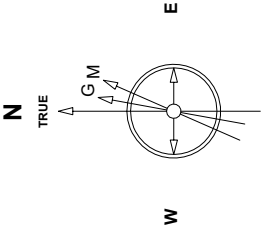


Great Western Operating Company, LLC

Created by mmount	
Date plotted	17-Sep-2019
Plot reference is Tollway LC 24-378HNX (AWB).	
Ref wellpath is Tollway LC 24-378HNX (AWP#1).	
Coordinates are in Feet reference S11 - Tollway LC 24-378HNX.	
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.	

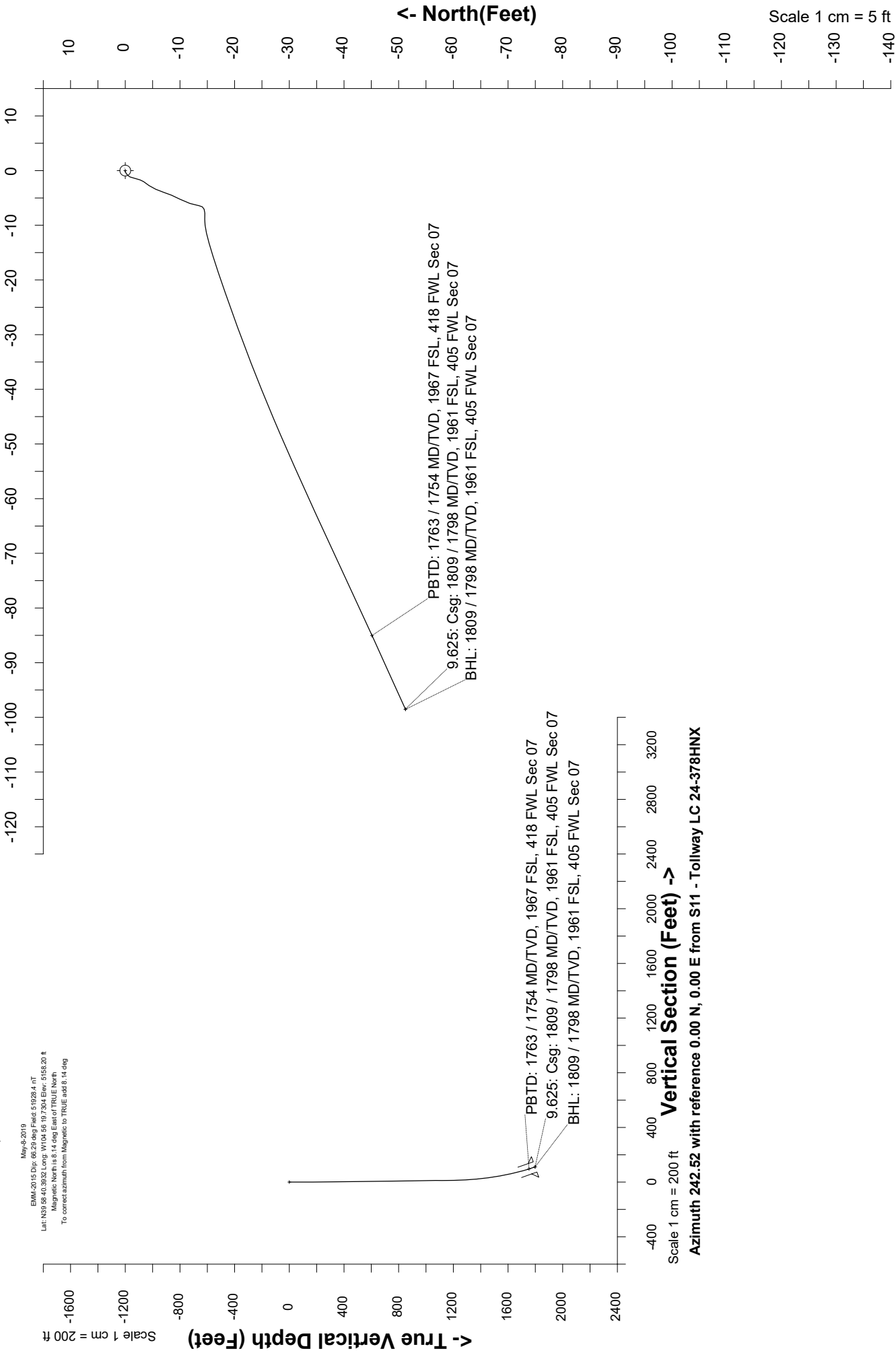
Location	Colorado	Slot	S11 - Tollway LC 24-378HNX
Field	Wattenburg	Well	Tollway LC 24-378HNX
Installation	Tollway	Wellbore	Tollway LC 24-378HNX (AWB)



May-5-2019
EMA-2015 Dir: 66.20 deg Field: 51928.4 nT
Lat: N39 58.40.3032 Long: W104 56 19.7304 Elev: 5158.20 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 = 5 ft

East (Feet) ->



Scale 1 cm = 200 ft

Vertical Section (Feet) ->

Azimuth 242.52 with reference 0.00 N, 0.00 E from S11 - Tollway LC 24-378HNX

Great Western Operating Co, LLC
Directional Survey Report
Wellpath: Tollway LC 24-378HNX
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	05-001-10430	6.00	Tollway LC 24-378HNX

Slot Coordinates

Latitude	Longitude
39.97746000	-104.93848600

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	39.97746000	-104.93848600
82.00	0.26	268.11	82.00	-0.01	-0.19	0.00	0.17	39.97745998	-104.93848666
172.00	0.22	216.96	172.00	-0.15	-0.49	0.00	0.51	39.97745959	-104.93848776
259.00	0.44	238.14	259.00	-0.46	-0.88	0.00	0.99	39.97745874	-104.93848913
351.00	1.41	192.70	350.99	-1.75	-1.43	0.00	2.07	39.97745519	-104.93849109
441.00	0.79	213.53	440.97	-3.35	-2.01	0.00	3.33	39.97745081	-104.93849318
531.00	0.79	217.40	530.96	-4.36	-2.73	0.00	4.44	39.97744803	-104.93849575
621.00	1.01	202.89	620.95	-5.58	-3.42	0.00	5.61	39.97744468	-104.93849820
711.00	0.92	198.94	710.94	-7.00	-3.96	0.00	6.74	39.97744079	-104.93850013
801.00	1.05	200.96	800.92	-8.45	-4.49	0.00	7.88	39.97743680	-104.93850202
891.00	1.19	209.57	890.91	-10.03	-5.25	0.00	9.28	39.97743246	-104.93850472
981.00	1.32	197.36	980.88	-11.84	-6.02	0.00	10.80	39.97742751	-104.93850747
1071.00	0.88	187.51	1070.87	-13.51	-6.42	0.00	11.93	39.97742291	-104.93850890
1161.00	0.75	247.72	1160.86	-14.42	-7.05	0.00	12.91	39.97742042	-104.93851116
1251.00	1.67	274.17	1250.84	-14.55	-8.91	0.00	14.61	39.97742007	-104.93851778
1341.00	4.04	254.13	1340.72	-15.32	-13.26	0.00	18.84	39.97741795	-104.93853333
1431.00	8.13	250.88	1430.20	-18.27	-22.33	0.00	28.24	39.97740984	-104.93856568
1521.00	9.49	248.86	1519.13	-23.03	-35.26	0.00	41.91	39.97739678	-104.93861183
1611.00	12.13	246.40	1607.53	-29.49	-50.85	0.00	58.72	39.97737904	-104.93866745
1701.00	14.33	244.91	1695.14	-38.00	-69.61	0.00	79.29	39.97735568	-104.93873436
1759.00	17.53	245.52	1750.90	-44.67	-84.06	0.00	95.19	39.97733738	-104.93878594
1762.54	17.70	245.52	1754.28	-45.11	-85.03	0.00	96.26	39.97733616	-104.93878942
1809.00	19.53	245.52	1798.30	-51.26	-98.53	0.00	111.07	39.97731929	-104.93883757

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
0.00	0.00	0.00	0.00	39.97746000	-104.93848600	Surface Location
1762.54	1754.28	-45.11	-85.03	39.97733616	-104.93878942	PBTD: 1763 / 1754 MD/TVD, 1967 FSL, 418 FWL Sec 07
1809.00	1798.30	-51.26	-98.53	39.97731929	-104.93883757	9.625: Csg: 1809 / 1798 MD/TVD, 1961 FSL, 405 FWL Sec 07
1809.00	1798.30	-51.26	-98.53	39.97731929	-104.93883757	BHL: 1809 / 1798 MD/TVD, 1961 FSL, 405 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	1809.00	1798.30	-51.26	-98.53

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	1809.00	1798.30	-51.26	-98.53

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
617125	As Drilled - Surface	1809.00	1798.30	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 242.52 degrees
Bottom hole distance is 111.07 Feet on azimuth 242.52 degrees from Wellhead
Survey calculation uses Minimum Curvature method