PATRIOT DRILLING, LLC

OPERATOR: COG Operating, LLC
WELL/LEASE: Smalls Federal #8H
COUNTY: Lea Co., New Mexico
Sec. 28, T 22S, R 34E

STATE OF NEW MEXICO
DEVIATION REPORT

Depth	Deviation	Depth	Deviation
218	1/2	779	1 3/4
541	1/2	1,014	3 1/4

Patriot Drilling, LLC

M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 7th day of November 2016 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2019

LORI TERESA ROWAN
Notary Public, State of Texas
My Commission Expires
February 01, 2019

Lori T. Rowan
Notary Public for Ector Co., Texas

VES SURVEY INTERNATIONAL

November 3, 2016

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

Attn: Kanicia Castillo

RE: **Smalls Federal No. 008H**

Please find enclosed a copy of the survey from 0' to 9700' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 3rd day of November, A.D., 2016, by Keith Havelka.

Jennifer Ann Byerly
Notary Public, State of Texas

JENNIFER ANN BYERLY
Notary Public, State of Texas
My Commission Expires
August 16, 2017

VES Survey International
P.O. Box 261021, Corpus Christi, Texas 78426
T (361) 767-0602 F (361) 767-0612
www.vessurvey.com

Company: COG Operating

Lease/Well: Smalls Federal No./008H

Rig Name: Patriot 2

State/County: New Mexico/Lea

VS-Azi: 359.23 Degrees

Latitude: 32.35582, Longitude: -103.48178

Grid North = True North -0.47 degs (NAD 27)

Grid Correction Applied = -0.47 degs

Depth Reference : RKB = 20 Foot

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/3/2016 / 09:48

VES Survey International

Midland Tx

(432) 563-5444

Surveyor: Gene Heiss

Smalls Federal No. 008H / API 30-025-43069

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	0.12	143.11	100.00	-0.08	0.06	-0.08	0.10	143.11	0.12
200.00	0.25	122.44	200.00	-0.29	0.31	-0.29	0.42	132.43	0.15
300.00	0.29	105.56	300.00	-0.47	0.75	-0.48	0.88	122.40	0.09
400.00	0.38	100.32	400.00	-0.60	1.32	-0.62	1.45	114.50	0.10
500.00	0.25	108.75	499.99	-0.73	1.85	-0.76	1.99	111.52	0.14
600.00	1.25	97.55	599.99	-0.94	3.14	-0.99	3.28	106.74	1.00
700.00	2.19	88.21	699.94	-1.03	6.12	-1.11	6.21	99.52	0.98
800.00	2.81	86.38	799.84	-0.81	10.48	-0.95	10.51	94.43	0.63
900.00	3.62	85.61	899.69	-0.42	16.07	-0.63	16.08	91.48	0.81
1000.00	3.05	84.37	999.52	0.09	21.86	-0.21	21.86	89.77	0.57
1100.00	2.59	80.60	1099.39	0.72	26.74	0.36	26.75	88.47	0.50
1200.00	2.45	54.78	1199.30	2.32	30.71	1.90	30.80	85.68	1.13
1300.00	2.43	43.29	1299.21	5.09	33.91	4.63	34.29	81.46	0.49
1400.00	2.13	23.39	1399.13	8.33	36.09	7.85	37.04	77.00	0.84
1500.00	1.90	19.01	1499.07	11.61	37.37	11.10	39.13	72.75	0.27
1600.00	1.98	12.86	1599.02	14.86	38.30	14.34	41.08	68.79	0.22

VES Survey Date: 10/29/2016

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
1700.00	1.94	12.58	1698.96	18.19	39.05	17.67	43.08	65.02	0.05
1800.00	1.74	1.42	1798.91	21.36	39.46	20.83	44.87	61.57	0.41
1900.00	1.56	17.28	1898.86	24.18	39.90	23.64	46.65	58.78	0.49
2000.00	1.21	22.91	1998.83	26.46	40.72	25.91	48.56	56.99	0.37
2100.00	1.02	34.74	2098.82	28.16	41.63	27.60	50.26	55.93	0.30
2200.00	1.17	73.97	2198.80	29.17	43.12	28.59	52.06	55.92	0.75
2300.00	1.06	88.10	2298.78	29.49	45.03	28.88	53.82	56.78	0.30
2400.00	1.04	90.48	2398.76	29.51	46.86	28.88	55.38	57.80	0.05
2500.00	1.33	100.43	2498.74	29.29	48.92	28.63	57.02	59.09	0.35
2600.00	1.03	77.47	2598.72	29.28	50.94	28.59	58.76	60.11	0.55
2700.00	0.83	92.23	2698.71	29.44	52.55	28.73	60.23	60.74	0.31
2800.00	0.89	75.01	2798.70	29.62	54.02	28.89	61.61	61.27	0.26
2900.00	0.72	57.11	2898.69	30.16	55.30	29.41	62.99	61.39	0.30
3000.00	0.76	63.79	2998.68	30.79	56.42	30.03	64.27	61.38	0.10
3100.00	0.97	37.42	3098.67	31.75	57.53	30.98	65.71	61.10	0.44
3200.00	0.90	48.27	3198.65	32.95	58.63	32.16	67.25	60.66	0.19
3300.00	0.97	15.01	3298.64	34.29	59.44	33.49	68.62	60.02	0.54
3400.00	1.14	12.70	3398.63	36.08	59.87	35.27	69.90	58.93	0.18
3500.00	1.30	336.57	3498.60	38.09	59.64	37.28	70.77	57.44	0.77
3600.00	1.05	341.34	3598.58	39.99	58.90	39.20	71.19	55.82	0.27
3700.00	1.21	347.28	3698.56	41.89	58.38	41.10	71.85	54.34	0.20
3800.00	1.14	336.78	3798.54	43.83	57.75	43.05	72.50	52.80	0.23
3900.00	1.51	19.27	3898.52	45.99	57.79	45.20	73.86	51.49	1.02
4000.00	0.78	24.89	3998.50	47.85	58.51	47.05	75.58	50.73	0.73
4100.00	0.80	248.54	4098.49	48.21	58.15	47.42	75.53	50.34	1.47
4200.00	0.93	260.95	4198.48	47.82	56.69	47.06	74.17	49.85	0.23
4300.00	0.75	269.19	4298.47	47.69	55.23	46.94	72.97	49.19	0.22
4400.00	0.76	264.46	4398.46	47.61	53.92	46.88	71.93	48.56	0.06
4500.00	0.13	214.43	4498.46	47.46	53.20	46.74	71.29	48.27	0.68
4600.00	0.02	215.93	4598.46	47.35	53.13	46.63	71.16	48.29	0.11
4700.00	0.10	245.38	4698.46	47.29	53.04	46.58	71.06	48.28	0.08
4800.00	0.55	197.81	4798.46	46.80	52.81	46.09	70.57	48.45	0.49
4900.00	0.36	182.44	4898.45	46.04	52.65	45.32	69.94	48.84	0.22
5000.00	0.49	211.54	4998.45	45.36	52.42	44.65	69.32	49.13	0.25
5100.00	0.61	204.42	5098.45	44.51	51.97	43.81	68.43	49.42	0.14
5200.00	0.50	180.26	5198.44	43.59	51.75	42.89	67.66	49.89	0.26
5300.00	0.55	177.97	5298.44	42.67	51.77	41.97	67.09	50.50	0.06
5400.00	0.87	184.86	5398.43	41.43	51.72	40.73	66.27	51.30	0.33
5500.00	0.85	185.08	5498.42	39.94	51.59	39.24	65.24	52.25	0.02

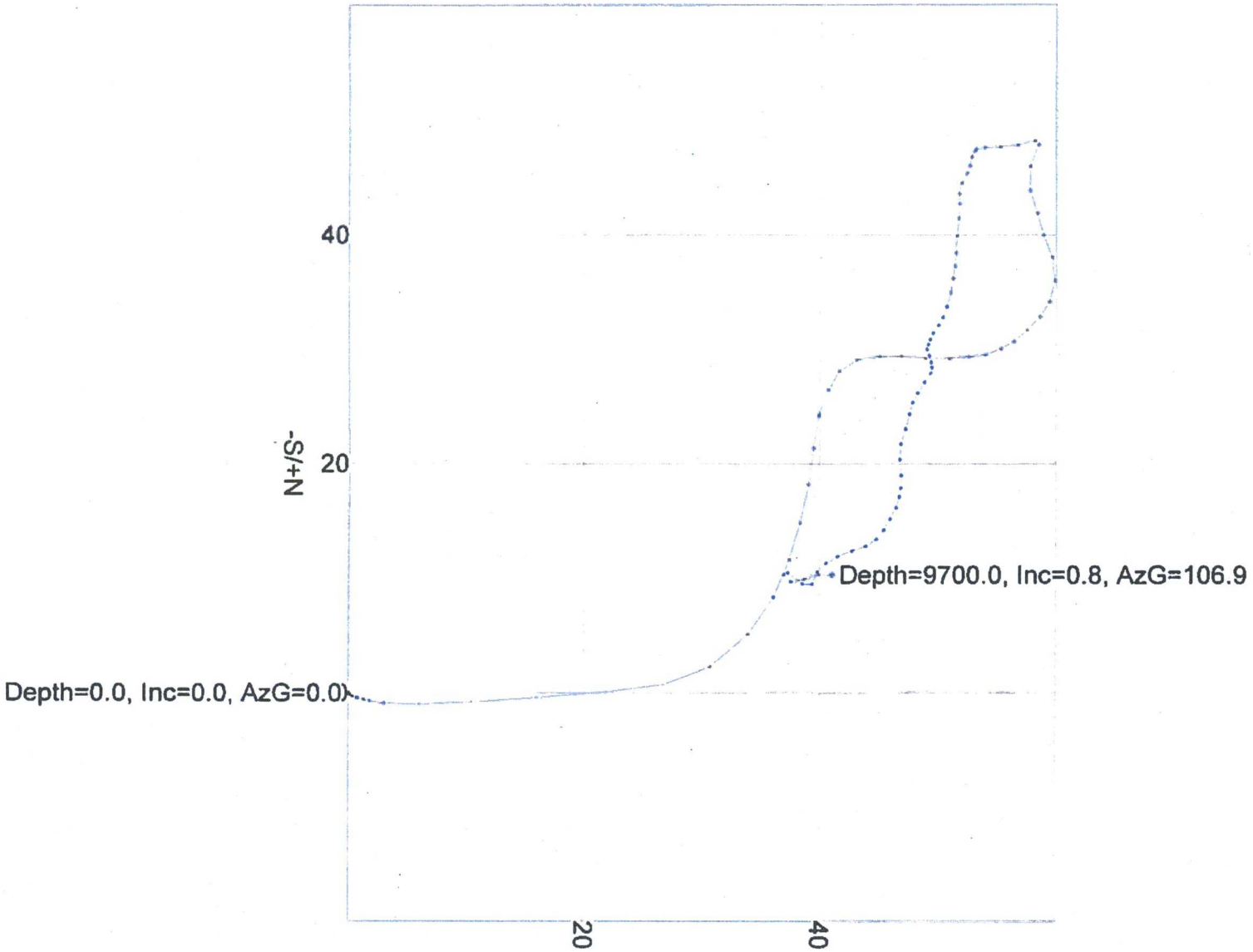
VES Survey Date: 10/29/2016

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
5600.00	0.79	183.29	5598.41	38.52	51.48	37.82	64.30	53.20	0.07
5700.00	0.56	185.25	5698.40	37.35	51.40	36.65	63.53	54.00	0.22
5800.00	0.69	189.39	5798.40	36.26	51.26	35.57	62.79	54.72	0.14
5900.00	0.71	190.78	5898.39	35.06	51.04	34.37	61.92	55.52	0.03
6000.00	0.71	197.74	5998.38	33.85	50.74	33.17	60.99	56.29	0.09
6100.00	0.44	202.12	6098.38	32.91	50.40	32.23	60.19	56.86	0.28
6200.00	0.48	213.47	6198.37	32.20	50.03	31.53	59.49	57.23	0.10
6300.00	0.45	216.34	6298.37	31.53	49.57	30.86	58.74	57.54	0.03
6400.00	0.28	184.12	6398.37	30.97	49.32	30.30	58.24	57.88	0.26
6500.00	0.27	217.68	6498.37	30.54	49.16	29.88	57.88	58.15	0.16
6600.00	0.30	180.17	6598.36	30.09	49.02	29.43	57.52	58.45	0.19
6700.00	0.41	143.87	6698.36	29.54	49.23	28.88	57.41	59.03	0.24
6800.00	0.34	185.25	6798.36	28.96	49.41	28.29	57.27	59.63	0.27
6900.00	0.21	149.62	6898.36	28.50	49.48	27.83	57.10	60.05	0.21
7000.00	0.49	207.57	6998.36	27.96	49.37	27.30	56.74	60.47	0.42
7100.00	0.62	213.74	7098.35	27.13	48.87	26.47	55.90	60.96	0.15
7200.00	0.65	209.03	7198.35	26.18	48.29	25.53	54.93	61.54	0.06
7300.00	0.43	208.14	7298.34	25.35	47.84	24.71	54.14	62.08	0.23
7400.00	0.78	185.62	7398.34	24.34	47.60	23.70	53.46	62.91	0.42
7500.00	0.76	204.44	7498.33	23.06	47.26	22.42	52.58	63.99	0.25
7600.00	0.84	189.14	7598.32	21.74	46.87	21.11	51.66	65.12	0.23
7700.00	0.73	177.09	7698.31	20.38	46.78	19.75	51.03	66.46	0.20
7800.00	0.86	173.88	7798.30	19.01	46.90	18.38	50.60	67.93	0.13
7900.00	0.44	196.61	7898.29	17.91	46.86	17.28	50.17	69.08	0.47
8000.00	0.49	181.55	7998.29	17.12	46.74	16.49	49.78	69.88	0.13
8100.00	0.64	207.22	8098.29	16.20	46.48	15.58	49.22	70.78	0.29
8200.00	0.65	205.94	8198.28	15.19	45.97	14.57	48.42	71.71	0.02
8300.00	0.64	214.13	8298.27	14.22	45.41	13.61	47.58	72.61	0.09
8400.00	0.53	223.82	8398.27	13.42	44.78	12.82	46.74	73.31	0.14
8500.00	0.70	244.32	8498.26	12.82	43.90	12.23	45.73	73.72	0.28
8600.00	0.72	255.66	8598.25	12.40	42.74	11.82	44.50	73.82	0.14
8700.00	0.80	241.43	8698.25	11.91	41.52	11.35	43.19	73.99	0.20
8800.00	0.53	236.25	8798.24	11.32	40.52	10.78	42.07	74.39	0.28
8900.00	0.72	215.04	8898.23	10.55	39.78	10.02	41.15	75.14	0.30
9000.00	0.64	186.20	8998.23	9.48	39.36	8.95	40.48	76.46	0.35
9100.00	1.11	306.42	9098.22	9.50	38.52	8.98	39.67	76.15	1.53
9200.00	0.72	311.86	9198.21	10.49	37.27	9.99	38.72	74.28	0.40
9300.00	0.69	165.29	9298.20	10.32	36.96	9.83	38.38	74.39	1.35
9400.00	0.51	97.50	9398.20	9.68	37.56	9.18	38.78	75.54	0.69

VES Survey Date: 10/29/2016

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
9500.00	0.84	67.61	9498.19	9.90	38.67	9.38	39.92	75.63	0.47
9600.00	0.65	74.70	9598.18	10.33	39.89	9.79	41.20	75.48	0.21
9700.00	0.75	106.93	9698.18	10.29	41.06	9.73	42.33	75.93	0.40

VES Survey International
Midland Tx
(432) 563-5444
Surveyor: Gene Heiss
Smalls Federal No. 008H / API 30-025-43069



VES Survey Date: 10/29/2016

VES SURVEY INTERNATIONAL

I Gene Heiss certify that I am employed by VES Survey International. That I did on the day(s) of 10/29/16 through 10/29/16 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 9,700.00 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 Smalls Federal Well # 8H API # 30-025-43069 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.

Gene Heiss
Service Technician
VES Survey International

CONCHO

COG Operating L L C

Lea County, NM (NAD27 NME)
Sec. 28, T 22 S. , R 34 E.
Smalls Federal 8H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

03 November, 2016

INTEGRITY
Directional Services

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Smalls Federal 8H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Site:	Sec. 28, T 22 S. , R 34 E.	**MD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Well:	Smalls Federal 8H	**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. 28, T 22 S. , R 34 E.

Site Position:		**Northing:**	494,207.1000 usft	**Latitude:**	32° 21' 20.937 N
From:	Map	**Easting:**	762,956.0000 usft	**Longitude:**	103° 28' 54.416 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.46 °

Well Smalls Federal 8H

Well Position	**+N/-S**	0.00 ft	**Northing:**	494,207.1000 usft	**Latitude:**	32° 21' 20.937 N
	+E/-W	0.00 ft	**Easting:**	762,956.0000 usft	**Longitude:**	103° 28' 54.416 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,416.20 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/28/2016	7.00	60.21	48,100

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	359.23

Survey Program Date 11/3/2016

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	9,700.00	VES Gyro (Wellbore #1)	Keeper	Standard Wireline Keeper ver 1.0.2
9,804.00	14,919.00	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	494,207.1000	762,956.0000	32° 21' 20.937 N	103° 28' 54.416 W
100.00	0.12	143.11	100.00	-0.08	0.06	494,207.0162	762,956.0628	32° 21' 20.936 N	103° 28' 54.415 W
200.00	0.25	122.44	200.00	-0.28	0.31	494,206.8155	762,956.3098	32° 21' 20.934 N	103° 28' 54.413 W
300.00	0.29	105.56	300.00	-0.47	0.74	494,206.6305	762,956.7377	32° 21' 20.932 N	103° 28' 54.408 W
400.00	0.38	100.32	400.00	-0.60	1.31	494,206.5032	762,957.3078	32° 21' 20.931 N	103° 28' 54.401 W
500.00	0.25	108.75	500.00	-0.73	1.84	494,206.3737	762,957.8406	32° 21' 20.930 N	103° 28' 54.395 W
600.00	1.25	97.55	599.99	-0.94	3.13	494,206.1603	762,959.1285	32° 21' 20.927 N	103° 28' 54.380 W
700.00	2.19	88.21	699.94	-1.02	6.12	494,206.0766	762,962.1196	32° 21' 20.926 N	103° 28' 54.345 W
800.00	2.81	86.38	799.84	-0.81	10.48	494,206.2911	762,966.4757	32° 21' 20.928 N	103° 28' 54.294 W
900.00	3.62	85.61	899.69	-0.41	16.07	494,206.6875	762,972.0698	32° 21' 20.932 N	103° 28' 54.229 W
1,000.00	3.05	84.37	999.52	0.09	21.87	494,207.1901	762,977.8650	32° 21' 20.936 N	103° 28' 54.161 W

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Smalls Federal 8H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Site:	Sec. 28, T 22 S. , R 34 E.	**MD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Well:	Smalls Federal 8H	**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	2.59	80.60	1,099.39	0.72	26.74	494,207.8202	762,982.7417	32° 21' 20.942 N	103° 28' 54.104 W
1,200.00	2.45	54.78	1,199.30	2.32	30.72	494,209.4219	762,986.7170	32° 21' 20.958 N	103° 28' 54.058 W
1,300.00	2.43	43.29	1,299.21	5.10	33.92	494,212.1977	762,989.9168	32° 21' 20.985 N	103° 28' 54.020 W
1,400.00	2.13	23.39	1,399.13	8.35	36.11	494,215.4464	762,992.1082	32° 21' 21.017 N	103° 28' 53.995 W
1,500.00	1.90	19.01	1,499.07	11.62	37.39	494,218.7194	762,993.3859	32° 21' 21.049 N	103° 28' 53.979 W
1,600.00	1.98	12.86	1,599.01	14.87	38.31	494,221.9710	762,994.3104	32° 21' 21.081 N	103° 28' 53.968 W
1,700.00	1.94	12.58	1,698.96	18.21	39.06	494,225.3072	762,995.0635	32° 21' 21.114 N	103° 28' 53.959 W
1,800.00	1.74	1.42	1,798.90	21.38	39.47	494,228.4769	762,995.4698	32° 21' 21.145 N	103° 28' 53.954 W
1,900.00	1.56	17.28	1,898.86	24.19	39.91	494,231.2944	762,995.9118	32° 21' 21.173 N	103° 28' 53.949 W
2,000.00	1.21	22.91	1,998.83	26.47	40.73	494,233.5667	762,996.7271	32° 21' 21.196 N	103° 28' 53.939 W
2,100.00	1.02	34.74	2,098.82	28.17	41.65	494,235.2707	762,997.6454	32° 21' 21.212 N	103° 28' 53.928 W
2,200.00	1.17	73.97	2,198.80	29.18	43.13	494,236.2841	762,999.1338	32° 21' 21.222 N	103° 28' 53.911 W
2,300.00	1.06	88.10	2,298.78	29.50	45.04	494,236.5967	763,001.0396	32° 21' 21.225 N	103° 28' 53.888 W
2,400.00	1.04	90.48	2,398.76	29.52	46.87	494,236.6197	763,002.8715	32° 21' 21.225 N	103° 28' 53.867 W
2,500.00	1.33	100.43	2,498.74	29.30	48.92	494,236.4020	763,004.9204	32° 21' 21.223 N	103° 28' 53.843 W
2,600.00	1.03	77.47	2,598.72	29.29	50.94	494,236.3869	763,006.9391	32° 21' 21.223 N	103° 28' 53.820 W
2,700.00	0.83	92.23	2,698.71	29.45	52.54	494,236.5537	763,008.5403	32° 21' 21.224 N	103° 28' 53.801 W
2,800.00	0.89	75.01	2,798.70	29.63	54.01	494,236.7264	763,010.0142	32° 21' 21.226 N	103° 28' 53.784 W
2,900.00	0.72	57.11	2,898.69	30.17	55.29	494,237.2685	763,011.2920	32° 21' 21.231 N	103° 28' 53.769 W
3,000.00	0.76	63.79	2,998.68	30.80	56.41	494,237.9026	763,012.4146	32° 21' 21.237 N	103° 28' 53.756 W
3,100.00	0.97	37.42	3,098.67	31.77	57.52	494,238.8677	763,013.5240	32° 21' 21.247 N	103° 28' 53.743 W
3,200.00	0.90	48.27	3,198.65	32.96	58.62	494,240.0627	763,014.6244	32° 21' 21.259 N	103° 28' 53.730 W
3,300.00	0.97	15.01	3,298.64	34.30	59.43	494,241.4031	763,015.4298	32° 21' 21.272 N	103° 28' 53.720 W
3,400.00	1.14	12.70	3,398.62	36.09	59.87	494,243.1911	763,015.8677	32° 21' 21.289 N	103° 28' 53.715 W
3,500.00	1.30	336.57	3,498.60	38.10	59.64	494,245.2024	763,015.6353	32° 21' 21.309 N	103° 28' 53.718 W
3,600.00	1.05	341.34	3,598.58	40.01	58.89	494,247.1113	763,014.8911	32° 21' 21.328 N	103° 28' 53.726 W
3,700.00	1.21	347.28	3,698.56	41.91	58.37	494,249.0093	763,014.3655	32° 21' 21.347 N	103° 28' 53.732 W
3,800.00	1.14	336.78	3,798.54	43.85	57.74	494,250.9534	763,013.7408	32° 21' 21.366 N	103° 28' 53.739 W
3,900.00	1.51	19.27	3,898.52	46.01	57.78	494,253.1114	763,013.7834	32° 21' 21.388 N	103° 28' 53.738 W
4,000.00	0.78	24.89	3,998.50	47.87	58.50	494,254.9726	763,014.5047	32° 21' 21.406 N	103° 28' 53.730 W
4,100.00	0.80	248.54	4,098.49	48.23	58.14	494,255.3347	763,014.1415	32° 21' 21.410 N	103° 28' 53.734 W
4,200.00	0.93	260.95	4,198.48	47.85	56.69	494,254.9516	763,012.6903	32° 21' 21.406 N	103° 28' 53.751 W
4,300.00	0.75	269.19	4,298.47	47.71	55.23	494,254.8147	763,011.2345	32° 21' 21.405 N	103° 28' 53.768 W
4,400.00	0.76	264.46	4,398.46	47.64	53.92	494,254.7414	763,009.9199	32° 21' 21.404 N	103° 28' 53.783 W
4,500.00	0.13	214.43	4,498.46	47.48	53.20	494,254.5838	763,009.1957	32° 21' 21.403 N	103° 28' 53.792 W
4,600.00	0.02	215.93	4,598.46	47.38	53.12	494,254.4761	763,009.1213	32° 21' 21.402 N	103° 28' 53.793 W
4,700.00	0.10	245.38	4,698.46	47.33	53.03	494,254.4257	763,009.0317	32° 21' 21.401 N	103° 28' 53.794 W
4,800.00	0.55	197.81	4,798.46	46.83	52.81	494,253.9323	763,008.8056	32° 21' 21.396 N	103° 28' 53.796 W
4,900.00	0.36	182.44	4,898.45	46.06	52.65	494,253.1615	763,008.6454	32° 21' 21.389 N	103° 28' 53.798 W
5,000.00	0.49	211.54	4,998.45	45.38	52.41	494,252.4832	763,008.4084	32° 21' 21.382 N	103° 28' 53.801 W
5,100.00	0.61	204.42	5,098.45	44.53	51.96	494,251.6341	763,007.9646	32° 21' 21.374 N	103° 28' 53.806 W
5,200.00	0.50	180.26	5,198.44	43.61	51.74	494,250.7131	763,007.7426	32° 21' 21.364 N	103° 28' 53.809 W
5,300.00	0.55	177.97	5,298.44	42.70	51.76	494,249.7971	763,007.7576	32° 21' 21.355 N	103° 28' 53.809 W
5,400.00	0.87	184.86	5,398.43	41.46	51.71	494,248.5610	763,007.7103	32° 21' 21.343 N	103° 28' 53.810 W
5,500.00	0.85	185.08	5,498.42	39.97	51.58	494,247.0657	763,007.5803	32° 21' 21.328 N	103° 28' 53.811 W
5,600.00	0.79	183.29	5,598.41	38.54	51.48	494,245.6386	763,007.4750	32° 21' 21.314 N	103° 28' 53.813 W
5,700.00	0.56	185.25	5,698.40	37.36	51.39	494,244.4637	763,007.3908	32° 21' 21.303 N	103° 28' 53.814 W
5,800.00	0.69	189.39	5,798.39	36.28	51.25	494,243.3830	763,007.2478	32° 21' 21.292 N	103° 28' 53.815 W
5,900.00	0.71	190.78	5,898.39	35.08	51.03	494,242.1804	763,007.0337	32° 21' 21.280 N	103° 28' 53.818 W
6,000.00	0.71	197.74	5,998.38	33.88	50.73	494,240.9816	763,006.7290	32° 21' 21.268 N	103° 28' 53.822 W
6,100.00	0.44	202.12	6,098.37	32.94	50.40	494,240.0358	763,006.3956	32° 21' 21.259 N	103° 28' 53.826 W
6,200.00	0.48	213.47	6,198.37	32.23	50.02	494,239.3307	763,006.0200	32° 21' 21.252 N	103° 28' 53.830 W
6,300.00	0.45	215.34	6,298.37	31.56	49.56	494,238.6609	763,005.5619	32° 21' 21.245 N	103° 28' 53.836 W
6,400.00	0.28	184.12	6,398.37	31.00	49.32	494,238.0969	763,005.3172	32° 21' 21.240 N	103° 28' 53.838 W
6,500.00	0.27	217.68	6,498.37	30.57	49.16	494,237.6667	763,005.1556	32° 21' 21.236 N	103° 28' 53.840 W

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Smalls Federal 8H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Site:	Sec. 28, T 22 S. , R 34 E.	**MD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Well:	Smalls Federal 8H	**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	0.30	180.17	6,598.36	30.12	49.01	494,237.2184	763,005.0108	32° 21' 21.231 N	103° 28' 53.842 W
6,700.00	0.41	143.87	6,698.36	29.57	49.22	494,236.6676	763,005.2210	32° 21' 21.226 N	103° 28' 53.840 W
6,800.00	0.34	185.25	6,798.36	28.98	49.40	494,236.0832	763,005.4048	32° 21' 21.220 N	103° 28' 53.838 W
6,900.00	0.21	149.62	6,898.36	28.53	49.47	494,235.6296	763,005.4703	32° 21' 21.215 N	103° 28' 53.837 W
7,000.00	0.49	207.57	6,998.36	27.99	49.37	494,235.0925	763,005.3651	32° 21' 21.210 N	103° 28' 53.838 W
7,100.00	0.62	213.74	7,098.35	27.16	48.87	494,234.2635	763,004.8667	32° 21' 21.202 N	103° 28' 53.844 W
7,200.00	0.65	209.03	7,198.35	26.22	48.29	494,233.3177	763,004.2909	32° 21' 21.193 N	103° 28' 53.851 W
7,300.00	0.43	208.14	7,298.34	25.39	47.84	494,232.4908	763,003.8387	32° 21' 21.184 N	103° 28' 53.856 W
7,400.00	0.78	185.62	7,398.34	24.38	47.60	494,231.4825	763,003.5951	32° 21' 21.175 N	103° 28' 53.859 W
7,500.00	0.76	204.44	7,498.33	23.10	47.25	494,230.2014	763,003.2540	32° 21' 21.162 N	103° 28' 53.863 W
7,600.00	0.84	189.14	7,598.32	21.77	46.86	494,228.8739	763,002.8632	32° 21' 21.149 N	103° 28' 53.868 W
7,700.00	0.73	177.09	7,698.31	20.41	46.78	494,227.5140	763,002.7791	32° 21' 21.135 N	103° 28' 53.869 W
7,800.00	0.85	173.88	7,798.30	19.04	46.89	494,226.1403	763,002.8905	32° 21' 21.122 N	103° 28' 53.868 W
7,900.00	0.44	196.61	7,898.29	17.93	46.86	494,225.0348	763,002.8598	32° 21' 21.111 N	103° 28' 53.868 W
8,000.00	0.49	181.55	7,998.29	17.14	46.74	494,224.2394	763,002.7385	32° 21' 21.103 N	103° 28' 53.870 W
8,100.00	0.64	207.22	8,098.28	16 22	46.47	494,223.3153	763,002.4715	32° 21' 21.094 N	103° 28' 53.873 W
8,200.00	0.65	205.94	8,198.28	15.21	45.97	494,222.3086	763,001.9679	32° 21' 21.084 N	103° 28' 53.879 W
8,300.00	0.64	214.13	8,298.27	14.24	45.41	494,221.3362	763,001.4064	32° 21' 21.074 N	103° 28' 53.886 W
8,400.00	0.53	223.82	8,398.27	13.44	44.77	494,220.5402	763,000.7728	32° 21' 21.066 N	103° 28' 53.893 W
8,500.00	0.70	244.32	8,498.26	12.84	43.90	494,219.9418	762,999.9021	32° 21' 21.061 N	103° 28' 53.903 W
8,600.00	0.72	255.66	8,598.25	12.42	42.74	494,219.5215	762,998.7429	32° 21' 21.057 N	103° 28' 53.917 W
8,700.00	0.80	241.43	8,698.24	11.93	41.52	494,219.0320	762,997.5210	32° 21' 21.052 N	103° 28' 53.931 W
8,800.00	0.53	236.25	8,798.24	11.34	40.52	494,218.4412	762,996.5234	32° 21' 21.046 N	103° 28' 53.943 W
8,900.00	0.72	215.04	8,898.23	10.57	39.78	494,217.6698	762,995.7781	32° 21' 21.038 N	103° 28' 53.952 W
9,000.00	0.64	186.20	8,998.23	9.50	39.36	494,216.6002	762,995.3570	32° 21' 21.028 N	103° 28' 53.957 W
9,100.00	1.11	306.42	9,098.22	9.52	38.52	494,216.6200	762,994.5172	32° 21' 21.028 N	103° 28' 53.966 W
9,200.00	0.72	311.86	9,198.21	10.51	37.27	494,217.6143	762,993.2699	32° 21' 21.038 N	103° 28' 53.981 W
9,300.00	0.69	165.29	9,298.20	10.35	36.95	494,217.4512	762,992.9548	32° 21' 21.037 N	103° 28' 53.984 W
9,400.00	0.51	97.50	9,398.20	9.71	37.55	494,216.8107	762,993.5489	32° 21' 21.030 N	103° 28' 53.978 W
9,500.00	0.84	67.61	9,498.19	9.93	38.67	494,217.0319	762,994.6679	32° 21' 21.032 N	103° 28' 53.965 W
9,600.00	0.65	74.70	9,598.18	10.36	39.89	494,217.4607	762,995.8928	32° 21' 21.036 N	103° 28' 53.950 W
9,700.00	0.75	106.93	9,698.18	10.32	41.07	494,217.4198	762,997.0660	32° 21' 21.036 N	103° 28' 53.937 W
9,804.00	0.90	78.80	9,802.17	10.28	42.52	494,217.3803	762,998.5184	32° 21' 21.035 N	103° 28' 53.920 W
First IDS MWD Survey									
9,835.00	4.40	16.60	9,833.13	11.47	43.10	494,218.5676	762,999.0972	32° 21' 21.047 N	103° 28' 53.913 W
9,867.00	9.10	10.90	9,864.90	15.13	43.93	494,222.2309	762,999.9269	32° 21' 21.083 N	103° 28' 53.903 W
9,898.00	13.50	7.20	9,895.29	21.13	44.84	494,228.2310	763,000.8444	32° 21' 21.143 N	103° 28' 53.892 W
9,930.00	16.70	10.80	9,926.18	29.36	46.17	494,236.4553	763,002.1745	32° 21' 21.224 N	103° 28' 53.875 W
9,961.00	19.60	12.00	9,955.64	38.82	48.09	494,245.9185	763,004.0905	32° 21' 21.317 N	103° 28' 53.852 W
9,993.00	23.10	12.60	9,985.44	50.20	50.58	494,257.2981	763,006.5766	32° 21' 21.430 N	103° 28' 53.822 W
10,024.00	26.20	8.70	10,013.61	62.90	52.94	494,270.0014	763,008.9390	32° 21' 21.555 N	103° 28' 53.793 W
10,056.00	29.50	4.60	10,041.90	77.74	54.64	494,284.8431	763,010.6400	32° 21' 21.702 N	103° 28' 53.772 W
10,087.00	32.50	3.60	10,068.47	93.67	55.78	494,300.7665	763,011.7753	32° 21' 21.859 N	103° 28' 53.757 W
10,119.00	35.80	2.80	10,094.95	111.60	56.77	494,318.6995	763,012.7726	32° 21' 22.037 N	103° 28' 53.744 W
10,150.00	37.70	359.90	10,119.79	130.14	57.20	494,337.2372	763,013.1991	32° 21' 22.220 N	103° 28' 53.737 W
10,166.67	39.26	359.85	10,132.84	140.51	57.18	494,347.6100	763,013.1760	32° 21' 22.323 N	103° 28' 53.737 W
South 330' Hardline Crossing									
10,182.00	40.70	359.80	10,144.59	150.36	57.15	494,357.4598	763,013.1456	32° 21' 22.420 N	103° 28' 53.736 W
10,213.00	44.60	0.50	10,167.38	171.36	57.21	494,378.4584	763,013.2053	32° 21' 22.628 N	103° 28' 53.733 W
10,245.00	47.70	3.20	10,189.55	194.42	57.96	494,401.5158	763,013.9642	32° 21' 22.856 N	103° 28' 53.723 W
10,276.00	51.50	2.70	10,209.64	217.99	59.18	494,425.0879	763,015.1760	32° 21' 23.089 N	103° 28' 53.706 W
10,308.00	56.20	2.80	10,228.51	243.79	60.42	494,450.8900	763,016.4160	32° 21' 23.345 N	103° 28' 53.689 W
10,339.00	61.10	2.80	10,244.63	270.22	61.71	494,477.3244	763,017.7089	32° 21' 23.606 N	103° 28' 53.672 W
10,371.00	66.00	3.40	10,258.88	298.82	63.26	494,505.9237	763,019.2610	32° 21' 23.889 N	103° 28' 53.651 W
10,402.00	68.70	3.60	10,270.82	327.38	65.01	494,534.4767	763,021.0078	32° 21' 24.171 N	103° 28' 53.628 W

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Smalls Federal 8H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Site:	Sec. 28, T 22 S. , R 34 E.	**MD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Well:	Smalls Federal 8H	**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
10,434.00	72.20	1.30	10,281.53	357.50	66.29	494,564.5974	763,022.2900	32° 21' 24.469 N	103° 28' 53.610 W
10,465.00	75.70	2.10	10,290.10	387.27	67.18	494,594.3709	763,023.1755	32° 21' 24.764 N	103° 28' 53.597 W
10,496.00	77.80	0.70	10,297.20	417.44	67.91	494,624.5342	763,023.9111	32° 21' 25.062 N	103° 28' 53.586 W
10,528.00	79.70	0.30	10,303.45	448.82	68.18	494,655.9165	763,024.1846	32° 21' 25.373 N	103° 28' 53.580 W
10,559.00	82.50	357.70	10,308.24	479.43	67.65	494,686.5327	763,023.6475	32° 21' 25.676 N	103° 28' 53.583 W
10,591.00	85.40	356.50	10,311.61	511.21	66.04	494,718.3096	763,022.0369	32° 21' 25.990 N	103° 28' 53.599 W
10,681.00	89.50	357.80	10,315.62	600.99	61.57	494,808.0881	763,017.5691	32° 21' 26.879 N	103° 28' 53.643 W
10,775.00	89.60	357.50	10,316.36	694.91	57.71	494,902.0059	763,013.7149	32° 21' 27.809 N	103° 28' 53.679 W
10,870.00	89.60	357.40	10,317.02	789.81	53.49	494,996.9093	763,009.4883	32° 21' 28.748 N	103° 28' 53.719 W
10,964.00	89.50	357.40	10,317.76	883.71	49.22	495,090.8094	763,005.2243	32° 21' 29.677 N	103° 28' 53.760 W
11,058.00	87.60	357.10	10,320.14	977.57	44.72	495,184.6665	763,000.7161	32° 21' 30.607 N	103° 28' 53.804 W
11,153.00	87.20	357.00	10,324.45	1,072.34	39.83	495,279.4426	762,995.8321	32° 21' 31.545 N	103° 28' 53.852 W
11,247.00	88.00	356.60	10,328.38	1,166.11	34.59	495,373.2125	762,990.5894	32° 21' 32.473 N	103° 28' 53.905 W
11,342.00	87.80	356.50	10,331.86	1,260.88	28.88	495,467.9764	762,984.8764	32° 21' 33.411 N	103° 28' 53.963 W
11,436.00	87.90	355.70	10,335.39	1,354.59	22.49	495,561.6918	762,978.4875	32° 21' 34.339 N	103° 28' 54.028 W
11,531.00	87.90	356.40	10,338.87	1,449.30	15.95	495,656.4017	762,971.9478	32° 21' 35.277 N	103° 28' 54.096 W
11,625.00	87.30	357.80	10,342.81	1,543.10	11.20	495,750.1960	762,967.1962	32° 21' 36.205 N	103° 28' 54.143 W
11,720.00	88.60	357.80	10,346.21	1,637.97	7.55	495,845.0630	762,963.5517	32° 21' 37.144 N	103° 28' 54.176 W
11,814.00	90.10	357.80	10,347.27	1,731.89	3.94	495,938.9848	762,959.9436	32° 21' 38.074 N	103° 28' 54.210 W
11,908.00	89.30	356.50	10,347.76	1,825.77	-0.73	496,032.8643	762,955.2701	32° 21' 39.003 N	103° 28' 54.255 W
12,003.00	88.80	358.10	10,349.34	1,920.65	-5.20	496,127.7422	762,950.7956	32° 21' 39.942 N	103° 28' 54.299 W
12,098.00	90.90	357.80	10,349.59	2,015.58	-8.60	496,222.6754	762,947.3975	32° 21' 40.882 N	103° 28' 54.330 W
12,192.00	91.10	357.10	10,347.95	2,109.47	-12.78	496,316.5672	762,943.2161	32° 21' 41.811 N	103° 28' 54.370 W
12,286.00	91.30	356.90	10,345.98	2,203.32	-17.70	496,410.4175	762,938.2976	32° 21' 42.740 N	103° 28' 54.418 W
12,380.00	91.20	357.40	10,343.93	2,297.18	-22.38	496,504.2784	762,933.6249	32° 21' 43.670 N	103° 28' 54.464 W
12,475.00	90.30	359.20	10,342.69	2,392.13	-25.19	496,599.2234	762,930.8072	32° 21' 44.609 N	103° 28' 54.488 W
12,569.00	90.10	359.40	10,342.36	2,486.12	-26.34	496,693.2156	762,929.6588	32° 21' 45.539 N	103° 28' 54.493 W
12,664.00	90.20	359.20	10,342.11	2,581.11	-27.50	496,788.2079	762,928.4982	32° 21' 46.479 N	103° 28' 54.497 W
12,758.00	91.50	359.20	10,340.71	2,675.09	-28.81	496,882.1861	762,927.1859	32° 21' 47.409 N	103° 28' 54.504 W
12,852.00	91.70	358.20	10,338.09	2,769.03	-30.95	496,976.1238	762,925.0542	32° 21' 48.339 N	103° 28' 54.520 W
12,946.00	90.80	356.80	10,336.04	2,862.91	-35.05	497,070.0085	762,920.9549	32° 21' 49.268 N	103° 28' 54.559 W
13,041.00	89.80	356.80	10,335.54	2,957.76	-40.35	497,164.8577	762,915.6520	32° 21' 50.207 N	103° 28' 54.612 W
13,135.00	88.60	355.80	10,336.85	3,051.56	-46.41	497,258.6495	762,909.5869	32° 21' 51.136 N	103° 28' 54.674 W
13,229.00	87.70	355.80	10,339.89	3,145.25	-53.29	497,352.3471	762,902.7062	32° 21' 52.064 N	103° 28' 54.746 W
13,324.00	87.40	358.60	10,343.95	3,240.04	-57.93	497,447.1372	762,898.0699	32° 21' 53.002 N	103° 28' 54.791 W
13,418.00	87.00	358.30	10,348.54	3,333.90	-60.47	497,540.9901	762,895.5304	32° 21' 53.931 N	103° 28' 54.812 W
13,513.00	87.60	359.90	10,353.02	3,428.78	-61.96	497,635.8692	762,894.0402	32° 21' 54.870 N	103° 28' 54.821 W
13,607.00	87.40	359.40	10,357.12	3,522.68	-62.53	497,729.7775	762,893.4666	32° 21' 55.799 N	103° 28' 54.819 W
13,702.00	88.00	0.70	10,360.93	3,617.61	-62.45	497,824.6982	762,893.5496	32° 21' 56.738 N	103° 28' 54.809 W
13,796.00	90.20	0.80	10,362.41	3,711.58	-61.22	497,918.6726	762,894.7799	32° 21' 57.668 N	103° 28' 54.786 W
13,891.00	91.10	1.30	10,361.33	3,806.56	-59.48	498,013.6491	762,896.5205	32° 21' 58.608 N	103° 28' 54.757 W
13,985.00	90.30	0.20	10,360.18	3,900.54	-58.25	498,107.6316	762,897.7508	32° 21' 59.538 N	103° 28' 54.734 W
14,080.00	90.20	0.00	10,359.77	3,995.54	-58.08	498,202.6303	762,897.9166	32° 22' 0.478 N	103° 28' 54.723 W
14,174.00	91.20	0.40	10,358.62	4,089.53	-57.76	498,296.6212	762,898.2446	32° 22' 1.408 N	103° 28' 54.710 W
14,269.00	90.60	359.20	10,357.13	4,184.51	-58.09	498,391.6065	762,897.9130	32° 22' 2.348 N	103° 28' 54.705 W
14,363.00	89.90	358.00	10,356.72	4,278.48	-60.38	498,485.5751	762,895.6164	32° 22' 3.278 N	103° 28' 54.723 W
14,457.00	89.20	358.70	10,357.45	4,372.44	-63.09	498,579.5318	762,892.9099	32° 22' 4.207 N	103° 28' 54.746 W
14,552.00	89.90	358.90	10,358.20	4,467.42	-65.08	498,674.5073	762,890.9204	32° 22' 5.147 N	103° 28' 54.761 W
14,646.00	89.50	358.40	10,358.69	4,561.39	-67.29	498,768.4792	762,888.7059	32° 22' 6.077 N	103° 28' 54.778 W
14,740.00	89.30	358.50	10,359.68	4,655.35	-69.84	498,862.4394	762,886.1634	32° 22' 7.007 N	103° 28' 54.799 W
14,822.17	89.39	358.50	10,360.62	4,737.49	-71.99	498,944.5757	762,884.0126	32° 22' 7.820 N	103° 28' 54.816 W
North 330' Hardline Crossing									
14,834.00	89.40	358.50	10,360.74	4,749.31	-72.30	498,956.4010	762,883.7029	32° 22' 7.937 N	103° 28' 54.819 W
14,871.00	89.10	358.40	10,361.23	4,786.29	-73.30	498,993.3841	762,882.7022	32° 22' 8.303 N	103° 28' 54.827 W
Final IDS MWD Survey									

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Smalls Federal 8H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Site:	Sec. 28, T 22 S. , R 34 E.	**MD Reference:**	KB=20' @ 3436.20ft (Patriot 2)
Well:	Smalls Federal 8H	**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
14,919.00	89.10	358.40	10,361.98	4,834.27	-74.64	499,041.3594	762,881.3621	32° 22' 8.778 N	103° 28' 54.838 W
Projection to TD									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
9,804.00	9,802.17	10.28	42.52	First IDS MWD Survey
10,166.67	10,132.84	140.51	57.18	South 330' Hardline Crossing
14,822.17	10,360.62	4,737.49	-71.99	North 330' Hardline Crossing
14,871.00	10,361.23	4,786.29	-73.30	Final IDS MWD Survey
14,919.00	10,361.98	4,834.27	-74.64	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

Smalls Federal #8H
30-025-43069

Stage 1	Distance Between Perfs	Shots	Stage 2	Distance Between Perfs	Shots	Stage 3	Distance Between Perfs	Shots	Stage 4	Distance Between Perfs	Shots	Stage 5	Distance Between Perfs	Shots
14,690	39	14	14,532	40	14	14,374	40	14	14,216	40	14	14,058	40	14
14,651	40	12	14,493	35	12	14,335	40	12	14,177	44	12	14,019	40	12
14,611	39	10	14,458	44	10	14,295	39	10	14,133	35	10	13,979	39	10
14,572		8	14,414		8	14,256		8	14,098		8	13,940		8
Plug to Plug	145	44	Plug to Plug	140	44	Plug to Plug	138	44	Plug to Plug	142	44	Plug to Plug	138	44
Frac Plug	14,717	Total Shots	Frac Plug	14,554	Total Shots	Frac Plug	14,394	Total Shots	Frac Plug	14,240	Total Shots	Frac Plug	14,078	Total Shots

Stage 6	Distance Between Perfs	Shots	Stage 7	Distance Between Perfs	Shots	Stage 8	Distance Between Perfs	Shots	Stage 9	Distance Between Perfs	Shots	Stage 10	Distance Between Perfs	Shots
13,900	40	14	13,742	40	14	13,584	40	14	13,426	40	14	13,269	39	14
13,861	44	12	13,703	40	12	13,545	35	12	13,387	40	12	13,229	35	12
13,817	35	10	13,663	39	10	13,510	44	10	13,347	39	10	13,194	44	10
13,782		8	13,624		8	13,466		8	13,308		8	13,150		8
Plug to Plug	140	44	Plug to Plug	138	44	Plug to Plug	139	44	Plug to Plug	138	44	Plug to Plug	140	44
Frac Plug	13,922	Total Shots	Frac Plug	13,762	Total Shots	Frac Plug	13,605	Total Shots	Frac Plug	13,446	Total Shots	Frac Plug	13,290	Total Shots

Stage 11	Distance Between Perfs	Shots	Stage 12	Distance Between Perfs	Shots	Stage 13	Distance Between Perfs	Shots	Stage 14	Distance Between Perfs	Shots	Stage 15	Distance Between Perfs	Shots
13,111	39	14	12,953	39	14	12,795	39	14	12,637	39	14	12,479	39	14
13,071	39	12	12,913	34	12	12,755	39	12	12,597	34	12	12,439	39	12
13,032	40	10	12,879	45	10	12,716	40	10	12,563	45	10	12,400	40	10
12,992		8	12,834		8	12,676		8	12,518		8	12,360		8
Plug to Plug	138	44	Plug to Plug	140	44	Plug to Plug	138	44	Plug to Plug	140	44	Plug to Plug	139	44
Frac Plug	13,130	Total Shots	Frac Plug	12,974	Total Shots	Frac Plug	12,814	Total Shots	Frac Plug	12,658	Total Shots	Frac Plug	12,499	Total Shots

Stage 16	Distance Between Perfs	Shots	Stage 17	Distance Between Perfs	Shots	Stage 18	Distance Between Perfs	Shots	Stage 19	Distance Between Perfs	Shots	Stage 20	Distance Between Perfs	Shots
12,321	39	14	12,163	39	14	12,005	39	14	11,847	40	14	11,689	40	14
12,281	34	12	12,123	39	12	11,965	34	12	11,808	40	12	11,642	37	12
12,247	45	10	12,084	40	10	11,931	44	10	11,768	39	10	11,605	34	10
12,202		8	12,044		8	11,887		8	11,729		8	11,571		8
Plug to Plug	140	44	Plug to Plug	139	44	Plug to Plug	139	44	Plug to Plug	138	44	Plug to Plug	139	44
Frac Plug	12,342	Total Shots	Frac Plug	12,183	Total Shots	Frac Plug	12,026	Total Shots	Frac Plug	11,867	Total Shots	Frac Plug	11,710	Total Shots

Stage 21	Distance Between Perfs	Shots	Stage 22	Distance Between Perfs	Shots	Stage 23	Distance Between Perfs	Shots	Stage 24	Distance Between Perfs	Shots	Stage 25	Distance Between Perfs	Shots
11,531	40	14	11,373	40	14	11,215	40	14	11,057	40	14	10,899	40	14
11,492	40	12	11,334	35	12	11,176	40	12	11,018	35	12	10,860	40	12
11,452	39	10	11,299	44	10	11,136	39	10	10,983	44	10	10,820	39	10
11,413		8	11,255		8	11,097		8	10,939		8	10,781		8
Plug to Plug	138	44	Plug to Plug	140	44	Plug to Plug	138	44	Plug to Plug	139	44	Plug to Plug	138	44
Frac Plug	11,551	Total Shots	Frac Plug	11,395	Total Shots	Frac Plug	11,235	Total Shots	Frac Plug	11,078	Total Shots	Frac Plug	10,919	Total Shots

Stage 26	Distance Between Perfs	Shots	Stage 27	Distance Between Perfs	Shots	Stage 28	Distance Between Perfs	Shots	Stage 29	Distance Between Perfs	Shots	Stage 30	Distance Between Perfs	Shots
10,741	40	14	10,583	40	14		10465			0			0	
10,702	35	12	10,544	40	12									
10,667	44	10	10,504	39	10									
10,623		8	10,465		8									
Plug to Plug	140	44	Plug to Plug	138	44	Plug to Plug	0	0	Plug to Plug	0	0	Plug to Plug	0	0
Frac Plug	10,763	Total Shots	Frac Plug	10,603	Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots

SMALLS FEDERAL #8H (30-025-43069)

Perfs	7 1/2% Acid (Gal)	Sand (#)	Fluid (Gal)
1	5502	311357	537012
2	3024	312007	437094
3	3024	312931	435288
4	3024	314680	432390
5	3024	307639	441252
6	3024	309216	385434
7	3024	312884	383124
8	3066	312657	355698
9	3024	312633	350490
10	3150	312883	352800
11	2982	312546	371280
12	3066	312030	363048
13	2982	313738	361536
14	3024	313534	357294
15	3024	311378	353598
16	3024	311505	355866
17	3318	311885	358932
18	3024	312647	357336
19	3066	310652	379092
20	3024	312259	359814
21	3024	313703	355404
22	3066	312736	347634
23	2646	312958	345198
24	3024	311878	355740
25	3108	311832	364350
26	2982	314558	356622
27	3360	306068	352254
Totals	**84,630**	**8,424,794**	**10,205,580**