Bighorn Directional Incorporated

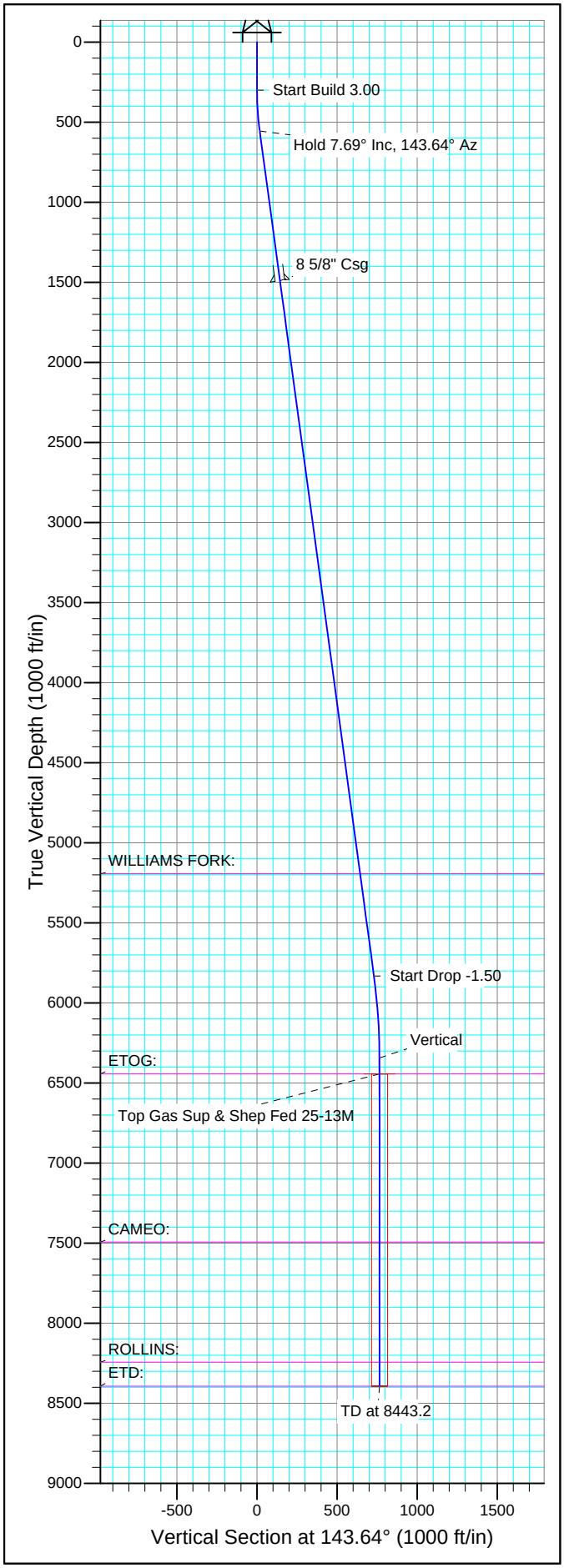
Well Name: Sup & Shep Fed 25-13M
Surface Location: Sup & Shep Federal Pad
North American Datum 1983
US State Plane 1983 , Colorado Central Zone
Ground Elevation: 8077.0
WELL @ 8098.0ft (Original Well Elev)

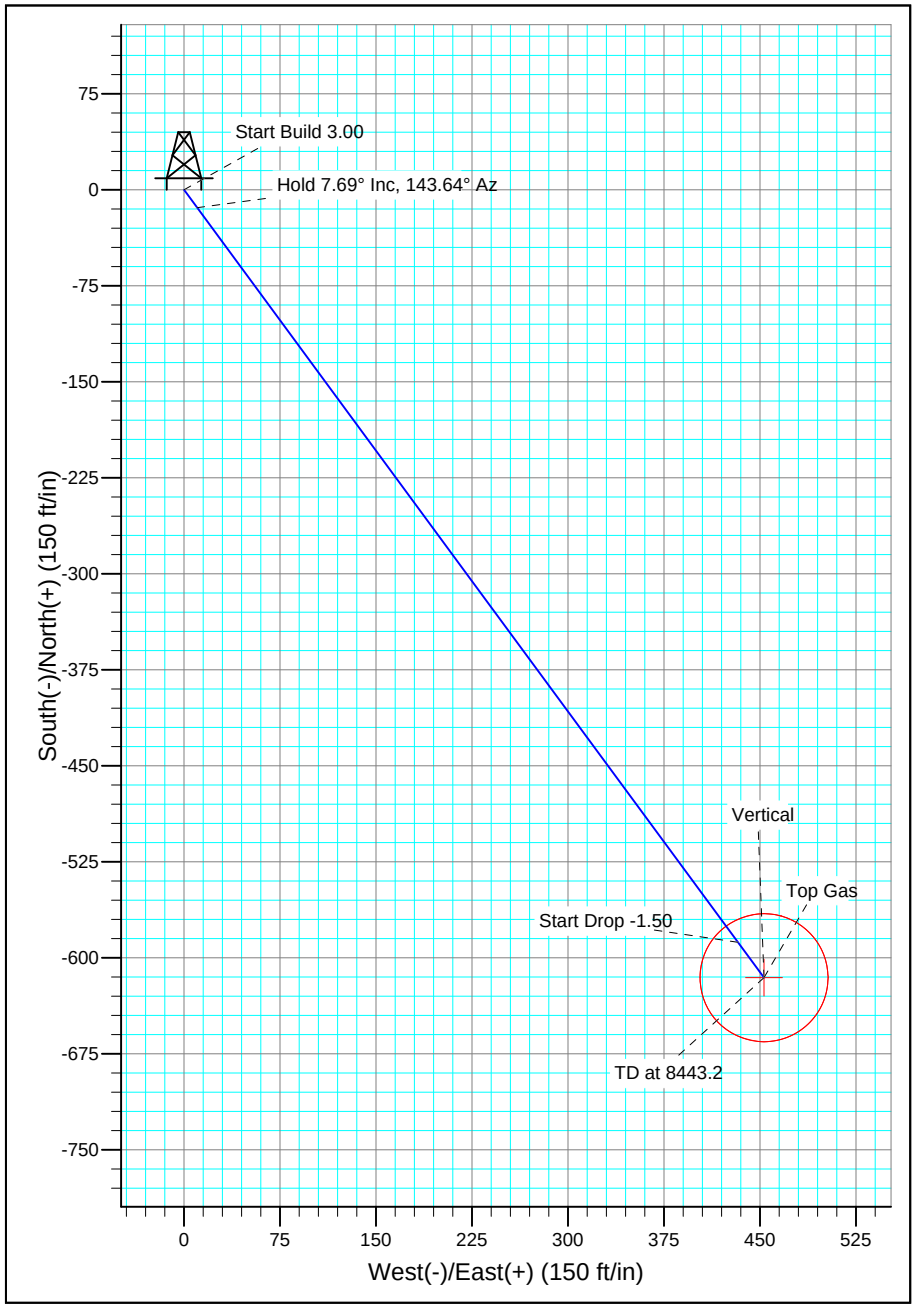
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1521833.69	2370562.24	39° 14' 42.072 N	107° 43' 21.936 W	

Project: Mesa County, CO
Site: Sup & Shep Federal Pad
Well: Sup & Shep Fed 25-13M
Wellbore: Wellbore #1
Design: Plan #1 13Apr14 kjs

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	556.5	7.69	143.64	555.7	-13.8	10.2	3.00	143.64	17.2	
4	5880.3	7.69	143.64	5831.6	-587.8	432.8	0.00	0.00	729.9	
5	6393.2	0.00	0.00	6343.0	-615.5	453.1	1.50	180.00	764.3	
6	6493.2	0.00	0.00	6443.0	-615.5	453.1	0.00	0.00	764.3	Top Gas
7	8443.2	0.00	0.00	8393.0	-615.5	453.1	0.00	0.00	764.3	





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5193.0	5235.9	WILLIAMS FORK:
6443.0	6493.2	ETOG:
7493.0	7543.2	CAMEO:
8243.0	8293.2	ROLLINS:
8393.0	8443.2	ETD:

Azimuths to True North
Magnetic North: 9.83°

Magnetic Field
Strength: 51846.4snT
Dip Angle: 65.50°
Date: 4/13/2014
Model: IGRF2010

Piceance Energy, LLC

Mesa County, CO
Sup & Shep Federal Pad
Sup & Shep Fed 25-13M
Wellbore #1

Plan: Plan #1 13Apr14 kjs

Standard Planning Report

23 April, 2014

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Company:	Piceance Energy, LLC	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Project:	Mesa County, CO	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site:	Sup & Shep Federal Pad	**North Reference:**	True
Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 13Apr14 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 Sup & Shep Federal Pad

Site Position:		**Northing:**	1,521,823.28 ft	**Latitude:**	39° 14' 41.964 N
From:	Lat/Long	**Easting:**	2,370,542.15 ft	**Longitude:**	107° 43' 22.188 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	-1.40 °

Well Sup & Shep Fed 25-13M

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,521,833.69 ft	**Latitude:**	39° 14' 42.072 N
	+E/-W	0.0 ft	**Easting:**	2,370,562.24 ft	**Longitude:**	107° 43' 21.936 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	8,077.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/13/2014	9.83	65.51	51,846

Design Plan #1 13Apr14 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	143.64

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	
556.5	7.69	143.64	555.7	-13.8	10.2	3.00	3.00	0.00	143.64	
5,880.3	7.69	143.64	5,831.6	-587.8	432.8	0.00	0.00	0.00	0.00	
6,393.2	0.00	0.00	6,343.0	-615.5	453.1	1.50	-1.50	0.00	180.00	
6,493.2	0.00	0.00	6,443.0	-615.5	453.1	0.00	0.00	0.00	0.00	Top Gas Sup & Shep
8,443.2	0.00	0.00	8,393.0	-615.5	453.1	0.00	0.00	0.00	0.00	

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Company:	Piceance Energy, LLC	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Project:	Mesa County, CO	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site:	Sup & Shep Federal Pad	**North Reference:**	True
Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 13Apr14 kjs		

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)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	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
Start Build 3.00									
400.0	3.00	143.64	400.0	-2.1	1.6	2.6	3.00	3.00	0.00
556.5	7.69	143.64	555.7	-13.8	10.2	17.2	3.00	3.00	0.00
Hold 7.69° Inc, 143.64° Az									
600.0	7.69	143.64	598.8	-18.5	13.6	23.0	0.00	0.00	0.00
800.0	7.69	143.64	797.0	-40.1	29.5	49.8	0.00	0.00	0.00
1,000.0	7.69	143.64	995.2	-61.7	45.4	76.6	0.00	0.00	0.00
1,200.0	7.69	143.64	1,193.4	-83.2	61.3	103.3	0.00	0.00	0.00
1,400.0	7.69	143.64	1,391.6	-104.8	77.1	130.1	0.00	0.00	0.00
1,500.0	7.69	143.64	1,490.7	-115.6	85.1	143.5	0.00	0.00	0.00
8 5/8" Csg									
1,600.0	7.69	143.64	1,589.8	-126.3	93.0	156.9	0.00	0.00	0.00
1,800.0	7.69	143.64	1,788.0	-147.9	108.9	183.7	0.00	0.00	0.00
2,000.0	7.69	143.64	1,986.2	-169.5	124.8	210.4	0.00	0.00	0.00
2,200.0	7.69	143.64	2,184.4	-191.0	140.6	237.2	0.00	0.00	0.00
2,400.0	7.69	143.64	2,382.6	-212.6	156.5	264.0	0.00	0.00	0.00
2,600.0	7.69	143.64	2,580.8	-234.2	172.4	290.8	0.00	0.00	0.00
2,800.0	7.69	143.64	2,779.0	-255.7	188.3	317.5	0.00	0.00	0.00
3,000.0	7.69	143.64	2,977.2	-277.3	204.1	344.3	0.00	0.00	0.00
3,200.0	7.69	143.64	3,175.4	-298.8	220.0	371.1	0.00	0.00	0.00
3,400.0	7.69	143.64	3,373.6	-320.4	235.9	397.9	0.00	0.00	0.00
3,600.0	7.69	143.64	3,571.8	-342.0	251.8	424.6	0.00	0.00	0.00
3,800.0	7.69	143.64	3,770.0	-363.5	267.6	451.4	0.00	0.00	0.00
4,000.0	7.69	143.64	3,968.2	-385.1	283.5	478.2	0.00	0.00	0.00
4,200.0	7.69	143.64	4,166.4	-406.6	299.4	505.0	0.00	0.00	0.00
4,400.0	7.69	143.64	4,364.6	-428.2	315.3	531.7	0.00	0.00	0.00
4,600.0	7.69	143.64	4,562.8	-449.8	331.1	558.5	0.00	0.00	0.00
4,800.0	7.69	143.64	4,761.0	-471.3	347.0	585.3	0.00	0.00	0.00
5,000.0	7.69	143.64	4,959.2	-492.9	362.9	612.1	0.00	0.00	0.00
5,200.0	7.69	143.64	5,157.4	-514.5	378.8	638.8	0.00	0.00	0.00
5,235.9	7.69	143.64	5,193.0	-518.3	381.6	643.6	0.00	0.00	0.00
WILLIAMS FORK:									
5,400.0	7.69	143.64	5,355.6	-536.0	394.6	665.6	0.00	0.00	0.00
5,600.0	7.69	143.64	5,553.8	-557.6	410.5	692.4	0.00	0.00	0.00
5,800.0	7.69	143.64	5,752.0	-579.1	426.4	719.2	0.00	0.00	0.00
5,880.3	7.69	143.64	5,831.6	-587.8	432.8	729.9	0.00	0.00	0.00
Start Drop -1.50									
6,000.0	5.90	143.64	5,950.5	-599.2	441.2	744.1	1.50	-1.50	0.00
6,200.0	2.90	143.64	6,149.8	-611.6	450.2	759.4	1.50	-1.50	0.00
6,393.2	0.00	0.00	6,343.0	-615.5	453.1	764.3	1.50	-1.50	0.00
Vertical									
6,400.0	0.00	0.00	6,349.8	-615.5	453.1	764.3	0.00	0.00	0.00
6,493.2	0.00	0.00	6,443.0	-615.5	453.1	764.3	0.00	0.00	0.00
Top Gas - ETOG: - Top Gas Sup & Shep Fed 25-13M									
6,600.0	0.00	0.00	6,549.8	-615.5	453.1	764.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,749.8	-615.5	453.1	764.3	0.00	0.00	0.00
7,000.0	0.00	0.00	6,949.8	-615.5	453.1	764.3	0.00	0.00	0.00
7,200.0	0.00	0.00	7,149.8	-615.5	453.1	764.3	0.00	0.00	0.00
7,400.0	0.00	0.00	7,349.8	-615.5	453.1	764.3	0.00	0.00	0.00
7,543.2	0.00	0.00	7,493.0	-615.5	453.1	764.3	0.00	0.00	0.00

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Company:	Piceance Energy, LLC	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Project:	Mesa County, CO	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site:	Sup & Shep Federal Pad	**North Reference:**	True
Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 13Apr14 kjs		

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)	Turn Rate (°/100ft)
CAMEO:									
7,600.0	0.00	0.00	7,549.8	-615.5	453.1	764.3	0.00	0.00	0.00
7,800.0	0.00	0.00	7,749.8	-615.5	453.1	764.3	0.00	0.00	0.00
8,000.0	0.00	0.00	7,949.8	-615.5	453.1	764.3	0.00	0.00	0.00
8,200.0	0.00	0.00	8,149.8	-615.5	453.1	764.3	0.00	0.00	0.00
8,293.2	0.00	0.00	8,243.0	-615.5	453.1	764.3	0.00	0.00	0.00
ROLLINS:									
8,400.0	0.00	0.00	8,349.8	-615.5	453.1	764.3	0.00	0.00	0.00
8,443.2	0.00	0.00	8,393.0	-615.5	453.1	764.3	0.00	0.00	0.00
ETD:									

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Top Gas Sup & Shep Fe - plan hits target - Circle (radius 50.0)	0.00	0.00	6,443.0	-615.5	453.1	1,521,207.30	2,371,000.19	39° 14' 35.988 N	107° 43' 16.176 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.0	1,490.7	8 5/8" Csg	0	0

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,443.2	8,393.0	ETD:		0.00	
6,493.2	6,443.0	ETOG:			
7,543.2	7,493.0	CAMEO:			
8,293.2	8,243.0	ROLLINS:			
5,235.9	5,193.0	WILLIAMS FORK:			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
300.0	300.0	0.0	0.0	Start Build 3.00
556.5	555.7	-13.8	10.2	Hold 7.69° Inc, 143.64° Az
5,880.3	5,831.6	-587.8	432.8	Start Drop -1.50
6,393.2	6,343.0	-615.5	453.1	Vertical
6,493.2	6,443.0	-615.5	453.1	Top Gas
8,443.2	8,393.0	-615.5	453.1	TD at 8443.2

Piceance Energy, LLC

Mesa County, CO
Sup & Shep Federal Pad
Sup & Shep Fed 25-13M
Wellbore #1
Plan #1 13Apr14 kjs

Anticollision Risk Report

23 April, 2014

New Tech

Anticollision Risk Report

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1 13Apr14 kjs		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Risk Settings

Vertical Depth for Analysis:	ft	(Below TVD Reference Datum)
Level of Acceptable Risk (1 in):		
Minimum Separation:	0 ft	

Survey Tool Program **Date** 4/19/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	8,443.2	Plan #1 13Apr14 kjs (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Sup & Shep Federal Pad						
Sup & Shep Fed 25-18W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	34.4	33.3	31.936 CC, ES	
Sup & Shep Fed 25-18W - Wellbore #1 - Plan #1 13Apr1	500.0	495.6	46.7	44.8	24.339 SF	
Sup & Shep Fed 25-11M - Wellbore #1 - Plan #1 13Apr14	300.0	300.0	14.9	13.8	13.793 CC, ES	
Sup & Shep Fed 25-11M - Wellbore #1 - Plan #1 13Apr14	400.0	400.0	16.5	15.1	11.054 SF	
Sup & Shep Fed 25-11W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	11.3	10.2	10.500 CC, ES	
Sup & Shep Fed 25-11W - Wellbore #1 - Plan #1 13Apr1	400.0	399.7	14.6	13.1	9.678 SF	
Sup & Shep Fed 25-12M - Wellbore #1 - Plan #1 13Apr14	300.0	300.0	9.2	8.2	8.591 CC, ES	
Sup & Shep Fed 25-12M - Wellbore #1 - Plan #1 13Apr14	600.0	599.5	14.2	11.8	5.841 SF	
Sup & Shep Fed 25-12W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	11.2	10.1	10.403 CC, ES	
Sup & Shep Fed 25-12W - Wellbore #1 - Plan #1 13Apr1	400.0	399.6	15.0	13.4	9.932 SF	
Sup & Shep Fed 25-13W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	17.4	16.3	16.145 CC, ES	
Sup & Shep Fed 25-13W - Wellbore #1 - Plan #1 13Apr1	400.0	399.4	20.8	19.3	13.916 SF	
Sup & Shep Fed 25-14M - Wellbore #1 - Plan #1 13Apr14	300.0	300.0	6.7	5.6	6.246 CC, ES	
Sup & Shep Fed 25-14M - Wellbore #1 - Plan #1 13Apr14	600.0	599.9	10.4	8.0	4.261 SF	
Sup & Shep Fed 25-14W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	37.5	36.5	34.856 CC, ES	
Sup & Shep Fed 25-14W - Wellbore #1 - Plan #1 13Apr1	500.0	494.3	53.5	51.6	27.527 SF	
Sup & Shep Fed 25-15M - Wellbore #1 - Plan #1 13Apr14	300.0	300.0	13.5	12.4	12.501 CC, ES	
Sup & Shep Fed 25-15M - Wellbore #1 - Plan #1 13Apr14	700.0	699.0	23.7	20.7	7.761 SF	
Sup & Shep Fed 25-15W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	31.4	30.3	29.131 CC, ES	
Sup & Shep Fed 25-15W - Wellbore #1 - Plan #1 13Apr1	400.0	398.5	34.8	33.4	23.383 SF	
Sup & Shep Fed 25-16W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	22.7	21.6	21.044 CC, ES	
Sup & Shep Fed 25-16W - Wellbore #1 - Plan #1 13Apr1	400.0	399.2	25.7	24.2	17.261 SF	
Sup & Shep Fed 25-17W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	43.6	42.5	40.519 CC, ES	
Sup & Shep Fed 25-17W - Wellbore #1 - Plan #1 13Apr1	556.5	550.9	60.4	58.2	27.663 SF	
Sup & Shep Fed 25-19W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	27.7	26.6	25.752 CC, ES	
Sup & Shep Fed 25-19W - Wellbore #1 - Plan #1 13Apr1	400.0	398.5	30.9	29.4	20.805 SF	
Sup & Shep Fed 25-20W - Wellbore #1 - Plan #1 13Apr1	300.0	300.0	22.6	21.5	21.011 CC, ES	
Sup & Shep Fed 25-20W - Wellbore #1 - Plan #1 13Apr1	400.0	398.6	25.8	24.4	17.409 SF	

New Tech

Anticollision Risk Report

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-18W - Wellbore #1 - Plan #1 13Apr14 kjs — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-115.04	34.4						
100.0	100.0	100.0	100.0	0.1	0.1	-115.04	34.4	34.2	0.18	193.638			
200.0	200.0	200.0	200.0	0.3	0.3	-115.04	34.4	33.8	0.63	54.829			
300.0	300.0	300.0	300.0	0.5	0.5	-115.04	34.4	33.3	1.08	31.936			CC, ES
400.0	400.0	398.1	398.1	0.7	0.7	102.71	37.5	36.0	1.48	25.243			
500.0	499.6	495.6	495.2	1.0	1.0	105.73	46.7	44.8	1.92	24.339			SF
556.5	555.7	550.1	549.2	1.1	1.1	107.46	54.8	52.6	2.21	24.753			
600.0	598.8	591.9	590.4	1.2	1.2	108.44	62.2	59.7	2.44	25.454			
700.0	697.9	686.6	683.0	1.5	1.6	108.13	82.3	79.3	3.03	27.205			
800.0	797.0	779.3	772.5	1.8	2.0	106.08	106.9	103.2	3.66	29.214			
900.0	896.1	869.5	858.0	2.2	2.5	103.49	135.9	131.6	4.32	31.456			
1,000.0	995.2	959.0	941.4	2.5	3.1	100.86	169.2	164.2	5.00	33.824			
1,100.0	1,094.3	1,052.6	1,028.2	2.8	3.8	98.83	203.8	198.2	5.68	35.858			
1,200.0	1,193.4	1,146.2	1,114.9	3.2	4.5	97.38	238.6	232.2	6.37	37.473			
1,300.0	1,292.5	1,239.8	1,201.7	3.5	5.2	96.30	273.5	266.4	7.06	38.749			
1,400.0	1,391.6	1,333.4	1,288.5	3.8	5.8	95.46	308.4	300.7	7.75	39.791			
1,500.0	1,490.7	1,427.0	1,375.3	4.2	6.5	94.80	343.4	334.9	8.45	40.649			
1,600.0	1,589.8	1,520.7	1,462.0	4.5	7.2	94.26	378.4	369.2	9.15	41.367			
1,700.0	1,688.9	1,614.3	1,548.8	4.8	7.9	93.81	413.4	403.6	9.85	41.977			
1,800.0	1,788.0	1,707.9	1,635.6	5.2	8.6	93.42	448.5	437.9	10.55	42.501			
1,900.0	1,887.1	1,801.5	1,722.3	5.5	9.3	93.10	483.5	472.3	11.26	42.955			
2,000.0	1,986.2	1,895.1	1,809.1	5.9	10.0	92.82	518.6	506.7	11.96	43.351			
2,100.0	2,085.3	1,988.7	1,895.9	6.2	10.7	92.57	553.7	541.0	12.67	43.701			
2,200.0	2,184.4	2,082.4	1,982.7	6.5	11.4	92.36	588.8	575.4	13.38	44.012			
2,300.0	2,283.5	2,176.0	2,069.4	6.9	12.1	92.16	623.9	609.8	14.09	44.290			
2,400.0	2,382.6	2,269.6	2,156.2	7.2	12.8	91.99	659.0	644.2	14.80	44.539			
2,500.0	2,481.7	2,363.2	2,243.0	7.6	13.5	91.84	694.1	678.6	15.51	44.765			
2,600.0	2,580.8	2,456.8	2,329.7	7.9	14.2	91.70	729.2	713.0	16.22	44.969			
2,700.0	2,679.9	2,550.4	2,416.5	8.2	14.9	91.57	764.4	747.4	16.93	45.156			
2,800.0	2,779.0	2,644.1	2,503.3	8.6	15.7	91.46	799.5	781.9	17.64	45.326			
2,900.0	2,878.1	2,737.7	2,590.1	8.9	16.4	91.35	834.6	816.3	18.35	45.483			
3,000.0	2,977.2	2,831.3	2,676.8	9.3	17.1	91.25	869.7	850.7	19.06	45.628			
3,100.0	3,076.3	2,924.9	2,763.6	9.6	17.8	91.16	904.9	885.1	19.77	45.761			
3,200.0	3,175.4	3,018.5	2,850.4	10.0	18.5	91.08	940.0	919.5	20.49	45.885			
3,300.0	3,274.5	3,112.1	2,937.1	10.3	19.2	91.00	975.1	953.9	21.20	46.000			
3,400.0	3,373.6	3,205.8	3,023.9	10.6	19.9	90.93	1,010.3	988.4	21.91	46.107			
3,500.0	3,472.7	3,299.4	3,110.7	11.0	20.6	90.87	1,045.4	1,022.8	22.62	46.207			
3,600.0	3,571.8	3,393.0	3,197.5	11.3	21.3	90.80	1,080.6	1,057.2	23.34	46.300			
3,700.0	3,670.9	3,486.6	3,284.2	11.7	22.0	90.74	1,115.7	1,091.6	24.05	46.388			
3,800.0	3,770.0	3,580.2	3,371.0	12.0	22.7	90.69	1,150.8	1,126.1	24.77	46.470			
3,900.0	3,869.1	3,673.8	3,457.8	12.3	23.4	90.64	1,186.0	1,160.5	25.48	46.547			
4,000.0	3,968.2	3,767.5	3,544.5	12.7	24.1	90.59	1,221.1	1,194.9	26.19	46.620			
4,100.0	4,067.3	3,861.1	3,631.3	13.0	24.8	90.54	1,256.3	1,229.4	26.91	46.689			
4,200.0	4,166.4	3,954.7	3,718.1	13.4	25.5	90.50	1,291.4	1,263.8	27.62	46.754			
4,300.0	4,265.5	4,048.3	3,804.9	13.7	26.2	90.46	1,326.5	1,298.2	28.34	46.816			
4,400.0	4,364.6	4,141.9	3,891.6	14.1	26.9	90.42	1,361.7	1,332.6	29.05	46.874			
4,500.0	4,463.7	4,235.5	3,978.4	14.4	27.6	90.38	1,396.8	1,367.1	29.76	46.930			
4,600.0	4,562.8	4,329.2	4,065.2	14.7	28.3	90.35	1,432.0	1,401.5	30.48	46.982			
4,700.0	4,661.9	4,422.8	4,151.9	15.1	29.0	90.31	1,467.1	1,435.9	31.19	47.032			
4,800.0	4,761.0	4,516.4	4,238.7	15.4	29.7	90.28	1,502.3	1,470.4	31.91	47.080			
4,900.0	4,860.1	4,610.0	4,325.5	15.8	30.4	90.25	1,537.4	1,504.8	32.62	47.125			
5,000.0	4,959.2	4,703.6	4,412.3	16.1	31.2	90.22	1,572.6	1,539.2	33.34	47.169			
5,100.0	5,058.3	4,797.3	4,499.0	16.4	31.9	90.19	1,607.7	1,573.7	34.05	47.210			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

New Tech

Anticollision Risk Report

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-18W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,200.0	5,157.4	4,890.9	4,585.8	16.8	32.6	90.17	1,642.9	1,608.1	34.77	47.250			
5,300.0	5,256.5	4,984.5	4,672.6	17.1	33.3	90.14	1,678.0	1,642.5	35.49	47.288			
5,400.0	5,355.6	5,078.1	4,759.3	17.5	34.0	90.12	1,713.2	1,677.0	36.20	47.324			
5,500.0	5,454.7	5,171.7	4,846.1	17.8	34.7	90.09	1,748.3	1,711.4	36.92	47.358			
5,600.0	5,553.8	5,293.1	4,958.8	18.2	35.5	90.07	1,783.2	1,745.5	37.72	47.276			
5,700.0	5,652.9	5,461.5	5,117.2	18.5	36.4	90.11	1,814.9	1,776.3	38.60	47.017			
5,800.0	5,752.0	5,634.2	5,282.1	18.8	37.2	90.25	1,842.8	1,803.3	39.49	46.667			
5,880.3	5,831.6	5,775.7	5,418.8	19.1	37.7	90.42	1,862.1	1,821.9	40.20	46.327			
5,900.0	5,851.1	5,810.6	5,452.8	19.2	37.9	90.54	1,866.5	1,826.1	40.38	46.225			
6,000.0	5,950.5	5,990.4	5,628.6	19.4	38.5	91.05	1,886.0	1,844.8	41.20	45.779			
6,100.0	6,050.1	6,172.9	5,808.8	19.6	39.0	91.44	1,901.1	1,859.2	41.91	45.361			
6,200.0	6,149.8	6,357.5	5,992.2	19.8	39.4	91.72	1,911.8	1,869.3	42.51	44.971			
6,300.0	6,249.8	6,543.5	6,177.7	19.9	39.6	91.88	1,917.9	1,874.9	42.99	44.608			
6,393.2	6,343.0	6,708.8	6,343.0	20.1	39.8	-124.43	1,919.5	1,876.2	43.35	44.275			
6,400.0	6,349.8	6,715.6	6,349.8	20.1	39.8	-124.43	1,919.5	1,876.1	43.37	44.258			
6,493.2	6,443.0	6,808.8	6,443.0	20.2	39.9	-124.43	1,919.5	1,875.9	43.58	44.042			
6,500.0	6,449.8	6,815.6	6,449.8	20.2	39.9	-124.43	1,919.5	1,875.9	43.60	44.026			
6,600.0	6,549.8	6,915.6	6,549.8	20.3	39.9	-124.43	1,919.5	1,875.7	43.83	43.793			
6,700.0	6,649.8	7,015.6	6,649.8	20.5	40.0	-124.43	1,919.5	1,875.5	44.07	43.559			
6,800.0	6,749.8	7,115.6	6,749.8	20.6	40.1	-124.43	1,919.5	1,875.2	44.31	43.325			
6,900.0	6,849.8	7,215.6	6,849.8	20.7	40.1	-124.43	1,919.5	1,875.0	44.55	43.090			
7,000.0	6,949.8	7,315.6	6,949.8	20.9	40.2	-124.43	1,919.5	1,874.7	44.79	42.854			
7,100.0	7,049.8	7,415.6	7,049.8	21.0	40.3	-124.43	1,919.5	1,874.5	45.04	42.618			
7,200.0	7,149.8	7,515.6	7,149.8	21.1	40.3	-124.43	1,919.5	1,874.2	45.29	42.381			
7,300.0	7,249.8	7,615.6	7,249.8	21.3	40.4	-124.43	1,919.5	1,874.0	45.55	42.144			
7,400.0	7,349.8	7,715.6	7,349.8	21.4	40.5	-124.43	1,919.5	1,873.7	45.80	41.908			
7,500.0	7,449.8	7,815.6	7,449.8	21.5	40.5	-124.43	1,919.5	1,873.5	46.06	41.671			
7,600.0	7,549.8	7,915.6	7,549.8	21.7	40.6	-124.43	1,919.5	1,873.2	46.33	41.434			
7,700.0	7,649.8	8,015.6	7,649.8	21.8	40.7	-124.43	1,919.5	1,872.9	46.59	41.198			
7,800.0	7,749.8	8,115.6	7,749.8	22.0	40.8	-124.43	1,919.5	1,872.7	46.86	40.961			
7,900.0	7,849.8	8,215.6	7,849.8	22.1	40.9	-124.43	1,919.5	1,872.4	47.13	40.725			
8,000.0	7,949.8	8,315.6	7,949.8	22.3	40.9	-124.43	1,919.5	1,872.1	47.41	40.490			
8,100.0	8,049.8	8,415.6	8,049.8	22.4	41.0	-124.43	1,919.5	1,871.8	47.68	40.255			
8,200.0	8,149.8	8,515.6	8,149.8	22.6	41.1	-124.43	1,919.5	1,871.6	47.96	40.020			
8,300.0	8,249.8	8,615.6	8,249.8	22.7	41.2	-124.43	1,919.5	1,871.3	48.25	39.786			
8,400.0	8,349.8	8,715.6	8,349.8	22.9	41.3	-124.43	1,919.5	1,871.0	48.53	39.553			
8,424.5	8,374.3	8,740.1	8,374.3	22.9	41.3	-124.43	1,919.5	1,870.9	48.60	39.496			
8,443.2	8,393.0	8,748.8	8,383.0	22.9	41.3	-124.43	1,919.5	1,870.9	48.64	39.464			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-11M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	10.99	14.9						
100.0	100.0	100.0	100.0	0.1	0.1	10.99	14.9	14.7	0.18	83.632			
200.0	200.0	200.0	200.0	0.3	0.3	10.99	14.9	14.2	0.63	23.681			
300.0	300.0	300.0	300.0	0.5	0.5	10.99	14.9	13.8	1.08	13.793			CC, ES
400.0	400.0	400.0	399.9	0.7	0.8	-130.21	16.5	15.1	1.50	11.054			SF
500.0	499.6	499.8	499.5	1.0	1.0	-126.99	21.7	19.8	1.93	11.221			
556.5	555.7	556.1	555.6	1.1	1.1	-129.05	26.1	23.9	2.21	11.814			
600.0	598.8	599.5	598.9	1.2	1.2	-131.23	29.9	27.4	2.42	12.347			
700.0	697.9	699.1	698.2	1.5	1.5	-134.60	38.7	35.8	2.92	13.247			
800.0	797.0	798.7	797.4	1.8	1.7	-136.72	47.6	44.2	3.44	13.859			
900.0	896.1	898.2	896.7	2.2	2.0	-138.16	56.6	52.6	3.96	14.299			
1,000.0	995.2	997.8	996.0	2.5	2.2	-139.21	65.6	61.1	4.48	14.627			
1,100.0	1,094.3	1,097.4	1,095.3	2.8	2.5	-140.01	74.6	69.5	5.01	14.882			
1,200.0	1,193.4	1,197.0	1,194.6	3.2	2.8	-140.64	83.6	78.0	5.54	15.084			
1,300.0	1,292.5	1,296.6	1,293.9	3.5	3.0	-141.14	92.6	86.5	6.07	15.248			
1,400.0	1,391.6	1,396.2	1,393.2	3.8	3.3	-141.55	101.6	95.0	6.61	15.384			
1,500.0	1,490.7	1,495.8	1,492.4	4.2	3.6	-141.90	110.6	103.5	7.14	15.499			
1,600.0	1,589.8	1,595.4	1,591.7	4.5	3.8	-142.19	119.7	112.0	7.67	15.596			
1,700.0	1,688.9	1,695.0	1,691.0	4.8	4.1	-142.45	128.7	120.5	8.21	15.680			
1,800.0	1,788.0	1,794.6	1,790.3	5.2	4.3	-142.67	137.8	129.0	8.74	15.753			
1,900.0	1,887.1	1,894.1	1,889.6	5.5	4.6	-142.86	146.8	137.5	9.28	15.817			
2,000.0	1,986.2	1,993.7	1,988.9	5.9	4.9	-143.03	155.8	146.0	9.82	15.874			
2,100.0	2,085.3	2,093.3	2,088.2	6.2	5.1	-143.18	164.9	154.5	10.35	15.925			
2,200.0	2,184.4	2,192.9	2,187.4	6.5	5.4	-143.32	173.9	163.0	10.89	15.970			
2,300.0	2,283.5	2,292.5	2,286.7	6.9	5.7	-143.44	183.0	171.5	11.43	16.011			
2,400.0	2,382.6	2,392.1	2,386.0	7.2	5.9	-143.55	192.0	180.0	11.96	16.048			
2,500.0	2,481.7	2,491.7	2,485.3	7.6	6.2	-143.65	201.1	188.6	12.50	16.082			
2,600.0	2,580.8	2,591.3	2,584.6	7.9	6.5	-143.74	210.1	197.1	13.04	16.113			
2,700.0	2,679.9	2,690.9	2,683.9	8.2	6.7	-143.83	219.2	205.6	13.58	16.141			
2,800.0	2,779.0	2,790.4	2,783.2	8.6	7.0	-143.90	228.2	214.1	14.11	16.167			
2,900.0	2,878.1	2,890.0	2,882.4	8.9	7.3	-143.98	237.3	222.6	14.65	16.192			
3,000.0	2,977.2	2,989.6	2,981.7	9.3	7.5	-144.04	246.3	231.1	15.19	16.214			
3,100.0	3,076.3	3,089.2	3,081.0	9.6	7.8	-144.11	255.3	239.6	15.73	16.235			
3,200.0	3,175.4	3,188.8	3,180.3	10.0	8.1	-144.16	264.4	248.1	16.27	16.254			
3,300.0	3,274.5	3,288.4	3,279.6	10.3	8.3	-144.22	273.4	256.6	16.80	16.272			
3,400.0	3,373.6	3,388.0	3,378.9	10.6	8.6	-144.27	282.5	265.2	17.34	16.289			
3,500.0	3,472.7	3,487.6	3,478.2	11.0	8.9	-144.31	291.5	273.7	17.88	16.304			
3,600.0	3,571.8	3,587.2	3,577.4	11.3	9.1	-144.36	300.6	282.2	18.42	16.319			
3,700.0	3,670.9	3,686.7	3,676.7	11.7	9.4	-144.40	309.6	290.7	18.96	16.333			
3,800.0	3,770.0	3,786.3	3,776.0	12.0	9.7	-144.44	318.7	299.2	19.50	16.346			
3,900.0	3,869.1	3,885.9	3,875.3	12.3	9.9	-144.48	327.7	307.7	20.03	16.359			
4,000.0	3,968.2	3,985.5	3,974.6	12.7	10.2	-144.51	336.8	316.2	20.57	16.371			
4,100.0	4,067.3	4,085.1	4,073.9	13.0	10.5	-144.55	345.9	324.7	21.11	16.382			
4,200.0	4,166.4	4,184.7	4,173.2	13.4	10.7	-144.58	354.9	333.3	21.65	16.392			
4,300.0	4,265.5	4,284.3	4,272.4	13.7	11.0	-144.61	364.0	341.8	22.19	16.402			
4,400.0	4,364.6	4,383.9	4,371.7	14.1	11.3	-144.64	373.0	350.3	22.73	16.412			
4,500.0	4,463.7	4,483.5	4,471.0	14.4	11.5	-144.66	382.1	358.8	23.27	16.421			
4,600.0	4,562.8	4,583.1	4,570.3	14.7	11.8	-144.69	391.1	367.3	23.80	16.430			
4,700.0	4,661.9	4,682.6	4,669.6	15.1	12.1	-144.72	400.2	375.8	24.34	16.438			
4,800.0	4,761.0	4,782.2	4,768.9	15.4	12.3	-144.74	409.2	384.3	24.88	16.446			
4,900.0	4,860.1	4,881.8	4,868.2	15.8	12.6	-144.76	418.3	392.8	25.42	16.453			
5,000.0	4,959.2	4,981.4	4,967.4	16.1	12.9	-144.78	427.3	401.4	25.96	16.461			
5,100.0	5,058.3	5,081.0	5,066.7	16.4	13.1	-144.80	436.4	409.9	26.50	16.467			
5,200.0	5,157.4	5,180.6	5,166.0	16.8	13.4	-144.82	445.4	418.4	27.04	16.474			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-11M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,280.2	5,265.3	17.1	13.7	-144.84	454.5	426.9	27.58	16.480			
5,400.0	5,355.6	5,379.8	5,364.6	17.5	13.9	-144.86	463.5	435.4	28.12	16.487			
5,500.0	5,454.7	5,479.4	5,463.9	17.8	14.2	-144.88	472.6	443.9	28.65	16.492			
5,600.0	5,553.8	5,578.9	5,563.2	18.2	14.5	-144.90	481.6	452.4	29.19	16.498			
5,700.0	5,652.9	5,678.5	5,662.4	18.5	14.7	-144.91	490.7	460.9	29.73	16.503			
5,800.0	5,752.0	5,778.1	5,761.7	18.8	15.0	-144.93	499.7	469.5	30.27	16.509			
5,880.3	5,831.6	5,858.1	5,841.5	19.1	15.2	-144.94	507.0	476.3	30.70	16.513			
5,900.0	5,851.1	5,877.7	5,861.0	19.2	15.3	-144.96	508.7	477.9	30.81	16.514			
6,000.0	5,950.5	5,977.4	5,960.4	19.4	15.5	-144.92	516.3	485.0	31.30	16.494			
6,100.0	6,050.1	6,077.1	6,059.8	19.6	15.8	-144.70	521.7	489.9	31.79	16.411			
6,200.0	6,149.8	6,173.8	6,156.3	19.8	16.0	-144.47	525.4	493.2	32.19	16.322			
6,300.0	6,249.8	6,270.6	6,253.0	19.9	16.2	-144.32	527.5	495.0	32.53	16.217			
6,393.2	6,343.0	6,360.9	6,343.3	20.1	16.3	-0.62	528.1	495.3	32.82	16.090			
6,400.0	6,349.8	6,367.5	6,349.9	20.1	16.3	-0.62	528.1	495.3	32.85	16.079			
6,432.2	6,382.0	6,399.6	6,382.0	20.1	16.4	-0.62	528.1	495.2	32.95	16.028			
6,493.2	6,443.0	6,460.6	6,443.0	20.2	16.5	-0.62	528.1	495.0	33.15	15.932			
6,500.0	6,449.8	6,467.4	6,449.8	20.2	16.5	-0.62	528.1	495.0	33.17	15.922			
6,600.0	6,549.8	6,567.4	6,549.8	20.3	16.7	-0.62	528.1	494.6	33.50	15.766			
6,700.0	6,649.8	6,667.4	6,649.8	20.5	16.8	-0.62	528.1	494.3	33.83	15.613			
6,800.0	6,749.8	6,767.4	6,749.8	20.6	17.0	-0.62	528.1	494.0	34.16	15.461			
6,900.0	6,849.8	6,867.4	6,849.8	20.7	17.2	-0.62	528.1	493.6	34.49	15.311			
7,000.0	6,949.8	6,967.4	6,949.8	20.9	17.4	-0.62	528.1	493.3	34.83	15.162			
7,100.0	7,049.8	7,067.4	7,049.8	21.0	17.5	-0.62	528.1	493.0	35.17	15.016			
7,200.0	7,149.8	7,167.4	7,149.8	21.1	17.7	-0.62	528.1	492.6	35.51	14.871			
7,300.0	7,249.8	7,267.4	7,249.8	21.3	17.9	-0.62	528.1	492.3	35.86	14.728			
7,400.0	7,349.8	7,367.4	7,349.8	21.4	18.1	-0.62	528.1	491.9	36.21	14.587			
7,500.0	7,449.8	7,467.4	7,449.8	21.5	18.3	-0.62	528.1	491.6	36.55	14.448			
7,600.0	7,549.8	7,567.4	7,549.8	21.7	18.4	-0.62	528.1	491.2	36.91	14.310			
7,700.0	7,649.8	7,667.4	7,649.8	21.8	18.6	-0.62	528.1	490.9	37.26	14.174			
7,800.0	7,749.8	7,767.4	7,749.8	22.0	18.8	-0.62	528.1	490.5	37.61	14.040			
7,900.0	7,849.8	7,867.4	7,849.8	22.1	19.0	-0.62	528.1	490.1	37.97	13.908			
8,000.0	7,949.8	7,967.4	7,949.8	22.3	19.2	-0.62	528.1	489.8	38.33	13.778			
8,100.0	8,049.8	8,067.4	8,049.8	22.4	19.4	-0.62	528.1	489.4	38.69	13.649			
8,200.0	8,149.8	8,167.4	8,149.8	22.6	19.5	-0.62	528.1	489.1	39.06	13.522			
8,300.0	8,249.8	8,267.4	8,249.8	22.7	19.7	-0.62	528.1	488.7	39.42	13.397			
8,400.0	8,349.8	8,367.4	8,349.8	22.9	19.9	-0.62	528.1	488.3	39.79	13.273			
8,443.2	8,393.0	8,410.6	8,393.0	22.9	20.0	-0.62	528.1	488.2	39.95	13.221			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-11W - Wellbore #1 - Plan #1 13Apr14 kjs — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-14.51	11.3						
100.0	100.0	100.0	100.0	0.1	0.1	-14.51	11.3	11.1	0.18	63.666			
200.0	200.0	200.0	200.0	0.3	0.3	-14.51	11.3	10.7	0.63	18.027			
300.0	300.0	300.0	300.0	0.5	0.5	-14.51	11.3	10.2	1.08	10.500			CC, ES
400.0	400.0	399.7	399.7	0.7	0.8	-168.34	14.6	13.1	1.51	9.678			SF
500.0	499.6	498.5	498.4	1.0	1.0	178.20	25.7	23.8	1.96	13.129			
556.5	555.7	553.6	553.3	1.1	1.1	173.49	35.7	33.4	2.23	16.028			
600.0	598.8	595.7	595.2	1.2	1.2	170.90	44.7	42.2	2.42	18.455			
700.0	697.9	691.5	690.3	1.5	1.5	166.52	67.4	64.5	2.88	23.373			
800.0	797.0	785.8	783.5	1.8	1.8	163.32	93.1	89.7	3.37	27.656			
900.0	896.1	878.4	874.5	2.2	2.1	160.80	121.7	117.9	3.86	31.501			
1,000.0	995.2	972.9	967.0	2.5	2.5	158.85	152.4	148.0	4.37	34.830			
1,100.0	1,094.3	1,068.0	1,060.0	2.8	2.9	157.53	183.1	178.2	4.88	37.532			
1,200.0	1,193.4	1,163.1	1,153.0	3.2	3.3	156.59	213.9	208.5	5.39	39.689			
1,300.0	1,292.5	1,258.1	1,246.1	3.5	3.7	155.88	244.8	238.9	5.91	41.447			
1,400.0	1,391.6	1,353.2	1,339.1	3.8	4.1	155.34	275.7	269.3	6.43	42.880			
1,500.0	1,490.7	1,448.3	1,432.2	4.2	4.5	154.90	306.6	299.6	6.95	44.106			
1,600.0	1,589.8	1,543.4	1,525.2	4.5	5.0	154.54	337.5	330.0	7.48	45.140			
1,700.0	1,688.9	1,638.5	1,618.2	4.8	5.4	154.25	368.4	360.4	8.00	46.028			
1,800.0	1,788.0	1,733.5	1,711.3	5.2	5.8	154.00	399.4	390.9	8.53	46.798			
1,900.0	1,887.1	1,828.6	1,804.3	5.5	6.2	153.78	430.3	421.3	9.07	47.471			
2,000.0	1,986.2	1,923.7	1,897.3	5.9	6.7	153.60	461.3	451.7	9.60	48.065			
2,100.0	2,085.3	2,018.8	1,990.4	6.2	7.1	153.43	492.2	482.1	10.13	48.592			
2,200.0	2,184.4	2,113.9	2,083.4	6.5	7.5	153.29	523.2	512.5	10.66	49.063			
2,300.0	2,283.5	2,209.0	2,176.5	6.9	8.0	153.16	554.1	542.9	11.20	49.486			
2,400.0	2,382.6	2,304.0	2,269.5	7.2	8.4	153.05	585.1	573.4	11.73	49.868			
2,500.0	2,481.7	2,399.1	2,362.5	7.6	8.8	152.95	616.1	603.8	12.27	50.214			
2,600.0	2,580.8	2,494.2	2,455.6	7.9	9.2	152.86	647.0	634.2	12.80	50.530			
2,700.0	2,679.9	2,589.3	2,548.6	8.2	9.7	152.77	678.0	664.7	13.34	50.819			
2,800.0	2,779.0	2,684.4	2,641.7	8.6	10.1	152.69	709.0	695.1	13.88	51.084			
2,900.0	2,878.1	2,779.4	2,734.7	8.9	10.5	152.62	739.9	725.5	14.42	51.328			
3,000.0	2,977.2	2,874.5	2,827.7	9.3	11.0	152.56	770.9	755.9	14.95	51.554			
3,100.0	3,076.3	2,969.6	2,920.8	9.6	11.4	152.50	801.9	786.4	15.49	51.763			
3,200.0	3,175.4	3,064.7	3,013.8	10.0	11.8	152.45	832.8	816.8	16.03	51.957			
3,300.0	3,274.5	3,159.8	3,106.9	10.3	12.3	152.39	863.8	847.2	16.57	52.138			
3,400.0	3,373.6	3,254.8	3,199.9	10.6	12.7	152.35	894.8	877.7	17.11	52.307			
3,500.0	3,472.7	3,349.9	3,292.9	11.0	13.1	152.30	925.7	908.1	17.65	52.465			
3,600.0	3,571.8	3,445.0	3,386.0	11.3	13.6	152.26	956.7	938.5	18.18	52.613			
3,700.0	3,670.9	3,540.1	3,479.0	11.7	14.0	152.22	987.7	969.0	18.72	52.752			
3,800.0	3,770.0	3,635.2	3,572.0	12.0	14.4	152.18	1,018.7	999.4	19.26	52.882			
3,900.0	3,869.1	3,730.2	3,665.1	12.3	14.9	152.15	1,049.6	1,029.8	19.80	53.005			
4,000.0	3,968.2	3,825.3	3,758.1	12.7	15.3	152.12	1,080.6	1,060.3	20.34	53.121			
4,100.0	4,067.3	3,920.4	3,851.2	13.0	15.7	152.09	1,111.6	1,090.7	20.88	53.231			
4,200.0	4,166.4	4,015.5	3,944.2	13.4	16.2	152.06	1,142.6	1,121.1	21.42	53.335			
4,300.0	4,265.5	4,110.6	4,037.2	13.7	16.6	152.03	1,173.5	1,151.6	21.96	53.433			
4,400.0	4,364.6	4,205.6	4,130.3	14.1	17.0	152.00	1,204.5	1,182.0	22.50	53.527			
4,500.0	4,463.7	4,300.7	4,223.3	14.4	17.4	151.98	1,235.5	1,212.4	23.04	53.615			
4,600.0	4,562.8	4,395.8	4,316.4	14.7	17.9	151.96	1,266.5	1,242.9	23.58	53.699			
4,700.0	4,661.9	4,490.9	4,409.4	15.1	18.3	151.93	1,297.4	1,273.3	24.13	53.780			
4,800.0	4,761.0	4,586.0	4,502.4	15.4	18.7	151.91	1,328.4	1,303.7	24.67	53.856			
4,900.0	4,860.1	4,681.0	4,595.5	15.8	19.2	151.89	1,359.4	1,334.2	25.21	53.929			
5,000.0	4,959.2	4,776.1	4,688.5	16.1	19.6	151.87	1,390.4	1,364.6	25.75	53.998			
5,100.0	5,058.3	4,871.2	4,781.5	16.4	20.0	151.85	1,421.3	1,395.0	26.29	54.065			
5,200.0	5,157.4	4,966.3	4,874.6	16.8	20.5	151.84	1,452.3	1,425.5	26.83	54.128			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-11W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,061.4	4,967.6	17.1	20.9	151.82	1,483.3	1,455.9	27.37	54.189			
5,400.0	5,355.6	5,156.4	5,060.7	17.5	21.3	151.80	1,514.3	1,486.4	27.91	54.247			
5,500.0	5,454.7	5,251.5	5,153.7	17.8	21.8	151.79	1,545.2	1,516.8	28.46	54.303			
5,600.0	5,553.8	5,346.6	5,246.7	18.2	22.2	151.77	1,576.2	1,547.2	29.00	54.356			
5,700.0	5,652.9	5,441.7	5,339.8	18.5	22.6	151.76	1,607.2	1,577.7	29.54	54.407			
5,800.0	5,752.0	5,536.8	5,432.8	18.8	23.1	151.74	1,638.2	1,608.1	30.08	54.456			
5,880.3	5,831.6	5,613.1	5,507.6	19.1	23.4	151.73	1,663.1	1,632.5	30.52	54.494			
5,900.0	5,851.1	5,631.9	5,525.9	19.2	23.5	151.77	1,669.1	1,638.5	30.64	54.479			
6,000.0	5,950.5	5,727.4	5,619.4	19.4	23.9	151.95	1,698.5	1,667.3	31.20	54.441			
6,100.0	6,050.1	5,823.6	5,713.5	19.6	24.4	152.06	1,725.8	1,694.0	31.74	54.373			
6,200.0	6,149.8	5,963.4	5,850.5	19.8	24.9	152.07	1,750.4	1,718.1	32.33	54.147			
6,300.0	6,249.8	6,198.9	6,083.6	19.9	25.5	151.97	1,767.0	1,734.0	32.99	53.555			
6,393.2	6,343.0	6,423.3	6,307.5	20.1	25.9	-64.45	1,773.3	1,739.7	33.54	52.864			
6,400.0	6,349.8	6,439.7	6,323.9	20.1	25.9	-64.45	1,773.4	1,739.8	33.58	52.811			
6,493.2	6,443.0	6,558.8	6,443.0	20.2	26.1	-64.45	1,773.5	1,739.6	33.91	52.305			
6,500.0	6,449.8	6,565.5	6,449.8	20.2	26.1	-64.45	1,773.5	1,739.6	33.93	52.272			
6,600.0	6,549.8	6,665.5	6,549.8	20.3	26.2	-64.45	1,773.5	1,739.3	34.24	51.791			
6,700.0	6,649.8	6,765.5	6,649.8	20.5	26.3	-64.45	1,773.5	1,739.0	34.56	51.314			
6,800.0	6,749.8	6,865.5	6,749.8	20.6	26.4	-64.45	1,773.5	1,738.6	34.88	50.842			
6,900.0	6,849.8	6,965.5	6,849.8	20.7	26.5	-64.45	1,773.5	1,738.3	35.21	50.374			
7,000.0	6,949.8	7,065.5	6,949.8	20.9	26.7	-64.45	1,773.5	1,738.0	35.53	49.911			
7,100.0	7,049.8	7,165.5	7,049.8	21.0	26.8	-64.45	1,773.5	1,737.7	35.86	49.452			
7,200.0	7,149.8	7,265.5	7,149.8	21.1	26.9	-64.45	1,773.5	1,737.3	36.20	48.999			
7,300.0	7,249.8	7,365.5	7,249.8	21.3	27.0	-64.45	1,773.5	1,737.0	36.53	48.550			
7,400.0	7,349.8	7,465.5	7,349.8	21.4	27.2	-64.45	1,773.5	1,736.7	36.87	48.106			
7,500.0	7,449.8	7,565.5	7,449.8	21.5	27.3	-64.45	1,773.5	1,736.3	37.21	47.668			
7,600.0	7,549.8	7,665.5	7,549.8	21.7	27.4	-64.45	1,773.5	1,736.0	37.55	47.234			
7,700.0	7,649.8	7,765.5	7,649.8	21.8	27.5	-64.45	1,773.5	1,735.6	37.89	46.805			
7,800.0	7,749.8	7,865.5	7,749.8	22.0	27.7	-64.45	1,773.5	1,735.3	38.24	46.382			
7,900.0	7,849.8	7,965.5	7,849.8	22.1	27.8	-64.45	1,773.5	1,734.9	38.59	45.963			
8,000.0	7,949.8	8,065.5	7,949.8	22.3	27.9	-64.45	1,773.5	1,734.6	38.94	45.550			
8,100.0	8,049.8	8,165.5	8,049.8	22.4	28.1	-64.45	1,773.5	1,734.2	39.29	45.141			
8,200.0	8,149.8	8,265.5	8,149.8	22.6	28.2	-64.45	1,773.5	1,733.9	39.64	44.738			
8,300.0	8,249.8	8,365.5	8,249.8	22.7	28.4	-64.45	1,773.5	1,733.5	40.00	44.339			
8,400.0	8,349.8	8,465.5	8,349.8	22.9	28.5	-64.45	1,773.5	1,733.2	40.36	43.946			
8,443.2	8,393.0	8,508.8	8,393.0	22.9	28.6	-64.45	1,773.5	1,733.0	40.51	43.777			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-12M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	66.72	9.2						
100.0	100.0	100.0	100.0	0.1	0.1	66.72	9.2	9.1	0.18	52.089			
200.0	200.0	200.0	200.0	0.3	0.3	66.72	9.2	8.6	0.63	14.749			
300.0	300.0	300.0	300.0	0.5	0.5	66.72	9.2	8.2	1.08	8.591			CC, ES
400.0	400.0	399.8	399.7	0.7	0.7	-78.29	9.9	8.4	1.48	6.652			
500.0	499.6	499.5	499.2	1.0	1.0	-81.66	11.8	9.9	1.91	6.152			
556.5	555.7	556.0	555.3	1.1	1.1	-88.54	13.1	10.9	2.20	5.947			
600.0	598.8	599.5	598.6	1.2	1.2	-95.56	14.2	11.8	2.43	5.841			SF
700.0	697.9	699.4	698.0	1.5	1.5	-107.69	17.5	14.5	2.98	5.846			
800.0	797.0	799.2	797.4	1.8	1.8	-115.77	21.2	17.7	3.54	6.000			
900.0	896.1	899.1	896.9	2.2	2.0	-121.34	25.3	21.2	4.09	6.192			
1,000.0	995.2	999.0	996.3	2.5	2.3	-125.34	29.5	24.9	4.63	6.381			
1,100.0	1,094.3	1,098.9	1,095.7	2.8	2.6	-128.32	33.9	28.7	5.17	6.554			
1,200.0	1,193.4	1,198.8	1,195.1	3.2	2.9	-130.63	38.3	32.6	5.71	6.709			
1,300.0	1,292.5	1,298.7	1,294.5	3.5	3.2	-132.45	42.8	36.5	6.25	6.846			
1,400.0	1,391.6	1,398.6	1,393.9	3.8	3.5	-133.93	47.3	40.5	6.79	6.966			
1,500.0	1,490.7	1,498.5	1,493.3	4.2	3.8	-135.15	51.8	44.5	7.32	7.073			
1,600.0	1,589.8	1,598.4	1,592.7	4.5	4.0	-136.17	56.3	48.5	7.86	7.168			
1,700.0	1,688.9	1,698.3	1,692.1	4.8	4.3	-137.04	60.9	52.5	8.40	7.253			
1,800.0	1,788.0	1,798.2	1,791.5	5.2	4.6	-137.79	65.5	56.6	8.94	7.329			
1,900.0	1,887.1	1,898.1	1,891.0	5.5	4.9	-138.44	70.1	60.6	9.47	7.397			
2,000.0	1,986.2	1,997.9	1,990.4	5.9	5.2	-139.01	74.7	64.7	10.01	7.458			
2,100.0	2,085.3	2,097.8	2,089.8	6.2	5.5	-139.51	79.3	68.7	10.55	7.515			
2,200.0	2,184.4	2,197.7	2,189.2	6.5	5.8	-139.96	83.9	72.8	11.09	7.566			
2,300.0	2,283.5	2,297.6	2,288.6	6.9	6.1	-140.37	88.5	76.9	11.62	7.612			
2,400.0	2,382.6	2,397.5	2,388.0	7.2	6.4	-140.73	93.1	80.9	12.16	7.655			
2,500.0	2,481.7	2,497.4	2,487.4	7.6	6.7	-141.06	97.7	85.0	12.70	7.695			
2,600.0	2,580.8	2,597.3	2,586.8	7.9	7.0	-141.35	102.3	89.1	13.24	7.731			
2,700.0	2,679.9	2,697.2	2,686.2	8.2	7.2	-141.63	107.0	93.2	13.77	7.765			
2,800.0	2,779.0	2,797.1	2,785.7	8.6	7.5	-141.88	111.6	97.3	14.31	7.796			
2,900.0	2,878.1	2,897.0	2,885.1	8.9	7.8	-142.11	116.2	101.4	14.85	7.826			
3,000.0	2,977.2	2,996.9	2,984.5	9.3	8.1	-142.32	120.8	105.4	15.39	7.853			
3,100.0	3,076.3	3,096.8	3,083.9	9.6	8.4	-142.52	125.5	109.5	15.92	7.878			
3,200.0	3,175.4	3,196.6	3,183.3	10.0	8.7	-142.70	130.1	113.6	16.46	7.902			
3,300.0	3,274.5	3,296.5	3,282.7	10.3	9.0	-142.87	134.7	117.7	17.00	7.925			
3,400.0	3,373.6	3,396.4	3,382.1	10.6	9.3	-143.03	139.4	121.8	17.54	7.946			
3,500.0	3,472.7	3,496.3	3,481.5	11.0	9.6	-143.18	144.0	125.9	18.08	7.966			
3,600.0	3,571.8	3,596.2	3,580.9	11.3	9.9	-143.32	148.6	130.0	18.61	7.985			
3,700.0	3,670.9	3,696.1	3,680.4	11.7	10.2	-143.45	153.3	134.1	19.15	8.003			
3,800.0	3,770.0	3,796.0	3,779.8	12.0	10.5	-143.57	157.9	138.2	19.69	8.020			
3,900.0	3,869.1	3,895.9	3,879.2	12.3	10.8	-143.69	162.5	142.3	20.23	8.036			
4,000.0	3,968.2	3,995.8	3,978.6	12.7	11.0	-143.80	167.2	146.4	20.77	8.051			
4,100.0	4,067.3	4,095.7	4,078.0	13.0	11.3	-143.90	171.8	150.5	21.30	8.065			
4,200.0	4,166.4	4,195.6	4,177.4	13.4	11.6	-144.00	176.5	154.6	21.84	8.079			
4,300.0	4,265.5	4,295.5	4,276.8	13.7	11.9	-144.10	181.1	158.7	22.38	8.092			
4,400.0	4,364.6	4,395.4	4,376.2	14.1	12.2	-144.18	185.7	162.8	22.92	8.105			
4,500.0	4,463.7	4,495.2	4,475.6	14.4	12.5	-144.27	190.4	166.9	23.46	8.117			
4,600.0	4,562.8	4,595.1	4,575.1	14.7	12.8	-144.35	195.0	171.0	23.99	8.128			
4,700.0	4,661.9	4,695.0	4,674.5	15.1	13.1	-144.43	199.7	175.1	24.53	8.139			
4,800.0	4,761.0	4,794.9	4,773.9	15.4	13.4	-144.50	204.3	179.2	25.07	8.149			
4,900.0	4,860.1	4,894.8	4,873.3	15.8	13.7	-144.57	208.9	183.3	25.61	8.159			
5,000.0	4,959.2	4,994.7	4,972.7	16.1	14.0	-144.64	213.6	187.4	26.15	8.169			
5,100.0	5,058.3	5,094.6	5,072.1	16.4	14.3	-144.70	218.2	191.5	26.68	8.178			
5,200.0	5,157.4	5,194.5	5,171.5	16.8	14.6	-144.76	222.9	195.7	27.22	8.187			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-12M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,294.4	5,270.9	17.1	14.9	-144.82	227.5	199.8	27.76	8.196			
5,400.0	5,355.6	5,394.3	5,370.3	17.5	15.1	-144.88	232.2	203.9	28.30	8.204			
5,500.0	5,454.7	5,494.2	5,469.8	17.8	15.4	-144.93	236.8	208.0	28.84	8.212			
5,600.0	5,553.8	5,594.1	5,569.2	18.2	15.7	-144.98	241.4	212.1	29.37	8.220			
5,700.0	5,652.9	5,693.9	5,668.6	18.5	16.0	-145.03	246.1	216.2	29.91	8.227			
5,800.0	5,752.0	5,793.8	5,768.0	18.8	16.3	-145.08	250.7	220.3	30.45	8.234			
5,880.3	5,831.6	5,874.1	5,847.8	19.1	16.6	-145.12	254.5	223.6	30.88	8.240			
5,900.0	5,851.1	5,893.7	5,867.4	19.2	16.6	-145.13	255.3	224.4	30.99	8.241			
6,000.0	5,950.5	5,993.7	5,966.9	19.4	16.9	-144.97	258.5	227.0	31.49	8.208			
6,100.0	6,050.1	6,089.7	6,062.6	19.6	17.1	-144.67	260.2	228.3	31.95	8.144			
6,200.0	6,149.8	6,185.5	6,158.2	19.8	17.3	-144.45	261.4	229.1	32.33	8.085			
6,300.0	6,249.8	6,281.3	6,253.9	19.9	17.5	-144.31	262.1	229.4	32.66	8.025			
6,393.2	6,343.0	6,370.7	6,343.2	20.1	17.6	-0.62	262.2	229.3	32.95	7.959			
6,400.0	6,349.8	6,377.2	6,349.8	20.1	17.6	-0.62	262.2	229.3	32.97	7.954			
6,493.2	6,443.0	6,470.5	6,443.0	20.2	17.8	-0.62	262.2	229.0	33.26	7.884			
6,500.0	6,449.8	6,477.2	6,449.8	20.2	17.8	-0.62	262.2	228.9	33.28	7.879			
6,600.0	6,549.8	6,577.2	6,549.8	20.3	17.9	-0.62	262.2	228.6	33.60	7.804			
6,700.0	6,649.8	6,677.2	6,649.8	20.5	18.1	-0.62	262.2	228.3	33.92	7.731			
6,800.0	6,749.8	6,777.2	6,749.8	20.6	18.2	-0.62	262.2	228.0	34.24	7.658			
6,900.0	6,849.8	6,877.2	6,849.8	20.7	18.4	-0.62	262.2	227.7	34.57	7.586			
7,000.0	6,949.8	6,977.2	6,949.8	20.9	18.5	-0.62	262.2	227.3	34.89	7.515			
7,100.0	7,049.8	7,077.2	7,049.8	21.0	18.7	-0.62	262.2	227.0	35.23	7.444			
7,200.0	7,149.8	7,177.2	7,149.8	21.1	18.8	-0.62	262.2	226.7	35.56	7.375			
7,300.0	7,249.8	7,277.2	7,249.8	21.3	19.0	-0.62	262.2	226.3	35.89	7.306			
7,400.0	7,349.8	7,377.2	7,349.8	21.4	19.2	-0.62	262.2	226.0	36.23	7.238			
7,500.0	7,449.8	7,477.2	7,449.8	21.5	19.3	-0.62	262.2	225.7	36.57	7.170			
7,600.0	7,549.8	7,577.2	7,549.8	21.7	19.5	-0.62	262.2	225.3	36.92	7.104			
7,700.0	7,649.8	7,677.2	7,649.8	21.8	19.7	-0.62	262.2	225.0	37.26	7.038			
7,800.0	7,749.8	7,777.2	7,749.8	22.0	19.8	-0.62	262.2	224.6	37.61	6.973			
7,900.0	7,849.8	7,877.2	7,849.8	22.1	20.0	-0.62	262.2	224.3	37.96	6.909			
8,000.0	7,949.8	7,977.2	7,949.8	22.3	20.2	-0.62	262.2	223.9	38.31	6.845			
8,100.0	8,049.8	8,077.2	8,049.8	22.4	20.3	-0.62	262.2	223.6	38.66	6.783			
8,200.0	8,149.8	8,177.2	8,149.8	22.6	20.5	-0.62	262.2	223.2	39.02	6.721			
8,300.0	8,249.8	8,277.2	8,249.8	22.7	20.7	-0.62	262.2	222.9	39.37	6.660			
8,400.0	8,349.8	8,377.2	8,349.8	22.9	20.8	-0.62	262.2	222.5	39.73	6.600			
8,443.2	8,393.0	8,420.5	8,393.0	22.9	20.9	-0.62	262.2	222.3	39.89	6.574			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-12W - Wellbore #1 - Plan #1 13Apr14 kjs — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-49.34	11.2						
100.0	100.0	100.0	100.0	0.1	0.1	-49.34	11.2	11.0	0.18	63.076			
200.0	200.0	200.0	200.0	0.3	0.3	-49.34	11.2	10.6	0.63	17.860			
300.0	300.0	300.0	300.0	0.5	0.5	-49.34	11.2	10.1	1.08	10.403			CC, ES
400.0	400.0	399.6	399.6	0.7	0.8	164.39	15.0	13.4	1.51	9.932			SF
500.0	499.6	498.4	498.3	1.0	1.0	160.99	26.3	24.3	1.95	13.473			
556.5	555.7	553.6	553.2	1.1	1.1	159.75	36.0	33.7	2.22	16.230			
600.0	598.8	595.8	595.3	1.2	1.2	158.92	44.6	42.2	2.41	18.494			
700.0	697.9	691.9	690.7	1.5	1.5	156.58	66.4	63.5	2.89	22.992			
800.0	797.0	786.7	784.4	1.8	1.8	154.20	90.8	87.4	3.39	26.826			
900.0	896.1	880.0	876.0	2.2	2.1	151.99	118.0	114.1	3.91	30.224			
1,000.0	995.2	975.2	969.2	2.5	2.5	150.17	147.0	142.6	4.44	33.115			
1,100.0	1,094.3	1,070.8	1,062.8	2.8	2.9	148.94	176.1	171.1	4.97	35.419			
1,200.0	1,193.4	1,166.4	1,156.4	3.2	3.3	148.06	205.3	199.7	5.51	37.238			
1,300.0	1,292.5	1,262.1	1,250.0	3.5	3.7	147.39	234.4	228.4	6.06	38.707			
1,400.0	1,391.6	1,357.7	1,343.6	3.8	4.1	146.88	263.6	257.0	6.61	39.893			
1,500.0	1,490.7	1,453.3	1,437.2	4.2	4.6	146.46	292.9	285.7	7.16	40.905			
1,600.0	1,589.8	1,548.9	1,530.8	4.5	5.0	146.12	322.1	314.4	7.71	41.753			
1,700.0	1,688.9	1,644.5	1,624.3	4.8	5.4	145.84	351.3	343.1	8.27	42.478			
1,800.0	1,788.0	1,740.2	1,717.9	5.2	5.8	145.60	380.6	371.7	8.83	43.104			
1,900.0	1,887.1	1,835.8	1,811.5	5.5	6.3	145.40	409.8	400.4	9.39	43.649			
2,000.0	1,986.2	1,931.4	1,905.1	5.9	6.7	145.22	439.1	429.1	9.95	44.129			
2,100.0	2,085.3	2,027.0	1,998.7	6.2	7.1	145.07	468.3	457.8	10.51	44.553			
2,200.0	2,184.4	2,122.6	2,092.3	6.5	7.6	144.93	497.6	486.5	11.07	44.932			
2,300.0	2,283.5	2,218.2	2,185.9	6.9	8.0	144.81	526.8	515.2	11.64	45.271			
2,400.0	2,382.6	2,313.9	2,279.5	7.2	8.4	144.70	556.1	543.9	12.20	45.577			
2,500.0	2,481.7	2,409.5	2,373.0	7.6	8.9	144.60	585.4	572.6	12.77	45.854			
2,600.0	2,580.8	2,505.1	2,466.6	7.9	9.3	144.51	614.6	601.3	13.33	46.106			
2,700.0	2,679.9	2,600.7	2,560.2	8.2	9.7	144.43	643.9	630.0	13.90	46.337			
2,800.0	2,779.0	2,696.3	2,653.8	8.6	10.2	144.36	673.2	658.7	14.46	46.548			
2,900.0	2,878.1	2,791.9	2,747.4	8.9	10.6	144.29	702.4	687.4	15.03	46.742			
3,000.0	2,977.2	2,887.6	2,841.0	9.3	11.0	144.23	731.7	716.1	15.59	46.921			
3,100.0	3,076.3	2,983.2	2,934.6	9.6	11.5	144.17	761.0	744.8	16.16	47.087			
3,200.0	3,175.4	3,078.8	3,028.1	10.0	11.9	144.12	790.3	773.5	16.73	47.241			
3,300.0	3,274.5	3,174.4	3,121.7	10.3	12.3	144.07	819.5	802.2	17.30	47.384			
3,400.0	3,373.6	3,270.0	3,215.3	10.6	12.8	144.02	848.8	830.9	17.86	47.518			
3,500.0	3,472.7	3,365.6	3,308.9	11.0	13.2	143.98	878.1	859.7	18.43	47.643			
3,600.0	3,571.8	3,461.3	3,402.5	11.3	13.6	143.94	907.4	888.4	19.00	47.760			
3,700.0	3,670.9	3,556.9	3,496.1	11.7	14.1	143.90	936.6	917.1	19.57	47.869			
3,800.0	3,770.0	3,652.5	3,589.7	12.0	14.5	143.87	965.9	945.8	20.13	47.973			
3,900.0	3,869.1	3,748.1	3,683.3	12.3	14.9	143.83	995.2	974.5	20.70	48.070			
4,000.0	3,968.2	3,843.7	3,776.8	12.7	15.4	143.80	1,024.5	1,003.2	21.27	48.161			
4,100.0	4,067.3	3,939.3	3,870.4	13.0	15.8	143.77	1,053.7	1,031.9	21.84	48.248			
4,200.0	4,166.4	4,035.0	3,964.0	13.4	16.2	143.74	1,083.0	1,060.6	22.41	48.330			
4,300.0	4,265.5	4,130.6	4,057.6	13.7	16.7	143.72	1,112.3	1,089.3	22.98	48.407			
4,400.0	4,364.6	4,226.2	4,151.2	14.1	17.1	143.69	1,141.6	1,118.0	23.55	48.481			
4,500.0	4,463.7	4,321.8	4,244.8	14.4	17.5	143.67	1,170.8	1,146.7	24.12	48.550			
4,600.0	4,562.8	4,417.4	4,338.4	14.7	18.0	143.65	1,200.1	1,175.4	24.69	48.617			
4,700.0	4,661.9	4,513.1	4,431.9	15.1	18.4	143.62	1,229.4	1,204.1	25.25	48.680			
4,800.0	4,761.0	4,608.7	4,525.5	15.4	18.9	143.60	1,258.7	1,232.8	25.82	48.740			
4,900.0	4,860.1	4,704.3	4,619.1	15.8	19.3	143.58	1,287.9	1,261.6	26.39	48.797			
5,000.0	4,959.2	4,799.9	4,712.7	16.1	19.7	143.57	1,317.2	1,290.3	26.96	48.852			
5,100.0	5,058.3	4,895.5	4,806.3	16.4	20.2	143.55	1,346.5	1,319.0	27.53	48.904			
5,200.0	5,157.4	4,991.1	4,899.9	16.8	20.6	143.53	1,375.8	1,347.7	28.10	48.954			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-12W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,086.8	4,993.5	17.1	21.0	143.51	1,405.1	1,376.4	28.67	49.002			
5,400.0	5,355.6	5,182.4	5,087.1	17.5	21.5	143.50	1,434.3	1,405.1	29.24	49.047			
5,500.0	5,454.7	5,278.0	5,180.6	17.8	21.9	143.48	1,463.6	1,433.8	29.81	49.091			
5,600.0	5,553.8	5,373.6	5,274.2	18.2	22.3	143.47	1,492.9	1,462.5	30.38	49.133			
5,700.0	5,652.9	5,469.2	5,367.8	18.5	22.8	143.45	1,522.2	1,491.2	30.96	49.173			
5,800.0	5,752.0	5,564.8	5,461.4	18.8	23.2	143.44	1,551.4	1,519.9	31.53	49.212			
5,880.3	5,831.6	5,641.7	5,536.6	19.1	23.6	143.43	1,575.0	1,543.0	31.98	49.242			
5,900.0	5,851.1	5,660.5	5,555.0	19.2	23.6	143.48	1,580.7	1,548.6	32.11	49.230			
6,000.0	5,950.5	5,756.5	5,649.0	19.4	24.1	143.69	1,608.6	1,575.9	32.69	49.213			
6,100.0	6,050.1	5,853.1	5,743.5	19.6	24.5	143.82	1,634.4	1,601.2	33.24	49.173			
6,200.0	6,149.8	6,039.5	5,926.9	19.8	25.1	143.78	1,656.1	1,622.2	33.89	48.866			
6,300.0	6,249.8	6,251.2	6,137.2	19.9	25.6	143.73	1,669.2	1,634.7	34.48	48.414			
6,393.2	6,343.0	6,451.4	6,337.2	20.1	25.9	-72.65	1,673.4	1,638.5	34.96	47.862			
6,400.0	6,349.8	6,463.9	6,349.8	20.1	25.9	-72.65	1,673.4	1,638.4	34.99	47.822			
6,493.2	6,443.0	6,557.1	6,443.0	20.2	26.0	-72.65	1,673.4	1,638.2	35.27	47.449			
6,500.0	6,449.8	6,563.9	6,449.8	20.2	26.0	-72.65	1,673.4	1,638.1	35.29	47.422			
6,600.0	6,549.8	6,663.9	6,549.8	20.3	26.1	-72.65	1,673.4	1,637.8	35.59	47.024			
6,700.0	6,649.8	6,763.9	6,649.8	20.5	26.2	-72.65	1,673.4	1,637.5	35.89	46.630			
6,800.0	6,749.8	6,863.9	6,749.8	20.6	26.3	-72.65	1,673.4	1,637.2	36.19	46.237			
6,900.0	6,849.8	6,963.9	6,849.8	20.7	26.5	-72.65	1,673.4	1,636.9	36.50	45.848			
7,000.0	6,949.8	7,063.9	6,949.8	20.9	26.6	-72.65	1,673.4	1,636.6	36.81	45.461			
7,100.0	7,049.8	7,163.9	7,049.8	21.0	26.7	-72.65	1,673.4	1,636.3	37.12	45.078			
7,200.0	7,149.8	7,263.9	7,149.8	21.1	26.8	-72.65	1,673.4	1,636.0	37.44	44.697			
7,300.0	7,249.8	7,363.9	7,249.8	21.3	26.9	-72.65	1,673.4	1,635.7	37.76	44.320			
7,400.0	7,349.8	7,463.9	7,349.8	21.4	27.1	-72.65	1,673.4	1,635.3	38.08	43.946			
7,500.0	7,449.8	7,563.9	7,449.8	21.5	27.2	-72.65	1,673.4	1,635.0	38.40	43.575			
7,600.0	7,549.8	7,663.9	7,549.8	21.7	27.3	-72.65	1,673.4	1,634.7	38.73	43.208			
7,700.0	7,649.8	7,763.9	7,649.8	21.8	27.4	-72.65	1,673.4	1,634.4	39.06	42.844			
7,800.0	7,749.8	7,863.9	7,749.8	22.0	27.6	-72.65	1,673.4	1,634.0	39.39	42.484			
7,900.0	7,849.8	7,963.9	7,849.8	22.1	27.7	-72.65	1,673.4	1,633.7	39.72	42.127			
8,000.0	7,949.8	8,063.9	7,949.8	22.3	27.8	-72.65	1,673.4	1,633.4	40.06	41.774			
8,100.0	8,049.8	8,163.9	8,049.8	22.4	28.0	-72.65	1,673.4	1,633.0	40.40	41.424			
8,200.0	8,149.8	8,263.9	8,149.8	22.6	28.1	-72.65	1,673.4	1,632.7	40.74	41.078			
8,300.0	8,249.8	8,363.9	8,249.8	22.7	28.2	-72.65	1,673.4	1,632.3	41.08	40.736			
8,400.0	8,349.8	8,463.9	8,349.8	22.9	28.4	-72.65	1,673.4	1,632.0	41.42	40.397			
8,443.2	8,393.0	8,507.1	8,393.0	22.9	28.4	-72.65	1,673.4	1,631.9	41.57	40.252			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-13W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-77.84	17.4						
100.0	100.0	100.0	100.0	0.1	0.1	-77.84	17.4	17.2	0.18	97.891			
200.0	200.0	200.0	200.0	0.3	0.3	-77.84	17.4	16.8	0.63	27.718			
300.0	300.0	300.0	300.0	0.5	0.5	-77.84	17.4	16.3	1.08	16.145			CC, ES
400.0	400.0	399.4	399.3	0.7	0.7	140.76	20.8	19.3	1.50	13.916			SF
500.0	499.6	498.1	497.9	1.0	1.0	144.45	31.3	29.4	1.94	16.177			
556.5	555.7	553.2	552.9	1.1	1.1	146.04	40.4	38.1	2.20	18.309			
600.0	598.8	595.5	595.0	1.2	1.2	146.80	48.4	46.0	2.41	20.135			
700.0	697.9	691.9	690.7	1.5	1.5	146.55	68.8	65.9	2.89	23.792			
800.0	797.0	787.1	784.8	1.8	1.8	145.12	91.7	88.3	3.41	26.914			
900.0	896.1	881.0	877.1	2.2	2.1	143.32	117.3	113.3	3.95	29.683			
1,000.0	995.2	975.8	969.7	2.5	2.5	141.54	145.0	140.4	4.51	32.109			
1,100.0	1,094.3	1,071.8	1,063.4	2.8	2.9	140.28	172.9	167.9	5.08	34.047			
1,200.0	1,193.4	1,167.7	1,157.2	3.2	3.3	139.36	201.0	195.3	5.65	35.562			
1,300.0	1,292.5	1,263.6	1,250.9	3.5	3.8	138.67	229.0	222.8	6.23	36.771			
1,400.0	1,391.6	1,359.6	1,344.6	3.8	4.2	138.13	257.1	250.3	6.81	37.738			
1,500.0	1,490.7	1,455.5	1,438.4	4.2	4.6	137.70	285.3	277.9	7.40	38.560			
1,600.0	1,589.8	1,551.5	1,532.1	4.5	5.1	137.35	313.4	305.4	7.99	39.242			
1,700.0	1,688.9	1,647.4	1,625.8	4.8	5.5	137.05	341.5	332.9	8.58	39.822			
1,800.0	1,788.0	1,743.4	1,719.6	5.2	6.0	136.80	369.7	360.5	9.17	40.321			
1,900.0	1,887.1	1,839.3	1,813.3	5.5	6.4	136.58	397.8	388.0	9.76	40.753			
2,000.0	1,986.2	1,935.3	1,907.0	5.9	6.9	136.39	426.0	415.6	10.36	41.133			
2,100.0	2,085.3	2,031.2	2,000.8	6.2	7.3	136.23	454.1	443.2	10.95	41.467			
2,200.0	2,184.4	2,127.2	2,094.5	6.5	7.8	136.09	482.3	470.7	11.55	41.765			
2,300.0	2,283.5	2,223.1	2,188.2	6.9	8.2	135.96	510.4	498.3	12.14	42.030			
2,400.0	2,382.6	2,319.1	2,282.0	7.2	8.7	135.84	538.6	525.8	12.74	42.270			
2,500.0	2,481.7	2,415.0	2,375.7	7.6	9.1	135.74	566.7	553.4	13.34	42.486			
2,600.0	2,580.8	2,511.0	2,469.4	7.9	9.6	135.64	594.9	581.0	13.94	42.682			
2,700.0	2,679.9	2,606.9	2,563.1	8.2	10.0	135.56	623.1	608.5	14.54	42.861			
2,800.0	2,779.0	2,702.9	2,656.9	8.6	10.5	135.48	651.3	636.1	15.14	43.025			
2,900.0	2,878.1	2,798.8	2,750.6	8.9	10.9	135.41	679.4	663.7	15.74	43.175			
3,000.0	2,977.2	2,894.7	2,844.3	9.3	11.4	135.34	707.6	691.3	16.34	43.314			
3,100.0	3,076.3	2,990.7	2,938.1	9.6	11.8	135.28	735.8	718.8	16.94	43.442			
3,200.0	3,175.4	3,086.6	3,031.8	10.0	12.3	135.22	763.9	746.4	17.54	43.561			
3,300.0	3,274.5	3,182.6	3,125.5	10.3	12.7	135.17	792.1	774.0	18.14	43.671			
3,400.0	3,373.6	3,278.5	3,219.3	10.6	13.2	135.12	820.3	801.5	18.74	43.774			
3,500.0	3,472.7	3,374.5	3,313.0	11.0	13.6	135.08	848.5	829.1	19.34	43.870			
3,600.0	3,571.8	3,470.4	3,406.7	11.3	14.1	135.03	876.6	856.7	19.94	43.960			
3,700.0	3,670.9	3,566.4	3,500.5	11.7	14.5	134.99	904.8	884.3	20.54	44.045			
3,800.0	3,770.0	3,662.3	3,594.2	12.0	15.0	134.96	933.0	911.8	21.14	44.124			
3,900.0	3,869.1	3,758.3	3,687.9	12.3	15.4	134.92	961.1	939.4	21.75	44.198			
4,000.0	3,968.2	3,854.2	3,781.7	12.7	15.9	134.89	989.3	967.0	22.35	44.268			
4,100.0	4,067.3	3,950.2	3,875.4	13.0	16.3	134.86	1,017.5	994.6	22.95	44.335			
4,200.0	4,166.4	4,046.1	3,969.1	13.4	16.8	134.83	1,045.7	1,022.1	23.55	44.397			
4,300.0	4,265.5	4,142.1	4,062.9	13.7	17.2	134.80	1,073.9	1,049.7	24.16	44.456			
4,400.0	4,364.6	4,238.0	4,156.6	14.1	17.7	134.77	1,102.0	1,077.3	24.76	44.513			
4,500.0	4,463.7	4,334.0	4,250.3	14.4	18.1	134.75	1,130.2	1,104.8	25.36	44.566			
4,600.0	4,562.8	4,429.9	4,344.1	14.7	18.6	134.72	1,158.4	1,132.4	25.96	44.617			
4,700.0	4,661.9	4,525.9	4,437.8	15.1	19.0	134.70	1,186.6	1,160.0	26.57	44.665			
4,800.0	4,761.0	4,621.8	4,531.5	15.4	19.5	134.68	1,214.7	1,187.6	27.17	44.711			
4,900.0	4,860.1	4,717.7	4,625.3	15.8	19.9	134.65	1,242.9	1,215.1	27.77	44.754			
5,000.0	4,959.2	4,813.7	4,719.0	16.1	20.4	134.63	1,271.1	1,242.7	28.38	44.796			
5,100.0	5,058.3	4,909.6	4,812.7	16.4	20.8	134.62	1,299.3	1,270.3	28.98	44.836			
5,200.0	5,157.4	5,005.6	4,906.5	16.8	21.3	134.60	1,327.4	1,297.9	29.58	44.874			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-13W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,101.5	5,000.2	17.1	21.8	134.58	1,355.6	1,325.4	30.19	44.910			
5,400.0	5,355.6	5,197.5	5,093.9	17.5	22.2	134.56	1,383.8	1,353.0	30.79	44.945			
5,500.0	5,454.7	5,293.4	5,187.7	17.8	22.7	134.55	1,412.0	1,380.6	31.39	44.978			
5,600.0	5,553.8	5,389.4	5,281.4	18.2	23.1	134.53	1,440.2	1,408.2	32.00	45.010			
5,700.0	5,652.9	5,485.3	5,375.1	18.5	23.6	134.52	1,468.3	1,435.7	32.60	45.040			
5,800.0	5,752.0	5,581.3	5,468.9	18.8	24.0	134.50	1,496.5	1,463.3	33.20	45.070			
5,880.3	5,831.6	5,658.3	5,544.2	19.1	24.4	134.49	1,519.2	1,485.5	33.69	45.092			
5,900.0	5,851.1	5,677.2	5,562.6	19.2	24.5	134.55	1,524.7	1,490.8	33.82	45.082			
6,000.0	5,950.5	5,773.5	5,656.7	19.4	24.9	134.78	1,551.6	1,517.2	34.42	45.079			
6,100.0	6,050.1	5,870.3	5,751.2	19.6	25.4	134.93	1,576.8	1,541.8	34.99	45.063			
6,200.0	6,149.8	6,062.8	5,940.6	19.8	26.0	134.88	1,597.3	1,561.6	35.65	44.803			
6,300.0	6,249.8	6,260.2	6,136.7	19.9	26.4	134.83	1,610.0	1,573.8	36.21	44.460			
6,393.2	6,343.0	6,446.7	6,322.9	20.1	26.7	-81.56	1,614.6	1,578.0	36.67	44.033			
6,400.0	6,349.8	6,460.3	6,336.5	20.1	26.7	-81.57	1,614.7	1,578.0	36.70	43.999			
6,493.2	6,443.0	6,566.8	6,443.0	20.2	26.8	-81.57	1,614.8	1,577.8	36.98	43.669			
6,500.0	6,449.8	6,573.6	6,449.8	20.2	26.8	-81.57	1,614.8	1,577.8	37.00	43.647			
6,600.0	6,549.8	6,673.6	6,549.8	20.3	26.9	-81.57	1,614.8	1,577.5	37.28	43.320			
6,700.0	6,649.8	6,773.6	6,649.8	20.5	27.0	-81.57	1,614.8	1,577.2	37.56	42.993			
6,800.0	6,749.8	6,873.6	6,749.8	20.6	27.2	-81.57	1,614.8	1,576.9	37.84	42.668			
6,900.0	6,849.8	6,973.6	6,849.8	20.7	27.3	-81.57	1,614.8	1,576.6	38.13	42.345			
7,000.0	6,949.8	7,073.6	6,949.8	20.9	27.4	-81.57	1,614.8	1,576.3	38.43	42.023			
7,100.0	7,049.8	7,173.6	7,049.8	21.0	27.5	-81.57	1,614.8	1,576.0	38.72	41.702			
7,200.0	7,149.8	7,273.6	7,149.8	21.1	27.6	-81.57	1,614.8	1,575.7	39.02	41.383			
7,300.0	7,249.8	7,373.6	7,249.8	21.3	27.7	-81.57	1,614.8	1,575.4	39.32	41.066			
7,400.0	7,349.8	7,473.6	7,349.8	21.4	27.8	-81.57	1,614.8	1,575.1	39.62	40.751			
7,500.0	7,449.8	7,573.6	7,449.8	21.5	28.0	-81.57	1,614.8	1,574.8	39.93	40.438			
7,600.0	7,549.8	7,673.6	7,549.8	21.7	28.1	-81.57	1,614.8	1,574.5	40.24	40.127			
7,700.0	7,649.8	7,773.6	7,649.8	21.8	28.2	-81.57	1,614.8	1,574.2	40.55	39.819			
7,800.0	7,749.8	7,873.6	7,749.8	22.0	28.3	-81.57	1,614.8	1,573.9	40.87	39.512			
7,900.0	7,849.8	7,973.6	7,849.8	22.1	28.4	-81.57	1,614.8	1,573.6	41.18	39.208			
8,000.0	7,949.8	8,073.6	7,949.8	22.3	28.6	-81.57	1,614.8	1,573.3	41.50	38.906			
8,100.0	8,049.8	8,173.6	8,049.8	22.4	28.7	-81.57	1,614.8	1,572.9	41.83	38.607			
8,200.0	8,149.8	8,273.6	8,149.8	22.6	28.8	-81.57	1,614.8	1,572.6	42.15	38.309			
8,300.0	8,249.8	8,373.6	8,249.8	22.7	28.9	-81.57	1,614.8	1,572.3	42.48	38.015			
8,400.0	8,349.8	8,473.6	8,349.8	22.9	29.1	-81.57	1,614.8	1,572.0	42.81	37.723			
8,443.2	8,393.0	8,516.8	8,393.0	22.9	29.1	-81.57	1,614.8	1,571.8	42.95	37.598			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-14M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-122.61	6.7						
100.0	100.0	100.0	100.0	0.1	0.1	-122.61	6.7	6.5	0.18	37.870			
178.9	178.9	178.9	178.9	0.3	0.3	-122.61	6.7	6.2	0.53	12.637			
200.0	200.0	200.0	200.0	0.3	0.3	-122.61	6.7	6.1	0.63	10.723			
278.9	278.9	278.9	278.9	0.5	0.5	-122.61	6.7	5.7	0.98	6.850			
300.0	300.0	300.0	300.0	0.5	0.5	-122.61	6.7	5.6	1.08	6.246			CC, ES
400.0	400.0	400.0	399.9	0.7	0.7	93.79	7.1	5.7	1.48	4.816			
500.0	499.6	499.9	499.6	1.0	1.0	93.88	8.4	6.5	1.91	4.391			
556.5	555.7	556.3	555.6	1.1	1.1	93.93	9.4	7.2	2.20	4.287			
600.0	598.8	599.9	598.6	1.2	1.2	91.27	10.4	8.0	2.44	4.261			SF
700.0	697.9	699.7	696.9	1.5	1.6	74.57	13.6	10.6	3.04	4.477			
800.0	797.0	799.6	795.2	1.8	1.9	63.41	17.8	14.2	3.62	4.925			
900.0	896.1	899.4	893.4	2.2	2.3	56.65	22.4	18.2	4.18	5.368			
1,000.0	995.2	999.3	991.7	2.5	2.7	52.24	27.2	22.5	4.73	5.757			
1,100.0	1,094.3	1,099.2	1,089.9	2.8	3.1	49.17	32.2	26.9	5.28	6.087			
1,200.0	1,193.4	1,199.0	1,188.2	3.2	3.5	46.91	37.2	31.3	5.84	6.366			
1,300.0	1,292.5	1,298.9	1,286.4	3.5	3.9	45.20	42.2	35.8	6.39	6.604			
1,400.0	1,391.6	1,398.8	1,384.7	3.8	4.3	43.85	47.3	40.3	6.94	6.807			
1,500.0	1,490.7	1,498.6	1,483.0	4.2	4.7	42.76	52.4	44.9	7.50	6.983			
1,600.0	1,589.8	1,598.5	1,581.2	4.5	5.1	41.87	57.5	49.4	8.05	7.135			
1,700.0	1,688.9	1,698.3	1,679.5	4.8	5.5	41.12	62.6	54.0	8.61	7.269			
1,800.0	1,788.0	1,798.2	1,777.7	5.2	5.9	40.48	67.7	58.5	9.16	7.388			
1,900.0	1,887.1	1,898.1	1,876.0	5.5	6.3	39.94	72.8	63.1	9.72	7.493			
2,000.0	1,986.2	1,997.9	1,974.2	5.9	6.7	39.46	78.0	67.7	10.28	7.587			
2,100.0	2,085.3	2,097.8	2,072.5	6.2	7.1	39.05	83.1	72.3	10.83	7.672			
2,200.0	2,184.4	2,197.7	2,170.7	6.5	7.6	38.68	88.3	76.9	11.39	7.748			
2,300.0	2,283.5	2,297.5	2,269.0	6.9	8.0	38.35	93.4	81.5	11.95	7.818			
2,400.0	2,382.6	2,397.4	2,367.2	7.2	8.4	38.06	98.6	86.1	12.51	7.881			
2,500.0	2,481.7	2,497.3	2,465.5	7.6	8.8	37.80	103.7	90.7	13.07	7.939			
2,600.0	2,580.8	2,597.1	2,563.7	7.9	9.2	37.56	108.9	95.3	13.62	7.992			
2,700.0	2,679.9	2,697.0	2,662.0	8.2	9.6	37.34	114.0	99.9	14.18	8.041			
2,800.0	2,779.0	2,796.9	2,760.2	8.6	10.0	37.15	119.2	104.5	14.74	8.087			
2,900.0	2,878.1	2,896.7	2,858.5	8.9	10.4	36.96	124.4	109.1	15.30	8.129			
3,000.0	2,977.2	2,996.6	2,956.7	9.3	10.8	36.80	129.5	113.7	15.86	8.168			
3,100.0	3,076.3	3,096.5	3,055.0	9.6	11.2	36.64	134.7	118.3	16.42	8.205			
3,200.0	3,175.4	3,196.3	3,153.2	10.0	11.6	36.50	139.9	122.9	16.98	8.239			
3,300.0	3,274.5	3,296.2	3,251.5	10.3	12.1	36.37	145.0	127.5	17.54	8.271			
3,400.0	3,373.6	3,396.1	3,349.7	10.6	12.5	36.24	150.2	132.1	18.09	8.301			
3,500.0	3,472.7	3,495.9	3,448.0	11.0	12.9	36.13	155.4	136.7	18.65	8.329			
3,600.0	3,571.8	3,595.8	3,546.3	11.3	13.3	36.02	160.5	141.3	19.21	8.356			
3,700.0	3,670.9	3,695.7	3,644.5	11.7	13.7	35.92	165.7	145.9	19.77	8.381			
3,800.0	3,770.0	3,795.5	3,742.8	12.0	14.1	35.82	170.9	150.5	20.33	8.404			
3,900.0	3,869.1	3,895.4	3,841.0	12.3	14.5	35.74	176.0	155.2	20.89	8.427			
4,000.0	3,968.2	3,995.3	3,939.3	12.7	14.9	35.65	181.2	159.8	21.45	8.448			
4,100.0	4,067.3	4,095.1	4,037.5	13.0	15.3	35.57	186.4	164.4	22.01	8.468			
4,200.0	4,166.4	4,195.0	4,135.8	13.4	15.8	35.50	191.6	169.0	22.57	8.487			
4,300.0	4,265.5	4,294.9	4,234.0	13.7	16.2	35.42	196.7	173.6	23.13	8.506			
4,400.0	4,364.6	4,394.7	4,332.3	14.1	16.6	35.36	201.9	178.2	23.69	8.523			
4,500.0	4,463.7	4,494.6	4,430.5	14.4	17.0	35.29	207.1	182.8	24.25	8.540			
4,600.0	4,562.8	4,594.5	4,528.8	14.7	17.4	35.23	212.2	187.4	24.81	8.555			
4,700.0	4,661.9	4,694.3	4,627.0	15.1	17.8	35.17	217.4	192.0	25.37	8.571			
4,800.0	4,761.0	4,794.2	4,725.3	15.4	18.2	35.12	222.6	196.7	25.93	8.585			
4,900.0	4,860.1	4,894.1	4,823.5	15.8	18.6	35.06	227.8	201.3	26.49	8.599			
5,000.0	4,959.2	4,993.9	4,921.8	16.1	19.0	35.01	232.9	205.9	27.05	8.612			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-14M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,100.0	5,058.3	5,093.8	5,020.0	16.4	19.4	34.96	238.1	210.5	27.61	8.625			
5,200.0	5,157.4	5,193.7	5,118.3	16.8	19.9	34.92	243.3	215.1	28.17	8.637			
5,300.0	5,256.5	5,293.5	5,216.5	17.1	20.3	34.87	248.4	219.7	28.73	8.649			
5,400.0	5,355.6	5,393.4	5,314.8	17.5	20.7	34.83	253.6	224.3	29.29	8.660			
5,500.0	5,454.7	5,493.3	5,413.0	17.8	21.1	34.79	258.8	229.0	29.85	8.671			
5,600.0	5,553.8	5,593.1	5,511.3	18.2	21.5	34.75	264.0	233.6	30.41	8.682			
5,700.0	5,652.9	5,693.0	5,609.6	18.5	21.9	34.71	269.1	238.2	30.97	8.692			
5,800.0	5,752.0	5,796.6	5,711.6	18.8	22.3	34.72	273.9	242.4	31.53	8.690			
5,880.3	5,831.6	5,882.5	5,796.4	19.1	22.5	34.89	276.2	244.2	31.97	8.638			
5,900.0	5,851.1	5,903.5	5,817.3	19.2	22.6	34.96	276.5	244.4	32.08	8.620			
6,000.0	5,950.5	6,010.5	5,923.4	19.4	22.8	35.25	278.1	245.5	32.55	8.542			
6,100.0	6,050.1	6,117.4	6,029.9	19.6	23.0	35.48	279.2	246.2	32.97	8.469			
6,200.0	6,149.8	6,224.4	6,136.7	19.8	23.2	35.64	280.0	246.7	33.34	8.399			
6,300.0	6,249.8	6,331.4	6,243.6	19.9	23.4	35.74	280.4	246.8	33.65	8.333			
6,393.2	6,343.0	6,430.9	6,343.0	20.1	23.5	179.42	280.5	246.6	33.92	8.268			
6,400.0	6,349.8	6,437.6	6,349.8	20.1	23.5	179.42	280.5	246.5	33.94	8.263			
6,493.2	6,443.0	6,530.9	6,443.0	20.2	23.6	179.42	280.5	246.2	34.23	8.194			
6,500.0	6,449.8	6,537.6	6,449.8	20.2	23.6	179.42	280.5	246.2	34.25	8.189			
6,600.0	6,549.8	6,637.6	6,549.8	20.3	23.7	179.42	280.5	245.9	34.55	8.117			
6,700.0	6,649.8	6,737.6	6,649.8	20.5	23.8	179.42	280.5	245.6	34.86	8.046			
6,800.0	6,749.8	6,837.6	6,749.8	20.6	23.9	179.42	280.5	245.3	35.17	7.976			
6,900.0	6,849.8	6,937.6	6,849.8	20.7	24.1	179.42	280.5	245.0	35.48	7.906			
7,000.0	6,949.8	7,037.6	6,949.8	20.9	24.2	179.42	280.5	244.7	35.79	7.836			
7,100.0	7,049.8	7,137.6	7,049.8	21.0	24.3	179.42	280.5	244.4	36.11	7.768			
7,200.0	7,149.8	7,237.6	7,149.8	21.1	24.4	179.42	280.5	244.0	36.43	7.699			
7,300.0	7,249.8	7,337.6	7,249.8	21.3	24.5	179.42	280.5	243.7	36.75	7.632			
7,400.0	7,349.8	7,437.6	7,349.8	21.4	24.6	179.42	280.5	243.4	37.08	7.565			
7,500.0	7,449.8	7,537.6	7,449.8	21.5	24.8	179.42	280.5	243.1	37.40	7.499			
7,600.0	7,549.8	7,637.6	7,549.8	21.7	24.9	179.42	280.5	242.7	37.73	7.433			
7,700.0	7,649.8	7,737.6	7,649.8	21.8	25.0	179.42	280.5	242.4	38.07	7.368			
7,800.0	7,749.8	7,837.6	7,749.8	22.0	25.1	179.42	280.5	242.1	38.40	7.304			
7,900.0	7,849.8	7,937.6	7,849.8	22.1	25.2	179.42	280.5	241.7	38.74	7.240			
8,000.0	7,949.8	8,037.6	7,949.8	22.3	25.4	179.42	280.5	241.4	39.08	7.177			
8,100.0	8,049.8	8,137.6	8,049.8	22.4	25.5	179.42	280.5	241.1	39.42	7.115			
8,200.0	8,149.8	8,237.6	8,149.8	22.6	25.6	179.42	280.5	240.7	39.77	7.053			
8,300.0	8,249.8	8,337.6	8,249.8	22.7	25.8	179.42	280.5	240.4	40.11	6.992			
8,400.0	8,349.8	8,437.6	8,349.8	22.9	25.9	179.42	280.5	240.0	40.46	6.932			
8,426.9	8,376.7	8,464.6	8,376.7	22.9	25.9	179.42	280.5	239.9	40.55	6.916			
8,443.2	8,393.0	8,475.9	8,388.0	22.9	25.9	179.42	280.5	239.9	40.60	6.909			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-14W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-101.16	37.5						
100.0	100.0	100.0	100.0	0.1	0.1	-101.16	37.5	37.3	0.18	211.342			
200.0	200.0	200.0	200.0	0.3	0.3	-101.16	37.5	36.9	0.63	59.843			
300.0	300.0	300.0	300.0	0.5	0.5	-101.16	37.5	36.5	1.08	34.856			CC, ES
400.0	400.0	397.7	397.6	0.7	0.7	116.99	41.5	40.0	1.49	27.801			
500.0	499.6	494.3	493.9	1.0	1.0	120.70	53.5	51.6	1.94	27.527			SF
556.5	555.7	548.1	547.1	1.1	1.1	122.71	63.9	61.7	2.23	28.621			
600.0	598.8	589.0	587.5	1.2	1.2	123.98	73.4	70.9	2.45	29.900			
700.0	697.9	681.7	678.2	1.5	1.6	124.78	98.8	95.7	3.00	32.862			
800.0	797.0	777.8	771.8	1.8	2.0	124.69	126.3	122.7	3.57	35.410			
900.0	896.1	873.9	865.4	2.2	2.4	124.63	153.8	149.7	4.14	37.192			
1,000.0	995.2	970.1	959.0	2.5	2.9	124.59	181.4	176.7	4.72	38.404			
1,100.0	1,094.3	1,066.2	1,052.5	2.8	3.4	124.56	208.9	203.6	5.32	39.264			
1,200.0	1,193.4	1,162.3	1,146.1	3.2	3.8	124.54	236.5	230.6	5.93	39.899			
1,300.0	1,292.5	1,258.5	1,239.7	3.5	4.3	124.52	264.0	257.5	6.54	40.363			
1,400.0	1,391.6	1,354.6	1,333.3	3.8	4.8	124.51	291.6	284.4	7.16	40.745			
1,500.0	1,490.7	1,450.7	1,426.9	4.2	5.2	124.49	319.1	311.4	7.78	41.042			
1,600.0	1,589.8	1,546.9	1,520.4	4.5	5.7	124.48	346.7	338.3	8.40	41.282			
1,700.0	1,688.9	1,643.0	1,614.0	4.8	6.2	124.47	374.2	365.2	9.02	41.480			
1,800.0	1,788.0	1,739.1	1,707.6	5.2	6.7	124.47	401.8	392.1	9.65	41.645			
1,900.0	1,887.1	1,835.2	1,801.2	5.5	7.1	124.46	429.3	419.1	10.27	41.785			
2,000.0	1,986.2	1,931.4	1,894.8	5.9	7.6	124.45	456.9	446.0	10.90	41.904			
2,100.0	2,085.3	2,027.5	1,988.4	6.2	8.1	124.45	484.4	472.9	11.53	42.007			
2,200.0	2,184.4	2,123.6	2,081.9	6.5	8.6	124.44	512.0	499.8	12.16	42.096			
2,300.0	2,283.5	2,219.8	2,175.5	6.9	9.0	124.44	539.5	526.7	12.79	42.175			
2,400.0	2,382.6	2,315.9	2,269.1	7.2	9.5	124.44	567.1	553.6	13.42	42.244			
2,500.0	2,481.7	2,412.0	2,362.7	7.6	10.0	124.43	594.6	580.6	14.06	42.305			
2,600.0	2,580.8	2,508.2	2,456.3	7.9	10.5	124.43	622.2	607.5	14.69	42.360			
2,700.0	2,679.9	2,604.3	2,549.8	8.2	10.9	124.43	649.7	634.4	15.32	42.409			
2,800.0	2,779.0	2,700.4	2,643.4	8.6	11.4	124.43	677.3	661.3	15.95	42.453			
2,900.0	2,878.1	2,796.5	2,737.0	8.9	11.9	124.42	704.8	688.2	16.59	42.494			
3,000.0	2,977.2	2,892.7	2,830.6	9.3	12.4	124.42	732.4	715.1	17.22	42.530			
3,100.0	3,076.3	2,988.8	2,924.2	9.6	12.9	124.42	759.9	742.1	17.85	42.563			
3,200.0	3,175.4	3,084.9	3,017.7	10.0	13.3	124.42	787.5	769.0	18.49	42.594			
3,300.0	3,274.5	3,181.1	3,111.3	10.3	13.8	124.42	815.0	795.9	19.12	42.621			
3,400.0	3,373.6	3,277.2	3,204.9	10.6	14.3	124.41	842.6	822.8	19.76	42.647			
3,500.0	3,472.7	3,373.3	3,298.5	11.0	14.8	124.41	870.1	849.7	20.39	42.671			
3,600.0	3,571.8	3,469.5	3,392.1	11.3	15.2	124.41	897.7	876.6	21.03	42.693			
3,700.0	3,670.9	3,565.6	3,485.6	11.7	15.7	124.41	925.2	903.5	21.66	42.713			
3,800.0	3,770.0	3,661.7	3,579.2	12.0	16.2	124.41	952.8	930.5	22.30	42.732			
3,900.0	3,869.1	3,757.9	3,672.8	12.3	16.7	124.41	980.3	957.4	22.93	42.749			
4,000.0	3,968.2	3,854.0	3,766.4	12.7	17.2	124.41	1,007.8	984.3	23.57	42.766			
4,100.0	4,067.3	3,950.1	3,860.0	13.0	17.6	124.40	1,035.4	1,011.2	24.20	42.781			
4,200.0	4,166.4	4,046.2	3,953.5	13.4	18.1	124.40	1,062.9	1,038.1	24.84	42.795			
4,300.0	4,265.5	4,142.4	4,047.1	13.7	18.6	124.40	1,090.5	1,065.0	25.47	42.809			
4,400.0	4,364.6	4,238.5	4,140.7	14.1	19.1	124.40	1,118.0	1,091.9	26.11	42.821			
4,500.0	4,463.7	4,334.6	4,234.3	14.4	19.6	124.40	1,145.6	1,118.8	26.75	42.833			
4,600.0	4,562.8	4,430.8	4,327.9	14.7	20.0	124.40	1,173.1	1,145.8	27.38	42.844			
4,700.0	4,661.9	4,526.9	4,421.4	15.1	20.5	124.40	1,200.7	1,172.7	28.02	42.854			
4,800.0	4,761.0	4,623.0	4,515.0	15.4	21.0	124.40	1,228.2	1,199.6	28.65	42.864			
4,900.0	4,860.1	4,719.2	4,608.6	15.8	21.5	124.40	1,255.8	1,226.5	29.29	42.873			
5,000.0	4,959.2	4,815.3	4,702.2	16.1	21.9	124.40	1,283.3	1,253.4	29.93	42.882			
5,100.0	5,058.3	4,911.4	4,795.8	16.4	22.4	124.40	1,310.9	1,280.3	30.56	42.890			
5,200.0	5,157.4	5,007.6	4,889.3	16.8	22.9	124.40	1,338.4	1,307.2	31.20	42.897			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-14W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,103.7	4,982.9	17.1	23.4	124.39	1,366.0	1,334.1	31.84	42.905			
5,400.0	5,355.6	5,199.8	5,076.5	17.5	23.9	124.39	1,393.5	1,361.1	32.47	42.911			
5,500.0	5,454.7	5,295.9	5,170.1	17.8	24.3	124.39	1,421.1	1,388.0	33.11	42.918			
5,600.0	5,553.8	5,392.1	5,263.7	18.2	24.8	124.39	1,448.6	1,414.9	33.75	42.924			
5,700.0	5,652.9	5,488.2	5,357.2	18.5	25.3	124.39	1,476.2	1,441.8	34.39	42.930			
5,800.0	5,752.0	5,584.3	5,450.8	18.8	25.8	124.39	1,503.7	1,468.7	35.02	42.935			
5,880.3	5,831.6	5,684.8	5,548.7	19.1	26.2	124.40	1,525.5	1,489.9	35.58	42.873			
5,900.0	5,851.1	5,714.0	5,577.3	19.2	26.3	124.48	1,530.6	1,494.8	35.73	42.833			
6,000.0	5,950.5	5,864.6	5,725.3	19.4	26.8	124.80	1,553.3	1,516.9	36.39	42.689			
6,100.0	6,050.1	6,017.8	5,876.9	19.6	27.2	125.04	1,571.2	1,534.2	36.98	42.488			
6,200.0	6,149.8	6,173.1	6,031.3	19.8	27.5	125.20	1,584.1	1,546.6	37.50	42.241			
6,300.0	6,249.8	6,329.8	6,187.6	19.9	27.8	125.30	1,592.0	1,554.0	37.95	41.947			
6,393.2	6,343.0	6,476.6	6,334.4	20.1	28.0	-91.05	1,594.7	1,556.4	38.33	41.602			
6,400.0	6,349.8	6,487.3	6,345.0	20.1	28.0	-91.05	1,594.7	1,556.4	38.36	41.576			
6,493.2	6,443.0	6,585.2	6,443.0	20.2	28.1	-91.05	1,594.8	1,556.1	38.62	41.298			
6,500.0	6,449.8	6,592.0	6,449.8	20.2	28.1	-91.05	1,594.8	1,556.1	38.63	41.278			
6,600.0	6,549.8	6,692.0	6,549.8	20.3	28.2	-91.05	1,594.8	1,555.9	38.90	40.997			
6,700.0	6,649.8	6,792.0	6,649.8	20.5	28.3	-91.05	1,594.8	1,555.6	39.17	40.717			
6,800.0	6,749.8	6,892.0	6,749.8	20.6	28.4	-91.05	1,594.8	1,555.3	39.44	40.438			
6,900.0	6,849.8	6,992.0	6,849.8	20.7	28.5	-91.05	1,594.8	1,555.0	39.71	40.158			
7,000.0	6,949.8	7,092.0	6,949.8	20.9	28.6	-91.05	1,594.8	1,554.8	39.99	39.880			
7,100.0	7,049.8	7,192.0	7,049.8	21.0	28.7	-91.05	1,594.8	1,554.5	40.27	39.602			
7,200.0	7,149.8	7,292.0	7,149.8	21.1	28.8	-91.05	1,594.8	1,554.2	40.55	39.326			
7,300.0	7,249.8	7,392.0	7,249.8	21.3	28.9	-91.05	1,594.8	1,553.9	40.84	39.050			
7,400.0	7,349.8	7,492.0	7,349.8	21.4	29.0	-91.05	1,594.8	1,553.6	41.13	38.775			
7,500.0	7,449.8	7,592.0	7,449.8	21.5	29.1	-91.05	1,594.8	1,553.3	41.42	38.502			
7,600.0	7,549.8	7,692.0	7,549.8	21.7	29.2	-91.05	1,594.8	1,553.0	41.72	38.230			
7,700.0	7,649.8	7,792.0	7,649.8	21.8	29.3	-91.05	1,594.8	1,552.7	42.01	37.959			
7,800.0	7,749.8	7,892.0	7,749.8	22.0	29.5	-91.05	1,594.8	1,552.4	42.31	37.689			
7,900.0	7,849.8	7,992.0	7,849.8	22.1	29.6	-91.05	1,594.8	1,552.1	42.62	37.421			
8,000.0	7,949.8	8,092.0	7,949.8	22.3	29.7	-91.05	1,594.8	1,551.8	42.92	37.155			
8,100.0	8,049.8	8,192.0	8,049.8	22.4	29.8	-91.05	1,594.8	1,551.5	43.23	36.890			
8,200.0	8,149.8	8,292.0	8,149.8	22.6	29.9	-91.05	1,594.8	1,551.2	43.54	36.627			
8,300.0	8,249.8	8,392.0	8,249.8	22.7	30.0	-91.05	1,594.8	1,550.9	43.85	36.366			
8,400.0	8,349.8	8,492.0	8,349.8	22.9	30.2	-91.05	1,594.8	1,550.6	44.17	36.106			
8,443.2	8,393.0	8,535.2	8,393.0	22.9	30.2	-91.05	1,594.8	1,550.5	44.31	35.994			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-15M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-122.68	13.5						
100.0	100.0	100.0	100.0	0.1	0.1	-122.68	13.5	13.3	0.18	75.794			
200.0	200.0	200.0	200.0	0.3	0.3	-122.68	13.5	12.8	0.63	21.462			
300.0	300.0	300.0	300.0	0.5	0.5	-122.68	13.5	12.4	1.08	12.501			CC, ES
400.0	400.0	399.9	399.8	0.7	0.7	93.83	14.1	12.6	1.48	9.517			
500.0	499.6	499.7	499.4	1.0	1.0	94.18	16.0	14.1	1.90	8.399			
556.5	555.7	556.1	555.3	1.1	1.1	94.42	17.6	15.4	2.20	8.026			
600.0	598.8	599.5	598.3	1.2	1.2	93.17	19.1	16.7	2.44	7.850			
700.0	697.9	699.0	696.1	1.5	1.6	82.11	23.7	20.7	3.05	7.761			SF
800.0	797.0	798.4	793.0	1.8	2.0	68.39	31.0	27.3	3.67	8.445			
900.0	896.1	897.9	890.0	2.2	2.4	59.88	39.6	35.3	4.25	9.306			
1,000.0	995.2	997.4	987.0	2.5	2.9	54.46	48.7	43.9	4.82	10.104			
1,100.0	1,094.3	1,096.9	1,084.0	2.8	3.3	50.78	58.1	52.7	5.38	10.797			
1,200.0	1,193.4	1,196.4	1,180.9	3.2	3.8	48.13	67.7	61.7	5.94	11.389			
1,300.0	1,292.5	1,295.9	1,277.9	3.5	4.3	46.14	77.4	70.9	6.51	11.895			
1,400.0	1,391.6	1,395.4	1,374.9	3.8	4.7	44.59	87.1	80.1	7.07	12.329			
1,500.0	1,490.7	1,494.9	1,471.9	4.2	5.2	43.36	97.0	89.3	7.63	12.704			
1,600.0	1,589.8	1,594.3	1,568.9	4.5	5.7	42.35	106.8	98.6	8.20	13.030			
1,700.0	1,688.9	1,693.8	1,665.9	4.8	6.2	41.51	116.7	107.9	8.76	13.317			
1,800.0	1,788.0	1,793.3	1,762.8	5.2	6.6	40.81	126.6	117.3	9.33	13.569			
1,900.0	1,887.1	1,892.8	1,859.8	5.5	7.1	40.20	136.5	126.6	9.90	13.794			
2,000.0	1,986.2	1,992.3	1,956.8	5.9	7.6	39.68	146.4	136.0	10.46	13.995			
2,100.0	2,085.3	2,091.8	2,053.8	6.2	8.1	39.23	156.4	145.3	11.03	14.175			
2,200.0	2,184.4	2,191.3	2,150.8	6.5	8.6	38.82	166.3	154.7	11.60	14.338			
2,300.0	2,283.5	2,290.8	2,247.8	6.9	9.0	38.47	176.3	164.1	12.17	14.486			
2,400.0	2,382.6	2,390.3	2,344.7	7.2	9.5	38.15	186.2	173.5	12.74	14.621			
2,500.0	2,481.7	2,489.8	2,441.7	7.6	10.0	37.87	196.2	182.9	13.31	14.744			
2,600.0	2,580.8	2,589.3	2,538.7	7.9	10.5	37.61	206.2	192.3	13.88	14.857			
2,700.0	2,679.9	2,688.8	2,635.7	8.2	11.0	37.37	216.2	201.7	14.45	14.961			
2,800.0	2,779.0	2,788.3	2,732.7	8.6	11.4	37.16	226.1	211.1	15.02	15.058			
2,900.0	2,878.1	2,887.8	2,829.6	8.9	11.9	36.96	236.1	220.5	15.59	15.147			
3,000.0	2,977.2	2,987.3	2,926.6	9.3	12.4	36.79	246.1	229.9	16.16	15.230			
3,100.0	3,076.3	3,086.8	3,023.6	9.6	12.9	36.62	256.1	239.4	16.73	15.308			
3,200.0	3,175.4	3,186.3	3,120.6	10.0	13.4	36.47	266.1	248.8	17.30	15.380			
3,300.0	3,274.5	3,285.8	3,217.6	10.3	13.8	36.32	276.1	258.2	17.87	15.448			
3,400.0	3,373.6	3,385.3	3,314.6	10.6	14.3	36.19	286.1	267.6	18.44	15.511			
3,500.0	3,472.7	3,484.8	3,411.5	11.0	14.8	36.07	296.0	277.0	19.01	15.571			
3,600.0	3,571.8	3,584.3	3,508.5	11.3	15.3	35.95	306.0	286.5	19.58	15.627			
3,700.0	3,670.9	3,683.8	3,605.5	11.7	15.8	35.85	316.0	295.9	20.16	15.680			
3,800.0	3,770.0	3,783.3	3,702.5	12.0	16.3	35.75	326.0	305.3	20.73	15.730			
3,900.0	3,869.1	3,882.8	3,799.5	12.3	16.7	35.65	336.0	314.7	21.30	15.777			
4,000.0	3,968.2	3,982.3	3,896.5	12.7	17.2	35.56	346.0	324.2	21.87	15.822			
4,100.0	4,067.3	4,081.8	3,993.4	13.0	17.7	35.48	356.0	333.6	22.44	15.864			
4,200.0	4,166.4	4,181.3	4,090.4	13.4	18.2	35.40	366.0	343.0	23.01	15.905			
4,300.0	4,265.5	4,280.8	4,187.4	13.7	18.7	35.32	376.0	352.4	23.58	15.943			
4,400.0	4,364.6	4,380.3	4,284.4	14.1	19.1	35.25	386.0	361.9	24.16	15.980			
4,500.0	4,463.7	4,479.8	4,381.4	14.4	19.6	35.18	396.0	371.3	24.73	16.015			
4,600.0	4,562.8	4,579.3	4,478.3	14.7	20.1	35.11	406.0	380.7	25.30	16.048			
4,700.0	4,661.9	4,678.8	4,575.3	15.1	20.6	35.05	416.0	390.2	25.87	16.080			
4,800.0	4,761.0	4,778.3	4,672.3	15.4	21.1	34.99	426.0	399.6	26.44	16.110			
4,900.0	4,860.1	4,877.8	4,769.3	15.8	21.6	34.94	436.0	409.0	27.02	16.139			
5,000.0	4,959.2	4,977.3	4,866.3	16.1	22.0	34.88	446.0	418.4	27.59	16.167			
5,100.0	5,058.3	5,076.8	4,963.3	16.4	22.5	34.83	456.0	427.9	28.16	16.194			
5,200.0	5,157.4	5,176.3	5,060.2	16.8	23.0	34.78	466.0	437.3	28.73	16.220			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-15M - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,275.8	5,157.2	17.1	23.5	34.74	476.0	446.7	29.30	16.244			
5,400.0	5,355.6	5,375.3	5,254.2	17.5	24.0	34.69	486.0	456.2	29.88	16.268			
5,500.0	5,454.7	5,474.8	5,351.2	17.8	24.4	34.65	496.1	465.6	30.45	16.291			
5,600.0	5,553.8	5,574.3	5,448.2	18.2	24.9	34.61	506.1	475.0	31.02	16.313			
5,700.0	5,652.9	5,684.2	5,555.5	18.5	25.4	34.60	515.3	483.7	31.61	16.305			
5,800.0	5,752.0	5,798.5	5,667.8	18.8	25.7	34.72	521.9	489.7	32.18	16.218			
5,880.3	5,831.6	5,890.5	5,758.6	19.1	26.0	34.91	525.2	492.5	32.65	16.085			
5,900.0	5,851.1	5,913.1	5,780.9	19.2	26.1	34.97	525.8	493.0	32.76	16.051			
6,000.0	5,950.5	6,027.7	5,894.7	19.4	26.3	35.24	528.3	495.0	33.23	15.897			
6,100.0	6,050.1	6,142.5	6,008.9	19.6	26.6	35.46	530.1	496.5	33.65	15.754			
6,200.0	6,149.8	6,257.3	6,123.4	19.8	26.8	35.61	531.3	497.3	34.02	15.620			
6,300.0	6,249.8	6,372.2	6,238.2	19.9	26.9	35.71	531.9	497.5	34.33	15.494			
6,393.2	6,343.0	6,477.0	6,343.0	20.1	27.0	179.39	531.8	497.2	34.59	15.374			
6,400.0	6,349.8	6,483.8	6,349.8	20.1	27.0	179.39	531.8	497.2	34.61	15.365			
6,493.2	6,443.0	6,577.0	6,443.0	20.2	27.1	179.39	531.8	496.9	34.89	15.244			
6,500.0	6,449.8	6,583.8	6,449.8	20.2	27.1	179.39	531.8	496.9	34.91	15.235			
6,600.0	6,549.8	6,683.8	6,549.8	20.3	27.2	179.39	531.8	496.6	35.20	15.107			
6,700.0	6,649.8	6,783.8	6,649.8	20.5	27.3	179.39	531.8	496.3	35.50	14.979			
6,800.0	6,749.8	6,883.8	6,749.8	20.6	27.4	179.39	531.8	496.0	35.80	14.853			
6,900.0	6,849.8	6,983.8	6,849.8	20.7	27.5	179.39	531.8	495.7	36.11	14.727			
7,000.0	6,949.8	7,083.8	6,949.8	20.9	27.6	179.39	531.8	495.4	36.42	14.603			
7,100.0	7,049.8	7,183.8	7,049.8	21.0	27.7	179.39	531.8	495.1	36.73	14.479			
7,200.0	7,149.8	7,283.8	7,149.8	21.1	27.8	179.39	531.8	494.8	37.04	14.356			
7,300.0	7,249.8	7,383.8	7,249.8	21.3	27.9	179.39	531.8	494.4	37.36	14.234			
7,400.0	7,349.8	7,483.8	7,349.8	21.4	28.0	179.39	531.8	494.1	37.68	14.114			
7,500.0	7,449.8	7,583.8	7,449.8	21.5	28.1	179.39	531.8	493.8	38.00	13.994			
7,600.0	7,549.8	7,683.8	7,549.8	21.7	28.2	179.39	531.8	493.5	38.33	13.875			
7,700.0	7,649.8	7,783.8	7,649.8	21.8	28.3	179.39	531.8	493.1	38.65	13.758			
7,800.0	7,749.8	7,883.8	7,749.8	22.0	28.4	179.39	531.8	492.8	38.98	13.641			
7,900.0	7,849.8	7,983.8	7,849.8	22.1	28.5	179.39	531.8	492.5	39.32	13.526			
8,000.0	7,949.8	8,083.8	7,949.8	22.3	28.7	179.39	531.8	492.1	39.65	13.412			
8,100.0	8,049.8	8,183.8	8,049.8	22.4	28.8	179.39	531.8	491.8	39.99	13.299			
8,200.0	8,149.8	8,283.8	8,149.8	22.6	28.9	179.39	531.8	491.5	40.33	13.188			
8,300.0	8,249.8	8,383.8	8,249.8	22.7	29.0	179.39	531.8	491.1	40.67	13.077			
8,400.0	8,349.8	8,483.8	8,349.8	22.9	29.1	179.39	531.8	490.8	41.01	12.968			
8,421.2	8,370.9	8,505.0	8,370.9	22.9	29.1	179.39	531.8	490.7	41.08	12.945			
8,443.2	8,393.0	8,512.0	8,378.0	22.9	29.1	179.39	532.0	490.9	41.13	12.934			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-15W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-96.64	31.4						
100.0	100.0	100.0	100.0	0.1	0.1	-96.64	31.4	31.2	0.18	176.627			
200.0	200.0	200.0	200.0	0.3	0.3	-96.64	31.4	30.7	0.63	50.013			
300.0	300.0	300.0	300.0	0.5	0.5	-96.64	31.4	30.3	1.08	29.131			CC, ES
400.0	400.0	398.5	398.5	0.7	0.7	121.07	34.8	33.4	1.49	23.383			SF
500.0	499.6	496.3	495.9	1.0	1.0	123.82	45.3	43.4	1.93	23.481			
556.5	555.7	550.8	550.1	1.1	1.1	125.28	54.4	52.2	2.21	24.557			
600.0	598.8	592.6	591.5	1.2	1.2	126.09	62.6	60.1	2.43	25.718			
700.0	697.9	687.5	684.8	1.5	1.5	125.77	84.1	81.1	2.98	28.238			
800.0	797.0	780.5	775.4	1.8	1.9	124.02	109.4	105.9	3.57	30.660			
900.0	896.1	875.3	867.0	2.2	2.4	122.03	137.5	133.3	4.19	32.853			
1,000.0	995.2	971.1	959.5	2.5	2.9	120.67	165.8	161.0	4.81	34.476			
1,100.0	1,094.3	1,067.0	1,052.1	2.8	3.4	119.71	194.2	188.8	5.44	35.689			
1,200.0	1,193.4	1,162.8	1,144.6	3.2	3.9	118.99	222.6	216.5	6.08	36.608			
1,300.0	1,292.5	1,258.7	1,237.1	3.5	4.4	118.44	251.0	244.3	6.73	37.315			
1,400.0	1,391.6	1,354.5	1,329.7	3.8	4.9	118.00	279.5	272.1	7.38	37.889			
1,500.0	1,490.7	1,450.4	1,422.2	4.2	5.4	117.64	308.0	299.9	8.03	38.354			
1,600.0	1,589.8	1,546.2	1,514.7	4.5	6.0	117.34	336.4	327.7	8.68	38.739			
1,700.0	1,688.9	1,642.1	1,607.3	4.8	6.5	117.08	364.9	355.6	9.34	39.062			
1,800.0	1,788.0	1,737.9	1,699.8	5.2	7.0	116.87	393.4	383.4	10.00	39.336			
1,900.0	1,887.1	1,833.7	1,792.3	5.5	7.5	116.68	421.9	411.2	10.66	39.573			
2,000.0	1,986.2	1,929.6	1,884.9	5.9	8.1	116.52	450.4	439.1	11.32	39.778			
2,100.0	2,085.3	2,025.4	1,977.4	6.2	8.6	116.37	478.9	466.9	11.98	39.958			
2,200.0	2,184.4	2,121.3	2,069.9	6.5	9.1	116.24	507.4	494.7	12.65	40.117			
2,300.0	2,283.5	2,217.1	2,162.5	6.9	9.7	116.13	535.9	522.6	13.31	40.259			
2,400.0	2,382.6	2,313.0	2,255.0	7.2	10.2	116.03	564.4	550.4	13.97	40.385			
2,500.0	2,481.7	2,408.8	2,347.5	7.6	10.7	115.94	592.9	578.2	14.64	40.499			
2,600.0	2,580.8	2,504.7	2,440.1	7.9	11.2	115.85	621.4	606.1	15.30	40.602			
2,700.0	2,679.9	2,600.5	2,532.6	8.2	11.8	115.77	649.9	633.9	15.97	40.695			
2,800.0	2,779.0	2,696.4	2,625.1	8.6	12.3	115.70	678.4	661.8	16.64	40.780			
2,900.0	2,878.1	2,792.2	2,717.7	8.9	12.8	115.64	706.9	689.6	17.30	40.858			
3,000.0	2,977.2	2,888.1	2,810.2	9.3	13.4	115.58	735.4	717.4	17.97	40.929			
3,100.0	3,076.3	2,983.9	2,902.7	9.6	13.9	115.52	763.9	745.3	18.63	40.995			
3,200.0	3,175.4	3,079.8	2,995.3	10.0	14.4	115.47	792.4	773.1	19.30	41.056			
3,300.0	3,274.5	3,175.6	3,087.8	10.3	14.9	115.43	820.9	801.0	19.97	41.113			
3,400.0	3,373.6	3,271.5	3,180.3	10.6	15.5	115.38	849.5	828.8	20.64	41.165			
3,500.0	3,472.7	3,367.3	3,272.9	11.0	16.0	115.34	878.0	856.7	21.30	41.214			
3,600.0	3,571.8	3,463.2	3,365.4	11.3	16.5	115.30	906.5	884.5	21.97	41.259			
3,700.0	3,670.9	3,559.0	3,457.9	11.7	17.1	115.26	935.0	912.3	22.64	41.302			
3,800.0	3,770.0	3,654.8	3,550.5	12.0	17.6	115.23	963.5	940.2	23.31	41.342			
3,900.0	3,869.1	3,750.7	3,643.0	12.3	18.1	115.20	992.0	968.0	23.97	41.379			
4,000.0	3,968.2	3,846.5	3,735.6	12.7	18.6	115.17	1,020.5	995.9	24.64	41.415			
4,100.0	4,067.3	3,942.4	3,828.1	13.0	19.2	115.14	1,049.0	1,023.7	25.31	41.448			
4,200.0	4,166.4	4,038.2	3,920.6	13.4	19.7	115.11	1,077.6	1,051.6	25.98	41.479			
4,300.0	4,265.5	4,134.1	4,013.2	13.7	20.2	115.08	1,106.1	1,079.4	26.65	41.509			
4,400.0	4,364.6	4,229.9	4,105.7	14.1	20.8	115.06	1,134.6	1,107.3	27.32	41.536			
4,500.0	4,463.7	4,325.8	4,198.2	14.4	21.3	115.04	1,163.1	1,135.1	27.98	41.563			
4,600.0	4,562.8	4,421.6	4,290.8	14.7	21.8	115.01	1,191.6	1,163.0	28.65	41.588			
4,700.0	4,661.9	4,517.5	4,383.3	15.1	22.4	114.99	1,220.1	1,190.8	29.32	41.612			
4,800.0	4,761.0	4,613.3	4,475.8	15.4	22.9	114.97	1,248.6	1,218.6	29.99	41.634			
4,900.0	4,860.1	4,709.2	4,568.4	15.8	23.4	114.95	1,277.2	1,246.5	30.66	41.656			
5,000.0	4,959.2	4,805.0	4,660.9	16.1	23.9	114.93	1,305.7	1,274.3	31.33	41.676			
5,100.0	5,058.3	4,900.9	4,753.4	16.4	24.5	114.92	1,334.2	1,302.2	32.00	41.696			
5,200.0	5,157.4	4,996.7	4,846.0	16.8	25.0	114.90	1,362.7	1,330.0	32.67	41.714			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-15W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,092.6	4,938.5	17.1	25.5	114.88	1,391.2	1,357.9	33.34	41.732			
5,400.0	5,355.6	5,188.4	5,031.0	17.5	26.1	114.87	1,419.7	1,385.7	34.01	41.749			
5,500.0	5,454.7	5,284.3	5,123.6	17.8	26.6	114.85	1,448.2	1,413.6	34.68	41.765			
5,600.0	5,553.8	5,380.1	5,216.1	18.2	27.1	114.84	1,476.8	1,441.4	35.35	41.780			
5,700.0	5,652.9	5,476.0	5,308.6	18.5	27.7	114.82	1,505.3	1,469.3	36.02	41.795			
5,800.0	5,752.0	5,596.5	5,425.1	18.8	28.3	114.82	1,533.4	1,496.7	36.74	41.735			
5,880.3	5,831.6	5,716.8	5,542.3	19.1	28.7	114.88	1,554.0	1,516.7	37.32	41.637			
5,900.0	5,851.1	5,746.5	5,571.3	19.2	28.8	114.96	1,558.7	1,521.2	37.47	41.594			
6,000.0	5,950.5	5,899.2	5,721.5	19.4	29.3	115.35	1,579.9	1,541.7	38.16	41.400			
6,100.0	6,050.1	6,054.4	5,875.0	19.6	29.7	115.64	1,596.5	1,557.7	38.77	41.178			
6,200.0	6,149.8	6,211.4	6,031.1	19.8	30.0	115.84	1,608.5	1,569.2	39.31	40.922			
6,300.0	6,249.8	6,369.6	6,189.0	19.9	30.3	115.96	1,615.7	1,575.9	39.75	40.641			
6,393.2	6,343.0	6,517.8	6,337.1	20.1	30.4	-100.37	1,618.1	1,578.0	40.12	40.333			
6,400.0	6,349.8	6,528.6	6,347.9	20.1	30.4	-100.37	1,618.1	1,578.0	40.14	40.309			
6,493.2	6,443.0	6,623.7	6,443.0	20.2	30.5	-100.37	1,618.1	1,577.7	40.38	40.069			
6,500.0	6,449.8	6,630.5	6,449.8	20.2	30.5	-100.37	1,618.1	1,577.7	40.40	40.053			
6,600.0	6,549.8	6,730.5	6,549.8	20.3	30.6	-100.37	1,618.1	1,577.5	40.65	39.806			
6,700.0	6,649.8	6,830.5	6,649.8	20.5	30.7	-100.37	1,618.1	1,577.2	40.90	39.558			
6,800.0	6,749.8	6,930.5	6,749.8	20.6	30.8	-100.37	1,618.1	1,577.0	41.16	39.311			
6,900.0	6,849.8	7,030.5	6,849.8	20.7	30.9	-100.37	1,618.1	1,576.7	41.42	39.063			
7,000.0	6,949.8	7,130.5	6,949.8	20.9	31.0	-100.37	1,618.1	1,576.4	41.69	38.816			
7,100.0	7,049.8	7,230.5	7,049.8	21.0	31.1	-100.37	1,618.1	1,576.2	41.95	38.569			
7,200.0	7,149.8	7,330.5	7,149.8	21.1	31.2	-100.37	1,618.1	1,575.9	42.22	38.322			
7,300.0	7,249.8	7,430.5	7,249.8	21.3	31.3	-100.37	1,618.1	1,575.6	42.50	38.076			
7,400.0	7,349.8	7,530.5	7,349.8	21.4	31.4	-100.37	1,618.1	1,575.3	42.77	37.830			
7,500.0	7,449.8	7,630.5	7,449.8	21.5	31.5	-100.37	1,618.1	1,575.1	43.05	37.585			
7,600.0	7,549.8	7,730.5	7,549.8	21.7	31.6	-100.37	1,618.1	1,574.8	43.33	37.340			
7,700.0	7,649.8	7,830.5	7,649.8	21.8	31.7	-100.37	1,618.1	1,574.5	43.62	37.096			
7,800.0	7,749.8	7,930.5	7,749.8	22.0	31.8	-100.37	1,618.1	1,574.2	43.91	36.853			
7,900.0	7,849.8	8,030.5	7,849.8	22.1	31.9	-100.37	1,618.1	1,573.9	44.20	36.611			
8,000.0	7,949.8	8,130.5	7,949.8	22.3	32.0	-100.37	1,618.1	1,573.6	44.49	36.370			
8,100.0	8,049.8	8,230.5	8,049.8	22.4	32.1	-100.37	1,618.1	1,573.3	44.79	36.130			
8,200.0	8,149.8	8,330.5	8,149.8	22.6	32.2	-100.37	1,618.1	1,573.0	45.08	35.892			
8,300.0	8,249.8	8,430.5	8,249.8	22.7	32.3	-100.37	1,618.1	1,572.7	45.38	35.654			
8,400.0	8,349.8	8,530.5	8,349.8	22.9	32.4	-100.37	1,618.1	1,572.5	45.66	35.435			
8,443.2	8,393.0	8,573.7	8,393.0	22.9	32.4	-100.37	1,618.1	1,572.4	45.76	35.358			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-16W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	22.7						
100.0	100.0	100.0	100.0	0.1	0.1	-89.95	22.7	22.5	0.18	127.596			
200.0	200.0	200.0	200.0	0.3	0.3	-89.95	22.7	22.0	0.63	36.129			
300.0	300.0	300.0	300.0	0.5	0.5	-89.95	22.7	21.6	1.08	21.044			CC, ES
400.0	400.0	399.2	399.2	0.7	0.7	127.52	25.7	24.2	1.49	17.261			SF
500.0	499.6	498.0	497.7	1.0	1.0	129.65	34.9	32.9	1.92	18.154			
556.5	555.7	553.3	552.7	1.1	1.1	130.71	42.7	40.5	2.20	19.452			
600.0	598.8	595.7	594.9	1.2	1.2	131.12	49.8	47.4	2.41	20.662			
700.0	697.9	692.5	690.6	1.5	1.5	129.73	67.9	65.0	2.95	23.038			
800.0	797.0	788.0	784.4	1.8	1.8	126.90	88.8	85.2	3.54	25.109			
900.0	896.1	882.1	875.9	2.2	2.2	123.69	112.6	108.4	4.16	27.057			
1,000.0	995.2	974.4	964.7	2.5	2.7	120.53	139.6	134.8	4.82	28.988			
1,100.0	1,094.3	1,068.2	1,054.2	2.8	3.3	117.69	169.2	163.7	5.49	30.841			
1,200.0	1,193.4	1,163.4	1,144.9	3.2	3.8	115.62	199.2	193.1	6.16	32.341			
1,300.0	1,292.5	1,258.6	1,235.7	3.5	4.4	114.09	229.4	222.6	6.83	33.573			
1,400.0	1,391.6	1,353.8	1,326.4	3.8	5.0	112.92	259.8	252.2	7.51	34.574			
1,500.0	1,490.7	1,448.9	1,417.1	4.2	5.5	111.99	290.2	282.0	8.19	35.417			
1,600.0	1,589.8	1,544.1	1,507.8	4.5	6.1	111.24	320.6	311.7	8.87	36.128			
1,700.0	1,688.9	1,639.3	1,598.5	4.8	6.7	110.62	351.1	341.6	9.56	36.736			
1,800.0	1,788.0	1,734.5	1,689.2	5.2	7.3	110.10	381.6	371.4	10.24	37.260			
1,900.0	1,887.1	1,829.6	1,780.0	5.5	7.9	109.66	412.2	401.3	10.93	37.718			
2,000.0	1,986.2	1,924.8	1,870.7	5.9	8.5	109.27	442.8	431.2	11.62	38.120			
2,100.0	2,085.3	2,020.0	1,961.4	6.2	9.1	108.94	473.4	461.1	12.30	38.476			
2,200.0	2,184.4	2,115.2	2,052.1	6.5	9.7	108.65	504.0	491.0	12.99	38.793			
2,300.0	2,283.5	2,210.3	2,142.8	6.9	10.2	108.39	534.6	520.9	13.68	39.077			
2,400.0	2,382.6	2,305.5	2,233.6	7.2	10.8	108.16	565.2	550.8	14.37	39.334			
2,500.0	2,481.7	2,400.7	2,324.3	7.6	11.4	107.95	595.8	580.8	15.06	39.566			
2,600.0	2,580.8	2,495.8	2,415.0	7.9	12.0	107.76	626.4	610.7	15.75	39.777			
2,700.0	2,679.9	2,591.0	2,505.7	8.2	12.6	107.59	657.1	640.6	16.44	39.970			
2,800.0	2,779.0	2,686.2	2,596.4	8.6	13.2	107.44	687.7	670.6	17.13	40.147			
2,900.0	2,878.1	2,781.4	2,687.1	8.9	13.8	107.29	718.4	700.6	17.82	40.310			
3,000.0	2,977.2	2,876.5	2,777.9	9.3	14.4	107.16	749.0	730.5	18.51	40.460			
3,100.0	3,076.3	2,971.7	2,868.6	9.6	15.0	107.05	779.7	760.5	19.20	40.599			
3,200.0	3,175.4	3,066.9	2,959.3	10.0	15.6	106.93	810.3	790.5	19.90	40.729			
3,300.0	3,274.5	3,162.1	3,050.0	10.3	16.2	106.83	841.0	820.4	20.59	40.849			
3,400.0	3,373.6	3,257.2	3,140.7	10.6	16.8	106.74	871.7	850.4	21.28	40.961			
3,500.0	3,472.7	3,352.4	3,231.5	11.0	17.4	106.65	902.3	880.4	21.97	41.066			
3,600.0	3,571.8	3,447.6	3,322.2	11.3	18.0	106.56	933.0	910.3	22.67	41.164			
3,700.0	3,670.9	3,542.7	3,412.9	11.7	18.6	106.49	963.7	940.3	23.36	41.256			
3,800.0	3,770.0	3,637.9	3,503.6	12.0	19.2	106.41	994.3	970.3	24.05	41.343			
3,900.0	3,869.1	3,733.1	3,594.3	12.3	19.8	106.34	1,025.0	1,000.3	24.74	41.425			
4,000.0	3,968.2	3,828.3	3,685.0	12.7	20.4	106.28	1,055.7	1,030.3	25.44	41.502			
4,100.0	4,067.3	3,923.4	3,775.8	13.0	20.9	106.22	1,086.4	1,060.2	26.13	41.575			
4,200.0	4,166.4	4,018.6	3,866.5	13.4	21.5	106.16	1,117.0	1,090.2	26.82	41.644			
4,300.0	4,265.5	4,113.8	3,957.2	13.7	22.1	106.11	1,147.7	1,120.2	27.52	41.709			
4,400.0	4,364.6	4,209.0	4,047.9	14.1	22.7	106.06	1,178.4	1,150.2	28.21	41.771			
4,500.0	4,463.7	4,304.1	4,138.6	14.4	23.3	106.01	1,209.1	1,180.2	28.90	41.830			
4,600.0	4,562.8	4,399.3	4,229.3	14.7	23.9	105.96	1,239.7	1,210.1	29.60	41.886			
4,700.0	4,661.9	4,494.5	4,320.1	15.1	24.5	105.92	1,270.4	1,240.1	30.29	41.939			
4,800.0	4,761.0	4,589.7	4,410.8	15.4	25.1	105.87	1,301.1	1,270.1	30.99	41.990			
4,900.0	4,860.1	4,684.8	4,501.5	15.8	25.7	105.83	1,331.8	1,300.1	31.68	42.039			
5,000.0	4,959.2	4,780.0	4,592.2	16.1	26.3	105.79	1,362.5	1,330.1	32.37	42.085			
5,100.0	5,058.3	4,875.2	4,682.9	16.4	26.9	105.76	1,393.2	1,360.1	33.07	42.129			
5,200.0	5,157.4	4,970.3	4,773.7	16.8	27.5	105.72	1,423.8	1,390.1	33.76	42.172			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-16W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,065.5	4,864.4	17.1	28.1	105.69	1,454.5	1,420.1	34.46	42.212			
5,400.0	5,355.6	5,160.7	4,955.1	17.5	28.7	105.66	1,485.2	1,450.0	35.15	42.251			
5,500.0	5,454.7	5,255.9	5,045.8	17.8	29.3	105.62	1,515.9	1,480.0	35.85	42.288			
5,600.0	5,553.8	5,351.0	5,136.5	18.2	29.9	105.59	1,546.6	1,510.0	36.54	42.324			
5,700.0	5,652.9	5,470.2	5,250.3	18.5	30.6	105.57	1,576.9	1,539.6	37.30	42.281			
5,800.0	5,752.0	5,623.2	5,397.8	18.8	31.2	105.62	1,604.5	1,566.4	38.08	42.131			
5,880.3	5,831.6	5,748.2	5,519.4	19.1	31.7	105.73	1,624.0	1,585.3	38.70	41.965			
5,900.0	5,851.1	5,779.1	5,549.5	19.2	31.8	105.83	1,628.5	1,589.6	38.86	41.904			
6,000.0	5,950.5	5,937.7	5,705.3	19.4	32.3	106.28	1,648.5	1,608.9	39.59	41.642			
6,100.0	6,050.1	6,098.6	5,864.4	19.6	32.7	106.62	1,664.1	1,623.8	40.23	41.364			
6,200.0	6,149.8	6,261.2	6,026.2	19.8	33.0	106.85	1,675.2	1,634.4	40.78	41.080			
6,300.0	6,249.8	6,425.1	6,189.7	19.9	33.3	106.99	1,681.7	1,640.5	41.23	40.785			
6,393.2	6,343.0	6,578.4	6,343.0	20.1	33.4	-109.33	1,683.7	1,642.1	41.60	40.473			
6,400.0	6,349.8	6,585.2	6,349.8	20.1	33.4	-109.33	1,683.7	1,642.1	41.62	40.456			
6,493.2	6,443.0	6,678.4	6,443.0	20.2	33.5	-109.33	1,683.7	1,641.9	41.84	40.240			
6,500.0	6,449.8	6,685.2	6,449.8	20.2	33.5	-109.33	1,683.7	1,641.9	41.86	40.224			
6,600.0	6,549.8	6,785.2	6,549.8	20.3	33.6	-109.33	1,683.7	1,641.6	42.10	39.994			
6,700.0	6,649.8	6,885.2	6,649.8	20.5	33.7	-109.33	1,683.7	1,641.4	42.34	39.763			
6,800.0	6,749.8	6,985.2	6,749.8	20.6	33.8	-109.33	1,683.7	1,641.1	42.59	39.531			
6,900.0	6,849.8	7,085.2	6,849.8	20.7	33.8	-109.33	1,683.7	1,640.9	42.84	39.300			
7,000.0	6,949.8	7,185.2	6,949.8	20.9	33.9	-109.33	1,683.7	1,640.6	43.10	39.068			
7,100.0	7,049.8	7,285.2	7,049.8	21.0	34.0	-109.33	1,683.7	1,640.4	43.36	38.836			
7,200.0	7,149.8	7,385.2	7,149.8	21.1	34.1	-109.33	1,683.7	1,640.1	43.62	38.603			
7,300.0	7,249.8	7,485.2	7,249.8	21.3	34.2	-109.33	1,683.7	1,639.9	43.88	38.371			
7,400.0	7,349.8	7,585.2	7,349.8	21.4	34.3	-109.33	1,683.7	1,639.6	44.15	38.140			
7,500.0	7,449.8	7,685.2	7,449.8	21.5	34.4	-109.33	1,683.7	1,639.3	44.42	37.908			
7,600.0	7,549.8	7,785.2	7,549.8	21.7	34.5	-109.33	1,683.7	1,639.0	44.69	37.677			
7,700.0	7,649.8	7,885.2	7,649.8	21.8	34.5	-109.33	1,683.7	1,638.8	44.96	37.446			
7,800.0	7,749.8	7,985.2	7,749.8	22.0	34.6	-109.33	1,683.7	1,638.5	45.24	37.216			
7,900.0	7,849.8	8,085.2	7,849.8	22.1	34.7	-109.33	1,683.7	1,638.2	45.52	36.986			
8,000.0	7,949.8	8,185.2	7,949.8	22.3	34.8	-109.33	1,683.7	1,637.9	45.81	36.757			
8,100.0	8,049.8	8,285.2	8,049.8	22.4	34.9	-109.33	1,683.7	1,637.6	46.09	36.529			
8,200.0	8,149.8	8,385.2	8,149.8	22.6	35.0	-109.33	1,683.7	1,637.4	46.38	36.302			
8,300.0	8,249.8	8,485.2	8,249.8	22.7	35.1	-109.33	1,683.7	1,637.1	46.67	36.075			
8,400.0	8,349.8	8,585.2	8,349.8	22.9	35.2	-109.33	1,683.7	1,636.8	46.97	35.849			
8,443.2	8,393.0	8,628.4	8,393.0	22.9	35.3	-109.33	1,683.7	1,636.6	47.09	35.752			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-17W - Wellbore #1 - Plan #1 13Apr14 kjs — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-114.65	43.6						
100.0	100.0	100.0	100.0	0.1	0.1	-114.65	43.6	43.4	0.18	245.676			
200.0	200.0	200.0	200.0	0.3	0.3	-114.65	43.6	43.0	0.63	69.564			
300.0	300.0	300.0	300.0	0.5	0.5	-114.65	43.6	42.5	1.08	40.519			CC, ES
400.0	400.0	398.3	398.2	0.7	0.7	103.56	46.1	44.6	1.48	31.088			
500.0	499.6	496.1	495.8	1.0	0.9	108.02	53.7	51.8	1.91	28.155			
556.5	555.7	550.9	550.4	1.1	1.1	110.92	60.4	58.2	2.18	27.663			SF
600.0	598.8	593.1	592.3	1.2	1.2	112.87	66.7	64.2	2.40	27.744			
700.0	697.9	689.2	687.4	1.5	1.5	114.84	83.4	80.5	2.95	28.318			
800.0	797.0	784.4	780.8	1.8	1.8	114.62	103.3	99.8	3.53	29.245			
900.0	896.1	878.1	872.0	2.2	2.2	113.28	126.2	122.1	4.15	30.385			
1,000.0	995.2	970.2	960.7	2.5	2.7	111.43	152.3	147.5	4.80	31.702			
1,100.0	1,094.3	1,060.4	1,046.5	2.8	3.2	109.42	181.6	176.1	5.47	33.184			
1,200.0	1,193.4	1,152.9	1,133.6	3.2	3.8	107.45	213.4	207.2	6.16	34.650			
1,300.0	1,292.5	1,247.3	1,222.5	3.5	4.4	105.92	245.6	238.8	6.84	35.891			
1,400.0	1,391.6	1,341.8	1,311.4	3.8	5.0	104.74	277.9	270.4	7.53	36.891			
1,500.0	1,490.7	1,436.3	1,400.3	4.2	5.7	103.81	310.4	302.1	8.23	37.729			
1,600.0	1,589.8	1,530.8	1,489.2	4.5	6.3	103.06	342.8	333.9	8.92	38.433			
1,700.0	1,688.9	1,625.3	1,578.1	4.8	6.9	102.44	375.4	365.7	9.62	39.032			
1,800.0	1,788.0	1,719.8	1,667.0	5.2	7.6	101.91	407.9	397.6	10.31	39.547			
1,900.0	1,887.1	1,814.3	1,755.9	5.5	8.2	101.46	440.5	429.5	11.01	39.995			
2,000.0	1,986.2	1,908.8	1,844.8	5.9	8.9	101.08	473.1	461.4	11.71	40.388			
2,100.0	2,085.3	2,003.3	1,933.8	6.2	9.5	100.74	505.7	493.3	12.41	40.735			
2,200.0	2,184.4	2,097.8	2,022.7	6.5	10.2	100.45	538.4	525.2	13.12	41.044			
2,300.0	2,283.5	2,192.3	2,111.6	6.9	10.8	100.19	571.0	557.2	13.82	41.320			
2,400.0	2,382.6	2,286.8	2,200.5	7.2	11.5	99.95	603.7	589.1	14.52	41.569			
2,500.0	2,481.7	2,381.2	2,289.4	7.6	12.1	99.74	636.3	621.1	15.23	41.794			
2,600.0	2,580.8	2,475.7	2,378.3	7.9	12.7	99.56	669.0	653.1	15.93	41.998			
2,700.0	2,679.9	2,570.2	2,467.2	8.2	13.4	99.38	701.7	685.0	16.63	42.184			
2,800.0	2,779.0	2,664.7	2,556.1	8.6	14.0	99.23	734.3	717.0	17.34	42.355			
2,900.0	2,878.1	2,759.2	2,645.0	8.9	14.7	99.09	767.0	749.0	18.04	42.512			
3,000.0	2,977.2	2,853.7	2,733.9	9.3	15.3	98.95	799.7	781.0	18.75	42.657			
3,100.0	3,076.3	2,948.2	2,822.8	9.6	16.0	98.83	832.4	812.9	19.45	42.791			
3,200.0	3,175.4	3,042.7	2,911.7	10.0	16.6	98.72	865.1	844.9	20.16	42.915			
3,300.0	3,274.5	3,137.2	3,000.6	10.3	17.3	98.62	897.8	876.9	20.86	43.031			
3,400.0	3,373.6	3,231.7	3,089.5	10.6	17.9	98.52	930.5	908.9	21.57	43.138			
3,500.0	3,472.7	3,326.2	3,178.5	11.0	18.6	98.43	963.2	940.9	22.28	43.239			
3,600.0	3,571.8	3,420.7	3,267.4	11.3	19.2	98.35	995.9	972.9	22.98	43.333			
3,700.0	3,670.9	3,515.1	3,356.3	11.7	19.9	98.27	1,028.6	1,004.9	23.69	43.421			
3,800.0	3,770.0	3,609.6	3,445.2	12.0	20.5	98.20	1,061.3	1,036.9	24.40	43.505			
3,900.0	3,869.1	3,704.1	3,534.1	12.3	21.2	98.13	1,094.0	1,068.9	25.10	43.583			
4,000.0	3,968.2	3,798.6	3,623.0	12.7	21.8	98.06	1,126.7	1,100.9	25.81	43.656			
4,100.0	4,067.3	3,893.1	3,711.9	13.0	22.5	98.00	1,159.4	1,132.9	26.52	43.726			
4,200.0	4,166.4	3,987.6	3,800.8	13.4	23.1	97.94	1,192.1	1,164.9	27.22	43.792			
4,300.0	4,265.5	4,082.1	3,889.7	13.7	23.8	97.89	1,224.9	1,196.9	27.93	43.854			
4,400.0	4,364.6	4,176.6	3,978.6	14.1	24.4	97.84	1,257.6	1,228.9	28.64	43.913			
4,500.0	4,463.7	4,271.1	4,067.5	14.4	25.1	97.79	1,290.3	1,260.9	29.35	43.969			
4,600.0	4,562.8	4,365.6	4,156.4	14.7	25.7	97.74	1,323.0	1,292.9	30.05	44.023			
4,700.0	4,661.9	4,460.1	4,245.3	15.1	26.4	97.69	1,355.7	1,325.0	30.76	44.073			
4,800.0	4,761.0	4,554.6	4,334.2	15.4	27.1	97.65	1,388.4	1,357.0	31.47	44.122			
4,900.0	4,860.1	4,649.0	4,423.2	15.8	27.7	97.61	1,421.1	1,389.0	32.18	44.168			
5,000.0	4,959.2	4,743.5	4,512.1	16.1	28.4	97.57	1,453.9	1,421.0	32.88	44.212			
5,100.0	5,058.3	4,838.0	4,601.0	16.4	29.0	97.53	1,486.6	1,453.0	33.59	44.254			
5,200.0	5,157.4	4,932.5	4,689.9	16.8	29.7	97.50	1,519.3	1,485.0	34.30	44.294			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-17W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	5,027.0	4,778.8	17.1	30.3	97.46	1,552.0	1,517.0	35.01	44.333			
5,400.0	5,355.6	5,121.5	4,867.7	17.5	31.0	97.43	1,584.7	1,549.0	35.72	44.369			
5,500.0	5,454.7	5,216.0	4,956.6	17.8	31.6	97.40	1,617.5	1,581.0	36.43	44.405			
5,600.0	5,553.8	5,311.3	5,046.3	18.2	32.3	97.37	1,650.2	1,613.1	37.14	44.436			
5,700.0	5,652.9	5,468.9	5,195.7	18.5	33.1	97.37	1,681.1	1,643.1	37.99	44.247			
5,800.0	5,752.0	5,630.2	5,350.5	18.8	33.8	97.47	1,708.4	1,669.5	38.82	44.010			
5,880.3	5,831.6	5,762.1	5,478.5	19.1	34.3	97.62	1,727.6	1,688.1	39.48	43.762			
5,900.0	5,851.1	5,794.6	5,510.2	19.2	34.4	97.73	1,731.9	1,692.2	39.65	43.681			
6,000.0	5,950.5	5,961.9	5,674.3	19.4	34.9	98.21	1,751.3	1,710.9	40.41	43.334			
6,100.0	6,050.1	6,131.6	5,842.0	19.6	35.4	98.58	1,766.5	1,725.4	41.09	42.993			
6,200.0	6,149.8	6,303.2	6,012.6	19.8	35.8	98.84	1,777.2	1,735.5	41.66	42.658			
6,300.0	6,249.8	6,476.0	6,185.1	19.9	36.0	98.99	1,783.4	1,741.3	42.13	42.334			
6,393.2	6,343.0	6,634.0	6,343.0	20.1	36.2	-117.32	1,785.2	1,742.7	42.49	42.020			
6,400.0	6,349.8	6,640.8	6,349.8	20.1	36.2	-117.32	1,785.2	1,742.7	42.50	42.003			
6,493.2	6,443.0	6,734.0	6,443.0	20.2	36.2	-117.32	1,785.2	1,742.5	42.73	41.783			
6,500.0	6,449.8	6,740.8	6,449.8	20.2	36.2	-117.32	1,785.2	1,742.5	42.74	41.768			
6,600.0	6,549.8	6,840.8	6,549.8	20.3	36.3	-117.32	1,785.2	1,742.2	42.98	41.538			
6,700.0	6,649.8	6,940.8	6,649.8	20.5	36.4	-117.32	1,785.2	1,742.0	43.22	41.308			
6,800.0	6,749.8	7,040.8	6,749.8	20.6	36.5	-117.32	1,785.2	1,741.8	43.46	41.077			
6,900.0	6,849.8	7,140.8	6,849.8	20.7	36.5	-117.32	1,785.2	1,741.5	43.71	40.846			
7,000.0	6,949.8	7,240.8	6,949.8	20.9	36.6	-117.32	1,785.2	1,741.3	43.96	40.614			
7,100.0	7,049.8	7,340.8	7,049.8	21.0	36.7	-117.32	1,785.2	1,741.0	44.21	40.382			
7,200.0	7,149.8	7,440.8	7,149.8	21.1	36.8	-117.32	1,785.2	1,740.8	44.46	40.150			
7,300.0	7,249.8	7,540.8	7,249.8	21.3	36.8	-117.32	1,785.2	1,740.5	44.72	39.918			
7,400.0	7,349.8	7,640.8	7,349.8	21.4	36.9	-117.32	1,785.2	1,740.2	44.98	39.686			
7,500.0	7,449.8	7,740.8	7,449.8	21.5	37.0	-117.32	1,785.2	1,740.0	45.25	39.454			
7,600.0	7,549.8	7,840.8	7,549.8	21.7	37.1	-117.32	1,785.2	1,739.7	45.52	39.222			
7,700.0	7,649.8	7,940.8	7,649.8	21.8	37.2	-117.32	1,785.2	1,739.4	45.79	38.990			
7,800.0	7,749.8	8,040.8	7,749.8	22.0	37.3	-117.32	1,785.2	1,739.2	46.06	38.759			
7,900.0	7,849.8	8,140.8	7,849.8	22.1	37.3	-117.32	1,785.2	1,738.9	46.34	38.528			
8,000.0	7,949.8	8,240.8	7,949.8	22.3	37.4	-117.32	1,785.2	1,738.6	46.61	38.298			
8,100.0	8,049.8	8,340.8	8,049.8	22.4	37.5	-117.32	1,785.2	1,738.3	46.90	38.069			
8,200.0	8,149.8	8,440.8	8,149.8	22.6	37.6	-117.32	1,785.2	1,738.0	47.18	37.840			
8,300.0	8,249.8	8,540.8	8,249.8	22.7	37.7	-117.32	1,785.2	1,737.8	47.47	37.611			
8,400.0	8,349.8	8,640.8	8,349.8	22.9	37.8	-117.32	1,785.2	1,737.5	47.75	37.384			
8,426.9	8,376.7	8,667.7	8,376.7	22.9	37.8	-117.32	1,785.2	1,737.4	47.83	37.323			
8,443.2	8,393.0	8,679.0	8,388.0	22.9	37.8	-117.32	1,785.2	1,737.4	47.87	37.291			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-19W - Wellbore #1 - Plan #1 13Apr14 kjs — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-113.17	27.7						
100.0	100.0	100.0	100.0	0.1	0.1	-113.17	27.7	27.5	0.18	156.139			
200.0	200.0	200.0	200.0	0.3	0.3	-113.17	27.7	27.1	0.63	44.211			
300.0	300.0	300.0	300.0	0.5	0.5	-113.17	27.7	26.6	1.08	25.752			CC, ES
400.0	400.0	398.5	398.4	0.7	0.7	104.18	30.9	29.4	1.48	20.805			SF
500.0	499.6	496.3	495.7	1.0	1.0	106.16	40.4	38.5	1.93	20.975			
556.5	555.7	550.9	549.8	1.1	1.1	107.19	48.5	46.3	2.22	21.828			
600.0	598.8	592.8	591.0	1.2	1.2	107.60	56.0	53.5	2.46	22.798			
700.0	697.9	687.6	683.4	1.5	1.6	105.99	76.5	73.4	3.06	25.021			
800.0	797.0	780.1	772.2	1.8	2.1	102.93	101.6	97.9	3.70	27.434			
900.0	896.1	869.7	856.6	2.2	2.6	99.65	131.6	127.2	4.38	30.070			
1,000.0	995.2	956.0	936.1	2.5	3.2	96.61	166.5	161.4	5.06	32.924			
1,100.0	1,094.3	1,047.6	1,019.1	2.8	4.0	94.02	204.3	198.6	5.75	35.527			
1,200.0	1,193.4	1,139.8	1,102.8	3.2	4.7	92.22	242.4	236.0	6.43	37.681			
1,300.0	1,292.5	1,232.1	1,186.5	3.5	5.4	90.91	280.7	273.6	7.12	39.409			
1,400.0	1,391.6	1,324.3	1,270.2	3.8	6.2	89.91	319.1	311.2	7.82	40.820			
1,500.0	1,490.7	1,416.5	1,353.9	4.2	6.9	89.12	357.5	349.0	8.51	41.991			
1,600.0	1,589.8	1,508.7	1,437.5	4.5	7.7	88.49	395.9	386.7	9.21	42.976			
1,700.0	1,688.9	1,601.0	1,521.2	4.8	8.5	87.97	434.4	424.5	9.92	43.814			
1,800.0	1,788.0	1,693.2	1,604.9	5.2	9.2	87.53	473.0	462.4	10.62	44.534			
1,900.0	1,887.1	1,785.4	1,688.6	5.5	10.0	87.16	511.5	500.2	11.33	45.160			
2,000.0	1,986.2	1,877.6	1,772.3	5.9	10.8	86.84	550.1	538.0	12.03	45.708			
2,100.0	2,085.3	1,969.9	1,855.9	6.2	11.5	86.57	588.7	575.9	12.74	46.193			
2,200.0	2,184.4	2,062.1	1,939.6	6.5	12.3	86.32	627.2	613.8	13.45	46.623			
2,300.0	2,283.5	2,154.3	2,023.3	6.9	13.0	86.11	665.8	651.7	14.16	47.009			
2,400.0	2,382.6	2,246.5	2,107.0	7.2	13.8	85.92	704.4	689.6	14.88	47.355			
2,500.0	2,481.7	2,338.8	2,190.6	7.6	14.6	85.75	743.0	727.4	15.59	47.669			
2,600.0	2,580.8	2,431.0	2,274.3	7.9	15.3	85.59	781.6	765.3	16.30	47.953			
2,700.0	2,679.9	2,523.2	2,358.0	8.2	16.1	85.45	820.3	803.2	17.01	48.213			
2,800.0	2,779.0	2,615.4	2,441.7	8.6	16.9	85.33	858.9	841.1	17.73	48.451			
2,900.0	2,878.1	2,707.7	2,525.4	8.9	17.6	85.21	897.5	879.1	18.44	48.669			
3,000.0	2,977.2	2,799.9	2,609.0	9.3	18.4	85.10	936.1	917.0	19.16	48.870			
3,100.0	3,076.3	2,892.1	2,692.7	9.6	19.2	85.00	974.7	954.9	19.87	49.056			
3,200.0	3,175.4	2,984.4	2,776.4	10.0	19.9	84.91	1,013.4	992.8	20.59	49.229			
3,300.0	3,274.5	3,076.6	2,860.1	10.3	20.7	84.83	1,052.0	1,030.7	21.30	49.389			
3,400.0	3,373.6	3,168.8	2,943.7	10.6	21.5	84.75	1,090.6	1,068.6	22.02	49.538			
3,500.0	3,472.7	3,261.0	3,027.4	11.0	22.2	84.68	1,129.3	1,106.5	22.73	49.678			
3,600.0	3,571.8	3,353.3	3,111.1	11.3	23.0	84.61	1,167.9	1,144.5	23.45	49.808			
3,700.0	3,670.9	3,445.5	3,194.8	11.7	23.8	84.55	1,206.5	1,182.4	24.16	49.931			
3,800.0	3,770.0	3,537.7	3,278.5	12.0	24.6	84.49	1,245.2	1,220.3	24.88	50.046			
3,900.0	3,869.1	3,629.9	3,362.1	12.3	25.3	84.43	1,283.8	1,258.2	25.60	50.154			
4,000.0	3,968.2	3,722.2	3,445.8	12.7	26.1	84.38	1,322.5	1,296.2	26.31	50.256			
4,100.0	4,067.3	3,814.4	3,529.5	13.0	26.9	84.33	1,361.1	1,334.1	27.03	50.353			
4,200.0	4,166.4	3,906.6	3,613.2	13.4	27.6	84.28	1,399.8	1,372.0	27.75	50.444			
4,300.0	4,265.5	3,998.8	3,696.9	13.7	28.4	84.24	1,438.4	1,409.9	28.47	50.530			
4,400.0	4,364.6	4,091.1	3,780.5	14.1	29.2	84.19	1,477.0	1,447.9	29.18	50.612			
4,500.0	4,463.7	4,183.3	3,864.2	14.4	29.9	84.15	1,515.7	1,485.8	29.90	50.690			
4,600.0	4,562.8	4,275.5	3,947.9	14.7	30.7	84.12	1,554.3	1,523.7	30.62	50.763			
4,700.0	4,661.9	4,367.7	4,031.6	15.1	31.5	84.08	1,593.0	1,561.6	31.34	50.834			
4,800.0	4,761.0	4,460.0	4,115.2	15.4	32.2	84.05	1,631.6	1,599.6	32.06	50.901			
4,900.0	4,860.1	4,552.2	4,198.9	15.8	33.0	84.01	1,670.3	1,637.5	32.77	50.964			
5,000.0	4,959.2	4,644.4	4,282.6	16.1	33.8	83.98	1,708.9	1,675.4	33.49	51.025			
5,100.0	5,058.3	4,736.6	4,366.3	16.4	34.5	83.95	1,747.6	1,713.4	34.21	51.083			
5,200.0	5,157.4	4,828.9	4,450.0	16.8	35.3	83.92	1,786.2	1,751.3	34.93	51.139			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-19W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	4,921.1	4,533.6	17.1	36.1	83.89	1,824.9	1,789.2	35.65	51.192			
5,400.0	5,355.6	5,013.3	4,617.3	17.5	36.8	83.87	1,863.5	1,827.1	36.37	51.243			
5,500.0	5,454.7	5,105.6	4,701.0	17.8	37.6	83.84	1,902.2	1,865.1	37.08	51.292			
5,600.0	5,553.8	5,266.3	4,847.9	18.2	38.7	83.83	1,939.5	1,901.5	38.01	51.026			
5,700.0	5,652.9	5,448.5	5,017.7	18.5	39.7	83.90	1,972.8	1,933.8	38.96	50.631			
5,800.0	5,752.0	5,636.2	5,195.6	18.8	40.6	84.06	2,001.7	1,961.8	39.92	50.142			
5,880.3	5,831.6	5,790.5	5,343.8	19.1	41.2	84.25	2,021.7	1,981.0	40.69	49.688			
5,900.0	5,851.1	5,828.6	5,380.7	19.2	41.4	84.37	2,026.1	1,985.2	40.88	49.560			
6,000.0	5,950.5	6,025.1	5,572.2	19.4	42.1	84.90	2,046.1	2,004.3	41.76	48.995			
6,100.0	6,050.1	6,224.8	5,769.0	19.6	42.7	85.31	2,061.4	2,018.9	42.52	48.479			
6,200.0	6,149.8	6,427.1	5,969.8	19.8	43.1	85.61	2,072.1	2,029.0	43.16	48.015			
6,300.0	6,249.8	6,630.9	6,173.2	19.9	43.4	85.78	2,078.0	2,034.4	43.65	47.602			
6,393.2	6,343.0	6,800.7	6,343.0	20.1	43.6	-130.53	2,079.3	2,035.3	44.00	47.258			
6,400.0	6,349.8	6,807.5	6,349.8	20.1	43.6	-130.53	2,079.3	2,035.3	44.02	47.241			
6,493.2	6,443.0	6,900.7	6,443.0	20.2	43.6	-130.53	2,079.3	2,035.1	44.23	47.016			
6,500.0	6,449.8	6,907.5	6,449.8	20.2	43.6	-130.53	2,079.3	2,035.1	44.24	46.999			
6,600.0	6,549.8	7,007.5	6,549.8	20.3	43.7	-130.53	2,079.3	2,034.8	44.47	46.757			
6,700.0	6,649.8	7,107.5	6,649.8	20.5	43.7	-130.53	2,079.3	2,034.6	44.70	46.513			
6,800.0	6,749.8	7,207.5	6,749.8	20.6	43.8	-130.53	2,079.3	2,034.4	44.94	46.269			
6,900.0	6,849.8	7,307.5	6,849.8	20.7	43.9	-130.53	2,079.3	2,034.1	45.18	46.024			
7,000.0	6,949.8	7,407.5	6,949.8	20.9	43.9	-130.53	2,079.3	2,033.9	45.42	45.778			
7,100.0	7,049.8	7,507.5	7,049.8	21.0	44.0	-130.53	2,079.3	2,033.6	45.67	45.532			
7,200.0	7,149.8	7,607.5	7,149.8	21.1	44.0	-130.53	2,079.3	2,033.4	45.92	45.286			
7,300.0	7,249.8	7,707.5	7,249.8	21.3	44.1	-130.53	2,079.3	2,033.1	46.17	45.039			
7,400.0	7,349.8	7,807.5	7,349.8	21.4	44.2	-130.53	2,079.3	2,032.9	46.42	44.792			
7,500.0	7,449.8	7,907.5	7,449.8	21.5	44.2	-130.53	2,079.3	2,032.6	46.68	44.545			
7,600.0	7,549.8	8,007.5	7,549.8	21.7	44.3	-130.53	2,079.3	2,032.4	46.94	44.297			
7,700.0	7,649.8	8,107.5	7,649.8	21.8	44.4	-130.53	2,079.3	2,032.1	47.20	44.050			
7,800.0	7,749.8	8,207.5	7,749.8	22.0	44.5	-130.53	2,079.3	2,031.8	47.47	43.803			
7,900.0	7,849.8	8,307.5	7,849.8	22.1	44.5	-130.53	2,079.3	2,031.6	47.74	43.557			
8,000.0	7,949.8	8,407.5	7,949.8	22.3	44.6	-130.53	2,079.3	2,031.3	48.01	43.311			
8,100.0	8,049.8	8,507.5	8,049.8	22.4	44.7	-130.53	2,079.3	2,031.0	48.28	43.065			
8,200.0	8,149.8	8,607.5	8,149.8	22.6	44.7	-130.53	2,079.3	2,030.7	48.56	42.819			
8,300.0	8,249.8	8,707.5	8,249.8	22.7	44.8	-130.53	2,079.3	2,030.5	48.84	42.575			
8,400.0	8,349.8	8,807.5	8,349.8	22.9	44.9	-130.53	2,079.3	2,030.2	49.12	42.330			
8,416.4	8,366.2	8,823.9	8,366.2	22.9	44.9	-130.53	2,079.3	2,030.1	49.17	42.290			
8,443.2	8,393.0	8,830.7	8,373.0	22.9	44.9	-130.53	2,079.4	2,030.2	49.22	42.249			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-20W - Wellbore #1 - Plan #1 13Apr14 kjs — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-118.79	22.6						
100.0	100.0	100.0	100.0	0.1	0.1	-118.79	22.6	22.4	0.18	127.396			
200.0	200.0	200.0	200.0	0.3	0.3	-118.79	22.6	22.0	0.63	36.073			
300.0	300.0	300.0	300.0	0.5	0.5	-118.79	22.6	21.5	1.08	21.011			CC, ES
400.0	400.0	398.6	398.5	0.7	0.7	99.01	25.8	24.4	1.48	17.409			SF
500.0	499.6	496.4	495.8	1.0	1.0	101.70	35.6	33.6	1.93	18.443			
556.5	555.7	551.1	549.8	1.1	1.1	103.00	43.9	41.7	2.23	19.689			
600.0	598.8	592.8	590.8	1.2	1.3	103.50	51.6	49.1	2.47	20.921			
700.0	697.9	687.4	682.7	1.5	1.6	101.85	72.9	69.8	3.07	23.718			
800.0	797.0	779.3	770.4	1.8	2.1	98.77	99.3	95.6	3.73	26.663			
900.0	896.1	868.0	853.2	2.2	2.7	95.55	131.0	126.6	4.40	29.790			
1,000.0	995.2	953.0	930.6	2.5	3.4	92.64	167.9	162.8	5.07	33.092			
1,100.0	1,094.3	1,039.2	1,007.2	2.8	4.1	90.09	209.2	203.5	5.76	36.298			
1,200.0	1,193.4	1,129.7	1,087.2	3.2	4.9	88.20	251.4	244.9	6.44	39.050			
1,300.0	1,292.5	1,220.1	1,167.3	3.5	5.7	86.86	293.7	286.6	7.12	41.262			
1,400.0	1,391.6	1,310.5	1,247.3	3.8	6.5	85.85	336.1	328.3	7.80	43.066			
1,500.0	1,490.7	1,400.9	1,327.3	4.2	7.3	85.07	378.6	370.1	8.50	44.560			
1,600.0	1,589.8	1,491.3	1,407.3	4.5	8.1	84.45	421.1	411.9	9.19	45.812			
1,700.0	1,688.9	1,581.8	1,487.4	4.8	8.9	83.94	463.7	453.8	9.89	46.877			
1,800.0	1,788.0	1,672.2	1,567.4	5.2	9.8	83.51	506.3	495.7	10.59	47.793			
1,900.0	1,887.1	1,762.6	1,647.4	5.5	10.6	83.16	548.9	537.6	11.30	48.588			
2,000.0	1,986.2	1,853.0	1,727.5	5.9	11.4	82.85	591.5	579.5	12.00	49.284			
2,100.0	2,085.3	1,943.4	1,807.5	6.2	12.2	82.58	634.1	621.4	12.71	49.899			
2,200.0	2,184.4	2,033.9	1,887.5	6.5	13.1	82.35	676.8	663.3	13.42	50.444			
2,300.0	2,283.5	2,124.3	1,967.5	6.9	13.9	82.15	719.4	705.3	14.13	50.931			
2,400.0	2,382.6	2,214.7	2,047.6	7.2	14.7	81.97	762.1	747.2	14.83	51.369			
2,500.0	2,481.7	2,305.1	2,127.6	7.6	15.5	81.80	804.7	789.2	15.55	51.765			
2,600.0	2,580.8	2,395.6	2,207.6	7.9	16.4	81.66	847.4	831.1	16.26	52.124			
2,700.0	2,679.9	2,486.0	2,287.7	8.2	17.2	81.53	890.1	873.1	16.97	52.451			
2,800.0	2,779.0	2,576.4	2,367.7	8.6	18.0	81.41	932.7	915.1	17.68	52.750			
2,900.0	2,878.1	2,666.8	2,447.7	8.9	18.8	81.30	975.4	957.0	18.40	53.025			
3,000.0	2,977.2	2,757.2	2,527.7	9.3	19.7	81.20	1,018.1	999.0	19.11	53.278			
3,100.0	3,076.3	2,847.7	2,607.8	9.6	20.5	81.10	1,060.8	1,041.0	19.82	53.511			
3,200.0	3,175.4	2,938.1	2,687.8	10.0	21.3	81.02	1,103.5	1,082.9	20.54	53.728			
3,300.0	3,274.5	3,028.5	2,767.8	10.3	22.1	80.94	1,146.1	1,124.9	21.25	53.930			
3,400.0	3,373.6	3,118.9	2,847.9	10.6	23.0	80.87	1,188.8	1,166.9	21.97	54.117			
3,500.0	3,472.7	3,209.3	2,927.9	11.0	23.8	80.80	1,231.5	1,208.8	22.68	54.292			
3,600.0	3,571.8	3,299.8	3,007.9	11.3	24.6	80.74	1,274.2	1,250.8	23.40	54.456			
3,700.0	3,670.9	3,390.2	3,087.9	11.7	25.4	80.68	1,316.9	1,292.8	24.12	54.609			
3,800.0	3,770.0	3,480.6	3,168.0	12.0	26.3	80.62	1,359.6	1,334.8	24.83	54.754			
3,900.0	3,869.1	3,571.0	3,248.0	12.3	27.1	80.57	1,402.3	1,376.7	25.55	54.889			
4,000.0	3,968.2	3,661.4	3,328.0	12.7	27.9	80.52	1,445.0	1,418.7	26.26	55.017			
4,100.0	4,067.3	3,751.9	3,408.1	13.0	28.7	80.47	1,487.7	1,460.7	26.98	55.138			
4,200.0	4,166.4	3,842.3	3,488.1	13.4	29.6	80.43	1,530.4	1,502.7	27.70	55.252			
4,300.0	4,265.5	3,932.7	3,568.1	13.7	30.4	80.39	1,573.1	1,544.7	28.42	55.360			
4,400.0	4,364.6	4,023.1	3,648.1	14.1	31.2	80.35	1,615.8	1,586.6	29.13	55.462			
4,500.0	4,463.7	4,113.5	3,728.2	14.4	32.1	80.31	1,658.5	1,628.6	29.85	55.559			
4,600.0	4,562.8	4,204.0	3,808.2	14.7	32.9	80.28	1,701.2	1,670.6	30.57	55.652			
4,700.0	4,661.9	4,294.4	3,888.2	15.1	33.7	80.24	1,743.9	1,712.6	31.29	55.739			
4,800.0	4,761.0	4,384.8	3,968.3	15.4	34.5	80.21	1,786.6	1,754.6	32.00	55.823			
4,900.0	4,860.1	4,475.2	4,048.3	15.8	35.4	80.18	1,829.3	1,796.6	32.72	55.903			
5,000.0	4,959.2	4,565.7	4,128.3	16.1	36.2	80.15	1,872.0	1,838.5	33.44	55.979			
5,100.0	5,058.3	4,656.1	4,208.3	16.4	37.0	80.12	1,914.7	1,880.5	34.16	56.051			
5,200.0	5,157.4	4,746.5	4,288.4	16.8	37.8	80.10	1,957.4	1,922.5	34.88	56.121			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Offset Design Sup & Shep Federal Pad - Sup & Shep Fed 25-20W - Wellbore #1 - Plan #1 13Apr14 kjs

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
5,300.0	5,256.5	4,836.9	4,368.4	17.1	38.7	80.07	2,000.1	1,964.5	35.60	56.187			
5,400.0	5,355.6	4,927.3	4,448.4	17.5	39.5	80.05	2,042.8	2,006.5	36.32	56.251			
5,500.0	5,454.7	5,017.8	4,528.5	17.8	40.3	80.02	2,085.5	2,048.4	37.03	56.312			
5,600.0	5,553.8	5,202.3	4,693.6	18.2	41.6	80.01	2,126.4	2,088.3	38.06	55.869			
5,700.0	5,652.9	5,402.9	4,877.5	18.5	42.8	80.09	2,162.7	2,123.6	39.11	55.305			
5,800.0	5,752.0	5,611.0	5,072.3	18.8	43.9	80.26	2,194.3	2,154.1	40.16	54.640			
5,880.3	5,831.6	5,782.9	5,236.1	19.1	44.7	80.45	2,216.0	2,175.0	41.00	54.047			
5,900.0	5,851.1	5,825.5	5,277.1	19.2	44.9	80.58	2,220.8	2,179.6	41.21	53.883			
6,000.0	5,950.5	6,045.6	5,490.6	19.4	45.8	81.15	2,242.3	2,200.1	42.18	53.157			
6,100.0	6,050.1	6,270.3	5,711.2	19.6	46.5	81.59	2,258.8	2,215.8	43.02	52.508			
6,200.0	6,149.8	6,498.3	5,937.4	19.8	47.0	81.89	2,270.1	2,226.4	43.71	51.939			
6,300.0	6,249.8	6,728.5	6,167.0	19.9	47.4	82.08	2,276.1	2,231.9	44.24	51.455			
6,393.2	6,343.0	6,904.6	6,343.0	20.1	47.5	-134.23	2,277.1	2,232.6	44.57	51.093			
6,400.0	6,349.8	6,911.3	6,349.8	20.1	47.5	-134.23	2,277.1	2,232.5	44.58	51.075			
6,493.2	6,443.0	7,004.6	6,443.0	20.2	47.5	-134.23	2,277.1	2,232.3	44.79	50.837			
6,500.0	6,449.8	7,011.3	6,449.8	20.2	47.6	-134.23	2,277.1	2,232.3	44.81	50.820			
6,600.0	6,549.8	7,111.3	6,549.8	20.3	47.6	-134.23	2,277.1	2,232.1	45.03	50.563			
6,700.0	6,649.8	7,211.3	6,649.8	20.5	47.7	-134.23	2,277.1	2,231.9	45.27	50.306			
6,800.0	6,749.8	7,311.3	6,749.8	20.6	47.7	-134.23	2,277.1	2,231.6	45.50	50.047			
6,900.0	6,849.8	7,411.3	6,849.8	20.7	47.8	-134.23	2,277.1	2,231.4	45.74	49.788			
7,000.0	6,949.8	7,511.3	6,949.8	20.9	47.8	-134.23	2,277.1	2,231.1	45.98	49.528			
7,100.0	7,049.8	7,611.3	7,049.8	21.0	47.9	-134.23	2,277.1	2,230.9	46.22	49.267			
7,200.0	7,149.8	7,711.3	7,149.8	21.1	47.9	-134.23	2,277.1	2,230.7	46.47	49.006			
7,300.0	7,249.8	7,811.3	7,249.8	21.3	48.0	-134.23	2,277.1	2,230.4	46.72	48.744			
7,400.0	7,349.8	7,911.3	7,349.8	21.4	48.1	-134.23	2,277.1	2,230.2	46.97	48.482			
7,500.0	7,449.8	8,011.3	7,449.8	21.5	48.1	-134.23	2,277.1	2,229.9	47.22	48.220			
7,600.0	7,549.8	8,111.3	7,549.8	21.7	48.2	-134.23	2,277.1	2,229.6	47.48	47.958			
7,700.0	7,649.8	8,211.3	7,649.8	21.8	48.3	-134.23	2,277.1	2,229.4	47.74	47.696			
7,800.0	7,749.8	8,311.3	7,749.8	22.0	48.3	-134.23	2,277.1	2,229.1	48.01	47.434			
7,900.0	7,849.8	8,411.3	7,849.8	22.1	48.4	-134.23	2,277.1	2,228.8	48.27	47.172			
8,000.0	7,949.8	8,511.3	7,949.8	22.3	48.5	-134.23	2,277.1	2,228.6	48.54	46.911			
8,100.0	8,049.8	8,611.3	8,049.8	22.4	48.5	-134.23	2,277.1	2,228.3	48.81	46.650			
8,200.0	8,149.8	8,711.3	8,149.8	22.6	48.6	-134.23	2,277.1	2,228.0	49.09	46.389			
8,300.0	8,249.8	8,811.3	8,249.8	22.7	48.7	-134.23	2,277.1	2,227.8	49.36	46.129			
8,400.0	8,349.8	8,911.3	8,349.8	22.9	48.7	-134.23	2,277.1	2,227.5	49.64	45.869			
8,443.2	8,393.0	8,924.6	8,363.0	22.9	48.7	-134.23	2,277.3	2,227.6	49.73	45.796			

Company:	Piceance Energy, LLC	**Local Co-ordinate Reference:**	Well Sup & Shep Fed 25-13M
Project:	Mesa County, CO	**TVD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Reference Site:	Sup & Shep Federal Pad	**MD Reference:**	WELL @ 8098.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Sup & Shep Fed 25-13M	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 2003.16 Single User Db
Reference Design:	Plan #1 13Apr14 kjs	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 8098.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °

Coordinates are relative to: Sup & Shep Fed 25-13M
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.40°