



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

3001542482

NM OIL CONSERVATION
ARTESIA DISTRICT
MAR 17 2015
RECEIVED

December 10, 2014

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Cabo Wabo 24 Federal #5H
190' FSL & 660' FWL
Sec. 24, T25S, R29E
Eddy County, New Mexico

Dear Sir,

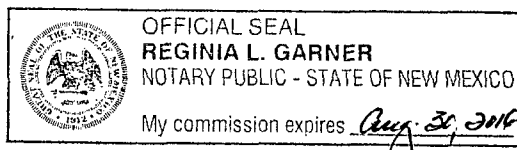
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 10th day of December, 2014.

Notary Public

CABO WABO 24 FEDERAL 5H

Date	Depth	Deviation	Direction	TVD	Horiz
11/20/2014	80	0.30	0.00	0.00	0.00
11/20/2014	198	0.60	0.00	0.00	0.00
11/20/2014	315	0.60	0.00	0.00	0.00
11/20/2014	432	0.60	0.00	0.00	0.00
11/20/2014	675	0.40	0.00	0.00	0.00
11/22/2014	1290	1.40	30.20	0.00	0.00
11/22/2014	1320	2.20	46.70	0.00	0.00
11/22/2014	1503	1.90	57.10	0.00	0.00
11/22/2014	1717	0.50	329.80	0.00	0.00
11/23/2014	1991	2.10	271.40	1990.60	16.60
11/23/2014	2181	2.20	242.10	2180.50	0.00
11/23/2014	2276	1.70	227.80	2275.40	0.00
11/23/2014	2559	1.20	278.90	2558.30	10.80
11/23/2014	2654	0.50	195.00	0.00	0.00
11/23/2014	2843	1.80	137.40	0.00	0.00
11/24/2014	3197	0.90	90.90	0.00	0.00
11/24/2014	3277	0.80	76.00	0.00	0.00
11/27/2014	3342	0.70	0.00	0.00	0.00
11/27/2014	3500	0.60	0.00	0.00	0.00
11/27/2014	3657	0.50	0.00	0.00	0.00
11/27/2014	3815	0.50	0.00	0.00	0.00
11/27/2014	3972	0.50	0.00	0.00	0.00
11/27/2014	4288	0.40	0.00	0.00	0.00
11/27/2014	4446	0.80	0.00	0.00	0.00
11/27/2014	4603	0.60	0.00	0.00	0.00
11/27/2014	4918	0.40	0.00	0.00	0.00
11/27/2014	5076	0.30	0.00	0.00	0.00
11/27/2014	5266	0.60	0.00	0.00	0.00
11/27/2014	5612	1.10	0.00	0.00	0.00
11/27/2014	5800	1.40	0.00	0.00	0.00
11/28/2014	5897	1.30	0.00	0.00	0.00
11/28/2014	5992	0.90	0.00	0.00	0.00
11/28/2014	6087	0.90	0.00	0.00	0.00
11/28/2014	6181	1.00	0.00	0.00	0.00
11/28/2014	6369	1.10	0.00	0.00	0.00
11/28/2014	6463	1.00	0.00	0.00	0.00
11/28/2014	6557	1.10	0.00	0.00	0.00
11/28/2014	6652	1.10	0.00	0.00	0.00
11/28/2014	6745	1.00	0.00	0.00	0.00
11/28/2014	6839	1.20	0.00	0.00	0.00
11/28/2014	6933	1.30	0.00	0.00	0.00
11/29/2014	6999	1.10	0.00	0.00	0.00

Date	Depth	Deviation	Direction	TVD	Horiz
11/29/2014	7125	0.70	0.00	0.00	0.00
11/29/2014	7262	1.00	0.00	0.00	0.00
11/29/2014	7322	3.40	327.80	7320.61	5.75
11/30/2014	7543	21.10	358.50	7534.78	44.65
11/30/2014	7606	24.60	354.90	7593.03	68.62
12/1/2014	7732	30.50	351.50	7705.11	125.64
12/1/2014	7763	34.20	350.70	7731.29	142.04
12/1/2014	7795	38.50	350.80	7757.06	160.76
12/1/2014	7858	47.20	352.20	7803.21	203.15
12/1/2014	7953	61.50	351.00	7858.48	279.30
12/2/2014	8047	75.40	0.10	7892.00	366.25
12/2/2014	8110	87.50	3.50	7902.16	428.35
12/2/2014	8141	90.60	3.90	7902.76	159.27
12/2/2014	8330	92.00	3.40	7897.01	647.75
12/3/2014	8582	92.70	2.20	7889.00	899.26
12/3/2014	8676	91.60	0.70	7885.00	933.13
12/3/2014	8708	91.80	0.20	7884.00	1025.11
12/3/2014	8992	91.50	0.50	7881.43	0.00
12/3/2014	9024	91.70	0.70	7880.53	0.00
12/3/2014	9118	89.50	359.40	7879.55	0.00
12/3/2014	9212	90.50	359.40	7879.55	0.00
12/3/2014	9402	90.50	1.10	7876.07	0.00
12/3/2014	9496	90.00	3.00	7875.66	0.00
12/3/2014	9590	88.40	2.80	7876.97	1906.74
12/3/2014	9683	89.20	2.90	7878.92	1999.58
12/3/2014	9871	89.80	2.00	7879.08	2187.31
12/4/2014	10155	89.30	359.30	7881.00	2471.25
12/4/2014	10437	90.60	359.50	7879.00	2753.22
12/4/2014	10574	88.00	356.70	7882.58	3888.98
12/4/2014	10722	88.90	359.80	7882.00	0.00
12/4/2014	10816	90.50	359.10	7883.33	0.00
12/4/2014	10911	92.10	358.40	7881.18	0.00
12/4/2014	11290	89.30	355.90	7876.71	3605.61
12/4/2014	11385	88.60	356.40	7878.45	3700.41
12/5/2014	11764	88.80	2.30	7887.00	4078.87
12/5/2014	11856	90.00	3.90	7888.00	4170.79
12/5/2014	11951	91.10	3.90	7887.00	4265.64
12/5/2014	12054	92.50	4.00	7884.00	4359.24
12/5/2014	12234	92.70	2.40	7878.22	0.00
12/5/2014	12329	92.30	1.50	7874.08	0.00
12/5/2014	12392	93.10	1.10	7871.44	0.00

EOF



December 18, 2014

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: Cabo Wabo 24 Federal 5H

Please find enclosed a copy of the survey from 0.00' to 7220.00' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

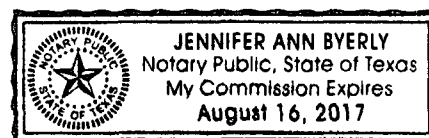
A handwritten signature in black ink, appearing to read "Keith Havelka", written over the word "Sincerely,".

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 18 day of December A.D., 2014, by Keith Havelka.

A handwritten signature in black ink, appearing to read "Jennifer Ann Byerly", written over the printed name and title.
Jennifer Ann Byerly
Notary Public, State of Texas





Company: Concho
Lease/Well: Cabo Wabo 24 Federal/5H
Location: S24 - T25/S - R29/E
Rig Name: Silver Oak #7
State/County: New Mexico/Eddy
Latitude: 32.11, Longitude: -103.94
GRID North is 0.21 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 18 FT

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 12/18/2014 / 10:55

VES Survey International
West Texas
(432) 563-5444

Surveyor: Cody Johnson
Cabo Wabo 24 Federal 5H / API 30-015-42482

RECEIVED
MAR 17 2015
NMA OIL CONSERVATION
ARTESIA DISTRICT

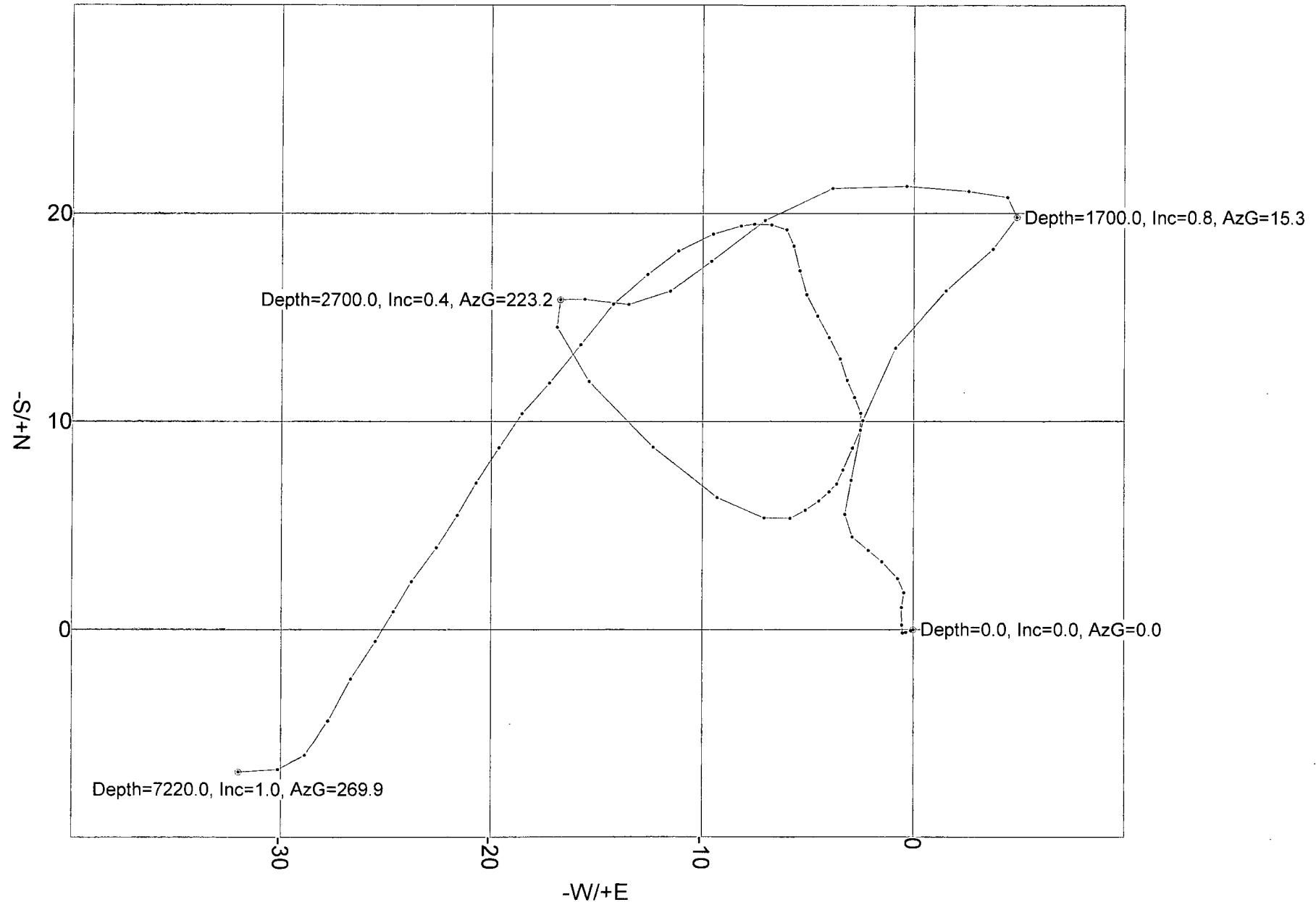
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.14	245.60	100.00	-0.05	-0.11	-0.05	0.12	245.60	0.14
200.00	0.16	256.99	200.00	-0.13	-0.35	-0.13	0.37	249.80	0.04
300.00	0.02	293.50	300.00	-0.15	-0.50	-0.15	0.52	253.12	0.14
400.00	0.43	356.77	400.00	0.23	-0.54	0.23	0.59	293.36	0.42
500.00	0.53	1.96	499.99	1.07	-0.54	1.07	1.20	333.09	0.11
600.00	0.29	21.55	599.99	1.78	-0.43	1.78	1.83	346.26	0.27
700.00	0.68	318.88	699.99	2.46	-0.73	2.46	2.57	343.47	0.61
800.00	0.59	316.03	799.98	3.28	-1.48	3.28	3.60	335.74	0.10
900.00	0.38	300.50	899.98	3.82	-2.12	3.82	4.37	330.96	0.25
1000.00	0.78	315.10	999.97	4.47	-2.89	4.47	5.32	327.15	0.43
1100.00	0.70	13.28	1099.97	5.55	-3.23	5.55	6.42	329.81	0.73
1200.00	1.20	8.02	1199.95	7.18	-2.94	7.18	7.76	337.73	0.51
1300.00	2.15	12.64	1299.91	10.05	-2.38	10.05	10.33	346.66	0.96
1400.00	2.28	34.24	1399.84	13.53	-0.85	13.53	13.56	356.40	0.84
1500.00	1.93	49.29	1499.77	16.28	1.55	16.28	16.35	5.43	0.65
1600.00	1.50	46.83	1599.72	18.28	3.78	18.28	18.66	11.69	0.44
1700.00	0.75	15.28	1699.70	19.80	4.91	19.80	20.40	13.92	0.95
1800.00	0.80	297.27	1799.70	20.75	4.46	20.75	21.23	12.13	0.98

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	1.41	268.71	1899.68	21.04	2.61	21.04	21.21	7.07	0.81
2000.00	1.99	279.50	1999.63	21.30	-0.34	21.30	21.31	359.09	0.66
2100.00	2.10	257.54	2099.57	21.20	-3.84	21.20	21.54	349.73	0.79
2200.00	2.05	230.55	2199.51	19.66	-7.02	19.66	20.88	340.36	0.97
2300.00	1.64	235.51	2299.46	17.71	-9.58	17.71	20.14	331.59	0.44
2400.00	1.14	231.19	2399.43	16.27	-11.54	16.27	19.95	324.66	0.51
2500.00	1.37	269.00	2499.40	15.63	-13.51	15.63	20.66	319.16	0.84
2600.00	1.06	286.81	2599.38	15.88	-15.60	15.88	22.26	315.51	0.48
2700.00	0.44	223.17	2699.37	15.86	-16.75	15.86	23.07	313.44	0.95
2800.00	1.20	173.86	2799.36	14.54	-16.90	14.54	22.29	310.70	0.97
2900.00	2.40	138.18	2899.32	11.93	-15.39	11.93	19.48	307.79	1.59
3000.00	2.64	134.08	2999.22	8.77	-12.34	8.77	15.14	305.40	0.30
3100.00	1.86	119.91	3099.14	6.36	-9.28	6.36	11.26	304.43	0.95
3200.00	0.97	101.80	3199.11	5.38	-7.04	5.38	8.86	307.37	0.98
3300.00	0.48	68.15	3299.10	5.36	-5.82	5.36	7.92	312.63	0.63
3400.00	0.47	55.36	3399.10	5.75	-5.10	5.75	7.68	318.43	0.11
3500.00	0.42	54.50	3499.10	6.19	-4.47	6.19	7.64	324.21	0.05
3600.00	0.33	39.58	3599.09	6.63	-3.98	6.63	7.73	329.00	0.13
3700.00	0.26	48.50	3699.09	7.01	-3.62	7.01	7.89	332.65	0.09
3800.00	0.61	13.87	3799.09	7.67	-3.33	7.67	8.36	336.56	0.42
3900.00	0.73	30.26	3899.08	8.73	-2.88	8.73	9.20	341.75	0.23
4000.00	0.36	9.07	3999.08	9.59	-2.51	9.59	9.92	345.34	0.41
4100.00	0.57	356.03	4099.08	10.40	-2.49	10.40	10.70	346.52	0.23
4200.00	0.42	316.47	4199.07	11.16	-2.78	11.16	11.51	346.01	0.36
4300.00	0.66	349.98	4299.07	11.99	-3.13	11.99	12.40	345.36	0.38
4400.00	0.59	333.22	4399.06	13.02	-3.47	13.02	13.47	345.09	0.19
4500.00	0.72	332.80	4499.06	14.04	-3.99	14.04	14.60	344.15	0.13
4600.00	0.62	330.31	4599.05	15.07	-4.54	15.07	15.74	343.23	0.11
4700.00	0.70	335.95	4699.04	16.10	-5.06	16.10	16.87	342.55	0.10
4800.00	0.68	352.95	4799.04	17.25	-5.38	17.25	18.07	342.67	0.21
4900.00	0.72	339.66	4899.03	18.43	-5.67	18.43	19.29	342.89	0.17
5000.00	0.25	329.08	4999.02	19.21	-6.01	19.21	20.13	342.64	0.48
5100.00	0.68	273.38	5099.02	19.44	-6.71	19.44	20.57	340.94	0.58
5200.00	0.26	274.07	5199.02	19.49	-7.54	19.49	20.90	338.86	0.42
5300.00	0.48	254.60	5299.01	19.40	-8.17	19.40	21.05	337.16	0.24
5400.00	1.11	253.61	5399.00	19.01	-9.50	19.01	21.25	333.45	0.64
5500.00	1.03	233.23	5498.99	18.20	-11.16	18.20	21.35	328.49	0.39
5600.00	1.07	230.88	5598.97	17.07	-12.60	17.07	21.22	323.56	0.06
5700.00	1.42	227.38	5698.95	15.64	-14.24	15.64	21.15	317.69	0.36

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.46	209.89	5798.92	13.69	-15.79	13.69	20.90	310.94	0.44
5900.00	1.27	229.11	5898.89	11.86	-17.26	11.86	20.94	304.50	0.50
6000.00	0.99	210.73	5998.87	10.39	-18.54	10.39	21.25	299.27	0.45
6100.00	1.28	215.62	6098.85	8.74	-19.63	8.74	21.49	294.00	0.30
6200.00	1.04	209.51	6198.83	7.05	-20.73	7.05	21.89	288.78	0.27
6300.00	1.02	209.79	6298.81	5.49	-21.61	5.49	22.30	284.25	0.02
6400.00	1.09	214.76	6398.80	3.94	-22.60	3.94	22.94	279.89	0.12
6500.00	1.21	217.19	6498.78	2.32	-23.78	2.32	23.89	275.57	0.13
6600.00	0.74	200.53	6598.76	0.87	-24.64	0.87	24.66	272.03	0.55
6700.00	1.18	216.67	6698.75	-0.56	-25.49	-0.56	25.49	268.74	0.52
6800.00	1.30	209.48	6798.72	-2.38	-26.66	-2.38	26.76	264.91	0.19
6900.00	1.33	206.21	6898.70	-4.40	-27.73	-4.40	28.07	260.98	0.08
7000.00	0.99	225.87	6998.68	-6.04	-28.86	-6.04	29.48	258.18	0.52
7100.00	0.77	261.78	7098.67	-6.74	-30.14	-6.74	30.88	257.40	0.58
7220.00	1.05	269.91	7218.65	-6.85	-32.03	-6.85	32.75	257.93	0.26



VES Survey International
West Texas
(432) 563-5444
Surveyor: Cody Johnson
Cabo Wabo 24 Federal 5H / API 30-015-42482



VES Survey Date: 11/29/2014

COG Production LLC

Eddy County, N.M.

Section 24-25S-29E Cabo Wabo 24 Federal #5H

Cabo Wabo 24 Federal #5H

Original Hole

Design: Original Hole

Survey Report - Geographic

10 December, 2014

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Cabo Wabo 24 Federal #5H
Project:	Eddy County, N.M.	TVD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Site:	Section 24-25S-29E Cabo Wabo 24 Federal #5H	MD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Well:	Cabo Wabo 24 Federal #5H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Project	Eddy County, N.M.		
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	Section 24-25S-29E Cabo Wabo 24 Federal #5H		
Site Position:		Northing:	403,427.00 usft
From:	Map	Easting:	620,570.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 6' 30.738 N
		Longitude:	103° 56' 38.153 W
		Grid Convergence:	0.21 °

Well	Cabo Wabo 24 Federal #5H		
Well Position	+N/-S	0.0 usft	Northing: 403,427.00 usft
	+E/-W	0.0 usft	Easting: 620,570.50 usft
			Latitude: 32° 6' 30.738 N
			Longitude: 103° 56' 38.153 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	3,082.5 usft

Wellbore	Original Hole		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/17/2014	7.40	59.95	48,225

Design	Original Hole		
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Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.76

Survey Program		Date 12/10/2014	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	7,220.0	Stryker MWD (Original Hole)	NSG-GYC_Drop
7,290.0	12,448.0	MWD Survey (Original Hole)	MWD
			Description
			Battery powered gyrocompassing drop gyro
			MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	403,427.00	620,570.50	32° 6' 30.738 N	103° 56' 38.153 W
100.0	0.14	245.60	100.0	-0.1	-0.1	403,426.95	620,570.39	32° 6' 30.738 N	103° 56' 38.155 W
200.0	0.16	256.99	200.0	-0.1	-0.4	403,426.87	620,570.15	32° 6' 30.737 N	103° 56' 38.157 W
300.0	0.02	293.50	300.0	-0.2	-0.5	403,426.84	620,569.99	32° 6' 30.737 N	103° 56' 38.159 W
400.0	0.43	356.77	400.0	0.2	-0.5	403,427.22	620,569.96	32° 6' 30.740 N	103° 56' 38.160 W
500.0	0.53	1.96	500.0	1.1	-0.6	403,428.06	620,569.95	32° 6' 30.749 N	103° 56' 38.160 W
600.0	0.29	21.55	600.0	1.8	-0.4	403,428.76	620,570.06	32° 6' 30.756 N	103° 56' 38.158 W
700.0	0.68	318.88	700.0	2.4	-0.7	403,429.44	620,569.76	32° 6' 30.762 N	103° 56' 38.162 W
800.0	0.59	316.03	800.0	3.3	-1.5	403,430.26	620,569.01	32° 6' 30.770 N	103° 56' 38.170 W
900.0	0.38	300.50	900.0	3.8	-2.1	403,430.80	620,568.37	32° 6' 30.776 N	103° 56' 38.178 W

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Cabo Wabo 24 Federal #5H
Project:	Eddy County, N.M.	TVD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Site:	Section 24-25S-29E Cabo Wabo 24 Federal #5H	MD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Well:	Cabo Wabo 24 Federal #5H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,000.0	0.78	315.10	1,000.0	4.4	-2.9	403,431.45	620,567.61	32° 6' 30.782 N	103° 56' 38.187 W
1,100.0	0.70	13.28	1,100.0	5.5	-3.2	403,432.52	620,567.27	32° 6' 30.793 N	103° 56' 38.191 W
1,200.0	1.20	8.02	1,200.0	7.2	-3.0	403,434.16	620,567.55	32° 6' 30.809 N	103° 56' 38.187 W
1,300.0	2.15	12.64	1,299.9	10.0	-2.4	403,437.02	620,568.11	32° 6' 30.837 N	103° 56' 38.181 W
1,400.0	2.28	34.24	1,399.8	13.5	-0.9	403,440.50	620,569.64	32° 6' 30.872 N	103° 56' 38.163 W
1,500.0	1.93	49.29	1,499.8	16.2	1.5	403,443.24	620,572.03	32° 6' 30.899 N	103° 56' 38.135 W
1,600.0	1.50	46.83	1,599.7	18.2	3.8	403,445.23	620,574.26	32° 6' 30.918 N	103° 56' 38.109 W
1,700.0	0.75	15.28	1,699.7	19.8	4.9	403,446.76	620,575.39	32° 6' 30.934 N	103° 56' 38.096 W
1,800.0	0.80	297.27	1,799.7	20.7	4.4	403,447.71	620,574.94	32° 6' 30.943 N	103° 56' 38.101 W
1,900.0	1.41	268.71	1,899.7	21.0	2.6	403,448.00	620,573.09	32° 6' 30.946 N	103° 56' 38.122 W
2,000.0	1.99	279.50	1,999.6	21.3	-0.4	403,448.26	620,570.15	32° 6' 30.949 N	103° 56' 38.157 W
2,100.0	2.10	257.54	2,099.6	21.2	-3.9	403,448.15	620,566.65	32° 6' 30.948 N	103° 56' 38.197 W
2,200.0	2.05	230.55	2,199.5	19.6	-7.0	403,446.62	620,563.48	32° 6' 30.933 N	103° 56' 38.234 W
2,300.0	1.64	235.51	2,299.5	17.7	-9.6	403,444.68	620,560.92	32° 6' 30.913 N	103° 56' 38.264 W
2,400.0	1.14	231.19	2,399.4	16.2	-11.5	403,443.24	620,558.96	32° 6' 30.899 N	103° 56' 38.287 W
2,500.0	1.37	269.00	2,499.4	15.6	-13.5	403,442.60	620,556.99	32° 6' 30.893 N	103° 56' 38.310 W
2,600.0	1.06	286.81	2,599.4	15.8	-15.6	403,442.84	620,554.91	32° 6' 30.895 N	103° 56' 38.334 W
2,700.0	0.44	223.17	2,699.4	15.8	-16.7	403,442.83	620,553.76	32° 6' 30.895 N	103° 56' 38.347 W
2,800.0	1.20	173.86	2,799.4	14.5	-16.9	403,441.51	620,553.61	32° 6' 30.882 N	103° 56' 38.349 W
2,900.0	2.40	138.18	2,899.3	11.9	-15.4	403,438.91	620,555.12	32° 6' 30.857 N	103° 56' 38.332 W
3,000.0	2.64	134.08	2,999.2	8.7	-12.3	403,435.75	620,558.17	32° 6' 30.825 N	103° 56' 38.296 W
3,100.0	1.86	119.91	3,099.1	6.3	-9.3	403,433.34	620,561.23	32° 6' 30.801 N	103° 56' 38.261 W
3,200.0	0.97	101.80	3,199.1	5.4	-7.0	403,432.35	620,563.47	32° 6' 30.791 N	103° 56' 38.235 W
3,300.0	0.48	68.15	3,299.1	5.3	-5.8	403,432.34	620,564.69	32° 6' 30.791 N	103° 56' 38.221 W
3,400.0	0.47	55.36	3,399.1	5.7	-5.1	403,432.72	620,565.41	32° 6' 30.795 N	103° 56' 38.212 W
3,500.0	0.42	54.50	3,499.1	6.2	-4.5	403,433.17	620,566.05	32° 6' 30.799 N	103° 56' 38.205 W
3,600.0	0.33	39.58	3,599.1	6.6	-4.0	403,433.61	620,566.53	32° 6' 30.804 N	103° 56' 38.199 W
3,700.0	0.26	48.50	3,699.1	7.0	-3.6	403,433.98	620,566.88	32° 6' 30.807 N	103° 56' 38.195 W
3,800.0	0.61	13.87	3,799.1	7.6	-3.3	403,434.64	620,567.18	32° 6' 30.814 N	103° 56' 38.192 W
3,900.0	0.73	30.26	3,899.1	8.7	-2.9	403,435.71	620,567.63	32° 6' 30.824 N	103° 56' 38.186 W
4,000.0	0.36	9.07	3,999.1	9.6	-2.5	403,436.57	620,568.00	32° 6' 30.833 N	103° 56' 38.182 W
4,100.0	0.57	356.03	4,099.1	10.4	-2.5	403,437.38	620,568.02	32° 6' 30.841 N	103° 56' 38.182 W
4,200.0	0.42	316.47	4,199.1	11.1	-2.8	403,438.14	620,567.73	32° 6' 30.848 N	103° 56' 38.185 W
4,300.0	0.66	349.98	4,299.1	12.0	-3.1	403,438.97	620,567.38	32° 6' 30.857 N	103° 56' 38.189 W
4,400.0	0.59	333.22	4,399.1	13.0	-3.5	403,440.00	620,567.04	32° 6' 30.867 N	103° 56' 38.193 W
4,500.0	0.72	332.80	4,499.1	14.0	-4.0	403,441.02	620,566.52	32° 6' 30.877 N	103° 56' 38.199 W
4,600.0	0.62	330.31	4,599.1	15.0	-4.5	403,442.05	620,565.97	32° 6' 30.887 N	103° 56' 38.205 W
4,700.0	0.70	335.95	4,699.0	16.1	-5.1	403,443.08	620,565.45	32° 6' 30.897 N	103° 56' 38.211 W
4,800.0	0.68	352.95	4,799.0	17.2	-5.4	403,444.22	620,565.13	32° 6' 30.909 N	103° 56' 38.215 W
4,900.0	0.72	339.66	4,899.0	18.4	-5.7	403,445.40	620,564.84	32° 6' 30.920 N	103° 56' 38.218 W
5,000.0	0.25	329.08	4,999.0	19.2	-6.0	403,446.18	620,564.51	32° 6' 30.928 N	103° 56' 38.222 W
5,100.0	0.68	273.38	5,099.0	19.4	-6.7	403,446.40	620,563.80	32° 6' 30.930 N	103° 56' 38.230 W
5,200.0	0.26	274.07	5,199.0	19.5	-7.5	403,446.45	620,562.99	32° 6' 30.931 N	103° 56' 38.240 W
5,300.0	0.48	254.60	5,299.0	19.4	-8.1	403,446.35	620,562.36	32° 6' 30.930 N	103° 56' 38.247 W
5,400.0	1.11	253.61	5,399.0	19.0	-9.5	403,445.97	620,561.02	32° 6' 30.926 N	103° 56' 38.263 W
5,500.0	1.03	233.23	5,499.0	18.2	-11.1	403,445.16	620,559.37	32° 6' 30.918 N	103° 56' 38.282 W
5,600.0	1.07	230.88	5,599.0	17.0	-12.6	403,444.03	620,557.93	32° 6' 30.907 N	103° 56' 38.299 W
5,700.0	1.42	227.38	5,698.9	15.6	-14.2	403,442.60	620,556.29	32° 6' 30.893 N	103° 56' 38.318 W
5,800.0	1.46	209.89	5,798.9	13.7	-15.8	403,440.66	620,554.75	32° 6' 30.874 N	103° 56' 38.336 W
5,900.0	1.27	229.11	5,898.9	11.8	-17.2	403,438.83	620,553.27	32° 6' 30.856 N	103° 56' 38.353 W
6,000.0	0.99	210.73	5,998.9	10.4	-18.5	403,437.36	620,551.99	32° 6' 30.841 N	103° 56' 38.368 W
6,100.0	1.28	215.62	6,098.9	8.7	-19.6	403,435.71	620,550.90	32° 6' 30.825 N	103° 56' 38.381 W
6,200.0	1.04	209.51	6,198.8	7.0	-20.7	403,434.01	620,549.80	32° 6' 30.808 N	103° 56' 38.394 W
6,300.0	1.02	209.79	6,298.8	5.5	-21.6	403,432.45	620,548.92	32° 6' 30.793 N	103° 56' 38.404 W

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Well:	Cabo Wabo 24 Federal #5H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,400.0	1.09	214.76	6,398.8	3.9	-22.6	403,430.90	620,547.93	32° 6' 30.778 N	103° 56' 38.416 W
6,500.0	1.21	217.19	6,498.8	2.3	-23.8	403,429.28	620,546.75	32° 6' 30.761 N	103° 56' 38.429 W
6,600.0	0.74	200.53	6,598.8	0.8	-24.6	403,427.83	620,545.89	32° 6' 30.747 N	103° 56' 38.440 W
6,700.0	1.18	216.67	6,698.7	-0.6	-25.5	403,426.40	620,545.04	32° 6' 30.733 N	103° 56' 38.449 W
6,800.0	1.30	209.48	6,798.7	-2.4	-26.6	403,424.59	620,543.87	32° 6' 30.715 N	103° 56' 38.463 W
6,900.0	1.33	206.21	6,898.7	-4.4	-27.7	403,422.56	620,542.80	32° 6' 30.695 N	103° 56' 38.476 W
7,000.0	0.99	225.87	6,998.7	-6.1	-28.8	403,420.91	620,541.67	32° 6' 30.679 N	103° 56' 38.489 W
7,100.0	0.77	261.78	7,098.7	-6.8	-30.1	403,420.22	620,540.38	32° 6' 30.672 N	103° 56' 38.504 W
7,220.0	1.05	269.91	7,218.7	-6.9	-32.0	403,420.10	620,538.49	32° 6' 30.671 N	103° 56' 38.526 W
7220' MD VES Gyro Survey									
7,290.0	1.20	278.20	7,288.6	-6.8	-33.4	403,420.20	620,537.12	32° 6' 30.672 N	103° 56' 38.542 W
7,322.0	3.40	327.80	7,320.6	-5.9	-34.2	403,421.05	620,536.28	32° 6' 30.681 N	103° 56' 38.551 W
7,354.0	7.10	347.40	7,352.5	-3.2	-35.2	403,423.79	620,535.34	32° 6' 30.708 N	103° 56' 38.562 W
7,385.0	9.80	358.00	7,383.1	1.3	-35.7	403,428.30	620,534.83	32° 6' 30.752 N	103° 56' 38.568 W
7,417.0	12.70	2.50	7,414.5	7.5	-35.6	403,434.53	620,534.89	32° 6' 30.814 N	103° 56' 38.567 W
7,448.0	14.20	9.60	7,444.7	14.7	-34.8	403,441.69	620,535.67	32° 6' 30.885 N	103° 56' 38.558 W
7,480.0	17.30	5.90	7,475.5	23.3	-33.7	403,450.29	620,536.82	32° 6' 30.970 N	103° 56' 38.544 W
7,511.0	20.10	359.80	7,504.8	33.2	-33.2	403,460.21	620,537.27	32° 6' 31.068 N	103° 56' 38.538 W
7,543.0	21.10	358.50	7,534.8	44.5	-33.4	403,471.46	620,537.10	32° 6' 31.179 N	103° 56' 38.540 W
7,574.0	21.90	0.00	7,563.6	55.8	-33.5	403,482.82	620,536.96	32° 6' 31.292 N	103° 56' 38.541 W
7,606.0	24.60	354.90	7,593.0	68.4	-34.1	403,495.43	620,536.37	32° 6' 31.417 N	103° 56' 38.547 W
7,638.0	26.60	354.20	7,621.9	82.2	-35.5	403,509.19	620,535.05	32° 6' 31.553 N	103° 56' 38.562 W
7,669.0	26.40	351.30	7,649.6	95.9	-37.2	403,522.91	620,533.31	32° 6' 31.689 N	103° 56' 38.582 W
7,701.0	28.10	352.00	7,678.1	110.4	-39.3	403,537.41	620,531.18	32° 6' 31.832 N	103° 56' 38.606 W
7,732.0	30.50	351.50	7,705.1	125.4	-41.5	403,552.42	620,529.00	32° 6' 31.981 N	103° 56' 38.631 W
7,763.0	34.20	350.70	7,731.3	141.8	-44.1	403,568.80	620,526.43	32° 6' 32.143 N	103° 56' 38.660 W
7,795.0	38.50	350.80	7,757.1	160.5	-47.1	403,587.52	620,523.38	32° 6' 32.328 N	103° 56' 38.694 W
7,827.0	42.90	352.20	7,781.3	181.2	-50.2	403,608.15	620,520.31	32° 6' 32.533 N	103° 56' 38.729 W
7,858.0	47.20	352.20	7,803.2	202.9	-53.2	403,629.88	620,517.33	32° 6' 32.748 N	103° 56' 38.763 W
7,890.0	51.90	352.00	7,824.0	227.0	-56.5	403,654.00	620,513.99	32° 6' 32.987 N	103° 56' 38.801 W
7,921.0	56.70	350.80	7,842.1	251.9	-60.3	403,678.88	620,510.21	32° 6' 33.233 N	103° 56' 38.844 W
7,953.0	61.50	351.00	7,858.5	279.0	-64.6	403,705.98	620,505.87	32° 6' 33.501 N	103° 56' 38.893 W
7,984.0	66.50	353.30	7,872.1	306.6	-68.4	403,733.57	620,502.08	32° 6' 33.775 N	103° 56' 38.936 W
8,016.0	70.90	356.50	7,883.7	336.3	-71.1	403,763.26	620,499.45	32° 6' 34.068 N	103° 56' 38.965 W
8,047.0	75.40	0.10	7,892.7	365.9	-71.9	403,792.90	620,498.58	32° 6' 34.362 N	103° 56' 38.974 W
8,079.0	81.30	2.40	7,899.1	397.2	-71.2	403,824.22	620,499.27	32° 6' 34.672 N	103° 56' 38.965 W
8,110.0	87.50	3.50	7,902.2	428.0	-69.6	403,855.02	620,500.86	32° 6' 34.976 N	103° 56' 38.945 W
8,141.0	90.60	3.90	7,902.7	458.9	-67.6	403,885.94	620,502.86	32° 6' 35.282 N	103° 56' 38.921 W
8,173.0	91.10	3.90	7,902.2	490.9	-65.5	403,917.86	620,505.03	32° 6' 35.598 N	103° 56' 38.894 W
8,204.0	91.40	3.90	7,901.5	521.8	-63.4	403,948.79	620,507.14	32° 6' 35.904 N	103° 56' 38.868 W
8,235.0	91.60	3.40	7,900.7	552.7	-61.4	403,979.71	620,509.11	32° 6' 36.210 N	103° 56' 38.844 W
8,267.0	92.30	3.50	7,899.6	584.6	-59.5	404,011.64	620,511.04	32° 6' 36.526 N	103° 56' 38.820 W
8,298.0	92.60	3.30	7,898.3	615.6	-57.6	404,042.55	620,512.87	32° 6' 36.832 N	103° 56' 38.798 W
8,330.0	92.00	3.40	7,897.0	647.5	-55.8	404,074.47	620,514.74	32° 6' 37.148 N	103° 56' 38.774 W
8,361.0	91.10	3.10	7,896.2	678.4	-54.0	404,105.41	620,516.50	32° 6' 37.454 N	103° 56' 38.753 W
8,393.0	91.00	2.90	7,895.6	710.4	-52.3	404,137.36	620,518.17	32° 6' 37.770 N	103° 56' 38.732 W
8,424.0	91.20	2.60	7,895.0	741.3	-50.8	404,168.32	620,519.66	32° 6' 38.076 N	103° 56' 38.713 W
8,455.0	91.30	2.60	7,894.3	772.3	-49.4	404,199.28	620,521.07	32° 6' 38.383 N	103° 56' 38.696 W
8,487.0	91.70	2.80	7,893.5	804.2	-47.9	404,231.23	620,522.57	32° 6' 38.699 N	103° 56' 38.677 W
8,519.0	92.50	2.90	7,892.3	836.2	-46.3	404,263.17	620,524.16	32° 6' 39.015 N	103° 56' 38.657 W
8,550.0	92.90	2.80	7,890.8	867.1	-44.8	404,294.10	620,525.70	32° 6' 39.321 N	103° 56' 38.638 W
8,582.0	92.70	2.20	7,889.3	899.0	-43.4	404,326.03	620,527.10	32° 6' 39.637 N	103° 56' 38.620 W
8,614.0	92.40	1.70	7,887.9	931.0	-42.3	404,357.98	620,528.18	32° 6' 39.953 N	103° 56' 38.606 W
8,645.0	92.60	1.30	7,886.5	961.9	-41.5	404,388.94	620,529.00	32° 6' 40.259 N	103° 56' 38.596 W

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Project:	Eddy County, N.M.	TVD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Site:	Section 24-25S-29E Cabo Wabo 24 Federal #5H	MD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Well:	Cabo Wabo 24 Federal #5H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,676.0	91.60	0.70	7,885.4	992.9	-41.0	404,419.91	620,529.54	32° 6' 40.566 N	103° 56' 38.588 W
8,708.0	91.80	0.20	7,884.4	1,024.9	-40.7	404,451.90	620,529.79	32° 6' 40.882 N	103° 56' 38.584 W
8,740.0	91.70	0.10	7,883.4	1,056.9	-40.6	404,483.88	620,529.87	32° 6' 41.199 N	103° 56' 38.581 W
8,771.0	90.90	0.50	7,882.7	1,087.9	-40.5	404,514.88	620,530.03	32° 6' 41.506 N	103° 56' 38.578 W
8,803.0	89.70	0.50	7,882.6	1,119.9	-40.2	404,546.87	620,530.31	32° 6' 41.822 N	103° 56' 38.574 W
8,835.0	89.90	0.60	7,882.7	1,151.9	-39.9	404,578.87	620,530.62	32° 6' 42.139 N	103° 56' 38.569 W
8,866.0	90.00	0.60	7,882.7	1,182.9	-39.6	404,609.87	620,530.94	32° 6' 42.446 N	103° 56' 38.564 W
8,898.0	90.30	0.70	7,882.6	1,214.9	-39.2	404,641.87	620,531.31	32° 6' 42.762 N	103° 56' 38.558 W
8,929.0	90.60	0.50	7,882.4	1,245.9	-38.9	404,672.86	620,531.63	32° 6' 43.069 N	103° 56' 38.553 W
8,961.0	90.70	0.40	7,882.0	1,277.9	-38.6	404,704.86	620,531.88	32° 6' 43.386 N	103° 56' 38.549 W
8,992.0	91.50	0.50	7,881.4	1,308.9	-38.4	404,735.85	620,532.13	32° 6' 43.692 N	103° 56' 38.545 W
9,024.0	91.70	0.70	7,880.5	1,340.8	-38.0	404,767.84	620,532.46	32° 6' 44.009 N	103° 56' 38.539 W
9,118.0	89.50	359.40	7,879.6	1,434.8	-38.0	404,861.83	620,532.54	32° 6' 44.939 N	103° 56' 38.534 W
9,212.0	90.50	359.40	7,879.6	1,528.8	-38.9	404,955.82	620,531.56	32° 6' 45.869 N	103° 56' 38.542 W
9,307.0	91.60	0.20	7,877.8	1,623.8	-39.3	405,050.80	620,531.23	32° 6' 46.809 N	103° 56' 38.542 W
9,402.0	90.50	1.10	7,876.1	1,718.8	-38.2	405,145.78	620,532.31	32° 6' 47.749 N	103° 56' 38.525 W
9,496.0	90.00	3.00	7,875.7	1,812.7	-34.8	405,239.71	620,535.67	32° 6' 48.679 N	103° 56' 38.482 W
9,590.0	88.40	2.80	7,877.0	1,906.6	-30.1	405,333.58	620,540.42	32° 6' 49.607 N	103° 56' 38.423 W
9,683.0	89.20	2.90	7,878.9	1,999.4	-25.5	405,426.44	620,545.05	32° 6' 50.526 N	103° 56' 38.365 W
9,776.0	90.40	3.20	7,879.2	2,092.3	-20.5	405,519.31	620,549.99	32° 6' 51.445 N	103° 56' 38.304 W
9,871.0	89.80	2.00	7,879.1	2,187.2	-16.2	405,614.21	620,554.30	32° 6' 52.384 N	103° 56' 38.250 W
9,965.0	89.80	0.40	7,879.4	2,281.2	-14.2	405,708.19	620,556.27	32° 6' 53.314 N	103° 56' 38.223 W
10,060.0	88.90	0.00	7,880.5	2,376.2	-13.9	405,803.18	620,556.60	32° 6' 54.254 N	103° 56' 38.215 W
10,155.0	89.30	359.30	7,882.0	2,471.2	-14.5	405,898.16	620,556.02	32° 6' 55.194 N	103° 56' 38.218 W
10,249.0	90.30	359.70	7,882.3	2,565.2	-15.3	405,992.16	620,555.20	32° 6' 56.124 N	103° 56' 38.223 W
10,343.0	91.50	359.20	7,880.8	2,659.1	-16.2	406,086.14	620,554.30	32° 6' 57.054 N	103° 56' 38.230 W
10,437.0	90.60	359.50	7,879.1	2,753.1	-17.3	406,180.12	620,553.23	32° 6' 57.984 N	103° 56' 38.238 W
10,532.0	89.80	359.90	7,878.8	2,848.1	-17.8	406,275.11	620,552.74	32° 6' 58.925 N	103° 56' 38.240 W
10,626.0	88.20	359.80	7,880.4	2,942.1	-18.0	406,369.10	620,552.49	32° 6' 59.855 N	103° 56' 38.239 W
10,722.0	88.90	359.80	7,882.8	3,038.1	-18.3	406,465.06	620,552.16	32° 7' 0.804 N	103° 56' 38.239 W
10,816.0	90.50	359.10	7,883.3	3,132.1	-19.2	406,559.05	620,551.25	32° 7' 1.735 N	103° 56' 38.246 W
10,911.0	92.10	358.40	7,881.2	3,227.0	-21.3	406,654.00	620,549.18	32° 7' 2.674 N	103° 56' 38.266 W
11,006.0	89.90	357.70	7,879.5	3,321.9	-24.6	406,748.93	620,545.95	32° 7' 3.614 N	103° 56' 38.299 W
11,101.0	90.60	356.90	7,879.1	3,416.8	-29.0	406,843.82	620,541.48	32° 7' 4.553 N	103° 56' 38.347 W
11,196.0	91.50	356.40	7,877.4	3,511.6	-34.6	406,938.64	620,535.92	32° 7' 5.492 N	103° 56' 38.408 W
11,290.0	89.30	355.90	7,876.7	3,605.4	-40.9	407,032.42	620,529.61	32° 7' 6.420 N	103° 56' 38.477 W
11,385.0	88.60	356.40	7,878.5	3,700.2	-47.3	407,127.19	620,523.24	32° 7' 7.358 N	103° 56' 38.547 W
11,479.0	89.20	355.70	7,880.3	3,793.9	-53.7	407,220.95	620,516.76	32° 7' 8.286 N	103° 56' 38.619 W
11,574.0	88.00	356.70	7,882.6	3,888.7	-60.0	407,315.71	620,510.47	32° 7' 9.224 N	103° 56' 38.688 W
11,669.0	88.70	359.60	7,885.3	3,983.6	-63.1	407,410.61	620,507.40	32° 7' 10.163 N	103° 56' 38.720 W
11,764.0	88.80	2.30	7,887.4	4,078.6	-61.5	407,505.56	620,508.98	32° 7' 11.103 N	103° 56' 38.697 W
11,856.0	90.00	3.90	7,888.3	4,170.4	-56.6	407,597.42	620,513.95	32° 7' 12.012 N	103° 56' 38.636 W
11,951.0	91.10	3.90	7,887.4	4,265.2	-50.1	407,692.19	620,520.41	32° 7' 12.950 N	103° 56' 38.557 W
12,045.0	92.50	4.00	7,884.5	4,358.9	-43.6	407,785.92	620,526.89	32° 7' 13.877 N	103° 56' 38.477 W
12,140.0	91.00	2.50	7,881.6	4,453.7	-38.2	407,880.72	620,532.27	32° 7' 14.815 N	103° 56' 38.411 W
12,234.0	92.70	2.40	7,878.5	4,547.6	-34.2	407,974.58	620,536.28	32° 7' 15.744 N	103° 56' 38.360 W
12,329.0	92.30	1.50	7,874.4	4,642.4	-31.0	408,069.43	620,539.51	32° 7' 16.682 N	103° 56' 38.319 W
12,392.0	93.10	1.10	7,871.4	4,705.3	-29.6	408,132.35	620,540.94	32° 7' 17.305 N	103° 56' 38.289 W
12,448.0	93.10	1.10	7,868.4	4,761.3	-28.5	408,188.26	620,542.01	32° 7' 17.858 N	103° 56' 38.285 W
12448' Projected to Bit									

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Cabo Wabo 24 Federal #5H
Project:	Eddy County, N.M.	TVD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Site:	Section 24-25S-29E Cabo Wabo 24 Federal #5H	MD Reference:	GL 3082.5 +18 @ 3100.5usft (Silver Oak #7)
Well:	Cabo Wabo 24 Federal #5H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,220.0	7,218.7	-6.9	-32.0	7220' MD VES Gyro Survey
12,448.0	7,868.4	4,761.3	-28.5	12448' Projected to Bit