

New Ventures

Routt Co. CO NAD 83 CZ

Sec 34-T07N-R88W

Flanders 7-88

1-34H

Plan: Design #1

Standard Planning Report

, 05 March, 2015

Southwestern Energy

Planning Report

Database:
Company:
Project:

OSC_EDM12
New Ventures
Routt Co. CO NAD 83 CZ

Local Co-ordinate Reference:
TVD Reference:
MD Reference:

Well Flanders 7-88
RKB @ 6583.8usft (PD706)
RKB @ 6583.8usft (PD706)

**Southwestern Energy
Routt Co. CO NAD 83 CZ
Sec 34-T07N-R88W
Flanders 7-88 1-34H35**

WELL DETAILS: Flanders 7-88

RKB @ 6583.8usft (PD706)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1436491.26	2512419.86	40° 31' 5.999 N	107° 15' 13.849 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	8635.4	0.00	0.00	8635.4	0.0	0.0	0.00	0.00	0.0		
3	9635.4	90.00	73.53	9272.0	180.5	610.5	9.00	73.53	636.6	1-34H BHL	
4	13253.1	90.00	73.53	9272.0	1206.3	4079.7	0.00	0.00	4254.3	1-34H BHL	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
1-34H BHL	9272.0	1206.3	4079.7	1437697.51	2516499.57	40° 31' 18.710 N	107° 14' 21.340 W	Point
- plan hits target center								
1-34H LP	9272.0	180.5	610.5	1436671.76	2513030.36	40° 31' 7.901 N	107° 15' 5.992 W	Point
- plan hits target center								

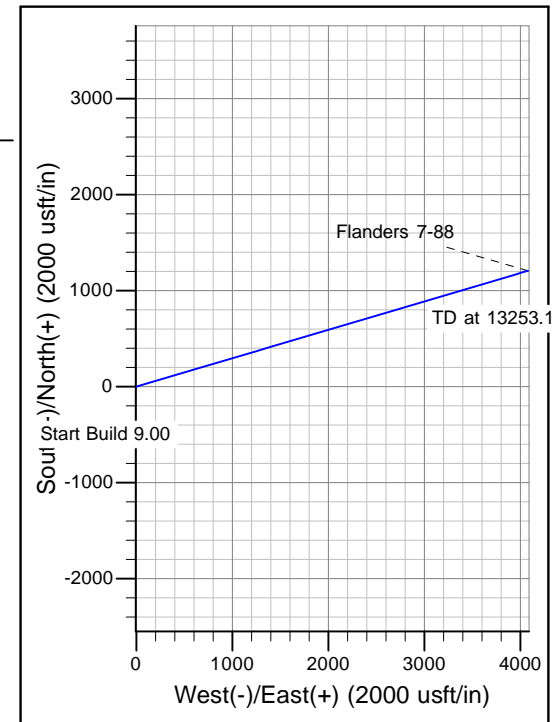
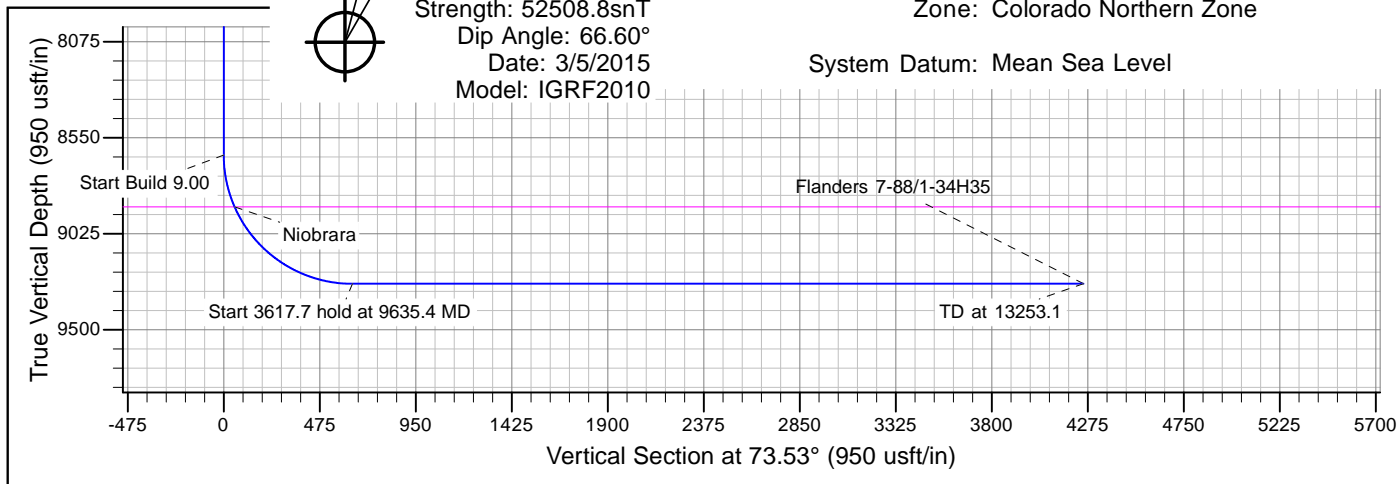
PROJECT DETAILS: Routt Co. CO NAD 83 CZ

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level

Azimuths to Grid North
True North: 1.13°
Magnetic North: 10.78°

Magnetic Field
Strength: 52508.8snT
Dip Angle: 66.60°
Date: 3/5/2015
Model: IGRF2010



Site: Sec 34-T07N-R88W
Well: Flanders 7-88
Wellbore: 1-34H
Design: Design #1

North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Routt Co. CO NAD 83 CZ, Colorado,
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Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site Sec 34-T07N-R88W

Site Position:		Northing:	1,436,491.26 usft	Latitude:	40° 31' 5.999 N
From:	Lat/Long	Easting:	2,512,419.86 usft	Longitude:	107° 15' 13.849 W
Position Uncertainty:		Slot Radius:	0.0 usft	Grid Convergence:	-1.13 °

Well Flanders 7-88

Well Position	+N/-S	0.0 usft	Northing:	1,436,491.26 usft	Latitude:	40° 31' 5.999 N
	+E/-W	0.0 usft	Easting:	2,512,419.86 usft	Longitude:	107° 15' 13.849 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,561.8 usft

Wellbore 1-34H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/5/2015	9.64	66.60	52,509

Design	Design #1
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Audit Notes:

Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	73.53

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,635.4	0.00	0.00	8,635.4	0.0	0.0	0.00	0.00	0.00	0.00	
9,635.4	90.00	73.53	9,272.0	180.5	610.5	9.00	9.00	0.00	73.53	1-34H BHL
13,253.1	90.00	73.53	9,272.0	1,206.3	4,079.7	0.00	0.00	0.00	0.00	1-34H BHL

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,635.4	0.00	0.00	8,635.4	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	5.81	73.53	8,699.9	0.9	3.1	3.3	9.00	9.00	0.00
8,800.0	14.81	73.53	8,798.2	6.0	20.3	21.2	9.00	9.00	0.00
8,899.5	23.77	73.53	8,892.0	15.3	51.8	54.0	9.00	9.00	0.00
Niobrara									
8,900.0	23.81	73.53	8,892.4	15.4	52.0	54.2	9.00	9.00	0.00
9,000.0	32.81	73.53	8,980.4	28.8	97.4	101.6	9.00	9.00	0.00
9,100.0	41.81	73.53	9,059.8	46.0	155.5	162.1	9.00	9.00	0.00
9,200.0	50.81	73.53	9,128.8	66.5	224.8	234.4	9.00	9.00	0.00
9,300.0	59.81	73.53	9,185.7	89.7	303.5	316.5	9.00	9.00	0.00
9,400.0	68.81	73.53	9,229.0	115.3	389.9	406.5	9.00	9.00	0.00
9,500.0	77.81	73.53	9,257.7	142.4	481.6	502.2	9.00	9.00	0.00
9,600.0	86.81	73.53	9,271.0	170.5	576.6	601.2	9.00	9.00	0.00
9,635.4	90.00	73.53	9,272.0	180.5	610.5	636.6	9.00	9.00	0.00
1-34H LP									
9,700.0	90.00	73.53	9,272.0	198.8	672.4	701.2	0.00	0.00	0.00
9,800.0	90.00	73.53	9,272.0	227.2	768.3	801.2	0.00	0.00	0.00
9,900.0	90.00	73.53	9,272.0	255.5	864.2	901.2	0.00	0.00	0.00
10,000.0	90.00	73.53	9,272.0	283.9	960.1	1,001.2	0.00	0.00	0.00
10,100.0	90.00	73.53	9,272.0	312.2	1,056.0	1,101.2	0.00	0.00	0.00

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,200.0	90.00	73.53	9,272.0	340.6	1,151.9	1,201.2	0.00	0.00	0.00
10,300.0	90.00	73.53	9,272.0	368.9	1,247.8	1,301.2	0.00	0.00	0.00
10,400.0	90.00	73.53	9,272.0	397.3	1,343.7	1,401.2	0.00	0.00	0.00
10,500.0	90.00	73.53	9,272.0	425.7	1,439.6	1,501.2	0.00	0.00	0.00
10,600.0	90.00	73.53	9,272.0	454.0	1,535.5	1,601.2	0.00	0.00	0.00
10,700.0	90.00	73.53	9,272.0	482.4	1,631.4	1,701.2	0.00	0.00	0.00
10,800.0	90.00	73.53	9,272.0	510.7	1,727.3	1,801.2	0.00	0.00	0.00
10,900.0	90.00	73.53	9,272.0	539.1	1,823.2	1,901.2	0.00	0.00	0.00
11,000.0	90.00	73.53	9,272.0	567.4	1,919.1	2,001.2	0.00	0.00	0.00
11,100.0	90.00	73.53	9,272.0	595.8	2,015.0	2,101.2	0.00	0.00	0.00
11,200.0	90.00	73.53	9,272.0	624.1	2,110.9	2,201.2	0.00	0.00	0.00
11,300.0	90.00	73.53	9,272.0	652.5	2,206.8	2,301.2	0.00	0.00	0.00
11,400.0	90.00	73.53	9,272.0	680.8	2,302.7	2,401.2	0.00	0.00	0.00
11,500.0	90.00	73.53	9,272.0	709.2	2,398.6	2,501.2	0.00	0.00	0.00
11,600.0	90.00	73.53	9,272.0	737.5	2,494.5	2,601.2	0.00	0.00	0.00
11,700.0	90.00	73.53	9,272.0	765.9	2,590.4	2,701.2	0.00	0.00	0.00
11,800.0	90.00	73.53	9,272.0	794.3	2,686.3	2,801.2	0.00	0.00	0.00
11,900.0	90.00	73.53	9,272.0	822.6	2,782.2	2,901.2	0.00	0.00	0.00
12,000.0	90.00	73.53	9,272.0	851.0	2,878.1	3,001.2	0.00	0.00	0.00
12,100.0	90.00	73.53	9,272.0	879.3	2,973.9	3,101.2	0.00	0.00	0.00
12,200.0	90.00	73.53	9,272.0	907.7	3,069.8	3,201.2	0.00	0.00	0.00
12,300.0	90.00	73.53	9,272.0	936.0	3,165.7	3,301.2	0.00	0.00	0.00
12,400.0	90.00	73.53	9,272.0	964.4	3,261.6	3,401.2	0.00	0.00	0.00
12,500.0	90.00	73.53	9,272.0	992.7	3,357.5	3,501.2	0.00	0.00	0.00
12,600.0	90.00	73.53	9,272.0	1,021.1	3,453.4	3,601.2	0.00	0.00	0.00
12,700.0	90.00	73.53	9,272.0	1,049.4	3,549.3	3,701.2	0.00	0.00	0.00
12,800.0	90.00	73.53	9,272.0	1,077.8	3,645.2	3,801.2	0.00	0.00	0.00
12,900.0	90.00	73.53	9,272.0	1,106.1	3,741.1	3,901.2	0.00	0.00	0.00
13,000.0	90.00	73.53	9,272.0	1,134.5	3,837.0	4,001.2	0.00	0.00	0.00
13,100.0	90.00	73.53	9,272.0	1,162.9	3,932.9	4,101.2	0.00	0.00	0.00
13,200.0	90.00	73.53	9,272.0	1,191.2	4,028.8	4,201.2	0.00	0.00	0.00
13,253.1	90.00	73.53	9,272.0	1,206.3	4,079.7	4,254.3	0.00	0.00	0.00
1-34H BHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
1-34H LP - plan hits target center - Point	0.00	360.00	9,272.0	180.5	610.5	1,436,671.76	2,513,030.36	40° 31' 7.901 N	107° 15' 5.992 W
1-34H BHL - plan hits target center - Point	0.00	360.00	9,272.0	1,206.3	4,079.7	1,437,697.52	2,516,499.56	40° 31' 18.710 N	107° 14' 21.340 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,899.5	8,892.0	Niobrara	0.00		