

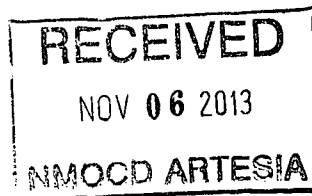
PATRIOT DRILLING, LLC

30 015 41212

OPERATOR: COG Operating, LLC
WELL/LEASE: Shoeless Joe 32 State # 4 H
COUNTY: Eddy Co., New Mexico
Sec. 32, T19S, R30E

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
320	1/4	4,636	1
659	1/4	5,881	1 1/4
892	1 3/4	6,438	3/4
1,400	1 1/2	6,738	1 3/4
1,499	2 1/4	7,211	1 1/4
1,593	2 1/4	7,435	2
1,837	1 3/4	7,641	1
2,157	2 1/2	7,976	2 1/4
2,271	2 1/5	8,225	1
2,463	1 1/2	8,447	1/2
2,822	2	8,955	2 3/4
3,104	1 1/4	9,150	3 1/2
3,281	1 1/4	9,349	3 1/2
3,712	1 1/2	9,489	2 1/2
4,027	1	9,680	2
4,648	3/4		
4,954	1 1/2		
5,340	2		

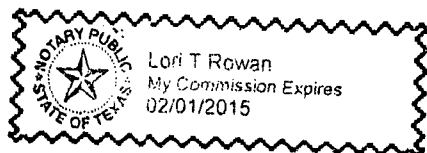


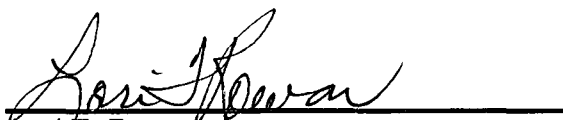
Patriot Drilling, LLC


M. Leroy Peterson, Executive Vice-
President

The foregoing instrument was acknowledged before me on this 2nd day of October, 2013 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

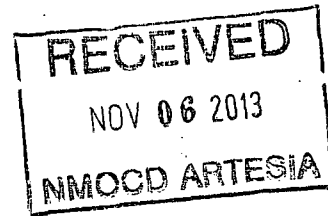


A GYRO TECHNOLOGIES INC. COMPANY

P.O. Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

September 27, 2013

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



Attn: Kanicia Castillo

RE: **Shoeless Joe 32 State No. 004H**

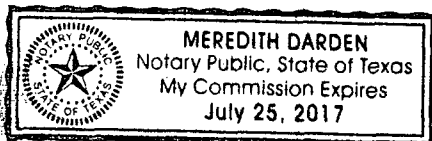
Please find enclosed a copy of the survey from 0.00' to 7700.00' ran on the above referenced well.

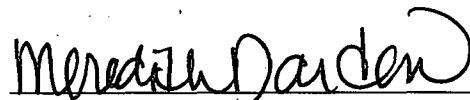
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 27th day of September A.D., 2013, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas



Company: COG Operating LLC (Concho)
Lease/Well: Shoeless Joe 32 State/No. 004H
Location: S32 T19s R30e
Rig Name: Patriot #6
State/County: New Mexico/Eddy
Latitude: 32.61, Longitude: -104.00
GRID North is 0.18 Degrees East of True North
VS-Azi: 0.00 Degrees



RKB : 17 feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ... 32 state #4h gyro srurvey.ut
Minimum Curvature Method
Report Date/Time: 9/27/2013 / 15:37

Vaughn Energy Services
Gardendale, TX 79758
(432) 563-5444

Surveyor: Dustin Wedel
Shoeless Joe 32 State No. 004H / API 30-015-41242

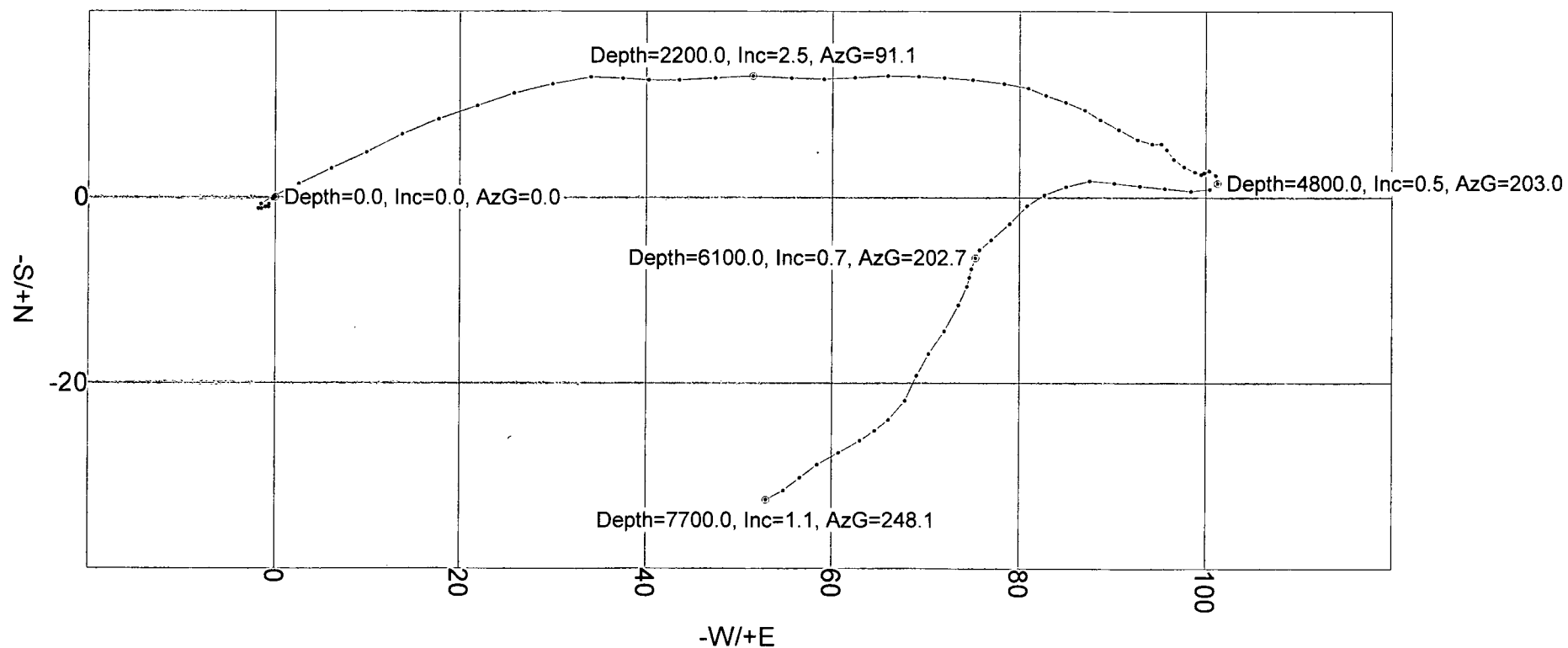
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.42	231.76	100.00	-0.23	-0.29	0.37	231.76	0.42
200.00	0.37	199.75	200.00	-0.76	-0.69	1.03	222.21	0.23
300.00	0.09	78.67	300.00	-1.05	-0.72	1.27	214.51	0.42
400.00	0.48	268.42	400.00	-1.04	-1.06	1.49	225.48	0.57
500.00	0.23	191.12	499.99	-1.25	-1.52	1.97	230.54	0.48
600.00	0.42	307.95	599.99	-1.22	-1.84	2.21	236.44	0.56
700.00	0.71	66.72	699.99	-0.76	-1.56	1.73	244.16	0.98
800.00	1.15	54.19	799.98	0.08	-0.18	0.19	293.88	0.49
900.00	2.30	67.81	899.93	1.42	2.50	2.88	60.31	1.21
1000.00	2.19	60.95	999.85	3.11	6.03	6.78	62.70	0.29
1100.00	2.61	69.59	1099.77	4.83	9.83	10.96	63.82	0.55
1200.00	2.46	57.21	1199.67	6.79	13.77	15.35	63.75	0.57
1300.00	2.53	77.67	1299.58	8.42	17.73	19.63	64.59	0.89
1400.00	2.54	64.08	1399.48	9.87	21.89	24.01	65.74	0.60
1500.00	2.29	79.63	1499.39	11.19	25.85	28.17	66.58	0.70
1600.00	2.58	73.96	1599.30	12.18	29.98	32.36	67.89	0.38
1700.00	2.20	85.67	1699.21	12.95	34.06	36.44	69.19	0.62
1800.00	1.73	100.49	1799.15	12.81	37.46	39.59	71.11	0.69

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	1.51	86.68	1899.12	12.62	40.26	42.20	72.60	0.45
2000.00	2.23	91.87	1999.06	12.63	43.53	45.32	73.82	0.73
2100.00	2.20	82.03	2098.99	12.83	47.38	49.08	74.84	0.38
2200.00	2.47	91.08	2198.90	13.06	51.43	53.06	75.75	0.45
2300.00	2.27	95.22	2298.82	12.84	55.56	57.02	76.99	0.26
2400.00	1.77	87.78	2398.76	12.72	59.08	60.43	77.85	0.57
2500.00	1.99	86.54	2498.70	12.88	62.35	63.67	78.33	0.22
2600.00	2.05	87.26	2598.64	13.07	65.86	67.15	78.77	0.06
2700.00	1.73	96.32	2698.59	12.99	69.15	70.35	79.36	0.43
2800.00	1.50	87.27	2798.55	12.89	71.95	73.10	79.85	0.34
2900.00	1.99	99.96	2898.50	12.65	74.97	76.03	80.42	0.62
3000.00	1.88	94.06	2998.44	12.23	78.31	79.26	81.12	0.22
3100.00	1.19	110.80	3098.41	11.75	80.92	81.77	81.74	0.82
3200.00	1.14	114.51	3198.39	10.97	82.80	83.52	82.46	0.09
3300.00	1.49	104.08	3298.36	10.24	84.96	85.58	83.13	0.42
3400.00	1.11	124.72	3398.34	9.37	87.02	87.52	83.85	0.59
3500.00	1.15	118.88	3498.32	8.33	88.70	89.09	84.63	0.12
3600.00	1.43	116.13	3598.29	7.29	90.70	90.99	85.40	0.28
3700.00	1.15	121.49	3698.26	6.22	92.68	92.89	86.16	0.31
3800.00	0.82	84.49	3798.25	5.76	94.25	94.43	86.50	0.70
3900.00	0.33	107.46	3898.25	5.75	95.24	95.41	86.55	0.54
4000.00	0.71	151.34	3998.24	5.12	95.80	95.94	86.94	0.52
4100.00	0.79	135.61	4098.23	4.09	96.58	96.67	87.58	0.22
4200.00	0.78	116.50	4198.22	3.29	97.67	97.73	88.07	0.26
4300.00	0.70	115.91	4298.22	2.72	98.83	98.87	88.42	0.08
4400.00	0.16	80.16	4398.21	2.48	99.51	99.54	88.57	0.58
4500.00	0.26	41.78	4498.21	2.67	99.80	99.84	88.46	0.17
4600.00	0.46	87.39	4598.21	2.86	100.35	100.39	88.37	0.33
4700.00	0.67	146.02	4698.21	2.40	101.08	101.11	88.64	0.58
4800.00	0.47	202.99	4798.20	1.54	101.25	101.26	89.13	0.57
4900.00	0.82	246.59	4898.20	0.88	100.43	100.43	89.50	0.58
5000.00	1.56	273.61	4998.17	0.68	98.41	98.41	89.61	0.91
5100.00	1.69	277.20	5098.13	0.95	95.58	95.59	89.43	0.16
5200.00	1.34	273.55	5198.10	1.21	92.95	92.96	89.26	0.36
5300.00	1.83	278.99	5298.06	1.53	90.20	90.21	89.03	0.51
5400.00	1.24	269.54	5398.02	1.77	87.55	87.56	88.84	0.64
5500.00	1.81	247.06	5497.99	1.14	85.01	85.02	89.23	0.82
5600.00	1.06	254.09	5597.96	0.27	82.66	82.66	89.81	0.77
5700.00	1.55	225.79	5697.93	-0.92	80.80	80.81	90.65	0.79

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.53	222.87	5797.90	-2.84	78.93	78.98	92.06	0.08
5900.00	1.50	233.54	5897.86	-4.60	76.96	77.10	93.42	0.28
6000.00	0.39	213.24	5997.85	-5.67	75.72	75.93	94.28	1.14
6100.00	0.70	202.70	6097.84	-6.51	75.30	75.58	94.94	0.32
6200.00	0.75	198.02	6197.83	-7.70	74.86	75.26	95.87	0.08
6300.00	0.35	181.37	6297.83	-8.64	74.65	75.15	96.60	0.42
6400.00	0.80	200.38	6397.82	-9.60	74.40	75.02	97.35	0.48
6500.00	1.74	206.42	6497.80	-11.61	73.48	74.39	98.98	0.94
6600.00	1.88	209.41	6597.75	-14.40	72.00	73.43	101.31	0.17
6700.00	1.54	221.31	6697.70	-16.84	70.31	72.30	103.47	0.49
6800.00	1.63	198.05	6797.67	-19.20	68.98	71.60	105.55	0.64
6900.00	1.76	210.50	6897.62	-21.87	67.76	71.20	107.89	0.39
7000.00	1.43	232.07	6997.58	-23.96	66.00	70.22	109.95	0.68
7100.00	0.71	230.12	7097.57	-25.12	64.55	69.26	111.26	0.72
7200.00	1.48	238.88	7197.55	-26.18	62.97	68.19	112.58	0.79
7300.00	1.52	241.00	7297.51	-27.49	60.70	66.64	114.37	0.07
7400.00	1.45	239.43	7397.48	-28.78	58.45	65.15	116.22	0.08
7500.00	1.24	224.36	7497.45	-30.20	56.60	64.15	118.08	0.41
7600.00	1.36	238.47	7597.43	-31.59	54.83	63.28	119.95	0.34
7700.00	1.08	248.12	7697.40	-32.56	52.95	62.16	121.59	0.34



Vaughn Energy Services
Gardendale, TX 79758
(432) 563-5444
Surveyor: Dustin Wedel
Shoeless Joe 32 State No. 004H / API 30-015-41242



PathFinder – a Schlumberger company

Survey Report

COG OPERATING, LLC.
SHOELESS JOE 32 STATE 4H
EDDY COUNTY, NM
API#: 30-015-41242 Rig: PATRIOT6
PathFinder Office Supervisor: JOSEPH HOGAN
PathFinder Field Engineers: H. SANDIFER
K. LUU
A. JACKSON

Survey Calculations by RX5 V6.05 using Minimum Curvature

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.36.40.3181 N LON: 104.0.5.8785 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 602137.7000 Y: 586225.2000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.35° EAST TO GRID
Vertical Section Plane: 89.23
Survey Vert. Reference: 17.00' Kelly Bushing To Ground
Altitude: 3247.60' Ground To MSL

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)
TIED INTO VAUGHN ENERGY SERVICES GYRO SURVEY AT 7700'MD.										
7700.00	1.08	248.12	7697.40	0.00	52.51	32.56 S	52.95 E	62.16@	121.59	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
7798.00	1.23	192.72	7795.38	98.00	51.40	33.93 S	51.86 E	61.97@	123.19	1.10
7830.00	4.22	109.22	7827.35	32.00	52.43	34.65 S	52.90 E	63.24@	123.23	13.31
7861.00	8.79	100.35	7858.14	31.00	55.83	35.45 S	56.31 E	66.54@	122.20	15.05
7893.00	12.40	101.49	7889.59	32.00	61.58	36.58 S	62.08 E	72.06@	120.51	11.30
7924.00	15.74	104.48	7919.66	31.00	68.90	38.29 S	69.42 E	79.28@	118.88	11.02
7956.00	20.05	106.41	7950.10	32.00	78.33	40.93 S	78.89 E	88.87@	117.42	13.59
7988.00	23.74	107.73	7979.79	32.00	89.68	44.44 S	90.29 E	100.63@	116.21	11.63
8019.00	27.08	107.12	8007.79	31.00	102.32	48.42 S	102.98 E	113.79@	115.18	10.81
8051.00	29.63	104.22	8035.95	32.00	116.89	52.51 S	117.61 E	128.80@	114.06	9.05
8083.00	32.62	100.26	8063.34	32.00	133.01	55.99 S	133.77 E	145.01@	112.71	11.32
8114.00	35.88	96.83	8088.96	31.00	150.22	58.56 S	151.02 E	161.97@	111.19	12.22
8145.00	37.99	92.35	8113.75	31.00	168.75	60.03 S	169.58 E	179.89@	109.49	11.03
8177.00	39.92	90.77	8138.63	32.00	188.85	60.57 S	189.69 E	199.12@	107.71	6.78
8209.00	41.50	89.98	8162.89	32.00	209.72	60.71 S	210.56 E	219.13@	106.08	5.19
8240.00	43.44	89.19	8185.75	31.00	230.65	60.55 S	231.48 E	239.27@	104.66	6.49
8272.00	46.34	88.04	8208.42	32.00	253.23	60.00 S	254.06 E	261.05@	103.29	9.41
8304.00	49.77	86.81	8229.81	32.00	277.01	58.93 S	277.83 E	284.01@	101.97	11.09
8336.00	53.82	85.93	8249.59	32.00	302.12	57.33 S	302.92 E	308.30@	100.72	12.84
8367.00	56.10	85.41	8267.39	31.00	327.45	55.41 S	328.23 E	332.87@	99.58	7.48
8399.00	59.44	85.85	8284.46	32.00	354.46	53.35 S	355.21 E	359.20@	98.54	10.50
8431.00	63.14	86.11	8299.82	32.00	382.48	51.38 S	383.21 E	386.64@	97.64	11.58
8462.00	67.09	86.55	8312.87	31.00	410.56	49.59 S	411.26 E	414.24@	96.87	12.81
8494.00	70.87	88.13	8324.34	32.00	440.41	48.21 S	441.10 E	443.72@	96.24	12.68

PathFinder – a Schlumberger company

Survey Report

COG OPERATING, LLC.
SHOELESS JOE 32 STATE 4H
EDDY COUNTY, NM
API#: 30-015-41242 Rig: PATRIOT6

Page 02/03

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)
8526.00	75.45	88.83	8333.61	32.00	471.03	47.40 S	471.71 E	474.08@	95.74	14.47
8557.00	78.61	89.89	8340.57	31.00	501.23	47.06 S	501.91 E	504.11@	95.36	10.72
8589.00	82.83	89.19	8345.73	32.00	532.80	46.81 S	533.48 E	535.53@	95.01	13.36
8621.00	85.47	89.01	8348.99	32.00	564.63	46.31 S	565.31 E	567.20@	94.68	8.27
8716.00	88.90	87.25	8353.66	95.00	659.48	43.21 S	660.12 E	661.54@	93.74	4.06
8810.00	89.08	86.73	8355.31	94.00	753.40	38.27 S	753.98 E	754.95@	92.91	0.59
8905.00	89.69	88.92	8356.33	95.00	848.36	34.67 S	848.90 E	849.61@	92.34	2.39
9000.00	90.22	88.13	8356.41	95.00	943.35	32.22 S	943.87 E	944.42@	91.96	1.00
9095.00	88.64	88.75	8357.35	95.00	1038.33	29.64 S	1038.82 E	1039.25@	91.63	1.79
9190.00	89.43	88.31	8358.95	95.00	1133.31	27.20 S	1133.78 E	1134.10@	91.37	0.95
9285.00	90.22	88.31	8359.24	95.00	1228.30	24.40 S	1228.74 E	1228.98@	91.14	0.83
9380.00	87.49	86.81	8361.14	95.00	1323.23	20.35 S	1323.62 E	1323.77@	90.88	3.28
9475.00	87.49	86.37	8365.30	95.00	1418.03	14.71 S	1418.36 E	1418.44@	90.59	0.46
9570.00	89.08	85.23	8368.14	95.00	1512.82	7.75 S	1513.06 E	1513.08@	90.29	2.06
9665.00	90.13	84.44	8368.80	95.00	1607.53	0.80 N	1607.67 E	1607.67@	89.97	1.38
9760.00	89.60	86.46	8369.02	95.00	1702.32	8.33 N	1702.36 E	1702.38@	89.72	2.20
9855.00	89.69	88.66	8369.61	95.00	1797.27	12.38 N	1797.27 E	1797.31@	89.61	2.32
9950.00	90.57	88.31	8369.40	95.00	1892.26	14.89 N	1892.23 E	1892.29@	89.55	1.00
10045.00	89.78	88.75	8369.11	95.00	1987.25	17.33 N	1987.20 E	1987.28@	89.50	0.95
10142.00	90.75	88.13	8368.66	97.00	2084.24	19.97 N	2084.16 E	2084.26@	89.45	1.19
10237.00	89.78	89.63	8368.22	95.00	2179.24	21.82 N	2179.14 E	2179.25@	89.43	1.88
10332.00	88.29	89.80	8369.82	95.00	2274.22	22.30 N	2274.12 E	2274.23@	89.44	1.58
10427.00	88.99	89.19	8372.07	95.00	2369.19	23.13 N	2369.09 E	2369.20@	89.44	0.98
10522.00	89.78	88.75	8373.09	95.00	2464.18	24.84 N	2464.07 E	2464.19@	89.42	0.95
10617.00	90.48	88.75	8372.88	95.00	2559.18	26.91 N	2559.05 E	2559.19@	89.40	0.74
10712.00	88.72	89.45	8373.54	95.00	2654.17	28.40 N	2654.03 E	2654.18@	89.39	1.99
10807.00	89.52	89.19	8375.00	95.00	2749.16	29.53 N	2749.01 E	2749.17@	89.38	0.89
10902.00	90.22	88.57	8375.21	95.00	2844.15	31.39 N	2843.99 E	2844.16@	89.37	0.98

PathFinder – a Schlumberger company

Survey Report

COG OPERATING, LLC.
SHOELESS JOE 32 STATE 4H
EDDY COUNTY, NM
API#: 30-015-41242 Rig: PATRIOT6

Page 03/03

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)
10997.00	88.46	88.48	8376.31	95.00	2939.14	33.83 N	2938.95 E	2939.14@	89.34	1.85
11092.00	89.69	87.08	8377.84	95.00	3034.09	37.51 N	3033.86 E	3034.09@	89.29	1.96
11186.00	90.04	86.11	8378.06	94.00	3127.99	43.10 N	3127.69 E	3127.99@	89.21	1.10
11281.00	87.76	87.43	8379.89	95.00	3222.87	48.45 N	3222.51 E	3222.88@	89.14	2.77
11376.00	88.72	87.34	8382.80	95.00	3317.78	52.78 N	3317.37 E	3317.79@	89.09	1.01
11471.00	88.20	89.63	8385.36	95.00	3412.73	55.29 N	3412.30 E	3412.74@	89.07	2.47
11566.00	89.52	89.27	8387.25	95.00	3507.71	56.20 N	3507.27 E	3507.72@	89.08	1.44
11661.00	90.04	88.66	8387.61	95.00	3602.71	57.92 N	3602.25 E	3602.72@	89.08	0.84
11756.00	89.60	90.07	8387.91	95.00	3697.70	58.97 N	3697.24 E	3697.71@	89.09	1.55
11851.00	90.04	89.27	8388.21	95.00	3792.70	59.52 N	3792.24 E	3792.71@	89.10	0.96
11946.00	90.57	88.40	8387.70	95.00	3887.69	61.45 N	3887.22 E	3887.71@	89.09	1.07
12041.00	91.63	87.87	8385.88	95.00	3982.66	64.54 N	3982.15 E	3982.67@	89.07	1.25
12136.00	90.40	89.45	8384.20	95.00	4077.63	66.76 N	4077.10 E	4077.65@	89.06	2.11
12231.00	88.90	91.03	8384.78	95.00	4172.61	66.36 N	4172.10 E	4172.62@	89.09	2.29
12326.00	89.52	90.59	8386.09	95.00	4267.57	65.02 N	4267.08 E	4267.57@	89.13	0.80
12419.00	90.75	89.98	8385.87	93.00	4360.55	64.56 N	4360.07 E	4360.55@	89.15	1.48
12513.00	92.51	89.63	8383.19	94.00	4454.50	64.88 N	4454.03 E	4454.50@	89.17	1.91
12640.00	90.48	91.21	8379.88	127.00	4581.42	63.95 N	4580.97 E	4581.42@	89.20	2.03
STRAIGHT LINE PROJECTION TO BIT AT 12825'MD.										
12825.00	90.48	91.21	8378.33	185.00	4766.30	60.04 N	4765.93 E	4766.30@	89.28	0.00

PathFinder – a Schlumberger company

BHL Report

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Tie-in Date: 09/24/2013
Date Completed: 09/29/2013

COG OPERATING, LLC.
SHOELESS JOE 32 STATE 4H
EDDY COUNTY, NM
API#: 30-015-41242 Rig: PATRIOT6
PathFinder Office Supervisor: JOSEPH HOGAN
PathFinder Field Engineers: H. SANDIFER
 K. LUU
 A. JACKSON

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.36.40.3181 N LON: 104.0.5.8785 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 602137.7000 Y: 586225.2000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.35° EAST TO GRID
Vertical Section Plane: 89.23
Survey Vert. Reference: 17.00' Kelly Bushing To Ground
Altitude: 3247.60' Ground To MSL

Measured Depth	12825.00	(feet)
Inclination	90.48	(deg)
Azimuth	91.21	(deg)
True Vertical Depth	8378.33	(feet)
Vertical Section	4766.30	(feet)
Survey X cord	606903.61	(feet)
Survey Y cord	586285.22	(feet)
Survey Lat	32.61132262 N	(deg)
Survey Lon	103.98615484 W	(deg)
Rectangular Corr. N/S	60.04 N	(feet)
Rectangular Corr. E/W	4765.93 E	(feet)
Closure Distance	4766.30	(feet)
Direction of Closure	89.28	(deg)
Dogleg Severity	0.00	(deg/100ft)