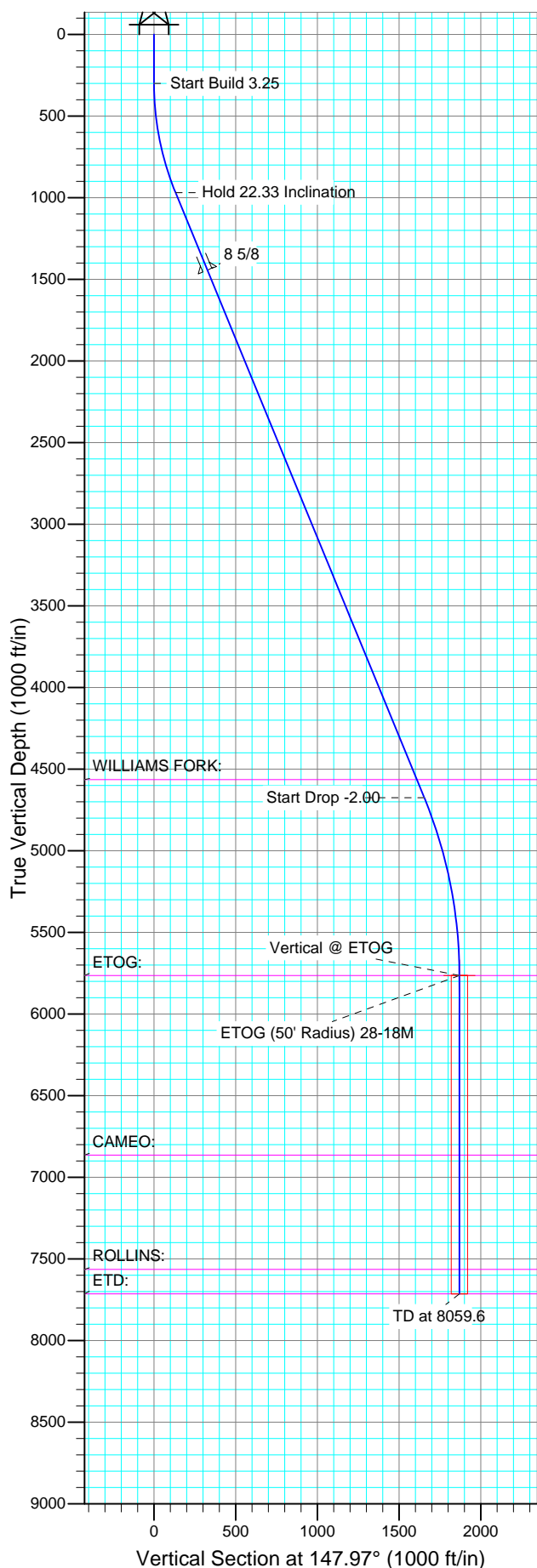




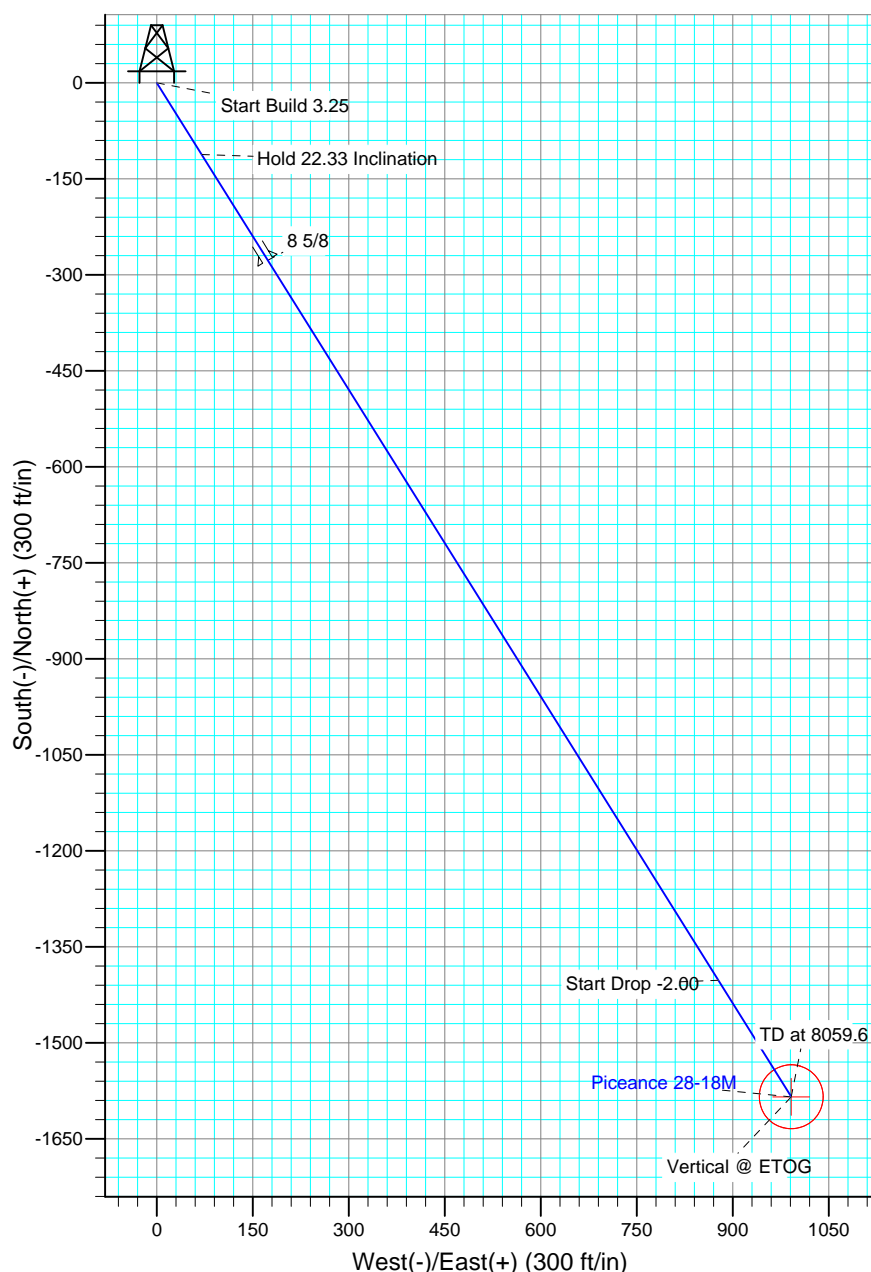
Well Name: Piceance 28-18M
Surface Location: Piceance 28-11 Pad
North American Datum 1983
US State Plane 1983, Colorado Central Zone
Ground Elevation: 7580.0
WELL @ 7604.0ft (Original Well Elev)

Project: Mesa County, CO
Site: Piceance 28-11 Pad
Well: Piceance 28-18M
Wellbore: Wellbore #1
Design: Plan #1 10May14 kjs

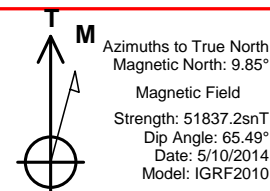
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1523179.58	2354915.58	39° 14' 51.540 N	107° 46' 41.196 W	



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	987.0	22.33	147.97	969.7	-112.0	70.1	3.25	147.97	132.2	
4	4993.3	22.33	147.97	4675.7	-1402.3	877.3	0.00	0.00	1654.1	
5	6109.6	0.00	0.00	5764.0	-1584.3	991.2	2.00	180.00	1868.9	ETOG (50' Radius) 28-18M
6	8059.6	0.00	0.00	7714.0	-1584.3	991.2	0.00	0.00	1868.9	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4564.0	4872.5	WILLIAMS FORK:
5764.0	6109.6	ETOG:
6864.0	7209.6	CAMEO:
7564.0	7909.6	ROLLINS:
7714.0	8059.6	ETD:



Piceance Energy, LLC

Mesa County, CO

Piceance 28-11 Pad

Piceance 28-18M

Wellbore #1

Plan: Plan #1 10May14 kjs

Standard Planning Report - Geographic

11 May, 2014

New Tech

Planning Report - Geographic

Database:	EDM 2003.16 Single User Db	Local Co-ordinate Reference:	Well Piceance 28-18M
Company:	Piceance Energy, LLC	TVD Reference:	WELL @ 7604.0ft (Original Well Elev)
Project:	Mesa County, CO	MD Reference:	WELL @ 7604.0ft (Original Well Elev)
Site:	Piceance 28-11 Pad	North Reference:	True
Well:	Piceance 28-18M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 10May14 kjs		

Project	Mesa County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		Piceance 28-11 Pad			
Site Position:		Northing:	1,523,237.48 ft	Latitude:	39° 14' 52.116 N
From:	Lat/Long	Easting:	2,354,931.19 ft	Longitude:	107° 46' 41.016 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.44 °

Well	Piceance 28-18M					
Well Position	+N/-S	0.0 ft	Northing:	1,523,179.58 ft	Latitude:	39° 14' 51.540 N
	+E/-W	0.0 ft	Easting:	2,354,915.58 ft	Longitude:	107° 46' 41.196 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,580.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/10/2014	9.85	65.50	51,837

Design	Plan #1 10May14 kjs			
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	147.97

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
987.0	22.33	147.97	969.7	-112.0	70.1	3.25	3.25	0.00	147.97	
4,993.3	22.33	147.97	4,675.7	-1,402.3	877.3	0.00	0.00	0.00	0.00	
6,109.6	0.00	0.00	5,764.0	-1,584.3	991.2	2.00	-2.00	0.00	180.00	ETOG (50' Radius) 28
8,059.6	0.00	0.00	7,714.0	-1,584.3	991.2	0.00	0.00	0.00	0.00	

New Tech

Planning Report - Geographic

Database:	EDM 2003.16 Single User Db	Local Co-ordinate Reference:	Well Piceance 28-18M
Company:	Piceance Energy, LLC	TVD Reference:	WELL @ 7604.0ft (Original Well Elev)
Project:	Mesa County, CO	MD Reference:	WELL @ 7604.0ft (Original Well Elev)
Site:	Piceance 28-11 Pad	North Reference:	True
Well:	Piceance 28-18M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 10May14 kjs		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,523,179.58	2,354,915.58	39° 14' 51.540 N	107° 46' 41.196 W
200.0	0.00	0.00	200.0	0.0	0.0	1,523,179.58	2,354,915.58	39° 14' 51.540 N	107° 46' 41.196 W
300.0	0.00	0.00	300.0	0.0	0.0	1,523,179.58	2,354,915.58	39° 14' 51.540 N	107° 46' 41.196 W
Start Build 3.25									
400.0	3.25	147.97	399.9	-2.4	1.5	1,523,177.14	2,354,917.02	39° 14' 51.516 N	107° 46' 41.177 W
600.0	9.75	147.97	598.6	-21.6	13.5	1,523,157.66	2,354,928.54	39° 14' 51.327 N	107° 46' 41.024 W
800.0	16.25	147.97	793.3	-59.7	37.4	1,523,118.96	2,354,951.42	39° 14' 50.950 N	107° 46' 40.721 W
987.0	22.33	147.97	969.7	-112.0	70.1	1,523,065.82	2,354,982.84	39° 14' 50.433 N	107° 46' 40.305 W
Hold 22.33 Inclination									
1,000.0	22.33	147.97	981.8	-116.2	72.7	1,523,061.56	2,354,985.36	39° 14' 50.391 N	107° 46' 40.272 W
1,200.0	22.33	147.97	1,166.8	-180.6	113.0	1,522,996.16	2,355,024.03	39° 14' 49.754 N	107° 46' 39.759 W
1,400.0	22.33	147.97	1,351.8	-245.1	153.3	1,522,930.76	2,355,062.70	39° 14' 49.118 N	107° 46' 39.247 W
1,500.0	22.33	147.97	1,444.3	-277.3	173.5	1,522,898.06	2,355,082.04	39° 14' 48.799 N	107° 46' 38.991 W
8 5/8									
1,600.0	22.33	147.97	1,536.8	-309.5	193.6	1,522,865.36	2,355,101.37	39° 14' 48.481 N	107° 46' 38.735 W
1,800.0	22.33	147.97	1,721.8	-373.9	233.9	1,522,799.96	2,355,140.05	39° 14' 47.845 N	107° 46' 38.222 W
2,000.0	22.33	147.97	1,906.8	-438.3	274.2	1,522,734.56	2,355,178.72	39° 14' 47.208 N	107° 46' 37.710 W
2,200.0	22.33	147.97	2,091.8	-502.7	314.5	1,522,669.16	2,355,217.39	39° 14' 46.571 N	107° 46' 37.198 W
2,400.0	22.33	147.97	2,276.8	-567.1	354.8	1,522,603.76	2,355,256.06	39° 14' 45.935 N	107° 46' 36.686 W
2,600.0	22.33	147.97	2,461.8	-631.5	395.1	1,522,538.36	2,355,294.73	39° 14' 45.298 N	107° 46' 36.173 W
2,800.0	22.33	147.97	2,646.8	-695.9	435.4	1,522,472.97	2,355,333.40	39° 14' 44.661 N	107° 46' 35.661 W
3,000.0	22.33	147.97	2,831.8	-760.3	475.7	1,522,407.57	2,355,372.07	39° 14' 44.025 N	107° 46' 35.149 W
3,200.0	22.33	147.97	3,016.8	-824.7	516.0	1,522,342.17	2,355,410.74	39° 14' 43.388 N	107° 46' 34.637 W
3,400.0	22.33	147.97	3,201.9	-889.1	556.3	1,522,276.77	2,355,449.41	39° 14' 42.751 N	107° 46' 34.125 W
3,600.0	22.33	147.97	3,386.9	-953.6	596.6	1,522,211.37	2,355,488.08	39° 14' 42.115 N	107° 46' 33.612 W
3,800.0	22.33	147.97	3,571.9	-1,018.0	636.9	1,522,145.97	2,355,526.75	39° 14' 41.478 N	107° 46' 33.100 W
4,000.0	22.33	147.97	3,756.9	-1,082.4	677.2	1,522,080.57	2,355,565.42	39° 14' 40.841 N	107° 46' 32.588 W
4,200.0	22.33	147.97	3,941.9	-1,146.8	717.5	1,522,015.17	2,355,604.09	39° 14' 40.205 N	107° 46' 32.076 W
4,400.0	22.33	147.97	4,126.9	-1,211.2	757.8	1,521,949.77	2,355,642.76	39° 14' 39.568 N	107° 46' 31.563 W
4,600.0	22.33	147.97	4,311.9	-1,275.6	798.1	1,521,884.37	2,355,681.43	39° 14' 38.932 N	107° 46' 31.051 W
4,800.0	22.33	147.97	4,496.9	-1,340.0	838.4	1,521,818.97	2,355,720.10	39° 14' 38.295 N	107° 46' 30.539 W
4,872.5	22.33	147.97	4,564.0	-1,363.4	853.0	1,521,795.25	2,355,734.13	39° 14' 38.064 N	107° 46' 30.353 W
WILLIAMS FORK:									
4,993.3	22.33	147.97	4,675.7	-1,402.3	877.3	1,521,755.76	2,355,757.48	39° 14' 37.680 N	107° 46' 30.044 W
Start Drop -2.00									
5,000.0	22.19	147.97	4,681.9	-1,404.4	878.7	1,521,753.58	2,355,758.77	39° 14' 37.658 N	107° 46' 30.027 W
5,200.0	18.19	147.97	4,869.6	-1,462.9	915.3	1,521,694.17	2,355,793.90	39° 14' 37.080 N	107° 46' 29.561 W
5,400.0	14.19	147.97	5,061.6	-1,510.2	944.9	1,521,646.17	2,355,822.28	39° 14' 36.613 N	107° 46' 29.186 W
5,600.0	10.19	147.97	5,257.1	-1,546.0	967.3	1,521,609.82	2,355,843.78	39° 14' 36.259 N	107° 46' 28.901 W
5,800.0	6.19	147.97	5,455.0	-1,570.2	982.4	1,521,585.29	2,355,858.28	39° 14' 36.020 N	107° 46' 28.709 W
6,000.0	2.19	147.97	5,654.4	-1,582.5	990.1	1,521,572.71	2,355,865.72	39° 14' 35.898 N	107° 46' 28.610 W
6,109.6	0.00	0.00	5,764.0	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
Vertical @ ETOG - ETOG: - ETOG (50' Radius) 28-18M									
6,200.0	0.00	0.00	5,854.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
6,400.0	0.00	0.00	6,054.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
6,600.0	0.00	0.00	6,254.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
6,800.0	0.00	0.00	6,454.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
7,000.0	0.00	0.00	6,654.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
7,200.0	0.00	0.00	6,854.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
7,209.6	0.00	0.00	6,864.0	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
CAMEO:									
7,400.0	0.00	0.00	7,054.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
7,600.0	0.00	0.00	7,254.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W

New Tech

Planning Report - Geographic

Database:	EDM 2003.16 Single User Db	Local Co-ordinate Reference:	Well Piceance 28-18M
Company:	Piceance Energy, LLC	TVD Reference:	WELL @ 7604.0ft (Original Well Elev)
Project:	Mesa County, CO	MD Reference:	WELL @ 7604.0ft (Original Well Elev)
Site:	Piceance 28-11 Pad	North Reference:	True
Well:	Piceance 28-18M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 10May14 kjs		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
7,800.0	0.00	0.00	7,454.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
7,909.6	0.00	0.00	7,564.0	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
ROLLINS:									
8,000.0	0.00	0.00	7,654.4	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
8,059.6	0.00	0.00	7,714.0	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
TD at 8059.6 - ETD:									

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									
ETOG (50' Radius) 28-1	0.00	0.00	5,764.0	-1,584.3	991.2	1,521,570.90	2,355,866.79	39° 14' 35.880 N	107° 46' 28.596 W
- plan hits target									
- Circle (radius 50.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,500.0	1,444.3	8 5/8	8-5/8	8-5/8	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,059.6	7,714.0	ETD:			
6,109.6	5,764.0	ETOG:			
7,209.6	6,864.0	CAMEO:			
7,909.6	7,564.0	ROLLINS:			
4,872.5	4,564.0	WILLIAMS FORK:			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
300.0	300.0	0.0	0.0	Start Build 3.25	
987.0	969.7	-112.0	70.1	Hold 22.33 Inclination	
4,993.3	4,675.7	-1,402.3	877.3	Start Drop -2.00	
6,109.6	5,764.0	-1,584.3	991.2	Vertical @ ETOG	
8,059.6	7,714.0	-1,584.3	991.2	TD at 8059.6	