

Sec 28, T24S, R35E
Coonskin Fee #603H
Q160*** & WT-160***
Design #2

Company Name: COG Operating, LLC
Coonskin Fee #603H
Lea County, NM
Rig: Noram 21
Created by: Chase Chambers
Date: 9:17, August 03 2018

PROJECT DETAILS: Lea 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



WELL DETAILS: Coonskin Fee #603H

3307.0

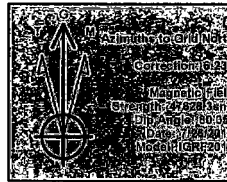
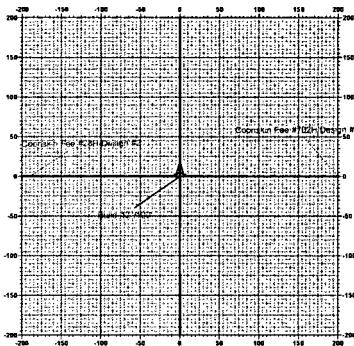
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	438151.40	795361.10	32° 11' 43.773 N	103° 22' 42.698 W

DESIGN TARGET DETAILS

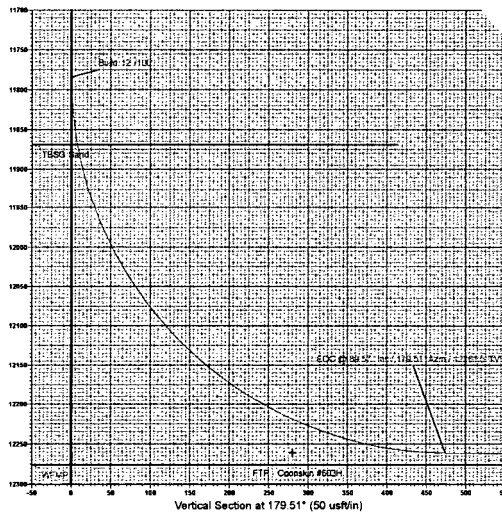
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP - Coonskin #603H	12261.0	-278.9	2.3	435871.50	785363.40	32° 11' 41.003 N	103° 22' 42.700 W
LTP - Coonskin #603H	12316.1	-7542.2	64.4	428905.20	785428.50	32° 10' 29.136 N	103° 22' 42.727 W
PBHL - Coonskin #603H	12316.0	-7672.4	65.5	428475.00	785426.80	32° 10' 27.948 N	103° 22' 42.728 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag TFace	Vsect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	Build 12"/100'
11784.0	0.00	0.00	11784.0	0.0	0.0	0.00	0.0	
12350.4	89.57	179.51	12351.5	-473.8	4.0	12.00	179.51	EOC @ 89.57° Inc / 179.51° Azim / 12261.0' TVD
19725.4	89.57	179.51	12316.0	-7672.4	65.5	0.00	0.00	TD @ 19725.4' MD / 12316.0' TVD



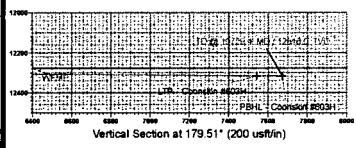
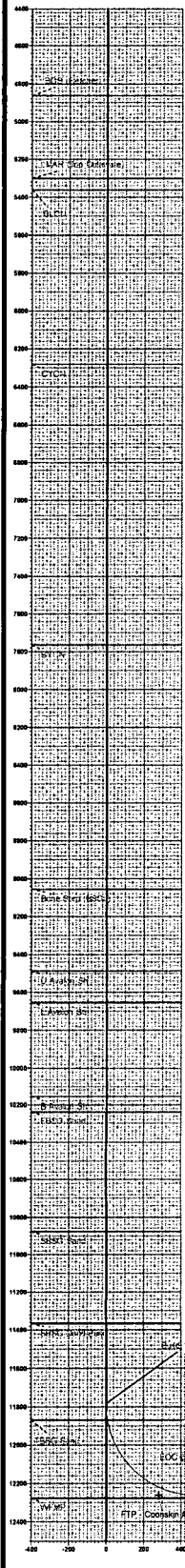
HOBBS OCD
AUG 07 2018
RECEIVED



Vertical Section at 179.51° (200 usf/in)

PROJECT AREA
PRODUCING AREA
PRODUCING AREA
PRODUCING AREA

FTP - Coonskin #603H
LTP - Coonskin #603H
PBHL - Coonskin #603H
TD @ 19725.4' MD / 12316.0' TVD





COG Operating, LLC

Lea County, NM

Sec 28, T24S, R35E

Coonskin Fee #603H

HOBBS OCD

AUG 07 2018

RECEIVED

Wellbore #1

Plan: Design #2

QES Well Planning Report

03 August, 2018





Well Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating, LLC
Project: Lea County, NM
Site: Sec 28, T24S, R35E
Well: Coonskin Fee #603H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Coonskin Fee #603H
Well @ 3336.0usft (Noram 21)
Well @ 3336.0usft (Noram 21)
Grid
Minimum Curvature

Project Lea 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 Sec 28, T24S, R35E
Site Position: **Northing:** 436,006.80 usft **Latitude:** 32° 11' 42.192 N
From: Map **Easting:** 797,062.30 usft **Longitude:** 103° 22' 22.917 W
Position Uncertainty: 0.0 usft **Slot Radius:** 13-3/16" **Grid Convergence:** 0.51°

Well Coonskin Fee #603H
Well Position **+N/-S** 144.6 usft **Northing:** 436,151.40 usft **Latitude:** 32° 11' 43.773 N
+E/-W -1,701.2 usft **Easting:** 795,361.10 usft **Longitude:** 103° 22' 42.698 W
Position Uncertainty 0.0 usft **Wellhead Elevation:** **Ground Level:** 3,307.0 usft

Wellbore Wellbore #1
Magnetics **Model Name** **Sample Date** **Declination** **Dip Angle** **Field Strength**
(°) (°) (nT)
IGRF2015 7/26/2018 6.74 60.05 47,828.31225577

Design Design #2
Audit Notes:
Version: **Phase:** PLAN **Tie On Depth:** 0.0
Vertical Section: **Depth From (TVD)** **+N/-S** **+E/-W** **Direction**
(usft) (usft) (usft) (°)
0.0 0.0 0.0 179.51

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	
11,784.0	0.00	0.00	11,784.0	0.0	0.0	0.00	0.00	0.00	0.00	
12,530.4	89.57	179.51	12,261.5	-473.8	4.0	12.00	12.00	24.05	179.51	
19,729.4	89.57	179.51	12,316.0	-7,672.4	65.5	0.00	0.00	0.00	0.00	PBHL - Coonskin #60



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Coonskin Fee #603H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3336.0usft (Noram 21)
Project:	Lea County, NM	MD Reference:	Well @ 3336.0usft (Noram 21)
Site:	Sec 28, T24S, R35E	North Reference:	Grid
Well:	Coonskin Fee #603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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
Rustler									
586.0	0.00	0.00	586.0	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
TOS									
945.0	0.00	0.00	945.0	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
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00



Well Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating, LLC
Project: Lea County, NM
Site: Sec 28, T24S, R35E
Well: Coonskin Fee #603H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Coonskin Fee #603H
Well @ 3336.0usft (Noram 21)
Well @ 3336.0usft (Noram 21)
Grid
Minimum Curvature

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)
BOS (Fletcher)									
4,864.0	0.00	0.00	4,864.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
LMAR (Top Delaware)									
5,301.0	0.00	0.00	5,301.0	0.0	0.0	0.0	0.00	0.00	0.00
BLCN									
5,362.0	0.00	0.00	5,362.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
CYCN									
6,281.0	0.00	0.00	6,281.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
BYCN									
7,766.0	0.00	0.00	7,766.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
Bone Sprg (BSGL)									



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Coonskin Fee #603H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3336.0usft (Noram 21)
Project:	Lea County, NM	MD Reference:	Well @ 3336.0usft (Noram 21)
Site:	Sec 28, T24S, R35E	North Reference:	Grid
Well:	Coonskin Fee #603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
9,056.0	0.00	0.00	9,056.0	0.0	0.0	0.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00
U Avalon Sh									
9,488.0	0.00	0.00	9,488.0	0.0	0.0	0.0	0.00	0.00	0.00
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00
L Avalon Sh									
9,653.0	0.00	0.00	9,653.0	0.0	0.0	0.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00
B Avalon Sh									
10,158.0	0.00	0.00	10,158.0	0.0	0.0	0.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00
FBSG Sand									
10,237.0	0.00	0.00	10,237.0	0.0	0.0	0.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,300.0	0.0	0.0	0.0	0.00	0.00	0.00
10,400.0	0.00	0.00	10,400.0	0.0	0.0	0.0	0.00	0.00	0.00
10,500.0	0.00	0.00	10,500.0	0.0	0.0	0.0	0.00	0.00	0.00
10,600.0	0.00	0.00	10,600.0	0.0	0.0	0.0	0.00	0.00	0.00
10,700.0	0.00	0.00	10,700.0	0.0	0.0	0.0	0.00	0.00	0.00
10,800.0	0.00	0.00	10,800.0	0.0	0.0	0.0	0.00	0.00	0.00
SBSG Sand									
10,877.0	0.00	0.00	10,877.0	0.0	0.0	0.0	0.00	0.00	0.00
10,900.0	0.00	0.00	10,900.0	0.0	0.0	0.0	0.00	0.00	0.00
11,000.0	0.00	0.00	11,000.0	0.0	0.0	0.0	0.00	0.00	0.00
11,100.0	0.00	0.00	11,100.0	0.0	0.0	0.0	0.00	0.00	0.00
11,200.0	0.00	0.00	11,200.0	0.0	0.0	0.0	0.00	0.00	0.00
11,300.0	0.00	0.00	11,300.0	0.0	0.0	0.0	0.00	0.00	0.00
SBSG Sand Base									
11,366.0	0.00	0.00	11,366.0	0.0	0.0	0.0	0.00	0.00	0.00
11,400.0	0.00	0.00	11,400.0	0.0	0.0	0.0	0.00	0.00	0.00
11,500.0	0.00	0.00	11,500.0	0.0	0.0	0.0	0.00	0.00	0.00
11,600.0	0.00	0.00	11,600.0	0.0	0.0	0.0	0.00	0.00	0.00
11,700.0	0.00	0.00	11,700.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 12°/100'									
11,784.0	0.00	0.00	11,784.0	0.0	0.0	0.0	0.00	0.00	0.00
11,800.0	1.92	179.51	11,800.0	-0.3	0.0	0.3	12.00	12.00	0.00
11,825.0	4.92	179.51	11,824.9	-1.8	0.0	1.8	12.00	12.00	0.00
11,850.0	7.92	179.51	11,849.8	-4.6	0.0	4.6	12.00	12.00	0.00
TBSG Sand									
11,869.5	10.25	179.51	11,869.0	-7.6	0.1	7.6	12.00	12.00	0.00
11,875.0	10.92	179.51	11,874.4	-8.6	0.1	8.6	12.00	12.00	0.00
11,900.0	13.92	179.51	11,898.9	-14.0	0.1	14.0	12.00	12.00	0.00
11,925.0	16.92	179.51	11,923.0	-20.7	0.2	20.7	12.00	12.00	0.00
11,950.0	19.92	179.51	11,946.7	-28.6	0.2	28.6	12.00	12.00	0.00
11,975.0	22.92	179.51	11,969.9	-37.7	0.3	37.7	12.00	12.00	0.00
12,000.0	25.92	179.51	11,992.7	-48.0	0.4	48.0	12.00	12.00	0.00



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Coonskin Fee #603H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3336.0usft (Noram 21)
Project:	Lea County, NM	MD Reference:	Well @ 3336.0usft (Noram 21)
Site:	Sec 28, T24S, R35E	North Reference:	Grid
Well:	Coonskin Fee #603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
12,025.0	28.92	179.51	12,014.9	-59.5	0.5	59.5	12.00	12.00	0.00
12,050.0	31.92	179.51	12,036.5	-72.2	0.6	72.2	12.00	12.00	0.00
12,075.0	34.92	179.51	12,057.3	-86.0	0.7	86.0	12.00	12.00	0.00
12,100.0	37.92	179.51	12,077.4	-100.8	0.9	100.8	12.00	12.00	0.00
12,125.0	40.92	179.51	12,096.7	-116.7	1.0	116.7	12.00	12.00	0.00
12,150.0	43.92	179.51	12,115.2	-133.5	1.1	133.5	12.00	12.00	0.00
12,175.0	46.92	179.51	12,132.7	-151.3	1.3	151.3	12.00	12.00	0.00
12,200.0	49.92	179.51	12,149.3	-170.0	1.5	170.0	12.00	12.00	0.00
12,225.0	52.92	179.51	12,164.9	-189.6	1.6	189.6	12.00	12.00	0.00
12,250.0	55.92	179.51	12,179.5	-209.9	1.8	209.9	12.00	12.00	0.00
12,275.0	58.92	179.51	12,192.9	-231.0	2.0	231.0	12.00	12.00	0.00
12,300.0	61.92	179.51	12,205.3	-252.7	2.2	252.7	12.00	12.00	0.00
12,325.0	64.92	179.51	12,216.4	-275.1	2.3	275.1	12.00	12.00	0.00
12,350.0	67.92	179.51	12,226.4	-298.0	2.5	298.0	12.00	12.00	0.00
12,375.0	70.92	179.51	12,235.2	-321.4	2.7	321.4	12.00	12.00	0.00
12,400.0	73.92	179.51	12,242.8	-345.2	2.9	345.2	12.00	12.00	0.00
12,425.0	76.92	179.51	12,249.1	-369.4	3.2	369.4	12.00	12.00	0.00
12,450.0	79.92	179.51	12,254.1	-393.9	3.4	393.9	12.00	12.00	0.00
12,475.0	82.92	179.51	12,257.8	-418.6	3.6	418.6	12.00	12.00	0.00
12,500.0	85.92	179.51	12,260.3	-443.5	3.8	443.5	12.00	12.00	0.00
12,525.0	88.92	179.51	12,261.4	-468.4	4.0	468.5	12.00	12.00	0.00
EOC @ 89.57° Inc / 179.51° Azm / 12261.5' TVD									
12,530.4	89.57	179.51	12,261.5	-473.8	4.0	473.8	12.00	12.00	0.00
12,600.0	89.57	179.51	12,262.0	-543.4	4.6	543.5	0.00	0.00	0.00
12,700.0	89.57	179.51	12,262.7	-643.4	5.5	643.5	0.00	0.00	0.00
12,800.0	89.57	179.51	12,263.5	-743.4	6.3	743.5	0.00	0.00	0.00
12,900.0	89.57	179.51	12,264.3	-843.4	7.2	843.5	0.00	0.00	0.00
13,000.0	89.57	179.51	12,265.0	-943.4	8.1	943.5	0.00	0.00	0.00
13,100.0	89.57	179.51	12,265.8	-1,043.4	8.9	1,043.4	0.00	0.00	0.00
13,200.0	89.57	179.51	12,266.5	-1,143.4	9.8	1,143.4	0.00	0.00	0.00
13,300.0	89.57	179.51	12,267.3	-1,243.4	10.6	1,243.4	0.00	0.00	0.00
13,400.0	89.57	179.51	12,268.0	-1,343.4	11.5	1,343.4	0.00	0.00	0.00
13,500.0	89.57	179.51	12,268.8	-1,443.4	12.3	1,443.4	0.00	0.00	0.00
13,600.0	89.57	179.51	12,269.6	-1,543.4	13.2	1,543.4	0.00	0.00	0.00
13,700.0	89.57	179.51	12,270.3	-1,643.4	14.0	1,643.4	0.00	0.00	0.00
13,800.0	89.57	179.51	12,271.1	-1,743.4	14.9	1,743.4	0.00	0.00	0.00
13,900.0	89.57	179.51	12,271.8	-1,843.4	15.7	1,843.4	0.00	0.00	0.00
14,000.0	89.57	179.51	12,272.6	-1,943.4	16.6	1,943.4	0.00	0.00	0.00
14,100.0	89.57	179.51	12,273.3	-2,043.3	17.4	2,043.4	0.00	0.00	0.00
14,200.0	89.57	179.51	12,274.1	-2,143.3	18.3	2,143.4	0.00	0.00	0.00
14,300.0	89.57	179.51	12,274.9	-2,243.3	19.2	2,243.4	0.00	0.00	0.00
14,400.0	89.57	179.51	12,275.6	-2,343.3	20.0	2,343.4	0.00	0.00	0.00
WFMP									
14,450.5	89.57	179.51	12,276.0	-2,393.8	20.4	2,393.9	0.00	0.00	0.00
14,500.0	89.57	179.51	12,276.4	-2,443.3	20.9	2,443.4	0.00	0.00	0.00
14,600.0	89.57	179.51	12,277.1	-2,543.3	21.7	2,543.4	0.00	0.00	0.00
14,700.0	89.57	179.51	12,277.9	-2,643.3	22.6	2,643.4	0.00	0.00	0.00
14,800.0	89.57	179.51	12,278.6	-2,743.3	23.4	2,743.4	0.00	0.00	0.00
14,900.0	89.57	179.51	12,279.4	-2,843.3	24.3	2,843.4	0.00	0.00	0.00
15,000.0	89.57	179.51	12,280.2	-2,943.3	25.1	2,943.4	0.00	0.00	0.00
15,100.0	89.57	179.51	12,280.9	-3,043.3	26.0	3,043.4	0.00	0.00	0.00
15,200.0	89.57	179.51	12,281.7	-3,143.3	26.8	3,143.4	0.00	0.00	0.00
15,300.0	89.57	179.51	12,282.4	-3,243.3	27.7	3,243.4	0.00	0.00	0.00
15,400.0	89.57	179.51	12,283.2	-3,343.3	28.5	3,343.4	0.00	0.00	0.00



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Coonskin Fee #603H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3336.0usft (Noram 21)
Project:	Lea County, NM	MD Reference:	Well @ 3336.0usft (Noram 21)
Site:	Sec 28, T24S, R35E	North Reference:	Grid
Well:	Coonskin Fee #603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
15,500.0	89.57	179.51	12,284.0	-3,443.3	29.4	3,443.4	0.00	0.00	0.00
15,600.0	89.57	179.51	12,284.7	-3,543.2	30.2	3,543.4	0.00	0.00	0.00
15,700.0	89.57	179.51	12,285.5	-3,643.2	31.1	3,643.4	0.00	0.00	0.00
15,800.0	89.57	179.51	12,286.2	-3,743.2	32.0	3,743.4	0.00	0.00	0.00
15,900.0	89.57	179.51	12,287.0	-3,843.2	32.8	3,843.4	0.00	0.00	0.00
16,000.0	89.57	179.51	12,287.7	-3,943.2	33.7	3,943.4	0.00	0.00	0.00
16,100.0	89.57	179.51	12,288.5	-4,043.2	34.5	4,043.4	0.00	0.00	0.00
16,200.0	89.57	179.51	12,289.3	-4,143.2	35.4	4,143.4	0.00	0.00	0.00
16,300.0	89.57	179.51	12,290.0	-4,243.2	36.2	4,243.4	0.00	0.00	0.00
16,400.0	89.57	179.51	12,290.8	-4,343.2	37.1	4,343.4	0.00	0.00	0.00
16,500.0	89.57	179.51	12,291.5	-4,443.2	37.9	4,443.4	0.00	0.00	0.00
16,600.0	89.57	179.51	12,292.3	-4,543.2	38.8	4,543.3	0.00	0.00	0.00
16,700.0	89.57	179.51	12,293.0	-4,643.2	39.6	4,643.3	0.00	0.00	0.00
16,800.0	89.57	179.51	12,293.8	-4,743.2	40.5	4,743.3	0.00	0.00	0.00
16,900.0	89.57	179.51	12,294.6	-4,843.2	41.3	4,843.3	0.00	0.00	0.00
17,000.0	89.57	179.51	12,295.3	-4,943.2	42.2	4,943.3	0.00	0.00	0.00
17,100.0	89.57	179.51	12,296.1	-5,043.1	43.1	5,043.3	0.00	0.00	0.00
17,200.0	89.57	179.51	12,296.8	-5,143.1	43.9	5,143.3	0.00	0.00	0.00
17,300.0	89.57	179.51	12,297.6	-5,243.1	44.8	5,243.3	0.00	0.00	0.00
17,400.0	89.57	179.51	12,298.3	-5,343.1	45.6	5,343.3	0.00	0.00	0.00
17,500.0	89.57	179.51	12,299.1	-5,443.1	46.5	5,443.3	0.00	0.00	0.00
17,600.0	89.57	179.51	12,299.9	-5,543.1	47.3	5,543.3	0.00	0.00	0.00
17,700.0	89.57	179.51	12,300.6	-5,643.1	48.2	5,643.3	0.00	0.00	0.00
17,800.0	89.57	179.51	12,301.4	-5,743.1	49.0	5,743.3	0.00	0.00	0.00
17,900.0	89.57	179.51	12,302.1	-5,843.1	49.9	5,843.3	0.00	0.00	0.00
18,000.0	89.57	179.51	12,302.9	-5,943.1	50.7	5,943.3	0.00	0.00	0.00
18,100.0	89.57	179.51	12,303.7	-6,043.1	51.6	6,043.3	0.00	0.00	0.00
18,200.0	89.57	179.51	12,304.4	-6,143.1	52.4	6,143.3	0.00	0.00	0.00
18,300.0	89.57	179.51	12,305.2	-6,243.1	53.3	6,243.3	0.00	0.00	0.00
18,400.0	89.57	179.51	12,305.9	-6,343.1	54.2	6,343.3	0.00	0.00	0.00
18,500.0	89.57	179.51	12,306.7	-6,443.1	55.0	6,443.3	0.00	0.00	0.00
18,600.0	89.57	179.51	12,307.4	-6,543.1	55.9	6,543.3	0.00	0.00	0.00
18,700.0	89.57	179.51	12,308.2	-6,643.0	56.7	6,643.3	0.00	0.00	0.00
18,800.0	89.57	179.51	12,309.0	-6,743.0	57.6	6,743.3	0.00	0.00	0.00
18,900.0	89.57	179.51	12,309.7	-6,843.0	58.4	6,843.3	0.00	0.00	0.00
19,000.0	89.57	179.51	12,310.5	-6,943.0	59.3	6,943.3	0.00	0.00	0.00
19,100.0	89.57	179.51	12,311.2	-7,043.0	60.1	7,043.3	0.00	0.00	0.00
19,200.0	89.57	179.51	12,312.0	-7,143.0	61.0	7,143.3	0.00	0.00	0.00
19,300.0	89.57	179.51	12,312.7	-7,243.0	61.8	7,243.3	0.00	0.00	0.00
19,400.0	89.57	179.51	12,313.5	-7,343.0	62.7	7,343.3	0.00	0.00	0.00
19,500.0	89.57	179.51	12,314.3	-7,443.0	63.5	7,443.3	0.00	0.00	0.00
19,600.0	89.57	179.51	12,315.0	-7,543.0	64.4	7,543.3	0.00	0.00	0.00
19,700.0	89.57	179.51	12,315.8	-7,643.0	65.2	7,643.3	0.00	0.00	0.00
TD @ 19729.4' MD / 12316.0' TVD									
19,729.4	89.57	179.51	12,316.0	-7,672.4	65.5	7,672.7	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Coonskin Fee #603H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3336.0usft (Noram 21)
Project:	Lea County, NM	MD Reference:	Well @ 3336.0usft (Noram 21)
Site:	Sec 28, T24S, R35E	North Reference:	Grid
Well:	Coonskin Fee #603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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									
FTP - Coonskin #603H	0.00	0.00	12,261.0	-279.9	2.3	435,871.50	795,363.40	32° 11' 41.003 N	103° 22' 42.700 W
- plan misses target center by 38.8usft at 12347.3usft MD (12225.4 TVD, -295.4 N, 2.5 E)									
- Point									
LTP - Coonskin #603H	0.00	0.00	12,315.1	-7,542.2	64.4	428,609.20	795,425.50	32° 10' 29.136 N	103° 22' 42.727 W
- plan misses target center by 0.1usft at 19599.2usft MD (12315.0 TVD, -7542.2 N, 64.4 E)									
- Point									
PBHL - Coonskin #603H	0.00	0.01	12,316.0	-7,672.4	65.5	428,479.00	795,426.60	32° 10' 27.848 N	103° 22' 42.728 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
586.0	586.0	Rustler				
945.0	945.0	TOS				
4,864.0	4,864.0	BOS (Fletcher)				
5,301.0	5,301.0	LMAR (Top Delaware)				
5,362.0	5,362.0	BLCN				
6,281.0	6,281.0	CYCN				
7,766.0	7,766.0	BYCN				
9,056.0	9,056.0	Bone Sprg (BSGL)				
9,488.0	9,488.0	U Avalon Sh				
9,653.0	9,653.0	L Avalon Sh				
10,158.0	10,158.0	B Avalon Sh				
10,237.0	10,237.0	FBSG Sand				
10,877.0	10,877.0	SBSG Sand				
11,366.0	11,366.0	SBSG Sand Base				
11,869.5	11,869.0	TBSG Sand				
14,450.5	12,276.0	WFMP				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S	+E/-W	
		(usft)	(usft)	
11,784.0	11,784.0	0.0	0.0	Build 12°/100'
12,530.4	12,261.5	-473.8	4.0	EOC @ 89.57° Inc / 179.51° Azm / 12261.5' TVD
19,729.4	12,316.0	-7,672.4	65.5	TD @ 19729.4' MD / 12316.0' TVD