

PATRIOT DRILLING, LLC

OPERATOR:
WELL/LEASE:
COUNTY:

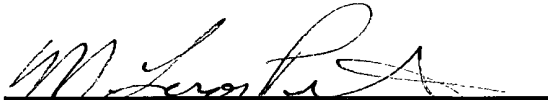
COG Operating, LLC
SRO State Unit Com # 10 H
Eddy Co., New Mexico
Sec. 3, T26S, R28E

30-015-38072

**STATE OF NEW MEXICO
DEVIATION REPORT**

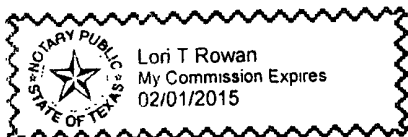
<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
288	1	3,343	1 1/2
532	1 1/2	3,743	1 1/4
867	1 3/4	4,155	1 1/2
1,024	1 1/2	4,976	2
1,439	1/2	5,613	1 3/4
1,631	1	5,898	1 1/2
1,821	2	6,216	1
2,009	2 1/4	6,500	1 3/4
2,313	3	6,788	3 3/4
2,344	2 3/4	7,450	3
2,598	1 1/2		

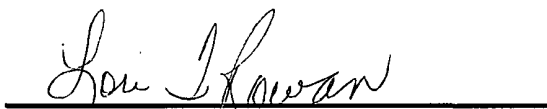
Patriot Drilling, LLC

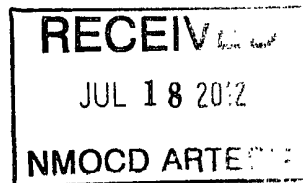

M. Leroy Peterson, Executive Vice-
President

The foregoing instrument was acknowledged before me on this 30th day of May, 2012 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2015




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



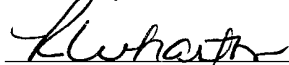
COG OPERATING

Red Bluff
Eddy County, NM
SRO State Unit #010H
VH - Job #32K0412495

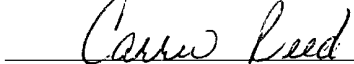
Survey: Gyro

SDI Standard Survey Report

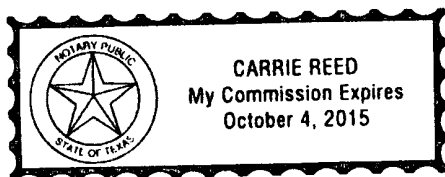
This survey is correct to the best of my knowledge and is supported by actual field data.



Notarized this date BEL of June, 2012.



Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well SRO State Unit #010H
Project:	Red Bluff	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	SRO State Unit #010H	North Reference:	Grid
Wellbore:	VH - Job #32K0412495	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0412495	Database:	EDM-Regulatory

Project	Red Bluff		
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	Eddy County, NM		
Site Position:		Northing:	403,456 01 usft
From:	Lat/Long	Easting:	572,556 11 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 6' 32 400 N
		Longitude:	104° 5' 56 400 W
		Grid Convergence:	0 12 °

Well	SRO State Unit #010H, Directional (Pathfinder)		
Well Position	+N/-S	0 00 usft	Northing: 392,918 74 usft
	+E/-W	0 00 usft	Easting: 577,844 38 usft
Position Uncertainty	0 00 usft	Wellhead Elevation:	usft
		Latitude:	32° 4' 48 000 N
		Longitude:	104° 4' 55 200 W
		Ground Level:	0 00 usft

Wellbore	VH - Job #32K0412495				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	2012/04/30	7 70	59 94	48,410

Design	VH - Job #32K0412495			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0 00	0 00	0 00	178 52

Survey Program	Date 2012/06/12			
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100 00	6,700 00	Gyro (VH - Job #32K0412495)	Keeper	Keeper Gyro

Survey							
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
100 00	0 33	95 85	100 00	-0 03	0 29	95 85	0 29
200 00	0 37	100 15	200 00	-0 12	0 89	97 39	0 90
300 00	0 80	146 00	299 99	-0 75	1 60	115 17	1 77
400 00	1 37	179 26	399 98	-2 53	2 00	141 56	3 22
500 00	1 71	188 86	499 94	-5 19	1 79	160 98	5 49
600 00	1 83	203 24	599 89	-8 14	0 93	173 48	8 19
700 00	1 79	207 74	699 84	-10 99	-0 43	182 22	10 99
800 00	1 78	213 78	799 79	-13 66	-2 02	188 40	13 81
900 00	1 53	206 97	899 75	-16 14	-3 49	192 19	16 51
1,000 00	1 42	199 54	999 72	-18 50	-4 51	193 69	19 04
1,100 00	1 01	169 39	1,099 70	-20 53	-4 76	193 05	21 08

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well SRO State Unit #010H
Project:	Red Bluff	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	SRO State Unit #010H	North Reference:	Grid
Wellbore:	VH - Job #32K0412495	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0412495	Database:	EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200 00	0 30	70 10	1,199 69	-21 31	-4 35	191 54	21 75
1,300 00	0 70	67 36	1,299 69	-20 98	-3 54	189 57	21 28
1,400 00	0 63	85 04	1,399 68	-20 70	-2 43	186 69	20 84
1,500 00	0 80	113 76	1,499 67	-20 94	-1 24	183 39	20 97
1,600 00	1 07	120 53	1,599 66	-21 69	0 20	179 47	21 69
1,700 00	1 23	113 86	1,699 64	-22 60	1 99	174 97	22 69
1,800 00	2 10	98 84	1,799 60	-23 32	4 78	168 41	23 80
1,900 00	2 37	99 75	1,899 52	-23 95	8 63	160 19	25 45
2,000 00	2 44	98 96	1,999 43	-24 63	12 77	152 60	27 74
2,100 00	3 22	95 77	2,099 31	-25 24	17 67	145 01	30 81
2,200 00	3 38	94 06	2,199 14	-25 73	23 40	137 72	34 78
2,300 00	3 37	96 52	2,298 97	-26 28	29 26	131 92	39 33
2,400 00	2 44	97 00	2,398 84	-26 87	34 29	128 08	43 57
2,500 00	1 72	96 08	2,498 78	-27 29	37 90	125 75	46 70
2,600 00	1 74	98 17	2,598 73	-27 66	40 89	124 08	49 37
2,700 00	1 69	97 52	2,698 68	-28 07	43 86	122 62	52 07
2,800 00	1 57	102 38	2,798 64	-28 56	46 66	121 47	54 70
2,900 00	1 80	110 84	2,898 60	-29 41	49 46	120 73	57 55
3,000 00	1 82	107 68	2,998 55	-30 45	52 45	120 14	60 64
3,100 00	1 56	103 25	3,098 51	-31 25	55 28	119 47	63 50
3,200 00	1 79	108 77	3,198 46	-32 06	58 09	118 90	66 35
3,300 00	1 69	106 80	3,298 42	-32 99	60 98	118 41	69 33
3,400 00	1 50	111 33	3,398 38	-33 89	63 61	118 05	72 07
3,500 00	1 31	113 98	3,498 35	-34 83	65 87	117 87	74 51
3,600 00	1 33	116 80	3,598 32	-35 82	67 95	117 79	76 81
3,700 00	1 39	117 47	3,698 30	-36 90	70 06	117 78	79 19
3,800 00	1 16	122 58	3,798 27	-38 01	71 99	117 83	81 41
3,900 00	1 32	122 18	3,898 25	-39 17	73 82	117 95	83 57
4,000 00	1 27	124 60	3,998 22	-40 41	75 71	118 09	85 82
4,100 00	1 46	134 33	4,098 19	-41 93	77 53	118 40	88 14
4,200 00	1 47	138 03	4,198 16	-43 77	79 30	118 90	90 58
4,300 00	1 71	144 77	4,298 12	-45 94	81 02	119 56	93 14
4,400 00	1 79	148 72	4,398 08	-48 50	82 69	120 39	95 86
4,500 00	1 88	160 09	4,498 02	-51 37	84 06	121 43	98 52
4,600 00	1 94	168 34	4,597 97	-54 57	84 96	122 71	100 98
4,700 00	1 92	168 49	4,697 91	-57 87	85 64	124 05	103 36
4,800 00	1 74	176 59	4,797 86	-61 03	86 06	125 34	105 51
4,900 00	1 97	173 92	4,897 81	-64 26	86 33	126 66	107 62
5,000 00	1 59	188 02	4,997 76	-67 34	86 32	127 96	109 48
5,100 00	1 49	187 80	5,097 72	-70 00	85 95	129 16	110 85
5,200 00	1 67	183 75	5,197 69	-72 74	85 68	130 33	112 40
5,300 00	1 67	182 13	5,297 64	-75 65	85 53	131 49	114 19
5,400 00	1 55	181 42	5,397 60	-78 46	85 44	132 56	116 00
5,500 00	1 56	186 60	5,497 57	-81 16	85 25	133 59	117 71

Scientific Drilling International, Inc.

SDI Standard Survey Report



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Project:	Red Bluff	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	SRO State Unit #010H	North Reference:	Grid
Wellbore:	VH - Job #32K0412495	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0412495	Database:	EDM-Regulatory

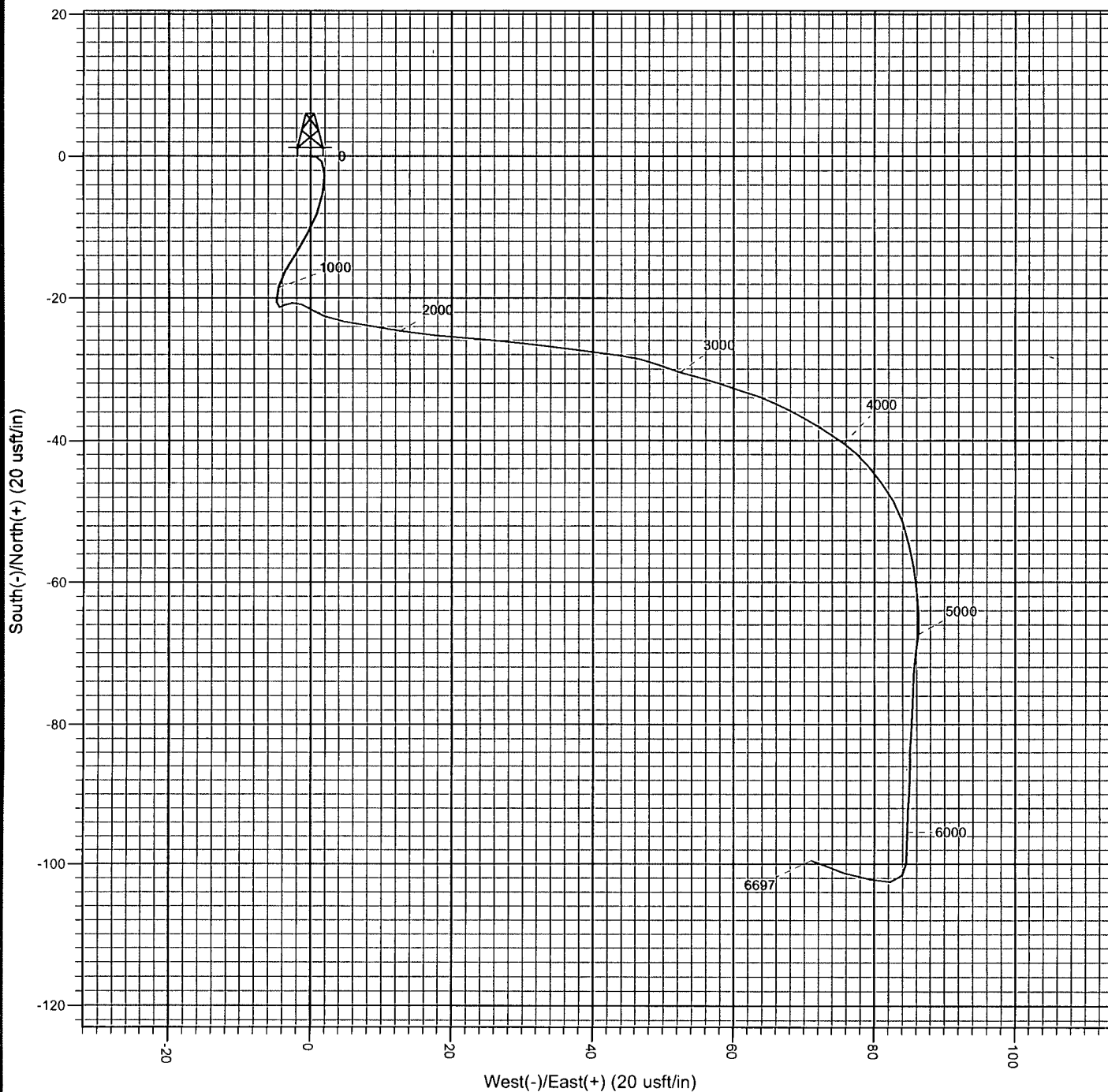
Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,600 00	1 61	181 98	5,597 53	-83 92	85 05	134 62	119 48	
5,700 00	1 75	178 57	5,697 49	-86 85	85 04	135 60	121 55	
5,800 00	1 58	183 96	5,797 44	-89 75	84 98	136 56	123 60	
5,900 00	1 60	182 85	5,897 41	-92 52	84 82	137 49	125 52	
6,000 00	1 63	181 35	5,997 37	-95 34	84 71	138 38	127 54	
6,100 00	1 36	182 09	6,097 33	-97 95	84 64	139 17	129 45	
6,200 00	0 94	178 72	6,197 31	-99 95	84 61	139 75	130 96	
6,300 00	1 14	213 98	6,297 30	-101 60	84 07	140 39	131 87	
6,400 00	1 33	266 16	6,397 28	-102 50	82 36	141 22	131 49	
6,500 00	1 95	281 64	6,497 24	-102 23	79 54	142 12	129 53	
6,600 00	2 45	285 82	6,597 16	-101 31	75 81	143 19	126 54	
6,700 00	3 38	294 37	6,697 03	-99 51	71 07	144 46	122 28	



Project: Red Bluff
 Eddy County, NM
 Well: SRO State Unit #010H
 Wellbore: VH - Job #32K0412495
 Design: VH - Job #32K0412495

WELL DETAILS: SRO State Unit #010H
 WELL @ 0.00usft (Original Well Elev)
 Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0.00	392918.74	577844.38	32° 4' 48.000 N	104° 4' 55.200 W	



PROJECT DETAILS: Red Bluff	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 6' 32.400 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 104° 5' 56.400 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.00
Zone: New Mexico East 3001	Convergence: 0.12
System Datum: Mean Sea Level	Local North: Grid

PathFinder Energy Services, Inc.

Survey Report

COG OPERATING
SRO UNIT STATE COM #10H
COG OPERATING COUNTY, NM
Rig:Patriot 6
PathFinder Office Supervisor: Juan Alcocor
PathFinder Field Engineers: Jeff Hull
Bill Kitchens

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.4.37.1118 N LON:104.4.55.3981 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 577829.9000 Y: 391818.5000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.57°EAST TO GRID
Vertical Section Plane: 178.52
Survey Vert. Reference: 17.00' Kelly Bushing To Ground
Altitude:2950.00' Ground To MSL

Survey Calculations by RX5 V6.04A using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
THE FOLLOWING ARE SCIENTIFIC DRILLING GRYO SURVEYS										
100.00	0.33	95.85	99.97	0.00	0.90	0.88 S	0.64 E	1.09@	143.96	0.00
200.00	0.37	100.15	199.97	100.00	1.00	0.97 S	1.24 E	1.58@	127.82	0.05
300.00	0.80	146.00	299.96	100.00	1.65	1.60 S	1.95 E	2.53@	129.36	0.60
400.00	1.37	179.26	399.95	100.00	3.44	3.38 S	2.36 E	4.12@	145.06	0.83
500.00	1.71	188.86	499.91	100.00	6.10	6.05 S	2.14 E	6.41@	160.47	0.43
600.00	1.83	203.24	599.86	100.00	9.02	8.99 S	1.28 E	9.08@	171.86	0.46
700.00	1.79	207.74	699.81	100.00	11.83	11.84 S	0.07 W	11.84@	180.35	0.15
800.00	1.78	213.78	799.77	100.00	14.46	14.51 S	1.66 W	14.60@	186.54	0.19
900.00	1.53	206.97	899.72	100.00	16.90	16.99 S	3.13 W	17.28@	190.44	0.32
1000.00	1.42	199.54	999.69	100.00	19.23	19.35 S	4.15 W	19.79@	192.11	0.22
1100.00	1.01	169.39	1099.67	100.00	21.26	21.38 S	4.40 W	21.83@	191.64	0.75
1200.00	0.30	70.10	1199.66	100.00	22.05	22.16 S	4.00 W	22.52@	190.22	1.10
1300.00	0.70	67.36	1299.66	100.00	21.75	21.84 S	3.19 W	22.07@	188.30	0.40
1400.00	0.63	85.04	1399.65	100.00	21.49	21.55 S	2.07 W	21.65@	185.50	0.22
1500.00	0.80	113.76	1499.65	100.00	21.76	21.79 S	0.89 W	21.80@	182.33	0.39
1600.00	1.07	120.53	1599.63	100.00	22.55	22.54 S	0.56 E	22.55@	178.59	0.29
1700.00	1.23	113.86	1699.61	100.00	23.50	23.45 S	2.34 E	23.57@	174.30	0.21
1800.00	2.10	98.84	1799.57	100.00	24.29	24.17 S	5.13 E	24.71@	168.01	0.97
1900.00	2.37	99.75	1899.49	100.00	25.02	24.80 S	8.98 E	26.37@	160.09	0.27
2000.00	2.44	98.96	1999.41	100.00	25.81	25.48 S	13.12 E	28.66@	152.75	0.08
2100.00	3.22	95.77	2099.28	100.00	26.55	26.09 S	18.02 E	31.71@	145.37	0.79
2200.00	3.38	94.06	2199.12	100.00	27.19	26.58 S	23.75 E	35.65@	138.22	0.19
2300.00	3.37	96.52	2298.94	100.00	27.88	27.13 S	29.62 E	40.16@	132.49	0.14
2400.00	2.44	97.00	2398.81	100.00	28.61	27.72 S	34.65 E	44.37@	128.66	0.93
2500.00	1.72	96.08	2498.75	100.00	29.12	28.14 S	38.25 E	47.49@	126.34	0.72

PathFinder Energy Services, Inc.

Survey Report

COG OPERATING
SRO UNIT STATE COM #10H
COG OPERATING COUNTY, NM
RIG:Patriot 6

Page 02/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2600.00	1.74	98.17	2598.70	100.00	29.57	28.51 S	41.25 E	50.14@	124.65	0.07
2700.00	1.69	97.52	2698.66	100.00	30.05	28.92 S	44.21 E	52.83@	123.19	0.05
2800.00	1.57	102.38	2798.62	100.00	30.61	29.41 S	47.01 E	55.45@	122.03	0.18
2900.00	1.80	110.84	2898.57	100.00	31.54	30.26 S	49.82 E	58.29@	121.28	0.34
3000.00	1.82	107.68	2998.52	100.00	32.66	31.30 S	52.80 E	61.38@	120.66	0.10
3100.00	1.56	103.25	3098.48	100.00	33.52	32.10 S	55.64 E	64.23@	119.98	0.29
3200.00	1.79	108.77	3198.44	100.00	34.41	32.91 S	58.44 E	67.07@	119.39	0.28
3300.00	1.69	106.80	3298.39	100.00	35.41	33.84 S	61.33 E	70.05@	118.89	0.12
3400.00	1.50	111.33	3398.35	100.00	36.38	34.74 S	63.96 E	72.79@	118.51	0.23
3500.00	1.31	113.98	3498.32	100.00	37.38	35.68 S	66.23 E	75.23@	118.32	0.20
3600.00	1.33	116.80	3598.30	100.00	38.42	36.67 S	68.31 E	77.53@	118.23	0.07
3700.00	1.39	117.47	3698.27	100.00	39.56	37.75 S	70.42 E	79.90@	118.20	0.06
3800.00	1.16	122.58	3798.24	100.00	40.71	38.86 S	72.35 E	82.12@	118.24	0.26
3900.00	1.32	122.18	3898.22	100.00	41.92	40.02 S	74.18 E	84.28@	118.35	0.16
4000.00	1.27	124.60	3998.19	100.00	43.21	41.26 S	76.06 E	86.53@	118.48	0.07
4100.00	1.46	134.33	4098.17	100.00	44.78	42.78 S	77.89 E	88.86@	118.78	0.30
4200.00	1.47	138.03	4198.13	100.00	46.66	44.62 S	79.66 E	91.30@	119.26	0.09
4300.00	1.71	144.77	4298.09	100.00	48.88	46.79 S	81.37 E	93.87@	119.90	0.30
4400.00	1.79	148.72	4398.05	100.00	51.48	49.35 S	83.05 E	96.60@	120.72	0.14
4500.00	1.88	160.09	4498.00	100.00	54.39	52.23 S	84.41 E	99.26@	121.74	0.37
4600.00	1.94	168.34	4597.94	100.00	57.61	55.43 S	85.32 E	101.74@	123.01	0.28
4700.00	1.92	168.49	4697.88	100.00	60.93	58.72 S	85.99 E	104.13@	124.33	0.02
4800.00	1.74	176.59	4797.83	100.00	64.09	61.88 S	86.42 E	106.29@	125.61	0.31
5000.00	1.59	188.02	4997.75	200.00	69.86	67.66 S	86.21 E	109.59@	128.13	0.18
5100.00	1.49	187.80	5097.71	100.00	72.52	70.32 S	85.84 E	110.97@	129.33	0.10
5200.00	1.67	183.75	5197.68	100.00	75.25	73.06 S	85.57 E	112.52@	130.49	0.21
5300.00	1.67	182.13	5297.63	100.00	78.16	75.97 S	85.42 E	114.32@	131.65	0.05
5400.00	1.55	181.42	5397.59	100.00	80.96	78.78 S	85.33 E	116.14@	132.72	0.12

PathFinder Energy Services, Inc.

Survey Report

COG OPERATING
SRO UNIT STATE COM #10H
COG OPERATING COUNTY, NM
RIG:Patriot 6

Page 03/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
5600.00	1.61	181.98	5597.52	200.00	86.47	84.29 S	85.17 E	119.83@	134.71	0.03
5800.00	1.58	183.96	5797.44	200.00	92.02	89.85 S	84.88 E	123.60@	136.63	0.03
5900.00	1.60	182.85	5897.40	100.00	94.78	92.62 S	84.71 E	125.52@	137.55	0.04
6000.00	1.63	181.36	5997.36	100.00	97.59	95.44 S	84.61 E	127.55@	138.44	0.05
6200.00	0.94	178.72	6197.31	200.00	102.07	99.92 S	84.58 E	130.91@	139.75	0.35
6300.00	1.14	213.98	6297.29	100.00	103.70	101.57 S	84.04 E	131.83@	140.39	0.66
6400.00	1.33	266.16	6397.27	100.00	104.56	102.47 S	82.33 E	131.45@	141.22	1.10
6500.00	1.95	281.64	6497.23	100.00	104.22	102.21 S	79.50 E	129.49@	142.12	0.76
6600.00	2.45	285.82	6597.16	100.00	103.20	101.28 S	75.78 E	126.49@	143.19	0.53
** TIED INTO SCIENTIFIC DRILLING GRYO SURVEY AT 6700"MD										
6700.00	3.38	294.37	6697.03	100.00	101.28	99.48 S	71.04 E	122.24@	144.47	1.02
THE FOLLOWING ARE PATHFINDER MWD SURVEYS										
6816.00	3.87	286.27	6812.80	116.00	98.60	96.97 S	64.17 E	116.28@	146.51	0.61
6911.00	2.81	288.47	6907.64	95.00	96.83	95.34 S	58.88 E	112.05@	148.30	1.12
7006.00	1.41	264.56	7002.57	95.00	96.11	94.71 S	55.51 E	109.78@	149.63	1.71
7101.00	1.49	220.88	7097.54	95.00	97.10	95.75 S	53.54 E	109.70@	150.79	1.14
7291.00	1.76	214.90	7287.47	190.00	101.28	100.01 S	50.25 E	111.93@	153.32	0.17
7387.00	2.11	225.98	7383.41	96.00	103.66	102.45 S	48.14 E	113.20@	154.83	0.53
7418.00	2.11	221.14	7414.39	31.00	104.47	103.28 S	47.35 E	113.62@	155.37	0.57
7450.00	2.81	188.71	7446.36	32.00	105.67	104.50 S	46.84 E	114.52@	155.85	4.78
7481.00	3.61	186.87	7477.31	31.00	107.39	106.22 S	46.61 E	115.99@	156.31	2.60
7513.00	4.04	181.27	7509.24	32.00	109.51	108.34 S	46.47 E	117.89@	156.79	1.78
7545.00	6.42	172.23	7541.11	32.00	112.41	111.24 S	46.68 E	120.64@	157.23	7.85
7576.00	9.85	167.25	7571.79	31.00	116.74	115.55 S	47.50 E	124.93@	157.65	11.29
7608.00	13.45	167.47	7603.13	32.00	123.08	121.85 S	48.92 E	131.31@	158.13	11.25
7640.00	16.71	170.68	7634.02	32.00	131.29	130.03 S	50.47 E	139.48@	158.79	10.51
7672.00	20.14	173.75	7664.38	32.00	141.34	140.05 S	51.81 E	149.33@	159.70	11.14
7703.00	23.21	175.42	7693.18	31.00	152.76	151.45 S	52.88 E	160.41@	160.75	10.10
7735.00	26.20	176.46	7722.25	32.00	166.12	164.78 S	53.82 E	173.35@	161.91	9.44

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7767.00	29.63	176.72	7750.52	32.00	181.09	179.74 S	54.71 E	187.88@	163.07	10.73
7798.00	33.41	176.73	7776.94	31.00	197.29	195.91 S	55.64 E	203.66@	164.15	12.19
7830.00	36.58	176.95	7803.16	32.00	215.63	214.24 S	56.65 E	221.60@	165.19	9.91
7862.00	39.66	177.36	7828.33	32.00	235.37	233.96 S	57.62 E	240.96@	166.16	9.66
7893.00	43.00	178.29	7851.60	31.00	255.84	254.42 S	58.40 E	261.03@	167.07	10.96
7925.00	45.64	179.65	7874.49	32.00	278.19	276.77 S	58.79 E	282.94@	168.01	8.77
7957.00	48.19	181.16	7896.35	32.00	301.55	300.14 S	58.62 E	305.81@	168.95	8.68
7988.00	51.18	182.08	7916.41	31.00	325.15	323.76 S	57.95 E	328.91@	169.85	9.91
8020.00	53.99	182.33	7935.85	32.00	350.51	349.16 S	56.97 E	353.77@	170.73	8.80
8052.00	57.51	181.61	7953.86	32.00	376.91	375.59 S	56.06 E	379.75@	171.51	11.16
8084.00	60.76	180.05	7970.27	32.00	404.35	403.05 S	55.67 E	406.87@	172.14	10.98
8115.00	64.46	178.67	7984.53	31.00	431.87	430.56 S	55.98 E	434.19@	172.59	12.57
8147.00	66.13	178.33	7997.90	32.00	460.94	459.62 S	56.75 E	463.11@	172.96	5.31
8178.00	66.30	178.44	8010.41	31.00	489.30	487.98 S	57.55 E	491.36@	173.27	0.64
8210.00	68.59	178.50	8022.68	32.00	518.85	517.52 S	58.33 E	520.80@	173.57	7.16
8242.00	72.37	178.07	8033.37	32.00	549.01	547.66 S	59.24 E	550.86@	173.83	11.88
8273.00	73.34	177.63	8042.51	31.00	578.63	577.26 S	60.35 E	580.41@	174.03	3.41
8300.00	75.18	175.88	8049.83	27.00	604.60	603.21 S	61.82 E	606.37@	174.15	9.24
8331.00	78.44	175.25	8056.91	31.00	634.74	633.29 S	64.16 E	636.53@	174.22	10.70
8363.00	81.95	176.61	8062.35	32.00	666.23	664.74 S	66.39 E	668.05@	174.30	11.74
8395.00	86.09	177.36	8065.69	32.00	698.04	696.52 S	68.07 E	699.83@	174.42	13.15
8426.00	88.90	178.99	8067.04	31.00	729.01	727.47 S	69.05 E	730.74@	174.58	10.48
8458.00	89.16	179.39	8067.58	32.00	761.00	759.46 S	69.50 E	762.63@	174.77	1.49
8553.00	90.40	179.80	8067.95	95.00	855.98	854.45 S	70.18 E	857.33@	175.30	1.37
8648.00	89.69	179.47	8067.87	95.00	950.96	949.45 S	70.78 E	952.08@	175.74	0.82
8743.00	89.08	178.76	8068.89	95.00	1045.95	1044.43 S	72.25 E	1046.93@	176.04	0.98
8838.00	88.90	178.62	8070.57	95.00	1140.93	1139.39 S	74.42 E	1141.82@	176.26	0.24
8933.00	88.99	178.29	8072.32	95.00	1235.92	1234.34 S	76.98 E	1236.74@	176.43	0.36

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9028.00	88.99	177.80	8073.99	95.00	1330.90	1329.27 S	80.22 E	1331.69@	176.55	0.52
9123.00	90.92	178.37	8074.07	95.00	1425.89	1424.21 S	83.40 E	1426.65@	176.65	2.12
9218.00	91.19	178.36	8072.32	95.00	1520.88	1519.16 S	86.11 E	1521.60@	176.76	0.28
9312.00	91.45	177.60	8070.15	94.00	1614.85	1613.07 S	89.42 E	1615.55@	176.83	0.85
9407.00	91.63	177.40	8067.60	95.00	1709.80	1707.95 S	93.56 E	1710.51@	176.86	0.28
9502.00	89.69	177.62	8066.51	95.00	1804.77	1802.85 S	97.69 E	1805.49@	176.90	2.06
9598.00	89.52	177.27	8067.17	96.00	1900.75	1898.75 S	101.97 E	1901.49@	176.93	0.41
9693.00	89.69	177.19	8067.82	95.00	1995.72	1993.64 S	106.56 E	1996.48@	176.94	0.20
9788.00	89.52	176.77	8068.48	95.00	2090.69	2088.50 S	111.56 E	2091.48@	176.94	0.48
9883.00	89.08	176.24	8069.64	95.00	2185.62	2183.32 S	117.35 E	2186.47@	176.92	0.72
9978.00	89.78	176.38	8070.58	95.00	2280.55	2278.12 S	123.47 E	2281.46@	176.90	0.75
10073.00	90.13	176.36	8070.66	95.00	2375.48	2372.93 S	129.48 E	2376.46@	176.88	0.37
10168.00	90.04	175.53	8070.52	95.00	2470.38	2467.69 S	136.20 E	2471.44@	176.84	0.88
10263.00	89.87	175.02	8070.59	95.00	2565.23	2562.36 S	144.02 E	2566.41@	176.78	0.57
10359.00	89.87	174.84	8070.81	96.00	2661.04	2657.99 S	152.51 E	2662.36@	176.72	0.19
10453.00	90.04	174.78	8070.88	94.00	2754.84	2751.60 S	161.01 E	2756.31@	176.65	0.19
10548.00	88.81	177.69	8071.84	95.00	2849.75	2846.38 S	167.25 E	2851.29@	176.64	3.33
10643.00	88.37	177.03	8074.17	95.00	2944.70	2941.25 S	171.62 E	2946.25@	176.66	0.83
10739.00	88.64	179.00	8076.68	96.00	3040.66	3037.16 S	174.95 E	3042.19@	176.70	2.07
10834.00	90.04	180.00	8077.77	95.00	3135.64	3132.14 S	175.78 E	3137.07@	176.79	1.81
10930.00	90.31	179.98	8077.48	96.00	3231.60	3228.14 S	175.79 E	3232.92@	176.88	0.28
11024.00	90.48	179.74	8076.83	94.00	3325.58	3322.14 S	176.02 E	3326.80@	176.97	0.31
11120.00	90.57	179.93	8075.95	96.00	3421.55	3418.13 S	176.30 E	3422.68@	177.05	0.22
11215.00	90.66	179.60	8074.93	95.00	3516.52	3513.13 S	176.69 E	3517.57@	177.12	0.36
11310.00	90.84	179.17	8073.69	95.00	3611.50	3608.11 S	177.71 E	3612.49@	177.18	0.49
11405.00	90.92	179.08	8072.23	95.00	3706.48	3703.09 S	179.16 E	3707.42@	177.23	0.13
11501.00	90.92	178.93	8070.69	96.00	3802.47	3799.07 S	180.83 E	3803.37@	177.27	0.16
11595.00	91.10	178.25	8069.03	94.00	3896.45	3893.02 S	183.14 E	3897.33@	177.31	0.75

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11691.00	91.19	178.38	8067.11	96.00	3992.43	3988.96 S	185.96 E	3993.29@	177.33	0.16
11787.00	91.19	177.95	8065.12	96.00	4088.41	4084.89 S	189.03 E	4089.26@	177.35	0.45
11882.00	91.10	178.28	8063.22	95.00	4183.39	4179.82 S	192.16 E	4184.23@	177.37	0.36
11977.00	88.55	179.71	8063.51	95.00	4278.37	4274.79 S	193.82 E	4279.19@	177.40	3.08
12072.00	88.72	179.43	8065.77	95.00	4373.33	4369.77 S	194.54 E	4374.09@	177.45	0.34
12167.00	88.29	178.88	8068.25	95.00	4468.29	4464.72 S	195.94 E	4469.02@	177.49	0.74
12262.00	88.46	178.64	8070.95	95.00	4563.25	4559.66 S	197.99 E	4563.96@	177.51	0.31
12358.00	89.25	180.53	8072.86	96.00	4659.21	4655.63 S	198.69 E	4659.87@	177.56	2.13
12453.00	89.96	181.18	8073.52	95.00	4754.13	4750.62 S	197.27 E	4754.71@	177.62	1.01
12548.00	90.66	181.95	8073.01	95.00	4848.99	4845.58 S	194.68 E	4849.49@	177.70	1.09
12643.00	91.01	182.49	8071.62	95.00	4943.79	4940.50 S	191.00 E	4944.19@	177.79	0.68
12739.00	91.28	181.61	8069.70	96.00	5039.58	5036.42 S	187.56 E	5039.91@	177.87	0.96
12833.00	89.69	181.52	8068.91	94.00	5133.44	5130.38 S	185.00 E	5133.71@	177.93	1.69
12928.00	90.04	181.19	8069.13	95.00	5228.33	5225.35 S	182.75 E	5228.54@	178.00	0.51
13024.00	90.57	181.51	8068.62	96.00	5324.21	5321.32 S	180.49 E	5324.38@	178.06	0.64
13119.00	91.10	181.14	8067.24	95.00	5419.08	5416.29 S	178.29 E	5419.22@	178.11	0.68
13214.00	89.52	179.94	8066.72	95.00	5514.02	5511.28 S	177.40 E	5514.13@	178.16	2.09
13309.00	89.87	179.24	8067.23	95.00	5609.00	5606.27 S	178.08 E	5609.10@	178.18	0.82
13405.00	90.40	179.22	8067.00	96.00	5704.99	5702.26 S	179.37 E	5705.08@	178.20	0.55
13500.00	91.01	179.11	8065.83	95.00	5799.98	5797.24 S	180.75 E	5800.06@	178.21	0.65
13595.00	89.78	178.64	8065.18	95.00	5894.97	5892.22 S	182.61 E	5895.05@	178.22	1.39
13691.00	90.22	177.85	8065.18	96.00	5990.97	5988.17 S	185.55 E	5991.05@	178.23	0.94
13786.00	87.93	177.47	8066.71	95.00	6085.94	6083.08 S	189.43 E	6086.03@	178.22	2.44
13881.00	87.93	176.77	8070.14	95.00	6180.85	6177.89 S	194.20 E	6180.95@	178.20	0.74
13977.00	88.55	176.91	8073.09	96.00	6276.76	6273.70 S	199.49 E	6276.87@	178.18	0.66
14072.00	88.81	176.51	8075.28	95.00	6371.69	6368.52 S	204.94 E	6371.82@	178.16	0.50
14167.00	89.16	176.03	8076.96	95.00	6466.60	6463.30 S	211.12 E	6466.75@	178.13	0.63
14263.00	89.52	175.78	8078.07	96.00	6562.49	6559.05 S	217.98 E	6562.67@	178.10	0.46

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						(ft)	(ft)	(ft)	(deg)	(dg/100ft)
14358.00	90.04	175.93	8078.43	95.00	6657.39	6653.80 S	224.84 E	6657.60@	178.06	0.57
14390.00	90.40	175.72	8078.31	32.00	6689.35	6685.72 S	227.17 E	6689.58@	178.05	1.30
STRAIGHT LINE PROJECTION TO BIT AT 14440'MD										
14440.00	90.40	175.72	8077.96	50.00	6739.29	6735.58 S	230.90 E	6739.53@	178.04	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.