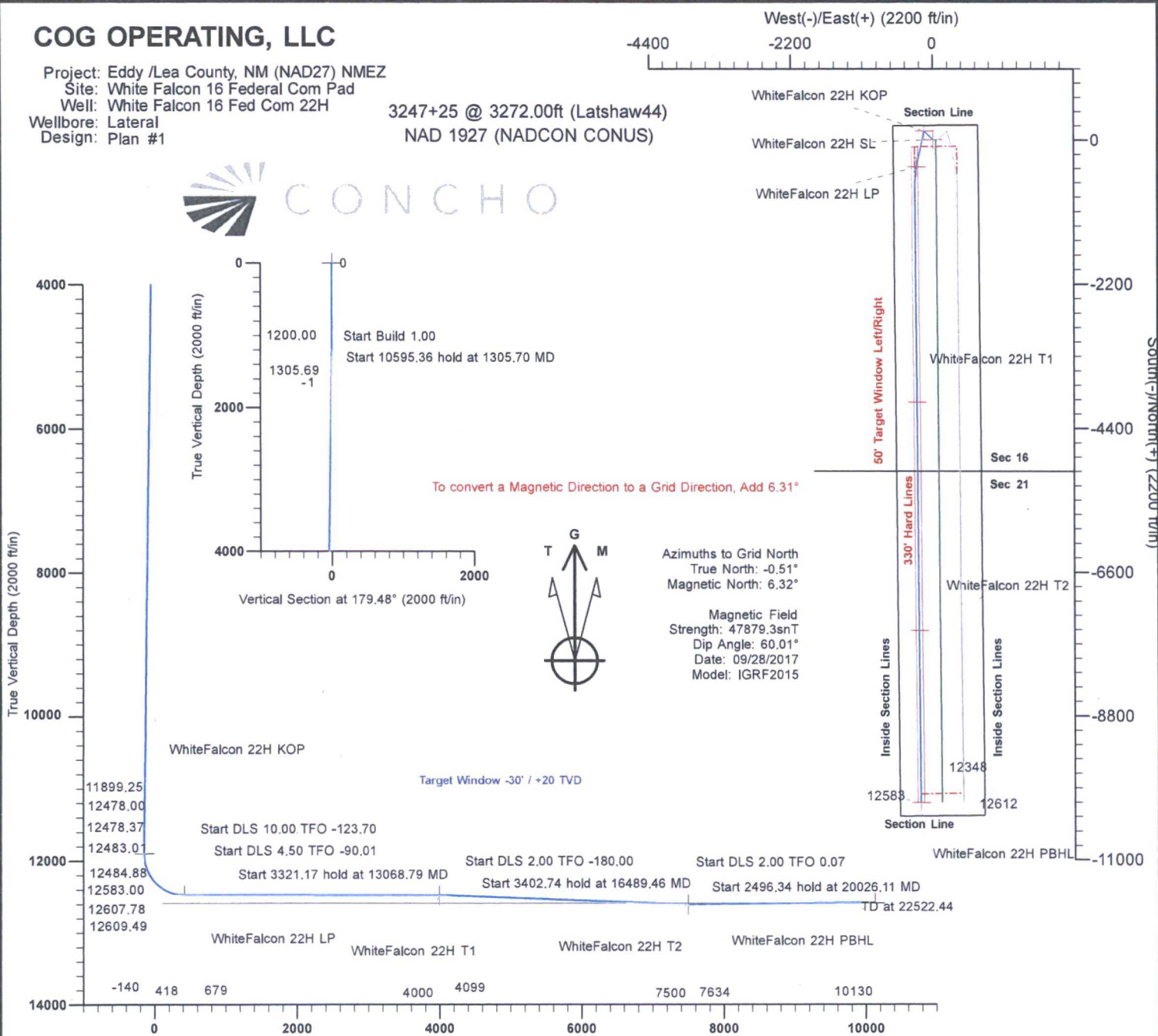


COG OPERATING, LLC

Project: Eddy /Lea County, NM (NAD27) NMEZ
Site: White Falcon 16 Federal Com Pad
Well: White Falcon 16 Fed Com 22H
Wellbore: Lateral
Design: Plan #1

3247+25 @ 3272.00ft (Latshaw44)
NAD 1927 (NADCON CONUS)



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
WhiteFalcon 22H SL	0.00	0.00	0.00	414843.90	796861.70	Point
WhiteFalcon 22H KOP	11899.80	139.50	-139.50	414983.40	796722.20	Point
WhiteFalcon 22H LP	12478.00	-420.03	-260.02	414423.87	796601.68	Point
WhiteFalcon 22H T1	12483.00	-4002.47	-254.51	410841.43	796607.19	Point
WhiteFalcon 22H PBHL	12583.00	-10132.30	-198.70	404711.60	796663.00	Rectangle (Sides: L10024.00 W100.00)
WhiteFalcon 22H T2	12608.00	-7502.33	-222.74	407341.57	796638.96	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
1305.70	1.06	315.00	1305.69	0.69	-0.69	1.00	315.00	-0.70	
11901.06	1.06	315.00	11899.25	138.90	-138.90	0.00	0.00	-140.15	
12806.12	89.92	191.30	12478.00	-420.40	-259.70	10.00	-123.70	418.03	
13068.79	89.92	179.48	12478.37	-681.44	-284.33	4.50	-90.01	678.84	
16389.96	89.92	179.48	12483.01	-4002.47	-254.19	0.00	0.00	4000.00	
16489.46	87.93	179.48	12484.88	-4101.95	-253.29	2.00	-180.00	4099.48	
19892.20	87.93	179.48	12607.78	-7502.33	-222.43	0.00	0.00	7500.00	
20026.11	90.61	179.48	12609.49	-7636.20	-221.21	2.00	0.07	7633.88	
22522.44	90.61	179.48	12583.00	-10132.30	-198.70	0.00	0.00	10130.08	WhiteFalcon 22H PBHL

Plan: Plan #1 (White Falcon 16 Fed Com 22H/Lateral)

Created By: Mekka Williams
eSovina Well Design
mekka@esominawelldesign.com
17:09, September 28 2017

VON DIRECTIONAL
12074 FM 3083 Conroe, Texas 77301
936-756-2400



Database:	VON_EDM	Local Co-ordinate Reference:	Well White Falcon 16 Fed Com 22H - Slot 22H
Company:	COG OPERATING, LLC	TVD Reference:	3247+25 @ 3272.00ft (Latshaw44)
Project:	Eddy /Lea County, NM (NAD27) NMEZ	MD Reference:	3247+25 @ 3272.00ft (Latshaw44)
Site:	White Falcon 16 Federal Com Pad	North Reference:	Grid
Well:	White Falcon 16 Fed Com 22H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Project	Eddy /Lea County, NM (NAD27) NMEZ		
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	White Falcon 16 Federal Com Pad. Centered on 11H				
Site Position:		Northing:	414,844.20 ft	Latitude:	32° 8' 12.792 N
From:	Map	Easting:	796,901.60 ft	Longitude:	103° 22' 27.001 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	0.51 °

Well	White Falcon 16 Fed Com 22H - Slot 22H					
Well Position	+N/-S	-0.30 ft	Northing:	414,843.90 ft	Latitude:	32° 8' 12.793 N
	+E/-W	-39.90 ft	Easting:	796,861.70 ft	Longitude:	103° 22' 27.465 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	3,247.00 ft

Wellbore	Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	09/28/17	6.82	60.01	47,879

Design	Plan #1				
Audit Notes:					
Version:	Phase:	_PROTOTYPE		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	179.48	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
1,305.70	1.06	315.00	1,305.69	0.69	-0.69	1.00	1.00	0.00	315.00	
11,901.06	1.06	315.00	11,899.25	138.90	-138.90	0.00	0.00	0.00	0.00	
12,806.12	89.92	191.30	12,478.00	-420.40	-259.70	10.00	9.82	-13.67	-123.70	
13,068.79	89.92	179.48	12,478.37	-681.44	-284.33	4.50	0.00	-4.50	-90.01	
16,389.96	89.92	179.48	12,483.01	-4,002.47	-254.19	0.00	0.00	0.00	0.00	
16,489.46	87.93	179.48	12,484.88	-4,101.95	-253.29	2.00	-2.00	0.00	-180.00	
19,892.20	87.93	179.48	12,607.78	-7,502.33	-222.43	0.00	0.00	0.00	0.00	
20,026.11	90.61	179.48	12,609.49	-7,636.20	-221.21	2.00	2.00	0.00	0.07	
22,522.44	90.61	179.48	12,583.00	-10,132.30	-198.70	0.00	0.00	0.00	0.00	WhiteFalcon 22H PBt

Database: VON_EDM

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Company: COG OPERATING, LLC

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Project: Eddy /Lea County, NM (NAD27) NMEZ

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site: White Falcon 16 Federal Com Pad

North Reference:

Grid

Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Wellbore: Lateral

Design: Plan #1

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WhiteFalcon 22H SL - WhiteFalcon 11H SL									
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
1,305.70	1.06	315.00	1,305.69	0.69	-0.69	-0.70	1.00	1.00	0.00
1,400.00	1.06	315.00	1,399.98	1.92	-1.92	-1.94	0.00	0.00	0.00
1,500.00	1.06	315.00	1,499.96	3.22	-3.22	-3.25	0.00	0.00	0.00
1,600.00	1.06	315.00	1,599.94	4.53	-4.53	-4.57	0.00	0.00	0.00
1,700.00	1.06	315.00	1,699.93	5.83	-5.83	-5.89	0.00	0.00	0.00
1,800.00	1.06	315.00	1,799.91	7.14	-7.14	-7.20	0.00	0.00	0.00
1,900.00	1.06	315.00	1,899.89	8.44	-8.44	-8.52	0.00	0.00	0.00
2,000.00	1.06	315.00	1,999.88	9.75	-9.75	-9.83	0.00	0.00	0.00
2,100.00	1.06	315.00	2,099.86	11.05	-11.05	-11.15	0.00	0.00	0.00
2,200.00	1.06	315.00	2,199.84	12.35	-12.35	-12.47	0.00	0.00	0.00
2,300.00	1.06	315.00	2,299.82	13.66	-13.66	-13.78	0.00	0.00	0.00
2,400.00	1.06	315.00	2,399.81	14.96	-14.96	-15.10	0.00	0.00	0.00
2,500.00	1.06	315.00	2,499.79	16.27	-16.27	-16.41	0.00	0.00	0.00
2,600.00	1.06	315.00	2,599.77	17.57	-17.57	-17.73	0.00	0.00	0.00
2,700.00	1.06	315.00	2,699.76	18.88	-18.88	-19.05	0.00	0.00	0.00
2,800.00	1.06	315.00	2,799.74	20.18	-20.18	-20.36	0.00	0.00	0.00
2,900.00	1.06	315.00	2,899.72	21.49	-21.49	-21.68	0.00	0.00	0.00
3,000.00	1.06	315.00	2,999.71	22.79	-22.79	-23.00	0.00	0.00	0.00
3,100.00	1.06	315.00	3,099.69	24.09	-24.09	-24.31	0.00	0.00	0.00
3,200.00	1.06	315.00	3,199.67	25.40	-25.40	-25.63	0.00	0.00	0.00
3,300.00	1.06	315.00	3,299.65	26.70	-26.70	-26.94	0.00	0.00	0.00
3,400.00	1.06	315.00	3,399.64	28.01	-28.01	-28.26	0.00	0.00	0.00
3,500.00	1.06	315.00	3,499.62	29.31	-29.31	-29.58	0.00	0.00	0.00
3,600.00	1.06	315.00	3,599.60	30.62	-30.62	-30.89	0.00	0.00	0.00
3,700.00	1.06	315.00	3,699.59	31.92	-31.92	-32.21	0.00	0.00	0.00
3,800.00	1.06	315.00	3,799.57	33.23	-33.23	-33.53	0.00	0.00	0.00
3,900.00	1.06	315.00	3,899.55	34.53	-34.53	-34.84	0.00	0.00	0.00
4,000.00	1.06	315.00	3,999.54	35.83	-35.83	-36.16	0.00	0.00	0.00
4,100.00	1.06	315.00	4,099.52	37.14	-37.14	-37.47	0.00	0.00	0.00
4,200.00	1.06	315.00	4,199.50	38.44	-38.44	-38.79	0.00	0.00	0.00
4,300.00	1.06	315.00	4,299.48	39.75	-39.75	-40.11	0.00	0.00	0.00
4,400.00	1.06	315.00	4,399.47	41.05	-41.05	-41.42	0.00	0.00	0.00
4,500.00	1.06	315.00	4,499.45	42.36	-42.36	-42.74	0.00	0.00	0.00
4,600.00	1.06	315.00	4,599.43	43.66	-43.66	-44.05	0.00	0.00	0.00
4,700.00	1.06	315.00	4,699.42	44.96	-44.96	-45.37	0.00	0.00	0.00
4,800.00	1.06	315.00	4,799.40	46.27	-46.27	-46.69	0.00	0.00	0.00
4,900.00	1.06	315.00	4,899.38	47.57	-47.57	-48.00	0.00	0.00	0.00
5,000.00	1.06	315.00	4,999.37	48.88	-48.88	-49.32	0.00	0.00	0.00
5,100.00	1.06	315.00	5,099.35	50.18	-50.18	-50.64	0.00	0.00	0.00

Database: VON_EDM

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Company: COG OPERATING, LLC

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Project: Eddy /Lea County, NM (NAD27) NMEZ

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site: White Falcon 16 Federal Com Pad

North Reference:

Grid

Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Wellbore: Lateral

Design: Plan #1

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,200.00	1.06	315.00	5,199.33	51.49	-51.49	-51.95	0.00	0.00	0.00
5,300.00	1.06	315.00	5,299.31	52.79	-52.79	-53.27	0.00	0.00	0.00
5,400.00	1.06	315.00	5,399.30	54.10	-54.10	-54.58	0.00	0.00	0.00
5,500.00	1.06	315.00	5,499.28	55.40	-55.40	-55.90	0.00	0.00	0.00
5,600.00	1.06	315.00	5,599.26	56.70	-56.70	-57.22	0.00	0.00	0.00
5,700.00	1.06	315.00	5,699.25	58.01	-58.01	-58.53	0.00	0.00	0.00
5,800.00	1.06	315.00	5,799.23	59.31	-59.31	-59.85	0.00	0.00	0.00
5,900.00	1.06	315.00	5,899.21	60.62	-60.62	-61.17	0.00	0.00	0.00
6,000.00	1.06	315.00	5,999.20	61.92	-61.92	-62.48	0.00	0.00	0.00
6,100.00	1.06	315.00	6,099.18	63.23	-63.23	-63.80	0.00	0.00	0.00
6,200.00	1.06	315.00	6,199.16	64.53	-64.53	-65.11	0.00	0.00	0.00
6,300.00	1.06	315.00	6,299.14	65.84	-65.84	-66.43	0.00	0.00	0.00
6,400.00	1.06	315.00	6,399.13	67.14	-67.14	-67.75	0.00	0.00	0.00
6,500.00	1.06	315.00	6,499.11	68.44	-68.44	-69.06	0.00	0.00	0.00
6,600.00	1.06	315.00	6,599.09	69.75	-69.75	-70.38	0.00	0.00	0.00
6,700.00	1.06	315.00	6,699.08	71.05	-71.05	-71.69	0.00	0.00	0.00
6,800.00	1.06	315.00	6,799.06	72.36	-72.36	-73.01	0.00	0.00	0.00
6,900.00	1.06	315.00	6,899.04	73.66	-73.66	-74.33	0.00	0.00	0.00
7,000.00	1.06	315.00	6,999.03	74.97	-74.97	-75.64	0.00	0.00	0.00
7,100.00	1.06	315.00	7,099.01	76.27	-76.27	-76.96	0.00	0.00	0.00
7,200.00	1.06	315.00	7,198.99	77.57	-77.57	-78.28	0.00	0.00	0.00
7,300.00	1.06	315.00	7,298.97	78.88	-78.88	-79.59	0.00	0.00	0.00
7,400.00	1.06	315.00	7,398.96	80.18	-80.18	-80.91	0.00	0.00	0.00
7,500.00	1.06	315.00	7,498.94	81.49	-81.49	-82.22	0.00	0.00	0.00
7,600.00	1.06	315.00	7,598.92	82.79	-82.79	-83.54	0.00	0.00	0.00
7,700.00	1.06	315.00	7,698.91	84.10	-84.10	-84.86	0.00	0.00	0.00
7,800.00	1.06	315.00	7,798.89	85.40	-85.40	-86.17	0.00	0.00	0.00
7,900.00	1.06	315.00	7,898.87	86.71	-86.71	-87.49	0.00	0.00	0.00
8,000.00	1.06	315.00	7,998.86	88.01	-88.01	-88.81	0.00	0.00	0.00
8,100.00	1.06	315.00	8,098.84	89.31	-89.31	-90.12	0.00	0.00	0.00
8,200.00	1.06	315.00	8,198.82	90.62	-90.62	-91.44	0.00	0.00	0.00
8,300.00	1.06	315.00	8,298.80	91.92	-91.92	-92.75	0.00	0.00	0.00
8,400.00	1.06	315.00	8,398.79	93.23	-93.23	-94.07	0.00	0.00	0.00
8,500.00	1.06	315.00	8,498.77	94.53	-94.53	-95.39	0.00	0.00	0.00
8,600.00	1.06	315.00	8,598.75	95.84	-95.84	-96.70	0.00	0.00	0.00
8,700.00	1.06	315.00	8,698.74	97.14	-97.14	-98.02	0.00	0.00	0.00
8,800.00	1.06	315.00	8,798.72	98.45	-98.45	-99.33	0.00	0.00	0.00
8,900.00	1.06	315.00	8,898.70	99.75	-99.75	-100.65	0.00	0.00	0.00
9,000.00	1.06	315.00	8,998.68	101.05	-101.05	-101.97	0.00	0.00	0.00
9,100.00	1.06	315.00	9,098.67	102.36	-102.36	-103.28	0.00	0.00	0.00
9,200.00	1.06	315.00	9,198.65	103.66	-103.66	-104.60	0.00	0.00	0.00
9,300.00	1.06	315.00	9,298.63	104.97	-104.97	-105.92	0.00	0.00	0.00
9,400.00	1.06	315.00	9,398.62	106.27	-106.27	-107.23	0.00	0.00	0.00
9,500.00	1.06	315.00	9,498.60	107.58	-107.58	-108.55	0.00	0.00	0.00
9,600.00	1.06	315.00	9,598.58	108.88	-108.88	-109.86	0.00	0.00	0.00
9,700.00	1.06	315.00	9,698.57	110.19	-110.19	-111.18	0.00	0.00	0.00
9,800.00	1.06	315.00	9,798.55	111.49	-111.49	-112.50	0.00	0.00	0.00
9,900.00	1.06	315.00	9,898.53	112.79	-112.79	-113.81	0.00	0.00	0.00
10,000.00	1.06	315.00	9,998.51	114.10	-114.10	-115.13	0.00	0.00	0.00
10,100.00	1.06	315.00	10,098.50	115.40	-115.40	-116.45	0.00	0.00	0.00
10,200.00	1.06	315.00	10,198.48	116.71	-116.71	-117.76	0.00	0.00	0.00
10,300.00	1.06	315.00	10,298.46	118.01	-118.01	-119.08	0.00	0.00	0.00
10,400.00	1.06	315.00	10,398.45	119.32	-119.32	-120.39	0.00	0.00	0.00

Database: VON_EDM

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Company: COG OPERATING, LLC

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Project: Eddy /Lea County, NM (NAD27) NMEZ

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3247+25 @ 3272.00ft (Latshaw44)

Site: White Falcon 16 Federal Com Pad

North Reference:

Grid

Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Wellbore: Lateral

Design: Plan #1

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,500.00	1.06	315.00	10,498.43	120.62	-120.62	-121.71	0.00	0.00	0.00
10,600.00	1.06	315.00	10,598.41	121.92	-121.92	-123.03	0.00	0.00	0.00
10,700.00	1.06	315.00	10,698.40	123.23	-123.23	-124.34	0.00	0.00	0.00
10,800.00	1.06	315.00	10,798.38	124.53	-124.53	-125.66	0.00	0.00	0.00
10,900.00	1.06	315.00	10,898.36	125.84	-125.84	-126.97	0.00	0.00	0.00
11,000.00	1.06	315.00	10,998.34	127.14	-127.14	-128.29	0.00	0.00	0.00
11,100.00	1.06	315.00	11,098.33	128.45	-128.45	-129.61	0.00	0.00	0.00
11,200.00	1.06	315.00	11,198.31	129.75	-129.75	-130.92	0.00	0.00	0.00
11,300.00	1.06	315.00	11,298.29	131.06	-131.06	-132.24	0.00	0.00	0.00
11,400.00	1.06	315.00	11,398.28	132.36	-132.36	-133.56	0.00	0.00	0.00
11,500.00	1.06	315.00	11,498.26	133.66	-133.66	-134.87	0.00	0.00	0.00
11,600.00	1.06	315.00	11,598.24	134.97	-134.97	-136.19	0.00	0.00	0.00
11,700.00	1.06	315.00	11,698.23	136.27	-136.27	-137.50	0.00	0.00	0.00
11,800.00	1.06	315.00	11,798.21	137.58	-137.58	-138.82	0.00	0.00	0.00
11,901.06	1.06	315.00	11,899.25	138.90	-138.90	-140.15	0.00	0.00	0.00
11,901.60	1.03	312.47	11,899.80	138.90	-138.90	-140.16	10.00	-5.36	-464.00
WhiteFalcon 22H KOP									
11,950.00	4.40	202.82	11,948.14	137.49	-139.94	-138.75	10.00	6.96	-226.58
12,000.00	9.35	196.65	11,997.77	131.82	-141.85	-133.11	10.00	9.90	-12.33
12,050.00	14.33	194.74	12,046.69	121.94	-144.59	-123.25	10.00	9.97	-3.81
12,100.00	19.33	193.81	12,094.53	107.91	-148.14	-109.25	10.00	9.99	-1.87
12,150.00	24.32	193.24	12,140.94	89.84	-152.48	-91.22	10.00	9.99	-1.12
12,200.00	29.32	192.86	12,185.54	67.87	-157.57	-69.30	10.00	9.99	-0.76
12,250.00	34.32	192.59	12,228.02	42.16	-163.37	-43.65	10.00	10.00	-0.56
12,300.00	39.32	192.37	12,268.03	12.92	-169.84	-14.46	10.00	10.00	-0.43
12,350.00	44.31	192.20	12,305.28	-19.64	-176.93	18.04	10.00	10.00	-0.35
12,400.00	49.31	192.05	12,339.49	-55.28	-184.58	53.60	10.00	10.00	-0.29
12,450.00	54.31	191.93	12,370.39	-93.71	-192.74	91.95	10.00	10.00	-0.25
12,500.00	59.31	191.82	12,397.75	-134.64	-201.35	132.81	10.00	10.00	-0.22
12,550.00	64.31	191.72	12,421.37	-177.77	-210.34	175.86	10.00	10.00	-0.20
12,600.00	69.31	191.63	12,441.05	-222.77	-219.64	220.77	10.00	10.00	-0.18
12,650.00	74.31	191.55	12,456.65	-269.29	-229.17	267.20	10.00	10.00	-0.17
12,700.00	79.31	191.46	12,468.06	-316.97	-238.88	314.79	10.00	10.00	-0.16
12,750.00	84.31	191.39	12,475.18	-365.47	-248.68	363.20	10.00	10.00	-0.16
12,800.00	89.31	191.31	12,477.96	-414.40	-258.50	412.04	10.00	10.00	-0.15
12,805.82	89.89	191.30	12,478.00	-420.11	-259.64	417.73	10.00	10.00	-0.15
WhiteFalcon 22H LP									
12,806.12	89.92	191.30	12,478.00	-420.40	-259.70	418.03	10.00	10.00	-0.15
12,900.00	89.92	187.08	12,478.14	-513.05	-274.69	510.54	4.50	0.00	-4.50
12,926.01	89.92	185.91	12,478.17	-538.90	-277.63	536.35	4.50	0.00	-4.50
WhiteFalcon 11H LP									
13,000.00	89.92	182.58	12,478.28	-612.67	-283.10	610.08	4.50	0.00	-4.50
13,068.79	89.92	179.48	12,478.37	-681.44	-284.33	678.84	4.50	0.00	-4.50
13,100.00	89.92	179.48	12,478.42	-712.65	-284.05	710.05	0.00	0.00	0.00
13,200.00	89.92	179.48	12,478.56	-812.65	-283.14	810.05	0.00	0.00	0.00
13,300.00	89.92	179.48	12,478.69	-912.64	-282.23	910.05	0.00	0.00	0.00
13,400.00	89.92	179.48	12,478.83	-1,012.64	-281.33	1,010.05	0.00	0.00	0.00
13,500.00	89.92	179.48	12,478.97	-1,112.64	-280.42	1,110.05	0.00	0.00	0.00
13,600.00	89.92	179.48	12,479.11	-1,212.63	-279.51	1,210.05	0.00	0.00	0.00
13,700.00	89.92	179.48	12,479.25	-1,312.63	-278.60	1,310.05	0.00	0.00	0.00
13,800.00	89.92	179.48	12,479.39	-1,412.62	-277.70	1,410.04	0.00	0.00	0.00
13,900.00	89.92	179.48	12,479.53	-1,512.62	-276.79	1,510.04	0.00	0.00	0.00
14,000.00	89.92	179.48	12,479.67	-1,612.61	-275.88	1,610.04	0.00	0.00	0.00

Database: VON_EDM

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Company: COG OPERATING, LLC

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Project: Eddy /Lea County, NM (NAD27) NMEZ

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site: White Falcon 16 Federal Com Pad

North Reference:

Grid

Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Wellbore:

Lateral

Design:

Plan #1

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
14,100.00	89.92	179.48	12,479.81	-1,712.61	-274.97	1,710.04	0.00	0.00	0.00
14,200.00	89.92	179.48	12,479.95	-1,812.61	-274.06	1,810.04	0.00	0.00	0.00
14,300.00	89.92	179.48	12,480.09	-1,912.60	-273.16	1,910.04	0.00	0.00	0.00
14,400.00	89.92	179.48	12,480.23	-2,012.60	-272.25	2,010.04	0.00	0.00	0.00
14,500.00	89.92	179.48	12,480.37	-2,112.59	-271.34	2,110.04	0.00	0.00	0.00
14,600.00	89.92	179.48	12,480.51	-2,212.59	-270.43	2,210.04	0.00	0.00	0.00
14,700.00	89.92	179.48	12,480.65	-2,312.59	-269.53	2,310.04	0.00	0.00	0.00
14,800.00	89.92	179.48	12,480.79	-2,412.58	-268.62	2,410.04	0.00	0.00	0.00
14,900.00	89.92	179.48	12,480.93	-2,512.58	-267.71	2,510.04	0.00	0.00	0.00
15,000.00	89.92	179.48	12,481.07	-2,612.57	-266.80	2,610.04	0.00	0.00	0.00
15,100.00	89.92	179.48	12,481.21	-2,712.57	-265.90	2,710.04	0.00	0.00	0.00
15,200.00	89.92	179.48	12,481.35	-2,812.56	-264.99	2,810.04	0.00	0.00	0.00
15,300.00	89.92	179.48	12,481.49	-2,912.56	-264.08	2,910.04	0.00	0.00	0.00
15,400.00	89.92	179.48	12,481.63	-3,012.56	-263.17	3,010.04	0.00	0.00	0.00
15,500.00	89.92	179.48	12,481.77	-3,112.55	-262.27	3,110.04	0.00	0.00	0.00
15,600.00	89.92	179.48	12,481.91	-3,212.55	-261.36	3,210.04	0.00	0.00	0.00
15,700.00	89.92	179.48	12,482.05	-3,312.54	-260.45	3,310.04	0.00	0.00	0.00
15,800.00	89.92	179.48	12,482.19	-3,412.54	-259.54	3,410.04	0.00	0.00	0.00
15,900.00	89.92	179.48	12,482.33	-3,512.53	-258.64	3,510.04	0.00	0.00	0.00
16,000.00	89.92	179.48	12,482.46	-3,612.53	-257.73	3,610.04	0.00	0.00	0.00
16,100.00	89.92	179.48	12,482.60	-3,712.53	-256.82	3,710.04	0.00	0.00	0.00
16,200.00	89.92	179.48	12,482.74	-3,812.52	-255.91	3,810.04	0.00	0.00	0.00
16,300.00	89.92	179.48	12,482.88	-3,912.52	-255.01	3,910.04	0.00	0.00	0.00
16,389.95	89.92	179.48	12,483.01	-4,002.47	-254.19	4,000.00	0.00	0.00	0.00
WhiteFalcon 22H T1									
16,389.96	89.92	179.48	12,483.01	-4,002.47	-254.19	4,000.00	0.00	0.00	0.00
16,400.00	89.72	179.48	12,483.04	-4,012.51	-254.10	4,010.04	2.00	-2.00	0.00
16,489.46	87.93	179.48	12,484.88	-4,101.95	-253.29	4,099.48	2.00	-2.00	0.00
16,500.00	87.93	179.48	12,485.26	-4,112.48	-253.19	4,110.01	0.00	0.00	0.00
16,600.00	87.93	179.48	12,488.87	-4,212.41	-252.28	4,209.95	0.00	0.00	0.00
16,700.00	87.93	179.48	12,492.48	-4,312.34	-251.38	4,309.88	0.00	0.00	0.00
16,800.00	87.93	179.48	12,496.09	-4,412.27	-250.47	4,409.82	0.00	0.00	0.00
16,900.00	87.93	179.48	12,499.70	-4,512.20	-249.56	4,509.75	0.00	0.00	0.00
17,000.00	87.93	179.48	12,503.32	-4,612.13	-248.66	4,609.69	0.00	0.00	0.00
17,100.00	87.93	179.48	12,506.93	-4,712.06	-247.75	4,709.62	0.00	0.00	0.00
17,200.00	87.93	179.48	12,510.54	-4,811.99	-246.84	4,809.56	0.00	0.00	0.00
17,300.00	87.93	179.48	12,514.15	-4,911.93	-245.94	4,909.49	0.00	0.00	0.00
17,400.00	87.93	179.48	12,517.76	-5,011.86	-245.03	5,009.43	0.00	0.00	0.00
17,500.00	87.93	179.48	12,521.38	-5,111.79	-244.12	5,109.36	0.00	0.00	0.00
17,600.00	87.93	179.48	12,524.99	-5,211.72	-243.21	5,209.30	0.00	0.00	0.00
17,700.00	87.93	179.48	12,528.60	-5,311.65	-242.31	5,309.23	0.00	0.00	0.00
17,800.00	87.93	179.48	12,532.21	-5,411.58	-241.40	5,409.16	0.00	0.00	0.00
17,900.00	87.93	179.48	12,535.83	-5,511.51	-240.49	5,509.10	0.00	0.00	0.00
18,000.00	87.93	179.48	12,539.44	-5,611.44	-239.59	5,609.03	0.00	0.00	0.00
18,100.00	87.93	179.48	12,543.05	-5,711.37	-238.68	5,708.97	0.00	0.00	0.00
18,200.00	87.93	179.48	12,546.66	-5,811.30	-237.77	5,808.90	0.00	0.00	0.00
18,300.00	87.93	179.48	12,550.27	-5,911.23	-236.87	5,908.84	0.00	0.00	0.00
18,383.14	87.93	179.48	12,553.28	-5,994.31	-236.11	5,991.92	0.00	0.00	0.00
WhiteFalcon 11H T1									
18,400.00	87.93	179.48	12,553.89	-6,011.16	-235.96	6,008.77	0.00	0.00	0.00
18,500.00	87.93	179.48	12,557.50	-6,111.09	-235.05	6,108.71	0.00	0.00	0.00
18,600.00	87.93	179.48	12,561.11	-6,211.02	-234.14	6,208.64	0.00	0.00	0.00

Database: VON_EDM

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Company: COG OPERATING, LLC

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Project: Eddy /Lea County, NM (NAD27) NMEZ

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site: White Falcon 16 Federal Com Pad

North Reference:

Grid

Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Wellbore: Lateral

Design: Plan #1

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
18,700.00	87.93	179.48	12,564.72	-6,310.95	-233.24	6,308.58	0.00	0.00	0.00
18,800.00	87.93	179.48	12,568.33	-6,410.88	-232.33	6,408.51	0.00	0.00	0.00
18,900.00	87.93	179.48	12,571.95	-6,510.82	-231.42	6,508.45	0.00	0.00	0.00
19,000.00	87.93	179.48	12,575.56	-6,610.75	-230.52	6,608.38	0.00	0.00	0.00
19,100.00	87.93	179.48	12,579.17	-6,710.68	-229.61	6,708.32	0.00	0.00	0.00
19,200.00	87.93	179.48	12,582.78	-6,810.61	-228.70	6,808.25	0.00	0.00	0.00
19,300.00	87.93	179.48	12,586.39	-6,910.54	-227.80	6,908.19	0.00	0.00	0.00
19,400.00	87.93	179.48	12,590.01	-7,010.47	-226.89	7,008.12	0.00	0.00	0.00
19,500.00	87.93	179.48	12,593.62	-7,110.40	-225.98	7,108.06	0.00	0.00	0.00
19,600.00	87.93	179.48	12,597.23	-7,210.33	-225.08	7,207.99	0.00	0.00	0.00
19,700.00	87.93	179.48	12,600.84	-7,310.26	-224.17	7,307.92	0.00	0.00	0.00
19,800.00	87.93	179.48	12,604.45	-7,410.19	-223.26	7,407.86	0.00	0.00	0.00
19,892.20	87.93	179.48	12,607.78	-7,502.33	-222.43	7,500.00	0.00	0.00	0.00
19,892.21	87.93	179.48	12,607.78	-7,502.33	-222.43	7,500.01	0.02	0.00	0.00
WhiteFalcon 22H T2									
19,900.00	88.09	179.48	12,608.06	-7,510.12	-222.35	7,507.79	2.00	2.00	0.00
20,000.00	90.09	179.48	12,609.65	-7,610.10	-221.45	7,607.78	2.00	2.00	0.00
20,026.11	90.61	179.48	12,609.49	-7,636.20	-221.21	7,633.88	2.00	2.00	0.00
20,100.00	90.61	179.48	12,608.71	-7,710.09	-220.55	7,707.77	0.00	0.00	0.00
20,200.00	90.61	179.48	12,607.65	-7,810.08	-219.65	7,807.77	0.00	0.00	0.00
20,300.00	90.61	179.48	12,606.59	-7,910.07	-218.74	7,907.76	0.00	0.00	0.00
20,394.86	90.61	179.48	12,605.58	-8,004.93	-217.89	8,002.62	0.00	0.00	0.00
WhiteFalcon 11H T2									
20,400.00	90.61	179.48	12,605.52	-8,010.06	-217.84	8,007.76	0.00	0.00	0.00
20,500.00	90.61	179.48	12,604.46	-8,110.05	-216.94	8,107.75	0.00	0.00	0.00
20,600.00	90.61	179.48	12,603.40	-8,210.04	-216.04	8,207.74	0.00	0.00	0.00
20,700.00	90.61	179.48	12,602.34	-8,310.03	-215.14	8,307.74	0.00	0.00	0.00
20,800.00	90.61	179.48	12,601.28	-8,410.02	-214.23	8,407.73	0.00	0.00	0.00
20,900.00	90.61	179.48	12,600.22	-8,510.01	-213.33	8,507.73	0.00	0.00	0.00
21,000.00	90.61	179.48	12,599.16	-8,610.00	-212.43	8,607.72	0.00	0.00	0.00
21,100.00	90.61	179.48	12,598.10	-8,709.99	-211.53	8,707.72	0.00	0.00	0.00
21,200.00	90.61	179.48	12,597.03	-8,809.98	-210.63	8,807.71	0.00	0.00	0.00
21,300.00	90.61	179.48	12,595.97	-8,909.98	-209.72	8,907.70	0.00	0.00	0.00
21,400.00	90.61	179.48	12,594.91	-9,009.97	-208.82	9,007.70	0.00	0.00	0.00
21,500.00	90.61	179.48	12,593.85	-9,109.96	-207.92	9,107.69	0.00	0.00	0.00
21,600.00	90.61	179.48	12,592.79	-9,209.95	-207.02	9,207.69	0.00	0.00	0.00
21,700.00	90.61	179.48	12,591.73	-9,309.94	-206.12	9,307.68	0.00	0.00	0.00
21,800.00	90.61	179.48	12,590.67	-9,409.93	-205.22	9,407.68	0.00	0.00	0.00
21,900.00	90.61	179.48	12,589.61	-9,509.92	-204.31	9,507.67	0.00	0.00	0.00
22,000.00	90.61	179.48	12,588.54	-9,609.91	-203.41	9,607.67	0.00	0.00	0.00
22,100.00	90.61	179.48	12,587.48	-9,709.90	-202.51	9,707.66	0.00	0.00	0.00
22,200.00	90.61	179.48	12,586.42	-9,809.89	-201.61	9,807.65	0.00	0.00	0.00
22,300.00	90.61	179.48	12,585.36	-9,909.88	-200.71	9,907.65	0.00	0.00	0.00
22,400.00	90.61	179.48	12,584.30	-10,009.87	-199.80	10,007.64	0.00	0.00	0.00
22,500.00	90.61	179.48	12,583.24	-10,109.86	-198.90	10,107.64	0.00	0.00	0.00
22,522.44	90.61	179.48	12,583.00	-10,132.30	-198.70	10,130.08	0.00	0.00	0.00
WhiteFalcon 11H PBHL - WhiteFalcon 22H PBHL									

Database:	VON_EDM	Local Co-ordinate Reference:	Well White Falcon 16 Fed Com 22H - Slot 22H
Company:	COG OPERATING, LLC	TVD Reference:	3247+25 @ 3272.00ft (Latshaw44)
Project:	Eddy /Lea County, NM (NAD27) NMEZ	MD Reference:	3247+25 @ 3272.00ft (Latshaw44)
Site:	White Falcon 16 Federal Com Pad	North Reference:	Grid
Well:	White Falcon 16 Fed Com 22H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
WhiteFalcon 22H SL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	414,843.90	796,861.70	32° 8' 12.793 N	103° 22' 27.465 W
WhiteFalcon 22H KOP - plan misses target center by 0.84ft at 11901.60ft MD (11899.80 TVD, 138.90 N, -138.90 E) - Point	0.00	0.01	11,899.80	139.50	-139.50	414,983.40	796,722.20	32° 8' 14.186 N	103° 22' 29.072 W
WhiteFalcon 22H LP - plan misses target center by 0.39ft at 12805.82ft MD (12478.00 TVD, -420.11 N, -259.64 E) - Point	0.00	0.01	12,478.00	-420.03	-260.02	414,423.87	796,601.68	32° 8' 8.660 N	103° 22' 30.532 W
WhiteFalcon 22H T1 - plan misses target center by 0.32ft at 16389.95ft MD (12483.01 TVD, -4002.47 N, -254.19 E) - Point	0.00	0.01	12,483.00	-4,002.47	-254.51	410,841.43	796,607.19	32° 7' 33.210 N	103° 22' 30.838 W
WhiteFalcon 22H PBHL - plan hits target center - Rectangle (sides W100.00 H10,024.00 D0.00)	0.00	0.01	12,583.00	-10,132.30	-198.70	404,711.60	796,663.00	32° 6' 32.550 N	103° 22' 30.823 W
WhiteFalcon 22H T2 - plan misses target center by 0.38ft at 19892.21ft MD (12607.78 TVD, -7502.33 N, -222.43 E) - Point	0.00	0.01	12,608.00	-7,502.33	-222.74	407,341.57	796,638.96	32° 6' 58.576 N	103° 22' 30.831 W



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot
22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

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:	MD Interval 100.00ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.00 ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program		Date	09/28/17	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	22,522.44	Plan #1 (Lateral)	MWD	MWD v3:standard declination

Summary						
Site Name	Reference	Offset	Distance		Separation	Warning
	Measured	Measured	Between	Between		
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses	Factor	
	(ft)	(ft)	(ft)	(ft)		
White Falcon 16 Federal Com Pad						
White Falcon 16 Fed Com 11H - Lateral - Plan #1	1,200.00	1,200.00	39.90	34.79	7.803	CC, ES
White Falcon 16 Fed Com 11H - Lateral - Plan #1	22,522.87	22,151.53	405.14	84.15	1.262	Level 3, SF
White Falcon 16 Fed Com 21H - Lateral - Plan #1	1,200.00	1,200.00	79.90	74.79	15.626	CC, ES
White Falcon 16 Fed Com 21H - Lateral - Plan #1	22,522.87	22,498.01	660.68	281.79	1.744	SF

Offset Design												Offset Site Error:	
Survey Program: 0-MWD												Offset Well Error:	
White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 11H - Lateral - Plan #1												0.00 ft	
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
0.00	0.00	0.00	0.00	0.00	0.00	89.57	0.30	39.90	39.90				
100.00	100.00	100.00	100.00	0.08	0.08	89.57	0.30	39.90	39.90	39.73	0.17	236.697	
200.00	200.00	200.00	200.00	0.31	0.31	89.57	0.30	39.90	39.90	39.28	0.62	64.554	
300.00	300.00	300.00	300.00	0.53	0.53	89.57	0.30	39.90	39.90	38.83	1.07	37.373	
400.00	400.00	400.00	400.00	0.76	0.76	89.57	0.30	39.90	39.90	38.38	1.52	26.300	
500.00	500.00	500.00	500.00	0.98	0.98	89.57	0.30	39.90	39.90	37.93	1.97	20.288	
600.00	600.00	600.00	600.00	1.21	1.21	89.57	0.30	39.90	39.90	37.48	2.42	16.514	
700.00	700.00	700.00	700.00	1.43	1.43	89.57	0.30	39.90	39.90	37.04	2.87	13.923	
800.00	800.00	800.00	800.00	1.66	1.66	89.57	0.30	39.90	39.90	36.59	3.32	12.035	
900.00	900.00	900.00	900.00	1.88	1.88	89.57	0.30	39.90	39.90	36.14	3.76	10.598	
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	89.57	0.30	39.90	39.90	35.69	4.21	9.468	
1,100.00	1,100.00	1,100.00	1,100.00	2.33	2.33	89.57	0.30	39.90	39.90	35.24	4.66	8.555	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	89.57	0.30	39.90	39.90	34.79	5.11	7.803	CC, ES
1,300.00	1,299.99	1,300.01	1,299.99	2.78	2.78	135.44	0.30	39.90	40.52	34.96	5.56	7.289	
1,400.00	1,399.98	1,400.02	1,399.98	3.00	3.01	137.21	0.30	39.90	41.85	35.85	6.00	6.974	
1,500.00	1,499.96	1,500.04	1,499.96	3.22	3.23	138.87	0.30	39.90	43.22	36.78	6.44	6.708	
1,600.00	1,599.94	1,600.06	1,599.94	3.44	3.46	140.43	0.30	39.90	44.63	37.74	6.89	6.480	
1,700.00	1,699.93	1,700.07	1,699.93	3.66	3.68	141.89	0.30	39.90	46.07	38.73	7.33	6.283	
1,800.00	1,799.91	1,800.09	1,799.91	3.88	3.91	143.27	0.30	39.90	47.53	39.75	7.78	6.111	
1,900.00	1,899.89	1,900.11	1,899.89	4.10	4.13	144.56	0.30	39.90	49.02	40.80	8.22	5.961	
2,000.00	1,999.88	2,000.12	1,999.88	4.32	4.36	145.77	0.30	39.90	50.54	41.87	8.67	5.829	
2,100.00	2,099.86	2,100.14	2,099.86	4.55	4.58	146.91	0.30	39.90	52.07	42.96	9.12	5.712	

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



Anticollision Report

Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Reference Site: White Falcon 16 Federal Com Pad
Site Error: 0.00 ft
Reference Well: White Falcon 16 Fed Com 22H
Well Error: 0.00 ft
Reference Wellbore: Lateral
Reference Design: Plan #1

Local Co-ordinate Reference: Well White Falcon 16 Fed Com 22H - Slot 22H
TVD Reference: 3247+25 @ 3272.00ft (Latshaw44)
MD Reference: 3247+25 @ 3272.00ft (Latshaw44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: VON_EDM
Offset TVD Reference: Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 11H - Lateral - Plan #1													Offset Site Error:	0.00 ft
Survey Program:		0-MWD										Offset Well Error:	0.00 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,200.00	2,199.84	2,200.16	2,199.84	4.77	4.80	147.99	0.30	39.90	53.63	44.06	9.56	5.608		
2,300.00	2,299.82	2,300.18	2,299.82	4.99	5.03	149.00	0.30	39.90	55.20	45.19	10.01	5.515		
2,400.00	2,399.81	2,400.19	2,399.81	5.22	5.25	149.96	0.30	39.90	56.79	46.33	10.46	5.431		
2,500.00	2,499.79	2,500.21	2,499.79	5.44	5.48	150.87	0.30	39.90	58.39	47.49	10.90	5.355		
2,600.00	2,599.77	2,600.23	2,599.77	5.66	5.70	151.72	0.30	39.90	60.01	48.66	11.35	5.286		
2,700.00	2,699.76	2,700.24	2,699.76	5.89	5.93	152.54	0.30	39.90	61.64	49.84	11.80	5.224		
2,800.00	2,799.74	2,800.26	2,799.74	6.11	6.15	153.31	0.30	39.90	63.29	51.04	12.25	5.167		
2,900.00	2,899.72	2,900.28	2,899.72	6.34	6.38	154.04	0.30	39.90	64.94	52.24	12.70	5.115		
3,000.00	2,999.71	3,000.29	2,999.71	6.56	6.60	154.73	0.30	39.90	66.60	53.46	13.14	5.067		
3,100.00	3,099.69	3,100.31	3,099.69	6.79	6.83	155.39	0.30	39.90	68.27	54.68	13.59	5.023		
3,200.00	3,199.67	3,200.33	3,199.67	7.01	7.05	156.02	0.30	39.90	69.96	55.91	14.04	4.982		
3,300.00	3,299.65	3,300.35	3,299.65	7.24	7.28	156.62	0.30	39.90	71.65	57.16	14.49	4.944		
3,400.00	3,399.64	3,400.36	3,399.64	7.46	7.50	157.19	0.30	39.90	73.34	58.40	14.94	4.910		
3,500.00	3,499.62	3,500.38	3,499.62	7.69	7.73	157.74	0.30	39.90	75.05	59.66	15.39	4.877		
3,600.00	3,599.60	3,600.40	3,599.60	7.92	7.95	158.26	0.30	39.90	76.76	60.92	15.84	4.847		
3,700.00	3,699.59	3,700.41	3,699.59	8.14	8.18	158.76	0.30	39.90	78.47	62.19	16.29	4.819		
3,800.00	3,799.57	3,800.43	3,799.57	8.37	8.40	159.24	0.30	39.90	80.20	63.46	16.73	4.792		
3,900.00	3,899.55	3,900.45	3,899.55	8.59	8.63	159.69	0.30	39.90	81.92	64.74	17.18	4.768		
4,000.00	3,999.54	4,000.46	3,999.54	8.82	8.85	160.13	0.30	39.90	83.66	66.02	17.63	4.745		
4,100.00	4,099.52	4,100.48	4,099.52	9.04	9.08	160.55	0.30	39.90	85.39	67.31	18.08	4.723		
4,200.00	4,199.50	4,200.50	4,199.50	9.27	9.30	160.96	0.30	39.90	87.13	68.60	18.53	4.702		
4,300.00	4,299.48	4,300.52	4,299.48	9.50	9.53	161.35	0.30	39.90	88.88	69.90	18.98	4.683		
4,400.00	4,399.47	4,400.53	4,399.47	9.72	9.75	161.72	0.30	39.90	90.63	71.20	19.43	4.665		
4,500.00	4,499.45	4,500.55	4,499.45	9.95	9.98	162.08	0.30	39.90	92.38	72.51	19.88	4.648		
4,600.00	4,599.43	4,600.57	4,599.43	10.17	10.20	162.42	0.30	39.90	94.14	73.81	20.33	4.631		
4,700.00	4,699.42	4,700.58	4,699.42	10.40	10.42	162.76	0.30	39.90	95.90	75.13	20.78	4.616		
4,800.00	4,799.40	4,800.60	4,799.40	10.63	10.65	163.08	0.30	39.90	97.66	76.44	21.23	4.601		
4,900.00	4,899.38	4,900.62	4,899.38	10.85	10.87	163.39	0.30	39.90	99.43	77.76	21.67	4.587		
5,000.00	4,999.37	5,000.63	4,999.37	11.08	11.10	163.68	0.30	39.90	101.20	79.08	22.12	4.574		
5,100.00	5,099.35	5,100.65	5,099.35	11.30	11.32	163.97	0.30	39.90	102.97	80.40	22.57	4.562		
5,200.00	5,199.33	5,200.67	5,199.33	11.53	11.55	164.25	0.30	39.90	104.75	81.72	23.02	4.550		
5,300.00	5,299.31	5,300.69	5,299.31	11.76	11.77	164.52	0.30	39.90	106.52	83.05	23.47	4.538		
5,400.00	5,399.30	5,400.70	5,399.30	11.98	12.00	164.78	0.30	39.90	108.30	84.38	23.92	4.527		
5,500.00	5,499.28	5,500.72	5,499.28	12.21	12.22	165.03	0.30	39.90	110.08	85.71	24.37	4.517		
5,600.00	5,599.26	5,600.74	5,599.26	12.43	12.45	165.28	0.30	39.90	111.87	87.05	24.82	4.507		
5,700.00	5,699.25	5,700.75	5,699.25	12.66	12.67	165.51	0.30	39.90	113.65	88.38	25.27	4.498		
5,800.00	5,799.23	5,800.77	5,799.23	12.89	12.90	165.74	0.30	39.90	115.44	89.72	25.72	4.488		
5,900.00	5,899.21	5,900.79	5,899.21	13.11	13.12	165.96	0.30	39.90	117.23	91.06	26.17	4.480		
6,000.00	5,999.20	6,000.80	5,999.20	13.34	13.35	166.18	0.30	39.90	119.02	92.40	26.62	4.471		
6,100.00	6,099.18	6,100.82	6,099.18	13.57	13.57	166.39	0.30	39.90	120.81	93.74	27.07	4.463		
6,200.00	6,199.16	6,200.84	6,199.16	13.79	13.80	166.59	0.30	39.90	122.60	95.09	27.52	4.456		
6,300.00	6,299.14	6,300.86	6,299.14	14.02	14.02	166.79	0.30	39.90	124.40	96.43	27.97	4.448		
6,400.00	6,399.13	6,400.87	6,399.13	14.25	14.25	166.98	0.30	39.90	126.19	97.78	28.42	4.441		
6,500.00	6,499.11	6,500.89	6,499.11	14.47	14.47	167.17	0.30	39.90	127.99	99.13	28.87	4.434		
6,600.00	6,599.09	6,600.91	6,599.09	14.70	14.70	167.35	0.30	39.90	129.79	100.48	29.32	4.427		
6,700.00	6,699.08	6,700.92	6,699.08	14.92	14.92	167.52	0.30	39.90	131.59	101.83	29.76	4.421		
6,800.00	6,799.06	6,800.94	6,799.06	15.15	15.15	167.69	0.30	39.90	133.39	103.18	30.21	4.415		
6,900.00	6,899.04	6,900.96	6,899.04	15.38	15.37	167.86	0.30	39.90	135.20	104.53	30.66	4.409		
7,000.00	6,999.03	7,000.98	6,999.03	15.60	15.60	168.02	0.30	39.90	137.00	105.89	31.11	4.403		
7,100.00	7,099.01	7,100.99	7,099.01	15.83	15.82	168.18	0.30	39.90	138.81	107.24	31.56	4.398		
7,200.00	7,199.99	7,201.01	7,199.99	16.06	16.04	168.33	0.30	39.90	140.61	108.60	32.01	4.392		

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



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot
22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 11H - Lateral - Plan #1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)		
7,300.00	7,298.97	7,301.03	7,298.97	16.28	16.27	168.49	0.30	39.90	142.42	109.96	4.387				
7,400.00	7,398.96	7,401.04	7,398.96	16.51	16.49	168.63	0.30	39.90	144.23	111.32	4.382				
7,500.00	7,498.94	7,501.06	7,498.94	16.74	16.72	168.77	0.30	39.90	146.04	112.67	4.377				
7,600.00	7,598.92	7,601.08	7,598.92	16.96	16.94	168.91	0.30	39.90	147.85	114.03	4.373				
7,700.00	7,698.91	7,701.09	7,698.91	17.19	17.17	169.05	0.30	39.90	149.66	115.40	4.368				
7,800.00	7,798.89	7,801.11	7,798.89	17.42	17.39	169.18	0.30	39.90	151.47	116.76	4.364				
7,900.00	7,898.87	7,901.13	7,898.87	17.64	17.62	169.31	0.30	39.90	153.28	118.12	4.359				
8,000.00	7,998.86	8,001.15	7,998.86	17.87	17.84	169.44	0.30	39.90	155.09	119.48	4.355				
8,100.00	8,098.84	8,101.16	8,098.84	18.09	18.07	169.56	0.30	39.90	156.91	120.85	4.351				
8,200.00	8,198.82	8,201.18	8,198.82	18.32	18.29	169.68	0.30	39.90	158.72	122.21	4.347				
8,300.00	8,298.80	8,301.20	8,298.80	18.55	18.52	169.80	0.30	39.90	160.54	123.58	4.344				
8,400.00	8,398.79	8,401.21	8,398.79	18.77	18.74	169.91	0.30	39.90	162.35	124.94	4.340				
8,500.00	8,498.77	8,501.23	8,498.77	19.00	18.97	170.03	0.30	39.90	164.17	126.31	4.336				
8,600.00	8,598.75	8,601.25	8,598.75	19.23	19.19	170.14	0.30	39.90	165.99	127.68	4.333				
8,700.00	8,698.74	8,701.26	8,698.74	19.45	19.42	170.25	0.30	39.90	167.80	129.05	4.330				
8,800.00	8,798.72	8,801.28	8,798.72	19.68	19.64	170.35	0.30	39.90	169.62	130.41	4.326				
8,900.00	8,898.70	8,901.30	8,898.70	19.91	19.87	170.45	0.30	39.90	171.44	131.78	4.323				
9,000.00	8,998.68	9,001.32	8,998.68	20.13	20.09	170.56	0.30	39.90	173.26	133.15	4.320				
9,100.00	9,098.67	9,101.33	9,098.67	20.36	20.32	170.65	0.30	39.90	175.08	134.52	4.317				
9,200.00	9,198.65	9,201.35	9,198.65	20.59	20.54	170.75	0.30	39.90	176.90	135.89	4.314				
9,300.00	9,298.63	9,301.37	9,298.63	20.81	20.77	170.85	0.30	39.90	178.72	137.27	4.311				
9,400.00	9,398.62	9,401.38	9,398.62	21.04	20.99	170.94	0.30	39.90	180.54	138.64	4.308				
9,500.00	9,498.60	9,501.40	9,498.60	21.27	21.22	171.03	0.30	39.90	182.37	140.01	4.306				
9,600.00	9,598.58	9,601.42	9,598.58	21.49	21.44	171.12	0.30	39.90	184.19	141.38	4.303				
9,700.00	9,698.57	9,701.43	9,698.57	21.72	21.67	171.21	0.30	39.90	186.01	142.76	4.300				
9,800.00	9,798.55	9,801.45	9,798.55	21.95	21.89	171.29	0.30	39.90	187.83	144.13	4.298				
9,900.00	9,898.53	9,901.47	9,898.53	22.17	22.11	171.38	0.30	39.90	189.66	145.50	4.295				
10,000.00	9,998.51	10,001.49	9,998.51	22.40	22.34	171.46	0.30	39.90	191.48	146.88	4.293				
10,100.00	10,098.50	10,101.50	10,098.50	22.63	22.56	171.54	0.30	39.90	193.31	148.25	4.290				
10,200.00	10,198.48	10,201.52	10,198.48	22.85	22.79	171.62	0.30	39.90	195.13	149.63	4.288				
10,300.00	10,298.46	10,301.54	10,298.46	23.08	23.01	171.70	0.30	39.90	196.96	151.00	4.286				
10,400.00	10,398.45	10,401.55	10,398.45	23.31	23.24	171.78	0.30	39.90	198.78	152.38	4.284				
10,500.00	10,498.43	10,501.57	10,498.43	23.53	23.46	171.85	0.30	39.90	200.61	153.75	4.282				
10,600.00	10,598.41	10,601.59	10,598.41	23.76	23.69	171.93	0.30	39.90	202.43	155.13	4.279				
10,700.00	10,698.40	10,701.60	10,698.40	23.99	23.91	172.00	0.30	39.90	204.26	156.51	4.277				
10,800.00	10,798.38	10,801.62	10,798.38	24.21	24.14	172.07	0.30	39.90	206.09	157.88	4.275				
10,900.00	10,898.36	10,901.64	10,898.36	24.44	24.36	172.14	0.30	39.90	207.92	159.26	4.273				
11,000.00	10,998.34	11,001.66	10,998.34	24.66	24.59	172.21	0.30	39.90	209.74	160.64	4.271				
11,100.00	11,098.33	11,101.67	11,098.33	24.89	24.81	172.28	0.30	39.90	211.57	162.02	4.270				
11,200.00	11,198.31	11,201.69	11,198.31	25.12	25.04	172.34	0.30	39.90	213.40	163.40	4.268				
11,300.00	11,298.29	11,301.71	11,298.29	25.34	25.26	172.41	0.30	39.90	215.23	164.77	4.266				
11,400.00	11,398.28	11,401.72	11,398.28	25.57	25.49	172.47	0.30	39.90	217.06	166.15	4.264				
11,500.00	11,498.26	11,501.74	11,498.26	25.80	25.71	172.54	0.30	39.90	218.89	167.53	4.262				
11,600.00	11,598.24	11,601.76	11,598.24	26.02	25.94	172.60	0.30	39.90	220.71	168.91	4.261				
11,700.00	11,698.23	11,697.62	11,697.62	26.25	26.15	172.66	0.29	39.90	222.55	170.31	4.260				
11,800.00	11,798.21	11,777.52	11,777.23	26.48	26.28	173.88	-5.62	39.95	229.05	176.47	4.356				
11,900.00	11,898.19	11,854.06	11,852.02	26.70	26.41	176.87	-21.61	40.10	244.79	191.93	4.631				
12,000.00	11,997.77	11,927.11	11,920.82	26.89	26.53	-60.20	-46.04	40.32	265.98	212.91	5.012				
12,100.00	12,094.53	12,000.00	11,985.81	27.06	26.64	-54.14	-78.94	40.61	286.99	233.75	5.390				
12,200.00	12,185.54	12,068.73	12,042.81	27.21	26.76	-51.20	-117.28	40.96	306.70	253.31	5.744				
12,300.00	12,268.03	12,137.91	12,095.12	27.37	26.91	-49.66	-162.47	41.37	324.45	270.87	6.056				

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



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 11H - Lateral - Plan #1													Offset Site Error:	0.00 ft	
Survey Program:		0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
12,400.00	12,339.49	12,206.39	12,141.17	27.55	27.08	-49.12	-213.09	41.82	339.84	286.03	53.82	6.315			
12,500.00	12,397.75	12,274.43	12,180.63	27.78	27.29	-49.38	-268.47	42.32	352.75	298.60	54.14	6.515			
12,600.00	12,441.05	12,342.32	12,213.18	28.09	27.54	-50.32	-328.00	42.86	363.18	308.60	54.58	6.654			
12,700.00	12,468.06	12,410.36	12,238.52	28.50	27.83	-51.88	-391.11	43.43	371.32	316.17	55.15	6.733			
12,800.00	12,477.96	12,478.90	12,256.30	28.99	28.17	-54.02	-457.25	44.02	377.48	321.61	55.87	6.756			
12,900.00	12,478.14	12,550.00	12,266.27	29.57	28.57	-56.39	-527.60	44.65	383.51	326.80	56.71	6.762			
13,000.00	12,478.28	12,634.48	12,268.51	30.23	29.12	-57.41	-612.03	45.41	389.77	332.11	57.66	6.760			
13,100.00	12,478.42	12,734.44	12,269.61	30.96	29.85	-57.70	-711.98	46.31	390.82	332.02	58.79	6.647			
13,200.00	12,478.56	12,834.44	12,270.72	31.77	30.67	-57.82	-811.97	47.22	390.30	330.22	60.07	6.497			
13,300.00	12,478.69	12,934.44	12,271.82	32.66	31.57	-57.94	-911.95	48.12	389.78	328.28	61.50	6.338			
13,400.00	12,478.83	13,034.43	12,272.93	33.63	32.56	-58.06	-1,011.94	49.02	389.26	326.19	63.07	6.172			
13,500.00	12,478.97	13,134.43	12,274.03	34.67	33.62	-58.18	-1,111.93	49.92	388.75	323.98	64.77	6.002			
13,600.00	12,479.11	13,234.42	12,275.14	35.78	34.75	-58.30	-1,211.91	50.82	388.23	321.64	66.59	5.830			
13,700.00	12,479.25	13,334.42	12,276.24	36.95	35.94	-58.42	-1,311.90	51.72	387.72	319.20	68.52	5.658			
13,800.00	12,479.39	13,434.41	12,277.35	38.17	37.18	-58.55	-1,411.88	52.62	387.21	316.65	70.56	5.488			
13,900.00	12,479.53	13,534.41	12,278.45	39.44	38.47	-58.67	-1,511.87	53.52	386.70	314.01	72.69	5.320			
14,000.00	12,479.67	13,634.40	12,279.56	40.76	39.80	-58.79	-1,611.85	54.42	386.19	311.28	74.92	5.155			
14,100.00	12,479.81	13,734.40	12,280.66	42.11	41.18	-58.91	-1,711.84	55.32	385.69	308.47	77.22	4.995			
14,200.00	12,479.95	13,834.39	12,281.76	43.50	42.59	-59.03	-1,811.82	56.22	385.18	305.58	79.60	4.839			
14,300.00	12,480.09	13,934.39	12,282.87	44.93	44.03	-59.16	-1,911.81	57.12	384.68	302.63	82.06	4.688			
14,400.00	12,480.23	14,034.38	12,283.97	46.39	45.50	-59.28	-2,011.79	58.02	384.18	299.61	84.57	4.543			
14,500.00	12,480.37	14,134.38	12,285.08	47.87	47.00	-59.40	-2,111.78	58.92	383.68	296.53	87.15	4.402			
14,600.00	12,480.51	14,234.37	12,286.18	49.38	48.53	-59.53	-2,211.76	59.82	383.19	293.40	89.78	4.268			
14,700.00	12,480.65	14,334.37	12,287.29	50.91	50.08	-59.65	-2,311.75	60.72	382.69	290.22	92.47	4.139			
14,800.00	12,480.79	14,434.37	12,288.39	52.46	51.64	-59.77	-2,411.73	61.62	382.20	287.00	95.20	4.015			
14,900.00	12,480.93	14,534.36	12,289.50	54.03	53.23	-59.90	-2,511.72	62.52	381.71	283.73	97.98	3.896			
15,000.00	12,481.07	14,634.36	12,290.60	55.62	54.83	-60.02	-2,611.70	63.42	381.22	280.42	100.80	3.782			
15,100.00	12,481.21	14,734.35	12,291.71	57.22	56.44	-60.15	-2,711.69	64.32	380.73	277.08	103.65	3.673			
15,200.00	12,481.35	14,834.35	12,292.81	58.84	58.07	-60.28	-2,811.67	65.23	380.25	273.70	106.55	3.569			
15,300.00	12,481.49	14,934.34	12,293.92	60.47	59.72	-60.40	-2,911.66	66.13	379.76	270.29	109.48	3.469			
15,400.00	12,481.63	15,034.34	12,295.02	62.11	61.37	-60.53	-3,011.64	67.03	379.28	266.85	112.43	3.373			
15,500.00	12,481.77	15,134.33	12,296.13	63.77	63.04	-60.65	-3,111.63	67.93	378.80	263.38	115.42	3.282			
15,600.00	12,481.91	15,234.33	12,297.23	65.43	64.72	-60.78	-3,211.61	68.83	378.32	259.88	118.44	3.194			
15,700.00	12,482.05	15,334.32	12,298.34	67.11	66.40	-60.91	-3,311.60	69.73	377.85	256.36	121.49	3.110			
15,800.00	12,482.19	15,434.32	12,299.44	68.79	68.10	-61.04	-3,411.58	70.63	377.37	252.82	124.56	3.030			
15,900.00	12,482.33	15,534.31	12,300.54	70.49	69.80	-61.16	-3,511.57	71.53	376.90	249.25	127.65	2.953			
16,000.00	12,482.46	15,634.31	12,301.65	72.19	71.51	-61.29	-3,611.56	72.43	376.43	245.66	130.77	2.879			
16,100.00	12,482.60	15,734.31	12,302.75	73.90	73.22	-61.42	-3,711.54	73.33	375.96	242.06	133.90	2.808			
16,200.00	12,482.74	15,834.30	12,303.86	75.61	74.95	-61.55	-3,811.53	74.23	375.49	238.43	137.06	2.740			
16,300.00	12,482.88	15,934.30	12,304.96	77.33	76.68	-61.68	-3,911.51	75.13	375.03	234.79	140.24	2.674			
16,400.00	12,483.04	16,034.29	12,306.07	79.06	78.41	-61.80	-4,011.50	76.03	374.57	231.14	143.44	2.611			
16,420.10	12,483.20	16,054.39	12,306.29	79.41	78.76	-61.81	-4,031.60	76.21	374.54	230.48	144.06	2.600			
16,500.00	12,485.26	16,134.28	12,307.17	80.79	80.15	-61.66	-4,111.47	76.93	375.09	228.71	146.38	2.562			
16,600.00	12,488.87	16,234.25	12,308.28	82.53	81.89	-61.32	-4,211.43	77.83	376.29	227.14	149.14	2.523			
16,700.00	12,492.48	16,334.22	12,309.38	84.27	83.64	-60.99	-4,311.39	78.73	377.49	225.59	151.90	2.485			
16,800.00	12,496.09	16,434.19	12,310.49	86.02	85.39	-60.66	-4,411.35	79.63	378.71	224.07	154.64	2.449			
16,900.00	12,499.70	16,534.15	12,311.59	87.78	87.15	-60.33	-4,511.31	80.53	379.94	222.57	157.37	2.414			
17,000.00	12,503.32	16,634.12	12,312.70	89.53	88.91	-60.00	-4,611.27	81.43	381.18	221.09	160.09	2.381			
17,100.00	12,506.93	16,734.09	12,313.80	91.29	90.68	-59.67	-4,711.23	82.33	382.43	219.63	162.80	2.349			
17,200.00	12,510.54	16,834.06	12,314.90	93.06	92.44	-59.35	-4,811.18	83.23	383.70	218.20	165.50	2.318			
17,300.00	12,514.15	16,934.03	12,316.01	94.82	94.22	-59.03	-4,911.14	84.13	384.98	216.79	168.18	2.289			

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



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 11H - Lateral - Plan #1													Offset Site Error:	0.00 ft
Survey Program: O-MWVD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)				Offset +N-S (ft)	Offset +E-W (ft)	
17,400.00	12,517.76	17,034.00	12,317.11	96.59	95.99	-58.71	-5,011.10	85.03	386.27	215.41	170.86	2.261		
17,500.00	12,521.38	17,133.97	12,318.22	98.37	97.77	-58.39	-5,111.06	85.93	387.57	214.05	173.52	2.234		
17,600.00	12,524.99	17,233.93	12,319.32	100.14	99.55	-58.08	-5,211.02	86.83	388.88	212.72	176.17	2.207		
17,700.00	12,528.60	17,333.90	12,320.43	101.92	101.33	-57.76	-5,310.98	87.73	390.21	211.41	178.80	2.182		
17,800.00	12,532.21	17,433.87	12,321.53	103.70	103.11	-57.45	-5,410.93	88.63	391.55	210.12	181.43	2.158		
17,900.00	12,535.83	17,533.84	12,322.64	105.49	104.90	-57.14	-5,510.89	89.53	392.90	208.86	184.03	2.135		
18,000.00	12,539.44	17,633.81	12,323.74	107.27	106.69	-56.84	-5,610.85	90.43	394.26	207.63	186.63	2.113		
18,100.00	12,543.05	17,733.78	12,324.84	109.06	108.48	-56.53	-5,710.81	91.34	395.63	206.42	189.21	2.091		
18,200.00	12,546.66	17,833.75	12,325.95	110.85	110.27	-56.23	-5,810.77	92.24	397.01	205.23	191.78	2.070		
18,300.00	12,550.27	17,933.71	12,327.05	112.64	112.07	-55.93	-5,910.73	93.14	398.41	204.07	194.33	2.050		
18,400.00	12,553.89	18,034.63	12,328.19	114.44	113.88	-55.63	-6,011.63	94.04	399.80	202.90	196.90	2.031		
18,500.00	12,557.50	18,135.10	12,329.95	116.23	115.69	-55.41	-6,112.08	94.96	400.86	201.29	199.56	2.009		
18,600.00	12,561.11	18,235.08	12,331.70	118.03	117.49	-55.19	-6,212.05	95.86	401.92	199.70	202.22	1.988		
18,700.00	12,564.72	18,335.07	12,333.45	119.83	119.29	-54.98	-6,312.01	96.77	402.98	198.13	204.86	1.967		
18,800.00	12,568.33	18,435.05	12,335.20	121.63	121.09	-54.76	-6,411.97	97.68	404.05	196.57	207.49	1.947		
18,900.00	12,571.95	18,535.03	12,336.95	123.43	122.90	-54.54	-6,511.93	98.59	405.13	195.02	210.11	1.928		
19,000.00	12,575.56	18,635.01	12,338.70	125.24	124.71	-54.33	-6,611.90	99.49	406.22	193.49	212.72	1.910		
19,100.00	12,579.17	18,735.00	12,340.45	127.04	126.51	-54.12	-6,711.86	100.40	407.30	191.98	215.32	1.892		
19,200.00	12,582.78	18,834.98	12,342.20	128.85	128.32	-53.91	-6,811.82	101.31	408.40	190.48	217.91	1.874		
19,300.00	12,586.39	18,934.96	12,343.95	130.66	130.13	-53.70	-6,911.79	102.21	409.50	189.00	220.50	1.857		
19,400.00	12,590.01	19,034.94	12,345.70	132.47	131.94	-53.49	-7,011.75	103.12	410.60	187.54	223.07	1.841		
19,500.00	12,593.62	19,134.93	12,347.45	134.28	133.76	-53.28	-7,111.71	104.03	411.71	186.09	225.63	1.825		
19,600.00	12,597.23	19,234.91	12,349.20	136.09	135.57	-53.07	-7,211.68	104.94	412.83	184.65	228.18	1.809		
19,700.00	12,600.84	19,334.89	12,350.95	137.90	137.38	-52.86	-7,311.64	105.84	413.95	183.23	230.72	1.794		
19,800.00	12,604.45	19,434.87	12,352.70	139.71	139.20	-52.66	-7,411.60	106.75	415.08	181.83	233.25	1.780		
19,900.00	12,608.06	19,534.86	12,354.45	141.53	141.01	-52.46	-7,511.57	107.66	416.21	180.43	235.77	1.765		
20,000.00	12,609.65	19,634.85	12,356.20	143.34	142.83	-52.47	-7,611.54	108.57	416.11	177.31	238.80	1.743		
20,100.00	12,608.71	19,734.82	12,357.95	145.16	144.65	-52.78	-7,711.49	109.47	414.48	171.99	242.49	1.709		
20,200.00	12,607.65	19,834.78	12,359.70	146.97	146.47	-53.09	-7,811.43	110.38	412.79	166.55	246.24	1.676		
20,300.00	12,606.59	19,934.74	12,361.45	148.79	148.29	-53.40	-7,911.37	111.29	411.11	161.11	250.01	1.644		
20,400.00	12,605.52	20,033.77	12,363.16	150.60	150.09	-53.71	-8,010.38	112.19	409.46	155.69	253.78	1.613		
20,500.00	12,604.46	20,128.67	12,363.09	152.42	151.82	-53.82	-8,105.27	113.04	408.87	151.87	256.99	1.591		
20,600.00	12,603.40	20,228.67	12,362.35	154.24	153.64	-53.85	-8,205.27	113.95	408.68	148.56	260.12	1.571		
20,700.00	12,602.34	20,328.67	12,361.60	156.06	155.46	-53.89	-8,305.26	114.85	408.50	145.24	263.26	1.552		
20,800.00	12,601.28	20,428.67	12,360.85	157.88	157.28	-53.92	-8,405.25	115.75	408.31	141.92	266.39	1.533		
20,900.00	12,600.22	20,528.67	12,360.11	159.70	159.11	-53.96	-8,505.24	116.65	408.12	138.59	269.53	1.514		
21,000.00	12,599.16	20,628.66	12,359.36	161.53	160.93	-54.00	-8,605.24	117.55	407.94	135.26	272.68	1.496 Level 3		
21,100.00	12,598.10	20,728.66	12,358.62	163.35	162.76	-54.03	-8,705.23	118.46	407.76	131.93	275.82	1.478 Level 3		
21,200.00	12,597.03	20,828.66	12,357.87	165.17	164.58	-54.07	-8,805.22	119.36	407.57	128.59	278.98	1.461 Level 3		
21,300.00	12,595.97	20,928.66	12,357.12	166.99	166.41	-54.10	-8,905.22	120.26	407.39	125.25	282.13	1.444 Level 3		
21,400.00	12,594.91	21,028.66	12,356.38	168.82	168.23	-54.14	-9,005.21	121.16	407.20	121.91	285.29	1.427 Level 3		
21,500.00	12,593.85	21,128.66	12,355.63	170.64	170.06	-54.18	-9,105.20	122.07	407.02	118.56	288.45	1.411 Level 3		
21,600.00	12,592.79	21,228.66	12,354.89	172.47	171.89	-54.21	-9,205.19	122.97	406.83	115.21	291.62	1.395 Level 3		
21,700.00	12,591.73	21,328.66	12,354.14	174.30	173.71	-54.25	-9,305.19	123.87	406.65	111.86	294.79	1.379 Level 3		
21,800.00	12,590.67	21,428.66	12,353.39	176.12	175.54	-54.28	-9,405.18	124.77	406.47	108.51	297.96	1.364 Level 3		
21,900.00	12,589.61	21,528.66	12,352.65	177.95	177.37	-54.32	-9,505.17	125.68	406.28	105.15	301.14	1.349 Level 3		
22,000.00	12,588.54	21,628.66	12,351.90	179.78	179.20	-54.36	-9,605.16	126.58	406.10	101.78	304.32	1.334 Level 3		
22,100.00	12,587.48	21,728.66	12,351.16	181.60	181.03	-54.39	-9,705.16	127.48	405.91	98.42	307.50	1.320 Level 3		
22,200.00	12,586.42	21,828.66	12,350.41	183.43	182.86	-54.43	-9,805.15	128.38	405.73	95.05	310.68	1.306 Level 3		
22,300.00	12,585.36	21,928.66	12,349.66	185.26	184.69	-54.47	-9,905.14	129.29	405.55	91.68	313.87	1.292 Level 3		
22,400.00	12,584.30	22,028.66	12,348.92	187.09	186.52	-54.50	-10,005.13	130.19	405.37	88.30	317.06	1.278 Level 3		

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



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design													White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 11H - Lateral - Plan #1		Offset Site Error:		0.00 ft	
Survey Program:													0-MWD		Offset Well Error:		0.00 ft	
Reference		Offset		Semi Major Axis		Distance												
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)							
22,500.00	12,583.24	22,128.66	12,348.17	188.92	188.35	-54.54	-10,105.13	131.09	405.18	84.92	320.26	1.265	Level 3					
22,522.87	12,583.00	22,151.53	12,348.00	189.34	188.77	-54.55	-10,128.00	131.30	405.14	84.15	320.99	1.262	Level 3, SF					



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference: Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference: 3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference: 3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference: Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method: Minimum Curvature

Well Error: 0.00 ft

Output errors are at 2.00 sigma

Reference Wellbore: Lateral

Database: VON_EDM

Reference Design: Plan #1

Offset TVD Reference: Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 21H - Lateral - Plan #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)	
0.00	0.00	0.00	0.00	0.00	0.00	89.50	0.70	79.90	79.90					
100.00	100.00	100.00	100.00	0.08	0.08	89.50	0.70	79.90	79.90	79.73	0.17	473.992		
200.00	200.00	200.00	200.00	0.31	0.31	89.50	0.70	79.90	79.90	79.28	0.62	129.271		
300.00	300.00	300.00	300.00	0.53	0.53	89.50	0.70	79.90	79.90	78.84	1.07	74.841		
400.00	400.00	400.00	400.00	0.76	0.76	89.50	0.70	79.90	79.90	78.39	1.52	52.666		
500.00	500.00	500.00	500.00	0.98	0.98	89.50	0.70	79.90	79.90	77.94	1.97	40.628		
600.00	600.00	600.00	600.00	1.21	1.21	89.50	0.70	79.90	79.90	77.49	2.42	33.069		
700.00	700.00	700.00	700.00	1.43	1.43	89.50	0.70	79.90	79.90	77.04	2.87	27.882		
800.00	800.00	800.00	800.00	1.66	1.66	89.50	0.70	79.90	79.90	76.59	3.32	24.101		
900.00	900.00	900.00	900.00	1.88	1.88	89.50	0.70	79.90	79.90	76.14	3.76	21.224		
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	89.50	0.70	79.90	79.90	75.69	4.21	18.980		
1,100.00	1,100.00	1,100.00	1,100.00	2.33	2.33	89.50	0.70	79.90	79.90	75.24	4.66	17.132		
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	89.50	0.70	79.90	79.90	74.79	5.11	15.626 CC, ES		
1,300.00	1,299.99	1,313.07	1,298.92	2.78	2.81	134.50	1.30	80.50	81.13	75.54	5.58	14.532		
1,400.00	1,399.98	1,401.10	1,398.87	3.00	3.00	134.51	2.61	81.81	83.74	77.75	5.99	13.976		
1,500.00	1,499.96	1,501.14	1,498.82	3.22	3.22	134.53	3.92	83.12	86.35	79.92	6.43	13.434		
1,600.00	1,599.94	1,601.17	1,598.77	3.44	3.44	134.54	5.22	84.42	88.96	82.10	6.87	12.957		
1,700.00	1,699.93	1,701.21	1,698.72	3.66	3.66	134.55	6.53	85.73	91.57	84.27	7.31	12.535		
1,800.00	1,799.91	1,801.24	1,798.67	3.88	3.88	134.56	7.84	87.04	94.19	86.44	7.75	12.158		
1,900.00	1,899.89	1,901.28	1,898.62	4.10	4.10	134.57	9.15	88.35	96.80	88.61	8.19	11.821		
2,000.00	1,999.88	2,001.31	1,998.57	4.32	4.32	134.58	10.45	89.65	99.41	90.78	8.63	11.516		
2,100.00	2,099.86	2,101.34	2,098.51	4.55	4.55	134.59	11.76	90.96	102.02	92.95	9.08	11.241		
2,200.00	2,199.84	2,198.62	2,198.46	4.77	4.76	134.59	13.07	92.27	104.64	95.12	9.51	10.998		
2,300.00	2,299.82	2,301.41	2,298.41	4.99	4.99	134.60	14.38	93.58	107.25	97.28	9.97	10.762		
2,400.00	2,399.81	2,401.45	2,398.36	5.22	5.22	134.61	15.69	94.89	109.86	99.45	10.41	10.552		
2,500.00	2,499.79	2,501.48	2,498.31	5.44	5.44	134.62	16.99	96.19	112.47	101.62	10.86	10.359		
2,600.00	2,599.77	2,601.51	2,598.26	5.66	5.67	134.62	18.30	97.50	115.09	103.78	11.30	10.181		
2,700.00	2,699.76	2,701.55	2,698.21	5.89	5.89	134.63	19.61	98.81	117.70	105.95	11.75	10.016		
2,800.00	2,799.74	2,801.58	2,798.16	6.11	6.11	134.64	20.92	100.12	120.31	108.11	12.20	9.863		
2,900.00	2,899.72	2,901.62	2,898.11	6.34	6.34	134.64	22.22	101.42	122.92	110.28	12.65	9.721		
3,000.00	2,999.71	3,001.65	2,998.05	6.56	6.56	134.65	23.53	102.73	125.53	112.44	13.09	9.588		
3,100.00	3,099.69	3,101.68	3,098.00	6.79	6.79	134.65	24.84	104.04	128.15	114.61	13.54	9.464		
3,200.00	3,199.67	3,201.72	3,197.95	7.01	7.01	134.66	26.15	105.35	130.76	116.77	13.99	9.347		
3,300.00	3,299.65	3,301.75	3,297.90	7.24	7.24	134.66	27.45	106.65	133.37	118.93	14.44	9.238		
3,400.00	3,399.64	3,401.79	3,397.85	7.46	7.46	134.67	28.76	107.96	135.98	121.10	14.89	9.135		
3,500.00	3,499.62	3,501.82	3,497.80	7.69	7.69	134.67	30.07	109.27	138.60	123.26	15.33	9.038		
3,600.00	3,599.60	3,601.86	3,597.75	7.92	7.92	134.68	31.38	110.58	141.21	125.42	15.78	8.947		
3,700.00	3,699.59	3,701.89	3,697.70	8.14	8.14	134.68	32.68	111.88	143.82	127.59	16.23	8.860		
3,800.00	3,799.57	3,801.92	3,797.64	8.37	8.37	134.69	33.99	113.19	146.43	129.75	16.68	8.778		
3,900.00	3,899.55	3,901.96	3,897.59	8.59	8.59	134.69	35.30	114.50	149.04	131.91	17.13	8.701		
4,000.00	3,999.54	4,001.99	3,997.54	8.82	8.82	134.69	36.61	115.81	151.66	134.08	17.58	8.627		
4,100.00	4,099.52	4,102.03	4,097.49	9.04	9.04	134.70	37.92	117.12	154.27	136.24	18.03	8.557		
4,200.00	4,199.50	4,202.06	4,197.44	9.27	9.27	134.70	39.22	118.42	156.88	138.40	18.48	8.490		
4,300.00	4,299.48	4,302.09	4,297.39	9.50	9.50	134.70	40.53	119.73	159.49	140.57	18.93	8.426		
4,400.00	4,399.47	4,402.13	4,397.34	9.72	9.72	134.71	41.84	121.04	162.11	142.73	19.38	8.366		
4,500.00	4,499.45	4,502.16	4,497.29	9.95	9.95	134.71	43.15	122.35	164.72	144.89	19.83	8.308		
4,600.00	4,599.43	4,602.20	4,597.23	10.17	10.17	134.71	44.45	123.65	167.33	147.05	20.28	8.252		
4,700.00	4,699.42	4,702.23	4,697.18	10.40	10.40	134.72	45.76	124.96	169.94	149.22	20.73	8.199		
4,800.00	4,799.40	4,802.26	4,797.13	10.63	10.62	134.72	47.07	126.27	172.55	151.38	21.18	8.148		
4,900.00	4,899.38	4,902.30	4,897.08	10.85	10.85	134.72	48.38	127.58	175.17	153.54	21.63	8.100		
5,000.00	4,999.37	5,002.33	4,997.03	11.08	11.08	134.73	49.68	128.88	177.78	155.70	22.08	8.053		

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

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 21H - Lateral - Plan #1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.00	5,099.35	5,102.37	5,096.98	11.30	11.30	134.73	50.99	130.19	180.39	157.87	22.53	8.008			
5,200.00	5,199.33	5,202.40	5,196.93	11.53	11.53	134.73	52.30	131.50	183.00	160.03	22.98	7.965			
5,300.00	5,299.31	5,302.44	5,296.88	11.76	11.75	134.73	53.61	132.81	185.62	162.19	23.43	7.923			
5,400.00	5,399.30	5,402.47	5,396.82	11.98	11.98	134.74	54.91	134.11	188.23	164.35	23.88	7.884			
5,500.00	5,499.28	5,502.50	5,496.77	12.21	12.21	134.74	56.22	135.42	190.84	166.51	24.33	7.845			
5,600.00	5,599.26	5,602.54	5,596.72	12.43	12.43	134.74	57.53	136.73	193.45	168.68	24.78	7.808			
5,700.00	5,699.25	5,702.57	5,696.67	12.66	12.66	134.74	58.84	138.04	196.07	170.84	25.23	7.772			
5,800.00	5,799.23	5,802.61	5,796.62	12.89	12.89	134.75	60.15	139.35	198.68	173.00	25.68	7.738			
5,900.00	5,899.21	5,902.64	5,896.57	13.11	13.11	134.75	61.45	140.65	201.29	175.16	26.13	7.704			
6,000.00	5,999.20	6,002.67	5,996.52	13.34	13.34	134.75	62.76	141.96	203.90	177.32	26.58	7.672			
6,100.00	6,099.18	6,102.71	6,096.47	13.57	13.56	134.75	64.07	143.27	206.51	179.49	27.03	7.641			
6,200.00	6,199.16	6,202.74	6,196.41	13.79	13.79	134.75	65.38	144.58	209.13	181.65	27.48	7.611			
6,300.00	6,299.14	6,302.78	6,296.36	14.02	14.02	134.76	66.68	145.88	211.74	183.81	27.93	7.581			
6,400.00	6,399.13	6,402.81	6,396.31	14.25	14.24	134.76	67.99	147.19	214.35	185.97	28.38	7.553			
6,500.00	6,499.11	6,502.85	6,496.26	14.47	14.47	134.76	69.30	148.50	216.96	188.13	28.83	7.526			
6,600.00	6,599.09	6,602.88	6,596.21	14.70	14.70	134.76	70.61	149.81	219.58	190.30	29.28	7.499			
6,700.00	6,699.08	6,702.91	6,696.16	14.92	14.92	134.76	71.91	151.11	222.19	192.46	29.73	7.473			
6,800.00	6,799.06	6,802.95	6,796.11	15.15	15.15	134.76	73.22	152.42	224.80	194.62	30.18	7.448			
6,900.00	6,899.04	6,902.98	6,896.06	15.38	15.37	134.77	74.53	153.73	227.41	196.78	30.63	7.424			
7,000.00	6,999.03	7,003.02	6,996.00	15.60	15.60	134.77	75.84	155.04	230.03	198.94	31.08	7.401			
7,100.00	7,099.01	7,103.05	7,096.95	15.83	15.83	134.77	77.15	156.35	232.64	201.10	31.53	7.378			
7,200.00	7,198.99	7,203.08	7,196.90	16.06	16.05	134.77	78.45	157.65	235.25	203.27	31.98	7.355			
7,300.00	7,298.97	7,303.12	7,296.85	16.28	16.28	134.77	79.76	158.96	237.86	205.43	32.43	7.334			
7,400.00	7,398.96	7,403.15	7,396.80	16.51	16.51	134.77	81.07	160.27	240.47	207.59	32.88	7.313			
7,500.00	7,498.94	7,503.19	7,496.75	16.74	16.73	134.78	82.38	161.58	243.09	209.75	33.33	7.292			
7,600.00	7,598.92	7,603.22	7,596.70	16.96	16.96	134.78	83.68	162.88	245.70	211.91	33.79	7.272			
7,700.00	7,698.91	7,703.25	7,696.65	17.19	17.19	134.78	84.99	164.19	248.31	214.07	34.24	7.253			
7,800.00	7,798.89	7,803.29	7,796.59	17.42	17.41	134.78	86.30	165.50	250.92	216.24	34.69	7.234			
7,900.00	7,898.87	7,903.32	7,896.54	17.64	17.64	134.78	87.61	166.81	253.54	218.40	35.14	7.216			
8,000.00	7,998.86	8,003.36	7,996.49	17.87	17.86	134.78	88.91	168.11	256.15	220.56	35.59	7.198			
8,100.00	8,098.84	8,103.39	8,096.44	18.09	18.09	134.78	90.22	169.42	258.76	222.72	36.04	7.180			
8,200.00	8,198.82	8,203.43	8,196.39	18.32	18.32	134.79	91.53	170.73	261.37	224.88	36.49	7.163			
8,300.00	8,298.80	8,303.46	8,296.34	18.55	18.54	134.79	92.84	172.04	263.98	227.04	36.94	7.146			
8,400.00	8,398.79	8,403.49	8,396.29	18.77	18.77	134.79	94.14	173.34	266.60	229.21	37.39	7.130			
8,500.00	8,498.77	8,503.53	8,496.24	19.00	19.00	134.79	95.45	174.65	269.21	231.37	37.84	7.114			
8,600.00	8,598.75	8,603.56	8,596.18	19.23	19.22	134.79	96.76	175.96	271.82	233.53	38.29	7.099			
8,700.00	8,698.74	8,703.60	8,696.13	19.45	19.45	134.79	98.07	177.27	274.43	235.69	38.74	7.083			
8,800.00	8,798.72	8,803.63	8,796.08	19.68	19.68	134.79	99.38	178.58	277.05	237.85	39.19	7.069			
8,900.00	8,898.70	8,903.66	8,896.03	19.91	19.90	134.79	100.68	179.88	279.66	240.01	39.64	7.054			
9,000.00	8,998.68	9,003.70	8,996.98	20.13	20.13	134.80	101.99	181.19	282.27	242.18	40.10	7.040			
9,100.00	9,098.67	9,103.73	9,096.93	20.36	20.36	134.80	103.30	182.50	284.88	244.34	40.55	7.026			
9,200.00	9,198.65	9,203.77	9,196.88	20.59	20.58	134.80	104.61	183.81	287.50	246.50	41.00	7.013			
9,300.00	9,298.63	9,303.80	9,296.83	20.81	20.81	134.80	105.91	185.11	290.11	248.66	41.45	6.999			
9,400.00	9,398.62	9,403.83	9,396.78	21.04	21.03	134.80	107.22	186.42	292.72	250.82	41.90	6.986			
9,500.00	9,498.60	9,503.87	9,496.72	21.27	21.26	134.80	108.53	187.73	295.33	252.98	42.35	6.974			
9,600.00	9,598.58	9,603.90	9,596.67	21.49	21.49	134.80	109.84	189.04	297.94	255.14	42.80	6.961			
9,700.00	9,698.57	9,703.94	9,696.62	21.72	21.71	134.80	111.14	190.34	300.56	257.31	43.25	6.949			
9,800.00	9,798.55	9,803.97	9,796.57	21.95	21.94	134.80	112.45	191.65	303.17	259.47	43.70	6.937			
9,900.00	9,898.53	9,904.01	9,896.52	22.17	22.17	134.80	113.76	192.96	305.78	261.63	44.15	6.925			
10,000.00	9,998.51	10,004.04	9,996.47	22.40	22.39	134.81	115.07	194.27	308.39	263.79	44.60	6.914			
10,100.00	10,098.50	10,104.07	10,096.42	22.63	22.62	134.81	116.38	195.58	311.01	265.95	45.06	6.903			

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



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 21H - Lateral - Plan #1														Offset Site Error:	0.00 ft
Survey Program:		0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
10,200.00	10,198.48	10,204.11	10,194.37	22.85	22.85	134.81	117.68	196.88	313.62	268.11	45.51	6.892			
10,300.00	10,298.46	10,304.14	10,294.31	23.08	23.07	134.81	118.99	198.19	316.23	270.27	45.96	6.881			
10,400.00	10,398.45	10,404.18	10,394.26	23.31	23.30	134.81	120.30	199.50	318.84	272.43	46.41	6.870			
10,500.00	10,498.43	10,504.21	10,494.21	23.53	23.53	134.81	121.61	200.81	321.46	274.60	46.86	6.860			
10,600.00	10,598.41	10,604.24	10,594.16	23.76	23.75	134.81	122.91	202.11	324.07	276.76	47.31	6.850			
10,700.00	10,698.40	10,704.28	10,694.11	23.99	23.98	134.81	124.22	203.42	326.68	278.92	47.76	6.840			
10,800.00	10,798.38	10,804.31	10,794.06	24.21	24.21	134.81	125.53	204.73	329.29	281.08	48.21	6.830			
10,900.00	10,898.36	10,904.35	10,894.01	24.44	24.43	134.81	126.84	206.04	331.90	283.24	48.66	6.821			
11,000.00	10,998.34	11,004.38	10,993.96	24.66	24.66	134.81	128.14	207.34	334.52	285.40	49.11	6.811			
11,100.00	11,098.33	11,104.42	11,093.90	24.89	24.89	134.81	129.45	208.65	337.13	287.56	49.56	6.802			
11,200.00	11,198.31	11,204.45	11,193.85	25.12	25.11	134.82	130.76	209.96	339.74	289.73	50.02	6.793			
11,300.00	11,298.29	11,304.48	11,293.80	25.34	25.34	134.82	132.07	211.27	342.35	291.89	50.47	6.784			
11,400.00	11,398.28	11,404.52	11,393.75	25.57	25.56	134.82	133.37	212.57	344.97	294.05	50.92	6.775			
11,500.00	11,498.26	11,504.55	11,493.70	25.80	25.79	134.82	134.68	213.88	347.58	296.21	51.37	6.766			
11,600.00	11,598.24	11,604.59	11,593.65	26.02	26.02	134.82	135.99	215.19	350.19	298.37	51.82	6.758			
11,700.00	11,698.23	11,704.62	11,693.60	26.25	26.24	134.82	137.30	216.50	352.80	300.53	52.27	6.750			
11,800.00	11,798.21	11,804.65	11,793.55	26.48	26.47	134.82	138.61	217.81	355.41	302.69	52.72	6.741			
11,900.00	11,898.19	11,893.58	11,891.77	26.70	26.67	134.84	139.74	219.12	358.06	304.92	53.14	6.738			
12,000.00	11,997.77	11,981.76	11,979.48	26.89	26.83	-106.06	132.25	222.11	364.42	310.95	53.47	6.815			
12,100.00	12,094.53	12,069.08	12,064.14	27.06	26.97	-102.14	111.96	227.79	377.18	323.44	53.74	7.019			
12,200.00	12,185.54	12,155.36	12,143.69	27.21	27.11	-99.83	79.78	235.92	395.89	341.92	53.97	7.335			
12,300.00	12,268.03	12,240.54	12,216.47	27.37	27.25	-97.73	36.91	246.23	419.94	365.73	54.21	7.747			
12,400.00	12,339.49	12,324.72	12,281.20	27.55	27.40	-95.58	-15.39	258.42	448.60	394.11	54.49	8.233			
12,500.00	12,397.75	12,408.20	12,336.95	27.78	27.58	-93.37	-75.88	272.22	481.06	426.22	54.84	8.772			
12,600.00	12,441.05	12,491.44	12,382.98	28.09	27.81	-91.10	-143.46	287.38	516.45	461.15	55.30	9.338			
12,700.00	12,468.06	12,575.08	12,418.65	28.50	28.10	-88.83	-217.25	303.69	553.87	497.98	55.90	9.909			
12,800.00	12,477.96	12,659.94	12,443.21	28.99	28.47	-86.64	-296.53	321.01	592.39	535.77	56.62	10.462			
12,900.00	12,478.14	12,749.12	12,455.82	29.57	28.94	-87.87	-382.75	339.61	628.36	570.83	57.53	10.922			
13,000.00	12,478.28	12,905.58	12,457.00	30.23	29.94	-88.13	-536.73	366.76	654.62	595.44	59.18	11.061			
13,100.00	12,478.42	13,075.85	12,457.00	30.96	31.22	-88.14	-706.67	375.62	660.04	598.82	61.22	10.781			
13,200.00	12,478.56	13,175.85	12,457.00	31.77	32.07	-88.13	-806.66	376.52	660.04	597.14	62.90	10.494			
13,300.00	12,478.69	13,275.85	12,457.00	32.66	32.99	-88.12	-906.66	377.43	660.05	595.31	64.74	10.195			
13,400.00	12,478.83	13,375.85	12,457.00	33.63	33.99	-88.10	-1,006.65	378.34	660.05	593.31	66.74	9.890			
13,500.00	12,478.97	13,475.85	12,457.00	34.67	35.05	-88.09	-1,106.65	379.25	660.06	591.18	68.88	9.583			
13,600.00	12,479.11	13,575.85	12,457.00	35.78	36.18	-88.08	-1,206.64	380.15	660.06	588.92	71.14	9.278			
13,700.00	12,479.25	13,675.85	12,457.00	36.95	37.37	-88.07	-1,306.64	381.06	660.07	586.54	73.52	8.978			
13,800.00	12,479.39	13,775.85	12,457.00	38.17	38.61	-88.06	-1,406.64	381.97	660.07	584.06	76.01	8.684			
13,900.00	12,479.53	13,875.85	12,457.00	39.44	39.90	-88.04	-1,506.63	382.88	660.08	581.48	78.60	8.398			
14,000.00	12,479.67	13,975.85	12,457.00	40.76	41.23	-88.03	-1,606.63	383.79	660.08	578.82	81.27	8.123			
14,100.00	12,479.81	14,075.85	12,457.00	42.11	42.60	-88.02	-1,706.62	384.69	660.09	576.07	84.01	7.857			
14,200.00	12,479.95	14,175.85	12,457.00	43.50	44.01	-88.01	-1,806.62	385.60	660.09	573.26	86.83	7.602			
14,300.00	12,480.09	14,275.85	12,457.00	44.93	45.44	-88.00	-1,906.62	386.51	660.10	570.38	89.71	7.358			
14,400.00	12,480.23	14,375.93	12,457.02	46.39	46.91	-87.99	-2,006.69	387.42	660.10	567.45	92.65	7.124			
14,500.00	12,480.37	14,476.52	12,459.04	47.87	48.41	-88.15	-2,107.25	388.33	660.04	564.37	95.66	6.899			
14,600.00	12,480.51	14,576.48	12,462.07	49.38	49.93	-88.40	-2,207.16	389.24	659.95	561.23	98.72	6.685			
14,700.00	12,480.65	14,676.44	12,465.10	50.91	51.47	-88.65	-2,307.07	390.14	659.88	558.06	101.81	6.481			
14,800.00	12,480.79	14,776.40	12,468.13	52.46	53.03	-88.90	-2,406.98	391.05	659.81	554.87	104.95	6.287			
14,900.00	12,480.93	14,876.36	12,471.16	54.03	54.61	-89.15	-2,506.89	391.96	659.76	551.65	108.12	6.102			
15,000.00	12,481.07	14,976.31	12,474.19	55.62	56.21	-89.40	-2,606.79	392.86	659.73	548.41	111.32	5.926			
15,100.00	12,481.21	15,076.27	12,477.22	57.22	57.82	-89.65	-2,706.70	393.77	659.70	545.15	114.55	5.759			
15,200.00	12,481.35	15,176.23	12,480.25	58.84	59.44	-89.90	-2,806.61	394.68	659.69	541.88	117.81	5.600			

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

Company: COG OPERATING, LLC
Project: Eddy /Lea County, NM (NAD27) NMEZ
Reference Site: White Falcon 16 Federal Com Pad
Site Error: 0.00 ft
Reference Well: White Falcon 16 Fed Com 22H
Well Error: 0.00 ft
Reference Wellbore: Lateral
Reference Design: Plan #1

Local Co-ordinate Reference: Well White Falcon 16 Fed Com 22H - Slot 22H
TVD Reference: 3247+25 @ 3272.00ft (Latshaw44)
MD Reference: 3247+25 @ 3272.00ft (Latshaw44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: VON_EDM
Offset TVD Reference: Offset Datum

Offset Design White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 21H - Lateral - Plan #1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
15,237.92	12,481.40	15,214.13	12,481.40	59.46	60.06	-90.00	-2,844.50	395.02	659.69	540.64	119.05	5.541			
15,300.00	12,481.49	15,276.19	12,483.28	60.47	61.08	-90.16	-2,906.52	395.58	659.69	538.60	121.09	5.448			
15,400.00	12,481.63	15,376.15	12,486.31	62.11	62.73	-90.41	-3,006.43	396.49	659.71	535.31	124.39	5.303			
15,500.00	12,481.77	15,476.10	12,489.34	63.77	64.39	-90.66	-3,106.33	397.40	659.74	532.02	127.72	5.166			
15,600.00	12,481.91	15,576.06	12,492.37	65.43	66.06	-90.91	-3,206.24	398.30	659.78	528.72	131.06	5.034			
15,700.00	12,482.05	15,676.02	12,495.40	67.11	67.74	-91.16	-3,306.15	399.21	659.83	525.41	134.42	4.909			
15,800.00	12,482.19	15,775.98	12,498.43	68.79	69.43	-91.41	-3,406.06	400.12	659.89	522.10	137.79	4.789			
15,900.00	12,482.33	15,875.94	12,501.46	70.49	71.13	-91.66	-3,505.97	401.02	659.97	518.79	141.18	4.675			
16,000.00	12,482.46	15,975.90	12,504.49	72.19	72.83	-91.91	-3,605.88	401.93	660.06	515.49	144.57	4.566			
16,100.00	12,482.60	16,075.85	12,507.52	73.90	74.54	-92.16	-3,705.78	402.84	660.16	512.18	147.98	4.461			
16,200.00	12,482.74	16,175.81	12,510.55	75.61	76.26	-92.41	-3,805.69	403.74	660.28	508.88	151.40	4.361			
16,300.00	12,482.88	16,275.77	12,513.58	77.33	77.98	-92.66	-3,905.60	404.65	660.41	505.58	154.83	4.265			
16,400.00	12,483.04	16,375.73	12,516.61	79.06	79.71	-92.91	-4,005.51	405.56	660.55	502.28	158.27	4.174			
16,500.00	12,483.26	16,475.72	12,519.64	80.79	81.45	-92.99	-4,105.45	406.46	660.59	498.86	161.73	4.085			
16,600.00	12,483.87	16,575.72	12,522.67	82.53	83.19	-92.93	-4,205.40	407.37	660.56	495.34	165.22	3.998			
16,700.00	12,492.48	16,675.72	12,525.70	84.27	84.93	-92.88	-4,305.35	408.28	660.53	491.81	168.72	3.915			
16,800.00	12,496.09	16,775.72	12,528.73	86.02	86.68	-92.83	-4,405.30	409.19	660.50	488.28	172.22	3.835			
16,900.00	12,499.70	16,875.71	12,531.77	87.78	88.43	-92.78	-4,505.24	410.09	660.47	484.74	175.74	3.758			
17,000.00	12,503.32	16,975.71	12,534.80	89.53	90.19	-92.73	-4,605.19	411.00	660.44	481.19	179.26	3.684			
17,100.00	12,506.93	17,075.71	12,537.83	91.29	91.95	-92.68	-4,705.14	411.91	660.42	477.63	182.79	3.613			
17,200.00	12,510.54	17,175.71	12,540.86	93.06	93.72	-92.63	-4,805.09	412.81	660.39	474.06	186.32	3.544			
17,300.00	12,514.15	17,275.71	12,543.89	94.82	95.49	-92.58	-4,905.04	413.72	660.36	470.49	189.87	3.478			
17,400.00	12,517.76	17,375.71	12,546.92	96.59	97.26	-92.53	-5,004.98	414.63	660.34	466.92	193.42	3.414			
17,500.00	12,521.38	17,475.70	12,549.95	98.37	99.03	-92.48	-5,104.93	415.54	660.31	463.34	196.97	3.352			
17,600.00	12,524.99	17,575.70	12,552.98	100.14	100.81	-92.43	-5,204.88	416.44	660.29	459.75	200.53	3.293			
17,700.00	12,528.60	17,675.70	12,556.01	101.92	102.59	-92.38	-5,304.83	417.35	660.26	456.16	204.10	3.235			
17,800.00	12,532.21	17,775.70	12,559.05	103.70	104.37	-92.33	-5,404.78	418.26	660.24	452.57	207.67	3.179			
17,900.00	12,535.83	17,875.70	12,562.08	105.49	106.15	-92.28	-5,504.73	419.16	660.21	448.97	211.25	3.125			
18,000.00	12,539.44	17,975.70	12,565.11	107.27	107.94	-92.23	-5,604.67	420.07	660.19	445.37	214.83	3.073			
18,100.00	12,543.05	18,075.69	12,568.14	109.06	109.73	-92.18	-5,704.62	420.98	660.17	441.76	218.41	3.023			
18,200.00	12,546.66	18,175.69	12,571.17	110.85	111.52	-92.13	-5,804.57	421.89	660.15	438.15	222.00	2.974			
18,300.00	12,550.27	18,275.69	12,574.20	112.64	113.31	-92.08	-5,904.52	422.79	660.13	434.54	225.59	2.926			
18,400.00	12,553.89	18,375.75	12,577.22	114.44	115.11	-92.03	-6,004.53	423.70	660.11	430.92	229.19	2.880			
18,500.00	12,557.50	18,476.13	12,578.58	116.23	116.91	-91.83	-6,104.90	424.62	660.03	427.22	232.81	2.835			
18,600.00	12,561.11	18,576.10	12,579.42	118.03	118.70	-91.59	-6,204.85	425.53	659.96	423.52	236.43	2.791			
18,700.00	12,564.72	18,676.06	12,580.25	119.83	120.50	-91.35	-6,304.80	426.44	659.89	419.84	240.05	2.749			
18,800.00	12,568.33	18,776.02	12,581.08	121.63	122.30	-91.11	-6,404.76	427.35	659.83	416.16	243.67	2.708			
18,900.00	12,571.95	18,875.98	12,581.91	123.43	124.10	-90.86	-6,504.71	428.26	659.79	412.50	247.29	2.668			
19,000.00	12,575.56	18,975.94	12,582.74	125.24	125.91	-90.62	-6,604.67	429.18	659.76	408.85	250.91	2.629			
19,100.00	12,579.17	19,075.90	12,583.57	127.04	127.71	-90.38	-6,704.62	430.09	659.74	405.21	254.53	2.592			
19,200.00	12,582.78	19,175.86	12,584.40	128.85	129.52	-90.14	-6,804.57	431.00	659.73	401.58	258.15	2.556			
19,214.95	12,583.32	19,209.19	12,584.53	129.12	130.12	-90.10	-6,819.52	431.14	659.73	400.71	259.03	2.547			
19,300.00	12,586.39	19,275.82	12,585.23	130.66	131.32	-89.90	-6,904.53	431.91	659.74	397.97	261.77	2.520			
19,400.00	12,590.01	19,375.79	12,586.06	132.47	133.13	-89.66	-7,004.48	432.83	659.75	394.37	265.39	2.486			
19,500.00	12,593.62	19,475.75	12,586.89	134.28	134.94	-89.42	-7,104.43	433.74	659.78	390.78	269.00	2.453			
19,600.00	12,597.23	19,575.71	12,587.72	136.09	136.75	-89.17	-7,204.39	434.65	659.82	387.21	272.61	2.420			
19,700.00	12,600.84	19,675.67	12,588.56	137.90	138.56	-88.93	-7,304.34	435.56	659.87	383.65	276.22	2.389			
19,800.00	12,604.45	19,775.63	12,589.39	139.71	140.37	-88.69	-7,404.30	436.47	659.93	380.10	279.83	2.358			
19,900.00	12,608.06	19,875.59	12,590.22	141.53	142.18	-88.45	-7,504.25	437.39	660.01	376.57	283.44	2.329			
20,000.00	12,609.65	19,975.58	12,591.05	143.34	144.00	-88.39	-7,604.23	438.30	660.04	372.98	287.06	2.299			
20,100.00	12,608.71	20,075.57	12,591.88	145.16	145.81	-88.54	-7,704.21	439.21	660.00	369.29	290.71	2.270			

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



Anticollision Report

Company: COG OPERATING, LLC

Local Co-ordinate Reference:

Well White Falcon 16 Fed Com 22H - Slot 22H

Project: Eddy /Lea County, NM (NAD27) NMEZ

TVD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Reference Site: White Falcon 16 Federal Com Pad

MD Reference:

3247+25 @ 3272.00ft (Latshaw44)

Site Error: 0.00 ft

North Reference:

Grid

Reference Well: White Falcon 16 Fed Com 22H

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 ft

Output errors are at

2.00 sigma

Reference Wellbore: Lateral

Database:

VON_EDM

Reference Design: Plan #1

Offset TVD Reference:

Offset Datum

Offset Design - White Falcon 16 Federal Com Pad - White Falcon 16 Fed Com 21H - Lateral - Plan #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
20,200.00	12,607.65	20,175.55	12,592.71	146.97	147.63	-88.70	-7,804.18	440.12	659.96	365.61	294.36	2.242		
20,300.00	12,606.59	20,275.53	12,593.54	148.79	149.45	-88.87	-7,904.16	441.04	659.94	361.93	298.01	2.214		
20,400.00	12,605.52	20,375.51	12,594.37	150.60	151.27	-89.03	-8,004.13	441.95	659.91	358.25	301.66	2.188		
20,500.00	12,604.46	20,475.50	12,595.20	152.42	153.08	-89.20	-8,104.11	442.86	659.89	354.59	305.31	2.161		
20,600.00	12,603.40	20,575.48	12,596.04	154.24	154.90	-89.36	-8,204.08	443.77	659.88	350.92	308.96	2.136		
20,700.00	12,602.34	20,675.46	12,596.87	156.06	156.72	-89.52	-8,304.06	444.69	659.87	347.27	312.60	2.111		
20,791.93	12,601.37	20,767.37	12,597.63	157.74	158.40	-89.68	-8,395.96	445.53	659.87	343.91	315.96	2.088		
20,800.00	12,601.28	20,775.44	12,597.70	157.88	158.54	-89.69	-8,404.03	445.60	659.87	343.62	316.25	2.087		
20,900.00	12,600.22	20,875.43	12,598.53	159.70	160.37	-89.85	-8,504.01	446.51	659.87	339.97	319.90	2.063		
21,000.00	12,599.16	20,975.41	12,599.36	161.53	162.19	-90.02	-8,603.98	447.42	659.88	336.34	323.55	2.040		
21,100.00	12,598.10	21,075.39	12,600.19	163.35	164.01	-90.18	-8,703.95	448.34	659.90	332.70	327.19	2.017		
21,200.00	12,597.03	21,175.37	12,601.02	165.17	165.84	-90.35	-8,803.93	449.25	659.92	329.08	330.84	1.995		
21,300.00	12,595.97	21,275.35	12,601.85	166.99	167.66	-90.51	-8,903.90	450.16	659.94	325.46	334.48	1.973		
21,400.00	12,594.91	21,375.34	12,602.68	168.82	169.48	-90.67	-9,003.88	451.07	659.97	321.85	338.12	1.952		
21,500.00	12,593.85	21,475.32	12,603.52	170.64	171.31	-90.84	-9,103.85	451.99	660.01	318.24	341.76	1.931		
21,600.00	12,592.79	21,575.30	12,604.35	172.47	173.14	-91.00	-9,203.83	452.90	660.05	314.65	345.40	1.911		
21,700.00	12,591.73	21,675.28	12,605.18	174.30	174.96	-91.17	-9,303.80	453.81	660.09	311.06	349.04	1.891		
21,800.00	12,590.67	21,775.26	12,606.01	176.12	176.79	-91.33	-9,403.78	454.72	660.15	307.47	352.67	1.872		
21,900.00	12,589.61	21,875.25	12,606.84	177.95	178.62	-91.50	-9,503.75	455.64	660.20	303.90	356.31	1.853		
22,000.00	12,588.54	21,975.23	12,607.67	179.78	180.44	-91.66	-9,603.72	456.55	660.27	300.33	359.94	1.834		
22,100.00	12,587.48	22,075.21	12,608.50	181.60	182.27	-91.82	-9,703.70	457.46	660.33	296.76	363.57	1.816		
22,200.00	12,586.42	22,175.19	12,609.33	183.43	184.10	-91.99	-9,803.67	458.37	660.41	293.21	367.20	1.799		
22,300.00	12,585.36	22,275.17	12,610.17	185.26	185.93	-92.15	-9,903.65	459.29	660.49	289.66	370.82	1.781		
22,400.00	12,584.30	22,375.16	12,611.00	187.09	187.76	-92.32	-10,003.62	460.20	660.57	286.13	374.45	1.764		
22,500.00	12,583.24	22,475.14	12,611.83	188.92	189.59	-92.48	-10,103.60	461.11	660.66	282.59	378.07	1.747		
22,522.87	12,583.00	22,498.01	12,612.02	189.34	190.01	-92.52	-10,126.46	461.32	660.68	281.79	378.89	1.744 SF		

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