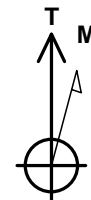
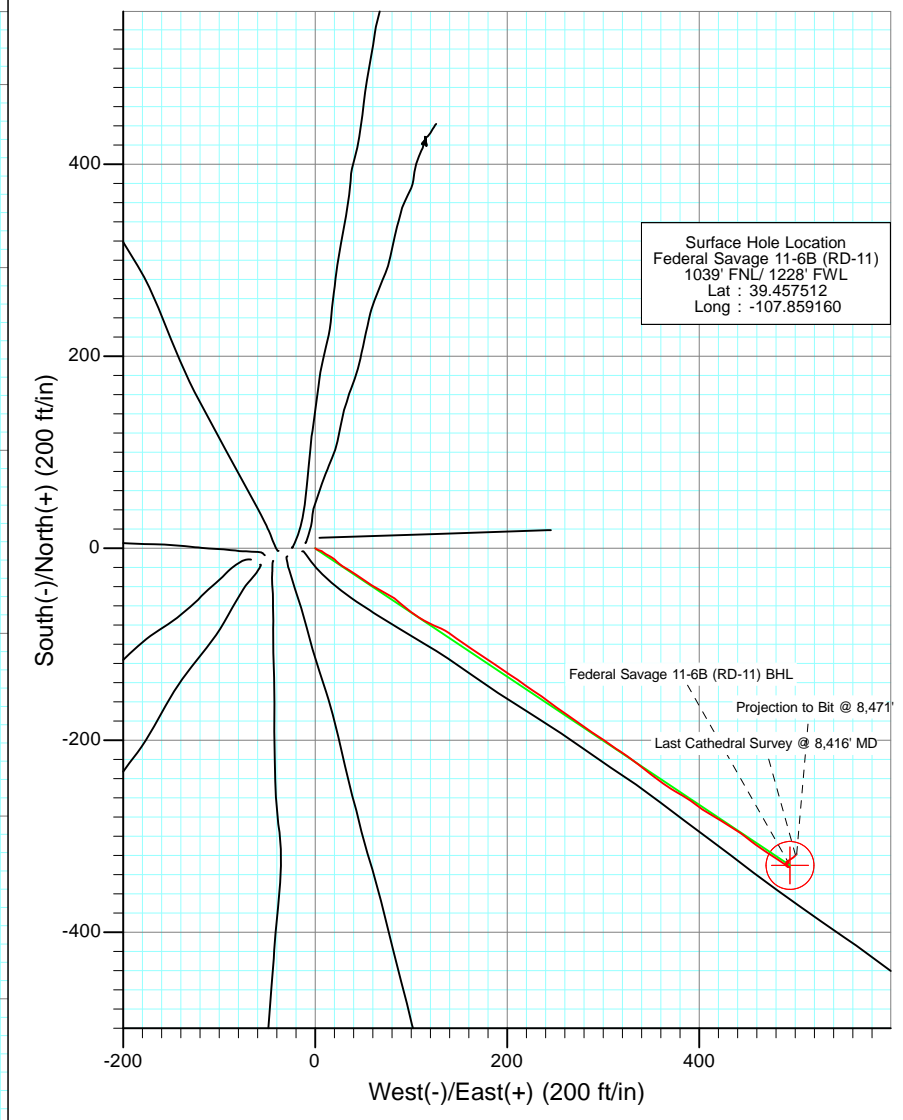
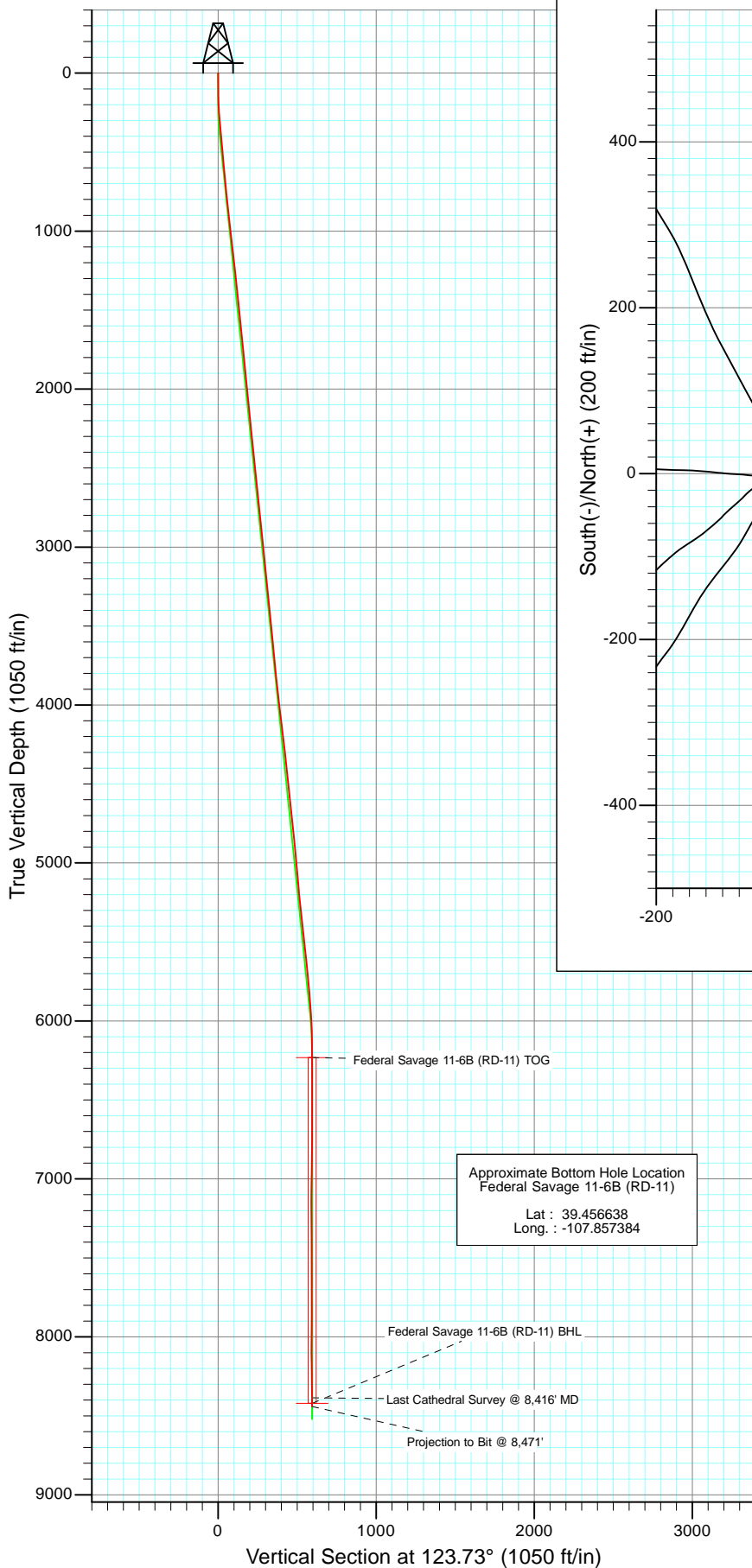




Project: S. Piceance (Parachute)
 Site: NWNW S11-T7S-R94W (RD-11)
 Well: Federal Savage 11-6B (RD-11)
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.26°

Magnetic Field
 Strength: 52221.3snT
 Dip Angle: 65.73°
 Date: 9/4/2011
 Model: IGRF2010

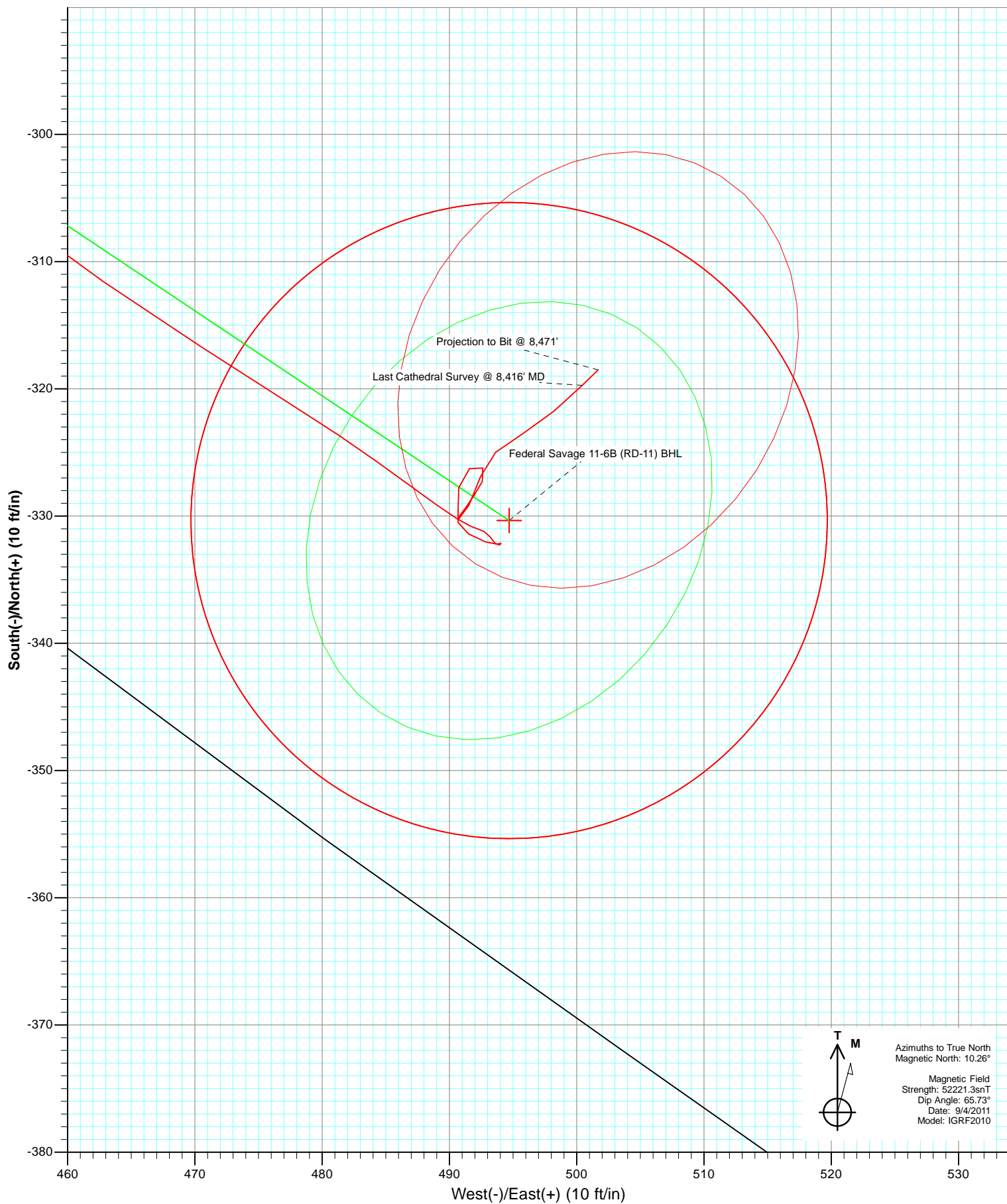
DESIGN DETAILS: DD

115343, 7625 -SH, 115361, 106655; SC
 KBE @ 6409.0ft (Nabors M11)

Target	Azimuth	Origin	N/S	E/W	From TVD
Federal Savage 11-6B (RD-11) BHL	123.73	Slot	0.0	0.0	0.0

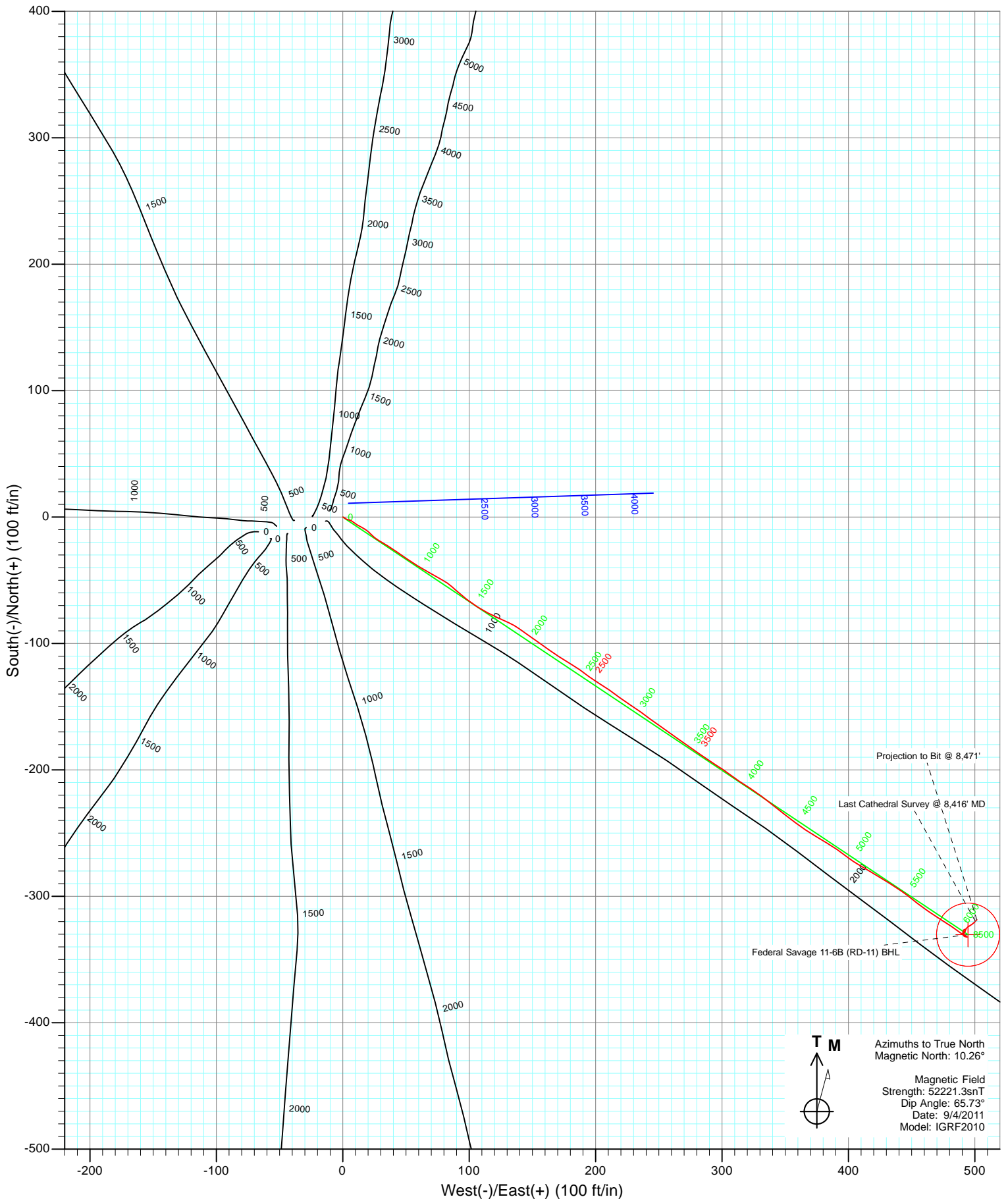


Project: S. Piceance (Parachute)
Site: NWNW S11-T7S-R94W (RD-11)
Well: Federal Savage 11-6B (RD-11)
Wellbore: DD
Plan: FINAL





Project: S. Piceance (Parachute)
Site: NWNW S11-T7S-R94W (RD-11)
Well: Federal Savage 11-6B (RD-11)
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-6B (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 11-6B (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 11-6B (RD-11)			
Well Position	+N/-S	0.0 ft	Northing:	1,600,179.90 ft
	+E/-W	0.0 ft	Easting:	2,333,959.42 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	9/4/2011	10.26	65.73	52,221

Design	DD			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	123.73

Survey Program	Date	9/12/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
112.0	1,256.0	Survey #1 (DD)	MWD	Geolink MWD	
1,360.0	8,471.0	Survey #2 (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	0.60	118.10	112.0	-0.3	0.5	0.6	0.54	0.54	
143.0	1.00	109.70	143.0	-0.4	0.9	1.0	1.34	1.29	
174.0	2.00	124.60	174.0	-0.8	1.6	1.8	3.44	3.23	
204.0	2.90	119.80	204.0	-1.5	2.7	3.1	3.07	3.00	
235.0	3.60	103.40	234.9	-2.1	4.3	4.8	3.73	2.26	
266.0	3.80	111.10	265.8	-2.7	6.2	6.7	1.73	0.65	
296.0	4.50	129.00	295.8	-3.8	8.1	8.8	4.88	2.33	
388.0	6.10	116.50	387.4	-8.3	15.3	17.3	2.13	1.74	
480.0	4.90	139.20	479.0	-13.4	22.2	25.9	2.68	-1.30	
573.0	5.10	119.30	571.6	-18.5	28.4	33.9	1.87	0.22	
664.0	5.50	122.70	662.2	-22.8	35.6	42.3	0.56	0.44	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-6B (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 11-6B (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
755.0	5.80	124.00	752.8	-27.7	43.1	51.2	0.36	0.33	
847.0	6.10	125.70	844.3	-33.2	50.9	60.8	0.38	0.33	
939.0	6.50	120.50	935.7	-38.7	59.4	70.8	0.76	0.43	
1,032.0	6.80	119.50	1,028.1	-44.1	68.7	81.6	0.35	0.32	
1,128.0	6.30	119.10	1,123.5	-49.4	78.2	92.5	0.52	-0.52	
1,223.0	6.20	131.60	1,217.9	-55.4	86.6	102.8	1.43	-0.11	
1,256.0	6.20	130.90	1,250.7	-57.7	89.3	106.3	0.23	0.00	Last Cathedral Survey @ 1,256' MD
1,360.0	6.40	128.70	1,354.1	-65.0	98.1	117.7	0.30	0.19	
1,455.0	6.00	122.40	1,448.5	-71.0	106.4	127.9	0.83	-0.42	
1,550.0	5.70	118.10	1,543.0	-75.9	114.8	137.6	0.56	-0.32	
1,646.0	5.30	112.80	1,638.6	-79.8	123.0	146.7	0.67	-0.42	
1,741.0	5.70	115.30	1,733.2	-83.5	131.4	155.6	0.49	0.42	
1,836.0	5.80	126.00	1,827.7	-88.4	139.5	165.1	1.13	0.11	
1,932.0	5.60	123.60	1,923.2	-93.8	147.3	174.6	0.32	-0.21	
2,027.0	6.00	126.70	2,017.7	-99.4	155.2	184.2	0.53	0.42	
2,122.0	5.70	124.00	2,112.2	-105.0	163.1	193.9	0.43	-0.32	
2,218.0	6.00	124.70	2,207.7	-110.5	171.1	203.7	0.32	0.31	
2,313.0	5.70	118.30	2,302.2	-115.5	179.4	213.3	0.76	-0.32	
2,408.0	5.80	126.90	2,396.8	-120.7	187.4	222.8	0.91	0.11	
2,504.0	5.80	126.00	2,492.3	-126.4	195.2	232.5	0.09	0.00	
2,600.0	5.40	120.90	2,587.8	-131.6	203.0	241.9	0.66	-0.42	
2,695.0	6.10	125.70	2,682.3	-136.8	210.9	251.4	0.89	0.74	
2,790.0	6.20	127.30	2,776.8	-142.9	219.1	261.6	0.21	0.11	
2,886.0	6.20	121.10	2,872.2	-148.7	227.7	271.9	0.70	0.00	
2,981.0	6.00	127.60	2,966.7	-154.4	236.0	282.0	0.76	-0.21	
3,076.0	5.90	125.70	3,061.2	-160.3	243.9	291.8	0.23	-0.11	
3,171.0	5.80	125.10	3,155.7	-165.9	251.8	301.5	0.12	-0.11	
3,266.0	5.20	125.10	3,250.3	-171.1	259.2	310.6	0.63	-0.63	
3,362.0	6.00	126.20	3,345.8	-176.6	266.8	320.0	0.84	0.83	
3,457.0	5.50	124.30	3,440.3	-182.1	274.6	329.5	0.56	-0.53	
3,552.0	5.20	124.70	3,534.9	-187.1	281.9	338.3	0.32	-0.32	
3,648.0	5.70	124.70	3,630.5	-192.3	289.4	347.5	0.52	0.52	
3,742.0	5.40	122.00	3,724.0	-197.3	297.0	356.5	0.42	-0.32	
3,838.0	6.30	126.90	3,819.5	-202.8	305.0	366.3	1.07	0.94	
3,932.0	6.60	123.90	3,912.9	-209.0	313.6	376.9	0.48	0.32	
4,027.0	6.30	121.90	4,007.3	-214.8	322.6	387.5	0.39	-0.32	
4,122.0	7.00	127.80	4,101.7	-221.1	331.6	398.5	1.03	0.74	
4,218.0	6.90	128.60	4,197.0	-228.2	340.7	410.1	0.14	-0.10	
4,313.0	6.70	128.20	4,291.3	-235.2	349.5	421.3	0.22	-0.21	
4,408.0	6.20	126.50	4,385.7	-241.7	358.0	432.0	0.56	-0.53	
4,504.0	5.90	123.60	4,481.2	-247.5	366.3	442.1	0.45	-0.31	
4,600.0	6.00	121.40	4,576.7	-252.9	374.7	452.0	0.26	0.10	
4,695.0	5.50	119.80	4,671.2	-257.7	382.9	461.5	0.55	-0.53	
4,791.0	6.10	125.00	4,766.7	-262.9	391.0	471.2	0.83	0.62	
4,886.0	6.50	127.70	4,861.1	-269.1	399.4	481.6	0.52	0.42	
4,981.0	5.30	119.80	4,955.6	-274.6	407.5	491.4	1.52	-1.26	
5,077.0	4.70	119.80	5,051.2	-278.7	414.8	499.7	0.62	-0.62	
5,172.0	5.20	123.10	5,145.9	-283.0	421.7	507.9	0.61	0.53	
5,267.0	6.20	121.20	5,240.4	-288.0	429.7	517.3	1.07	1.05	
5,363.0	5.80	122.00	5,335.9	-293.3	438.3	527.4	0.43	-0.42	
5,458.0	6.50	128.70	5,430.4	-299.2	446.5	537.5	1.05	0.74	
5,554.0	6.20	127.90	5,525.8	-305.8	454.9	548.1	0.33	-0.31	
5,649.0	5.70	124.20	5,620.3	-311.6	462.8	557.9	0.66	-0.53	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-6B (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 11-6B (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
5,745.0	5.40	123.10	5,715.8	-316.7	470.6	567.2	0.33	-0.31	
5,841.0	5.10	122.20	5,811.4	-321.5	477.9	576.0	0.32	-0.31	
5,936.0	4.10	125.90	5,906.1	-325.7	484.3	583.6	1.10	-1.05	
6,032.0	2.80	125.70	6,001.9	-329.1	489.0	589.4	1.35	-1.35	
6,128.0	1.00	112.30	6,097.9	-330.8	491.6	592.5	1.92	-1.87	
6,223.0	0.40	111.20	6,192.9	-331.2	492.7	593.7	0.63	-0.63	
6,319.0	0.40	150.00	6,288.8	-331.6	493.2	594.3	0.28	0.00	
6,414.0	0.40	136.00	6,383.8	-332.1	493.6	594.9	0.10	0.00	
6,510.0	0.20	44.10	6,479.8	-332.3	493.9	595.3	0.47	-0.21	
6,605.0	0.00	314.40	6,574.8	-332.1	494.1	595.3	0.21	-0.21	
6,701.0	0.40	261.60	6,670.9	-332.2	493.7	595.1	0.42	0.42	
6,797.0	0.70	292.30	6,766.9	-332.0	492.8	594.3	0.43	0.31	
6,892.0	1.10	296.50	6,861.8	-331.4	491.5	592.8	0.43	0.42	
6,987.0	0.60	359.30	6,956.8	-330.5	490.7	591.6	1.03	-0.53	
7,083.0	0.80	1.20	7,052.8	-329.3	490.7	590.9	0.21	0.21	
7,177.0	1.10	2.40	7,146.8	-327.8	490.7	590.1	0.32	0.32	
7,272.0	1.20	54.10	7,241.8	-326.3	491.6	590.0	1.06	0.11	
7,367.0	0.70	156.30	7,336.8	-326.2	492.6	590.8	1.59	-0.53	
7,463.0	0.70	207.50	7,432.8	-327.3	492.6	591.4	0.63	0.00	
7,558.0	0.80	212.60	7,527.8	-328.3	492.0	591.5	0.13	0.11	
7,653.0	0.70	216.10	7,622.8	-329.4	491.3	591.5	0.12	-0.11	
7,749.0	0.40	219.00	7,718.8	-330.1	490.7	591.4	0.31	-0.31	
7,844.0	0.30	62.40	7,813.8	-330.2	490.7	591.5	0.72	-0.11	
7,939.0	1.40	31.40	7,908.8	-329.1	491.5	591.6	1.21	1.16	
8,035.0	1.50	13.00	8,004.7	-326.9	492.4	591.1	0.49	0.10	
8,130.0	1.40	51.80	8,099.7	-325.0	493.6	591.0	1.02	-0.11	
8,225.0	1.80	58.50	8,194.7	-323.5	495.8	592.0	0.46	0.42	
8,320.0	1.80	49.40	8,289.6	-321.7	498.2	593.0	0.30	0.00	
8,416.0	1.80	45.90	8,385.5	-319.7	500.4	593.7	0.11	0.00	Last Cathedral Survey @ 8,416' MD
8,471.0	1.80	45.90	8,440.5	-318.5	501.7	594.1	0.00	0.00	Projection to Bit @ 8,471'

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal Savage 11-6B (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 11-6B (RD-11)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Federal Savage 11-6B (I	0.00	0.00	8,420.0	-330.3	494.7	1,599,836.82	2,334,445.37	39.456605	-107.857408
- actual wellpath misses target center by 13.1ft at 8450.1ft MD (8419.6 TVD, -319.0 N, 501.2 E)									
- Circle (radius 25.0)									
Federal Savage 11-6B (I	0.00	0.00	6,232.0	-330.3	494.7	1,599,836.82	2,334,445.37	39.456605	-107.857408
- actual wellpath misses target center by 2.0ft at 6262.2ft MD (6232.0 TVD, -331.3 N, 492.9 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
1,256.0	1,250.7	-57.7	89.3	Last Cathedral Survey @ 1,256' MD
8,416.0	8,385.5	-319.7	500.4	Last Cathedral Survey @ 8,416' MD
8,471.0	8,440.5	-318.5	501.7	Projection to Bit @ 8,471'

Checked By: _____ Approved By: _____ Date: _____