



DIRECTIONAL REPORT

30-015-41028

WELLNAME: SHOELESS JOE 32 STATE COM #3H

FIELD: PARKWAY

WELL ID NO.: 30-015-41028

AFE NO.: 003300

API NO.: 30-015-41028

SURVEY TYPE: TD-0

MD:

ANGLE:

AZIMUTH:

TVD:

N/S:

E/W:

VS:

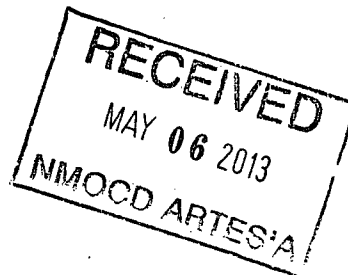
TARGET:

MEASURED DEPTH	INCLINATION ANGLE	AZIMUTH ANGLE	TVD	+NORTH -SOUTH	+EAST -WEST	VERTICAL SECTION	DOGLEG SEVERITY
486	0.60		486	2.54	0.00	2.54	0.12
661	0.40		661	4.07	0.00	4.07	0.11
1,040	1.60		1,040	10.69	0.00	10.69	0.32
1,104	1.70		1,104	12.53	0.00	12.53	0.16
1,495	1.10		1,495	22.08	0.00	22.08	0.15
1,759	1.25		1,759	27.50	0.00	27.50	0.06
2,414	1.10		2,414	40.93	0.00	40.93	0.02
2,673	0.50		2,673	44.54	0.00	44.54	0.23
2,889	1.30		2,889	47.94	0.00	47.94	0.37
3,174	1.10		3,173	53.91	0.00	53.91	0.07
3,426	1.10		3,425	58.74	0.00	58.74	0.00
3,936	0.90		3,935	67.64	0.00	67.64	0.04
4,503	0.50		4,502	74.57	0.00	74.57	0.07
4,971	1.10		4,970	81.10	0.00	81.10	0.13
5,445	1.40		5,444	91.44	0.00	91.44	0.06
5,886	0.60		5,885	99.14	0.00	99.14	0.18
6,373	1.10		6,372	106.37	0.00	106.37	0.10
6,839	1.10		6,838	115.31	0.00	115.31	0.00
7,310	1.10		7,309	124.35	0.00	124.35	0.00
7,727	1.00		7,726	132.00	0.00	132.00	0.02



A GYRO TECHNOLOGIES INC. COMPANY

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



February 22, 2013

COG Operating LLC (Concho)
One Concho Center
600 W. Illinois Avenue
Midland, TX 79701

Attn: Kanicia Castillo

Re: **Shoeless Joe 32 State Com No 003H**

Please find enclosed a copy of the survey from 0' to 7,771' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

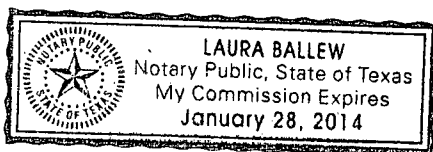
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 22nd day of February, A.D., 2013, by Keith Havelka.

Laura Ballew
Notary Public, State of Texas



Company: COG Operating LLC (Concho)
Lease/Well: Shoeless Joe 32 State Com/No 003H



Rig Name: Patriot 6
State/County: NM/Eddy
Latitude: 32.61, Longitude: -104.00
GRID North is 0.18 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 17.5Ft

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: final.ut
Minimum Curvature Method
Report Date/Time: 2/22/2013 / 14:31

Vaughn Energy Services
Fort Worth, Texas
817-741-3610

Surveyor: Jay Carroll
Shoeless Joe 32 State Com No 003H / API 30-015-41028

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	0.30	329.13	100.00	0.22	-0.13	0.22	0.26	329.13	0.30
200.00	0.23	330.10	200.00	0.62	-0.37	0.62	0.72	329.40	0.07
300.00	0.23	330.72	300.00	0.96	-0.56	0.96	1.12	329.76	0.00
400.00	0.33	4.08	400.00	1.43	-0.64	1.43	1.57	335.90	0.19
500.00	0.46	5.77	499.99	2.12	-0.58	2.12	2.20	344.75	0.13
600.00	0.54	8.34	599.99	2.99	-0.47	2.99	3.03	351.10	0.09
700.00	0.75	48.80	699.98	3.89	0.09	3.89	3.89	1.36	0.49
800.00	1.60	56.62	799.96	5.09	1.75	5.09	5.38	18.96	0.86
900.00	1.76	58.74	899.92	6.65	4.22	6.65	7.88	32.41	0.17
1000.00	1.83	60.12	999.87	8.24	6.92	8.24	10.76	40.00	0.08
1100.00	2.00	61.52	1099.81	9.87	9.84	9.87	13.94	44.90	0.18
1200.00	1.93	66.70	1199.76	11.37	12.93	11.37	17.22	48.65	0.19
1300.00	1.66	69.77	1299.71	12.54	15.83	12.54	20.20	51.62	0.29
1400.00	1.23	57.70	1399.67	13.62	18.10	13.62	22.65	53.05	0.52
1500.00	0.97	33.11	1499.66	14.90	19.47	14.90	24.51	52.58	0.53
1600.00	1.02	18.42	1599.64	16.44	20.21	16.44	26.05	50.87	0.26
1700.00	1.17	17.95	1699.62	18.26	20.81	18.26	27.68	48.73	0.16
1800.00	1.15	15.90	1799.60	20.20	21.40	20.20	29.42	46.65	0.05

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
1900.00	0.71	13.10	1899.59	21.77	21.81	21.77	30.82	45.06	0.44
2000.00	0.73	3.82	1999.58	23.01	21.99	23.01	31.83	43.70	0.12
2100.00	0.81	355.69	2099.57	24.36	21.98	24.36	32.81	42.07	0.13
2200.00	0.82	354.14	2199.56	25.78	21.86	25.78	33.80	40.30	0.02
2300.00	1.12	5.01	2299.55	27.46	21.87	27.46	35.11	38.53	0.35
2400.00	1.13	1.44	2399.53	29.42	21.98	29.42	36.73	36.76	0.07
2500.00	1.02	358.45	2499.51	31.31	21.98	31.31	38.25	35.07	0.12
2600.00	0.60	351.32	2599.50	32.72	21.88	32.72	39.36	33.77	0.44
2700.00	0.69	343.24	2699.49	33.82	21.62	33.82	40.14	32.60	0.13
2800.00	1.05	328.13	2799.48	35.17	20.97	35.17	40.95	30.80	0.42
2900.00	1.27	317.17	2899.46	36.76	19.73	36.76	41.72	28.23	0.31
3000.00	1.05	314.45	2999.44	38.21	18.33	38.21	42.38	25.62	0.23
3100.00	1.18	319.46	3099.42	39.63	17.00	39.63	43.13	23.22	0.16
3200.00	0.82	318.12	3199.41	40.95	15.86	40.95	43.91	21.17	0.36
3300.00	1.08	294.90	3299.39	41.87	14.53	41.87	44.32	19.14	0.46
3400.00	1.11	305.11	3399.38	42.83	12.89	42.83	44.72	16.75	0.20
3500.00	1.10	308.81	3499.36	43.99	11.34	43.99	45.43	14.46	0.07
3600.00	0.92	318.17	3599.34	45.19	10.06	45.19	46.29	12.55	0.25
3700.00	1.03	327.57	3699.33	46.54	9.04	46.54	47.41	10.99	0.19
3800.00	0.78	331.97	3799.32	47.90	8.24	47.90	48.61	9.76	0.25
3900.00	0.96	327.75	3899.30	49.21	7.47	49.21	49.78	8.63	0.18
4000.00	0.98	326.89	3999.29	50.64	6.56	50.64	51.06	7.38	0.03
4100.00	0.84	328.30	4099.28	51.97	5.71	51.97	52.29	6.27	0.15
4200.00	0.79	330.97	4199.27	53.20	4.99	53.20	53.43	5.36	0.06
4300.00	0.46	327.91	4299.26	54.14	4.44	54.14	54.33	4.69	0.33
4400.00	0.55	300.32	4399.26	54.73	3.81	54.73	54.86	3.98	0.26
4500.00	0.53	288.87	4499.25	55.12	2.95	55.12	55.20	3.07	0.11
4600.00	0.38	286.57	4599.25	55.37	2.20	55.37	55.41	2.27	0.15
4700.00	0.35	249.97	4699.25	55.36	1.59	55.36	55.38	1.65	0.23
4800.00	0.42	251.60	4799.24	55.14	0.96	55.14	55.15	0.99	0.08
4900.00	1.02	274.90	4899.24	55.10	-0.28	55.10	55.10	359.71	0.66
5000.00	1.16	275.73	4999.22	55.28	-2.18	55.28	55.32	357.75	0.13
5100.00	0.99	278.16	5099.20	55.50	-4.04	55.50	55.65	355.84	0.17
5200.00	0.98	276.08	5199.19	55.71	-5.75	55.71	56.01	354.11	0.04
5300.00	1.27	268.69	5299.17	55.78	-7.71	55.78	56.31	352.13	0.32
5400.00	1.32	261.40	5399.14	55.58	-9.95	55.58	56.47	349.85	0.17
5500.00	1.22	256.48	5499.12	55.16	-12.13	55.16	56.48	347.60	0.15
5600.00	0.59	217.47	5599.10	54.50	-13.48	54.50	56.14	346.11	0.85
5700.00	0.58	201.73	5699.10	53.61	-13.99	53.61	55.41	345.38	0.16

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.49	154.16	5799.10	52.76	-13.99	52.76	54.58	345.15	0.44
5900.00	0.62	134.76	5899.09	52.00	-13.42	52.00	53.70	345.53	0.23
6000.00	0.52	130.97	5999.09	51.32	-12.70	51.32	52.87	346.10	0.10
6100.00	0.59	138.88	6099.08	50.63	-12.02	50.63	52.04	346.65	0.10
6200.00	0.46	139.66	6199.08	49.94	-11.42	49.94	51.23	347.12	0.13
6300.00	0.96	142.09	6299.07	48.98	-10.64	48.98	50.12	347.74	0.51
6400.00	1.17	144.88	6399.05	47.47	-9.54	47.47	48.42	348.64	0.22
6500.00	0.73	164.13	6499.04	46.02	-8.78	46.02	46.85	349.20	0.54
6600.00	0.69	179.15	6599.03	44.81	-8.59	44.81	45.62	349.15	0.19
6700.00	0.75	195.21	6699.02	43.57	-8.75	43.57	44.44	348.64	0.21
6800.00	0.98	196.91	6799.01	42.12	-9.17	42.12	43.11	347.71	0.23
6900.00	1.19	197.22	6898.99	40.31	-9.73	40.31	41.47	346.43	0.21
7000.00	1.05	209.57	6998.97	38.52	-10.49	38.52	39.92	344.76	0.28
7100.00	0.94	211.54	7098.96	37.02	-11.37	37.02	38.73	342.92	0.12
7200.00	0.91	163.78	7198.95	35.56	-11.58	35.56	37.40	341.96	0.75
7300.00	1.09	143.76	7298.93	34.03	-10.80	34.03	35.71	342.40	0.39
7400.00	1.20	131.39	7398.91	32.57	-9.45	32.57	33.92	343.83	0.27
7500.00	0.97	120.38	7498.89	31.45	-7.93	31.45	32.43	345.85	0.31
7600.00	0.81	141.55	7598.88	30.47	-6.76	30.47	31.21	347.49	0.36
7700.00	1.14	153.22	7698.87	29.03	-5.87	29.03	29.62	348.56	0.39
7771.00	1.23	137.71	7769.85	27.83	-5.04	27.83	28.29	349.73	0.47



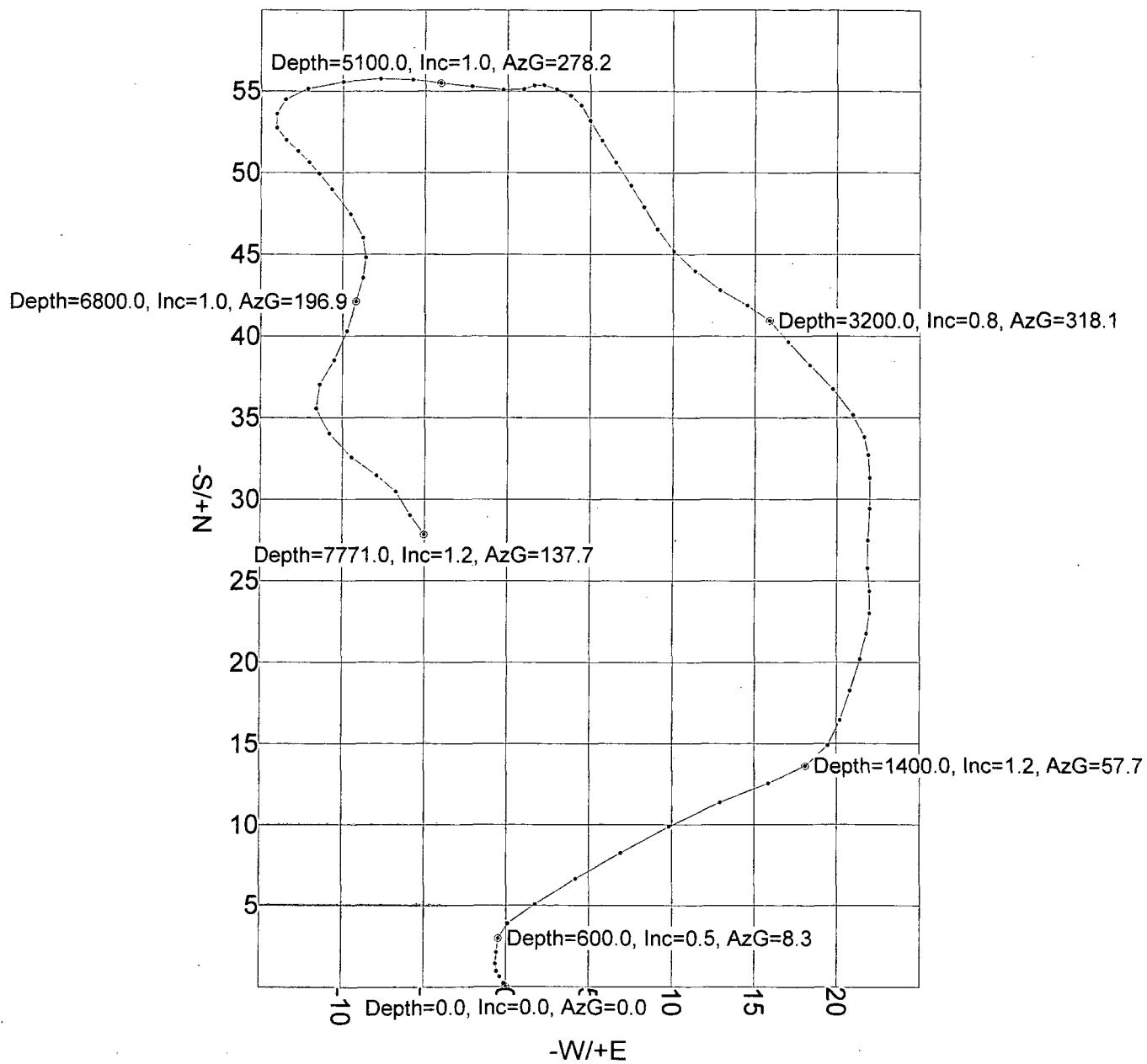
Vaughn Energy Services

Fort Worth, Texas

817-741-3610

Surveyor: Jay Carroll

Shoeless Joe 32 State Com No 003H / API 30-015-41028



VES Survey Date: 02/18/2013



COG Shoeless Joe 32 State #3H Gyro + MWD 7771ft + 12942ft Survey Geodetic Report (Non-Def Survey)



Report Date: February 26, 2013 - 08:02 AM
Client: COG
Field: NM Eddy County (NAD 27)
Structure / Slot: COG Shoeless Joe 32 State #3H / COG Shoeless Joe 32 State #3H
Well: Shoeless Joe 32 State #3H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: COG Shoeless Joe 32 State #3H Gyro + MWD 7771ft + 12942ft
Survey Date: February 18, 2013
Tort / AHD / DDI / ERD Ratio: 161.202° / 4919.721 ft / 6.086 / 0.584
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 36' 50.70554", W 104° 0' 5.86822"
Location Grid N/E Y/X: N 587274.900 ftUS, E 602135.300 ftUS
CRS Grid Convergence Angle: 0.1788°
Grid Scale Factor: 0.99992104

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 83.970° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3294.600 ft above MSL
Seabed / Ground Elevation: 3278.600 ft above MSL
Magnetic Declination: 7.715°
Total Gravity Field Strength: 999.2090 mgn (9.8 based)
Total Magnetic Field Strength: 48613.517 nT
Magnetic Dip Angle: 60.393°
Declination Date: February 18, 2013
Magnetic Declination Model: BGM 2012
North Reference: Grid North
Grid Convergence Used: 0.1788°
Total Corr Mag North->Grid: 7.5365°
North:
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 ° ' '')
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	587274.90	602135.30	N 32 36 50.71	W 104 0 5.87
	100.00	0.30	329.13	100.00	-0.11	0.22	-0.13	0.30	587275.12	602135.17	N 32 36 50.71	W 104 0 5.87
	200.00	0.23	330.10	200.00	-0.30	0.62	-0.37	0.07	587275.52	602134.93	N 32 36 50.71	W 104 0 5.87
	300.00	0.23	330.72	300.00	-0.46	0.97	-0.57	0.00	587275.87	602134.73	N 32 36 50.72	W 104 0 5.87
	400.00	0.33	4.08	400.00	-0.49	1.43	-0.64	0.19	587276.33	602134.66	N 32 36 50.72	W 104 0 5.88
	500.00	0.46	5.77	499.99	-0.36	2.12	-0.58	0.13	587277.02	602134.72	N 32 36 50.73	W 104 0 5.87
	600.00	0.54	8.34	599.99	-0.16	2.99	-0.48	0.08	587277.89	602134.82	N 32 36 50.74	W 104 0 5.87
	700.00	0.75	48.80	699.98	0.49	3.88	0.09	0.49	587278.78	602135.39	N 32 36 50.74	W 104 0 5.87
	800.00	1.60	56.62	799.96	2.27	5.08	1.74	0.86	587279.98	602137.04	N 32 36 50.76	W 104 0 5.85
	900.00	1.76	58.74	899.92	4.90	6.65	4.22	0.17	587281.55	602139.52	N 32 36 50.77	W 104 0 5.82
	1000.00	1.83	60.12	999.87	7.75	8.24	6.92	0.08	587283.14	602142.22	N 32 36 50.79	W 104 0 5.79
	1100.00	2.00	61.52	1099.81	10.82	9.87	9.84	0.18	587284.77	602145.14	N 32 36 50.80	W 104 0 5.75
	1200.00	1.93	66.70	1199.76	14.04	11.37	12.92	0.19	587286.27	602148.22	N 32 36 50.82	W 104 0 5.72
	1300.00	1.66	69.77	1299.71	17.05	12.53	15.82	0.29	587287.43	602151.12	N 32 36 50.83	W 104 0 5.68
	1400.00	1.23	57.70	1399.67	19.42	13.61	18.09	0.52	587288.51	602153.39	N 32 36 50.84	W 104 0 5.66
	1500.00	0.97	33.11	1499.66	20.92	14.89	19.46	0.53	587289.79	602154.76	N 32 36 50.85	W 104 0 5.64
	1600.00	1.02	18.42	1599.64	21.82	16.44	20.20	0.26	587291.34	602155.50	N 32 36 50.87	W 104 0 5.63
	1700.00	1.17	17.95	1699.62	22.60	18.26	20.80	0.15	587293.16	602156.10	N 32 36 50.89	W 104 0 5.62
	1800.00	1.15	15.90	1799.60	23.39	20.20	21.39	0.05	587295.09	602156.69	N 32 36 50.90	W 104 0 5.62
	1900.00	0.71	13.10	1899.59	23.97	21.76	21.80	0.44	587296.66	602157.10	N 32 36 50.92	W 104 0 5.61
	2000.00	0.73	3.82	1999.58	24.28	23.00	21.99	0.12	587297.90	602157.29	N 32 36 50.93	W 104 0 5.61
	2100.00	0.81	355.69	2099.57	24.41	24.34	21.98	0.14	587299.24	602157.27	N 32 36 50.95	W 104 0 5.61
	2200.00	0.82	354.14	2199.56	24.44	25.76	21.85	0.02	587300.66	602157.15	N 32 36 50.96	W 104 0 5.61
	2300.00	1.12	5.01	2299.55	24.62	27.45	21.86	0.35	587302.34	602157.16	N 32 36 50.98	W 104 0 5.61
	2400.00	1.13	1.44	2399.53	24.94	29.41	21.97	0.07	587304.30	602157.27	N 32 36 51.00	W 104 0 5.61
	2500.00	1.02	358.45	2499.51	25.14	31.28	21.97	0.12	587306.18	602157.27	N 32 36 51.01	W 104 0 5.61
	2600.00	0.60	351.32	2599.50	25.18	32.69	21.87	0.43	587307.59	602157.17	N 32 36 51.03	W 104 0 5.61
	2700.00	0.69	343.24	2699.50	25.05	33.78	21.62	0.13	587308.68	602156.92	N 32 36 51.04	W 104 0 5.61
	2800.00	1.05	328.13	2799.48	24.54	35.14	20.96	0.42	587310.03	602156.26	N 32 36 51.05	W 104 0 5.62
	2900.00	1.27	317.17	2899.46	23.47	36.73	19.72	0.31	587311.63	602155.02	N 32 36 51.07	W 104 0 5.64
	3000.00	1.05	314.45	2999.44	22.23	38.18	18.32	0.23	587313.08	602153.61	N 32 36 51.08	W 104 0 5.65
	3100.00	1.18	319.46	3099.42	21.06	39.61	16.99	0.16	587314.50	602152.29	N 32 36 51.10	W 104 0 5.67
	3200.00	0.82	318.12	3199.41	20.06	40.92	15.85	0.36	587315.82	602151.14	N 32 36 51.11	W 104 0 5.68
	3300.00	1.08	294.90	3299.39	18.83	41.85	14.51	0.46	587316.75	602149.81	N 32 36 51.12	W 104 0 5.70
	3400.00	1.11	305.11	3399.38	17.29	42.81	12.87	0.20	587317.70	602148.16	N 32 36 51.13	W 104 0 5.72
	3500.00	1.10	308.81	3499.36	15.88	43.96	11.33	0.07	587318.86	602146.62	N 32 36 51.14	W 104 0 5.73
	3600.00	0.92	318.17	3599.34	14.73	45.16	10.04	0.24	587320.06	602145.34	N 32 36 51.15	W 104 0 5.75
	3700.00	1.03	327.57	3699.33	13.86	46.52	9.02	0.19	587321.42	602144.32	N 32 36 51.17	W 104 0 5.76
	3800.00	0.78	331.97	3799.32	13.21	47.88	8.22	0.26	587322.78	602143.52	N 32 36 51.18	W 104 0 5.77
	3900.00	0.96	327.75	3899.30	12.58	49.19	7.46	0.19	587324.09	602142.76	N 32 36 51.19	W 104 0 5.78
	4000.00	0.98	326.89	3999.29	11.82	50.61	6.54	0.02	587325.51	602141.84	N 32 36 51.21	W 104 0 5.79
	4100.00	0.84	328.30	4099.28	11.12	51.95	5.69	0.14	587326.85	602140.99	N 32 36 51.22	W 104 0 5.80
	4200.00	0.79	330.97	4199.27	10.53	53.18	4.97	0.06	587328.08	602140.27	N 32 36 51.23	W 104 0 5.81
	4300.00	0.46	327.91	4299.26	10.08	54.12	4.42	0.33	587329.02	602139.72	N 32 36 51.24	W 104 0 5.81
	4400.00	0.55	300.32	4399.26	9.52	54.71	3.79	0.26	587329.60	602139.09	N 32 36 51.25	W 104 0 5.82
	4500.00	0.53	288.87	4499.25	8.71	55.10	2.94	0.11	587329.99	602138.24	N 32 36 51.25	W 104 0 5.83
	4600.00	0.38	286.57	4599.25	7.99	55.34	2.19	0.15	587330.24	602137.49	N 32 36 51.25	W 104 0 5.84
	4700.00	0.35	249.97	4699.25	7.39	55.33	1.58	0.23	587330.23	602136.88	N 32 36 51.25	W 104 0 5.85
	4800.00	0.42	251.60	4799.25	6.73	55.11	0.95	0.07	587330.01	602136.25	N 32 36 51.25	W 104 0 5.86
	4900.00	1.02	274.90	4899.24	5.50	55.07	-0.29	0.66	587329.97	602135.01	N 32 36 51.25	W 104 0 5.87
	5000.00	1.16	275.73	4999.22	3.63	55.25	-2.18	0.14	587330.14	602133.12	N 32 36 51.25	W 104 0 5.89
	5100.00	0.99	278.16	5099.20	1.81	55.47	-4.04	0.18	587330.37	602131.26	N 32 36 51.25	W 104 0 5.91
	5200.00	0.98	276.08	5199.19	0.13	55.69	-5.75	0.04	587330.58	602129.55	N 32 36 51.26	W 104 0 5.93
	5300.00	1.27	268.69	5299.17	-1.81	55.75	-7.71	0.32	587330.65	602127.59	N 32 36 51.26	W 104 0 5.96
	5400.00	1.32	261.40	5399.14	-4.06	55.55	-9.95	0.17	587330.45	602125.35	N 32 36 51.26	W 104 0 5.98
	5500.00	1.22	256.48	5499.12	-6.27	55.13	-12.13	0.15	587330.03	602123.17	N 32 36 51.25	W 104 0 6.01
	5600.00	0.59	217.47	5599.11	-7.68	54.47	-13.48	0.85	587329.37	602121.82	N 32 36 51.24	W 104 0 6.02
	5700.00	0.58	201.73	5699.10	-8.27	53.60	-13.98	0.16	587328.49	602121.32	N 32 36 51.24	W 104 0 6.03

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 ° ' ")
	5800.00	0.49	154.16	5799.10	-8.36	52.74	-13.98	0.44	587327.64	602121.32	N 32 36 51.23	W 104 0 6.03
	5900.00	0.62	134.76	5899.09	-7.87	51.98	-13.41	0.23	587326.87	602121.89	N 32 36 51.22	W 104 0 6.02
	6000.00	0.52	130.97	5999.09	-7.22	51.30	-12.68	0.11	587326.19	602122.62	N 32 36 51.21	W 104 0 6.01
	6100.00	0.59	138.88	6099.08	-6.62	50.61	-12.00	0.10	587325.51	602123.30	N 32 36 51.21	W 104 0 6.01
	6200.00	0.46	139.66	6199.08	-6.09	49.92	-11.40	0.13	587324.81	602123.90	N 32 36 51.20	W 104 0 6.00
	6300.00	0.96	142.09	6299.07	-5.43	48.95	-10.63	0.50	587323.85	602124.67	N 32 36 51.19	W 104 0 5.99
	6400.00	1.17	144.88	6399.05	-4.49	47.45	-9.52	0.22	587322.35	602125.78	N 32 36 51.18	W 104 0 5.98
	6500.00	0.73	164.13	6499.04	-3.88	46.01	-8.76	0.54	587320.90	602126.54	N 32 36 51.16	W 104 0 5.97
	6600.00	0.69	179.15	6599.03	-3.83	44.79	-8.58	0.19	587319.69	602126.72	N 32 36 51.15	W 104 0 5.97
	6700.00	0.75	195.21	6699.02	-4.12	43.56	-8.74	0.21	587318.45	602126.56	N 32 36 51.14	W 104 0 5.97
	6800.00	0.98	196.91	6799.01	-4.69	42.11	-9.16	0.23	587317.01	602126.14	N 32 36 51.12	W 104 0 5.97
	6900.00	1.19	197.22	6898.99	-5.43	40.30	-9.72	0.21	587315.20	602125.58	N 32 36 51.10	W 104 0 5.98
	7000.00	1.05	209.57	6998.97	-6.38	38.51	-10.48	0.28	587313.41	602124.82	N 32 36 51.09	W 104 0 5.99
	7100.00	0.94	211.54	7098.96	-7.41	37.01	-11.36	0.12	587311.91	602123.94	N 32 36 51.07	W 104 0 6.00
	7200.00	0.91	163.78	7198.95	-7.77	35.55	-11.57	0.75	587310.45	602123.73	N 32 36 51.06	W 104 0 6.00
	7300.00	1.09	143.76	7298.93	-7.15	34.02	-10.78	0.39	587308.92	602124.52	N 32 36 51.04	W 104 0 5.99
	7400.00	1.20	131.39	7398.91	-5.96	32.56	-9.44	0.27	587307.46	602125.87	N 32 36 51.03	W 104 0 5.98
	7500.00	0.97	120.38	7498.90	-4.57	31.44	-7.92	0.31	587306.34	602127.38	N 32 36 51.02	W 104 0 5.96
	7600.00	0.81	141.55	7598.88	-3.51	30.46	-6.75	0.36	587305.36	602128.55	N 32 36 51.01	W 104 0 5.95
	7700.00	1.14	153.22	7698.87	-2.78	29.02	-5.86	0.38	587303.92	602129.44	N 32 36 50.99	W 104 0 5.94
	7771.00	1.23	137.71	7769.85	-2.08	27.82	-5.03	0.47	587302.72	602130.27	N 32 36 50.98	W 104 0 5.93
	7818.00	2.20	137.60	7818.83	-1.25	26.79	-4.08	2.06	587301.68	602131.22	N 32 36 50.97	W 104 0 5.91
	7850.00	2.55	139.62	7848.80	-0.48	25.79	-3.21	1.12	587300.69	602132.09	N 32 36 50.96	W 104 0 5.90
	7881.00	4.13	121.07	7879.75	0.80	24.69	-1.80	6.11	587299.59	602133.50	N 32 36 50.95	W 104 0 5.89
	7913.00	7.30	104.11	7911.59	3.63	23.60	1.15	11.12	587298.50	602136.45	N 32 36 50.94	W 104 0 5.85
	7945.00	11.26	97.17	7943.17	8.58	22.71	6.23	12.84	587297.81	602141.53	N 32 36 50.93	W 104 0 5.79
	7976.00	15.30	92.42	7973.33	15.58	22.16	13.32	13.49	587297.06	602148.62	N 32 36 50.92	W 104 0 5.71
	8008.00	19.43	88.55	8003.87	25.06	22.12	22.86	13.39	587297.02	602158.16	N 32 36 50.92	W 104 0 5.60
	8040.00	22.86	87.32	8033.71	36.58	22.54	34.40	10.81	587297.44	602169.69	N 32 36 50.93	W 104 0 5.47
	8071.00	25.68	86.18	8061.97	49.30	23.27	47.12	9.22	587298.17	602182.41	N 32 36 50.93	W 104 0 5.32
	8103.00	28.40	84.69	8090.47	63.84	24.44	61.62	8.78	587299.34	602196.91	N 32 36 50.95	W 104 0 5.15
	8135.00	30.78	82.22	8118.29	79.64	26.25	77.31	8.36	587301.15	602212.60	N 32 36 50.96	W 104 0 4.96
	8166.00	32.89	80.47	8144.63	95.97	28.72	93.47	7.43	587303.62	602228.76	N 32 36 50.99	W 104 0 4.77
	8198.00	35.44	80.29	8171.10	113.90	31.72	111.19	7.98	587306.62	602246.48	N 32 36 51.02	W 104 0 4.57
	8230.00	38.95	81.35	8196.59	133.22	34.80	130.28	11.15	587309.70	602265.57	N 32 36 51.05	W 104 0 4.34
	8261.00	43.18	82.31	8219.96	153.56	37.69	150.43	13.80	587312.58	602285.72	N 32 36 51.07	W 104 0 4.11
	8293.00	47.13	83.81	8242.52	176.24	40.42	172.95	12.78	587315.31	602308.24	N 32 36 51.10	W 104 0 3.84
	8324.00	50.83	84.77	8262.86	199.63	42.74	196.22	12.16	587317.64	602331.51	N 32 36 51.12	W 104 0 3.57
	8356.00	55.13	84.16	8282.13	225.17	45.21	221.65	13.52	587320.10	602356.93	N 32 36 51.15	W 104 0 3.28
	8388.00	59.88	83.46	8299.31	252.15	48.12	248.47	14.96	587323.02	602383.75	N 32 36 51.17	W 104 0 2.96
	8419.00	62.17	83.63	8314.33	279.27	51.17	275.42	7.40	587326.06	602410.69	N 32 36 51.20	W 104 0 2.65
	8451.00	64.72	83.28	8328.63	307.89	54.43	303.85	8.03	587329.33	602439.13	N 32 36 51.23	W 104 0 2.31
	8482.00	68.15	83.10	8341.02	336.30	57.80	332.06	11.08	587332.70	602467.33	N 32 36 51.27	W 104 0 1.98
	8514.00	72.81	82.93	8351.71	368.44	61.47	361.99	14.57	587336.36	602497.26	N 32 36 51.30	W 104 0 1.63
	8546.00	77.47	82.93	8359.92	397.36	65.27	392.68	14.56	587340.17	602527.94	N 32 36 51.34	W 104 0 1.28
	8577.00	80.81	84.25	8365.76	427.80	68.67	422.92	11.56	587343.57	602558.19	N 32 36 51.37	W 104 0 0.92
	8609.00	83.54	86.09	8370.12	459.49	71.34	454.51	10.26	587346.23	602589.77	N 32 36 51.40	W 104 0 0.55
	8641.00	85.56	86.71	8373.15	491.31	73.34	486.30	6.60	587348.23	602621.56	N 32 36 51.42	W 104 0 0.18
	8672.00	87.93	86.44	8374.91	522.23	75.19	517.19	7.69	587350.08	602652.45	N 32 36 51.43	W 103 59 59.82
	8703.00	90.48	85.74	8375.34	553.20	77.30	548.12	8.53	587352.19	602683.37	N 32 36 51.45	W 103 59 59.46
	8735.00	91.45	85.21	8374.81	585.19	79.82	580.01	3.45	587354.72	602715.26	N 32 36 51.48	W 103 59 59.08
	8798.00	90.13	85.74	8373.94	648.16	84.79	642.81	2.26	587359.69	602778.05	N 32 36 51.52	W 103 59 58.35
	8893.00	89.60	85.21	8374.16	743.12	92.29	737.51	0.79	587367.18	602872.75	N 32 36 51.60	W 103 59 57.24
	8988.00	89.96	84.86	8374.53	838.11	100.51	832.15	0.53	587375.40	602967.38	N 32 36 51.67	W 103 59 56.14
	9082.00	88.90	84.51	8375.46	932.09	109.22	925.74	1.19	587384.11	603060.97	N 32 36 51.76	W 103 59 55.04
	9177.00	89.16	84.33	8377.07	1027.08	118.45	1020.28	0.33	587393.34	603155.50	N 32 36 51.85	W 103 59 53.94
	9272.00	89.96	84.51	8377.80	1122.07	127.69	1114.82	0.86	587402.58	603250.03	N 32 36 51.93	W 103 59 52.83
	9367.00	90.57	84.33	8377.36	1217.07	136.93	1209.37	0.67	587411.82	603344.57	N 32 36 52.02	W 103 59 51.72
	9462.00	88.64	83.63	8378.01	1312.06	146.89	1303.84	2.16	587421.78	603439.04	N 32 36 52.12	W 103 59 50.62
	9557.00	89.25	83.46	8379.76	1407.04	157.57	1398.22	0.67	587432.46	603533.41	N 32 36 52.22	W 103 59 49.52
	9652.00	89.78	83.28	8380.57	1502.03	168.54	1492.58	0.59	587443.42	603627.76	N 32 36 52.33	W 103 59 48.41
	9747.00	90.84	83.89	8380.05	1597.02	179.15	1586.99	1.29	587454.04	603722.16	N 32 36 52.43	W 103 59 47.31
	9842.00	88.90	84.51	8380.27	1692.02	188.75	1681.49	2.14	587463.64	603818.66	N 32 36 52.52	W 103 59 46.20
	9937.00	88.99	84.51	8382.02	1787.00	197.84	1776.04	0.09	587472.72	603911.20	N 32 36 52.61	W 103 59 45.10
	10032.00	89.43	84.60	8383.33	1881.98	206.85	1870.60	0.47	587481.74	604005.75	N 32 36 52.69	W 103 59 43.99
	10127.00	88.29	83.98	8385.22	1976.96	216.30	1965.11	1.37	587491.18	604100.25	N 32 36 52.78	W 103 59 42.89
	10222.00	88.64	83.54	8387.76	2071.93	226.62	2059.52	0.59	587501.51	604194.65	N 32 36 52.88	W 103 59 41.78
	10317.00	88.99	83.37	8389.73	2166.90	237.45	2153.88	0.41	587512.33	604289.00	N 32 36 52.99	W 103 59 40.68
	10412.00	89.43	82.93	8391.04	2261.88	248.78	2248.19	0.65	587523.66	604383.31	N 32 36 53.10	W 103 59 39.58
	10507.00	88.90	84.69	8392.42	2356.87	259.02	2342.62	1.93	587533.90	604477.73	N 32 36 53.20	W 103 59 38.47
	10602.00	89.43	84.51	8393.81	2451.85	267.96	2437.19	0.59	587542.84	604572.29	N 32 36 53.28	W 103 59 37.37
	10697.00	89.60	83.54	8394.61	2546.85	277.85	2531.67	1.04	587552.73	604666.76	N 32 36 53.38	W 103 59 36.26
	10791.00	89.96	82.22	8394.97	2640.83	289.50	2624.94	1.46	587564.38	604760.03	N 32 36 53.49	W 103 59 35.17
	10886.00	89.69	86.27	8395.26	2735.81	299.02	2719.44	4.27	587573.90	604854.52	N 32 36 53.58	W 103 59 34.07
	10981.00	90.40	86.18	8395.19	2830.73	305.28	2814.23	0.75	587580.15	604949.31	N 32 36 53.64	W 103 59 32.96
	11076.00	89.08	85.04	8395.62	2925.69	312.55	2908.95	1.84	587587.42	605044.02	N 32 36 53.71	W 103 59 31.85
	11171.00	89.60	83.98	8396.71	3020.68	321.64	3003.51	1.24	587596.51	605138.56	N 32 36 53.79	W 103 59 30.74
	11266.00	90.31	81.96	8396.79	3115.66	333.26	3097.79	2.25	587608.14	605232.84	N 32 36 53.91	W 103

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 ° ' ")
	11741.00	89.08	84.95	8406.35	3590.40	390.55	3569.12	1.04	587665.41	605704.13	N 32 36 54.46	W 103 59 24.13
	11836.00	89.78	84.60	8407.29	3685.38	399.20	3663.72	0.82	587674.06	605798.72	N 32 36 54.54	W 103 59 23.02
	11931.00	90.57	84.69	8407.00	3780.38	408.06	3758.30	0.84	587682.93	605893.30	N 32 36 54.63	W 103 59 21.92
	12026.00	89.52	85.48	8406.93	3875.36	416.20	3852.95	1.38	587691.07	605987.94	N 32 36 54.70	W 103 59 20.81
	12121.00	87.67	85.13	8409.26	3970.30	423.97	3947.60	1.98	587698.84	606082.58	N 32 36 54.78	W 103 59 19.70
	12216.00	87.93	84.51	8412.90	4065.22	432.54	4042.14	0.71	587707.41	606177.12	N 32 36 54.86	W 103 59 18.80
	12311.00	88.81	84.25	8415.60	4160.17	441.84	4136.65	0.97	587716.71	606271.61	N 32 36 54.95	W 103 59 17.49
	12405.00	89.69	83.72	8418.83	4254.17	451.69	4230.12	1.09	587726.56	606365.08	N 32 36 55.04	W 103 59 16.40
	12500.00	89.78	82.49	8417.27	4349.15	463.10	4324.43	1.30	587737.96	606459.38	N 32 36 55.15	W 103 59 15.30
	12595.00	90.57	82.05	8416.98	4444.11	475.88	4418.57	0.95	587750.74	606553.51	N 32 36 55.27	W 103 59 14.19
	12690.00	91.54	82.14	8415.23	4539.04	488.94	4512.85	1.03	587763.80	606647.58	N 32 36 55.40	W 103 59 13.09
Last Survey	12785.00	92.42	81.52	8411.95	4633.92	502.43	4606.62	1.13	587777.29	606741.55	N 32 36 55.53	W 103 59 12.00
Projection to Bit	12942.00	92.42	81.52	8405.32	4790.63	525.56	4761.77	0.00	587800.42	606896.68	N 32 36 55.76	W 103 59 10.18

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		30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / COG Shoeless Joe 32 State #3H Gyro + MWD 7771ft + 12942ft
	18.000	7771.000		30.000	30.000	SLB_NSG+MSHOT	Original Borehole / COG Shoeless Joe 32 State #3H Gyro
	7771.000	12942.000		30.000	30.000	SLB_MWD-STD	Original Borehole / COG Shoeless Joe 32 State #3H Gyro