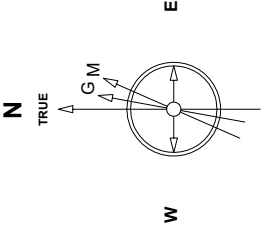


Great Western Operating Company, LLC

Created by	mmount
Date plotted	17-Sep-2019
Plot reference is Tollway LC 24-379HN (AWB).	
Ref wellpath is Tollway LC 24-379HN (AWP#1).	
Coordinates are in Feet reference S13 - Tollway LC 24-379HN.	
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.	

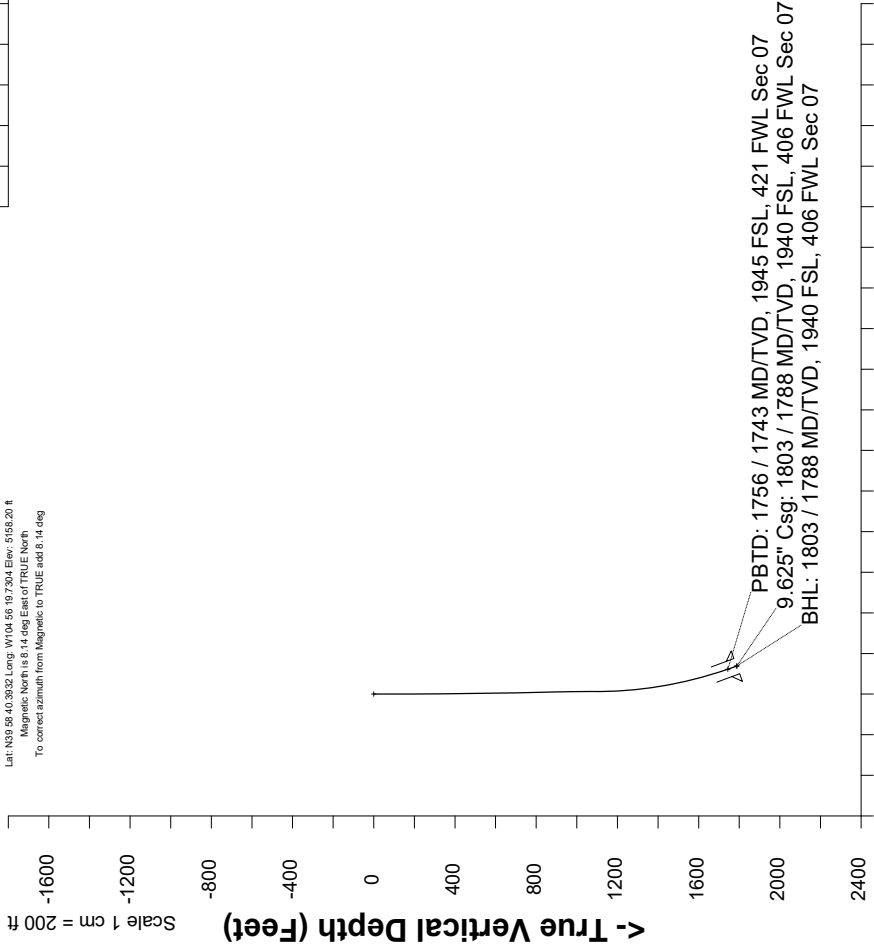
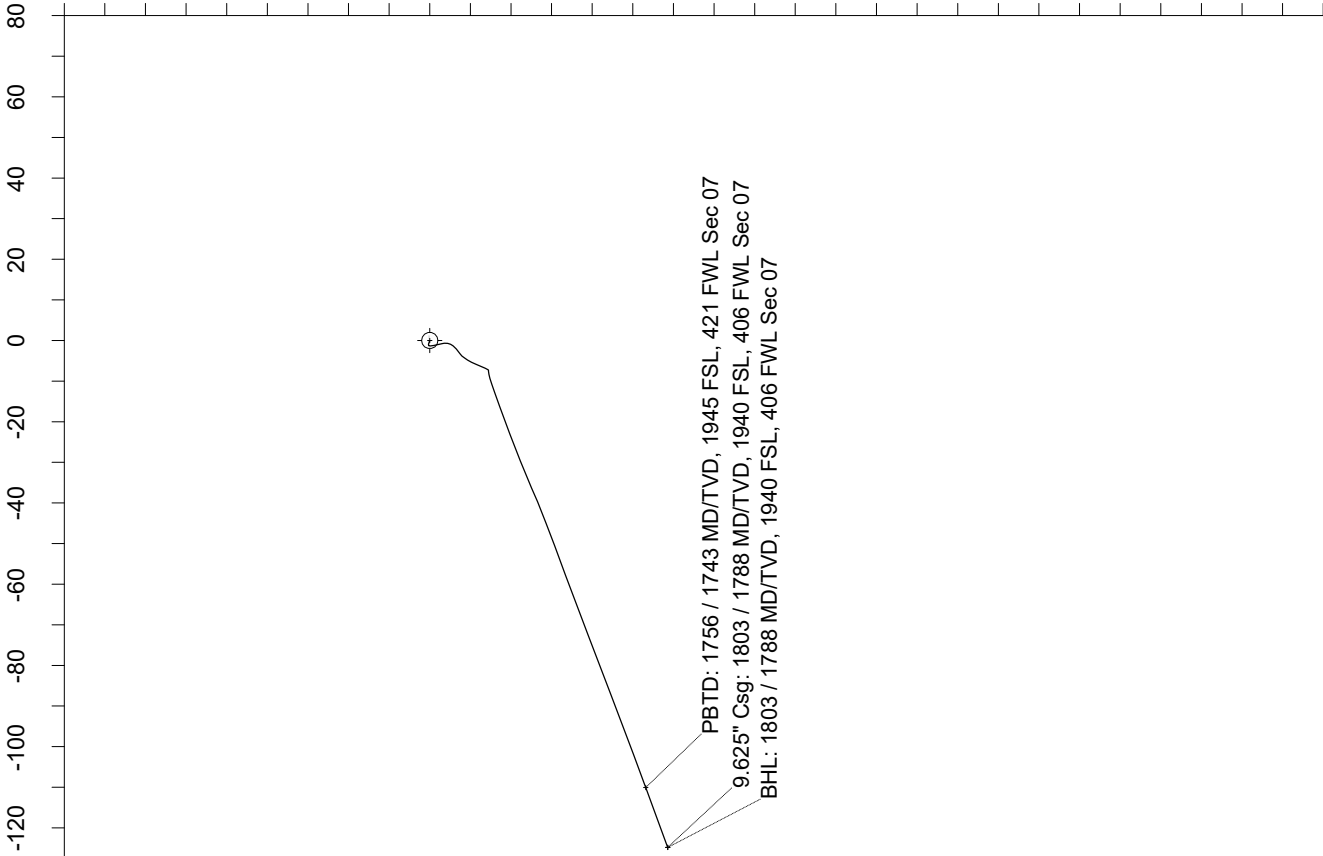
Location	Colorado	Slot	S13 - Tollway LC 24-379HN
Field	Wattenburg	Well	Tollway LC 24-379HN
Installation	Tollway	Wellbore	Tollway LC 24-379HN (AWB)



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

East (Feet) ->

Scale 1 cm = 10 ft



Scale 1 cm = 200 ft

Vertical Section (Feet) ->

Azimuth 244.85 with reference 0.00 N, 0.00 E from S13 - Tollway LC 24-379HN

Scale 1 cm = 10 ft

Great Western Operating Co, LLC
Directional Survey Report
Wellpath: Tollway LC 24-379HN
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	05-001-10440	6.00	Tollway LC 24-379HN

Slot Coordinates

Latitude	Longitude
39.97742200	-104.93838900

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	39.97742200	-104.93838900
82.00	0.53	286.74	82.00	0.11	-0.36	0.65	0.28	39.97742230	-104.93839030
172.00	0.22	301.16	172.00	0.32	-0.91	0.36	0.69	39.97742287	-104.93839225
259.00	0.31	235.15	259.00	0.27	-1.25	0.34	1.01	39.97742274	-104.93839344
351.00	1.41	169.14	350.99	-0.98	-1.24	1.43	1.54	39.97741930	-104.93839341
441.00	1.41	164.92	440.96	-3.14	-0.74	0.12	2.00	39.97741338	-104.93839164
531.00	1.63	209.49	530.93	-5.32	-1.08	1.30	3.24	39.97740739	-104.93839286
621.00	1.27	239.90	620.90	-6.94	-2.58	0.93	5.28	39.97740295	-104.93839819
711.00	0.79	219.07	710.89	-7.92	-3.83	0.67	6.83	39.97740026	-104.93840266
801.00	1.36	213.70	800.87	-9.29	-4.81	0.64	8.30	39.97739650	-104.93840617
891.00	1.71	199.64	890.84	-11.44	-5.86	0.57	10.16	39.97739059	-104.93840990
981.00	1.32	208.34	980.81	-13.62	-6.80	0.50	11.94	39.97738461	-104.93841326
1071.00	0.09	4.08	1070.80	-14.46	-7.29	1.56	12.74	39.97738230	-104.93841500
1161.00	1.41	260.64	1160.79	-14.57	-8.37	1.59	13.77	39.97738200	-104.93841888
1251.00	4.44	249.74	1250.66	-15.96	-12.74	3.41	18.31	39.97737819	-104.93843445
1341.00	8.13	250.18	1340.11	-19.32	-21.99	4.10	28.12	39.97736895	-104.93846748
1431.00	9.67	246.40	1429.02	-24.51	-34.91	1.83	42.02	39.97735472	-104.93851356
1521.00	11.82	249.74	1517.44	-30.73	-50.49	2.49	58.76	39.97733765	-104.93856914
1611.00	15.91	249.21	1604.80	-38.30	-70.67	4.55	80.25	39.97731686	-104.93864117
1701.00	16.92	249.12	1691.13	-47.35	-94.44	1.12	105.61	39.97729203	-104.93872599
1753.00	18.46	249.83	1740.67	-52.88	-109.24	2.99	121.36	39.97727683	-104.93877879
1755.86	18.55	249.83	1743.38	-53.20	-110.09	3.15	122.26	39.97727597	-104.93878183
1803.00	20.36	249.83	1787.83	-58.61	-124.83	3.84	137.91	39.97726111	-104.93883442

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
0.00	0.00	0.00	0.00	39.97742200	-104.93838900	Surface Location
1755.86	1743.38	-53.20	-110.09	39.97727597	-104.93878183	PBTD: 1756 / 1743 MD/TVD, 1945 FSL, 421 FWL Sec 07
1803.00	1787.83	-58.61	-124.83	39.97726111	-104.93883442	9.625" Csg: 1803 / 1788 MD/TVD, 1940 FSL, 406 FWL Sec 07
1803.00	1787.83	-58.61	-124.83	39.97726111	-104.93883442	BHL: 1803 / 1788 MD/TVD, 1940 FSL, 406 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	1803.00	1787.83	-58.61	-124.83

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	1803.00	1787.83	-58.61	-124.83

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
617233	As Drilled - Surface	1803.00	1787.83	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 244.85 degrees
Bottom hole distance is 137.91 Feet on azimuth 244.85 degrees from Wellhead
Survey calculation uses Minimum Curvature method