

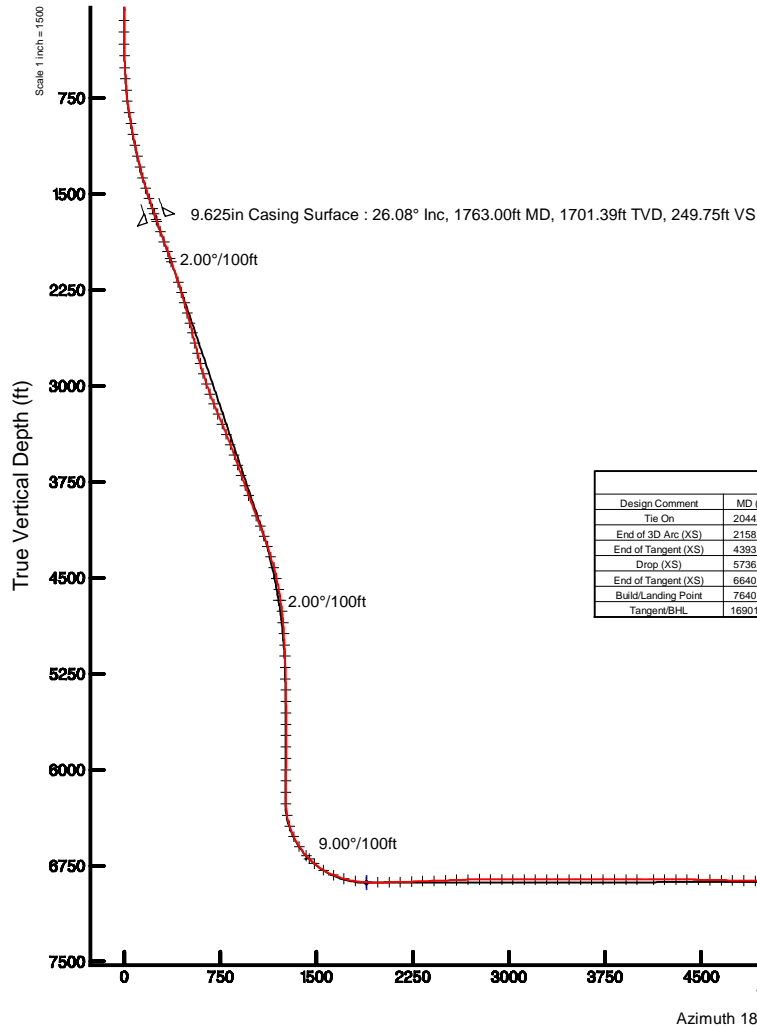
# VERDAD OIL & GAS CORPORATION

Location: COLORADO Slot: SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)  
Field: WELD COUNTY (NAD83/TN) Well: HELEN 24-3H  
Facility: SEC.24-T02N-R64W Wellbore: HELEN 24-3H PWB

Plot reference wellpath is HELEN 24-3H (REV-D.0) PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to RIG (17KB) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to RIG (17KB) (RKB)	North Reference: True north
RIG (17KB) (RKB) to Mean Sea Level: 4943 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: guenaler on 2018-05-24
	Database: WA_DEN_Denver_Defn

## Survey Program

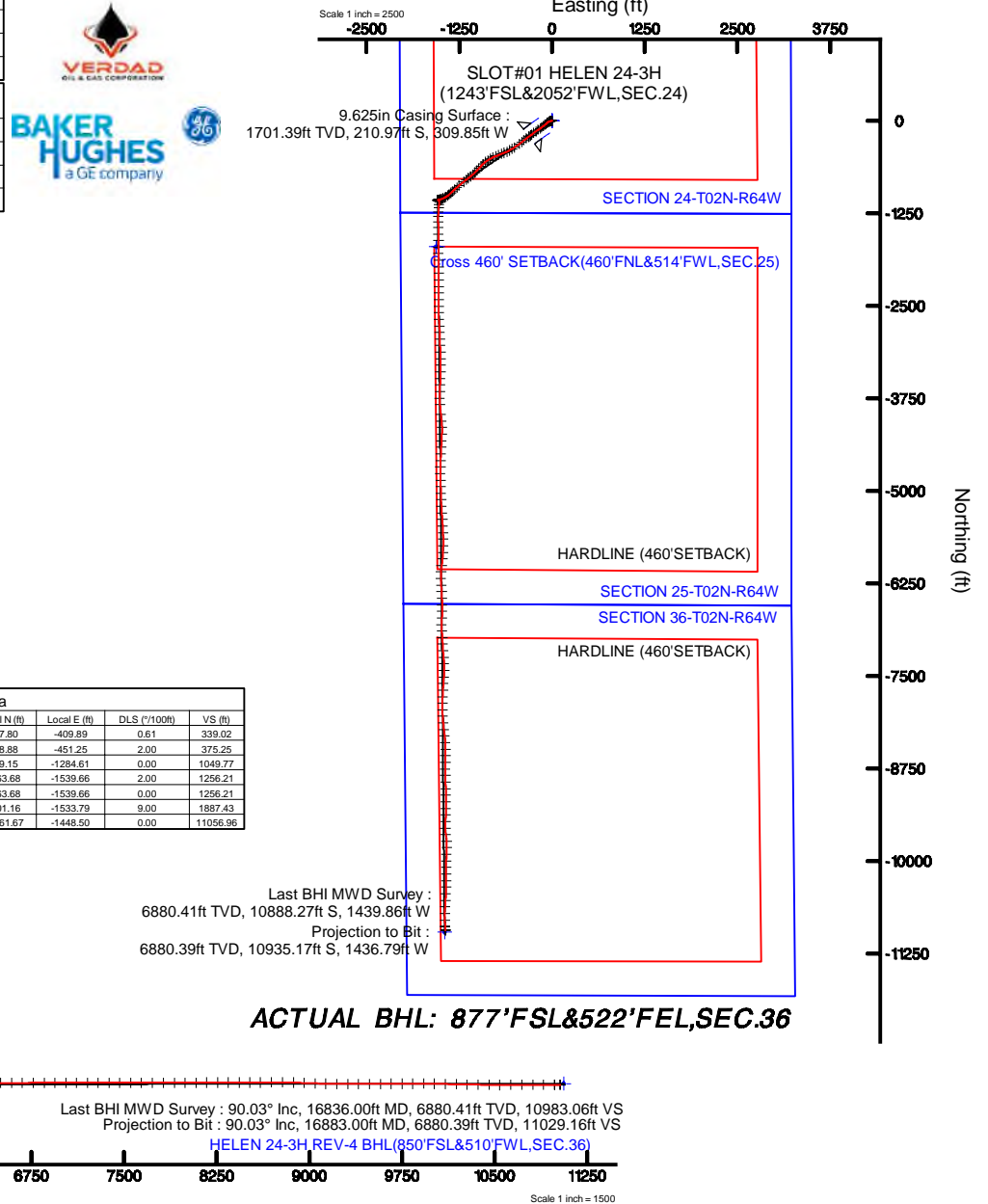
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	1712.00	BHI NaviTrak	BHI NaviTrak (Rotating+Axial Corr)		HELEN 24-3H AWB
1712.00	2044.00	BHI AutoTrak Curve	BHI AutoTrak Curve (Axial Corr, Short spacing)		HELEN 24-3H AWB
2044.00	16901.82	BHI AutoTrak Curve	BHI AutoTrak Curve (Axial Corr, Short spacing)		HELEN 24-3H PWB



Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	2044.00	26.850	230.540	1952.48	-287.80	-409.89	0.61	339.02
End of 3D Arc (XS)	2158.62	26.859	235.616	2054.75	-318.88	-451.25	2.00	375.25
End of Tangent (XS)	4393.69	26.859	235.616	4048.70	-889.15	-1284.61	0.00	1049.77
Drop (XS)	5736.63	0.000	179.472	5343.00	-1063.68	-1539.66	2.00	1256.21
End of Tangent (XS)	6640.02	0.000	179.472	6246.38	-1063.68	-1539.66	0.00	1256.21
Build/Landing Point	7640.91	90.080	179.472	6883.00	-1701.16	-1533.79	9.00	1887.43
Tangent/BHL	16901.82	90.080	179.472	6870.00	-10961.67	-1448.50	0.00	11056.96

## Location Information

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#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)	0.00	0.00	3279152.813	1288152.651	40°07'12.212"N	104°30'06.458"W
RIG (17KB) (RKB) to Ground level (At Slot: SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24))					4943ft	
Mean Sea Level to Ground level (At Slot: SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24))					0ft	
RIG (17KB) (RKB) to Mean Sea Level					4943ft	





# Actual Wellpath Report

HELEN 24-3H AWP

Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H 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	5/24/2018 at 11:35:47 AM
Convergence at slot	0.65° East	Database/Source file	WA_DEN_Denver_Defn/HELEN_24-3H_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	3279152.81	1288152.65	40°07'12.212"N	104°30'06.458"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	4943.00ft
Horizontal Reference Pt	Slot	RIG (17'KB) (RKB) to Mean Sea Level	4943.00ft
Vertical Reference Pt	RIG (17'KB) (RKB)	RIG (17'KB) (RKB) to Ground Level at Slot (SLOT#01 HELEN 24-3H (1243'FSL&2052'FWL,SEC.24))	4943.00ft
MD Reference Pt	RIG (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	187.53°



Actual Wellpath Report

HELEN 24-3H AWP

Page 2 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 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	2.850	0.00	0.00	0.00	0.00	40°07'12.212"N	104°30'06.458"W	0.00	
17.00	0.000	2.850	17.00	0.00	0.00	0.00	40°07'12.212"N	104°30'06.458"W	0.00	
143.00	0.540	2.850	143.00	-0.59	0.59	0.03	40°07'12.218"N	104°30'06.458"W	0.43	
236.00	1.610	269.060	235.98	-0.84	1.01	-1.26	40°07'12.222"N	104°30'06.474"W	1.86	
328.00	3.470	260.180	327.89	0.18	0.51	-5.29	40°07'12.217"N	104°30'06.526"W	2.06	
421.00	4.940	262.520	420.64	2.06	-0.49	-12.03	40°07'12.207"N	104°30'06.613"W	1.59	
513.00	6.070	252.910	512.21	5.11	-2.43	-20.61	40°07'12.188"N	104°30'06.723"W	1.58	
602.00	7.350	248.840	600.60	9.81	-5.87	-30.42	40°07'12.154"N	104°30'06.850"W	1.53	
690.00	8.830	246.000	687.73	16.04	-10.65	-41.84	40°07'12.107"N	104°30'06.997"W	1.74	
779.00	10.090	234.120	775.52	24.97	-18.00	-54.40	40°07'12.034"N	104°30'07.158"W	2.60	
868.00	11.620	226.490	862.93	37.30	-28.74	-67.22	40°07'11.928"N	104°30'07.323"W	2.35	
957.00	12.980	229.250	949.89	51.73	-41.44	-81.29	40°07'11.803"N	104°30'07.504"W	1.66	
1046.00	14.400	230.430	1036.36	67.30	-55.01	-97.39	40°07'11.668"N	104°30'07.712"W	1.63	
1135.00	15.940	232.890	1122.25	83.99	-69.44	-115.67	40°07'11.526"N	104°30'07.947"W	1.88	
1224.00	18.300	234.480	1207.30	102.12	-84.93	-136.79	40°07'11.373"N	104°30'08.219"W	2.70	
1312.00	20.290	234.450	1290.36	121.97	-101.83	-160.46	40°07'11.206"N	104°30'08.523"W	2.26	
1402.00	22.380	235.650	1374.18	144.07	-120.57	-187.30	40°07'11.020"N	104°30'08.869"W	2.37	
1490.00	24.130	235.140	1455.03	167.38	-140.31	-215.89	40°07'10.825"N	104°30'09.237"W	2.00	
1579.00	25.100	232.490	1535.95	193.00	-162.20	-245.80	40°07'10.609"N	104°30'09.622"W	1.65	
1668.00	26.330	232.570	1616.13	220.31	-185.69	-276.45	40°07'10.377"N	104°30'10.016"W	1.38	
1712.00	26.140	233.000	1655.60	234.00	-197.46	-291.93	40°07'10.261"N	104°30'10.216"W	0.61	
1777.00	26.060	232.930	1713.97	254.06	-214.68	-314.76	40°07'10.090"N	104°30'10.510"W	0.13	
1866.00	26.800	233.890	1793.67	281.64	-238.29	-346.57	40°07'09.857"N	104°30'10.919"W	0.96	
1955.00	26.880	231.740	1873.08	309.90	-262.57	-378.58	40°07'09.617"N	104°30'11.331"W	1.09	
2044.00	26.850	230.540	1952.48	339.02	-287.80	-409.89	40°07'09.368"N	104°30'11.734"W	0.61	
2132.00	26.780	234.660	2031.02	367.04	-311.90	-441.41	40°07'09.130"N	104°30'12.140"W	2.11	
2310.00	26.470	235.720	2190.15	420.77	-357.44	-506.90	40°07'08.680"N	104°30'12.983"W	0.32	
2399.00	25.720	238.460	2270.08	446.16	-378.72	-539.75	40°07'08.469"N	104°30'13.406"W	1.59	
2488.00	25.790	241.980	2350.24	469.59	-397.92	-573.31	40°07'08.280"N	104°30'13.838"W	1.72	
2577.00	26.680	246.370	2430.08	491.19	-415.02	-608.71	40°07'08.111"N	104°30'14.293"W	2.40	



Actual Wellpath Report

HELEN 24-3H AWP

Page 3 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2666.00	27.010	247.310	2509.49	511.70	-430.83	-645.66	40°07'07.954"N	104°30'14.769"W	0.60	
2754.00	26.880	248.100	2587.93	531.53	-445.96	-682.55	40°07'07.805"N	104°30'15.244"W	0.43	
2843.00	27.140	248.620	2667.23	551.23	-460.86	-720.12	40°07'07.658"N	104°30'15.727"W	0.39	
2932.00	27.200	246.740	2746.41	571.45	-476.29	-757.71	40°07'07.505"N	104°30'16.211"W	0.97	
3021.00	27.120	245.190	2825.60	592.71	-492.84	-794.81	40°07'07.342"N	104°30'16.689"W	0.80	
3110.00	27.060	241.370	2904.84	615.51	-511.05	-831.00	40°07'07.162"N	104°30'17.155"W	1.96	
3199.00	27.200	237.010	2984.05	640.67	-531.83	-865.83	40°07'06.956"N	104°30'17.603"W	2.24	
3288.00	27.140	230.000	3063.25	668.87	-555.96	-898.45	40°07'06.718"N	104°30'18.023"W	3.60	
3377.00	26.860	226.900	3142.56	699.38	-582.75	-928.68	40°07'06.453"N	104°30'18.412"W	1.61	
3465.00	27.020	224.230	3221.01	730.78	-610.65	-957.14	40°07'06.177"N	104°30'18.778"W	1.39	
3554.00	26.970	221.720	3300.32	763.68	-640.20	-984.68	40°07'05.885"N	104°30'19.133"W	1.28	
3643.00	26.340	222.520	3379.86	796.55	-669.82	-1011.45	40°07'05.593"N	104°30'19.477"W	0.81	
3732.00	26.050	225.830	3459.72	828.07	-697.99	-1038.82	40°07'05.314"N	104°30'19.829"W	1.67	
3821.00	25.480	227.610	3539.87	858.05	-724.52	-1066.97	40°07'05.052"N	104°30'20.192"W	1.08	
3910.00	25.380	231.470	3620.26	886.43	-749.31	-1096.04	40°07'04.807"N	104°30'20.566"W	1.87	
3998.00	26.350	233.510	3699.44	913.58	-772.67	-1126.49	40°07'04.576"N	104°30'20.958"W	1.50	
4087.00	27.100	231.760	3778.93	941.83	-796.96	-1158.29	40°07'04.336"N	104°30'21.367"W	1.22	
4176.00	26.950	231.280	3858.22	970.93	-822.12	-1189.95	40°07'04.087"N	104°30'21.775"W	0.30	
4353.00	27.070	229.730	4015.91	1029.73	-873.25	-1251.98	40°07'03.582"N	104°30'22.573"W	0.40	
4442.00	26.930	228.660	4095.21	1059.92	-899.65	-1282.56	40°07'03.321"N	104°30'22.967"W	0.57	
4530.00	25.500	227.500	4174.16	1089.44	-925.61	-1311.49	40°07'03.065"N	104°30'23.339"W	1.73	
4619.00	23.440	227.760	4255.16	1117.64	-950.46	-1338.72	40°07'02.819"N	104°30'23.690"W	2.32	
4708.00	20.220	225.210	4337.77	1143.34	-973.20	-1362.75	40°07'02.594"N	104°30'23.999"W	3.77	
4796.00	20.130	229.390	4420.37	1166.65	-993.77	-1385.04	40°07'02.391"N	104°30'24.286"W	1.64	
4885.00	18.590	234.640	4504.35	1187.71	-1011.95	-1408.24	40°07'02.211"N	104°30'24.584"W	2.61	
4974.00	15.820	237.290	4589.36	1205.21	-1026.72	-1430.02	40°07'02.065"N	104°30'24.865"W	3.23	
5063.00	13.670	241.260	4675.42	1219.27	-1038.33	-1449.45	40°07'01.951"N	104°30'25.115"W	2.67	
5152.00	12.450	246.890	4762.12	1230.38	-1047.16	-1467.50	40°07'01.863"N	104°30'25.347"W	1.98	
5241.00	9.490	249.480	4849.49	1238.72	-1053.50	-1483.19	40°07'01.801"N	104°30'25.549"W	3.37	
5329.00	7.860	253.710	4936.48	1244.56	-1057.73	-1495.77	40°07'01.759"N	104°30'25.711"W	1.99	



Actual Wellpath Report

HELEN 24-3H AWP

Page 4 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5418.00	7.110	252.500	5024.72	1249.35	-1061.09	-1506.86	40°07'01.726"N	104°30'25.854"W	0.86	
5507.00	6.160	255.900	5113.12	1253.44	-1063.91	-1516.74	40°07'01.698"N	104°30'25.981"W	1.15	
5595.00	5.220	262.660	5200.69	1256.21	-1065.57	-1525.29	40°07'01.681"N	104°30'26.091"W	1.31	
5685.00	3.370	256.930	5290.43	1258.19	-1066.69	-1531.93	40°07'01.670"N	104°30'26.177"W	2.11	
5773.00	1.650	248.900	5378.35	1259.70	-1067.73	-1535.63	40°07'01.660"N	104°30'26.224"W	1.99	
5862.00	1.300	242.540	5467.32	1260.90	-1068.66	-1537.73	40°07'01.651"N	104°30'26.251"W	0.43	
5951.00	1.710	265.660	5556.29	1261.75	-1069.23	-1539.95	40°07'01.645"N	104°30'26.280"W	0.81	
6040.00	0.660	115.160	5645.28	1262.18	-1069.54	-1540.81	40°07'01.642"N	104°30'26.291"W	2.59	
6129.00	0.750	104.470	5734.27	1262.40	-1069.91	-1539.78	40°07'01.639"N	104°30'26.277"W	0.18	
6217.00	1.270	90.040	5822.25	1262.35	-1070.05	-1538.24	40°07'01.637"N	104°30'26.258"W	0.65	
6306.00	1.420	74.800	5911.23	1261.79	-1069.76	-1536.19	40°07'01.640"N	104°30'26.231"W	0.43	
6395.00	1.050	72.870	6000.21	1261.03	-1069.24	-1534.35	40°07'01.645"N	104°30'26.208"W	0.42	
6484.00	1.010	70.280	6089.20	1260.33	-1068.73	-1532.83	40°07'01.650"N	104°30'26.188"W	0.07	
6573.00	0.560	68.910	6178.19	1259.76	-1068.31	-1531.69	40°07'01.654"N	104°30'26.173"W	0.51	
6662.00	3.060	121.120	6267.14	1260.50	-1069.38	-1529.25	40°07'01.644"N	104°30'26.142"W	3.09	
6751.00	12.810	156.790	6355.21	1269.96	-1079.70	-1523.31	40°07'01.542"N	104°30'26.066"W	11.77	
6840.00	16.450	182.910	6441.40	1291.03	-1101.39	-1520.06	40°07'01.327"N	104°30'26.024"W	8.36	
6928.00	24.910	189.050	6523.67	1322.03	-1132.19	-1523.61	40°07'01.023"N	104°30'26.069"W	9.91	
7017.00	33.180	183.950	6601.42	1365.16	-1175.08	-1528.25	40°07'00.599"N	104°30'26.129"W	9.69	
7106.00	41.250	183.650	6672.24	1418.83	-1228.75	-1531.80	40°07'00.069"N	104°30'26.175"W	9.07	
7195.00	50.230	181.290	6734.29	1482.24	-1292.36	-1534.44	40°06'59.440"N	104°30'26.209"W	10.27	
7284.00	58.940	178.380	6785.83	1554.02	-1364.81	-1534.13	40°06'58.724"N	104°30'26.205"W	10.14	
7372.00	68.960	178.600	6824.42	1632.00	-1443.74	-1532.06	40°06'57.944"N	104°30'26.178"W	11.39	
7461.00	74.080	179.030	6852.63	1715.41	-1528.10	-1530.32	40°06'57.111"N	104°30'26.155"W	5.77	
7550.00	81.000	180.160	6871.82	1801.43	-1614.95	-1529.72	40°06'56.252"N	104°30'26.148"W	7.87	
7637.00†	88.801	180.874	6879.54	1887.37	-1701.54	-1530.50	40°06'55.397"N	104°30'26.158"W	9.00	Cross 460' Hardline(460'FNL&514'FWL,SEC.25)
7639.00	88.980	180.890	6879.58	1889.36	-1703.53	-1530.53	40°06'55.377"N	104°30'26.158"W	9.00	
7728.00	90.280	178.820	6880.16	1977.55	-1792.53	-1530.31	40°06'54.498"N	104°30'26.155"W	2.75	
7817.00	90.280	178.780	6879.72	2065.52	-1881.50	-1528.44	40°06'53.618"N	104°30'26.131"W	0.04	
7905.00	91.910	179.820	6878.04	2152.59	-1969.48	-1527.37	40°06'52.749"N	104°30'26.117"W	2.20	



Actual Wellpath Report

HELEN 24-3H AWP

Page 5 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude		Longitude		DLS [°/100ft]	Comments
7994.00	92.030	179.600	6874.98	2240.72	-2058.42	-1526.92	40°06'51.870"N		104°30'26.111"W		0.28	
8083.00	92.000	179.740	6871.85	2328.83	-2147.37	-1526.40	40°06'50.991"N		104°30'26.104"W		0.16	
8172.00	92.030	179.900	6868.72	2416.97	-2236.31	-1526.12	40°06'50.112"N		104°30'26.101"W		0.18	
8261.00	92.030	180.060	6865.57	2505.14	-2325.26	-1526.09	40°06'49.233"N		104°30'26.100"W		0.18	
8350.00	92.060	180.460	6862.39	2593.37	-2414.20	-1526.50	40°06'48.354"N		104°30'26.105"W		0.45	
8439.00	92.090	180.990	6859.17	2681.68	-2503.13	-1527.62	40°06'47.475"N		104°30'26.120"W		0.60	
8528.00	89.940	180.310	6857.60	2770.02	-2592.11	-1528.63	40°06'46.596"N		104°30'26.133"W		2.53	
8617.00	89.750	175.790	6857.84	2857.79	-2681.03	-1525.60	40°06'45.717"N		104°30'26.094"W		5.08	
8706.00	90.060	175.970	6857.98	2944.95	-2769.80	-1519.21	40°06'44.840"N		104°30'26.011"W		0.40	
8794.00	90.030	178.070	6857.91	3031.47	-2857.68	-1514.64	40°06'43.972"N		104°30'25.952"W		2.39	
8883.00	89.820	178.690	6858.03	3119.34	-2946.64	-1512.12	40°06'43.092"N		104°30'25.920"W		0.74	
8972.00	89.850	177.360	6858.29	3207.12	-3035.59	-1509.05	40°06'42.214"N		104°30'25.880"W		1.49	
9061.00	90.060	176.880	6858.36	3294.65	-3124.47	-1504.58	40°06'41.335"N		104°30'25.823"W		0.59	
9150.00	90.000	178.860	6858.31	3382.39	-3213.41	-1501.27	40°06'40.456"N		104°30'25.780"W		2.23	
9239.00	89.750	181.830	6858.50	3470.68	-3302.40	-1501.81	40°06'39.577"N		104°30'25.787"W		3.35	
9328.00	90.150	181.440	6858.58	3559.21	-3391.36	-1504.35	40°06'38.698"N		104°30'25.820"W		0.63	
9416.00	89.940	181.400	6858.51	3646.71	-3479.33	-1506.53	40°06'37.828"N		104°30'25.848"W		0.24	
9505.00	89.970	181.560	6858.58	3735.21	-3568.30	-1508.83	40°06'36.949"N		104°30'25.877"W		0.18	
9594.00	90.060	182.100	6858.56	3823.77	-3657.26	-1511.67	40°06'36.070"N		104°30'25.914"W		0.62	
9683.00	89.820	181.070	6858.65	3912.29	-3746.22	-1514.13	40°06'35.191"N		104°30'25.945"W		1.19	
9771.00	89.910	174.820	6858.86	3999.02	-3834.12	-1510.98	40°06'34.322"N		104°30'25.905"W		7.10	
9905.00	89.820	173.600	6859.18	4129.42	-3967.43	-1497.46	40°06'33.005"N		104°30'25.731"W		0.91	
9994.00	89.970	175.220	6859.34	4216.09	-4056.01	-1488.79	40°06'32.130"N		104°30'25.619"W		1.83	
10082.00	90.030	177.710	6859.34	4302.45	-4143.83	-1483.36	40°06'31.262"N		104°30'25.549"W		2.83	
10171.00	90.030	182.870	6859.29	4390.71	-4232.80	-1483.81	40°06'30.382"N		104°30'25.555"W		5.80	
10259.00	88.860	183.530	6860.15	4478.45	-4320.66	-1488.73	40°06'29.514"N		104°30'25.618"W		1.53	
10349.00	88.710	182.610	6862.05	4568.16	-4410.51	-1493.55	40°06'28.626"N		104°30'25.680"W		1.04	
10438.00	89.050	182.960	6863.79	4656.84	-4499.39	-1497.87	40°06'27.748"N		104°30'25.735"W		0.55	
10527.00	88.980	182.280	6865.32	4745.50	-4588.28	-1501.94	40°06'26.870"N		104°30'25.788"W		0.77	
10615.00	88.890	181.320	6866.96	4833.04	-4676.22	-1504.70	40°06'26.001"N		104°30'25.823"W		1.10	





Actual Wellpath Report

HELEN 24-3H AWP

Page 6 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10704.00	88.950	179.490	6868.64	4921.33	-4765.20	-1505.33	40°06'25.121"N	104°30'25.831"W	2.06	
10793.00	89.880	178.000	6869.55	5009.28	-4854.17	-1503.38	40°06'24.242"N	104°30'25.806"W	1.97	
10881.00	89.880	178.330	6869.73	5096.11	-4942.12	-1500.56	40°06'23.373"N	104°30'25.770"W	0.37	
10970.00	90.030	177.880	6869.80	5183.91	-5031.07	-1497.62	40°06'22.494"N	104°30'25.732"W	0.53	
11059.00	90.830	178.120	6869.13	5271.68	-5120.02	-1494.51	40°06'21.615"N	104°30'25.692"W	0.94	
11148.00	90.980	177.850	6867.73	5359.44	-5208.95	-1491.38	40°06'20.736"N	104°30'25.651"W	0.35	
11237.00	90.800	175.390	6866.34	5446.81	-5297.78	-1486.14	40°06'19.858"N	104°30'25.584"W	2.77	
11326.00	90.180	176.040	6865.58	5533.92	-5386.53	-1479.49	40°06'18.981"N	104°30'25.498"W	1.01	
11414.00	90.060	176.570	6865.40	5620.24	-5474.34	-1473.82	40°06'18.113"N	104°30'25.425"W	0.62	
11503.00	90.090	176.960	6865.28	5707.67	-5563.20	-1468.80	40°06'17.235"N	104°30'25.360"W	0.44	
11592.00	89.940	179.920	6865.26	5795.55	-5652.16	-1466.37	40°06'16.356"N	104°30'25.329"W	3.33	
11681.00	90.120	180.820	6865.21	5883.85	-5741.15	-1466.95	40°06'15.477"N	104°30'25.336"W	1.03	
11769.00	90.120	182.800	6865.03	5971.41	-5829.11	-1469.73	40°06'14.608"N	104°30'25.372"W	2.25	
11858.00	89.720	186.230	6865.15	6060.27	-5917.82	-1476.73	40°06'13.731"N	104°30'25.462"W	3.88	
11946.00	89.660	187.670	6865.63	6148.26	-6005.17	-1487.38	40°06'12.868"N	104°30'25.599"W	1.64	
12035.00	89.780	183.480	6866.06	6237.19	-6093.72	-1496.02	40°06'11.993"N	104°30'25.710"W	4.71	
12125.00	89.570	178.570	6866.57	6326.58	-6183.68	-1497.63	40°06'11.104"N	104°30'25.731"W	5.46	
12214.00	89.880	176.300	6867.00	6414.20	-6272.58	-1493.65	40°06'10.225"N	104°30'25.680"W	2.57	
12302.00	90.520	176.850	6866.69	6500.60	-6360.43	-1488.39	40°06'09.357"N	104°30'25.612"W	0.96	
12391.00	90.460	177.790	6865.93	6588.18	-6449.32	-1484.23	40°06'08.479"N	104°30'25.558"W	1.06	
12480.00	90.490	178.610	6865.19	6676.00	-6538.28	-1481.44	40°06'07.599"N	104°30'25.522"W	0.92	
12569.00	90.280	180.520	6864.60	6764.14	-6627.27	-1480.76	40°06'06.720"N	104°30'25.514"W	2.16	
12658.00	89.940	184.820	6864.43	6852.80	-6716.15	-1484.91	40°06'05.842"N	104°30'25.567"W	4.85	
12747.00	90.120	180.100	6864.38	6941.42	-6805.04	-1488.72	40°06'04.963"N	104°30'25.616"W	5.31	
12836.00	90.030	175.760	6864.26	7029.16	-6893.96	-1485.51	40°06'04.085"N	104°30'25.574"W	4.88	
12925.00	90.120	176.290	6864.15	7116.37	-6982.75	-1479.34	40°06'03.207"N	104°30'25.495"W	0.60	
13013.00	89.940	176.690	6864.10	7202.74	-7070.58	-1473.95	40°06'02.339"N	104°30'25.426"W	0.50	
13102.00	89.970	176.070	6864.17	7290.06	-7159.41	-1468.33	40°06'01.461"N	104°30'25.353"W	0.70	
13191.00	90.120	175.030	6864.10	7377.12	-7248.14	-1461.43	40°06'00.585"N	104°30'25.264"W	1.18	
13280.00	89.970	177.130	6864.03	7464.35	-7336.92	-1455.35	40°05'59.707"N	104°30'25.186"W	2.37	



Actual Wellpath Report

HELEN 24-3H AWP

Page 7 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13369.00	90.150	181.210	6863.94	7552.38	-7425.89	-1454.06	40°05'58.828"N	104°30'25.169"W	4.59	
13457.00	90.120	183.770	6863.73	7640.04	-7513.80	-1457.88	40°05'57.959"N	104°30'25.218"W	2.91	
13546.00	90.030	184.280	6863.61	7728.87	-7602.58	-1464.13	40°05'57.082"N	104°30'25.299"W	0.58	
13635.00	90.150	184.010	6863.47	7817.71	-7691.35	-1470.56	40°05'56.205"N	104°30'25.381"W	0.33	
13724.00	90.150	182.030	6863.24	7906.43	-7780.22	-1475.25	40°05'55.326"N	104°30'25.442"W	2.22	
13813.00	90.120	181.420	6863.03	7994.98	-7869.18	-1477.93	40°05'54.447"N	104°30'25.476"W	0.69	
13902.00	90.090	178.660	6862.87	8083.21	-7958.17	-1477.99	40°05'53.568"N	104°30'25.477"W	3.10	
13990.00	90.250	175.770	6862.61	8169.78	-8046.06	-1473.71	40°05'52.699"N	104°30'25.422"W	3.29	
14080.00	90.090	175.440	6862.34	8257.84	-8135.79	-1466.82	40°05'51.813"N	104°30'25.333"W	0.41	
14169.00	90.000	172.740	6862.27	8344.39	-8224.31	-1457.65	40°05'50.938"N	104°30'25.215"W	3.04	
14258.00	90.030	173.930	6862.25	8430.67	-8312.71	-1447.32	40°05'50.064"N	104°30'25.082"W	1.34	
14347.00	90.180	175.830	6862.08	8517.51	-8401.35	-1439.38	40°05'49.188"N	104°30'24.980"W	2.14	
14435.00	90.030	180.110	6861.92	8604.27	-8489.27	-1436.27	40°05'48.319"N	104°30'24.940"W	4.87	
14525.00	90.220	181.320	6861.73	8693.63	-8579.27	-1437.39	40°05'47.430"N	104°30'24.954"W	1.36	
14613.00	90.280	180.160	6861.34	8781.01	-8667.26	-1438.53	40°05'46.561"N	104°30'24.969"W	1.32	
14702.00	88.340	179.950	6862.41	8869.25	-8756.25	-1438.61	40°05'45.681"N	104°30'24.970"W	2.19	
14791.00	87.780	178.540	6865.43	8957.26	-8845.18	-1437.44	40°05'44.802"N	104°30'24.954"W	1.70	
14880.00	87.930	178.540	6868.76	9045.11	-8934.09	-1435.17	40°05'43.924"N	104°30'24.925"W	0.17	
14969.00	87.870	178.230	6872.02	9132.92	-9023.00	-1432.67	40°05'43.045"N	104°30'24.893"W	0.35	
15058.00	89.970	179.400	6873.70	9220.87	-9111.96	-1430.83	40°05'42.166"N	104°30'24.869"W	2.70	
15147.00	90.150	180.490	6873.60	9309.09	-9200.95	-1430.74	40°05'41.287"N	104°30'24.868"W	1.24	
15235.00	90.250	180.420	6873.30	9396.42	-9288.95	-1431.44	40°05'40.417"N	104°30'24.877"W	0.14	
15324.00	90.120	181.310	6873.01	9484.82	-9377.94	-1432.78	40°05'39.538"N	104°30'24.894"W	1.01	
15413.00	90.120	183.130	6872.82	9573.43	-9466.87	-1436.23	40°05'38.659"N	104°30'24.938"W	2.04	
15502.00	90.180	178.340	6872.59	9661.78	-9555.84	-1437.37	40°05'37.780"N	104°30'24.953"W	5.38	
15591.00	90.180	172.490	6872.31	9748.76	-9644.51	-1430.26	40°05'36.903"N	104°30'24.861"W	6.57	
15680.00	90.250	176.290	6871.97	9835.42	-9733.07	-1421.56	40°05'36.028"N	104°30'24.749"W	4.27	
15768.00	90.280	182.190	6871.57	9922.46	-9821.02	-1420.40	40°05'35.159"N	104°30'24.734"W	6.70	
15857.00	88.800	181.810	6872.28	10011.04	-9909.96	-1423.50	40°05'34.280"N	104°30'24.774"W	1.72	
15946.00	88.800	181.100	6874.15	10099.52	-9998.91	-1425.76	40°05'33.401"N	104°30'24.803"W	0.80	





Actual Wellpath Report

HELEN 24-3H AWP



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH DATA (191 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
16035.00	88.830	179.750	6875.99	10187.82	-10087.89	-1426.42	40°05'32.522"N	104°30'24.812"W	1.52	
16124.00	88.860	180.120	6877.78	10276.02	-10176.87	-1426.32	40°05'31.642"N	104°30'24.810"W	0.42	
16213.00	88.770	180.740	6879.62	10364.32	-10265.85	-1426.99	40°05'30.763"N	104°30'24.819"W	0.70	
16302.00	88.830	180.770	6881.48	10452.68	-10354.82	-1428.16	40°05'29.884"N	104°30'24.834"W	0.08	
16391.00	90.340	182.130	6882.13	10541.17	-10443.79	-1430.41	40°05'29.005"N	104°30'24.863"W	2.28	
16480.00	90.280	184.730	6881.65	10629.93	-10532.62	-1435.74	40°05'28.127"N	104°30'24.931"W	2.92	
16569.00	90.340	182.760	6881.17	10718.73	-10621.42	-1441.55	40°05'27.249"N	104°30'25.006"W	2.21	
16658.00	90.150	180.770	6880.79	10807.28	-10710.37	-1444.29	40°05'26.370"N	104°30'25.041"W	2.25	
16747.00	90.150	178.630	6880.55	10895.44	-10799.37	-1443.82	40°05'25.491"N	104°30'25.035"W	2.40	
16836.00	90.030	176.260	6880.41	10983.06	-10888.27	-1439.86	40°05'24.612"N	104°30'24.984"W	2.67	Last BHI MWD Survey
16883.00	90.030	176.260	6880.39	11029.16	-10935.17	-1436.79	40°05'24.149"N	104°30'24.945"W	0.00	Projection to Bit (877'FSL&522'FEL,SEC.36)

HOLE & CASING SECTIONS - Ref Wellbore: HELEN 24-3H AWB      Ref Wellpath: HELEN 24-3H 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	1763.00	1746.00	17.00	1701.39	0.00	0.00	-210.97	-309.85
9.625in Casing Surface	17.00	1763.00	1746.00	17.00	1701.39	0.00	0.00	-210.97	-309.85



Actual Wellpath Report

HELEN 24-3H AWP

Page 9 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 24-T02N-R64W	-3.00	0.04	-0.03	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 25-T02N-R64W	-3.00	0.04	-0.03	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 36-T02N-R64W	-3.00	0.04	-0.03	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
HELEN 24-3H REV-3 BHL(700'FSL&510'FWL,SEC.36)	6870.00	-11111.67	-1448.50	3277829.55	1277025.85	40°05'22.405"N	104°30'25.095"W	point
HELEN 24-3H REV-4 BHL(850'FSL&510'FWL,SEC.36)	6870.00	-10961.67	-1448.50	3277827.86	1277175.84	40°05'23.887"N	104°30'25.095"W	point
HELEN 24-3H REV-1 LANDING(460'FNL&480'FWL,SEC.25)	6883.00	-1701.16	-1563.79	3277608.34	1286434.06	40°06'55.400"N	104°30'26.586"W	point
HELEN 24-3H REV-2 LANDING(460'FNL&510'FWL,SEC.25)	6883.00	-1701.16	-1533.79	3277638.34	1286434.40	40°06'55.400"N	104°30'26.200"W	point
SECTION 24-T02N-R64W HARDLINE (460'SETBACK)	6997.00	0.04	-0.03	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 25-T02N-R64W HARDLINE (460'SETBACK)	6997.00	0.04	-0.03	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon
SECTION 36-T02N-R64W HARDLINE (460'SETBACK)	6997.00	0.04	-0.03	3279152.78	1288152.69	40°07'12.212"N	104°30'06.458"W	polygon



# Actual Wellpath Report

HELEN 24-3H AWP

Page 10 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH COMPOSITION - Ref Wellbore: HELEN 24-3H AWB    Ref Wellpath: HELEN 24-3H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1712.00	BHI NaviTrak (Rotating+Axial Corr)	BH/Navitrak MWD Surveys 13.5' Hole <143'-1712'>	HELEN 24-3H AWB
1712.00	16836.00	BHI AutoTrak Curve (Axial Corr, Short spacing)	BH/ATC MWD 8.5" Hole Surveys <1777'-16836'>	HELEN 24-3H AWB
16836.00	16883.00	Blind Drilling (std)	Projection to bit	HELEN 24-3H AWB



# Actual Wellpath Report

HELEN 24-3H AWP

Page 11 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	VERDAD OIL & GAS CORPORATION	Slot	SLOT#01 HELEN 24-3H(1243'FSL&2052'FWL,SEC.24)
Area	COLORADO	Well	HELEN 24-3H
Field	WELD COUNTY (NAD83/TN)	Wellbore	HELEN 24-3H AWB
Facility	SEC.24-T02N-R64W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
7637.00	88.801	180.874	6879.54	Cross 460' Hardline(460'FNL&514'FWL,SEC.25)
16836.00	90.030	176.260	6880.41	Last BHI MWD Survey
16883.00	90.030	176.260	6880.39	Projection to Bit (877'FSL&522'FEL,SEC.36)