

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Marshall County, WV	Well	SHL-22H-HS ST01
Field	Marshall	Wellbore	SHL-22H-HS ST01 AWB
Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Edsaryar
Scale	0.999963	Report Generated	10/Jun/2015 at 16:34
Convergence at slot	0.69° West	Database/Source file	WellArchitectEasternDB/SHL-22H-HS ST01_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	98.44	99.49	1698412.33	552156.87	40°00'39.599"N	80°34'36.055"W
Facility Reference Pt			1698312.84	552058.43	40°00'38.614"N	80°34'37.318"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

WELLPATH DATUM

Calculation method	Minimum curvature	Precision 584 (RKB) to Facility Vertical Datum	1342.03ft
Horizontal Reference Pt	Slot	Precision 584 (RKB) to Mean Sea Level	1342.03ft
Vertical Reference Pt	Precision 584 (RKB)	Precision 584 (RKB) to Mud Line at Slot (Slot H)	19.40ft
MD Reference Pt	Precision 584 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	145.00°

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WELLPATH DATA (186 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	295.580	0.00	0.00	0.00	0.00	1698412.33	552156.87	40°00'39.599"N	80°34'36.055"W	0.00	0.000	0.00	0.00	0.00
19.40	0.000	295.580	19.40	0.00	0.00	0.00	1698412.33	552156.87	40°00'39.599"N	80°34'36.055"W	0.00	0.000	0.00	0.00	0.00
107.40	0.290	295.580	107.40	-0.19	0.10	-0.20	1698412.13	552156.97	40°00'39.600"N	80°34'36.057"W	0.22	295.580	0.33	0.33	0.00
207.40	0.420	309.830	207.40	-0.77	0.44	-0.71	1698411.62	552157.31	40°00'39.603"N	80°34'36.064"W	0.84	301.776	0.16	0.13	14.25
307.40	0.620	307.180	307.39	-1.64	1.00	-1.42	1698410.91	552157.87	40°00'39.609"N	80°34'36.073"W	1.74	305.146	0.20	0.20	-2.65
407.40	0.600	299.440	407.39	-2.62	1.59	-2.31	1698410.02	552158.46	40°00'39.614"N	80°34'36.085"W	2.80	304.474	0.08	-0.02	-7.74
507.40	0.570	352.480	507.38	-3.54	2.34	-2.83	1698409.50	552159.21	40°00'39.622"N	80°34'36.092"W	3.67	309.534	0.52	-0.03	53.04
607.40	0.550	7.030	607.38	-4.34	3.31	-2.84	1698409.49	552160.18	40°00'39.631"N	80°34'36.092"W	4.36	319.361	0.14	-0.02	14.55
707.40	0.300	15.470	707.38	-4.86	4.03	-2.71	1698409.62	552160.90	40°00'39.638"N	80°34'36.090"W	4.86	326.122	0.26	-0.25	8.44
807.40	0.440	331.950	807.37	-5.41	4.63	-2.82	1698409.51	552161.50	40°00'39.644"N	80°34'36.092"W	5.42	328.636	0.30	0.14	-43.52
907.40	0.290	324.920	907.37	-6.04	5.17	-3.15	1698409.18	552162.04	40°00'39.650"N	80°34'36.096"W	6.05	328.691	0.16	-0.15	-7.03
1007.40	0.510	64.160	1007.37	-6.22	5.57	-2.89	1698409.44	552162.44	40°00'39.654"N	80°34'36.093"W	6.28	332.585	0.63	0.22	99.24
1107.40	0.880	41.430	1107.36	-6.33	6.34	-1.98	1698410.35	552163.21	40°00'39.661"N	80°34'36.081"W	6.65	342.647	0.45	0.37	-22.73
1207.40	0.270	47.790	1207.36	-6.54	7.08	-1.30	1698411.03	552163.95	40°00'39.669"N	80°34'36.073"W	7.20	349.596	0.61	-0.61	6.36
1307.40	0.570	65.700	1307.35	-6.48	7.44	-0.67	1698411.66	552164.31	40°00'39.672"N	80°34'36.065"W	7.47	354.843	0.32	0.30	17.91
1407.40	0.210	67.890	1407.35	-6.35	7.71	-0.05	1698412.28	552164.58	40°00'39.675"N	80°34'36.057"W	7.71	359.641	0.36	-0.36	2.19
1507.40	0.530	88.300	1507.35	-6.05	7.80	0.58	1698412.91	552164.67	40°00'39.676"N	80°34'36.049"W	7.82	4.282	0.34	0.32	20.41
1607.40	0.500	59.560	1607.35	-5.76	8.03	1.42	1698413.75	552164.90	40°00'39.678"N	80°34'36.038"W	8.16	10.043	0.26	-0.03	-28.74
1707.40	0.430	112.420	1707.34	-5.41	8.11	2.15	1698414.48	552164.98	40°00'39.679"N	80°34'36.029"W	8.39	14.819	0.42	-0.07	52.86
1807.40	0.680	82.960	1807.34	-4.82	8.04	3.08	1698415.41	552164.91	40°00'39.679"N	80°34'36.017"W	8.61	20.971	0.37	0.25	-29.46
1907.40	0.310	76.860	1907.33	-4.44	8.17	3.93	1698416.26	552165.04	40°00'39.680"N	80°34'36.006"W	9.07	25.701	0.37	-0.37	-6.10
2007.40	0.590	112.930	2007.33	-3.90	8.03	4.67	1698417.00	552164.90	40°00'39.679"N	80°34'35.996"W	9.29	30.175	0.39	0.28	36.07
2107.40	0.590	75.300	2107.33	-3.29	7.96	5.64	1698417.97	552164.83	40°00'39.678"N	80°34'35.984"W	9.76	35.322	0.38	0.00	-37.63
2207.40	0.150	17.320	2207.32	-3.19	8.22	6.18	1698418.51	552165.09	40°00'39.681"N	80°34'35.977"W	10.28	36.940	0.53	-0.44	-57.98
2307.40	0.350	113.030	2307.32	-3.01	8.22	6.50	1698418.83	552165.09	40°00'39.681"N	80°34'35.973"W	10.48	38.320	0.39	0.20	95.71
2407.40	0.320	267.640	2407.32	-2.90	8.09	6.50	1698418.83	552164.96	40°00'39.680"N	80°34'35.973"W	10.38	38.777	0.65	-0.03	154.61
2507.40	0.110	208.450	2507.32	-3.01	8.00	6.18	1698418.51	552164.87	40°00'39.679"N	80°34'35.977"W	10.11	37.683	0.28	-0.21	-59.19
2607.40	0.510	290.850	2607.32	-3.33	8.07	5.72	1698418.05	552164.94	40°00'39.679"N	80°34'35.983"W	9.89	35.304	0.51	0.40	82.40
2707.40	0.580	241.600	2707.32	-3.76	7.99	4.85	1698417.18	552164.86	40°00'39.678"N	80°34'35.994"W	9.35	31.285	0.46	0.07	-49.25
2807.40	0.160	237.910	2807.31	-3.83	7.67	4.29	1698416.62	552164.54	40°00'39.675"N	80°34'36.001"W	8.79	29.212	0.42	-0.42	-3.69

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Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

WELLPATH DATA (186 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2907.40	0.680	277.130	2907.31	-4.23	7.67	3.58	1698415.91	552164.54	40°00'39.675"N	80°34'36.010"W	8.47	25.035	0.57	0.52	39.22
3007.40	0.670	243.990	3007.31	-4.72	7.49	2.47	1698414.80	552164.36	40°00'39.673"N	80°34'36.024"W	7.89	18.248	0.39	-0.01	-33.14
3107.40	0.360	265.160	3107.30	-4.97	7.21	1.63	1698413.96	552164.08	40°00'39.670"N	80°34'36.035"W	7.39	12.753	0.36	-0.31	21.17
3169.40	0.610	275.580	3169.30	-5.28	7.22	1.11	1698413.44	552164.09	40°00'39.670"N	80°34'36.042"W	7.31	8.727	0.43	0.40	16.81
3226.40	0.530	236.480	3226.30	-5.49	7.11	0.59	1698412.92	552163.98	40°00'39.669"N	80°34'36.048"W	7.13	4.722	0.68	-0.14	-68.60
3256.40	0.470	312.940	3256.30	-5.61	7.12	0.38	1698412.71	552163.99	40°00'39.669"N	80°34'36.051"W	7.13	3.068	2.07	-0.20	254.87
3286.40	2.180	358.480	3286.29	-6.21	7.77	0.28	1698412.61	552164.64	40°00'39.676"N	80°34'36.053"W	7.77	2.036	6.27	5.70	151.80
3317.40	3.410	6.230	3317.25	-7.39	9.28	0.36	1698412.69	552166.15	40°00'39.691"N	80°34'36.052"W	9.28	2.226	4.14	3.97	25.00
3347.40	4.120	359.770	3347.18	-8.95	11.24	0.45	1698412.78	552168.11	40°00'39.710"N	80°34'36.051"W	11.25	2.308	2.75	2.37	-21.53
3377.40	5.880	359.580	3377.07	-11.10	13.85	0.44	1698412.77	552170.72	40°00'39.736"N	80°34'36.051"W	13.86	1.809	5.87	5.87	-0.63
3407.40	7.140	359.890	3406.88	-13.89	17.26	0.42	1698412.75	552174.13	40°00'39.769"N	80°34'36.052"W	17.26	1.403	4.20	4.20	1.03
3438.40	7.870	0.660	3437.61	-17.20	21.30	0.44	1698412.77	552178.17	40°00'39.809"N	80°34'36.052"W	21.31	1.192	2.38	2.35	2.48
3470.40	9.150	5.160	3469.26	-20.92	26.03	0.70	1698413.03	552182.90	40°00'39.856"N	80°34'36.050"W	26.04	1.535	4.51	4.00	14.06
3501.40	9.840	6.750	3499.83	-24.78	31.12	1.23	1698413.56	552187.98	40°00'39.907"N	80°34'36.044"W	31.14	2.265	2.38	2.23	5.13
3531.40	10.360	6.420	3529.37	-28.72	36.34	1.83	1698414.16	552193.21	40°00'39.958"N	80°34'36.037"W	36.39	2.888	1.74	1.73	-1.10
3561.40	11.900	7.950	3558.80	-33.00	42.09	2.56	1698414.89	552198.95	40°00'40.015"N	80°34'36.028"W	42.16	3.485	5.23	5.13	5.10
3591.40	13.240	8.940	3588.08	-37.74	48.54	3.52	1698415.85	552205.41	40°00'40.079"N	80°34'36.017"W	48.67	4.153	4.52	4.47	3.30
3622.40	13.820	8.290	3618.22	-42.99	55.71	4.61	1698416.94	552212.58	40°00'40.150"N	80°34'36.004"W	55.90	4.730	1.93	1.87	-2.10
3652.40	15.050	9.740	3647.27	-48.37	63.10	5.79	1698418.12	552219.97	40°00'40.223"N	80°34'35.990"W	63.36	5.239	4.27	4.10	4.83
3682.40	15.660	10.500	3676.20	-53.97	70.92	7.18	1698419.51	552227.79	40°00'40.301"N	80°34'35.974"W	71.28	5.783	2.14	2.03	2.53
3712.40	16.070	10.560	3705.06	-59.72	78.98	8.68	1698421.01	552235.85	40°00'40.380"N	80°34'35.955"W	79.46	6.273	1.37	1.37	0.20
3743.40	17.700	12.110	3734.72	-65.93	87.81	10.46	1698422.79	552244.67	40°00'40.468"N	80°34'35.934"W	88.43	6.791	5.45	5.26	5.00
3773.40	18.770	12.460	3763.22	-72.30	96.98	12.45	1698424.78	552253.85	40°00'40.559"N	80°34'35.910"W	97.78	7.318	3.59	3.57	1.17
3803.40	19.360	11.660	3791.57	-78.97	106.56	14.50	1698426.83	552263.43	40°00'40.654"N	80°34'35.885"W	107.54	7.749	2.15	1.97	-2.67
3834.40	20.710	10.730	3820.69	-86.33	116.98	16.56	1698428.89	552273.85	40°00'40.757"N	80°34'35.860"W	118.15	8.057	4.47	4.35	-3.00
3864.40	21.100	9.730	3848.72	-93.87	127.52	18.46	1698430.79	552284.38	40°00'40.861"N	80°34'35.837"W	128.84	8.237	1.76	1.30	-3.33
3894.40	21.520	8.790	3876.67	-101.67	138.28	20.21	1698432.54	552295.14	40°00'40.968"N	80°34'35.816"W	139.75	8.317	1.80	1.40	-3.13
3925.40	22.770	8.280	3905.38	-110.15	149.83	21.95	1698434.28	552306.70	40°00'41.082"N	80°34'35.796"W	151.43	8.333	4.08	4.03	-1.65
3955.40	22.700	7.340	3933.05	-118.65	161.32	23.52	1698435.85	552318.18	40°00'41.196"N	80°34'35.777"W	163.02	8.296	1.23	-0.23	-3.13
3985.40	22.740	6.830	3960.72	-127.25	172.82	24.95	1698437.28	552329.68	40°00'41.310"N	80°34'35.761"W	174.61	8.216	0.67	0.13	-1.70

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4015.40	23.170	7.440	3988.35	-135.93	184.43	26.41	1698438.73	552341.29	40°00'41.424"N	80°34'35.744"W	186.31	8.148	1.64	1.43	2.03
4046.40	23.160	7.020	4016.85	-144.96	196.52	27.94	1698440.27	552353.39	40°00'41.544"N	80°34'35.726"W	198.50	8.092	0.53	-0.03	-1.35
4076.40	23.280	6.730	4044.42	-153.76	208.27	29.36	1698441.68	552365.13	40°00'41.660"N	80°34'35.710"W	210.32	8.023	0.55	0.40	-0.97
4106.40	24.470	8.350	4071.85	-162.71	220.30	30.95	1698443.28	552377.16	40°00'41.780"N	80°34'35.691"W	222.47	7.998	4.53	3.97	5.40
4136.40	24.400	8.070	4099.16	-171.75	232.58	32.72	1698445.05	552389.44	40°00'41.901"N	80°34'35.670"W	234.87	8.009	0.45	-0.23	-0.93
4168.40	24.900	7.500	4128.25	-181.55	245.81	34.53	1698446.86	552402.67	40°00'42.032"N	80°34'35.649"W	248.22	7.997	1.73	1.56	-1.78
4199.40	26.770	9.050	4156.15	-191.38	259.17	36.48	1698448.81	552416.03	40°00'42.164"N	80°34'35.626"W	261.73	8.013	6.41	6.03	5.00
4229.40	28.360	10.480	4182.74	-201.23	272.85	38.84	1698451.17	552429.71	40°00'42.300"N	80°34'35.598"W	275.60	8.102	5.74	5.30	4.77
4244.00	28.350	10.960	4195.59	-206.07	279.67	40.13	1698452.46	552436.52	40°00'42.367"N	80°34'35.582"W	282.53	8.166	1.56	-0.07	3.29
4334.00	30.610	12.900	4273.93	-236.29	322.99	49.31	1698461.64	552479.84	40°00'42.796"N	80°34'35.471"W	326.73	8.680	2.73	2.51	2.16
4379.00	28.920	14.300	4313.00	-251.07	344.70	54.56	1698466.88	552501.56	40°00'43.012"N	80°34'35.407"W	348.99	8.994	4.06	-3.76	3.11
4468.00	27.970	24.450	4391.30	-275.73	384.58	68.52	1698480.85	552541.43	40°00'43.407"N	80°34'35.234"W	390.63	10.102	5.53	-1.07	11.40
4513.00	27.930	22.950	4431.05	-286.68	403.89	77.00	1698489.32	552560.74	40°00'43.599"N	80°34'35.128"W	411.16	10.793	1.56	-0.09	-3.33
4558.00	28.790	20.560	4470.65	-298.40	423.74	84.91	1698497.24	552580.59	40°00'43.796"N	80°34'35.029"W	432.16	11.331	3.16	1.91	-5.31
4603.00	28.950	16.840	4510.06	-311.26	444.31	91.87	1698504.20	552601.16	40°00'44.000"N	80°34'34.943"W	453.71	11.683	4.01	0.36	-8.27
4692.00	28.800	11.350	4588.01	-339.37	485.95	102.33	1698514.66	552642.80	40°00'44.413"N	80°34'34.815"W	496.61	11.892	2.98	-0.17	-6.17
4782.00	28.890	8.010	4666.85	-370.24	528.74	109.63	1698521.96	552685.59	40°00'44.837"N	80°34'34.728"W	539.99	11.714	1.79	0.10	-3.71
4872.00	28.850	5.820	4745.66	-402.57	571.87	114.86	1698527.19	552728.72	40°00'45.264"N	80°34'34.667"W	583.29	11.357	1.18	-0.04	-2.43
4961.00	28.170	6.450	4823.87	-434.56	614.11	119.40	1698531.72	552770.95	40°00'45.682"N	80°34'34.615"W	625.61	11.003	0.84	-0.76	0.71
5051.00	27.700	11.920	4903.40	-464.78	655.69	126.11	1698538.43	552812.54	40°00'46.093"N	80°34'34.535"W	667.71	10.887	2.89	-0.52	6.08
5140.00	27.790	18.290	4982.18	-491.32	695.64	136.89	1698549.22	552852.48	40°00'46.489"N	80°34'34.403"W	708.98	11.133	3.33	0.10	7.16
5230.00	27.360	17.180	5061.96	-516.54	735.32	149.59	1698561.91	552892.16	40°00'46.883"N	80°34'34.246"W	750.38	11.499	0.74	-0.48	-1.23
5319.00	27.350	17.480	5141.01	-541.53	774.36	161.77	1698574.09	552931.20	40°00'47.270"N	80°34'34.095"W	791.07	11.800	0.16	-0.01	0.34
5409.00	27.360	19.820	5220.94	-566.04	813.53	174.99	1698587.31	552970.37	40°00'47.659"N	80°34'33.931"W	832.14	12.139	1.19	0.01	2.60
5498.00	27.390	17.790	5299.98	-590.20	852.27	188.18	1698600.50	553009.10	40°00'48.043"N	80°34'33.768"W	872.80	12.451	1.05	0.03	-2.28
5588.00	27.300	15.850	5379.92	-615.75	891.83	200.14	1698612.46	553048.67	40°00'48.435"N	80°34'33.620"W	914.02	12.649	1.00	-0.10	-2.16
5678.00	27.260	18.540	5459.92	-641.03	931.23	212.33	1698624.65	553088.07	40°00'48.826"N	80°34'33.470"W	955.13	12.845	1.37	-0.04	2.99
5767.00	27.080	20.270	5539.10	-664.69	969.56	225.83	1698638.15	553126.39	40°00'49.207"N	80°34'33.302"W	995.51	13.112	0.91	-0.20	1.94
5857.00	27.340	17.750	5619.14	-688.87	1008.46	239.23	1698651.55	553165.29	40°00'49.593"N	80°34'33.136"W	1036.45	13.345	1.31	0.29	-2.80
5946.00	25.610	16.690	5698.81	-713.16	1046.35	250.99	1698663.31	553203.18	40°00'49.968"N	80°34'32.991"W	1076.04	13.489	2.01	-1.94	-1.19

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Marshall County, WV	Well	SHL-22H-HS ST01
Field	Marshall	Wellbore	SHL-22H-HS ST01 AWB
Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

WELLPATH DATA (186 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
6036.00	25.530	17.590	5779.99	-737.00	1083.47	262.43	1698674.75	553240.30	40°00'50.337"N	80°34'32.849"W	1114.80	13.616	0.44	-0.09	1.00
6125.00	25.850	19.190	5860.19	-760.01	1120.08	274.61	1698686.93	553276.91	40°00'50.700"N	80°34'32.698"W	1153.25	13.775	0.86	0.36	1.80
6215.00	25.820	22.450	5941.20	-782.03	1156.73	288.54	1698700.86	553313.55	40°00'51.064"N	80°34'32.525"W	1192.17	14.006	1.58	-0.03	3.62
6305.00	25.880	37.000	6022.28	-798.67	1190.56	307.87	1698720.19	553347.39	40°00'51.400"N	80°34'32.282"W	1229.72	14.498	7.03	0.07	16.17
6394.00	25.850	53.640	6102.47	-805.14	1217.61	335.22	1698747.54	553374.44	40°00'51.671"N	80°34'31.935"W	1262.92	15.393	8.13	-0.03	18.70
6484.00	25.810	70.920	6183.60	-800.22	1235.68	369.58	1698781.90	553392.50	40°00'51.853"N	80°34'31.496"W	1289.76	16.652	8.34	-0.04	19.20
6573.00	28.460	91.350	6262.97	-782.30	1241.52	409.19	1698821.50	553398.35	40°00'51.916"N	80°34'30.988"W	1307.22	18.241	10.83	2.98	22.96
6663.00	30.570	107.680	6341.41	-751.33	1234.06	452.51	1698864.82	553390.88	40°00'51.847"N	80°34'30.430"W	1314.40	20.137	9.21	2.34	18.14
6753.00	38.600	116.190	6415.49	-708.44	1214.67	499.61	1698911.92	553371.49	40°00'51.661"N	80°34'29.821"W	1313.41	22.358	10.39	8.92	9.46
6842.00	44.610	122.380	6482.03	-655.19	1185.64	550.98	1698963.29	553342.47	40°00'51.380"N	80°34'29.157"W	1307.41	24.925	8.17	6.75	6.96
6932.00	53.300	127.540	6541.10	-591.45	1146.65	606.41	1699018.72	553303.47	40°00'51.002"N	80°34'28.439"W	1297.12	27.872	10.57	9.66	5.73
7021.00	63.770	130.890	6587.50	-518.49	1098.63	665.05	1699077.36	553255.46	40°00'50.534"N	80°34'27.678"W	1284.25	31.188	12.19	11.76	3.76
7111.00	72.750	134.560	6620.81	-436.88	1041.92	726.33	1699138.63	553198.75	40°00'49.981"N	80°34'26.881"W	1270.10	34.881	10.67	9.98	4.08
7201.00	81.910	141.980	6640.56	-349.83	976.44	784.60	1699196.90	553133.27	40°00'49.341"N	80°34'26.122"W	1252.61	38.783	12.97	10.18	8.24
7290.00	88.280	143.080	6648.16	-261.28	906.10	838.51	1699250.81	553062.93	40°00'48.652"N	80°34'25.419"W	1234.55	42.781	7.26	7.16	1.24
7380.00	89.260	145.000	6650.10	-171.32	833.27	891.34	1699303.64	552990.11	40°00'47.938"N	80°34'24.729"W	1220.18	46.929	2.39	1.09	2.13
7469.00	89.140	145.350	6651.34	-82.33	760.22	942.16	1699354.46	552917.06	40°00'47.223"N	80°34'24.064"W	1210.62	51.100	0.42	-0.13	0.39
7559.00	88.830	144.590	6652.93	7.65	686.53	993.82	1699406.11	552843.38	40°00'46.501"N	80°34'23.389"W	1207.89	55.363	0.91	-0.34	-0.84
7649.00	88.710	145.340	6654.86	97.63	612.86	1045.47	1699457.76	552769.71	40°00'45.779"N	80°34'22.714"W	1211.86	59.621	0.84	-0.13	0.83
7738.00	88.710	145.610	6656.87	186.61	539.55	1095.90	1699508.19	552696.40	40°00'45.060"N	80°34'22.055"W	1221.52	63.787	0.30	0.00	0.30
7828.00	89.080	146.530	6658.60	276.57	464.89	1146.13	1699558.41	552621.74	40°00'44.328"N	80°34'21.398"W	1236.82	67.922	1.10	0.41	1.02
7917.00	89.690	147.550	6659.56	365.51	390.22	1194.54	1699606.83	552547.08	40°00'43.596"N	80°34'20.764"W	1256.66	71.909	1.34	0.69	1.15
8007.00	90.090	148.670	6659.73	455.38	313.81	1242.09	1699654.37	552470.67	40°00'42.847"N	80°34'20.142"W	1281.12	75.821	1.32	0.44	1.24
8097.00	89.570	148.290	6660.00	545.21	237.09	1289.14	1699701.42	552393.95	40°00'42.094"N	80°34'19.525"W	1310.76	79.579	0.72	-0.58	-0.42
8186.00	90.340	149.640	6660.07	633.99	160.83	1335.02	1699747.30	552317.69	40°00'41.346"N	80°34'18.924"W	1344.68	83.131	1.75	0.87	1.52
8276.00	89.970	142.870	6659.83	723.92	86.04	1384.99	1699797.26	552242.90	40°00'40.613"N	80°34'18.270"W	1387.66	86.445	7.53	-0.41	-7.52
8365.00	89.940	140.130	6659.89	812.74	16.39	1440.39	1699852.66	552173.26	40°00'39.931"N	80°34'17.548"W	1440.48	89.348	3.08	-0.03	-3.08
8455.00	89.970	142.140	6659.97	902.54	-53.68	1496.86	1699909.13	552103.19	40°00'39.245"N	80°34'16.811"W	1497.82	92.054	2.23	0.03	2.23
8545.00	90.060	141.930	6659.94	992.41	-124.64	1552.22	1699964.49	552032.24	40°00'38.551"N	80°34'16.089"W	1557.22	94.591	0.25	0.10	-0.23
8634.00	89.570	143.590	6660.23	1081.34	-195.49	1606.08	1700018.35	551961.39	40°00'37.857"N	80°34'15.386"W	1617.93	96.940	1.94	-0.55	1.87

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Marshall County, WV	Well	SHL-22H-HS ST01
Field	Marshall	Wellbore	SHL-22H-HS ST01 AWB
Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

WELLPATH DATA (186 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
8724.00	89.480	143.160	6660.98	1171.30	-267.71	1659.77	1700072.04	551889.17	40°00'37.149"N	80°34'14.685"W	1681.22	99.163	0.49	-0.10	-0.48
8814.00	89.540	143.360	6661.75	1261.26	-339.83	1713.60	1700125.87	551817.05	40°00'36.443"N	80°34'13.982"W	1746.98	101.217	0.23	0.07	0.22
8903.00	89.570	145.760	6662.44	1350.25	-412.34	1765.21	1700177.47	551744.55	40°00'35.733"N	80°34'13.308"W	1812.73	103.148	2.70	0.03	2.70
8993.00	89.570	147.490	6663.11	1440.20	-487.49	1814.71	1700226.97	551669.40	40°00'34.996"N	80°34'12.660"W	1879.05	105.036	1.92	0.00	1.92
9083.00	89.510	147.600	6663.83	1530.11	-563.43	1863.01	1700275.27	551593.46	40°00'34.251"N	80°34'12.028"W	1946.34	106.827	0.14	-0.07	0.12
9172.00	89.540	147.440	6664.57	1619.02	-638.51	1910.80	1700323.06	551518.39	40°00'33.515"N	80°34'11.403"W	2014.66	108.477	0.18	0.03	-0.18
9262.00	89.690	146.240	6665.18	1708.97	-713.85	1960.03	1700372.28	551443.05	40°00'32.776"N	80°34'10.758"W	2085.97	110.012	1.34	0.17	-1.33
9351.00	89.690	144.150	6665.66	1797.97	-786.92	2010.82	1700423.08	551369.98	40°00'32.060"N	80°34'10.095"W	2159.32	111.372	2.35	0.00	-2.35
9441.00	89.850	142.180	6666.02	1887.92	-858.95	2064.78	1700477.03	551297.96	40°00'31.355"N	80°34'09.390"W	2236.31	112.587	2.20	0.18	-2.19
9531.00	89.750	141.930	6666.33	1977.80	-929.92	2120.12	1700532.37	551226.99	40°00'30.660"N	80°34'08.668"W	2315.09	113.683	0.30	-0.11	-0.28
9620.00	89.720	143.850	6666.75	2066.73	-1000.89	2173.81	1700586.06	551156.02	40°00'29.965"N	80°34'07.967"W	2393.17	114.723	2.16	-0.03	2.16
9710.00	89.660	146.750	6667.23	2156.72	-1074.88	2225.04	1700637.28	551082.04	40°00'29.240"N	80°34'07.298"W	2471.07	115.784	3.22	-0.07	3.22
9799.00	89.540	145.490	6667.85	2245.70	-1148.76	2274.65	1700686.89	551008.15	40°00'28.515"N	80°34'06.649"W	2548.27	116.795	1.42	-0.13	-1.42
9889.00	89.350	145.740	6668.73	2335.69	-1223.03	2325.48	1700737.72	550933.89	40°00'27.788"N	80°34'05.985"W	2627.48	117.741	0.35	-0.21	0.28
9978.00	89.350	146.960	6669.74	2424.66	-1297.11	2374.79	1700787.03	550859.81	40°00'27.061"N	80°34'05.340"W	2705.94	118.643	1.37	0.00	1.37
10068.00	89.290	144.020	6670.80	2514.64	-1371.26	2425.77	1700838.01	550785.66	40°00'26.335"N	80°34'04.673"W	2786.52	119.479	3.27	-0.07	-3.27
10158.00	89.290	141.360	6671.92	2604.55	-1442.83	2480.31	1700892.55	550714.09	40°00'25.634"N	80°34'03.961"W	2869.45	120.187	2.96	0.00	-2.96
10247.00	89.380	141.510	6672.95	2693.37	-1512.42	2535.79	1700948.02	550644.51	40°00'24.953"N	80°34'03.238"W	2952.57	120.813	0.20	0.10	0.17
10337.00	89.880	142.570	6673.53	2783.25	-1583.37	2591.15	1701003.38	550573.56	40°00'24.258"N	80°34'02.516"W	3036.63	121.428	1.30	0.56	1.18
10426.00	89.940	145.170	6673.67	2872.22	-1655.25	2643.62	1701055.85	550501.68	40°00'23.554"N	80°34'01.830"W	3119.07	122.052	2.92	0.07	2.92
10516.00	90.520	146.530	6673.31	2962.21	-1729.73	2694.14	1701106.37	550427.21	40°00'22.824"N	80°34'01.170"W	3201.62	122.702	1.64	0.64	1.51
10605.00	89.600	145.590	6673.22	3051.19	-1803.56	2743.83	1701156.06	550353.38	40°00'22.100"N	80°34'00.520"W	3283.51	123.318	1.48	-1.03	-1.06
10695.00	88.890	146.520	6674.41	3141.17	-1878.22	2794.08	1701206.30	550278.72	40°00'21.368"N	80°33'59.863"W	3366.69	123.910	1.30	-0.79	1.03
10784.00	88.890	146.610	6676.13	3230.12	-1952.48	2843.11	1701255.33	550204.47	40°00'20.640"N	80°33'59.222"W	3448.98	124.479	0.10	0.00	0.10
10874.00	88.860	146.960	6677.90	3320.06	-2027.76	2892.40	1701304.62	550129.19	40°00'19.902"N	80°33'58.577"W	3532.39	125.033	0.39	-0.03	0.39
10964.00	89.480	142.160	6679.20	3410.02	-2101.05	2944.57	1701356.78	550055.90	40°00'19.184"N	80°33'57.895"W	3617.31	125.509	5.38	0.69	-5.33
1053.00	90.030	142.400	6679.58	3498.91	-2171.45	2999.02	1701411.23	549985.50	40°00'18.494"N	80°33'57.185"W	3702.61	125.907	0.67	0.62	0.27
11143.00	90.770	144.370	6678.95	3588.87	-2243.69	3052.69	1701464.90	549913.27	40°00'17.787"N	80°33'56.484"W	3788.54	126.315	2.34	0.82	2.19
1232.00	90.430	145.650	6678.02	3677.86	-2316.59	3103.72	1701515.93	549840.37	40°00'17.073"N	80°33'55.818"W	3872.95	126.737	1.49	-0.38	1.44
11322.00	90.400	147.950	6677.37	3767.81	-2391.89	3153.00	1701565.21	549765.07	40°00'16.334"N	80°33'55.173"W	3957.60	127.184	2.56	-0.03	2.56

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Area	Marshall County, WV	Well	SHL-22H-HS ST01
Field	Marshall	Wellbore	SHL-22H-HS ST01 AWB
Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

WELLPATH DATA (186 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert.Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
11411.00	90.000	146.010	6677.06	3856.75	-2466.52	3201.50	1701613.70	549690.45	40°00'15.602"N	80°33'54.538"W	4041.44	127.612	2.23	-0.45	-2.18
11501.00	90.000	145.730	6677.06	3946.74	-2541.01	3251.99	1701664.20	549615.95	40°00'14.872"N	80°33'53.878"W	4127.01	128.003	0.31	0.00	-0.31
11591.00	89.940	144.780	6677.11	4036.74	-2614.97	3303.29	1701715.49	549542.00	40°00'14.147"N	80°33'53.208"W	4213.04	128.366	1.06	-0.07	-1.06
11680.00	89.910	146.030	6677.22	4125.74	-2688.23	3353.82	1701766.02	549468.75	40°00'13.429"N	80°33'52.547"W	4298.21	128.714	1.40	-0.03	1.40
11770.00	90.150	147.190	6677.17	4215.70	-2763.37	3403.35	1701815.54	549393.61	40°00'12.693"N	80°33'51.900"W	4383.95	129.075	1.32	0.27	1.29
11859.00	90.220	146.680	6676.89	4304.65	-2837.96	3451.90	1701864.10	549319.02	40°00'11.961"N	80°33'51.264"W	4468.74	129.425	0.58	0.08	-0.57
11949.00	90.800	143.380	6676.09	4394.63	-2911.70	3503.48	1701915.67	549245.29	40°00'11.239"N	80°33'50.590"W	4555.47	129.730	3.72	0.64	-3.67
12039.00	90.920	145.470	6674.74	4484.61	-2984.88	3555.83	1701968.02	549172.10	40°00'10.522"N	80°33'49.907"W	4642.57	130.011	2.33	0.13	2.32
12128.00	90.920	147.210	6673.31	4573.57	-3058.95	3605.15	1702017.34	549098.04	40°00'09.795"N	80°33'49.262"W	4728.03	130.314	1.95	0.00	1.96
12218.00	90.950	144.430	6671.84	4663.54	-3133.39	3655.70	1702067.89	549023.60	40°00'09.066"N	80°33'48.601"W	4814.79	130.601	3.09	0.03	-3.09
12307.00	90.030	142.170	6671.08	4752.49	-3204.74	3708.88	1702121.07	548952.26	40°00'08.367"N	80°33'47.907"W	4901.65	130.829	2.74	-1.03	-2.54
12397.00	90.000	143.590	6671.05	4842.43	-3276.50	3763.19	1702175.38	548880.50	40°00'07.664"N	80°33'47.198"W	4989.70	131.045	1.58	-0.03	1.58
12486.00	89.910	144.080	6671.12	4931.41	-3348.35	3815.71	1702227.89	548808.65	40°00'06.960"N	80°33'46.512"W	5076.53	131.267	0.56	-0.10	0.55
12576.00	89.850	144.550	6671.31	5021.40	-3421.45	3868.21	1702280.39	548735.55	40°00'06.244"N	80°33'45.826"W	5164.24	131.493	0.53	-0.07	0.52
12666.00	89.910	146.310	6671.50	5111.40	-3495.56	3919.28	1702331.45	548661.45	40°00'05.518"N	80°33'45.159"W	5251.63	131.729	1.96	0.07	1.96
12755.00	89.880	145.980	6671.66	5200.38	-3569.47	3968.86	1702381.03	548587.54	40°00'04.793"N	80°33'44.511"W	5337.88	131.967	0.37	-0.03	-0.37
12845.00	89.880	145.850	6671.85	5290.37	-3644.01	4019.30	1702431.47	548513.00	40°00'04.062"N	80°33'43.851"W	5425.27	132.196	0.14	0.00	-0.14
12934.00	89.940	147.230	6671.99	5379.33	-3718.25	4068.36	1702480.54	548438.76	40°00'03.334"N	80°33'43.210"W	5511.53	132.426	1.55	0.07	1.55
13024.00	89.970	147.750	6672.06	5469.25	-3794.15	4116.73	1702528.91	548362.87	40°00'02.590"N	80°33'42.577"W	5598.49	132.665	0.58	0.03	0.58
13113.00	89.910	146.170	6672.15	5558.19	-3868.76	4165.26	1702577.43	548288.26	40°00'01.859"N	80°33'41.942"W	5684.77	132.886	1.78	-0.07	-1.78
13203.00	89.910	147.350	6672.30	5648.15	-3944.03	4214.59	1702626.76	548212.99	40°00'01.120"N	80°33'41.297"W	5772.19	133.101	1.31	0.00	1.31
13293.00	89.970	146.710	6672.39	5738.09	-4019.54	4263.57	1702675.73	548137.49	40°00'00.380"N	80°33'40.656"W	5859.58	133.312	0.71	0.07	-0.71
13382.00	89.940	145.670	6672.46	5827.07	-4093.48	4313.09	1702725.25	548063.55	39°59'59.655"N	80°33'40.008"W	5946.37	133.504	1.17	-0.03	-1.17
13472.00	89.910	144.510	6672.58	5917.07	-4167.29	4364.60	1702776.76	547989.74	39°59'58.932"N	80°33'39.335"W	6034.57	133.675	1.29	-0.03	-1.29
13561.00	89.940	142.930	6672.69	6006.05	-4239.03	4417.26	1702829.42	547918.00	39°59'58.229"N	80°33'38.648"W	6122.22	133.820	1.78	0.03	-1.78
13651.00	89.910	144.230	6672.81	6096.02	-4311.45	4470.69	1702882.82	547845.59	39°59'57.520"N	80°33'37.950"W	6210.93	133.961	1.44	-0.03	1.44
13740.00	89.970	144.470	6672.91	6185.01	-4383.77	4522.56	1702934.72	547773.27	39°59'56.811"N	80°33'37.273"W	6298.49	134.107	0.28	0.07	0.27
13830.00	89.910	142.860	6673.00	6274.98	-4456.27	4575.89	1702988.04	547700.77	39°59'56.101"N	80°33'36.577"W	6387.26	134.241	1.79	-0.07	-1.79
13920.00	90.000	142.410	6673.07	6364.91	-4527.80	4630.51	1703042.66	547629.25	39°59'55.400"N	80°33'35.864"W	6476.31	134.357	0.51	0.10	-0.50
14009.00	89.970	139.160	6673.09	6453.65	-4596.75	4686.77	1703098.92	547560.30	39°59'54.726"N	80°33'35.131"W	6564.74	134.444	3.65	-0.03	-3.65

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Marshall County, WV	Well	SHL-22H-HS ST01
Field	Marshall	Wellbore	SHL-22H-HS ST01 AWB
Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

WELLPATH DATA (186 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
14099.00	89.780	138.590	6673.29	6543.14	-4664.54	4745.96	1703158.11	547492.51	39°59'54.062"N	80°33'34.360"W	6654.48	134.504	0.67	-0.21	-0.63
14189.00	89.880	137.930	6673.56	6632.52	-4731.70	4805.88	1703218.02	547425.36	39°59'53.406"N	80°33'33.580"W	6744.29	134.554	0.74	0.11	-0.73
14278.00	89.940	144.790	6673.70	6721.28	-4801.17	4861.42	1703273.56	547355.89	39°59'52.726"N	80°33'32.856"W	6832.61	134.643	0.71	0.07	7.71
14368.00	89.230	144.860	6674.35	6811.28	-4874.73	4913.26	1703325.40	547282.32	39°59'52.005"N	80°33'32.179"W	6921.21	134.774	0.79	-0.79	0.08
14404.00	89.540	144.370	6674.74	6847.28	-4904.08	4934.11	1703346.25	547252.98	39°59'51.717"N	80°33'31.906"W	6956.68	134.825	1.61	0.86	-1.36
14429.00	89.540	144.370	6674.94	6872.27	-4924.40	4948.67	1703360.81	547232.66	39°59'51.518"N	80°33'31.716"W	6981.34	134.859	0.00	0.00	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHL-22H-HS LP Rev-3		6653.00	864.37	863.47	1699275.77	553021.21	40°00'48.243"N	80°34'25.092"W	point
SHL-22H-HS BHL Rev-2		6673.00	-4939.30	4927.24	1703339.38	547217.76	39°59'51.368"N	80°33'31.989"W	point
SHL-22 Pad LL		7002.03	-98.44	-99.49	1698312.84	552058.43	40°00'38.614"N	80°34'37.318"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: SHL-22H-HS ST01 AWB Ref Wellpath: SHL-22H-HS ST01 AWP Proj: 14429'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
19.40	3169.40	Generic gyro - northseeking (Standard)	01 MS Gyro <12-1/4"> (100'-3162')	SHL-22H-HS AWB
3169.40	4229.40	ISCWSA MWD, Rev. 2 (Standard)	02 SDI MWD <8-3/4"> (3162')(3219'-5192')	SHL-22H-HS AWB
4229.40	14404.00	NaviTrak (AT Curve Short Spaced)	03_BHI AT Curve <8-3/4"> (4229.4')(4244'-14404')	SHL-22H-HS ST01 AWB
14404.00	14429.00	Blind Drilling (std)	Projection to bit	SHL-22H-HS ST01 AWB



Actual Wellpath Report

SHL-22H-HS ST01 AWP Proj: 14429'
Page 9 of 9



REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Marshall County, WV	Well	SHL-22H-HS ST01
Field	Marshall	Wellbore	SHL-22H-HS ST01 AWB
Facility	SHL-22 Pad	Sidetrack from	SHL-22H-HS AWB at 4229.40 MD

COMMENTS

Wellpath general comments
 API: 47-051-01767-0100
 BHI Job #: 7270524
 Rig: Precision 584
 Duration: 5/29/2015-6/9/2015
 MS Gyro <12-1/4"> (100'-3162')
 SDI MWD <8-3/4"> (3162')(3219'-5192')
 BHI AT Curve <8-3/4"> (4229.4')(4244'-14404')
 Projected MD at TD: 14429'

05/26/2017

Location: Marshall County, WV
 Field: Marshall
 Facility: SHL-22 Pad
 Slot: Slot H
 Well: SHL-22H-HS ST01
 Wellbore: SHL-22H-HS ST01 PWB

File reference: wellpath is SHL-22H-HS ST01 PWB Rev B.1

True vertical depths are referenced to Precision 584 (RKB)

Measured depths are referenced to Precision 584 (RKB)

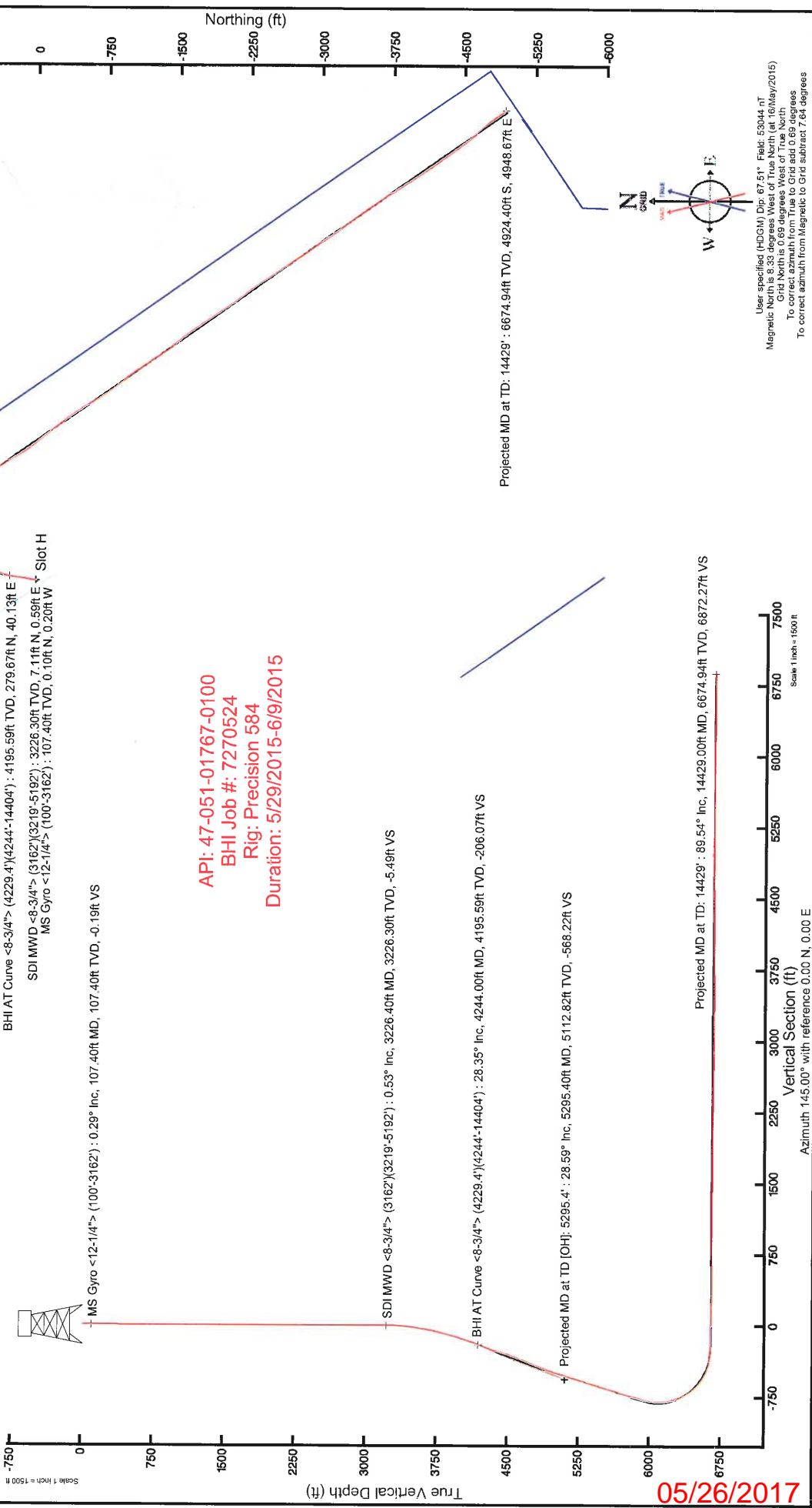
Precision 584 (RKB) to Mean Sea Level: 1342.03 feet

Mean Sea Level to Mud line (At Slot, Slot H): -1322.63 feet

Coordinates are in feet referenced to Slot

Created by: oebaygar on 10/09/2015

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
SHL-22 Pad	1098312.840	552058.430	80°34'37.318"W
Slot	Local E (ft)	Local N (ft)	Latitude
Slot H	98.44	68.49	80°34'36.055"W
Precision 584 (RKB) to Mud line (At Slot, Slot H)	1098472.330	552150.870	19.4ft
Mean Sea Level to Mud line (At Slot, Slot H)			-1322.63ft
Precision 584 (RKB) to Mean Sea Level			1342.03ft



API: 47-051-01767-0100
 BHI Job #: 7270524
 Rig: Precision 584
 Duration: 5/29/2015-6/9/2015

1102/9/50

User specified (MDCM) Dip: 67.51° Field: 53044 nT
 Magnetic True North (West of True North) at 10/09/2015
 Grid North is 0.69 degrees West of True North
 To correct azimuth from True to Grid add 0.69 degrees
 To correct azimuth from Magnetic to Grid subtract 7.64 degrees