



Project: Mesa County, CO  
 Site: Gunderson 20-03 Pad  
 Well: Gunderson 20-09W  
 Wellbore: Wellbore #1  
 Design: Design #4  
 Latitude: 39.266811  
 Longitude: -107.795314  
 Ground Level: 7146.0  
 well @ 7176.0usft (H&P # 522)



#### PROJECT DETAILS: Mesa County, CO

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Central Zone  
 System Datum: Mean Sea Level

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Gunderson 20-09W, True North  
 Vertical (TVD) Reference: well @ 7176.0usft (H&P # 522)  
 Section (VS) Reference: Slot - (0.0N, 0.0E)  
 Measured Depth Reference: well @ 7176.0usft (H&P # 522)  
 Calculation Method: Minimum Curvature

#### WELL DETAILS: Gunderson 20-09W

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.0	0.0	1530278.74	2350221.32	39.266811	-107.795314

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL - Gunderson 20-09W	7526.0	-1101.0	-681.5	1529195.29	2349512.22	39.263788	-107.797721

#### Design #4

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.0	KOP / Build 3° / 100'
974.2	15.73	211.76	967.6	-60.8	-37.6	71.5	71.5	EOB @ 15.73° Inc. / 211.76° Azm
5224.0	15.73	211.76	5058.4	-1040.2	-643.9	1223.4	1223.4	Drop 3° / 100'
5748.2	0.00	0.00	5576.0	-1101.0	-681.5	1294.9	1294.9	EOD @ Vertical
7698.2	0.00	0.00	7526.0	-1101.0	-681.5	1294.9	1294.9	TD @ 7698' MD / 7526.0' TVD

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
110.0	1.70	230.40	110.0	-1.0	-1.3	1.6	1.6	First MWD Survey @ 110.0' MD / TVD
7640.0	4.30	251.00	7472.9	-1132.5	-721.7	1342.5	1356.3	Projection to TD @ 7640' MD / 7472' TVD

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2426.0	2489.3	G' Sand
4276.0	4411.2	Williams Fork
5576.0	5748.2	TOG
6576.0	6748.2	Cameo
7236.0	7408.2	Base Cameo Coal
7276.0	7448.2	Rollins

#### First MWD Survey @ 110.0' MD / TVD

SHL  
 LAT: 39.266811  
 LONG: -107.795314  
 FNL: 1012'  
 FWL: 1975'

BHL  
 LAT: 39.263702  
 LONG: -107.797863  
 FNL FEL FSL FWL  
 2146' 3974' 3055' 1252'

Azimuths to True North  
 Magnetic North: 9.65°  
 Magnetic Field  
 Strength: 51494.8nT  
 Dip Angle: 65.45°  
 Date: 10/19/2016  
 Model: IGRF2015

Projection to TD @ 7640' MD / 7472' TVD

Plan: Design #4 (Gunderson 20-09W/Wellbore #1)

Created By: Will Jircik Date: 4:43, July 27 2017

