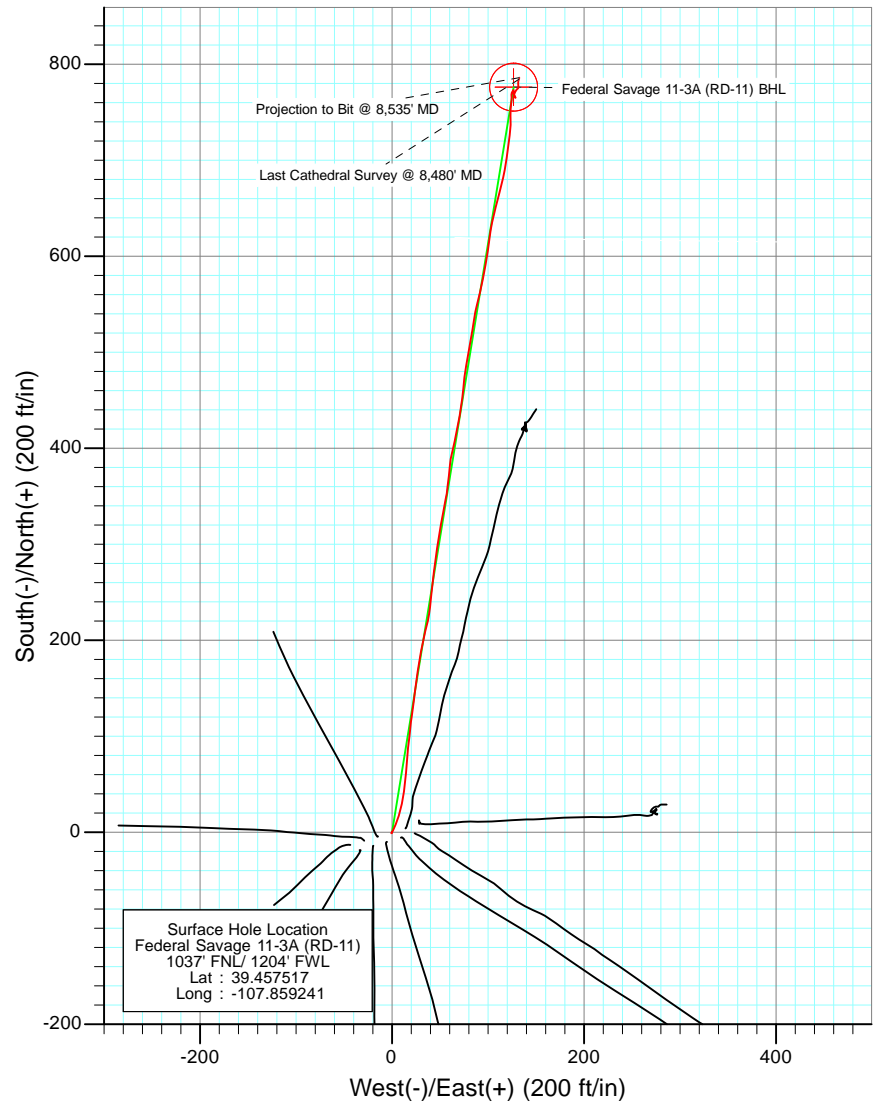
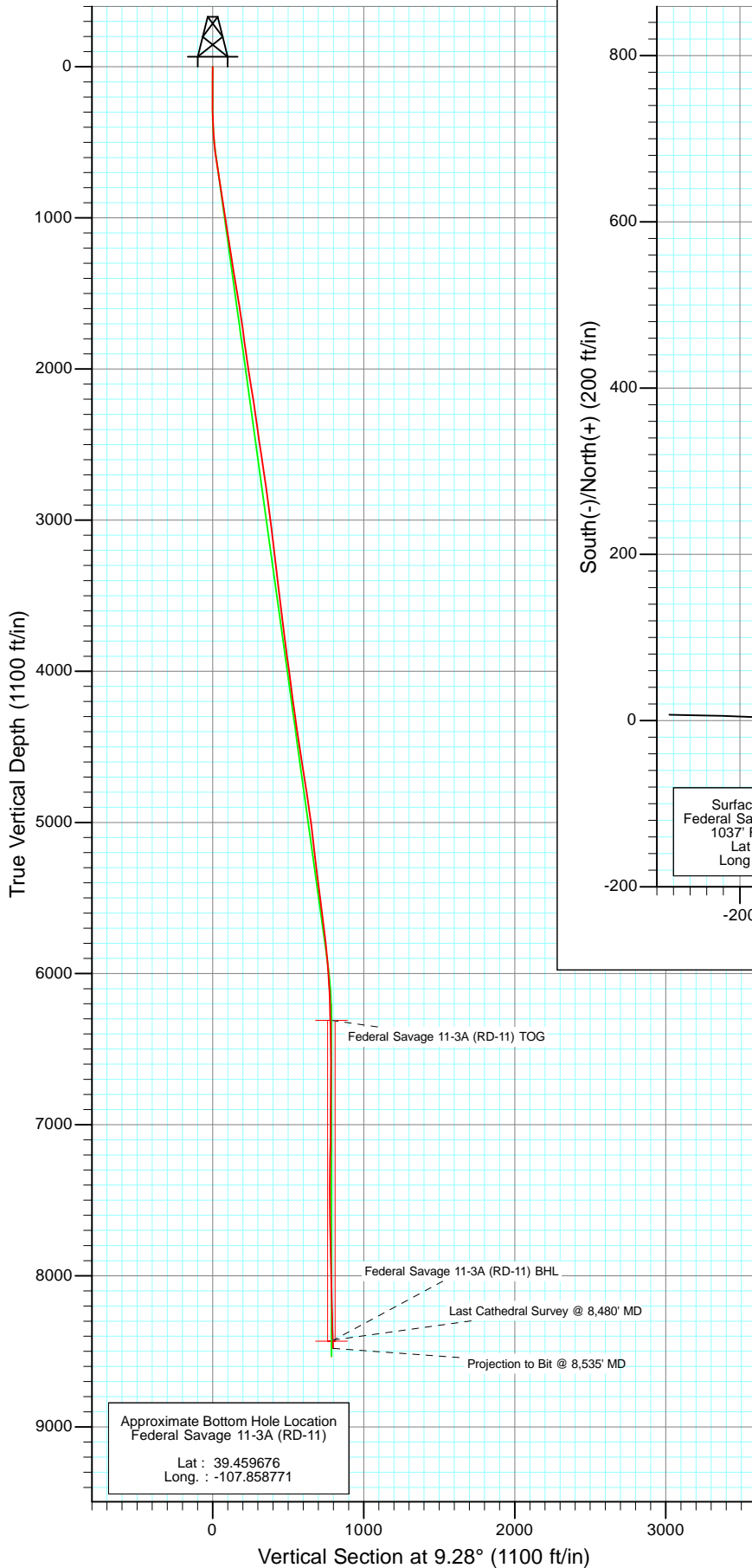




Project: S. Piceance (Parachute)
 Site: NWNW S11-T7S-R94W (RD-11)
 Well: Federal Savage 11-3A (RD-11)
 Wellbore: DD
 Design: FINAL



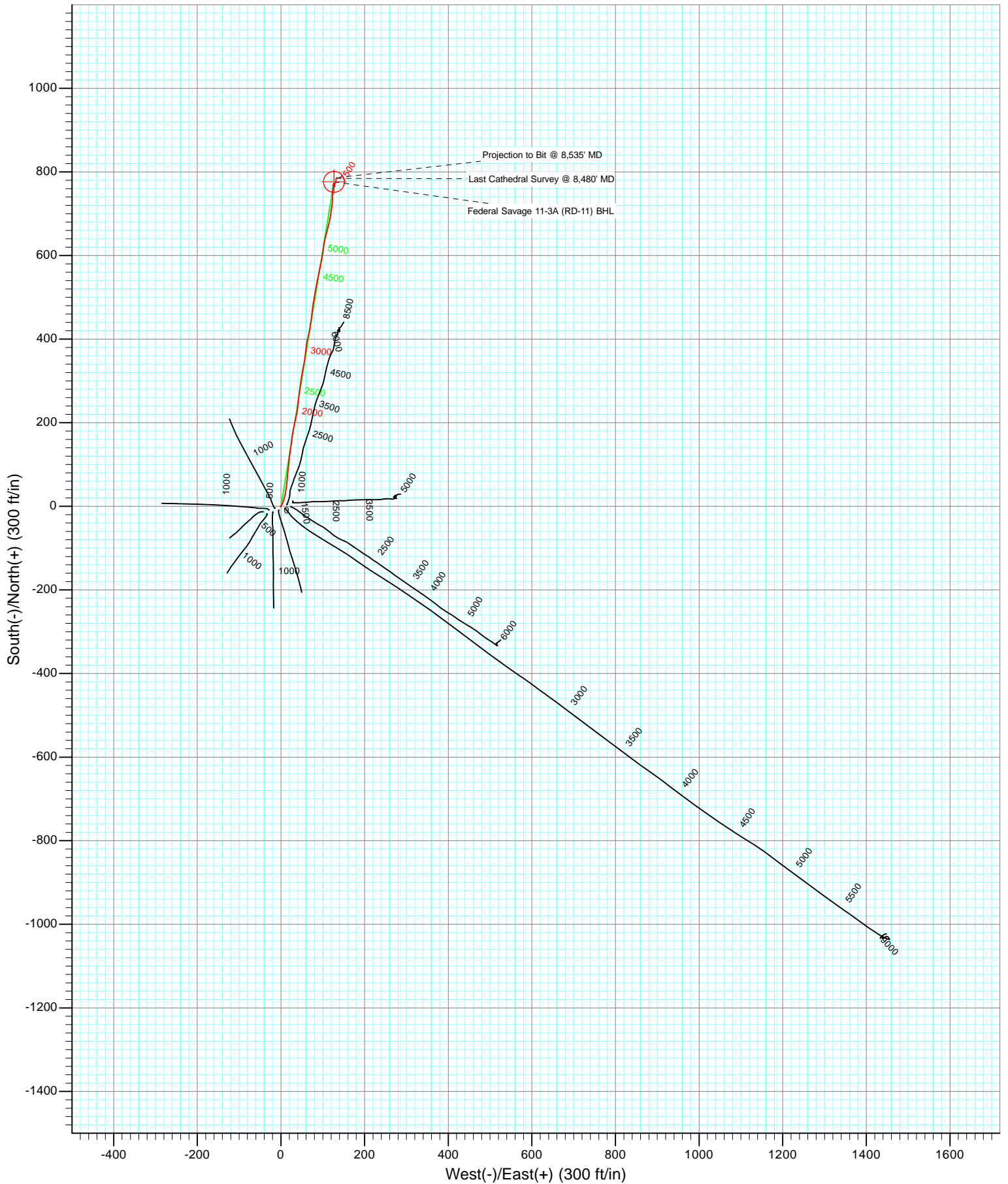
Azimuths to True North
 Magnetic North: 10.25°

Magnetic Field
 Strength: 52215.5nT
 Dip Angle: 65.73°
 Date: 9/25/2011
 Model: IGRF2010

DESIGN DETAILS: DD

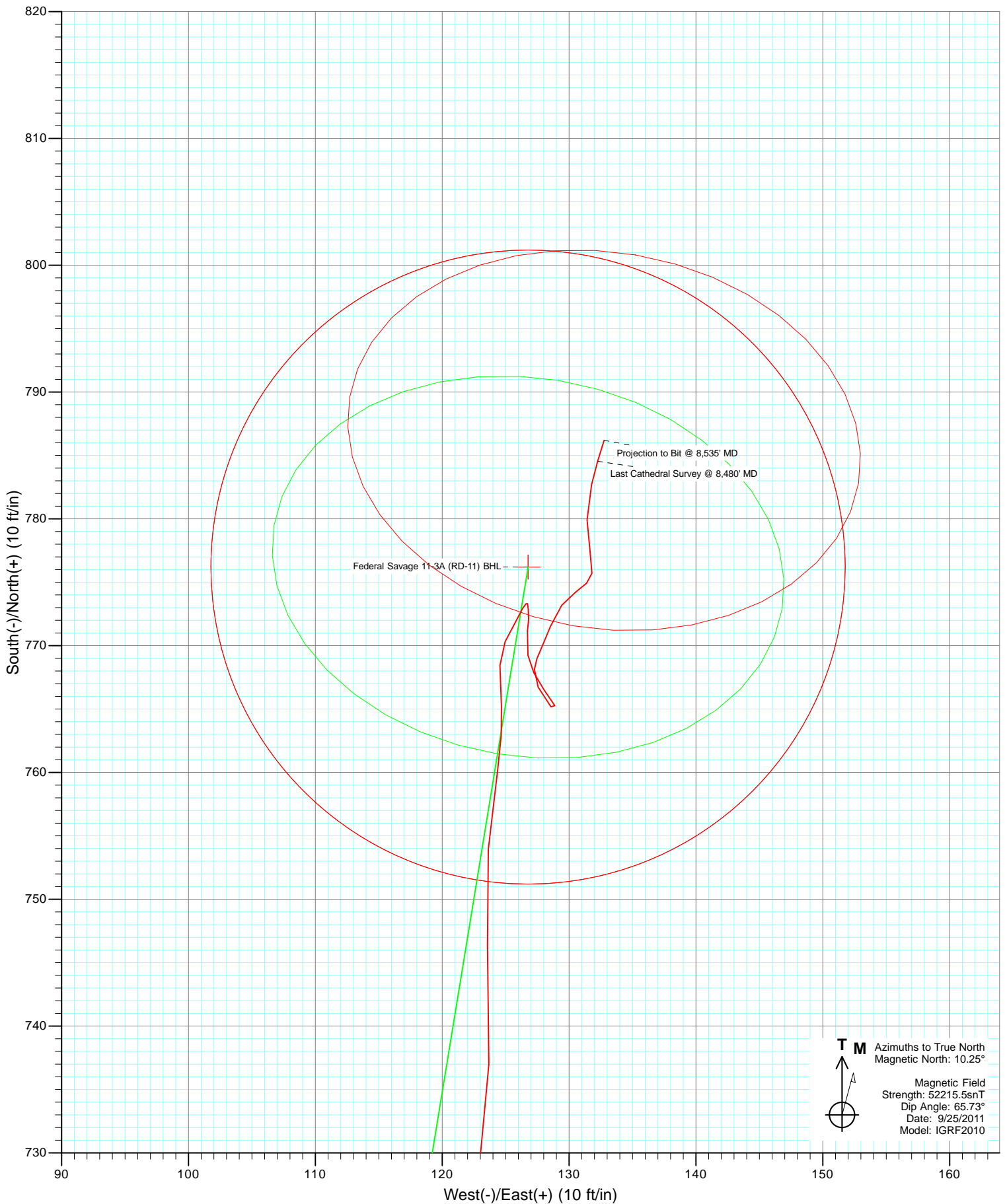
115312, 115401, 7564; BH
 KBE @ 6409.0ft (Nabors M11)

Target	Azimuth	Origin	N/S	E/W	From TVD
Federal Savage 11-3A (RD-11) BHL	9.28	Slot	0.0	0.0	0.0





Project: S. Piceance (Parachute)
Site: NWNW S11-T7S-R94W (RD-11)
Well: Federal Savage 11-3A (RD-11)
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-3A (RD-11)
Project:	S. Piceance (Parachute)	TVD Reference:	KBE @ 6409.0ft (Nabors M11)
Site:	NWNW S11-T7S-R94W (RD-11)	MD Reference:	KBE @ 6409.0ft (Nabors M11)
Well:	Federal Savage 11-3A (RD-11)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Project	S. Piceance (Parachute), 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)			
Site Position:		Northing:	1,600,170.34 ft	Latitude: 39.457481
From:	Lat/Long	Easting:	2,333,893.08 ft	Longitude: -107.859394
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.49 °

Well	Federal Savage 11-3A (RD-11)			
Well Position	+N/-S	0.0 ft	Northing:	1,600,182.31 ft
	+E/-W	0.0 ft	Easting:	2,333,936.61 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 6,387.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/25/2011	10.25	65.73	52,215

Design	DD			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	9.28

Survey Program	Date	10/6/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
112.0	8,535.0	Survey #1 (DD)	MWD	Geolink MWD

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
112.0	0.70	217.90	112.0	-0.5	-0.4	-0.6	0.62	0.62	
143.0	0.40	208.40	143.0	-0.8	-0.6	-0.9	1.01	-0.97	
174.0	0.20	160.60	174.0	-0.9	-0.6	-1.0	0.98	-0.65	
204.0	0.30	75.70	204.0	-1.0	-0.5	-1.0	1.15	0.33	
235.0	0.60	29.30	235.0	-0.8	-0.4	-0.8	1.45	0.97	
266.0	0.70	33.10	266.0	-0.5	-0.2	-0.5	0.35	0.32	
296.0	1.20	24.80	296.0	-0.1	0.0	-0.1	1.72	1.67	
326.0	1.60	31.70	326.0	0.6	0.4	0.6	1.44	1.33	
357.0	2.10	27.00	357.0	1.5	0.9	1.6	1.68	1.61	
388.0	2.70	24.10	387.9	2.6	1.4	2.8	1.97	1.94	
418.0	3.60	29.10	417.9	4.1	2.2	4.4	3.13	3.00	
449.0	4.10	24.10	448.8	6.0	3.1	6.4	1.94	1.61	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-3A (RD-11)
Project:	S. Piceance (Parachute)	TVD Reference:	KBE @ 6409.0ft (Nabors M11)
Site:	NWNW S11-T7S-R94W (RD-11)	MD Reference:	KBE @ 6409.0ft (Nabors M11)
Well:	Federal Savage 11-3A (RD-11)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
480.0	4.80	20.40	479.7	8.2	4.0	8.7	2.44	2.26	
572.0	7.10	17.10	571.2	17.2	7.0	18.1	2.53	2.50	
664.0	8.60	12.90	662.4	29.4	10.2	30.6	1.74	1.63	
755.0	9.50	5.80	752.2	43.5	12.5	44.9	1.57	0.99	
847.0	8.60	6.70	843.1	57.9	14.1	59.4	0.99	-0.98	
938.0	8.60	5.40	933.1	71.4	15.5	73.0	0.21	0.00	
1,032.0	9.00	5.90	1,026.0	85.7	16.9	87.3	0.43	0.43	
1,127.0	9.10	4.10	1,119.8	100.6	18.2	102.2	0.32	0.11	
1,223.0	8.60	8.40	1,214.6	115.3	19.8	116.9	0.86	-0.52	
1,260.0	8.70	9.00	1,251.2	120.8	20.7	122.5	0.36	0.27	
1,359.0	8.90	7.10	1,349.0	135.8	22.8	137.7	0.36	0.20	
1,454.0	9.50	7.90	1,442.8	150.8	24.8	152.8	0.65	0.63	
1,550.0	10.00	6.80	1,537.4	166.9	26.8	169.1	0.56	0.52	
1,646.0	8.30	9.90	1,632.2	182.0	29.0	184.3	1.84	-1.77	
1,741.0	7.90	13.10	1,726.3	195.2	31.7	197.7	0.63	-0.42	
1,837.0	7.70	12.40	1,821.4	207.9	34.6	210.7	0.23	-0.21	
1,932.0	8.00	13.30	1,915.5	220.5	37.5	223.7	0.34	0.32	
2,027.0	8.80	6.10	2,009.5	234.2	39.7	237.5	1.39	0.84	
2,122.0	9.50	5.00	2,103.3	249.2	41.2	252.6	0.76	0.74	
2,217.0	9.00	8.50	2,197.0	264.4	43.0	267.8	0.79	-0.53	
2,313.0	7.90	6.00	2,292.0	278.4	44.8	281.9	1.21	-1.15	
2,408.0	8.20	8.10	2,386.0	291.6	46.4	295.2	0.44	0.32	
2,503.0	8.10	8.80	2,480.1	304.9	48.4	308.7	0.15	-0.11	
2,598.0	8.60	10.60	2,574.1	318.5	50.7	322.5	0.59	0.53	
2,694.0	8.80	10.50	2,669.0	332.7	53.4	337.0	0.21	0.21	
2,789.0	8.20	10.80	2,762.9	346.5	56.0	351.0	0.63	-0.63	
2,884.0	7.40	6.20	2,857.0	359.3	57.9	363.9	1.07	-0.84	
2,978.0	7.30	7.10	2,950.3	371.2	59.3	375.9	0.16	-0.11	
3,073.0	7.10	3.80	3,044.5	383.1	60.4	387.8	0.48	-0.21	
3,168.0	6.60	12.80	3,138.9	394.3	62.0	399.1	1.24	-0.53	
3,264.0	6.80	14.30	3,234.2	405.1	64.7	410.3	0.28	0.21	
3,359.0	6.80	12.80	3,328.5	416.1	67.3	421.5	0.19	0.00	
3,454.0	6.70	9.00	3,422.9	427.0	69.4	432.6	0.48	-0.11	
3,550.0	7.10	8.60	3,518.2	438.4	71.2	444.2	0.42	0.42	
3,646.0	6.90	7.40	3,613.5	450.0	72.8	455.9	0.26	-0.21	
3,741.0	7.40	6.40	3,707.7	461.8	74.2	467.7	0.54	0.53	
3,837.0	7.30	6.20	3,802.9	474.0	75.6	479.9	0.11	-0.10	
3,932.0	7.40	10.90	3,897.2	486.0	77.4	492.1	0.64	0.11	
4,028.0	7.70	9.00	3,992.3	498.4	79.6	504.7	0.41	0.31	
4,123.0	7.50	11.30	4,086.5	510.8	81.8	517.3	0.38	-0.21	
4,218.0	7.60	9.10	4,180.7	523.0	84.0	529.7	0.32	0.11	
4,314.0	7.60	7.50	4,275.8	535.6	85.8	542.4	0.22	0.00	
4,409.0	8.20	14.20	4,369.9	548.4	88.3	555.5	1.16	0.63	
4,505.0	8.80	13.20	4,464.9	562.2	91.6	569.6	0.64	0.62	
4,600.0	9.20	11.50	4,558.7	576.7	94.8	584.4	0.51	0.42	
4,696.0	8.30	10.00	4,653.6	591.1	97.5	599.0	0.97	-0.94	
4,791.0	8.90	8.60	4,747.5	605.1	99.8	613.2	0.67	0.63	
4,887.0	9.20	7.10	4,842.3	620.0	101.9	628.3	0.40	0.31	
4,982.0	8.30	12.50	4,936.2	634.3	104.3	642.8	1.28	-0.95	
5,078.0	6.60	11.10	5,031.4	646.4	106.9	655.2	1.78	-1.77	
5,173.0	6.50	16.00	5,125.8	657.0	109.4	666.0	0.60	-0.11	
5,269.0	6.80	14.70	5,221.1	667.7	112.4	677.1	0.35	0.31	
5,365.0	6.60	14.40	5,316.5	678.5	115.2	688.2	0.21	-0.21	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-3A (RD-11)
Project:	S. Piceance (Parachute)	TVD Reference:	KBE @ 6409.0ft (Nabors M11)
Site:	NWNW S11-T7S-R94W (RD-11)	MD Reference:	KBE @ 6409.0ft (Nabors M11)
Well:	Federal Savage 11-3A (RD-11)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
5,461.0	7.40	9.50	5,411.8	690.0	117.6	699.9	1.04	0.83	
5,556.0	7.70	8.30	5,505.9	702.3	119.5	712.4	0.36	0.32	
5,652.0	7.20	6.80	5,601.1	714.6	121.1	724.8	0.56	-0.52	
5,747.0	6.80	8.60	5,695.4	726.1	122.7	736.4	0.48	-0.42	
5,843.0	6.30	1.70	5,790.8	737.0	123.7	747.3	0.97	-0.52	
5,938.0	5.10	356.50	5,885.3	746.4	123.6	756.6	1.37	-1.26	
6,033.0	4.00	5.60	5,980.0	753.9	123.6	764.0	1.38	-1.16	
6,129.0	3.60	7.90	6,075.8	760.2	124.4	770.4	0.45	-0.42	
6,223.0	2.50	356.70	6,169.7	765.2	124.7	775.3	1.33	-1.17	
6,318.0	1.40	359.90	6,264.6	768.4	124.6	778.5	1.16	-1.16	
6,413.0	1.00	30.40	6,359.6	770.3	125.0	780.4	0.78	-0.42	
6,509.0	1.40	26.00	6,455.6	772.1	125.9	782.3	0.43	0.42	
6,604.0	0.30	49.30	6,550.6	773.3	126.6	783.6	1.19	-1.16	
6,699.0	0.20	201.50	6,645.6	773.3	126.7	783.6	0.51	-0.11	
6,795.0	0.40	157.90	6,741.6	772.8	126.8	783.2	0.30	0.21	
6,890.0	0.60	192.70	6,836.6	772.1	126.8	782.4	0.37	0.21	
6,985.0	0.50	176.70	6,931.6	771.2	126.7	781.5	0.19	-0.11	
7,081.0	0.50	181.10	7,027.6	770.3	126.7	780.7	0.04	0.00	
7,176.0	0.80	177.20	7,122.6	769.2	126.8	779.6	0.32	0.32	
7,271.0	1.00	148.80	7,217.5	767.9	127.2	778.3	0.51	0.21	
7,367.0	0.90	149.30	7,313.5	766.5	128.0	777.1	0.10	-0.10	
7,462.0	0.90	142.20	7,408.5	765.3	128.9	776.0	0.12	0.00	
7,558.0	1.10	303.50	7,504.5	765.2	128.6	775.9	2.06	0.21	
7,653.0	1.30	346.50	7,599.5	766.7	127.6	777.3	0.95	0.21	
7,749.0	0.40	353.40	7,695.5	768.1	127.3	778.6	0.94	-0.94	
7,844.0	0.70	24.20	7,790.5	769.0	127.5	779.5	0.43	0.32	
7,939.0	2.60	22.30	7,885.4	771.5	128.5	782.1	2.00	2.00	
8,035.0	1.60	58.90	7,981.4	774.2	130.5	785.1	1.69	-1.04	
8,130.0	1.00	11.80	8,076.4	775.7	131.8	786.8	1.24	-0.63	
8,225.0	1.20	341.00	8,171.3	777.5	131.7	788.5	0.65	0.21	
8,321.0	1.80	3.50	8,267.3	779.9	131.4	790.9	0.86	0.62	
8,416.0	1.60	11.70	8,362.3	782.7	131.8	793.7	0.33	-0.21	
8,480.0	1.80	17.10	8,426.2	784.5	132.3	795.6	0.40	0.31	Last Cathedral Survey @ 8,480' MD
8,535.0	1.80	17.10	8,481.2	786.2	132.8	797.3	0.00	0.00	Projection to Bit @ 8,535' MD

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-3A (RD-11)
Project:	S. Piceance (Parachute)	TVD Reference:	KBE @ 6409.0ft (Nabors M11)
Site:	NWNW S11-T7S-R94W (RD-11)	MD Reference:	KBE @ 6409.0ft (Nabors M11)
Well:	Federal Savage 11-3A (RD-11)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

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 11-3A (F	0.00	0.00	8,432.0	776.2	126.8	1,600,954.96	2,334,083.49	39.459648	-107.858792
- actual wellpath misses target center by 11.5ft at 8480.0ft MD (8426.2 TVD, 784.5 N, 132.3 E)									
- Circle (radius 25.0)									
Federal Savage 11-3A (F	0.00	0.00	6,310.0	776.2	126.8	1,600,954.96	2,334,083.49	39.459648	-107.858792
- actual wellpath misses target center by 7.1ft at 6363.5ft MD (6310.1 TVD, 769.5 N, 124.6 E)									
- Point									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
8,480.0	8,426.2	784.5	132.3	Last Cathedral Survey @ 8,480' MD	
8,535.0	8,481.2	786.2	132.8	Projection to Bit @ 8,535' MD	

Checked By: _____ Approved By: _____ Date: _____