

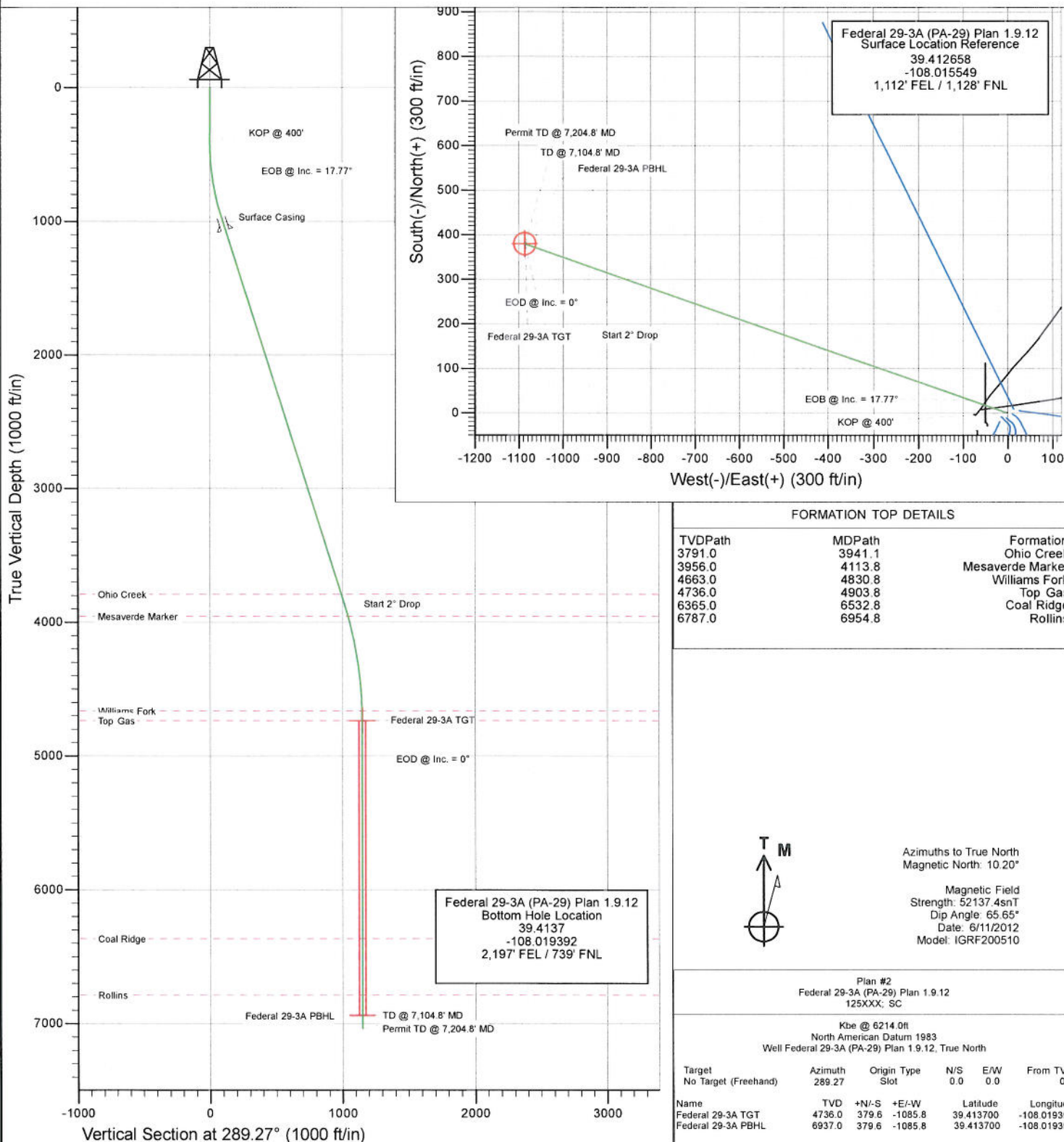


Project: S. Piceance (Parachute)
 Site: PA-29 Pad
 Well: Federal 29-3A (PA-29) Plan 1.9.12
 Wellbore: OH
 Design: Plan #2



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	992.2	17.77	289.27	982.8	30.1	-86.0	3.00	289.27	91.1	
4	4015.5	17.77	289.27	3861.9	334.5	-956.8	0.00	0.00	1013.6	
5	4903.8	0.00	0.00	4736.0	379.6	-1085.8	2.00	180.00	1150.2	Federal 29-3A TGT
6	7104.8	0.00	0.00	6937.0	379.6	-1085.8	0.00	0.00	1150.2	Federal 29-3A PBHL
7	7204.8	0.00	0.00	7037.0	379.6	-1085.8	0.00	0.00	1150.2	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3791.0	3941.1	Ohio Creek
3956.0	4113.8	Mesaverde Marker
4663.0	4830.8	Williams Fork
4736.0	4903.8	Top Gas
6365.0	6532.8	Coal Ridge
6787.0	6954.8	Rollins



Azimuths to True North
 Magnetic North: 10.20°

Magnetic Field
 Strength: 52137.4snT
 Dip Angle: 65.65°
 Date: 6/11/2012
 Model: IGRF200510

Plan #2
 Federal 29-3A (PA-29) Plan 1.9.12
 125XXX; SC

Kbe @ 6214.0ft
 North American Datum 1983
 Well Federal 29-3A (PA-29) Plan 1.9.12, True North

Target	Azimuth	Origin Type	N/S	E/W	From TVD
No Target (Freehand)	289.27	Slot	0.0	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Federal 29-3A TGT	4736.0	379.6	-1085.8	39.413700	-108.019392
Federal 29-3A PBHL	6937.0	379.6	-1085.8	39.413700	-108.019392

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: S. Piceance (Parachute)
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Wellbore: OH
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Local Co-ordinate Reference: Well Federal 29-3A (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 29-3A (PA-29) Plan 1.9.12

Well Position
+N/-S 0.0 ft
+E/-W 0.0 ft
Position Uncertainty 0.0 ft
Northing: 1,585,033.38 ft
Easting: 2,289,365.72 ft
Wellhead Elevation: ft
Latitude: 39.412658
Longitude: -108.015549
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	289.27

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
992.2	17.77	289.27	982.8	30.1	-86.0	3.00	3.00	0.00	289.27	
4,015.5	17.77	289.27	3,861.9	334.5	-956.8	0.00	0.00	0.00	0.00	
4,903.8	0.00	0.00	4,736.0	379.6	-1,085.8	2.00	-2.00	0.00	180.00	Federal 29-3A TGT
7,104.8	0.00	0.00	6,937.0	379.6	-1,085.8	0.00	0.00	0.00	0.00	Federal 29-3A PBHL
7,204.8	0.00	0.00	7,037.0	379.6	-1,085.8	0.00	0.00	0.00	0.00	

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Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well Federal 29-3A (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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	3.00	289.27	500.0	0.9	-2.5	2.6	3.00	3.00	
600.0	6.00	289.27	599.6	3.5	-9.9	10.5	3.00	3.00	
700.0	9.00	289.27	698.8	7.8	-22.2	23.5	3.00	3.00	
800.0	12.00	289.27	797.1	13.8	-39.4	41.7	3.00	3.00	
900.0	15.00	289.27	894.3	21.5	-61.4	65.1	3.00	3.00	
992.2	17.77	289.27	982.8	30.1	-86.0	91.1	3.00	3.00	EOB @ Inc. = 17.77°
1,000.0	17.77	289.27	990.2	30.8	-88.2	93.5	0.00	0.00	
1,078.8	17.77	289.27	1,065.3	38.8	-110.9	117.5	0.00	0.00	Surface Casing
1,100.0	17.77	289.27	1,085.4	40.9	-117.0	124.0	0.00	0.00	
1,200.0	17.77	289.27	1,180.6	51.0	-145.8	154.5	0.00	0.00	
1,300.0	17.77	289.27	1,275.9	61.0	-174.6	185.0	0.00	0.00	
1,400.0	17.77	289.27	1,371.1	71.1	-203.4	215.5	0.00	0.00	
1,500.0	17.77	289.27	1,466.3	81.2	-232.2	246.0	0.00	0.00	
1,600.0	17.77	289.27	1,561.6	91.3	-261.0	276.5	0.00	0.00	
1,700.0	17.77	289.27	1,656.8	101.3	-289.9	307.1	0.00	0.00	
1,800.0	17.77	289.27	1,752.0	111.4	-318.7	337.6	0.00	0.00	
1,900.0	17.77	289.27	1,847.3	121.5	-347.5	368.1	0.00	0.00	
2,000.0	17.77	289.27	1,942.5	131.5	-376.3	398.6	0.00	0.00	
2,100.0	17.77	289.27	2,037.7	141.6	-405.1	429.1	0.00	0.00	
2,200.0	17.77	289.27	2,133.0	151.7	-433.9	459.6	0.00	0.00	
2,300.0	17.77	289.27	2,228.2	161.7	-462.7	490.1	0.00	0.00	
2,400.0	17.77	289.27	2,323.4	171.8	-491.5	520.6	0.00	0.00	
2,500.0	17.77	289.27	2,418.6	181.9	-520.3	551.2	0.00	0.00	
2,600.0	17.77	289.27	2,513.9	191.9	-549.1	581.7	0.00	0.00	
2,700.0	17.77	289.27	2,609.1	202.0	-577.9	612.2	0.00	0.00	
2,800.0	17.77	289.27	2,704.3	212.1	-606.7	642.7	0.00	0.00	
2,900.0	17.77	289.27	2,799.6	222.2	-635.5	673.2	0.00	0.00	
3,000.0	17.77	289.27	2,894.8	232.2	-664.3	703.7	0.00	0.00	
3,100.0	17.77	289.27	2,990.0	242.3	-693.1	734.2	0.00	0.00	
3,200.0	17.77	289.27	3,085.3	252.4	-721.9	764.7	0.00	0.00	
3,300.0	17.77	289.27	3,180.5	262.4	-750.7	795.3	0.00	0.00	
3,400.0	17.77	289.27	3,275.7	272.5	-779.5	825.8	0.00	0.00	
3,500.0	17.77	289.27	3,371.0	282.6	-808.3	856.3	0.00	0.00	
3,600.0	17.77	289.27	3,466.2	292.6	-837.1	886.8	0.00	0.00	
3,700.0	17.77	289.27	3,561.4	302.7	-865.9	917.3	0.00	0.00	
3,800.0	17.77	289.27	3,656.7	312.8	-894.7	947.8	0.00	0.00	
3,900.0	17.77	289.27	3,751.9	322.8	-923.5	978.3	0.00	0.00	
3,941.1	17.77	289.27	3,791.0	327.0	-935.4	990.9	0.00	0.00	Ohio Creek
4,000.0	17.77	289.27	3,847.1	332.9	-952.3	1,008.9	0.00	0.00	
4,015.5	17.77	289.27	3,861.9	334.5	-956.8	1,013.6	0.00	0.00	Start 2" Drop
4,100.0	16.08	289.27	3,942.7	342.6	-980.0	1,038.2	2.00	-2.00	
4,113.8	15.80	289.27	3,956.0	343.8	-983.6	1,042.0	2.00	-2.00	Mesaverde Marker
4,200.0	14.08	289.27	4,039.3	351.2	-1,004.6	1,064.2	2.00	-2.00	
4,300.0	12.08	289.27	4,136.7	358.6	-1,025.9	1,086.8	2.00	-2.00	
4,400.0	10.08	289.27	4,234.8	365.0	-1,044.1	1,106.0	2.00	-2.00	
4,500.0	8.08	289.27	4,333.5	370.2	-1,058.9	1,121.8	2.00	-2.00	
4,600.0	6.08	289.27	4,432.8	374.3	-1,070.6	1,134.1	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 29-3A (PA-29) Plan 1.9.12
Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well Federal 29-3A (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
4,700.0	4.08	289.27	4,532.4	377.2	-1,078.9	1,143.0	2.00	-2.00	
4,800.0	2.08	289.27	4,632.2	378.9	-1,084.0	1,148.3	2.00	-2.00	
4,830.8	1.46	289.27	4,663.0	379.3	-1,084.9	1,149.3	2.00	-2.00	Williams Fork
4,903.8	0.00	0.00	4,736.0	379.6	-1,085.8	1,150.2	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
5,000.0	0.00	0.00	4,832.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,100.0	0.00	0.00	4,932.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,200.0	0.00	0.00	5,032.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,300.0	0.00	0.00	5,132.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,400.0	0.00	0.00	5,232.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,500.0	0.00	0.00	5,332.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,600.0	0.00	0.00	5,432.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,700.0	0.00	0.00	5,532.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,800.0	0.00	0.00	5,632.2	379.6	-1,085.8	1,150.2	0.00	0.00	
5,900.0	0.00	0.00	5,732.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,000.0	0.00	0.00	5,832.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,100.0	0.00	0.00	5,932.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,200.0	0.00	0.00	6,032.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,300.0	0.00	0.00	6,132.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,400.0	0.00	0.00	6,232.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,500.0	0.00	0.00	6,332.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,532.8	0.00	0.00	6,365.0	379.6	-1,085.8	1,150.2	0.00	0.00	Coal Ridge
6,600.0	0.00	0.00	6,432.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,700.0	0.00	0.00	6,532.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,800.0	0.00	0.00	6,632.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,900.0	0.00	0.00	6,732.2	379.6	-1,085.8	1,150.2	0.00	0.00	
6,954.8	0.00	0.00	6,787.0	379.6	-1,085.8	1,150.2	0.00	0.00	Rollins
7,000.0	0.00	0.00	6,832.2	379.6	-1,085.8	1,150.2	0.00	0.00	
7,104.8	0.00	0.00	6,937.0	379.6	-1,085.8	1,150.2	0.00	0.00	TD @ 7,104.8' MD
7,204.8	0.00	0.00	7,037.0	379.6	-1,085.8	1,150.2	0.00	0.00	Permit TD @ 7,204.8' 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 29-3A PBHL	0.00	0.00	6,937.0	379.6	-1,085.8	1,585,442.86	2,288,290.88	39.413700	-108.019392
- plan hits target center									
- Circle (radius 25.0)									
Federal 29-3A TGT	0.00	0.00	4,736.0	379.6	-1,085.8	1,585,442.86	2,288,290.88	39.413700	-108.019392
- hit/miss target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,078.8	1,065.3	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 (°)
3,941.1	3,791.0	Ohio Creek			
4,113.8	3,956.0	Mesaverde Marker			
4,830.8	4,663.0	Williams Fork			
4,903.8	4,736.0	Top Gas			
6,532.8	6,365.0	Coal Ridge			
6,954.8	6,787.0	Rollins			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
400.0	400.0	0.0	0.0	KOP @ 400'
992.2	982.8	30.1	-86.0	EOB @ Inc. = 17.77°
4,015.5	3,861.9	334.5	-956.8	Start 2° Drop
4,903.8	4,736.0	379.6	-1,085.8	EOD @ Inc. = 0°
7,104.8	6,937.0	379.6	-1,085.8	TD @ 7,104.8' MD
7,204.8	7,037.0	379.6	-1,085.8	Permit TD @ 7,204.8' MD