

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM109748
2. Name of Operator COG OPERATING LLC Contact: MAYTE X REYES E-Mail: mireyes1@concho.com		6. If Indian, Allottee or Tribe Name
3a. Address 600 W ILLINOIS AVENUE MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 575.748.6945	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 25 T25S R26E SESE 190FSL 380FEL 32.093925 N Lat, 104.238700 W Lon		8. Well Name and No. ROAD RUNNER FEDERAL COM 1H
		9. API Well No. 30-015-43133-00-X1
		10. Field and Pool, or Exploratory WILDCAT
		11. County or Parish, and State EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been met and the BLM has determined that the site is ready for final inspection.)

COG Operating LLC, respectfully requests approval for the following changes to the original approved APD.

BHL
From: 330' FNL & 380' FEL Section 25, T25S, R26E.
To: 50' FNL & 330' FEL Section 24, T25S, R330E
C102 attached.

Drilling Changes
The operator will drill to a final TD of 17,516? MD
See attached.

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 06 2016

SEE ATTACHED FOR RECEIVED
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct. Electronic Submission #348667 verified by the BLM Well Information System For COG OPERATING LLC, sent to the Carlsbad Committed to AFMSS for processing by MUSTAFA HAQUE on 08/31/2016 (16MH0011SE)	
Name (Printed/Typed) MAYTE X REYES	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 08/22/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By (BLM Approver Not Specified) <u>Mustafa Haque</u>	Title PETROLEUM ENGINEER	Date 09/01/2016
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		
Office Carlsbad		

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #348671 that would not fit on the form

32. Additional remarks, continued

Drilling Changes
The operator will drill to a final TD of 17,978? MD
See attached.



COG Operating LLC

Eddy County, NM (NAD-27 2015)

Roadrunner Federal Com #1H

Roadrunner Federal Com #1H

30-015-43133

Lateral #1

Plan: Design #3

Standard Planning Report

20 August, 2016





TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Roadrunner Federal Com #1H
Company:	COG Operating LLC	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Project:	Eddy County, NM (NAD-27 2015)	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site:	Roadrunner Federal Com #1H	North Reference:	Grid
Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #3		

Project:	Eddy County, NM (NAD-27 2015)		
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:	Roadrunner Federal Com #1H		
Site Position:	Northing:	397,906.10 usft	Latitude: 32° 5' 38.128 N
From: Map	Easting:	529,306.00 usft	Longitude: 104° 14' 19.319 W
Position Uncertainty:	0.00 usft	Slot Radius: 13.20 in	Grid Convergence: 0.05 °

Well:	Roadrunner Federal Com #1H		
Well Position	+N-S	0.00 usft	Northing: 397,906.10 usft
	+E-W	0.00 usft	Easting: 529,306.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
			Ground Level: 3,250.40 usft

Wellbore:	Lateral #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	8/20/2016	7.34
			59.84
			47.874

Design:	Design #3		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			0.22

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,898.55	0.00	0.00	6,898.55	0.00	0.00	0.00	0.00	0.00	0.00	
7,652.28	90.45	0.22	7,376.00	481.19	1.87	12.00	12.00	0.03	0.22	
17,516.56	90.45	0.22	7,299.00	10,345.10	40.10	0.00	0.00	0.00	0.00	PBHL (RFC #1H/L1)



TDS
Planning Report



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Site:	Roadrunner Federal Com #1H	North Reference:	Grid
Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #3		

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
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
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00



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Site:	Roadrunner Federal Com #1H	North Reference:	Grid
Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #3		

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)	
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,898.55	0.00	0.00	6,898.55	0.00	0.00	0.00	0.00	0.00	0.00	
Start DLS 12.00 TFO 0.22										
6,900.00	0.17	0.22	6,900.00	0.00	0.00	0.00	12.00	12.00	0.00	
6,925.00	3.17	0.22	6,924.99	0.73	0.00	0.73	12.00	12.00	0.00	
6,950.00	6.17	0.22	6,949.90	2.77	0.01	2.77	12.00	12.00	0.00	
6,975.00	9.17	0.22	6,974.57	6.11	0.02	6.11	12.00	12.00	0.00	
7,000.00	12.17	0.22	6,999.24	10.74	0.04	10.74	12.00	12.00	0.00	
7,025.00	15.17	0.22	7,023.53	16.65	0.06	16.65	12.00	12.00	0.00	
7,050.00	18.17	0.22	7,047.47	23.82	0.09	23.82	12.00	12.00	0.00	
7,075.00	21.17	0.22	7,071.01	32.23	0.12	32.23	12.00	12.00	0.00	
7,100.00	24.17	0.22	7,094.08	41.87	0.16	41.87	12.00	12.00	0.00	
7,125.00	27.17	0.22	7,116.61	52.70	0.20	52.70	12.00	12.00	0.00	
7,150.00	30.17	0.22	7,138.54	64.69	0.25	64.70	12.00	12.00	0.00	
7,175.00	33.17	0.22	7,159.81	77.82	0.30	77.82	12.00	12.00	0.00	
7,200.00	36.17	0.22	7,180.37	92.04	0.36	92.04	12.00	12.00	0.00	
7,225.00	39.17	0.22	7,200.15	107.32	0.42	107.32	12.00	12.00	0.00	
7,250.00	42.17	0.22	7,219.11	123.61	0.48	123.61	12.00	12.00	0.00	
7,275.00	45.17	0.22	7,237.19	140.87	0.55	140.87	12.00	12.00	0.00	
7,300.00	48.17	0.22	7,254.34	159.06	0.62	159.06	12.00	12.00	0.00	
7,325.00	51.17	0.22	7,270.52	178.11	0.69	178.11	12.00	12.00	0.00	
7,350.00	54.17	0.22	7,285.68	197.99	0.77	197.99	12.00	12.00	0.00	
7,375.00	57.17	0.22	7,299.77	218.63	0.85	218.64	12.00	12.00	0.00	
7,400.00	60.17	0.22	7,312.77	239.99	0.93	239.99	12.00	12.00	0.00	
7,425.00	63.17	0.22	7,324.63	261.99	1.02	261.99	12.00	12.00	0.00	
7,450.00	66.17	0.22	7,335.32	284.59	1.10	284.59	12.00	12.00	0.00	
7,475.00	69.17	0.22	7,344.82	307.71	1.19	307.71	12.00	12.00	0.00	
7,500.00	72.17	0.22	7,353.09	331.30	1.28	331.30	12.00	12.00	0.00	
7,525.00	75.17	0.22	7,360.12	355.29	1.38	355.29	12.00	12.00	0.00	
7,550.00	78.17	0.22	7,365.88	379.61	1.47	379.61	12.00	12.00	0.00	
7,575.00	81.17	0.22	7,370.36	404.20	1.57	404.21	12.00	12.00	0.00	
7,600.00	84.17	0.22	7,373.55	429.00	1.66	429.00	12.00	12.00	0.00	
7,625.00	87.17	0.22	7,375.43	453.92	1.76	453.92	12.00	12.00	0.00	
7,652.28	90.45	0.22	7,376.00	481.19	1.87	481.19	12.00	12.00	0.00	
Start 9864.29 hold at 7652.28 MD										
7,700.00	90.45	0.22	7,375.53	528.91	2.05	528.91	0.00	0.00	0.00	
7,800.00	90.45	0.22	7,374.85	628.91	2.44	628.91	0.00	0.00	0.00	
7,900.00	90.45	0.22	7,374.07	728.90	2.83	728.91	0.00	0.00	0.00	
8,000.00	90.45	0.22	7,373.29	828.90	3.21	828.90	0.00	0.00	0.00	



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Site:	Roadrunner Federal Com #1H	North Reference:	Grid
Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #3		

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)	
8,100.00	90.45	0.22	7,372.51	928.89	3.60	928.90	0.00	0.00	0.00	
8,200.00	90.45	0.22	7,371.72	1,028.89	3.99	1,028.90	0.00	0.00	0.00	
8,300.00	90.45	0.22	7,370.94	1,128.89	4.38	1,128.90	0.00	0.00	0.00	
8,400.00	90.45	0.22	7,370.16	1,228.88	4.76	1,228.89	0.00	0.00	0.00	
8,500.00	90.45	0.22	7,369.38	1,328.88	5.15	1,328.89	0.00	0.00	0.00	
8,600.00	90.45	0.22	7,368.60	1,428.88	5.54	1,428.89	0.00	0.00	0.00	
8,700.00	90.45	0.22	7,367.82	1,528.87	5.93	1,528.88	0.00	0.00	0.00	
8,800.00	90.45	0.22	7,367.04	1,628.87	6.31	1,628.88	0.00	0.00	0.00	
8,900.00	90.45	0.22	7,366.26	1,728.86	6.70	1,728.88	0.00	0.00	0.00	
9,000.00	90.45	0.22	7,365.48	1,828.86	7.09	1,828.87	0.00	0.00	0.00	
9,100.00	90.45	0.22	7,364.70	1,928.86	7.48	1,928.87	0.00	0.00	0.00	
9,200.00	90.45	0.22	7,363.92	2,028.85	7.86	2,028.87	0.00	0.00	0.00	
9,300.00	90.45	0.22	7,363.14	2,128.85	8.25	2,128.86	0.00	0.00	0.00	
9,400.00	90.45	0.22	7,362.36	2,228.84	8.64	2,228.86	0.00	0.00	0.00	
9,500.00	90.45	0.22	7,361.58	2,328.84	9.03	2,328.86	0.00	0.00	0.00	
9,600.00	90.45	0.22	7,360.80	2,428.84	9.41	2,428.86	0.00	0.00	0.00	
9,700.00	90.45	0.22	7,360.02	2,528.83	9.80	2,528.85	0.00	0.00	0.00	
9,800.00	90.45	0.22	7,359.24	2,628.83	10.19	2,628.85	0.00	0.00	0.00	
9,900.00	90.45	0.22	7,358.45	2,728.83	10.58	2,728.85	0.00	0.00	0.00	
10,000.00	90.45	0.22	7,357.67	2,828.82	10.97	2,828.84	0.00	0.00	0.00	
10,100.00	90.45	0.22	7,356.89	2,928.82	11.35	2,928.84	0.00	0.00	0.00	
10,200.00	90.45	0.22	7,356.11	3,028.81	11.74	3,028.84	0.00	0.00	0.00	
10,300.00	90.45	0.22	7,355.33	3,128.81	12.13	3,128.83	0.00	0.00	0.00	
10,400.00	90.45	0.22	7,354.55	3,228.81	12.52	3,228.83	0.00	0.00	0.00	
10,500.00	90.45	0.22	7,353.77	3,328.80	12.90	3,328.83	0.00	0.00	0.00	
10,600.00	90.45	0.22	7,352.99	3,428.80	13.29	3,428.83	0.00	0.00	0.00	
10,700.00	90.45	0.22	7,352.21	3,528.80	13.68	3,528.82	0.00	0.00	0.00	
10,800.00	90.45	0.22	7,351.43	3,628.79	14.07	3,628.82	0.00	0.00	0.00	
10,900.00	90.45	0.22	7,350.65	3,728.79	14.45	3,728.82	0.00	0.00	0.00	
11,000.00	90.45	0.22	7,349.87	3,828.78	14.84	3,828.81	0.00	0.00	0.00	
11,100.00	90.45	0.22	7,349.09	3,928.78	15.23	3,928.81	0.00	0.00	0.00	
11,200.00	90.45	0.22	7,348.31	4,028.78	15.62	4,028.81	0.00	0.00	0.00	
11,300.00	90.45	0.22	7,347.53	4,128.77	16.00	4,128.80	0.00	0.00	0.00	
11,400.00	90.45	0.22	7,346.75	4,228.77	16.39	4,228.80	0.00	0.00	0.00	
11,500.00	90.45	0.22	7,345.97	4,328.77	16.78	4,328.80	0.00	0.00	0.00	
11,600.00	90.45	0.22	7,345.18	4,428.76	17.17	4,428.79	0.00	0.00	0.00	
11,700.00	90.45	0.22	7,344.40	4,528.76	17.55	4,528.79	0.00	0.00	0.00	
11,800.00	90.45	0.22	7,343.62	4,628.75	17.94	4,628.78	0.00	0.00	0.00	
11,900.00	90.45	0.22	7,342.84	4,728.75	18.33	4,728.79	0.00	0.00	0.00	
12,000.00	90.45	0.22	7,342.06	4,828.75	18.72	4,828.78	0.00	0.00	0.00	
12,100.00	90.45	0.22	7,341.28	4,928.74	19.10	4,928.78	0.00	0.00	0.00	
12,200.00	90.45	0.22	7,340.50	5,028.74	19.49	5,028.78	0.00	0.00	0.00	
12,300.00	90.45	0.22	7,339.72	5,128.73	19.88	5,128.77	0.00	0.00	0.00	
12,400.00	90.45	0.22	7,338.94	5,228.73	20.27	5,228.77	0.00	0.00	0.00	
12,500.00	90.45	0.22	7,338.16	5,328.73	20.66	5,328.77	0.00	0.00	0.00	
12,600.00	90.45	0.22	7,337.38	5,428.72	21.04	5,428.76	0.00	0.00	0.00	
12,700.00	90.45	0.22	7,336.60	5,528.72	21.43	5,528.76	0.00	0.00	0.00	
12,800.00	90.45	0.22	7,335.82	5,628.72	21.82	5,628.76	0.00	0.00	0.00	
12,900.00	90.45	0.22	7,335.04	5,728.71	22.21	5,728.76	0.00	0.00	0.00	
13,000.00	90.45	0.22	7,334.26	5,828.71	22.59	5,828.75	0.00	0.00	0.00	
13,100.00	90.45	0.22	7,333.48	5,928.70	22.98	5,928.75	0.00	0.00	0.00	
13,200.00	90.45	0.22	7,332.70	6,028.70	23.37	6,028.75	0.00	0.00	0.00	
13,300.00	90.45	0.22	7,331.91	6,128.70	23.76	6,128.74	0.00	0.00	0.00	
13,400.00	90.45	0.22	7,331.13	6,228.69	24.14	6,228.74	0.00	0.00	0.00	



TDS
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Roadrunner Federal Com #1H
Company:	COG Operating LLC	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Project:	Eddy County, NM (NAD-27 2015)	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site:	Roadrunner Federal Com #1H	North Reference:	Grid
Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #3		

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)	
13,500.00	90.45	0.22	7,330.35	6,328.69	24.53	6,328.74	0.00	0.00	0.00	
13,600.00	90.45	0.22	7,329.57	6,428.69	24.92	6,428.73	0.00	0.00	0.00	
13,700.00	90.45	0.22	7,328.79	6,528.68	25.31	6,528.73	0.00	0.00	0.00	
13,800.00	90.45	0.22	7,328.01	6,628.68	25.69	6,628.73	0.00	0.00	0.00	
13,900.00	90.45	0.22	7,327.23	6,728.67	26.08	6,728.72	0.00	0.00	0.00	
14,000.00	90.45	0.22	7,326.45	6,828.67	26.47	6,828.72	0.00	0.00	0.00	
14,100.00	90.45	0.22	7,325.67	6,928.67	26.86	6,928.72	0.00	0.00	0.00	
14,200.00	90.45	0.22	7,324.89	7,028.66	27.24	7,028.72	0.00	0.00	0.00	
14,300.00	90.45	0.22	7,324.11	7,128.66	27.63	7,128.71	0.00	0.00	0.00	
14,400.00	90.45	0.22	7,323.33	7,228.66	28.02	7,228.71	0.00	0.00	0.00	
14,500.00	90.45	0.22	7,322.55	7,328.65	28.41	7,328.71	0.00	0.00	0.00	
14,600.00	90.45	0.22	7,321.77	7,428.65	28.80	7,428.70	0.00	0.00	0.00	
14,700.00	90.45	0.22	7,320.99	7,528.64	29.18	7,528.70	0.00	0.00	0.00	
14,800.00	90.45	0.22	7,320.21	7,628.64	29.57	7,628.70	0.00	0.00	0.00	
14,900.00	90.45	0.22	7,319.42	7,728.64	29.96	7,728.69	0.00	0.00	0.00	
15,000.00	90.45	0.22	7,318.64	7,828.63	30.35	7,828.69	0.00	0.00	0.00	
15,100.00	90.45	0.22	7,317.86	7,928.63	30.73	7,928.69	0.00	0.00	0.00	
15,200.00	90.45	0.22	7,317.08	8,028.62	31.12	8,028.69	0.00	0.00	0.00	
15,300.00	90.45	0.22	7,316.30	8,128.62	31.51	8,128.68	0.00	0.00	0.00	
15,400.00	90.45	0.22	7,315.52	8,228.62	31.90	8,228.68	0.00	0.00	0.00	
15,500.00	90.45	0.22	7,314.74	8,328.61	32.28	8,328.68	0.00	0.00	0.00	
15,600.00	90.45	0.22	7,313.96	8,428.61	32.67	8,428.67	0.00	0.00	0.00	
15,700.00	90.45	0.22	7,313.18	8,528.61	33.06	8,528.67	0.00	0.00	0.00	
15,800.00	90.45	0.22	7,312.40	8,628.60	33.45	8,628.67	0.00	0.00	0.00	
15,900.00	90.45	0.22	7,311.62	8,728.60	33.83	8,728.66	0.00	0.00	0.00	
16,000.00	90.45	0.22	7,310.84	8,828.59	34.22	8,828.66	0.00	0.00	0.00	
16,100.00	90.45	0.22	7,310.06	8,928.59	34.61	8,928.66	0.00	0.00	0.00	
16,200.00	90.45	0.22	7,309.28	9,028.59	35.00	9,028.65	0.00	0.00	0.00	
16,300.00	90.45	0.22	7,308.50	9,128.58	35.38	9,128.65	0.00	0.00	0.00	
16,400.00	90.45	0.22	7,307.72	9,228.58	35.77	9,228.65	0.00	0.00	0.00	
16,500.00	90.45	0.22	7,306.94	9,328.58	36.16	9,328.65	0.00	0.00	0.00	
16,600.00	90.45	0.22	7,306.15	9,428.57	36.55	9,428.64	0.00	0.00	0.00	
16,700.00	90.45	0.22	7,305.37	9,528.57	36.93	9,528.64	0.00	0.00	0.00	
16,800.00	90.45	0.22	7,304.59	9,628.56	37.32	9,628.64	0.00	0.00	0.00	
16,900.00	90.45	0.22	7,303.81	9,728.56	37.71	9,728.63	0.00	0.00	0.00	
17,000.00	90.45	0.22	7,303.03	9,828.56	38.10	9,828.63	0.00	0.00	0.00	
17,100.00	90.45	0.22	7,302.25	9,928.55	38.49	9,928.63	0.00	0.00	0.00	
17,200.00	90.45	0.22	7,301.47	10,028.55	38.87	10,028.62	0.00	0.00	0.00	
17,300.00	90.45	0.22	7,300.69	10,128.54	39.26	10,128.62	0.00	0.00	0.00	
17,400.00	90.45	0.22	7,299.91	10,228.54	39.65	10,228.62	0.00	0.00	0.00	
17,500.00	90.45	0.22	7,299.13	10,328.54	40.04	10,328.61	0.00	0.00	0.00	
17,516.56	90.45	0.22	7,299.00	10,345.10	40.10	10,345.18	0.00	0.00	0.00	

TD at 17516.56



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Roadrunner Federal Com #1H
Company:	COG Operating LLC	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Project:	Eddy County, NM (NAD-27 2015)	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site:	Roadrunner Federal Com #1H	North Reference:	Grid
Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #3		

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	N/S	E/W	Northing	Easting	Latitude	Longitude	
hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
Shape										
KOP (RFC #1H/L1 Desig - plan hits target center - Point	0.00	0.00	6,898.55	0.00	0.00	397,906.10	529,306.00	32° 5' 38.128 N	104° 14' 19.319 W	
PBHL (RFC #1H/L1) - plan hits target center - Rectangle (sides W100.00 H10,345.18 D0.00)	-0.45	0.22	7,299.00	10,345.10	40.10	408,251.20	529,346.10	32° 7' 20.509 N	104° 14' 18.747 W	
EOC (RFC #1H/L1 Desig - plan hits target center - Point	0.00	0.00	7,376.00	481.19	1.87	398,387.29	529,307.87	32° 5' 42.890 N	104° 14' 19.292 W	

Plan Annotations					
Measured	Vertical	Local Coordinates			
Depth	Depth	N/S	E/W		
(usft)	(usft)	(usft)	(usft)		
6,898.55	6,898.55	0.00	0.00	Start DLS 12.00 TFO 0.22	
7,652.28	7,376.00	481.19	1.87	Start 9864.29 hold at 7652.28 MD	
17,516.56	7,299.00	10,345.10	40.10	TD at 17516.56	



COC Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Roadrunner Federal Com #1H
Well: Wellbore: Lateral #1

Plan: Design #3 (Roadrunner Federal Com #1H/Lateral #1)

WELL DETAILS: Roadrunner Federal Com #1H

Ground Elevation: 3250.40
RKB Elevation: KB @ 3275.40usft (Lashaw 44)
Rig Name: Lashaw 44

Northings
397906.10

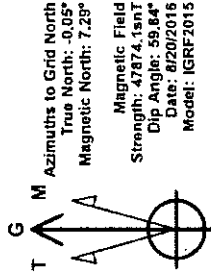
Eastings
529306.00

Latitude
32° 5' 38.128 N

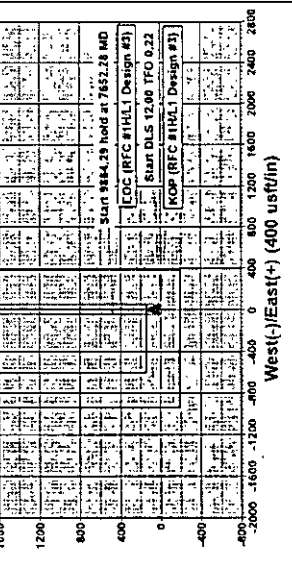
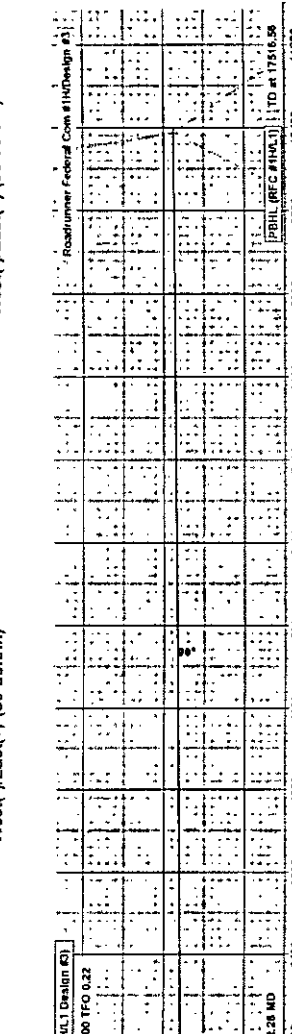
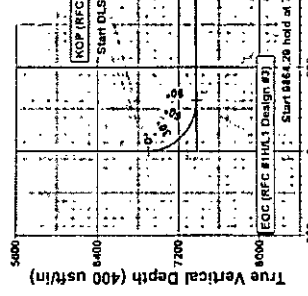
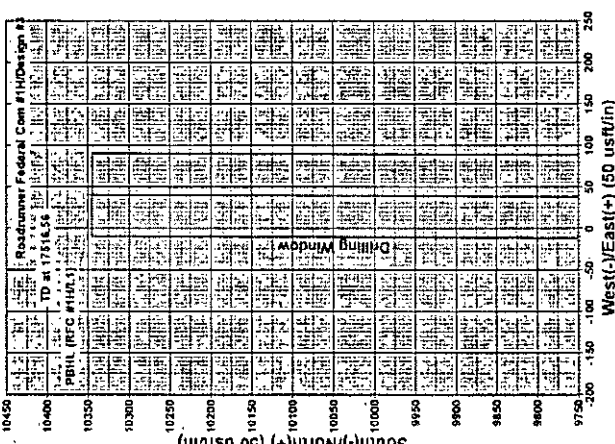
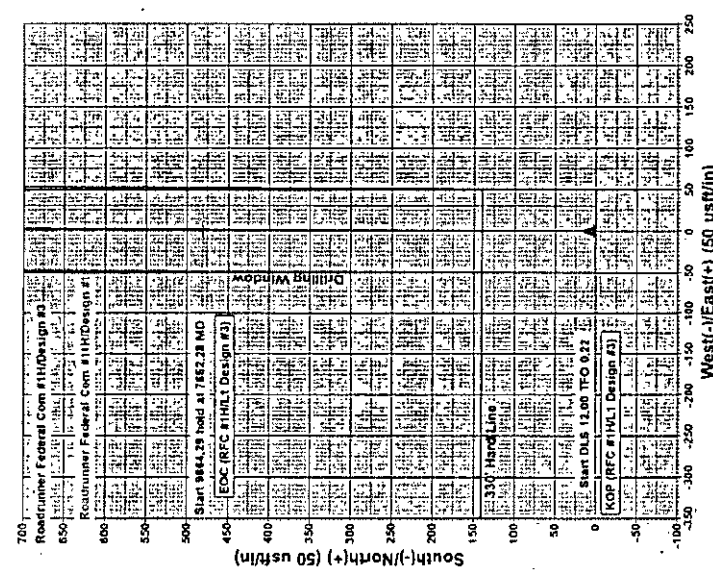
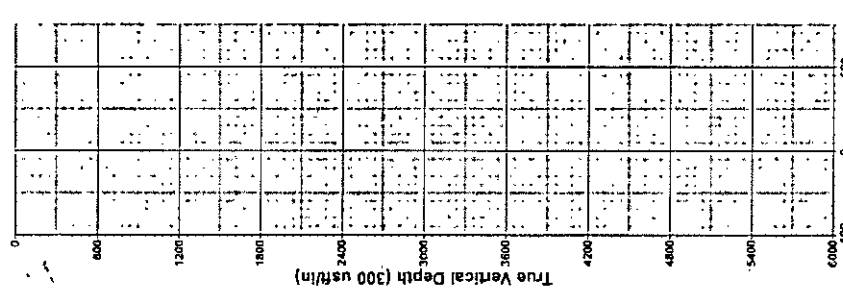
Longitude
104° 14' 18.319 W

Section Details

Sec	MD	Inc	Azi	TVD	+/-S	+/-W	Dleg	Tface	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	6898.55	0.00	0.00	6898.55	0.00	0.00	0.00	0.00	0.00
3	7652.28	90.45	0.22	7376.00	481.19	1.87	12.00	0.22	481.19
4	17516.56	90.45	0.22	7299.00	10345.10	40.10	0.00	0.00	0.00



Magnetic Field
Strength: 47874.1nT
Dip Angle: 59.84°
Date: 8/20/2015
Model: IGRF-2015



Vertical Section at 0.22° (400 usft/in):



Terra Directional Services
3705 South County Road 1210, Midland, TX 79706
4432.618.1210

Plan: Design #3 (Roadrunner Federal Com #1H/Lateral #1)
Created By: Well Planner Date: 11-08, August 21 2016

PROJECT DETAILS: Eddy County, NM (NAD-27 2015)
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



COG Operating LLC

Eddy County, NM (NAD-27 2015)

Roadrunner Federal Com #1H

Roadrunner Federal Com #1H

30-015-43133

Lateral #1

Design #3

Anticollision Report

21 August, 2016





TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Roadrunner Federal Com #1H
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Reference Site:	Roadrunner Federal Com #1H	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Lateral #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Reference	Design #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	8/21/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,516.56	Design #3 (Lateral #1)	MWD	MWD - Standard	

Summary						
	Reference	Offset	Distance			
Site Name	Measured	Measured	Between	Between	Separation	Warning
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses	Factor	
	(usft)	(usft)	(usft)	(usft)		
Roadrunner Federal Com #11H						
Roadrunner Federal Com #11H - Lateral #1 - Design #1	6,908.83	6,908.63	29.90	-0.88	0.972	Level 1, CC
Roadrunner Federal Com #11H - Lateral #1 - Design #1	6,925.00	6,924.79	29.91	-0.94	0.969	Level 1, ES, SF

Offset Design											Roadrunner Federal Com #11H - Roadrunner Federal Com #11H - Lateral #1 - Design #1		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD											Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis		Highside		Offset Wellbore Centre		Distance				
Measured	Vertical	Measured	Vertical	Reference	Offset					Between	Between	Minimum	Separation	
Depth	Depth	Depth	Depth	Depth	Depth					Centres	Ellipses	Separation	Factor	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)		
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	29.90	29.90					
100.00	100.00	99.80	99.80	0.08	0.08	90.00	0.00	29.90	29.90	29.73	0.17	177.547		
200.00	200.00	199.80	199.80	0.31	0.31	90.00	0.00	29.90	29.90	29.28	0.62	48.409		
300.00	300.00	299.80	299.80	0.53	0.53	90.00	0.00	29.90	29.90	28.83	1.07	28.018		
400.00	400.00	399.80	399.80	0.76	0.76	90.00	0.00	29.90	29.90	28.38	1.52	19.714		
500.00	500.00	499.80	499.80	0.98	0.98	90.00	0.00	29.90	29.90	27.93	1.97	15.207		
600.00	600.00	599.80	599.80	1.21	1.21	90.00	0.00	29.90	29.90	27.48	2.42	12.377		
700.00	700.00	699.80	699.80	1.43	1.43	90.00	0.00	29.90	29.90	27.03	2.87	10.435		
800.00	800.00	799.80	799.80	1.66	1.66	90.00	0.00	29.90	29.90	26.59	3.31	9.020		
900.00	900.00	899.80	899.80	1.88	1.88	90.00	0.00	29.90	29.90	26.14	3.76	7.943		
1,000.00	1,000.00	999.80	999.80	2.11	2.11	90.00	0.00	29.90	29.90	25.69	4.21	7.098		
1,100.00	1,100.00	1,099.80	1,099.80	2.33	2.33	90.00	0.00	29.90	29.90	25.24	4.66	6.412		
1,200.00	1,200.00	1,199.80	1,199.80	2.56	2.56	90.00	0.00	29.90	29.90	24.79	5.11	5.849		
1,300.00	1,300.00	1,299.80	1,299.80	2.78	2.78	90.00	0.00	29.90	29.90	24.34	5.56	5.375		
1,400.00	1,400.00	1,399.80	1,399.80	3.01	3.01	90.00	0.00	29.90	29.90	23.89	6.01	4.973		
1,500.00	1,500.00	1,499.80	1,499.80	3.23	3.23	90.00	0.00	29.90	29.90	23.44	6.46	4.627		
1,600.00	1,600.00	1,599.80	1,599.80	3.46	3.46	90.00	0.00	29.90	29.90	22.99	6.91	4.326		
1,700.00	1,700.00	1,699.80	1,699.80	3.68	3.68	90.00	0.00	29.90	29.90	22.54	7.36	4.002		
1,800.00	1,800.00	1,799.80	1,799.80	3.91	3.90	90.00	0.00	29.90	29.90	22.09	7.81	3.828		
1,900.00	1,900.00	1,899.80	1,899.80	4.13	4.13	90.00	0.00	29.90	29.90	21.64	8.26	3.620		
2,000.00	2,000.00	1,999.80	1,999.80	4.35	4.35	90.00	0.00	29.90	29.90	21.19	8.71	3.433		
2,100.00	2,100.00	2,099.80	2,099.80	4.58	4.58	90.00	0.00	29.90	29.90	20.74	9.16	3.265		
2,200.00	2,200.00	2,199.80	2,199.80	4.80	4.80	90.00	0.00	29.90	29.90	20.29	9.61	3.112		
2,300.00	2,300.00	2,299.80	2,299.80	5.03	5.03	90.00	0.00	29.90	29.90	19.84	10.06	2.973		
2,400.00	2,400.00	2,399.80	2,399.80	5.25	5.25	90.00	0.00	29.90	29.90	19.39	10.51	2.846		

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Roadrunner Federal Com #1H
Site Error: 0.00 usft
Reference Well: Roadrunner Federal Com #1H
Well Error: 0.00 usft
Reference Wellbore: Lateral #1
Reference Design: Design #3

Local Co-ordinate Reference: Well Roadrunner Federal Com #1H
TVD Reference: KB @ 3275.40usft (Latshaw 44)
MD Reference: KB @ 3275.40usft (Latshaw 44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Roadrunner Federal Com #11H - Roadrunner Federal Com #11H - Lateral #1 - Design #1														Offset Site Error: 0.00 usft
Survey Program: 0-MWD														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Footprint (ft)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		N/S (usft)	E/W (usft)	Between Centres (usft)	Between Ellipses (usft)				
2,500.00	2,500.00	2,499.80	2,499.80	5.48	5.48	90.00	0.00	29.90	29.90	18.94	10.96	2.729		
2,600.00	2,600.00	2,599.80	2,599.80	5.70	5.70	90.00	0.00	29.90	29.90	18.49	11.41	2.821		
2,700.00	2,700.00	2,699.80	2,699.80	5.93	5.93	90.00	0.00	29.90	29.90	18.04	11.86	2.522		
2,800.00	2,800.00	2,799.80	2,799.80	6.15	6.15	90.00	0.00	29.90	29.90	17.59	12.31	2.430		
2,900.00	2,900.00	2,899.80	2,899.80	6.38	6.38	90.00	0.00	29.90	29.90	17.14	12.76	2.344		
3,000.00	3,000.00	2,999.80	2,999.80	6.60	6.60	90.00	0.00	29.90	29.90	16.70	13.20	2.254		
3,100.00	3,100.00	3,099.80	3,099.80	6.83	6.83	90.00	0.00	29.90	29.90	16.25	13.65	2.190		
3,200.00	3,200.00	3,199.80	3,199.80	7.05	7.05	90.00	0.00	29.90	29.90	15.80	14.10	2.120		
3,300.00	3,300.00	3,299.80	3,299.80	7.28	7.28	90.00	0.00	29.90	29.90	15.35	14.55	2.055		
3,400.00	3,400.00	3,399.80	3,399.80	7.50	7.50	90.00	0.00	29.90	29.90	14.90	15.00	1.993		
3,500.00	3,500.00	3,499.80	3,499.80	7.73	7.73	90.00	0.00	29.90	29.90	14.45	15.45	1.935		
3,600.00	3,600.00	3,599.80	3,599.80	7.95	7.95	90.00	0.00	29.90	29.90	14.00	15.90	1.880		
3,700.00	3,700.00	3,699.80	3,699.80	8.18	8.18	90.00	0.00	29.90	29.90	13.55	16.35	1.829		
3,800.00	3,800.00	3,799.80	3,799.80	8.40	8.40	90.00	0.00	29.90	29.90	13.10	16.80	1.780		
3,900.00	3,900.00	3,899.80	3,899.80	8.63	8.62	90.00	0.00	29.90	29.90	12.65	17.25	1.733		
4,000.00	4,000.00	3,999.80	3,999.80	8.85	8.85	90.00	0.00	29.90	29.90	12.20	17.70	1.689		
4,100.00	4,100.00	4,099.80	4,099.80	9.07	9.07	90.00	0.00	29.90	29.90	11.75	18.15	1.647		
4,200.00	4,200.00	4,199.80	4,199.80	9.30	9.30	90.00	0.00	29.90	29.90	11.30	18.60	1.608		
4,300.00	4,300.00	4,299.80	4,299.80	9.52	9.52	90.00	0.00	29.90	29.90	10.85	19.05	1.570		
4,400.00	4,400.00	4,399.80	4,399.80	9.75	9.75	90.00	0.00	29.90	29.90	10.40	19.50	1.533		
4,500.00	4,500.00	4,499.80	4,499.80	9.97	9.97	90.00	0.00	29.90	29.90	9.95	19.95	1.499 Level 3		
4,600.00	4,600.00	4,599.80	4,599.80	10.20	10.20	90.00	0.00	29.90	29.90	9.50	20.40	1.466 Level 3		
4,700.00	4,700.00	4,699.80	4,699.80	10.42	10.42	90.00	0.00	29.90	29.90	9.05	20.85	1.434 Level 3		
4,800.00	4,800.00	4,799.80	4,799.80	10.65	10.65	90.00	0.00	29.90	29.90	8.60	21.30	1.404 Level 3		
4,900.00	4,900.00	4,899.80	4,899.80	10.87	10.87	90.00	0.00	29.90	29.90	8.15	21.75	1.375 Level 3		
5,000.00	5,000.00	4,999.80	4,999.80	11.10	11.10	90.00	0.00	29.90	29.90	7.70	22.20	1.347 Level 3		
5,100.00	5,100.00	5,099.80	5,099.80	11.32	11.32	90.00	0.00	29.90	29.90	7.25	22.64	1.320 Level 3		
5,200.00	5,200.00	5,199.80	5,199.80	11.55	11.55	90.00	0.00	29.90	29.90	6.81	23.08	1.295 Level 3		
5,300.00	5,300.00	5,299.80	5,299.80	11.77	11.77	90.00	0.00	29.90	29.90	6.36	23.54	1.270 Level 3		
5,400.00	5,400.00	5,399.80	5,399.80	12.00	12.00	90.00	0.00	29.90	29.90	5.91	23.99	1.246 Level 2		
5,500.00	5,500.00	5,499.80	5,499.80	12.22	12.22	90.00	0.00	29.90	29.90	5.46	24.44	1.223 Level 2		
5,600.00	5,600.00	5,599.80	5,599.80	12.45	12.45	90.00	0.00	29.90	29.90	5.01	24.89	1.201 Level 2		
5,700.00	5,700.00	5,699.80	5,699.80	12.67	12.67	90.00	0.00	29.90	29.90	4.56	25.34	1.180 Level 2		
5,800.00	5,800.00	5,799.80	5,799.80	12.90	12.90	90.00	0.00	29.90	29.90	4.11	25.79	1.159 Level 2		
5,900.00	5,900.00	5,899.80	5,899.80	13.12	13.12	90.00	0.00	29.90	29.90	3.66	26.24	1.139 Level 2		
6,000.00	6,000.00	5,999.80	5,999.80	13.35	13.35	90.00	0.00	29.90	29.90	3.21	26.69	1.120 Level 2		
6,100.00	6,100.00	6,099.80	6,099.80	13.57	13.57	90.00	0.00	29.90	29.90	2.76	27.14	1.102 Level 2		
6,200.00	6,200.00	6,199.80	6,199.80	13.80	13.79	90.00	0.00	29.90	29.90	2.31	27.59	1.084 Level 2		
6,300.00	6,300.00	6,299.80	6,299.80	14.02	14.02	90.00	0.00	29.90	29.90	1.86	28.04	1.066 Level 2		
6,400.00	6,400.00	6,399.80	6,399.80	14.24	14.24	90.00	0.00	29.90	29.90	1.41	28.49	1.050 Level 2		
6,500.00	6,500.00	6,499.80	6,499.80	14.47	14.47	90.00	0.00	29.90	29.90	0.96	28.94	1.033 Level 2		
6,600.00	6,600.00	6,599.80	6,599.80	14.69	14.69	90.00	0.00	29.90	29.90	0.51	29.39	1.017 Level 2		
6,700.00	6,700.00	6,699.80	6,699.80	14.92	14.92	90.00	0.00	29.90	29.90	0.06	29.84	1.002 Level 2		
6,800.00	6,800.00	6,799.80	6,799.80	15.14	15.14	90.00	0.00	29.90	29.90	-0.39	30.29	0.987 Level 1		
6,898.55	6,898.55	6,898.35	6,898.35	15.37	15.36	90.00	0.00	29.90	29.90	-0.83	30.73	0.973 Level 1		
6,900.00	6,900.00	6,899.80	6,899.80	15.37	15.37	89.78	0.00	29.90	29.90	-0.84	30.74	0.973 Level 1		
6,908.83	6,908.83	6,908.63	6,908.63	15.39	15.39	89.99	0.00	29.90	29.90	-0.86	30.78	0.972 Level 1, CC		
6,925.00	6,924.99	6,924.79	6,924.79	15.42	15.42	91.18	0.00	29.90	29.91	-0.94	30.85	0.969 Level 1, ES, SF		
6,950.00	6,949.90	6,949.70	6,949.70	15.48	15.48	95.04	0.00	29.90	30.02	-0.94	30.96	0.970 Level 1		
6,975.00	6,974.67	6,974.47	6,974.47	15.54	15.54	101.19	0.00	29.90	30.49	-0.98	31.07	0.981 Level 1		
7,000.00	6,999.24	6,999.04	6,999.04	15.60	15.59	109.15	0.00	29.90	31.73	0.55	31.18	1.018 Level 2		
7,025.00	7,023.53	7,023.33	7,023.33	15.65	15.65	118.08	0.00	29.90	34.17	2.88	31.29	1.092 Level 2		

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



TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Roadrunner Federal Com #1H
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Reference Site:	Roadrunner Federal Com #1H	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Lateral #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Offset Design Roadrunner Federal Com #11H - Roadrunner Federal Com #11H - Lateral #1 - Design #1														Offset Site Error:	0.00 usft
Survey Program: G-MWD														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (usft)	Highside Footcandle	Offset Wellbore Centre E/W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
7,050.00	7,047.47	7,047.27	7,047.27	15.71	15.70	128.99		0.00	29.90	38.16	6.76	31.40	1.215 Level 2		
7,075.00	7,071.01	7,070.81	7,070.81	15.77	15.75	135.05		0.00	29.90	43.88	12.37	31.51	1.393 Level 3		
7,100.00	7,094.09	7,093.88	7,093.88	15.82	15.80	141.87		0.00	29.90	51.36	19.74	31.62	1.624		
7,125.00	7,116.61	7,116.41	7,116.41	15.88	15.85	147.42		0.00	29.90	60.49	28.77	31.73	1.807		
7,150.00	7,138.54	7,138.34	7,138.34	15.93	15.90	151.83		0.00	29.90	71.17	39.34	31.83	2.235		
7,175.00	7,159.61	7,159.61	7,159.61	15.98	15.95	155.31		0.00	29.90	83.26	51.33	31.93	2.508		
7,200.00	7,180.37	7,180.17	7,180.17	16.04	16.00	158.05		0.00	29.90	96.67	64.64	32.03	3.018		
7,225.00	7,200.15	7,199.95	7,199.95	16.11	16.04	160.21		0.00	29.90	111.29	79.17	32.12	3.465		
7,250.00	7,219.11	7,218.91	7,218.91	16.18	16.09	161.91		0.00	29.90	127.06	94.85	32.21	3.945		
7,275.00	7,237.19	7,236.99	7,236.99	16.26	16.13	163.23		0.00	29.90	143.90	111.60	32.29	4.456		
7,300.00	7,254.34	7,254.14	7,254.14	16.34	16.16	164.25		0.00	29.90	161.73	129.36	32.37	4.998		
7,325.00	7,270.52	7,270.32	7,270.32	16.43	16.20	165.00		0.00	29.90	180.49	148.04	32.45	5.562		
7,350.00	7,285.68	7,285.48	7,285.48	16.53	16.23	165.52		0.00	29.90	200.12	167.60	32.52	6.154		
7,375.00	7,299.77	7,299.57	7,299.57	16.64	16.27	165.83		0.00	29.90	220.56	187.97	32.58	6.769		
7,400.00	7,312.77	7,312.57	7,312.57	16.75	16.30	165.93		0.00	29.90	241.73	209.09	32.64	7.405		
7,425.00	7,324.63	7,324.43	7,324.43	16.87	16.32	165.80		0.00	29.90	263.58	230.88	32.70	8.061		
7,450.00	7,335.32	7,335.12	7,335.12	17.01	16.35	165.42		0.00	29.90	286.04	253.29	32.75	8.735		
7,475.00	7,344.82	7,344.62	7,344.62	17.15	16.37	164.71		0.00	29.90	309.05	276.26	32.79	9.426		
7,500.00	7,353.09	7,352.89	7,352.89	17.30	16.39	163.57		0.00	29.90	332.53	299.71	32.82	10.130		
7,525.00	7,360.12	7,359.92	7,359.92	17.46	16.40	161.79		0.00	29.90	356.43	323.57	32.86	10.848		
7,550.00	7,365.88	7,365.59	7,365.58	17.63	16.46	162.89		0.66	29.90	380.54	347.63	32.91	11.562		
7,575.00	7,370.38	7,422.86	7,422.69	17.81	16.55	165.22		4.06	29.90	404.57	371.73	32.84	12.321		
7,600.00	7,373.55	7,483.83	7,482.46	18.00	16.68	168.78		15.83	29.92	428.26	395.95	32.32	13.252		
7,625.00	7,375.43	7,626.69	7,613.12	18.19	17.00	173.39		72.28	29.97	450.60	421.31	28.29	15.388		
7,652.28	7,376.00	8,114.42	7,838.00	18.41	19.33	176.47		481.35	30.37	463.08	451.62	11.46	40.418		
7,700.00	7,375.63	8,162.14	7,837.98	18.82	19.73	176.49		529.07	30.42	463.43	451.60	11.82	38.191		
7,800.00	7,374.85	8,262.14	7,837.94	19.78	20.85	176.53		629.07	30.52	464.15	451.47	12.88	36.612		
7,900.00	7,374.07	8,362.14	7,837.90	20.85	21.67	176.57		729.06	30.62	464.87	451.23	13.84	34.092		
8,000.00	7,373.29	8,462.14	7,837.86	22.02	22.80	176.61		829.06	30.72	465.59	450.91	14.68	31.718		
8,100.00	7,372.51	8,562.13	7,837.82	23.28	24.01	176.65		929.06	30.82	466.31	450.52	15.79	29.525		
8,200.00	7,371.72	8,662.13	7,837.78	24.61	25.30	176.69		1,029.05	30.91	467.03	450.07	16.96	27.535		
8,300.00	7,370.94	8,762.13	7,837.74	25.99	26.65	176.74		1,129.05	31.01	467.76	449.58	18.17	25.738		
8,400.00	7,370.16	8,862.12	7,837.70	27.43	28.06	176.78		1,229.05	31.11	468.48	449.06	19.42	24.121		
8,500.00	7,369.38	8,962.12	7,837.66	28.92	29.51	176.82		1,329.04	31.21	469.20	448.50	20.70	22.667		
8,600.00	7,368.60	9,062.12	7,837.62	30.44	31.00	176.86		1,429.04	31.31	469.92	447.92	22.00	21.359		
8,700.00	7,367.82	9,162.11	7,837.58	31.99	32.52	176.90		1,529.04	31.41	470.65	447.32	23.32	20.179		
8,800.00	7,367.04	9,262.11	7,837.54	33.57	34.08	176.94		1,629.03	31.51	471.37	446.71	24.66	19.113		
8,900.00	7,366.26	9,362.11	7,837.50	35.18	35.66	176.98		1,729.03	31.60	472.09	446.08	26.02	18.147		
9,000.00	7,365.48	9,462.10	7,837.46	36.81	37.27	177.02		1,829.03	31.70	472.82	445.44	27.38	17.269		
9,100.00	7,364.70	9,562.10	7,837.42	38.45	38.89	177.06		1,929.02	31.80	473.54	444.79	28.75	16.468		
9,200.00	7,363.92	9,662.10	7,837.38	40.11	40.53	177.09		2,029.02	31.90	474.27	444.13	30.14	15.736		
9,300.00	7,363.14	9,762.09	7,837.33	41.78	42.19	177.13		2,129.02	32.00	474.99	443.46	31.53	15.065		
9,400.00	7,362.36	9,862.09	7,837.29	43.47	43.86	177.17		2,229.01	32.10	475.72	442.79	32.93	14.448		
9,500.00	7,361.58	9,962.09	7,837.25	45.17	45.54	177.21		2,329.01	32.20	476.44	442.11	34.33	13.878		
9,600.00	7,360.80	10,062.08	7,837.21	46.87	47.23	177.25		2,429.01	32.29	477.17	441.43	35.74	13.352		
9,700.00	7,360.02	10,162.08	7,837.17	48.59	48.94	177.29		2,529.00	32.38	477.89	440.74	37.15	12.863		
9,800.00	7,359.24	10,262.08	7,837.13	50.31	50.65	177.33		2,629.00	32.49	478.62	440.05	38.57	12.410		
9,900.00	7,358.45	10,362.06	7,837.09	52.04	52.37	177.37		2,729.00	32.59	479.34	439.35	39.99	11.987		
10,000.00	7,357.67	10,462.07	7,837.05	53.78	54.10	177.41		2,829.00	32.69	480.07	438.66	41.41	11.593		
10,100.00	7,356.89	10,562.07	7,837.01	55.52	55.83	177.44		2,928.99	32.79	480.79	437.96	42.84	11.224		
10,200.00	7,356.11	10,662.07	7,836.97	57.27	57.57	177.48		3,028.99	32.89	481.52	437.26	44.26	10.878		
10,300.00	7,355.33	10,762.06	7,836.93	59.02	59.31	177.52		3,128.99	32.99	482.25	436.55	45.69	10.554		

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



TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Roadrunner Federal Com #1H
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Reference Site:	Roadrunner Federal Com #1H	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Lateral #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Roadrunner Federal Com #11H - Roadrunner Federal Com #11H - Lateral #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Footface (ft)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		N-S (usft)	E-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
10,400.00	7,354.55	10,862.06	7,836.89	60.78	61.06	177.58	3,228.98	33.08	482.97	435.85	47.13	10.248		
10,500.00	7,353.77	10,962.06	7,836.85	62.54	62.82	177.80	3,328.98	33.18	483.70	435.14	48.58	9.961		
10,600.00	7,352.99	11,062.05	7,836.81	64.31	64.57	177.64	3,428.98	33.28	484.43	434.43	50.00	9.689		
10,700.00	7,352.21	11,162.05	7,836.77	66.08	66.34	177.67	3,528.97	33.38	485.16	433.72	51.43	9.433		
10,800.00	7,351.43	11,262.05	7,836.73	67.85	68.10	177.71	3,628.97	33.48	485.89	433.01	52.87	9.190		
10,900.00	7,350.65	11,362.04	7,836.69	69.62	69.87	177.75	3,728.97	33.58	486.61	432.30	54.31	8.960		
11,000.00	7,349.87	11,462.04	7,836.64	71.40	71.64	177.79	3,828.96	33.68	487.34	431.59	55.75	8.741		
11,100.00	7,349.09	11,562.04	7,836.60	73.18	73.41	177.82	3,928.96	33.77	488.07	430.87	57.19	8.533		
11,200.00	7,348.31	11,662.03	7,836.56	74.96	75.19	177.86	4,028.96	33.87	488.80	430.16	58.64	8.336		
11,300.00	7,347.53	11,762.03	7,836.52	76.74	76.97	177.90	4,128.95	33.97	489.53	429.45	60.08	8.148		
11,400.00	7,346.75	11,862.03	7,836.48	78.53	78.75	177.93	4,228.95	34.07	490.26	428.73	61.53	7.968		
11,500.00	7,345.97	11,962.02	7,836.44	80.32	80.54	177.97	4,328.95	34.17	490.98	428.01	62.97	7.797		
11,600.00	7,345.18	12,062.02	7,836.40	82.11	82.32	178.01	4,428.94	34.27	491.71	427.30	64.42	7.633		
11,700.00	7,344.40	12,162.02	7,836.36	83.90	84.11	178.04	4,528.94	34.37	492.44	426.58	65.86	7.477		
11,800.00	7,343.62	12,262.02	7,836.32	85.69	85.90	178.08	4,628.94	34.46	493.17	425.86	67.31	7.327		
11,900.00	7,342.84	12,362.01	7,836.28	87.48	87.69	178.12	4,728.93	34.56	493.90	425.15	68.76	7.183		
12,000.00	7,342.06	12,462.01	7,836.24	89.28	89.48	178.15	4,828.93	34.66	494.63	424.43	70.21	7.045		
12,100.00	7,341.28	12,562.01	7,836.20	91.08	91.28	178.19	4,928.93	34.76	495.36	423.71	71.65	6.913		
12,200.00	7,340.50	12,662.00	7,836.16	92.87	93.07	178.23	5,028.92	34.86	496.09	422.99	73.10	6.785		
12,300.00	7,339.72	12,762.00	7,836.12	94.67	94.87	178.26	5,128.92	34.96	496.83	422.27	74.55	6.664		
12,400.00	7,338.94	12,862.00	7,836.08	96.47	96.66	178.30	5,228.92	35.06	497.56	421.55	76.00	6.547		
12,500.00	7,338.16	12,961.99	7,836.04	98.27	98.46	178.33	5,328.92	35.15	498.29	420.84	77.45	6.433		
12,600.00	7,337.38	13,061.99	7,836.00	100.08	100.26	178.37	5,428.91	35.25	499.02	420.12	78.90	6.324		
12,700.00	7,336.60	13,161.99	7,835.95	101.88	102.06	178.40	5,528.91	35.35	499.75	419.40	80.35	6.219		
12,800.00	7,335.82	13,261.98	7,835.91	103.68	103.86	178.44	5,628.91	35.45	500.48	418.68	81.81	6.118		
12,900.00	7,335.04	13,361.98	7,835.87	105.49	105.67	178.47	5,728.90	35.55	501.21	417.96	83.26	6.020		
13,000.00	7,334.26	13,461.98	7,835.83	107.29	107.47	178.51	5,828.90	35.65	501.95	417.24	84.71	5.926		
13,100.00	7,333.48	13,561.97	7,835.79	109.10	109.27	178.54	5,928.90	35.75	502.68	416.52	86.16	5.834		
13,200.00	7,332.70	13,661.97	7,835.75	110.91	111.08	178.58	6,028.89	35.84	503.41	415.80	87.61	5.746		
13,300.00	7,331.91	13,761.97	7,835.71	112.71	112.89	178.61	6,128.89	35.94	504.14	415.08	89.07	5.660		
13,400.00	7,331.13	13,861.96	7,835.67	114.52	114.69	178.65	6,228.89	36.04	504.88	414.36	90.52	5.578		
13,500.00	7,330.35	13,961.96	7,835.63	116.33	116.50	178.68	6,328.88	36.14	505.61	413.64	91.97	5.497		
13,600.00	7,329.57	14,061.96	7,835.59	118.14	118.31	178.72	6,428.88	36.24	506.34	412.92	93.43	5.420		
13,700.00	7,328.79	14,161.96	7,835.55	119.95	120.12	178.75	6,528.88	36.34	507.08	412.20	94.88	5.344		
13,800.00	7,328.01	14,261.95	7,835.51	121.76	121.92	178.79	6,628.87	36.44	507.81	411.48	96.34	5.271		
13,900.00	7,327.23	14,361.95	7,835.47	123.57	123.73	178.82	6,728.87	36.53	508.54	410.75	97.79	5.200		
14,000.00	7,326.45	14,461.95	7,835.43	125.38	125.54	178.86	6,828.87	36.63	509.28	410.03	99.24	5.132		
14,100.00	7,325.67	14,561.94	7,835.39	127.19	127.35	178.89	6,928.86	36.73	510.01	409.31	100.70	5.065		
14,200.00	7,324.89	14,661.94	7,835.35	129.01	129.17	178.92	7,028.86	36.83	510.75	408.59	102.15	5.000		
14,300.00	7,324.11	14,761.94	7,835.31	130.82	130.98	178.96	7,128.86	36.93	511.48	407.87	103.61	4.937		
14,400.00	7,323.33	14,861.93	7,835.26	132.63	132.79	178.99	7,228.85	37.03	512.22	407.15	105.07	4.875		
14,500.00	7,322.55	14,961.93	7,835.22	134.45	134.60	179.03	7,328.85	37.13	512.95	406.43	106.52	4.815		
14,600.00	7,321.77	15,061.93	7,835.18	136.26	136.42	179.06	7,428.85	37.22	513.69	405.71	107.98	4.757		
14,700.00	7,320.99	15,161.92	7,835.14	138.07	138.23	179.09	7,528.84	37.32	514.42	404.99	109.43	4.701		
14,800.00	7,320.21	15,261.92	7,835.10	139.89	140.04	179.13	7,628.84	37.42	515.16	404.27	110.89	4.646		
14,900.00	7,319.42	15,361.92	7,835.06	141.70	141.86	179.16	7,728.84	37.52	515.89	403.54	112.35	4.592		
15,000.00	7,318.64	15,461.91	7,835.02	143.52	143.67	179.19	7,828.83	37.62	516.63	402.82	113.80	4.540		
15,100.00	7,317.86	15,561.91	7,834.98	145.33	145.49	179.23	7,928.83	37.72	517.36	402.10	115.26	4.489		
15,200.00	7,317.08	15,661.91	7,834.94	147.15	147.30	179.26	8,028.83	37.82	518.10	401.38	116.72	4.439		
15,300.00	7,316.30	15,761.91	7,834.90	148.97	149.12	179.29	8,128.83	37.91	518.84	400.66	118.18	4.390		
15,400.00	7,315.52	15,861.90	7,834.86	150.78	150.93	179.33	8,228.82	38.01	519.57	399.94	119.64	4.343		
15,500.00	7,314.74	15,961.90	7,834.82	152.60	152.75	179.36	8,328.82	38.11	520.31	399.22	121.09	4.297		

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



TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Roadrunner Federal Com #1H
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Reference Site:	Roadrunner Federal Com #1H	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Lateral #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Offset Design Roadrunner Federal Com #11H - Roadrunner Federal Com #11H - Lateral #1 - Design #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD														Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Footface (")	Offset Wellbore Centre N/S (usft)	Offset Wellbore Centre E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
15,600.00	7,313.96	16,061.90	7,834.78	154.42	154.56	179.39	8,428.82	38.21	521.05	398.49	122.55	4.252			
15,700.00	7,313.18	16,161.89	7,834.74	156.23	156.38	179.42	8,528.81	38.31	521.78	397.77	124.01	4.208			
15,800.00	7,312.40	16,261.89	7,834.70	158.05	158.20	179.46	8,628.81	38.41	522.52	397.05	125.47	4.164			
15,900.00	7,311.62	16,361.89	7,834.66	159.87	160.01	179.49	8,728.81	38.51	523.26	396.33	126.93	4.122			
16,000.00	7,310.84	16,461.88	7,834.62	161.69	161.83	179.52	8,828.80	38.60	524.00	395.61	128.39	4.081			
16,100.00	7,310.06	16,561.88	7,834.57	163.50	163.65	179.55	8,928.80	38.70	524.73	394.88	129.85	4.041			
16,200.00	7,309.28	16,661.88	7,834.53	165.32	165.47	179.59	9,028.80	38.80	525.47	394.16	131.31	4.002			
16,300.00	7,308.50	16,761.87	7,834.49	167.14	167.29	179.62	9,128.79	38.90	526.21	393.44	132.77	3.963			
16,400.00	7,307.72	16,861.87	7,834.45	168.96	169.10	179.65	9,228.79	39.00	526.95	392.72	134.23	3.926			
16,500.00	7,306.94	16,961.87	7,834.41	170.78	170.92	179.68	9,328.79	39.10	527.69	391.99	135.69	3.889			
16,600.00	7,306.15	17,061.86	7,834.37	172.60	172.74	179.71	9,428.78	39.20	528.42	391.27	137.15	3.853			
16,700.00	7,305.37	17,161.86	7,834.33	174.42	174.56	179.74	9,528.78	39.30	529.16	390.55	138.61	3.818			
16,800.00	7,304.59	17,261.86	7,834.29	176.23	176.38	179.78	9,628.78	39.39	529.90	389.83	140.08	3.783			
16,900.00	7,303.81	17,361.85	7,834.25	178.05	178.20	179.81	9,728.77	39.49	530.64	389.10	141.54	3.749			
17,000.00	7,303.03	17,461.85	7,834.21	179.87	180.02	179.84	9,828.77	39.59	531.38	388.38	143.00	3.716			
17,100.00	7,302.25	17,561.85	7,834.17	181.69	181.84	179.87	9,928.77	39.69	532.12	387.65	144.46	3.683			
17,200.00	7,301.47	17,661.85	7,834.13	183.51	183.66	179.90	10,028.76	39.79	532.86	386.93	145.92	3.652			
17,300.00	7,300.69	17,761.84	7,834.09	185.33	185.48	179.93	10,128.76	39.89	533.60	386.21	147.39	3.620			
17,400.00	7,299.91	17,861.84	7,834.05	187.15	187.30	179.96	10,228.76	39.99	534.34	385.49	148.85	3.590			
17,500.00	7,299.13	17,961.84	7,834.01	188.97	189.12	179.99	10,328.75	40.08	535.08	384.76	150.31	3.560			
17,516.56	7,299.00	17,978.40	7,834.00	189.28	189.42	-180.00	10,345.32	40.10	535.20	384.64	150.56	3.555			

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



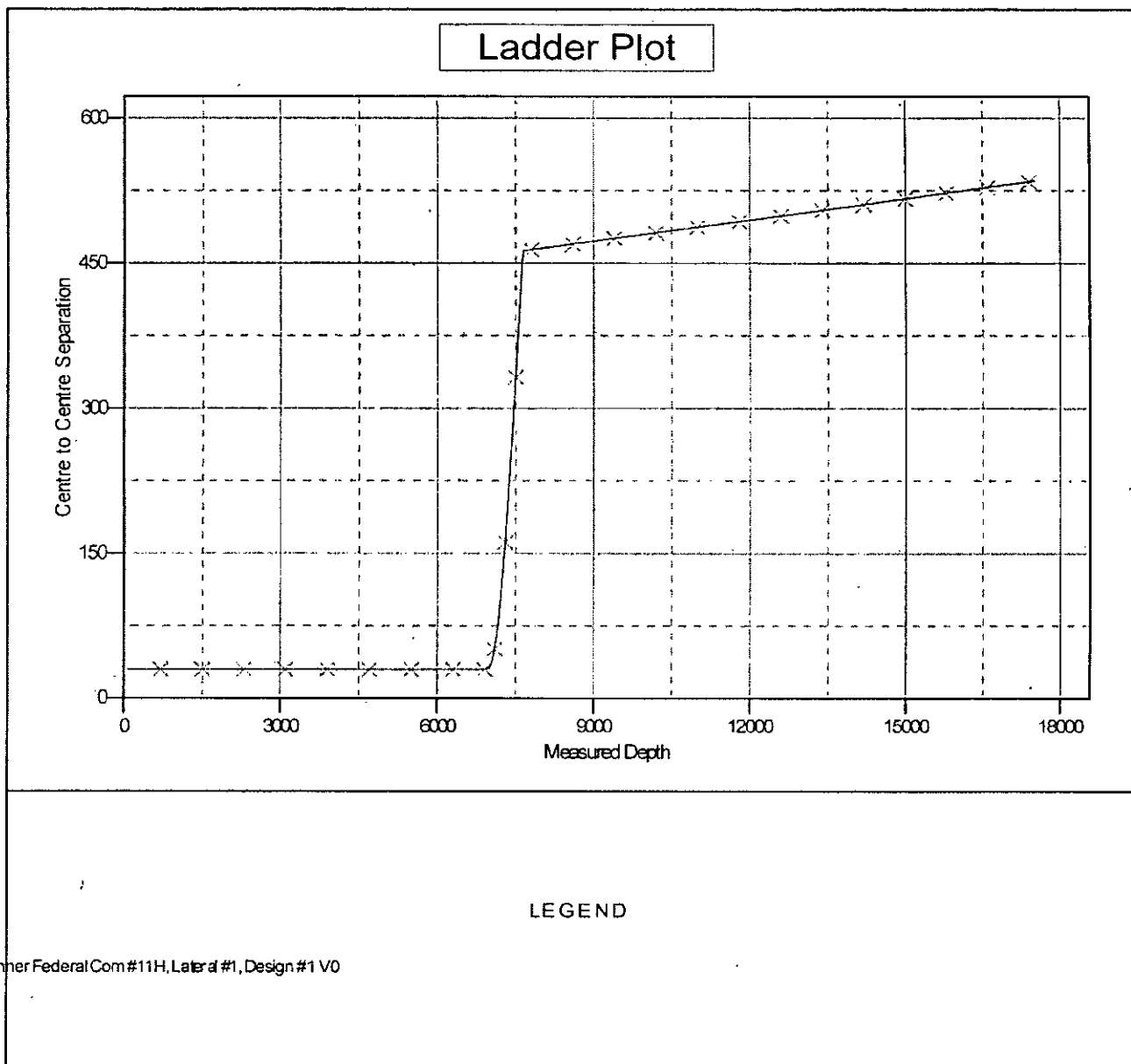
TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Roadrunner Federal Com #1H
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Reference Site:	Roadrunner Federal Com #1H	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Lateral #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3275.40usft (Latshaw 44)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Roadrunner Federal Com #1H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.05°





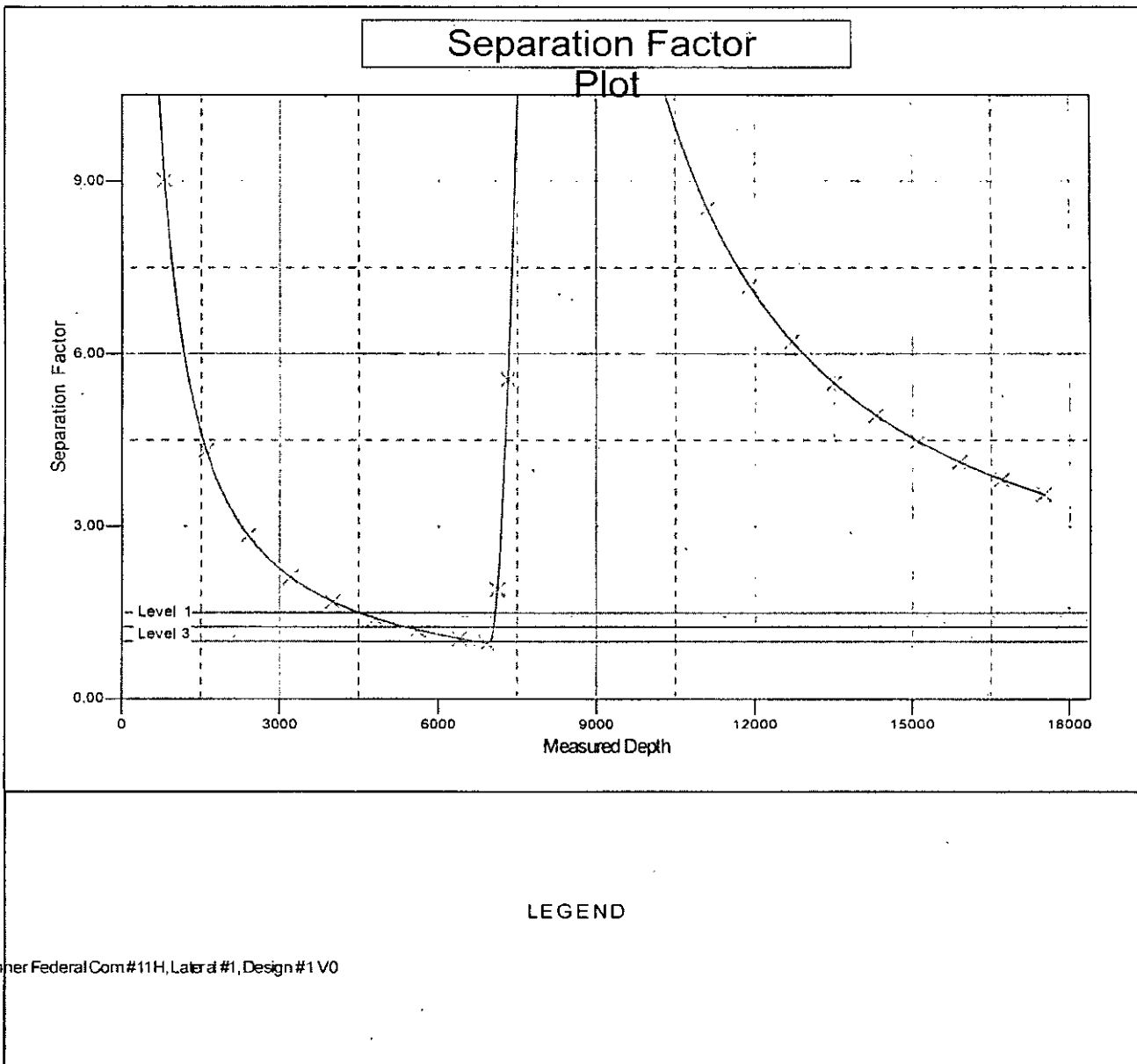
TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Roadrunner Federal Com #1H
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3275.40usft (Latshaw 44)
Reference Site:	Roadrunner Federal Com #1H	MD Reference:	KB @ 3275.40usft (Latshaw 44)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Roadrunner Federal Com #1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Lateral #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3275.40usft (Latshaw 44)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Roadrunner Federal Com #1H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.05°



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



Haque, Mustafa <mhaque@blm.gov>

FW: [External] EC Document Submitted - Road Runner Federal Com #1H

Melanie Wilson <MWilson@concho.com>

Thu, Sep 1, 2016 at 8:29 AM

To: "Haque, Mustafa" <mhaque@blm.gov>, Mayte Reyes <MReyes1@concho.com>

Hi Haque!

The proposed FTP is 330' FSL & 380' FEL Section 25; proposed LTP is 100' FNL & 330' FEL Section 24. We are in the process of filing an NSL application with OCD for the unorthodox LTP.

Let me know if you need anything else!!

Thank you!!

Melanie

From: Haque, Mustafa [mailto:mhaque@blm.gov]**Sent:** Thursday, September 01, 2016 6:49 AM**To:** Mayte Reyes; Melanie Wilson**Subject:** Re: FW: [External] EC Document Submitted - Road Runner Federal Com #1H

[Quoted text hidden]

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	COG Operating, LLC.
LEASE NO.:	NMNM-112907
WELL NAME & NO.:	Road Runner Federal 1H
SURFACE HOLE FOOTAGE:	0190' FSL & 0380' FEL
BOTTOM HOLE FOOTAGE	0050' FNL & 0330' FEL
LOCATION:	Section 25, T. 25 S., R 26 E., NMPM
COUNTY:	Eddy County, New Mexico

All previous COAs still apply.

MHH 09012016

Additional data for EC transaction #348667 that would not fit on the form

32. Additional remarks, continued

NOTE

WELL TYPE: OIL