



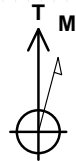
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V/Sect	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	1007.8	21.23	70.90	991.7	42.4	122.5	3.00	70.90	129.7	
4	6711.6	21.23	70.90	6308.3	718.5	2074.5	0.00	0.00	2195.4	
5	7419.4	0.00	0.00	7000.0	761.0	2197.0	3.00	180.00	2325.1	
6	9732.4	0.00	0.00	9313.0	761.0	2197.0	0.00	0.00	2325.1	RULISON FEDERAL 33A-17 PBHL 7.27

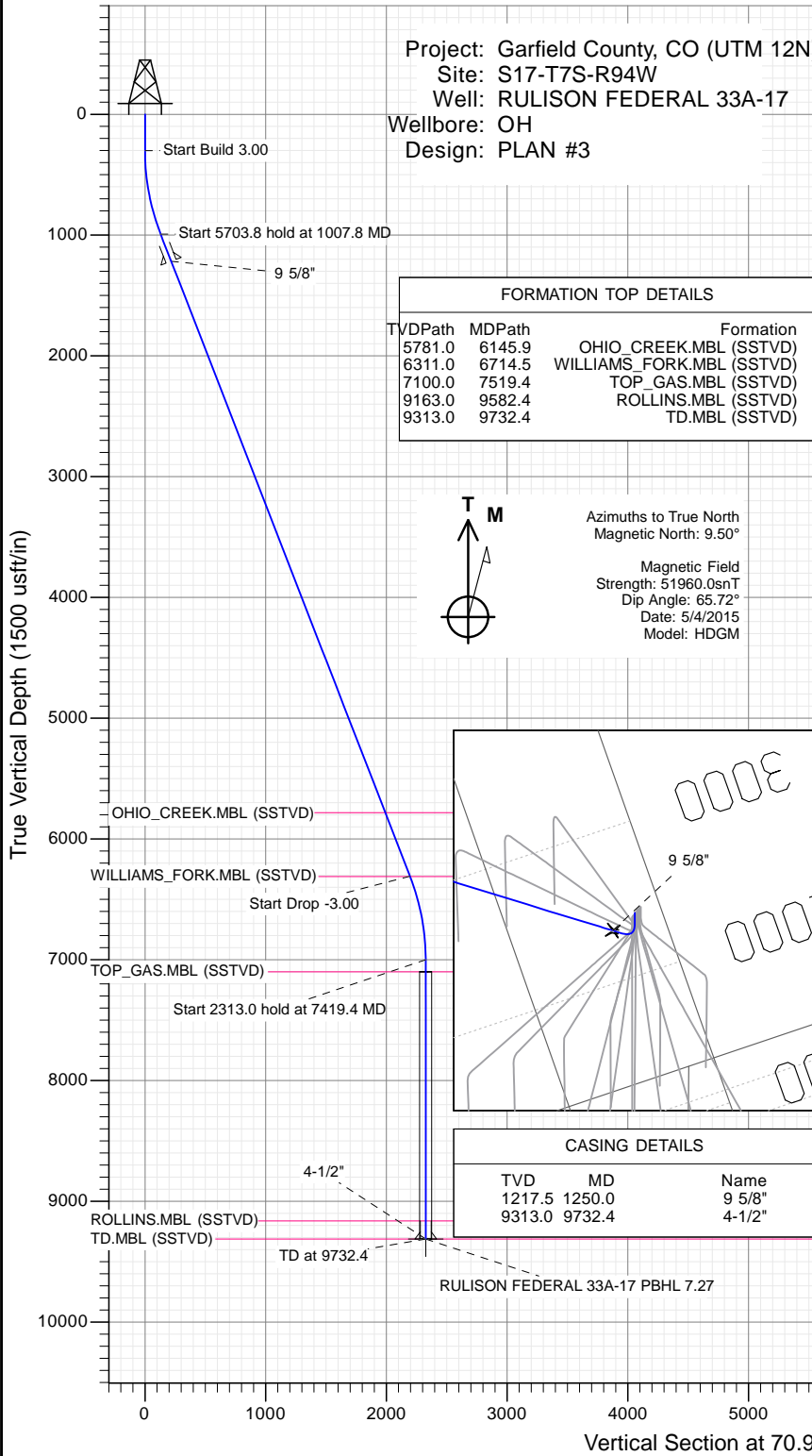
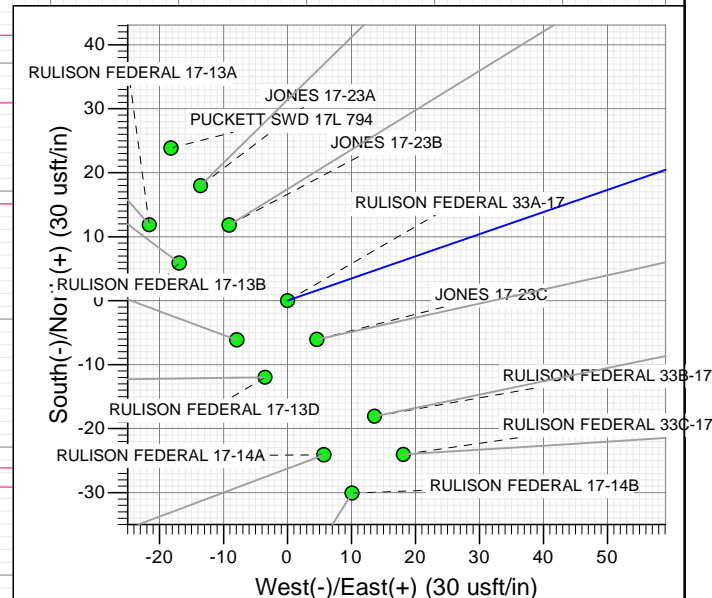
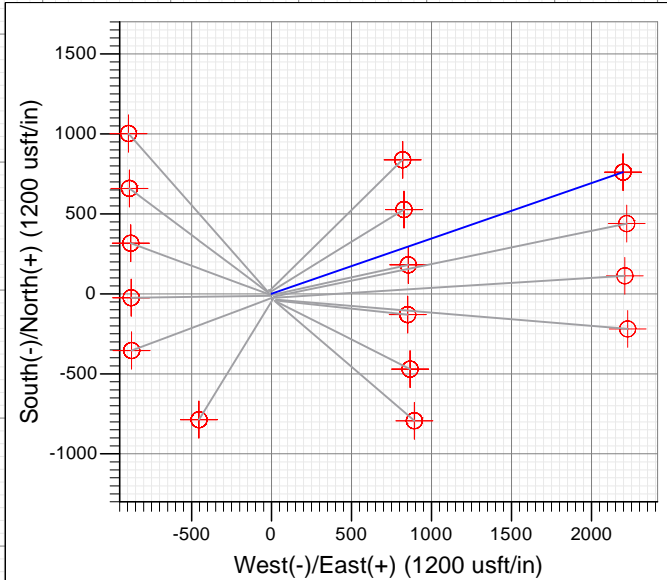
Project: Garfield County, CO (UTM 12N)
 Site: S17-T7S-R94W
 Well: RULISON FEDERAL 33A-17
 Wellbore: OH
 Design: PLAN #3

Type	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target
TD	No	Target	Target	Target	Target	Target	Target	Target	Target	Target
Name	TD	Target	Target	Target	Target	Target	Target	Target	Target	Target
RULISON FEDERAL 33A-17 PBHL	9285.0	+N/-S	+E/-W	Latitude	Longitude					
RULISON FEDERAL 33A-17 PBHL 7.27	9313.0	761.0	2197.0	39.438329	-107.907086					

TVDPath	MDPath	Formation
5781.0	6145.9	OHIO_CREEK.MBL (SSTVD)
6311.0	6714.5	WILLIAMS_FORK.MBL (SSTVD)
7100.0	7519.4	TOP_GAS.MBL (SSTVD)
9163.0	9582.4	ROLLINS.MBL (SSTVD)
9313.0	9732.4	TD.MBL (SSTVD)



Azimuths to True North
 Magnetic North: 9.50°
 Magnetic Field
 Strength: 51960.0nT
 Dip Angle: 65.72°
 Date: 5/4/2015
 Model: HDGM



TVD	MD	Name
1217.5	1250.0	9 5/8"
9313.0	9732.4	4-1/2"

WELL DETAILS: RULISON FEDERAL 33A-17

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude
0.0	0.0	14335677.30	7412.0	2511580.80	39.436241	-107.914860



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RULISON FEDERAL 33A-17
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7442.0usft (H&P 330)
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7442.0usft (H&P 330)
Site:	S17-T7S-R94W	North Reference:	True
Well:	RULISON FEDERAL 33A-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

Project	Garfield County, CO (UTM 12N)		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 - Western US		
Map Zone:	Zone 12N (114 W to 108 W)		

Site		S17-T7S-R94W			
Site Position:		Northing:	14,335,694.75 usft	Latitude:	39.436290
From:	Map	Easting:	2,511,566.57 usft	Longitude:	-107.914909
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.96 °

Well	RULISON FEDERAL 33A-17					
Well Position	+N/-S	0.0 usft	Northing:	14,335,677.30 usft	Latitude:	39.436241
	+E/-W	0.0 usft	Easting:	2,511,580.80 usft	Longitude:	-107.914860
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	7,412.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	5/4/2015	9.50	65.72	51,960

Design	PLAN #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	70.90

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
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	
1,007.8	21.23	70.90	991.7	42.4	122.5	3.00	3.00	0.00	70.90	
6,711.6	21.23	70.90	6,308.3	718.5	2,074.5	0.00	0.00	0.00	0.00	
7,419.4	0.00	0.00	7,000.0	761.0	2,197.0	3.00	-3.00	0.00	180.00	
9,732.4	0.00	0.00	9,313.0	761.0	2,197.0	0.00	0.00	0.00	0.00	RULISON FEDERAL

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RULISON FEDERAL 33A-17
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7442.0usft (H&P 330)
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7442.0usft (H&P 330)
Site:	S17-T7S-R94W	North Reference:	True
Well:	RULISON FEDERAL 33A-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	Start Build 3.00
400.0	3.00	70.90	400.0	0.9	2.5	2.6	3.00	3.00	
500.0	6.00	70.90	499.6	3.4	9.9	10.5	3.00	3.00	
600.0	9.00	70.90	598.8	7.7	22.2	23.5	3.00	3.00	
700.0	12.00	70.90	697.1	13.7	39.4	41.7	3.00	3.00	
800.0	15.00	70.90	794.3	21.3	61.5	65.1	3.00	3.00	
900.0	18.00	70.90	890.2	30.6	88.3	93.5	3.00	3.00	
1,000.0	21.00	70.90	984.4	41.5	119.9	126.9	3.00	3.00	
1,007.8	21.23	70.90	991.7	42.4	122.5	129.7	3.00	3.00	Start 5703.8 hold at 1007.8 MD
1,100.0	21.23	70.90	1,077.6	53.4	154.1	163.1	0.00	0.00	
1,200.0	21.23	70.90	1,170.9	65.2	188.3	199.3	0.00	0.00	
1,250.0	21.23	70.90	1,217.5	71.1	205.4	217.4	0.00	0.00	9 5/8"
1,300.0	21.23	70.90	1,264.1	77.1	222.5	235.5	0.00	0.00	
1,400.0	21.23	70.90	1,357.3	88.9	256.7	271.7	0.00	0.00	
1,500.0	21.23	70.90	1,450.5	100.8	291.0	307.9	0.00	0.00	
1,600.0	21.23	70.90	1,543.7	112.6	325.2	344.1	0.00	0.00	
1,700.0	21.23	70.90	1,636.9	124.5	359.4	380.4	0.00	0.00	
1,800.0	21.23	70.90	1,730.1	136.3	393.6	416.6	0.00	0.00	
1,900.0	21.23	70.90	1,823.3	148.2	427.9	452.8	0.00	0.00	
2,000.0	21.23	70.90	1,916.5	160.0	462.1	489.0	0.00	0.00	
2,100.0	21.23	70.90	2,009.8	171.9	496.3	525.2	0.00	0.00	
2,200.0	21.23	70.90	2,103.0	183.8	530.5	561.4	0.00	0.00	
2,300.0	21.23	70.90	2,196.2	195.6	564.7	597.7	0.00	0.00	
2,400.0	21.23	70.90	2,289.4	207.5	599.0	633.9	0.00	0.00	
2,500.0	21.23	70.90	2,382.6	219.3	633.2	670.1	0.00	0.00	
2,600.0	21.23	70.90	2,475.8	231.2	667.4	706.3	0.00	0.00	
2,700.0	21.23	70.90	2,569.0	243.0	701.6	742.5	0.00	0.00	
2,800.0	21.23	70.90	2,662.2	254.9	735.9	778.7	0.00	0.00	
2,900.0	21.23	70.90	2,755.5	266.7	770.1	815.0	0.00	0.00	
3,000.0	21.23	70.90	2,848.7	278.6	804.3	851.2	0.00	0.00	
3,100.0	21.23	70.90	2,941.9	290.4	838.5	887.4	0.00	0.00	
3,200.0	21.23	70.90	3,035.1	302.3	872.7	923.6	0.00	0.00	
3,300.0	21.23	70.90	3,128.3	314.1	907.0	959.8	0.00	0.00	
3,400.0	21.23	70.90	3,221.5	326.0	941.2	996.0	0.00	0.00	
3,500.0	21.23	70.90	3,314.7	337.8	975.4	1,032.3	0.00	0.00	
3,600.0	21.23	70.90	3,407.9	349.7	1,009.6	1,068.5	0.00	0.00	
3,700.0	21.23	70.90	3,501.1	361.6	1,043.9	1,104.7	0.00	0.00	
3,800.0	21.23	70.90	3,594.4	373.4	1,078.1	1,140.9	0.00	0.00	
3,900.0	21.23	70.90	3,687.6	385.3	1,112.3	1,177.1	0.00	0.00	
4,000.0	21.23	70.90	3,780.8	397.1	1,146.5	1,213.4	0.00	0.00	
4,100.0	21.23	70.90	3,874.0	409.0	1,180.7	1,249.6	0.00	0.00	
4,200.0	21.23	70.90	3,967.2	420.8	1,215.0	1,285.8	0.00	0.00	
4,300.0	21.23	70.90	4,060.4	432.7	1,249.2	1,322.0	0.00	0.00	
4,400.0	21.23	70.90	4,153.6	444.5	1,283.4	1,358.2	0.00	0.00	
4,500.0	21.23	70.90	4,246.8	456.4	1,317.6	1,394.4	0.00	0.00	
4,600.0	21.23	70.90	4,340.0	468.2	1,351.9	1,430.7	0.00	0.00	
4,700.0	21.23	70.90	4,433.3	480.1	1,386.1	1,466.9	0.00	0.00	
4,800.0	21.23	70.90	4,526.5	491.9	1,420.3	1,503.1	0.00	0.00	
4,900.0	21.23	70.90	4,619.7	503.8	1,454.5	1,539.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RULISON FEDERAL 33A-17
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7442.0usft (H&P 330)
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7442.0usft (H&P 330)
Site:	S17-T7S-R94W	North Reference:	True
Well:	RULISON FEDERAL 33A-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,000.0	21.23	70.90	4,712.9	515.6	1,488.8	1,575.5	0.00	0.00	
5,100.0	21.23	70.90	4,806.1	527.5	1,523.0	1,611.7	0.00	0.00	
5,200.0	21.23	70.90	4,899.3	539.4	1,557.2	1,648.0	0.00	0.00	
5,300.0	21.23	70.90	4,992.5	551.2	1,591.4	1,684.2	0.00	0.00	
5,400.0	21.23	70.90	5,085.7	563.1	1,625.6	1,720.4	0.00	0.00	
5,500.0	21.23	70.90	5,178.9	574.9	1,659.9	1,756.6	0.00	0.00	
5,600.0	21.23	70.90	5,272.2	586.8	1,694.1	1,792.8	0.00	0.00	
5,700.0	21.23	70.90	5,365.4	598.6	1,728.3	1,829.0	0.00	0.00	
5,800.0	21.23	70.90	5,458.6	610.5	1,762.5	1,865.3	0.00	0.00	
5,900.0	21.23	70.90	5,551.8	622.3	1,796.8	1,901.5	0.00	0.00	
6,000.0	21.23	70.90	5,645.0	634.2	1,831.0	1,937.7	0.00	0.00	
6,100.0	21.23	70.90	5,738.2	646.0	1,865.2	1,973.9	0.00	0.00	
6,145.9	21.23	70.90	5,781.0	651.5	1,880.9	1,990.5	0.00	0.00	OHIO_CREEK.MBL (SSTVD)
6,200.0	21.23	70.90	5,831.4	657.9	1,899.4	2,010.1	0.00	0.00	
6,300.0	21.23	70.90	5,924.6	669.7	1,933.6	2,046.3	0.00	0.00	
6,400.0	21.23	70.90	6,017.8	681.6	1,967.9	2,082.6	0.00	0.00	
6,500.0	21.23	70.90	6,111.1	693.4	2,002.1	2,118.8	0.00	0.00	
6,600.0	21.23	70.90	6,204.3	705.3	2,036.3	2,155.0	0.00	0.00	
6,700.0	21.23	70.90	6,297.5	717.2	2,070.5	2,191.2	0.00	0.00	
6,711.6	21.23	70.90	6,308.3	718.5	2,074.5	2,195.4	0.00	0.00	Start Drop -3.00
6,714.5	21.15	70.90	6,311.0	718.9	2,075.5	2,196.5	3.00	-3.00	WILLIAMS_FORK.MBL (SSTVD)
6,800.0	18.58	70.90	6,391.4	728.4	2,102.9	2,225.5	3.00	-3.00	
6,900.0	15.58	70.90	6,487.0	738.0	2,130.7	2,254.9	3.00	-3.00	
7,000.0	12.58	70.90	6,584.0	746.0	2,153.7	2,279.2	3.00	-3.00	
7,100.0	9.58	70.90	6,682.1	752.2	2,171.8	2,298.4	3.00	-3.00	
7,200.0	6.58	70.90	6,781.1	756.8	2,185.1	2,312.5	3.00	-3.00	
7,300.0	3.58	70.90	6,880.7	759.7	2,193.5	2,321.3	3.00	-3.00	
7,400.0	0.58	70.90	6,980.6	760.9	2,196.9	2,325.0	3.00	-3.00	
7,419.4	0.00	0.00	7,000.0	761.0	2,197.0	2,325.1	3.00	-3.00	Start 2313.0 hold at 7419.4 MD
7,500.0	0.00	0.00	7,080.6	761.0	2,197.0	2,325.1	0.00	0.00	
7,519.4	0.00	0.00	7,100.0	761.0	2,197.0	2,325.1	0.00	0.00	TOP_GAS.MBL (SSTVD)
7,600.0	0.00	0.00	7,180.6	761.0	2,197.0	2,325.1	0.00	0.00	
7,700.0	0.00	0.00	7,280.6	761.0	2,197.0	2,325.1	0.00	0.00	
7,800.0	0.00	0.00	7,380.6	761.0	2,197.0	2,325.1	0.00	0.00	
7,900.0	0.00	0.00	7,480.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,000.0	0.00	0.00	7,580.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,100.0	0.00	0.00	7,680.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,200.0	0.00	0.00	7,780.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,300.0	0.00	0.00	7,880.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,400.0	0.00	0.00	7,980.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,500.0	0.00	0.00	8,080.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,600.0	0.00	0.00	8,180.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,700.0	0.00	0.00	8,280.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,800.0	0.00	0.00	8,380.6	761.0	2,197.0	2,325.1	0.00	0.00	
8,900.0	0.00	0.00	8,480.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,000.0	0.00	0.00	8,580.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,100.0	0.00	0.00	8,680.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,200.0	0.00	0.00	8,780.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,300.0	0.00	0.00	8,880.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,400.0	0.00	0.00	8,980.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,500.0	0.00	0.00	9,080.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,582.4	0.00	0.00	9,163.0	761.0	2,197.0	2,325.1	0.00	0.00	ROLLINS.MBL (SSTVD)

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RULISON FEDERAL 33A-17
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7442.0usft (H&P 330)
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7442.0usft (H&P 330)
Site:	S17-T7S-R94W	North Reference:	True
Well:	RULISON FEDERAL 33A-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,600.0	0.00	0.00	9,180.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,700.0	0.00	0.00	9,280.6	761.0	2,197.0	2,325.1	0.00	0.00	
9,732.4	0.00	0.00	9,313.0	761.0	2,197.0	2,325.1	0.00	0.00	TD at 9732.4 - TD.MBL (SSTVD) - 4-1/2"

Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RULISON FEDERAL 33.	- plan hits target center	0.00	1.94	9,313.0	761.0	2,197.0	14,336,513.00	2,513,750.50	39.438329	-107.907086
	- Circle (radius 50.0)									
RULISON FEDERAL 33.	- plan misses target center by 4.4usft at 9700.0usft MD (9280.6 TVD, 761.0 N, 2197.0 E)	0.00	1.94	9,285.0	761.0	2,197.0	14,336,513.00	2,513,750.50	39.438329	-107.907086
	- Circle (radius 50.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,250.0	1,217.5	9 5/8"	9-5/8	13-1/2	
9,732.4	9,313.0	4-1/2"	4-1/2	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,145.9	5,781.0	OHIO_CREEK.MBL (SSTVD)		0.00	
6,714.5	6,311.0	WILLIAMS_FORK.MBL (SSTVD)		0.00	
7,519.4	7,100.0	TOP_GAS.MBL (SSTVD)		0.00	
9,582.4	9,163.0	ROLLINS.MBL (SSTVD)		0.00	
9,732.4	9,313.0	TD.MBL (SSTVD)		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
300.0	300.0	0.0	0.0	Start Build 3.00	
1,007.8	991.7	42.4	122.5	Start 5703.8 hold at 1007.8 MD	
6,711.6	6,308.3	718.5	2,074.5	Start Drop -3.00	
7,419.4	7,000.0	761.0	2,197.0	Start 2313.0 hold at 7419.4 MD	
9,732.4	9,313.0	761.0	2,197.0	TD at 9732.4	