

Azimuths to True North
 Magnetic North: 8.57°
 Magnetic Field
 Strength: 52828.2snT
 Dip Angle: 66.78°
 Date: 12/13/2012
 Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83
Site: WELD SPARBOE 4 PAD
Well: SPARBOE 7N-3HZ
Wellbore: Wellbore #1
Design: ACTUAL
Latitude: 40.101501
Longitude: -104.645921
GL: 4977.00
KB: 16'RKB+4977'GL @ 4993.00ft (XTREME 23)

WELL DETAILS: SPARBOE 7N-3HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4977.00 Latitude	Longitude	Slot
0.00	0.00	1280971.75	3238913.48	40.101501	-104.645921	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	V/Sect	Departure	Annotation
1775.99	1776.00	0.15	338.09	2.93	-0.59	-2.93	5.35	TIE ON
1902.99	1903.00	0.53	144.71	2.60	-0.31	-2.61	6.11	FIRST MWD SURVEY
7134.80	7504.50	86.30	175.49	-789.77	-511.45	788.16	1110.71	7 IN. CASING
7117.33	13843.00	84.13	178.19	-7113.77	-447.46	7112.33	7446.62	LAST MWD SURVEY
7123.16	13900.00	84.13	178.19	-7170.45	-445.67	7169.01	7503.32	PROJECTION TO TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

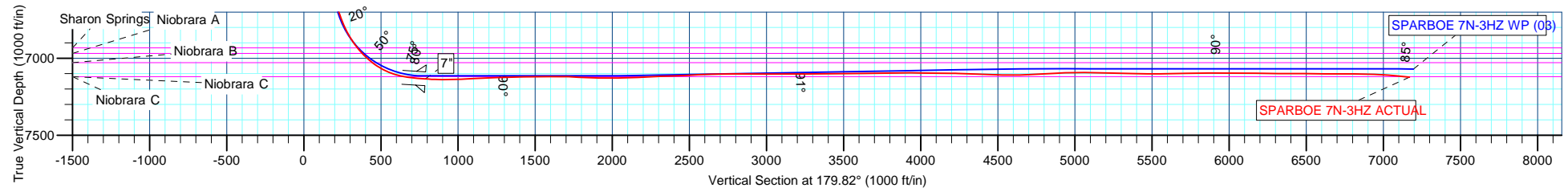
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
SPARBOE 7N-3HZ Rev. PBHL	7070.00	-7196.67	-438.76	40.081745	-104.647489	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
746.00	746.00	Fox Hills
4992.00	5017.08	Sussex
6933.00	7001.48	Sharon Springs
6969.00	7048.87	Niobrara A
7029.00	7138.67	Niobrara B
7120.00	7365.59	Niobrara C

CASING DETAILS

TVD	MD	Name	Size
7134.80	7504.50	7"	7"



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_SPARBOE 4 PAD

SPARBOE 7N-3HZ

Wellbore #1

Design: ACTUAL

Standard Survey Report

21 February, 2013

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well SPARBOE 7N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Site:	WELD_SPARBOE 4 PAD	MD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Well:	SPARBOE 7N-3HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL	Database:	edmp

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	WELD_SPARBOE 4 PAD				
Site Position:		Northing:	1,280,971.47 usft	Latitude:	40.101501
From:	Lat/Long	Easting:	3,238,883.56 usft	Longitude:	-104.646028
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	SPARBOE 7N-3HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,280,971.75 usft	Latitude:	40.101501
	+E/-W	0.00 ft	Easting:	3,238,913.49 usft	Longitude:	-104.645921
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,977.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/13/2012	8.57	66.78	52,828

Design	ACTUAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	348.66	

Survey Program	Date	2/21/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
16.00	1,776.00	Survey #1 (Wellbore #1)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
1,903.00	13,900.00	Survey #2 (Wellbore #1)	MWD	MWD - STANDARD	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116.00	0.18	43.90	116.00	0.11	0.11	0.09	0.18	0.18	0.00	0.00
216.00	0.17	132.93	216.00	0.13	0.33	0.06	0.25	-0.01	89.03	89.03
316.00	0.16	66.45	316.00	0.08	0.56	-0.03	0.18	-0.01	-66.48	-66.48
416.00	0.11	195.15	416.00	0.04	0.67	-0.09	0.24	-0.05	128.70	128.70
516.00	0.09	147.66	516.00	-0.12	0.68	-0.25	0.08	-0.02	-47.49	-47.49
616.00	0.14	279.14	616.00	-0.16	0.60	-0.28	0.21	0.05	131.48	131.48
716.00	0.04	223.58	716.00	-0.17	0.46	-0.26	0.12	-0.10	-55.56	-55.56
816.00	0.30	327.78	816.00	0.03	0.30	-0.03	0.31	0.26	104.20	104.20

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well SPARBOE 7N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Site:	WELD_SPARBOE 4 PAD	MD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Well:	SPARBOE 7N-3HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL	Database:	edmp

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
916.00	0.03	66.00	916.00	0.26	0.18	0.22	0.31	-0.27	98.22	
1,016.00	0.06	66.56	1,016.00	0.29	0.25	0.24	0.03	0.03	0.56	
1,116.00	0.28	5.04	1,116.00	0.56	0.32	0.48	0.26	0.22	-61.52	
1,216.00	0.14	0.16	1,216.00	0.92	0.34	0.84	0.14	-0.14	-4.88	
1,316.00	0.37	308.59	1,316.00	1.24	0.09	1.20	0.30	0.23	-51.57	
1,416.00	0.09	60.52	1,416.00	1.48	-0.09	1.47	0.41	-0.28	111.93	
1,516.00	0.22	7.62	1,515.99	1.71	0.00	1.68	0.18	0.13	-52.90	
1,616.00	0.37	331.27	1,615.99	2.19	-0.13	2.17	0.23	0.15	-36.35	
1,716.00	0.34	324.61	1,715.99	2.71	-0.46	2.75	0.05	-0.03	-6.66	
1,776.00	0.15	338.09	1,775.99	2.93	-0.59	2.99	0.33	-0.32	22.47	
TIE ON										
1,903.00	0.53	144.71	1,902.99	2.60	-0.31	2.61	0.53	0.30	131.20	
FIRST MWD SURVEY										
1,979.00	1.26	202.97	1,978.98	1.55	-0.43	1.60	1.42	0.96	76.66	
2,072.00	3.01	237.27	2,071.92	-0.71	-2.89	-0.13	2.25	1.88	36.88	
2,166.00	4.47	248.24	2,165.71	-3.41	-8.37	-1.69	1.72	1.55	11.67	
2,259.00	6.28	254.36	2,258.30	-6.12	-16.63	-2.73	2.04	1.95	6.58	
2,352.00	7.60	255.06	2,350.62	-9.08	-27.47	-3.50	1.42	1.42	0.75	
2,446.00	6.51	255.52	2,443.91	-12.01	-38.64	-4.18	1.16	-1.16	0.49	
2,539.00	8.13	256.26	2,536.14	-14.89	-50.13	-4.74	1.74	1.74	0.80	
2,633.00	7.71	247.76	2,629.25	-18.86	-62.42	-6.21	1.32	-0.45	-9.04	
2,726.00	7.98	242.71	2,721.38	-24.18	-73.93	-9.16	0.80	0.29	-5.43	
2,819.00	7.20	243.31	2,813.57	-29.76	-84.88	-12.48	0.84	-0.84	0.65	
2,905.00	7.19	249.52	2,898.89	-34.06	-94.74	-14.76	0.90	-0.01	7.22	
2,990.00	8.32	250.10	2,983.11	-38.02	-105.50	-16.52	1.33	1.33	0.68	
3,075.00	7.75	251.62	3,067.28	-41.92	-116.72	-18.14	0.72	-0.67	1.79	
3,161.00	7.15	251.41	3,152.55	-45.45	-127.30	-19.52	0.70	-0.70	-0.24	
3,246.00	6.26	249.37	3,236.97	-48.77	-136.65	-20.94	1.08	-1.05	-2.40	
3,332.00	7.02	245.84	3,322.39	-52.57	-145.83	-22.86	1.00	0.88	-4.10	
3,417.00	7.48	247.79	3,406.71	-56.79	-155.69	-25.05	0.61	0.54	2.29	
3,502.00	6.24	248.60	3,491.10	-60.57	-165.12	-26.90	1.46	-1.46	0.95	
3,588.00	6.10	241.00	3,576.60	-64.49	-173.47	-29.11	0.96	-0.16	-8.84	
3,673.00	6.12	240.21	3,661.12	-68.93	-181.35	-31.91	0.10	0.02	-0.93	
3,759.00	6.65	245.01	3,746.59	-73.31	-189.84	-34.53	0.87	0.62	5.58	
3,844.00	7.06	248.48	3,830.98	-77.31	-199.16	-36.62	0.69	0.48	4.08	
3,930.00	8.28	239.56	3,916.21	-82.38	-209.42	-39.58	1.98	1.42	-10.37	
4,015.00	8.02	237.14	4,000.36	-88.70	-219.67	-43.76	0.51	-0.31	-2.85	
4,100.00	7.24	240.07	4,084.60	-94.59	-229.30	-47.64	1.03	-0.92	3.45	
4,186.00	6.87	241.70	4,169.95	-99.73	-238.52	-50.86	0.49	-0.43	1.90	
4,271.00	7.02	232.79	4,254.33	-105.28	-247.14	-54.61	1.28	0.18	-10.48	
4,356.00	6.96	241.42	4,338.70	-110.89	-255.80	-58.41	1.24	-0.07	10.15	
4,442.00	7.02	245.58	4,424.06	-115.55	-265.16	-61.14	0.59	0.07	4.84	
4,527.00	9.26	255.12	4,508.20	-119.46	-276.50	-62.74	3.07	2.64	11.22	

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well SPARBOE 7N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Site:	WELD_SPARBOE 4 PAD	MD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Well:	SPARBOE 7N-3HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL	Database:	edmp

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,612.00	9.94	259.65	4,592.01	-122.53	-290.32	-63.03	1.20	0.80	5.33	
4,698.00	9.80	256.52	4,676.74	-125.57	-304.74	-63.17	0.64	-0.16	-3.64	
4,783.00	9.61	247.95	4,760.53	-129.92	-318.35	-64.76	1.71	-0.22	-10.08	
4,868.00	9.20	243.77	4,844.39	-135.59	-331.03	-67.82	0.94	-0.48	-4.92	
4,954.00	7.70	239.58	4,929.45	-141.54	-342.16	-71.47	1.88	-1.74	-4.87	
5,039.00	6.96	235.95	5,013.76	-147.31	-351.34	-75.32	1.03	-0.87	-4.27	
5,125.00	7.18	236.79	5,099.10	-153.17	-360.15	-79.34	0.28	0.26	0.98	
5,210.00	7.69	239.19	5,183.39	-159.00	-369.48	-83.21	0.70	0.60	2.82	
5,295.00	6.81	249.51	5,267.71	-163.67	-379.09	-85.91	1.85	-1.04	12.14	
5,381.00	7.79	246.55	5,353.01	-167.78	-389.21	-87.94	1.22	1.14	-3.44	
5,466.00	5.74	243.97	5,437.42	-171.94	-398.32	-90.22	2.44	-2.41	-3.04	
5,552.00	6.69	246.86	5,522.91	-175.79	-406.79	-92.34	1.16	1.10	3.36	
5,637.00	6.73	245.19	5,607.33	-179.83	-415.86	-94.51	0.23	0.05	-1.96	
5,723.00	5.28	245.03	5,692.86	-183.61	-424.02	-96.62	1.69	-1.69	-0.19	
5,808.00	4.20	247.84	5,777.56	-186.44	-430.45	-98.12	1.30	-1.27	3.31	
5,893.00	3.51	248.17	5,862.37	-188.58	-435.75	-99.18	0.81	-0.81	0.39	
5,979.00	3.47	257.38	5,948.21	-190.13	-440.73	-99.72	0.65	-0.05	10.71	
6,064.00	3.30	258.65	6,033.06	-191.17	-445.64	-99.77	0.22	-0.20	1.49	
6,150.00	1.88	242.70	6,118.98	-192.30	-449.32	-100.16	1.84	-1.65	-18.55	
6,235.00	1.35	239.03	6,203.94	-193.46	-451.42	-100.88	0.63	-0.62	-4.32	
6,320.00	1.24	238.25	6,288.92	-194.46	-453.06	-101.54	0.13	-0.13	-0.92	
6,406.00	0.85	239.53	6,374.91	-195.27	-454.40	-102.07	0.45	-0.45	1.49	
6,487.00	0.70	279.26	6,455.90	-195.50	-455.41	-102.09	0.67	-0.19	49.05	
6,535.00	0.49	254.72	6,503.90	-195.50	-455.90	-102.01	0.68	-0.44	-51.13	
6,578.00	5.67	199.65	6,546.82	-197.55	-456.79	-103.84	12.57	12.05	-128.07	
6,620.00	10.71	199.82	6,588.38	-203.18	-458.81	-108.96	12.00	12.00	0.40	
6,663.00	12.64	200.24	6,630.49	-211.36	-461.79	-116.39	4.49	4.49	0.98	
6,706.00	15.50	202.66	6,672.19	-221.07	-465.64	-125.16	6.79	6.65	5.63	
6,748.00	19.81	202.78	6,712.21	-232.82	-470.56	-135.71	10.26	10.26	0.29	
6,791.00	23.94	205.48	6,752.10	-247.42	-477.13	-148.73	9.88	9.60	6.28	
6,834.00	25.80	205.13	6,791.11	-263.77	-484.86	-163.24	4.34	4.33	-0.81	
6,876.00	28.17	198.68	6,828.55	-281.44	-491.92	-179.18	8.96	5.64	-15.36	
6,919.00	31.57	190.48	6,865.84	-302.14	-497.22	-198.43	12.34	7.91	-19.07	
6,962.00	36.14	188.64	6,901.55	-325.76	-501.18	-220.81	10.89	10.63	-4.28	
7,004.00	38.35	187.30	6,934.98	-350.93	-504.69	-244.80	5.60	5.26	-3.19	
7,047.00	42.79	185.96	6,967.63	-378.70	-507.91	-271.40	10.52	10.33	-3.12	
7,090.00	47.91	183.75	6,997.84	-409.17	-510.47	-300.77	12.45	11.91	-5.14	
7,132.00	51.83	182.42	7,024.91	-441.23	-512.18	-331.86	9.64	9.33	-3.17	
7,175.00	56.54	180.63	7,050.07	-476.08	-513.10	-365.85	11.46	10.95	-4.16	
7,218.00	61.46	179.28	7,072.21	-512.92	-513.06	-401.98	11.75	11.44	-3.14	
7,260.00	67.49	179.97	7,090.30	-550.80	-512.81	-439.17	14.43	14.36	1.64	
7,303.00	71.94	181.98	7,105.20	-591.12	-513.51	-478.56	11.24	10.35	4.67	
7,346.00	78.17	182.22	7,116.29	-632.62	-515.03	-518.95	14.50	14.49	0.56	
7,389.00	82.13	180.39	7,123.64	-674.96	-515.99	-560.27	10.12	9.21	-4.26	

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well SPARBOE 7N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Site:	WELD_SPARBOE 4 PAD	MD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Well:	SPARBOE 7N-3HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,454.00	84.96	177.23	7,130.95	-739.52	-514.65	-623.84	6.50	4.35	-4.86
7,504.50	86.30	175.49	7,134.80	-789.77	-511.45	-673.73	4.34	2.64	-3.45
7 IN. CASING									
7,614.00	89.20	171.72	7,139.11	-898.47	-499.26	-782.71	4.34	2.65	-3.44
7,739.00	92.96	170.81	7,136.75	-1,021.98	-480.28	-907.53	3.09	3.01	-0.73
7,832.00	93.21	171.19	7,131.74	-1,113.70	-465.76	-1,000.32	0.49	0.27	0.41
7,926.00	92.22	173.71	7,127.29	-1,206.77	-453.42	-1,094.00	2.88	-1.05	2.68
8,019.00	91.23	175.08	7,124.49	-1,299.28	-444.34	-1,186.49	1.82	-1.06	1.47
8,112.00	91.42	175.89	7,122.34	-1,391.96	-437.02	-1,278.80	0.89	0.20	0.87
8,206.00	90.56	178.08	7,120.72	-1,485.81	-432.08	-1,371.79	2.50	-0.91	2.33
8,299.00	89.69	180.07	7,120.51	-1,578.80	-430.58	-1,463.25	2.34	-0.94	2.14
8,392.00	90.25	181.24	7,120.56	-1,671.79	-431.64	-1,554.22	1.39	0.60	1.26
8,485.00	87.16	180.61	7,122.66	-1,764.74	-433.14	-1,645.06	3.39	-3.32	-0.68
8,579.00	88.15	180.33	7,126.51	-1,858.66	-433.91	-1,736.99	1.09	1.05	-0.30
8,672.00	88.77	177.59	7,129.01	-1,951.60	-432.23	-1,828.45	3.02	0.67	-2.95
8,766.00	91.17	178.32	7,129.06	-2,045.53	-428.87	-1,921.21	2.67	2.55	0.78
8,859.00	92.71	179.71	7,125.91	-2,138.46	-427.27	-2,012.63	2.23	1.66	1.49
8,953.00	93.09	182.77	7,121.15	-2,232.31	-429.30	-2,104.25	3.28	0.40	3.26
9,038.00	91.17	184.37	7,117.99	-2,317.08	-434.59	-2,186.32	2.94	-2.26	1.88
9,124.00	92.47	184.37	7,115.26	-2,402.78	-441.14	-2,269.06	1.51	1.51	0.00
9,209.00	93.02	184.23	7,111.19	-2,487.44	-447.51	-2,350.82	0.67	0.65	-0.16
9,294.00	93.08	184.71	7,106.67	-2,572.06	-454.12	-2,432.48	0.57	0.07	0.56
9,380.00	91.23	183.51	7,103.44	-2,657.78	-460.28	-2,515.31	2.56	-2.15	-1.40
9,465.00	90.06	183.38	7,102.48	-2,742.62	-465.39	-2,597.49	1.38	-1.38	-0.15
9,551.00	90.06	183.42	7,102.39	-2,828.47	-470.49	-2,680.66	0.05	0.00	0.05
9,637.00	90.12	181.93	7,102.25	-2,914.37	-474.50	-2,764.09	1.73	0.07	-1.73
9,721.00	90.12	181.99	7,102.08	-2,998.32	-477.38	-2,845.84	0.07	0.00	0.07
9,807.00	89.63	179.66	7,102.27	-3,084.30	-478.61	-2,929.90	2.77	-0.57	-2.71
9,892.00	90.12	177.11	7,102.45	-3,169.26	-476.22	-3,013.67	3.05	0.58	-3.00
9,978.00	90.37	176.37	7,102.08	-3,255.12	-471.33	-3,098.81	0.91	0.29	-0.86
10,063.00	89.94	174.46	7,101.85	-3,339.85	-464.53	-3,183.22	2.30	-0.51	-2.25
10,148.00	90.06	175.82	7,101.85	-3,424.54	-457.33	-3,267.67	1.61	0.14	1.60
10,234.00	92.22	176.48	7,100.14	-3,510.32	-451.56	-3,352.91	2.63	2.51	0.77
10,319.00	90.49	175.89	7,098.13	-3,595.11	-445.91	-3,437.15	2.15	-2.04	-0.69
10,405.00	89.57	176.88	7,098.09	-3,680.93	-440.48	-3,522.37	1.57	-1.07	1.15
10,490.00	90.68	178.04	7,097.90	-3,765.85	-436.72	-3,606.37	1.89	1.31	1.36
10,575.00	90.99	178.40	7,096.66	-3,850.80	-434.08	-3,690.18	0.56	0.36	0.42
10,661.00	90.06	179.12	7,095.88	-3,936.77	-432.22	-3,774.84	1.37	-1.08	0.84
10,746.00	89.69	182.02	7,096.06	-4,021.76	-433.06	-3,858.00	3.44	-0.44	3.41
10,832.00	88.71	180.87	7,097.26	-4,107.72	-435.23	-3,941.85	1.76	-1.14	-1.34
10,917.00	89.57	180.28	7,098.54	-4,192.70	-436.08	-4,025.01	1.23	1.01	-0.69
11,002.00	87.84	176.64	7,100.46	-4,277.63	-433.80	-4,108.73	4.74	-2.04	-4.28
11,087.00	87.47	173.84	7,103.94	-4,362.26	-426.75	-4,193.09	3.32	-0.44	-3.29

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well SPARBOE 7N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Site:	WELD_SPARBOE 4 PAD	MD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Well:	SPARBOE 7N-3HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,173.00	88.46	175.95	7,106.99	-4,447.86	-419.11	-4,278.52	2.71	1.15	2.45
11,258.00	87.72	173.72	7,109.83	-4,532.46	-411.46	-4,362.97	2.76	-0.87	-2.62
11,344.00	92.10	173.83	7,109.96	-4,617.93	-402.14	-4,448.61	5.09	5.09	0.13
11,429.00	92.84	173.59	7,106.30	-4,702.34	-392.83	-4,533.20	0.92	0.87	-0.28
11,515.00	92.59	179.00	7,102.22	-4,788.04	-387.29	-4,618.31	6.29	-0.29	6.29
11,600.00	92.04	180.08	7,098.79	-4,872.96	-386.60	-4,701.71	1.42	-0.65	1.27
11,685.00	92.78	182.14	7,095.21	-4,957.87	-388.25	-4,784.63	2.57	0.87	2.42
11,771.00	90.12	183.75	7,093.04	-5,043.71	-392.67	-4,867.93	3.62	-3.09	1.87
11,856.00	88.59	182.80	7,093.99	-5,128.57	-397.52	-4,950.17	2.12	-1.80	-1.12
11,942.00	88.64	182.60	7,096.07	-5,214.45	-401.57	-5,033.58	0.24	0.06	-0.23
12,027.00	88.34	182.00	7,098.31	-5,299.35	-404.98	-5,116.15	0.79	-0.35	-0.71
12,112.00	89.14	181.14	7,100.18	-5,384.29	-407.31	-5,198.98	1.38	0.94	-1.01
12,198.00	89.57	181.57	7,101.15	-5,470.26	-409.34	-5,282.87	0.71	0.50	0.50
12,283.00	90.12	180.66	7,101.38	-5,555.25	-411.00	-5,365.86	1.25	0.65	-1.07
12,368.00	90.56	180.94	7,100.87	-5,640.24	-412.18	-5,448.96	0.61	0.52	0.33
12,454.00	92.16	184.28	7,098.83	-5,726.11	-416.10	-5,532.38	4.31	1.86	3.88
12,539.00	89.81	183.56	7,097.37	-5,810.89	-421.91	-5,614.37	2.89	-2.76	-0.85
12,625.00	90.86	184.35	7,096.87	-5,896.68	-427.84	-5,697.32	1.53	1.22	0.92
12,710.00	89.94	182.75	7,096.28	-5,981.51	-433.10	-5,779.46	2.17	-1.08	-1.88
12,796.00	89.38	181.72	7,096.79	-6,067.44	-436.45	-5,863.05	1.36	-0.65	-1.20
12,881.00	89.26	181.57	7,097.79	-6,152.40	-438.89	-5,945.87	0.23	-0.14	-0.18
12,966.00	88.77	181.62	7,099.26	-6,237.36	-441.26	-6,028.70	0.58	-0.58	0.06
13,052.00	89.69	180.83	7,100.41	-6,323.33	-443.10	-6,112.63	1.41	1.07	-0.92
13,137.00	89.82	181.07	7,100.78	-6,408.32	-444.51	-6,195.68	0.32	0.15	0.28
13,223.00	89.94	181.20	7,100.96	-6,494.30	-446.21	-6,279.64	0.21	0.14	0.15
13,308.00	89.63	180.07	7,101.27	-6,579.29	-447.15	-6,362.79	1.38	-0.36	-1.33
13,394.00	89.81	179.83	7,101.69	-6,665.29	-447.08	-6,447.12	0.35	0.21	-0.28
13,479.00	89.88	180.60	7,101.92	-6,750.29	-447.40	-6,530.40	0.91	0.08	0.91
13,564.00	89.07	180.59	7,102.70	-6,835.28	-448.28	-6,613.56	0.95	-0.95	-0.01
13,650.00	88.15	180.51	7,104.79	-6,921.25	-449.11	-6,697.68	1.07	-1.07	-0.09
13,735.00	86.67	180.05	7,108.63	-7,006.16	-449.52	-6,780.85	1.82	-1.74	-0.54
13,820.00	84.63	178.15	7,115.08	-7,090.90	-448.19	-6,864.20	3.28	-2.40	-2.24
13,843.00	84.13	178.19	7,117.33	-7,113.77	-447.46	-6,886.77	2.18	-2.17	0.17
LAST MWD SURVEY									
13,900.00	84.13	178.19	7,123.16	-7,170.45	-445.67	-6,942.69	0.00	0.00	0.00
PROJECTION TO TD									

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well SPARBOE 7N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Site:	WELD_SPARBOE 4 PAD	MD Reference:	16'RKB+4977'GL @ 4993.00ft (XTREME 23)
Well:	SPARBOE 7N-3HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL	Database:	edmp

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,776.00	1,775.99	2.93	-0.59	TIE ON
1,903.00	1,902.99	2.60	-0.31	FIRST MWD SURVEY
7,504.50	7,134.80	-789.77	-511.45	7 IN. CASING
13,843.00	7,117.33	-7,113.77	-447.46	LAST MWD SURVEY
13,900.00	7,123.16	-7,170.45	-445.67	PROJECTION TO TD

Checked By: _____ Approved By: _____ Date: _____