

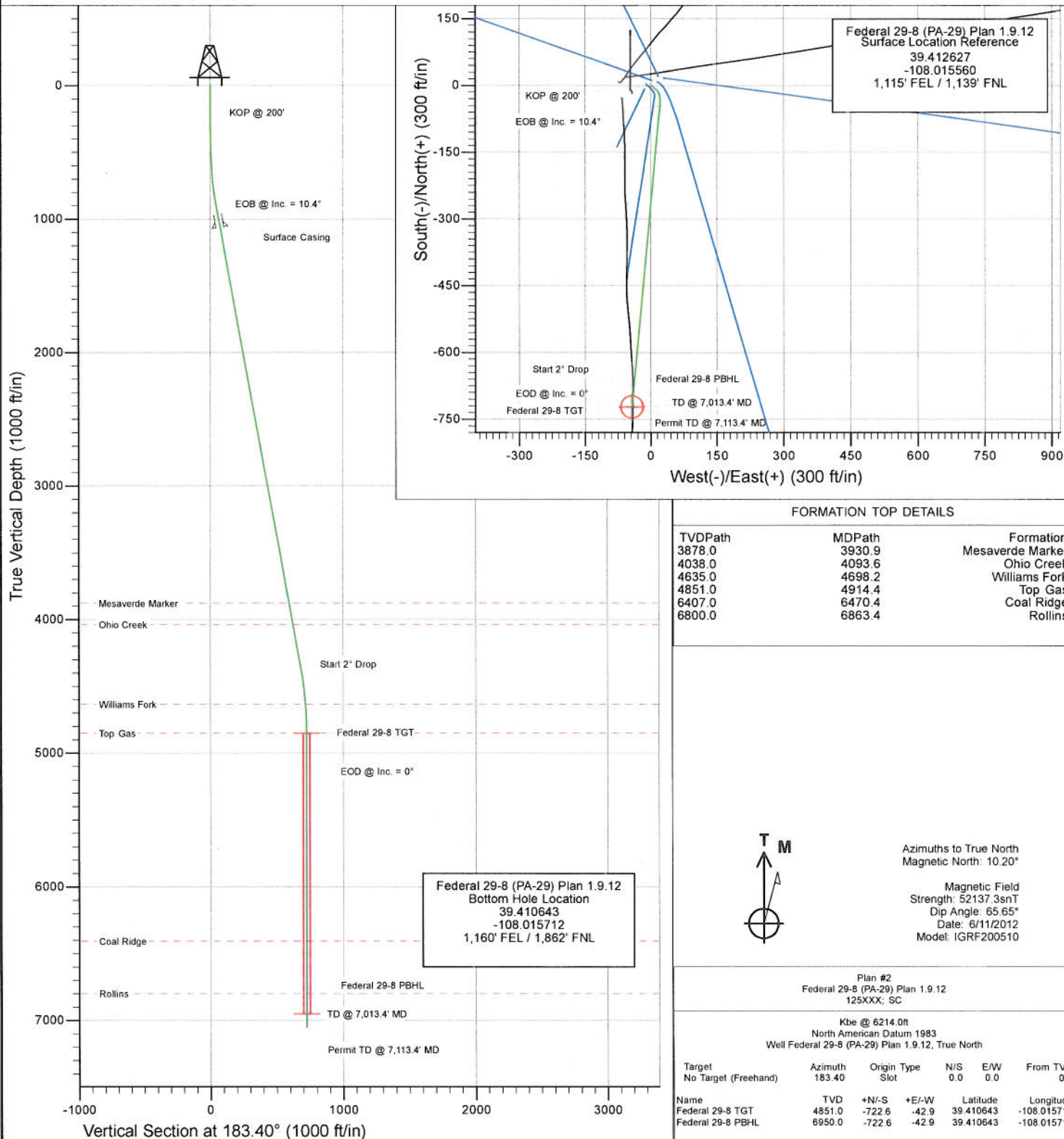


Project: S. Piceance (Parachute)
 Site: PA-29 Pad
 Well: Federal 29-8 (PA-29) Plan 1.9.12
 Wellbore: OH
 Design: Plan #2



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	600.0	5.00	130.00	599.5	-11.2	13.4	1.25	130.00	10.4	
4	886.6	10.40	185.35	883.7	-45.1	20.5	3.00	83.64	43.8	
5	4394.2	10.40	185.35	4333.7	-675.7	-38.6	0.00	0.00	676.8	
6	4914.4	0.00	0.00	4851.0	-722.6	-42.9	2.00	180.00	723.9	Federal 29-8 TGT
7	7013.4	0.00	0.00	6950.0	-722.6	-42.9	0.00	0.00	723.9	Federal 29-8 PBHL
8	7113.4	0.00	0.00	7050.0	-722.6	-42.9	0.00	0.00	723.9	



Azimuths to True North
 Magnetic North: 10.20°

Magnetic Field
 Strength: 52137.3snT
 Dip Angle: 65.65°
 Date: 6/11/2012
 Model: IGRF200510

Plan #2 Federal 29-8 (PA-29) Plan 1.9.12 125XXX; SC					
Kbe @ 6214.0ft North American Datum 1983 Well Federal 29-8 (PA-29) Plan 1.9.12, True North					
Target	Azimuth	Origin	Type	N/S	E/W
No Target (Freehand)	183.40	Slot		0.0	0.0
					From TVD
					0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Federal 29-8 TGT	4851.0	-722.6	-42.9	39.410643	-108.015712
Federal 29-8 PBHL	6950.0	-722.6	-42.9	39.410643	-108.015712

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: S. Piceance (Parachute)
Site: PA-29 Pad
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Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well Federal 29-8 (PA-29) Plan 1.9.12
TVD Reference: Kbe @ 6214.0ft
MD Reference: Kbe @ 6214.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Project S. Piceance (Parachute), Garfield County, CO

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: Colorado Central Zone
System Datum: Mean Sea Level

Site PA-29 Pad

Site Position:
From: Lat/Long
Position Uncertainty: 0.0 ft
Northing: 1,585,028.43 ft
Easting: 2,289,373.78 ft
Slot Radius: 13.200 in
Latitude: 39.412645
Longitude: -108.015520
Grid Convergence: -1.59 °

Well Federal 29-8 (PA-29) Plan 1.9.12

Well Position
+N/-S 0.0 ft
+E/-W 0.0 ft
Position Uncertainty 0.0 ft
Northing: 1,585,022.18 ft
Easting: 2,289,362.30 ft
Wellhead Elevation: ft
Latitude: 39.412627
Longitude: -108.015560
Ground Level: 6,192.0 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/11/2012	10.19	65.65	52,137

Design Plan #2

Audit Notes:

Version:
Phase: PLAN
Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	183.40

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	5.00	130.00	599.5	-11.2	13.4	1.25	1.25	0.00	130.00	
886.6	10.40	185.35	883.7	-45.1	20.5	3.00	1.89	19.32	83.64	
4,394.2	10.40	185.35	4,333.7	-675.7	-38.6	0.00	0.00	0.00	0.00	
4,914.4	0.00	0.00	4,851.0	-722.6	-42.9	2.00	-2.00	0.00	180.00	Federal 29-8 TGT
7,013.4	0.00	0.00	6,950.0	-722.6	-42.9	0.00	0.00	0.00	0.00	Federal 29-8 PBHL
7,113.4	0.00	0.00	7,050.0	-722.6	-42.9	0.00	0.00	0.00	0.00	

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Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well Federal 29-8 (PA-29) Plan 1.9.12
TVD Reference: Kbe @ 6214.0ft
MD Reference: Kbe @ 6214.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	1.25	130.00	300.0	-0.7	0.8	0.7	1.25	1.25	
400.0	2.50	130.00	399.9	-2.8	3.3	2.6	1.25	1.25	
500.0	3.75	130.00	499.8	-6.3	7.5	5.9	1.25	1.25	
600.0	5.00	130.00	599.5	-11.2	13.4	10.4	1.25	1.25	
700.0	6.11	159.27	699.0	-19.0	18.6	17.9	3.00	1.11	
800.0	8.22	176.61	798.3	-31.1	20.9	29.8	3.00	2.11	
886.6	10.40	185.35	883.7	-45.1	20.5	43.8	3.00	2.52	EOB @ Inc. = 10.4°
900.0	10.40	185.35	896.9	-47.5	20.3	46.2	0.00	0.00	
1,000.0	10.40	185.35	995.3	-65.5	18.6	64.2	0.00	0.00	
1,066.7	10.40	185.35	1,060.9	-77.5	17.5	76.3	0.00	0.00	Surface Casing
1,100.0	10.40	185.35	1,093.6	-83.4	16.9	82.3	0.00	0.00	
1,200.0	10.40	185.35	1,192.0	-101.4	15.2	100.3	0.00	0.00	
1,300.0	10.40	185.35	1,290.3	-119.4	13.6	118.4	0.00	0.00	
1,400.0	10.40	185.35	1,388.7	-137.4	11.9	136.4	0.00	0.00	
1,500.0	10.40	185.35	1,487.0	-155.4	10.2	154.5	0.00	0.00	
1,600.0	10.40	185.35	1,585.4	-173.3	8.5	172.5	0.00	0.00	
1,700.0	10.40	185.35	1,683.8	-191.3	6.8	190.6	0.00	0.00	
1,800.0	10.40	185.35	1,782.1	-209.3	5.1	208.6	0.00	0.00	
1,900.0	10.40	185.35	1,880.5	-227.3	3.5	226.7	0.00	0.00	
2,000.0	10.40	185.35	1,978.8	-245.3	1.8	244.7	0.00	0.00	
2,100.0	10.40	185.35	2,077.2	-263.2	0.1	262.8	0.00	0.00	
2,200.0	10.40	185.35	2,175.5	-281.2	-1.6	280.8	0.00	0.00	
2,300.0	10.40	185.35	2,273.9	-299.2	-3.3	298.9	0.00	0.00	
2,400.0	10.40	185.35	2,372.2	-317.2	-5.0	316.9	0.00	0.00	
2,500.0	10.40	185.35	2,470.6	-335.2	-6.6	335.0	0.00	0.00	
2,600.0	10.40	185.35	2,569.0	-353.1	-8.3	353.0	0.00	0.00	
2,700.0	10.40	185.35	2,667.3	-371.1	-10.0	371.1	0.00	0.00	
2,800.0	10.40	185.35	2,765.7	-389.1	-11.7	389.1	0.00	0.00	
2,900.0	10.40	185.35	2,864.0	-407.1	-13.4	407.2	0.00	0.00	
3,000.0	10.40	185.35	2,962.4	-425.1	-15.1	425.2	0.00	0.00	
3,100.0	10.40	185.35	3,060.7	-443.0	-16.8	443.2	0.00	0.00	
3,200.0	10.40	185.35	3,159.1	-461.0	-18.4	461.3	0.00	0.00	
3,300.0	10.40	185.35	3,257.4	-479.0	-20.1	479.3	0.00	0.00	
3,400.0	10.40	185.35	3,355.8	-497.0	-21.8	497.4	0.00	0.00	
3,500.0	10.40	185.35	3,454.2	-515.0	-23.5	515.4	0.00	0.00	
3,600.0	10.40	185.35	3,552.5	-532.9	-25.2	533.5	0.00	0.00	
3,700.0	10.40	185.35	3,650.9	-550.9	-26.9	551.5	0.00	0.00	
3,800.0	10.40	185.35	3,749.2	-568.9	-28.5	569.6	0.00	0.00	
3,900.0	10.40	185.35	3,847.6	-586.9	-30.2	587.6	0.00	0.00	
3,930.9	10.40	185.35	3,878.0	-592.4	-30.8	593.2	0.00	0.00	Mesaverde Marker
4,000.0	10.40	185.35	3,945.9	-604.9	-31.9	605.7	0.00	0.00	
4,093.6	10.40	185.35	4,038.0	-621.7	-33.5	622.6	0.00	0.00	Ohio Creek
4,100.0	10.40	185.35	4,044.3	-622.8	-33.6	623.7	0.00	0.00	
4,200.0	10.40	185.35	4,142.7	-640.8	-35.3	641.8	0.00	0.00	
4,300.0	10.40	185.35	4,241.0	-658.8	-37.0	659.8	0.00	0.00	
4,394.2	10.40	185.35	4,333.7	-675.7	-38.6	676.8	0.00	0.00	Start 2" Drop
4,400.0	10.29	185.35	4,339.4	-676.8	-38.7	677.9	2.00	-2.00	
4,500.0	8.29	185.35	4,438.0	-692.8	-40.2	694.0	2.00	-2.00	
4,600.0	6.29	185.35	4,537.2	-705.5	-41.3	706.7	2.00	-2.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: S. Piceance (Parachute)
Site: PA-29 Pad
Well: Federal 29-8 (PA-29) Plan 1.9.12
Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well Federal 29-8 (PA-29) Plan 1.9.12
TVD Reference: Kbe @ 6214.0ft
MD Reference: Kbe @ 6214.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,698.2	4.32	185.35	4,635.0	-714.5	-42.2	715.7	2.00	-2.00	Williams Fork
4,700.0	4.29	185.35	4,636.8	-714.6	-42.2	715.9	2.00	-2.00	
4,800.0	2.29	185.35	4,736.6	-720.3	-42.7	721.6	2.00	-2.00	
4,900.0	0.29	185.35	4,836.6	-722.6	-42.9	723.9	2.00	-2.00	
4,914.4	0.00	0.00	4,851.0	-722.6	-42.9	723.9	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
5,000.0	0.00	0.00	4,936.6	-722.6	-42.9	723.9	0.00	0.00	
5,100.0	0.00	0.00	5,036.6	-722.6	-42.9	723.9	0.00	0.00	
5,200.0	0.00	0.00	5,136.6	-722.6	-42.9	723.9	0.00	0.00	
5,300.0	0.00	0.00	5,236.6	-722.6	-42.9	723.9	0.00	0.00	
5,400.0	0.00	0.00	5,336.6	-722.6	-42.9	723.9	0.00	0.00	
5,500.0	0.00	0.00	5,436.6	-722.6	-42.9	723.9	0.00	0.00	
5,600.0	0.00	0.00	5,536.6	-722.6	-42.9	723.9	0.00	0.00	
5,700.0	0.00	0.00	5,636.6	-722.6	-42.9	723.9	0.00	0.00	
5,800.0	0.00	0.00	5,736.6	-722.6	-42.9	723.9	0.00	0.00	
5,900.0	0.00	0.00	5,836.6	-722.6	-42.9	723.9	0.00	0.00	
6,000.0	0.00	0.00	5,936.6	-722.6	-42.9	723.9	0.00	0.00	
6,100.0	0.00	0.00	6,036.6	-722.6	-42.9	723.9	0.00	0.00	
6,200.0	0.00	0.00	6,136.6	-722.6	-42.9	723.9	0.00	0.00	
6,300.0	0.00	0.00	6,236.6	-722.6	-42.9	723.9	0.00	0.00	
6,400.0	0.00	0.00	6,336.6	-722.6	-42.9	723.9	0.00	0.00	
6,470.4	0.00	0.00	6,407.0	-722.6	-42.9	723.9	0.00	0.00	Coal Ridge
6,500.0	0.00	0.00	6,436.6	-722.6	-42.9	723.9	0.00	0.00	
6,600.0	0.00	0.00	6,536.6	-722.6	-42.9	723.9	0.00	0.00	
6,700.0	0.00	0.00	6,636.6	-722.6	-42.9	723.9	0.00	0.00	
6,800.0	0.00	0.00	6,736.6	-722.6	-42.9	723.9	0.00	0.00	
6,863.4	0.00	0.00	6,800.0	-722.6	-42.9	723.9	0.00	0.00	Rollins
6,900.0	0.00	0.00	6,836.6	-722.6	-42.9	723.9	0.00	0.00	
7,000.0	0.00	0.00	6,936.6	-722.6	-42.9	723.9	0.00	0.00	
7,013.4	0.00	0.00	6,950.0	-722.6	-42.9	723.9	0.00	0.00	TD @ 7,013.4' MD
7,100.0	0.00	0.00	7,036.6	-722.6	-42.9	723.9	0.00	0.00	
7,113.4	0.00	0.00	7,050.0	-722.6	-42.9	723.9	0.00	0.00	Permit TD @ 7,113.4' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Federal 29-8 TGT	0.00	0.00	4,851.0	-722.6	-42.9	1,584,301.02	2,289,299.36	39.410643	-108.015712
- plan hits target center									
- Point									
Federal 29-8 PBHL	0.00	0.00	6,950.0	-722.6	-42.9	1,584,301.02	2,289,299.36	39.410643	-108.015712
- plan hits target center									
- Circle (radius 25.0)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,066.7	1,060.9	Surface Casing	0.000	0.000

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TVD Reference: Kbe @ 6214.0ft
MD Reference: Kbe @ 6214.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,930.9	3,878.0	Mesaverde Marker			
4,093.6	4,038.0	Ohio Creek			
4,698.2	4,635.0	Williams Fork			
4,914.4	4,851.0	Top Gas			
6,470.4	6,407.0	Coal Ridge			
6,863.4	6,800.0	Rollins			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
886.6	883.7	-45.1	20.5	EOB @ Inc. = 10.4°
4,394.2	4,333.7	-675.7	-38.6	Start 2° Drop
4,914.4	4,851.0	-722.6	-42.9	EOD @ Inc. = 0°
7,013.4	6,950.0	-722.6	-42.9	TD @ 7,013.4' MD
7,113.4	7,050.0	-722.6	-42.9	Permit TD @ 7,113.4' MD