

Chevron Appalachia Berger 5H Survey 0ft to 12755ft MD Survey Geodetic Report

(Def Survey)



Report Date: March 13, 2015 - 08:51 AM
Client: Chevron
Field: WV Marshall County (NAD 83)
Structure / Slot: Chevron Berger Pad / Berger 5H
Well: Berger 5H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Chevron Appalachia Berger 5H Survey 0ft to 12755ft MD
Survey Date: March 03, 2015
Tort / AHD / DDI / ERD Ratio: 201.358 ° / 6786.574 ft / 6.429 / 1.045
Coordinate Reference System: NAD83 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 39° 52' 28.40304", W 80° 45' 16.36290"
Location Grid N/E Y/X: N 503116.880 ftUS, E 1616409.510 ftUS
CRS Grid Convergence Angle: -0.8001 °
Grid Scale Factor: 0.99995013
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 157.194 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB
TVD Reference Elevation: 1319.560 ft above MSL
Seabed / Ground Elevation: 1287.560 ft above MSL
Magnetic Declination: -8.607 °
Total Gravity Field Strength: 999.3389mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 52452.583 nT
Magnetic Dip Angle: 67.253 °
Declination Date: March 03, 2015
Magnetic Declination Model: BGGM 2014
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North->True North: -8.6073 °
Local Coord Referenced To: Well Head

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Environmental Protection

Comments	MD (ft)	Incl (°)	Azim True (°)	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	93.00	0.00	-1319.56	0.00	0.00	0.00	N/A	N/A	N/A	503116.88	1616409.51	N 39 52 28.40 W	80 45 16.36
Marker MudLine	32.00	0.14	273.60	32.00	-1287.56	-0.02	0.00	-0.04	0.43	0.43	0.00	503116.88	1616409.47	N 39 52 28.40 W	80 45 16.36
	100.00	0.43	273.60	100.00	-1219.56	-0.17	0.02	-0.37	0.43	0.43	0.00	503116.91	1616409.14	N 39 52 28.40 W	80 45 16.37
	200.00	0.50	275.88	200.00	-1119.56	-0.54	0.09	-1.18	0.07	0.07	2.28	503116.99	1616408.33	N 39 52 28.40 W	80 45 16.38
	300.00	0.54	268.36	299.99	-1019.57	-0.92	0.12	-2.09	0.08	0.04	-7.52	503117.03	1616407.42	N 39 52 28.40 W	80 45 16.39
	400.00	0.60	265.74	399.99	-919.57	-1.26	0.07	-3.08	0.07	0.06	-2.62	503116.99	1616406.43	N 39 52 28.40 W	80 45 16.40
	500.00	0.56	263.22	499.98	-819.58	-1.56	-0.03	-4.09	0.05	-0.04	-2.52	503116.91	1616405.42	N 39 52 28.40 W	80 45 16.42
	600.00	0.21	115.06	599.98	-719.58	-1.56	-0.16	-4.41	0.75	-0.35	-148.16	503116.78	1616405.10	N 39 52 28.40 W	80 45 16.42
Gyro	697.00	0.79	121.38	696.98	-622.58	-0.89	-0.58	-3.68	0.60	0.60	6.52	503116.35	1616405.83	N 39 52 28.40 W	80 45 16.41
	752.00	0.91	94.88	751.97	-567.59	-0.38	-0.82	-2.92	0.74	0.22	-48.18	503116.10	1616406.58	N 39 52 28.39 W	80 45 16.40
	806.00	0.92	93.65	805.96	-513.60	0.02	-0.88	-2.06	0.04	0.02	-2.28	503116.03	1616407.44	N 39 52 28.39 W	80 45 16.39
	900.00	1.01	104.67	899.95	-419.61	0.86	-1.14	-0.50	0.22	0.10	11.72	503115.75	1616408.99	N 39 52 28.39 W	80 45 16.37
	995.00	1.08	100.56	994.93	-324.63	1.86	-1.52	1.19	0.11	0.07	-4.33	503115.35	1616410.68	N 39 52 28.39 W	80 45 16.35
	1090.00	3.01	108.35	1089.87	-229.69	3.99	-2.47	4.44	2.05	2.03	8.20	503114.35	1616413.91	N 39 52 28.38 W	80 45 16.31
	1185.00	5.16	90.21	1184.63	-134.93	7.31	-3.27	11.08	2.61	2.26	-19.09	503113.46	1616420.54	N 39 52 28.37 W	80 45 16.22
	1280.00	5.31	90.07	1279.23	-40.33	10.68	-3.29	19.74	0.16	0.16	-0.15	503113.32	1616429.20	N 39 52 28.37 W	80 45 16.11
	1375.00	5.60	75.60	1373.80	54.24	13.07	-2.14	28.63	1.48	0.31	-15.23	503114.34	1616438.11	N 39 52 28.38 W	80 45 16.00
	1470.00	6.07	70.50	1468.31	148.75	14.04	0.69	37.85	0.74	0.49	-5.37	503117.04	1616447.37	N 39 52 28.41 W	80 45 15.88
	1564.00	6.08	69.41	1561.78	242.22	14.52	4.10	47.20	0.12	0.01	-1.16	503120.32	1616456.76	N 39 52 28.44 W	80 45 15.76
	1659.00	5.94	68.27	1656.26	336.70	14.80	7.69	56.47	0.19	-0.15	-1.20	503123.78	1616466.08	N 39 52 28.48 W	80 45 15.64
	1754.00	5.90	66.29	1750.76	431.20	14.82	11.47	65.51	0.22	-0.04	-2.08	503127.43	1616475.17	N 39 52 28.52 W	80 45 15.52
	1849.00	5.59	63.84	1845.28	525.72	14.47	15.47	74.14	0.42	-0.33	-2.58	503131.32	1616483.85	N 39 52 28.56 W	80 45 15.41
	1944.00	5.57	60.74	1939.83	620.27	13.68	19.77	82.31	0.32	-0.02	-3.26	503135.49	1616492.08	N 39 52 28.60 W	80 45 15.31
Drilling Office 2.7.1043.0	2039.00	4.78	61.18	2034.44	714.88	12.56	25.83	89.18	0.21	0.12	0.46	503139.55	1616499.63	N 39 52 28.64 W	80 45 15.21

Comments	MD (ft)	Incl (°)	Azim True (°)	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 ° ' ")
	2134.00	3.78	69.28	2129.18	809.62	12.45	26.94	96.20	1.23	-1.05	8.53	503142.48	1616506.07	N 39 52 28.67	W 80 45 15.13
	2229.00	1.90	77.57	2224.05	904.49	12.85	28.39	100.66	2.02	-1.98	8.73	503143.86	1616510.56	N 39 52 28.68	W 80 45 15.07
	2324.00	0.98	82.16	2319.02	999.46	13.34	28.84	103.01	0.98	-0.97	4.83	503144.28	1616512.91	N 39 52 28.69	W 80 45 15.04
	2419.00	0.88	70.32	2414.01	1094.45	13.59	29.20	104.50	0.23	-0.11	-12.46	503144.61	1616514.40	N 39 52 28.69	W 80 45 15.02
	2514.00	0.71	63.30	2509.00	1189.44	13.59	29.71	105.71	0.21	-0.18	-7.39	503145.11	1616515.62	N 39 52 28.70	W 80 45 15.01
	2609.00	0.53	65.85	2604.00	1284.44	13.54	30.15	106.64	0.19	-0.19	2.68	503145.54	1616517.05	N 39 52 28.70	W 80 45 15.00
	2658.00	0.39	64.91	2653.00	1333.44	13.53	30.32	107.00	0.29	-0.29	-1.92	503145.70	1616518.90	N 39 52 28.71	W 80 45 14.99
	2796.00	0.34	8.60	2790.99	1471.43	13.16	30.92	107.48	0.25	-0.04	-40.80	503146.29	1616521.44	N 39 52 28.71	W 80 45 14.98
	2986.00	0.52	325.48	2980.99	1661.43	11.83	32.19	107.08	0.19	0.09	-22.69	503147.57	1616524.22	N 39 52 28.72	W 80 45 14.99
	3081.00	0.44	312.19	3075.98	1756.42	11.08	32.79	106.56	0.14	-0.08	-13.99	503148.17	1616527.52	N 39 52 28.72	W 80 45 15.00
	3175.00	0.54	312.46	3169.98	1850.42	10.35	33.33	105.97	0.11	0.11	0.29	503148.72	1616529.93	N 39 52 28.73	W 80 45 15.00
	3270.00	0.70	301.35	3264.98	1945.42	9.47	33.93	105.14	0.21	0.17	-11.69	503149.34	1616531.11	N 39 52 28.73	W 80 45 15.01
	3365.00	0.64	294.64	3359.97	2040.41	8.61	34.46	104.17	0.10	-0.06	-7.06	503149.88	1616534.14	N 39 52 28.74	W 80 45 15.03
	3459.00	0.45	306.86	3453.96	2134.40	7.91	34.90	103.39	0.24	-0.20	13.00	503150.33	1616538.38	N 39 52 28.75	W 80 45 15.04
	3554.00	0.53	305.29	3548.96	2229.40	7.21	35.37	102.74	0.09	0.08	-1.65	503150.81	1616542.73	N 39 52 28.75	W 80 45 15.05
	3744.00	0.84	300.60	3738.95	2419.39	5.35	36.59	100.82	0.17	0.16	-2.47	503152.06	1616550.83	N 39 52 28.76	W 80 45 15.07
	3838.00	0.88	300.97	3832.94	2513.38	4.21	37.31	99.61	0.04	0.04	0.39	503152.80	1616559.63	N 39 52 28.77	W 80 45 15.09
	3933.00	0.90	310.91	3927.93	2608.37	2.96	38.18	98.42	0.16	0.02	10.46	503153.68	1616568.45	N 39 52 28.78	W 80 45 15.10
	4028.00	0.97	311.01	4022.91	2703.35	1.57	39.19	97.25	0.07	0.07	0.11	503154.71	1616577.29	N 39 52 28.79	W 80 45 15.12
	4123.00	0.97	314.66	4117.90	2798.34	0.10	40.29	96.07	0.07	0.00	3.84	503155.82	1616586.13	N 39 52 28.80	W 80 45 15.13
	4218.00	0.76	329.87	4212.89	2893.33	-1.27	41.40	95.18	0.33	-0.22	16.01	503156.94	1616595.26	N 39 52 28.81	W 80 45 15.14
	4313.00	0.53	338.29	4307.88	2988.32	-2.33	42.35	94.70	0.26	-0.24	8.86	503157.90	1616604.79	N 39 52 28.82	W 80 45 15.15
	4408.00	0.48	327.49	4402.88	3083.32	-3.16	43.09	94.33	0.11	-0.05	-11.37	503158.65	1616614.42	N 39 52 28.83	W 80 45 15.15
	4503.00	0.50	316.95	4497.88	3178.32	-3.94	43.73	93.83	0.10	0.02	-11.09	503159.30	1616624.19	N 39 52 28.84	W 80 45 15.16
	4598.00	0.71	308.42	4592.87	3273.31	-4.85	44.40	93.09	0.24	0.22	-8.98	503159.97	1616634.00	N 39 52 28.84	W 80 45 15.17
	4786.00	0.43	336.49	4780.86	3461.30	-6.57	45.77	91.89	0.21	-0.15	14.93	503161.36	1616644.03	N 39 52 28.86	W 80 45 15.18
	4881.00	0.68	332.19	4875.86	3556.30	-7.49	46.60	91.49	0.27	0.26	-4.53	503162.19	1616654.63	N 39 52 28.86	W 80 45 15.19
	4976.00	0.78	316.63	4970.85	3651.29	-8.66	47.57	90.78	0.23	0.11	-16.38	503163.17	1616665.44	N 39 52 28.87	W 80 45 15.20
	5071.00	0.88	313.05	5065.84	3746.28	-9.93	48.53	89.80	0.12	0.11	-3.77	503164.15	1616676.47	N 39 52 28.88	W 80 45 15.21
	5166.00	0.05	0.44	5160.83	3841.27	-10.63	49.07	89.27	0.89	-0.87	49.88	503164.70	1616687.45	N 39 52 28.89	W 80 45 15.22
	5260.00	0.11	289.23	5254.83	3935.27	-10.73	49.14	89.18	0.11	0.06	-75.76	503164.77	1616698.37	N 39 52 28.89	W 80 45 15.22
	5355.00	0.58	316.12	5349.83	4030.27	-11.24	49.52	88.77	0.51	0.49	28.31	503165.15	1616709.30	N 39 52 28.89	W 80 45 15.22
	5450.00	0.73	314.72	5444.83	4125.27	-12.25	50.29	88.00	0.16	0.16	-1.47	503165.94	1616720.22	N 39 52 28.90	W 80 45 15.23
	5545.00	0.75	306.91	5539.82	4220.26	-13.35	51.09	87.07	0.11	0.02	-8.22	503166.75	1616731.17	N 39 52 28.91	W 80 45 15.25
	5652.00	0.83	307.56	5646.81	4327.25	-14.62	51.98	85.90	0.08	0.07	0.61	503167.66	1616742.14	N 39 52 28.92	W 80 45 15.26
	5747.00	4.70	147.82	5741.72	4422.16	-11.38	49.11	87.43	5.77	4.07	-168.15	503164.76	1616753.11	N 39 52 28.89	W 80 45 15.24
	5842.00	12.21	135.24	5835.62	4516.06	1.80	38.66	96.59	8.09	7.91	-13.24	503154.19	1616764.08	N 39 52 28.79	W 80 45 15.12
	5937.00	18.72	123.38	5927.16	4607.60	23.81	23.12	116.42	7.58	6.85	-12.48	503138.37	1616775.05	N 39 52 28.63	W 80 45 14.87
	6032.00	25.78	109.80	6015.08	4695.52	50.51	7.71	148.65	9.15	7.43	-14.29	503122.51	1616786.02	N 39 52 28.48	W 80 45 14.46
	6127.00	31.86	113.83	6098.29	4778.73	82.76	-9.44	191.06	6.72	6.40	4.24	503104.78	1616797.00	N 39 52 28.31	W 80 45 13.91
	6221.00	39.42	121.51	6174.66	4855.10	125.12	-35.11	239.30	9.33	8.04	8.17	503078.43	1616808.00	N 39 52 28.06	W 80 45 13.29
	6316.00	45.98	127.99	6244.48	4924.92	179.52	-71.96	292.02	8.30	6.91	6.82	503040.86	1616819.00	N 39 52 27.69	W 80 45 12.62
	6411.00	55.44	134.05	6304.60	4985.04	245.49	-120.32	347.21	11.11	9.96	6.38	502991.73	1616830.00	N 39 52 27.21	W 80 45 11.91
	6506.00	60.53	137.58	6354.96	5035.40	320.48	-178.09	403.27	6.21	5.36	3.72	502933.18	1616841.00	N 39 52 26.64	W 80 45 11.19
	6601.00	70.66	144.11	6394.19	5074.63	403.38	-245.17	457.63	12.36	10.66	6.87	502865.36	1616852.00	N 39 52 25.98	W 80 45 10.49
	6695.00	76.90	146.47	6420.44	5100.88	491.65	-319.34	508.97	7.06	6.64	2.51	502790.48	1616863.00	N 39 52 25.25	W 80 45 9.83
	6790.00	84.49	147.60	6435.79	5116.23	583.87	-397.94	559.93	8.08	7.99	1.19	502711.18	1616874.00	N 39 52 24.47	W 80 45 9.18
	6885.00	89.45	145.90	6440.81	5121.25	677.13	-477.25	611.93	5.52	5.22	-1.79	502631.16	1616885.00	N 39 52 23.69	W 80 45 8.51
	6980.00	89.66	147.80	6441.55	5121.99	770.58	-556.78	663.88	2.01	0.22	2.00	502550.91	1616896.00	N 39 52 22.90	W 80 45 7.83

Comments	MD (ft)	Incl (°)	Azim True (°)	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 ° ' ")
	7075.00	90.34	146.27	6441.55	5121.99	864.09	-636.48	715.57	1.76	0.72	-1.61	502470.50	1617116.09	N 39 52 22.11	W 80 45 7.19
	7170.00	89.21	146.70	6441.92	5122.36	957.43	-715.68	768.02	1.27	-1.19	0.45	502390.58	1617167.42	N 39 52 21.33	W 80 45 6.51
	7265.00	88.38	147.57	6443.92	5124.36	1050.95	-795.46	819.56	1.27	-0.87	0.92	502310.09	1617217.84	N 39 52 20.54	W 80 45 5.85
	7359.00	87.77	147.07	6447.08	5127.52	1143.50	-874.54	870.29	0.84	-0.65	-0.53	502230.32	1617267.46	N 39 52 19.76	W 80 45 5.20
	7454.00	89.72	146.85	6449.16	5129.60	1236.96	-954.15	922.07	2.07	2.05	-0.23	502150.00	1617318.12	N 39 52 18.97	W 80 45 4.54
	7549.00	90.10	151.52	6449.31	5129.75	1331.01	-1035.72	970.72	4.93	0.40	4.92	502067.76	1617365.63	N 39 52 18.17	W 80 45 3.91
	7644.00	90.62	147.11	6448.71	5129.15	1425.09	-1117.39	1019.19	4.67	0.55	-4.64	501985.42	1617412.94	N 39 52 17.36	W 80 45 3.29
	7739.00	89.90	148.90	6448.28	5128.72	1518.86	-1197.96	1069.52	2.03	-0.76	1.88	501904.17	1617462.14	N 39 52 16.56	W 80 45 2.65
	7833.00	90.58	147.02	6447.89	5128.33	1611.64	-1277.63	1119.39	2.13	0.72	-2.00	501823.81	1617510.89	N 39 52 15.78	W 80 45 2.01
	7928.00	90.55	146.40	6446.95	5127.39	1705.05	-1357.04	1171.53	0.65	-0.03	-0.65	501743.68	1617561.91	N 39 52 14.99	W 80 45 1.34
	8023.00	89.48	145.38	6446.92	5127.36	1798.20	-1435.69	1224.80	1.56	-1.13	-1.07	501664.30	1617614.08	N 39 52 14.21	W 80 45 0.65
	8118.00	89.42	144.28	6447.84	5128.28	1890.99	-1513.35	1279.52	1.16	-0.06	-1.16	501585.89	1617667.70	N 39 52 13.45	W 80 45 59.95
	8213.00	89.21	146.06	6448.97	5129.41	1983.90	-1591.32	1333.77	1.89	-0.22	1.87	501507.17	1617720.86	N 39 52 12.68	W 80 45 59.26
	8308.00	89.45	143.91	6450.08	5130.52	2076.74	-1669.11	1388.27	2.28	0.25	-2.26	501428.63	1617774.27	N 39 52 11.91	W 80 45 58.56
	8402.00	89.00	145.13	6451.35	5131.79	2168.44	-1745.65	1442.83	1.38	-0.48	1.30	501351.34	1617827.75	N 39 52 11.15	W 80 45 57.86
	8497.00	89.90	145.28	6452.27	5132.71	2261.36	-1823.66	1497.03	0.96	0.95	0.16	501272.59	1617880.86	N 39 52 10.38	W 80 45 57.16
	8592.00	89.31	145.11	6452.92	5133.36	2354.28	-1901.66	1551.26	0.65	-0.62	-0.18	501193.84	1617933.98	N 39 52 9.61	W 80 45 56.47
	8687.00	88.69	145.42	6454.58	5135.02	2447.22	-1979.72	1605.38	0.73	-0.65	0.33	501115.04	1617987.00	N 39 52 8.84	W 80 45 55.77
	8782.00	88.14	145.34	6457.21	5137.65	2540.17	-2057.87	1659.33	0.59	-0.58	-0.08	501036.15	1618039.86	N 39 52 8.07	W 80 45 55.08
	8876.00	88.45	143.34	6460.00	5140.44	2631.77	-2134.21	1714.10	2.15	0.33	-2.13	500959.06	1618093.56	N 39 52 7.31	W 80 45 54.38
	8971.00	88.66	143.88	6462.40	5142.84	2724.08	-2210.66	1770.45	0.61	0.22	0.57	500881.83	1618148.82	N 39 52 6.56	W 80 45 53.66
	9066.00	90.03	144.22	6463.49	5143.93	2816.58	-2287.56	1826.21	1.49	1.44	0.36	500804.17	1618203.51	N 39 52 5.80	W 80 45 52.94
	9161.00	90.21	142.52	6463.29	5143.73	2908.83	-2363.79	1882.89	1.80	0.19	-1.79	500727.15	1618259.11	N 39 52 5.04	W 80 45 52.21
	9255.00	89.24	145.96	6463.74	5144.18	3000.42	-2440.06	1937.82	3.80	-1.03	3.66	500650.13	1618312.96	N 39 52 4.29	W 80 45 51.51
	9350.00	89.86	143.23	6464.48	5144.92	3093.12	-2517.48	1992.85	2.95	0.65	-2.87	500571.95	1618366.91	N 39 52 3.52	W 80 45 50.80
	9445.00	90.07	143.48	6464.54	5144.98	3185.36	-2593.70	2049.55	0.34	0.22	0.26	500494.95	1618422.53	N 39 52 2.77	W 80 45 50.08
	9540.00	89.76	143.40	6464.68	5145.12	3277.64	-2670.01	2106.14	0.34	-0.33	-0.08	500417.86	1618478.05	N 39 52 2.02	W 80 45 49.35
	9635.00	90.58	144.79	6464.40	5144.84	3370.16	-2746.95	2161.85	1.70	0.86	1.46	500340.15	1618532.68	N 39 52 1.26	W 80 45 48.64
	9730.00	90.79	145.04	6463.27	5143.71	3462.98	-2824.69	2216.45	0.34	0.22	0.26	500261.67	1618586.18	N 39 52 0.49	W 80 45 47.94
	9825.00	89.48	144.74	6463.04	5143.48	3555.80	-2902.40	2271.08	1.41	-1.38	-0.32	500183.20	1618639.73	N 39 51 59.72	W 80 45 47.24
	9920.00	89.48	144.70	6463.90	5144.34	3648.55	-2979.95	2325.95	0.04	0.00	-0.04	500104.90	1618693.50	N 39 51 58.95	W 80 45 46.53
	10014.00	88.42	144.59	6465.63	5146.07	3740.29	-3056.60	2380.33	1.13	-1.13	-0.12	500027.50	1618746.81	N 39 51 58.19	W 80 45 45.84
	10109.00	88.49	145.36	6468.19	5148.63	3833.10	-3134.37	2434.84	0.81	0.07	0.81	499948.98	1618800.22	N 39 51 57.43	W 80 45 45.14
	10204.00	88.45	144.10	6470.72	5151.16	3925.83	-3211.90	2489.67	1.33	-0.04	-1.33	499870.70	1618853.96	N 39 51 56.66	W 80 45 44.43
	10299.00	89.62	144.51	6472.32	5152.76	4018.42	-3289.04	2545.09	1.30	1.23	0.43	499792.79	1618908.30	N 39 51 55.90	W 80 45 43.72
	10394.00	89.31	143.00	6473.21	5153.65	4110.81	-3365.65	2601.26	1.62	-0.33	-1.59	499715.41	1618963.38	N 39 51 55.14	W 80 45 43.00
	10489.00	89.83	143.63	6473.92	5154.36	4203.03	-3441.83	2658.01	0.86	0.55	0.66	499638.45	1619019.06	N 39 51 54.39	W 80 45 42.28
	10584.00	89.55	146.79	6474.44	5154.88	4295.95	-3519.84	2712.21	3.34	-0.29	3.33	499559.70	1619072.16	N 39 51 53.62	W 80 45 41.58
	10678.00	89.42	144.76	6475.28	5155.72	4388.08	-3597.55	2765.07	2.16	-0.14	-2.16	499481.25	1619123.93	N 39 51 52.85	W 80 45 40.90
	10773.00	89.97	143.32	6475.79	5156.23	4480.58	-3674.45	2820.85	1.62	0.58	-1.52	499403.59	1619178.64	N 39 51 52.09	W 80 45 40.19
	10868.00	89.07	144.85	6476.59	5157.03	4573.10	-3751.38	2876.58	1.87	-0.95	1.61	499325.89	1619233.27	N 39 51 51.33	W 80 45 39.47
	10963.00	89.14	143.72	6478.07	5158.51	4665.69	-3828.50	2932.02	1.19	0.07	-1.19	499248.01	1619287.64	N 39 51 50.57	W 80 45 38.76
	11057.00	89.28	144.12	6479.37	5159.81	4757.17	-3904.47	2987.38	0.45	0.15	0.43	499171.28	1619341.92	N 39 51 49.82	W 80 45 38.05
	11152.00	89.38	144.59	6480.48	5160.92	4849.79	-3981.66	3042.74	0.51	0.11	0.49	499093.33	1619396.19	N 39 51 49.05	W 80 45 37.34
	11247.00	89.42	144.62	6481.47	5161.91	4942.50	-4059.10	3097.76	0.05	0.04	0.03	499015.13	1619450.13	N 39 51 48.29	W 80 45 36.64
	11342.00	89.21	144.97	6482.61	5163.05	5035.27	-4136.72	3152.52	0.43	-0.22	0.37	498936.76	1619503.80	N 39 51 47.52	W 80 45 35.93
	11437.00	89.72	143.23	6483.49	5163.93	5127.80	-4213.66	3208.22	1.91	0.54	-1.83	498859.05	1619558.42	N 39 51 46.76	W 80 45 35.22
	11532.00	89.55	144.04	6484.10	5164.54	5220.15	-4290.16	3264.55	0.87	-0.18	0.85	498781.78	1619613.67	N 39 51 46.00	W 80 45 34.50
Drilling Office 2.7.1043.0	11627.00	89.21	142.61	6485.13	5165.37	5312.37	-4368.35	3321.28	1.58	-0.36	-1.51	498704.81	1619669.33	N 39 51 45.25	W 80 45 33.77

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Comments	MD (ft)	Incl (°)	Azim True (°)	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 ° ' ")
	11721.00	89.38	143.36	6486.28	5166.72	5403.49	-4441.40	3377.87	0.82	0.18	0.80	498628.98	1619724.86	N 39 51 44.51	W 80 44 33.05
	11816.00	89.59	143.53	6487.14	5167.58	5495.76	-4517.71	3434.45	0.28	0.22	0.18	498551.89	1619780.36	N 39 51 43.75	W 80 44 32.32
	11911.00	89.55	142.77	6487.85	5168.29	5587.92	-4593.72	3491.42	0.80	-0.04	-0.80	498475.09	1619836.27	N 39 51 43.00	W 80 44 31.59
	12006.00	89.52	143.45	6488.62	5169.06	5680.06	-4669.70	3548.45	0.72	-0.03	0.72	498398.33	1619892.22	N 39 51 42.25	W 80 44 30.86
	12101.00	89.52	144.23	6489.42	5169.86	5772.48	-4746.40	3604.50	0.82	0.00	0.82	498320.86	1619947.19	N 39 51 41.49	W 80 44 30.14
	12196.00	89.42	142.83	6490.30	5170.74	5864.79	-4822.79	3660.96	1.48	-0.11	-1.47	498243.69	1620002.58	N 39 51 40.74	W 80 44 29.42
	12290.00	89.38	143.29	6491.28	5171.72	5955.94	-4897.92	3717.45	0.49	-0.04	0.49	498167.79	1620058.01	N 39 51 40.00	W 80 44 28.69
	12385.00	89.52	143.36	6492.19	5172.63	6048.16	-4974.11	3774.19	0.16	0.15	0.07	498090.82	1620113.68	N 39 51 39.24	W 80 44 27.96
	12480.00	89.38	144.49	6493.10	5173.54	6140.62	-5050.88	3830.13	1.20	-0.15	1.19	498013.27	1620168.54	N 39 51 38.48	W 80 44 27.25
	12575.00	89.62	143.56	6493.93	5174.37	6233.12	-5127.76	3885.93	1.01	0.25	-0.98	497935.62	1620223.26	N 39 51 37.72	W 80 44 26.53
	12670.00	89.59	143.07	6494.59	5175.03	6325.34	-5203.94	3942.68	0.52	-0.03	-0.52	497858.66	1620278.94	N 39 51 37.00	W 80 44 25.80
	12712.00	89.07	143.37	6495.08	5175.52	6366.10	-5237.58	3967.83	1.43	-1.24	0.71	497824.68	1620303.61	N 39 51 36.64	W 80 44 25.48
Projection To TD	12755.00	89.07	143.37	6495.78	5176.22	6407.85	-5272.08	3993.48	0.00	0.00	0.00	497789.82	1620328.78	N 39 51 36.30	W 80 44 25.15

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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	32.000	Act Stns	12.250	9.625	SLB_NSJ+MSHOT-Depth Only	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft to 12755ft MD
	1	32.000	697.000	Act Stns	12.250	9.625	SLB_NSJ+MSHOT	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	697.000	900.000	Act Stns	12.250	9.625	SLB_MWD-STD	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	900.000	995.000	Act Stns	12.250	9.625	SLB_INC_ONLY<10	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	995.000	2715.000	Act Stns	12.250	9.625	SLB_MWD-STD	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	2715.000	12712.000	Act Stns	8.500	5.500	SLB_MWD-STD	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	12712.000	12755.000	Act Stns	8.500	5.500	SLB_BLIND+TREND	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft