

NM OIL CONSERVATION

ARTESIA DISTRICT

State of New Mexico

SEP 28 2015

Form C-102

Energy, Minerals & Natural Resources Department

Revised August 1, 2011

OIL CONSERVATION DIVISION

Submit one copy to appropriate

1220 South St. Francis Dr.

RECEIVED

District Office

Santa Fe, NM 87505

☐ AMENDED REPORT

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

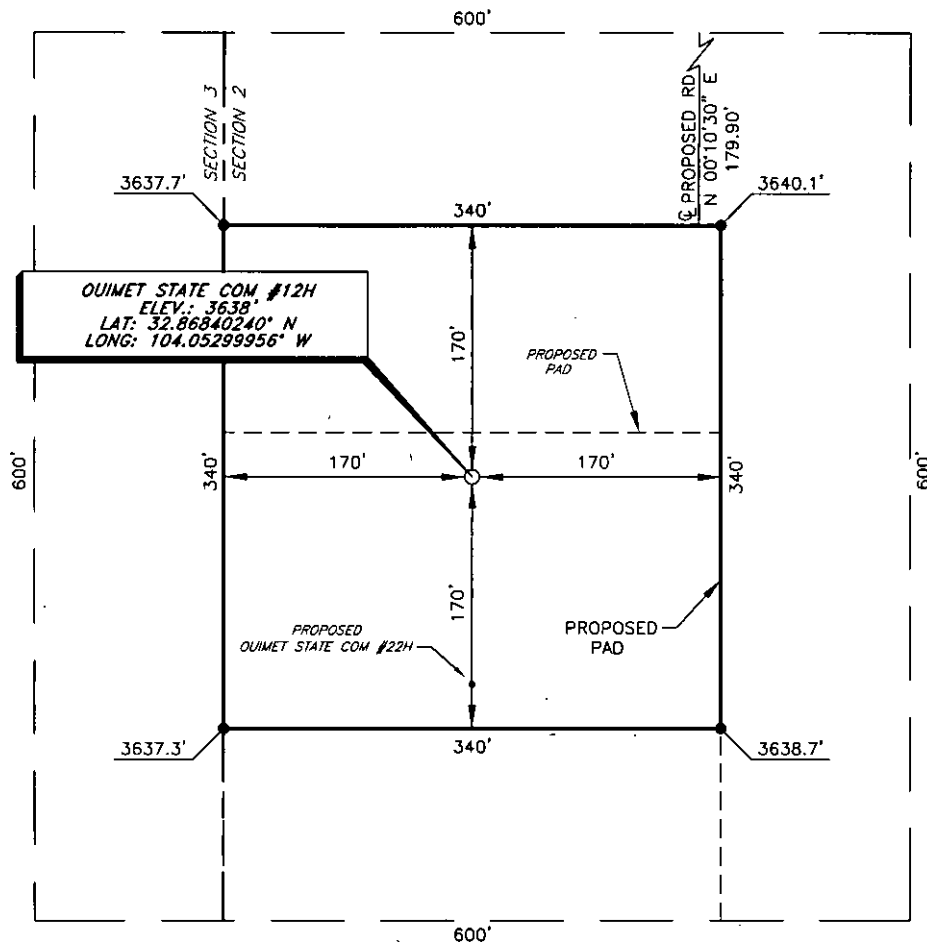
1 API Number 30-015- 43385		2 Pool Code 96610		3 Pool Name Empire; Glorieta Yeso East					
4 Property Code 39292		5 Property Name OUMET STATE COM						6 Well Number 12H	
7 OGRID NO. 229137		8 Operator Name COG OPERATING, LLC						9 Elevation 3638'	
10 Surface Location									
UL or lot no. 4	Section 2	Township 17S	Range 29E	Lot Idn	Feet from the 850	North/South line NORTH	Feet From the 170	East/West line WEST	County EDDY
11 Bottom Hole Location If Different From Surface									
UL or lot no. 1	Section 2	Township 17S	Range 29E	Lot Idn	Feet from the 988	North/South line NORTH	Feet from the 330	East/West line EAST	County EDDY
12 Dedicated Acres 160.08		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.

Estimated Completed Interval: 854 FNL 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 heretofore entered by the division. Signature: <i>Kelly J. Holly</i> Date: 9-24-15 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: 6-23-2015 Signature and Seal of Professional Surveyor: <i>Robert M. Howett</i> 19680 Certificate Number		16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 LOT 4 39.82 Ac. (39.94 MSP) LOT 3 39.88 Ac. (40.00 MSP) LOT 2 39.94 Ac. (40.04 MSP) LOT 1 40.01 Ac. (40.10 MSP) Producing Area GEODETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N 679750.4 - E 586073.1 LAT: 32.86840240° N LONG: 104.05299956° W BOTTOM HOLE N 679611.8 - E 590867.5 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 1: CALCULATED CORNER N 679290.7 - E 585902.8 2: CALCULATED CORNER N 679281.3 - E 591197.7	

RRC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS1505268

COG OPERATING, LLC
 OUIMET STATE COM #12H
 (850' FNL & 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. 3.0 miles to a two track road on the left;
 Turn left stay left and go Southwest approx. 0.6 miles;
 Turn right and continue Northwest on two tract road approx. 0.5 miles
 to proposed road on right;
 Turn right and follow proposed road North approx. 0.4 miles;
 Location is approx. 160 feet on the left.

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.:	LS1505268	
DWG. NO.:	1505268PAD	

RRC

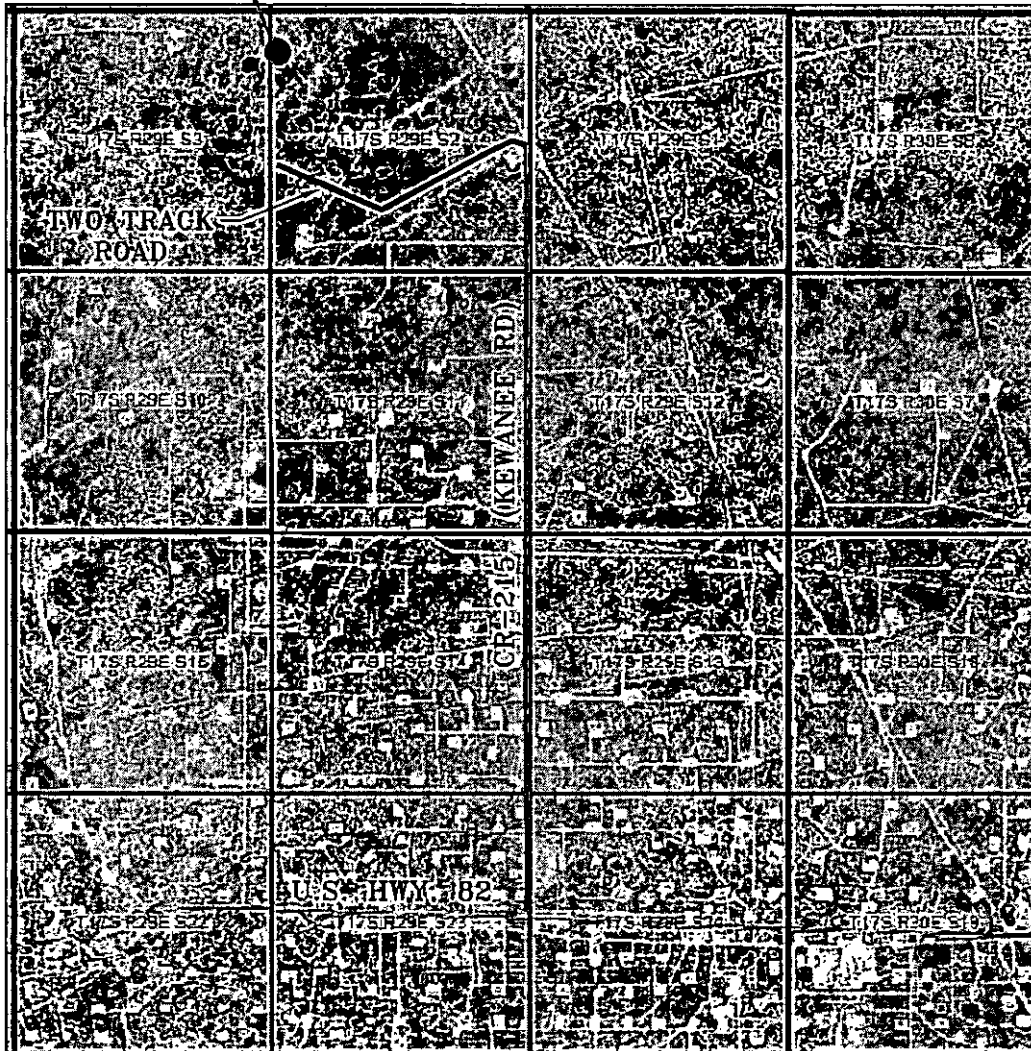
308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 6-23-15
SURVEYED BY: BC/ER
DRAWN BY: JC
APPROVED BY: RMH
SHEET : 1 OF 1

VICINITY MAP

OUIMET STATE COM #12H

NOT TO SCALE



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

OPERATOR: COG Operating, LLC
LEASE: Ouimet State Com
WELL NO.: 12H

LOCATION: 850' FNL & 170' FWL
ELEVATION: 3638'

Firm No.: TX 10193838 NM 4655451

Copyright 2015 - All Rights Reserved

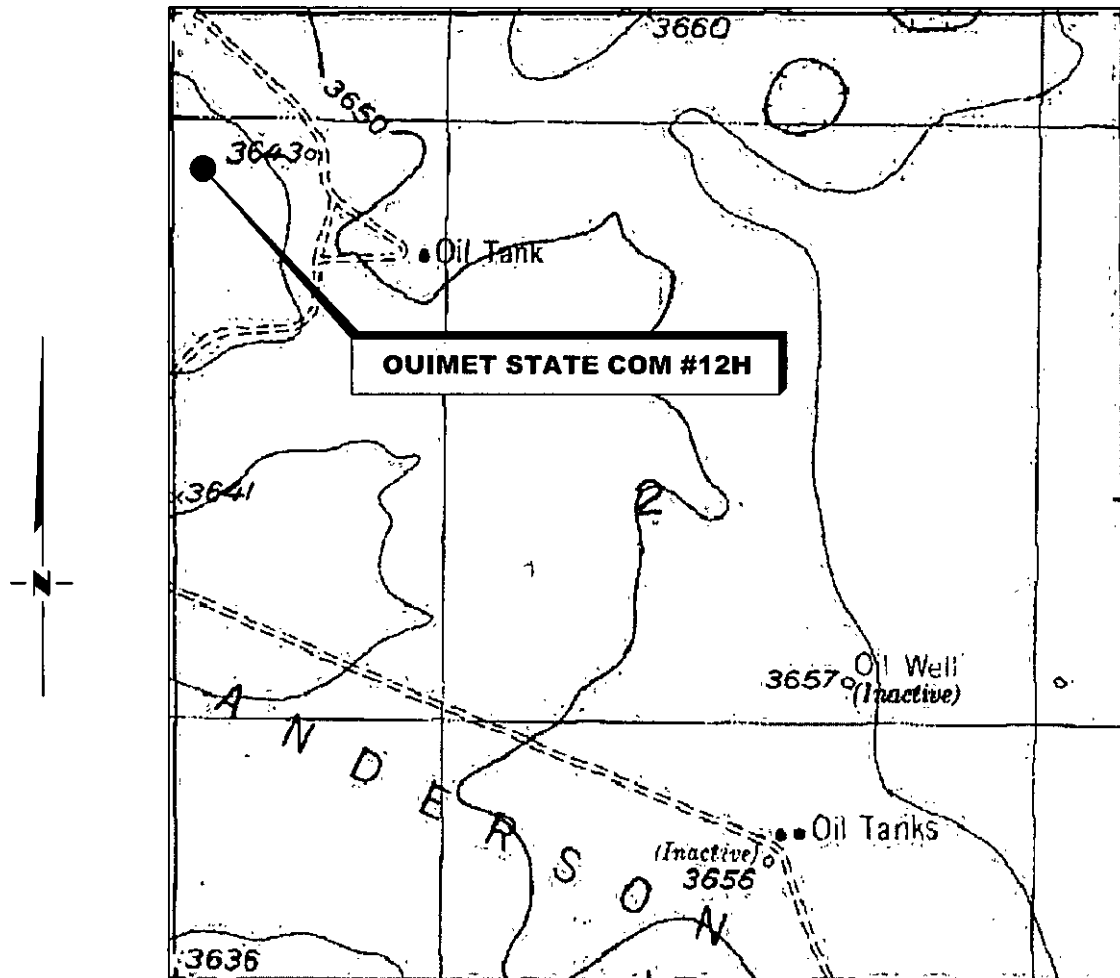
NO.	REVISION	DATE
JOB NO.: LS1505268		
DWG. NO.: 1505268VM		

RRC

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

SCALE: N.T.S.
DATE: 6-23-15
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: Ouimet State Com
WELL NO.: 12H
ELEVATION: 3638'

LOCATION: 850' FNL & 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.: LS1505268		
DWG. NO.: 1505268LVM		

RRC

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

SCALE: 1" = 1000'
DATE: 6-23-15
SURVEYED BY: ER/BC
DRAWN BY: JC
APPROVED BY: RMH
SHEET : 1 OF 1



NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 28 2015

RECEIVED

COG Operating LLC

Eddy County, NM

Ouimet State Com #12H

SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4

PP: 854.6' FNL, 330' FWL, Sec 2, T17S, R29E, Lot 4

EOC: 865.3' FNL, 699.7' FWL, Sec 2, T17S, R29E, Lot 4

BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 1

Plan: Plan #1

Standard Planning Report

13 July, 2015





TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Quimet State Corn #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3650.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3650.0usft (United 43)
Site:	Quimet State Corn #12H	North Reference:	Grid
Well:	SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 1		
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:		Quimet State Corn #12H			
Site Position:		Northing:	679,750.40 usft	Latitude:	32° 52' 6.248 N
From:	Map	Easting:	586,073.10 usft	Longitude:	104° 3' 10.799 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15

Well: SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4						
Well Position	+N/-S	0.0 usft	Northing:	679,750.40 usft	Latitude:	32° 52' 6.248 N
	+E/-W	0.0 usft	Easting:	586,073.10 usft	Longitude:	104° 3' 10.799 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,638.0 usft

Wellbore						BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 1
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF2015	7/13/2015	7.43	60.60	48,467	

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	91.66

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	
3,779.2	0.00	0.00	3,779.2	0.0	0.0	0.00	0.00	0.00	0.00	
4,606.5	91.00	91.66	4,300.0	-15.3	529.7	11.00	11.00	11.08	91.66	
8,873.6	91.00	91.66	4,225.5	-138.6	4,794.4	0.00	0.00	0.00	0.00	PBHL (OSC #12H/OH



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ouimet State Corn #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3650.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3650.0usft (United 43)
Site:	Ouimet State Corn #12H	North Reference:	Grid
Well:	SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 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)	
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	
3,779.2	0.00	0.00	3,779.2	0.0	0.0	0.0	0.00	0.00	0.00	
KOP - Start DLS 11.00 TFO 91.66										
3,800.0	2.29	91.66	3,800.0	0.0	0.4	0.4	11.00	11.00	0.00	
3,850.0	7.79	91.66	3,849.8	-0.1	4.8	4.8	11.00	11.00	0.00	
3,900.0	13.29	91.66	3,898.9	-0.4	13.9	13.9	11.00	11.00	0.00	
3,950.0	18.79	91.66	3,947.0	-0.8	27.7	27.8	11.00	11.00	0.00	
4,000.0	24.29	91.66	3,993.4	-1.3	46.1	46.1	11.00	11.00	0.00	
4,050.0	29.79	91.66	4,038.0	-2.0	68.8	68.8	11.00	11.00	0.00	
4,100.0	35.29	91.66	4,080.1	-2.8	95.7	95.7	11.00	11.00	0.00	
4,150.0	40.79	91.66	4,119.5	-3.7	126.5	126.5	11.00	11.00	0.00	
4,200.0	46.29	91.66	4,155.7	-4.7	160.9	160.9	11.00	11.00	0.00	
4,250.0	51.79	91.66	4,188.5	-5.7	198.6	198.7	11.00	11.00	0.00	
4,300.0	57.29	91.66	4,217.5	-6.9	239.3	239.4	11.00	11.00	0.00	
4,350.0	62.79	91.66	4,242.4	-8.2	282.6	282.7	11.00	11.00	0.00	



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ouimet State Com #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3650.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3650.0usft (United 43)
Site:	Ouimet State Com #12H	North Reference:	Grid
Well:	SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 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	68.29	91.66	4,263.1	-9.5	328.0	328.2	11.00	11.00	0.00
4,450.0	73.79	91.66	4,279.4	-10.8	375.3	375.4	11.00	11.00	0.00
4,500.0	79.29	91.66	4,291.0	-12.3	423.9	424.1	11.00	11.00	0.00
4,550.0	84.79	91.66	4,297.9	-13.7	473.4	473.6	11.00	11.00	0.00
4,600.0	90.29	91.66	4,300.1	-15.1	523.3	523.5	11.00	11.00	0.00
4,606.5	91.00	91.66	4,300.0	-15.3	529.7	530.0	11.00	11.00	0.00
EOC - Start 4267.1 hold at 4606.5 MD									
4,700.0	91.00	91.66	4,298.4	-18.0	623.2	623.5	0.00	0.00	0.00
4,800.0	91.00	91.66	4,296.6	-20.9	723.2	723.5	0.00	0.00	0.00
4,900.0	91.00	91.66	4,294.9	-23.8	823.1	823.4	0.00	0.00	0.00
5,000.0	91.00	91.66	4,293.1	-26.7	923.0	923.4	0.00	0.00	0.00
5,100.0	91.00	91.66	4,291.4	-29.6	1,023.0	1,023.4	0.00	0.00	0.00
5,200.0	91.00	91.66	4,289.6	-32.5	1,122.9	1,123.4	0.00	0.00	0.00
5,300.0	91.00	91.66	4,287.9	-35.4	1,222.9	1,223.4	0.00	0.00	0.00
5,400.0	91.00	91.66	4,286.1	-38.2	1,322.8	1,323.4	0.00	0.00	0.00
5,500.0	91.00	91.66	4,284.4	-41.1	1,422.8	1,423.4	0.00	0.00	0.00
5,600.0	91.00	91.66	4,282.7	-44.0	1,522.7	1,523.3	0.00	0.00	0.00
5,700.0	91.00	91.66	4,280.9	-46.9	1,622.6	1,623.3	0.00	0.00	0.00
5,800.0	91.00	91.66	4,279.2	-49.8	1,722.6	1,723.3	0.00	0.00	0.00
5,900.0	91.00	91.66	4,277.4	-52.7	1,822.5	1,823.3	0.00	0.00	0.00
6,000.0	91.00	91.66	4,275.7	-55.6	1,922.5	1,923.3	0.00	0.00	0.00
6,100.0	91.00	91.66	4,273.9	-58.5	2,022.4	2,023.3	0.00	0.00	0.00
6,200.0	91.00	91.66	4,272.2	-61.4	2,122.4	2,123.2	0.00	0.00	0.00
6,300.0	91.00	91.66	4,270.4	-64.2	2,222.3	2,223.2	0.00	0.00	0.00
6,400.0	91.00	91.66	4,268.7	-67.1	2,322.2	2,323.2	0.00	0.00	0.00
6,500.0	91.00	91.66	4,266.9	-70.0	2,422.2	2,423.2	0.00	0.00	0.00
6,600.0	91.00	91.66	4,265.2	-72.9	2,522.1	2,523.2	0.00	0.00	0.00
6,700.0	91.00	91.66	4,263.5	-75.8	2,622.1	2,623.2	0.00	0.00	0.00
6,800.0	91.00	91.66	4,261.7	-78.7	2,722.0	2,723.2	0.00	0.00	0.00
6,900.0	91.00	91.66	4,260.0	-81.6	2,822.0	2,823.1	0.00	0.00	0.00
7,000.0	91.00	91.66	4,258.2	-84.5	2,921.9	2,923.1	0.00	0.00	0.00
7,100.0	91.00	91.66	4,256.5	-87.4	3,021.8	3,023.1	0.00	0.00	0.00
7,200.0	91.00	91.66	4,254.7	-90.2	3,121.8	3,123.1	0.00	0.00	0.00
7,300.0	91.00	91.66	4,253.0	-93.1	3,221.7	3,223.1	0.00	0.00	0.00
7,400.0	91.00	91.66	4,251.2	-96.0	3,321.7	3,323.1	0.00	0.00	0.00
7,500.0	91.00	91.66	4,249.5	-98.9	3,421.6	3,423.0	0.00	0.00	0.00
7,600.0	91.00	91.66	4,247.8	-101.8	3,521.6	3,523.0	0.00	0.00	0.00
7,700.0	91.00	91.66	4,246.0	-104.7	3,621.5	3,623.0	0.00	0.00	0.00
7,800.0	91.00	91.66	4,244.3	-107.6	3,721.4	3,723.0	0.00	0.00	0.00
7,900.0	91.00	91.66	4,242.5	-110.5	3,821.4	3,823.0	0.00	0.00	0.00
8,000.0	91.00	91.66	4,240.8	-113.4	3,921.3	3,923.0	0.00	0.00	0.00
8,100.0	91.00	91.66	4,239.0	-116.2	4,021.3	4,023.0	0.00	0.00	0.00
8,200.0	91.00	91.66	4,237.3	-119.1	4,121.2	4,122.9	0.00	0.00	0.00
8,300.0	91.00	91.66	4,235.5	-122.0	4,221.2	4,222.9	0.00	0.00	0.00
8,400.0	91.00	91.66	4,233.8	-124.9	4,321.1	4,322.9	0.00	0.00	0.00
8,500.0	91.00	91.66	4,232.0	-127.8	4,421.0	4,422.9	0.00	0.00	0.00
8,600.0	91.00	91.66	4,230.3	-130.7	4,521.0	4,522.9	0.00	0.00	0.00
8,700.0	91.00	91.66	4,228.6	-133.6	4,620.9	4,622.9	0.00	0.00	0.00
8,800.0	91.00	91.66	4,226.8	-136.5	4,720.9	4,722.8	0.00	0.00	0.00
8,873.6	91.00	91.66	4,225.5	-138.6	4,794.4	4,796.4	0.00	0.00	0.00
TD at 8873.6									



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ouimet State Com #12H
Company:	COG Operating LLC	TVD Reference:	KB @ 3650.0usft (United 43)
Project:	Eddy County, NM	MD Reference:	KB @ 3650.0usft (United 43)
Site:	Ouimet State Com #12H	North Reference:	Grid
Well:	SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 1		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Shape									
PP (OSC #12H/OH Plan - plan hits target center - Point	0.00	0.00	4,154.9	-4.6	160.0	679,745.77	586,233.10	32° 52' 6.198 N	104° 3' 8.923 W
PBHL (OSC #12H/OH) - plan hits target center - Point	0.00	0.00	4,225.5	-138.6	4,794.4	679,611.80	590,867.50	32° 52' 4.747 N	104° 2' 14.590 W
EOC (OSC #12H/OH Pl - plan hits target center - Point	0.00	0.00	4,300.0	-15.3	529.8	679,735.08	586,602.87	32° 52' 6.083 N	104° 3' 4.588 W

Plan Annotations:				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
3,779.2	3,779.2	0.0	0.0	KOP - Start DLS 11.00 TFO 91.66
4,606.5	4,300.0	-15.3	529.7	EOC - Start 4267.1 hold at 4606.5 MD
8,873.6	4,225.5	-138.6	4,794.4	TD at 8873.6



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	0.0
2	3779.2	0.00	0.00	3779.2	0.0	0.0	0.00	0.00	0.0	0.0
3	4606.5	91.00	91.66	4300.0	-15.3	529.7	11.00	91.66	530.0	0.0
4	8873.6	91.00	91.66	4225.5	-138.6	4794.4	0.00	0.00	4796.4	PBHL (OSC #12H/OH)

Ground Elevation: 3638.0
RKB Elevation: KB @ 3650.0usft (United 43)

Northing 679750.40
Easting 586073.10
Latitude 32° 52' 6.248 N
Longitude 104° 3' 10.799 W

COG Operating LLC

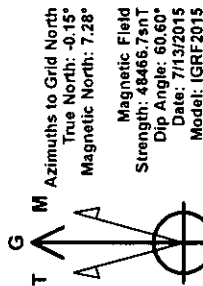
Project: Eddy County, NM

Site: Oulmet State Com #12H

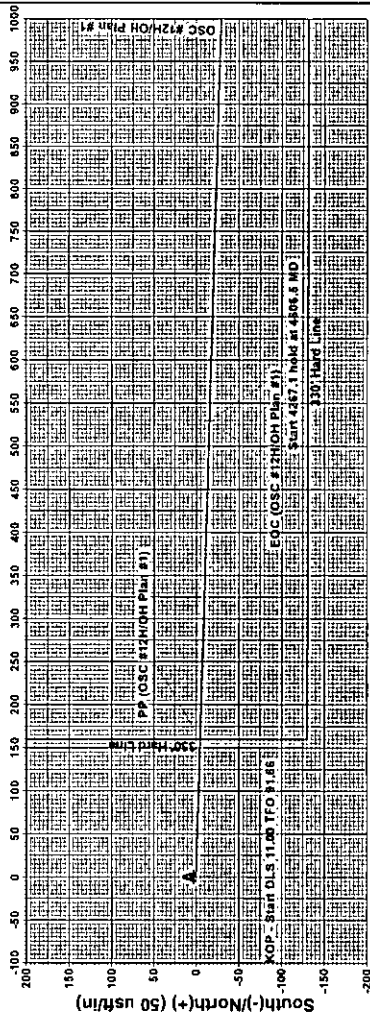
Well: SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4

Wellbore: BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 1

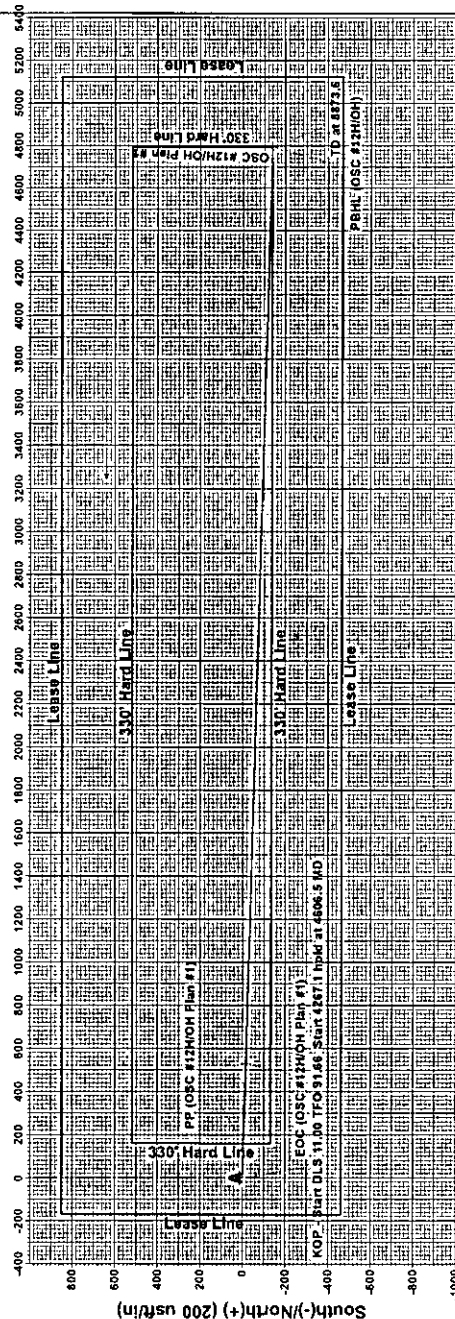
Plan: Plan #1 (SHL: 850' FNL, 170' FWL, Sec 2, T17S, R29E, Lot 4/BHL: 988' FNL, 330' FEL, Sec 2, T17S, R29E, Lot 1)



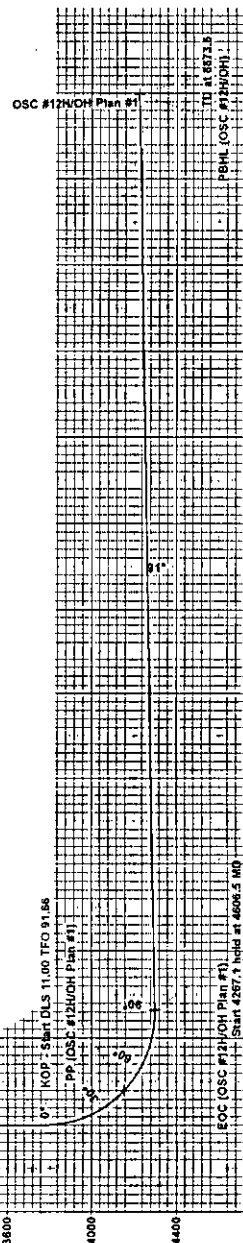
West(-)/East(+) (50 usft/in)



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



True Vertical Depth (200 usft/in)



Vertical Section at 91.66° (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

