

21-05748



Location: Gilmer County, WV
Field: Gilmer
Facility: Norm Pad



Slot: Slot #1D
Well: Norm 1D
Wellbore: Norm 1D (PWB)

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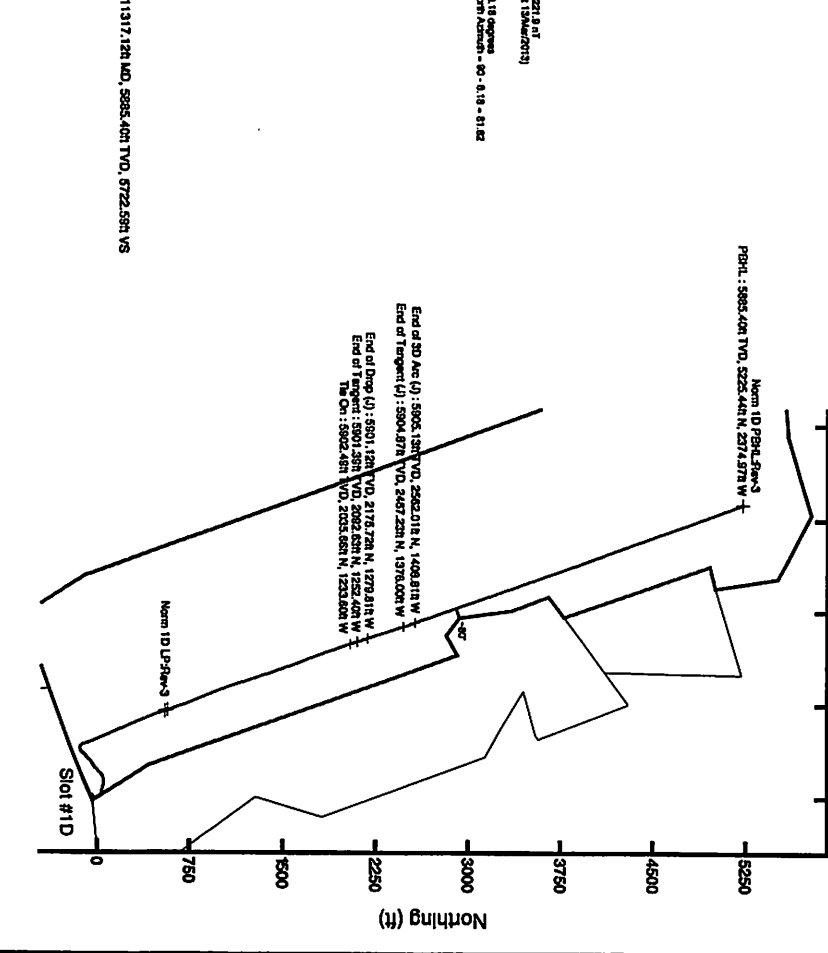
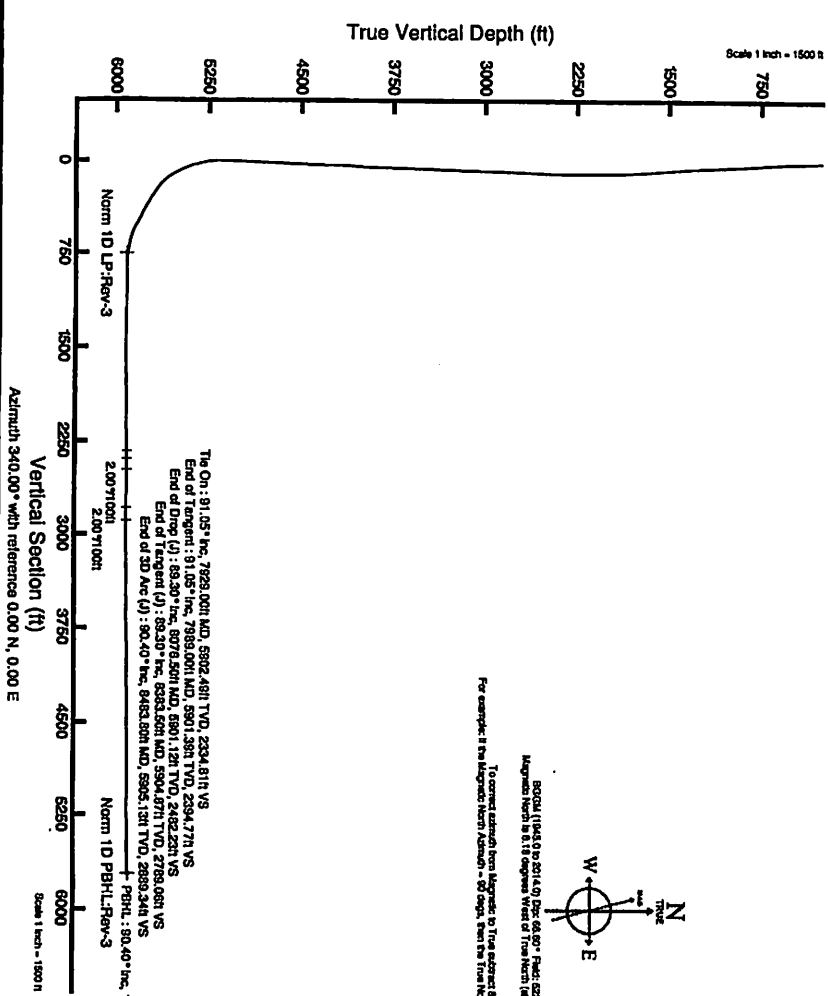
11/08/2013

Plot reference wellpath is Norm 1D (PWP) Rev-E.0

True vertical depths are referenced to Precision 542 (RKB)	Grid System: NAD83 / Lambert West Virginia SP, Datum: Zone 17N, US feet
Measured depths are referenced to Precision 542 (RKB)	North Reference: True north
Precision 542 (RKB) to Mean Sea Level: 029 feet	Static True distance
Mean Sea Level to Mud line (A) Slot: Slot #1D: -810 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: Inhofer on 30/Mar/2013

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude
Norm Pad	2015441.000	673234.000	39°50'55.740"N
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)
Local N (ft)	17.01	-8.99	2015432.000
Local E (ft)	-8.99	2015432.000	Grid North (US ft)
Slot #1D	17.01	-8.99	673251.000
Precision 542 (RKB) to Mud line (A) Slot: Slot #1D			39°50'55.808"N
Mean Sea Level to Mud line (A) Slot: Slot #1D			181
Precision 542 (RKB) to Mean Sea Level			-810ft

Tie-On Position					
MD (ft)	Inc (1)	Ac (1)	TVD (ft)	Local N (ft)	Local E (ft)
7929.00	91.050	341.740	5902.49	-1233.60	2014187.22
			2035.66	2014187.22	673265.52
					39°51'18.029"N
					80°57'00.537"W

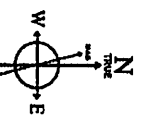


Targets										
Name	MD (ft)	TVD (ft)	Inc (1)	Ac (1)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Norm 1D PWB-L-PWB-2	8080.40	6225.44	-2774.97	201504.00	673234.00	39°51'47.587"N	201504.00	673234.00	39°51'47.587"N	80°57'14.989"W
Norm 1D PWB-L-PWB-3	11317.12	5985.40	-2774.97	201504.00	673234.00	39°51'47.587"N	201504.00	673234.00	39°51'47.587"N	80°57'14.989"W
Norm 1D LP-PWB-3	5913.50	650.29	-833.39	2014738.32	673251.00	39°51'01.527"N	2014738.32	673251.00	39°51'01.527"N	80°56'53.895"W
Norm 1D LP-PWB-2	5928.79	668.29	-701.19	2014738.49	673251.00	39°51'01.527"N	2014738.49	673251.00	39°51'01.527"N	80°56'53.895"W
Norm 1D PWB-L-PWB	8018.07	6225.44	-2774.97	201504.00	673234.00	39°51'47.587"N	201504.00	673234.00	39°51'47.587"N	80°57'14.989"W

Well Profile Data									
Design Comment	MD (ft)	Inc (1)	Ac (1)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (1/100ft)	VS (ft)	
Tie On	7929.00	91.050	341.740	5902.49	2035.66	-1233.60	0.00	2334.81	
End of Drop (J)	8076.50	89.300	341.740	5901.12	2092.63	-1252.40	0.00	2394.77	
End of Tangent (J)	8383.50	89.300	341.740	5904.87	2467.23	-1376.00	0.00	2789.08	
End of 3D Arc (J)	8483.80	90.399	340.082	5905.13	2562.01	-1408.81	2.00	2889.34	
PWB-L	11317.12	90.399	340.082	5985.40	6225.44	-2374.97	0.00	5722.59	

To correct azimuth from Magnetic to True subtract 8.18 degrees
For example: if the Magnetic North Azimuth = 90 degrees, then the True North Azimuth = 90 - 8.18 = 81.82

8000.00 (11945.0 to 8014.0) Dip: 06.80° Pitch: 02221.9 ft
Magnetic North is 8.18 degrees West of True North (in 134M/2013)



End of 3D Arc (J): 8005.1387 TVD, 2562.018 N, 1408.818 W
End of Tangent (J): 8304.878 TVD, 2467.231 N, 1376.000 W
End of Drop (J): 8501.128 TVD, 2178.728 N, 1279.818 W
End of Tangent (J): 8502.488 TVD, 2092.631 N, 1252.400 W
MD On: 8902.488 TVD, 2035.661 N, 1233.600 W

Norm 1D PWB-L-PWB-3
PWB-L: 5985.40ft TVD, 6225.44ft N, 2374.97ft W

The On: 91.05° Inc, 7929.00ft MD, 6982.48ft TVD, 2334.81ft VS
End of Tangent: 91.05° Inc, 7989.00ft MD, 6901.38ft TVD, 2394.77ft VS
End of Drop (J): 89.30° Inc, 8076.50ft MD, 6901.12ft TVD, 2482.23ft VS
End of Tangent (J): 89.30° Inc, 8383.50ft MD, 6904.87ft TVD, 2789.08ft VS
End of 3D Arc (J): 90.40° Inc, 8483.80ft MD, 6905.13ft TVD, 2889.34ft VS
PWB-L: 90.40° Inc, 11317.12ft MD, 6985.40ft TVD, 6722.59ft VS

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Norm 1D Curve (AWP) Proj:11,319'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1D
Area	Gilmer County, WV	Well	Norm 1D
Field	Gilmer	Wellbore	Norm 1D (AWB)
Facility	Norm Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / Lambert West Virginia SP, Southern Zone (4702), US feet	Software System	WellArchitect® 3.0.0
North Reference	True	User	Bennaarw
Scale	0.999993	Report Generated	4/1/2013 at 4:45:40 PM
Convergence at slot	0.03° East	Database/Source file	WellArchitect/Norm_1D_AWB_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	17.01	-8.99	2015432.00	673251.00	38°50'55.908"N	80°56'44.943"W
Facility Reference Pt			2015441.00	673234.00	38°50'55.740"N	80°56'44.830"W
Field Reference Pt			0.00	0.00	36°47'50.602"N	87°50'06.103"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Precision 542 (RKB) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Slot	Precision 542 (RKB) to Mean Sea Level	828.00ft
Vertical Reference Pt	Precision 542 (RKB)	Precision 542 (RKB) to Mud Line at Slot (Slot #1D)	18.00ft
MD Reference Pt	Precision 542 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	340.00°

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Norm 1D Curve (AWP) Proj:11,319'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1D
Area	Gilmer County, WV	Well	Norm 1D
Field	Gilmer	Wellbore	Norm 1D (AWB)
Facility	Norm Pad		

WELLPATH DATA (134 stations) † = interpolated/extrapolated station							
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
0.00†	0.000	354.140	0.00	0.00	0.00	0.00	0.00
18.00	0.000	354.140	18.00	0.00	0.00	0.00	0.00
218.00	0.990	354.140	217.99	1.68	1.72	-0.18	0.49
405.00	1.750	356.410	404.94	5.98	6.18	-0.52	0.41
521.00	2.120	344.420	520.87	9.82	10.01	-1.21	0.47
583.00	2.530	342.970	582.82	12.33	12.42	-1.92	0.67
678.00	4.100	317.670	677.66	17.57	16.94	-4.82	2.22
772.00	5.070	307.460	771.36	24.18	21.95	-10.38	1.34
867.00	5.830	297.820	865.93	31.29	26.75	-17.98	1.25
962.00	5.410	285.810	960.48	37.49	30.23	-26.55	1.31
1057.00	5.210	275.770	1055.07	41.98	31.88	-35.15	1.00
1152.00	4.680	285.560	1149.72	46.11	33.35	-43.18	1.05
1246.00	4.080	289.590	1243.45	50.47	35.50	-50.02	0.72
1341.00	6.170	286.870	1338.06	55.69	38.12	-58.09	2.21
1436.00	7.490	286.870	1432.39	62.47	41.40	-68.91	1.39
1532.00	7.300	288.250	1527.59	70.00	45.12	-80.69	0.27
1627.00	6.770	281.750	1621.87	76.68	48.15	-91.90	1.01
1716.00	7.170	278.110	1710.22	82.06	50.01	-102.54	0.67
1806.00	6.300	273.160	1799.59	86.65	51.07	-113.03	1.16
1895.00	5.610	264.170	1888.12	89.63	50.90	-122.23	1.30
1985.00	5.510	259.500	1977.69	91.42	49.66	-130.85	0.51
2075.00	5.750	261.250	2067.26	93.02	48.19	-139.56	0.33
2164.00	5.070	261.460	2155.86	94.67	46.93	-147.86	0.76
2254.00	4.930	259.690	2245.52	96.11	45.65	-155.59	0.23
2343.00	5.360	243.830	2334.16	96.31	43.13	-163.09	1.66
2433.00	5.460	228.930	2423.77	94.31	38.46	-170.09	1.56
2522.00	5.160	224.010	2512.39	91.04	32.80	-176.06	0.61
2612.00	4.750	216.230	2602.05	87.19	26.88	-181.07	0.87
2702.00	4.410	218.220	2691.76	83.30	21.16	-185.42	0.42
2792.00	5.100	229.800	2781.46	80.10	15.86	-190.61	1.31
2881.00	4.500	231.040	2870.14	77.59	11.11	-196.35	0.68
2971.00	4.180	229.150	2959.88	75.28	6.74	-201.58	0.39
3060.00	4.110	231.580	3048.65	73.12	2.64	-205.43	0.21
3150.00	4.150	226.490	3138.42	70.80	-1.61	-211.43	0.41
3240.00	4.280	222.500	3228.18	67.95	-6.32	-216.05	0.56
3330.00	4.450	223.820	3317.91	64.86	-11.32	-220.74	0.22
3419.00	5.430	228.190	3406.58	61.77	-16.62	-226.34	1.18
3509.00	7.060	233.100	3496.05	58.58	-22.78	-233.86	1.90
3598.00	6.130	234.890	3584.46	55.75	-28.80	-243.12	1.07
3688.00	5.010	231.010	3674.03	53.22	-34.05	-249.11	1.31
3778.00	6.060	236.710	3763.61	50.85	-39.11	-256.14	1.02
3793.00	6.290	236.060	3778.52	50.47	-40.01	-257.48	1.60
3883.00	8.740	243.160	3867.75	48.47	-45.85	-267.67	2.91

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3972.00	9.540	233.880	3955.62	45.61	-53.25	-279.66	1.88
4062.00	9.360	222.790	4044.41	40.20	-63.02	-290.66	2.03

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1D
Area	Gilmer County, WV	Well	Norm 1D
Field	Gilmer	Wellbore	Norm 1D (AWB)
Facility	Norm Pad		

WELLPATH DATA (134 stations)							
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
4152.00	7.460	230.420	4133.44	34.89	-72.11	-300.14	2.44
4241.00	4.950	229.280	4221.91	31.60	-78.30	-307.50	2.82
4331.00	4.110	222.210	4311.63	28.72	-83.22	-312.61	1.12
4420.00	4.310	222.590	4400.39	25.69	-88.04	-317.02	0.23
4510.00	5.550	225.710	4490.05	22.34	-93.57	-322.42	1.41
4600.00	6.110	229.560	4579.59	18.88	-99.72	-329.18	0.76
4689.00	6.190	227.930	4668.07	15.42	-106.01	-336.35	0.22
4779.00	6.040	225.590	4757.56	11.64	-112.57	-343.33	0.32
4868.00	5.830	224.600	4846.09	7.77	-119.07	-349.85	0.26
4958.00	5.870	226.660	4935.62	3.99	-125.48	-356.41	0.24
5048.00	6.570	225.600	5025.09	0.04	-132.24	-363.43	0.79
5138.00	7.920	237.650	5114.37	-3.42	-139.16	-372.35	2.25
5227.00	11.300	271.550	5202.18	-1.52	-142.21	-386.26	7.25
5317.00	14.140	307.720	5290.09	11.03	-135.23	-403.80	9.21
5407.00	18.280	334.590	5376.62	34.42	-115.72	-418.58	9.40
5497.00	23.460	340.270	5460.69	66.41	-86.09	-430.70	6.17
5586.00	31.300	338.070	5539.66	107.30	-47.91	-445.33	8.88
5676.00	43.550	336.400	5611.00	161.81	2.39	-466.56	13.66
5766.00	55.670	336.330	5669.21	230.10	65.07	-493.99	13.47
5784.00	57.120	336.710	5679.17	245.06	78.82	-499.97	8.25
5870.00	58.390	336.960	5725.06	317.69	145.69	-528.58	1.50
5915.00	60.040	336.590	5748.09	356.28	181.21	-543.82	3.73
5960.00	62.890	336.660	5769.58	395.74	217.50	-559.51	6.33
6005.00	64.450	336.080	5789.54	435.99	254.45	-575.67	3.65
6050.00	62.140	336.750	5809.76	476.11	291.28	-591.76	5.30
6095.00	59.280	336.580	5831.78	515.29	327.32	-607.30	6.36
6139.00	63.290	337.400	5852.91	553.81	362.83	-622.38	9.26
6184.00	70.010	338.430	5870.74	595.08	401.09	-637.89	15.08
6229.00	75.660	339.430	5884.01	638.05	441.20	-653.34	12.73
6274.00	77.790	340.460	5894.35	681.84	482.34	-668.36	5.23
6319.00	81.570	340.940	5902.41	726.10	524.12	-682.98	8.47
6364.00	83.520	341.100	5908.24	770.71	566.31	-697.50	4.35
6405.00	88.680	340.760	5911.03	811.60	604.95	-710.86	12.61
6495.00	91.690	340.360	5910.74	901.58	689.81	-740.81	3.37
6585.00	89.720	337.660	5909.63	991.55	773.82	-773.82	3.71
6674.00	88.270	335.590	5911.20	1080.38	855.50	-808.34	2.84
6764.00	89.350	337.820	5913.06	1170.20	938.14	-843.92	2.75
6854.00	89.480	339.730	5913.98	1260.17	1022.03	-876.50	2.13
6943.00	89.880	341.960	5914.48	1349.15	1106.09	-905.76	2.55
7033.00	90.830	342.180	5913.92	1439.09	1191.72	-933.41	1.08
7123.00	89.050	340.600	5914.02	1529.06	1277.01	-961.17	2.64
7212.00	91.700	341.300	5913.44	1618.04	1361.12	-991.17	3.08
7302.00	91.230	341.000	5911.13	1707.99	1445.27	-1022.27	0.62

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7392.00	91.170	340.300	5909.25	1797.96	1531.16	-1050.05	0.78
7481.00	90.490	339.670	5907.96	1886.95	1614.78	-1080.51	1.04

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Operator	NOBLE ENERGY	Slot	Slot #1D
Area	Gilmer County, WV	Well	Norm 1D
Field	Gilmer	Wellbore	Norm 1D (AWB)
Facility	Norm Pad		

WELLPATH DATA (134 stations)							
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
7571.00	89.480	337.970	5907.98	1976.93	1698.69	-1113.03	2.20
7660.00	91.010	339.750	5907.60	2065.90	1781.70	-1145.12	2.64
7750.00	90.920	340.130	5906.09	2155.89	1866.23	-1175.99	0.43
7840.00	91.320	341.510	5904.33	2245.86	1951.21	-1205.55	1.60
7929.00	91.050	341.740	5902.49	2334.81	2035.66	-1233.60	0.40
8019.00	89.350	342.050	5902.17	2424.75	2121.20	-1261.57	1.92
8109.00	88.740	341.680	5903.67	2514.69	2206.71	-1289.58	0.79
8198.00	89.820	342.560	5904.79	2603.62	2291.41	-1316.90	1.57
8288.00	89.940	342.870	5904.98	2693.52	2377.34	-1343.64	0.37
8378.00	90.310	343.070	5904.78	2783.40	2463.39	-1370.00	0.47
8467.00	90.920	343.300	5903.83	2872.26	2548.58	-1395.74	0.73
8556.00	89.600	340.120	5903.42	2961.20	2633.07	-1423.67	3.87
8646.00	89.630	338.760	5904.03	3051.20	2717.34	-1455.28	1.51
8736.00	89.020	338.820	5905.09	3141.17	2801.23	-1487.83	0.68
8826.00	89.850	341.100	5905.98	3231.16	2885.77	-1518.67	2.70
8916.00	90.950	339.770	5905.35	3321.15	2970.57	-1548.81	1.92
9005.00	91.230	338.350	5903.66	3410.12	3053.68	-1580.61	1.63
9095.00	90.250	337.480	5902.49	3500.05	3137.07	-1614.44	1.46
9185.00	89.510	337.630	5902.68	3589.97	3220.25	-1648.80	0.84
9275.00	89.690	339.190	5903.31	3679.93	3303.93	-1681.92	1.74
9364.00	89.540	340.520	5903.91	3768.92	3387.48	-1712.57	1.50
9454.00	90.550	340.870	5903.84	3858.91	3472.42	-1742.32	1.19
9544.00	91.540	340.650	5902.20	3948.89	3557.38	-1771.97	1.13
9634.00	88.680	336.580	5902.02	4038.84	3641.15	-1804.78	5.53
9723.00	90.030	337.090	5903.03	4127.69	3722.97	-1839.79	1.62
9813.00	90.680	339.290	5902.47	4217.64	3806.52	-1873.22	2.55
9903.00	88.770	337.450	5902.90	4307.59	3890.17	-1906.40	2.95
9992.00	89.140	337.760	5904.52	4396.50	3972.45	-1940.30	0.54
10082.00	90.340	339.690	5904.93	4486.47	4056.31	-1972.95	2.53
10172.00	91.480	341.620	5903.50	4576.45	4141.21	-2002.76	2.49
10261.00	91.140	341.360	5901.47	4665.40	4225.58	-2031.01	0.48
10351.00	90.370	341.430	5900.28	4755.36	4310.87	-2059.72	0.86
10440.00	91.010	342.010	5899.21	4844.31	4395.37	-2087.63	0.97
10530.00	90.460	342.070	5898.05	4934.25	4480.98	-2115.38	0.61
10620.00	88.560	339.330	5898.82	5024.23	4565.91	-2143.20	3.70
10709.00	90.370	341.840	5899.66	5113.21	4649.83	-2171.02	3.48
10799.00	89.630	340.230	5899.66	5203.19	4734.73	-2203.95	1.97
10889.00	89.880	340.200	5900.04	5293.19	4819.63	-2234.41	0.28
10978.00	89.820	341.950	5900.27	5382.17	4903.82	-2264.23	1.97
11068.00	88.000	342.630	5901.99	5472.07	4989.53	-2290.65	2.16
11157.00	87.070	341.610	5905.81	5560.93	5074.15	-2317.95	1.55
11247.00	86.520	341.770	5910.85	5650.75	5159.46	-2346.18	1.05
11265.00	86.580	341.590	5911.93	5668.71	5176.52	-2374.41	1.05

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11319.00	86.580	341.590	5915.15	5722.59	5227.66	-2368.85	0.00
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TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Norm 1D PBHL:Rev-2		5880.40	5225.44	-2374.97	2013054.00	678475.00	38°51'47.557"N	80°57'14.968"W	point
Norm 1D PBHL:Rev-3		5885.40	5225.44	-2374.97	2013054.00	678475.00	38°51'47.557"N	80°57'14.968"W	point
Norm 1D LP:Rev-3		5915.00	550.29	-693.36	2014738.32	673800.88	38°51'01.347"N	80°56'53.707"W	point
Norm 1D LP:Rev-2		5929.79	568.29	-701.19	2014730.48	673818.87	38°51'01.525"N	80°56'53.806"W	point
Norm 1D PBHL:Plat		6016.07	5225.44	-2374.97	2013054.00	678475.00	38°51'47.557"N	80°57'14.968"W	point

WELLPATH COMPOSITION - Ref Wellbore: Norm 1D (AWB) Ref Wellpath: Norm 1D Curve (AWP) Proj:11,319'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	405.00	Generic gyro - northseeking (Standard)	VES Gyros (218'-405')	Norm 1D (AWB)
405.00	5784.00	NaviTrak (MagCorr)	BHI MWD Surveys (405')(521'-5784')	Norm 1D (AWB)
5784.00	11265.00	NaviTrak (Standard)	BHI MWD Survey (5784')(5870'-xxx')	Norm 1D (AWB)
11265.00	11319.00	Blind Drilling (std)	Projection to bit	Norm 1D (AWB)

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