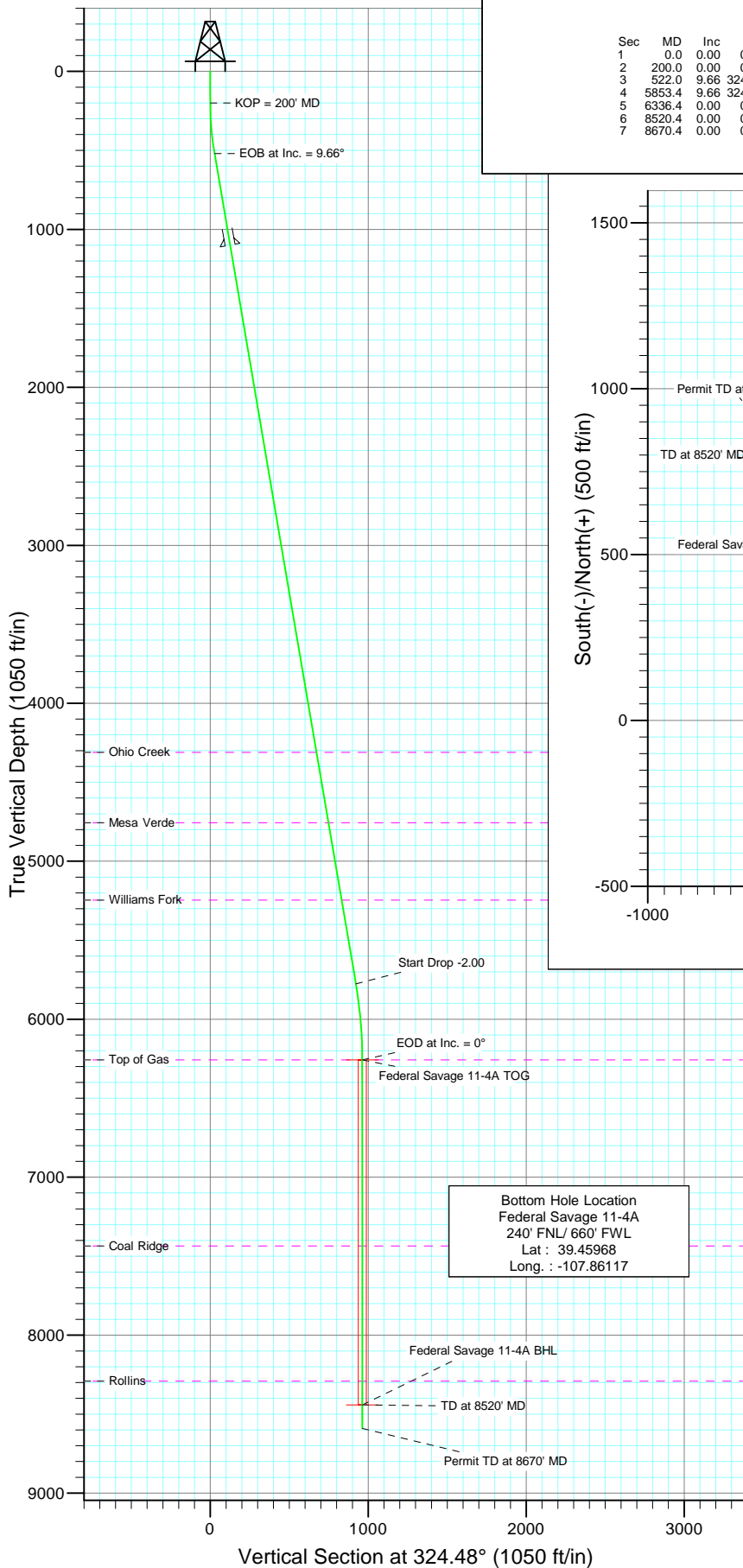
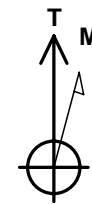
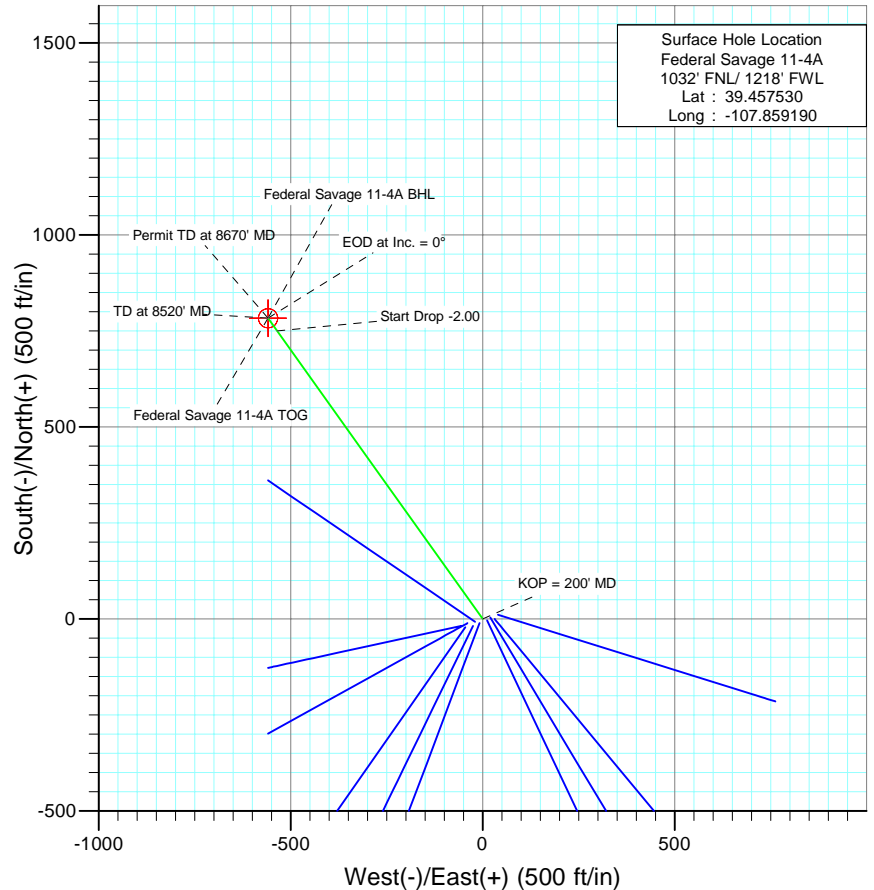




Project: S. Piceance
Site: NWNW S11-T7S-R94W (RD 11 Pad)
Well: Federal Savage 11-4A
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	522.0	9.66	324.48	520.4	22.0	-15.7	3.00	324.48	27.1	
4	5853.4	9.66	324.48	5776.3	750.1	-535.5	0.00	0.00	921.6	
5	6336.4	0.00	0.00	6257.0	783.1	-559.0	2.00	180.00	962.2	Federal Savage 11-4A TOG
6	8520.4	0.00	0.00	8441.0	783.1	-559.0	0.00	0.00	962.2	Federal Savage 11-4A BHL
7	8670.4	0.00	0.00	8591.0	783.1	-559.0	0.00	0.00	962.2	



Azimuths to True North
Magnetic North: 10.41°

Magnetic Field
Strength: 52390.3nT
Dip Angle: 65.78°
Date: 4/16/2010
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4311.0	4367.0	Ohio Creek
4756.0	4818.4	Mesa Verde
5246.0	5315.5	Williams Fork
6257.0	6336.4	Top of Gas
7436.0	7515.4	Coal Ridge
8291.0	8370.4	Rollins

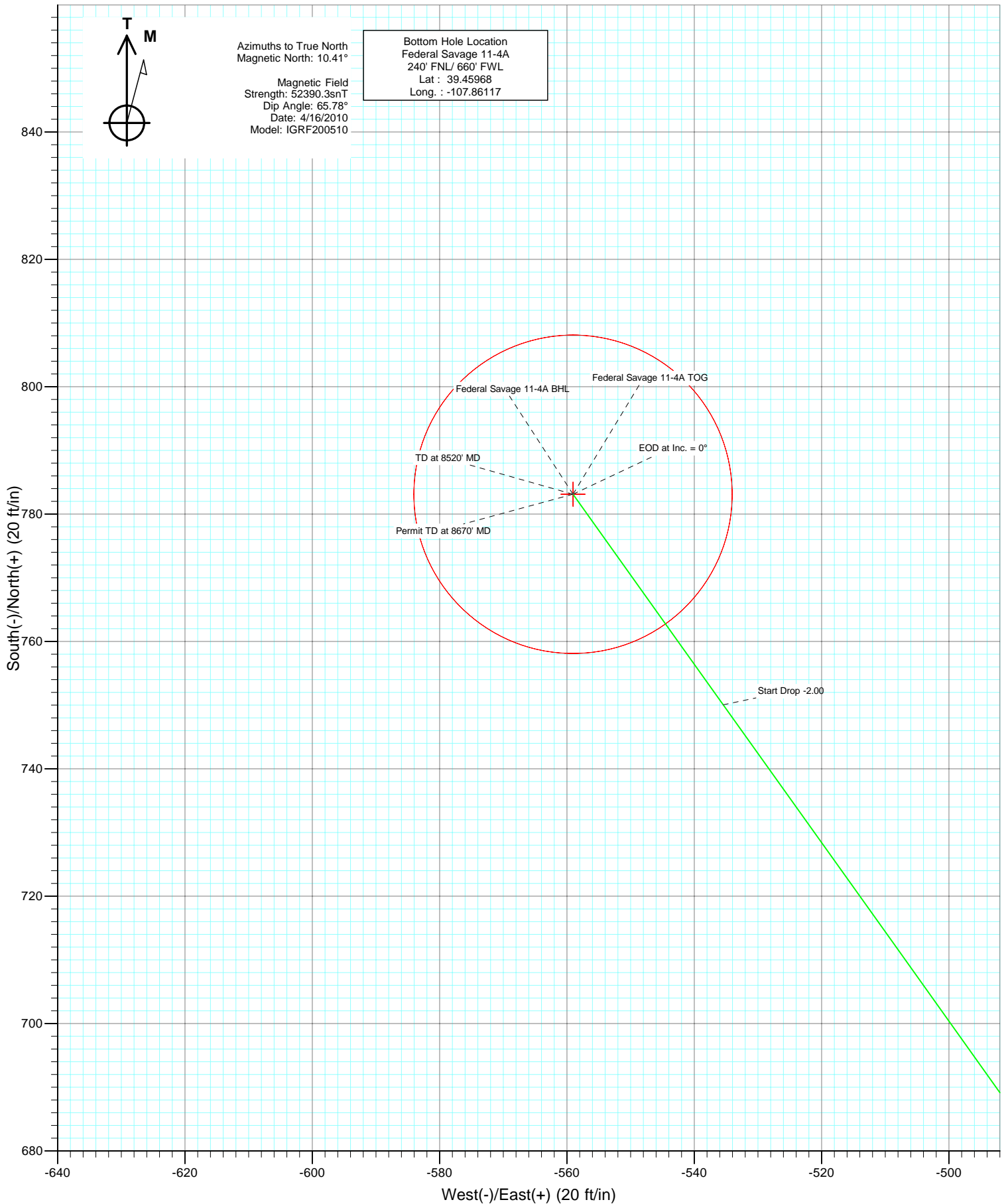
DESIGN DETAILS: Plan #1

105XXX: KR
WELL @ 6406.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Federal Savage 11-4A BHL	324.48	Slot	0.0	0.0	0.0



Project: S. Piceance
Site: NWNW S11-T7S-R94W (RD 11 Pad)
Well: Federal Savage 11-4A
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Federal Savage 11-4A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6406.0ft (Original Well Elev)
Project:	S. Piceance	MD Reference:	WELL @ 6406.0ft (Original Well Elev)
Site:	NWNW S11-T7S-R94W (RD 11 Pad)	North Reference:	True
Well:	Federal Savage 11-4A	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	S. Piceance, Garfield 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	NWNW S11-T7S-R94W (RD 11 Pad)			
Site Position:		Northing:	1,600,192.72 ft	Latitude: 39.457550
From:	Lat/Long	Easting:	2,333,999.30 ft	Longitude: -107.859020
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.49 °

Well	Federal Savage 11-4A			
Well Position	+N/-S	0.0 ft	Northing:	1,600,186.68 ft
	+E/-W	0.0 ft	Easting:	2,333,951.12 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Ground Level:	6,384.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/16/2010	10.41	65.78	52,390

Design	Plan #1			
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	324.48

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
522.0	9.66	324.48	520.4	22.0	-15.7	3.00	3.00	0.00	324.48	
5,853.4	9.66	324.48	5,776.3	750.1	-535.5	0.00	0.00	0.00	0.00	
6,336.4	0.00	0.00	6,257.0	783.1	-559.0	2.00	-2.00	0.00	180.00	Federal Savage 11-4/
8,520.4	0.00	0.00	8,441.0	783.1	-559.0	0.00	0.00	0.00	0.00	Federal Savage 11-4/
8,670.4	0.00	0.00	8,591.0	783.1	-559.0	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Federal Savage 11-4A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6406.0ft (Original Well Elev)
Project:	S. Piceance	MD Reference:	WELL @ 6406.0ft (Original Well Elev)
Site:	NWNW S11-T7S-R94W (RD 11 Pad)	North Reference:	True
Well:	Federal Savage 11-4A	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP = 200' MD
300.0	3.00	324.48	300.0	2.1	-1.5	2.6	3.00	3.00	
400.0	6.00	324.48	399.6	8.5	-6.1	10.5	3.00	3.00	
500.0	9.00	324.48	498.8	19.1	-13.7	23.5	3.00	3.00	
522.0	9.66	324.48	520.4	22.0	-15.7	27.1	3.00	3.00	EOB at Inc. = 9.66°
600.0	9.66	324.48	597.4	32.7	-23.3	40.2	0.00	0.00	
700.0	9.66	324.48	696.0	46.3	-33.1	56.9	0.00	0.00	
800.0	9.66	324.48	794.5	60.0	-42.8	73.7	0.00	0.00	
900.0	9.66	324.48	893.1	73.7	-52.6	90.5	0.00	0.00	
1,000.0	9.66	324.48	991.7	87.3	-62.3	107.3	0.00	0.00	
1,100.0	9.66	324.48	1,090.3	101.0	-72.1	124.1	0.00	0.00	
1,109.9	9.66	324.48	1,100.0	102.3	-73.0	125.7	0.00	0.00	Surface Casing
1,200.0	9.66	324.48	1,188.9	114.6	-81.8	140.8	0.00	0.00	
1,300.0	9.66	324.48	1,287.4	128.3	-91.6	157.6	0.00	0.00	
1,400.0	9.66	324.48	1,386.0	141.9	-101.3	174.4	0.00	0.00	
1,500.0	9.66	324.48	1,484.6	155.6	-111.1	191.2	0.00	0.00	
1,600.0	9.66	324.48	1,583.2	169.2	-120.8	207.9	0.00	0.00	
1,700.0	9.66	324.48	1,681.8	182.9	-130.6	224.7	0.00	0.00	
1,800.0	9.66	324.48	1,780.4	196.6	-140.3	241.5	0.00	0.00	
1,900.0	9.66	324.48	1,878.9	210.2	-150.1	258.3	0.00	0.00	
2,000.0	9.66	324.48	1,977.5	223.9	-159.8	275.1	0.00	0.00	
2,100.0	9.66	324.48	2,076.1	237.5	-169.6	291.8	0.00	0.00	
2,200.0	9.66	324.48	2,174.7	251.2	-179.3	308.6	0.00	0.00	
2,300.0	9.66	324.48	2,273.3	264.8	-189.1	325.4	0.00	0.00	
2,400.0	9.66	324.48	2,371.9	278.5	-198.8	342.2	0.00	0.00	
2,500.0	9.66	324.48	2,470.4	292.1	-208.6	358.9	0.00	0.00	
2,600.0	9.66	324.48	2,569.0	305.8	-218.3	375.7	0.00	0.00	
2,700.0	9.66	324.48	2,667.6	319.5	-228.0	392.5	0.00	0.00	
2,800.0	9.66	324.48	2,766.2	333.1	-237.8	409.3	0.00	0.00	
2,900.0	9.66	324.48	2,864.8	346.8	-247.5	426.1	0.00	0.00	
3,000.0	9.66	324.48	2,963.4	360.4	-257.3	442.8	0.00	0.00	
3,100.0	9.66	324.48	3,061.9	374.1	-267.0	459.6	0.00	0.00	
3,200.0	9.66	324.48	3,160.5	387.7	-276.8	476.4	0.00	0.00	
3,300.0	9.66	324.48	3,259.1	401.4	-286.5	493.2	0.00	0.00	
3,400.0	9.66	324.48	3,357.7	415.0	-296.3	509.9	0.00	0.00	
3,500.0	9.66	324.48	3,456.3	428.7	-306.0	526.7	0.00	0.00	
3,600.0	9.66	324.48	3,554.8	442.4	-315.8	543.5	0.00	0.00	
3,700.0	9.66	324.48	3,653.4	456.0	-325.5	560.3	0.00	0.00	
3,800.0	9.66	324.48	3,752.0	469.7	-335.3	577.1	0.00	0.00	
3,900.0	9.66	324.48	3,850.6	483.3	-345.0	593.8	0.00	0.00	
4,000.0	9.66	324.48	3,949.2	497.0	-354.8	610.6	0.00	0.00	
4,100.0	9.66	324.48	4,047.8	510.6	-364.5	627.4	0.00	0.00	
4,200.0	9.66	324.48	4,146.3	524.3	-374.3	644.2	0.00	0.00	
4,300.0	9.66	324.48	4,244.9	537.9	-384.0	660.9	0.00	0.00	
4,367.0	9.66	324.48	4,311.0	547.1	-390.6	672.2	0.00	0.00	Ohio Creek
4,400.0	9.66	324.48	4,343.5	551.6	-393.8	677.7	0.00	0.00	
4,500.0	9.66	324.48	4,442.1	565.3	-403.5	694.5	0.00	0.00	
4,600.0	9.66	324.48	4,540.7	578.9	-413.3	711.3	0.00	0.00	
4,700.0	9.66	324.48	4,639.3	592.6	-423.0	728.1	0.00	0.00	
4,800.0	9.66	324.48	4,737.8	606.2	-432.8	744.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Federal Savage 11-4A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6406.0ft (Original Well Elev)
Project:	S. Piceance	MD Reference:	WELL @ 6406.0ft (Original Well Elev)
Site:	NWNW S11-T7S-R94W (RD 11 Pad)	North Reference:	True
Well:	Federal Savage 11-4A	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,818.4	9.66	324.48	4,756.0	608.7	-434.6	747.9	0.00	0.00	Mesa Verde
4,900.0	9.66	324.48	4,836.4	619.9	-442.5	761.6	0.00	0.00	
5,000.0	9.66	324.48	4,935.0	633.5	-452.3	778.4	0.00	0.00	
5,100.0	9.66	324.48	5,033.6	647.2	-462.0	795.2	0.00	0.00	
5,200.0	9.66	324.48	5,132.2	660.8	-471.8	811.9	0.00	0.00	
5,300.0	9.66	324.48	5,230.7	674.5	-481.5	828.7	0.00	0.00	
5,315.5	9.66	324.48	5,246.0	676.6	-483.0	831.3	0.00	0.00	Williams Fork
5,400.0	9.66	324.48	5,329.3	688.2	-491.2	845.5	0.00	0.00	
5,500.0	9.66	324.48	5,427.9	701.8	-501.0	862.3	0.00	0.00	
5,600.0	9.66	324.48	5,526.5	715.5	-510.7	879.1	0.00	0.00	
5,700.0	9.66	324.48	5,625.1	729.1	-520.5	895.8	0.00	0.00	
5,800.0	9.66	324.48	5,723.7	742.8	-530.2	912.6	0.00	0.00	
5,853.4	9.66	324.48	5,776.3	750.1	-535.5	921.6	0.00	0.00	Start Drop -2.00
5,900.0	8.73	324.48	5,822.3	756.1	-539.8	929.0	2.00	-2.00	
6,000.0	6.73	324.48	5,921.4	767.1	-547.6	942.5	2.00	-2.00	
6,100.0	4.73	324.48	6,020.9	775.2	-553.4	952.4	2.00	-2.00	
6,200.0	2.73	324.48	6,120.7	780.5	-557.2	958.9	2.00	-2.00	
6,300.0	0.73	324.48	6,220.6	782.9	-558.9	962.0	2.00	-2.00	
6,336.4	0.00	0.00	6,257.0	783.1	-559.0	962.2	2.00	-2.00	EOD at Inc. = 0° - Top of Gas - Federal Savage
6,400.0	0.00	0.00	6,320.6	783.1	-559.0	962.2	0.00	0.00	
6,500.0	0.00	0.00	6,420.6	783.1	-559.0	962.2	0.00	0.00	
6,600.0	0.00	0.00	6,520.6	783.1	-559.0	962.2	0.00	0.00	
6,700.0	0.00	0.00	6,620.6	783.1	-559.0	962.2	0.00	0.00	
6,800.0	0.00	0.00	6,720.6	783.1	-559.0	962.2	0.00	0.00	
6,900.0	0.00	0.00	6,820.6	783.1	-559.0	962.2	0.00	0.00	
7,000.0	0.00	0.00	6,920.6	783.1	-559.0	962.2	0.00	0.00	
7,100.0	0.00	0.00	7,020.6	783.1	-559.0	962.2	0.00	0.00	
7,200.0	0.00	0.00	7,120.6	783.1	-559.0	962.2	0.00	0.00	
7,300.0	0.00	0.00	7,220.6	783.1	-559.0	962.2	0.00	0.00	
7,400.0	0.00	0.00	7,320.6	783.1	-559.0	962.2	0.00	0.00	
7,500.0	0.00	0.00	7,420.6	783.1	-559.0	962.2	0.00	0.00	Coal Ridge
7,515.4	0.00	0.00	7,436.0	783.1	-559.0	962.2	0.00	0.00	
7,600.0	0.00	0.00	7,520.6	783.1	-559.0	962.2	0.00	0.00	
7,700.0	0.00	0.00	7,620.6	783.1	-559.0	962.2	0.00	0.00	
7,800.0	0.00	0.00	7,720.6	783.1	-559.0	962.2	0.00	0.00	
7,900.0	0.00	0.00	7,820.6	783.1	-559.0	962.2	0.00	0.00	
8,000.0	0.00	0.00	7,920.6	783.1	-559.0	962.2	0.00	0.00	
8,100.0	0.00	0.00	8,020.6	783.1	-559.0	962.2	0.00	0.00	
8,200.0	0.00	0.00	8,120.6	783.1	-559.0	962.2	0.00	0.00	
8,300.0	0.00	0.00	8,220.6	783.1	-559.0	962.2	0.00	0.00	Rollins
8,370.4	0.00	0.00	8,291.0	783.1	-559.0	962.2	0.00	0.00	
8,400.0	0.00	0.00	8,320.6	783.1	-559.0	962.2	0.00	0.00	
8,500.0	0.00	0.00	8,420.6	783.1	-559.0	962.2	0.00	0.00	
8,520.4	0.00	0.00	8,441.0	783.1	-559.0	962.2	0.00	0.00	
8,600.0	0.00	0.00	8,520.6	783.1	-559.0	962.2	0.00	0.00	
8,670.4	0.00	0.00	8,591.0	783.1	-559.0	962.2	0.00	0.00	Permit TD at 8670' MD

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Federal Savage 11-4A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6406.0ft (Original Well Elev)
Project:	S. Piceance	MD Reference:	WELL @ 6406.0ft (Original Well Elev)
Site:	NWNW S11-T7S-R94W (RD 11 Pad)	North Reference:	True
Well:	Federal Savage 11-4A	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Federal Savage 11-4A E	0.00	0.00	8,441.0	783.1	-559.0	1,600,984.05	2,333,412.60	39.459680	-107.861170
- plan hits target center									
- Circle (radius 25.0)									
Federal Savage 11-4A T	0.00	0.00	6,257.0	783.1	-559.0	1,600,984.05	2,333,412.60	39.459680	-107.861170
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(ft)	(ft)	Name		(in)	(in)
1,109.9	1,100.0	Surface Casing		5.500	6.000

Formations						
Measured Depth	Vertical Depth				Dip	Dip Direction
(ft)	(ft)	Name		Lithology	(°)	(°)
4,367.0	4,311.0	Ohio Creek				
4,818.4	4,756.0	Mesa Verde				
5,315.5	5,246.0	Williams Fork				
6,336.4	6,257.0	Top of Gas				
7,515.4	7,436.0	Coal Ridge				
8,370.4	8,291.0	Rollins				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
200.0	200.0	0.0	0.0	KOP = 200' MD	
522.0	520.4	22.0	-15.7	EOB at Inc. = 9.66°	
5,853.4	5,776.3	750.1	-535.5	Start Drop -2.00	
6,336.4	6,257.0	783.1	-559.0	EOD at Inc. = 0°	
8,520.4	8,441.0	783.1	-559.0	TD at 8520' MD	
8,670.4	8,591.0	783.1	-559.0	Permit TD at 8670' MD	