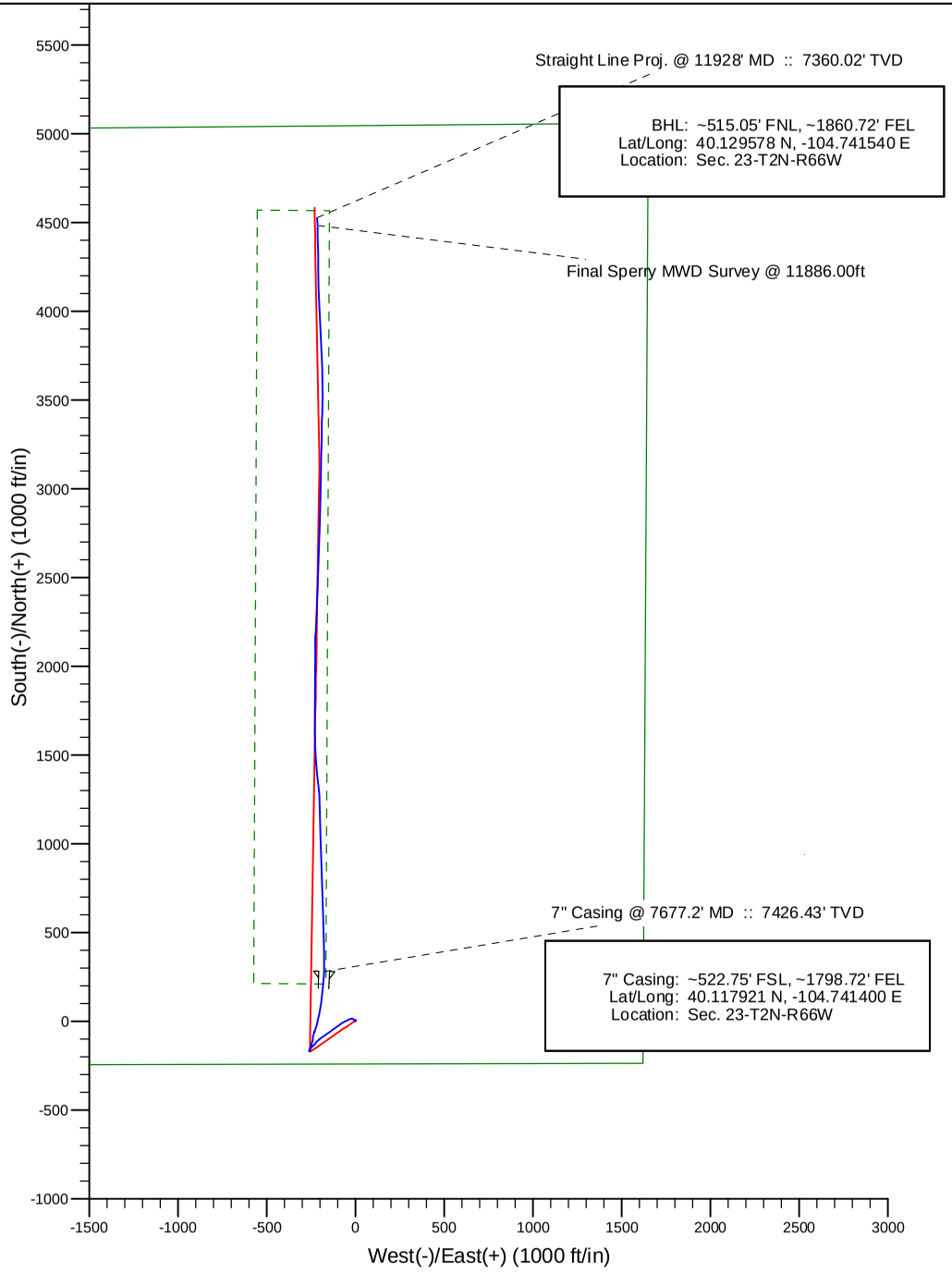
Project: Weld County, CO (NAD 83)
Site: Sec. 23-T2N-R66W
Well: Gobbler 2N-23HZ
Wellbore: Plan A Rev 0
Design: Actual Field Surveys

Anadarko Petroleum Corporation

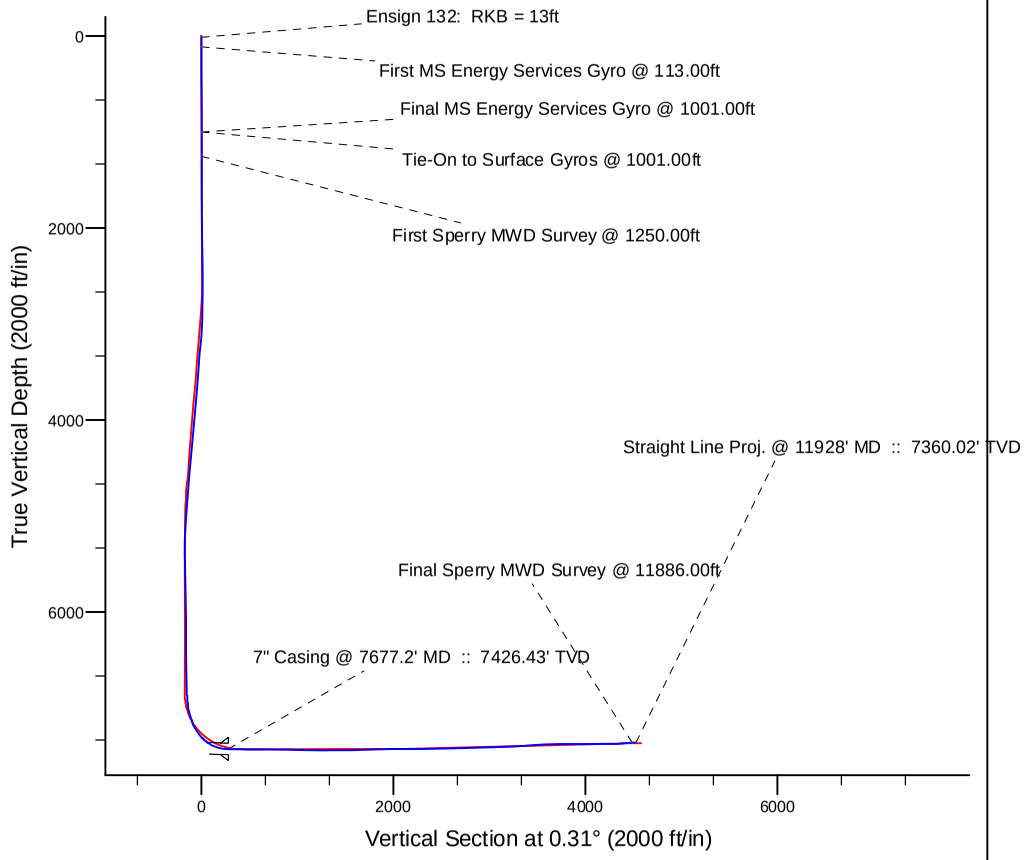
HALLIBURTON
Sperry Drilling



LEGEND

Gobbler 2N-23HZ, Plan A Rev 0, Plan A Rev 0 - PROPOSAL V0

Actual Field Surveys



WELL DETAILS: Gobbler 2N-23HZ
Ground Level: 5094.00 RKB=13 @ 5107.00ft (Ensign 132)
Design: Actual Field Surveys (Gobbler 2N-23HZ/Plan A Rev 0)
Created By: Fred Hartmann Date: 04/28/2013 Reviewed: _____ Date: _____

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)
Sec. 23-T2N-R66W
Gobbler 2N-23HZ

Plan A Rev 0

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

29 April, 2013

Well Coordinates: 1,286,429.34 N, 3,212,334.45 E (40° 07' 01.73" N, 104° 44' 26.75" W)
Ground Level: 5,094.00 ft

Local Coordinate Origin:	Centered on Well Gobbler 2N-23HZ
Viewing Datum:	RKB=13 @ 5107.00ft (Ensign 132)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom

Geodetic Scale Factor Applied
Version: 2003.16 Build: 43I

HALLIBURTON

Design Report for Gobbler 2N-23HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00
Ensign 132: RKB = 13ft							
113.00	0.20	154.64	113.00	-0.16	0.07	-0.16	0.20
First MS Energy Services Gyro @ 113.00ft							
213.00	0.11	175.10	213.00	-0.41	0.16	-0.41	0.10
313.00	0.13	92.83	313.00	-0.51	0.28	-0.51	0.16
413.00	0.30	44.40	413.00	-0.33	0.58	-0.33	0.23
513.00	0.24	19.95	513.00	0.05	0.83	0.06	0.13
613.00	0.36	354.42	613.00	0.56	0.87	0.57	0.18
713.00	0.33	348.25	712.99	1.16	0.78	1.16	0.05
813.00	0.42	348.42	812.99	1.80	0.65	1.80	0.09
913.00	0.36	6.65	912.99	2.47	0.61	2.47	0.14
1,001.00	0.18	10.66	1,000.99	2.88	0.67	2.88	0.21
Final MS Energy Services Gyro @ 1001.00ft - Tie-On to Surface Gyros @ 1001.00ft							
1,250.00	0.13	343.36	1,249.99	3.53	0.66	3.54	0.04
First Sperry MWD Survey @ 1250.00ft							
1,526.00	0.39	311.22	1,525.99	4.45	-0.13	4.45	0.10
1,802.00	0.59	311.13	1,801.97	6.01	-1.91	6.00	0.07
2,085.00	1.46	286.82	2,084.93	8.01	-6.46	7.97	0.34
2,372.00	1.62	322.22	2,371.83	12.27	-12.45	12.21	0.33
2,467.00	2.26	306.36	2,466.78	14.45	-14.78	14.37	0.87
2,562.00	2.38	279.69	2,561.70	15.89	-18.23	15.79	1.13
2,658.00	3.09	263.48	2,657.59	15.93	-22.77	15.81	1.09
2,753.00	4.10	261.28	2,752.40	15.12	-28.67	14.97	1.07
2,849.00	4.55	245.89	2,848.13	13.05	-35.53	12.86	1.29
2,944.00	5.86	236.84	2,942.74	8.86	-43.03	8.62	1.62
3,040.00	6.54	241.63	3,038.18	3.58	-51.95	3.30	0.89
3,135.00	8.91	239.90	3,132.31	-2.68	-63.07	-3.02	2.51
3,230.00	9.27	242.57	3,226.12	-9.90	-76.23	-10.31	0.58
3,326.00	8.80	233.47	3,320.93	-17.83	-88.99	-18.31	1.57
3,421.00	7.85	235.56	3,414.93	-25.83	-100.18	-26.37	1.05
3,517.00	7.04	239.70	3,510.12	-32.50	-110.67	-33.10	1.01
3,613.00	6.93	235.03	3,605.41	-38.79	-120.50	-39.44	0.60
3,709.00	7.79	231.05	3,700.62	-46.20	-130.30	-46.90	1.04
3,805.00	7.68	231.78	3,795.74	-54.26	-140.40	-55.02	0.15
3,901.00	7.89	236.17	3,890.86	-61.89	-150.91	-62.71	0.66
3,996.00	8.98	235.85	3,984.83	-69.69	-162.47	-70.57	1.15
4,092.00	8.20	236.72	4,079.75	-77.65	-174.39	-78.59	0.82
4,187.00	8.53	231.75	4,173.74	-85.73	-185.59	-86.73	0.84
4,282.00	8.53	231.35	4,267.69	-94.49	-196.62	-95.55	0.06
4,378.00	9.21	232.70	4,362.55	-103.59	-208.30	-104.72	0.74
4,474.00	7.06	220.84	4,457.58	-112.71	-218.27	-113.89	2.83
4,569.00	6.22	219.81	4,551.94	-121.09	-225.38	-122.30	0.89
4,665.00	5.61	222.15	4,647.43	-128.56	-231.86	-129.81	0.68
4,760.00	5.75	225.92	4,741.96	-135.31	-238.39	-136.60	0.42
4,856.00	5.76	233.24	4,837.48	-141.54	-245.71	-142.87	0.76
4,951.00	6.58	216.09	4,931.94	-148.79	-252.73	-150.16	2.11
5,047.00	4.54	209.91	5,027.48	-156.53	-257.87	-157.92	2.21
5,142.00	4.12	195.24	5,122.21	-163.08	-260.64	-164.49	1.24

Design Report for Gobbler 2N-23HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,238.00	2.46	191.49	5,218.05	-168.43	-261.96	-169.85	1.74
5,333.00	0.50	189.92	5,313.02	-170.84	-262.43	-172.25	2.06
5,429.00	1.18	23.92	5,409.01	-170.35	-262.11	-171.76	1.74
5,715.00	0.94	4.44	5,694.96	-165.32	-260.73	-166.72	0.15
6,097.00	0.84	34.41	6,076.92	-159.88	-258.91	-161.28	0.12
6,480.00	0.82	42.07	6,459.88	-155.53	-255.48	-156.91	0.03
6,823.00	1.27	340.90	6,802.83	-150.12	-255.08	-151.49	0.33
6,861.00	1.26	357.31	6,840.82	-149.30	-255.24	-150.68	0.95
6,909.00	3.54	41.53	6,888.78	-147.66	-254.28	-149.04	5.79
6,956.00	6.68	12.03	6,935.59	-143.90	-252.75	-145.27	8.50
7,004.00	9.68	19.35	6,983.10	-137.36	-250.83	-138.72	6.60
7,052.00	13.42	16.15	7,030.12	-128.20	-247.94	-129.54	7.90
7,148.00	19.47	9.31	7,122.16	-101.69	-242.25	-103.00	6.61
7,195.00	23.54	11.86	7,165.88	-84.76	-239.05	-86.06	8.88
7,243.00	28.98	15.62	7,208.91	-64.17	-233.95	-65.43	11.85
7,291.00	35.27	17.74	7,249.54	-39.74	-226.59	-40.97	13.31
7,338.00	41.19	17.32	7,286.45	-12.02	-217.84	-13.20	12.61
7,386.00	47.85	14.11	7,320.66	20.37	-208.78	19.24	14.64
7,434.00	53.46	9.60	7,351.09	56.67	-201.22	55.58	13.76
7,482.00	60.91	7.40	7,377.08	96.54	-195.29	95.49	15.99
7,530.00	67.37	6.91	7,398.01	139.38	-189.92	138.35	13.49
7,579.00	75.49	6.19	7,413.60	185.49	-184.63	184.49	16.63
7,625.00	82.66	5.16	7,422.31	230.40	-180.18	229.42	15.74
7,642.00	84.35	3.44	7,424.24	247.24	-178.91	246.27	14.14
7,677.20	88.51	0.61	7,426.43	282.34	-177.67	281.38	14.29
7" Casing @ 7677.2' MD :: 7426.43' TVD							
7,683.00	89.20	0.15	7,426.54	288.14	-177.63	287.18	14.29
7,714.00	90.62	359.99	7,426.59	319.14	-177.59	318.18	4.61
7,809.00	88.58	358.77	7,427.25	414.13	-178.62	413.15	2.50
7,905.00	86.91	358.38	7,431.03	510.02	-181.01	509.03	1.79
8,000.00	91.73	357.19	7,432.16	604.91	-184.68	603.90	5.23
8,096.00	89.51	358.97	7,431.12	700.84	-187.89	699.81	2.96
8,288.00	89.44	358.21	7,432.88	892.77	-192.62	891.72	0.40
8,384.00	88.39	357.52	7,434.70	988.69	-196.19	987.61	1.31
8,480.00	89.38	358.19	7,436.56	1,084.60	-199.79	1,083.50	1.25
8,576.00	90.86	358.67	7,436.36	1,180.56	-202.42	1,179.45	1.62
8,671.00	90.06	357.04	7,435.60	1,275.49	-205.97	1,274.36	1.91
8,766.00	89.63	354.26	7,435.86	1,370.20	-213.18	1,369.03	2.96
8,862.00	90.06	355.20	7,436.12	1,465.80	-221.99	1,464.57	1.08
8,958.00	90.06	357.58	7,436.02	1,561.60	-228.04	1,560.34	2.48
9,053.00	92.04	1.03	7,434.28	1,656.56	-229.19	1,655.29	4.19
9,148.00	91.42	359.85	7,431.41	1,751.51	-228.46	1,750.25	1.40
9,244.00	91.67	359.38	7,428.82	1,847.47	-229.11	1,846.21	0.55
9,339.00	90.62	0.80	7,426.92	1,942.45	-228.96	1,941.18	1.86
9,435.00	89.57	359.83	7,426.76	2,038.45	-228.43	2,037.18	1.49
9,530.00	89.81	1.53	7,427.28	2,133.43	-227.30	2,132.17	1.81
9,626.00	91.67	2.77	7,426.04	2,229.35	-223.70	2,228.11	2.33
9,722.00	91.42	3.12	7,423.45	2,325.19	-218.77	2,323.97	0.45
9,817.00	90.49	1.85	7,421.86	2,420.08	-214.65	2,418.89	1.66
9,912.00	91.91	2.33	7,419.87	2,515.00	-211.19	2,513.82	1.58
10,008.00	90.99	1.22	7,417.45	2,610.92	-208.22	2,609.75	1.50

Design Report for Gobbler 2N-23HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
10,104.00	91.98	2.96	7,414.96	2,706.82	-204.72	2,705.67	2.08
10,199.00	91.24	1.42	7,412.29	2,801.71	-201.09	2,800.58	1.80
10,294.00	92.22	1.25	7,409.42	2,896.64	-198.88	2,895.52	1.05
10,389.00	91.60	1.14	7,406.25	2,991.56	-196.90	2,990.45	0.66
10,485.00	92.04	0.98	7,403.21	3,087.50	-195.12	3,086.40	0.49
10,581.00	92.66	1.36	7,399.27	3,183.40	-193.16	3,182.30	0.76
10,676.00	92.85	1.31	7,394.70	3,278.26	-190.95	3,277.18	0.21
10,771.00	93.40	1.00	7,389.52	3,373.10	-189.04	3,372.03	0.66
10,867.00	94.14	1.22	7,383.21	3,468.87	-187.18	3,467.81	0.80
10,962.00	92.04	359.74	7,378.09	3,563.72	-186.39	3,562.66	2.70
11,057.00	90.80	358.80	7,375.74	3,658.68	-187.60	3,657.62	1.64
11,153.00	91.05	358.31	7,374.19	3,754.64	-190.02	3,753.56	0.57
11,249.00	90.56	357.23	7,372.84	3,850.56	-193.76	3,849.45	1.24
11,344.00	89.57	355.70	7,372.73	3,945.37	-199.61	3,944.23	1.92
11,439.00	90.43	357.49	7,372.73	4,040.20	-205.26	4,039.03	2.09
11,534.00	90.19	359.65	7,372.22	4,135.16	-207.63	4,133.98	2.29
11,630.00	91.24	358.49	7,371.02	4,231.14	-209.18	4,229.95	1.63
11,727.00	91.85	358.21	7,368.40	4,328.06	-211.98	4,326.85	0.69
11,822.00	92.53	358.71	7,364.77	4,422.96	-214.53	4,421.73	0.89
11,886.00	92.59	358.96	7,361.91	4,486.88	-215.83	4,485.65	0.40
Final Sperry MWD Survey @ 11886.00ft							
11,928.00	92.59	358.96	7,360.02	4,528.83	-216.59	4,527.59	0.00
Straight Line Proj. @ 11928' MD :: 7360.02' TVD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
13.00	13.00	0.00	0.00	Ensign 132: RKB = 13ft
113.00	113.00	-0.16	0.07	First MS Energy Services Gyro @ 113.00ft
1,001.00	1,000.99	2.88	0.67	Final MS Energy Services Gyro @ 1001.00ft
1,001.00	1,000.99	2.88	0.67	Tie-On to Surface Gyros @ 1001.00ft
1,250.00	1,249.99	3.53	0.66	First Sperry MWD Survey @ 1250.00ft
11,886.00	7,361.91	4,486.88	-215.83	Final Sperry MWD Survey @ 11886.00ft
11,928.00	7,360.02	4,528.83	-216.59	Straight Line Proj. @ 11928' MD :: 7360.02' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	0.31	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
13.00	1,001.00	MS Energy Services - Surface Gyros	NS-GYRO-MS
1,250.00	7,642.00	Sperry MWD Surveys - Vert/Build	MWD+IFR1+SC
7,683.00	11,886.00	Sperry MWD Surveys - Lateral	MWD+IFR1+SC

Design Report for Gobbler 2N-23HZ - Actual Field Surveys

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,677.20	7,426.43	7" Casing @ 7677.2' MD :: 7426.43' TVD	7	8-3/4

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
Gobbler 15E-23HZ F	0.00	0.00	7,347.00	4,160.24	-451.05	1,290,585.40	3,211,847.81	40.128566	-104.742378
- actual wellpath misses target center by 244.48ft at 11563.34ft MD (7372.04 TVD, 4164.50 N, -207.90 E)									
- Circle (radius 150.00)									
Gobbler 2N-23HZ_S	0.00	0.00	0.00	0.00	0.00	1,286,429.34	3,212,334.45	40.117146	-104.740765
- actual wellpath hits target center									
- Point									
Gobbler 2N-23HZ_S	0.00	0.00	0.00	0.00	0.00	1,286,429.34	3,212,334.45	40.117146	-104.740765
- actual wellpath hits target center									
- Polygon									
Point 1				-3,669.72	5,013.57	1,291,411.10	3,208,622.09		
Point 2				-3,685.84	2,381.40	1,288,779.00	3,208,628.50		
Point 3				-3,702.86	-250.83	1,286,146.82	3,208,634.02		
Point 4				-1,042.02	-242.99	1,286,177.44	3,211,294.59		
Point 5				1,618.34	-235.11	1,286,208.10	3,213,954.67		
Point 6				1,632.73	2,412.66	1,288,855.79	3,213,946.39		
Point 7				1,647.13	5,060.42	1,291,503.47	3,213,938.12		
Point 8				-1,010.73	5,036.91	1,291,457.21	3,211,280.67		
Point 9				-3,669.72	5,013.57	1,291,411.10	3,208,622.09		
Gobbler 2N-23HZ_B	0.00	0.00	7,347.00	4,584.28	-225.61	1,291,011.33	3,212,069.61	40.129730	-104.741572
- actual wellpath misses target center by 57.66ft at 11928.00ft MD (7360.02 TVD, 4528.83 N, -216.59 E)									
- Point									
Gobbler 2N-23HZ_L	0.00	0.00	0.00	0.00	0.00	1,286,429.34	3,212,334.45	40.117146	-104.740765
- actual wellpath hits target center									
- Polygon									
Point 1				-554.22	4,572.91	1,290,997.15	3,211,741.12		
Point 2				-575.00	213.07	1,286,637.47	3,211,757.67		
Point 3				-169.00	209.59	1,286,637.46	3,212,163.67		
Point 4				-158.28	2,427.99	1,288,855.78	3,212,155.39		
Point 5				-148.22	4,569.44	1,290,997.16	3,212,147.12		
Point 6				-554.22	4,572.91	1,290,997.15	3,211,741.12		
Gobbler 15E-23HZ F	0.00	0.00	7,347.00	3,186.12	-372.49	1,289,612.02	3,211,934.71	40.125892	-104.742097
- actual wellpath misses target center by 186.81ft at 10582.06ft MD (7399.22 TVD, 3184.45 N, -193.14 E)									
- Circle (radius 150.00)									