

Results of Directional Survey

API number:	30-025-41214			
OGRID:		Operator:	COG OPERATING LLC	
		Property:	PEASHOOTER 4 FEDERAL COM	# 2H

surface	ULSTR:	N	04	T 19S	R 32E
				190 FSL	1980 FWL

BH Loc	ULSTR:	C	04	T 19S	R 32E
13855	MD	9438.4	TVD	336 FNL	1929 FWL
				4944 FSL	

Top Perf/OH	ULSTR:	N	04	T 19S	R 32E
9560	MD	9335.6	TVD	653 FSL	1898 FWL

Bot Perf/OH	ULSTR:	C	04	T 19S	R 32E
13790	MD	9438.4	TVD	401 FNL	1931 FWL
				4879 FSL	

	MD	N/S	E/W	VD
	9529	433.17	-81.88	9327.97
TOP PERFS/OH	9560	463.21	-82.03	9335.60
	9560	463.21	-82.03	9335.60
	13675	4574.37	-47.47	9438.43
BOT PERFS/OH	13790	4689.35	-49.50	9438.43
	13855	4754.34	-50.64	9438.43

NEXT TO LAST	13675	4574.37	-47.47	9438.43
LAST READING	13855	4754.34	-50.64	9438.43
TD	13855	4754.34	-50.64	9438.43

Surface Location	190	FS	1980	FW
Projected BHL	4944	FS	1929	FW
Location of				
Top Perfs/OH	653	FS	1898	FW
Bottom Perfs/OH	4879	FS	1931	FW

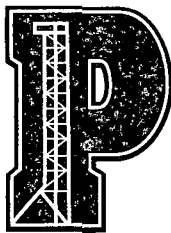
SUMMARY of Subsurface Locations

Surface Location	N-04-19S-32E	190	FS	1980	FW	Vert. Depth
Top Perfs/OH	N-04-19S-32E	653	FS	1898	FW	9335.60
Bottom Perfs/OH	C-04-19S-32E	4879	FS	1931	FW	9438.43
Projected TD	C-04-19S-32E	4944	FS	1929	FW	9438.43

OCT 30 2013

PEASHOOTER 4 FEDERAL COM #2H**30-025-41214****Sec 4-T19S-R32E****HOBBS OCD****OCT 24 2013****RECEIVED**

<u>Perfs</u>	<u>7 1/2% Acid (Gal)</u>	<u>Sand (#)</u>	<u>Fluid (Gal)</u>
13515-13790'	3024	293616	264684
13119-13416'	3024	294913	260778
12723-13020'	3024	296113	248388
12323-12628'	3000	310457	244524
11931-12228'	3000	302492	227220
11535-11832'	2982	290573	227136
11139-11436'	2940	294807	224154
10743-11040'	2352	292971	226170
10347-10640'	3024	300420	227934
9954-10245'	3108	302003	224154
9560-9852'	3024	311526	222474
Totals	32502	3289891	2597616



PATRIOT DRILLING, LLC

OPERATOR: COG Operating, LLC
WELL/LEASE: Peashooter 4 Federal Com # 3 H
COUNTY: Eddy Co., New Mexico
Sec.4, T19S, R32E

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
489	1/2	4,213	1 1/4
955	3/4	4,463	1 3/4
1,265	2	5,018	..25
1,293	1	5,490	3/4
1,485	2 1/2	5,742	1/2
2,448	1 1/4	6,016	1/4
2,544	1	6,516	1/4
2,637	3/4	6,834	1/2
2,745	1	7,118	1
2,831	2 3/4	7,406	1/2
3,119	3	7,686	1/4
3,309	2	7,973	1 1/2
3,434	2	8,289	1/2
3,663	2		
4,010	1 1/2		

HOBBS OCD

OCT 24 2013

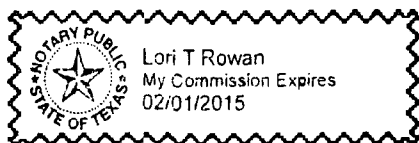
RECEIVED

Patriot Drilling, LLC

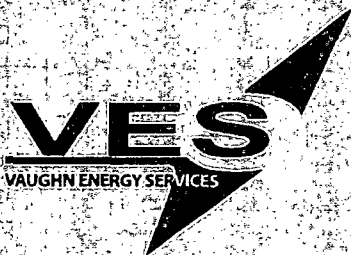
M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 11th day of September, 2013 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling,

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 3, 2013

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

HOBBS OCD

OCT 24 2013

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Attn: Kanicia Castillo

RE: Peashooter 4 Federal Com No. 003H

Please find enclosed a copy of the survey from 0.00' to 8645.00' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

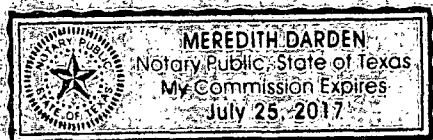
STATE OF TEXAS

COUNTY OF NUECES

§
§
§

This instrument was acknowledged before me on the 3rd day of September A.D., 2013, by Keith Havelka.

Meredith Darden
Meredith Darden
Notary Public, State of Texas





Company: COG Operating LLC (Concho)
Lease/Well: Peashooter 4 Federal Com/No. 003H
Location: S4 T19s R32e
Rig Name: Patriot #6
State/County: New Mexico/Eddy
Latitude: 32.68, Longitude: -103.77
GRID North is 0.30 Degrees East of True North
VS-Azi: 0.00 Degrees



HOBBS OCD

OCT 24 2013

RECEIVED

RKB : 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ... 4 federal #3h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/3/2013 / 10:17

Vaughn Energy Services

Gardendale, TX 79758

(432) 563-5444

Surveyor: Dustin Wedel

Peashooter 4 Federal Com No. 003H / API 30-025-41214

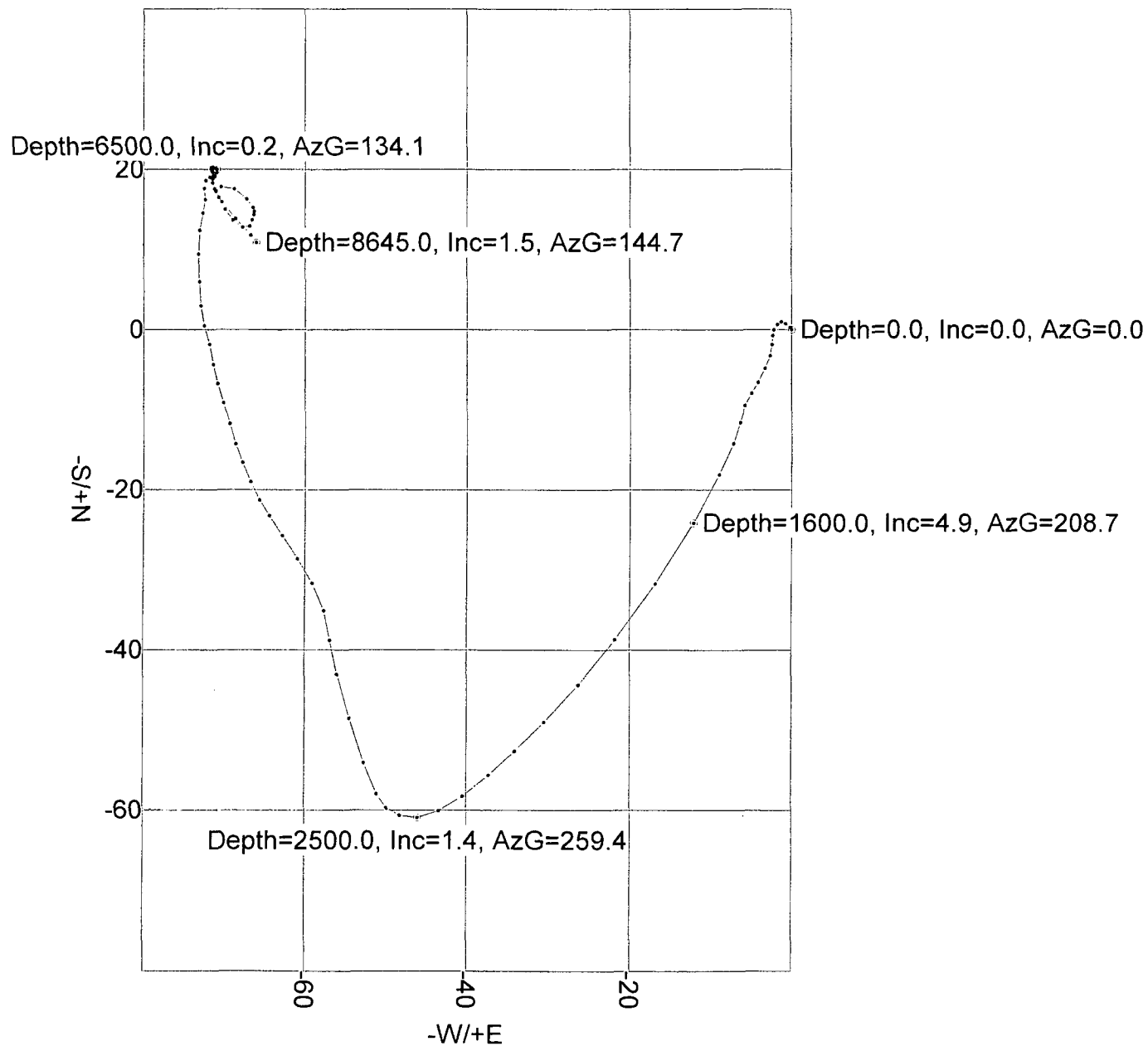
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.36	333.75	100.00	0.28	-0.14	0.32	333.75	0.36
200.00	0.58	293.67	200.00	0.77	-0.74	1.07	316.13	0.38
300.00	0.10	291.42	299.99	1.00	-1.28	1.63	308.04	0.47
400.00	0.60	225.06	399.99	0.67	-1.74	1.86	291.06	0.56
500.00	0.38	194.71	499.99	-0.02	-2.19	2.19	269.56	0.33
600.00	0.45	188.26	599.99	-0.72	-2.33	2.44	252.75	0.09
700.00	0.90	182.14	699.98	-1.90	-2.41	3.07	231.86	0.45
800.00	0.74	198.20	799.97	-3.29	-2.64	4.22	218.79	0.28
900.00	1.21	204.50	899.95	-4.86	-3.28	5.86	214.04	0.48
1000.00	1.04	208.27	999.93	-6.61	-4.15	7.80	212.09	0.19
1100.00	0.78	213.39	1099.92	-7.98	-4.95	9.39	211.82	0.26
1200.00	1.27	204.48	1199.91	-9.56	-5.79	11.18	211.19	0.51
1300.00	1.22	187.66	1299.88	-11.63	-6.39	13.27	208.79	0.37
1400.00	1.95	204.15	1399.84	-14.24	-7.23	15.97	206.91	0.86
1500.00	2.91	204.93	1499.75	-18.10	-9.00	20.22	206.43	0.96
1600.00	4.93	208.67	1599.51	-24.18	-12.13	27.06	206.65	2.03
1700.00	5.36	214.57	1699.11	-31.80	-16.85	35.99	207.91	0.68
1800.00	4.41	217.20	1798.75	-38.71	-21.82	44.43	209.41	0.98

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	3.92	219.84	1898.48	-44.39	-26.33	51.61	210.67	0.52
2000.00	3.24	224.46	1998.29	-49.03	-30.50	57.74	211.88	0.74
2100.00	2.58	224.00	2098.16	-52.66	-34.04	62.70	212.87	0.66
2200.00	2.45	229.94	2198.06	-55.66	-37.24	66.96	213.78	0.29
2300.00	2.28	231.73	2297.98	-58.27	-40.44	70.92	214.76	0.18
2400.00	1.79	247.22	2397.91	-60.10	-43.44	74.16	215.86	0.74
2500.00	1.39	259.44	2497.88	-60.93	-46.07	76.38	217.09	0.52
2600.00	1.29	295.62	2597.85	-60.66	-48.28	77.53	218.52	0.84
2700.00	0.81	309.75	2697.83	-59.72	-49.84	77.79	219.85	0.55
2800.00	1.66	332.55	2797.81	-57.99	-51.05	77.26	221.36	0.97
2900.00	3.14	339.26	2897.72	-54.14	-52.69	75.55	224.22	1.50
3000.00	3.62	344.47	2997.54	-48.54	-54.51	72.98	228.32	0.57
3100.00	2.86	344.40	3097.38	-43.09	-56.02	70.68	232.44	0.76
3200.00	2.15	353.74	3197.29	-38.82	-56.90	68.88	235.70	0.82
3300.00	2.14	343.01	3297.22	-35.16	-57.65	67.53	238.62	0.40
3400.00	2.15	331.00	3397.15	-31.73	-59.11	67.09	241.77	0.45
3500.00	1.94	327.17	3497.08	-28.67	-60.94	67.34	244.80	0.25
3600.00	2.02	326.87	3597.03	-25.77	-62.81	67.90	247.69	0.08
3700.00	1.41	328.97	3696.98	-23.25	-64.41	68.48	250.15	0.62
3800.00	1.24	328.18	3796.95	-21.28	-65.61	68.98	252.03	0.17
3900.00	1.66	338.29	3896.92	-19.01	-66.72	69.37	254.09	0.49
4000.00	1.35	336.71	3996.89	-16.58	-67.72	69.72	256.24	0.31
4100.00	1.46	341.75	4096.86	-14.29	-68.58	70.06	258.23	0.16
4200.00	1.53	346.00	4196.82	-11.79	-69.31	70.30	260.35	0.13
4300.00	1.56	343.25	4296.79	-9.19	-70.02	70.62	262.53	0.08
4400.00	1.31	341.78	4396.75	-6.80	-70.77	71.10	264.51	0.25
4500.00	1.54	351.99	4496.72	-4.38	-71.32	71.45	266.48	0.34
4600.00	1.40	345.76	4596.69	-1.86	-71.80	71.83	268.51	0.21
4700.00	1.42	344.22	4696.66	0.51	-72.44	72.44	270.41	0.04
4800.00	1.48	354.91	4796.63	2.99	-72.89	72.95	272.35	0.28
4900.00	1.97	358.18	4896.58	5.99	-73.06	73.31	274.69	0.50
5000.00	2.01	359.62	4996.52	9.45	-73.13	73.74	277.37	0.06
5100.00	1.36	6.44	5096.48	12.39	-73.01	74.05	279.63	0.67
5200.00	1.19	14.54	5196.46	14.57	-72.61	74.06	281.35	0.25
5300.00	0.78	2.91	5296.44	16.26	-72.32	74.12	282.67	0.45
5400.00	0.80	346.10	5396.43	17.61	-72.45	74.56	283.66	0.23
5500.00	0.55	47.99	5496.43	18.61	-72.26	74.61	284.44	0.72
5600.00	0.20	54.65	5596.42	19.03	-71.75	74.23	284.86	0.35
5700.00	0.33	65.33	5696.42	19.26	-71.34	73.90	285.10	0.14

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	0.21	306.58	5796.42	19.49	-71.23	73.84	285.30	0.47
5900.00	0.14	323.28	5896.42	19.69	-71.44	74.11	285.41	0.08
6000.00	0.14	336.06	5996.42	19.90	-71.57	74.28	285.54	0.03
6100.00	0.12	341.91	6096.42	20.11	-71.65	74.42	285.68	0.02
6200.00	0.10	71.53	6196.42	20.24	-71.60	74.40	285.78	0.16
6300.00	0.14	91.90	6296.42	20.26	-71.39	74.21	285.84	0.06
6400.00	0.18	122.30	6396.42	20.17	-71.14	73.94	285.83	0.10
6500.00	0.16	134.09	6496.42	19.99	-70.90	73.67	285.74	0.04
6600.00	0.39	202.35	6596.42	19.58	-70.93	73.58	285.43	0.36
6700.00	0.19	222.27	6696.42	19.14	-71.18	73.70	285.05	0.22
6800.00	0.26	215.80	6796.42	18.83	-71.42	73.86	284.77	0.07
6900.00	0.38	163.46	6896.41	18.33	-71.46	73.77	284.38	0.30
7000.00	0.50	157.09	6996.41	17.61	-71.19	73.34	283.89	0.12
7100.00	0.90	153.85	7096.40	16.50	-70.68	72.58	283.14	0.41
7200.00	1.03	149.79	7196.39	15.01	-69.87	71.47	282.12	0.15
7300.00	0.90	138.04	7296.38	13.65	-68.89	70.23	281.20	0.24
7400.00	0.84	112.83	7396.36	12.77	-67.69	68.88	280.69	0.39
7500.00	0.51	23.79	7496.36	12.90	-66.83	68.07	280.92	0.98
7600.00	0.45	19.73	7596.36	13.67	-66.52	67.91	281.61	0.07
7700.00	0.34	12.24	7696.35	14.33	-66.33	67.86	282.19	0.12
7800.00	0.17	358.55	7796.35	14.77	-66.27	67.89	282.56	0.18
7900.00	0.39	333.26	7896.35	15.22	-66.42	68.15	282.90	0.25
8000.00	1.15	320.82	7996.34	16.30	-67.21	69.16	283.63	0.77
8100.00	1.19	298.50	8096.32	17.57	-68.75	70.96	284.34	0.45
8200.00	0.87	252.36	8196.31	17.83	-70.38	72.61	284.22	0.86
8300.00	0.38	166.98	8296.30	17.28	-71.03	73.10	283.68	0.92
8400.00	1.39	146.59	8396.29	15.95	-70.28	72.07	282.78	1.05
8500.00	1.74	135.70	8496.25	13.85	-68.55	69.94	281.42	0.45
8600.00	1.42	140.60	8596.21	11.80	-66.71	67.74	280.03	0.35
8645.00	1.52	144.67	8641.20	10.88	-66.01	66.90	279.36	0.31



Vaughn Energy Services
Gardendale, TX 79758
(432) 563-5444
Surveyor: Dustin Wedel
Peashooter 4 Federal Com No. 003H / API 30-025-41214



VES Survey Date: 08/24/2013



COG Peashooter 4 Fed 3H Gyro+MWD Tie In-13855ft MD Survey Geodetic

Schlumberger

Report (Non-Def Survey)

Report Date: September 08, 2013 - 07:19 PM
 Client: COG
 Field: NM Lea County (NAD 27)
 Structure / Slot: COG Peashooter 4 Fed 3H / COG Peashooter 4 Fed 3H
 Well: COG Peashooter 4 Fed 3H
 Borehole: Original Borehole
 UWI / API#: Patriot 6 / 30-025-41214
 Survey Name: COG Peashooter 4 Fed 3H Gyro+MWD Tie In-13855ft MD
 Survey Date: August 25, 2013
 Tort / AHD / DDI / ERD Ratio: 184.453 ° / 4948.887 ft / 6.127 / 0.524
 Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 40' 57.40512", W 103° 46' 22.65582"
 Location Grid N/E Y/X: N 612500.800 ftUS, E 672414.700 ftUS
 CRS Grid Convergence Angle: 0.3026 °
 Grid Scale Factor: 0.99994313

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 359.750 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3676.000 ft above
 Seabed / Ground Elevation: 3658.000 ft above
 Magnetic Declination: 7.556 °
 Total Gravity Field Strength: 998.5006mgn (9.80665 Based)
 Total Magnetic Field Strength: 48636.989 nT
 Magnetic Dip Angle: 60.513 °
 Declination Date: August 25, 2013
 Magnetic Declination Model: BGGM 2013
 North Reference: Grid North
 Grid Convergence Used: 0.3026 °
 Total Corr Mag North->Grid North: 7.2533 °

Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	612500.80	672414.70	N 32 40 57.41	W 103 46 22.66
	100.00	0.36	333.75	100.00	0.28	0.28	-0.14	0.36	612501.08	672414.56	N 32 40 57.41	W 103 46 22.66
	200.00	0.58	293.67	200.00	0.77	0.77	-0.74	0.38	612501.57	672413.96	N 32 40 57.41	W 103 46 22.66
	300.00	0.10	291.42	299.99	1.01	1.00	-1.29	0.48	612501.80	672413.41	N 32 40 57.42	W 103 46 22.67
	400.00	0.60	225.06	399.99	0.67	0.66	-1.74	0.57	612501.46	672412.96	N 32 40 57.41	W 103 46 22.68
	500.00	0.38	194.71	499.99	-0.02	-0.03	-2.19	0.33	612500.77	672412.51	N 32 40 57.40	W 103 46 22.68
	600.00	0.45	188.26	599.99	-0.73	-0.74	-2.33	0.08	612500.06	672412.37	N 32 40 57.40	W 103 46 22.68
	700.00	0.90	182.14	699.98	-1.90	-1.91	-2.42	0.46	612498.89	672412.28	N 32 40 57.39	W 103 46 22.68
	800.00	0.74	198.20	799.97	-3.30	-3.31	-2.65	0.28	612497.49	672412.05	N 32 40 57.37	W 103 46 22.69
	900.00	1.21	204.50	899.95	-4.87	-4.88	-3.29	0.48	612495.92	672411.41	N 32 40 57.36	W 103 46 22.69
	1000.00	1.04	208.27	999.93	-6.62	-6.64	-4.16	0.19	612494.16	672410.54	N 32 40 57.34	W 103 46 22.70
	1100.00	0.78	213.39	1099.92	-7.99	-8.01	-4.96	0.27	612492.79	672409.74	N 32 40 57.33	W 103 46 22.71
	1200.00	1.27	204.48	1199.91	-9.56	-9.59	-5.80	0.51	612491.21	672408.90	N 32 40 57.31	W 103 46 22.72
	1300.00	1.22	187.66	1299.88	-11.62	-11.65	-6.40	0.37	612489.15	672408.30	N 32 40 57.29	W 103 46 22.73
	1400.00	1.95	204.15	1399.84	-14.23	-14.26	-7.23	0.85	612486.54	672407.47	N 32 40 57.26	W 103 46 22.74
	1500.00	2.91	204.93	1499.75	-18.07	-18.11	-9.00	0.96	612482.69	672405.70	N 32 40 57.23	W 103 46 22.76
	1600.00	4.93	208.67	1599.51	-24.13	-24.18	-12.13	2.04	612476.62	672402.57	N 32 40 57.17	W 103 46 22.80
	1700.00	5.36	214.57	1699.11	-31.73	-31.80	-16.84	0.68	612469.00	672397.86	N 32 40 57.09	W 103 46 22.85
	1800.00	4.41	217.20	1798.75	-38.61	-38.71	-21.82	0.98	612462.09	672392.88	N 32 40 57.02	W 103 46 22.91
	1900.00	3.92	219.84	1898.48	-44.28	-44.40	-26.33	0.53	612456.41	672388.37	N 32 40 56.97	W 103 46 22.97
	2000.00	3.24	224.46	1998.29	-48.90	-49.04	-30.50	0.74	612451.76	672384.20	N 32 40 56.92	W 103 46 23.02

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2100.00	2.58	224.00	2098.16	-52.53	-52.67	-34.05	0.66	612448.13	672380.66	N 32 40 56.89	W 103 46 23.06
	2200.00	2.45	229.94	2198.06	-55.51	-55.67	-37.25	0.29	612445.13	672377.46	N 32 40 56.86	W 103 46 23.09
	2300.00	2.28	231.73	2297.98	-58.10	-58.28	-40.44	0.19	612442.53	672374.26	N 32 40 56.83	W 103 46 23.13
	2400.00	1.79	247.22	2397.91	-59.92	-60.11	-43.44	0.73	612440.69	672371.26	N 32 40 56.81	W 103 46 23.17
	2500.00	1.39	259.44	2497.88	-60.74	-60.94	-46.08	0.52	612439.86	672368.63	N 32 40 56.80	W 103 46 23.20
	2600.00	1.29	295.62	2597.85	-60.46	-60.68	-48.28	0.84	612440.13	672366.42	N 32 40 56.81	W 103 46 23.22
	2700.00	0.81	309.75	2697.83	-59.52	-59.74	-49.84	0.54	612441.07	672364.86	N 32 40 56.82	W 103 46 23.24
	2800.00	1.66	332.55	2797.81	-57.78	-58.00	-51.05	0.97	612442.80	672363.65	N 32 40 56.83	W 103 46 23.26
	2900.00	3.14	339.26	2897.72	-53.92	-54.15	-52.69	1.50	612446.65	672362.01	N 32 40 56.87	W 103 46 23.28
	3000.00	3.62	344.47	2997.54	-48.31	-48.55	-54.51	0.57	612452.25	672360.20	N 32 40 56.93	W 103 46 23.30
	3100.00	2.86	344.40	3097.38	-42.86	-43.11	-56.02	0.76	612457.70	672358.68	N 32 40 56.98	W 103 46 23.31
	3200.00	2.15	353.74	3197.29	-38.59	-38.84	-56.90	0.82	612461.96	672357.81	N 32 40 57.02	W 103 46 23.32
	3300.00	2.14	343.01	3297.22	-34.94	-35.19	-57.65	0.40	612465.61	672357.06	N 32 40 57.06	W 103 46 23.33
	3400.00	2.15	331.00	3397.15	-31.50	-31.76	-59.10	0.45	612469.04	672355.60	N 32 40 57.09	W 103 46 23.35
	3500.00	1.94	327.17	3497.09	-28.43	-28.70	-60.93	0.25	612472.10	672353.77	N 32 40 57.12	W 103 46 23.37
	3600.00	2.02	326.87	3597.03	-25.53	-25.80	-62.81	0.08	612475.00	672351.89	N 32 40 57.15	W 103 46 23.39
	3700.00	1.41	328.97	3696.98	-22.99	-23.27	-64.41	0.61	612477.53	672350.30	N 32 40 57.18	W 103 46 23.41
	3800.00	1.24	328.18	3796.95	-21.01	-21.30	-65.61	0.17	612479.51	672349.09	N 32 40 57.20	W 103 46 23.42
	3900.00	1.66	338.29	3896.92	-18.74	-19.03	-66.72	0.49	612481.77	672347.98	N 32 40 57.22	W 103 46 23.44
	4000.00	1.35	336.71	3996.89	-16.31	-16.60	-67.72	0.31	612484.20	672346.98	N 32 40 57.24	W 103 46 23.45
	4100.00	1.46	341.75	4096.86	-14.01	-14.31	-68.59	0.17	612486.49	672346.12	N 32 40 57.27	W 103 46 23.46
	4200.00	1.53	346.00	4196.82	-11.50	-11.81	-69.31	0.13	612488.99	672345.40	N 32 40 57.29	W 103 46 23.47
	4300.00	1.56	343.25	4296.79	-8.90	-9.21	-70.02	0.08	612491.59	672344.68	N 32 40 57.32	W 103 46 23.48
	4400.00	1.31	341.78	4396.76	-6.51	-6.82	-70.77	0.25	612493.98	672343.93	N 32 40 57.34	W 103 46 23.48
	4500.00	1.54	351.99	4496.72	-4.09	-4.40	-71.32	0.34	612496.40	672343.39	N 32 40 57.37	W 103 46 23.49
	4600.00	1.40	345.76	4596.69	-1.57	-1.89	-71.81	0.21	612498.91	672342.90	N 32 40 57.39	W 103 46 23.50
	4700.00	1.42	344.22	4696.66	0.81	0.49	-72.44	0.04	612501.29	672342.26	N 32 40 57.41	W 103 46 23.50
	4800.00	1.48	354.91	4796.63	3.29	2.97	-72.89	0.28	612503.77	672341.81	N 32 40 57.44	W 103 46 23.51
	4900.00	1.97	358.18	4896.58	6.29	5.97	-73.06	0.50	612506.77	672341.64	N 32 40 57.47	W 103 46 23.51
	5000.00	2.01	359.62	4996.52	9.76	9.44	-73.13	0.06	612510.24	672341.57	N 32 40 57.50	W 103 46 23.51
	5100.00	1.36	6.44	5096.48	12.70	12.38	-73.01	0.68	612513.18	672341.70	N 32 40 57.53	W 103 46 23.51
	5200.00	1.19	14.54	5196.46	14.88	14.56	-72.61	0.25	612515.36	672342.09	N 32 40 57.55	W 103 46 23.50
	5300.00	0.78	2.91	5296.44	16.56	16.25	-72.32	0.45	612517.05	672342.39	N 32 40 57.57	W 103 46 23.50
	5400.00	0.80	346.10	5396.43	17.92	17.60	-72.45	0.23	612518.40	672342.25	N 32 40 57.58	W 103 46 23.50
	5500.00	0.55	47.99	5496.43	18.92	18.60	-72.26	0.73	612519.40	672342.44	N 32 40 57.59	W 103 46 23.50
	5600.00	0.20	54.65	5596.42	19.34	19.02	-71.76	0.35	612519.82	672342.94	N 32 40 57.60	W 103 46 23.49
	5700.00	0.33	65.33	5696.42	19.56	19.25	-71.36	0.14	612520.04	672343.34	N 32 40 57.60	W 103 46 23.49
	5800.00	0.21	306.58	5796.42	19.79	19.48	-71.25	0.47	612520.27	672343.46	N 32 40 57.60	W 103 46 23.49
	5900.00	0.14	323.28	5896.42	19.99	19.68	-71.47	0.09	612520.48	672343.24	N 32 40 57.60	W 103 46 23.49
	6000.00	0.14	336.06	5996.42	20.20	19.89	-71.59	0.03	612520.69	672343.12	N 32 40 57.61	W 103 46 23.49
	6100.00	0.12	341.91	6096.42	20.42	20.10	-71.67	0.02	612520.90	672343.03	N 32 40 57.61	W 103 46 23.49
	6200.00	0.10	71.53	6196.42	20.54	20.23	-71.62	0.16	612521.03	672343.08	N 32 40 57.61	W 103 46 23.49
	6300.00	0.14	91.90	6296.42	20.57	20.25	-71.42	0.06	612521.05	672343.29	N 32 40 57.61	W 103 46 23.49
	6400.00	0.18	122.30	6396.42	20.48	20.17	-71.16	0.09	612520.96	672343.54	N 32 40 57.61	W 103 46 23.49
	6500.00	0.16	134.09	6496.42	20.29	19.98	-70.93	0.04	612520.78	672343.78	N 32 40 57.61	W 103 46 23.48

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6600.00	0.39	202.35	6596.42	19.88	19.57	-70.96	0.36	612520.37	672343.75	N 32 40 57.60	W 103 46 23.48
	6700.00	0.19	222.27	6696.42	19.45	19.14	-71.20	0.22	612519.93	672343.51	N 32 40 57.60	W 103 46 23.49
	6800.00	0.26	215.80	6796.42	19.14	18.83	-71.44	0.07	612519.63	672343.26	N 32 40 57.60	W 103 46 23.49
	6900.00	0.38	163.46	6896.41	18.64	18.33	-71.48	0.30	612519.13	672343.22	N 32 40 57.59	W 103 46 23.49
	7000.00	0.50	157.09	6996.41	17.92	17.61	-71.22	0.13	612518.41	672343.49	N 32 40 57.58	W 103 46 23.49
	7100.00	0.90	153.85	7096.40	16.81	16.50	-70.70	0.40	612517.30	672344.00	N 32 40 57.57	W 103 46 23.48
	7200.00	1.03	149.79	7196.39	15.32	15.02	-69.90	0.15	612515.82	672344.80	N 32 40 57.56	W 103 46 23.47
	7300.00	0.90	138.04	7296.38	13.96	13.66	-68.92	0.24	612514.46	672345.78	N 32 40 57.54	W 103 46 23.46
	7400.00	0.84	112.83	7396.36	13.08	12.79	-67.72	0.38	612513.59	672346.98	N 32 40 57.54	W 103 46 23.45
	7500.00	0.51	23.79	7496.36	13.20	12.91	-66.87	0.98	612513.71	672347.84	N 32 40 57.54	W 103 46 23.44
	7600.00	0.45	19.73	7596.36	13.98	13.69	-66.56	0.07	612514.49	672348.15	N 32 40 57.54	W 103 46 23.43
	7700.00	0.34	12.24	7696.35	14.64	14.35	-66.36	0.12	612515.15	672348.34	N 32 40 57.55	W 103 46 23.43
	7800.00	0.17	358.55	7796.35	15.08	14.79	-66.30	0.18	612515.59	672348.40	N 32 40 57.55	W 103 46 23.43
	7900.00	0.39	333.26	7896.35	15.53	15.24	-66.46	0.25	612516.04	672348.25	N 32 40 57.56	W 103 46 23.43
	8000.00	1.15	320.82	7996.34	16.61	16.32	-67.25	0.77	612517.12	672347.46	N 32 40 57.57	W 103 46 23.44
	8100.00	1.19	298.50	8096.32	17.89	17.59	-68.79	0.45	612518.39	672345.91	N 32 40 57.58	W 103 46 23.46
	8200.00	0.87	252.36	8196.31	18.17	17.86	-70.43	0.86	612518.66	672344.28	N 32 40 57.59	W 103 46 23.48
	8300.00	0.38	166.98	8296.30	17.62	17.31	-71.08	0.92	612518.11	672343.63	N 32 40 57.58	W 103 46 23.49
	8400.00	1.39	146.59	8396.29	16.28	15.97	-70.33	1.04	612516.77	672344.37	N 32 40 57.57	W 103 46 23.48
	8500.00	1.74	135.70	8496.25	14.17	13.87	-68.61	0.46	612514.67	672346.10	N 32 40 57.55	W 103 46 23.46
	8600.00	1.42	140.60	8596.21	12.12	11.83	-66.76	0.35	612512.63	672347.94	N 32 40 57.53	W 103 46 23.44
	8645.00	1.52	144.67	8641.20	11.20	10.91	-66.06	0.32	612511.71	672348.64	N 32 40 57.52	W 103 46 23.43
	8769.00	1.14	163.67	8765.17	8.67	8.38	-64.76	0.47	612509.18	672349.94	N 32 40 57.49	W 103 46 23.41
	8800.00	0.97	165.52	8796.16	8.12	7.83	-64.61	0.56	612508.63	672350.09	N 32 40 57.49	W 103 46 23.41
	8832.00	2.37	1.51	8828.15	8.52	8.23	-64.52	10.35	612509.03	672350.18	N 32 40 57.49	W 103 46 23.41
	8864.00	7.12	356.07	8860.03	11.16	10.88	-64.64	14.89	612511.67	672350.06	N 32 40 57.52	W 103 46 23.41
	8895.00	13.10	352.55	8890.54	16.56	16.28	-65.23	19.38	612517.08	672349.47	N 32 40 57.57	W 103 46 23.42
	8927.00	18.47	352.55	8921.32	25.20	24.91	-66.36	16.78	612525.71	672348.34	N 32 40 57.66	W 103 46 23.43
	8959.00	21.37	353.96	8951.40	36.03	35.73	-67.63	9.19	612536.53	672347.07	N 32 40 57.76	W 103 46 23.44
	8990.00	23.65	355.71	8980.04	47.85	47.55	-68.69	7.67	612548.35	672346.01	N 32 40 57.88	W 103 46 23.46
	9022.00	26.38	356.24	9009.04	61.35	61.05	-69.64	8.56	612561.85	672345.07	N 32 40 58.01	W 103 46 23.47
	9054.00	29.02	355.89	9037.37	76.20	75.89	-70.66	8.27	612576.68	672344.04	N 32 40 58.16	W 103 46 23.48
	9086.00	30.95	355.98	9065.08	92.15	91.84	-71.79	6.03	612592.64	672342.91	N 32 40 58.32	W 103 46 23.49
	9117.00	32.62	355.63	9091.43	108.44	108.12	-72.99	5.42	612608.92	672341.72	N 32 40 58.48	W 103 46 23.50
	9149.00	35.70	355.36	9117.91	126.36	126.04	-74.40	9.64	612626.83	672340.30	N 32 40 58.66	W 103 46 23.52
	9181.00	38.87	355.62	9143.37	145.69	145.36	-75.92	9.92	612646.15	672338.78	N 32 40 58.85	W 103 46 23.54
	9212.00	41.59	355.76	9167.03	165.66	165.32	-77.43	8.78	612666.11	672337.28	N 32 40 59.04	W 103 46 23.55
	9244.00	44.85	355.38	9190.35	187.51	187.17	-79.12	10.22	612687.95	672335.58	N 32 40 59.26	W 103 46 23.57
	9275.00	49.51	355.27	9211.41	210.17	209.82	-80.98	15.03	612710.61	672333.73	N 32 40 59.49	W 103 46 23.59
	9307.00	53.73	356.00	9231.27	235.19	234.83	-82.88	13.31	612735.62	672331.83	N 32 40 59.73	W 103 46 23.61
	9339.00	56.19	358.99	9249.65	261.36	261.00	-84.01	10.84	612761.78	672330.69	N 32 40 59.99	W 103 46 23.62
	9370.00	59.62	1.63	9266.12	287.61	287.25	-83.86	13.21	612788.03	672330.84	N 32 41 0.25	W 103 46 23.62
	9402.00	62.43	2.09	9281.62	315.59	315.23	-82.95	8.87	612816.01	672331.75	N 32 41 0.53	W 103 46 23.61
	9434.00	65.16	1.30	9295.75	344.28	343.92	-82.10	8.81	612844.70	672332.60	N 32 41 0.81	W 103 46 23.60
	9465.00	68.50	0.44	9307.95	372.77	372.42	-81.67	11.07	612873.19	672333.03	N 32 41 1.09	W 103 46 23.59

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	9497.00	71.84	359.53	9318.80	402.87	402.51	-81.68	10.77	612903.29	672333.02	N 32 41 1.39	W 103 46 23.59
	9529.00	74.83	359.72	9327.97	433.52	433.17	-81.88	9.36	612933.94	672332.82	N 32 41 1.70	W 103 46 23.59
	9560.00	76.68	359.73	9335.60	463.56	463.21	-82.03	5.97	612963.98	672332.68	N 32 41 1.99	W 103 46 23.59
	9592.00	79.32	359.55	9342.26	494.86	494.51	-82.23	8.27	612995.28	672332.48	N 32 41 2.30	W 103 46 23.59
	9624.00	82.04	359.12	9347.44	526.44	526.08	-82.59	8.60	613026.85	672332.11	N 32 41 2.61	W 103 46 23.59
	9655.00	83.10	359.45	9351.45	557.17	556.82	-82.98	3.58	613057.58	672331.73	N 32 41 2.92	W 103 46 23.59
	9687.00	85.56	359.35	9354.61	589.01	588.66	-83.31	7.69	613089.42	672331.40	N 32 41 3.23	W 103 46 23.59
	9750.00	89.25	359.12	9357.46	651.94	651.58	-84.15	5.87	613152.34	672330.56	N 32 41 3.86	W 103 46 23.60
	9845.00	91.19	358.00	9357.09	746.91	746.54	-86.54	2.36	613247.29	672328.17	N 32 41 4.80	W 103 46 23.62
	9940.00	89.78	359.60	9356.29	841.89	841.51	-88.53	2.24	613342.26	672326.18	N 32 41 5.74	W 103 46 23.64
	10035.00	88.64	0.93	9357.60	936.87	936.50	-88.09	1.84	613437.24	672326.62	N 32 41 6.68	W 103 46 23.63
	10130.00	88.02	1.02	9360.37	1031.81	1031.44	-86.47	0.66	613532.18	672328.23	N 32 41 7.62	W 103 46 23.60
	10225.00	86.17	1.78	9365.18	1126.64	1126.29	-84.15	2.10	613627.02	672330.55	N 32 41 8.55	W 103 46 23.57
	10319.00	87.58	0.40	9370.31	1220.47	1220.12	-82.37	2.10	613720.85	672332.34	N 32 41 9.48	W 103 46 23.54
	10414.00	87.05	0.92	9374.76	1315.36	1315.01	-81.28	0.78	613815.74	672333.43	N 32 41 10.42	W 103 46 23.53
	10509.00	88.99	0.43	9378.04	1410.28	1409.94	-80.16	2.11	613910.66	672334.55	N 32 41 11.36	W 103 46 23.51
	10604.00	88.81	0.62	9379.86	1505.25	1504.92	-79.29	0.28	614005.63	672335.42	N 32 41 12.30	W 103 46 23.49
	10699.00	87.58	1.67	9382.86	1600.18	1599.85	-77.39	1.70	614100.56	672337.31	N 32 41 13.24	W 103 46 23.46
	10794.00	88.90	0.16	9385.77	1695.11	1694.79	-75.87	2.11	614195.49	672338.83	N 32 41 14.18	W 103 46 23.44
	10889.00	88.81	2.18	9387.67	1790.05	1789.75	-73.94	2.13	614290.44	672340.77	N 32 41 15.12	W 103 46 23.41
	10984.00	90.92	2.22	9387.90	1884.96	1884.67	-70.29	2.22	614385.36	672344.42	N 32 41 16.06	W 103 46 23.36
	11047.00	89.52	2.29	9387.65	1947.90	1947.62	-67.81	2.22	614448.31	672346.89	N 32 41 16.68	W 103 46 23.33
	11111.00	87.85	2.45	9389.12	2011.81	2011.55	-65.16	2.62	614512.23	672349.54	N 32 41 17.31	W 103 46 23.29
	11174.00	88.46	2.33	9391.15	2074.71	2074.46	-62.54	0.99	614575.14	672352.17	N 32 41 17.93	W 103 46 23.26
	11270.00	89.87	1.77	9392.55	2170.62	2170.39	-59.10	1.58	614671.06	672355.60	N 32 41 18.88	W 103 46 23.21
	11365.00	88.81	1.42	9393.64	2265.57	2265.34	-56.46	1.18	614766.01	672358.24	N 32 41 19.82	W 103 46 23.18
	11460.00	88.81	1.77	9395.62	2360.50	2360.28	-53.82	0.37	614860.95	672360.89	N 32 41 20.76	W 103 46 23.14
	11555.00	88.64	1.35	9397.73	2455.43	2455.22	-51.23	0.48	614955.88	672363.47	N 32 41 21.70	W 103 46 23.10
	11650.00	89.08	0.86	9399.62	2550.38	2550.19	-49.40	0.69	615050.84	672365.30	N 32 41 22.64	W 103 46 23.08
	11745.00	89.78	359.65	9400.57	2645.37	2645.18	-48.98	1.47	615145.82	672365.73	N 32 41 23.58	W 103 46 23.07
	11840.00	88.99	359.34	9401.59	2740.36	2740.17	-49.81	0.89	615240.81	672364.89	N 32 41 24.52	W 103 46 23.07
	11935.00	88.29	0.91	9403.84	2835.33	2835.14	-49.61	1.81	615335.77	672365.10	N 32 41 25.46	W 103 46 23.06
	12030.00	88.99	0.71	9406.10	2930.29	2930.10	-48.26	0.77	615430.73	672366.44	N 32 41 26.40	W 103 46 23.04
	12125.00	88.20	0.22	9408.43	3025.25	3025.07	-47.49	0.98	615525.69	672367.21	N 32 41 27.34	W 103 46 23.02
	12219.00	88.55	359.53	9411.09	3119.21	3119.03	-47.70	0.82	615619.65	672367.00	N 32 41 28.27	W 103 46 23.02
	12313.00	88.81	359.43	9413.26	3213.18	3213.00	-48.55	0.30	615713.61	672366.15	N 32 41 29.20	W 103 46 23.03
	12408.00	89.16	0.33	9414.94	3308.17	3307.99	-48.75	1.02	615808.59	672365.95	N 32 41 30.14	W 103 46 23.02
	12503.00	87.05	2.02	9418.08	3403.08	3402.91	-46.80	2.84	615903.50	672367.90	N 32 41 31.08	W 103 46 22.99
	12598.00	88.02	1.48	9422.17	3497.93	3497.77	-43.91	1.17	615998.37	672370.80	N 32 41 32.02	W 103 46 22.95
	12693.00	87.93	1.22	9425.52	3592.83	3592.69	-41.67	0.29	616093.27	672373.03	N 32 41 32.96	W 103 46 22.92
	12789.00	88.81	0.81	9428.25	3688.77	3688.63	-39.97	1.01	616189.21	672374.73	N 32 41 33.90	W 103 46 22.90
	12884.00	88.46	0.22	9430.52	3783.73	3783.60	-39.12	0.72	616284.18	672375.59	N 32 41 34.84	W 103 46 22.88
	12979.00	88.55	358.32	9433.00	3878.69	3878.55	-40.33	2.00	616379.13	672374.38	N 32 41 35.78	W 103 46 22.89
	13074.00	88.72	358.88	9435.26	3973.65	3973.50	-42.65	0.62	616474.07	672372.06	N 32 41 36.72	W 103 46 22.91
	13169.00	89.08	359.58	9437.08	4068.63	4068.47	-43.92	0.83	616569.03	672370.78	N 32 41 37.66	W 103 46 22.92

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13264.00	89.16	357.88	9438.54	4163.60	4163.43	-46.03	1.79	616663.99	672368.67	N 32 41 38.60	W 103 46 22.94
	13359.00	88.81	0.16	9440.23	4258.57	4258.40	-47.65	2.43	616758.95	672367.05	N 32 41 39.54	W 103 46 22.95
	13454.00	90.22	1.05	9441.03	4353.55	4353.39	-46.65	1.76	616853.93	672368.05	N 32 41 40.48	W 103 46 22.93
	13549.00	90.57	359.70	9440.37	4448.54	4448.38	-46.03	1.47	616948.92	672368.67	N 32 41 41.42	W 103 46 22.92
Final Survey	13675.00	90.31	358.99	9439.41	4574.53	4574.37	-47.47	0.60	617074.90	672367.23	N 32 41 42.67	W 103 46 22.93
Proj to TD	13855.00	90.31	358.99	9438.43	4754.51	4754.34	-50.64	0.00	617254.86	672364.06	N 32 41 44.45	W 103 46 22.95

Survey Type: Non-Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	18.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / COG Peashooter 4 Fed 3H Gyro+MWD Tie In-13855ft MD
	18.000	8645.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / COG Peashooter 4 Fed 3H Gyro+MWD
	8645.000	13675.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / COG Peashooter 4 Fed 3H Gyro+MWD
	13675.000	13855.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / COG Peashooter 4 Fed 3H Gyro+MWD



COG

PATHFINDER
A Schlumberger Company

WELL				FIELD				STRUCTURE							
Peashooter 4 Fed 3H				Lea County, NM (NAD 27)				Patriot 6							
Magnum Parameters				Surface Location				Miscellaneous							
Model	RGGM 2013	Dip	60.511°	Date	August 25, 2013	Lat	N 12 40 57.405	Northings	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Grid Code	U 901	Structure	Peashooter 4 Fed 3H	TVD Ref.	RNBL6768 above 1
Mag Dec	7.596°	Mag Dec	7.596°	FS	45617.0m	Long	W 101 46 32.656	Eastings	612501.40 RU5	Scale Factor	0.99994111	Plan	Proj 1 MDT 25Aug13	Srv Date	August 25, 2013



Grid North
Tot Corr (M->G 7.2533°)
Mag Dec (7.556°)
Grid Conv (0.303°)

