

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 **NM OIL CONSERVATION**
Energy, Minerals & Natural Resources Department
ARTESIA DISTRICT
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505
SEP 04 2015
RECEIVED

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

☐ AMENDED REPORT

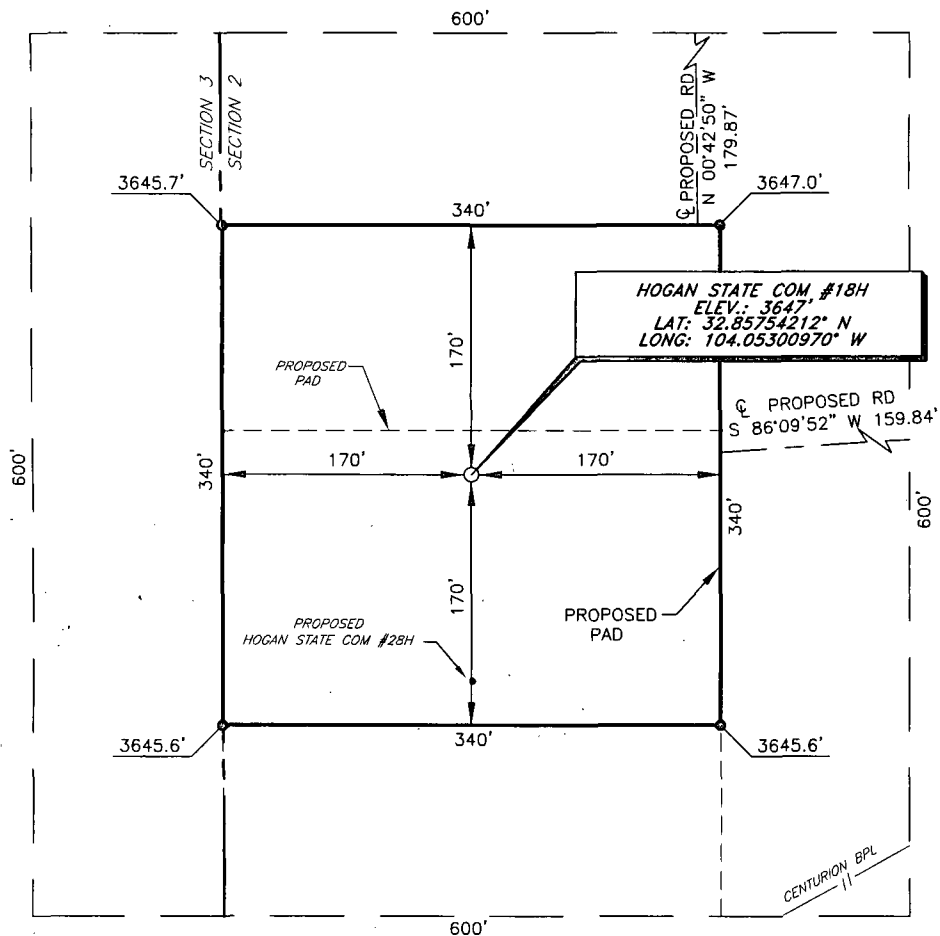
WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015- 43337		2 Pool Code 96610		3 Pool Name Empire; Glorieta Yeso East					
4 Property Code 39291		5 Property Name HOGAN STATE COM						6 Well Number 18H	
7 GRID NO. 229137		8 Operator Name COG OPERATING, LLC						9 Elevation 3647'	
10 Surface Location									
UL or lot no. M	Section 2	Township 17S	Range 29E	Lot Idn	Feet from the 470	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. P	Section 2	Township 17S	Range 29E	Lot Idn	Feet from the 330	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 675799.4 - E 586080.5 LAT: 32.85754212° N LONG: 104.05300970° W BOTTOM HOLE N 675652.4 - E 590870.3 CORNER DATA NAD 27 GRID - NM EAST 1: CALCULATED CORNER N 676650.5 - E 585907.0 2: CALCULATED CORNER N 676642.0 - E 591199.7 Estimated Completed Interval: 445 FSL 330 FWL		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, as required by the division. Signature: <i>Kelly J. Holly</i> Date: 9-2-2015 Printed Name: Kelly J. Holly E-mail Address: kholly@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. Date of Survey: 6-18-2015 Signature and Seal of Professional Surveyor: <i>Robert M. Howett</i> Certificate Number: 19680		19 Project Area Producing Area S 88°14'35" E (GRID) 4,793.28' (HORIZ.) RRC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS1505265	

COG OPERATING, LLC
HOGAN STATE COM #18H
(470' FSL & 170' FWL)
SECTION 2, T17S, R29E
N. M. P. M., EDDY CO., NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of CR-215 (Kewanee Road) and US Hwy. 82;
Go North on CR-215 approx. 2.5 miles to lease road on the left;
Turn left and go West approx. 0.9 miles to the Petra State Com #1;
Location is approx. 523 feet Southwest of 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 2015 - All Rights Reserved

NO.	REVISION	DATE
JOB NO.:	LS1505265	
DWG. NO.:	1505265PAD	

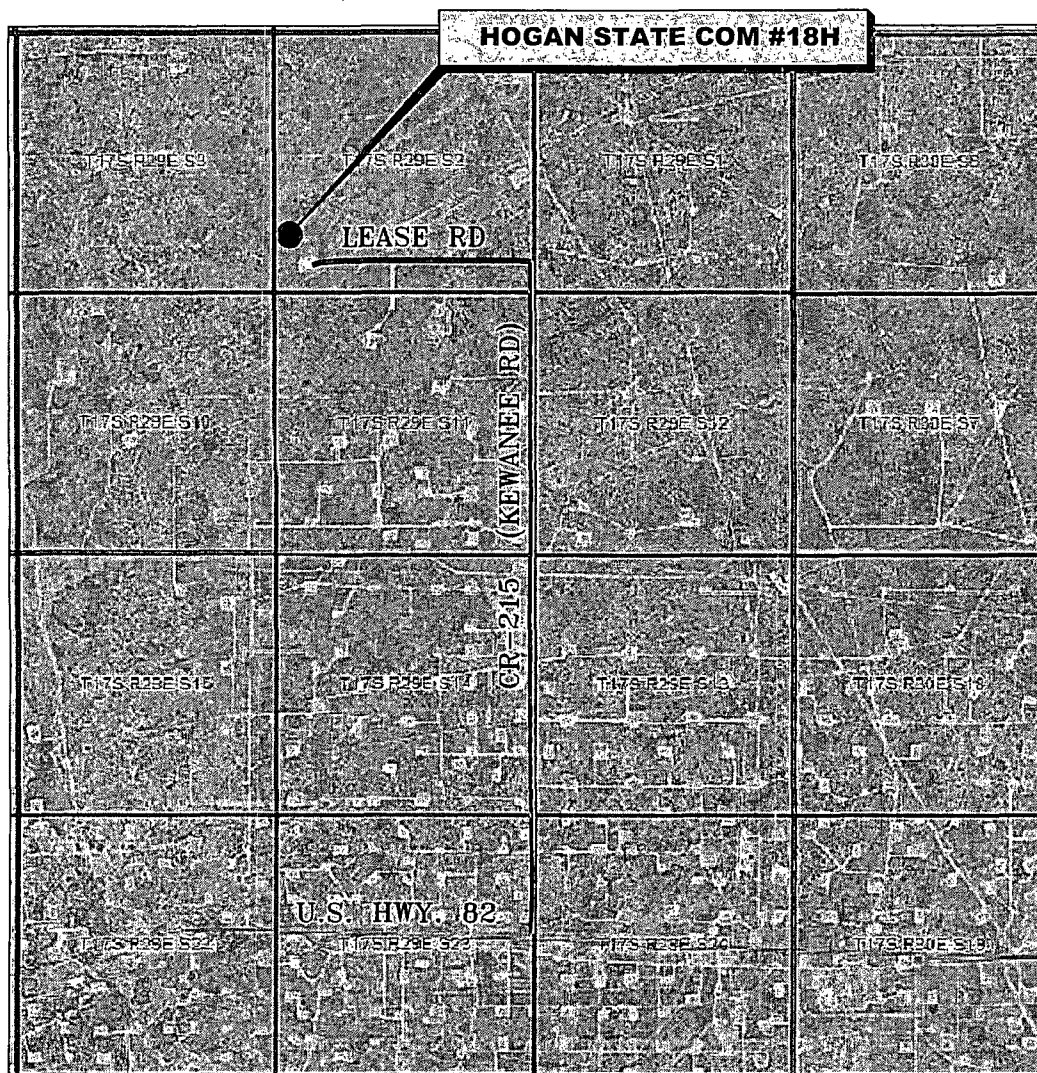
RRC

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

SCALE: 1" = 100'
DATE: 6-18-15
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.: 18H

LOCATION: 470' FSL & 170' FWL
ELEVATION: 3647'

Firm No.: TX 10193838 NM 4655451

Copyright 2015 - All Rights Reserved

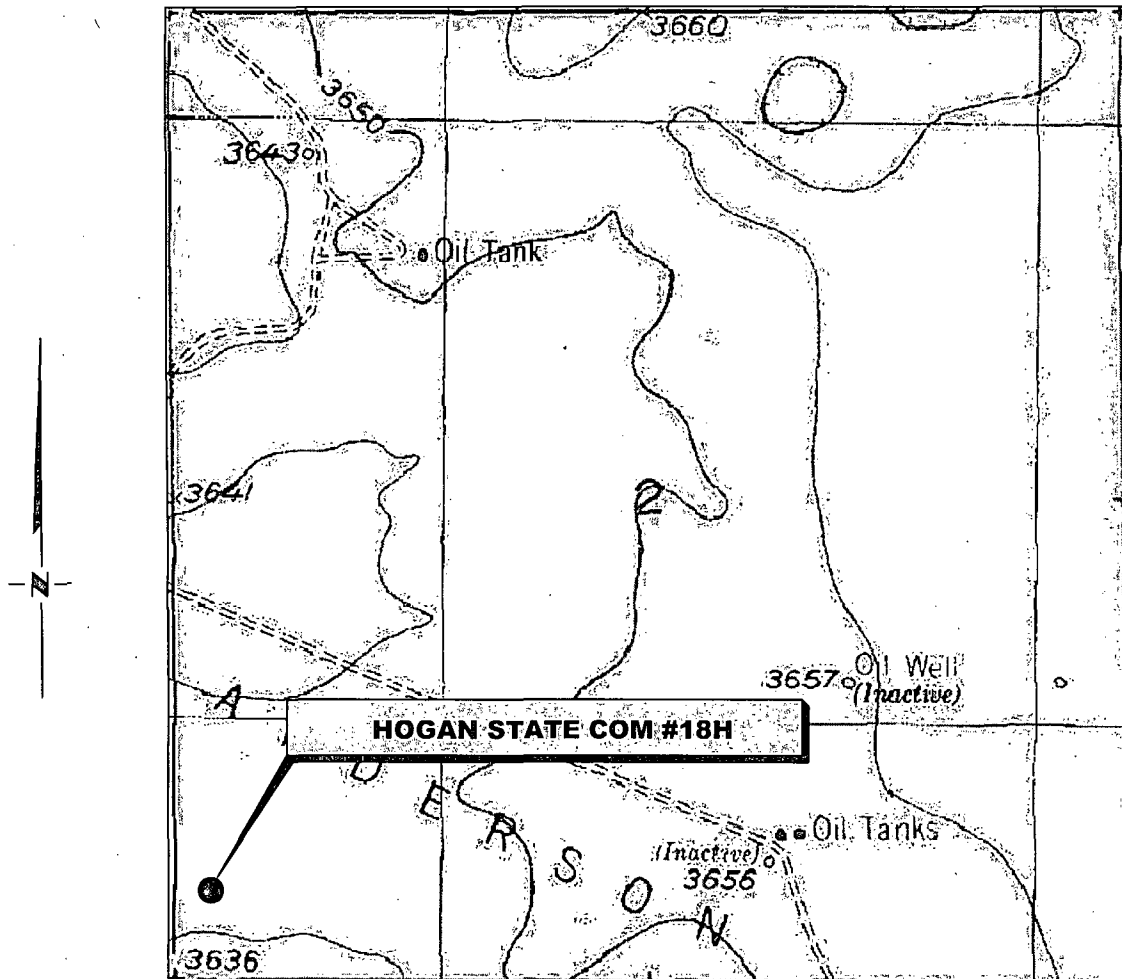
NO.	REVISION	DATE
JOB. NO.: LS1505265		
DWG. NO.: 1505265VM		

RRC

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

SCALE: N.T.S.
DATE: 6-18-15
SURVEYED BY: GB/CG
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.: 18H
ELEVATION: 3647'

LOCATION: 470' FSL & 170' FWL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Red Lake SE, NM (1955)

Firm No.: TX 10193838 NM 4655451

Copyright 2015 - All Rights Reserved

NO.	REVISION	DATE
JOB NO.:	LS1505265	
DWG. NO.:	1505265LVM	

RRC

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

SCALE: 1" = 1000'
DATE: 6-18-15
SURVEYED BY: GB/CG
DRAWN BY: JC
APPROVED BY: RMH
SHEET : 1 OF 1



COG Operating LLC

Eddy County, NM

Hogan State Com #18H

SHL: 470' FSL, 170' FWL, Sec 2, T17S, R29E, Unit M

PP: 465.3' FSL, 330' FWL, Sec 2, T17S, R29E, Unit M

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

Plan: Plan #1

Standard Planning Report

13 August, 2015





TDS
Planning Report



Database:	EDM:5000.1:Single User Db	Local Co-ordinate Reference:	Site Hogan State Com #18H
Company:	COG Operating LLC	TVD Reference:	KB @ 3659.0usft (United 43)
Project:	Eddy County - NM	MD Reference:	KB @ 3659.0usft (United 43)
Site:	Hogan State Com #18H	North Reference:	Grid
Well:	SHL 470' FSL 170' FWL Sec 2 T17S R29E Unit M	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL 330' FSL 330' FEL Sec 2 T17S R29E Unit P		
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 #18H		
Site Position:		Northing:	675,799.40 usft
From:	Map	Easting:	586,080.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 27.152 N
		Longitude:	104° 3' 10.835 W
		Grid Convergence:	0.15 °

Well	SHL 470' FSL 170' FWL Sec 2 T17S R29E Unit M		
Well Position	+N/-S	0.0 usft	Northing: 675,799.40 usft
	+E/-W	0.0 usft	Easting: 586,080.50 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	3,647.0 usft
		Latitude:	32° 51' 27.152 N
		Longitude:	104° 3' 10.835 W

Wellbore	BHL 330' FSL 330' FEL Sec 2 T17S R29E Unit P		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	8/12/2015	7.42
			Dip Angle (°)
			60.59
			Field Strength (nT)
			48,452

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)
	0.0	0.0	0.0
			Direction (°)
			91.76

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	91.76	4,350.0	-16.3	529.7	11.00	11.00	11.09	91.76	
8,919.2	91.00	91.76	4,275.6	-147.0	4,789.8	0.00	0.00	0.00	0.00	BHL (HSC #18H/OH)



TDS
Planning Report



Database:	EDM 5000.1 Single User.Dbi	Local Co-ordinate Reference:	Site Hogan State Com #18H
Company:	COG Operating LLC	TVD Reference:	KB @ 3659.0usft (United 43)
Project:	Eddy County NM	MD Reference:	KB @ 3659.0usft (United 43)
Site:	Hogan State Com #18H	North Reference:	Grid
Well:	SHL 470 FSL 170 FWL Sec 2 T17S R29E Unit M	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL 330 FSL 330 FEL Sec 2 T17S R29E Unit P		
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 91.76									
3,850.0	2.29	91.76	3,850.0	0.0	0.4	0.4	11.00	11.00	0.00
3,900.0	7.79	91.76	3,899.8	-0.1	4.8	4.8	11.00	11.00	0.00
3,950.0	13.29	91.76	3,948.9	-0.4	13.9	13.9	11.00	11.00	0.00
4,000.0	18.79	91.76	3,997.0	-0.9	27.7	27.8	11.00	11.00	0.00
4,050.0	24.29	91.76	4,043.4	-1.4	46.1	46.1	11.00	11.00	0.00
4,100.0	29.79	91.76	4,088.0	-2.1	68.8	68.8	11.00	11.00	0.00
4,150.0	35.29	91.76	4,130.1	-2.9	95.7	95.7	11.00	11.00	0.00
4,200.0	40.79	91.76	4,169.5	-3.9	126.4	126.5	11.00	11.00	0.00
4,250.0	46.29	91.76	4,205.7	-4.9	160.9	160.9	11.00	11.00	0.00
4,300.0	51.79	91.76	4,238.5	-6.1	198.6	198.7	11.00	11.00	0.00
4,350.0	57.29	91.76	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 #18H
Company:	COG Operating LLC	TVD Reference:	KB @ 3659.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3659.0usft (United 43)
Site:	Hogan State Com #18H	North Reference:	Grid
Well:	SHL 470' FSL 170' FWL Sec 2 T17S R29E Unit M	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL 330' FSL 330' FEL Sec 2 T17S R29E Unit P		
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	91.76	4,292.4	-8.7	282.6	282.7	11.00	11.00	0.00	
4,450.0	68.29	91.76	4,313.1	-10.1	328.0	328.2	11.00	11.00	0.00	
4,500.0	73.79	91.76	4,329.4	-11.5	375.3	375.4	11.00	11.00	0.00	
4,550.0	79.29	91.76	4,341.0	-13.0	423.9	424.1	11.00	11.00	0.00	
4,600.0	84.79	91.76	4,347.9	-14.5	473.3	473.6	11.00	11.00	0.00	
4,650.0	90.29	91.76	4,350.1	-16.1	523.2	523.5	11.00	11.00	0.00	
4,656.5	91.00	91.76	4,350.0	-16.3	529.7	530.0	11.00	11.00	0.00	
EOC - Start 4262.7 hold at 4656.5 MD										
4,700.0	91.00	91.76	4,349.2	-17.6	573.2	573.5	0.00	0.00	0.00	
4,800.0	91.00	91.76	4,347.5	-20.7	673.1	673.5	0.00	0.00	0.00	
4,900.0	91.00	91.76	4,345.7	-23.7	773.1	773.5	0.00	0.00	0.00	
5,000.0	91.00	91.76	4,344.0	-26.8	873.0	873.4	0.00	0.00	0.00	
5,100.0	91.00	91.76	4,342.3	-29.9	973.0	973.4	0.00	0.00	0.00	
5,200.0	91.00	91.76	4,340.5	-32.9	1,072.9	1,073.4	0.00	0.00	0.00	
5,300.0	91.00	91.76	4,338.8	-36.0	1,172.8	1,173.4	0.00	0.00	0.00	
5,400.0	91.00	91.76	4,337.0	-39.1	1,272.8	1,273.4	0.00	0.00	0.00	
5,500.0	91.00	91.76	4,335.3	-42.1	1,372.7	1,373.4	0.00	0.00	0.00	
5,600.0	91.00	91.76	4,333.5	-45.2	1,472.7	1,473.3	0.00	0.00	0.00	
5,700.0	91.00	91.76	4,331.8	-48.3	1,572.6	1,573.3	0.00	0.00	0.00	
5,800.0	91.00	91.76	4,330.0	-51.3	1,672.5	1,673.3	0.00	0.00	0.00	
5,900.0	91.00	91.76	4,328.3	-54.4	1,772.5	1,773.3	0.00	0.00	0.00	
6,000.0	91.00	91.76	4,326.5	-57.5	1,872.4	1,873.3	0.00	0.00	0.00	
6,100.0	91.00	91.76	4,324.8	-60.5	1,972.3	1,973.3	0.00	0.00	0.00	
6,200.0	91.00	91.76	4,323.1	-63.6	2,072.3	2,073.3	0.00	0.00	0.00	
6,300.0	91.00	91.76	4,321.3	-66.7	2,172.2	2,173.2	0.00	0.00	0.00	
6,400.0	91.00	91.76	4,319.6	-69.7	2,272.2	2,273.2	0.00	0.00	0.00	
6,500.0	91.00	91.76	4,317.8	-72.8	2,372.1	2,373.2	0.00	0.00	0.00	
6,600.0	91.00	91.76	4,316.1	-75.9	2,472.0	2,473.2	0.00	0.00	0.00	
6,700.0	91.00	91.76	4,314.3	-78.9	2,572.0	2,573.2	0.00	0.00	0.00	
6,800.0	91.00	91.76	4,312.6	-82.0	2,671.9	2,673.2	0.00	0.00	0.00	
6,900.0	91.00	91.76	4,310.8	-85.1	2,771.8	2,773.1	0.00	0.00	0.00	
7,000.0	91.00	91.76	4,309.1	-88.1	2,871.8	2,873.1	0.00	0.00	0.00	
7,100.0	91.00	91.76	4,307.4	-91.2	2,971.7	2,973.1	0.00	0.00	0.00	
7,200.0	91.00	91.76	4,305.6	-94.3	3,071.7	3,073.1	0.00	0.00	0.00	
7,300.0	91.00	91.76	4,303.9	-97.3	3,171.6	3,173.1	0.00	0.00	0.00	
7,400.0	91.00	91.76	4,302.1	-100.4	3,271.5	3,273.1	0.00	0.00	0.00	
7,500.0	91.00	91.76	4,300.4	-103.5	3,371.5	3,373.1	0.00	0.00	0.00	
7,600.0	91.00	91.76	4,298.6	-106.5	3,471.4	3,473.0	0.00	0.00	0.00	
7,700.0	91.00	91.76	4,296.9	-109.6	3,571.3	3,573.0	0.00	0.00	0.00	
7,800.0	91.00	91.76	4,295.1	-112.7	3,671.3	3,673.0	0.00	0.00	0.00	
7,900.0	91.00	91.76	4,293.4	-115.7	3,771.2	3,773.0	0.00	0.00	0.00	
8,000.0	91.00	91.76	4,291.6	-118.8	3,871.2	3,873.0	0.00	0.00	0.00	
8,100.0	91.00	91.76	4,289.9	-121.9	3,971.1	3,973.0	0.00	0.00	0.00	
8,200.0	91.00	91.76	4,288.2	-124.9	4,071.0	4,072.9	0.00	0.00	0.00	
8,300.0	91.00	91.76	4,286.4	-128.0	4,171.0	4,172.9	0.00	0.00	0.00	
8,400.0	91.00	91.76	4,284.7	-131.1	4,270.9	4,272.9	0.00	0.00	0.00	
8,500.0	91.00	91.76	4,282.9	-134.1	4,370.8	4,372.9	0.00	0.00	0.00	
8,600.0	91.00	91.76	4,281.2	-137.2	4,470.8	4,472.9	0.00	0.00	0.00	
8,700.0	91.00	91.76	4,279.4	-140.3	4,570.7	4,572.9	0.00	0.00	0.00	
8,800.0	91.00	91.76	4,277.7	-143.3	4,670.7	4,672.9	0.00	0.00	0.00	
8,900.0	91.00	91.76	4,275.9	-146.4	4,770.6	4,772.8	0.00	0.00	0.00	
8,919.2	91.00	91.76	4,275.6	-147.0	4,789.8	4,792.1	0.00	0.00	0.00	

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Hogan State Com #18H
Company:	COG Operating LLC	TVD Reference:	KB @ 3659.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3659.0usft (United 43)
Site:	Hogan State Com #18H	North Reference:	Grid
Well:	SHL 470° FSL 170° FWL Sec 2, T17S R29E, Unit M	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL 330° FSL 330° FEL Sec 2, T17S R29E, Unit P		
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 8919.2									

Design Targets									
Target Name	hit/miss target Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
PP (HSC #18H/OH Plan	- plan hits target center	0.00	0.00	4,204.9	-4.9	160.0	675,794.48	586,240.50	32° 51' 27.099 N 104° 3' 8.960 W
- Point									
BHL (HSC #18H/OH)	- plan hits target center	0.00	0.00	4,275.6	-147.0	4,789.8	675,652.40	590,870.30	32° 51' 25.568 N 104° 2' 14.687 W
- Point									
EOC (HSC #18H/OH Plk	- plan hits target center	0.00	0.00	4,350.0	-16.3	529.7	675,783.14	586,610.24	32° 51' 26.977 N 104° 3' 4.625 W
- Point									

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 91.76
4,656.5	4,350.0	-16.3	529.7	EOC - Start 4262.7 hold at 4656.5 MD
8,919.2	4,275.6	-147.0	4,789.8	TD at 8919.2



Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	91.76	4350.0	-16.3	529.7	11.00	91.76	530.0	
4	8919.2	91.00	91.76	4275.6	-147.0	4789.8	0.00	0.00	4792.1	BHL (HSC #18H/OH)

Ground Elevation:: 3647.0

RKB Elevation: KB @ 3659.0usft (United 43)

Northing	Easting	Latitude	Longitude
675799.40	586080.50	32° 51' 27.152 N	104° 3' 10.835 W

COG Operating LLC

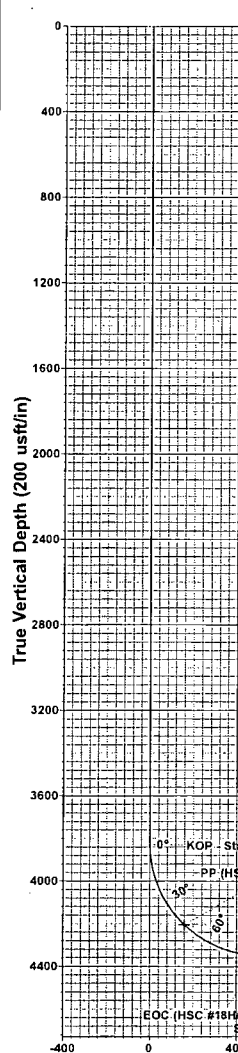
Project: Eddy County, NM

Site: Hogan State Com #18H

Well: SHL: 470' FSL, 170' FWL, Sec 2, T17S, R29E, Unit M

Wellbore: BHL: 330' FSL, 330' FEL, Sec 2, T17S, R29E, Unit P

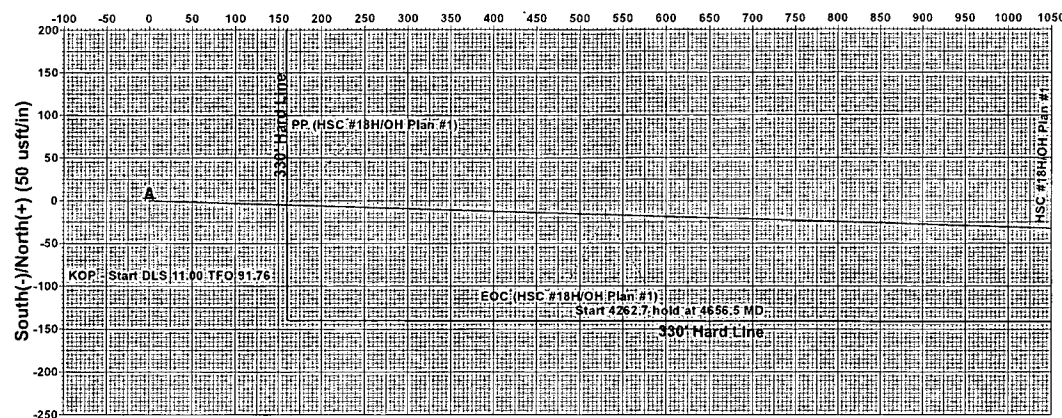
Plan: Plan #1 (SHL: 470' FSL, 170' FWL, Sec 2, T17S, R29E, Unit M/BHL: 330' FSL, 330' FEL, Sec 2, T17S, R29E, Unit P)



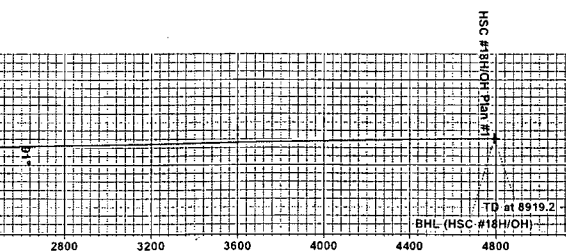
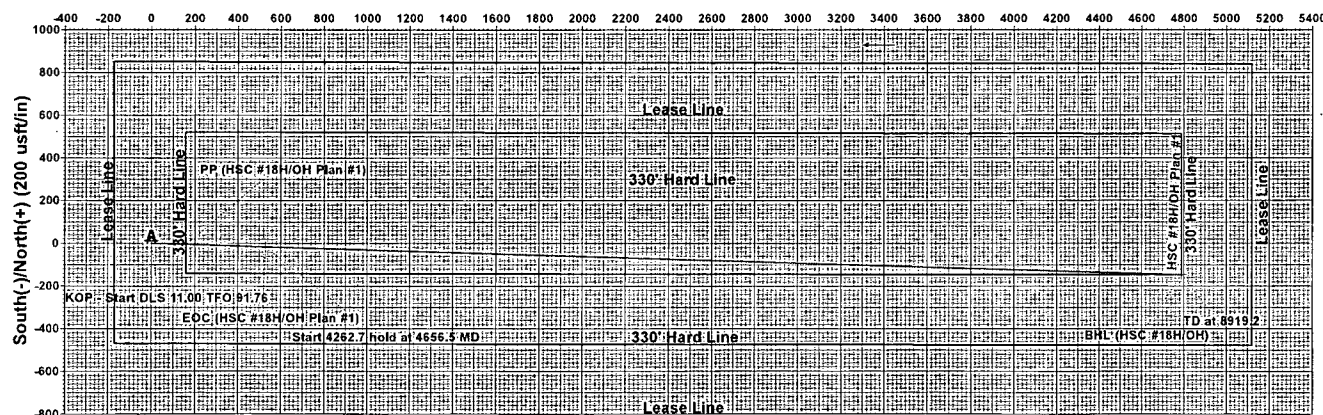
Azimuths to Grid North
True North: -0.15°
Magnetic North: 7.27°

Magnetic Field
Strength: 48451.7snT
Dip Angle: 60.59°
Date: 8/12/2015
Model: IGRF2015

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



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



Vertical Section at 91.76° (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

