

30-025-40952

HOBBSOCD

MAR 10 2015

RECEIVED

COG Operating, LLC.

Lea County, N.M.

Section 4 T21-S R33-E Corazon State Unit #10H

Corazon State Unit #10H

Original Hole

Design: Original Hole

Survey Report - Geographic

08 December, 2014

MAR 12 2015

fm

Stryker Directional

Survey Report - Geographic

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Corazon State Unit #10H
Project:	Lea County, N.M.	TVD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Site:	Section 4 T21-S-R33-E Corazon State Unit #10H	MD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Well:	Corazon State Unit #10H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Project:	Lea 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 4 T21-S R33-E Corazon State Unit #10H
--------------	---

Site Position:		Northing:	554,170.20 usft	Latitude:	32° 31' 16.673 N
From:	Map	Easting:	730,613.10 usft	Longitude:	103° 35' 6.549 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	Corazon State Unit #10H					
Well Position	+N/-S	0.0 usft	Northing:	554,170.20 usft	Latitude:	32° 31' 16.673 N
	+E/-W	0.0 usft	Easting:	730,613.10 usft	Longitude:	103° 35' 6.549 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,754.9 usft

Wellbore:	Original Hole
------------------	---------------

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/23/2014	7.20	60.37	48,455

Design:	Original Hole
----------------	---------------

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	174.70

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	12/8/2014	115.9	10,855.0	KP Gyro Survey (Original Hole)	NSG-GYC_WL	Gyro in gyrocompassing mode on wireline
		10,900.0	18,641.0	Stryker MWD Survey (Original Hole)	MWD	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	554,170.20	730,613.10	32° 31' 16.673 N	103° 35' 6.549 W
	115.9	0.31	178.97	115.9	-0.3	0.0	554,169.89	730,613.10	32° 31' 16.670 N	103° 35' 6.549 W
	266.1	0.09	206.74	266.1	-0.8	0.0	554,169.38	730,613.06	32° 31' 16.665 N	103° 35' 6.550 W
	518.3	0.31	338.50	518.3	-0.4	-0.4	554,169.84	730,612.72	32° 31' 16.669 N	103° 35' 6.554 W
	797.6	0.22	355.77	797.6	0.9	-0.7	554,171.07	730,612.40	32° 31' 16.682 N	103° 35' 6.557 W
	892.0	0.31	248.25	892.0	1.0	-0.9	554,171.16	730,612.15	32° 31' 16.682 N	103° 35' 6.560 W
	986.4	0.22	225.91	986.4	0.7	-1.3	554,170.94	730,611.78	32° 31' 16.680 N	103° 35' 6.564 W
	1,173.9	0.62	198.23	1,173.9	-0.5	-1.9	554,169.72	730,611.21	32° 31' 16.668 N	103° 35' 6.571 W
	1,268.9	0.40	218.99	1,268.9	-1.2	-2.3	554,168.98	730,610.84	32° 31' 16.661 N	103° 35' 6.576 W
	1,452.2	0.40	266.71	1,452.2	-1.8	-3.3	554,168.44	730,609.80	32° 31' 16.656 N	103° 35' 6.588 W

Stryker Directional

Survey Report - Geographic

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Corazon State Unit #10H
Project:	Lea County, N.M.	TVD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Site:	Section 4 T21-S R33-E Corazon State Unit #10H	MD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Well:	Corazon State Unit #10H	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
1,742.2	0.62	352.78	1,742.2	-0.3	-4.5	554,169.94	730,608.59	32° 31' 16.671 N	103° 35' 6.602 W
1,865.3	0.22	22.76	1,865.3	0.6	-4.5	554,170.82	730,608.60	32° 31' 16.679 N	103° 35' 6.602 W
1,956.1	0.31	37.87	1,956.1	1.0	-4.3	554,171.18	730,608.81	32° 31' 16.683 N	103° 35' 6.599 W
2,049.3	0.62	321.05	2,049.2	1.6	-4.4	554,171.77	730,608.65	32° 31' 16.689 N	103° 35' 6.601 W
2,143.1	1.02	270.72	2,143.0	2.0	-5.6	554,172.17	730,607.50	32° 31' 16.693 N	103° 35' 6.614 W
2,235.5	1.19	218.77	2,235.4	1.2	-7.0	554,171.43	730,606.07	32° 31' 16.686 N	103° 35' 6.631 W
2,327.7	1.02	142.66	2,327.7	-0.2	-7.1	554,170.04	730,605.97	32° 31' 16.672 N	103° 35' 6.632 W
2,422.4	1.33	82.03	2,422.3	-0.7	-5.5	554,169.52	730,607.57	32° 31' 16.667 N	103° 35' 6.614 W
2,518.7	1.10	45.63	2,518.6	0.1	-3.8	554,170.32	730,609.34	32° 31' 16.674 N	103° 35' 6.593 W
2,610.6	1.02	356.65	2,610.4	1.5	-3.2	554,171.75	730,609.92	32° 31' 16.688 N	103° 35' 6.586 W
2,709.5	1.10	315.36	2,709.4	3.1	-3.9	554,173.31	730,609.20	32° 31' 16.704 N	103° 35' 6.594 W
2,803.1	1.10	259.79	2,803.0	3.6	-5.4	554,173.79	730,607.69	32° 31' 16.709 N	103° 35' 6.612 W
2,899.1	0.80	190.12	2,898.9	2.8	-6.4	554,172.96	730,606.66	32° 31' 16.701 N	103° 35' 6.624 W
2,990.5	1.19	114.20	2,990.3	1.7	-5.7	554,171.95	730,607.42	32° 31' 16.691 N	103° 35' 6.615 W
3,083.9	1.33	90.31	3,083.7	1.3	-3.7	554,171.54	730,609.39	32° 31' 16.686 N	103° 35' 6.592 W
3,175.9	1.41	56.11	3,175.7	2.0	-1.7	554,172.17	730,611.39	32° 31' 16.692 N	103° 35' 6.569 W
3,271.5	1.33	20.02	3,271.3	3.7	-0.3	554,173.87	730,612.75	32° 31' 16.709 N	103° 35' 6.553 W
3,365.0	1.33	15.31	3,364.7	5.7	0.3	554,175.93	730,613.41	32° 31' 16.730 N	103° 35' 6.545 W
3,457.9	1.19	15.62	3,457.6	7.7	0.9	554,177.90	730,613.95	32° 31' 16.749 N	103° 35' 6.538 W
3,552.1	1.33	333.52	3,551.8	9.6	0.6	554,179.82	730,613.73	32° 31' 16.768 N	103° 35' 6.541 W
3,645.0	1.10	277.86	3,644.7	10.7	-0.7	554,180.91	730,612.36	32° 31' 16.779 N	103° 35' 6.557 W
3,742.8	1.02	186.11	3,742.4	10.0	-1.8	554,180.17	730,611.34	32° 31' 16.772 N	103° 35' 6.569 W
3,834.9	0.80	139.98	3,834.6	8.7	-1.4	554,178.86	730,611.67	32° 31' 16.759 N	103° 35' 6.565 W
3,925.9	0.80	92.65	3,925.5	8.1	-0.4	554,178.35	730,612.71	32° 31' 16.754 N	103° 35' 6.553 W
4,021.2	0.80	25.44	4,020.8	8.7	0.6	554,178.92	730,613.66	32° 31' 16.759 N	103° 35' 6.542 W
4,113.3	0.49	357.05	4,112.9	9.7	0.8	554,179.89	730,613.92	32° 31' 16.769 N	103° 35' 6.539 W
4,206.7	0.40	325.59	4,206.4	10.4	0.6	554,180.56	730,613.71	32° 31' 16.775 N	103° 35' 6.541 W
4,299.3	0.49	267.81	4,298.9	10.6	0.0	554,180.81	730,613.13	32° 31' 16.778 N	103° 35' 6.548 W
4,393.4	0.71	241.64	4,393.0	10.3	-0.9	554,180.52	730,612.22	32° 31' 16.775 N	103° 35' 6.558 W
4,485.8	0.62	216.08	4,485.4	9.6	-1.7	554,179.85	730,611.42	32° 31' 16.768 N	103° 35' 6.568 W
4,578.1	0.71	151.52	4,577.7	8.7	-1.7	554,178.94	730,611.40	32° 31' 16.759 N	103° 35' 6.568 W
4,669.6	1.02	120.72	4,669.2	7.8	-0.7	554,178.02	730,612.37	32° 31' 16.750 N	103° 35' 6.557 W
4,854.3	0.62	33.38	4,853.9	7.8	1.2	554,178.02	730,614.33	32° 31' 16.750 N	103° 35' 6.534 W
4,946.2	0.62	353.35	4,945.8	8.7	1.5	554,178.93	730,614.55	32° 31' 16.759 N	103° 35' 6.531 W
5,037.5	0.49	272.62	5,037.1	9.2	1.0	554,179.44	730,614.10	32° 31' 16.764 N	103° 35' 6.537 W
5,129.8	0.49	214.89	5,129.4	8.9	0.4	554,179.13	730,613.48	32° 31' 16.761 N	103° 35' 6.544 W
5,223.1	0.49	148.08	5,222.7	8.3	0.4	554,178.47	730,613.46	32° 31' 16.755 N	103° 35' 6.544 W
5,315.7	0.71	62.77	5,315.3	8.2	1.1	554,178.39	730,614.18	32° 31' 16.754 N	103° 35' 6.536 W
5,409.4	0.71	336.43	5,408.9	9.0	1.4	554,179.19	730,614.47	32° 31' 16.762 N	103° 35' 6.532 W
5,465.0	0.62	346.25	5,464.6	9.6	1.2	554,179.80	730,614.26	32° 31' 16.768 N	103° 35' 6.535 W
5,511.9	0.80	279.36	5,511.5	9.9	0.8	554,180.10	730,613.87	32° 31' 16.771 N	103° 35' 6.539 W
5,604.6	0.80	274.56	5,604.2	10.1	-0.5	554,180.25	730,612.59	32° 31' 16.772 N	103° 35' 6.554 W
5,696.9	0.62	276.76	5,696.4	10.2	-1.6	554,180.36	730,611.45	32° 31' 16.774 N	103° 35' 6.567 W
5,789.8	0.71	279.76	5,789.3	10.3	-2.7	554,180.52	730,610.39	32° 31' 16.775 N	103° 35' 6.580 W
5,881.8	0.62	266.62	5,881.3	10.4	-3.8	554,180.59	730,609.33	32° 31' 16.776 N	103° 35' 6.592 W
5,974.9	0.49	269.14	5,974.4	10.4	-4.7	554,180.55	730,608.43	32° 31' 16.776 N	103° 35' 6.603 W
6,064.9	0.49	291.48	6,064.4	10.5	-5.4	554,180.69	730,607.68	32° 31' 16.777 N	103° 35' 6.611 W
6,157.3	0.40	277.64	6,156.8	10.7	-6.1	554,180.88	730,607.00	32° 31' 16.779 N	103° 35' 6.619 W
6,250.0	0.40	285.75	6,249.5	10.8	-6.7	554,181.01	730,606.36	32° 31' 16.780 N	103° 35' 6.627 W
6,342.8	0.31	307.92	6,342.4	11.0	-7.2	554,181.25	730,605.85	32° 31' 16.783 N	103° 35' 6.633 W
6,434.0	0.31	305.62	6,433.5	11.3	-7.6	554,181.54	730,605.46	32° 31' 16.786 N	103° 35' 6.637 W
6,526.7	0.40	325.67	6,526.2	11.8	-8.0	554,181.96	730,605.07	32° 31' 16.790 N	103° 35' 6.642 W
6,619.7	0.31	310.43	6,619.2	12.2	-8.4	554,182.39	730,604.70	32° 31' 16.794 N	103° 35' 6.646 W
6,712.0	0.22	249.66	6,711.5	12.3	-8.8	554,182.49	730,604.34	32° 31' 16.795 N	103° 35' 6.650 W

Stryker Directional Survey Report - Geographic

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Corazon State Unit #10H
Project:	Lea County, N.M.	TVD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Site:	Section 4 T21-S R33-E Corazon State Unit #10H	MD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Well:	Corazon State Unit #10H	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
6,803.5	0.40	218.50	6,803.1	12.0	-9.1	554,182.18	730,603.98	32° 31' 16.792 N	103° 35' 6.655 W
6,895.6	0.62	214.05	6,895.1	11.3	-9.6	554,181.51	730,603.50	32° 31' 16.786 N	103° 35' 6.660 W
6,988.2	0.62	208.37	6,987.7	10.5	-10.1	554,180.66	730,602.98	32° 31' 16.777 N	103° 35' 6.666 W
7,080.3	0.71	211.67	7,079.8	9.5	-10.7	554,179.73	730,602.44	32° 31' 16.768 N	103° 35' 6.673 W
7,174.6	0.80	198.94	7,174.1	8.4	-11.2	554,178.61	730,601.92	32° 31' 16.757 N	103° 35' 6.679 W
7,265.9	0.80	202.95	7,265.4	7.2	-11.6	554,177.42	730,601.47	32° 31' 16.745 N	103° 35' 6.684 W
7,359.0	0.71	199.42	7,358.5	6.1	-12.1	554,176.28	730,601.02	32° 31' 16.734 N	103° 35' 6.690 W
7,448.3	0.62	187.30	7,447.8	5.1	-12.3	554,175.28	730,600.78	32° 31' 16.724 N	103° 35' 6.693 W
7,512.6	0.71	167.16	7,512.0	4.3	-12.3	554,174.55	730,600.82	32° 31' 16.717 N	103° 35' 6.692 W
7,540.5	0.62	167.56	7,539.9	4.0	-12.2	554,174.23	730,600.89	32° 31' 16.714 N	103° 35' 6.691 W
7,633.7	0.62	141.87	7,633.1	3.1	-11.8	554,173.34	730,601.31	32° 31' 16.705 N	103° 35' 6.686 W
7,726.8	0.71	107.28	7,726.3	2.6	-10.9	554,172.77	730,602.17	32° 31' 16.699 N	103° 35' 6.676 W
7,819.3	0.62	115.61	7,818.7	2.2	-9.9	554,172.39	730,603.17	32° 31' 16.695 N	103° 35' 6.665 W
7,911.8	0.71	107.19	7,911.3	1.8	-8.9	554,172.00	730,604.17	32° 31' 16.691 N	103° 35' 6.653 W
8,002.7	0.49	112.08	8,002.2	1.5	-8.0	554,171.69	730,605.07	32° 31' 16.688 N	103° 35' 6.643 W
8,094.5	0.88	120.63	8,093.9	1.0	-7.1	554,171.18	730,606.04	32° 31' 16.683 N	103° 35' 6.631 W
8,187.5	0.80	145.57	8,186.9	0.1	-6.1	554,170.28	730,607.02	32° 31' 16.674 N	103° 35' 6.620 W
8,280.2	1.02	155.22	8,279.6	-1.2	-5.4	554,169.00	730,607.73	32° 31' 16.661 N	103° 35' 6.612 W
8,372.3	1.19	158.44	8,371.6	-2.8	-4.7	554,167.37	730,608.43	32° 31' 16.645 N	103° 35' 6.604 W
8,465.8	1.10	162.32	8,465.2	-4.6	-4.0	554,165.61	730,609.06	32° 31' 16.628 N	103° 35' 6.597 W
8,555.5	1.02	159.23	8,554.9	-6.2	-3.5	554,164.04	730,609.60	32° 31' 16.612 N	103° 35' 6.590 W
8,649.0	1.02	166.46	8,648.3	-7.7	-3.0	554,162.45	730,610.09	32° 31' 16.596 N	103° 35' 6.585 W
8,741.6	0.80	168.35	8,740.9	-9.2	-2.7	554,161.02	730,610.42	32° 31' 16.582 N	103° 35' 6.581 W
8,834.9	0.71	154.69	8,834.2	-10.3	-2.3	554,159.86	730,610.80	32° 31' 16.571 N	103° 35' 6.577 W
8,927.9	0.31	133.85	8,927.2	-11.0	-1.9	554,159.16	730,611.22	32° 31' 16.564 N	103° 35' 6.572 W
9,021.0	0.31	322.37	9,020.3	-11.0	-1.8	554,159.19	730,611.25	32° 31' 16.564 N	103° 35' 6.572 W
9,109.9	0.31	311.22	9,109.2	-10.7	-2.2	554,159.54	730,610.92	32° 31' 16.568 N	103° 35' 6.575 W
9,203.0	0.62	250.76	9,202.3	-10.7	-2.8	554,159.54	730,610.26	32° 31' 16.568 N	103° 35' 6.583 W
9,294.8	1.10	287.07	9,294.1	-10.6	-4.1	554,159.63	730,608.95	32° 31' 16.569 N	103° 35' 6.598 W
9,387.5	1.59	285.09	9,386.8	-10.0	-6.2	554,160.23	730,606.85	32° 31' 16.575 N	103° 35' 6.623 W
9,479.1	1.50	279.76	9,478.3	-9.4	-8.6	554,160.76	730,604.45	32° 31' 16.580 N	103° 35' 6.651 W
9,570.7	1.02	311.75	9,569.9	-8.7	-10.4	554,161.51	730,602.66	32° 31' 16.588 N	103° 35' 6.672 W
9,660.1	0.88	345.33	9,659.3	-7.5	-11.2	554,162.70	730,601.89	32° 31' 16.599 N	103° 35' 6.681 W
9,728.5	0.62	345.15	9,727.7	-6.6	-11.4	554,163.57	730,601.66	32° 31' 16.608 N	103° 35' 6.683 W
9,751.0	0.40	317.17	9,750.2	-6.5	-11.5	554,163.74	730,601.58	32° 31' 16.610 N	103° 35' 6.684 W
9,843.9	0.62	305.32	9,843.1	-5.9	-12.2	554,164.27	730,600.95	32° 31' 16.615 N	103° 35' 6.691 W
9,939.1	0.49	268.83	9,938.3	-5.6	-13.0	554,164.56	730,600.12	32° 31' 16.618 N	103° 35' 6.701 W
10,032.4	0.71	232.43	10,031.6	-6.0	-13.8	554,164.20	730,599.26	32° 31' 16.614 N	103° 35' 6.711 W
10,123.0	0.88	232.03	10,122.2	-6.8	-14.8	554,163.43	730,598.27	32° 31' 16.607 N	103° 35' 6.723 W
10,215.8	0.49	308.14	10,215.0	-7.0	-15.7	554,163.24	730,597.39	32° 31' 16.605 N	103° 35' 6.733 W
10,307.7	0.88	50.43	10,306.8	-6.3	-15.5	554,163.93	730,597.63	32° 31' 16.612 N	103° 35' 6.730 W
10,401.1	1.19	42.19	10,400.3	-5.1	-14.3	554,165.11	730,598.83	32° 31' 16.623 N	103° 35' 6.716 W
10,492.2	1.02	16.63	10,491.4	-3.6	-13.4	554,166.58	730,599.70	32° 31' 16.638 N	103° 35' 6.706 W
10,583.8	0.80	31.26	10,582.9	-2.3	-12.8	554,167.91	730,600.27	32° 31' 16.651 N	103° 35' 6.699 W
10,676.6	0.62	156.41	10,675.7	-2.2	-12.3	554,168.00	730,600.80	32° 31' 16.652 N	103° 35' 6.693 W
10,770.3	1.02	146.10	10,769.4	-3.4	-11.6	554,166.85	730,601.47	32° 31' 16.641 N	103° 35' 6.685 W
10,855.3	1.19	176.07	10,854.4	-4.9	-11.1	554,165.34	730,601.95	32° 31' 16.626 N	103° 35' 6.680 W
10,900.0	1.30	181.50	10,899.1	-5.8	-11.1	554,164.37	730,601.97	32° 31' 16.616 N	103° 35' 6.679 W
10,930.0	2.50	191.30	10,929.1	-6.8	-11.3	554,163.39	730,601.84	32° 31' 16.606 N	103° 35' 6.681 W
10,961.0	6.50	172.40	10,960.0	-9.2	-11.2	554,160.98	730,601.93	32° 31' 16.582 N	103° 35' 6.680 W
10,992.0	11.20	159.20	10,990.6	-13.8	-9.9	554,156.43	730,603.24	32° 31' 16.537 N	103° 35' 6.665 W
11,022.0	16.70	151.50	11,019.7	-20.3	-6.8	554,149.91	730,606.33	32° 31' 16.473 N	103° 35' 6.630 W
11,053.0	21.90	150.60	11,048.9	-29.2	-1.8	554,140.95	730,611.30	32° 31' 16.384 N	103° 35' 6.572 W
11,084.0	24.80	152.00	11,077.4	-40.0	4.1	554,130.17	730,617.19	32° 31' 16.277 N	103° 35' 6.505 W

Stryker Directional

Survey Report - Geographic

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Corazon State Unit #10H
Project:	Lea County, N.M.	TVD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Site:	Section 4 T21-S R33-E Corazon State Unit #10H	MD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Well:	Corazon State Unit #10H	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	
11,114.0	26.50	151.80	11,104.4	-51.5	10.2	554,118.72	730,623.31	32° 31' 16.163 N	103° 35' 6.434 W	
11,145.0	28.00	148.90	11,132.0	-63.8	17.2	554,106.39	730,630.33	32° 31' 16.040 N	103° 35' 6.353 W	
11,176.0	30.90	145.80	11,159.0	-76.6	25.5	554,093.57	730,638.57	32° 31' 15.913 N	103° 35' 6.258 W	
11,207.0	34.50	144.30	11,185.1	-90.3	35.1	554,079.86	730,648.17	32° 31' 15.777 N	103° 35' 6.147 W	
11,237.0	37.50	142.20	11,209.3	-104.5	45.6	554,065.74	730,658.73	32° 31' 15.636 N	103° 35' 6.025 W	
11,268.0	39.40	140.90	11,233.6	-119.6	57.6	554,050.65	730,670.72	32° 31' 15.486 N	103° 35' 5.886 W	
11,299.0	41.00	141.60	11,257.3	-135.2	70.1	554,035.04	730,683.24	32° 31' 15.331 N	103° 35' 5.741 W	
11,329.0	42.70	141.20	11,279.6	-150.8	82.6	554,019.40	730,695.73	32° 31' 15.175 N	103° 35' 5.596 W	
11,360.0	46.20	141.20	11,301.8	-167.7	96.2	554,002.48	730,709.33	32° 31' 15.007 N	103° 35' 5.439 W	
11,391.0	50.60	141.20	11,322.3	-185.8	110.8	553,984.42	730,723.85	32° 31' 14.827 N	103° 35' 5.271 W	
11,421.0	53.40	139.20	11,340.8	-203.9	125.9	553,966.27	730,738.98	32° 31' 14.646 N	103° 35' 5.096 W	
11,452.0	55.70	137.10	11,358.8	-222.7	142.7	553,947.46	730,755.84	32° 31' 14.459 N	103° 35' 4.900 W	
11,483.0	59.80	137.50	11,375.3	-242.0	160.5	553,928.20	730,773.61	32° 31' 14.267 N	103° 35' 4.694 W	
11,513.0	62.80	136.10	11,389.7	-261.2	178.5	553,909.02	730,791.62	32° 31' 14.076 N	103° 35' 4.486 W	
11,544.0	64.90	134.70	11,403.4	-281.0	198.1	553,889.21	730,811.16	32° 31' 13.879 N	103° 35' 4.259 W	
11,575.0	67.80	134.30	11,415.8	-300.9	218.3	553,869.31	730,831.41	32° 31' 13.680 N	103° 35' 4.024 W	
11,606.0	70.90	136.40	11,426.8	-321.5	238.7	553,848.68	730,851.79	32° 31' 13.475 N	103° 35' 3.788 W	
11,636.0	74.20	137.90	11,435.8	-342.5	258.2	553,827.70	730,871.25	32° 31' 13.266 N	103° 35' 3.562 W	
11,667.0	76.40	138.40	11,443.6	-364.8	278.2	553,805.36	730,891.26	32° 31' 13.043 N	103° 35' 3.330 W	
11,698.0	78.40	138.40	11,450.4	-387.5	298.2	553,782.74	730,911.34	32° 31' 12.818 N	103° 35' 3.098 W	
11,729.0	82.20	139.50	11,455.6	-410.5	318.3	553,759.70	730,931.40	32° 31' 12.589 N	103° 35' 2.865 W	
11,759.0	85.40	141.00	11,458.9	-433.4	337.4	553,736.77	730,950.47	32° 31' 12.361 N	103° 35' 2.645 W	
11,790.0	87.60	141.50	11,460.7	-457.6	356.7	553,712.64	730,969.84	32° 31' 12.121 N	103° 35' 2.420 W	
11,846.0	88.10	141.50	11,462.8	-501.4	391.6	553,668.84	731,004.67	32° 31' 11.685 N	103° 35' 2.017 W	
11,939.0	89.80	143.00	11,464.6	-574.9	448.5	553,595.33	731,061.59	32° 31' 10.953 N	103° 35' 1.358 W	
12,032.0	91.00	146.80	11,463.9	-650.9	502.0	553,519.26	731,115.06	32° 31' 10.197 N	103° 35' 0.740 W	
12,124.0	90.90	151.40	11,462.4	-729.9	549.2	553,440.35	731,162.28	32° 31' 9.413 N	103° 35' 0.195 W	
12,216.0	89.40	154.70	11,462.1	-811.9	590.9	553,358.35	731,203.97	32° 31' 8.599 N	103° 34' 59.715 W	
12,308.0	89.50	158.30	11,463.0	-896.2	627.6	553,274.00	731,240.65	32° 31' 7.761 N	103° 34' 59.294 W	
12,400.0	89.80	162.70	11,463.6	-982.9	658.3	553,187.30	731,271.35	32° 31' 6.901 N	103° 34' 58.942 W	
12,493.0	87.70	165.40	11,465.6	-1,072.3	683.8	553,097.92	731,296.90	32° 31' 6.015 N	103° 34' 58.651 W	
12,585.0	87.10	169.70	11,469.8	-1,162.0	703.6	553,008.19	731,316.71	32° 31' 5.126 N	103° 34' 58.427 W	
12,677.0	89.60	173.40	11,472.4	-1,252.9	717.1	552,917.25	731,330.22	32° 31' 4.225 N	103° 34' 58.277 W	
12,769.0	89.90	177.10	11,472.8	-1,344.6	724.7	552,825.59	731,337.83	32° 31' 3.317 N	103° 34' 58.196 W	
12,861.0	90.70	180.20	11,472.4	-1,436.6	726.9	552,733.62	731,340.00	32° 31' 2.407 N	103° 34' 58.178 W	
12,954.0	90.30	180.60	11,471.5	-1,529.6	726.3	552,640.63	731,339.35	32° 31' 1.487 N	103° 34' 58.193 W	
13,046.0	89.10	182.10	11,472.0	-1,621.5	724.1	552,548.66	731,337.18	32° 31' 0.577 N	103° 34' 58.226 W	
13,138.0	87.90	181.30	11,474.4	-1,713.5	721.4	552,456.74	731,334.46	32° 30' 59.668 N	103° 34' 58.265 W	
13,230.0	89.00	180.70	11,476.9	-1,805.4	719.8	552,364.79	731,332.85	32° 30' 58.758 N	103° 34' 58.292 W	
13,322.0	90.40	180.70	11,477.4	-1,897.4	718.6	552,272.80	731,331.73	32° 30' 57.848 N	103° 34' 58.312 W	
13,415.0	89.60	180.70	11,477.4	-1,990.4	717.5	552,179.80	731,330.59	32° 30' 56.928 N	103° 34' 58.333 W	
13,509.0	88.20	181.50	11,479.2	-2,084.4	715.7	552,085.84	731,328.79	32° 30' 55.998 N	103° 34' 58.362 W	
13,601.0	89.50	181.50	11,481.1	-2,176.3	713.3	551,993.89	731,326.38	32° 30' 55.089 N	103° 34' 58.398 W	
13,693.0	87.40	182.30	11,483.5	-2,268.2	710.2	551,901.98	731,323.33	32° 30' 54.179 N	103° 34' 58.441 W	
13,785.0	88.50	182.40	11,486.8	-2,360.1	706.5	551,810.12	731,319.56	32° 30' 53.271 N	103° 34' 58.493 W	
13,877.0	89.60	182.20	11,488.4	-2,452.0	702.8	551,718.21	731,315.87	32° 30' 52.361 N	103° 34' 58.543 W	
13,969.0	89.20	182.00	11,489.3	-2,543.9	699.4	551,626.28	731,312.50	32° 30' 51.452 N	103° 34' 58.590 W	
14,061.0	87.20	179.40	11,492.2	-2,635.9	698.3	551,534.34	731,311.37	32° 30' 50.542 N	103° 34' 58.611 W	
14,154.0	90.80	179.30	11,493.8	-2,728.8	699.3	551,441.38	731,312.43	32° 30' 49.622 N	103° 34' 58.606 W	
14,248.0	90.40	181.80	11,492.9	-2,822.8	698.4	551,347.39	731,311.53	32° 30' 48.692 N	103° 34' 58.624 W	
14,340.0	89.70	181.20	11,492.8	-2,914.8	696.0	551,255.43	731,309.12	32° 30' 47.783 N	103° 34' 58.660 W	
14,432.0	90.00	180.90	11,493.0	-3,006.8	694.3	551,163.44	731,307.43	32° 30' 46.873 N	103° 34' 58.687 W	
14,524.0	89.70	180.70	11,493.3	-3,098.8	693.1	551,071.45	731,306.15	32° 30' 45.962 N	103° 34' 58.710 W	
14,617.0	88.70	179.50	11,494.6	-3,191.7	692.9	550,978.46	731,305.99	32° 30' 45.042 N	103° 34' 58.719 W	

Stryker Directional

Survey Report - Geographic

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Corazon State Unit #10H
Project:	Lea County, N.M.	TVD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Site:	Section 4 T21-S R33-E Corazon State Unit #10H	MD Reference:	GL 3754.9+26 @ 3780.9usft (Precision 590)
Well:	Corazon State Unit #10H	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
14,711.0	90.00	179.90	11,495.6	-3,285.7	693.4	550,884.47	731,306.48	32° 30' 44.112 N	103° 34' 58.721 W
14,804.0	88.90	179.40	11,496.5	-3,378.7	693.9	550,791.48	731,307.05	32° 30' 43.192 N	103° 34' 58.722 W
14,899.0	89.80	179.40	11,497.6	-3,473.7	694.9	550,696.49	731,308.04	32° 30' 42.252 N	103° 34' 58.719 W
14,991.0	90.60	179.00	11,497.3	-3,565.7	696.2	550,604.50	731,309.32	32° 30' 41.342 N	103° 34' 58.711 W
15,084.0	91.30	180.30	11,495.7	-3,658.7	696.8	550,511.52	731,309.89	32° 30' 40.422 N	103° 34' 58.712 W
15,177.0	91.30	181.00	11,493.6	-3,751.7	695.7	550,418.55	731,308.84	32° 30' 39.502 N	103° 34' 58.732 W
15,272.0	88.80	182.10	11,493.5	-3,846.6	693.2	550,323.59	731,306.27	32° 30' 38.562 N	103° 34' 58.770 W
15,367.0	88.80	181.90	11,495.5	-3,941.5	689.9	550,228.67	731,302.95	32° 30' 37.623 N	103° 34' 58.816 W
15,462.0	88.80	181.40	11,497.5	-4,036.5	687.1	550,133.73	731,300.22	32° 30' 36.684 N	103° 34' 58.856 W
15,556.0	89.00	180.20	11,499.3	-4,130.4	685.8	550,039.76	731,298.91	32° 30' 35.754 N	103° 34' 58.879 W
15,651.0	89.80	179.70	11,500.3	-4,225.4	685.9	549,944.77	731,298.99	32° 30' 34.814 N	103° 34' 58.886 W
15,745.0	89.80	181.90	11,500.6	-4,319.4	684.6	549,850.78	731,297.68	32° 30' 33.884 N	103° 34' 58.909 W
15,840.0	90.50	181.60	11,500.4	-4,414.4	681.7	549,755.83	731,294.78	32° 30' 32.945 N	103° 34' 58.951 W
15,932.0	91.30	181.40	11,498.9	-4,506.3	679.3	549,663.87	731,292.37	32° 30' 32.035 N	103° 34' 58.987 W
16,025.0	90.20	182.70	11,497.7	-4,599.3	675.9	549,570.94	731,289.04	32° 30' 31.116 N	103° 34' 59.033 W
16,117.0	87.10	182.60	11,499.9	-4,691.1	671.7	549,479.08	731,284.79	32° 30' 30.207 N	103° 34' 59.090 W
16,209.0	87.80	182.70	11,504.0	-4,782.9	667.4	549,387.27	731,280.54	32° 30' 29.299 N	103° 34' 59.147 W
16,301.0	88.40	181.80	11,507.0	-4,874.8	663.8	549,295.39	731,276.93	32° 30' 28.390 N	103° 34' 59.197 W
16,393.0	89.20	181.40	11,509.0	-4,966.8	661.3	549,203.45	731,274.36	32° 30' 27.481 N	103° 34' 59.235 W
16,480.0	89.80	181.40	11,509.7	-5,053.7	659.1	549,116.48	731,272.24	32° 30' 26.620 N	103° 34' 59.267 W
16,572.0	91.10	181.20	11,509.0	-5,145.7	657.1	549,024.51	731,270.15	32° 30' 25.710 N	103° 34' 59.299 W
16,664.0	90.20	180.80	11,508.0	-5,237.7	655.4	548,932.53	731,268.54	32° 30' 24.800 N	103° 34' 59.325 W
16,758.0	88.80	180.20	11,508.8	-5,331.7	654.6	548,838.54	731,267.72	32° 30' 23.870 N	103° 34' 59.342 W
16,851.0	89.50	179.50	11,510.2	-5,424.7	654.9	548,745.55	731,267.97	32° 30' 22.950 N	103° 34' 59.347 W
16,943.0	89.00	177.30	11,511.4	-5,516.6	657.4	548,653.60	731,270.54	32° 30' 22.040 N	103° 34' 59.324 W
17,035.0	89.20	177.70	11,512.8	-5,608.5	661.5	548,561.70	731,274.55	32° 30' 21.130 N	103° 34' 59.285 W
17,128.0	90.90	179.90	11,512.7	-5,701.5	663.4	548,468.73	731,276.50	32° 30' 20.210 N	103° 34' 59.270 W
17,220.0	89.60	180.80	11,512.3	-5,793.5	662.8	548,376.73	731,275.93	32° 30' 19.300 N	103° 34' 59.284 W
17,312.0	90.60	180.60	11,512.2	-5,885.5	661.7	548,284.74	731,274.81	32° 30' 18.390 N	103° 34' 59.305 W
17,404.0	87.70	179.80	11,513.5	-5,977.4	661.4	548,192.76	731,274.49	32° 30' 17.480 N	103° 34' 59.316 W
17,497.0	88.50	179.60	11,516.6	-6,070.4	661.9	548,099.82	731,274.98	32° 30' 16.560 N	103° 34' 59.318 W
17,590.0	89.30	179.50	11,518.4	-6,163.4	662.6	548,006.84	731,275.71	32° 30' 15.640 N	103° 34' 59.317 W
17,682.0	90.20	179.10	11,518.8	-6,255.4	663.7	547,914.85	731,276.83	32° 30' 14.730 N	103° 34' 59.312 W
17,774.0	89.10	179.50	11,519.4	-6,347.3	664.9	547,822.86	731,277.95	32° 30' 13.819 N	103° 34' 59.306 W
17,867.0	89.70	179.20	11,520.3	-6,440.3	665.9	547,729.87	731,279.01	32° 30' 12.899 N	103° 34' 59.301 W
17,961.0	89.60	177.80	11,520.9	-6,534.3	668.4	547,635.90	731,281.47	32° 30' 11.969 N	103° 34' 59.280 W
18,053.0	88.30	177.80	11,522.6	-6,626.2	671.9	547,543.99	731,285.00	32° 30' 11.059 N	103° 34' 59.247 W
18,145.0	89.10	179.80	11,524.7	-6,718.2	673.8	547,452.04	731,286.93	32° 30' 10.149 N	103° 34' 59.232 W
18,237.0	90.30	179.60	11,525.2	-6,810.2	674.3	547,360.04	731,287.41	32° 30' 9.239 N	103° 34' 59.234 W
18,329.0	91.00	178.80	11,524.1	-6,902.1	675.6	547,268.06	731,288.69	32° 30' 8.329 N	103° 34' 59.226 W
18,421.0	89.80	179.90	11,523.5	-6,994.1	676.6	547,176.07	731,289.74	32° 30' 7.418 N	103° 34' 59.222 W
18,513.0	90.50	179.30	11,523.2	-7,086.1	677.3	547,084.07	731,290.38	32° 30' 6.508 N	103° 34' 59.222 W
18,591.0	89.90	179.00	11,523.0	-7,164.1	678.4	547,006.08	731,291.53	32° 30' 5.736 N	103° 34' 59.215 W
18,641.0	89.90	179.00	11,523.1	-7,214.1	679.3	546,956.09	731,292.41	32° 30' 5.241 N	103° 34' 59.209 W

18641' TD

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
18,641.0	11,523.1	-7,214.1	679.3	18641' TD