



30-025-41910

September 17, 2014

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

HOBBSOCD

JAN 20 2015

RECEIVED

Attn: Kanicia Castillo

RE: Corvo Federal No. 002H

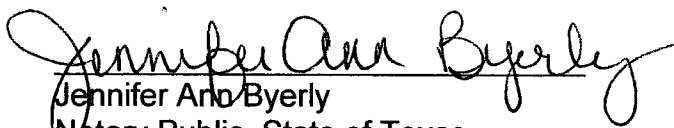
Please find enclosed a copy of the survey from 0.00' to 7725.00' ran on the above referenced well.

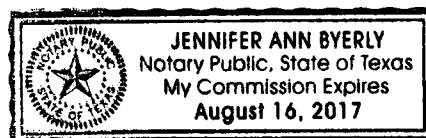
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 17 day of September A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



JAN 29 2015



Company: COG Operating, LLC (Concho)
Lease/Well: Corvo Federal /No. 002H
Location: Sec 32 T24S R32E
Rig Name: Silver Oak 7
State/County: New Mexico/Lea
Latitude: 32.18, Longitude: -103.70
GRID North is 0.34 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB=18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: corvo federal #2h gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 9/15/2014 / 15:20

VES Surey International

West Texas

(432) 563-5444

Surveyor: Chris Bankson

Corvo Federal No. 002H / API 30-025-41910

30-024-41090

HOBBSOCD

JAN 20 2015

RECEIVED

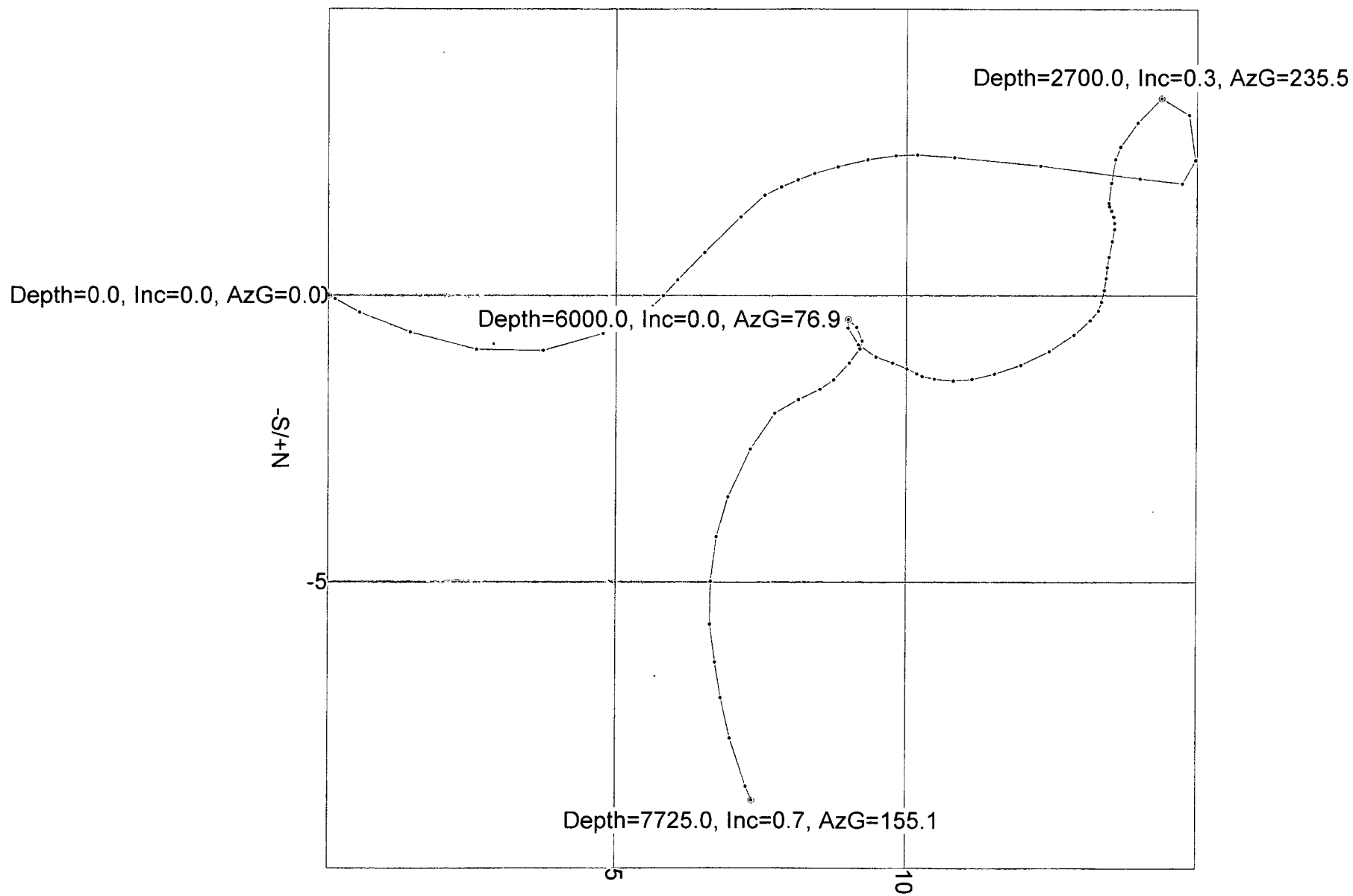
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.15	117.91	100.00	-0.06	0.12	-0.06	0.13	117.91	0.15
200.00	0.40	119.26	200.00	-0.30	0.54	-0.30	0.62	118.68	0.25
300.00	0.69	106.73	299.99	-0.64	1.43	-0.64	1.57	114.23	0.31
400.00	0.68	102.31	399.99	-0.94	2.59	-0.94	2.76	110.02	0.05
500.00	0.66	79.02	499.98	-0.96	3.74	-0.96	3.86	104.44	0.27
600.00	0.58	68.09	599.97	-0.66	4.78	-0.66	4.82	97.91	0.14
700.00	0.21	55.02	699.97	-0.37	5.40	-0.37	5.41	93.90	0.38
800.00	0.12	47.41	799.97	-0.19	5.63	-0.19	5.63	91.96	0.09
900.00	0.19	43.28	899.97	0.00	5.81	0.00	5.81	90.03	0.07
1000.00	0.24	41.07	999.97	0.27	6.06	0.27	6.07	87.45	0.05
1100.00	0.54	45.87	1099.97	0.75	6.53	0.75	6.58	83.44	0.30
1200.00	0.47	43.78	1199.96	1.37	7.15	1.37	7.28	79.14	0.07
1300.00	0.18	57.60	1299.96	1.75	7.56	1.75	7.76	76.98	0.30
1400.00	0.19	68.55	1399.96	1.89	7.85	1.89	8.07	76.45	0.04
1500.00	0.17	65.32	1499.96	2.01	8.13	2.01	8.38	76.10	0.03
1600.00	0.19	71.67	1599.96	2.13	8.42	2.13	8.69	75.84	0.03
1700.00	0.28	74.34	1699.96	2.24	8.82	2.24	9.10	75.72	0.09
1800.00	0.32	78.19	1799.96	2.37	9.33	2.37	9.62	75.76	0.04

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	0.24	86.56	1899.96	2.44	9.81	2.44	10.11	76.05	0.08
2000.00	0.19	89.70	1999.96	2.45	10.18	2.45	10.48	76.47	0.06
2100.00	0.55	95.38	2099.95	2.41	10.83	2.41	11.09	77.47	0.37
2200.00	1.16	95.87	2199.94	2.26	12.31	2.26	12.52	79.61	0.61
2300.00	0.81	99.82	2299.93	2.03	14.01	2.03	14.16	81.74	0.36
2400.00	0.06	45.74	2399.92	1.95	14.74	1.95	14.87	82.46	0.77
2500.00	0.48	26.95	2499.92	2.36	14.97	2.36	15.16	81.04	0.42
2600.00	0.59	324.54	2599.92	3.15	14.86	3.15	15.19	78.03	0.56
2700.00	0.26	235.50	2699.92	3.44	14.38	3.44	14.79	76.55	0.64
2800.00	0.43	216.98	2799.92	3.01	13.97	3.01	14.29	77.83	0.21
2900.00	0.16	207.42	2899.91	2.59	13.68	2.59	13.92	79.28	0.28
3000.00	0.11	194.03	2999.91	2.37	13.59	2.37	13.80	80.10	0.06
3100.00	0.37	188.56	3099.91	1.96	13.52	1.96	13.67	81.74	0.26
3200.00	0.04	173.31	3199.91	1.61	13.48	1.61	13.58	83.18	0.33
3300.00	0.03	163.70	3299.91	1.55	13.49	1.55	13.58	83.43	0.01
3400.00	0.07	151.83	3399.91	1.48	13.53	1.48	13.61	83.77	0.04
3500.00	0.06	169.32	3499.91	1.37	13.56	1.37	13.63	84.22	0.02
3600.00	0.07	176.14	3599.91	1.26	13.58	1.26	13.64	84.69	0.01
3700.00	0.06	185.21	3699.91	1.15	13.58	1.15	13.63	85.14	0.01
3800.00	0.19	192.03	3799.91	0.94	13.54	0.94	13.57	86.01	0.13
3900.00	0.13	190.65	3899.91	0.67	13.48	0.67	13.50	87.14	0.06
4000.00	0.08	186.18	3999.91	0.49	13.45	0.49	13.46	87.90	0.05
4100.00	0.14	186.11	4099.91	0.30	13.43	0.30	13.44	88.71	0.06
4200.00	0.10	191.46	4199.91	0.09	13.40	0.09	13.40	89.61	0.04
4300.00	0.13	193.11	4299.91	-0.11	13.36	-0.11	13.36	90.47	0.03
4400.00	0.06	214.06	4399.91	-0.27	13.30	-0.27	13.30	91.15	0.08
4500.00	0.19	221.29	4499.91	-0.44	13.16	-0.44	13.17	91.90	0.13
4600.00	0.24	232.46	4599.91	-0.69	12.89	-0.69	12.91	93.06	0.07
4700.00	0.34	238.81	4699.91	-0.97	12.47	-0.97	12.50	94.45	0.10
4800.00	0.29	248.44	4799.91	-1.22	11.98	-1.22	12.04	95.80	0.07
4900.00	0.26	254.13	4899.91	-1.37	11.53	-1.37	11.61	96.78	0.04
5000.00	0.19	259.13	4999.90	-1.47	11.14	-1.47	11.23	97.50	0.07
5100.00	0.18	272.30	5099.90	-1.49	10.81	-1.49	10.92	97.85	0.05
5200.00	0.19	279.33	5199.90	-1.46	10.49	-1.46	10.59	97.91	0.03
5300.00	0.06	291.28	5299.90	-1.41	10.28	-1.41	10.37	97.82	0.14
5400.00	0.06	300.62	5399.90	-1.37	10.18	-1.37	10.27	97.64	0.01
5500.00	0.16	295.75	5499.90	-1.28	10.01	-1.28	10.09	97.28	0.10
5600.00	0.16	288.24	5599.90	-1.18	9.76	-1.18	9.83	96.88	0.02
5700.00	0.19	292.10	5699.90	-1.07	9.48	-1.07	9.54	96.45	0.04

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	0.24	315.51	5799.90	-0.86	9.17	-0.86	9.21	95.35	0.10
5900.00	0.17	347.80	5899.90	-0.57	9.00	-0.57	9.01	93.60	0.13
6000.00	0.04	76.95	5999.90	-0.42	9.00	-0.42	9.01	92.64	0.17
6100.00	0.21	143.46	6099.90	-0.55	9.14	-0.55	9.16	93.46	0.20
6200.00	0.11	188.62	6199.90	-0.79	9.24	-0.79	9.27	94.91	0.15
6300.00	0.05	208.64	6299.90	-0.93	9.20	-0.93	9.24	95.77	0.06
6400.00	0.30	217.12	6399.90	-1.18	9.02	-1.18	9.09	97.45	0.25
6500.00	0.16	231.05	6499.90	-1.47	8.75	-1.47	8.88	99.56	0.15
6600.00	0.16	238.87	6599.90	-1.64	8.52	-1.64	8.68	100.86	0.02
6700.00	0.31	246.30	6699.90	-1.82	8.15	-1.82	8.35	102.57	0.15
6800.00	0.24	232.07	6799.90	-2.05	7.74	-2.05	8.01	104.85	0.10
6900.00	0.64	206.96	6899.89	-2.68	7.33	-2.68	7.80	110.08	0.44
7000.00	0.41	201.23	6999.89	-3.51	6.94	-3.51	7.78	116.85	0.23
7100.00	0.42	190.16	7099.89	-4.21	6.75	-4.21	7.95	121.95	0.08
7200.00	0.48	184.69	7199.88	-4.98	6.65	-4.98	8.31	126.85	0.08
7300.00	0.39	175.59	7299.88	-5.74	6.64	-5.74	8.78	130.83	0.12
7400.00	0.38	169.68	7399.88	-6.40	6.73	-6.40	9.29	133.60	0.04
7500.00	0.34	171.96	7499.88	-7.03	6.83	-7.03	9.80	135.83	0.05
7600.00	0.49	164.19	7599.87	-7.73	6.99	-7.73	10.42	137.90	0.16
7700.00	0.53	159.93	7699.87	-8.58	7.26	-8.58	11.24	139.75	0.05
7725.00	0.67	155.06	7724.87	-8.82	7.36	-8.82	11.49	140.14	0.61



VES Surey International
West Texas
(432) 563-5444
Surveyor: Chris Bankson
Corvo Federal No. 002H / API 30-025-41910



-W/+E
VES Survey Date: 08/29/2014

30-025-41910

COG Production LLC

Lea County, N.M.

Section 32-24S-32E Corvo Federal #2H
Corvo Federal #2H

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Original Hole

Design: Original Hole

Survey Report - Geographic

07 September, 2014

SM

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Corvo Federal #2H
Project:	Lea County, N.M.	TVD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Site:	Section 32-24S-32E Corvo Federal #2H	MD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Well:	Corvo Federal #2H	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 32-24S-32E Corvo Federal #2H				
Site Position:		Northing:	429,982.20 usft	Latitude:	32° 10' 49.904 N
From:	Map	Easting:	697,389.90 usft	Longitude:	103° 41' 43.200 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.34 °

Well	Corvo Federal #2H					
Well Position	+N/-S	0.0 usft	Northing:	429,982.20 usft	Latitude:	32° 10' 49.904 N
	+E/-W	0.0 usft	Easting:	697,389.90 usft	Longitude:	103° 41' 43.200 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,491.6 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/20/2014	7.30	60.06	48,300

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	1.69	

Survey Program	Date 9/7/2014				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	7,725.0	VES Gyro Survey (Original Hole)	SRG-GYRO-MS	surface readout gyro multishot	
7,793.0	13,321.0	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	429,982.20	697,389.90	32° 10' 49.904 N	103° 41' 43.200 W	
100.0	0.15	117.91	100.0	-0.1	0.1	429,982.14	697,390.01	32° 10' 49.904 N	103° 41' 43.199 W	
200.0	0.40	119.26	200.0	-0.3	0.5	429,981.91	697,390.43	32° 10' 49.902 N	103° 41' 43.194 W	
300.0	0.69	106.73	300.0	-0.6	1.4	429,981.56	697,391.31	32° 10' 49.898 N	103° 41' 43.184 W	
400.0	0.68	102.31	400.0	-0.9	2.6	429,981.26	697,392.47	32° 10' 49.895 N	103° 41' 43.170 W	
500.0	0.66	79.02	500.0	-1.0	3.7	429,981.25	697,393.61	32° 10' 49.895 N	103° 41' 43.157 W	
600.0	0.58	68.09	600.0	-0.7	4.8	429,981.54	697,394.65	32° 10' 49.898 N	103° 41' 43.145 W	
700.0	0.21	55.02	700.0	-0.4	5.4	429,981.84	697,395.27	32° 10' 49.901 N	103° 41' 43.138 W	
800.0	0.12	47.41	800.0	-0.2	5.6	429,982.01	697,395.50	32° 10' 49.902 N	103° 41' 43.135 W	
900.0	0.19	43.28	900.0	0.0	5.8	429,982.21	697,395.69	32° 10' 49.904 N	103° 41' 43.133 W	
1,000.0	0.24	41.07	1,000.0	0.3	6.0	429,982.48	697,395.94	32° 10' 49.907 N	103° 41' 43.130 W	

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Corvo Federal #2H
Project:	Lea County, N.M.	TVD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Site:	Section 32-24S-32E Corvo Federal #2H	MD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Well:	Corvo Federal #2H	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
1,100.0	0.54	45.87	1,100.0	0.8	6.5	429,982.97	697,396.41	32° 10' 49.912 N	103° 41' 43.124 W
1,200.0	0.47	43.78	1,200.0	1.4	7.1	429,983.59	697,397.04	32° 10' 49.918 N	103° 41' 43.117 W
1,300.0	0.18	57.60	1,300.0	1.8	7.6	429,983.98	697,397.45	32° 10' 49.922 N	103° 41' 43.112 W
1,400.0	0.19	68.55	1,400.0	1.9	7.8	429,984.12	697,397.74	32° 10' 49.923 N	103° 41' 43.109 W
1,500.0	0.17	65.32	1,500.0	2.0	8.1	429,984.24	697,398.03	32° 10' 49.924 N	103° 41' 43.105 W
1,600.0	0.19	71.67	1,600.0	2.2	8.4	429,984.36	697,398.32	32° 10' 49.925 N	103° 41' 43.102 W
1,700.0	0.28	74.34	1,700.0	2.3	8.8	429,984.47	697,398.71	32° 10' 49.926 N	103° 41' 43.097 W
1,800.0	0.32	78.19	1,800.0	2.4	9.3	429,984.60	697,399.22	32° 10' 49.928 N	103° 41' 43.091 W
1,900.0	0.24	86.56	1,900.0	2.5	9.8	429,984.67	697,399.70	32° 10' 49.928 N	103° 41' 43.086 W
2,000.0	0.19	89.70	2,000.0	2.5	10.2	429,984.68	697,400.08	32° 10' 49.928 N	103° 41' 43.081 W
2,100.0	0.55	95.38	2,100.0	2.4	10.8	429,984.64	697,400.72	32° 10' 49.928 N	103° 41' 43.074 W
2,200.0	1.16	95.87	2,199.9	2.3	12.3	429,984.49	697,402.21	32° 10' 49.926 N	103° 41' 43.057 W
2,300.0	0.81	99.82	2,299.9	2.1	14.0	429,984.26	697,403.91	32° 10' 49.924 N	103° 41' 43.037 W
2,400.0	0.06	45.74	2,399.9	2.0	14.7	429,984.18	697,404.65	32° 10' 49.923 N	103° 41' 43.028 W
2,500.0	0.48	26.95	2,499.9	2.4	15.0	429,984.59	697,404.87	32° 10' 49.927 N	103° 41' 43.026 W
2,600.0	0.59	324.54	2,599.9	3.2	14.9	429,985.38	697,404.76	32° 10' 49.935 N	103° 41' 43.027 W
2,700.0	0.26	235.50	2,699.9	3.5	14.4	429,985.67	697,404.28	32° 10' 49.938 N	103° 41' 43.033 W
2,800.0	0.43	216.98	2,799.9	3.0	14.0	429,985.25	697,403.87	32° 10' 49.934 N	103° 41' 43.037 W
2,900.0	0.16	207.42	2,899.9	2.6	13.7	429,984.82	697,403.58	32° 10' 49.930 N	103° 41' 43.041 W
3,000.0	0.11	194.03	2,999.9	2.4	13.6	429,984.60	697,403.49	32° 10' 49.927 N	103° 41' 43.042 W
3,100.0	0.37	188.56	3,099.9	2.0	13.5	429,984.19	697,403.42	32° 10' 49.923 N	103° 41' 43.043 W
3,200.0	0.04	173.31	3,199.9	1.6	13.5	429,983.84	697,403.37	32° 10' 49.920 N	103° 41' 43.043 W
3,300.0	0.03	163.70	3,299.9	1.6	13.5	429,983.78	697,403.38	32° 10' 49.919 N	103° 41' 43.043 W
3,400.0	0.07	151.83	3,399.9	1.5	13.5	429,983.70	697,403.42	32° 10' 49.919 N	103° 41' 43.043 W
3,500.0	0.06	169.32	3,499.9	1.4	13.6	429,983.59	697,403.46	32° 10' 49.917 N	103° 41' 43.042 W
3,600.0	0.07	176.14	3,599.9	1.3	13.6	429,983.48	697,403.47	32° 10' 49.916 N	103° 41' 43.042 W
3,700.0	0.06	185.21	3,699.9	1.2	13.6	429,983.37	697,403.47	32° 10' 49.915 N	103° 41' 43.042 W
3,800.0	0.19	192.03	3,799.9	1.0	13.5	429,983.15	697,403.43	32° 10' 49.913 N	103° 41' 43.043 W
3,900.0	0.13	190.65	3,899.9	0.7	13.5	429,982.88	697,403.38	32° 10' 49.910 N	103° 41' 43.043 W
4,000.0	0.08	186.18	3,999.9	0.5	13.5	429,982.70	697,403.35	32° 10' 49.909 N	103° 41' 43.044 W
4,100.0	0.14	186.11	4,099.9	0.3	13.4	429,982.51	697,403.33	32° 10' 49.907 N	103° 41' 43.044 W
4,200.0	0.10	191.46	4,199.9	0.1	13.4	429,982.30	697,403.30	32° 10' 49.905 N	103° 41' 43.044 W
4,300.0	0.13	193.11	4,299.9	-0.1	13.4	429,982.11	697,403.25	32° 10' 49.903 N	103° 41' 43.045 W
4,400.0	0.06	214.06	4,399.9	-0.2	13.3	429,981.95	697,403.20	32° 10' 49.901 N	103° 41' 43.045 W
4,500.0	0.19	221.29	4,499.9	-0.4	13.2	429,981.78	697,403.06	32° 10' 49.900 N	103° 41' 43.047 W
4,600.0	0.24	232.46	4,599.9	-0.7	12.9	429,981.53	697,402.79	32° 10' 49.897 N	103° 41' 43.050 W
4,700.0	0.34	238.81	4,699.9	-0.9	12.5	429,981.25	697,402.37	32° 10' 49.894 N	103° 41' 43.055 W
4,800.0	0.29	248.44	4,799.9	-1.2	12.0	429,981.00	697,401.88	32° 10' 49.892 N	103° 41' 43.061 W
4,900.0	0.26	254.13	4,899.9	-1.4	11.5	429,980.85	697,401.42	32° 10' 49.890 N	103° 41' 43.066 W
5,000.0	0.19	259.13	4,999.9	-1.4	11.1	429,980.76	697,401.04	32° 10' 49.890 N	103° 41' 43.071 W
5,100.0	0.18	272.30	5,099.9	-1.5	10.8	429,980.73	697,400.72	32° 10' 49.889 N	103° 41' 43.074 W
5,200.0	0.19	279.33	5,199.9	-1.4	10.5	429,980.76	697,400.40	32° 10' 49.890 N	103° 41' 43.078 W
5,300.0	0.06	291.28	5,299.9	-1.4	10.3	429,980.81	697,400.19	32° 10' 49.890 N	103° 41' 43.080 W
5,400.0	0.06	300.62	5,399.9	-1.3	10.2	429,980.86	697,400.09	32° 10' 49.891 N	103° 41' 43.082 W
5,500.0	0.16	295.75	5,499.9	-1.3	10.0	429,980.94	697,399.92	32° 10' 49.891 N	103° 41' 43.083 W
5,600.0	0.16	288.24	5,599.9	-1.2	9.8	429,981.05	697,399.67	32° 10' 49.893 N	103° 41' 43.086 W
5,700.0	0.19	292.10	5,699.9	-1.0	9.5	429,981.15	697,399.38	32° 10' 49.894 N	103° 41' 43.090 W
5,800.0	0.24	315.51	5,799.9	-0.8	9.2	429,981.36	697,399.08	32° 10' 49.896 N	103° 41' 43.093 W
5,900.0	0.17	347.80	5,899.9	-0.5	9.0	429,981.66	697,398.90	32° 10' 49.899 N	103° 41' 43.095 W
6,000.0	0.04	76.95	5,999.9	-0.4	9.0	429,981.81	697,398.90	32° 10' 49.900 N	103° 41' 43.095 W
6,100.0	0.21	143.46	6,099.9	-0.5	9.2	429,981.67	697,399.05	32° 10' 49.899 N	103° 41' 43.094 W
6,200.0	0.11	188.62	6,199.9	-0.8	9.2	429,981.43	697,399.14	32° 10' 49.896 N	103° 41' 43.093 W
6,300.0	0.05	208.64	6,299.9	-0.9	9.2	429,981.30	697,399.11	32° 10' 49.895 N	103° 41' 43.093 W
6,400.0	0.30	217.12	6,399.9	-1.1	9.0	429,981.05	697,398.93	32° 10' 49.893 N	103° 41' 43.095 W
6,500.0	0.16	231.05	6,499.9	-1.4	8.8	429,980.75	697,398.66	32° 10' 49.890 N	103° 41' 43.098 W

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Corvo Federal #2H
Project:	Lea County, N.M.	TVD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Site:	Section 32-24S-32E Corvo Federal #2H	MD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Well:	Corvo Federal #2H	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
6,600.0	0.16	238.87	6,599.9	-1.6	8.5	429,980.59	697,398.43	32° 10' 49.888 N	103° 41' 43.101 W
6,700.0	0.31	246.30	6,699.9	-1.8	8.2	429,980.41	697,398.07	32° 10' 49.886 N	103° 41' 43.105 W
6,800.0	0.24	232.07	6,799.9	-2.0	7.8	429,980.18	697,397.65	32° 10' 49.884 N	103° 41' 43.110 W
6,900.0	0.64	206.96	6,899.9	-2.7	7.3	429,979.55	697,397.23	32° 10' 49.878 N	103° 41' 43.115 W
7,000.0	0.41	201.23	6,999.9	-3.5	7.0	429,978.72	697,396.85	32° 10' 49.870 N	103° 41' 43.119 W
7,100.0	0.42	190.16	7,099.9	-4.2	6.8	429,978.02	697,396.66	32° 10' 49.863 N	103° 41' 43.122 W
7,200.0	0.48	184.69	7,199.9	-5.0	6.7	429,977.25	697,396.56	32° 10' 49.855 N	103° 41' 43.123 W
7,300.0	0.39	175.59	7,299.9	-5.7	6.7	429,976.49	697,396.55	32° 10' 49.848 N	103° 41' 43.123 W
7,400.0	0.38	169.68	7,399.9	-6.4	6.7	429,975.82	697,396.64	32° 10' 49.841 N	103° 41' 43.122 W
7,500.0	0.34	171.96	7,499.9	-7.0	6.8	429,975.20	697,396.74	32° 10' 49.835 N	103° 41' 43.121 W
7,600.0	0.49	164.19	7,599.9	-7.7	7.0	429,974.50	697,396.89	32° 10' 49.828 N	103° 41' 43.119 W
7,700.0	0.53	159.93	7,699.9	-8.5	7.3	429,973.65	697,397.17	32° 10' 49.819 N	103° 41' 43.116 W
7,725.0	0.67	155.06	7,724.9	-8.8	7.4	429,973.41	697,397.27	32° 10' 49.817 N	103° 41' 43.115 W
7725' VES Gyro Survey									
7,793.0	0.70	162.30	7,792.9	-9.5	7.7	429,972.65	697,397.56	32° 10' 49.810 N	103° 41' 43.112 W
7,825.0	0.50	170.40	7,824.9	-9.9	7.8	429,972.33	697,397.65	32° 10' 49.806 N	103° 41' 43.111 W
7,856.0	0.60	25.20	7,855.9	-9.9	7.8	429,972.34	697,397.74	32° 10' 49.806 N	103° 41' 43.110 W
7,888.0	3.70	23.10	7,887.8	-8.8	8.3	429,973.45	697,398.22	32° 10' 49.817 N	103° 41' 43.104 W
7,919.0	7.20	29.20	7,918.7	-6.1	9.7	429,976.06	697,399.56	32° 10' 49.843 N	103° 41' 43.088 W
7,950.0	10.30	30.40	7,949.3	-2.1	12.0	429,980.15	697,401.91	32° 10' 49.883 N	103° 41' 43.060 W
7,982.0	13.30	33.90	7,980.6	3.5	15.5	429,985.67	697,405.41	32° 10' 49.938 N	103° 41' 43.019 W
8,014.0	16.80	37.90	8,011.5	10.2	20.4	429,992.38	697,410.30	32° 10' 50.004 N	103° 41' 42.962 W
8,045.0	20.70	41.10	8,040.9	17.8	26.8	430,000.05	697,416.66	32° 10' 50.080 N	103° 41' 42.887 W
8,076.0	23.70	40.90	8,069.6	26.7	34.4	430,008.89	697,424.34	32° 10' 50.167 N	103° 41' 42.797 W
8,108.0	26.90	37.40	8,098.5	37.3	43.1	430,019.50	697,432.95	32° 10' 50.271 N	103° 41' 42.697 W
8,140.0	29.70	34.10	8,126.7	49.6	51.9	430,031.82	697,441.80	32° 10' 50.392 N	103° 41' 42.593 W
8,171.0	32.70	29.60	8,153.2	63.3	60.3	430,045.47	697,450.24	32° 10' 50.527 N	103° 41' 42.494 W
8,203.0	36.60	26.70	8,179.5	79.3	68.9	430,061.51	697,458.80	32° 10' 50.685 N	103° 41' 42.393 W
8,235.0	38.20	23.40	8,205.0	96.9	77.1	430,079.12	697,467.02	32° 10' 50.859 N	103° 41' 42.296 W
8,266.0	40.30	18.60	8,229.0	115.2	84.1	430,097.42	697,474.03	32° 10' 51.040 N	103° 41' 42.213 W
8,298.0	43.90	15.10	8,252.7	135.8	90.3	430,117.95	697,480.22	32° 10' 51.243 N	103° 41' 42.140 W
8,330.0	46.90	11.10	8,275.2	157.9	95.5	430,140.14	697,485.36	32° 10' 51.462 N	103° 41' 42.078 W
8,361.0	50.50	9.20	8,295.6	180.9	99.6	430,163.06	697,489.45	32° 10' 51.688 N	103° 41' 42.029 W
8,392.0	54.00	8.50	8,314.6	205.1	103.3	430,187.27	697,493.22	32° 10' 51.928 N	103° 41' 41.984 W
8,424.0	57.10	8.00	8,332.7	231.2	107.1	430,213.38	697,497.00	32° 10' 52.186 N	103° 41' 41.938 W
8,455.0	60.00	7.80	8,348.9	257.4	110.7	430,239.58	697,500.64	32° 10' 52.445 N	103° 41' 41.894 W
8,486.0	62.00	7.30	8,363.9	284.3	114.3	430,266.45	697,504.20	32° 10' 52.711 N	103° 41' 41.851 W
8,517.0	64.40	6.40	8,377.9	311.7	117.6	430,293.92	697,507.50	32° 10' 52.982 N	103° 41' 41.810 W
8,548.0	66.10	6.10	8,390.9	339.7	120.7	430,321.91	697,510.56	32° 10' 53.259 N	103° 41' 41.773 W
8,580.0	68.90	5.40	8,403.1	369.1	123.6	430,351.32	697,513.52	32° 10' 53.550 N	103° 41' 41.736 W
8,612.0	71.30	4.60	8,414.0	399.1	126.2	430,381.29	697,516.14	32° 10' 53.846 N	103° 41' 41.704 W
8,644.0	74.80	2.80	8,423.3	429.6	128.2	430,411.83	697,518.11	32° 10' 54.149 N	103° 41' 41.679 W
8,675.0	76.90	2.30	8,430.9	459.7	129.6	430,441.86	697,519.45	32° 10' 54.446 N	103° 41' 41.661 W
8,706.0	78.30	2.00	8,437.6	489.9	130.7	430,472.12	697,520.58	32° 10' 54.745 N	103° 41' 41.646 W
8,737.0	80.20	2.10	8,443.4	520.4	131.8	430,502.55	697,521.67	32° 10' 55.046 N	103° 41' 41.631 W
8,768.0	83.50	2.10	8,447.7	551.0	132.9	430,533.21	697,522.80	32° 10' 55.349 N	103° 41' 41.616 W
8,799.0	87.00	1.20	8,450.3	581.9	133.8	430,564.09	697,523.69	32° 10' 55.655 N	103° 41' 41.603 W
8,894.0	89.50	1.50	8,453.2	676.8	136.0	430,659.01	697,525.92	32° 10' 56.594 N	103° 41' 41.571 W
8,988.0	89.20	1.30	8,454.3	770.8	138.3	430,752.98	697,528.22	32° 10' 57.524 N	103° 41' 41.537 W
9,083.0	90.00	2.00	8,454.9	865.7	141.1	430,847.93	697,530.96	32° 10' 58.463 N	103° 41' 41.499 W
9,178.0	89.30	0.80	8,455.5	960.7	143.4	430,942.90	697,533.28	32° 10' 59.403 N	103° 41' 41.465 W
9,272.0	89.10	359.80	8,456.8	1,054.7	143.9	431,036.89	697,533.77	32° 11' 0.333 N	103° 41' 41.453 W
9,367.0	89.50	358.40	8,458.0	1,149.7	142.4	431,131.87	697,532.28	32° 11' 1.273 N	103° 41' 41.464 W
9,462.0	90.50	359.50	8,458.0	1,244.6	140.6	431,226.85	697,530.54	32° 11' 2.213 N	103° 41' 41.478 W
9,556.0	91.50	4.10	8,456.4	1,338.6	143.6	431,320.76	697,533.49	32° 11' 3.142 N	103° 41' 41.437 W

Stryker Directional

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well Corvo Federal #2H
Project:	Lea County, N.M.	TVD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Site:	Section 32-24S-32E Corvo Federal #2H	MD Reference:	GL 3491.6 +18 @ 3509.6usft (Silver Oak #7)
Well:	Corvo Federal #2H	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
9,651.0	89.10	3.40	8,455.9	1,433.3	149.8	431,415.55	697,539.70	32° 11' 4.080 N	103° 41' 41.358 W
9,745.0	91.80	4.80	8,455.1	1,527.1	156.5	431,509.29	697,546.42	32° 11' 5.007 N	103° 41' 41.273 W
9,840.0	89.40	3.30	8,454.1	1,621.8	163.2	431,604.04	697,553.13	32° 11' 5.944 N	103° 41' 41.189 W
9,934.0	90.40	2.00	8,454.3	1,715.7	167.6	431,697.94	697,557.47	32° 11' 6.873 N	103° 41' 41.132 W
10,029.0	88.70	359.00	8,455.0	1,810.7	168.4	431,792.92	697,558.30	32° 11' 7.813 N	103° 41' 41.116 W
10,124.0	89.50	358.30	8,456.5	1,905.7	166.2	431,887.88	697,556.06	32° 11' 8.753 N	103° 41' 41.135 W
10,218.0	88.70	358.10	8,458.0	1,999.6	163.2	431,981.82	697,553.11	32° 11' 9.683 N	103° 41' 41.163 W
10,311.0	88.40	357.60	8,460.4	2,092.5	159.7	432,074.72	697,549.62	32° 11' 10.602 N	103° 41' 41.197 W
10,406.0	89.50	357.10	8,462.1	2,187.4	155.3	432,169.61	697,545.23	32° 11' 11.542 N	103° 41' 41.242 W
10,501.0	91.80	356.10	8,461.0	2,282.2	149.7	432,264.42	697,539.60	32° 11' 12.480 N	103° 41' 41.301 W
10,595.0	90.00	357.10	8,459.5	2,376.0	144.1	432,358.24	697,534.03	32° 11' 13.409 N	103° 41' 41.359 W
10,689.0	90.90	359.80	8,458.8	2,470.0	141.6	432,452.20	697,531.48	32° 11' 14.339 N	103° 41' 41.382 W
10,784.0	90.30	359.90	8,457.8	2,565.0	141.3	432,547.19	697,531.23	32° 11' 15.279 N	103° 41' 41.378 W
10,879.0	91.50	0.50	8,456.3	2,660.0	141.7	432,642.17	697,531.57	32° 11' 16.219 N	103° 41' 41.368 W
10,973.0	89.70	0.90	8,455.3	2,754.0	142.8	432,736.16	697,532.71	32° 11' 17.149 N	103° 41' 41.348 W
11,067.0	89.00	359.90	8,456.4	2,847.9	143.5	432,830.15	697,533.37	32° 11' 18.079 N	103° 41' 41.334 W
11,162.0	88.90	358.90	8,458.1	2,942.9	142.5	432,925.13	697,532.38	32° 11' 19.019 N	103° 41' 41.339 W
11,257.0	90.70	358.40	8,458.5	3,037.9	140.2	433,020.09	697,530.14	32° 11' 19.959 N	103° 41' 41.359 W
11,352.0	89.50	359.30	8,458.3	3,132.9	138.3	433,115.07	697,528.23	32° 11' 20.899 N	103° 41' 41.374 W
11,447.0	90.50	359.20	8,458.3	3,227.9	137.1	433,210.06	697,526.99	32° 11' 21.839 N	103° 41' 41.382 W
11,541.0	88.30	359.80	8,459.3	3,321.8	136.3	433,304.05	697,526.17	32° 11' 22.769 N	103° 41' 41.385 W
11,636.0	89.10	359.70	8,461.4	3,416.8	135.9	433,399.02	697,525.75	32° 11' 23.709 N	103° 41' 41.383 W
11,731.0	89.40	358.70	8,462.7	3,511.8	134.5	433,494.00	697,524.43	32° 11' 24.649 N	103° 41' 41.392 W
11,826.0	90.10	358.00	8,463.1	3,606.8	131.8	433,588.96	697,521.69	32° 11' 25.589 N	103° 41' 41.417 W
11,920.0	88.80	358.40	8,464.0	3,700.7	128.8	433,682.91	697,518.74	32° 11' 26.519 N	103° 41' 41.445 W
12,015.0	89.20	359.90	8,465.7	3,795.7	127.4	433,777.88	697,517.33	32° 11' 27.458 N	103° 41' 41.455 W
12,110.0	90.90	359.80	8,465.6	3,890.7	127.2	433,872.88	697,517.08	32° 11' 28.398 N	103° 41' 41.452 W
12,204.0	87.10	1.00	8,467.2	3,984.6	127.8	433,966.84	697,517.74	32° 11' 29.328 N	103° 41' 41.437 W
12,299.0	91.70	3.00	8,468.2	4,079.5	131.2	434,061.75	697,521.05	32° 11' 30.267 N	103° 41' 41.392 W
12,393.0	87.40	3.20	8,469.0	4,173.4	136.2	434,155.59	697,526.13	32° 11' 31.196 N	103° 41' 41.327 W
12,488.0	89.50	2.80	8,471.5	4,268.2	141.2	434,250.42	697,531.10	32° 11' 32.134 N	103° 41' 41.262 W
12,583.0	91.10	2.70	8,471.0	4,363.1	145.8	434,345.30	697,535.66	32° 11' 33.072 N	103° 41' 41.203 W
12,677.0	92.80	2.80	8,467.8	4,456.9	150.3	434,439.14	697,540.17	32° 11' 34.001 N	103° 41' 41.144 W
12,772.0	92.40	2.80	8,463.5	4,551.7	154.9	434,533.92	697,544.80	32° 11' 34.938 N	103° 41' 41.083 W
12,866.0	89.40	2.50	8,462.0	4,645.6	159.3	434,627.80	697,549.15	32° 11' 35.867 N	103° 41' 41.026 W
12,961.0	91.50	2.90	8,461.3	4,740.5	163.7	434,722.69	697,553.62	32° 11' 36.806 N	103° 41' 40.968 W
13,055.0	90.50	2.60	8,459.7	4,834.4	168.2	434,816.56	697,558.13	32° 11' 37.735 N	103° 41' 40.909 W
13,150.0	89.80	1.80	8,459.4	4,929.3	171.9	434,911.49	697,561.78	32° 11' 38.674 N	103° 41' 40.860 W
13,245.0	88.00	1.50	8,461.2	5,024.2	174.6	435,006.43	697,564.51	32° 11' 39.613 N	103° 41' 40.821 W
13,276.0	88.00	1.70	8,462.3	5,055.2	175.5	435,037.40	697,565.38	32° 11' 39.920 N	103° 41' 40.809 W
13,321.0	88.00	1.70	8,463.9	5,100.2	176.8	435,082.35	697,566.71	32° 11' 40.364 N	103° 41' 40.790 W

13321' MD Projected to Bit

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
7,725.0	7,724.9	-8.8	7.4	7725' VES Gyro Survey
13,321.0	8,463.9	5,100.2	176.8	13321' MD Projected to Bit