



Occidental Petroleum

Weld County, CO (UTM-NAD83)

RADEMACHER 14-30HZ PAD

RADEMACHER SOUTH 30-16HZ

ST01

Plan: Plan #1a

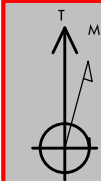
Standard Planning Report

29 June, 2024





Project: Weld County, CO (UTM-NAD83)
Site: RADEMACHER 14-30HZ PAD
Well: RADEMACHER SOUTH 30-16HZ
Wellbore: ST01
Design: Plan #1a
Lat: 40.191311
Long: -104.934577
GL: 4820.00
KB: PD 564 @ 4846.00usft

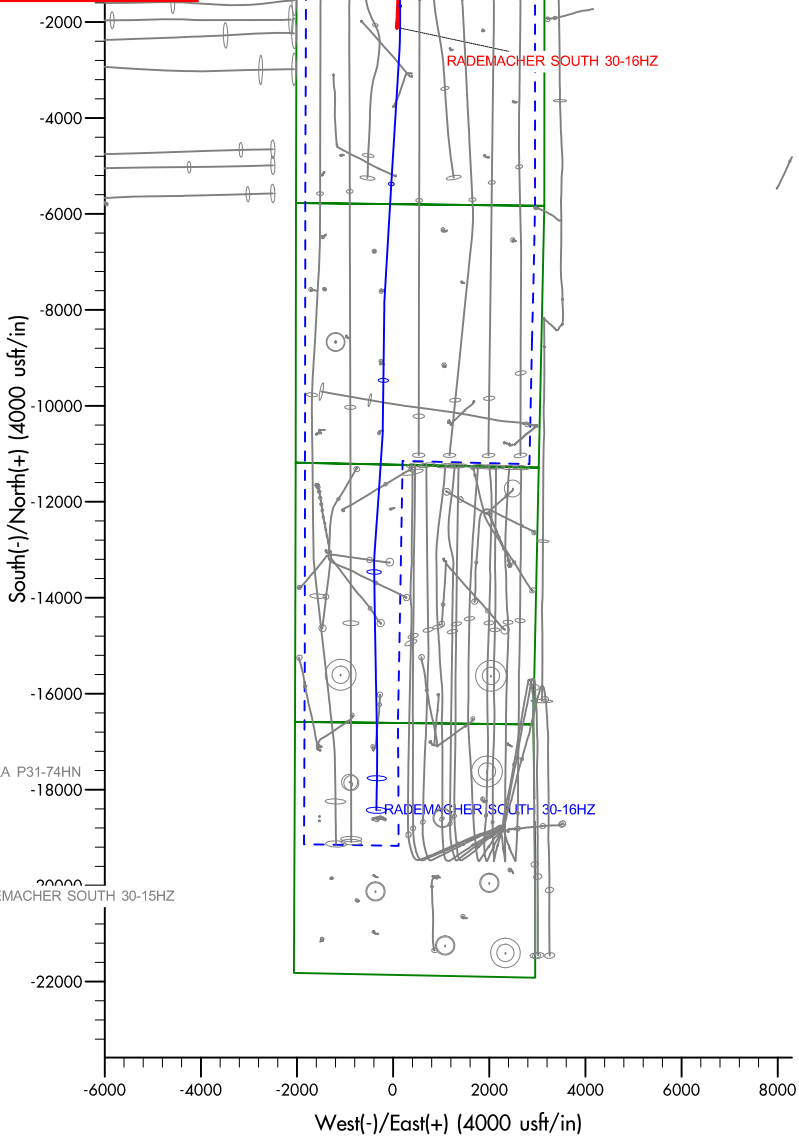
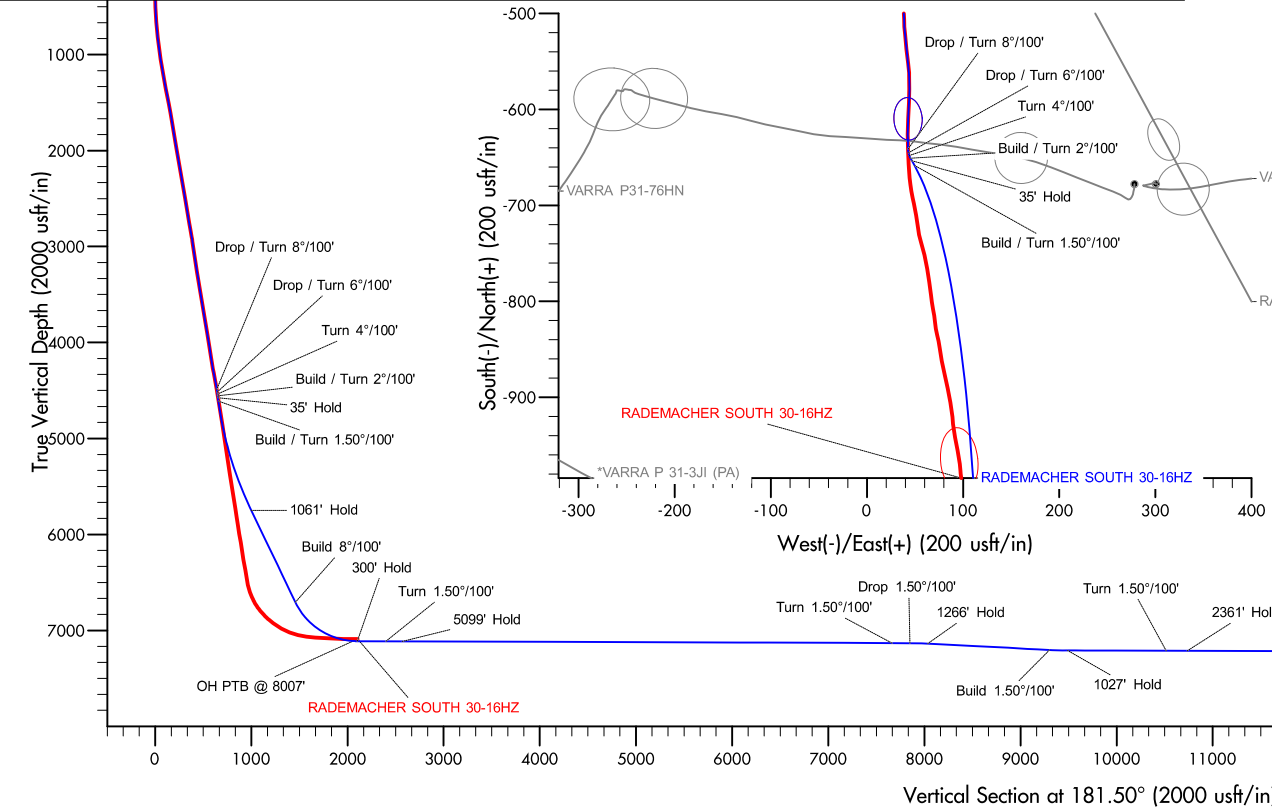


Azimuths to True North
Magnetic North: 7.89°
Magnetic Field
Strength: 51470.7nT
Dip Angle: 66.31°
Date: 6/29/2024
Model: HRGM

WELL DETAILS: RADEMACHER SOUTH 30-16HZ							CASING DETAILS		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		TVD	MD	Name
0.00	0.00	14596405.50	1658687.33	40.191311	-104.934577			24330.59	5.5" CSG

WELLBORE TARGET DETAILS (LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
RS 30-16HZ - Heel	7081.00	-1678.45	89.25	14594727.11	1658777.82	Point
RS 30-16HZ - BHL	7202.16	-18427.21	-348.08	14577978.04	1658352.83	Point

SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation	
4545.00	9.74	177.37	4491.72	-641.03	42.64	0.00	0.00	639.69	Drop / Turn 8°/100'	
4570.00	8.91	166.11	4516.39	-645.02	43.20	8.00	-120.00	643.67	Drop / Turn 6°/100'	
4590.00	8.78	158.35	4536.16	-647.94	44.14	6.00	-100.00	646.56	Turn 4°/100'	
4610.00	8.82	153.12	4555.92	-650.73	45.39	4.00	-90.00	649.31	Build / Turn 2°/100'	
4630.00	9.02	150.91	4575.68	-653.46	46.85	2.00	-60.00	652.01	35' Hold	
4665.00	9.02	150.91	4610.25	-658.26	49.52	0.00	0.00	656.74	Build / Turn 1.50°/100'	
5861.42	25.69	176.45	5749.47	-1001.87	111.70	1.50	37.33	998.60	1061' Hold	
6922.88	25.69	176.45	6706.01	-1461.12	140.22	0.00	0.00	1456.95	Build 8°/100'	
7725.19	89.79	180.93	7112.40	-2104.52	145.00	8.00	4.98	2100.00	300' Hold	
8025.19	89.79	180.93	7113.50	-2404.48	140.13	0.00	0.00	2399.99	Turn 1.50°/100'	
8194.48	89.80	183.47	7114.11	-2573.62	133.63	1.50	89.89	2569.24	5099' Hold	
13293.68	89.80	183.47	7132.33	-7663.45	-174.94	0.00	0.00	7665.41	Turn 1.50°/100'	
13478.30	89.79	180.70	7133.00	-7847.93	-181.65	1.50	-90.11	7850.00	Drop 1.50°/100'	
13664.11	87.00	180.70	7138.20	-8033.63	-183.92	1.50	180.00	8035.69	1266' Hold	
14930.27	87.00	180.70	7204.40	-9297.97	-199.37	0.00	0.00	9300.00	Build 1.50°/100'	
15118.50	89.83	180.70	7209.61	-9486.09	-201.67	1.50	0.00	9488.12	1027' Hold	
16145.72	89.83	180.70	7212.72	-10513.23	-214.22	0.00	0.00	10515.24	Turn 1.50°/100'	
16364.40	89.83	183.98	7213.38	-10731.70	-223.15	1.50	89.94	10733.86	2361' Hold	
18725.78	89.83	183.98	7220.37	-13087.37	-387.06	0.00	0.00	13093.02	Turn 1.50°/100'	
19057.69	89.83	179.00	7221.36	-13419.06	-395.69	1.50	-90.02	13424.82	3801' Hold	
22859.05	89.83	179.00	7232.70	-17219.83	-329.46	0.00	0.00	17222.55	Turn 1.50°/100'	
22991.81	89.83	180.99	7233.10	-17352.58	-329.45	1.50	90.00	17355.26	1074' Hold	
24066.60	89.83	180.99	7236.30	-18427.21	-348.08	0.00	0.00	18430.01	TD at 24066.60	





Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Project	Weld County, CO (UTM-NAD83)		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	RADEMACHER 14-30HZ PAD			
Site Position:		Northing:	14,596,404.10 usft	Latitude: 40.191307
From:	Map	Easting:	1,658,931.24 usft	Longitude: -104.933703
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	

Well		RADEMACHER SOUTH 30-16HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,596,405.50 usft	Latitude:	40.191311
	+E/-W	0.00 usft	Easting:	1,658,687.33 usft	Longitude:	-104.934577
Position Uncertainty		3.72 usft	Wellhead Elevation:	usft	Ground Level:	4,820.00 usft
Grid Convergence:		0.04 °				

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HRGM	6/29/2024	7.89	66.31	51,470.70455524

Design	Plan #1a			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	4,545.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	181.50

Plan Survey Tool Program	Date	6/29/2024		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	4,545.00	24,066.24	Plan #1a (ST01)	A008Mc_MWD+IFR1+MS_ MWD+IFR1+MSA



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Planning Report



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Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
4,545.00	9.74	177.37	4,491.72	-641.03	42.64	0.00	0.00	0.00	0.00	
4,570.00	8.91	166.11	4,516.39	-645.02	43.20	8.00	-3.33	-45.02	-120.00	
4,590.00	8.78	158.35	4,536.16	-647.94	44.14	6.00	-0.65	-38.83	-100.00	
4,610.00	8.82	153.12	4,555.92	-650.73	45.39	4.00	0.18	-26.14	-90.00	
4,630.00	9.02	150.91	4,575.68	-653.46	46.85	2.00	1.03	-11.05	-60.00	
4,665.00	9.02	150.91	4,610.25	-658.26	49.52	0.00	0.00	0.00	0.00	
5,861.42	25.69	176.45	5,749.47	-1,001.87	111.70	1.50	1.39	2.13	37.33	
6,922.88	25.69	176.45	6,706.01	-1,461.12	140.22	0.00	0.00	0.00	0.00	
7,725.19	89.79	180.93	7,112.40	-2,104.52	145.00	8.00	7.99	0.56	4.98	
8,025.19	89.79	180.93	7,113.50	-2,404.48	140.13	0.00	0.00	0.00	0.00	
8,194.48	89.80	183.47	7,114.11	-2,573.62	133.63	1.50	0.00	1.50	89.89	
13,293.68	89.80	183.47	7,132.33	-7,663.45	-174.94	0.00	0.00	0.00	0.00	
13,478.30	89.79	180.70	7,133.00	-7,847.93	-181.65	1.50	0.00	-1.50	-90.11	
13,664.11	87.00	180.70	7,138.20	-8,033.63	-183.92	1.50	-1.50	0.00	180.00	
14,930.27	87.00	180.70	7,204.40	-9,297.97	-199.37	0.00	0.00	0.00	0.00	
15,118.50	89.83	180.70	7,209.61	-9,486.09	-201.67	1.50	1.50	0.00	0.00	
16,145.72	89.83	180.70	7,212.72	-10,513.23	-214.22	0.00	0.00	0.00	0.00	
16,364.40	89.83	183.98	7,213.38	-10,731.70	-223.15	1.50	0.00	1.50	89.94	
18,725.78	89.83	183.98	7,220.37	-13,087.37	-387.06	0.00	0.00	0.00	0.00	
19,057.69	89.83	179.00	7,221.36	-13,419.06	-395.69	1.50	0.00	-1.50	-90.02	
22,859.05	89.83	179.00	7,232.70	-17,219.83	-329.46	0.00	0.00	0.00	0.00	
22,991.81	89.83	180.99	7,233.10	-17,352.58	-329.45	1.50	0.00	1.50	90.00	
24,066.61	89.83	180.99	7,236.30	-18,427.21	-348.08	0.00	0.00	0.00	0.00	



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Planning Report



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Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
11.00	0.00	0.00	11.00	0.00	0.00	0.00	0.00	0.00	0.00
89.00	0.60	305.95	89.00	0.24	-0.33	-0.23	0.77	0.77	0.00
180.00	0.60	294.19	179.99	0.71	-1.15	-0.68	0.14	0.00	-12.92
271.00	0.44	220.49	270.99	0.64	-1.81	-0.60	0.70	-0.18	-80.99
362.00	0.63	166.28	361.99	-0.11	-1.92	0.16	0.57	0.21	-59.57
451.00	0.57	188.07	450.98	-1.02	-1.87	1.07	0.26	-0.07	24.48
541.00	2.41	178.38	540.95	-3.36	-1.88	3.40	2.06	2.04	-10.77
630.00	4.47	179.35	629.78	-8.70	-1.78	8.74	2.32	2.31	1.09
719.00	5.05	176.66	718.48	-16.07	-1.52	16.11	0.70	0.65	-3.02
809.00	5.21	175.49	808.12	-24.10	-0.96	24.12	0.21	0.18	-1.30
898.00	7.07	171.27	896.60	-33.54	0.18	33.53	2.15	2.09	-4.74
988.00	8.34	174.00	985.79	-45.51	1.71	45.45	1.47	1.41	3.03
1,077.00	9.87	176.14	1,073.66	-59.54	2.90	59.45	1.76	1.72	2.40
1,167.00	10.68	175.71	1,162.22	-75.55	4.04	75.42	0.90	0.90	-0.48
1,257.00	10.96	173.77	1,250.62	-92.38	5.59	92.20	0.51	0.31	-2.16
1,346.00	10.83	174.58	1,338.02	-109.11	7.30	108.88	0.23	-0.15	0.91
1,436.00	10.71	174.40	1,426.43	-125.85	8.91	125.57	0.14	-0.13	-0.20
1,525.00	10.62	176.12	1,513.89	-142.26	10.28	141.95	0.37	-0.10	1.93
1,615.00	9.70	175.71	1,602.48	-158.10	11.40	157.75	1.03	-1.02	-0.46
1,704.00	9.33	176.14	1,690.26	-172.77	12.45	172.39	0.42	-0.42	0.48
1,794.00	9.56	173.20	1,779.04	-187.47	13.83	187.05	0.59	0.26	-3.27
1,822.00	10.05	169.94	1,806.63	-192.19	14.53	191.74	2.64	1.75	-11.64
1,947.00	9.98	170.65	1,929.72	-213.61	18.19	213.06	0.11	-0.06	0.57
2,036.00	8.70	165.75	2,017.54	-227.75	21.10	227.12	1.69	-1.44	-5.51
2,126.00	10.19	173.02	2,106.32	-242.25	23.75	241.54	2.12	1.66	8.08
2,215.00	10.90	175.02	2,193.82	-258.45	25.43	257.69	0.90	0.80	2.25
2,304.00	9.29	171.93	2,281.44	-273.94	27.17	273.14	1.91	-1.81	-3.47
2,394.00	10.52	185.56	2,370.11	-289.32	27.40	288.50	2.93	1.37	15.14
2,484.00	9.62	184.10	2,458.72	-304.99	26.06	304.21	1.04	-1.00	-1.62
2,573.00	8.89	182.94	2,546.56	-319.28	25.18	318.51	0.85	-0.82	-1.30
2,663.00	10.04	182.10	2,635.34	-334.07	24.54	333.31	1.29	1.28	-0.93
2,753.00	8.56	179.98	2,724.15	-348.60	24.25	347.85	1.69	-1.64	-2.36
2,843.00	9.93	179.05	2,812.98	-363.06	24.38	362.30	1.53	1.52	-1.03
2,932.00	10.58	186.68	2,900.56	-378.85	23.56	378.10	1.69	0.73	8.57
3,022.00	8.35	167.32	2,989.35	-393.44	24.03	392.67	4.29	-2.48	-21.51
3,111.00	8.59	167.10	3,077.38	-406.22	26.93	405.38	0.27	0.27	-0.25
3,201.00	9.28	172.63	3,166.29	-419.97	29.36	419.06	1.22	0.77	6.14
3,291.00	9.85	169.51	3,255.04	-434.74	31.70	433.76	0.86	0.63	-3.47
3,380.00	9.11	168.90	3,342.82	-449.14	34.44	448.08	0.84	-0.83	-0.69
3,470.00	8.61	173.71	3,431.75	-462.82	36.55	461.71	0.99	-0.56	5.34
3,559.00	9.09	181.27	3,519.69	-476.48	37.12	475.34	1.41	0.54	8.49
3,649.00	9.60	173.49	3,608.50	-491.04	37.82	489.88	1.51	0.57	-8.64
3,739.00	9.79	179.68	3,697.22	-506.15	38.71	504.96	1.18	0.21	6.88
3,829.00	10.35	173.55	3,785.84	-521.83	39.66	520.62	1.34	0.62	-6.81
3,918.00	9.58	175.15	3,873.49	-537.16	41.19	535.90	0.92	-0.87	1.80
4,008.00	9.64	171.38	3,962.23	-552.07	42.95	550.76	0.70	0.07	-4.19
4,097.00	8.10	181.57	4,050.17	-565.71	43.89	564.37	2.47	-1.73	11.45
4,187.00	8.48	176.83	4,139.23	-578.67	44.09	577.32	0.87	0.42	-5.27
4,276.00	10.16	185.12	4,227.06	-593.04	43.75	591.70	2.41	1.89	9.31
4,366.00	11.26	181.36	4,315.49	-609.74	42.83	608.41	1.45	1.22	-4.18
4,456.00	9.64	181.25	4,403.99	-626.05	42.46	624.73	1.80	-1.80	-0.12
4,545.00	9.74	177.37	4,491.72	-641.03	42.64	639.69	0.74	0.11	-4.36
Drop / Turn 8°/100'									



Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,550.00	9.55	175.28	4,496.65	-641.86	42.70	640.52	8.00	-3.88	-41.78
4,570.00	8.91	166.11	4,516.39	-645.02	43.20	643.67	8.00	-3.19	-45.83
Drop / Turn 6°/100'									
4,590.00	8.78	158.35	4,536.16	-647.94	44.14	646.56	6.00	-0.65	-38.83
Turn 4°/100'									
4,610.00	8.82	153.12	4,555.92	-650.73	45.39	649.31	4.00	0.18	-26.14
Build / Turn 2°/100'									
4,630.00	9.02	150.91	4,575.68	-653.46	46.85	652.01	2.00	1.03	-11.05
35' Hold									
4,665.00	9.02	150.91	4,610.25	-658.26	49.52	656.74	0.00	0.00	0.00
Build / Turn 1.50°/100'									
4,700.00	9.44	152.85	4,644.79	-663.21	52.16	661.62	1.50	1.21	5.54
4,800.00	10.70	157.54	4,743.25	-679.09	59.45	677.31	1.50	1.26	4.69
4,900.00	12.01	161.23	4,841.29	-697.53	66.35	695.56	1.50	1.31	3.69
5,000.00	13.37	164.20	4,938.85	-718.51	72.85	716.36	1.50	1.35	2.97
5,100.00	14.75	166.62	5,035.85	-742.01	78.94	739.69	1.50	1.38	2.42
5,200.00	16.15	168.64	5,132.24	-768.03	84.63	765.55	1.50	1.40	2.02
5,300.00	17.56	170.34	5,227.94	-796.54	89.90	793.91	1.50	1.42	1.70
5,400.00	18.99	171.79	5,322.89	-827.52	94.76	824.76	1.50	1.43	1.45
5,500.00	20.43	173.04	5,417.03	-860.96	99.20	858.06	1.50	1.44	1.26
5,600.00	21.88	174.14	5,510.29	-896.82	103.22	893.81	1.50	1.45	1.10
5,700.00	23.33	175.11	5,602.60	-935.09	106.81	931.97	1.50	1.45	0.97
5,800.00	24.79	175.96	5,693.91	-975.74	109.97	972.52	1.50	1.46	0.86
5,861.42	25.69	176.45	5,749.47	-1,001.87	111.70	998.60	1.50	1.46	0.78
1061' Hold									
5,900.00	25.69	176.45	5,784.23	-1,018.56	112.74	1,015.26	0.00	0.00	0.00
6,000.00	25.69	176.45	5,874.35	-1,061.83	115.43	1,058.44	0.00	0.00	0.00
6,100.00	25.69	176.45	5,964.47	-1,105.09	118.11	1,101.62	0.00	0.00	0.00
6,200.00	25.69	176.45	6,054.58	-1,148.36	120.80	1,144.80	0.00	0.00	0.00
6,300.00	25.69	176.45	6,144.70	-1,191.62	123.49	1,187.98	0.00	0.00	0.00
6,400.00	25.69	176.45	6,234.81	-1,234.89	126.17	1,231.16	0.00	0.00	0.00
6,500.00	25.69	176.45	6,324.93	-1,278.16	128.86	1,274.34	0.00	0.00	0.00
6,600.00	25.69	176.45	6,415.04	-1,321.42	131.55	1,317.53	0.00	0.00	0.00
6,700.00	25.69	176.45	6,505.16	-1,364.69	134.23	1,360.71	0.00	0.00	0.00
6,800.00	25.69	176.45	6,595.28	-1,407.95	136.92	1,403.89	0.00	0.00	0.00
6,900.00	25.69	176.45	6,685.39	-1,451.22	139.61	1,447.07	0.00	0.00	0.00
6,922.88	25.69	176.45	6,706.01	-1,461.12	140.22	1,456.95	0.00	0.00	0.00
Build 8°/100'									
6,950.00	27.85	176.85	6,730.22	-1,473.31	140.94	1,469.12	8.00	7.97	1.49
7,000.00	31.84	177.46	6,773.58	-1,498.16	142.16	1,493.93	8.00	7.98	1.22
7,050.00	35.83	177.95	6,815.11	-1,525.97	143.27	1,521.70	8.00	7.98	0.97
7,100.00	39.82	178.35	6,854.59	-1,556.61	144.26	1,552.31	8.00	7.98	0.80
7,150.00	43.82	178.69	6,891.85	-1,589.94	145.12	1,585.59	8.00	7.99	0.68
7,200.00	47.81	178.98	6,926.69	-1,625.78	145.84	1,621.40	8.00	7.99	0.59
7,250.00	51.81	179.24	6,958.95	-1,663.96	146.43	1,659.56	8.00	7.99	0.52
7,300.00	55.80	179.47	6,988.47	-1,704.30	146.88	1,699.87	8.00	7.99	0.46
7,350.00	59.80	179.68	7,015.11	-1,746.60	147.19	1,742.15	8.00	7.99	0.42
7,400.00	63.79	179.88	7,038.73	-1,790.65	147.36	1,786.18	8.00	7.99	0.39
7,450.00	67.79	180.06	7,059.23	-1,836.25	147.39	1,831.76	8.00	7.99	0.36
7,500.00	71.79	180.23	7,076.50	-1,883.16	147.27	1,878.66	8.00	7.99	0.34
7,550.00	75.78	180.39	7,090.46	-1,931.16	147.01	1,926.65	8.00	7.99	0.33
7,600.00	79.78	180.55	7,101.04	-1,980.02	146.61	1,975.50	8.00	7.99	0.32
7,650.00	83.78	180.70	7,108.18	-2,029.49	146.07	2,024.97	8.00	7.99	0.31



Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,700.00	87.78	180.85	7,111.87	-2,079.34	145.39	2,074.82	8.00	7.99	0.30
7,725.19	89.79	180.93	7,112.40	-2,104.52	145.00	2,100.00	8.00	7.99	0.30
300' Hold									
7,800.00	89.79	180.93	7,112.67	-2,179.32	143.79	2,174.81	0.00	0.00	0.00
7,900.00	89.79	180.93	7,113.04	-2,279.30	142.16	2,274.80	0.00	0.00	0.00
8,000.00	89.79	180.93	7,113.41	-2,379.29	140.54	2,374.80	0.00	0.00	0.00
8,025.19	89.79	180.93	7,113.50	-2,404.48	140.13	2,399.99	0.00	0.00	0.00
Turn 1.50°/100'									
8,100.00	89.79	182.05	7,113.77	-2,479.26	138.18	2,474.79	1.50	0.00	1.50
8,194.48	89.80	183.47	7,114.11	-2,573.62	133.63	2,569.24	1.50	0.00	1.50
5099' Hold									
8,200.00	89.80	183.47	7,114.13	-2,579.14	133.30	2,574.76	0.00	0.00	0.00
8,300.00	89.80	183.47	7,114.49	-2,678.95	127.25	2,674.70	0.00	0.00	0.00
8,400.00	89.80	183.47	7,114.85	-2,778.77	121.20	2,774.64	0.00	0.00	0.00
8,500.00	89.80	183.47	7,115.20	-2,878.59	115.15	2,874.58	0.00	0.00	0.00
8,600.00	89.80	183.47	7,115.56	-2,978.40	109.09	2,974.52	0.00	0.00	0.00
8,700.00	89.80	183.47	7,115.92	-3,078.22	103.04	3,074.47	0.00	0.00	0.00
8,800.00	89.80	183.47	7,116.28	-3,178.03	96.99	3,174.41	0.00	0.00	0.00
8,900.00	89.80	183.47	7,116.63	-3,277.85	90.94	3,274.35	0.00	0.00	0.00
9,000.00	89.80	183.47	7,116.99	-3,377.67	84.89	3,374.29	0.00	0.00	0.00
9,100.00	89.80	183.47	7,117.35	-3,477.48	78.84	3,474.23	0.00	0.00	0.00
9,200.00	89.80	183.47	7,117.71	-3,577.30	72.79	3,574.17	0.00	0.00	0.00
9,300.00	89.80	183.47	7,118.06	-3,677.11	66.74	3,674.11	0.00	0.00	0.00
9,400.00	89.80	183.47	7,118.42	-3,776.93	60.68	3,774.05	0.00	0.00	0.00
9,500.00	89.80	183.47	7,118.78	-3,876.75	54.63	3,873.99	0.00	0.00	0.00
9,600.00	89.80	183.47	7,119.13	-3,976.56	48.58	3,973.93	0.00	0.00	0.00
9,700.00	89.80	183.47	7,119.49	-4,076.38	42.53	4,073.87	0.00	0.00	0.00
9,800.00	89.80	183.47	7,119.85	-4,176.19	36.48	4,173.81	0.00	0.00	0.00
9,900.00	89.80	183.47	7,120.21	-4,276.01	30.43	4,273.75	0.00	0.00	0.00
10,000.00	89.80	183.47	7,120.56	-4,375.83	24.38	4,373.69	0.00	0.00	0.00
10,100.00	89.80	183.47	7,120.92	-4,475.64	18.32	4,473.63	0.00	0.00	0.00
10,200.00	89.80	183.47	7,121.28	-4,575.46	12.27	4,573.57	0.00	0.00	0.00
10,300.00	89.80	183.47	7,121.64	-4,675.28	6.22	4,673.51	0.00	0.00	0.00
10,400.00	89.80	183.47	7,121.99	-4,775.09	0.17	4,773.45	0.00	0.00	0.00
10,500.00	89.80	183.47	7,122.35	-4,874.91	-5.88	4,873.39	0.00	0.00	0.00
10,600.00	89.80	183.47	7,122.71	-4,974.72	-11.93	4,973.33	0.00	0.00	0.00
10,700.00	89.80	183.47	7,123.06	-5,074.54	-17.98	5,073.27	0.00	0.00	0.00
10,800.00	89.80	183.47	7,123.42	-5,174.36	-24.03	5,173.21	0.00	0.00	0.00
10,900.00	89.80	183.47	7,123.78	-5,274.17	-30.09	5,273.15	0.00	0.00	0.00
11,000.00	89.80	183.47	7,124.14	-5,373.99	-36.14	5,373.09	0.00	0.00	0.00
11,100.00	89.80	183.47	7,124.49	-5,473.80	-42.19	5,473.03	0.00	0.00	0.00
11,200.00	89.80	183.47	7,124.85	-5,573.62	-48.24	5,572.97	0.00	0.00	0.00
11,300.00	89.80	183.47	7,125.21	-5,673.44	-54.29	5,672.91	0.00	0.00	0.00
11,400.00	89.80	183.47	7,125.57	-5,773.25	-60.34	5,772.85	0.00	0.00	0.00
11,500.00	89.80	183.47	7,125.92	-5,873.07	-66.39	5,872.79	0.00	0.00	0.00
11,600.00	89.80	183.47	7,126.28	-5,972.88	-72.44	5,972.73	0.00	0.00	0.00
11,700.00	89.80	183.47	7,126.64	-6,072.70	-78.50	6,072.67	0.00	0.00	0.00
11,800.00	89.80	183.47	7,126.99	-6,172.52	-84.55	6,172.61	0.00	0.00	0.00
11,900.00	89.80	183.47	7,127.35	-6,272.33	-90.60	6,272.55	0.00	0.00	0.00
12,000.00	89.80	183.47	7,127.71	-6,372.15	-96.65	6,372.50	0.00	0.00	0.00
12,100.00	89.80	183.47	7,128.07	-6,471.96	-102.70	6,472.44	0.00	0.00	0.00
12,200.00	89.80	183.47	7,128.42	-6,571.78	-108.75	6,572.38	0.00	0.00	0.00
12,300.00	89.80	183.47	7,128.78	-6,671.60	-114.80	6,672.32	0.00	0.00	0.00



Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,400.00	89.80	183.47	7,129.14	-6,771.41	-120.86	6,772.26	0.00	0.00	0.00	
12,500.00	89.80	183.47	7,129.50	-6,871.23	-126.91	6,872.20	0.00	0.00	0.00	
12,600.00	89.80	183.47	7,129.85	-6,971.05	-132.96	6,972.14	0.00	0.00	0.00	
12,700.00	89.80	183.47	7,130.21	-7,070.86	-139.01	7,072.08	0.00	0.00	0.00	
12,800.00	89.80	183.47	7,130.57	-7,170.68	-145.06	7,172.02	0.00	0.00	0.00	
12,900.00	89.80	183.47	7,130.93	-7,270.49	-151.11	7,271.96	0.00	0.00	0.00	
13,000.00	89.80	183.47	7,131.28	-7,370.31	-157.16	7,371.90	0.00	0.00	0.00	
13,100.00	89.80	183.47	7,131.64	-7,470.13	-163.21	7,471.84	0.00	0.00	0.00	
13,200.00	89.80	183.47	7,132.00	-7,569.94	-169.27	7,571.78	0.00	0.00	0.00	
13,293.68	89.80	183.47	7,132.33	-7,663.45	-174.94	7,665.41	0.00	0.00	0.00	
Turn 1.50°/100'										
13,300.00	89.80	183.37	7,132.35	-7,669.76	-175.31	7,671.72	1.50	0.00	-1.50	
13,400.00	89.79	181.87	7,132.71	-7,769.65	-179.89	7,771.70	1.50	0.00	-1.50	
13,478.30	89.79	180.70	7,133.00	-7,847.93	-181.65	7,850.00	1.50	0.00	-1.50	
Drop 1.50°/100'										
13,500.00	89.46	180.70	7,133.14	-7,869.63	-181.92	7,871.69	1.50	-1.50	0.00	
13,600.00	87.96	180.70	7,135.38	-7,969.59	-183.14	7,971.65	1.50	-1.50	0.00	
13,664.11	87.00	180.70	7,138.20	-8,033.63	-183.92	8,035.69	1.50	-1.50	0.00	
1266' Hold										
13,700.00	87.00	180.70	7,140.08	-8,069.47	-184.36	8,071.53	0.00	0.00	0.00	
13,800.00	87.00	180.70	7,145.30	-8,169.33	-185.58	8,171.39	0.00	0.00	0.00	
13,900.00	87.00	180.70	7,150.53	-8,269.18	-186.80	8,271.24	0.00	0.00	0.00	
14,000.00	87.00	180.70	7,155.76	-8,369.04	-188.02	8,371.09	0.00	0.00	0.00	
14,100.00	87.00	180.70	7,160.99	-8,468.89	-189.24	8,470.95	0.00	0.00	0.00	
14,200.00	87.00	180.70	7,166.22	-8,568.75	-190.46	8,570.80	0.00	0.00	0.00	
14,300.00	87.00	180.70	7,171.45	-8,668.61	-191.68	8,670.65	0.00	0.00	0.00	
14,400.00	87.00	180.70	7,176.68	-8,768.46	-192.90	8,770.51	0.00	0.00	0.00	
14,500.00	87.00	180.70	7,181.90	-8,868.32	-194.12	8,870.36	0.00	0.00	0.00	
14,600.00	87.00	180.70	7,187.13	-8,968.17	-195.34	8,970.21	0.00	0.00	0.00	
14,700.00	87.00	180.70	7,192.36	-9,068.03	-196.56	9,070.07	0.00	0.00	0.00	
14,800.00	87.00	180.70	7,197.59	-9,167.89	-197.78	9,169.92	0.00	0.00	0.00	
14,900.00	87.00	180.70	7,202.82	-9,267.74	-199.00	9,269.77	0.00	0.00	0.00	
14,930.27	87.00	180.70	7,204.40	-9,297.97	-199.37	9,300.00	0.00	0.00	0.00	
Build 1.50°/100'										
15,000.00	88.05	180.70	7,207.41	-9,367.63	-200.22	9,369.66	1.50	1.50	0.00	
15,100.00	89.55	180.70	7,209.51	-9,467.59	-201.44	9,469.62	1.50	1.50	0.00	
15,118.50	89.83	180.70	7,209.61	-9,486.09	-201.67	9,488.12	1.50	1.50	0.00	
1027' Hold										
15,200.00	89.83	180.70	7,209.85	-9,567.59	-202.66	9,569.61	0.00	0.00	0.00	
15,300.00	89.83	180.70	7,210.16	-9,667.58	-203.89	9,669.60	0.00	0.00	0.00	
15,400.00	89.83	180.70	7,210.46	-9,767.57	-205.11	9,769.59	0.00	0.00	0.00	
15,500.00	89.83	180.70	7,210.76	-9,867.56	-206.33	9,869.58	0.00	0.00	0.00	
15,600.00	89.83	180.70	7,211.07	-9,967.55	-207.55	9,969.57	0.00	0.00	0.00	
15,700.00	89.83	180.70	7,211.37	-10,067.55	-208.77	10,069.56	0.00	0.00	0.00	
15,800.00	89.83	180.70	7,211.67	-10,167.54	-210.00	10,169.55	0.00	0.00	0.00	
15,900.00	89.83	180.70	7,211.98	-10,267.53	-211.22	10,269.54	0.00	0.00	0.00	
16,000.00	89.83	180.70	7,212.28	-10,367.52	-212.44	10,369.53	0.00	0.00	0.00	
16,100.00	89.83	180.70	7,212.58	-10,467.51	-213.66	10,469.52	0.00	0.00	0.00	
16,145.72	89.83	180.70	7,212.72	-10,513.23	-214.22	10,515.24	0.00	0.00	0.00	
Turn 1.50°/100'										
16,200.00	89.83	181.51	7,212.88	-10,567.50	-215.27	10,569.51	1.50	0.00	1.50	
16,300.00	89.83	183.01	7,213.18	-10,667.42	-219.22	10,669.50	1.50	0.00	1.50	
16,364.40	89.83	183.98	7,213.38	-10,731.70	-223.15	10,733.86	1.50	0.00	1.50	



Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2361' Hold									
16,400.00	89.83	183.98	7,213.48	-10,767.21	-225.62	10,769.43	0.00	0.00	0.00
16,500.00	89.83	183.98	7,213.78	-10,866.97	-232.56	10,869.33	0.00	0.00	0.00
16,600.00	89.83	183.98	7,214.07	-10,966.73	-239.50	10,969.24	0.00	0.00	0.00
16,700.00	89.83	183.98	7,214.37	-11,066.49	-246.44	11,069.15	0.00	0.00	0.00
16,800.00	89.83	183.98	7,214.67	-11,166.24	-253.38	11,169.05	0.00	0.00	0.00
16,900.00	89.83	183.98	7,214.96	-11,266.00	-260.33	11,268.96	0.00	0.00	0.00
17,000.00	89.83	183.98	7,215.26	-11,365.76	-267.27	11,368.86	0.00	0.00	0.00
17,100.00	89.83	183.98	7,215.55	-11,465.52	-274.21	11,468.77	0.00	0.00	0.00
17,200.00	89.83	183.98	7,215.85	-11,565.28	-281.15	11,568.67	0.00	0.00	0.00
17,300.00	89.83	183.98	7,216.15	-11,665.04	-288.09	11,668.58	0.00	0.00	0.00
17,400.00	89.83	183.98	7,216.44	-11,764.80	-295.03	11,768.49	0.00	0.00	0.00
17,500.00	89.83	183.98	7,216.74	-11,864.55	-301.97	11,868.39	0.00	0.00	0.00
17,600.00	89.83	183.98	7,217.04	-11,964.31	-308.92	11,968.30	0.00	0.00	0.00
17,700.00	89.83	183.98	7,217.33	-12,064.07	-315.86	12,068.20	0.00	0.00	0.00
17,800.00	89.83	183.98	7,217.63	-12,163.83	-322.80	12,168.11	0.00	0.00	0.00
17,900.00	89.83	183.98	7,217.92	-12,263.59	-329.74	12,268.02	0.00	0.00	0.00
18,000.00	89.83	183.98	7,218.22	-12,363.35	-336.68	12,367.92	0.00	0.00	0.00
18,100.00	89.83	183.98	7,218.52	-12,463.10	-343.62	12,467.83	0.00	0.00	0.00
18,200.00	89.83	183.98	7,218.81	-12,562.86	-350.56	12,567.73	0.00	0.00	0.00
18,300.00	89.83	183.98	7,219.11	-12,662.62	-357.51	12,667.64	0.00	0.00	0.00
18,400.00	89.83	183.98	7,219.41	-12,762.38	-364.45	12,767.55	0.00	0.00	0.00
18,500.00	89.83	183.98	7,219.70	-12,862.14	-371.39	12,867.45	0.00	0.00	0.00
18,600.00	89.83	183.98	7,220.00	-12,961.90	-378.33	12,967.36	0.00	0.00	0.00
18,700.00	89.83	183.98	7,220.29	-13,061.65	-385.27	13,067.26	0.00	0.00	0.00
18,725.78	89.83	183.98	7,220.37	-13,087.37	-387.06	13,093.02	0.00	0.00	0.00
Turn 1.50°/100'									
18,800.00	89.83	182.87	7,220.59	-13,161.46	-391.49	13,167.20	1.50	0.00	-1.50
18,900.00	89.83	181.37	7,220.89	-13,261.39	-395.19	13,267.19	1.50	0.00	-1.50
19,000.00	89.83	179.87	7,221.19	-13,361.38	-396.26	13,367.17	1.50	0.00	-1.50
19,057.69	89.83	179.00	7,221.36	-13,419.06	-395.69	13,424.82	1.50	0.00	-1.50
3801' Hold									
19,100.00	89.83	179.00	7,221.48	-13,461.37	-394.96	13,467.09	0.00	0.00	0.00
19,200.00	89.83	179.00	7,221.78	-13,561.35	-393.21	13,567.00	0.00	0.00	0.00
19,300.00	89.83	179.00	7,222.08	-13,661.34	-391.47	13,666.90	0.00	0.00	0.00
19,400.00	89.83	179.00	7,222.38	-13,761.32	-389.73	13,766.81	0.00	0.00	0.00
19,500.00	89.83	179.00	7,222.68	-13,861.30	-387.99	13,866.71	0.00	0.00	0.00
19,600.00	89.83	179.00	7,222.98	-13,961.29	-386.24	13,966.62	0.00	0.00	0.00
19,700.00	89.83	179.00	7,223.27	-14,061.27	-384.50	14,066.52	0.00	0.00	0.00
19,800.00	89.83	179.00	7,223.57	-14,161.26	-382.76	14,166.42	0.00	0.00	0.00
19,900.00	89.83	179.00	7,223.87	-14,261.24	-381.02	14,266.33	0.00	0.00	0.00
20,000.00	89.83	179.00	7,224.17	-14,361.23	-379.28	14,366.23	0.00	0.00	0.00
20,100.00	89.83	179.00	7,224.47	-14,461.21	-377.53	14,466.14	0.00	0.00	0.00
20,200.00	89.83	179.00	7,224.77	-14,561.19	-375.79	14,566.04	0.00	0.00	0.00
20,300.00	89.83	179.00	7,225.06	-14,661.18	-374.05	14,665.95	0.00	0.00	0.00
20,400.00	89.83	179.00	7,225.36	-14,761.16	-372.31	14,765.85	0.00	0.00	0.00
20,500.00	89.83	179.00	7,225.66	-14,861.15	-370.56	14,865.76	0.00	0.00	0.00
20,600.00	89.83	179.00	7,225.96	-14,961.13	-368.82	14,965.66	0.00	0.00	0.00
20,700.00	89.83	179.00	7,226.26	-15,061.12	-367.08	15,065.56	0.00	0.00	0.00
20,800.00	89.83	179.00	7,226.56	-15,161.10	-365.34	15,165.47	0.00	0.00	0.00
20,900.00	89.83	179.00	7,226.85	-15,261.09	-363.59	15,265.37	0.00	0.00	0.00
21,000.00	89.83	179.00	7,227.15	-15,361.07	-361.85	15,365.28	0.00	0.00	0.00
21,100.00	89.83	179.00	7,227.45	-15,461.05	-360.11	15,465.18	0.00	0.00	0.00



Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
21,200.00	89.83	179.00	7,227.75	-15,561.04	-358.37	15,565.09	0.00	0.00	0.00
21,300.00	89.83	179.00	7,228.05	-15,661.02	-356.62	15,664.99	0.00	0.00	0.00
21,400.00	89.83	179.00	7,228.35	-15,761.01	-354.88	15,764.90	0.00	0.00	0.00
21,500.00	89.83	179.00	7,228.64	-15,860.99	-353.14	15,864.80	0.00	0.00	0.00
21,600.00	89.83	179.00	7,228.94	-15,960.98	-351.40	15,964.71	0.00	0.00	0.00
21,700.00	89.83	179.00	7,229.24	-16,060.96	-349.65	16,064.61	0.00	0.00	0.00
21,800.00	89.83	179.00	7,229.54	-16,160.94	-347.91	16,164.51	0.00	0.00	0.00
21,900.00	89.83	179.00	7,229.84	-16,260.93	-346.17	16,264.42	0.00	0.00	0.00
22,000.00	89.83	179.00	7,230.14	-16,360.91	-344.43	16,364.32	0.00	0.00	0.00
22,100.00	89.83	179.00	7,230.44	-16,460.90	-342.69	16,464.23	0.00	0.00	0.00
22,200.00	89.83	179.00	7,230.73	-16,560.88	-340.94	16,564.13	0.00	0.00	0.00
22,300.00	89.83	179.00	7,231.03	-16,660.87	-339.20	16,664.04	0.00	0.00	0.00
22,400.00	89.83	179.00	7,231.33	-16,760.85	-337.46	16,763.94	0.00	0.00	0.00
22,500.00	89.83	179.00	7,231.63	-16,860.84	-335.72	16,863.85	0.00	0.00	0.00
22,600.00	89.83	179.00	7,231.93	-16,960.82	-333.97	16,963.75	0.00	0.00	0.00
22,700.00	89.83	179.00	7,232.23	-17,060.80	-332.23	17,063.65	0.00	0.00	0.00
22,800.00	89.83	179.00	7,232.52	-17,160.79	-330.49	17,163.56	0.00	0.00	0.00
22,859.05	89.83	179.00	7,232.70	-17,219.83	-329.46	17,222.55	0.00	0.00	0.00
Turn 1.50°/100'									
22,900.00	89.83	179.62	7,232.82	-17,260.78	-328.97	17,263.47	1.50	0.00	1.50
22,991.81	89.83	180.99	7,233.10	-17,352.58	-329.45	17,355.26	1.50	0.00	1.50
1074' Hold									
23,000.00	89.83	180.99	7,233.12	-17,360.77	-329.60	17,363.45	0.00	0.00	0.00
23,100.00	89.83	180.99	7,233.42	-17,460.76	-331.33	17,463.45	0.00	0.00	0.00
23,200.00	89.83	180.99	7,233.72	-17,560.74	-333.06	17,563.44	0.00	0.00	0.00
23,300.00	89.83	180.99	7,234.01	-17,660.72	-334.79	17,663.44	0.00	0.00	0.00
23,400.00	89.83	180.99	7,234.31	-17,760.71	-336.53	17,763.43	0.00	0.00	0.00
23,500.00	89.83	180.99	7,234.61	-17,860.69	-338.26	17,863.43	0.00	0.00	0.00
23,600.00	89.83	180.99	7,234.91	-17,960.68	-339.99	17,963.42	0.00	0.00	0.00
23,700.00	89.83	180.99	7,235.21	-18,060.66	-341.73	18,063.42	0.00	0.00	0.00
23,800.00	89.83	180.99	7,235.51	-18,160.65	-343.46	18,163.41	0.00	0.00	0.00
23,900.00	89.83	180.99	7,235.80	-18,260.63	-345.19	18,263.41	0.00	0.00	0.00
24,000.00	89.83	180.99	7,236.10	-18,360.62	-346.93	18,363.41	0.00	0.00	0.00
24,066.61	89.83	180.99	7,236.30	-18,427.21	-348.08	18,430.01	0.00	0.00	0.00
TD at 24066.60									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
RS 30-16HZ - Heel	0.00	0.00	7,081.00	-1,678.45	89.25	14,594,727.11	1,658,777.81	40.186702	-104.934257
- plan misses target center by 108.36usft at 7327.08usft MD (7003.27 TVD, -1726.98 N, 147.07 E)									
- Point									
RS 30-16HZ - BHL	0.00	0.00	7,202.16	-18,427.21	-348.08	14,577,978.04	1,658,352.83	40.140708	-104.935822
- plan misses target center by 34.14usft at 24066.50usft MD (7236.30 TVD, -18427.10 N, -348.08 E)									
- Point									



Altitude Energy Partners

Planning Report



Database:	EDMProd	Local Co-ordinate Reference:	Well RADEMACHER SOUTH 30-16HZ
Company:	Occidental Petroleum	TVD Reference:	PD 564 @ 4846.00usft
Project:	Weld County, CO (UTM-NAD83)	MD Reference:	PD 564 @ 4846.00usft
Site:	RADEMACHER 14-30HZ PAD	North Reference:	True
Well:	RADEMACHER SOUTH 30-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1a		

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
24,330.59	5.5" CSG		5-1/2	7-7/8

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,675.87	3,635.00	PKMN			
4,124.10	4,077.00	SSSX			
4,663.74	4,609.00	SNNN			
7,188.65	6,919.00	SSPG			
7,320.97	7,000.00	NBRR			
7,414.49	7,045.00	N470_B_CK			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,545.00	4,491.72	-641.03	42.64	Drop / Turn 8°/100'
4,570.00	4,516.39	-645.02	43.20	Drop / Turn 6°/100'
4,590.00	4,536.16	-647.94	44.14	Turn 4°/100'
4,610.00	4,555.92	-650.73	45.39	Build / Turn 2°/100'
4,630.00	4,575.68	-653.46	46.85	35' Hold
4,665.00	4,610.25	-658.26	49.52	Build / Turn 1.50°/100'
5,861.42	5,749.47	-1,001.87	111.70	1061' Hold
6,922.88	6,706.01	-1,461.12	140.22	Build 8°/100'
7,725.19	7,112.40	-2,104.52	145.00	300' Hold
8,025.19	7,113.50	-2,404.48	140.13	Turn 1.50°/100'
8,194.48	7,114.11	-2,573.62	133.63	5099' Hold
13,293.68	7,132.33	-7,663.45	-174.94	Turn 1.50°/100'
13,478.30	7,133.00	-7,847.93	-181.65	Drop 1.50°/100'
13,664.11	7,138.20	-8,033.63	-183.92	1266' Hold
14,930.27	7,204.40	-9,297.97	-199.37	Build 1.50°/100'
15,118.50	7,209.61	-9,486.09	-201.67	1027' Hold
16,145.72	7,212.72	-10,513.23	-214.22	Turn 1.50°/100'
16,364.40	7,213.38	-10,731.70	-223.15	2361' Hold
18,725.78	7,220.37	-13,087.37	-387.06	Turn 1.50°/100'
19,057.69	7,221.36	-13,419.06	-395.69	3801' Hold
22,859.05	7,232.70	-17,219.83	-329.46	Turn 1.50°/100'
22,991.81	7,233.10	-17,352.58	-329.45	1074' Hold
24,066.61	7,236.30	-18,427.21	-348.08	TD at 24066.60