Triad Hunter

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Borehole:	Well:	Field:	Structure:
Original Borehole	Triad Hunter Stewart Winland 1301	WV Tyler County (NAD 27)	Triad Hunter Stewart Winland Pad

Gravity & Magnetic Parameters
Model: HDGM 2013 Dip: 67.05° Date: 09-Jan-2014
MagDec: -7.595° FS: 52351.739nT Gravity FS: 999.338mgn (9.80665 Based)

Surface Location NAD27 West Virginia State Plane, Northern Zone, US Feet
Lat: N 39 30 33.32 Northing: 370650ftUS Grid Conv: -0.9187°
Lon: W 80 56 25.55 Easting: 1583601ftUS Scale Fact: 0.99994281

Miscellaneous
Slot: Stewart Winland TVD Ref: KB(928ft above MSL)
Plan: Triad Hunter Stewart Winland 1301 Gyro+MWD 0ft to update

Surface Location
Northing: 370650 Easting: 1583601 Latitude: N 39 30 33.32 Longitude: W 80 56 25.55 VSec Azimuth: 345.396

Target Name	Shape	Dimension	Latitude	Longitude	Northing	Easting	TVD	VSec	N(+)/S(-)	E(+)/W(-)
Triad Hunter Stewart Winland 1301 pinch point 50ft Diameter	Circle	50.00 diameter	N 39 31 4.83	W 80 56 33.[illegible]	374054.00	1583981.00	-400.00	3258.35	3208.18	-410.34
Triad Hunter Stewart Winland 1301 Pinch Point	Point	N/A	N 39 31 4.83	W 80 56 33.[illegible]	374058.00	1583981.00	-400.00	3258.35	3208.18	-410.34
Triad Hunter Stewart Winland 1301 BHL	Point	N/A	N 39 31 33.[illegible]	W 80 56 47.27	377006.00	1581981.00	6143.00	6361.21	6156.38	-1604.15
Triad Hunter Stewart Winland 1301 LP	Point	N/A	N 39 30 41.74	W 80 56 21.52	371497.00	1583930.00	6143.00	736.73	847.06	329.52

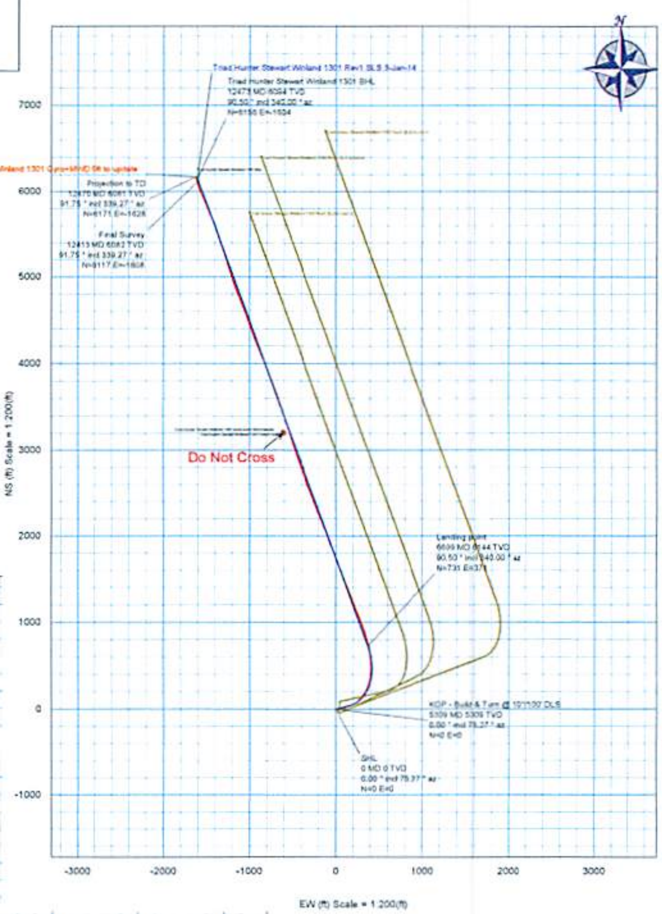
PART	Seq.	Survey Tool / Survey Tool Code	Vendor/Tool	Hole Size (in)	Casing Size (in)	MD From (ft)	MD To (ft)	Survey Frequency (ft)	EOU Size (Semi Major) (ft)	EOU Size (Semi Minor) (ft)	Comments Contingency
1	1	SLB_NSG+MSHOT-Depth Only		30	30	0	22	Act Stns	1.25	1.25	
1	2	SLB_NSG+MSHOT		30	30	22	5190	Act Stns	4.30	3.74	
1	3	SLB_MWD-STD		30	30	5190	12413	Act Stns	168.09	13.03	
1	4	SLB_BLIND+TREND		30	30	12413	12475	Act Stns	172.78	16.25	

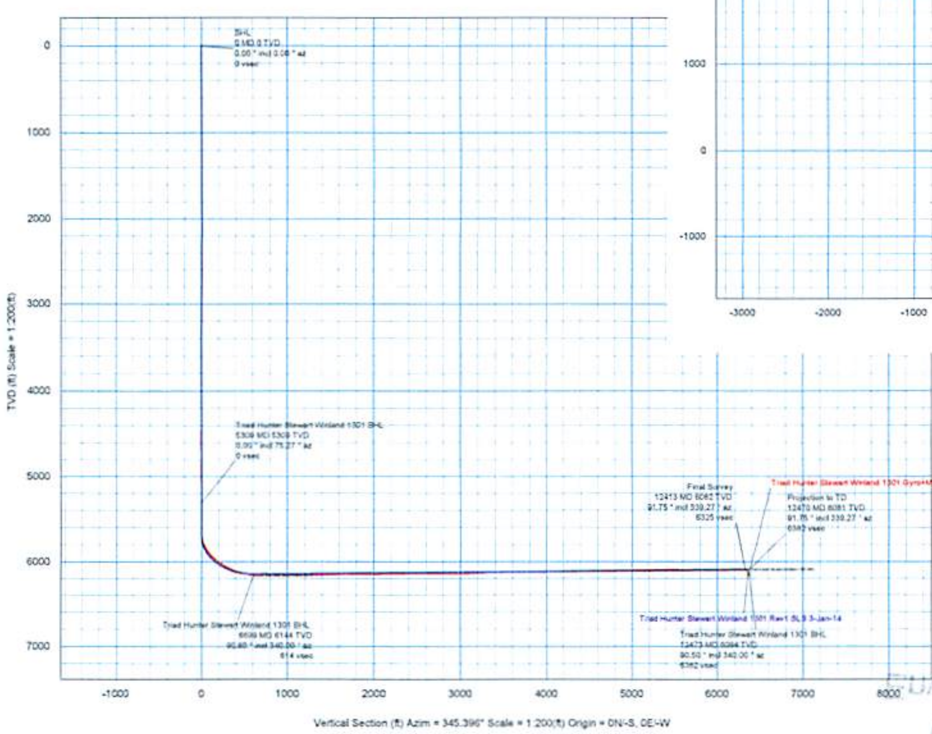
Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Final Survey	12413.00	91.75	339.27	6082.41	6325.06	6117.22	-1608.14	0.44
Projection to TD	12475.00	91.75	339.27	6080.67	6381.71	6175.31	-1628.31	0.00

Grid North
Tot Corr (M->G -6.676°)
Mag Dec (-7.595°)
Grid Conv (-0.919°)

Triad Hunter Stewart Winland 1301 Gyro+MWD 0ft to update
Triad Hunter Stewart Winland 1300 Rev0 SLB 3-Jan-14
Triad Hunter Stewart Winland 1303 Rev0 SLB 3-Jan-14
Triad Hunter Stewart Winland 1301 Rev1 SLB 3-Jan-14
Triad Hunter Stewart Winland 1302 Rev0 SLB 3-Jan-14
Triad Hunter Stewart Winland 1301 BHL
Triad Hunter Stewart Winland 1301 pinch point 50ft Diameter
Triad Hunter Stewart Winland 1301 LP
Triad Hunter Stewart Winland 1301 Pinch Point





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Triad Hunter Stewart Winland 1301 Surveys 0ft to 12470ft MD Survey
Geodetic Report
(Def Survey)

Report Date:	January 23, 2014 - 01:28 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Triad Hunter	**Vertical Section Azimuth:**	345.396 ° (Grid North)
Field:	WV Tyler County (NAD 27)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Triad Hunter Stewart Winland Pad / Triad Hunter Stewart Winland 1301	**TVD Reference Datum:**	KB
Well:	Triad Hunter Stewart Winland 1301	**TVD Reference Elevation:**	928.000 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	906.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	-7.595 °
Survey Name:	Triad Hunter Stewart Winland 1301 Surveys 0ft to 12470ft MD	**Total Gravity Field Strength:**	999.3381mgn (9.80665 Based)
Survey Date:	January 09, 2014	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	218.310 ° / 6773.604 ft / 6.476 / 1.100	**Total Magnetic Field Strength:**	52351.739 nT
Coordinate Reference System:	NAD27 West Virginia State Plane, Northern Zone, US Feet	**Magnetic Dip Angle:**	67.050 °
Location Lat / Long:	N 39° 30' 33.32036", W 80° 56' 25.54655"	**Declination Date:**	January 09, 2014
Location Grid N/E Y/X:	N 370850.000 ftUS, E 1593601.000 ftUS	**Magnetic Declination Model:**	HDGM 2013
CRS Grid Convergence Angle:	-0.9187 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99994281	**Grid Convergence Used:**	-0.9187 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->Grid North:**	-6.6762 °
		Local Coord Referenced To:	Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	0.00	0.00	-928.00	0.00	0.00	0.00	N/A	N/A	N/A	370850.00	1593601.00	N 39 30 33.32	W 80 56 25.55
	100.00	0.07	193.64	100.00	-828.00	-0.05	-0.06	-0.01	0.07	0.07	0.00	370849.94	1593600.99	N 39 30 33.32	W 80 56 25.55
	200.00	0.01	247.47	200.00	-728.00	-0.11	-0.12	-0.04	0.06	-0.06	53.83	370849.88	1593600.96	N 39 30 33.32	W 80 56 25.55
	300.00	0.08	229.85	300.00	-628.00	-0.14	-0.17	-0.10	0.07	0.07	-17.62	370849.83	1593600.90	N 39 30 33.32	W 80 56 25.55
	400.00	0.07	225.47	400.00	-528.00	-0.20	-0.26	-0.20	0.01	-0.01	-4.38	370849.74	1593600.80	N 39 30 33.32	W 80 56 25.55
	500.00	0.03	223.87	500.00	-428.00	-0.24	-0.32	-0.26	0.04	-0.04	-1.60	370849.68	1593600.74	N 39 30 33.32	W 80 56 25.55
	600.00	0.12	224.49	600.00	-328.00	-0.31	-0.41	-0.35	0.09	0.09	0.62	370849.59	1593600.65	N 39 30 33.32	W 80 56 25.55
	700.00	0.16	227.96	700.00	-228.00	-0.43	-0.58	-0.53	0.04	0.04	3.47	370849.42	1593600.47	N 39 30 33.31	W 80 56 25.55
	800.00	0.12	253.13	800.00	-128.00	-0.50	-0.71	-0.73	0.07	-0.04	25.17	370849.29	1593600.27	N 39 30 33.31	W 80 56 25.56
	900.00	0.23	299.79	900.00	-28.00	-0.36	-0.64	-1.00	0.17	0.11	46.66	370849.36	1593600.00	N 39 30 33.31	W 80 56 25.56
	1000.00	0.08	303.64	1000.00	72.00	-0.17	-0.50	-1.24	0.15	-0.15	3.85	370849.50	1593599.76	N 39 30 33.32	W 80 56 25.56
	1100.00	0.10	308.82	1100.00	172.00	-0.05	-0.40	-1.36	0.02	0.02	5.18	370849.60	1593599.64	N 39 30 33.32	W 80 56 25.56
	1200.00	0.07	283.33	1200.00	272.00	0.05	-0.34	-1.49	0.05	-0.03	-25.49	370849.66	1593599.51	N 39 30 33.32	W 80 56 25.57
	1300.00	0.05	246.09	1300.00	372.00	0.07	-0.34	-1.59	0.04	-0.02	-37.24	370849.66	1593599.41	N 39 30 33.32	W 80 56 25.57
	1400.00	0.08	195.30	1400.00	472.00	0.00	-0.42	-1.65	0.06	0.03	-50.79	370849.58	1593599.35	N 39 30 33.32	W 80 56 25.57
	1500.00	0.12	197.02	1500.00	572.00	-0.15	-0.59	-1.70	0.04	0.04	1.72	370849.41	1593599.30	N 39 30 33.31	W 80 56 25.57
	1600.00	0.10	194.27	1600.00	672.00	-0.31	-0.78	-1.75	0.02	-0.02	-2.75	370849.22	1593599.25	N 39 30 33.31	W 80 56 25.57
	1700.00	0.18	190.57	1700.00	772.00	-0.53	-1.02	-1.80	0.08	0.08	-3.70	370848.98	1593599.20	N 39 30 33.31	W 80 56 25.57
	1800.00	0.12	192.12	1800.00	872.00	-0.76	-1.27	-1.85	0.06	-0.06	1.55	370848.73	1593599.15	N 39 30 33.31	W 80 56 25.57
	1900.00	0.09	166.97	1900.00	972.00	-0.94	-1.45	-1.85	0.05	-0.03	-25.15	370848.55	1593599.15	N 39 30 33.31	W 80 56 25.57

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2000.00	0.07	158.67	2000.00	1072.00	-1.08	-1.58	-1.81	0.02	-0.02	-8.30	370848.42	1593599.19	N 39 30 33.30	W 80 56 25.57
	2100.00	0.20	143.12	2100.00	1172.00	-1.30	-1.78	-1.69	0.13	0.13	-15.55	370848.22	1593599.31	N 39 30 33.30	W 80 56 25.57
	2200.00	0.18	197.21	2200.00	1272.00	-1.59	-2.07	-1.63	0.17	-0.02	54.09	370847.93	1593599.37	N 39 30 33.30	W 80 56 25.57
	2300.00	0.15	200.88	2300.00	1372.00	-1.83	-2.34	-1.72	0.03	-0.03	3.67	370847.66	1593599.28	N 39 30 33.30	W 80 56 25.57
	2400.00	0.24	173.32	2399.99	1471.99	-2.15	-2.67	-1.74	0.13	0.09	-27.56	370847.33	1593599.26	N 39 30 33.29	W 80 56 25.57
	2500.00	0.11	176.00	2499.99	1571.99	-2.45	-2.98	-1.71	0.13	-0.13	2.68	370847.02	1593599.29	N 39 30 33.29	W 80 56 25.57
	2600.00	0.17	172.83	2599.99	1671.99	-2.69	-3.22	-1.69	0.06	0.06	-3.17	370846.78	1593599.31	N 39 30 33.29	W 80 56 25.57
	2700.00	0.04	235.69	2699.99	1771.99	-2.85	-3.39	-1.70	0.16	-0.13	62.86	370846.61	1593599.30	N 39 30 33.29	W 80 56 25.57
	2800.00	0.21	284.39	2799.99	1871.99	-2.77	-3.36	-1.90	0.19	0.17	48.70	370846.64	1593599.10	N 39 30 33.29	W 80 56 25.57
	2900.00	0.15	299.03	2899.99	1971.99	-2.59	-3.25	-2.20	0.08	-0.06	14.64	370846.75	1593598.80	N 39 30 33.29	W 80 56 25.57
	3000.00	0.09	341.64	2999.99	2071.99	-2.42	-3.11	-2.34	0.10	-0.06	42.61	370846.89	1593598.66	N 39 30 33.29	W 80 56 25.58
	3100.00	0.14	35.20	3099.99	2171.99	-2.27	-2.94	-2.29	0.11	0.05	53.56	370847.06	1593598.71	N 39 30 33.29	W 80 56 25.58
	3200.00	0.06	30.40	3199.99	2271.99	-2.15	-2.79	-2.19	0.08	-0.08	-4.80	370847.21	1593598.81	N 39 30 33.29	W 80 56 25.57
	3300.00	0.09	25.26	3299.99	2371.99	-2.05	-2.68	-2.13	0.03	0.03	-5.14	370847.32	1593598.87	N 39 30 33.29	W 80 56 25.57
	3400.00	0.11	15.33	3399.99	2471.99	-1.91	-2.51	-2.07	0.03	0.02	-9.93	370847.49	1593598.93	N 39 30 33.30	W 80 56 25.57
	3500.00	0.05	24.83	3499.99	2571.99	-1.79	-2.38	-2.03	0.06	-0.06	9.50	370847.62	1593598.97	N 39 30 33.30	W 80 56 25.57
	3600.00	0.07	28.66	3599.99	2671.99	-1.72	-2.29	-1.98	0.02	0.02	3.83	370847.71	1593599.02	N 39 30 33.30	W 80 56 25.57
	3700.00	0.02	56.67	3699.99	2771.99	-1.67	-2.23	-1.94	0.05	-0.05	28.01	370847.77	1593599.06	N 39 30 33.30	W 80 56 25.57
	3800.00	0.04	84.10	3799.99	2871.99	-1.67	-2.21	-1.89	0.02	0.02	27.43	370847.79	1593599.11	N 39 30 33.30	W 80 56 25.57
	3900.00	0.07	103.49	3899.99	2971.99	-1.70	-2.22	-1.80	0.03	0.03	19.39	370847.78	1593599.20	N 39 30 33.30	W 80 56 25.57
	4000.00	0.22	124.98	3999.99	3071.99	-1.87	-2.35	-1.58	0.16	0.15	21.49	370847.65	1593599.42	N 39 30 33.30	W 80 56 25.57
	4100.00	0.27	113.88	4099.99	3171.99	-2.17	-2.55	-1.21	0.07	0.05	-11.10	370847.45	1593599.79	N 39 30 33.29	W 80 56 25.56
	4200.00	0.38	95.51	4199.99	3271.99	-2.43	-2.68	-0.66	0.15	0.11	-18.37	370847.32	1593600.34	N 39 30 33.29	W 80 56 25.55
	4300.00	0.44	85.13	4299.99	3371.99	-2.61	-2.68	0.05	0.10	0.06	-10.38	370847.32	1593601.05	N 39 30 33.29	W 80 56 25.55
	4400.00	0.36	89.97	4399.98	3471.98	-2.75	-2.65	0.75	0.09	-0.08	4.84	370847.35	1593601.75	N 39 30 33.29	W 80 56 25.54
	4500.00	0.79	83.55	4499.98	3571.98	-2.93	-2.57	1.75	0.43	0.43	-6.42	370847.43	1593602.75	N 39 30 33.30	W 80 56 25.52
	4600.00	1.01	71.00	4599.97	3671.97	-2.96	-2.21	3.27	0.29	0.22	-12.55	370847.79	1593604.27	N 39 30 33.30	W 80 56 25.50
	4700.00	1.05	71.24	4699.95	3771.95	-2.82	-1.62	4.97	0.04	0.04	0.24	370848.38	1593605.97	N 39 30 33.31	W 80 56 25.48
	4800.00	1.14	79.15	4799.93	3871.93	-2.82	-1.14	6.81	0.18	0.09	7.91	370848.86	1593607.81	N 39 30 33.31	W 80 56 25.46
	4900.00	0.74	83.84	4899.92	3971.92	-2.98	-0.89	8.43	0.41	-0.40	4.69	370849.11	1593609.43	N 39 30 33.31	W 80 56 25.44
	5000.00	0.35	58.08	4999.91	4071.91	-2.99	-0.65	9.33	0.45	-0.39	-25.76	370849.35	1593610.33	N 39 30 33.32	W 80 56 25.43
	5100.00	0.50	20.82	5099.91	4171.91	-2.54	-0.09	9.75	0.31	0.15	-37.26	370849.91	1593610.75	N 39 30 33.32	W 80 56 25.42
	5180.00	0.77	309.98	5179.91	4251.91	-1.82	0.59	9.46	0.96	0.34	-88.55	370850.59	1593610.46	N 39 30 33.33	W 80 56 25.43
	5237.00	1.00	288.31	5236.90	4308.90	-1.23	0.99	8.69	0.71	0.40	-38.02	370850.99	1593609.69	N 39 30 33.33	W 80 56 25.44
	5281.00	0.50	346.26	5280.90	4352.90	-0.83	1.30	8.28	1.93	-1.14	131.70	370851.30	1593609.28	N 39 30 33.33	W 80 56 25.44
	5325.00	4.24	70.81	5324.86	4396.86	-0.51	2.02	[illegible]	9.60	8.50	192.16	370852.02	1593610.77	N 39 30 33.34	W 80 56 25.42
	5368.00	9.32	74.84	5367.54	4439.54	-0.35	3.45	[illegible]	11.86	11.81	9.37	370853.45	1593615.64	N 39 30 33.36	W 80 56 25.36
	5412.00	12.63	73.11	5410.73	4482.73	-0.12	5.78	[illegible]	7.56	7.52	-3.93	370855.78	1593623.68	N 39 30 33.38	W 80 56 25.26
	5456.00	15.56	75.41	5453.40	4525.40	0.07	8.67	33.00	6.78	6.66	5.23	370858.67	1593634.00	N 39 30 33.41	W 80 56 25.13
	5499.00	19.78	76.67	5494.36	4566.36	0.10	11.80	45.67	9.85	9.81	2.93	370861.80	1593646.66	N 39 30 33.44	W 80 56 24.97
	5543.00	24.38	77.28	5535.13	4607.13	-0.56	15.52	61.78	10.47	10.45	1.39	370865.52	1593662.77	N 39 30 33.48	W 80 56 24.76
	5586.00	28.83	77.98	5573.56	4645.56	-1.32	19.63	80.58	10.47	10.35	1.63	370869.63	1593681.58	N 39 30 33.53	W 80 56 24.52
	5630.00	33.14	76.70	5611.28	4683.28	-2.07	24.61	[illegible]	9.91	9.80	-2.91	370874.61	1593703.67	N 39 30 33.58	W 80 56 24.24
	5674.00	37.58	75.76	5647.15	4719.15	-2.43	30.68	127.40	10.09	10.09	-2.14	370880.68	1593728.39	N 39 30 33.64	W 80 56 23.93
	5717.00	42.42	73.14	5680.08	4752.08	-1.94	38.12	[illegible]	11.92	11.26	-6.09	370888.11	1593755.00	N 39 30 33.72	W 80 56 23.59

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	5761.00	45.15	67.72	5711.86	4783.86	0.72	48.34	182.66	10.54	6.20	-12.32	370898.34	1593783.64	N 39 30 33.83	W 80 56 23.23
	5805.00	45.63	61.99	5742.77	4814.77	6.46	61.64	210.98	9.33	1.09	-13.02	370911.64	1593811.97	N 39 30 33.96	W 80 56 22.87
	5848.00	46.28	54.69	5772.69	4844.69	15.52	77.86	237.25	12.29	1.51	-16.98	370927.85	1593838.24	N 39 30 34.13	W 80 56 22.54
	5892.00	47.07	47.55	5802.90	4874.90	28.67	97.93	262.13	11.94	1.80	-16.23	370947.93	1593863.11	N 39 30 34.33	W 80 56 22.22
	5936.00	47.68	42.91	5832.70	4904.70	44.94	120.72	285.10	7.88	1.39	-10.55	370970.72	1593886.08	N 39 30 34.56	W 80 56 21.93
	5979.00	48.41	37.82	5861.46	4933.46	63.29	145.08	305.79	8.96	1.70	-11.84	370995.07	1593906.77	N 39 30 34.80	W 80 56 21.68
	6023.00	50.06	35.37	5890.19	4962.19	84.18	171.84	325.65	5.64	3.75	-5.57	371021.83	1593926.63	N 39 30 35.07	W 80 56 21.43
	6066.00	51.87	31.19	5917.28	4989.28	106.58	199.76	343.95	8.64	4.21	-9.72	371049.74	1593944.93	N 39 30 35.35	W 80 56 21.20
	6110.00	54.15	25.87	5943.76	5015.76	132.22	230.62	360.71	10.96	5.18	-12.09	371080.61	1593961.68	N 39 30 35.66	W 80 56 20.99
	6153.00	56.24	21.03	5968.32	5040.32	160.02	263.00	374.73	10.44	4.86	-11.26	371112.99	1593975.71	N 39 30 35.98	W 80 56 20.82
	6197.00	57.93	16.75	5992.23	5064.23	190.82	297.94	386.67	9.02	3.84	-9.73	371147.92	1593987.65	N 39 30 36.33	W 80 56 20.67
	6241.00	59.38	12.86	6015.13	5087.13	223.55	334.26	396.26	8.24	3.30	-8.84	371184.24	1593997.24	N 39 30 36.69	W 80 56 20.56
	6284.00	60.92	8.59	6036.53	5108.53	257.25	370.89	403.19	9.33	3.58	-9.93	371220.87	1594004.16	N 39 30 37.05	W 80 56 20.48
	6328.00	63.36	4.94	6057.10	5129.10	293.47	409.51	407.76	9.19	5.55	-8.30	371259.49	1594008.73	N 39 30 37.43	W 80 56 20.43
	6372.00	65.62	1.63	6076.05	5148.05	331.26	449.15	410.02	8.51	5.14	-7.52	371299.12	1594011.00	N 39 30 37.82	W 80 56 20.41
	6413.00	67.93	359.48	6092.22	5164.22	367.62	486.82	410.38	7.41	5.63	-5.24	371336.79	1594011.35	N 39 30 38.20	W 80 56 20.41
	6459.00	70.77	357.09	6108.44	5180.44	409.57	529.84	409.08	7.86	6.17	-5.20	371379.80	1594010.06	N 39 30 38.62	W 80 56 20.44
	6503.00	74.04	354.34	6121.75	5193.75	450.83	571.65	405.94	9.52	7.43	-6.25	371421.62	1594006.92	N 39 30 39.03	W 80 56 20.48
	6546.00	76.44	351.95	6132.70	5204.70	492.02	612.93	400.97	7.75	5.58	-5.56	371462.89	1594001.95	N 39 30 39.44	W 80 56 20.56
	6590.00	78.41	349.19	6142.28	5214.28	534.79	655.28	393.93	7.58	4.48	-6.27	371505.24	1593994.91	N 39 30 39.86	W 80 56 20.66
	6634.00	81.02	348.45	6150.14	5222.14	578.00	697.75	385.54	6.16	5.93	-1.68	371547.71	1593986.52	N 39 30 40.28	W 80 56 20.77
	6677.00	86.11	347.43	6154.96	5226.96	620.67	739.52	376.61	12.07	11.84	-2.37	371589.48	1593977.59	N 39 30 40.69	W 80 56 20.89
	6721.00	91.20	346.56	6155.99	5227.99	664.63	782.37	366.72	11.74	11.57	-1.98	371632.32	1593967.70	N 39 30 41.11	W 80 56 21.03
	6764.00	92.65	345.78	6154.54	5226.54	707.60	824.10	356.45	3.83	3.37	-1.81	371674.05	1593957.42	N 39 30 41.52	W 80 56 21.17
	6808.00	92.03	343.77	6152.75	5224.75	751.56	866.51	344.90	4.78	-1.41	-4.57	371716.46	1593945.88	N 39 30 41.94	W 80 56 21.32
	6852.00	91.41	341.59	6151.43	5223.43	795.48	908.50	331.81	5.15	-1.41	-4.95	371758.44	1593932.79	N 39 30 42.35	W 80 56 21.50
	6895.00	91.72	339.85	6150.25	5222.25	838.32	949.07	317.62	4.11	0.72	-4.05	371799.01	1593918.60	N 39 30 42.75	W 80 56 21.69
	6939.00	91.68	338.75	6148.95	5220.95	882.05	990.21	302.07	2.50	-0.09	-2.50	371840.15	1593903.05	N 39 30 43.15	W 80 56 21.90
	6983.00	89.59	337.90	6148.46	5220.46	925.71	1031.09	285.82	5.13	-4.75	-1.93	371881.03	1593886.80	N 39 30 43.55	W 80 56 22.11
	7026.00	89.35	337.16	6148.86	5220.86	968.31	1070.83	269.39	1.81	-0.56	-1.72	371920.76	1593870.37	N 39 30 43.95	W 80 56 22.33
	7070.00	89.21	337.31	6149.41	5221.41	1011.86	1111.40	252.36	0.47	-0.32	0.34	371961.33	1593853.35	N 39 30 44.34	W 80 56 22.55
	7114.00	89.31	337.18	6149.98	5221.98	1055.41	1151.97	235.35	0.37	0.23	-0.30	372001.90	1593836.33	N 39 30 44.74	W 80 56 22.78
	7157.00	91.07	338.18	6149.83	5221.83	1098.02	1191.74	219.02	4.71	4.09	2.33	372041.67	1593820.00	N 39 30 45.13	W 80 56 23.00
	7201.00	91.41	338.01	6148.88	5220.88	1141.65	1232.56	202.60	0.86	0.77	-0.39	372082.48	1593803.59	N 39 30 45.53	W 80 56 23.21
	7244.00	90.93	337.77	6148.00	5220.00	1184.27	1272.39	186.42	1.25	-1.12	-0.56	372122.31	1593787.41	N 39 30 45.92	W 80 56 23.43
	7288.00	90.41	337.65	6147.49	5219.49	1227.87	1313.10	169.74	1.21	-1.18	-0.27	372163.02	1593770.73	N 39 30 46.32	W 80 56 23.65
	7332.00	90.03	337.59	6147.32	5219.32	1271.47	1353.78	152.98	0.87	-0.86	-0.14	372203.70	1593753.97	N 39 30 46.72	W 80 56 23.87
	7393.00	90.07	337.66	6147.27	5219.27	1331.91	1410.19	129.76	0.13	0.07	0.11	372260.10	1593730.75	N 39 30 47.28	W 80 56 24.18
	7486.00	91.44	338.34	6146.04	5218.04	1424.13	1496.41	94.93	1.64	1.47	0.73	372346.32	1593695.92	N 39 30 48.12	W 80 56 24.64
	7578.00	91.37	339.85	6143.79	5215.79	1515.54	1582.32	62.11	1.64	-0.08	1.64	372432.23	1593663.11	N 39 30 48.97	W 80 56 25.08
	7640.00	90.79	340.09	6142.62	5214.62	1577.25	1640.56	40.88	1.01	-0.94	0.39	372490.46	1593641.88	N 39 30 49.54	W 80 56 25.36
	7702.00	90.48	339.12	6141.93	5213.93	1638.93	1698.67	19.27	1.64	-0.50	-1.56	372548.57	1593620.27	N 39 30 50.11	W 80 56 25.65
	7792.00	90.79	339.25	6140.93	5212.93	1728.40	1782.79	-12.71	0.37	0.34	0.14	372632.69	1593588.30	N 39 30 50.94	W 80 56 26.07
	7884.00	90.17	339.49	6140.16	5212.16	1819.88	1868.89	-45.12	0.72	-0.67	0.26	372718.78	1593555.88	N 39 30 51.78	W 80 56 26.50
	7976.00	90.34	339.64	6139.75	5211.75	1911.41	1955.10	-77.24	0.25	0.18	0.16	372804.98	1593523.77	N 39 30 52.63	W 80 56 26.93

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	8067.00	90.65	339.51	6138.97	5210.97	2001.93	2040.37	-109.00	0.37	0.34	-0.14	372890.25	1593492.01	N 39 30 53.47	W 80 56 27.35
	8159.00	90.62	337.88	6137.95	5209.95	2093.30	2126.08	-142.42	1.77	-0.03	-1.77	372975.95	1593458.59	N 39 30 54.31	W 80 56 27.80
	8252.00	90.31	338.15	6137.19	5209.19	2185.52	2212.31	-177.23	0.44	-0.33	0.29	373062.18	1593423.78	N 39 30 55.15	W 80 56 28.26
	8339.00	90.52	338.63	6136.56	5208.56	2271.87	2293.19	-209.27	0.60	0.24	0.55	373143.06	1593391.74	N 39 30 55.95	W 80 56 28.69
	8426.00	91.10	339.77	6135.33	5207.33	2358.35	2374.51	-240.16	1.47	0.67	1.31	373224.37	1593360.85	N 39 30 56.75	W 80 56 29.10
	8514.00	90.83	339.74	6133.85	5205.85	2445.91	2457.07	-270.61	0.31	-0.31	-0.03	373306.92	1593330.41	N 39 30 57.56	W 80 56 29.50
	8601.00	91.03	339.15	6132.44	5204.44	2532.43	2538.52	-301.15	0.72	0.23	-0.68	373388.37	1593299.87	N 39 30 58.36	W 80 56 29.91
	8688.00	90.00	337.72	6131.66	5203.66	2618.78	2619.42	-333.13	2.03	-1.18	-1.64	373469.26	1593267.89	N 39 30 59.15	W 80 56 30.33
	8775.00	90.07	339.45	6131.60	5203.60	2705.17	2700.41	-364.89	1.99	0.08	1.99	373550.25	1593236.13	N 39 30 59.95	W 80 56 30.75
	8862.00	89.28	340.24	6132.10	5204.10	2791.76	2782.08	-394.87	1.28	-0.91	0.91	373631.92	1593206.16	N 39 31 0.75	W 80 56 31.15
	8950.00	89.38	340.96	6133.13	5205.13	2879.44	2865.08	-424.10	0.83	0.11	0.82	373714.91	1593176.93	N 39 31 1.57	W 80 56 31.54
	9037.00	91.10	342.06	6132.76	5204.76	2966.24	2947.58	-451.69	2.35	1.98	1.26	373797.41	1593149.34	N 39 31 2.38	W 80 56 31.91
	9124.00	90.79	341.81	6131.33	5203.33	3053.07	3030.28	-478.66	0.46	-0.36	-0.29	373880.10	1593122.37	N 39 31 3.19	W 80 56 32.27
	9211.00	92.37	342.54	6128.93	5200.93	3139.89	3113.07	-505.28	2.00	1.82	0.84	373962.89	1593095.75	N 39 31 4.00	W 80 56 32.63
	9298.00	92.27	341.90	6125.41	5197.41	3226.69	3195.85	-531.83	0.74	-0.11	-0.74	374045.66	1593069.21	N 39 31 4.82	W 80 56 32.99
	9386.00	91.20	341.02	6122.74	5194.74	3314.44	3279.24	-559.79	1.57	-1.22	-1.00	374129.04	1593041.24	N 39 31 5.64	W 80 56 33.36
	9473.00	91.27	341.35	6120.87	5192.87	3401.18	3361.57	-587.85	0.39	0.08	0.38	374211.37	1593013.19	N 39 31 6.45	W 80 56 33.73
	9560.00	90.79	340.82	6119.30	5191.30	3487.92	3443.86	-616.04	0.82	-0.55	-0.61	374293.65	1592984.99	N 39 31 7.26	W 80 56 34.11
	9648.00	90.28	341.01	6118.48	5190.48	3575.65	3527.02	-644.81	0.62	-0.58	0.22	374376.81	1592956.22	N 39 31 8.07	W 80 56 34.50
	9735.00	90.31	341.69	6118.03	5190.03	3662.43	3609.45	-672.64	0.78	0.03	0.78	374459.23	1592928.40	N 39 31 8.88	W 80 56 34.87
	9822.00	89.93	339.19	6117.85	5189.85	3749.10	3691.42	-701.76	2.91	-0.44	-2.87	374541.20	1592899.28	N 39 31 9.69	W 80 56 35.26
	9910.00	90.52	339.15	6117.50	5189.50	3836.58	3773.67	-733.05	0.67	0.67	-0.05	374623.44	1592867.99	N 39 31 10.50	W 80 56 35.67
	9997.00	90.48	338.61	6116.75	5188.75	3923.01	3854.82	-764.40	0.62	-0.05	-0.62	374704.59	1592836.65	N 39 31 11.29	W 80 56 36.09
	10084.00	90.72	338.79	6115.83	5187.83	4009.41	3935.87	-796.00	0.34	0.28	0.21	374785.64	1592805.05	N 39 31 12.09	W 80 56 36.51
	10172.00	91.89	338.56	6113.83	5185.83	4096.78	4017.83	-827.99	1.35	1.33	-0.26	374867.59	1592773.06	N 39 31 12.89	W 80 56 36.93
	10259.00	91.61	338.28	6111.17	5183.17	4183.10	4098.69	-859.98	0.46	-0.32	-0.32	374948.45	1592741.07	N 39 31 13.69	W 80 56 37.36
	10346.00	91.41	337.57	6108.88	5180.88	4269.33	4179.28	-892.66	0.85	-0.23	-0.82	375029.04	1592708.39	N 39 31 14.48	W 80 56 37.79
	10434.00	90.58	337.22	6107.35	5179.35	4356.46	4260.51	-926.48	1.02	-0.94	-0.40	375110.26	1592674.57	N 39 31 15.28	W 80 56 38.24
	10521.00	90.62	338.53	6106.44	5178.44	4442.70	4341.10	-959.25	1.51	0.05	1.51	375190.84	1592641.81	N 39 31 16.07	W 80 56 38.67
	10592.00	91.48	340.45	6105.14	5177.14	4513.31	4407.58	-984.12	2.96	1.21	2.70	375257.32	1592616.94	N 39 31 16.72	W 80 56 39.00
	10680.00	91.48	341.07	6102.87	5174.87	4600.99	4490.64	-1013.10	0.70	0.00	0.70	375340.37	1592587.86	N 39 31 17.54	W 80 56 39.39
	10767.00	91.58	339.73	6100.54	5172.54	4687.63	4572.57	-1042.28	1.54	0.11	-1.54	375422.30	1592558.78	N 39 31 18.34	W 80 56 39.78
	10854.00	90.82	339.17	6098.72	5170.72	4774.14	4654.01	-1072.81	1.09	-0.87	-0.64	375503.74	1592528.25	N 39 31 19.14	W 80 56 40.19
	10941.00	90.31	337.88	6097.86	5169.86	4860.51	4734.97	-1104.66	1.59	-0.59	-1.48	375584.68	1592496.41	N 39 31 19.94	W 80 56 40.61
	11029.00	90.82	338.29	6097.00	5169.00	4947.79	4816.60	-1137.50	0.74	0.58	0.47	375666.32	1592463.57	N 39 31 20.74	W 80 56 41.05
	11116.00	91.68	341.46	6095.10	5167.10	5034.35	4898.26	-1167.42	3.77	0.99	3.64	375747.97	1592433.65	N 39 31 21.54	W 80 56 41.44
	11203.00	90.93	342.55	6093.12	5165.12	5121.18	4980.98	-1194.29	1.52	-0.86	1.25	375830.69	1592406.78	N 39 31 22.35	W 80 56 41.80
	11290.00	90.55	342.01	6091.99	5163.99	5208.04	5063.84	-1220.77	0.76	-0.44	-0.62	375913.55	1592380.30	N 39 31 23.17	W 80 56 42.16
	11378.00	90.72	343.29	6091.02	5163.02	5295.93	5147.83	-1247.01	1.47	0.19	1.45	375997.53	1592354.08	N 39 31 23.99	W 80 56 42.51
	11465.00	90.96	342.11	6089.74	5161.74	5382.83	5230.89	-1272.88	1.38	0.28	-1.36	376080.58	1592328.20	N 39 31 24.81	W 80 56 42.86
	11552.00	89.62	340.80	6089.30	5161.30	5469.62	5313.37	-1300.55	2.15	-1.54	-1.51	376163.05	1592300.53	N 39 31 25.62	W 80 56 43.23
	11639.00	89.62	340.38	6089.88	5161.88	5556.31	5395.42	-1329.46	0.48	0.00	-0.48	376245.10	1592271.62	N 39 31 26.43	W 80 56 43.61
	11726.00	89.97	340.86	6090.19	5162.19	5643.00	5477.49	-1358.33	0.68	0.40	0.55	376327.16	1592242.75	N 39 31 27.23	W 80 56 44.00
	11814.00	89.83	340.36	6090.34	5162.34	5730.70	5560.50	-1387.54	0.60	-0.16	-0.57	376410.17	1592213.54	N 39 31 28.05	W 80 56 44.39
	11857.00	89.66	339.77	6090.54	5162.54	5773.51	5600.92	-1402.21	1.43	-1.40	-1.37	376450.59	1592198.88	N 39 31 28.45	W 80 56 44.58

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	11945.00	90.10	338.94	6090.72	5162.72	5861.02	5683.27	-1433.23	1.07	0.50	-0.94	376532.93	1592167.85	N 39 31 29.26	W 80 56 45.00
	12032.00	90.28	337.94	6090.43	5162.43	5947.38	5764.18	-1465.20	1.17	0.21	-1.15	376613.84	1592135.89	N 39 31 30.05	W 80 56 45.42
	12119.00	91.48	338.48	6089.10	5161.10	6033.68	5844.95	-1497.49	1.51	1.38	0.62	376694.61	1592103.60	N 39 31 30.84	W 80 56 45.85
	12206.00	90.79	337.20	6087.37	5159.37	6119.91	5925.51	-1530.30	1.67	-0.79	-1.47	376775.16	1592070.79	N 39 31 31.63	W 80 56 46.29
	12294.00	91.34	337.17	6085.74	5157.74	6206.99	6006.61	-1564.42	0.63	0.63	-0.03	376856.25	1592036.68	N 39 31 32.43	W 80 56 46.74
	12381.00	91.75	339.13	6083.39	5155.39	6293.26	6087.32	-1596.78	2.30	0.47	2.25	376936.96	1592004.31	N 39 31 33.22	W 80 56 47.17
Final Survey	12413.00	91.75	339.27	6082.41	5154.41	6325.06	6117.22	-1608.14	0.44	0.00	0.44	376966.86	1591992.95	N 39 31 33.52	W 80 56 47.32
Projection to TD	12470.00	91.75	339.27	6080.67	5152.67	6381.71	6170.51	-1628.31	0.00	0.00	0.00	377020.14	1591972.79	N 39 31 34.04	W 80 56 47.59

Survey Type: Def Survey

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

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	22.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Triad Hunter Stewart Winland 1301 Surveys 0ft to 12470ft MD
	1	22.000	5180.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Triad Hunter Stewart Winland 1301 Surveys 0ft
	1	5180.000	12413.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Triad Hunter Stewart Winland 1301 Surveys 0ft
	1	12413.000	12470.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Triad Hunter Stewart Winland 1301 Surveys 0ft