



August 31, 2016

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

Attn: Kanicia Castillo

RE: **Columbus Fee No. 002H**

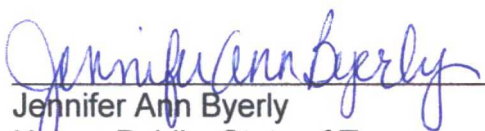
Please find enclosed a copy of the survey from 0' to 8650' ran on the above referenced well.

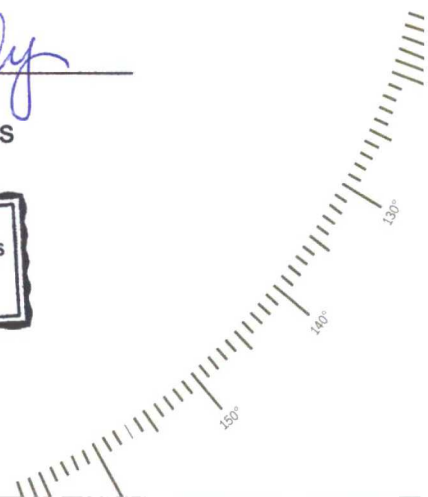
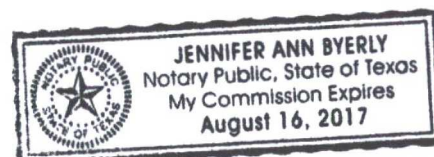
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 31st day of August, A.D., 2016, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG OPERATING
Lease/Well: COLUMBUS FEE No./002H

Rig Name: SCAN DRILL FREEDOM
State/County: NEW MEXICO/LEA
VS-Azi: 179.60 Degrees
Latitude: 32.09356, Longitude: -103.55865
Grid North = True North -0.41 degs (NAD 27)
Grid Correction Applied = -0.41 degs



Depth Reference = : RKB 27.5 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: eline gyro-de_01.ut
Minimum Curvature Method
Report Date/Time: 8/31/2016 / 13:19

VES Survey International
Woodward Oklahoma
580-254-5000
Surveyor: Chris Randall
Columbus Fee No. 002H / API 30-025-42822

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	0.52	52.46	100.00	0.28	0.36	-0.27	0.45	52.46	0.52
200.00	0.57	62.29	199.99	0.78	1.16	-0.77	1.40	55.92	0.10
300.00	0.78	69.59	299.99	1.25	2.23	-1.23	2.55	60.75	0.23
400.00	0.85	94.83	399.98	1.42	3.60	-1.40	3.87	68.47	0.36
500.00	0.86	95.41	499.97	1.29	5.09	-1.25	5.25	75.79	0.01
600.00	0.69	92.36	599.96	1.19	6.44	-1.15	6.55	79.50	0.18
700.00	0.33	110.48	699.95	1.07	7.30	-1.02	7.38	81.68	0.39
800.00	0.62	86.78	799.95	1.00	8.11	-0.94	8.17	82.98	0.35
900.00	0.47	110.64	899.95	0.88	9.04	-0.82	9.08	84.41	0.27

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
1000.00	0.60	83.20	999.94	0.80	9.94	-0.73	9.97	85.39	0.28
1100.00	1.19	76.21	1099.93	1.11	11.47	-1.03	11.53	84.46	0.60
1200.00	1.64	75.33	1199.90	1.72	13.87	-1.63	13.98	82.92	0.45
1300.00	1.80	85.60	1299.85	2.21	16.82	-2.09	16.96	82.53	0.35
1400.00	1.55	86.52	1399.81	2.41	19.74	-2.27	19.88	83.04	0.25
1500.00	0.93	50.90	1499.79	3.00	21.72	-2.85	21.92	82.13	0.96
1600.00	0.65	28.26	1599.78	4.01	22.61	-3.85	22.97	79.94	0.41
1700.00	0.86	8.27	1699.77	5.25	22.99	-5.09	23.58	77.13	0.33
1800.00	1.15	347.99	1799.75	6.98	22.89	-6.82	23.93	73.05	0.46
1900.00	1.18	351.95	1899.73	8.98	22.53	-8.82	24.26	68.28	0.08
2000.00	0.85	318.33	1999.72	10.55	21.89	-10.40	24.31	64.26	0.66
2100.00	0.72	309.34	2099.71	11.51	20.91	-11.36	23.87	61.18	0.18
2200.00	0.91	313.78	2199.70	12.46	19.85	-12.32	23.44	57.89	0.21
2300.00	0.89	305.66	2299.69	13.46	18.65	-13.33	23.00	54.18	0.13
2400.00	1.24	314.32	2399.67	14.67	17.25	-14.55	22.64	49.62	0.38
2500.00	1.29	332.92	2499.65	16.42	15.96	-16.31	22.90	44.19	0.41
2600.00	1.46	341.65	2599.62	18.64	15.05	-18.53	23.95	38.92	0.27
2700.00	1.38	348.50	2699.59	21.03	14.41	-20.93	25.49	34.42	0.19
2800.00	0.90	330.39	2799.57	22.89	13.78	-22.79	26.72	31.05	0.60
2900.00	0.27	257.26	2899.56	23.52	13.16	-23.43	26.95	29.23	0.86
3000.00	0.19	220.41	2999.56	23.34	12.82	-23.25	26.63	28.79	0.16
3100.00	0.26	135.84	3099.56	23.05	12.87	-22.96	26.40	29.19	0.31
3200.00	0.55	113.55	3199.56	22.69	13.47	-22.60	26.39	30.70	0.33
3300.00	1.37	105.79	3299.54	22.17	15.06	-22.07	26.81	34.19	0.83

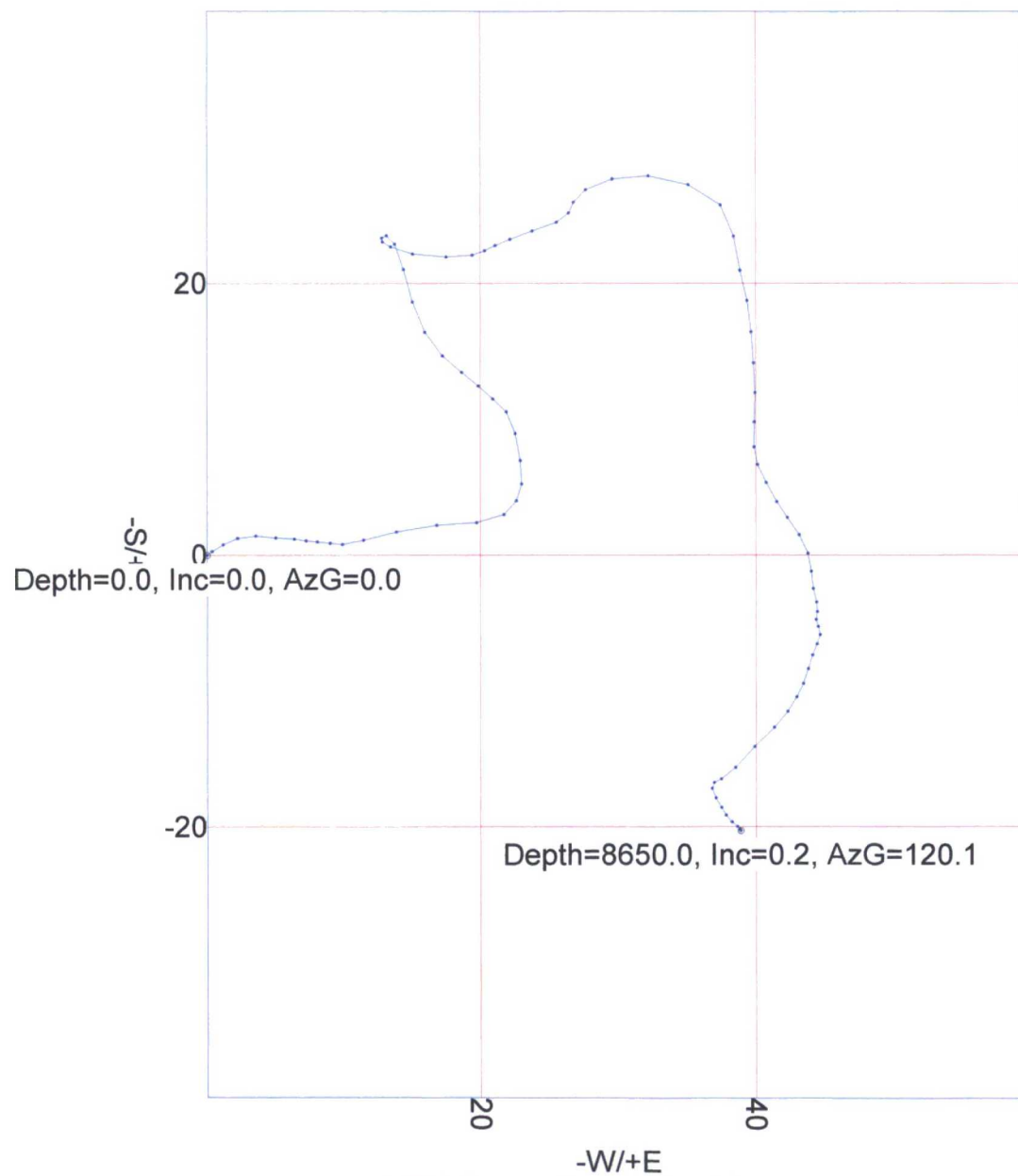
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
3400.00	1.50	86.15	3399.51	21.94	17.52	-21.81	28.08	38.62	0.51
3500.00	0.68	83.85	3499.49	22.09	19.42	-21.95	29.41	41.33	0.82
3600.00	0.45	50.75	3599.49	22.40	20.32	-22.26	30.24	42.21	0.39
3700.00	0.57	73.39	3699.48	22.79	21.10	-22.64	31.06	42.79	0.23
3800.00	0.77	63.23	3799.48	23.23	22.17	-23.08	32.12	43.66	0.23
3900.00	1.22	72.71	3899.46	23.85	23.79	-23.69	33.69	44.92	0.48
4000.00	0.93	65.73	3999.44	24.50	25.54	-24.32	35.39	46.19	0.32
4100.00	0.42	21.70	4099.44	25.18	26.42	-24.99	36.49	46.38	0.69
4200.00	0.57	26.72	4199.43	25.96	26.78	-25.78	37.30	45.88	0.16
4300.00	0.93	55.01	4299.43	26.88	27.67	-26.68	38.57	45.83	0.51
4400.00	1.49	74.90	4399.40	27.68	29.59	-27.48	40.52	46.91	0.69
4500.00	1.59	94.65	4499.37	27.91	32.23	-27.68	42.63	49.11	0.54
4600.00	1.85	110.02	4599.32	27.24	35.13	-27.00	44.45	52.20	0.53
4700.00	1.42	139.36	4699.28	25.75	37.45	-25.49	45.45	55.48	0.93
4800.00	1.57	173.19	4799.25	23.46	38.41	-23.19	45.01	58.59	0.88
4900.00	1.35	164.57	4899.22	20.96	38.89	-20.68	44.18	61.68	0.31
5000.00	1.27	170.26	4999.19	18.72	39.39	-18.45	43.62	64.58	0.15
5100.00	1.36	175.47	5099.17	16.44	39.68	-16.16	42.95	67.49	0.15
5200.00	1.26	175.60	5199.14	14.16	39.85	-13.88	42.29	70.44	0.11
5300.00	1.26	178.82	5299.12	11.97	39.96	-11.69	41.71	73.33	0.07
5400.00	1.21	183.89	5399.09	9.82	39.91	-9.54	41.10	76.18	0.12
5500.00	0.92	176.93	5499.08	7.97	39.88	-7.69	40.67	78.71	0.31
5600.00	0.61	155.53	5599.07	6.67	40.15	-6.39	40.70	80.56	0.42
5700.00	1.05	154.74	5699.06	5.36	40.76	-5.07	41.11	82.51	0.43

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	0.81	147.08	5799.04	3.94	41.53	-3.65	41.72	84.58	0.27
5900.00	0.79	145.07	5899.03	2.78	42.31	-2.49	42.40	86.24	0.03
6000.00	0.96	147.08	5999.02	1.52	43.16	-1.21	43.19	87.99	0.17
6100.00	0.80	165.47	6099.01	0.14	43.79	0.17	43.79	89.82	0.32
6200.00	0.75	174.19	6199.00	-1.19	44.03	1.50	44.05	91.55	0.13
6300.00	0.71	173.32	6298.99	-2.46	44.17	2.77	44.24	93.19	0.05
6400.00	0.47	154.67	6398.99	-3.44	44.42	3.75	44.55	94.43	0.30
6500.00	0.42	199.19	6498.99	-4.16	44.47	4.47	44.66	95.34	0.34
6600.00	0.25	170.38	6598.98	-4.72	44.38	5.03	44.63	96.07	0.24
6700.00	0.37	157.71	6698.98	-5.23	44.54	5.55	44.85	96.70	0.14
6800.00	0.34	179.59	6798.98	-5.83	44.67	6.14	45.05	97.44	0.14
6900.00	0.52	208.92	6898.98	-6.52	44.45	6.83	44.92	98.35	0.28
7000.00	0.48	194.53	6998.97	-7.33	44.12	7.64	44.73	99.44	0.13
7100.00	0.72	199.74	7098.97	-8.33	43.80	8.64	44.59	100.77	0.24
7200.00	0.60	193.47	7198.96	-9.43	43.47	9.73	44.48	102.24	0.14
7300.00	0.69	218.27	7298.96	-10.40	42.98	10.70	44.22	103.61	0.29
7400.00	0.77	205.81	7398.95	-11.48	42.32	11.77	43.84	105.18	0.18
7500.00	1.02	229.76	7498.94	-12.65	41.35	12.94	43.24	107.02	0.44
7600.00	1.30	221.69	7598.91	-14.07	39.92	14.35	42.32	109.42	0.32
7700.00	1.08	222.89	7698.89	-15.61	38.52	15.88	41.56	112.06	0.22
7800.00	0.48	248.70	7798.88	-16.45	37.49	16.71	40.94	113.69	0.68
7900.00	0.20	230.14	7898.88	-16.71	36.98	16.97	40.58	114.32	0.30
8000.00	0.38	185.63	7998.88	-17.15	36.81	17.40	40.61	114.98	0.28
8100.00	0.55	140.67	8098.88	-17.85	37.09	18.11	41.16	115.70	0.39

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
8200.00	0.40	162.02	8198.87	-18.56	37.50	18.82	41.84	116.33	0.23
8300.00	0.38	138.08	8298.87	-19.13	37.83	19.40	42.39	116.83	0.16
8400.00	0.38	139.51	8398.87	-19.63	38.27	19.90	43.01	117.16	0.01
8500.00	0.22	116.98	8498.87	-19.97	38.65	20.24	43.51	117.32	0.19
8600.00	0.13	174.21	8598.87	-20.17	38.84	20.45	43.77	117.45	0.19
8650.00	0.15	120.09	8648.87	-20.27	38.90	20.54	43.87	117.52	0.26



VES Survey International
Woodward Oklahoma
580-254-5000
Surveyor: Chris Randall
Columbus Fee No. 002H / API 30-025-42822



VES Survey Date: 8/26/2016



I Chris Randall certify that I am employed by VES Survey International. That I did on the day(s) of 08/26/16 through 08/26/16 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 8,650.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of COG Operating for the Columbus Fee Well # # 2H API # 30-025-42822 in Lea County / Parish New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by VES Survey International.


Chris Randall
Service Technician
VES Survey International



COG Operating L L C

Lea County, NM (NAD27 NME)

Sec. 34, T 25 S. , R 33 E

Columbus Fee 2H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

07 September, 2016





Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Columbus Fee 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Site:	Sec. 34, T 25 S. , R 33 E	MD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Well:	Columbus Fee 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Project	Lea County, NM (NAD27 NME)		
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	Sec. 34, T 25 S. , R 33 E				
Site Position:		Northing:	398,623.80 usft	Latitude:	32° 5' 36.830 N
From:	Map	Easting:	739,904.90 usft	Longitude:	103° 33' 31.161 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well	Columbus Fee 2H				
Well Position	+N/-S	0.00 ft	Northing:	398,623.80 usft	Latitude: 32° 5' 36.830 N
	+E/-W	0.00 ft	Easting:	739,904.90 usft	Longitude: 103° 33' 31.161 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level: 3,327.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/26/2016	7.04	59.96	47,954

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	179.57	

Survey Program	Date 9/7/2016				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	8,650.00	VES Gyros (Wellbore #1)	VESSI_GYROFLEX	VESSI Gyroflex Gyro	
8,769.00	19,224.00	IDS MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	398,623.80	739,904.90	32° 5' 36.830 N	103° 33' 31.161 W
100.00	0.52	52.46	100.00	0.28	0.36	398,624.08	739,905.26	32° 5' 36.833 N	103° 33' 31.157 W
200.00	0.57	62.29	199.99	0.78	1.16	398,624.58	739,906.06	32° 5' 36.838 N	103° 33' 31.148 W
300.00	0.78	69.59	299.99	1.25	2.24	398,625.05	739,907.13	32° 5' 36.842 N	103° 33' 31.135 W
400.00	0.85	94.83	399.98	1.43	3.62	398,625.23	739,908.51	32° 5' 36.844 N	103° 33' 31.119 W
500.00	0.86	95.41	499.97	1.29	5.10	398,625.09	739,910.00	32° 5' 36.842 N	103° 33' 31.102 W
600.00	0.69	92.36	599.96	1.20	6.45	398,625.00	739,911.35	32° 5' 36.841 N	103° 33' 31.086 W
700.00	0.33	110.48	699.95	1.07	7.32	398,624.87	739,912.22	32° 5' 36.840 N	103° 33' 31.076 W
800.00	0.62	86.78	799.95	1.00	8.13	398,624.80	739,913.03	32° 5' 36.839 N	103° 33' 31.067 W
900.00	0.47	110.64	899.95	0.89	9.06	398,624.69	739,913.95	32° 5' 36.838 N	103° 33' 31.056 W
1,000.00	0.60	83.20	999.94	0.81	9.96	398,624.61	739,914.86	32° 5' 36.837 N	103° 33' 31.046 W



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Columbus Fee 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Site:	Sec. 34, T 25 S., R 33 E	MD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Well:	Columbus Fee 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,100.00	1.19	76.21	1,099.93	1.12	11.49	398,624.91	739,916.38	32° 5' 36.840 N	103° 33' 31.028 W
1,200.00	1.64	75.33	1,199.90	1.73	13.88	398,625.52	739,918.78	32° 5' 36.846 N	103° 33' 31.000 W
1,300.00	1.80	85.60	1,299.85	2.21	16.83	398,626.01	739,921.73	32° 5' 36.851 N	103° 33' 30.966 W
1,400.00	1.55	86.52	1,399.81	2.41	19.75	398,626.21	739,924.64	32° 5' 36.853 N	103° 33' 30.932 W
1,500.00	0.93	50.90	1,499.79	3.01	21.73	398,626.80	739,926.62	32° 5' 36.858 N	103° 33' 30.909 W
1,600.00	0.65	28.26	1,599.78	4.02	22.62	398,627.82	739,927.52	32° 5' 36.868 N	103° 33' 30.898 W
1,700.00	0.86	8.27	1,699.77	5.26	23.00	398,629.06	739,927.90	32° 5' 36.880 N	103° 33' 30.894 W
1,800.00	1.15	347.99	1,799.75	6.98	22.90	398,630.78	739,927.80	32° 5' 36.898 N	103° 33' 30.895 W
1,900.00	1.18	351.95	1,899.73	8.98	22.55	398,632.78	739,927.44	32° 5' 36.917 N	103° 33' 30.899 W
2,000.00	0.85	318.33	1,999.72	10.56	21.91	398,634.36	739,926.81	32° 5' 36.933 N	103° 33' 30.906 W
2,100.00	0.72	309.34	2,099.71	11.51	20.93	398,635.31	739,925.83	32° 5' 36.942 N	103° 33' 30.917 W
2,200.00	0.91	313.78	2,199.70	12.46	19.87	398,636.26	739,924.77	32° 5' 36.952 N	103° 33' 30.929 W
2,300.00	0.89	305.66	2,299.69	13.46	18.67	398,637.26	739,923.56	32° 5' 36.962 N	103° 33' 30.943 W
2,400.00	1.24	314.32	2,399.67	14.67	17.26	398,638.47	739,922.16	32° 5' 36.974 N	103° 33' 30.960 W
2,500.00	1.29	332.92	2,499.65	16.43	15.98	398,640.23	739,920.87	32° 5' 36.991 N	103° 33' 30.974 W
2,600.00	1.46	341.65	2,599.62	18.64	15.06	398,642.44	739,919.96	32° 5' 37.013 N	103° 33' 30.985 W
2,700.00	1.38	348.50	2,699.59	21.03	14.42	398,644.83	739,919.32	32° 5' 37.037 N	103° 33' 30.992 W
2,800.00	0.90	330.39	2,799.57	22.89	13.79	398,646.69	739,918.69	32° 5' 37.056 N	103° 33' 30.999 W
2,900.00	0.27	257.26	2,899.56	23.52	13.18	398,647.32	739,918.07	32° 5' 37.062 N	103° 33' 31.006 W
3,000.00	0.19	220.41	2,999.56	23.34	12.84	398,647.14	739,917.73	32° 5' 37.060 N	103° 33' 31.010 W
3,100.00	0.26	135.84	3,099.56	23.05	12.89	398,646.85	739,917.78	32° 5' 37.057 N	103° 33' 31.010 W
3,200.00	0.55	113.55	3,199.56	22.70	13.49	398,646.50	739,918.38	32° 5' 37.054 N	103° 33' 31.003 W
3,300.00	1.37	105.79	3,299.54	22.18	15.08	398,645.98	739,919.97	32° 5' 37.048 N	103° 33' 30.984 W
3,400.00	1.50	86.15	3,399.51	21.95	17.53	398,645.74	739,922.43	32° 5' 37.046 N	103° 33' 30.956 W
3,500.00	0.68	83.85	3,499.49	22.10	19.43	398,645.90	739,924.33	32° 5' 37.047 N	103° 33' 30.934 W
3,600.00	0.45	50.75	3,599.49	22.41	20.32	398,646.21	739,925.22	32° 5' 37.050 N	103° 33' 30.923 W
3,700.00	0.57	73.39	3,699.48	22.80	21.10	398,646.60	739,926.00	32° 5' 37.054 N	103° 33' 30.914 W
3,800.00	0.77	63.23	3,799.48	23.24	22.18	398,647.04	739,927.08	32° 5' 37.058 N	103° 33' 30.902 W
3,900.00	1.22	72.71	3,899.46	23.86	23.80	398,647.66	739,928.69	32° 5' 37.064 N	103° 33' 30.883 W
4,000.00	0.93	65.73	3,999.44	24.51	25.55	398,648.31	739,930.45	32° 5' 37.071 N	103° 33' 30.862 W
4,100.00	0.42	21.70	4,099.44	25.19	26.43	398,648.99	739,931.32	32° 5' 37.077 N	103° 33' 30.852 W
4,200.00	0.57	26.72	4,199.43	25.97	26.79	398,649.77	739,931.68	32° 5' 37.085 N	103° 33' 30.848 W
4,300.00	0.93	55.01	4,299.43	26.88	27.68	398,650.68	739,932.57	32° 5' 37.094 N	103° 33' 30.837 W
4,400.00	1.49	74.90	4,399.40	27.69	29.60	398,651.48	739,934.49	32° 5' 37.102 N	103° 33' 30.815 W
4,500.00	1.59	94.65	4,499.37	27.91	32.23	398,651.71	739,937.13	32° 5' 37.104 N	103° 33' 30.784 W
4,600.00	1.85	110.02	4,599.32	27.25	35.13	398,651.05	739,940.03	32° 5' 37.097 N	103° 33' 30.751 W
4,700.00	1.42	139.36	4,699.28	25.75	37.46	398,649.55	739,942.35	32° 5' 37.082 N	103° 33' 30.724 W
4,800.00	1.57	173.19	4,799.25	23.45	38.43	398,647.25	739,943.32	32° 5' 37.059 N	103° 33' 30.713 W
4,900.00	1.35	164.57	4,899.22	20.96	38.90	398,644.76	739,943.80	32° 5' 37.035 N	103° 33' 30.707 W
5,000.00	1.27	170.26	4,999.19	18.73	39.40	398,642.53	739,944.30	32° 5' 37.013 N	103° 33' 30.702 W
5,100.00	1.36	175.47	5,099.17	16.45	39.68	398,640.25	739,944.58	32° 5' 36.990 N	103° 33' 30.699 W
5,200.00	1.26	175.60	5,199.14	14.18	39.86	398,637.97	739,944.76	32° 5' 36.967 N	103° 33' 30.697 W
5,300.00	1.26	178.82	5,299.12	11.98	39.97	398,635.78	739,944.87	32° 5' 36.946 N	103° 33' 30.696 W
5,400.00	1.21	183.89	5,399.09	9.83	39.92	398,633.63	739,944.82	32° 5' 36.924 N	103° 33' 30.697 W
5,500.00	0.92	176.93	5,499.08	7.97	39.89	398,631.77	739,944.79	32° 5' 36.906 N	103° 33' 30.697 W
5,600.00	0.61	155.53	5,599.07	6.69	40.16	398,630.49	739,945.05	32° 5' 36.893 N	103° 33' 30.694 W
5,700.00	1.05	154.74	5,699.06	5.37	40.77	398,629.17	739,945.66	32° 5' 36.880 N	103° 33' 30.687 W
5,800.00	0.81	147.08	5,799.04	3.95	41.54	398,627.75	739,946.44	32° 5' 36.866 N	103° 33' 30.678 W
5,900.00	0.79	145.07	5,899.03	2.79	42.32	398,626.59	739,947.22	32° 5' 36.855 N	103° 33' 30.669 W
6,000.00	0.96	147.08	5,999.02	1.52	43.17	398,625.32	739,948.07	32° 5' 36.842 N	103° 33' 30.659 W
6,100.00	0.80	165.47	6,099.01	0.15	43.80	398,623.94	739,948.70	32° 5' 36.828 N	103° 33' 30.652 W
6,200.00	0.75	174.19	6,199.00	-1.18	44.04	398,622.62	739,948.94	32° 5' 36.815 N	103° 33' 30.650 W
6,300.00	0.71	173.32	6,298.99	-2.45	44.18	398,621.35	739,949.08	32° 5' 36.803 N	103° 33' 30.648 W
6,400.00	0.47	154.67	6,398.99	-3.43	44.43	398,620.36	739,949.33	32° 5' 36.793 N	103° 33' 30.645 W
6,500.00	0.42	199.19	6,498.99	-4.15	44.48	398,619.65	739,949.38	32° 5' 36.786 N	103° 33' 30.645 W



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Columbus Fee 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Site:	Sec. 34, T 25 S. , R 33 E	MD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Well:	Columbus Fee 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,600.00	0.25	170.38	6,598.98	-4.71	44.40	398,619.09	739,949.30	32° 5' 36.780 N	103° 33' 30.646 W
6,700.00	0.37	157.71	6,698.98	-5.23	44.56	398,618.57	739,949.46	32° 5' 36.775 N	103° 33' 30.644 W
6,800.00	0.34	179.59	6,798.98	-5.82	44.68	398,617.98	739,949.58	32° 5' 36.769 N	103° 33' 30.643 W
6,900.00	0.52	208.92	6,898.98	-6.52	44.47	398,617.28	739,949.36	32° 5' 36.762 N	103° 33' 30.645 W
7,000.00	0.48	194.53	6,998.97	-7.32	44.14	398,616.48	739,949.04	32° 5' 36.754 N	103° 33' 30.649 W
7,100.00	0.72	199.74	7,098.97	-8.32	43.82	398,615.48	739,948.72	32° 5' 36.745 N	103° 33' 30.653 W
7,200.00	0.60	193.47	7,198.96	-9.42	43.49	398,614.38	739,948.39	32° 5' 36.734 N	103° 33' 30.657 W
7,300.00	0.69	218.27	7,298.96	-10.40	43.00	398,613.40	739,947.89	32° 5' 36.724 N	103° 33' 30.663 W
7,400.00	0.77	205.81	7,398.95	-11.48	42.33	398,612.32	739,947.23	32° 5' 36.713 N	103° 33' 30.670 W
7,500.00	1.02	229.76	7,498.94	-12.66	41.36	398,611.14	739,946.25	32° 5' 36.702 N	103° 33' 30.682 W
7,600.00	1.30	221.69	7,598.92	-14.08	39.92	398,609.72	739,944.82	32° 5' 36.688 N	103° 33' 30.699 W
7,700.00	1.08	222.89	7,698.89	-15.61	38.53	398,608.18	739,943.42	32° 5' 36.673 N	103° 33' 30.715 W
7,800.00	0.48	248.70	7,798.88	-16.46	37.50	398,607.34	739,942.39	32° 5' 36.665 N	103° 33' 30.727 W
7,900.00	0.20	230.14	7,898.88	-16.72	36.97	398,607.08	739,941.87	32° 5' 36.662 N	103° 33' 30.733 W
8,000.00	0.38	185.63	7,998.88	-17.16	36.81	398,606.64	739,941.70	32° 5' 36.658 N	103° 33' 30.735 W
8,100.00	0.55	140.67	8,098.88	-17.86	37.08	398,605.93	739,941.97	32° 5' 36.651 N	103° 33' 30.732 W
8,200.00	0.40	162.02	8,198.87	-18.57	37.49	398,605.23	739,942.39	32° 5' 36.644 N	103° 33' 30.727 W
8,300.00	0.38	138.08	8,298.87	-19.15	37.82	398,604.65	739,942.71	32° 5' 36.638 N	103° 33' 30.723 W
8,400.00	0.38	139.51	8,398.87	-19.65	38.26	398,604.15	739,943.15	32° 5' 36.633 N	103° 33' 30.718 W
8,500.00	0.22	116.98	8,498.87	-19.98	38.64	398,603.81	739,943.54	32° 5' 36.630 N	103° 33' 30.714 W
8,600.00	0.13	174.21	8,598.87	-20.18	38.82	398,603.61	739,943.72	32° 5' 36.628 N	103° 33' 30.712 W
8,650.00	0.15	120.09	8,648.87	-20.27	38.89	398,603.52	739,943.78	32° 5' 36.627 N	103° 33' 30.711 W
8,769.00	1.80	167.10	8,767.85	-22.17	39.44	398,601.62	739,944.34	32° 5' 36.608 N	103° 33' 30.705 W
First IDS MWD Survey									
8,800.00	6.20	173.40	8,798.76	-24.31	39.74	398,599.49	739,944.64	32° 5' 36.587 N	103° 33' 30.702 W
8,831.00	10.50	175.50	8,829.43	-28.79	40.15	398,595.01	739,945.05	32° 5' 36.542 N	103° 33' 30.697 W
8,862.00	13.90	176.20	8,859.72	-35.33	40.62	398,588.47	739,945.52	32° 5' 36.478 N	103° 33' 30.692 W
8,909.00	19.30	177.00	8,904.75	-48.73	41.40	398,575.07	739,946.30	32° 5' 36.345 N	103° 33' 30.684 W
8,957.00	23.20	179.60	8,949.48	-66.11	41.89	398,557.69	739,946.78	32° 5' 36.173 N	103° 33' 30.680 W
9,004.00	27.50	179.20	8,991.94	-86.23	42.10	398,537.57	739,947.00	32° 5' 35.974 N	103° 33' 30.679 W
9,051.00	33.80	178.60	9,032.36	-110.17	42.57	398,513.63	739,947.47	32° 5' 35.737 N	103° 33' 30.676 W
9,067.78	35.12	179.28	9,046.19	-119.66	42.75	398,504.14	739,947.64	32° 5' 35.643 N	103° 33' 30.675 W
Sec 34 North 330' Crossing Point									
9,098.00	37.50	180.40	9,070.54	-137.55	42.79	398,486.25	739,947.69	32° 5' 35.466 N	103° 33' 30.676 W
9,145.00	43.00	182.80	9,106.40	-167.89	41.91	398,455.91	739,946.81	32° 5' 35.166 N	103° 33' 30.688 W
9,192.00	45.20	184.60	9,140.15	-200.53	39.79	398,423.27	739,944.68	32° 5' 34.843 N	103° 33' 30.716 W
9,238.00	48.80	181.60	9,171.52	-234.11	38.00	398,389.69	739,942.89	32° 5' 34.511 N	103° 33' 30.739 W
9,285.00	55.50	176.40	9,200.36	-271.17	38.72	398,352.63	739,943.62	32° 5' 34.144 N	103° 33' 30.734 W
9,332.00	60.30	176.30	9,225.33	-310.89	41.25	398,312.91	739,946.15	32° 5' 33.751 N	103° 33' 30.708 W
9,379.00	64.60	175.80	9,247.06	-352.45	44.13	398,271.35	739,949.02	32° 5' 33.339 N	103° 33' 30.678 W
9,425.00	67.40	178.50	9,265.77	-394.42	46.21	398,229.38	739,951.10	32° 5' 32.924 N	103° 33' 30.657 W
9,472.00	73.50	179.40	9,281.49	-438.68	47.01	398,185.12	739,951.91	32° 5' 32.486 N	103° 33' 30.652 W
9,518.00	81.90	180.40	9,291.28	-483.58	47.08	398,140.22	739,951.98	32° 5' 32.041 N	103° 33' 30.655 W
9,610.00	89.70	182.70	9,298.02	-575.22	44.59	398,048.58	739,949.49	32° 5' 31.135 N	103° 33' 30.691 W
9,704.00	89.50	182.80	9,298.67	-669.11	40.08	397,954.69	739,944.98	32° 5' 30.206 N	103° 33' 30.751 W
9,797.00	89.70	182.90	9,299.32	-762.00	35.46	397,861.81	739,940.36	32° 5' 29.287 N	103° 33' 30.813 W
9,891.00	90.10	183.30	9,299.49	-855.86	30.38	397,767.94	739,935.27	32° 5' 28.359 N	103° 33' 30.880 W
9,984.00	90.20	182.70	9,299.24	-948.73	25.51	397,675.07	739,930.41	32° 5' 27.440 N	103° 33' 30.944 W
10,077.00	91.90	181.80	9,297.54	-1,041.64	21.86	397,582.16	739,926.75	32° 5' 26.521 N	103° 33' 30.994 W
10,170.00	92.50	181.90	9,293.97	-1,134.52	18.86	397,489.28	739,923.75	32° 5' 25.602 N	103° 33' 31.037 W
10,264.00	93.30	181.20	9,289.21	-1,228.36	16.32	397,395.44	739,921.22	32° 5' 24.673 N	103° 33' 31.074 W
10,387.00	91.50	177.90	9,284.06	-1,351.23	17.29	397,272.57	739,922.18	32° 5' 23.458 N	103° 33' 31.073 W
10,481.00	90.30	176.70	9,282.58	-1,445.11	21.71	397,178.69	739,926.61	32° 5' 22.528 N	103° 33' 31.030 W
10,575.00	89.80	177.50	9,282.50	-1,538.99	26.47	397,084.81	739,931.37	32° 5' 21.599 N	103° 33' 30.982 W
10,669.00	87.90	176.40	9,284.39	-1,632.83	31.47	396,990.97	739,936.37	32° 5' 20.670 N	103° 33' 30.932 W



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Columbus Fee 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Site:	Sec. 34, T 25 S., R 33 E	MD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Well:	Columbus Fee 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,763.00	88.80	175.20	9,287.10	-1,726.54	38.35	396,897.27	739,943.25	32° 5' 19.742 N	103° 33' 30.860 W
10,856.00	88.60	175.90	9,289.21	-1,819.23	45.56	396,804.57	739,950.46	32° 5' 18.824 N	103° 33' 30.784 W
10,950.00	87.30	179.10	9,292.57	-1,913.07	49.66	396,710.73	739,954.56	32° 5' 17.895 N	103° 33' 30.744 W
11,044.00	87.70	179.10	9,296.67	-2,006.97	51.14	396,616.84	739,956.03	32° 5' 16.966 N	103° 33' 30.735 W
11,137.00	89.10	179.30	9,299.27	-2,099.92	52.44	396,523.88	739,957.33	32° 5' 16.046 N	103° 33' 30.727 W
11,230.00	88.50	178.90	9,301.21	-2,192.89	53.90	396,430.92	739,958.79	32° 5' 15.126 N	103° 33' 30.718 W
11,324.00	89.80	178.80	9,302.61	-2,286.86	55.78	396,336.95	739,960.68	32° 5' 14.196 N	103° 33' 30.704 W
11,418.00	89.80	179.90	9,302.94	-2,380.85	56.85	396,242.96	739,961.74	32° 5' 13.266 N	103° 33' 30.699 W
11,511.00	87.20	180.20	9,305.37	-2,473.81	56.77	396,150.00	739,961.66	32° 5' 12.346 N	103° 33' 30.708 W
11,604.00	88.40	180.60	9,308.94	-2,566.74	56.12	396,057.07	739,961.02	32° 5' 11.427 N	103° 33' 30.723 W
11,698.00	88.50	180.60	9,311.48	-2,660.70	55.13	395,963.11	739,960.03	32° 5' 10.497 N	103° 33' 30.743 W
11,791.00	91.50	181.10	9,311.48	-2,753.67	53.76	395,870.13	739,958.65	32° 5' 9.577 N	103° 33' 30.767 W
11,885.00	91.10	179.70	9,309.35	-2,847.65	53.10	395,776.16	739,958.00	32° 5' 8.647 N	103° 33' 30.782 W
11,979.00	88.60	178.90	9,309.60	-2,941.63	54.25	395,682.17	739,959.14	32° 5' 7.717 N	103° 33' 30.777 W
12,072.00	91.40	179.10	9,309.60	-3,034.61	55.87	395,589.20	739,960.77	32° 5' 6.797 N	103° 33' 30.765 W
12,165.00	90.90	177.90	9,307.73	-3,127.55	58.30	395,496.25	739,963.20	32° 5' 5.877 N	103° 33' 30.745 W
12,259.00	89.10	177.40	9,307.73	-3,221.47	62.16	395,402.33	739,967.05	32° 5' 4.947 N	103° 33' 30.708 W
12,352.00	89.70	177.20	9,308.70	-3,314.36	66.54	395,309.44	739,971.44	32° 5' 4.027 N	103° 33' 30.665 W
12,446.00	89.30	177.30	9,309.52	-3,408.25	71.05	395,215.56	739,975.95	32° 5' 3.098 N	103° 33' 30.620 W
12,539.00	89.50	178.70	9,310.50	-3,501.19	74.29	395,122.62	739,979.19	32° 5' 2.178 N	103° 33' 30.590 W
12,632.00	88.20	180.20	9,312.36	-3,594.16	75.19	395,029.65	739,980.08	32° 5' 1.258 N	103° 33' 30.588 W
12,726.00	89.20	180.60	9,314.50	-3,688.13	74.53	394,935.68	739,979.43	32° 5' 0.328 N	103° 33' 30.603 W
12,819.00	91.10	180.40	9,314.25	-3,781.12	73.72	394,842.68	739,978.62	32° 4' 59.408 N	103° 33' 30.620 W
12,912.00	90.30	179.70	9,313.12	-3,874.11	73.64	394,749.69	739,978.53	32° 4' 58.488 N	103° 33' 30.629 W
13,006.00	91.30	180.80	9,311.80	-3,968.10	73.23	394,655.71	739,978.12	32° 4' 57.558 N	103° 33' 30.642 W
13,100.00	90.00	180.60	9,310.74	-4,062.09	72.08	394,561.72	739,976.98	32° 4' 56.628 N	103° 33' 30.663 W
13,193.00	89.50	180.60	9,311.14	-4,155.08	71.11	394,468.73	739,976.00	32° 4' 55.708 N	103° 33' 30.682 W
13,288.00	86.40	180.30	9,314.54	-4,250.00	70.36	394,373.80	739,975.26	32° 4' 54.768 N	103° 33' 30.698 W
13,381.00	86.40	180.90	9,320.38	-4,342.82	69.39	394,280.99	739,974.28	32° 4' 53.850 N	103° 33' 30.718 W
13,474.00	88.40	181.90	9,324.60	-4,435.69	67.12	394,188.12	739,972.01	32° 4' 52.931 N	103° 33' 30.752 W
13,567.00	89.30	182.00	9,326.47	-4,528.61	63.95	394,095.20	739,968.85	32° 4' 52.012 N	103° 33' 30.796 W
13,661.00	91.50	182.70	9,325.81	-4,622.52	60.10	394,001.28	739,965.00	32° 4' 51.083 N	103° 33' 30.849 W
13,755.00	90.40	181.10	9,324.25	-4,716.46	56.98	393,907.35	739,961.88	32° 4' 50.154 N	103° 33' 30.893 W
13,848.00	88.40	178.60	9,325.23	-4,809.44	57.23	393,814.37	739,962.12	32° 4' 49.233 N	103° 33' 30.898 W
13,941.00	89.60	178.50	9,326.85	-4,902.39	59.58	393,721.42	739,964.48	32° 4' 48.313 N	103° 33' 30.878 W
14,034.00	90.80	178.40	9,326.52	-4,995.36	62.10	393,628.45	739,966.99	32° 4' 47.393 N	103° 33' 30.857 W
14,127.00	92.40	178.30	9,323.93	-5,088.28	64.77	393,535.53	739,969.67	32° 4' 46.474 N	103° 33' 30.833 W
14,221.00	92.10	178.80	9,320.24	-5,182.18	67.15	393,441.63	739,972.05	32° 4' 45.544 N	103° 33' 30.814 W
14,314.00	92.20	178.40	9,316.75	-5,275.08	69.42	393,348.73	739,974.32	32° 4' 44.625 N	103° 33' 30.795 W
14,407.00	90.70	180.20	9,314.39	-5,368.04	70.56	393,255.77	739,975.45	32° 4' 43.705 N	103° 33' 30.790 W
14,502.00	88.50	180.40	9,315.06	-5,463.03	70.06	393,160.78	739,974.95	32° 4' 42.765 N	103° 33' 30.803 W
14,595.00	89.10	180.00	9,317.01	-5,556.01	69.73	393,067.80	739,974.63	32° 4' 41.845 N	103° 33' 30.815 W
14,689.00	87.70	178.60	9,319.63	-5,649.96	70.88	392,973.85	739,975.78	32° 4' 40.915 N	103° 33' 30.809 W
14,783.00	88.60	178.60	9,322.66	-5,743.88	73.18	392,879.93	739,978.07	32° 4' 39.985 N	103° 33' 30.790 W
14,877.00	89.90	177.60	9,323.90	-5,837.82	76.29	392,785.99	739,981.19	32° 4' 39.055 N	103° 33' 30.762 W
14,970.00	91.00	176.60	9,323.16	-5,930.69	81.00	392,693.12	739,985.89	32° 4' 38.136 N	103° 33' 30.715 W
15,064.00	88.50	177.10	9,323.58	-6,024.54	86.16	392,599.27	739,991.06	32° 4' 37.207 N	103° 33' 30.663 W
15,158.00	90.80	179.30	9,324.15	-6,118.48	89.11	392,505.33	739,994.01	32° 4' 36.277 N	103° 33' 30.636 W
15,252.00	92.50	179.10	9,321.44	-6,212.43	90.43	392,411.38	739,995.32	32° 4' 35.347 N	103° 33' 30.629 W
15,346.00	89.70	180.40	9,319.64	-6,306.40	90.84	392,317.41	739,995.73	32° 4' 34.417 N	103° 33' 30.632 W
15,439.00	87.50	181.30	9,321.91	-6,399.36	89.46	392,224.45	739,994.35	32° 4' 33.498 N	103° 33' 30.656 W
15,533.00	88.30	181.30	9,325.35	-6,493.27	87.33	392,130.54	739,992.22	32° 4' 32.569 N	103° 33' 30.689 W
15,627.00	88.50	180.60	9,327.98	-6,587.22	85.77	392,036.59	739,990.66	32° 4' 31.639 N	103° 33' 30.715 W
15,720.00	90.60	180.60	9,328.71	-6,680.21	84.79	391,943.61	739,989.69	32° 4' 30.719 N	103° 33' 30.734 W
15,813.00	92.00	181.90	9,326.60	-6,773.16	82.77	391,850.66	739,987.66	32° 4' 29.799 N	103° 33' 30.765 W



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Columbus Fee 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Site:	Sec. 34, T 25 S., R 33 E	MD Reference:	KB=26' @ 3353.00ft (Scan Freedom)
Well:	Columbus Fee 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,906.00	90.40	181.40	9,324.65	-6,866.09	80.09	391,757.72	739,984.99	32° 4' 28.880 N	103° 33' 30.804 W
16,000.00	88.60	179.40	9,325.47	-6,960.08	79.43	391,663.73	739,984.33	32° 4' 27.950 N	103° 33' 30.819 W
16,095.00	90.00	179.00	9,326.63	-7,055.06	80.76	391,568.75	739,985.66	32° 4' 27.010 N	103° 33' 30.812 W
16,189.00	87.70	179.40	9,328.52	-7,149.02	82.07	391,474.79	739,986.97	32° 4' 26.080 N	103° 33' 30.804 W
16,282.00	88.30	179.90	9,331.77	-7,241.97	82.64	391,381.85	739,987.54	32° 4' 25.160 N	103° 33' 30.806 W
16,376.00	89.50	179.80	9,333.57	-7,335.95	82.88	391,287.87	739,987.78	32° 4' 24.230 N	103° 33' 30.810 W
16,469.00	90.80	179.40	9,333.33	-7,428.94	83.53	391,194.87	739,988.43	32° 4' 23.310 N	103° 33' 30.811 W
16,562.00	92.80	178.90	9,330.41	-7,521.88	84.91	391,101.93	739,989.81	32° 4' 22.390 N	103° 33' 30.802 W
16,656.00	91.40	179.10	9,326.96	-7,615.80	86.55	391,008.01	739,991.45	32° 4' 21.460 N	103° 33' 30.791 W
16,750.00	90.70	179.70	9,325.24	-7,709.78	87.54	390,914.04	739,992.43	32° 4' 20.530 N	103° 33' 30.788 W
16,852.00	89.00	181.80	9,325.51	-7,811.76	86.20	390,812.05	739,991.10	32° 4' 19.521 N	103° 33' 30.812 W
16,945.00	90.30	181.90	9,326.07	-7,904.71	83.20	390,719.11	739,988.10	32° 4' 18.602 N	103° 33' 30.854 W
17,039.00	91.90	182.40	9,324.27	-7,998.62	79.67	390,625.19	739,984.57	32° 4' 17.673 N	103° 33' 30.903 W
17,134.00	90.00	179.90	9,322.69	-8,093.58	77.77	390,530.24	739,982.66	32° 4' 16.733 N	103° 33' 30.933 W
17,227.00	91.90	180.30	9,321.15	-8,186.56	77.61	390,437.26	739,982.50	32° 4' 15.813 N	103° 33' 30.943 W
17,320.00	90.00	178.60	9,319.61	-8,279.53	78.50	390,344.28	739,983.40	32° 4' 14.893 N	103° 33' 30.940 W
17,414.00	91.50	178.60	9,318.38	-8,373.50	80.80	390,250.32	739,985.69	32° 4' 13.963 N	103° 33' 30.921 W
17,507.00	90.60	179.10	9,316.68	-8,466.46	82.66	390,157.36	739,987.56	32° 4' 13.043 N	103° 33' 30.907 W
17,601.00	92.20	179.80	9,314.38	-8,560.42	83.56	390,063.39	739,988.46	32° 4' 12.113 N	103° 33' 30.905 W
17,694.00	90.30	179.20	9,312.35	-8,653.39	84.37	389,970.42	739,989.27	32° 4' 11.193 N	103° 33' 30.903 W
17,788.00	88.50	179.30	9,313.33	-8,747.38	85.61	389,876.44	739,990.50	32° 4' 10.263 N	103° 33' 30.897 W
17,881.00	89.50	180.00	9,314.96	-8,840.36	86.17	389,783.46	739,991.07	32° 4' 9.343 N	103° 33' 30.898 W
17,975.00	88.00	180.20	9,317.01	-8,934.33	86.01	389,689.48	739,990.91	32° 4' 8.413 N	103° 33' 30.908 W
18,069.00	89.30	180.60	9,319.22	-9,028.30	85.35	389,595.51	739,990.25	32° 4' 7.483 N	103° 33' 30.923 W
18,162.00	90.20	180.60	9,319.63	-9,121.30	84.38	389,502.52	739,989.28	32° 4' 6.563 N	103° 33' 30.942 W
18,256.00	88.80	180.20	9,320.45	-9,215.29	83.72	389,408.53	739,988.62	32° 4' 5.633 N	103° 33' 30.958 W
18,351.00	90.10	179.20	9,321.36	-9,310.28	84.22	389,313.54	739,989.12	32° 4' 4.692 N	103° 33' 30.960 W
18,445.00	91.50	179.40	9,320.05	-9,404.26	85.37	389,219.56	739,990.27	32° 4' 3.762 N	103° 33' 30.954 W
18,538.00	89.90	178.20	9,318.91	-9,497.23	87.32	389,126.59	739,992.21	32° 4' 2.842 N	103° 33' 30.939 W
18,631.00	87.70	178.40	9,320.86	-9,590.16	90.07	389,033.66	739,994.97	32° 4' 1.922 N	103° 33' 30.915 W
18,725.00	88.30	177.90	9,324.14	-9,684.05	93.11	388,939.76	739,998.00	32° 4' 0.993 N	103° 33' 30.888 W
18,820.00	86.40	179.40	9,328.53	-9,778.92	95.34	388,844.90	740,000.24	32° 4' 0.054 N	103° 33' 30.870 W
18,914.00	86.60	179.10	9,334.27	-9,872.74	96.57	388,751.08	740,001.47	32° 3' 59.126 N	103° 33' 30.863 W
19,008.00	88.30	180.20	9,338.45	-9,966.64	97.15	388,657.18	740,002.04	32° 3' 58.196 N	103° 33' 30.864 W
19,056.94	89.19	180.41	9,339.52	-10,015.56	96.88	388,608.26	740,001.78	32° 3' 57.712 N	103° 33' 30.871 W
Sec 3 South 330' Crossing Point									
19,101.00	90.00	180.60	9,339.83	-10,059.62	96.50	388,564.20	740,001.39	32° 3' 57.276 N	103° 33' 30.880 W
19,171.00	91.00	180.80	9,339.22	-10,129.61	95.64	388,494.21	740,000.54	32° 3' 56.584 N	103° 33' 30.895 W
Final IDS MWD Survey									
19,224.00	91.00	180.80	9,338.30	-10,182.60	94.90	388,441.22	739,999.80	32° 3' 56.060 N	103° 33' 30.908 W
Projection to TD									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,769.00	8,767.85	-22.17	39.44	First IDS MWD Survey
9,067.78	9,046.19	-119.66	42.75	Sec 34 North 330' Crossing Point
19,056.94	9,339.52	-10,015.56	96.88	Sec 3 South 330' Crossing Point
19,171.00	9,339.22	-10,129.61	95.64	Final IDS MWD Survey
19,224.00	9,338.30	-10,182.60	94.90	Projection to TD