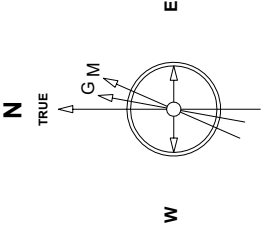


Great Western Operating Company, LLC

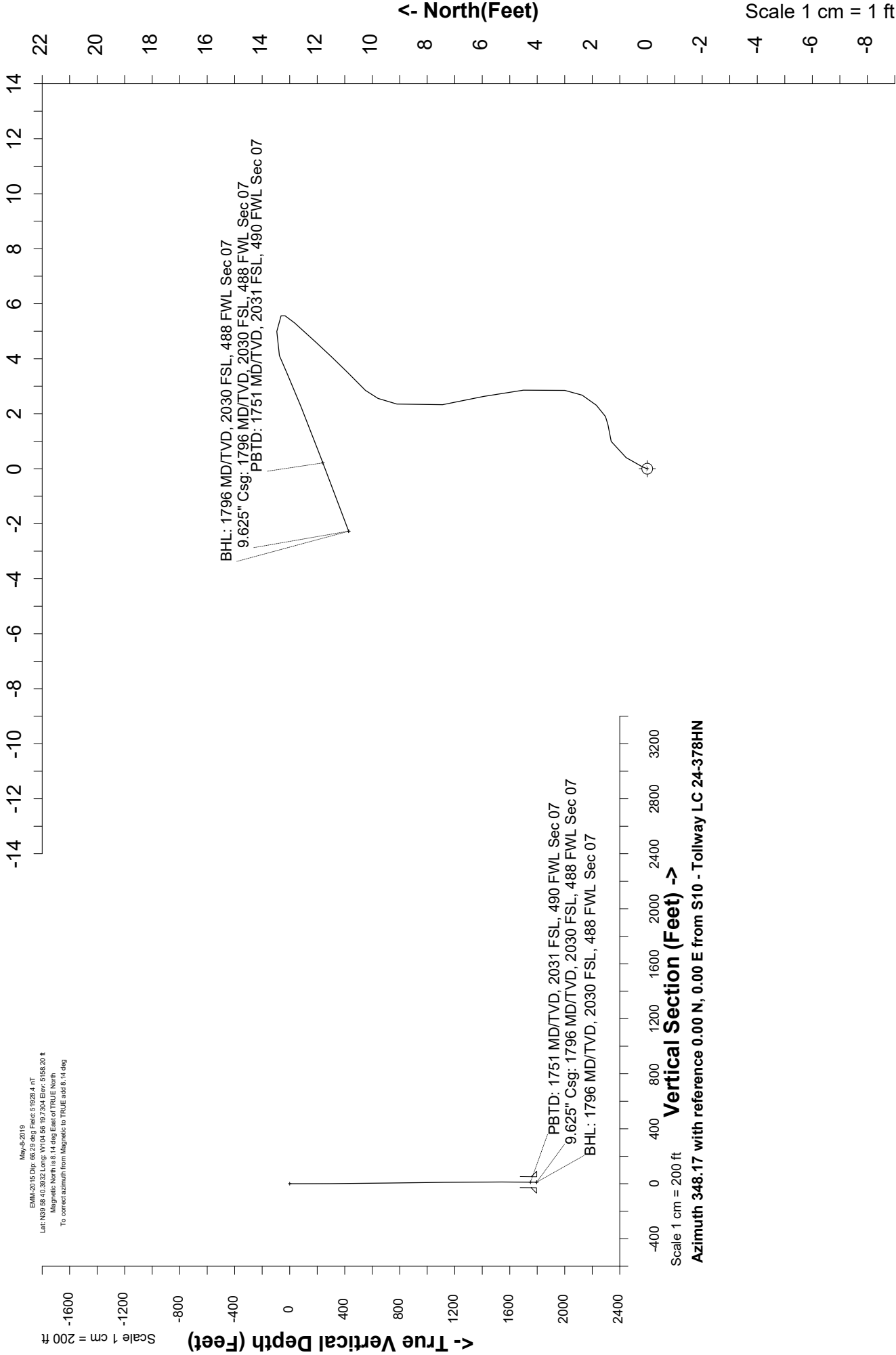
Created by	m.mount
Date plotted	17-Sep-2019
Plot reference is Tollway LC 24-378HN (AWB).	
Ref wellpath is Tollway LC 24-378HN (AWP#1).	
Coordinates are in Feet reference S10 - Tollway LC 24-378HN.	
True Vertical Depths are reference S10 - Tollway LC 24-378HN.	
Measured Depths are reference Rig Datum.	
Rig Datum: Actual Datum #1	
Rig Datum to Mean Sea Level 5164.20 ft.	
Plot North is aligned to TRUE North.	

Location	Colorado	Slot	S10 - Tollway LC 24-378HN
Field	Wattenburg	Well	Tollway LC 24-378HN
Installation	Tollway	Wellbore	Tollway LC 24-378HN (AWB)



EMA-2015.Dir 66.20 deg Field: 51928.4 nT
Lat: N39 58.40 30.32 Long: W104 56 19 7.304 Elev: 5155.20 ft
Magnetic North is 8.14 deg East of TRUE North
To correct azimuth from Magnetic to TRUE add 8.14 deg

Scale 1 cm = 1 ft <- West (Feet) : East (Feet) ->



Great Western Operating Co, LLC
Directional Survey Report
Wellpath: Tollway LC 24-378HN
MDs and TVDs are from Rig Floor 5164.2ft above Mean Sea Level

Wellbore Information

Date Created	Date Revised	API #	RKB above GL	Well Name
Sep-17-2019	Sep-17-2019	05-001-10432	6.00	Tollway LC 24-378HN

Slot Coordinates

Latitude	Longitude
39.97747900	-104.93853500

Pad Information

Pad Name	Ground Elev.
Tollway	5158.20

Field

Name
Wattenburg

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
0.00	0.00	0.00	0.00	0.00	0.00		0.00	39.97747900	-104.93853500
81.00	0.26	21.75	81.00	0.17	0.07	0.00	0.15	39.97747947	-104.93853476
171.00	0.62	32.47	171.00	0.77	0.41	0.00	0.67	39.97748112	-104.93853355
258.00	0.48	66.75	257.99	1.31	0.99	0.00	1.08	39.97748260	-104.93853146
351.00	0.31	98.04	350.99	1.43	1.60	0.00	1.07	39.97748293	-104.93852929
441.00	0.83	45.66	440.99	1.85	2.31	0.00	1.34	39.97748408	-104.93852677
531.00	0.88	6.11	530.98	3.00	2.85	0.00	2.35	39.97748722	-104.93852484
621.00	1.05	355.47	620.96	4.50	2.86	0.00	3.82	39.97749136	-104.93852481
711.00	0.83	345.45	710.95	5.96	2.63	0.00	5.29	39.97749535	-104.93852563
801.00	1.10	350.99	800.94	7.44	2.33	0.00	6.81	39.97749943	-104.93852670
891.00	1.05	11.20	890.92	9.10	2.35	0.00	8.43	39.97750399	-104.93852661
980.00	0.62	44.51	979.92	10.25	2.85	0.00	9.45	39.97750713	-104.93852484
1070.00	0.57	45.92	1069.91	10.91	3.51	0.00	9.95	39.97750894	-104.93852247
1160.00	0.44	41.97	1159.91	11.47	4.06	0.00	10.40	39.97751050	-104.93852050
1250.00	0.57	43.64	1249.90	12.05	4.60	0.00	10.85	39.97751209	-104.93851857
1340.00	0.75	41.26	1339.90	12.82	5.30	0.00	11.46	39.97751420	-104.93851608
1430.00	0.18	290.34	1429.89	13.31	5.56	0.00	11.89	39.97751555	-104.93851517
1520.00	0.57	283.75	1519.89	13.47	4.99	0.00	12.16	39.97751597	-104.93851720
1610.00	0.62	245.52	1609.89	13.37	4.11	0.00	12.25	39.97751571	-104.93852033
1700.00	1.93	247.63	1699.86	12.60	2.27	0.00	11.86	39.97751358	-104.93852691
1746.00	2.90	249.30	1745.82	11.89	0.46	0.00	11.54	39.97751164	-104.93853335
1751.15	3.00	249.30	1750.97	11.80	0.21	0.00	11.50	39.97751138	-104.93853424
1796.00	3.80	249.30	1795.74	10.86	-2.27	0.00	11.09	39.97750880	-104.93854311

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
0.00	0.00	0.00	0.00	39.97747900	-104.93853500	Surface Location
1751.15	1750.97	11.80	0.21	39.97751138	-104.93853424	PBTD: 1751 MD/TVD, 2031 FSL, 490 FWL Sec 07
1796.00	1795.74	10.86	-2.27	39.97750880	-104.93854311	9.625" Csg: 1796 MD/TVD, 2030 FSL, 488 FWL Sec 07
1796.00	1795.74	10.86	-2.27	39.97750880	-104.93854311	BHL: 1796 MD/TVD, 2030 FSL, 488 FWL Sec 07

Hole Sections

Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
13.500	0.00	0.00	0.00	0.00	1796.00	1795.74	10.86	-2.27

Casings

Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Casing	0.00	0.00	0.00	0.00	1796.00	1795.74	10.86	-2.27

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
617071	As Drilled - Surface	1796.00	1795.74	MWD

Coordinates are from Slot
MD's and TVD's are from Rig Floor 5164.2ft above Mean Sea Level
Vertical Section is from Wellhead on azimuth 348.17 degrees
Bottom hole distance is 11.09 Feet on azimuth 348.17 degrees from Wellhead
Survey calculation uses Minimum Curvature method