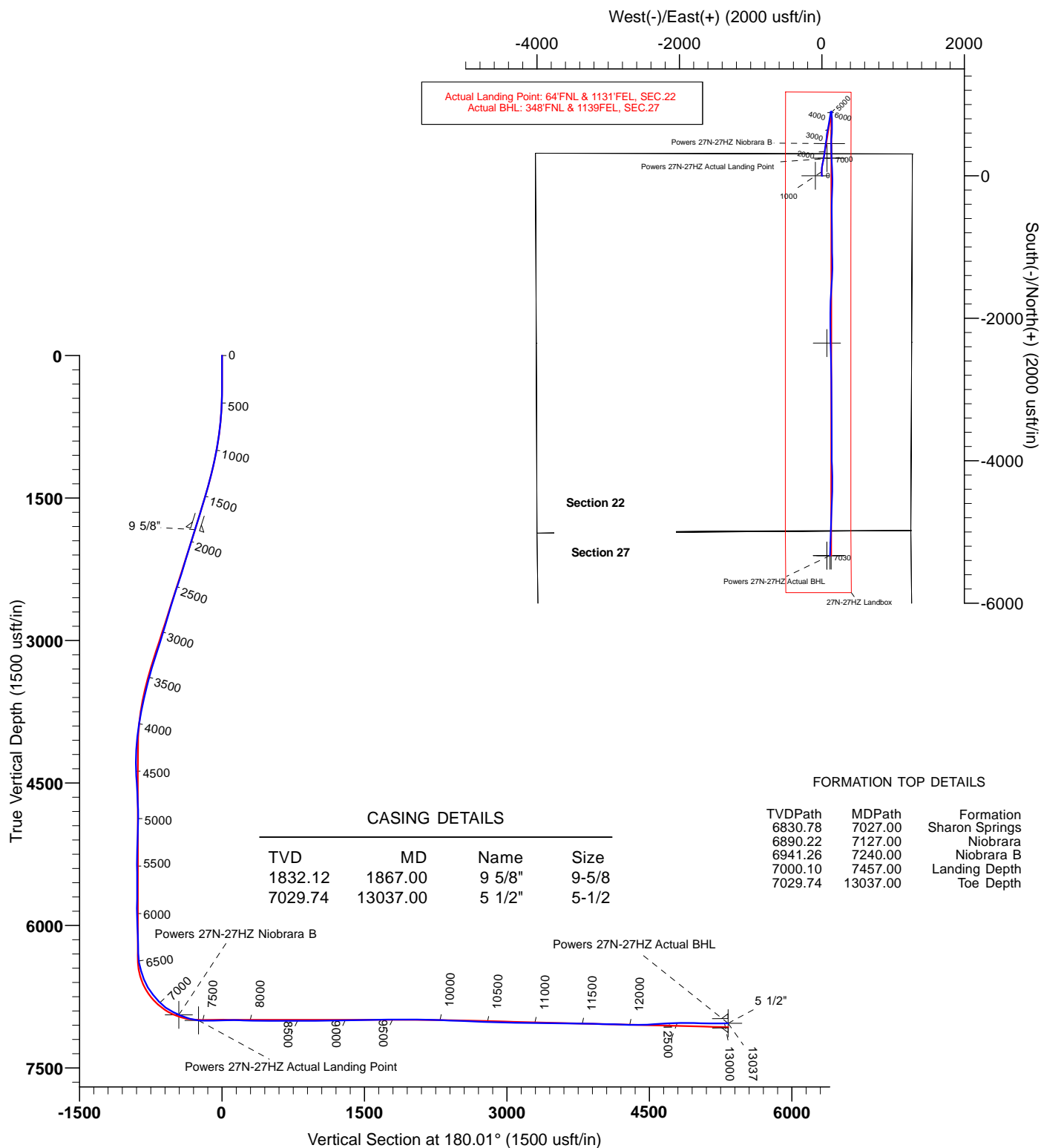


# US ROCKIES WATTENBERG PLANNING



Project: WELD-NAD83-UTMFT13N  
 Site: 2N-65W-22 Powers 2-22 Pad  
 Well: POWERS 27N-27HZ  
 Wellbore: POWERS 27N-27HZ  
 Design: PDD Actual Surveys



TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Powers 27N-27HZ Niobrara B	6941.26	453.48	129.03	14574917.18	1739720.25	40.131775	-104.644725
Powers 27N-27HZ Actual Landing Point	7000.10	246.06	139.92	14574709.80	1739731.96	40.131206	-104.644686
Powers 27N-27HZ Actual BHL	7029.74	-5330.03	114.28	14569133.65	1739728.59	40.115893	-104.644778
Shape							
Point							
Point							
Point							

**PREMIER DIRECTIONAL DRILLING**  
 12941 North Freeway Suite 400, Houston, TX, 77060  
 Phone: 281-673-4000



# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
2N-65W-22 Powers 2-22 Pad  
POWERS 27N-27HZ**

**POWERS 27N-27HZ**

**Design: PDD Actual Surveys**

## **Standard Survey Report**

**28 October, 2015**

# PDD

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well POWERS 27N-27HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Site:</b>	2N-65W-22 Powers 2-22 Pad	<b>MD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Well:</b>	POWERS 27N-27HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	POWERS 27N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site	2N-65W-22 Powers 2-22 Pad, centered on 2N-27HZ				
Site Position:		Northing:	14,574,462.82 usft	Latitude:	40.130530
From:	Lat/Long	Easting:	1,739,503.03 usft	Longitude:	-104.645509
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.23 °

Well		POWERS 27N-27HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,574,463.18 usft	Latitude:	40.130530
	+E/-W	0.00 usft	Easting:	1,739,593.03 usft	Longitude:	-104.645187
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,894.00 usft

<b>Wellbore</b>	POWERS 27N-27HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/12/2015	8.30	66.73	52,625

<b>Design</b>	PDD Actual Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	180.01	

<b>Survey Program</b>	<b>Date</b>	10/28/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
164.00	1,817.00	SDI MWD Surveys (POWERS 27N-27HZ)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,975.00	12,964.00	PDD MWD+IFR+MSA Surveys (POWERS 27N-27HZ)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
164.00	0.93	115.14	163.99	-0.57	1.20	0.57	0.57	0.57	0.00	
252.00	0.54	196.49	251.99	-1.27	1.73	1.27	1.14	-0.44	92.44	
345.00	0.87	346.18	344.98	-1.00	1.44	1.00	1.47	0.35	160.96	
435.00	1.36	348.31	434.97	0.71	1.06	-0.71	0.55	0.54	2.37	
525.00	2.42	345.88	524.92	3.60	0.38	-3.60	1.18	1.18	-2.70	
615.00	3.94	356.85	614.78	8.53	-0.25	-8.53	1.81	1.69	12.19	
750.00	6.16	0.22	749.24	20.40	-0.48	-20.40	1.66	1.64	2.50	
848.00	8.07	356.90	846.49	32.53	-0.83	-32.53	1.99	1.95	-3.39	
976.00	10.11	357.35	972.87	52.73	-1.84	-52.73	1.59	1.59	0.35	

# PDD

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well POWERS 27N-27HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Site:</b>	2N-65W-22 Powers 2-22 Pad	<b>MD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Well:</b>	POWERS 27N-27HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	POWERS 27N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

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)
1,068.00	11.93	358.23	1,063.17	70.30	-2.50	-70.30	1.99	1.98	0.96
1,156.00	12.77	4.33	1,149.14	89.09	-2.05	-89.09	1.76	0.95	6.93
1,246.00	13.67	7.73	1,236.75	109.55	0.13	-109.55	1.32	1.00	3.78
1,336.00	14.81	9.63	1,323.99	131.43	3.49	-131.43	1.37	1.27	2.11
1,426.00	15.90	10.02	1,410.77	154.91	7.56	-154.91	1.22	1.21	0.43
1,516.00	17.15	12.35	1,497.05	180.01	12.54	-180.01	1.57	1.39	2.59
1,606.00	16.70	11.43	1,583.16	205.65	17.94	-205.65	0.58	-0.50	-1.02
1,696.00	17.47	9.63	1,669.18	231.64	22.76	-231.65	1.04	0.86	-2.00
1,786.00	17.70	9.59	1,754.98	258.45	27.30	-258.46	0.26	0.26	-0.04
1,817.00	17.73	10.02	1,784.51	267.75	28.91	-267.75	0.43	0.10	1.39
1,975.00	18.10	10.20	1,934.85	315.59	37.44	-315.60	0.24	0.23	0.11
2,070.00	17.30	7.50	2,025.35	344.12	41.90	-344.13	1.21	-0.84	-2.84
2,164.00	16.30	5.30	2,115.34	371.12	44.94	-371.12	1.26	-1.06	-2.34
2,259.00	16.70	5.70	2,206.43	397.97	47.53	-397.98	0.44	0.42	0.42
2,353.00	17.80	8.10	2,296.20	425.64	50.89	-425.65	1.39	1.17	2.55
2,448.00	18.90	9.30	2,386.37	455.20	55.43	-455.21	1.22	1.16	1.26
2,542.00	18.60	8.70	2,475.38	485.04	60.15	-485.05	0.38	-0.32	-0.64
2,637.00	17.80	7.30	2,565.63	514.42	64.29	-514.43	0.96	-0.84	-1.47
2,731.00	17.00	5.60	2,655.32	542.35	67.46	-542.36	1.01	-0.85	-1.81
2,826.00	16.10	4.70	2,746.39	569.30	69.89	-569.31	0.99	-0.95	-0.95
2,920.00	16.90	7.30	2,836.52	595.84	72.70	-595.85	1.16	0.85	2.77
3,015.00	17.80	11.10	2,927.20	623.79	77.25	-623.80	1.52	0.95	4.00
3,110.00	17.00	11.20	3,017.85	651.66	82.74	-651.67	0.84	-0.84	0.11
3,204.00	18.60	11.60	3,107.35	679.83	88.42	-679.84	1.71	1.70	0.43
3,298.00	17.80	11.30	3,196.64	708.60	94.25	-708.62	0.86	-0.85	-0.32
3,393.00	17.10	10.10	3,287.27	736.59	99.55	-736.61	0.83	-0.74	-1.26
3,488.00	16.10	9.60	3,378.31	763.33	104.19	-763.35	1.06	-1.05	-0.53
3,582.00	14.00	7.80	3,469.08	787.45	107.91	-787.47	2.29	-2.23	-1.91
3,677.00	12.90	7.10	3,561.47	809.36	110.78	-809.38	1.17	-1.16	-0.74
3,771.00	12.50	11.30	3,653.18	829.75	114.07	-829.77	1.07	-0.43	4.47
3,866.00	11.20	10.60	3,746.15	848.90	117.78	-848.92	1.38	-1.37	-0.74
3,960.00	9.90	6.90	3,838.56	865.89	120.43	-865.92	1.56	-1.38	-3.94
4,055.00	8.40	11.50	3,932.35	880.80	122.80	-880.82	1.76	-1.58	4.84
4,149.00	5.70	10.20	4,025.63	892.13	124.99	-892.15	2.88	-2.87	-1.38
4,244.00	3.50	19.30	4,120.32	899.51	126.79	-899.53	2.43	-2.32	9.58
4,338.00	3.00	52.50	4,214.18	903.71	129.69	-903.74	2.04	-0.53	35.32
4,433.00	1.80	102.40	4,309.10	904.91	133.12	-904.93	2.42	-1.26	52.53
4,527.00	4.10	143.50	4,402.98	901.89	136.56	-901.91	3.18	2.45	43.72
4,622.00	3.50	164.40	4,497.77	896.36	139.36	-896.39	1.58	-0.63	22.00
4,717.00	2.90	162.40	4,592.63	891.28	140.87	-891.31	0.64	-0.63	-2.11
4,811.00	3.20	202.60	4,686.50	886.59	140.58	-886.62	2.25	0.32	42.77
4,905.00	2.80	252.00	4,780.39	883.46	137.38	-883.48	2.69	-0.43	52.55
5,000.00	1.90	280.70	4,875.31	883.03	133.63	-883.06	1.53	-0.95	30.21

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well POWERS 27N-27HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Site:</b>	2N-65W-22 Powers 2-22 Pad	<b>MD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Well:</b>	POWERS 27N-27HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	POWERS 27N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

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)
5,095.00	1.80	306.30	4,970.26	884.21	130.88	-884.23	0.87	-0.11	26.95
5,189.00	2.20	324.80	5,064.21	886.56	128.65	-886.58	0.80	0.43	19.68
5,284.00	2.60	325.10	5,159.12	889.82	126.37	-889.84	0.42	0.42	0.32
5,378.00	2.10	330.50	5,253.04	893.06	124.30	-893.09	0.58	-0.53	5.74
5,473.00	0.40	125.20	5,348.02	894.39	123.71	-894.41	2.60	-1.79	162.84
5,567.00	0.80	121.50	5,442.02	893.86	124.54	-893.88	0.43	0.43	-3.94
5,662.00	1.20	91.10	5,537.01	893.49	126.10	-893.51	0.69	0.42	-32.00
5,757.00	1.70	90.70	5,631.97	893.45	128.50	-893.48	0.53	0.53	-0.42
5,851.00	2.40	85.60	5,725.91	893.59	131.86	-893.61	0.77	0.74	-5.43
5,945.00	1.90	77.80	5,819.85	894.07	135.35	-894.09	0.62	-0.53	-8.30
6,040.00	1.60	164.00	5,914.82	893.13	137.25	-893.15	2.53	-0.32	90.74
6,135.00	2.60	194.10	6,009.75	889.76	137.09	-889.78	1.53	1.05	31.68
6,229.00	2.40	200.10	6,103.67	885.84	135.90	-885.87	0.35	-0.21	6.38
6,324.00	1.60	204.60	6,198.61	882.77	134.66	-882.79	0.86	-0.84	4.74
6,418.00	0.20	216.70	6,292.59	881.45	134.02	-881.47	1.49	-1.49	12.87
6,513.00	9.90	170.00	6,387.11	873.25	135.34	-873.27	10.28	10.21	-49.16
6,607.00	17.70	170.30	6,478.33	851.17	139.15	-851.20	8.30	8.30	0.32
6,702.00	19.60	178.60	6,568.35	821.00	141.98	-821.03	3.43	2.00	8.74
6,796.00	31.50	179.50	6,653.01	780.54	142.58	-780.56	12.67	12.66	0.96
6,891.00	39.60	179.90	6,730.24	725.35	142.85	-725.37	8.53	8.53	0.42
6,985.00	42.50	180.30	6,801.12	663.63	142.73	-663.65	3.10	3.09	0.43
7,080.00	54.10	183.70	6,864.22	592.89	140.07	-592.91	12.50	12.21	3.58
7,174.00	63.30	186.10	6,913.01	512.96	133.14	-512.98	10.03	9.79	2.55
7,268.00	67.20	180.10	6,952.38	427.79	128.60	-427.81	7.13	4.15	-6.38
7,363.00	74.90	174.80	6,983.23	338.13	132.69	-338.16	9.67	8.11	-5.58
7,457.00	84.40	176.20	7,000.10	246.06	139.92	-246.08	10.21	10.11	1.49
7,552.00	92.00	179.20	7,003.08	151.26	143.72	-151.28	8.60	8.00	3.16
7,646.00	91.10	179.50	7,000.54	57.30	144.78	-57.33	1.01	-0.96	0.32
7,741.00	91.10	178.60	6,998.72	-37.67	146.36	37.64	0.95	0.00	-0.95
7,836.00	89.60	181.10	6,998.13	-132.66	146.61	132.63	3.07	-1.58	2.63
7,930.00	88.60	181.80	6,999.61	-226.61	144.23	226.59	1.30	-1.06	0.74
8,025.00	88.20	181.70	7,002.26	-321.53	141.33	321.51	0.43	-0.42	-0.11
8,119.00	89.70	180.20	7,003.99	-415.50	139.77	415.47	2.26	1.60	-1.60
8,214.00	90.20	179.90	7,004.07	-510.50	139.69	510.47	0.61	0.53	-0.32
8,308.00	89.90	179.50	7,003.99	-604.49	140.18	604.47	0.53	-0.32	-0.43
8,402.00	89.30	179.30	7,004.64	-698.49	141.16	698.46	0.67	-0.64	-0.21
8,497.00	90.40	179.40	7,004.89	-793.48	142.24	793.45	1.16	1.16	0.11
8,591.00	89.80	179.30	7,004.73	-887.47	143.31	887.45	0.65	-0.64	-0.11
8,686.00	90.70	179.80	7,004.31	-982.47	144.05	982.44	1.08	0.95	0.53
8,780.00	91.00	179.60	7,002.92	-1,076.45	144.55	1,076.43	0.38	0.32	-0.21
8,875.00	90.40	178.60	7,001.76	-1,171.43	146.04	1,171.41	1.23	-0.63	-1.05
8,969.00	91.50	179.70	7,000.20	-1,265.41	147.43	1,265.38	1.65	1.17	1.17
9,064.00	91.80	181.30	6,997.46	-1,360.36	146.60	1,360.34	1.71	0.32	1.68

**PDD**  
Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well POWERS 27N-27HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Site:</b>	2N-65W-22 Powers 2-22 Pad	<b>MD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Well:</b>	POWERS 27N-27HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	POWERS 27N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

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)
9,158.00	91.60	183.60	6,994.68	-1,454.23	142.59	1,454.20	2.45	-0.21	2.45
9,253.00	89.90	184.40	6,993.43	-1,548.98	135.96	1,548.96	1.98	-1.79	0.84
9,347.00	90.10	183.30	6,993.43	-1,642.77	129.65	1,642.75	1.19	0.21	-1.17
9,442.00	90.60	182.50	6,992.85	-1,737.65	124.84	1,737.62	0.99	0.53	-0.84
9,536.00	90.60	182.30	6,991.87	-1,831.56	120.91	1,831.54	0.21	0.00	-0.21
9,631.00	90.30	180.40	6,991.12	-1,926.53	118.67	1,926.50	2.02	-0.32	-2.00
9,725.00	90.70	179.80	6,990.30	-2,020.52	118.51	2,020.50	0.77	0.43	-0.64
9,819.00	88.40	179.50	6,991.04	-2,114.51	119.08	2,114.49	2.47	-2.45	-0.32
9,914.00	88.10	179.30	6,993.94	-2,209.46	120.08	2,209.44	0.38	-0.32	-0.21
10,008.00	88.00	178.90	6,997.14	-2,303.39	121.55	2,303.37	0.44	-0.11	-0.43
10,103.00	87.90	178.30	7,000.54	-2,398.30	123.87	2,398.28	0.64	-0.11	-0.63
10,197.00	87.80	178.30	7,004.06	-2,492.20	126.66	2,492.17	0.11	-0.11	0.00
10,292.00	87.80	177.90	7,007.71	-2,587.07	129.80	2,587.05	0.42	0.00	-0.42
10,386.00	87.70	179.50	7,011.40	-2,680.97	131.94	2,680.95	1.70	-0.11	1.70
10,481.00	87.60	179.60	7,015.30	-2,775.89	132.68	2,775.87	0.15	-0.11	0.11
10,575.00	87.80	179.10	7,019.07	-2,869.81	133.75	2,869.79	0.57	0.21	-0.53
10,670.00	87.80	179.70	7,022.72	-2,964.73	134.74	2,964.71	0.63	0.00	0.63
10,764.00	89.70	179.50	7,024.77	-3,058.70	135.40	3,058.68	2.03	2.02	-0.21
10,859.00	90.70	179.10	7,024.43	-3,153.70	136.56	3,153.67	1.13	1.05	-0.42
10,953.00	89.20	180.00	7,024.52	-3,247.69	137.30	3,247.67	1.86	-1.60	0.96
11,048.00	88.30	180.00	7,026.59	-3,342.67	137.30	3,342.64	0.95	-0.95	0.00
11,142.00	88.40	179.80	7,029.30	-3,436.63	137.46	3,436.60	0.24	0.11	-0.21
11,237.00	89.20	179.60	7,031.29	-3,531.60	137.96	3,531.58	0.87	0.84	-0.21
11,332.00	90.00	179.30	7,031.95	-3,626.60	138.87	3,626.57	0.90	0.84	-0.32
11,426.00	89.20	180.20	7,032.60	-3,720.59	139.28	3,720.57	1.28	-0.85	0.96
11,521.00	88.80	180.23	7,034.26	-3,815.58	138.92	3,815.55	0.42	-0.42	0.03
11,615.00	88.90	179.90	7,036.15	-3,909.56	138.82	3,909.53	0.37	0.11	-0.35
11,709.00	88.50	179.10	7,038.28	-4,003.53	139.64	4,003.50	0.95	-0.43	-0.85
11,804.00	89.30	177.10	7,040.11	-4,098.45	142.78	4,098.43	2.27	0.84	-2.11
11,899.00	87.60	178.50	7,042.68	-4,193.34	146.43	4,193.32	2.32	-1.79	1.47
11,993.00	88.90	179.90	7,045.55	-4,287.28	147.74	4,287.26	2.03	1.38	1.49
12,088.00	90.10	179.80	7,046.38	-4,382.28	147.99	4,382.25	1.27	1.26	-0.11
12,182.00	92.50	182.00	7,044.24	-4,476.23	146.52	4,476.20	3.46	2.55	2.34
12,277.00	93.54	181.86	7,039.24	-4,571.04	143.32	4,571.02	1.10	1.09	-0.15
12,371.00	94.30	182.90	7,032.81	-4,664.74	139.43	4,664.72	1.37	0.81	1.11
12,466.00	91.90	183.70	7,027.67	-4,759.44	133.97	4,759.41	2.66	-2.53	0.84
12,560.00	89.10	182.10	7,026.85	-4,853.30	129.21	4,853.28	3.43	-2.98	-1.70
12,655.00	88.90	181.70	7,028.51	-4,948.23	126.06	4,948.21	0.47	-0.21	-0.42
12,749.00	89.30	181.70	7,029.99	-5,042.18	123.27	5,042.16	0.43	0.43	0.00
12,844.00	89.70	181.60	7,030.82	-5,137.14	120.54	5,137.12	0.43	0.42	-0.11
12,938.00	90.40	182.00	7,030.74	-5,231.09	117.59	5,231.07	0.86	0.74	0.43
12,964.00	90.60	181.90	7,030.51	-5,257.07	116.70	5,257.05	0.86	0.77	-0.38
13,037.00	90.60	181.90	7,029.74	-5,330.03	114.28	5,330.01	0.00	0.00	0.00

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well POWERS 27N-27HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Site:</b>	2N-65W-22 Powers 2-22 Pad	<b>MD Reference:</b>	4894'+25' @ 4919.00usft (H&P 307)
<b>Well:</b>	POWERS 27N-27HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	POWERS 27N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Powers 27N-27HZ Niobr - actual wellpath misses target center by 0.01usft at 7240.01usft MD (6941.27 TVD, 453.47 N, 129.03 E) - Point	0.00	0.00	6,941.26	453.48	129.03	14,574,917.17	1,739,720.25	40.131775	-104.644726
Powers 27N-27HZ Actua - actual wellpath hits target center - Point	0.00	0.00	7,000.10	246.06	139.92	14,574,709.79	1,739,731.96	40.131206	-104.644687
Powers 27N-27HZ Actua - actual wellpath hits target center - Point	0.00	0.00	7,029.74	-5,330.03	114.28	14,569,133.65	1,739,728.59	40.115893	-104.644778

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,867.00	1,832.12	9 5/8"	9-5/8	13-1/2	
13,037.00	7,029.74	5 1/2"	5-1/2	8-1/2	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,027.00	6,830.78	Sharon Springs		0.00	
7,127.00	6,890.22	Niobrara		0.00	
7,240.00	6,941.26	Niobrara B		0.00	
7,457.00	7,000.10	Landing Depth		0.00	
13,037.00	7,029.74	Toe Depth		0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
13,037.00	7,029.74	-5,330.03	114.28	Projection to Bit	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_