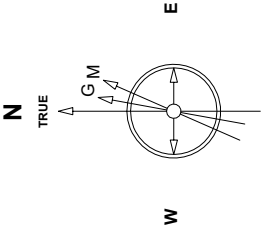


Great Western Operating Company, LLC

Created by	mmount
Date plotted	17-Sep-2019
Plot reference is Tollway LC 24-376HN (AWB).	
Ref wellpath is Tollway LC 24-376HN (AWP#1).	
Coordinates are in Feet reference S09 - Tollway LC 24-376HN.	
True Vertical Depths are reference Rig Datum.	
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.	

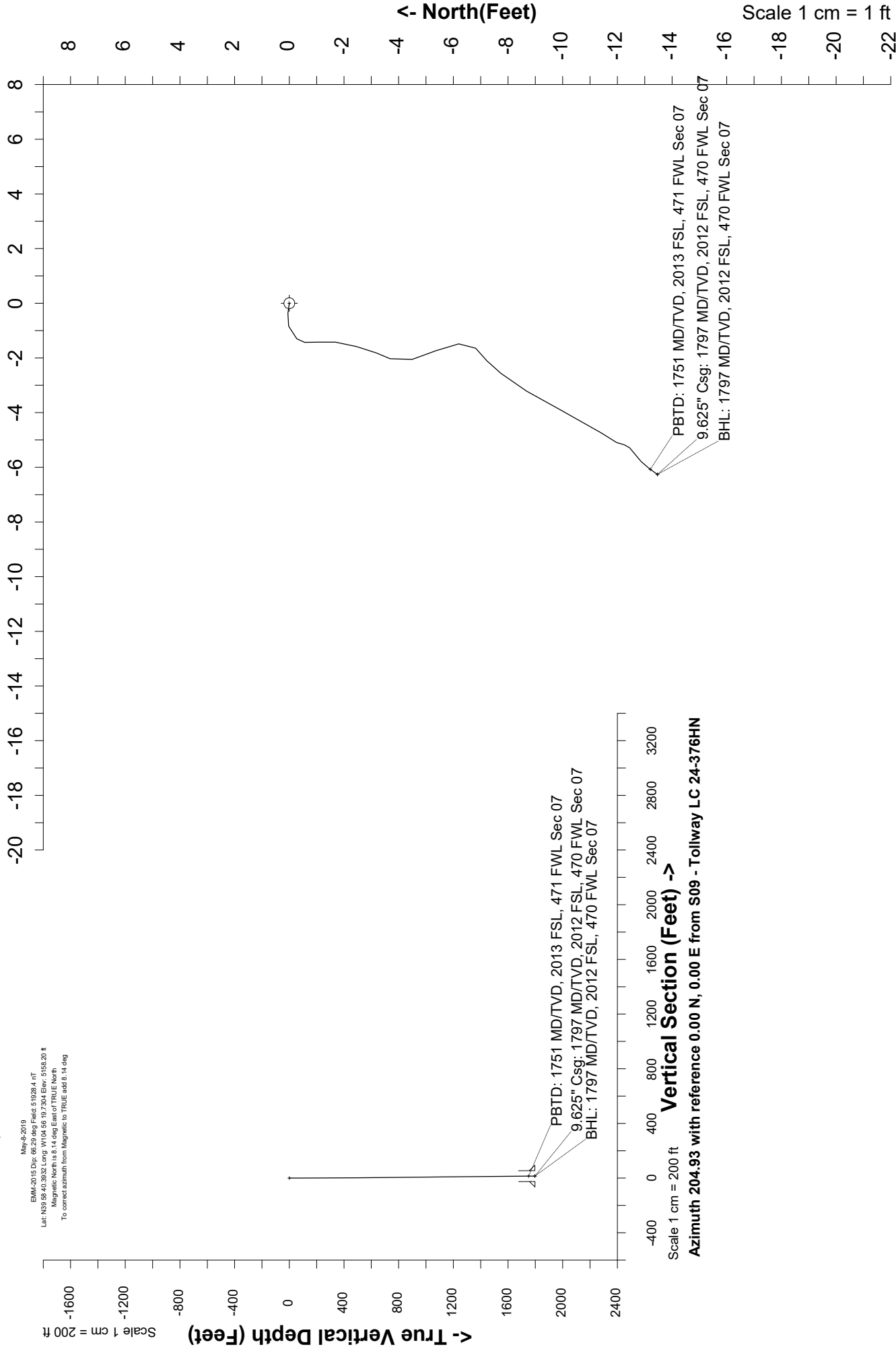
Location	Colorado	Slot	S09 - Tollway LC 24-376HN
Field	Wattenburg	Well	Tollway LC 24-376HN
Installation	Tollway	Wellbore	Tollway LC 24-376HN (AWB)



EMA-2015 Dir: 66.20 deg Field: 51928.4 nT
Lat: N39 58.40.3032 Long: W104 56 19.7304 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

East (Feet) ->



Great Western Operating Co, LLC
Directional Survey Report
Wellpath: Tollway LC 24-376HN
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	05-001-10424	6.00	Tollway LC 24-376HN

Slot Coordinates

Latitude	Longitude
39.97749700	-104.93858200

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	39.97749700	-104.93858200
81.00	0.53	278.04	81.00	0.05	-0.37	0.65	0.11	39.97749714	-104.93858332
171.00	0.13	211.77	171.00	0.02	-0.84	0.55	0.33	39.97749707	-104.93858499
258.00	0.13	263.54	258.00	-0.07	-0.99	0.13	0.48	39.97749680	-104.93858552
351.00	0.35	227.15	351.00	-0.28	-1.30	0.28	0.80	39.97749624	-104.93858664
441.00	0.75	172.22	440.99	-1.05	-1.42	0.69	1.55	39.97749413	-104.93858707
531.00	1.10	196.21	530.98	-2.46	-1.58	0.57	2.90	39.97749025	-104.93858765
621.00	0.57	207.20	620.97	-3.69	-2.03	0.61	4.20	39.97748688	-104.93858924
711.00	0.57	156.05	710.97	-4.49	-2.05	0.55	4.94	39.97748466	-104.93858932
801.00	0.62	163.52	800.96	-5.37	-1.73	0.10	5.60	39.97748226	-104.93858818
891.00	0.48	163.25	890.96	-6.20	-1.49	0.16	6.25	39.97747998	-104.93858730
980.00	0.48	225.57	979.96	-6.82	-1.64	0.56	6.87	39.97747829	-104.93858787
1070.00	0.31	232.78	1069.95	-7.23	-2.11	0.20	7.44	39.97747716	-104.93858952
1160.00	0.57	215.73	1159.95	-7.74	-2.56	0.32	8.10	39.97747576	-104.93859114
1250.00	0.88	214.23	1249.94	-8.67	-3.21	0.35	9.22	39.97747319	-104.93859346
1340.00	1.01	204.39	1339.93	-9.97	-3.93	0.23	10.69	39.97746964	-104.93859602
1430.00	1.10	214.14	1429.92	-11.40	-4.74	0.22	12.34	39.97746569	-104.93859892
1520.00	0.18	159.65	1519.91	-12.25	-5.18	1.12	13.29	39.97746337	-104.93860047
1610.00	0.22	247.72	1609.91	-12.45	-5.29	0.31	13.52	39.97746282	-104.93860087
1700.00	0.62	223.99	1699.91	-12.87	-5.79	0.48	14.11	39.97746168	-104.93860264
1747.00	0.40	215.46	1746.91	-13.18	-6.06	0.49	14.51	39.97746081	-104.93860361
1750.89	0.40	215.46	1750.79	-13.21	-6.07	0.00	14.53	39.97746075	-104.93860367
1797.00	0.40	215.46	1796.90	-13.47	-6.26	0.00	14.85	39.97746003	-104.93860434

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
0.00	0.00	0.00	0.00	39.97749700	-104.93858200	Surface Location
1750.89	1750.79	-13.21	-6.07	39.97746075	-104.93860367	PBTD: 1751 MD/TVD, 2013 FSL, 471 FWL Sec 07
1797.00	1796.90	-13.47	-6.26	39.97746003	-104.93860434	9.625" Csg: 1797 MD/TVD, 2012 FSL, 470 FWL Sec 07
1797.00	1796.90	-13.47	-6.26	39.97746003	-104.93860434	BHL: 1797 MD/TVD, 2012 FSL, 470 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	1797.00	1796.90	-13.47	-6.26

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	1797.00	1796.90	-13.47	-6.26

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
617017	As Drilled - Surface	1797.00	1796.90	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 204.93 degrees
Bottom hole distance is 14.85 Feet on azimuth 204.93 degrees from Wellhead
Survey calculation uses Minimum Curvature method