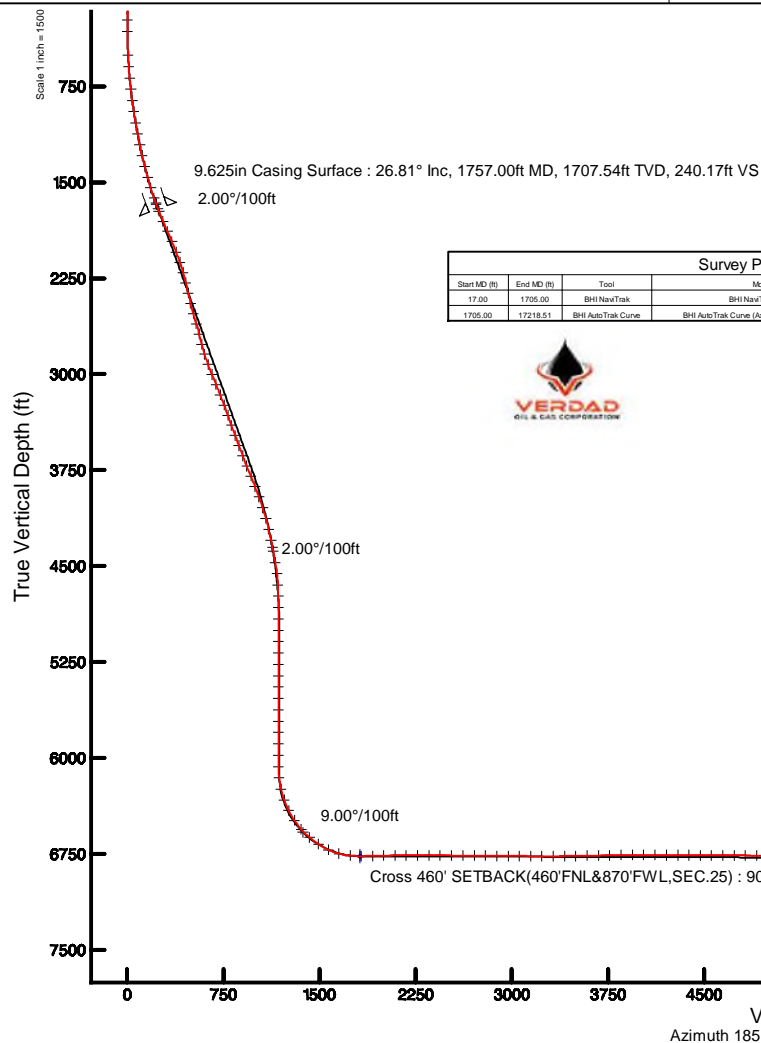


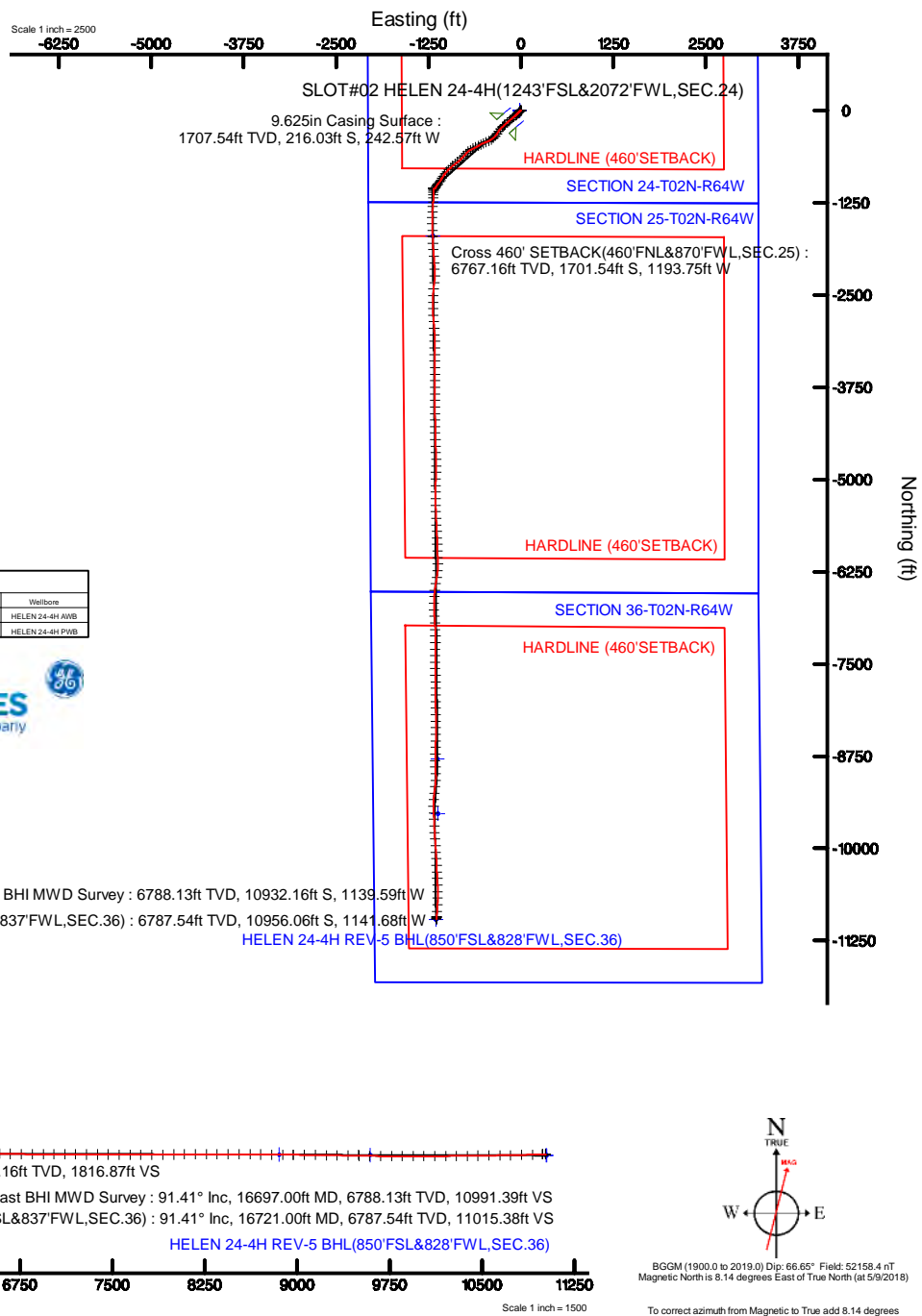
Location:	COLORADO	Slot:	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Field:	WELD COUNTY (NAD83/TN)	Well:	HELEN 24-4H
Facility:	SEC.24-T02N-R64W	Wellbore:	HELEN 24-4H PWB

Plot reference wellpath is HELEN 24-4H (REV-E) P/WP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone [501], US test
True vertical depths are referenced to RIG (17KB) (RKB)	* = Wellpath was transformed from a different geoidic datum
Measured depths are referenced to RIG (17KB) (RKB)	North Reference: True north
RIG (17KB) (RKB) to Mean Sea Level: 4942 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: SLOTR02 HELEN 24-4H(1243FSA202ZFVL,SEC.243): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gumaier on 2018-05-29
	Database: WA_DEN_Denver_Dein

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC 24-T02N-R64W			3279152.813	1288152.651	40°07'12.212"N	104°30'06.458"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#02 HELEN 24-4H(1243FSL&2027FWL,SEC.24)	-0.30	20.12	3279172.935	1288152.574	40°07'12.209"N	104°30'06.199"W
RIG (17KB) (RKB) to Ground level (At Slot: SLOT#02 HELEN 24-4H(1243FSL&2027FWL,SEC.24))					4942ft	
Mean Sea Level to Ground level (At Slot: SLOT#02 HELEN 24-4H(1243FSL&2027FWL,SEC.24))					0ft	
RIG (17KB) (RKB) to Mean Sea Level					4942ft	



Survey Program					
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	1705.00	BHI NavTrak	BHI NavTrak (Aval)		HELEN 24-4H AWB
1705.00	17218.51	BHI AutoTrak Curve	BHI AutoTrak Curve (Aval Corr. Short spacino)		HELEN 24-4H PWB





Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Guenaler
Scale	0.999959	Report Generated	5/29/2018 at 3:54:18 PM
Convergence at slot	0.65° East	Database/Source file	WA_DEN_Denver_Defn/HELEN_24-4H_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.30	20.12	3279172.94	1288152.57	40°07'12.209"N	104°30'06.199"W
Facility Reference Pt			3279152.81	1288152.65	40°07'12.212"N	104°30'06.458"W
Field Reference Pt			3242930.13	1254608.21	40°01'44.490"N	104°37'56.946"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (17'KB) (RKB) to Facility Vertical Datum	4942.00ft
Horizontal Reference Pt	Slot	RIG (17'KB) (RKB) to Mean Sea Level	4942.00ft
Vertical Reference Pt	RIG (17'KB) (RKB)	RIG (17'KB) (RKB) to Ground Level at Slot (SLOT#02 HELEN 24-4H (1243'FSL&2072'FWL,SEC.24))	4942.00ft
MD Reference Pt	RIG (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	185.95°



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	209.350	0.00	0.00	0.00	0.00	40°07'12.209"N	104°30'06.199"W	0.00	
17.00	0.000	209.350	17.00	0.00	0.00	0.00	40°07'12.209"N	104°30'06.199"W	0.00	
231.00	0.270	209.350	231.00	0.46	-0.44	-0.25	40°07'12.205"N	104°30'06.202"W	0.13	
323.00	1.170	236.620	322.99	1.26	-1.15	-1.14	40°07'12.198"N	104°30'06.214"W	1.02	
509.00	3.680	228.390	508.81	6.87	-6.15	-7.19	40°07'12.148"N	104°30'06.292"W	1.36	
597.00	5.060	225.990	596.55	11.92	-10.73	-12.09	40°07'12.103"N	104°30'06.355"W	1.58	
686.00	6.780	228.530	685.07	18.80	-16.93	-18.85	40°07'12.042"N	104°30'06.442"W	1.95	
775.00	8.200	225.900	773.31	27.53	-24.83	-27.35	40°07'11.964"N	104°30'06.551"W	1.64	
863.00	9.860	224.680	860.22	38.22	-34.55	-37.15	40°07'11.868"N	104°30'06.677"W	1.90	
952.00	10.960	223.210	947.75	50.90	-46.14	-48.30	40°07'11.753"N	104°30'06.821"W	1.27	
1041.00	12.710	226.420	1034.86	65.08	-59.06	-61.19	40°07'11.625"N	104°30'06.987"W	2.10	
1130.00	14.970	230.260	1121.27	80.76	-73.16	-77.12	40°07'11.486"N	104°30'07.192"W	2.74	
1219.00	16.240	233.520	1206.99	97.38	-87.91	-95.97	40°07'11.340"N	104°30'07.434"W	1.73	
1308.00	17.440	229.930	1292.17	115.37	-103.89	-116.18	40°07'11.182"N	104°30'07.695"W	1.78	
1397.00	19.050	228.400	1376.70	135.69	-122.12	-137.25	40°07'11.002"N	104°30'07.966"W	1.89	
1486.00	20.950	228.200	1460.33	158.19	-142.37	-159.98	40°07'10.802"N	104°30'08.258"W	2.14	
1575.00	22.940	230.150	1542.88	182.40	-164.09	-185.16	40°07'10.587"N	104°30'08.582"W	2.38	
1663.00	25.270	226.960	1623.20	208.87	-187.91	-212.06	40°07'10.352"N	104°30'08.929"W	3.03	
1705.00	26.270	227.460	1661.02	222.60	-200.31	-225.46	40°07'10.230"N	104°30'09.101"W	2.44	
1778.00	27.030	227.380	1726.27	247.13	-222.46	-249.57	40°07'10.011"N	104°30'09.411"W	1.04	
1867.00	27.000	222.100	1805.57	278.61	-251.15	-278.00	40°07'09.727"N	104°30'09.777"W	2.69	
1956.00	28.040	213.860	1884.52	313.42	-283.53	-303.21	40°07'09.407"N	104°30'10.102"W	4.43	
2045.00	24.500	209.990	1964.33	348.78	-316.89	-324.09	40°07'09.077"N	104°30'10.371"W	4.42	
2134.00	25.560	222.290	2045.02	381.12	-347.10	-346.25	40°07'08.779"N	104°30'10.656"W	5.96	
2223.00	24.900	229.530	2125.55	410.16	-373.47	-373.43	40°07'08.518"N	104°30'11.006"W	3.54	
2311.00	24.340	237.660	2205.57	434.83	-395.20	-402.86	40°07'08.304"N	104°30'11.385"W	3.90	
2400.00	25.600	244.980	2286.27	456.09	-413.15	-435.78	40°07'08.126"N	104°30'11.808"W	3.75	
2489.00	25.890	247.480	2366.44	475.25	-428.73	-471.16	40°07'07.972"N	104°30'12.264"W	1.26	
2578.00	26.510	248.780	2446.30	493.58	-443.36	-507.62	40°07'07.828"N	104°30'12.733"W	0.95	
2667.00	26.720	239.430	2525.90	514.57	-460.73	-543.38	40°07'07.656"N	104°30'13.193"W	4.71	



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2756.00	25.890	238.240	2605.68	538.36	-481.13	-577.13	40°07'07.454"N	104°30'13.628"W	1.10	
2845.00	26.490	245.510	2685.57	560.31	-499.60	-611.73	40°07'07.272"N	104°30'14.073"W	3.67	
2934.00	26.370	243.270	2765.27	581.03	-516.71	-647.44	40°07'07.103"N	104°30'14.533"W	1.13	
3023.00	26.950	240.610	2844.81	603.37	-535.50	-682.67	40°07'06.917"N	104°30'14.986"W	1.49	
3112.00	26.950	228.900	2924.20	629.82	-558.67	-715.46	40°07'06.688"N	104°30'15.408"W	5.95	
3200.00	26.720	220.790	3002.75	660.66	-586.77	-743.43	40°07'06.410"N	104°30'15.768"W	4.17	
3289.00	26.830	223.710	3082.21	692.96	-616.44	-770.38	40°07'06.117"N	104°30'16.115"W	1.48	
3378.00	26.670	223.920	3161.69	724.59	-645.35	-798.11	40°07'05.831"N	104°30'16.472"W	0.21	
3467.00	26.730	227.890	3241.20	755.23	-673.16	-826.82	40°07'05.557"N	104°30'16.842"W	2.01	
3556.00	26.850	232.190	3320.66	784.02	-698.90	-857.55	40°07'05.302"N	104°30'17.237"W	2.18	
3645.00	26.760	232.030	3400.09	811.82	-723.55	-889.22	40°07'05.059"N	104°30'17.645"W	0.13	
3734.00	26.690	227.970	3479.59	840.57	-749.26	-919.87	40°07'04.805"N	104°30'18.039"W	2.05	
3822.00	26.890	228.430	3558.15	869.92	-775.70	-949.43	40°07'04.543"N	104°30'18.420"W	0.33	
3911.00	26.000	225.050	3637.84	899.91	-802.84	-978.30	40°07'04.275"N	104°30'18.791"W	1.96	
4000.00	25.920	220.430	3717.87	931.08	-831.43	-1004.72	40°07'03.993"N	104°30'19.132"W	2.27	
4088.00	25.950	218.610	3797.01	963.15	-861.11	-1029.21	40°07'03.699"N	104°30'19.447"W	0.91	
4177.00	23.720	214.380	3877.78	995.29	-891.11	-1051.48	40°07'03.403"N	104°30'19.733"W	3.20	
4266.00	21.900	209.520	3959.82	1026.25	-920.33	-1069.77	40°07'03.114"N	104°30'19.969"W	2.94	
4355.00	19.780	210.800	4042.99	1055.13	-947.71	-1085.66	40°07'02.843"N	104°30'20.173"W	2.44	
4443.00	17.170	217.070	4126.46	1079.77	-970.87	-1101.11	40°07'02.614"N	104°30'20.372"W	3.72	
4531.00	15.760	220.480	4210.85	1100.74	-990.33	-1116.70	40°07'02.422"N	104°30'20.573"W	1.94	
4620.00	14.280	216.230	4296.81	1120.17	-1008.38	-1131.04	40°07'02.244"N	104°30'20.757"W	2.07	
4709.00	12.360	208.490	4383.42	1138.45	-1025.61	-1142.07	40°07'02.074"N	104°30'20.899"W	2.94	
4798.00	9.580	206.620	4470.78	1154.18	-1040.60	-1149.94	40°07'01.925"N	104°30'21.001"W	3.15	
4887.00	8.240	221.940	4558.72	1166.28	-1051.97	-1157.52	40°07'01.813"N	104°30'21.098"W	3.05	
4975.00	6.540	247.060	4646.01	1173.80	-1058.62	-1166.35	40°07'01.747"N	104°30'21.212"W	4.10	
5064.00	4.400	262.630	4734.60	1177.04	-1061.03	-1174.41	40°07'01.723"N	104°30'21.316"W	2.91	
5153.00	2.570	263.670	4823.43	1178.25	-1061.69	-1179.77	40°07'01.717"N	104°30'21.385"W	2.06	
5242.00	0.390	87.400	4912.41	1178.63	-1061.90	-1181.46	40°07'01.715"N	104°30'21.406"W	3.33	
5331.00	0.040	54.250	5001.41	1178.56	-1061.86	-1181.13	40°07'01.715"N	104°30'21.402"W	0.40	



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5419.00	0.200	66.070	5089.41	1178.46	-1061.78	-1180.96	40°07'01.716"N	104°30'21.400"W	0.18	
5508.00	0.160	277.750	5178.41	1178.38	-1061.70	-1180.94	40°07'01.717"N	104°30'21.400"W	0.39	
5597.00	0.040	113.070	5267.41	1178.39	-1061.70	-1181.04	40°07'01.717"N	104°30'21.401"W	0.22	
5686.00	0.040	28.460	5356.41	1178.37	-1061.68	-1181.00	40°07'01.717"N	104°30'21.400"W	0.06	
5775.00	0.100	6.530	5445.41	1178.26	-1061.58	-1180.97	40°07'01.718"N	104°30'21.400"W	0.07	
5863.00	0.090	90.500	5533.41	1178.18	-1061.50	-1180.89	40°07'01.719"N	104°30'21.399"W	0.14	
5952.00	0.090	99.380	5622.41	1178.18	-1061.52	-1180.75	40°07'01.719"N	104°30'21.397"W	0.02	
6041.00	0.030	74.400	5711.41	1178.17	-1061.52	-1180.66	40°07'01.719"N	104°30'21.396"W	0.07	
6130.00	0.100	64.190	5800.41	1178.12	-1061.48	-1180.57	40°07'01.719"N	104°30'21.395"W	0.08	
6219.00	0.040	153.400	5889.41	1178.11	-1061.47	-1180.49	40°07'01.719"N	104°30'21.394"W	0.12	
6308.00	0.100	111.820	5978.41	1178.16	-1061.53	-1180.40	40°07'01.719"N	104°30'21.393"W	0.08	
6396.00	0.040	173.150	6066.41	1178.21	-1061.59	-1180.33	40°07'01.718"N	104°30'21.392"W	0.10	
6485.00	7.090	179.090	6155.18	1183.70	-1067.12	-1180.24	40°07'01.663"N	104°30'21.391"W	7.92	
6574.00	12.730	187.360	6242.82	1198.97	-1082.35	-1181.40	40°07'01.513"N	104°30'21.406"W	6.52	
6663.00	19.350	181.250	6328.31	1223.49	-1106.85	-1182.98	40°07'01.271"N	104°30'21.426"W	7.67	
6752.00	26.590	179.410	6410.20	1258.02	-1141.55	-1183.10	40°07'00.928"N	104°30'21.427"W	8.17	
6841.00	33.810	181.130	6487.07	1302.55	-1186.28	-1183.38	40°07'00.486"N	104°30'21.431"W	8.17	
6930.00	41.410	183.460	6557.53	1356.71	-1240.50	-1185.65	40°06'59.950"N	104°30'21.460"W	8.69	
7019.00	49.470	184.960	6619.93	1420.04	-1303.69	-1190.36	40°06'59.326"N	104°30'21.521"W	9.13	
7108.00	56.510	184.990	6673.47	1491.05	-1374.44	-1196.52	40°06'58.626"N	104°30'21.600"W	7.91	
7197.00	65.240	181.690	6716.75	1568.62	-1451.97	-1200.95	40°06'57.860"N	104°30'21.657"W	10.33	
7285.00	74.380	178.380	6747.10	1650.67	-1534.46	-1200.93	40°06'57.045"N	104°30'21.657"W	10.97	
7374.00	84.270	176.940	6763.57	1737.10	-1621.74	-1197.35	40°06'56.182"N	104°30'21.610"W	11.23	
7454.00†	90.580	177.902	6767.16	1816.10	-1701.54	-1193.75	40°06'55.394"N	104°30'21.564"W	7.98	Cross 460' SETBACK(460'FNL&870'FWL,SEC.25)
7463.00	91.290	178.010	6767.01	1825.01	-1710.53	-1193.43	40°06'55.305"N	104°30'21.560"W	7.98	
7551.00	91.170	177.400	6765.12	1912.08	-1798.44	-1189.91	40°06'54.436"N	104°30'21.515"W	0.71	
7640.00	91.260	175.340	6763.24	1999.81	-1887.23	-1184.28	40°06'53.559"N	104°30'21.442"W	2.32	
7729.00	91.540	175.650	6761.06	2087.31	-1975.93	-1177.29	40°06'52.682"N	104°30'21.352"W	0.47	
7818.00	89.910	175.980	6759.93	2174.91	-2064.69	-1170.79	40°06'51.805"N	104°30'21.268"W	1.87	
7907.00	89.910	177.030	6760.07	2262.70	-2153.52	-1165.37	40°06'50.927"N	104°30'21.199"W	1.18	



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7996.00	89.750	182.100	6760.34	2351.12	-2242.49	-1164.69	40°06'50.048"N	104°30'21.190"W	5.70	
8085.00	89.480	187.330	6760.94	2440.07	-2331.15	-1172.01	40°06'49.172"N	104°30'21.284"W	5.88	
8174.00	89.570	185.220	6761.67	2529.06	-2419.61	-1181.73	40°06'48.298"N	104°30'21.409"W	2.37	
8263.00	89.570	182.240	6762.34	2617.98	-2508.41	-1187.52	40°06'47.420"N	104°30'21.483"W	3.35	
8352.00	89.540	179.420	6763.03	2706.61	-2597.39	-1188.81	40°06'46.541"N	104°30'21.500"W	3.17	
8440.00	89.540	179.770	6763.74	2794.07	-2685.38	-1188.19	40°06'45.671"N	104°30'21.492"W	0.40	
8529.00	89.480	177.980	6764.50	2882.39	-2774.36	-1186.44	40°06'44.792"N	104°30'21.469"W	2.01	
8618.00	89.540	174.530	6765.26	2970.10	-2863.15	-1180.63	40°06'43.915"N	104°30'21.395"W	3.88	
8707.00	89.480	175.420	6766.02	3057.47	-2951.81	-1172.84	40°06'43.039"N	104°30'21.294"W	1.00	
8796.00	89.510	176.970	6766.81	3145.17	-3040.60	-1166.93	40°06'42.161"N	104°30'21.218"W	1.74	
8884.00	90.000	179.750	6767.19	3232.39	-3128.56	-1164.41	40°06'41.292"N	104°30'21.186"W	3.21	
8974.00	90.000	180.760	6767.19	3321.95	-3218.56	-1164.81	40°06'40.403"N	104°30'21.191"W	1.12	
9063.00	90.990	179.600	6766.42	3410.49	-3307.55	-1165.09	40°06'39.523"N	104°30'21.194"W	1.71	
9151.00	91.050	179.280	6764.85	3497.91	-3395.53	-1164.23	40°06'38.654"N	104°30'21.183"W	0.37	
9240.00	90.950	179.350	6763.30	3586.30	-3484.51	-1163.17	40°06'37.774"N	104°30'21.169"W	0.14	
9329.00	90.960	179.660	6761.81	3674.73	-3573.50	-1162.40	40°06'36.895"N	104°30'21.159"W	0.35	
9418.00	90.950	180.840	6760.33	3763.27	-3662.48	-1162.79	40°06'36.016"N	104°30'21.164"W	1.33	
9507.00	91.110	180.430	6758.73	3851.88	-3751.46	-1163.77	40°06'35.136"N	104°30'21.177"W	0.49	
9596.00	89.820	179.740	6758.01	3940.41	-3840.46	-1163.91	40°06'34.257"N	104°30'21.179"W	1.64	
9684.00	89.690	179.500	6758.38	4027.87	-3928.45	-1163.32	40°06'33.387"N	104°30'21.171"W	0.31	
9773.00	89.910	179.370	6758.69	4116.29	-4017.45	-1162.44	40°06'32.508"N	104°30'21.160"W	0.29	
9862.00	89.910	179.350	6758.83	4204.70	-4106.44	-1161.45	40°06'31.628"N	104°30'21.147"W	0.02	
9951.00	89.880	179.170	6759.00	4293.10	-4195.44	-1160.30	40°06'30.749"N	104°30'21.132"W	0.21	
10040.00	89.850	179.310	6759.21	4381.49	-4284.43	-1159.12	40°06'29.869"N	104°30'21.117"W	0.16	
10128.00	89.750	179.070	6759.51	4468.88	-4372.42	-1157.88	40°06'29.000"N	104°30'21.101"W	0.30	
10217.00	89.690	178.380	6759.95	4557.17	-4461.39	-1155.90	40°06'28.121"N	104°30'21.075"W	0.78	
10306.00	89.660	178.020	6760.45	4645.35	-4550.35	-1153.10	40°06'27.242"N	104°30'21.039"W	0.41	
10395.00	89.600	177.150	6761.03	4733.41	-4639.27	-1149.35	40°06'26.363"N	104°30'20.991"W	0.98	
10484.00	89.630	178.220	6761.63	4821.48	-4728.19	-1145.76	40°06'25.484"N	104°30'20.945"W	1.20	
10572.00	89.600	180.690	6762.22	4908.90	-4816.18	-1144.92	40°06'24.615"N	104°30'20.934"W	2.81	



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10661.00	89.660	182.560	6762.79	4997.65	-4905.14	-1147.44	40°06'23.736"N	104°30'20.966"W	2.10	
10750.00	88.860	182.250	6763.94	5086.47	-4994.05	-1151.18	40°06'22.857"N	104°30'21.014"W	0.96	
10839.00	88.950	181.250	6765.64	5175.21	-5082.99	-1153.89	40°06'21.978"N	104°30'21.049"W	1.13	
10927.00	88.950	180.490	6767.26	5262.85	-5170.97	-1155.23	40°06'21.109"N	104°30'21.066"W	0.86	
11016.00	88.860	179.340	6768.96	5351.34	-5259.95	-1155.10	40°06'20.229"N	104°30'21.065"W	1.30	
11105.00	88.860	178.430	6770.73	5439.64	-5348.91	-1153.37	40°06'19.350"N	104°30'21.042"W	1.02	
11194.00	88.950	177.310	6772.43	5527.74	-5437.83	-1150.06	40°06'18.471"N	104°30'21.000"W	1.26	
11283.00	88.860	177.390	6774.13	5615.73	-5526.72	-1145.94	40°06'17.593"N	104°30'20.947"W	0.14	
11372.00	88.830	177.480	6775.92	5703.73	-5615.61	-1141.96	40°06'16.715"N	104°30'20.895"W	0.11	
11460.00	88.920	177.420	6777.65	5790.75	-5703.51	-1138.05	40°06'15.846"N	104°30'20.845"W	0.12	
11549.00	88.820	177.910	6778.63	5878.81	-5792.43	-1134.42	40°06'14.967"N	104°30'20.798"W	1.15	
11638.00	89.820	178.210	6778.91	5966.97	-5881.38	-1131.41	40°06'14.088"N	104°30'20.759"W	0.34	
11726.00	89.750	179.020	6779.24	6054.25	-5969.35	-1129.28	40°06'13.219"N	104°30'20.732"W	0.92	
11815.00	89.880	176.820	6779.53	6142.37	-6058.29	-1126.05	40°06'12.340"N	104°30'20.690"W	2.48	
11904.00	89.940	178.900	6779.67	6230.48	-6147.22	-1122.73	40°06'11.461"N	104°30'20.647"W	2.34	
11993.00	90.090	185.020	6779.64	6319.22	-6236.13	-1125.77	40°06'10.583"N	104°30'20.687"W	6.88	
12082.00	89.450	189.500	6780.00	6408.17	-6324.39	-1137.02	40°06'09.710"N	104°30'20.831"W	5.08	
12171.00	88.980	189.630	6781.22	6496.99	-6412.14	-1151.80	40°06'08.843"N	104°30'21.021"W	0.55	
12260.00	88.980	186.350	6782.80	6585.90	-6500.25	-1164.17	40°06'07.972"N	104°30'21.181"W	3.68	
12348.00	89.020	183.760	6784.34	6673.87	-6587.89	-1171.92	40°06'07.106"N	104°30'21.280"W	2.94	
12437.00	88.920	181.050	6785.94	6762.68	-6676.79	-1175.66	40°06'06.228"N	104°30'21.328"W	3.05	
12526.00	89.040	177.000	6787.53	6851.00	-6765.74	-1174.14	40°06'05.349"N	104°30'21.309"W	4.55	
12615.00	89.880	176.250	6788.36	6938.82	-6854.58	-1168.90	40°06'04.471"N	104°30'21.241"W	1.27	
12704.00	89.940	176.550	6788.50	7026.58	-6943.41	-1163.31	40°06'03.593"N	104°30'21.169"W	0.34	
12793.00	89.910	177.310	6788.62	7114.48	-7032.28	-1158.55	40°06'02.715"N	104°30'21.108"W	0.85	
12882.00	89.910	179.610	6788.76	7202.72	-7121.24	-1156.16	40°06'01.836"N	104°30'21.077"W	2.58	
12971.00	89.970	180.190	6788.85	7291.22	-7210.24	-1156.00	40°06'00.956"N	104°30'21.075"W	0.66	
13060.00	89.880	181.100	6788.97	7379.84	-7299.23	-1157.00	40°06'00.077"N	104°30'21.088"W	1.03	
13148.00	89.720	181.200	6789.28	7467.53	-7387.21	-1158.77	40°05'59.207"N	104°30'21.110"W	0.21	
13237.00	89.660	180.290	6789.76	7556.16	-7476.21	-1159.93	40°05'58.328"N	104°30'21.125"W	1.02	



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13326.00	89.690	178.220	6790.26	7644.55	-7565.19	-1158.77	40°05'57.449"N	104°30'21.110"W	2.33	
13414.00	89.750	178.720	6790.69	7731.80	-7653.16	-1156.42	40°05'56.579"N	104°30'21.080"W	0.57	
13503.00	89.660	179.610	6791.15	7820.17	-7742.15	-1155.12	40°05'55.700"N	104°30'21.063"W	1.01	
13592.00	90.990	180.060	6790.65	7908.66	-7831.14	-1154.87	40°05'54.820"N	104°30'21.060"W	1.58	
13681.00	90.950	179.310	6789.14	7997.12	-7920.13	-1154.38	40°05'53.941"N	104°30'21.054"W	0.84	
13770.00	90.890	179.450	6787.71	8085.52	-8009.11	-1153.41	40°05'53.062"N	104°30'21.041"W	0.17	
13859.00	90.250	179.150	6786.83	8173.92	-8098.10	-1152.33	40°05'52.182"N	104°30'21.027"W	0.79	
13948.00	89.940	179.060	6786.68	8262.28	-8187.09	-1150.94	40°05'51.303"N	104°30'21.009"W	0.36	
14037.00	89.850	179.170	6786.84	8350.65	-8276.08	-1149.56	40°05'50.423"N	104°30'20.991"W	0.16	
14126.00	89.970	180.150	6786.98	8439.12	-8365.08	-1149.03	40°05'49.544"N	104°30'20.985"W	1.11	
14215.00	89.540	181.170	6787.36	8527.73	-8454.07	-1150.06	40°05'48.665"N	104°30'20.998"W	1.24	
14304.00	89.420	181.360	6788.17	8616.43	-8543.04	-1152.02	40°05'47.785"N	104°30'21.023"W	0.25	
14393.00	89.420	181.590	6789.07	8705.16	-8632.01	-1154.31	40°05'46.906"N	104°30'21.052"W	0.26	
14482.00	89.820	180.820	6789.66	8793.85	-8720.99	-1156.19	40°05'46.027"N	104°30'21.076"W	0.97	
14570.00	89.820	181.270	6789.94	8881.53	-8808.97	-1157.79	40°05'45.157"N	104°30'21.097"W	0.51	
14659.00	88.990	177.310	6790.86	8969.90	-8897.94	-1156.69	40°05'44.278"N	104°30'21.083"W	4.55	
14748.00	89.040	177.410	6792.39	9057.89	-8986.83	-1152.59	40°05'43.400"N	104°30'21.030"W	0.13	
14837.00	89.260	182.850	6793.71	9146.39	-9075.79	-1152.79	40°05'42.521"N	104°30'21.033"W	6.12	
14926.00	89.290	187.310	6794.84	9235.35	-9164.41	-1160.67	40°05'41.645"N	104°30'21.134"W	5.01	
15015.00	89.040	186.990	6796.14	9324.32	-9252.71	-1171.75	40°05'40.772"N	104°30'21.276"W	0.46	
15104.00	89.050	183.040	6797.62	9413.28	-9341.34	-1179.52	40°05'39.896"N	104°30'21.376"W	4.44	
15193.00	89.050	179.450	6799.10	9501.95	-9430.29	-1181.46	40°05'39.017"N	104°30'21.401"W	4.03	
15281.00	88.950	177.780	6800.63	9589.22	-9518.25	-1179.33	40°05'38.148"N	104°30'21.374"W	1.90	
15370.00	89.020	177.410	6802.21	9677.26	-9607.15	-1175.60	40°05'37.270"N	104°30'21.326"W	0.42	
15459.00	89.880	177.420	6803.06	9765.27	-9696.06	-1171.58	40°05'36.391"N	104°30'21.274"W	0.97	
15548.00	89.880	176.770	6803.25	9853.21	-9784.94	-1167.07	40°05'35.513"N	104°30'21.216"W	0.73	
15637.00	89.880	175.770	6803.44	9940.94	-9873.75	-1161.28	40°05'34.635"N	104°30'21.141"W	1.12	
15726.00	90.000	175.810	6803.53	10028.54	-9962.51	-1154.75	40°05'33.758"N	104°30'21.057"W	0.14	
15815.00	90.740	176.490	6802.96	10116.24	-10051.31	-1148.77	40°05'32.880"N	104°30'20.980"W	1.13	
15904.00	90.740	176.990	6801.81	10204.09	-10140.16	-1143.71	40°05'32.002"N	104°30'20.915"W	0.56	

REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (190 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
15993.00	89.910	177.710	6801.30	10292.08	-10229.06	-1139.60	40°05'31.124"N	104°30'20.862"W	1.23	
16081.00	90.890	177.410	6800.69	10379.14	-10316.98	-1135.85	40°05'30.255"N	104°30'20.814"W	1.16	
16170.00	90.930	176.950	6799.27	10467.09	-10405.86	-1131.47	40°05'29.377"N	104°30'20.757"W	0.52	
16259.00	90.830	177.590	6797.91	10555.06	-10494.75	-1127.23	40°05'28.498"N	104°30'20.703"W	0.73	
16348.00	91.080	179.350	6796.42	10643.28	-10583.70	-1124.86	40°05'27.619"N	104°30'20.672"W	2.00	
16437.00	91.320	181.320	6794.56	10731.83	-10672.67	-1125.38	40°05'26.740"N	104°30'20.679"W	2.23	
16526.00	91.410	182.540	6792.44	10820.59	-10761.60	-1128.38	40°05'25.861"N	104°30'20.717"W	1.37	
16615.00	91.480	183.810	6790.19	10909.45	-10850.43	-1133.30	40°05'24.983"N	104°30'20.781"W	1.43	
16697.00	91.410	184.990	6788.13	10991.40	-10932.16	-1139.59	40°05'24.176"N	104°30'20.862"W	1.44	Last BHI MWD Survey
16721.00	91.410	184.990	6787.54	11015.39	-10956.06	-1141.68	40°05'23.939"N	104°30'20.888"W	0.00	Projection to Bit(856'FSL&837'FWL,SEC.36)

HOLE & CASING SECTIONS - Ref Wellbore: HELEN 24-4H AWB Ref Wellpath: HELEN 24-4H AWP									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.5in Open Hole	17.00	17.00	0.00	17.00	17.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1757.00	1740.00	17.00	1707.54	0.00	0.00	-216.03	-242.57
8.5in Open Hole	1757.00	16721.00	14964.00	1707.54	6787.54	-216.03	-242.57	-10956.06	-1141.68

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 24-T02N-R64W	-4.00	0.34	-20.15	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 25-T02N-R64W	-4.00	0.34	-20.15	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 36-T02N-R64W	-4.00	0.34	-20.15	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
HELEN 24-4H REV-2 LANDING POINT(460'FNL&873'FWL,SEC.25)	6767.00	-1701.23	-1190.94	3278001.27	1286438.12	40°06'55.397"N	104°30'21.528"W	point
HELEN 24-4H REV-1 LANDING POINT(460'FNL&873'FWL,SEC.25)	6789.00	-1701.23	-1190.94	3278001.27	1286438.12	40°06'55.397"N	104°30'21.528"W	point
TARGET 1_REV-2	6790.00	-8785.89	-1128.37	3278143.59	1279354.91	40°05'45.385"N	104°30'20.718"W	point
TARGET 1	6793.06	-9528.88	-1121.85	3278158.47	1278612.07	40°05'38.043"N	104°30'20.634"W	point
HELEN 24-4H REV-1 BHL(460'FSL&873'FWL,SEC.36)	6794.00	-11352.48	-1105.76	3278195.09	1276788.85	40°05'20.022"N	104°30'20.426"W	point
HELEN 24-4H REV-3 BHL(700'FSL&833'FWL,SEC.36)	6794.00	-11112.48	-1145.76	3278152.40	1277028.37	40°05'22.394"N	104°30'20.941"W	point
HELEN 24-4H REV-4 BHL(850'FSL&833'FWL,SEC.36)	6794.00	-10962.48	-1145.76	3278150.71	1277178.36	40°05'23.876"N	104°30'20.941"W	point
HELEN 24-4H REV-5 BHL(850'FSL&828'FWL,SEC.36)	6797.00	-10962.48	-1150.75	3278145.71	1277178.30	40°05'23.876"N	104°30'21.005"W	point
SECTION 24-T02N-R64W HARDLINE (460'SETBACK)	6996.00	0.34	-20.15	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 25-T02N-R64W HARDLINE (460'SETBACK)	6996.00	0.34	-20.15	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 36-T02N-R64W HARDLINE (460'SETBACK)	6996.00	0.34	-20.15	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH COMPOSITION - Ref Wellbore: HELEN 24-4H AWB Ref Wellpath: HELEN 24-4H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1705.00	BHI NaviTrak (Axial)	BH/Surface MWD Surveys 13.5" Hole <231'-1705'>	HELEN 24-4H AWB
1705.00	16697.00	BHI AutoTrak Curve (Axial Corr, Short spacing)	BHI/ATC 8.5" Axial Corr, Short spacing <1778'-16697'>	HELEN 24-4H AWB
16697.00	16721.00	Blind Drilling (std)	Projection to bit	HELEN 24-4H AWB



Actual Wellpath Report

HELEN 24-4H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#02 HELEN 24-4H(1243'FSL&2072'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-4H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-4H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
7454.00	90.580	177.902	6767.16	Cross 460' SETBACK(460'FNL&870'FWL,SEC.25)
16697.00	91.410	184.990	6788.13	Last BHI MWD Survey
16721.00	91.410	184.990	6787.54	Projection to Bit(856'FSL&837'FWL,SEC.36)