4,205.7	-4.9	160.9	160.9	11.00	11.00	0.00
4,300.0	51.79	91.75	4,238.5	-6.1	198.6	198.7	11.00	11.00	0.00
4,350.0	57.29	91.75	4,267.5	-7.3	239.3	239.4	11.00	11.00	0.00



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Hogan State Com #16H
Company:	COG Operating LLC	TVD Reference:	KB @ 3655.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3655.0usft (United 43)
Site:	Hogan State Com #16H	North Reference:	Grid
Well:	SHL: 1790' FSL: 170' FWL: Sec 2, T17S, R29E, Unit 1	Survey/Calculation Method:	Minimum Curvature
Wellbore:	BHL: 1650' FSL: 330' FEL: Sec 2, T17S, R29E, Unit 1		
Design:	Plan #1		

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)	
4,400.0	62.79	91.75	4,292.4	-8.6	282.6	282.7	11.00	11.00	0.00	
4,450.0	68.29	91.75	4,313.1	-10.0	328.0	328.2	11.00	11.00	0.00	
4,500.0	73.79	91.75	4,329.4	-11.5	375.3	375.4	11.00	11.00	0.00	
4,550.0	79.29	91.75	4,341.0	-13.0	423.9	424.1	11.00	11.00	0.00	
4,600.0	84.79	91.75	4,347.9	-14.5	473.3	473.6	11.00	11.00	0.00	
4,650.0	90.29	91.75	4,350.1	-16.0	523.2	523.5	11.00	11.00	0.00	
4,656.5	91.00	91.75	4,350.0	-16.2	529.7	530.0	11.00	11.00	0.00	
EOC - Start 4267.3 hold at 4656.5 MD										
4,700.0	91.00	91.75	4,349.2	-17.5	573.2	573.5	0.00	0.00	0.00	
4,800.0	91.00	91.75	4,347.5	-20.6	673.2	673.5	0.00	0.00	0.00	
4,900.0	91.00	91.75	4,345.7	-23.6	773.1	773.5	0.00	0.00	0.00	
5,000.0	91.00	91.75	4,344.0	-26.7	873.0	873.4	0.00	0.00	0.00	
5,100.0	91.00	91.75	4,342.3	-29.8	973.0	973.4	0.00	0.00	0.00	
5,200.0	91.00	91.75	4,340.5	-32.8	1,072.9	1,073.4	0.00	0.00	0.00	
5,300.0	91.00	91.75	4,338.8	-35.9	1,172.8	1,173.4	0.00	0.00	0.00	
5,400.0	91.00	91.75	4,337.0	-38.9	1,272.8	1,273.4	0.00	0.00	0.00	
5,500.0	91.00	91.75	4,335.3	-42.0	1,372.7	1,373.4	0.00	0.00	0.00	
5,600.0	91.00	91.75	4,333.5	-45.0	1,472.7	1,473.3	0.00	0.00	0.00	
5,700.0	91.00	91.75	4,331.8	-48.1	1,572.6	1,573.3	0.00	0.00	0.00	
5,800.0	91.00	91.75	4,330.0	-51.1	1,672.5	1,673.3	0.00	0.00	0.00	
5,900.0	91.00	91.75	4,328.3	-54.2	1,772.5	1,773.3	0.00	0.00	0.00	
6,000.0	91.00	91.75	4,326.5	-57.3	1,872.4	1,873.3	0.00	0.00	0.00	
6,100.0	91.00	91.75	4,324.8	-60.3	1,972.3	1,973.3	0.00	0.00	0.00	
6,200.0	91.00	91.75	4,323.1	-63.4	2,072.3	2,073.3	0.00	0.00	0.00	
6,300.0	91.00	91.75	4,321.3	-66.4	2,172.2	2,173.2	0.00	0.00	0.00	
6,400.0	91.00	91.75	4,319.6	-69.5	2,272.2	2,273.2	0.00	0.00	0.00	
6,500.0	91.00	91.75	4,317.8	-72.5	2,372.1	2,373.2	0.00	0.00	0.00	
6,600.0	91.00	91.75	4,316.1	-75.6	2,472.0	2,473.2	0.00	0.00	0.00	
6,700.0	91.00	91.75	4,314.3	-78.6	2,572.0	2,573.2	0.00	0.00	0.00	
6,800.0	91.00	91.75	4,312.6	-81.7	2,671.9	2,673.2	0.00	0.00	0.00	
6,900.0	91.00	91.75	4,310.8	-84.8	2,771.9	2,773.1	0.00	0.00	0.00	
7,000.0	91.00	91.75	4,309.1	-87.8	2,871.8	2,873.1	0.00	0.00	0.00	
7,100.0	91.00	91.75	4,307.4	-90.9	2,971.7	2,973.1	0.00	0.00	0.00	
7,200.0	91.00	91.75	4,305.6	-93.9	3,071.7	3,073.1	0.00	0.00	0.00	
7,300.0	91.00	91.75	4,303.9	-97.0	3,171.6	3,173.1	0.00	0.00	0.00	
7,400.0	91.00	91.75	4,302.1	-100.0	3,271.5	3,273.1	0.00	0.00	0.00	
7,500.0	91.00	91.75	4,300.4	-103.1	3,371.5	3,373.1	0.00	0.00	0.00	
7,600.0	91.00	91.75	4,298.6	-106.1	3,471.4	3,473.0	0.00	0.00	0.00	
7,700.0	91.00	91.75	4,296.9	-109.2	3,571.4	3,573.0	0.00	0.00	0.00	
7,800.0	91.00	91.75	4,295.1	-112.3	3,671.3	3,673.0	0.00	0.00	0.00	
7,900.0	91.00	91.75	4,293.4	-115.3	3,771.2	3,773.0	0.00	0.00	0.00	
8,000.0	91.00	91.75	4,291.6	-118.4	3,871.2	3,873.0	0.00	0.00	0.00	
8,100.0	91.00	91.75	4,289.9	-121.4	3,971.1	3,973.0	0.00	0.00	0.00	
8,200.0	91.00	91.75	4,288.2	-124.5	4,071.0	4,072.9	0.00	0.00	0.00	
8,300.0	91.00	91.75	4,286.4	-127.5	4,171.0	4,172.9	0.00	0.00	0.00	
8,400.0	91.00	91.75	4,284.7	-130.6	4,270.9	4,272.9	0.00	0.00	0.00	
8,500.0	91.00	91.75	4,282.9	-133.6	4,370.9	4,372.9	0.00	0.00	0.00	
8,600.0	91.00	91.75	4,281.2	-136.7	4,470.8	4,472.9	0.00	0.00	0.00	
8,700.0	91.00	91.75	4,279.4	-139.8	4,570.7	4,572.9	0.00	0.00	0.00	
8,800.0	91.00	91.75	4,277.7	-142.8	4,670.7	4,672.9	0.00	0.00	0.00	
8,900.0	91.00	91.75	4,275.9	-145.9	4,770.6	4,772.8	0.00	0.00	0.00	
8,923.8	91.00	91.75	4,275.5	-146.6	4,794.4	4,796.6	0.00	0.00	0.00	



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Hogan State Com #16H
Company:	COG Operating LLC	TVD Reference:	KB @ 3655.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3655.0usft (United 43)
Site:	Hogan State Com #16H	North Reference:	Grid
Well:	SHL 1790 FSL 170 FWL Sec 2, T17S R29E, Unit L	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL 1650 FSL 330 FEL Sec 2, T17S R29E, Unit L		
Design:	Plan #1		

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)
TD at 8923.8									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
hit/miss target									
Shape									
PP (HSC #16H/OH Plan - plan hits target center - Point	0.00	0.00	4,204.9	-4.9	160.0	677,114.20	586,235.20	32° 51' 40.158 N	104° 3' 8.981 W
BHL (HSC #16H/OH Pla - plan hits target center - Point	0.00	0.00	4,275.5	-146.6	4,794.4	676,972.50	590,869.60	32° 51' 38.631 N	104° 2' 14.652 W
EOC (HSC #16H/OH Pl - plan hits target center - Point	0.00	0.00	4,350.0	-16.2	529.7	677,102.90	586,604.94	32° 51' 40.037 N	104° 3' 4.646 W

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,829.2	3,829.2	0.0	0.0	KOP - Start DLS 11.00 TFO 91.75
4,656.5	4,350.0	-16.2	529.7	EOC - Start 4267.3 hold at 4656.5 MD
8,923.8	4,275.5	-146.6	4,794.4	TD at 8923.8



Section Details										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3829.2	0.00	0.00	3829.2	0.0	0.0	0.00	0.00	0.0	
3	4656.5	91.00	91.75	4350.0	-16.2	529.7	11.00	91.75	530.0	
4	8923.8	91.00	91.75	4275.5	-146.6	4794.4	0.00	0.00	4796.6	BHL (HSC #16H/OH Plan #1)

Ground Elevation:: 3643.0

RKB Elevation: KB @ 3655.0usft (United 43)

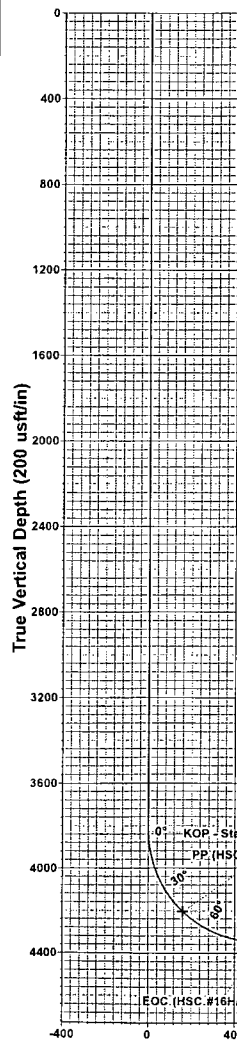
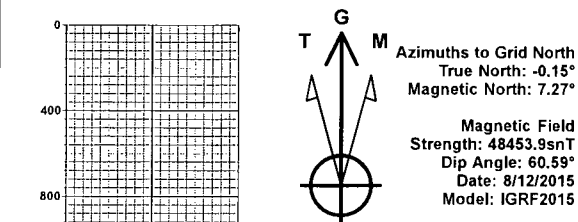
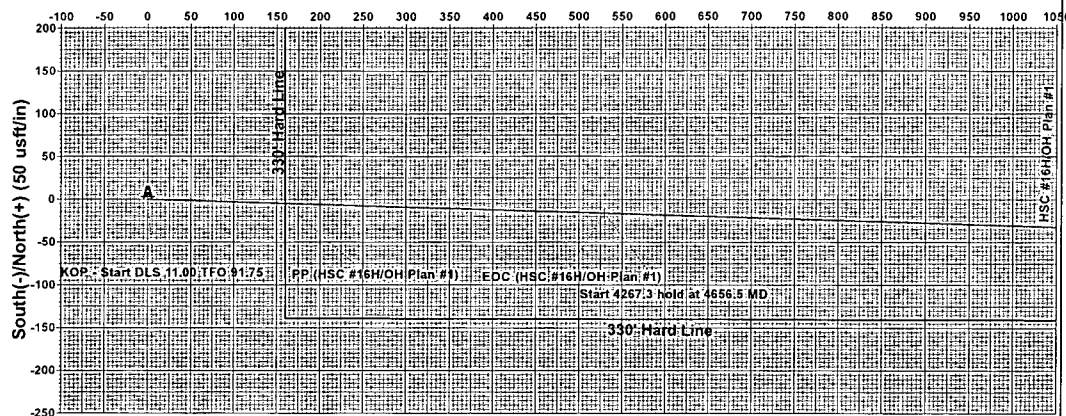
Northing 677119.10 Easting 586075.20 Latitude 32° 51' 40.211 N Longitude 104° 3' 10.856 W

COG Operating LLC
Project: Eddy County, NM
Site: Hogan State Com #16H

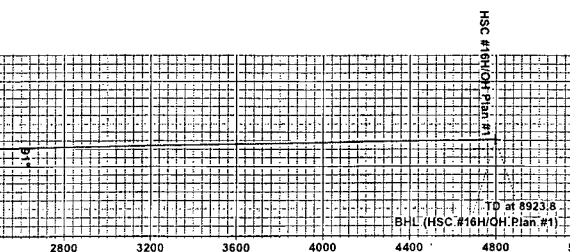
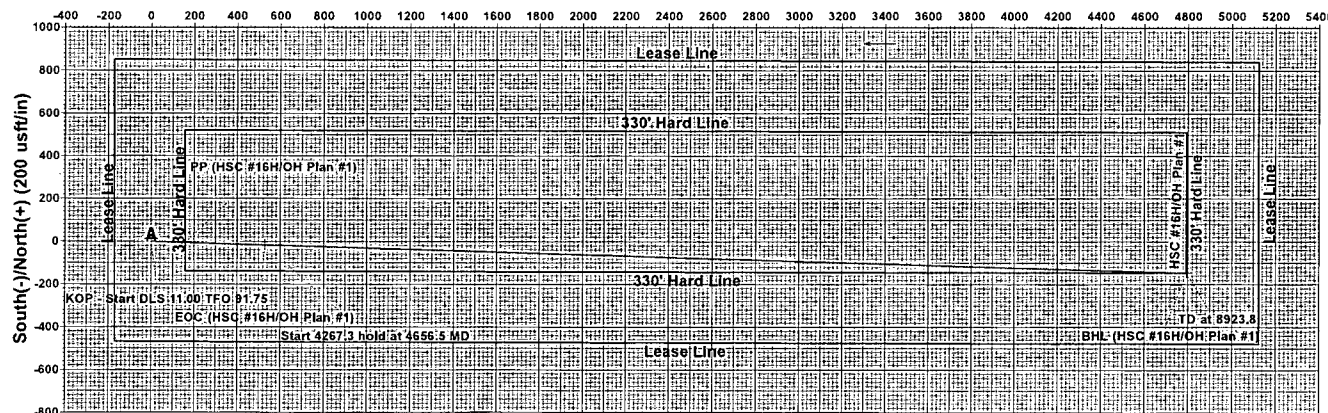
Well: SHL: 1790' FSL, 170' FWL, Sec 2, T17S, R29E, Unit L
Wellbore: BHL: 1650' FSL, 330' FEL, Sec 2, T17S, R29E, Unit I

Plan: Plan #1 (SHL: 1790' FSL, 170' FWL, Sec 2, T17S, R29E, Unit L/BHL: 1650' FSL, 330' FEL, Sec 2, T17S, R29E, Unit I)

West(-)/East(+) (50 usft/in)



West(-)/East(+) (200 usft/in)



Vertical Section at 91.75° (200 usft/in)
Terra Directional Services LLC
322 Spring Hill Drive, Suite A300, Spring, Tx 77386
Phone: 432-425-7532

PROJECT DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

