

US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_VONDERLAGE 13-31HZ PAD
VONDERLAGE 30N-31HZ**

VONDERLAGE 30N-31HZ

Plan: VONDERLAGE 30N-31HZ (wp01)

Standard Planning Report

02 February, 2012

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83

Site: WELD_VONDERLAGE 13-31HZ PAD
 Well: VONDERLAGE 30N-31HZ
 Wellbore: VONDERLAGE 30N-31HZ
 Design: VONDERLAGE 30N-31HZ (wp01)
 Latitude: 40.175049
 Longitude: -104.827791
 GL: 4825.00
 KB: 16' RKB + GL' @ 4841.00ft (Original Well Elev)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1297.11	3.94	206.70	1296.96	-6.06	-3.05	2.00	206.70	-5.85	
4	6506.01	3.94	206.70	6493.53	-326.00	-163.93	0.00	0.00	-314.95	
5	7441.65	90.08	358.85	7101.00	246.18	-195.00	10.00	152.10	258.05	
6	7442.10	90.08	358.85	7101.00	246.63	-195.01	1.00	-17.70	258.50	
7	11571.72	90.08	358.85	7095.00	4375.41	-277.99	0.00	0.00	4384.23	VONDERLAGE 30N-31HZ BHL

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Latitude	Longitude	Shape Point
VONDERLAGE 30N-31HZ BHL	7095.00	4375.41	-277.99	40.187060	-104.828786	

WELL DETAILS: VONDERLAGE 30N-31HZ

		Ground Level: 4825.00			
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1307325.20	3187836.58	40.175049	-104.827791

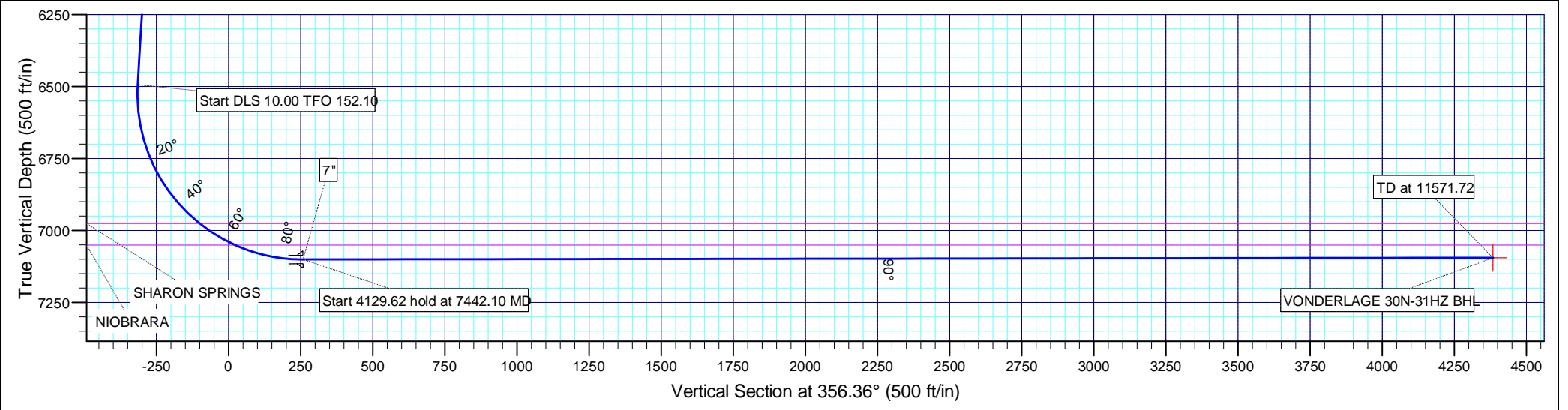
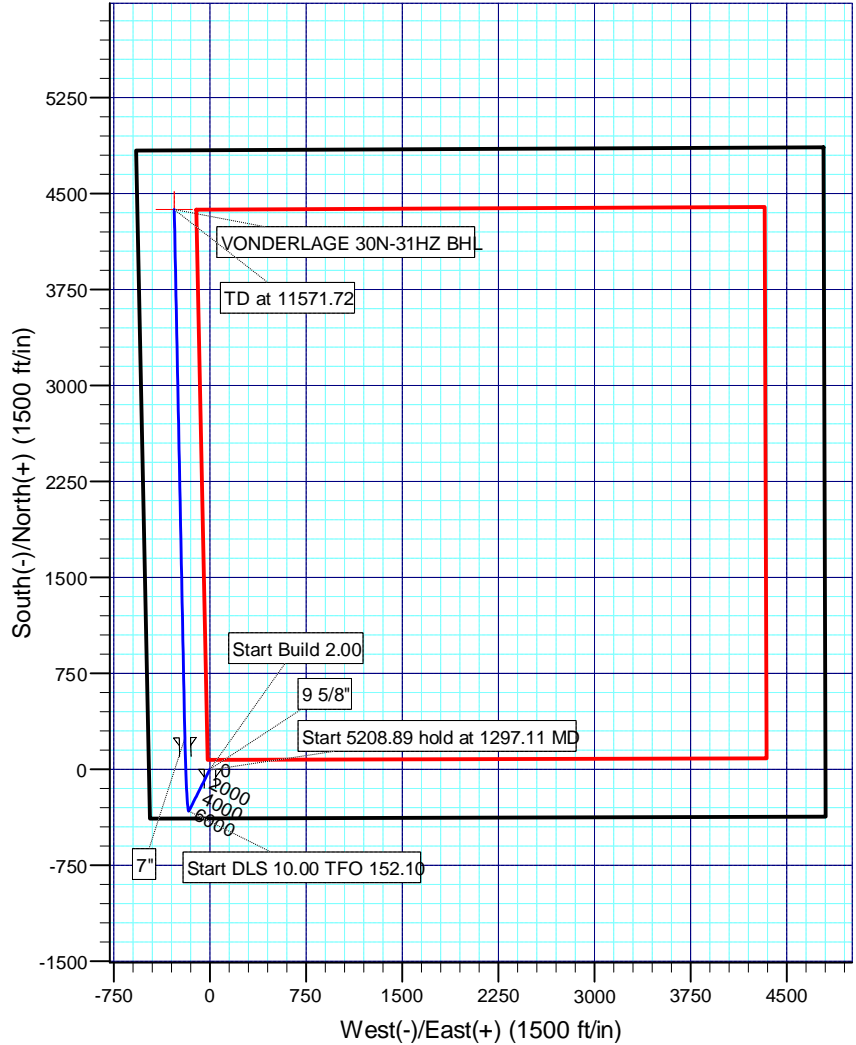
CASING DETAILS

TVD	MD	Name	Size
850.00	850.00	9 5/8"	9-5/8
7101.00	7441.65	7"	7

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3904.00	3910.34	PARKMAN
4259.00	4266.18	SUSSEX
6976.00	7055.04	SHARON SPRINGS
7051.00	7199.65	NIOBRARA

Azimuths to True North
 Magnetic North: 8.79°
 Magnetic Field
 Strength: 52939.6snT
 Dip Angle: 66.84°
 Date: 2/1/2012
 Model: IGRF2010



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 13-31HZ PAD	North Reference:	True
Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	VONDERLAGE 30N-31HZ		
Design:	VONDERLAGE 30N-31HZ (wp01)		

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_VONDERLAGE 13-31HZ PAD				
Site Position:		Northing:	1,307,355.07 usft	Latitude:	40.175131
From:	Lat/Long	Easting:	3,187,835.51 usft	Longitude:	-104.827794
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.43 °

Well	VONDERLAGE 30N-31HZ					
Well Position	+N/-S	-29.88 ft	Northing:	1,307,325.20 usft	Latitude:	40.175049
	+E/-W	0.84 ft	Easting:	3,187,836.58 usft	Longitude:	-104.827791
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,825.00 ft

Wellbore	VONDERLAGE 30N-31HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2012	8.79	66.84	52,940

Design	VONDERLAGE 30N-31HZ (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	356.36

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,297.11	3.94	206.70	1,296.96	-6.06	-3.05	2.00	2.00	0.00	206.70	
6,506.01	3.94	206.70	6,493.53	-326.00	-163.93	0.00	0.00	0.00	0.00	
7,441.65	90.08	358.85	7,101.00	246.18	-195.00	10.00	9.21	16.26	152.10	
7,442.10	90.08	358.85	7,101.00	246.63	-195.01	1.00	0.95	-0.30	-17.70	
11,571.72	90.08	358.85	7,095.00	4,375.41	-277.99	0.00	0.00	0.00	0.00	VONDERLAGE 30N-;

Anadarko Petroleum Corp

Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 13-31HZ PAD	North Reference:	True
Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	VONDERLAGE 30N-31HZ		
Design:	VONDERLAGE 30N-31HZ (wp01)		

Planned 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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00	
9 5/8"										
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start Build 2.00										
1,200.00	2.00	206.70	1,199.98	-1.56	-0.78	-1.51	2.00	2.00	0.00	
1,297.11	3.94	206.70	1,296.96	-6.06	-3.05	-5.85	2.00	2.00	0.00	
Start 5208.89 hold at 1297.11 MD										
1,300.00	3.94	206.70	1,299.84	-6.23	-3.13	-6.02	0.00	0.00	0.00	
1,400.00	3.94	206.70	1,399.60	-12.38	-6.22	-11.96	0.00	0.00	0.00	
1,500.00	3.94	206.70	1,499.36	-18.52	-9.31	-17.89	0.00	0.00	0.00	
1,600.00	3.94	206.70	1,599.13	-24.66	-12.40	-23.82	0.00	0.00	0.00	
1,700.00	3.94	206.70	1,698.89	-30.80	-15.49	-29.76	0.00	0.00	0.00	
1,800.00	3.94	206.70	1,798.65	-36.94	-18.58	-35.69	0.00	0.00	0.00	
1,900.00	3.94	206.70	1,898.42	-43.09	-21.67	-41.63	0.00	0.00	0.00	
2,000.00	3.94	206.70	1,998.18	-49.23	-24.75	-47.56	0.00	0.00	0.00	
2,100.00	3.94	206.70	2,097.94	-55.37	-27.84	-53.49	0.00	0.00	0.00	
2,200.00	3.94	206.70	2,197.71	-61.51	-30.93	-59.43	0.00	0.00	0.00	
2,300.00	3.94	206.70	2,297.47	-67.66	-34.02	-65.36	0.00	0.00	0.00	
2,400.00	3.94	206.70	2,397.23	-73.80	-37.11	-71.30	0.00	0.00	0.00	
2,500.00	3.94	206.70	2,497.00	-79.94	-40.20	-77.23	0.00	0.00	0.00	
2,600.00	3.94	206.70	2,596.76	-86.08	-43.29	-83.17	0.00	0.00	0.00	
2,700.00	3.94	206.70	2,696.53	-92.23	-46.38	-89.10	0.00	0.00	0.00	
2,800.00	3.94	206.70	2,796.29	-98.37	-49.46	-95.03	0.00	0.00	0.00	
2,900.00	3.94	206.70	2,896.05	-104.51	-52.55	-100.97	0.00	0.00	0.00	
3,000.00	3.94	206.70	2,995.82	-110.65	-55.64	-106.90	0.00	0.00	0.00	
3,100.00	3.94	206.70	3,095.58	-116.79	-58.73	-112.84	0.00	0.00	0.00	
3,200.00	3.94	206.70	3,195.34	-122.94	-61.82	-118.77	0.00	0.00	0.00	
3,300.00	3.94	206.70	3,295.11	-129.08	-64.91	-124.70	0.00	0.00	0.00	
3,400.00	3.94	206.70	3,394.87	-135.22	-68.00	-130.64	0.00	0.00	0.00	
3,500.00	3.94	206.70	3,494.63	-141.36	-71.08	-136.57	0.00	0.00	0.00	
3,600.00	3.94	206.70	3,594.40	-147.51	-74.17	-142.51	0.00	0.00	0.00	
3,700.00	3.94	206.70	3,694.16	-153.65	-77.26	-148.44	0.00	0.00	0.00	
3,800.00	3.94	206.70	3,793.92	-159.79	-80.35	-154.37	0.00	0.00	0.00	
3,900.00	3.94	206.70	3,893.69	-165.93	-83.44	-160.31	0.00	0.00	0.00	
3,910.34	3.94	206.70	3,904.00	-166.57	-83.76	-160.92	0.00	0.00	0.00	
PARKMAN										
4,000.00	3.94	206.70	3,993.45	-172.07	-86.53	-166.24	0.00	0.00	0.00	
4,100.00	3.94	206.70	4,093.21	-178.22	-89.62	-172.18	0.00	0.00	0.00	
4,200.00	3.94	206.70	4,192.98	-184.36	-92.70	-178.11	0.00	0.00	0.00	
4,266.18	3.94	206.70	4,259.00	-188.42	-94.75	-182.04	0.00	0.00	0.00	

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 13-31HZ PAD	North Reference:	True
Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	VONDERLAGE 30N-31HZ		
Design:	VONDERLAGE 30N-31HZ (wp01)		

Planned 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)
SUSSEX									
4,300.00	3.94	206.70	4,292.74	-190.50	-95.79	-184.04	0.00	0.00	0.00
4,400.00	3.94	206.70	4,392.50	-196.64	-98.88	-189.98	0.00	0.00	0.00
4,500.00	3.94	206.70	4,492.27	-202.79	-101.97	-195.91	0.00	0.00	0.00
4,600.00	3.94	206.70	4,592.03	-208.93	-105.06	-201.85	0.00	0.00	0.00
4,700.00	3.94	206.70	4,691.79	-215.07	-108.15	-207.78	0.00	0.00	0.00
4,800.00	3.94	206.70	4,791.56	-221.21	-111.24	-213.72	0.00	0.00	0.00
4,900.00	3.94	206.70	4,891.32	-227.35	-114.33	-219.65	0.00	0.00	0.00
5,000.00	3.94	206.70	4,991.08	-233.50	-117.41	-225.58	0.00	0.00	0.00
5,100.00	3.94	206.70	5,090.85	-239.64	-120.50	-231.52	0.00	0.00	0.00
5,200.00	3.94	206.70	5,190.61	-245.78	-123.59	-237.45	0.00	0.00	0.00
5,300.00	3.94	206.70	5,290.37	-251.92	-126.68	-243.39	0.00	0.00	0.00
5,400.00	3.94	206.70	5,390.14	-258.07	-129.77	-249.32	0.00	0.00	0.00
5,500.00	3.94	206.70	5,489.90	-264.21	-132.86	-255.25	0.00	0.00	0.00
5,600.00	3.94	206.70	5,589.66	-270.35	-135.95	-261.19	0.00	0.00	0.00
5,700.00	3.94	206.70	5,689.43	-276.49	-139.03	-267.12	0.00	0.00	0.00
5,800.00	3.94	206.70	5,789.19	-282.64	-142.12	-273.06	0.00	0.00	0.00
5,900.00	3.94	206.70	5,888.95	-288.78	-145.21	-278.99	0.00	0.00	0.00
6,000.00	3.94	206.70	5,988.72	-294.92	-148.30	-284.92	0.00	0.00	0.00
6,100.00	3.94	206.70	6,088.48	-301.06	-151.39	-290.86	0.00	0.00	0.00
6,200.00	3.94	206.70	6,188.24	-307.20	-154.48	-296.79	0.00	0.00	0.00
6,300.00	3.94	206.70	6,288.01	-313.35	-157.57	-302.73	0.00	0.00	0.00
6,400.00	3.94	206.70	6,387.77	-319.49	-160.65	-308.66	0.00	0.00	0.00
6,500.00	3.94	206.70	6,487.53	-325.63	-163.74	-314.59	0.00	0.00	0.00
6,506.01	3.94	206.70	6,493.53	-326.00	-163.93	-314.95	0.00	0.00	0.00
Start DLS 10.00 TFO 152.10									
6,600.00	6.19	341.59	6,587.34	-324.07	-166.99	-312.83	10.00	2.40	143.52
6,700.00	16.02	352.41	6,685.36	-305.23	-170.52	-293.80	10.00	9.82	10.82
6,800.00	25.98	355.06	6,778.61	-269.64	-174.24	-258.06	10.00	9.96	2.65
6,900.00	35.96	356.30	6,864.25	-218.40	-178.03	-206.67	10.00	9.98	1.24
7,000.00	45.94	357.06	6,939.68	-153.05	-181.77	-141.22	10.00	9.99	0.76
7,055.04	51.44	357.38	6,976.00	-111.77	-183.77	-99.89	10.00	9.99	0.57
SHARON SPRINGS									
7,100.00	55.93	357.60	7,002.62	-75.59	-185.36	-63.68	10.00	9.99	0.50
7,199.65	65.89	358.02	7,051.00	11.33	-188.67	23.26	10.00	9.99	0.42
NIOBRARA									
7,200.00	65.93	358.02	7,051.14	11.64	-188.68	23.58	10.00	9.99	0.39
7,300.00	75.92	358.38	7,083.78	105.98	-191.63	117.92	10.00	9.99	0.36
7,400.00	85.92	358.72	7,099.55	204.57	-194.12	216.47	10.00	9.99	0.33
7,441.65	90.08	358.85	7,101.00	246.18	-195.00	258.05	10.00	9.99	0.32
7"									
7,442.10	90.08	358.85	7,101.00	246.63	-195.01	258.50	1.00	0.95	-0.30
Start 4129.62 hold at 7442.10 MD									
7,500.00	90.08	358.85	7,100.92	304.52	-196.17	316.34	0.00	0.00	0.00
7,600.00	90.08	358.85	7,100.77	404.50	-198.18	416.25	0.00	0.00	0.00
7,700.00	90.08	358.85	7,100.62	504.48	-200.19	516.15	0.00	0.00	0.00
7,800.00	90.08	358.85	7,100.48	604.46	-202.20	616.06	0.00	0.00	0.00
7,900.00	90.08	358.85	7,100.33	704.44	-204.21	715.97	0.00	0.00	0.00
8,000.00	90.08	358.85	7,100.19	804.42	-206.22	815.87	0.00	0.00	0.00
8,100.00	90.08	358.85	7,100.04	904.40	-208.23	915.78	0.00	0.00	0.00
8,200.00	90.08	358.85	7,099.90	1,004.38	-210.24	1,015.68	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 13-31HZ PAD	North Reference:	True
Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	VONDERLAGE 30N-31HZ		
Design:	VONDERLAGE 30N-31HZ (wp01)		

Planned 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)	
8,300.00	90.08	358.85	7,099.75	1,104.36	-212.25	1,115.59	0.00	0.00	0.00	
8,400.00	90.08	358.85	7,099.61	1,204.34	-214.26	1,215.50	0.00	0.00	0.00	
8,500.00	90.08	358.85	7,099.46	1,304.32	-216.27	1,315.40	0.00	0.00	0.00	
8,600.00	90.08	358.85	7,099.32	1,404.29	-218.28	1,415.31	0.00	0.00	0.00	
8,700.00	90.08	358.85	7,099.17	1,504.27	-220.29	1,515.21	0.00	0.00	0.00	
8,800.00	90.08	358.85	7,099.03	1,604.25	-222.29	1,615.12	0.00	0.00	0.00	
8,900.00	90.08	358.85	7,098.88	1,704.23	-224.30	1,715.03	0.00	0.00	0.00	
9,000.00	90.08	358.85	7,098.74	1,804.21	-226.31	1,814.93	0.00	0.00	0.00	
9,100.00	90.08	358.85	7,098.59	1,904.19	-228.32	1,914.84	0.00	0.00	0.00	
9,200.00	90.08	358.85	7,098.45	2,004.17	-230.33	2,014.74	0.00	0.00	0.00	
9,300.00	90.08	358.85	7,098.30	2,104.15	-232.34	2,114.65	0.00	0.00	0.00	
9,400.00	90.08	358.85	7,098.16	2,204.13	-234.35	2,214.56	0.00	0.00	0.00	
9,500.00	90.08	358.85	7,098.01	2,304.11	-236.36	2,314.46	0.00	0.00	0.00	
9,600.00	90.08	358.85	7,097.86	2,404.09	-238.37	2,414.37	0.00	0.00	0.00	
9,700.00	90.08	358.85	7,097.72	2,504.07	-240.38	2,514.27	0.00	0.00	0.00	
9,800.00	90.08	358.85	7,097.57	2,604.05	-242.39	2,614.18	0.00	0.00	0.00	
9,900.00	90.08	358.85	7,097.43	2,704.03	-244.40	2,714.09	0.00	0.00	0.00	
10,000.00	90.08	358.85	7,097.28	2,804.01	-246.41	2,813.99	0.00	0.00	0.00	
10,100.00	90.08	358.85	7,097.14	2,903.99	-248.42	2,913.90	0.00	0.00	0.00	
10,200.00	90.08	358.85	7,096.99	3,003.97	-250.43	3,013.80	0.00	0.00	0.00	
10,300.00	90.08	358.85	7,096.85	3,103.95	-252.44	3,113.71	0.00	0.00	0.00	
10,400.00	90.08	358.85	7,096.70	3,203.93	-254.44	3,213.62	0.00	0.00	0.00	
10,500.00	90.08	358.85	7,096.56	3,303.91	-256.45	3,313.52	0.00	0.00	0.00	
10,600.00	90.08	358.85	7,096.41	3,403.89	-258.46	3,413.43	0.00	0.00	0.00	
10,700.00	90.08	358.85	7,096.27	3,503.87	-260.47	3,513.33	0.00	0.00	0.00	
10,800.00	90.08	358.85	7,096.12	3,603.85	-262.48	3,613.24	0.00	0.00	0.00	
10,900.00	90.08	358.85	7,095.98	3,703.83	-264.49	3,713.15	0.00	0.00	0.00	
11,000.00	90.08	358.85	7,095.83	3,803.81	-266.50	3,813.05	0.00	0.00	0.00	
11,100.00	90.08	358.85	7,095.69	3,903.79	-268.51	3,912.96	0.00	0.00	0.00	
11,200.00	90.08	358.85	7,095.54	4,003.77	-270.52	4,012.86	0.00	0.00	0.00	
11,300.00	90.08	358.85	7,095.39	4,103.75	-272.53	4,112.77	0.00	0.00	0.00	
11,400.00	90.08	358.85	7,095.25	4,203.73	-274.54	4,212.68	0.00	0.00	0.00	
11,500.00	90.08	358.85	7,095.10	4,303.71	-276.55	4,312.58	0.00	0.00	0.00	
11,571.72	90.08	358.85	7,095.00	4,375.41	-277.99	4,384.23	0.00	0.00	0.00	
TD at 11571.72 - VONDERLAGE 30N-31HZ BHL										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
VONDERLAGE 30N-31H - hit/miss target - Shape - Point	0.00	0.00	7,095.00	4,375.41	-277.99	1,311,698.37	3,187,525.43	40.187060	-104.828786

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 13-31HZ PAD	North Reference:	True
Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	VONDERLAGE 30N-31HZ		
Design:	VONDERLAGE 30N-31HZ (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
850.00	850.00	9 5/8"	9-5/8	13-1/2	
7,441.65	7,101.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,910.34	3,905.00	PARKMAN		0.00	
4,266.18	4,260.00	SUSSEX		0.00	
7,055.04	6,977.00	SHARON SPRINGS		0.00	
7,199.65	7,052.00	NIOBRARA		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,100.00	1,100.00	0.00	0.00	Start Build 2.00	
1,297.11	1,296.96	-6.06	-3.05	Start 5208.89 hold at 1297.11 MD	
6,506.01	6,493.53	-326.00	-163.93	Start DLS 10.00 TFO 152.10	
7,442.10	7,101.00	246.63	-195.01	Start 4129.62 hold at 7442.10 MD	
11,571.72	7,095.00	4,375.41	-277.99	TD at 11571.72	

US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_VONDERLAGE 13-31HZ PAD
VONDERLAGE 30N-31HZ**

**VONDERLAGE 30N-31HZ
VONDERLAGE 30N-31HZ (wp01)**

Anticollision Report

06 February, 2012

Anadarko Petroleum Corp

Anticollision Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 13-31HZ PAD	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	VONDERLAGE 30N-31HZ	Database:	edmp
Reference Design:	VONDERLAGE 30N-31HZ (wp01)	Offset TVD Reference:	Offset Datum

Reference	VONDERLAGE 30N-31HZ (wp01)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	2/2/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	11,571.65	VONDERLAGE 30N-31HZ (wp01) (VOND	MWD	MWD - Standard

Summary						
	Reference	Offset	Distance			
Site Name	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
WELD_VONDERLAGE 13-31HZ PAD						
VONDERLAGE 29N-W31HZ - VONDERLAGE 29N-W31	1,100.00	1,101.00	29.87	25.19	6.375	CC, ES
VONDERLAGE 29N-W31HZ - VONDERLAGE 29N-W31	11,572.33	11,671.71	697.92	525.25	4.042	SF

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference: WELD_VONDERLAGE 13-31HZ PAD - VONDERLAGE 29N-W31HZ - VONDERLAGE 29N-W31HZ - V													
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	1.00	1.00	0.00	0.00	-1.61	29.86	-0.84	29.87				
100.00	100.00	101.00	101.00	0.09	0.10	-1.61	29.86	-0.84	29.87	29.68	0.19	156.370	
200.00	200.00	201.00	201.00	0.32	0.32	-1.61	29.86	-0.84	29.87	29.23	0.64	46.637	
300.00	300.00	301.00	301.00	0.54	0.55	-1.61	29.86	-0.84	29.87	28.78	1.09	27.405	
400.00	400.00	401.00	401.00	0.77	0.77	-1.61	29.86	-0.84	29.87	28.33	1.54	19.404	
500.00	500.00	501.00	501.00	0.99	1.00	-1.61	29.86	-0.84	29.87	27.89	1.99	15.019	
600.00	600.00	601.00	601.00	1.22	1.22	-1.61	29.86	-0.84	29.87	27.44	2.44	12.250	
700.00	700.00	701.00	701.00	1.44	1.45	-1.61	29.86	-0.84	29.87	26.99	2.89	10.344	
800.00	800.00	801.00	801.00	1.67	1.67	-1.61	29.86	-0.84	29.87	26.54	3.34	8.950	
900.00	900.00	901.00	901.00	1.89	1.89	-1.61	29.86	-0.84	29.87	26.09	3.79	7.888	
1,000.00	1,000.00	1,001.00	1,001.00	2.12	2.12	-1.61	29.86	-0.84	29.87	25.64	4.24	7.051	
1,100.00	1,100.00	1,101.00	1,101.00	2.34	2.34	-1.61	29.86	-0.84	29.87	25.19	4.69	6.375	CC, ES
1,200.00	1,199.98	1,200.98	1,200.98	2.54	2.57	153.19	29.86	-0.84	31.42	26.32	5.11	6.153	
1,297.11	1,296.96	1,297.96	1,297.96	2.71	2.79	156.77	29.86	-0.84	35.99	30.50	5.49	6.555	
1,300.00	1,299.84	1,300.84	1,300.84	2.72	2.79	156.90	29.86	-0.84	36.17	30.67	5.50	6.575	
1,400.00	1,399.60	1,401.40	1,401.38	2.91	3.00	162.60	28.68	0.51	41.61	35.73	5.89	7.067	
1,500.00	1,499.36	1,501.83	1,501.66	3.11	3.18	170.85	25.19	4.51	45.86	39.59	6.26	7.321	
1,600.00	1,599.13	1,601.88	1,601.32	3.32	3.38	-178.60	19.41	11.13	49.97	43.31	6.66	7.507	
1,700.00	1,698.89	1,701.27	1,700.16	3.53	3.60	-168.18	12.54	18.98	55.38	48.31	7.07	7.834	
1,800.00	1,798.65	1,800.66	1,799.01	3.76	3.82	-159.82	5.68	26.83	62.28	54.78	7.50	8.303	
1,900.00	1,898.42	1,900.06	1,897.85	3.99	4.06	-153.23	-1.19	34.68	70.24	62.29	7.95	8.838	
2,000.00	1,998.18	1,999.45	1,996.69	4.22	4.30	-148.03	-8.05	42.54	78.93	70.53	8.40	9.393	
2,100.00	2,097.94	2,098.84	2,095.54	4.45	4.55	-143.88	-14.92	50.39	88.14	79.27	8.87	9.941	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anadarko Petroleum Corp

Anticollision Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 13-31HZ PAD	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	VONDERLAGE 30N-31HZ	Database:	edmp
Reference Design:	VONDERLAGE 30N-31HZ (wp01)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
WELD_VONDERLAGE 13-31HZ PAD - VONDERLAGE 29N-W31HZ - VONDERLAGE 29N-W31HZ - V													Offset Well Error:	0.00 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,200.00	2,197.71	2,198.23	2,194.38	4.69	4.81	-140.53	-21.78	58.24	97.72	88.39	9.34	10.466		
2,300.00	2,297.47	2,297.63	2,293.23	4.93	5.07	-137.79	-28.65	66.10	107.58	97.76	9.81	10.962		
2,400.00	2,397.23	2,397.02	2,392.07	5.17	5.33	-135.50	-35.51	73.95	117.64	107.34	10.29	11.427		
2,500.00	2,497.00	2,496.41	2,490.91	5.42	5.60	-133.58	-42.37	81.80	127.85	117.07	10.78	11.861		
2,600.00	2,596.76	2,595.80	2,589.76	5.67	5.88	-131.95	-49.24	89.66	138.19	126.92	11.27	12.264		
2,700.00	2,696.53	2,695.20	2,688.60	5.91	6.15	-130.54	-56.10	97.51	148.62	136.86	11.76	12.639		
2,800.00	2,796.29	2,794.59	2,787.45	6.16	6.43	-129.32	-62.97	105.36	159.13	146.87	12.25	12.987		
2,900.00	2,896.05	2,893.98	2,886.29	6.41	6.71	-128.25	-69.83	113.21	169.70	156.95	12.75	13.311		
3,000.00	2,995.82	2,993.38	2,985.13	6.66	6.99	-127.30	-76.70	121.07	180.32	167.07	13.25	13.613		
3,100.00	3,095.58	3,092.77	3,083.98	6.92	7.27	-126.46	-83.56	128.92	190.99	177.24	13.75	13.894		
3,200.00	3,195.34	3,192.16	3,182.82	7.17	7.56	-125.71	-90.43	136.77	201.69	187.44	14.25	14.156		
3,300.00	3,295.11	3,291.55	3,281.67	7.42	7.84	-125.04	-97.29	144.63	212.42	197.67	14.75	14.402		
3,400.00	3,394.87	3,390.95	3,380.51	7.68	8.13	-124.43	-104.15	152.48	223.18	207.93	15.25	14.631		
3,500.00	3,494.63	3,490.34	3,479.35	7.93	8.42	-123.87	-111.02	160.33	233.97	218.21	15.76	14.847		
3,600.00	3,594.40	3,589.73	3,578.20	8.19	8.71	-123.37	-117.88	168.19	244.77	228.50	16.26	15.049		
3,700.00	3,694.16	3,689.12	3,677.04	8.44	9.00	-122.91	-124.75	176.04	255.59	238.81	16.77	15.239		
3,800.00	3,793.92	3,788.52	3,775.89	8.70	9.29	-122.48	-131.61	183.89	266.42	249.14	17.28	15.418		
3,900.00	3,893.69	3,887.91	3,874.73	8.96	9.58	-122.09	-138.48	191.74	277.27	259.48	17.79	15.587		
4,000.00	3,993.45	3,987.30	3,973.57	9.22	9.87	-121.73	-145.34	199.60	288.13	269.83	18.30	15.747		
4,100.00	4,093.21	4,086.70	4,072.42	9.47	10.16	-121.39	-152.20	207.45	299.00	280.19	18.81	15.898		
4,200.00	4,192.98	4,186.09	4,171.26	9.73	10.46	-121.08	-159.07	215.30	309.88	290.56	19.32	16.041		
4,300.00	4,292.74	4,285.48	4,270.11	9.99	10.75	-120.79	-165.93	223.16	320.77	300.94	19.83	16.176		
4,400.00	4,392.50	4,384.87	4,368.95	10.25	11.04	-120.52	-172.80	231.01	331.66	311.32	20.34	16.305		
4,500.00	4,492.27	4,484.27	4,467.79	10.51	11.34	-120.26	-179.66	238.86	342.57	321.71	20.85	16.427		
4,600.00	4,592.03	4,583.66	4,566.64	10.76	11.63	-120.02	-186.53	246.72	353.47	332.11	21.37	16.543		
4,700.00	4,691.79	4,683.05	4,665.48	11.02	11.93	-119.80	-193.39	254.57	364.39	342.51	21.88	16.654		
4,800.00	4,791.56	4,782.44	4,764.33	11.28	12.22	-119.59	-200.26	262.42	375.31	352.92	22.39	16.760		
4,900.00	4,891.32	4,881.84	4,863.17	11.54	12.52	-119.39	-207.12	270.27	386.23	363.33	22.91	16.861		
5,000.00	4,991.08	4,981.23	4,962.01	11.80	12.81	-119.20	-213.98	278.13	397.16	373.74	23.42	16.957		
5,100.00	5,090.85	5,080.62	5,060.86	12.06	13.11	-119.02	-220.85	285.98	408.10	384.16	23.94	17.049		
5,200.00	5,190.61	5,180.02	5,159.70	12.32	13.41	-118.85	-227.71	293.83	419.03	394.58	24.45	17.138		
5,300.00	5,290.37	5,279.41	5,258.54	12.58	13.70	-118.69	-234.58	301.69	429.97	405.01	24.97	17.222		
5,400.00	5,390.14	5,378.80	5,357.39	12.84	14.00	-118.54	-241.44	309.54	440.92	415.43	25.48	17.303		
5,500.00	5,489.90	5,478.19	5,456.23	13.10	14.30	-118.39	-248.31	317.39	451.86	425.87	26.00	17.381		
5,600.00	5,589.66	5,577.59	5,555.08	13.36	14.60	-118.26	-255.17	325.25	462.81	436.30	26.51	17.456		
5,700.00	5,689.43	5,676.98	5,653.92	13.62	14.89	-118.12	-262.03	333.10	473.76	446.73	27.03	17.528		
5,800.00	5,789.19	5,776.37	5,752.76	13.88	15.19	-118.00	-268.90	340.95	484.72	457.17	27.55	17.597		
5,900.00	5,888.95	5,875.76	5,851.61	14.14	15.49	-117.88	-275.76	348.80	495.67	467.61	28.06	17.663		
6,000.00	5,988.72	5,975.16	5,950.45	14.41	15.79	-117.76	-282.63	356.66	506.63	478.05	28.58	17.727		
6,100.00	6,088.48	6,074.55	6,049.30	14.67	16.08	-117.65	-289.49	364.51	517.59	488.50	29.10	17.789		
6,200.00	6,188.24	6,173.94	6,148.14	14.93	16.38	-117.55	-296.36	372.36	528.55	498.94	29.61	17.849		
6,300.00	6,288.01	6,273.34	6,246.98	15.19	16.68	-117.45	-303.22	380.22	539.52	509.39	30.13	17.906		
6,400.00	6,387.77	6,372.73	6,345.83	15.45	16.98	-117.35	-310.09	388.07	550.48	519.83	30.65	17.962		
6,506.01	6,493.53	6,478.09	6,450.61	15.73	17.30	-117.25	-317.36	396.39	562.11	530.91	31.20	18.018		
6,550.00	6,537.47	6,521.76	6,494.03	15.82	17.43	154.02	-320.38	399.84	566.95	535.54	31.41	18.049		
6,600.00	6,587.34	6,571.02	6,543.02	15.89	17.58	107.81	-323.78	403.74	572.52	540.91	31.61	18.114		
6,650.00	6,636.77	6,619.90	6,591.65	15.94	17.71	100.56	-326.97	407.60	578.26	546.50	31.76	18.208		
6,700.00	6,685.36	6,670.02	6,641.59	15.97	17.82	98.15	-326.96	411.54	584.19	552.33	31.86	18.339		
6,750.00	6,732.76	6,721.22	6,692.42	15.98	17.90	97.14	-322.42	415.51	590.25	558.35	31.90	18.502		
6,800.00	6,778.61	6,773.59	6,743.78	15.97	17.96	96.71	-313.10	419.49	596.40	564.49	31.91	18.689		
6,850.00	6,822.55	6,827.18	6,795.24	15.95	17.98	96.58	-298.73	423.44	602.57	570.68	31.89	18.896		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anadarko Petroleum Corp

Anticollision Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 13-31HZ PAD	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	VONDERLAGE 30N-31HZ	Database:	edmp
Reference Design:	VONDERLAGE 30N-31HZ (wp01)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.00 ft	
WELD_VONDERLAGE 13-31HZ PAD - VONDERLAGE 29N-W31HZ - VONDERLAGE 29N-W31HZ - V														Offset Well Error:		0.00 ft
Survey Program: 0-MWD																
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
6,900.00	6,864.25	6,882.05	6,846.31	15.93	17.99	96.61	-279.09	427.32	608.68	576.84	31.84	19.115				
6,950.00	6,903.39	6,938.25	6,896.42	15.91	17.97	96.72	-254.00	431.08	614.67	582.88	31.79	19.336				
7,000.00	6,939.68	6,995.79	6,944.95	15.89	17.93	96.88	-223.33	434.67	620.45	588.71	31.74	19.548				
7,050.00	6,972.84	7,054.67	6,991.18	15.88	17.87	97.06	-187.07	438.03	625.95	594.23	31.71	19.737				
7,100.00	7,002.62	7,114.87	7,034.36	15.88	17.79	97.24	-145.27	441.11	631.08	599.35	31.73	19.887				
7,150.00	7,028.78	7,176.33	7,073.69	15.93	17.70	97.41	-98.16	443.85	635.78	603.96	31.82	19.983				
7,200.00	7,051.14	7,238.94	7,108.35	16.01	17.60	97.55	-46.11	446.18	639.95	607.97	31.98	20.011				
7,250.00	7,069.52	7,302.56	7,137.57	16.16	17.50	97.65	10.34	448.04	643.53	611.28	32.25	19.956				
7,300.00	7,083.78	7,367.03	7,160.62	16.38	17.40	97.71	70.50	449.39	646.46	613.83	32.64	19.807				
7,350.00	7,093.82	7,432.13	7,176.93	16.65	17.30	97.72	133.48	450.19	648.70	615.55	33.15	19.569				
7,400.00	7,099.55	7,497.63	7,186.04	16.97	17.39	97.67	198.30	450.40	650.19	616.41	33.78	19.245				
7,441.65	7,101.00	7,551.29	7,187.98	17.28	17.76	97.59	251.91	450.14	650.87	616.46	34.40	18.919				
7,442.10	7,101.00	7,551.74	7,187.98	17.28	17.76	97.59	252.36	450.13	650.87	616.46	34.41	18.916				
7,500.00	7,100.92	7,609.64	7,187.69	17.74	18.23	97.56	310.25	449.66	651.53	616.27	35.26	18.478				
7,600.00	7,100.77	7,709.63	7,187.18	18.69	19.15	97.52	410.24	448.84	652.66	615.67	36.99	17.643				
7,700.00	7,100.62	7,809.62	7,186.68	19.77	20.18	97.47	510.23	448.02	653.79	614.77	39.02	16.756				
7,800.00	7,100.48	7,909.61	7,186.17	20.97	21.32	97.43	610.22	447.20	654.92	613.62	41.30	15.859				
7,900.00	7,100.33	8,009.61	7,185.66	22.27	22.56	97.38	710.20	446.38	656.05	612.26	43.79	14.982				
8,000.00	7,100.19	8,109.60	7,185.16	23.66	23.88	97.34	810.19	445.55	657.19	610.73	46.46	14.145				
8,100.00	7,100.04	8,209.59	7,184.65	25.11	25.27	97.30	910.18	444.73	658.32	609.04	49.28	13.359				
8,200.00	7,099.90	8,309.58	7,184.14	26.62	26.72	97.25	1,010.17	443.91	659.45	607.23	52.23	12.627				
8,300.00	7,099.75	8,409.58	7,183.63	28.18	28.22	97.21	1,110.16	443.09	660.59	605.31	55.28	11.951				
8,400.00	7,099.61	8,509.57	7,183.13	29.78	29.77	97.16	1,210.14	442.27	661.72	603.30	58.42	11.327				
8,500.00	7,099.46	8,609.56	7,182.62	31.41	31.36	97.12	1,310.13	441.45	662.85	601.22	61.63	10.755				
8,600.00	7,099.32	8,709.56	7,182.11	33.08	32.98	97.08	1,410.12	440.63	663.99	599.07	64.91	10.229				
8,700.00	7,099.17	8,809.55	7,181.60	34.77	34.62	97.03	1,510.11	439.81	665.12	596.87	68.25	9.745				
8,800.00	7,099.03	8,909.54	7,181.10	36.48	36.30	96.99	1,610.10	438.99	666.26	594.62	71.64	9.301				
8,900.00	7,098.88	9,009.53	7,180.59	38.21	37.99	96.95	1,710.08	438.17	667.39	592.33	75.06	8.891				
9,000.00	7,098.74	9,109.53	7,180.08	39.96	39.70	96.90	1,810.07	437.35	668.53	590.01	78.52	8.514				
9,100.00	7,098.59	9,209.52	7,179.57	41.73	41.43	96.86	1,910.06	436.52	669.67	587.65	82.02	8.165				
9,200.00	7,098.45	9,309.51	7,179.06	43.50	43.18	96.82	2,010.05	435.70	670.80	585.27	85.54	7.842				
9,300.00	7,098.30	9,409.51	7,178.55	45.29	44.94	96.77	2,110.04	434.88	671.94	582.86	89.08	7.543				
9,400.00	7,098.16	9,509.50	7,178.04	47.09	46.71	96.73	2,210.03	434.06	673.08	580.43	92.65	7.265				
9,500.00	7,098.01	9,609.49	7,177.53	48.89	48.49	96.69	2,310.01	433.24	674.21	577.98	96.23	7.006				
9,600.00	7,097.86	9,709.48	7,177.03	50.71	50.28	96.65	2,410.00	432.42	675.35	575.51	99.84	6.765				
9,700.00	7,097.72	9,809.48	7,176.52	52.53	52.08	96.60	2,509.99	431.60	676.49	573.03	103.46	6.539				
9,800.00	7,097.57	9,909.47	7,176.01	54.36	53.89	96.56	2,609.98	430.77	677.63	570.54	107.09	6.328				
9,900.00	7,097.43	10,009.46	7,175.50	56.19	55.70	96.52	2,709.97	429.95	678.77	568.03	110.73	6.130				
10,000.00	7,097.28	10,109.46	7,174.99	58.03	57.52	96.48	2,809.95	429.13	679.90	565.51	114.39	5.944				
10,100.00	7,097.14	10,209.45	7,174.48	59.88	59.35	96.44	2,909.94	428.31	681.04	562.98	118.06	5.769				
10,200.00	7,096.99	10,309.44	7,173.97	61.72	61.18	96.39	3,009.93	427.49	682.18	560.45	121.74	5.604				
10,300.00	7,096.85	10,409.43	7,173.46	63.58	63.01	96.35	3,109.92	426.67	683.32	557.90	125.42	5.448				
10,400.00	7,096.70	10,509.43	7,172.95	65.43	64.85	96.31	3,209.91	425.84	684.46	555.35	129.12	5.301				
10,500.00	7,096.56	10,609.42	7,172.43	67.29	66.70	96.27	3,309.89	425.02	685.60	552.78	132.82	5.162				
10,600.00	7,096.41	10,709.41	7,171.92	69.16	68.54	96.23	3,409.88	424.20	686.74	550.22	136.53	5.030				
10,700.00	7,096.27	10,809.40	7,171.41	71.02	70.40	96.19	3,509.87	423.38	687.88	547.64	140.24	4.905				
10,800.00	7,096.12	10,909.40	7,170.90	72.89	72.25	96.15	3,609.86	422.56	689.03	545.06	143.96	4.786				
10,900.00	7,095.98	11,009.39	7,170.39	74.76	74.11	96.11	3,709.85	421.73	690.17	542.48	147.69	4.673				
11,000.00	7,095.83	11,109.38	7,169.88	76.63	75.97	96.07	3,809.84	420.91	691.31	539.89	151.42	4.566				
11,100.00	7,095.69	11,209.38	7,169.37	78.51	77.83	96.02	3,909.82	420.09	692.45	537.29	155.16	4.463				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anadarko Petroleum Corp
Anticollision Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 13-31HZ PAD	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	VONDERLAGE 30N-31HZ	Database:	edmp
Reference Design:	VONDERLAGE 30N-31HZ (wp01)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
WELD_VONDERLAGE 13-31HZ PAD - VONDERLAGE 29N-W31HZ - VONDERLAGE 29N-W31HZ - V													Offset Well Error:	0.00 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,200.00	7,095.54	11,309.37	7,168.86	80.38	79.70	95.98	4,009.81	419.27	693.59	534.70	158.90	4.365		
11,300.00	7,095.39	11,409.36	7,168.34	82.26	81.56	95.94	4,109.80	418.44	694.73	532.09	162.64	4.272		
11,400.00	7,095.25	11,509.35	7,167.83	84.14	83.43	95.90	4,209.79	417.62	695.88	529.49	166.39	4.182		
11,500.00	7,095.10	11,609.35	7,167.32	86.03	85.30	95.86	4,309.78	416.80	697.02	526.88	170.14	4.097		
11,571.72	7,095.00	11,671.71	7,167.00	87.38	86.47	95.84	4,372.13	416.28	697.90	525.25	172.66	4.042		
11,572.33	7,095.00	11,671.71	7,167.00	87.39	86.47	95.84	4,372.13	416.28	697.92	525.25	172.67	4.042 SF		

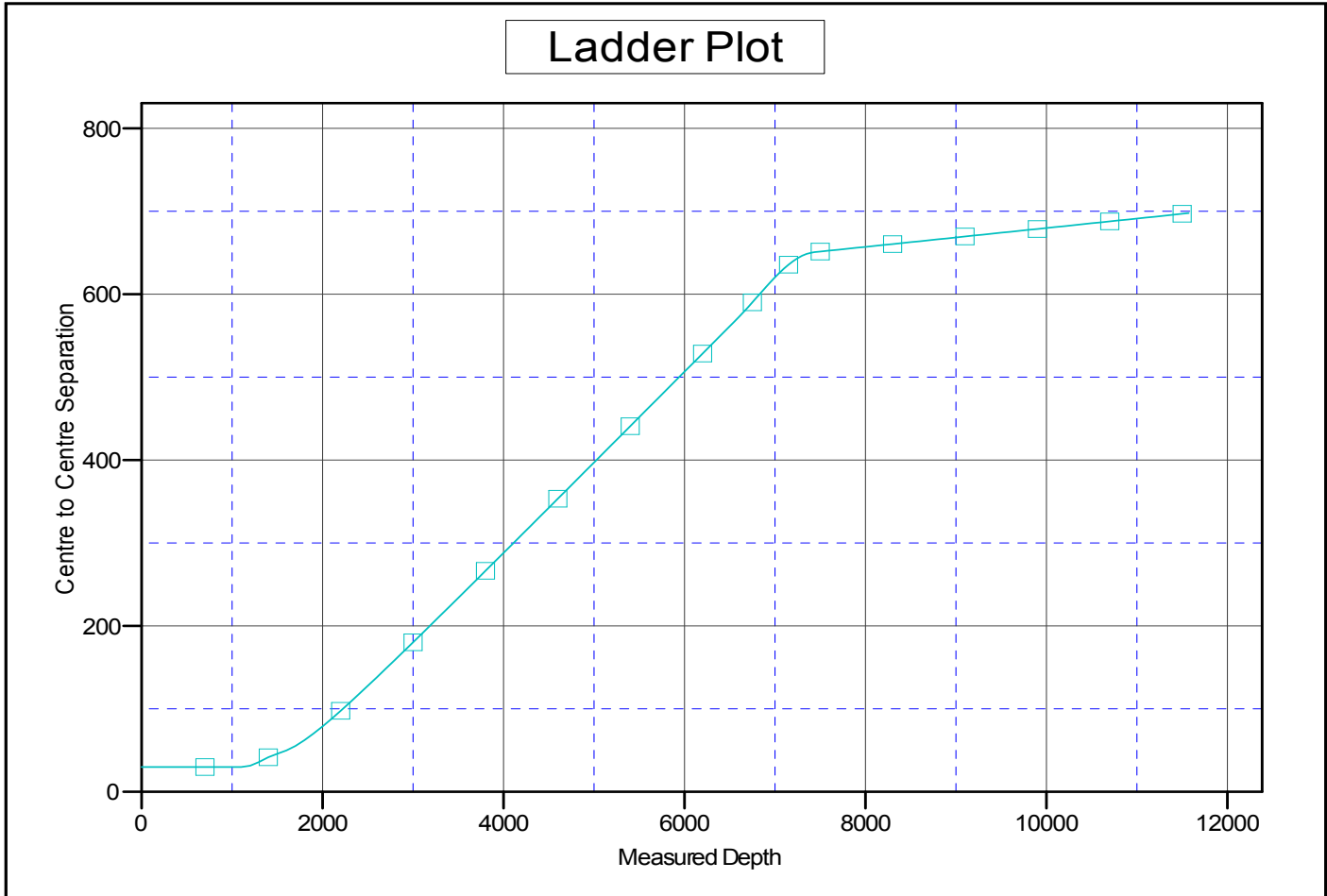
Anadarko Petroleum Corp

Anticollision Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 13-31HZ PAD	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	VONDERLAGE 30N-31HZ	Database:	edmp
Reference Design:	VONDERLAGE 30N-31HZ (wp01)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 16' RKB + GL' @ 4841.00ft (Original W
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000

Coordinates are relative to: VONDERLAGE 30N-31HZ
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.43°



LEGEND

AGE 29N-W31HZ(wp01)V0

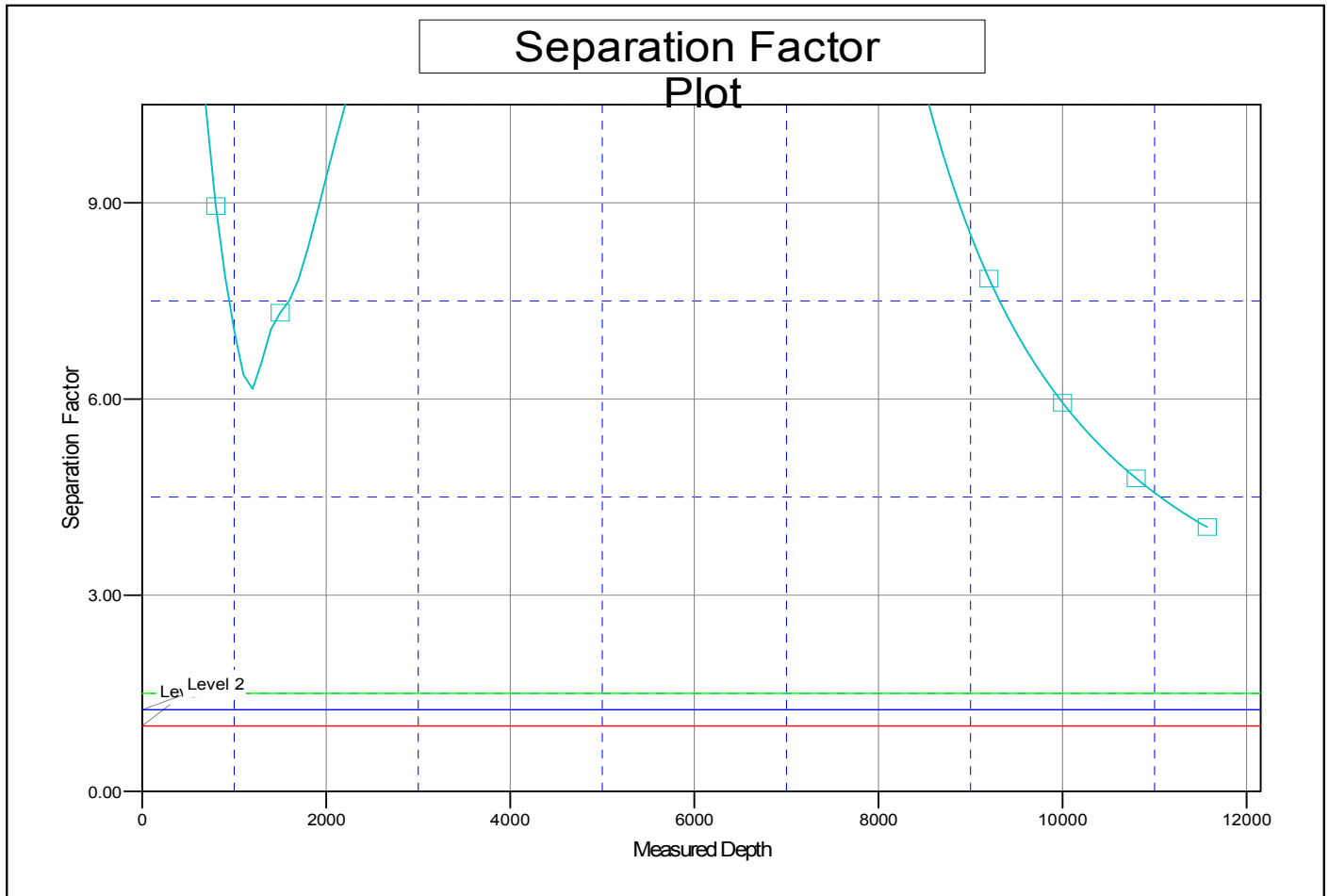
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anadarko Petroleum Corp
Anticollision Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well VONDERLAGE 30N-31HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 13-31HZ PAD	MD Reference:	16' RKB + GL' @ 4841.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	VONDERLAGE 30N-31HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	VONDERLAGE 30N-31HZ	Database:	edmp
Reference Design:	VONDERLAGE 30N-31HZ (wp01)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 16' RKB + GL' @ 4841.00ft (Original W
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: VONDERLAGE 30N-31HZ
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.43°



LEGEND

AGE 29N-W31HZ(wp01)V0