

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 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 295367

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

1. Operator Name and Address COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701		2. OGRID Number 229137
		3. API Number 30-015-48270
4. Property Code 308269	5. Property Name WAY SOUTH STATE COM	6. Well No. 703H

7. Surface Location

UL - Lot H	Section 31	Township 26S	Range 28E	Lot Idn 5	Feet From 265	N/S Line S	Feet From 690	E/W Line E	County Eddy
---------------	---------------	-----------------	--------------	--------------	------------------	---------------	------------------	---------------	----------------

8. Proposed Bottom Hole Location

UL - Lot A	Section 19	Township 26S	Range 28E	Lot Idn A	Feet From 200	N/S Line N	Feet From 990	E/W Line E	County Eddy
---------------	---------------	-----------------	--------------	--------------	------------------	---------------	------------------	---------------	----------------

9. Pool Information

PURPLE SAGE;WOLFCAMP (GAS)	98220
----------------------------	-------

Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3082
16. Multiple N	17. Proposed Depth 21529	18. Formation Wolfcamp	19. Contractor	20. Spud Date 4/30/2021
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ 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	54.5	500	400	0
Int1	12.25	9.625	40	8580	1925	0
Prod	8.5	5.5	17	21529	3900	8000

Casing/Cement Program: Additional Comments

Plan to drill a 17-1/2" hole to 500' with Fresh Water into the Rustler to cover FW water depth. Run 13-3/8", 54.5# J-55 casing and cement to surface. 1st Intermediate - Drill 12-1/4" hole to 8580' with Brine, and run 9-5/8", 8580' of 40# N/L80 and cement to surface in one stage. Drill an 8-1/2" curve and lateral with Oil Based Mud (OBM) to approximately 21,529' MD. Run 5-1/2" 17# P110 casing to TD and cement in one stage bringing cement up to 5000' in one stage.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	5000	Cameron

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.

OIL CONSERVATION DIVISION

Signature:			
Printed Name:	Electronically filed by Robyn Russell	Approved By:	Kurt Simmons
Title:	Regulatory Compliance Lead	Title:	Petroleum Specialist - A
Email Address:	robyn.m.russell@conocophillips.com	Approved Date:	5/4/2021
Date:	4/27/2021	Expiration Date:	5/4/2023
Phone:	432-685-4385	Conditions of Approval Attached	

As per State Land Office Lot 5: 23.76 Lot 4: 23.83

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 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

GAS CAPTURE PLAN

Date: 5/4/2021

☒ Original

Operator & OGRID No.: [229137] COG OPERATING LLC

☐ Amended - Reason for
Amendment:

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
WAY SOUTH STATE COM #703H	30-015-48270	H-31-26S-28E	0265S 0690E	3900	None	Gas will connect on well pad. It will require additional line to connect to the facility but the amount is unknown currently. Processing Plant Location: Sec 35, Blk 57, T2S, Culberson County, TX

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to ETC Texas Pipeline, Ltd. and will be connected to ETC Texas Pipeline, Ltd. Low Pressure gathering system located in Eddy County, New Mexico. It will require 0' of pipeline to connect the facility to Low Pressure gathering system. COG OPERATING LLC provides (periodically) to ETC Texas Pipeline, Ltd. a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, COG OPERATING LLC and ETC Texas Pipeline, Ltd. have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at ETC Texas Pipeline, Ltd. Processing Plant located in Sec. 31, Twn. 26S, Rng. 28E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on ETC Texas Pipeline, Ltd. system at that time. Based on current information, it is COG OPERATING LLC's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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 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 APD Comments

Permit 295367

PERMIT COMMENTS

Operator Name and Address: COG OPERATING LLC [229137] 600 W Illinois Ave Midland, TX 79701		API Number: 30-015-48270
		Well: WAY SOUTH STATE COM #703H

Created By	Comment	Comment Date
mreyes4	COG Operating has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore we do not believe that an H2S Contingency Plan would be necessary.	4/22/2021

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 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 APD Conditions

Permit 295367

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: COG OPERATING LLC [229137] 600 W Illinois Ave Midland, TX 79701	API Number: 30-015-48270
	Well: WAY SOUTH STATE COM #703H

OCD Reviewer	Condition
ksimmons	Notify OCD 24 hours prior to casing & cement
ksimmons	Will require a File As Drilled C-102 and a Directional Survey with the C-104
ksimmons	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud
kpickford	Surface casing must be set 25' below top of Rustler Anhydrite or salt in order to seal off protectable water
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system

Information for State APD for Way South State Com 703H

12.11.18

Proposed Depth **21,529'** MD.

Proposed Casing and Cement Program

TYPE	HOLE SIZE	CASING SIZE	CASING WT.	SETTING DEPTH	SACKS OF CEMENT	ESTIMATED TOC
SURF	17.5	13.375	54.5	500	400	0
INT 1	12.25	9.625	40	8580	1925	0
PROD	8.50	5.5	17	21,529	3900	8000

Casing/Cement Program: Additional Comments

Plan to drill a 17-1/2" hole to 500' with Fresh Water into the Rustler to cover FW water depth. Run 13-3/8", 54.5# J-55 casing and cement to surface.

1st Intermediate - Drill 12-1/4" hole to 8580' with Brine, and run 9-5/8", 8580' of 40# N/L80 and cement to surface in one stage.

Drill an 8-1/2" curve and lateral with Oil Based Mud (OBM) to approximately 21,529' MD. Run 5-1/2" 17# P110 casing to TD and cement in one stage bringing cement up to 5000' in one stage.

PROPOSED BLOWOUT PREVENTION PROGRAM

12.25" Intermediate Section

On 13-3/8" Surface Casing, Install 3000 psi casing head, NU 13-5/8" Cameron BOP. Test annular and casing to 1500 psi and other BOP equipment to 3000 psi.

8.75" Production Section

On 9-5/8" Intermediate Casing, Install 5000 psi casing spool, NU 13-5/8" Cameron BOP. Test casing to 1500 psi. Test annular to 2500 psi and other BOP equipment to 5000 psi.

Thanks,

Alex



COG Operating L L C

Eddy County, NM (NAD 27 NME)

Sec. 31, T 26 S, R 28- E

Way South State Com 703H

Wellbore #1

Plan: Plan #1

Standard Survey Report

12 December, 2018





Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

Project	Eddy County, NM (NAD 27 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	Sec. 31, T 26 S, R 28- E				
Site Position:		Northing:	363,736.60 usft	Latitude:	31.99984
From:	Map	Easting:	566,855.10 usft	Longitude:	-104.11767
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11 °

Well	Way South State Com 703H					
Well Position	+N-S	0.00 usft	Northing:	364,000.90 usft	Latitude:	32.00057
	+E/-W	0.00 usft	Easting:	566,164.60 usft	Longitude:	-104.11990
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,082.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/12/2018	7.13	59.63	47,819

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	358.60	

Survey Tool Program	Date	12/12/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	21,529.46	Plan #1 (Wellbore #1)	MWD	MWD - Standard	

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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

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)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,406.46	0.00	0.00	4,406.46	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
4,500.00	1.87	244.00	4,499.98	-0.67	-1.37	-0.64	2.00	2.00	0.00
4,600.00	3.87	244.00	4,599.85	-2.86	-5.87	-2.72	2.00	2.00	0.00
4,656.46	5.00	244.00	4,656.15	-4.78	-9.80	-4.54	2.00	2.00	0.00
Start 3593.54 hold at 4656.46 MD									
4,700.00	5.00	244.00	4,699.52	-6.44	-13.21	-6.12	0.00	0.00	0.00
4,800.00	5.00	244.00	4,799.14	-10.26	-21.04	-9.75	0.00	0.00	0.00
4,900.00	5.00	244.00	4,898.76	-14.08	-28.88	-13.38	0.00	0.00	0.00



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

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)
5,000.00	5.00	244.00	4,998.38	-17.90	-36.71	-17.00	0.00	0.00	0.00
5,100.00	5.00	244.00	5,098.00	-21.72	-44.54	-20.63	0.00	0.00	0.00
5,200.00	5.00	244.00	5,197.61	-25.55	-52.38	-24.26	0.00	0.00	0.00
5,300.00	5.00	244.00	5,297.23	-29.37	-60.21	-27.89	0.00	0.00	0.00
5,400.00	5.00	244.00	5,396.85	-33.19	-68.04	-31.52	0.00	0.00	0.00
5,500.00	5.00	244.00	5,496.47	-37.01	-75.88	-35.15	0.00	0.00	0.00
5,600.00	5.00	244.00	5,596.09	-40.83	-83.71	-38.77	0.00	0.00	0.00
5,700.00	5.00	244.00	5,695.71	-44.65	-91.54	-42.40	0.00	0.00	0.00
5,800.00	5.00	244.00	5,795.33	-48.47	-99.38	-46.03	0.00	0.00	0.00
5,900.00	5.00	244.00	5,894.95	-52.29	-107.21	-49.66	0.00	0.00	0.00
6,000.00	5.00	244.00	5,994.57	-56.11	-115.04	-53.29	0.00	0.00	0.00
6,100.00	5.00	244.00	6,094.19	-59.93	-122.88	-56.92	0.00	0.00	0.00
6,200.00	5.00	244.00	6,193.81	-63.75	-130.71	-60.55	0.00	0.00	0.00
6,300.00	5.00	244.00	6,293.43	-67.57	-138.54	-64.17	0.00	0.00	0.00
6,400.00	5.00	244.00	6,393.05	-71.39	-146.38	-67.80	0.00	0.00	0.00
6,500.00	5.00	244.00	6,492.67	-75.21	-154.21	-71.43	0.00	0.00	0.00
6,600.00	5.00	244.00	6,592.29	-79.03	-162.05	-75.06	0.00	0.00	0.00
6,700.00	5.00	244.00	6,691.91	-82.86	-169.88	-78.69	0.00	0.00	0.00
6,800.00	5.00	244.00	6,791.53	-86.68	-177.71	-82.32	0.00	0.00	0.00
6,900.00	5.00	244.00	6,891.15	-90.50	-185.55	-85.95	0.00	0.00	0.00
7,000.00	5.00	244.00	6,990.77	-94.32	-193.38	-89.57	0.00	0.00	0.00
7,100.00	5.00	244.00	7,090.38	-98.14	-201.21	-93.20	0.00	0.00	0.00
7,200.00	5.00	244.00	7,190.00	-101.96	-209.05	-96.83	0.00	0.00	0.00
7,300.00	5.00	244.00	7,289.62	-105.78	-216.88	-100.46	0.00	0.00	0.00
7,400.00	5.00	244.00	7,389.24	-109.60	-224.71	-104.09	0.00	0.00	0.00
7,500.00	5.00	244.00	7,488.86	-113.42	-232.55	-107.72	0.00	0.00	0.00
7,600.00	5.00	244.00	7,588.48	-117.24	-240.38	-111.35	0.00	0.00	0.00
7,700.00	5.00	244.00	7,688.10	-121.06	-248.21	-114.97	0.00	0.00	0.00
7,800.00	5.00	244.00	7,787.72	-124.88	-256.05	-118.60	0.00	0.00	0.00
7,900.00	5.00	244.00	7,887.34	-128.70	-263.88	-122.23	0.00	0.00	0.00
8,000.00	5.00	244.00	7,986.96	-132.52	-271.71	-125.86	0.00	0.00	0.00
8,100.00	5.00	244.00	8,086.58	-136.34	-279.55	-129.49	0.00	0.00	0.00
8,200.00	5.00	244.00	8,186.20	-140.17	-287.38	-133.12	0.00	0.00	0.00
8,250.00	5.00	244.00	8,236.01	-142.08	-291.30	-134.93	0.00	0.00	0.00
Start Drop -2.00									
8,300.00	4.00	244.00	8,285.85	-143.80	-294.82	-136.56	2.00	-2.00	0.00
8,400.00	2.00	244.00	8,385.71	-146.09	-299.53	-138.74	2.00	-2.00	0.00
8,500.00	0.00	0.00	8,485.69	-146.85	-301.10	-139.47	2.00	-2.00	116.00
Start 177.37 hold at 8500.00 MD									
8,600.00	0.00	0.00	8,585.69	-146.85	-301.10	-139.47	0.00	0.00	0.00
8,677.37	0.00	0.00	8,663.06	-146.85	-301.10	-139.47	0.00	0.00	0.00
Start DLS 10.00 TFO 360.00									
8,700.00	2.26	360.00	8,685.69	-146.41	-301.10	-139.02	10.00	10.00	0.00
8,800.00	12.26	360.00	8,784.76	-133.78	-301.10	-126.40	10.00	10.00	0.00



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

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)
8,900.00	22.26	360.00	8,880.13	-104.14	-301.10	-96.77	10.00	10.00	0.00
9,000.00	32.26	360.00	8,968.91	-58.39	-301.10	-51.03	10.00	10.00	0.00
9,100.00	42.26	360.00	9,048.40	2.08	-301.11	9.42	10.00	10.00	0.00
9,200.00	52.26	360.00	9,116.17	75.43	-301.11	82.75	10.00	10.00	0.00
9,300.00	62.26	360.00	9,170.18	159.44	-301.12	166.74	10.00	10.00	0.00
9,400.00	72.26	360.00	9,208.78	251.55	-301.12	258.82	10.00	10.00	0.00
9,500.00	82.26	360.00	9,230.80	348.97	-301.13	356.21	10.00	10.00	0.00
9,573.20	89.58	360.00	9,236.00	421.93	-301.13	429.15	10.00	10.00	0.00
Start 11956.28 hold at 9573.20 MD									
9,600.00	89.58	360.00	9,236.20	448.73	-301.13	455.94	0.00	0.00	0.00
9,700.00	89.58	360.00	9,236.93	548.73	-301.14	555.91	0.00	0.00	0.00
9,800.00	89.58	360.00	9,237.65	648.73	-301.15	655.88	0.00	0.00	0.00
9,900.00	89.58	360.00	9,238.38	748.73	-301.15	755.85	0.00	0.00	0.00
10,000.00	89.58	360.00	9,239.11	848.72	-301.16	855.81	0.00	0.00	0.00
10,100.00	89.58	360.00	9,239.84	948.72	-301.17	955.78	0.00	0.00	0.00
10,200.00	89.58	360.00	9,240.56	1,048.72	-301.17	1,055.75	0.00	0.00	0.00
10,300.00	89.58	360.00	9,241.29	1,148.72	-301.18	1,155.72	0.00	0.00	0.00
10,400.00	89.58	360.00	9,242.02	1,248.71	-301.19	1,255.69	0.00	0.00	0.00
10,500.00	89.58	360.00	9,242.75	1,348.71	-301.19	1,355.65	0.00	0.00	0.00
10,600.00	89.58	360.00	9,243.47	1,448.71	-301.20	1,455.62	0.00	0.00	0.00
10,700.00	89.58	360.00	9,244.20	1,548.70	-301.20	1,555.59	0.00	0.00	0.00
10,800.00	89.58	360.00	9,244.93	1,648.70	-301.21	1,655.56	0.00	0.00	0.00
10,900.00	89.58	360.00	9,245.66	1,748.70	-301.22	1,755.52	0.00	0.00	0.00
11,000.00	89.58	360.00	9,246.38	1,848.70	-301.22	1,855.49	0.00	0.00	0.00
11,100.00	89.58	360.00	9,247.11	1,948.69	-301.23	1,955.46	0.00	0.00	0.00
11,200.00	89.58	360.00	9,247.84	2,048.69	-301.24	2,055.43	0.00	0.00	0.00
11,300.00	89.58	360.00	9,248.57	2,148.69	-301.24	2,155.40	0.00	0.00	0.00
11,400.00	89.58	360.00	9,249.30	2,248.69	-301.25	2,255.36	0.00	0.00	0.00
11,500.00	89.58	360.00	9,250.02	2,348.68	-301.26	2,355.33	0.00	0.00	0.00
11,600.00	89.58	360.00	9,250.75	2,448.68	-301.26	2,455.30	0.00	0.00	0.00
11,700.00	89.58	360.00	9,251.48	2,548.68	-301.27	2,555.27	0.00	0.00	0.00
11,800.00	89.58	360.00	9,252.21	2,648.68	-301.28	2,655.23	0.00	0.00	0.00
11,900.00	89.58	360.00	9,252.93	2,748.67	-301.28	2,755.20	0.00	0.00	0.00
12,000.00	89.58	360.00	9,253.66	2,848.67	-301.29	2,855.17	0.00	0.00	0.00
12,100.00	89.58	360.00	9,254.39	2,948.67	-301.29	2,955.14	0.00	0.00	0.00
12,200.00	89.58	360.00	9,255.12	3,048.67	-301.30	3,055.11	0.00	0.00	0.00
12,300.00	89.58	360.00	9,255.84	3,148.66	-301.31	3,155.07	0.00	0.00	0.00
12,400.00	89.58	360.00	9,256.57	3,248.66	-301.31	3,255.04	0.00	0.00	0.00
12,500.00	89.58	360.00	9,257.30	3,348.66	-301.32	3,355.01	0.00	0.00	0.00
12,600.00	89.58	360.00	9,258.03	3,448.65	-301.33	3,454.98	0.00	0.00	0.00
12,700.00	89.58	360.00	9,258.75	3,548.65	-301.33	3,554.94	0.00	0.00	0.00
12,800.00	89.58	360.00	9,259.48	3,648.65	-301.34	3,654.91	0.00	0.00	0.00
12,900.00	89.58	360.00	9,260.21	3,748.65	-301.35	3,754.88	0.00	0.00	0.00



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

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)	
13,000.00	89.58	360.00	9,260.94	3,848.64	-301.35	3,854.85	0.00	0.00	0.00	
13,100.00	89.58	360.00	9,261.66	3,948.64	-301.36	3,954.82	0.00	0.00	0.00	
13,200.00	89.58	360.00	9,262.39	4,048.64	-301.37	4,054.78	0.00	0.00	0.00	
13,300.00	89.58	360.00	9,263.12	4,148.64	-301.37	4,154.75	0.00	0.00	0.00	
13,400.00	89.58	360.00	9,263.85	4,248.63	-301.38	4,254.72	0.00	0.00	0.00	
13,500.00	89.58	360.00	9,264.58	4,348.63	-301.38	4,354.69	0.00	0.00	0.00	
13,600.00	89.58	360.00	9,265.30	4,448.63	-301.39	4,454.65	0.00	0.00	0.00	
13,700.00	89.58	360.00	9,266.03	4,548.63	-301.40	4,554.62	0.00	0.00	0.00	
13,800.00	89.58	360.00	9,266.76	4,648.62	-301.40	4,654.59	0.00	0.00	0.00	
13,900.00	89.58	360.00	9,267.49	4,748.62	-301.41	4,754.56	0.00	0.00	0.00	
14,000.00	89.58	360.00	9,268.21	4,848.62	-301.42	4,854.53	0.00	0.00	0.00	
14,100.00	89.58	360.00	9,268.94	4,948.61	-301.42	4,954.49	0.00	0.00	0.00	
14,200.00	89.58	360.00	9,269.67	5,048.61	-301.43	5,054.46	0.00	0.00	0.00	
14,300.00	89.58	360.00	9,270.40	5,148.61	-301.44	5,154.43	0.00	0.00	0.00	
14,400.00	89.58	360.00	9,271.12	5,248.61	-301.44	5,254.40	0.00	0.00	0.00	
14,500.00	89.58	360.00	9,271.85	5,348.60	-301.45	5,354.36	0.00	0.00	0.00	
14,600.00	89.58	360.00	9,272.58	5,448.60	-301.46	5,454.33	0.00	0.00	0.00	
14,700.00	89.58	360.00	9,273.31	5,548.60	-301.46	5,554.30	0.00	0.00	0.00	
14,800.00	89.58	360.00	9,274.03	5,648.60	-301.47	5,654.27	0.00	0.00	0.00	
14,900.00	89.58	360.00	9,274.76	5,748.59	-301.47	5,754.24	0.00	0.00	0.00	
15,000.00	89.58	360.00	9,275.49	5,848.59	-301.48	5,854.20	0.00	0.00	0.00	
15,100.00	89.58	360.00	9,276.22	5,948.59	-301.49	5,954.17	0.00	0.00	0.00	
15,200.00	89.58	360.00	9,276.95	6,048.59	-301.49	6,054.14	0.00	0.00	0.00	
15,300.00	89.58	360.00	9,277.67	6,148.58	-301.50	6,154.11	0.00	0.00	0.00	
15,400.00	89.58	360.00	9,278.40	6,248.58	-301.51	6,254.07	0.00	0.00	0.00	
15,500.00	89.58	360.00	9,279.13	6,348.58	-301.51	6,354.04	0.00	0.00	0.00	
15,600.00	89.58	360.00	9,279.86	6,448.58	-301.52	6,454.01	0.00	0.00	0.00	
15,700.00	89.58	360.00	9,280.58	6,548.57	-301.53	6,553.98	0.00	0.00	0.00	
15,800.00	89.58	360.00	9,281.31	6,648.57	-301.53	6,653.95	0.00	0.00	0.00	
15,900.00	89.58	360.00	9,282.04	6,748.57	-301.54	6,753.91	0.00	0.00	0.00	
16,000.00	89.58	360.00	9,282.77	6,848.56	-301.55	6,853.88	0.00	0.00	0.00	
16,100.00	89.58	360.00	9,283.49	6,948.56	-301.55	6,953.85	0.00	0.00	0.00	
16,200.00	89.58	360.00	9,284.22	7,048.56	-301.56	7,053.82	0.00	0.00	0.00	
16,300.00	89.58	360.00	9,284.95	7,148.56	-301.56	7,153.78	0.00	0.00	0.00	
16,400.00	89.58	360.00	9,285.68	7,248.55	-301.57	7,253.75	0.00	0.00	0.00	
16,500.00	89.58	360.00	9,286.40	7,348.55	-301.58	7,353.72	0.00	0.00	0.00	
16,600.00	89.58	360.00	9,287.13	7,448.55	-301.58	7,453.69	0.00	0.00	0.00	
16,700.00	89.58	360.00	9,287.86	7,548.55	-301.59	7,553.66	0.00	0.00	0.00	
16,800.00	89.58	360.00	9,288.59	7,648.54	-301.60	7,653.62	0.00	0.00	0.00	
16,900.00	89.58	360.00	9,289.31	7,748.54	-301.60	7,753.59	0.00	0.00	0.00	
17,000.00	89.58	360.00	9,290.04	7,848.54	-301.61	7,853.56	0.00	0.00	0.00	
17,100.00	89.58	360.00	9,290.77	7,948.54	-301.62	7,953.53	0.00	0.00	0.00	
17,200.00	89.58	360.00	9,291.50	8,048.53	-301.62	8,053.49	0.00	0.00	0.00	
17,300.00	89.58	360.00	9,292.23	8,148.53	-301.63	8,153.46	0.00	0.00	0.00	



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

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)
17,400.00	89.58	360.00	9,292.95	8,248.53	-301.63	8,253.43	0.00	0.00	0.00
17,500.00	89.58	360.00	9,293.68	8,348.52	-301.64	8,353.40	0.00	0.00	0.00
17,600.00	89.58	360.00	9,294.41	8,448.52	-301.65	8,453.37	0.00	0.00	0.00
17,700.00	89.58	360.00	9,295.14	8,548.52	-301.65	8,553.33	0.00	0.00	0.00
17,800.00	89.58	360.00	9,295.86	8,648.52	-301.66	8,653.30	0.00	0.00	0.00
17,900.00	89.58	360.00	9,296.59	8,748.51	-301.67	8,753.27	0.00	0.00	0.00
18,000.00	89.58	360.00	9,297.32	8,848.51	-301.67	8,853.24	0.00	0.00	0.00
18,100.00	89.58	360.00	9,298.05	8,948.51	-301.68	8,953.20	0.00	0.00	0.00
18,200.00	89.58	360.00	9,298.77	9,048.51	-301.69	9,053.17	0.00	0.00	0.00
18,300.00	89.58	360.00	9,299.50	9,148.50	-301.69	9,153.14	0.00	0.00	0.00
18,400.00	89.58	360.00	9,300.23	9,248.50	-301.70	9,253.11	0.00	0.00	0.00
18,500.00	89.58	360.00	9,300.96	9,348.50	-301.71	9,353.08	0.00	0.00	0.00
18,600.00	89.58	360.00	9,301.68	9,448.50	-301.71	9,453.04	0.00	0.00	0.00
18,700.00	89.58	360.00	9,302.41	9,548.49	-301.72	9,553.01	0.00	0.00	0.00
18,800.00	89.58	360.00	9,303.14	9,648.49	-301.72	9,652.98	0.00	0.00	0.00
18,900.00	89.58	360.00	9,303.87	9,748.49	-301.73	9,752.95	0.00	0.00	0.00
19,000.00	89.58	360.00	9,304.59	9,848.49	-301.74	9,852.91	0.00	0.00	0.00
19,100.00	89.58	360.00	9,305.32	9,948.48	-301.74	9,952.88	0.00	0.00	0.00
19,200.00	89.58	360.00	9,306.05	10,048.48	-301.75	10,052.85	0.00	0.00	0.00
19,300.00	89.58	360.00	9,306.78	10,148.48	-301.76	10,152.82	0.00	0.00	0.00
19,400.00	89.58	360.00	9,307.51	10,248.47	-301.76	10,252.79	0.00	0.00	0.00
19,500.00	89.58	360.00	9,308.23	10,348.47	-301.77	10,352.75	0.00	0.00	0.00
19,600.00	89.58	360.00	9,308.96	10,448.47	-301.78	10,452.72	0.00	0.00	0.00
19,700.00	89.58	360.00	9,309.69	10,548.47	-301.78	10,552.69	0.00	0.00	0.00
19,800.00	89.58	360.00	9,310.42	10,648.46	-301.79	10,652.66	0.00	0.00	0.00
19,900.00	89.58	360.00	9,311.14	10,748.46	-301.80	10,752.62	0.00	0.00	0.00
20,000.00	89.58	360.00	9,311.87	10,848.46	-301.80	10,852.59	0.00	0.00	0.00
20,100.00	89.58	360.00	9,312.60	10,948.46	-301.81	10,952.56	0.00	0.00	0.00
20,200.00	89.58	360.00	9,313.33	11,048.45	-301.81	11,052.53	0.00	0.00	0.00
20,300.00	89.58	360.00	9,314.05	11,148.45	-301.82	11,152.50	0.00	0.00	0.00
20,400.00	89.58	360.00	9,314.78	11,248.45	-301.83	11,252.46	0.00	0.00	0.00
20,500.00	89.58	360.00	9,315.51	11,348.45	-301.83	11,352.43	0.00	0.00	0.00
20,600.00	89.58	360.00	9,316.24	11,448.44	-301.84	11,452.40	0.00	0.00	0.00
20,700.00	89.58	360.00	9,316.96	11,548.44	-301.85	11,552.37	0.00	0.00	0.00
20,800.00	89.58	360.00	9,317.69	11,648.44	-301.85	11,652.33	0.00	0.00	0.00
20,900.00	89.58	360.00	9,318.42	11,748.44	-301.86	11,752.30	0.00	0.00	0.00
21,000.00	89.58	360.00	9,319.15	11,848.43	-301.87	11,852.27	0.00	0.00	0.00
21,100.00	89.58	360.00	9,319.88	11,948.43	-301.87	11,952.24	0.00	0.00	0.00
21,200.00	89.58	360.00	9,320.60	12,048.43	-301.88	12,052.21	0.00	0.00	0.00
21,300.00	89.58	360.00	9,321.33	12,148.42	-301.89	12,152.17	0.00	0.00	0.00
21,400.00	89.58	360.00	9,322.06	12,248.42	-301.89	12,252.14	0.00	0.00	0.00
21,500.00	89.58	360.00	9,322.79	12,348.42	-301.90	12,352.11	0.00	0.00	0.00
21,529.48	89.58	360.00	9,323.00	12,377.90	-301.90	12,381.58	0.00	0.00	0.00



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

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 21529.48									

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									
Way South State Corr	0.00	0.00	8,663.06	-146.85	-301.10	363,854.04	565,863.51	32.00017	-104.12087
- plan hits target center									
- Point									
Way South State Corr	0.00	0.00	9,107.50	64.50	-300.10	364,065.40	565,864.50	32.00075	-104.12086
- plan misses target center by 1.01usft at 9186.07usft MD (9107.51 TVD, 64.52 N, -301.11 E)									
- Point									
Way South State Corr	0.00	0.00	9,322.05	12,247.90	-301.90	376,248.80	565,862.70	32.03425	-104.12079
- plan misses target center by 0.01usft at 21399.48usft MD (9322.05 TVD, 12247.90 N, -301.89 E)									
- Point									
Way South State Corr	0.00	0.00	9,323.00	12,377.90	-301.90	376,378.80	565,862.70	32.03460	-104.12079
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5.00	5.00	Rustler		0.00		
594.00	594.00	TOS		0.00		
2,186.00	2,186.00	BOS (Fletcher)		0.00		
2,367.00	2,367.00	LMAR (Top Delaware)		0.00		
2,401.00	2,401.00	BLCN		0.00		
3,174.00	3,174.00	CYCN				
4,427.00	4,427.00	BYCN				
6,011.47	6,006.00	Bone Sprg (BSGL)				
6,369.84	6,363.00	U Avalon Sh				
6,577.63	6,570.00	L Avalon Sh				
6,782.41	6,774.00	B Avalon Sh				
6,928.96	6,920.00	FBSG_sand				
7,545.31	7,534.00	SBSG_sand				
7,861.51	7,849.00	SBSG_sand_Base				
8,679.31	8,665.00	TBSG_sand				
9,053.81	9,013.00	WFMP				
9,280.88	9,161.00	WFMP A SHALE				



Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Well:	Way South State Com 703H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4406	4406	0	0	Start Build 2.00
4656	4656	-5	-10	Start 3593.54 hold at 4656.46 MD
8250	8236	-142	-291	Start Drop -2.00
8500	8486	-147	-301	Start 177.37 hold at 8500.00 MD
8677	8663	-147	-301	Start DLS 10.00 TFO 360.00
9573	9236	422	-301	Start 11956.28 hold at 9573.20 MD
21,529	9323	12,378	-302	TD at 21529.48

Checked By: _____ Approved By: _____ Date: _____

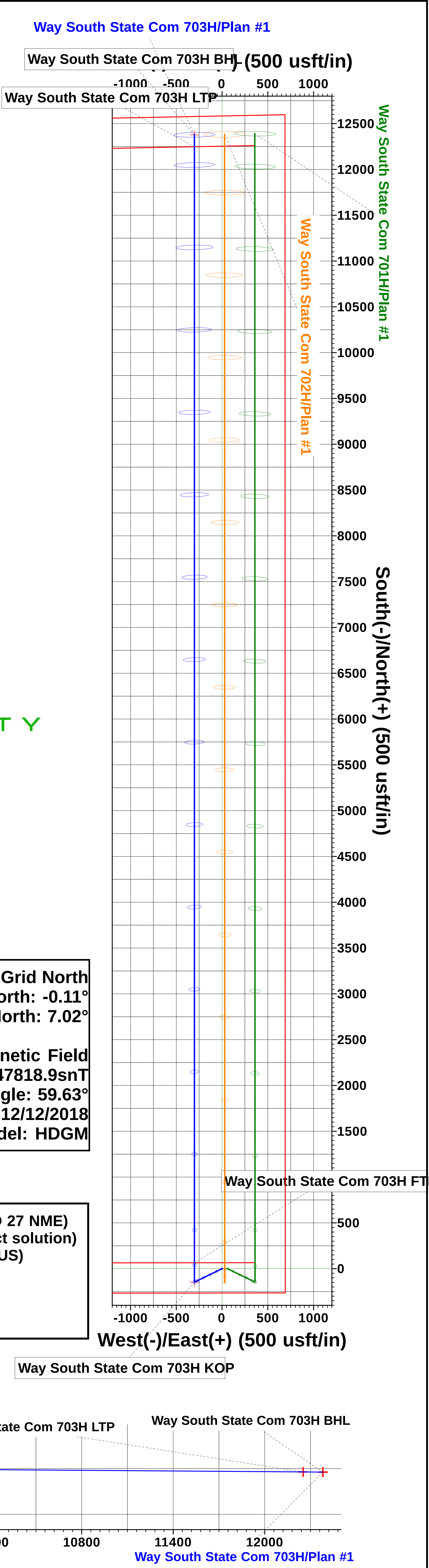


COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Site: Sec. 31, T 26 S, R 28- E
Well: Way South State Com 703H
Wellbore: Wellbore #1
Plan: Plan #1 (Way South State Com 703H/Wellbore #1)
Noram 23

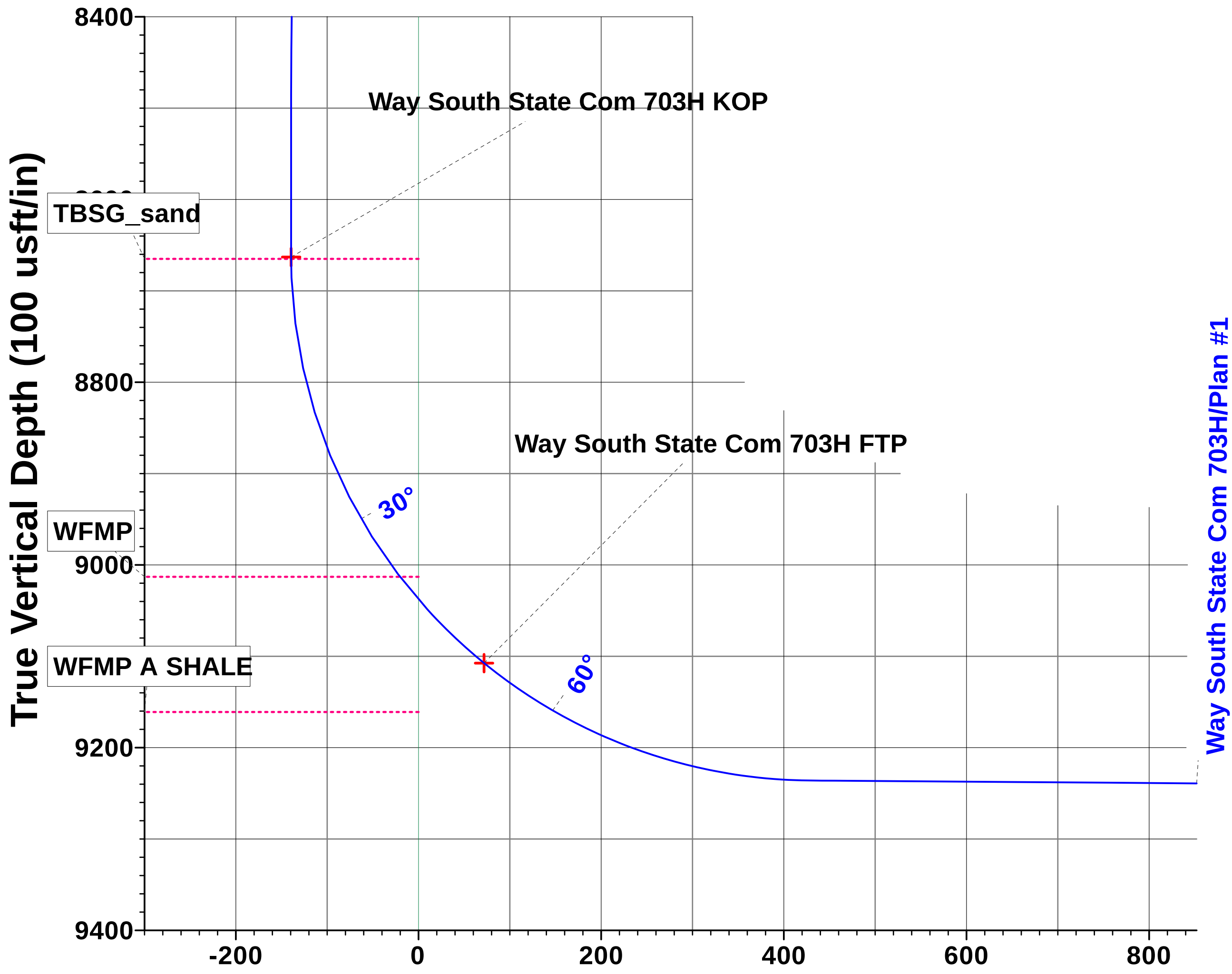
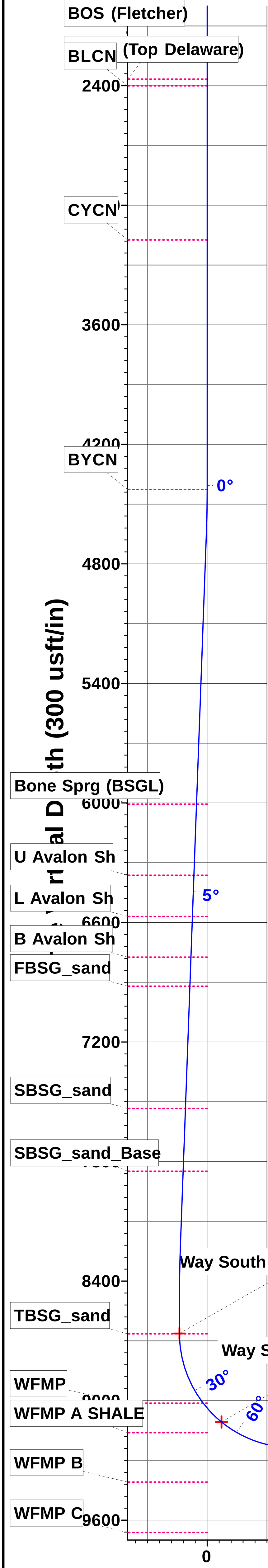
WELL DETAILS: Way South State Com 703H

Ground Elevation:: 3082.00
RKB Elevation: KB=29' @ 3111.00usft (Noram 23)
Rig Name: Noram 23

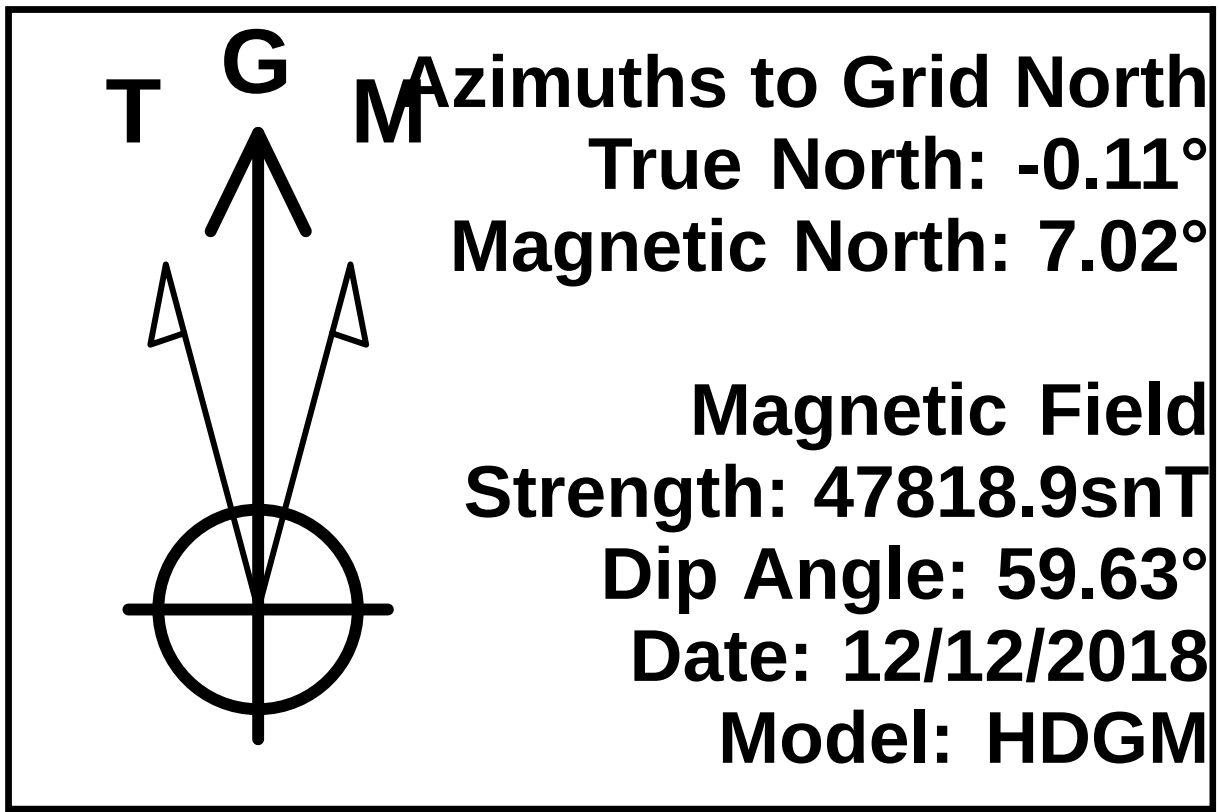
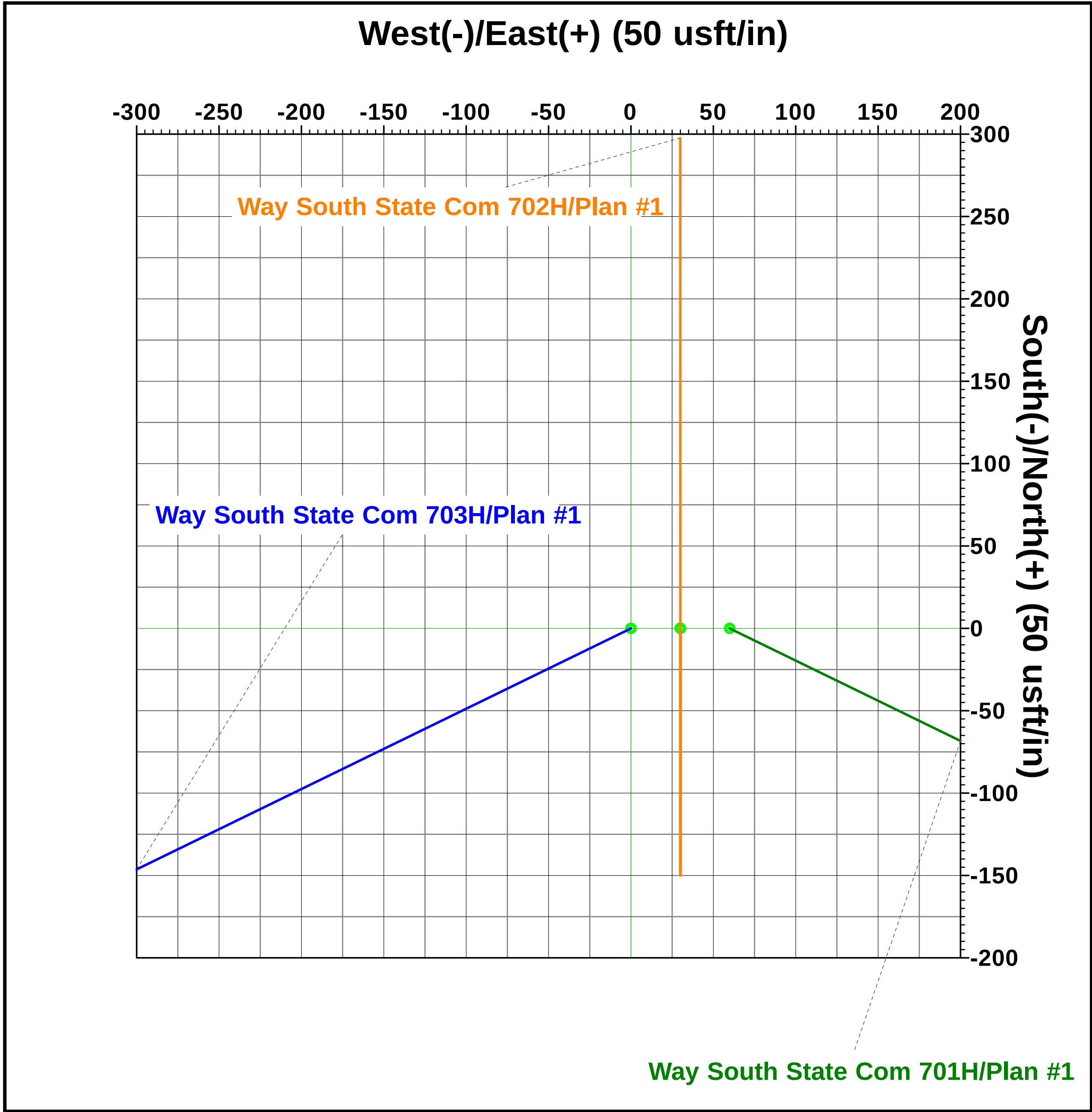
Northing	Easting	Latitude	Longitude
364000.90	566164.60	32.00057	-104.11989



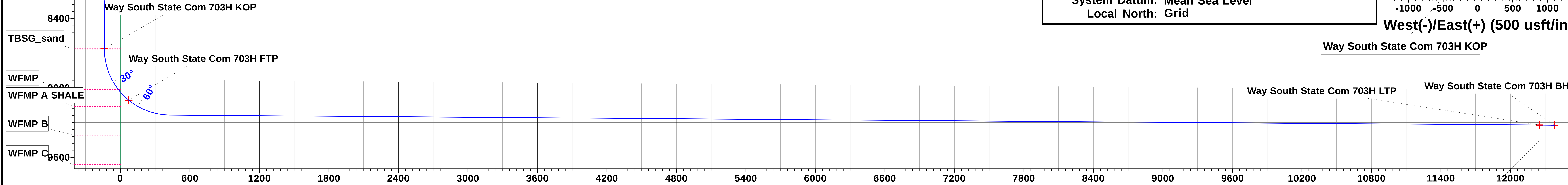
Planned Section Details										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4406.46	0.00	0.00	4406.46	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
3	4656.46	5.00	244.00	4656.15	-4.78	-9.80	2.00	244.00	-4.54	Start 3593.54 hold at 4656.46 MD
4	8250.00	5.00	244.00	8236.01	-142.08	-291.30	0.00	0.00	-134.93	Start Drop -2.00
5	8500.00	0.00	0.00	8485.69	-146.85	-301.10	2.00	180.00	-139.47	Start 177.37 hold at 8500.00 MD
6	8677.37	0.00	0.00	8663.06	-146.85	-301.10	0.00	0.00	-139.47	Start DLS 10.00 TFO 360.00
7	9573.20	89.58	360.00	9236.00	421.93	-301.13	10.00	360.00	429.15	Start 11956.28 hold at 9573.20 MD
8	21529.48	89.58	360.00	9323.00	12377.90	-301.90	0.00	0.00	12381.58	TD at 21529.48



Vertical Section at 358.60° (100 usft/in)



PROJECT DETAILS: Eddy County, NM (NAD 27 NME)
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



Vertical Section at 358.60° (300 usft/in)



C O N C H O

COG Operating L L C

Eddy County, NM (NAD 27 NME)

Sec. 31, T 26 S, R 28- E

Way South State Com 703H

Wellbore #1

Plan #1

Anticollision Report

12 December, 2018





Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 19,999.96 u
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Circular Conic
Casing Method:	Not applied

Survey Tool Program		Date	12/12/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	21,529.46	Plan #1 (Wellbore #1)	MWD	MWD - Standard	

Summary							
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
Offset Well - Wellbore - Design							
Sec. 31, T 26 S, R 28- E							
Way South State Com 701H - Wellbore #1 - Plan #1	4,406.46	4,405.46	59.90	40.38	3.069	CC, ES	
Way South State Com 701H - Wellbore #1 - Plan #1	21,529.48	21,546.51	660.15	206.22	1.454	Level 3, SF	
Way South State Com 702H - Wellbore #1 - Plan #1	4,406.46	4,405.46	30.00	10.48	1.537	CC	
Way South State Com 702H - Wellbore #1 - Plan #1	21,529.48	21,730.25	384.82	-68.96	0.848	Level 1, ES, SF	

Offset Design	Sec. 31, T 26 S, R 28- E - Way South State Com 701H - Wellbore #1 - Plan #1											Offset Site Error:	0.00 usft
Survey Program:	0-MWD											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	59.90	59.91				
100.00	100.00	99.00	99.00	0.08	0.08	90.00	0.00	59.90	59.90	59.74	0.16	377.237	
200.00	200.00	199.00	199.00	0.30	0.30	90.00	0.00	59.90	59.90	59.29	0.61	98.703	
300.00	300.00	299.00	299.00	0.53	0.53	90.00	0.00	59.90	59.90	58.84	1.06	56.702	
400.00	400.00	399.00	399.00	0.75	0.75	90.00	0.00	59.90	59.90	58.39	1.51	39.776	
500.00	500.00	499.00	499.00	0.98	0.98	90.00	0.00	59.90	59.90	57.94	1.96	30.632	
600.00	600.00	599.00	599.00	1.20	1.20	90.00	0.00	59.90	59.90	57.50	2.40	24.906	
700.00	700.00	699.00	699.00	1.43	1.43	90.00	0.00	59.90	59.90	57.05	2.85	20.984	
800.00	800.00	799.00	799.00	1.65	1.65	90.00	0.00	59.90	59.90	56.60	3.30	18.129	
900.00	900.00	899.00	899.00	1.88	1.88	90.00	0.00	59.90	59.90	56.15	3.75	15.958	
1,000.00	1,000.00	999.00	999.00	2.10	2.10	90.00	0.00	59.90	59.90	55.70	4.20	14.251	
1,100.00	1,100.00	1,099.00	1,099.00	2.33	2.33	90.00	0.00	59.90	59.90	55.25	4.65	12.874	
1,200.00	1,200.00	1,199.00	1,199.00	2.55	2.55	90.00	0.00	59.90	59.90	54.80	5.10	11.740	
1,300.00	1,300.00	1,299.00	1,299.00	2.78	2.77	90.00	0.00	59.90	59.90	54.35	5.55	10.789	
1,400.00	1,400.00	1,399.00	1,399.00	3.00	3.00	90.00	0.00	59.90	59.90	53.90	6.00	9.981	
1,500.00	1,500.00	1,499.00	1,499.00	3.23	3.22	90.00	0.00	59.90	59.90	53.45	6.45	9.286	
1,600.00	1,600.00	1,599.00	1,599.00	3.45	3.45	90.00	0.00	59.90	59.90	53.00	6.90	8.681	
1,700.00	1,700.00	1,699.00	1,699.00	3.68	3.67	90.00	0.00	59.90	59.90	52.55	7.35	8.150	
1,800.00	1,800.00	1,799.00	1,799.00	3.90	3.90	90.00	0.00	59.90	59.90	52.10	7.80	7.680	
1,900.00	1,900.00	1,899.00	1,899.00	4.13	4.12	90.00	0.00	59.90	59.90	51.65	8.25	7.262	
2,000.00	2,000.00	1,999.00	1,999.00	4.35	4.35	90.00	0.00	59.90	59.90	51.20	8.70	6.886	
2,100.00	2,100.00	2,099.00	2,099.00	4.58	4.57	90.00	0.00	59.90	59.90	50.75	9.15	6.548	
2,200.00	2,200.00	2,199.00	2,199.00	4.80	4.80	90.00	0.00	59.90	59.90	50.30	9.60	6.241	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
2,300.00	2,300.00	2,299.00	2,299.00	5.02	5.02	90.00	0.00	59.90	59.90	49.85	10.05	5.962	
2,400.00	2,400.00	2,399.00	2,399.00	5.25	5.25	90.00	0.00	59.90	59.90	49.40	10.50	5.707	
2,500.00	2,500.00	2,499.00	2,499.00	5.47	5.47	90.00	0.00	59.90	59.90	48.95	10.95	5.472	
2,600.00	2,600.00	2,599.00	2,599.00	5.70	5.70	90.00	0.00	59.90	59.90	48.50	11.40	5.256	
2,700.00	2,700.00	2,699.00	2,699.00	5.92	5.92	90.00	0.00	59.90	59.90	48.05	11.85	5.057	
2,800.00	2,800.00	2,799.00	2,799.00	6.15	6.15	90.00	0.00	59.90	59.90	47.61	12.29	4.872	
2,900.00	2,900.00	2,899.00	2,899.00	6.37	6.37	90.00	0.00	59.90	59.90	47.16	12.74	4.700	
3,000.00	3,000.00	2,999.00	2,999.00	6.60	6.60	90.00	0.00	59.90	59.90	46.71	13.19	4.540	
3,100.00	3,100.00	3,099.00	3,099.00	6.82	6.82	90.00	0.00	59.90	59.90	46.26	13.64	4.390	
3,200.00	3,200.00	3,199.00	3,199.00	7.05	7.05	90.00	0.00	59.90	59.90	45.81	14.09	4.250	
3,300.00	3,300.00	3,299.00	3,299.00	7.27	7.27	90.00	0.00	59.90	59.90	45.36	14.54	4.119	
3,400.00	3,400.00	3,399.00	3,399.00	7.50	7.49	90.00	0.00	59.90	59.90	44.91	14.99	3.995	
3,500.00	3,500.00	3,499.00	3,499.00	7.72	7.72	90.00	0.00	59.90	59.90	44.46	15.44	3.879	
3,600.00	3,600.00	3,599.00	3,599.00	7.95	7.94	90.00	0.00	59.90	59.90	44.01	15.89	3.769	
3,700.00	3,700.00	3,699.00	3,699.00	8.17	8.17	90.00	0.00	59.90	59.90	43.56	16.34	3.666	
3,800.00	3,800.00	3,799.00	3,799.00	8.40	8.39	90.00	0.00	59.90	59.90	43.11	16.79	3.568	
3,900.00	3,900.00	3,899.00	3,899.00	8.62	8.62	90.00	0.00	59.90	59.90	42.66	17.24	3.475	
4,000.00	4,000.00	3,999.00	3,999.00	8.85	8.84	90.00	0.00	59.90	59.90	42.21	17.69	3.386	
4,100.00	4,100.00	4,099.00	4,099.00	9.07	9.07	90.00	0.00	59.90	59.90	41.76	18.14	3.302	
4,200.00	4,200.00	4,199.00	4,199.00	9.30	9.29	90.00	0.00	59.90	59.90	41.31	18.59	3.222	
4,300.00	4,300.00	4,299.00	4,299.00	9.52	9.52	90.00	0.00	59.90	59.90	40.86	19.04	3.146	
4,406.46	4,406.46	4,405.46	4,405.46	9.76	9.76	90.00	0.00	59.90	59.90	40.38	19.52	3.069 CC, ES	
4,500.00	4,499.98	4,497.20	4,497.19	9.95	9.94	-153.99	-0.64	61.21	62.61	42.71	19.89	3.147	
4,600.00	4,599.85	4,594.76	4,594.62	10.14	10.13	-153.96	-2.73	65.50	71.50	51.23	20.26	3.528	
4,656.46	4,656.15	4,649.40	4,649.10	10.24	10.23	-153.92	-4.54	69.20	79.23	58.76	20.47	3.870	
4,700.00	4,699.52	4,692.24	4,691.78	10.33	10.31	-153.92	-6.17	72.55	86.02	65.38	20.64	4.168	
4,800.00	4,799.14	4,791.01	4,790.18	10.52	10.50	-153.92	-9.94	80.29	101.64	80.62	21.03	4.834	
4,900.00	4,898.76	4,889.79	4,888.58	10.72	10.70	-153.92	-13.72	88.02	117.26	95.84	21.42	5.475	
5,000.00	4,998.38	4,988.56	4,986.97	10.92	10.90	-153.92	-17.49	95.76	132.88	111.06	21.82	6.091	
5,100.00	5,098.00	5,087.33	5,085.37	11.12	11.10	-153.92	-21.26	103.50	148.50	126.28	22.22	6.682	
5,200.00	5,197.61	5,186.10	5,183.77	11.33	11.30	-153.92	-25.04	111.24	164.12	141.48	22.63	7.251	
5,300.00	5,297.23	5,284.88	5,282.17	11.54	11.51	-153.92	-28.81	118.97	179.74	156.68	23.05	7.797	
5,400.00	5,396.85	5,383.65	5,380.56	11.75	11.72	-153.92	-32.59	126.71	195.35	171.88	23.48	8.322	
5,500.00	5,496.47	5,482.42	5,478.96	11.97	11.93	-153.92	-36.36	134.45	210.97	187.07	23.90	8.826	
5,600.00	5,596.09	5,581.19	5,577.36	12.19	12.15	-153.92	-40.13	142.19	226.59	202.26	24.34	9.311	
5,700.00	5,695.71	5,679.97	5,675.75	12.41	12.37	-153.92	-43.91	149.92	242.21	217.44	24.77	9.777	
5,800.00	5,795.33	5,778.74	5,774.15	12.63	12.59	-153.92	-47.68	157.66	257.83	232.61	25.22	10.225	
5,900.00	5,894.95	5,877.51	5,872.55	12.85	12.81	-153.92	-51.45	165.40	273.45	247.79	25.66	10.656	
6,000.00	5,994.57	5,976.29	5,970.94	13.08	13.03	-153.92	-55.23	173.14	289.07	262.96	26.11	11.071	
6,100.00	6,094.19	6,075.06	6,069.34	13.31	13.26	-153.92	-59.00	180.87	304.69	278.12	26.56	11.470	
6,200.00	6,193.81	6,173.83	6,167.74	13.54	13.48	-153.92	-62.78	188.61	320.31	293.28	27.02	11.854	
6,300.00	6,293.43	6,272.60	6,266.13	13.77	13.71	-153.92	-66.55	196.35	335.92	308.44	27.48	12.223	
6,400.00	6,393.05	6,371.38	6,364.53	14.00	13.94	-153.92	-70.32	204.08	351.54	323.60	27.95	12.579	
6,500.00	6,492.67	6,470.15	6,462.93	14.24	14.17	-153.92	-74.10	211.82	367.16	338.75	28.41	12.922	
6,600.00	6,592.29	6,568.92	6,561.32	14.48	14.41	-153.92	-77.87	219.56	382.78	353.90	28.88	13.253	
6,700.00	6,691.91	6,667.69	6,659.72	14.71	14.64	-153.92	-81.65	227.30	398.40	369.04	29.36	13.572	
6,800.00	6,791.53	6,766.47	6,758.12	14.95	14.88	-153.92	-85.42	235.03	414.02	384.19	29.83	13.879	
6,900.00	6,891.15	6,865.24	6,856.52	15.19	15.11	-153.92	-89.19	242.77	429.64	399.33	30.31	14.176	
7,000.00	6,990.77	6,964.01	6,954.91	15.44	15.35	-153.92	-92.97	250.51	445.26	414.47	30.79	14.462	
7,100.00	7,090.38	7,062.79	7,053.31	15.68	15.59	-153.92	-96.74	258.25	460.88	429.61	31.27	14.739	
7,200.00	7,190.00	7,161.56	7,151.71	15.92	15.83	-153.92	-100.51	265.98	476.49	444.74	31.75	15.006	
7,300.00	7,289.62	7,260.33	7,250.10	16.17	16.07	-153.92	-104.29	273.72	492.11	459.87	32.24	15.264	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,400.00	7,389.24	7,359.10	7,348.50	16.41	16.31	-153.92	-108.06	281.46	507.73	475.00	32.73	15.513	
7,500.00	7,488.86	7,457.88	7,446.90	16.66	16.56	-153.92	-111.84	289.20	523.35	490.13	33.22	15.754	
7,600.00	7,588.48	7,556.65	7,545.29	16.91	16.80	-153.92	-115.61	296.93	538.97	505.26	33.71	15.988	
7,700.00	7,688.10	7,655.42	7,643.69	17.16	17.05	-153.92	-119.38	304.67	554.59	520.38	34.21	16.213	
7,800.00	7,787.72	7,754.19	7,742.09	17.41	17.29	-153.92	-123.16	312.41	570.21	535.51	34.70	16.432	
7,900.00	7,887.34	7,852.97	7,840.48	17.66	17.54	-153.92	-126.93	320.15	585.83	550.63	35.20	16.643	
8,000.00	7,986.96	7,951.74	7,938.88	17.91	17.79	-153.92	-130.70	327.88	601.45	565.75	35.70	16.848	
8,100.00	8,086.58	8,050.51	8,037.28	18.16	18.03	-153.92	-134.48	335.62	617.06	580.87	36.20	17.047	
8,200.00	8,186.20	8,149.29	8,135.67	18.42	18.28	-153.92	-138.25	343.36	632.68	595.98	36.70	17.240	
8,250.00	8,236.01	8,198.67	8,184.87	18.54	18.41	-153.92	-140.14	347.23	640.49	603.54	36.95	17.334	
8,300.00	8,285.85	8,248.12	8,234.13	18.66	18.53	-153.96	-142.03	351.10	647.91	610.72	37.19	17.421	
8,400.00	8,385.71	8,372.85	8,358.59	18.87	18.81	-153.99	-145.63	358.49	658.53	620.86	37.67	17.479	
8,500.00	8,485.69	8,498.90	8,484.59	19.06	19.05	90.00	-146.85	361.00	662.09	623.98	38.11	17.371	
8,600.00	8,585.69	8,599.00	8,584.69	19.25	19.25	90.00	-146.85	361.00	662.09	623.59	38.50	17.196	
8,677.37	8,663.06	8,676.37	8,662.06	19.41	19.41	90.00	-146.85	361.00	662.09	623.27	38.82	17.056	
8,700.00	8,685.69	8,699.00	8,684.69	19.46	19.45	90.04	-146.84	361.00	662.09	623.18	38.91	17.016	
8,750.00	8,735.50	8,749.09	8,734.70	19.55	19.55	90.18	-144.24	361.00	662.09	622.99	39.10	16.932	
8,800.00	8,784.76	8,799.33	8,784.43	19.64	19.64	90.31	-137.27	360.99	662.10	622.82	39.28	16.855	
8,850.00	8,833.09	8,849.70	8,833.49	19.72	19.72	90.44	-125.93	360.99	662.11	622.67	39.44	16.787	
8,900.00	8,880.13	8,900.20	8,881.49	19.79	19.80	90.57	-110.28	360.99	662.12	622.53	39.59	16.725	
8,950.00	8,925.52	8,950.84	8,928.05	19.86	19.87	90.70	-90.41	360.98	662.13	622.41	39.72	16.669	
9,000.00	8,968.91	9,001.60	8,972.78	19.92	19.93	90.82	-66.44	360.98	662.15	622.30	39.84	16.619	
9,050.00	9,009.97	9,052.49	9,015.32	19.97	19.98	90.93	-38.53	360.97	662.16	622.21	39.96	16.572	
9,100.00	9,048.40	9,103.50	9,055.30	20.02	20.04	91.04	-6.89	360.96	662.18	622.11	40.06	16.529	
9,150.00	9,083.89	9,154.61	9,092.38	20.08	20.09	91.13	28.27	360.96	662.19	622.03	40.17	16.486	
9,200.00	9,116.17	9,205.83	9,126.25	20.13	20.14	91.22	66.66	360.95	662.21	621.93	40.28	16.441	
9,250.00	9,145.01	9,257.13	9,156.60	20.20	20.21	91.30	108.01	360.94	662.22	621.81	40.41	16.388	
9,300.00	9,170.18	9,308.52	9,183.18	20.29	20.29	91.37	151.97	360.93	662.23	621.65	40.59	16.317	
9,350.00	9,191.49	9,359.98	9,205.74	20.42	20.42	91.43	198.20	360.92	662.24	621.40	40.85	16.213	
9,400.00	9,208.78	9,411.50	9,224.08	20.61	20.61	91.48	246.32	360.90	662.25	621.04	41.21	16.070	
9,450.00	9,221.92	9,463.06	9,238.04	20.84	20.85	91.52	295.94	360.89	662.25	620.57	41.68	15.889	
9,500.00	9,230.80	9,514.66	9,247.48	21.11	21.13	91.54	346.65	360.88	662.25	620.01	42.24	15.679	
9,550.00	9,235.36	9,566.27	9,252.33	21.42	21.45	91.56	398.02	360.87	662.25	619.38	42.87	15.449	
9,573.20	9,236.00	9,590.22	9,253.00	21.57	21.61	91.56	421.96	360.86	662.24	619.06	43.18	15.336	
9,600.00	9,236.20	9,617.03	9,253.19	21.76	21.80	91.56	448.76	360.86	662.24	618.68	43.56	15.203	
9,700.00	9,236.93	9,717.03	9,253.88	22.53	22.58	91.55	548.76	360.84	662.22	617.10	45.12	14.678	
9,800.00	9,237.65	9,817.03	9,254.58	23.43	23.48	91.55	648.76	360.81	662.20	615.30	46.90	14.119	
9,900.00	9,238.38	9,917.03	9,255.27	24.42	24.47	91.55	748.75	360.79	662.18	613.29	48.89	13.543	
10,000.00	9,239.11	10,017.03	9,255.96	25.51	25.56	91.55	848.75	360.77	662.17	611.10	51.07	12.967	
10,100.00	9,239.84	10,117.03	9,256.66	26.67	26.72	91.54	948.75	360.74	662.15	608.75	53.40	12.400	
10,200.00	9,240.56	10,217.03	9,257.35	27.91	27.96	91.54	1,048.75	360.72	662.13	606.26	55.87	11.852	
10,300.00	9,241.29	10,317.03	9,258.04	29.21	29.26	91.54	1,148.75	360.70	662.11	603.65	58.46	11.326	
10,400.00	9,242.02	10,417.03	9,258.74	30.56	30.61	91.53	1,248.74	360.67	662.10	600.93	61.16	10.825	
10,500.00	9,242.75	10,517.03	9,259.43	31.96	32.00	91.53	1,348.74	360.65	662.08	598.12	63.96	10.352	
10,600.00	9,243.47	10,617.03	9,260.12	33.39	33.44	91.53	1,448.74	360.63	662.06	595.23	66.83	9.906	
10,700.00	9,244.20	10,717.03	9,260.82	34.87	34.91	91.52	1,548.74	360.60	662.04	592.26	69.78	9.487	
10,800.00	9,244.93	10,817.03	9,261.51	36.37	36.42	91.52	1,648.73	360.58	662.03	589.23	72.79	9.095	
10,900.00	9,245.66	10,917.03	9,262.20	37.91	37.95	91.52	1,748.73	360.56	662.01	586.15	75.86	8.727	
11,000.00	9,246.38	11,017.03	9,262.90	39.47	39.51	91.52	1,848.73	360.53	661.99	583.02	78.98	8.382	
11,100.00	9,247.11	11,117.03	9,263.59	41.05	41.09	91.51	1,948.73	360.51	661.97	579.84	82.14	8.060	
11,200.00	9,247.84	11,217.03	9,264.28	42.65	42.69	91.51	2,048.72	360.49	661.96	576.62	85.33	7.757	
11,300.00	9,248.57	11,317.03	9,264.98	44.26	44.30	91.51	2,148.72	360.47	661.94	573.37	88.57	7.474	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWMD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
11,400.00	9,249.30	11,417.03	9,265.67	45.90	45.93	91.50	2,248.72	360.44	661.92	570.09	91.83	7.208	
11,500.00	9,250.02	11,517.03	9,266.36	47.54	47.58	91.50	2,348.72	360.42	661.90	566.78	95.12	6.958	
11,600.00	9,250.75	11,617.03	9,267.06	49.20	49.24	91.50	2,448.71	360.40	661.89	563.44	98.44	6.724	
11,700.00	9,251.48	11,717.03	9,267.75	50.87	50.91	91.50	2,548.71	360.37	661.87	560.09	101.78	6.503	
11,800.00	9,252.21	11,817.03	9,268.44	52.55	52.59	91.49	2,648.71	360.35	661.85	556.71	105.14	6.295	
11,900.00	9,252.93	11,917.03	9,269.14	54.24	54.28	91.49	2,748.71	360.33	661.83	553.31	108.52	6.099	
12,000.00	9,253.66	12,017.03	9,269.83	55.94	55.98	91.49	2,848.70	360.30	661.81	549.90	111.92	5.913	
12,100.00	9,254.39	12,117.03	9,270.52	57.65	57.68	91.48	2,948.70	360.28	661.80	546.47	115.33	5.738	
12,200.00	9,255.12	12,217.03	9,271.22	59.36	59.39	91.48	3,048.70	360.26	661.78	543.02	118.76	5.573	
12,300.00	9,255.84	12,317.03	9,271.91	61.08	61.11	91.48	3,148.70	360.23	661.76	539.57	122.19	5.416	
12,400.00	9,256.57	12,417.03	9,272.60	62.81	62.84	91.47	3,248.69	360.21	661.74	536.10	125.64	5.267	
12,500.00	9,257.30	12,517.03	9,273.30	64.54	64.57	91.47	3,348.69	360.19	661.73	532.62	129.11	5.125	
12,600.00	9,258.03	12,617.03	9,273.99	66.27	66.30	91.47	3,448.69	360.17	661.71	529.13	132.58	4.991	
12,700.00	9,258.75	12,717.03	9,274.68	68.01	68.04	91.47	3,548.69	360.14	661.69	525.63	136.06	4.863	
12,800.00	9,259.48	12,817.03	9,275.38	69.76	69.79	91.46	3,648.68	360.12	661.67	522.13	139.55	4.742	
12,900.00	9,260.21	12,917.03	9,276.07	71.51	71.54	91.46	3,748.68	360.10	661.66	518.61	143.04	4.626	
13,000.00	9,260.94	13,017.03	9,276.77	73.26	73.29	91.46	3,848.68	360.07	661.64	515.09	146.55	4.515	
13,100.00	9,261.66	13,117.03	9,277.46	75.02	75.04	91.45	3,948.68	360.05	661.62	511.56	150.06	4.409	
13,200.00	9,262.39	13,217.03	9,278.15	76.77	76.80	91.45	4,048.68	360.03	661.60	508.03	153.58	4.308	
13,300.00	9,263.12	13,317.03	9,278.85	78.54	78.56	91.45	4,148.67	360.00	661.59	504.49	157.10	4.211	
13,400.00	9,263.85	13,417.03	9,279.54	80.30	80.33	91.45	4,248.67	359.98	661.57	500.94	160.63	4.119	
13,500.00	9,264.58	13,517.03	9,280.23	82.07	82.10	91.44	4,348.67	359.96	661.55	497.39	164.17	4.030	
13,600.00	9,265.30	13,617.03	9,280.93	83.84	83.87	91.44	4,448.67	359.93	661.53	493.83	167.70	3.945	
13,700.00	9,266.03	13,717.03	9,281.62	85.61	85.64	91.44	4,548.66	359.91	661.52	490.27	171.25	3.863	
13,800.00	9,266.76	13,817.03	9,282.31	87.39	87.41	91.43	4,648.66	359.89	661.50	486.70	174.80	3.784	
13,900.00	9,267.49	13,917.03	9,283.01	89.16	89.19	91.43	4,748.66	359.87	661.48	483.13	178.35	3.709	
14,000.00	9,268.21	14,017.03	9,283.70	90.94	90.97	91.43	4,848.66	359.84	661.46	479.56	181.91	3.636	
14,100.00	9,268.94	14,117.03	9,284.39	92.72	92.75	91.43	4,948.65	359.82	661.45	475.98	185.47	3.566	
14,200.00	9,269.67	14,217.03	9,285.09	94.50	94.53	91.42	5,048.65	359.80	661.43	472.40	189.03	3.499	
14,300.00	9,270.40	14,317.03	9,285.78	96.29	96.31	91.42	5,148.65	359.77	661.41	468.82	192.60	3.434	
14,400.00	9,271.12	14,417.03	9,286.47	98.07	98.10	91.42	5,248.65	359.75	661.39	465.23	196.17	3.372	
14,500.00	9,271.85	14,517.03	9,287.17	99.86	99.88	91.41	5,348.64	359.73	661.38	461.64	199.74	3.311	
14,600.00	9,272.58	14,617.03	9,287.86	101.64	101.67	91.41	5,448.64	359.70	661.36	458.05	203.31	3.253	
14,700.00	9,273.31	14,717.03	9,288.55	103.43	103.46	91.41	5,548.64	359.68	661.34	454.45	206.89	3.197	
14,800.00	9,274.03	14,817.03	9,289.25	105.22	105.25	91.40	5,648.64	359.66	661.32	450.85	210.47	3.142	
14,900.00	9,274.76	14,917.03	9,289.94	107.01	107.04	91.40	5,748.63	359.63	661.31	447.25	214.05	3.089	
15,000.00	9,275.49	15,017.03	9,290.63	108.81	108.83	91.40	5,848.63	359.61	661.29	443.65	217.64	3.038	
15,100.00	9,276.22	15,117.03	9,291.33	110.60	110.62	91.40	5,948.63	359.59	661.27	440.05	221.22	2.989	
15,200.00	9,276.95	15,217.03	9,292.02	112.39	112.42	91.39	6,048.63	359.56	661.25	436.44	224.81	2.941	
15,300.00	9,277.67	15,317.03	9,292.71	114.19	114.21	91.39	6,148.62	359.54	661.24	432.83	228.40	2.895	
15,400.00	9,278.40	15,417.03	9,293.41	115.99	116.01	91.39	6,248.62	359.52	661.22	429.22	232.00	2.850	
15,500.00	9,279.13	15,517.03	9,294.10	117.78	117.81	91.38	6,348.62	359.50	661.20	425.61	235.59	2.807	
15,600.00	9,279.86	15,617.03	9,294.79	119.58	119.61	91.38	6,448.62	359.47	661.18	422.00	239.19	2.764	
15,700.00	9,280.58	15,717.03	9,295.49	121.38	121.40	91.38	6,548.61	359.45	661.17	418.38	242.78	2.723	
15,800.00	9,281.31	15,817.03	9,296.18	123.18	123.20	91.38	6,648.61	359.43	661.15	414.77	246.38	2.683	
15,900.00	9,282.04	15,917.03	9,296.87	124.98	125.00	91.37	6,748.61	359.40	661.13	411.15	249.98	2.645	
16,000.00	9,282.77	16,017.03	9,297.57	126.78	126.80	91.37	6,848.61	359.38	661.11	407.53	253.59	2.607	
16,100.00	9,283.49	16,117.03	9,298.26	128.58	128.61	91.37	6,948.61	359.36	661.10	403.91	257.19	2.570	
16,200.00	9,284.22	16,217.03	9,298.95	130.38	130.41	91.36	7,048.60	359.33	661.08	400.29	260.79	2.535	
16,300.00	9,284.95	16,317.03	9,299.65	132.19	132.21	91.36	7,148.60	359.31	661.06	396.66	264.40	2.500	
16,400.00	9,285.68	16,417.03	9,300.34	133.99	134.01	91.36	7,248.60	359.29	661.04	393.04	268.01	2.467	
16,500.00	9,286.40	16,517.03	9,301.03	135.80	135.82	91.35	7,348.60	359.26	661.03	389.41	271.61	2.434	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
16,600.00	9,287.13	16,617.03	9,301.73	137.60	137.62	91.35	7,448.59	359.24	661.01	385.79	275.22	2.402	
16,700.00	9,287.86	16,717.03	9,302.42	139.40	139.43	91.35	7,548.59	359.22	660.99	382.16	278.83	2.371	
16,800.00	9,288.59	16,817.03	9,303.12	141.21	141.23	91.35	7,648.59	359.20	660.97	378.53	282.44	2.340	
16,900.00	9,289.31	16,917.03	9,303.81	143.02	143.04	91.34	7,748.59	359.17	660.96	374.90	286.06	2.311	
17,000.00	9,290.04	17,017.03	9,304.50	144.82	144.85	91.34	7,848.58	359.15	660.94	371.27	289.67	2.282	
17,100.00	9,290.77	17,117.03	9,305.20	146.63	146.65	91.34	7,948.58	359.13	660.92	367.64	293.28	2.254	
17,200.00	9,291.50	17,217.03	9,305.89	148.44	148.46	91.33	8,048.58	359.10	660.90	364.01	296.90	2.226	
17,300.00	9,292.23	17,317.03	9,306.58	150.25	150.27	91.33	8,148.58	359.08	660.89	360.37	300.51	2.199	
17,400.00	9,292.95	17,417.03	9,307.28	152.05	152.08	91.33	8,248.57	359.06	660.87	356.74	304.13	2.173	
17,500.00	9,293.68	17,517.03	9,307.97	153.86	153.88	91.33	8,348.57	359.03	660.85	353.10	307.75	2.147	
17,600.00	9,294.41	17,617.03	9,308.66	155.67	155.69	91.32	8,448.57	359.01	660.83	349.47	311.36	2.122	
17,700.00	9,295.14	17,717.03	9,309.36	157.48	157.50	91.32	8,548.57	358.99	660.82	345.83	314.98	2.098	
17,800.00	9,295.86	17,817.03	9,310.05	159.29	159.31	91.32	8,648.56	358.96	660.80	342.20	318.60	2.074	
17,900.00	9,296.59	17,917.03	9,310.74	161.10	161.12	91.31	8,748.56	358.94	660.78	338.56	322.22	2.051	
18,000.00	9,297.32	18,017.03	9,311.44	162.91	162.93	91.31	8,848.56	358.92	660.76	334.92	325.84	2.028	
18,100.00	9,298.05	18,117.03	9,312.13	164.72	164.74	91.31	8,948.56	358.90	660.75	331.28	329.46	2.006	
18,200.00	9,298.77	18,217.03	9,312.82	166.53	166.55	91.31	9,048.55	358.87	660.73	327.64	333.09	1.984	
18,300.00	9,299.50	18,317.03	9,313.52	168.34	168.37	91.30	9,148.55	358.85	660.71	324.00	336.71	1.962	
18,400.00	9,300.23	18,417.03	9,314.21	170.15	170.18	91.30	9,248.55	358.83	660.69	320.36	340.33	1.941	
18,500.00	9,300.96	18,517.03	9,314.90	171.97	171.99	91.30	9,348.55	358.80	660.68	316.72	343.96	1.921	
18,600.00	9,301.68	18,617.03	9,315.60	173.78	173.80	91.29	9,448.55	358.78	660.66	313.08	347.58	1.901	
18,700.00	9,302.41	18,717.03	9,316.29	175.59	175.61	91.29	9,548.54	358.76	660.64	309.44	351.20	1.881	
18,800.00	9,303.14	18,817.03	9,316.98	177.40	177.43	91.29	9,648.54	358.73	660.62	305.80	354.83	1.862	
18,900.00	9,303.87	18,917.03	9,317.68	179.22	179.24	91.28	9,748.54	358.71	660.61	302.15	358.46	1.843	
19,000.00	9,304.59	19,017.03	9,318.37	181.03	181.05	91.28	9,848.54	358.69	660.59	298.51	362.08	1.824	
19,100.00	9,305.32	19,117.03	9,319.06	182.84	182.87	91.28	9,948.53	358.66	660.57	294.87	365.71	1.806	
19,200.00	9,306.05	19,217.03	9,319.76	184.66	184.68	91.28	10,048.53	358.64	660.56	291.22	369.33	1.789	
19,300.00	9,306.78	19,317.03	9,320.45	186.47	186.49	91.27	10,148.53	358.62	660.54	287.58	372.96	1.771	
19,400.00	9,307.51	19,417.03	9,321.14	188.28	188.31	91.27	10,248.53	358.59	660.52	283.93	376.59	1.754	
19,500.00	9,308.23	19,517.03	9,321.84	190.10	190.12	91.27	10,348.52	358.57	660.50	280.28	380.22	1.737	
19,600.00	9,308.96	19,617.03	9,322.53	191.91	191.93	91.26	10,448.52	358.55	660.49	276.64	383.85	1.721	
19,700.00	9,309.69	19,717.03	9,323.22	193.73	193.75	91.26	10,548.52	358.53	660.47	272.99	387.48	1.705	
19,800.00	9,310.42	19,817.03	9,323.92	195.54	195.56	91.26	10,648.52	358.50	660.45	269.35	391.11	1.689	
19,900.00	9,311.14	19,917.03	9,324.61	197.36	197.38	91.26	10,748.51	358.48	660.43	265.70	394.73	1.673	
20,000.00	9,311.87	20,017.03	9,325.30	199.17	199.19	91.25	10,848.51	358.46	660.42	262.05	398.37	1.658	
20,100.00	9,312.60	20,117.03	9,326.00	200.99	201.01	91.25	10,948.51	358.43	660.40	258.40	402.00	1.643	
20,200.00	9,313.33	20,217.03	9,326.69	202.80	202.82	91.25	11,048.51	358.41	660.38	254.75	405.63	1.628	
20,300.00	9,314.05	20,317.03	9,327.38	204.62	204.64	91.24	11,148.50	358.39	660.36	251.11	409.26	1.614	
20,400.00	9,314.78	20,417.03	9,328.08	206.43	206.46	91.24	11,248.50	358.36	660.35	247.46	412.89	1.599	
20,500.00	9,315.51	20,517.03	9,328.77	208.25	208.27	91.24	11,348.50	358.34	660.33	243.81	416.52	1.585	
20,600.00	9,316.24	20,617.03	9,329.47	210.07	210.09	91.23	11,448.50	358.32	660.31	240.16	420.15	1.572	
20,700.00	9,316.96	20,717.03	9,330.16	211.88	211.90	91.23	11,548.49	358.29	660.29	236.51	423.78	1.558	
20,800.00	9,317.69	20,817.03	9,330.85	213.70	213.72	91.23	11,648.49	358.27	660.28	232.86	427.42	1.545	
20,900.00	9,318.42	20,917.03	9,331.55	215.51	215.54	91.23	11,748.49	358.25	660.26	229.21	431.05	1.532	
21,000.00	9,319.15	21,017.03	9,332.24	217.33	217.35	91.22	11,848.49	358.23	660.24	225.56	434.68	1.519	
21,100.00	9,319.88	21,117.03	9,332.93	219.15	219.17	91.22	11,948.48	358.20	660.22	221.91	438.32	1.506	
21,200.00	9,320.60	21,217.03	9,333.63	220.96	220.99	91.22	12,048.48	358.18	660.21	218.26	441.95	1.494 Level 3	
21,300.00	9,321.33	21,317.03	9,334.32	222.78	222.80	91.21	12,148.48	358.16	660.19	214.60	445.58	1.482 Level 3	
21,400.00	9,322.06	21,417.03	9,335.01	224.60	224.62	91.21	12,248.48	358.13	660.17	210.95	449.22	1.470 Level 3	
21,500.00	9,322.79	21,517.03	9,335.71	226.42	226.44	91.21	12,348.48	358.11	660.15	207.30	452.85	1.458 Level 3	
21,529.48	9,323.00	21,546.51	9,335.91	226.95	226.97	91.21	12,377.96	358.10	660.15	206.22	453.92	1.454 Level 3, SF	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	30.00	30.02				
100.00	100.00	99.00	99.00	0.08	0.08	90.00	0.00	30.00	30.00	29.84	0.16	188.933	
200.00	200.00	199.00	199.00	0.30	0.30	90.00	0.00	30.00	30.00	29.39	0.61	49.434	
300.00	300.00	299.00	299.00	0.53	0.53	90.00	0.00	30.00	30.00	28.94	1.06	28.398	
400.00	400.00	399.00	399.00	0.75	0.75	90.00	0.00	30.00	30.00	28.49	1.51	19.921	
500.00	500.00	499.00	499.00	0.98	0.98	90.00	0.00	30.00	30.00	28.04	1.96	15.342	
600.00	600.00	599.00	599.00	1.20	1.20	90.00	0.00	30.00	30.00	27.60	2.40	12.474	
700.00	700.00	699.00	699.00	1.43	1.43	90.00	0.00	30.00	30.00	27.15	2.85	10.510	
800.00	800.00	799.00	799.00	1.65	1.65	90.00	0.00	30.00	30.00	26.70	3.30	9.080	
900.00	900.00	899.00	899.00	1.88	1.88	90.00	0.00	30.00	30.00	26.25	3.75	7.992	
1,000.00	1,000.00	999.00	999.00	2.10	2.10	90.00	0.00	30.00	30.00	25.80	4.20	7.138	
1,100.00	1,100.00	1,099.00	1,099.00	2.33	2.33	90.00	0.00	30.00	30.00	25.35	4.65	6.448	
1,200.00	1,200.00	1,199.00	1,199.00	2.55	2.55	90.00	0.00	30.00	30.00	24.90	5.10	5.880	
1,300.00	1,300.00	1,299.00	1,299.00	2.78	2.77	90.00	0.00	30.00	30.00	24.45	5.55	5.404	
1,400.00	1,400.00	1,399.00	1,399.00	3.00	3.00	90.00	0.00	30.00	30.00	24.00	6.00	4.999	
1,500.00	1,500.00	1,499.00	1,499.00	3.23	3.22	90.00	0.00	30.00	30.00	23.55	6.45	4.651	
1,600.00	1,600.00	1,599.00	1,599.00	3.45	3.45	90.00	0.00	30.00	30.00	23.10	6.90	4.348	
1,700.00	1,700.00	1,699.00	1,699.00	3.68	3.67	90.00	0.00	30.00	30.00	22.65	7.35	4.082	
1,800.00	1,800.00	1,799.00	1,799.00	3.90	3.90	90.00	0.00	30.00	30.00	22.20	7.80	3.846	
1,900.00	1,900.00	1,899.00	1,899.00	4.13	4.12	90.00	0.00	30.00	30.00	21.75	8.25	3.637	
2,000.00	2,000.00	1,999.00	1,999.00	4.35	4.35	90.00	0.00	30.00	30.00	21.30	8.70	3.449	
2,100.00	2,100.00	2,099.00	2,099.00	4.58	4.57	90.00	0.00	30.00	30.00	20.85	9.15	3.279	
2,200.00	2,200.00	2,199.00	2,199.00	4.80	4.80	90.00	0.00	30.00	30.00	20.40	9.60	3.126	
2,300.00	2,300.00	2,299.00	2,299.00	5.02	5.02	90.00	0.00	30.00	30.00	19.95	10.05	2.986	
2,400.00	2,400.00	2,399.00	2,399.00	5.25	5.25	90.00	0.00	30.00	30.00	19.50	10.50	2.858	
2,500.00	2,500.00	2,499.00	2,499.00	5.47	5.47	90.00	0.00	30.00	30.00	19.05	10.95	2.741	
2,600.00	2,600.00	2,599.00	2,599.00	5.70	5.70	90.00	0.00	30.00	30.00	18.60	11.40	2.633	
2,700.00	2,700.00	2,699.00	2,699.00	5.92	5.92	90.00	0.00	30.00	30.00	18.15	11.85	2.533	
2,800.00	2,800.00	2,799.00	2,799.00	6.15	6.15	90.00	0.00	30.00	30.00	17.71	12.29	2.440	
2,900.00	2,900.00	2,899.00	2,899.00	6.37	6.37	90.00	0.00	30.00	30.00	17.26	12.74	2.354	
3,000.00	3,000.00	2,999.00	2,999.00	6.60	6.60	90.00	0.00	30.00	30.00	16.81	13.19	2.274	
3,100.00	3,100.00	3,099.00	3,099.00	6.82	6.82	90.00	0.00	30.00	30.00	16.36	13.64	2.199	
3,200.00	3,200.00	3,199.00	3,199.00	7.05	7.05	90.00	0.00	30.00	30.00	15.91	14.09	2.129	
3,300.00	3,300.00	3,299.00	3,299.00	7.27	7.27	90.00	0.00	30.00	30.00	15.46	14.54	2.063	
3,400.00	3,400.00	3,399.00	3,399.00	7.50	7.49	90.00	0.00	30.00	30.00	15.01	14.99	2.001	
3,500.00	3,500.00	3,499.00	3,499.00	7.72	7.72	90.00	0.00	30.00	30.00	14.56	15.44	1.943	
3,600.00	3,600.00	3,599.00	3,599.00	7.95	7.94	90.00	0.00	30.00	30.00	14.11	15.89	1.888	
3,700.00	3,700.00	3,699.00	3,699.00	8.17	8.17	90.00	0.00	30.00	30.00	13.66	16.34	1.836	
3,800.00	3,800.00	3,799.00	3,799.00	8.40	8.39	90.00	0.00	30.00	30.00	13.21	16.79	1.787	
3,900.00	3,900.00	3,899.00	3,899.00	8.62	8.62	90.00	0.00	30.00	30.00	12.76	17.24	1.740	
4,000.00	4,000.00	3,999.00	3,999.00	8.85	8.84	90.00	0.00	30.00	30.00	12.31	17.69	1.696	
4,100.00	4,100.00	4,099.00	4,099.00	9.07	9.07	90.00	0.00	30.00	30.00	11.86	18.14	1.654	
4,200.00	4,200.00	4,199.00	4,199.00	9.30	9.29	90.00	0.00	30.00	30.00	11.41	18.59	1.614	
4,300.00	4,300.00	4,299.00	4,299.00	9.52	9.52	90.00	0.00	30.00	30.00	10.96	19.04	1.576	
4,406.46	4,406.46	4,405.46	4,405.46	9.76	9.76	90.00	0.00	30.00	30.00	10.48	19.52	1.537 CC	
4,500.00	4,499.98	4,498.98	4,498.98	9.95	9.97	-155.21	0.00	30.00	31.38	11.46	19.92	1.575	
4,600.00	4,599.85	4,598.85	4,598.85	10.14	10.19	-158.52	0.00	30.00	35.99	15.66	20.33	1.770	
4,656.46	4,656.15	4,655.15	4,655.15	10.24	10.32	-160.78	0.00	30.00	40.08	19.52	20.56	1.949	
4,700.00	4,699.52	4,698.52	4,698.52	10.33	10.42	-162.42	0.00	30.00	43.69	22.94	20.74	2.106	
4,800.00	4,799.14	4,798.14	4,798.14	10.52	10.64	-165.32	0.00	30.00	52.06	30.90	21.16	2.460	
4,900.00	4,898.76	4,897.76	4,897.76	10.72	10.86	-167.41	0.00	30.00	60.54	38.95	21.58	2.805	
5,000.00	4,998.38	4,997.38	4,997.38	10.92	11.09	-168.98	0.00	30.00	69.07	47.06	22.01	3.139	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,098.00	5,097.00	5,097.00	11.12	11.31	-170.21	0.00	30.00	77.64	55.21	22.43	3.461	
5,200.00	5,197.61	5,196.61	5,196.61	11.33	11.54	-171.20	0.00	30.00	86.25	63.38	22.87	3.772	
5,300.00	5,297.23	5,296.23	5,296.23	11.54	11.76	-172.00	0.00	30.00	94.87	71.57	23.30	4.072	
5,400.00	5,396.85	5,395.85	5,395.85	11.75	11.98	-172.67	0.00	30.00	103.51	79.77	23.74	4.361	
5,500.00	5,496.47	5,495.47	5,495.47	11.97	12.21	-173.24	0.00	30.00	112.16	87.98	24.18	4.639	
5,600.00	5,596.09	5,595.09	5,595.09	12.19	12.43	-173.73	0.00	30.00	120.82	96.20	24.62	4.908	
5,700.00	5,695.71	5,694.71	5,694.71	12.41	12.65	-174.15	0.00	30.00	129.48	104.42	25.06	5.167	
5,800.00	5,795.33	5,794.33	5,794.33	12.63	12.88	-174.52	0.00	30.00	138.16	112.65	25.51	5.416	
5,900.00	5,894.95	5,893.95	5,893.95	12.85	13.10	-174.84	0.00	30.00	146.84	120.88	25.96	5.657	
6,000.00	5,994.57	5,993.57	5,993.57	13.08	13.33	-175.13	0.00	30.00	155.52	129.11	26.41	5.889	
6,100.00	6,094.19	6,093.19	6,093.19	13.31	13.55	-175.39	0.00	30.00	164.21	137.35	26.86	6.114	
6,200.00	6,193.81	6,192.81	6,192.81	13.54	13.77	-175.62	0.00	30.00	172.89	145.58	27.31	6.330	
6,300.00	6,293.43	6,292.43	6,292.43	13.77	14.00	-175.83	0.00	30.00	181.59	153.82	27.77	6.539	
6,400.00	6,393.05	6,392.05	6,392.05	14.00	14.22	-176.02	0.00	30.00	190.28	162.05	28.23	6.741	
6,500.00	6,492.67	6,491.67	6,491.67	14.24	14.45	-176.20	0.00	30.00	198.98	170.29	28.69	6.936	
6,600.00	6,592.29	6,591.29	6,591.29	14.48	14.67	-176.36	0.00	30.00	207.67	178.53	29.15	7.125	
6,700.00	6,691.91	6,690.91	6,690.91	14.71	14.89	-176.50	0.00	30.00	216.37	186.76	29.61	7.308	
6,800.00	6,791.53	6,792.43	6,792.43	14.95	15.10	-176.47	-0.70	30.00	224.81	194.75	30.06	7.479	
6,900.00	6,891.15	6,895.21	6,895.12	15.19	15.28	-175.67	-4.81	30.00	232.00	201.53	30.47	7.614	
7,000.00	6,990.77	6,997.31	6,996.92	15.44	15.45	-174.11	-12.49	30.00	238.00	207.12	30.89	7.706	
7,100.00	7,090.38	7,096.88	7,096.12	15.68	15.62	-172.40	-21.17	30.00	243.78	212.48	31.30	7.789	
7,200.00	7,190.00	7,196.46	7,195.31	15.92	15.79	-170.77	-29.85	30.00	249.77	218.06	31.71	7.876	
7,300.00	7,289.62	7,296.03	7,294.51	16.17	15.96	-169.22	-38.52	30.00	255.94	223.82	32.13	7.966	
7,400.00	7,389.24	7,395.60	7,393.70	16.41	16.13	-167.74	-47.20	30.00	262.30	229.75	32.55	8.059	
7,500.00	7,488.86	7,495.18	7,492.90	16.66	16.31	-166.33	-55.88	30.00	268.83	235.85	32.97	8.153	
7,600.00	7,588.48	7,594.75	7,592.09	16.91	16.49	-164.99	-64.56	30.00	275.50	242.10	33.40	8.248	
7,700.00	7,688.10	7,694.32	7,691.29	17.16	16.68	-163.72	-73.24	30.00	282.33	248.49	33.84	8.344	
7,800.00	7,787.72	7,793.90	7,790.48	17.41	16.86	-162.50	-81.92	30.00	289.28	255.01	34.27	8.440	
7,900.00	7,887.34	7,893.47	7,889.67	17.66	17.05	-161.34	-90.59	30.00	296.36	261.65	34.71	8.537	
8,000.00	7,986.96	7,993.04	7,988.87	17.91	17.25	-160.24	-99.27	30.00	303.55	268.40	35.16	8.634	
8,100.00	8,086.58	8,092.62	8,088.06	18.16	17.44	-159.18	-107.95	30.00	310.86	275.26	35.60	8.731	
8,200.00	8,186.20	8,192.19	8,187.26	18.42	17.64	-158.18	-116.63	30.00	318.26	282.21	36.05	8.828	
8,250.00	8,236.01	8,241.98	8,236.85	18.54	17.73	-157.69	-120.97	30.00	322.00	285.72	36.28	8.876	
8,300.00	8,285.85	8,291.78	8,286.47	18.66	17.83	-157.22	-125.31	30.00	325.35	288.86	36.49	8.915	
8,400.00	8,385.71	8,391.46	8,385.77	18.87	18.03	-156.09	-134.00	30.00	329.75	292.85	36.90	8.936	
8,500.00	8,485.69	8,491.06	8,485.02	19.06	18.24	89.23	-142.38	30.00	331.13	293.82	37.30	8.877	
8,574.86	8,560.56	8,565.74	8,559.56	19.21	18.42	90.00	-146.85	30.00	331.10	293.48	37.62	8.801	
8,600.00	8,585.69	8,590.86	8,584.65	19.25	18.47	90.18	-147.92	30.00	331.10	293.37	37.73	8.776	
8,677.37	8,663.06	8,668.26	8,662.03	19.41	18.64	90.51	-149.82	30.00	331.11	293.06	38.05	8.702	
8,700.00	8,685.69	8,690.91	8,684.67	19.46	18.68	90.62	-149.99	30.00	331.12	292.97	38.14	8.681	
8,750.00	8,735.50	8,740.73	8,734.50	19.55	18.78	91.33	-150.00	30.00	331.19	292.85	38.34	8.639	
8,800.00	8,784.76	8,789.99	8,783.76	19.64	18.88	92.74	-150.00	30.00	331.49	292.97	38.52	8.605	
8,850.00	8,833.09	8,838.32	8,832.09	19.72	18.99	94.78	-150.00	30.00	332.36	293.65	38.71	8.587	
8,900.00	8,880.13	8,886.15	8,879.92	19.79	19.09	97.35	-149.91	30.00	334.25	295.37	38.88	8.596	
8,950.00	8,925.52	8,937.71	8,931.36	19.86	19.20	100.20	-146.71	30.00	337.20	298.15	39.05	8.635	
9,000.00	8,968.91	8,991.21	8,984.21	19.92	19.30	103.00	-138.51	30.00	341.05	301.83	39.21	8.698	
9,050.00	9,009.97	9,046.85	9,038.11	19.97	19.39	105.72	-124.80	30.00	345.66	306.30	39.36	8.782	
9,100.00	9,048.40	9,104.80	9,092.55	20.02	19.47	108.32	-105.03	29.99	350.91	311.41	39.50	8.884	
9,150.00	9,083.89	9,165.23	9,146.91	20.08	19.56	110.79	-78.67	29.99	356.61	316.97	39.64	8.997	
9,200.00	9,116.17	9,228.29	9,200.33	20.13	19.66	113.10	-45.23	29.98	362.54	322.75	39.79	9.111	
9,250.00	9,145.01	9,294.06	9,251.78	20.20	19.76	115.21	-4.32	29.98	368.47	328.51	39.96	9.221	
9,300.00	9,170.18	9,362.56	9,300.01	20.29	19.89	117.10	44.26	29.97	374.17	333.99	40.18	9.312	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,350.00	9,191.49	9,433.70	9,343.60	20.42	20.06	118.73	100.42	29.96	379.37	338.88	40.49	9.370	
9,400.00	9,208.78	9,507.27	9,381.01	20.61	20.29	120.08	163.72	29.95	383.84	342.94	40.90	9.385	
9,450.00	9,221.92	9,582.91	9,410.69	20.84	20.60	121.11	233.24	29.94	387.36	345.92	41.43	9.349	
9,500.00	9,230.80	9,660.14	9,431.28	21.11	20.98	121.79	307.61	29.93	389.75	347.66	42.08	9.261	
9,550.00	9,235.36	9,738.34	9,441.75	21.42	21.43	122.12	385.04	29.92	390.89	348.04	42.85	9.123	
9,573.20	9,236.00	9,773.97	9,443.00	21.57	21.66	122.14	420.65	29.91	390.97	347.74	43.23	9.044	
9,600.00	9,236.20	9,800.77	9,443.18	21.76	21.84	122.14	447.45	29.91	390.96	347.36	43.60	8.967	
9,700.00	9,236.93	9,900.77	9,443.82	22.53	22.60	122.13	547.44	29.89	390.90	345.77	45.14	8.660	
9,800.00	9,237.65	10,000.77	9,444.46	23.43	23.48	122.12	647.44	29.88	390.85	343.94	46.91	8.332	
9,900.00	9,238.38	10,100.77	9,445.11	24.42	24.47	122.11	747.44	29.86	390.80	341.91	48.89	7.993	
10,000.00	9,239.11	10,200.77	9,445.75	25.51	25.55	122.10	847.44	29.85	390.75	339.70	51.05	7.654	
10,100.00	9,239.84	10,300.77	9,446.40	26.67	26.70	122.09	947.44	29.83	390.70	337.32	53.38	7.319	
10,200.00	9,240.56	10,400.77	9,447.04	27.91	27.93	122.08	1,047.43	29.82	390.64	334.80	55.84	6.995	
10,300.00	9,241.29	10,500.77	9,447.68	29.21	29.23	122.07	1,147.43	29.80	390.59	332.16	58.43	6.684	
10,400.00	9,242.02	10,600.77	9,448.33	30.56	30.57	122.06	1,247.43	29.79	390.54	329.41	61.13	6.389	
10,500.00	9,242.75	10,700.77	9,448.97	31.96	31.97	122.05	1,347.43	29.77	390.49	326.57	63.92	6.109	
10,600.00	9,243.47	10,800.77	9,449.61	33.39	33.40	122.04	1,447.42	29.76	390.44	323.64	66.80	5.845	
10,700.00	9,244.20	10,900.77	9,450.26	34.87	34.87	122.03	1,547.42	29.74	390.38	320.64	69.74	5.598	
10,800.00	9,244.93	11,000.77	9,450.90	36.37	36.38	122.02	1,647.42	29.73	390.33	317.58	72.75	5.365	
10,900.00	9,245.66	11,100.77	9,451.54	37.91	37.91	122.01	1,747.42	29.71	390.28	314.46	75.82	5.148	
11,000.00	9,246.38	11,200.77	9,452.19	39.47	39.47	122.00	1,847.42	29.70	390.23	311.30	78.93	4.944	
11,100.00	9,247.11	11,300.77	9,452.83	41.05	41.04	121.99	1,947.41	29.68	390.18	308.08	82.09	4.753	
11,200.00	9,247.84	11,400.77	9,453.47	42.65	42.64	121.98	2,047.41	29.67	390.12	304.83	85.29	4.574	
11,300.00	9,248.57	11,500.77	9,454.12	44.26	44.26	121.97	2,147.41	29.65	390.07	301.55	88.52	4.406	
11,400.00	9,249.30	11,600.77	9,454.76	45.90	45.89	121.96	2,247.41	29.64	390.02	298.23	91.79	4.249	
11,500.00	9,250.02	11,700.77	9,455.41	47.54	47.54	121.95	2,347.41	29.62	389.97	294.89	95.08	4.101	
11,600.00	9,250.75	11,800.77	9,456.05	49.20	49.19	121.94	2,447.40	29.61	389.92	291.52	98.40	3.963	
11,700.00	9,251.48	11,900.77	9,456.69	50.87	50.86	121.93	2,547.40	29.59	389.86	288.13	101.74	3.832	
11,800.00	9,252.21	12,000.77	9,457.34	52.55	52.54	121.92	2,647.40	29.58	389.81	284.71	105.10	3.709	
11,900.00	9,252.93	12,100.77	9,457.98	54.24	54.23	121.91	2,747.40	29.56	389.76	281.28	108.48	3.593	
12,000.00	9,253.66	12,200.77	9,458.62	55.94	55.93	121.90	2,847.40	29.55	389.71	277.84	111.87	3.483	
12,100.00	9,254.39	12,300.77	9,459.27	57.65	57.64	121.90	2,947.39	29.53	389.66	274.37	115.28	3.380	
12,200.00	9,255.12	12,400.77	9,459.91	59.36	59.35	121.89	3,047.39	29.52	389.61	270.90	118.71	3.282	
12,300.00	9,255.84	12,500.77	9,460.55	61.08	61.07	121.88	3,147.39	29.50	389.55	267.40	122.15	3.189	
12,400.00	9,256.57	12,600.77	9,461.20	62.81	62.79	121.87	3,247.39	29.49	389.50	263.90	125.60	3.101	
12,500.00	9,257.30	12,700.77	9,461.84	64.54	64.52	121.86	3,347.38	29.47	389.45	260.39	129.06	3.018	
12,600.00	9,258.03	12,800.77	9,462.48	66.27	66.26	121.85	3,447.38	29.45	389.40	256.87	132.53	2.938	
12,700.00	9,258.75	12,900.77	9,463.13	68.01	68.00	121.84	3,547.38	29.44	389.35	253.33	136.01	2.863	
12,800.00	9,259.48	13,000.77	9,463.77	69.76	69.74	121.83	3,647.38	29.42	389.29	249.79	139.50	2.791	
12,900.00	9,260.21	13,100.77	9,464.41	71.51	71.49	121.82	3,747.38	29.41	389.24	246.24	143.00	2.722	
13,000.00	9,260.94	13,200.77	9,465.06	73.26	73.24	121.81	3,847.37	29.39	389.19	242.69	146.50	2.657	
13,100.00	9,261.66	13,300.77	9,465.70	75.02	75.00	121.80	3,947.37	29.38	389.14	239.12	150.02	2.594	
13,200.00	9,262.39	13,400.77	9,466.35	76.77	76.76	121.79	4,047.37	29.36	389.09	235.55	153.53	2.534	
13,300.00	9,263.12	13,500.77	9,466.99	78.54	78.52	121.78	4,147.37	29.35	389.04	231.98	157.06	2.477	
13,400.00	9,263.85	13,600.77	9,467.63	80.30	80.29	121.77	4,247.37	29.33	388.98	228.40	160.59	2.422	
13,500.00	9,264.58	13,700.77	9,468.28	82.07	82.05	121.76	4,347.36	29.32	388.93	224.81	164.12	2.370	
13,600.00	9,265.30	13,800.77	9,468.92	83.84	83.82	121.75	4,447.36	29.30	388.88	221.22	167.66	2.319	
13,700.00	9,266.03	13,900.77	9,469.56	85.61	85.59	121.74	4,547.36	29.29	388.83	217.62	171.21	2.271	
13,800.00	9,266.76	14,000.77	9,470.21	87.39	87.37	121.73	4,647.36	29.27	388.78	214.02	174.75	2.225	
13,900.00	9,267.49	14,100.77	9,470.85	89.16	89.14	121.72	4,747.36	29.26	388.73	210.42	178.31	2.180	
14,000.00	9,268.21	14,200.77	9,471.49	90.94	90.92	121.71	4,847.35	29.24	388.67	206.81	181.86	2.137	
14,100.00	9,268.94	14,300.77	9,472.14	92.72	92.70	121.70	4,947.35	29.23	388.62	203.20	185.42	2.096	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWMD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,200.00	9,269.67	14,400.77	9,472.78	94.50	94.48	121.69	5,047.35	29.21	388.57	199.58	188.99	2.056	
14,300.00	9,270.40	14,500.77	9,473.42	96.29	96.27	121.68	5,147.35	29.20	388.52	195.97	192.55	2.018	
14,400.00	9,271.12	14,600.77	9,474.07	98.07	98.05	121.67	5,247.34	29.18	388.47	192.35	196.12	1.981	
14,500.00	9,271.85	14,700.77	9,474.71	99.86	99.84	121.66	5,347.34	29.17	388.42	188.72	199.70	1.945	
14,600.00	9,272.58	14,800.77	9,475.36	101.64	101.63	121.65	5,447.34	29.15	388.36	185.09	203.27	1.911	
14,700.00	9,273.31	14,900.77	9,476.00	103.43	103.42	121.64	5,547.34	29.14	388.31	181.46	206.85	1.877	
14,800.00	9,274.03	15,000.77	9,476.64	105.22	105.21	121.63	5,647.34	29.12	388.26	177.83	210.43	1.845	
14,900.00	9,274.76	15,100.77	9,477.29	107.01	107.00	121.62	5,747.33	29.11	388.21	174.20	214.01	1.814	
15,000.00	9,275.49	15,200.77	9,477.93	108.81	108.79	121.61	5,847.33	29.09	388.16	170.56	217.60	1.784	
15,100.00	9,276.22	15,300.77	9,478.57	110.60	110.58	121.60	5,947.33	29.08	388.11	166.92	221.18	1.755	
15,200.00	9,276.95	15,400.77	9,479.22	112.39	112.38	121.59	6,047.33	29.06	388.06	163.28	224.77	1.726	
15,300.00	9,277.67	15,500.77	9,479.86	114.19	114.17	121.58	6,147.33	29.05	388.00	159.64	228.36	1.699	
15,400.00	9,278.40	15,600.77	9,480.50	115.99	115.97	121.57	6,247.32	29.03	387.95	156.00	231.96	1.673	
15,500.00	9,279.13	15,700.77	9,481.15	117.78	117.77	121.56	6,347.32	29.02	387.90	152.35	235.55	1.647	
15,600.00	9,279.86	15,800.77	9,481.79	119.58	119.56	121.55	6,447.32	29.00	387.85	148.70	239.15	1.622	
15,700.00	9,280.58	15,900.77	9,482.43	121.38	121.36	121.54	6,547.32	28.98	387.80	145.06	242.74	1.598	
15,800.00	9,281.31	16,000.77	9,483.08	123.18	123.16	121.53	6,647.32	28.97	387.75	141.40	246.34	1.574	
15,900.00	9,282.04	16,100.77	9,483.72	124.98	124.96	121.52	6,747.31	28.95	387.70	137.75	249.94	1.551	
16,000.00	9,282.77	16,200.77	9,484.37	126.78	126.76	121.51	6,847.31	28.94	387.64	134.10	253.54	1.529	
16,100.00	9,283.49	16,300.77	9,485.01	128.58	128.57	121.50	6,947.31	28.92	387.59	130.44	257.15	1.507	
16,200.00	9,284.22	16,400.77	9,485.65	130.38	130.37	121.49	7,047.31	28.91	387.54	126.79	260.75	1.486 Level 3	
16,300.00	9,284.95	16,500.77	9,486.30	132.19	132.17	121.48	7,147.30	28.89	387.49	123.13	264.36	1.466 Level 3	
16,400.00	9,285.68	16,600.77	9,486.94	133.99	133.97	121.47	7,247.30	28.88	387.44	119.47	267.97	1.446 Level 3	
16,500.00	9,286.40	16,700.77	9,487.58	135.80	135.78	121.46	7,347.30	28.86	387.39	115.81	271.57	1.426 Level 3	
16,600.00	9,287.13	16,800.77	9,488.23	137.60	137.58	121.45	7,447.30	28.85	387.34	112.15	275.18	1.408 Level 3	
16,700.00	9,287.86	16,900.77	9,488.87	139.40	139.39	121.44	7,547.30	28.83	387.28	108.49	278.79	1.389 Level 3	
16,800.00	9,288.59	17,000.77	9,489.51	141.21	141.19	121.43	7,647.29	28.82	387.23	104.83	282.40	1.371 Level 3	
16,900.00	9,289.31	17,100.77	9,490.16	143.02	143.00	121.42	7,747.29	28.80	387.18	101.17	286.02	1.354 Level 3	
17,000.00	9,290.04	17,200.77	9,490.80	144.82	144.81	121.41	7,847.29	28.79	387.13	97.50	289.63	1.337 Level 3	
17,100.00	9,290.77	17,300.77	9,491.44	146.63	146.61	121.40	7,947.29	28.77	387.08	93.84	293.24	1.320 Level 3	
17,200.00	9,291.50	17,400.77	9,492.09	148.44	148.42	121.39	8,047.29	28.76	387.03	90.17	296.86	1.304 Level 3	
17,300.00	9,292.23	17,500.77	9,492.73	150.25	150.23	121.38	8,147.28	28.74	386.98	86.50	300.47	1.288 Level 3	
17,400.00	9,292.95	17,600.77	9,493.37	152.05	152.04	121.37	8,247.28	28.73	386.93	82.84	304.09	1.272 Level 3	
17,500.00	9,293.68	17,700.77	9,494.02	153.86	153.85	121.36	8,347.28	28.71	386.87	79.17	307.71	1.257 Level 3	
17,600.00	9,294.41	17,800.77	9,494.66	155.67	155.65	121.35	8,447.28	28.70	386.82	75.50	311.33	1.243 Level 2	
17,700.00	9,295.14	17,900.77	9,495.31	157.48	157.46	121.34	8,547.28	28.68	386.77	71.83	314.94	1.228 Level 2	
17,800.00	9,295.86	18,000.77	9,495.95	159.29	159.27	121.33	8,647.27	28.67	386.72	68.16	318.56	1.214 Level 2	
17,900.00	9,296.59	18,100.77	9,496.59	161.10	161.08	121.32	8,747.27	28.65	386.67	64.49	322.18	1.200 Level 2	
18,000.00	9,297.32	18,200.77	9,497.24	162.91	162.89	121.31	8,847.27	28.64	386.62	60.81	325.80	1.187 Level 2	
18,100.00	9,298.05	18,300.77	9,497.88	164.72	164.70	121.30	8,947.27	28.62	386.57	57.14	329.43	1.173 Level 2	
18,200.00	9,298.77	18,400.77	9,498.52	166.53	166.52	121.29	9,047.26	28.61	386.52	53.47	333.05	1.161 Level 2	
18,300.00	9,299.50	18,500.77	9,499.17	168.34	168.33	121.28	9,147.26	28.59	386.47	49.80	336.67	1.148 Level 2	
18,400.00	9,300.23	18,600.77	9,499.81	170.15	170.14	121.27	9,247.26	28.58	386.41	46.12	340.29	1.136 Level 2	
18,500.00	9,300.96	18,700.77	9,500.45	171.97	171.95	121.26	9,347.26	28.56	386.36	42.45	343.92	1.123 Level 2	
18,600.00	9,301.68	18,800.77	9,501.10	173.78	173.76	121.25	9,447.26	28.55	386.31	38.77	347.54	1.112 Level 2	
18,700.00	9,302.41	18,900.77	9,501.74	175.59	175.57	121.24	9,547.25	28.53	386.26	35.10	351.17	1.100 Level 2	
18,800.00	9,303.14	19,000.77	9,502.38	177.40	177.39	121.23	9,647.25	28.51	386.21	31.42	354.79	1.089 Level 2	
18,900.00	9,303.87	19,100.77	9,503.03	179.22	179.20	121.22	9,747.25	28.50	386.16	27.74	358.42	1.077 Level 2	
19,000.00	9,304.59	19,200.77	9,503.67	181.03	181.01	121.21	9,847.25	28.48	386.11	24.07	362.04	1.066 Level 2	
19,100.00	9,305.32	19,300.77	9,504.32	182.84	182.83	121.20	9,947.25	28.47	386.06	20.39	365.67	1.056 Level 2	
19,200.00	9,306.05	19,400.77	9,504.96	184.66	184.64	121.19	10,047.24	28.45	386.01	16.71	369.30	1.045 Level 2	
19,300.00	9,306.78	19,500.77	9,505.60	186.47	186.45	121.18	10,147.24	28.44	385.95	13.03	372.92	1.035 Level 2	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design		Sec. 31, T 26 S, R 28- E - Way South State Com 702H - Wellbore #1 - Plan #1											Offset Site Error:		0.00 usft
Survey Program:		0-MWD											Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
19,400.00	9,307.51	19,600.77	9,506.25	188.28	188.27	121.17	10,247.24	28.42	385.90	9.35	376.55	1.025	Level 2		
19,500.00	9,308.23	19,700.77	9,506.89	190.10	190.08	121.16	10,347.24	28.41	385.85	5.67	380.18	1.015	Level 2		
19,600.00	9,308.96	19,800.77	9,507.53	191.91	191.90	121.15	10,447.24	28.39	385.80	1.99	383.81	1.005	Level 2		
19,700.00	9,309.69	19,900.77	9,508.18	193.73	193.71	121.14	10,547.23	28.38	385.75	-1.69	387.44	0.996	Level 1		
19,800.00	9,310.42	20,000.77	9,508.82	195.54	195.53	121.13	10,647.23	28.36	385.70	-5.37	391.07	0.986	Level 1		
19,900.00	9,311.14	20,100.77	9,509.46	197.36	197.34	121.12	10,747.23	28.35	385.65	-9.05	394.70	0.977	Level 1		
20,000.00	9,311.87	20,200.77	9,510.11	199.17	199.16	121.11	10,847.23	28.33	385.60	-12.73	398.33	0.968	Level 1		
20,100.00	9,312.60	20,300.77	9,510.75	200.99	200.97	121.10	10,947.22	28.32	385.55	-16.41	401.96	0.959	Level 1		
20,200.00	9,313.33	20,400.77	9,511.39	202.80	202.79	121.09	11,047.22	28.30	385.50	-20.09	405.59	0.950	Level 1		
20,300.00	9,314.05	20,500.77	9,512.04	204.62	204.60	121.08	11,147.22	28.29	385.44	-23.77	409.22	0.942	Level 1		
20,400.00	9,314.78	20,600.77	9,512.68	206.43	206.42	121.07	11,247.22	28.27	385.39	-27.46	412.85	0.933	Level 1		
20,500.00	9,315.51	20,700.77	9,513.33	208.25	208.23	121.06	11,347.22	28.26	385.34	-31.14	416.48	0.925	Level 1		
20,600.00	9,316.24	20,800.77	9,513.97	210.07	210.05	121.05	11,447.21	28.24	385.29	-34.82	420.11	0.917	Level 1		
20,700.00	9,316.96	20,900.77	9,514.61	211.88	211.87	121.04	11,547.21	28.23	385.24	-38.51	423.75	0.909	Level 1		
20,800.00	9,317.69	21,000.77	9,515.26	213.70	213.68	121.03	11,647.21	28.21	385.19	-42.19	427.38	0.901	Level 1		
20,900.00	9,318.42	21,100.77	9,515.90	215.51	215.50	121.02	11,747.21	28.20	385.14	-45.87	431.01	0.894	Level 1		
21,000.00	9,319.15	21,200.77	9,516.54	217.33	217.31	121.01	11,847.21	28.18	385.09	-49.56	434.65	0.886	Level 1		
21,100.00	9,319.88	21,300.77	9,517.19	219.15	219.13	121.00	11,947.20	28.17	385.04	-53.24	438.28	0.879	Level 1		
21,200.00	9,320.60	21,400.77	9,517.83	220.96	220.95	120.99	12,047.20	28.15	384.99	-56.93	441.91	0.871	Level 1		
21,300.00	9,321.33	21,500.77	9,518.47	222.78	222.77	120.98	12,147.20	28.14	384.94	-60.61	445.55	0.864	Level 1		
21,400.00	9,322.06	21,600.77	9,519.12	224.60	224.58	120.97	12,247.20	28.12	384.89	-64.29	449.18	0.857	Level 1		
21,500.00	9,322.79	21,700.77	9,519.76	226.42	226.40	120.96	12,347.20	28.11	384.84	-67.98	452.81	0.850	Level 1		
21,529.48	9,323.00	21,730.25	9,519.95	226.95	226.83	120.96	12,376.68	28.10	384.82	-68.96	453.79	0.848	Level 1, ES, SF		



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=29' @ 3111.00usft (Noram 23)

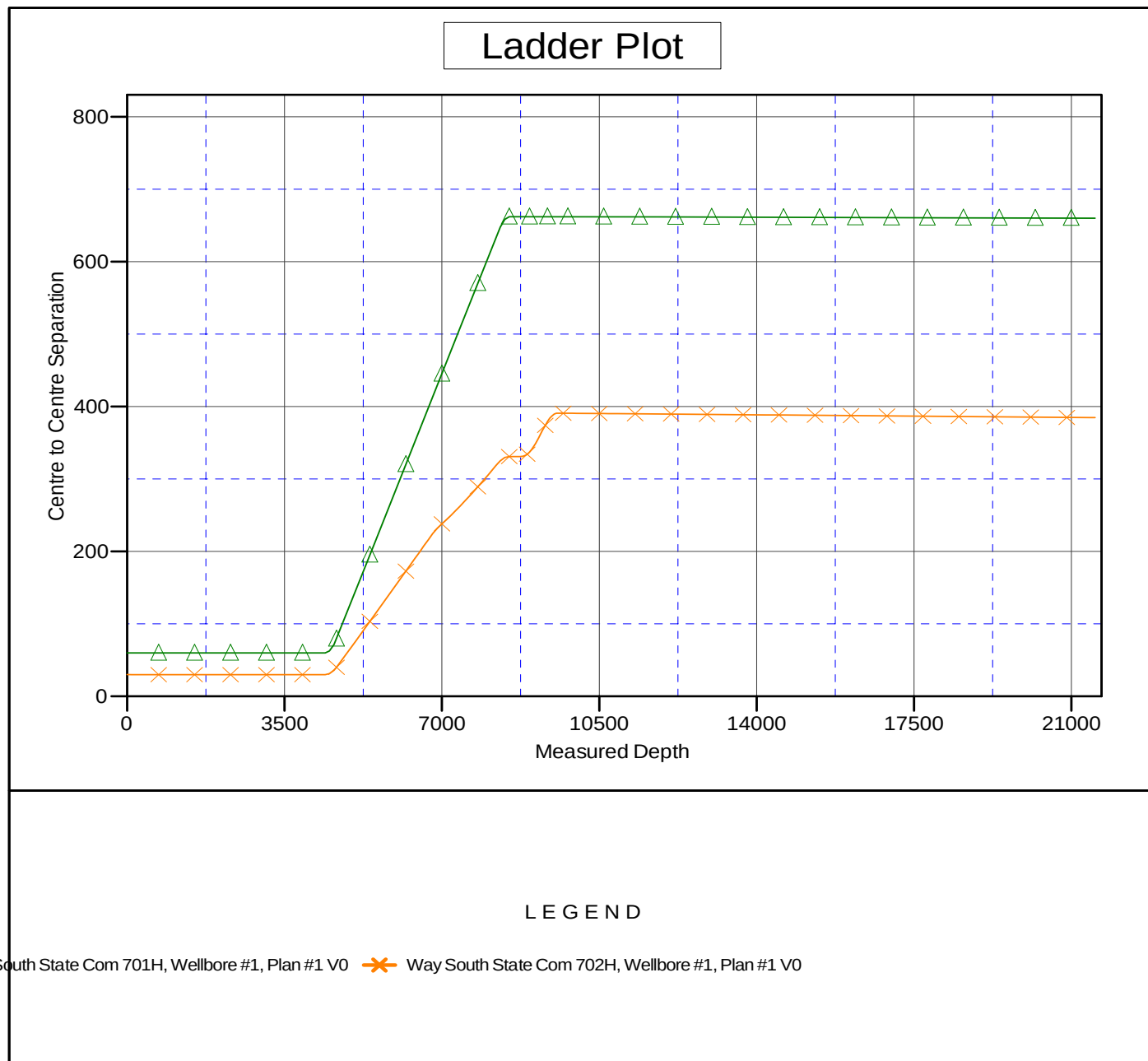
Offset Depths are relative to Offset Datum

Central Meridian is -104.33334

Coordinates are relative to: Way South State Com 703H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.11°





Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 703H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=29' @ 3111.00usft (Noram 23)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=29' @ 3111.00usft (Noram 23)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 703H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=29' @ 3111.00usft (Noram 23)

Offset Depths are relative to Offset Datum

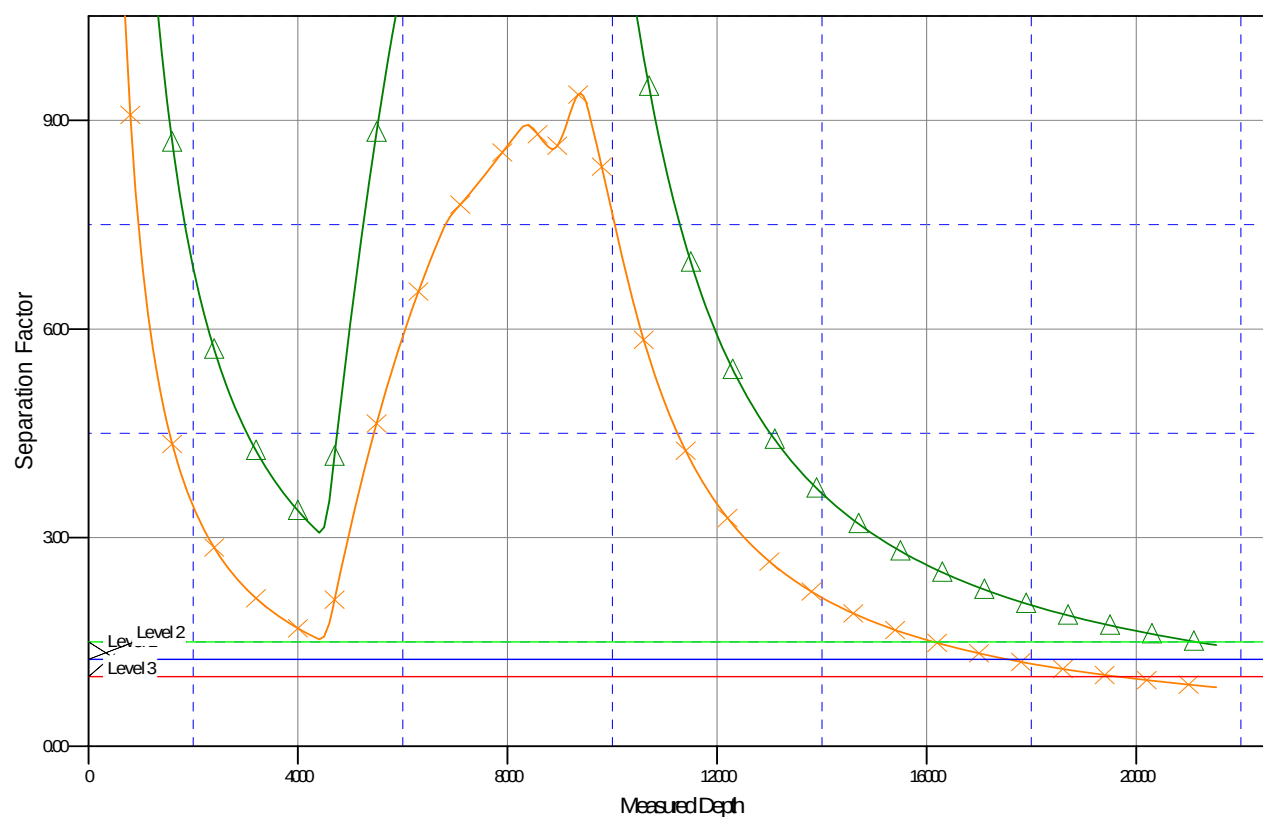
Central Meridian is -104.33334

Coordinates are relative to: Way South State Com 703H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.11°

Separation Factor Plot



LEGEND

South State Com 701H, Wellbore #1, Plan #1 V0 —●— Way South State Com 702H, Wellbore #1, Plan #1 V0

Intent ☐ As Drilled ☐

API # 30-015-		
Operator Name: COG OPERATING LLC	Property Name: WAY SOUTH STATE COM	Well Number 703H

Kick Off Point (KOP)

UL H	Section 31	Township 26S	Range 28E	Lot 5	Feet 265'	From N/S S	Feet 690'	From E/W E	County EDDY
Latitude 32.000696					Longitude -104.120382			NAD 83	

First Take Point (FTP)

UL H	Section 31	Township 26S	Range 28E	Lot 5	Feet 330'	From N/S S	Feet 990'	From E/W E	County Eddy
Latitude 32.000875					Longitude -104.121350			NAD 83	

Last Take Point (LTP)

UL A	Section 19	Township 26S	Range 28E	Lot 	Feet 330'	From N/S N	Feet 990'	From E/W E	County EDDY
Latitude 32.034368					Longitude -104.121279			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit?

☐ N

Is this well an infill well?

☐ Y

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API # 30-015-		
Operator Name: COG OPERATING LLC	Property Name: WAY SOUTH STATE COM	Well Number 704H