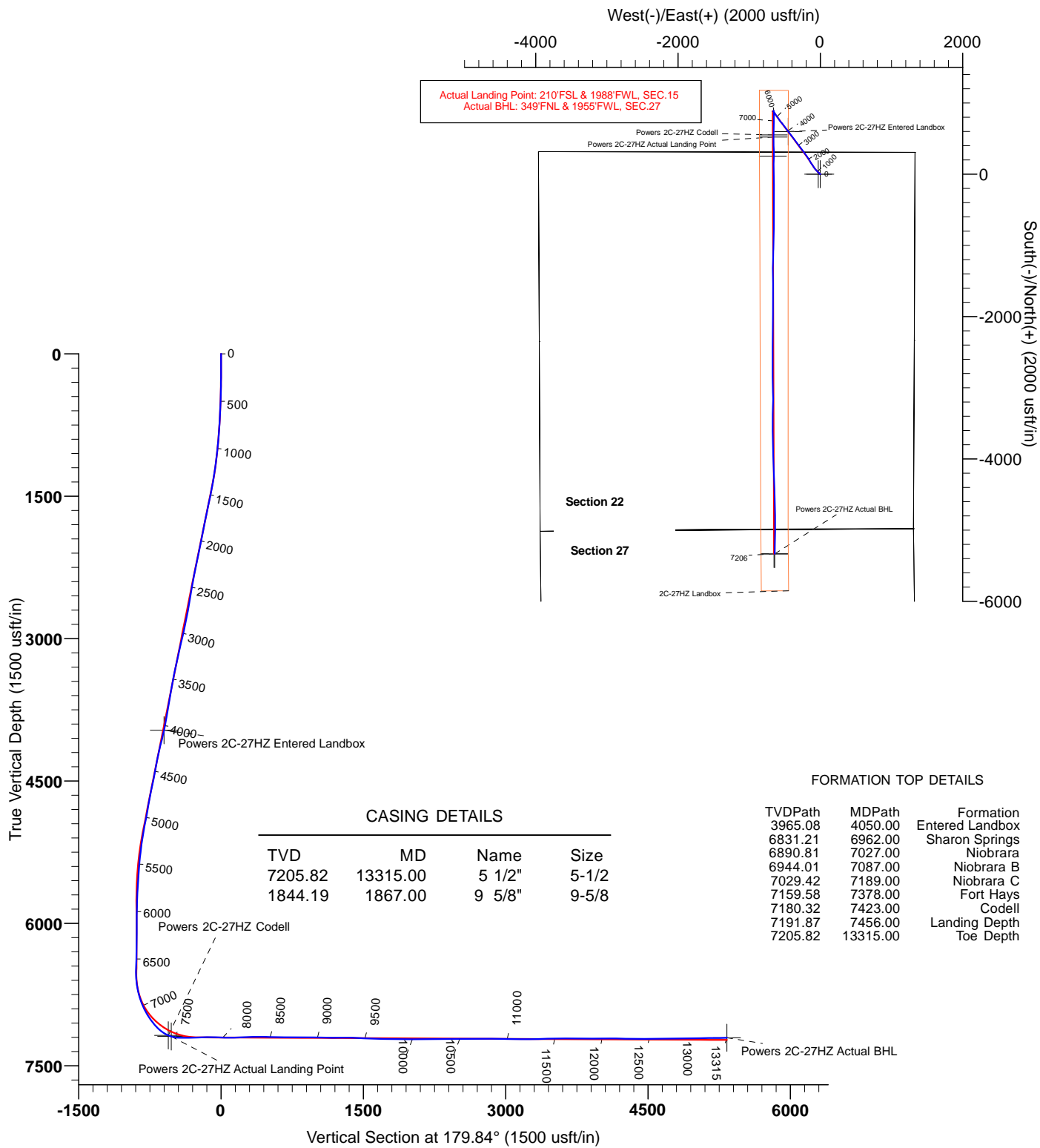


US ROCKIES WATTENBERG PLANNING

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



TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Powers 2C-27HZ Entered Landbox	3965.08	599.63	-450.88	14575060.77	1739079.67	40.132177	-104.647015	Point
Powers 2C-27HZ Codell	7180.32	553.37	-657.60	14575013.69	1738873.13	40.132050	-104.647755	Point
Powers 2C-27HZ Actual Landing Point	7191.87	522.49	-656.83	14574982.81	1738874.03	40.131965	-104.647752	Point
Powers 2C-27HZ Actual BHL	7205.82	-5332.84	-641.17	14569127.59	1738913.05	40.115885	-104.647695	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 2C-27HZ**

POWERS 2C-27HZ

Design: PDD Actual Surveys

Standard Survey Report

15 October, 2015

PDD

Survey Report

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

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 2C-27HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,574,462.94 usft	Latitude:	40.130530
	+E/-W	0.00 usft	Easting:	1,739,532.93 usft	Longitude:	-104.645402
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,894.00 usft

Wellbore	POWERS 2C-27HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/12/2015	8.30	66.73	52,625

Design	PDD Actual Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.84	

Survey Program	Date	10/15/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
164.00	1,786.00	SDI MWD Surveys (POWERS 2C-27HZ)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,974.00	13,242.00	PDD MWD+IFR Surveys (POWERS 2C-2	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

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	
164.00	0.34	248.15	164.00	-0.18	-0.45	0.18	0.21	0.21	0.00	
252.00	0.70	289.80	252.00	-0.10	-1.20	0.09	0.57	0.41	47.33	
345.00	1.74	309.23	344.97	0.99	-2.83	-1.00	1.19	1.12	20.89	
435.00	1.40	319.67	434.94	2.69	-4.60	-2.70	0.49	-0.38	11.60	
525.00	2.63	320.35	524.88	5.12	-6.63	-5.14	1.37	1.37	0.76	
615.00	3.59	326.99	614.75	9.07	-9.48	-9.10	1.14	1.07	7.38	
705.00	4.07	318.55	704.55	13.83	-13.13	-13.87	0.82	0.53	-9.38	
795.00	5.36	310.59	794.24	18.96	-18.44	-19.01	1.60	1.43	-8.84	
887.00	7.19	310.04	885.69	25.46	-26.11	-25.53	1.99	1.99	-0.60	

PDD

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well POWERS 2C-27HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Site:	2N-65W-22 Powers 2-22 Pad	MD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Well:	POWERS 2C-27HZ	North Reference:	True
Wellbore:	POWERS 2C-27HZ	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	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)
976.00	8.41	310.32	973.86	33.25	-35.33	-33.35	1.37	1.37	0.31
1,111.00	9.81	317.64	1,107.16	48.14	-50.61	-48.28	1.34	1.04	5.42
1,201.00	10.55	317.42	1,195.74	59.87	-61.35	-60.04	0.82	0.82	-0.24
1,291.00	12.15	320.47	1,283.98	73.25	-72.96	-73.45	1.90	1.78	3.39
1,426.00	13.45	326.78	1,415.63	97.34	-90.60	-97.59	1.41	0.96	4.67
1,516.00	13.17	327.67	1,503.21	114.76	-101.82	-115.04	0.39	-0.31	0.99
1,606.00	13.36	325.94	1,590.81	132.04	-113.13	-132.35	0.49	0.21	-1.92
1,696.00	14.36	326.09	1,678.19	149.92	-125.18	-150.26	1.11	1.11	0.17
1,786.00	13.94	327.55	1,765.46	168.33	-137.22	-168.71	0.61	-0.47	1.62
1,974.00	12.40	329.20	1,948.51	204.78	-159.71	-205.22	0.84	-0.82	0.88
2,068.00	13.20	330.10	2,040.17	222.75	-170.23	-223.22	0.88	0.85	0.96
2,163.00	13.70	328.40	2,132.57	241.73	-181.53	-242.24	0.67	0.53	-1.79
2,257.00	14.00	325.10	2,223.84	260.54	-193.87	-261.08	0.90	0.32	-3.51
2,352.00	13.80	321.40	2,316.06	278.82	-207.51	-279.40	0.96	-0.21	-3.89
2,446.00	12.70	324.20	2,407.55	295.96	-220.55	-296.58	1.35	-1.17	2.98
2,541.00	13.20	321.00	2,500.14	312.86	-233.48	-313.51	0.92	0.53	-3.37
2,635.00	11.60	324.40	2,591.94	328.89	-245.74	-329.57	1.87	-1.70	3.62
2,730.00	11.90	323.90	2,684.95	344.57	-257.07	-345.29	0.33	0.32	-0.53
2,824.00	13.40	324.00	2,776.67	361.21	-269.18	-361.96	1.60	1.60	0.11
2,919.00	14.60	322.40	2,868.85	379.61	-282.96	-380.39	1.33	1.26	-1.68
3,013.00	16.80	322.50	2,959.33	399.77	-298.46	-400.60	2.34	2.34	0.11
3,108.00	16.40	322.70	3,050.37	421.33	-314.95	-422.21	0.43	-0.42	0.21
3,202.00	14.80	325.00	3,140.91	441.72	-329.87	-442.64	1.82	-1.70	2.45
3,297.00	15.10	324.40	3,232.69	461.73	-344.04	-462.68	0.36	0.32	-0.63
3,391.00	15.40	322.60	3,323.38	481.60	-358.75	-482.60	0.60	0.32	-1.91
3,486.00	13.50	322.90	3,415.37	500.46	-373.10	-501.50	2.00	-2.00	0.32
3,581.00	12.00	323.30	3,508.03	517.23	-385.69	-518.30	1.58	-1.58	0.42
3,675.00	12.40	322.50	3,599.91	533.07	-397.67	-534.18	0.46	0.43	-0.85
3,770.00	13.20	320.30	3,692.54	549.51	-410.81	-550.65	0.99	0.84	-2.32
3,864.00	12.60	320.30	3,784.17	565.65	-424.22	-566.83	0.64	-0.64	0.00
3,959.00	13.30	321.80	3,876.76	582.21	-437.59	-583.43	0.82	0.74	1.58
4,053.00	14.60	323.50	3,967.98	600.23	-451.33	-601.49	1.45	1.38	1.81
4,148.00	16.40	323.90	4,059.52	620.70	-466.35	-622.00	1.90	1.89	0.42
4,242.00	16.70	325.10	4,149.63	642.49	-481.90	-643.84	0.48	0.32	1.28
4,337.00	15.10	323.00	4,240.99	663.57	-497.15	-664.96	1.79	-1.68	-2.21
4,431.00	12.90	321.00	4,332.19	681.51	-511.13	-682.93	2.40	-2.34	-2.13
4,526.00	13.90	320.50	4,424.61	698.55	-525.06	-700.02	1.06	1.05	-0.53
4,621.00	14.70	321.10	4,516.66	716.74	-539.89	-718.25	0.86	0.84	0.63
4,715.00	14.20	323.50	4,607.69	735.29	-554.24	-736.84	0.83	-0.53	2.55
4,810.00	13.80	322.90	4,699.87	753.69	-568.00	-755.28	0.45	-0.42	-0.63
4,904.00	12.50	321.70	4,791.40	770.62	-581.07	-772.24	1.41	-1.38	-1.28
4,999.00	12.50	323.90	4,884.15	786.99	-593.50	-788.65	0.50	0.00	2.32
5,093.00	13.30	326.10	4,975.78	804.19	-605.52	-805.88	1.00	0.85	2.34

PDD Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well POWERS 2C-27HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Site:	2N-65W-22 Powers 2-22 Pad	MD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Well:	POWERS 2C-27HZ	North Reference:	True
Wellbore:	POWERS 2C-27HZ	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	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)	
5,188.00	10.90	326.60	5,068.66	820.76	-616.56	-822.48	2.53	-2.53	0.53	
5,282.00	9.50	326.70	5,161.17	834.66	-625.72	-836.41	1.49	-1.49	0.11	
5,377.00	7.80	328.40	5,255.09	846.71	-633.40	-848.47	1.81	-1.79	1.79	
5,472.00	6.30	321.70	5,349.37	856.29	-640.01	-858.07	1.80	-1.58	-7.05	
5,566.00	5.10	323.80	5,442.90	863.71	-645.67	-865.51	1.30	-1.28	2.23	
5,661.00	3.80	333.00	5,537.61	869.92	-649.59	-871.73	1.56	-1.37	9.68	
5,755.00	4.40	329.60	5,631.37	875.81	-652.83	-877.63	0.69	0.64	-3.62	
5,850.00	3.10	328.60	5,726.17	881.14	-656.02	-882.97	1.37	-1.37	-1.05	
5,944.00	0.90	40.60	5,820.11	883.87	-656.86	-885.70	3.14	-2.34	76.60	
6,039.00	1.30	70.70	5,915.10	884.80	-655.36	-886.62	0.73	0.42	31.68	
6,133.00	0.70	71.10	6,009.08	885.34	-653.81	-887.16	0.64	-0.64	0.43	
6,228.00	1.50	294.00	6,104.07	886.03	-654.39	-887.85	2.18	0.84	-144.32	
6,322.00	1.50	296.80	6,198.04	887.08	-656.62	-888.91	0.08	0.00	2.98	
6,417.00	1.00	349.00	6,293.02	888.46	-657.88	-890.29	1.25	-0.53	54.95	
6,511.00	1.50	16.30	6,387.00	890.44	-657.70	-892.28	0.81	0.53	29.04	
6,606.00	1.40	19.00	6,481.97	892.74	-656.97	-894.57	0.13	-0.11	2.84	
6,700.00	3.00	162.80	6,575.93	891.47	-655.87	-893.30	4.48	1.70	152.98	
6,795.00	9.20	174.60	6,670.35	881.53	-654.42	-883.35	6.62	6.53	12.42	
6,889.00	16.00	178.90	6,762.04	861.07	-653.46	-862.89	7.30	7.23	4.57	
6,984.00	22.70	180.80	6,851.62	829.61	-653.46	-831.43	7.08	7.05	2.00	
7,015.00	25.00	179.70	6,879.97	817.08	-653.51	-818.90	7.56	7.42	-3.55	
7,078.00	28.80	178.10	6,936.14	788.59	-652.94	-790.41	6.14	6.03	-2.54	
7,110.00	31.20	178.30	6,963.85	772.60	-652.44	-774.42	7.51	7.50	0.63	
7,141.00	33.40	180.30	6,990.06	756.04	-652.24	-757.86	7.89	7.10	6.45	
7,173.00	35.40	180.40	7,016.46	737.96	-652.36	-739.78	6.25	6.25	0.31	
7,205.00	37.50	181.50	7,042.20	718.95	-652.68	-720.77	6.87	6.56	3.44	
7,236.00	40.30	181.70	7,066.32	699.49	-653.22	-701.32	9.04	9.03	0.65	
7,267.00	43.80	182.40	7,089.34	678.75	-653.97	-680.57	11.39	11.29	2.26	
7,299.00	47.50	182.50	7,111.70	655.89	-654.95	-657.72	11.56	11.56	0.31	
7,330.00	51.30	183.60	7,131.87	632.39	-656.20	-634.22	12.55	12.26	3.55	
7,362.00	55.70	181.90	7,150.90	606.71	-657.43	-608.54	14.40	13.75	-5.31	
7,393.00	61.30	180.00	7,167.10	580.29	-657.85	-582.12	18.80	18.06	-6.13	
7,425.00	66.70	178.90	7,181.12	551.54	-657.57	-553.37	17.16	16.88	-3.44	
7,456.00	72.70	178.20	7,191.87	522.49	-656.83	-524.32	19.47	19.35	-2.26	
7,488.00	79.30	178.60	7,199.61	491.47	-655.97	-493.30	20.66	20.63	1.25	
7,519.00	85.20	178.60	7,203.79	460.77	-655.22	-462.60	19.03	19.03	0.00	
7,550.00	89.10	178.10	7,205.33	429.83	-654.32	-431.66	12.68	12.58	-1.61	
7,645.00	91.30	180.20	7,204.99	334.85	-652.91	-336.68	3.20	2.32	2.21	
7,740.00	92.70	180.80	7,201.68	239.92	-653.74	-241.74	1.60	1.47	0.63	
7,834.00	90.90	179.70	7,198.73	145.97	-654.15	-147.80	2.24	-1.91	-1.17	
7,929.00	87.00	178.50	7,200.47	51.02	-652.66	-52.84	4.30	-4.11	-1.26	
8,023.00	88.80	179.40	7,203.91	-42.90	-650.94	41.08	2.14	1.91	0.96	
8,118.00	91.10	180.40	7,203.99	-137.89	-650.77	136.07	2.64	2.42	1.05	

PDD
Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well POWERS 2C-27HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Site:	2N-65W-22 Powers 2-22 Pad	MD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Well:	POWERS 2C-27HZ	North Reference:	True
Wellbore:	POWERS 2C-27HZ	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	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)	
8,212.00	93.10	180.90	7,200.55	-231.82	-651.84	229.99	2.19	2.13	0.53	
8,307.00	92.40	179.80	7,195.99	-326.70	-652.42	324.88	1.37	-0.74	-1.16	
8,401.00	89.50	179.90	7,194.43	-420.68	-652.17	418.86	3.09	-3.09	0.11	
8,496.00	86.90	179.70	7,197.42	-515.62	-651.84	513.80	2.74	-2.74	-0.21	
8,590.00	89.40	180.50	7,200.45	-609.57	-652.01	607.74	2.79	2.66	0.85	
8,685.00	91.00	179.80	7,200.12	-704.56	-652.26	702.74	1.84	1.68	-0.74	
8,779.00	89.10	180.90	7,200.04	-798.55	-652.83	796.73	2.34	-2.02	1.17	
8,874.00	89.60	180.70	7,201.12	-893.54	-654.16	891.71	0.57	0.53	-0.21	
8,968.00	89.40	183.10	7,201.94	-987.48	-657.27	985.64	2.56	-0.21	2.55	
9,062.00	88.70	181.00	7,203.50	-1,081.40	-660.63	1,079.55	2.35	-0.74	-2.23	
9,157.00	90.00	181.50	7,204.57	-1,176.37	-662.71	1,174.51	1.47	1.37	0.53	
9,251.00	90.50	181.70	7,204.16	-1,270.33	-665.33	1,268.47	0.57	0.53	0.21	
9,346.00	89.20	180.20	7,204.41	-1,365.31	-666.91	1,363.44	2.09	-1.37	-1.58	
9,440.00	87.10	178.70	7,207.45	-1,459.25	-666.01	1,457.38	2.74	-2.23	-1.60	
9,535.00	87.50	178.60	7,211.92	-1,554.12	-663.77	1,552.26	0.43	0.42	-0.11	
9,629.00	88.10	179.70	7,215.53	-1,648.04	-662.38	1,646.18	1.33	0.64	1.17	
9,724.00	89.60	180.60	7,217.44	-1,743.01	-662.62	1,741.15	1.84	1.58	0.95	
9,818.00	89.10	180.80	7,218.50	-1,837.00	-663.77	1,835.14	0.57	-0.53	0.21	
9,913.00	88.40	180.80	7,220.58	-1,931.97	-665.10	1,930.10	0.74	-0.74	0.00	
10,007.00	90.50	180.50	7,221.48	-2,025.95	-666.17	2,024.08	2.26	2.23	-0.32	
10,102.00	90.50	180.80	7,220.65	-2,120.94	-667.24	2,119.07	0.32	0.00	0.32	
10,196.00	90.30	181.10	7,219.99	-2,214.93	-668.80	2,213.05	0.38	-0.21	0.32	
10,291.00	89.80	180.90	7,219.91	-2,309.91	-670.46	2,308.03	0.57	-0.53	-0.21	
10,385.00	91.10	180.20	7,219.17	-2,403.90	-671.36	2,402.02	1.57	1.38	-0.74	
10,480.00	91.30	179.70	7,217.18	-2,498.88	-671.28	2,497.00	0.57	0.21	-0.53	
10,574.00	89.90	179.50	7,216.20	-2,592.87	-670.62	2,590.99	1.50	-1.49	-0.21	
10,669.00	90.50	179.30	7,215.87	-2,687.86	-669.63	2,685.98	0.67	0.63	-0.21	
10,763.00	90.20	179.30	7,215.29	-2,781.85	-668.48	2,779.98	0.32	-0.32	0.00	
10,858.00	89.70	179.30	7,215.37	-2,876.85	-667.32	2,874.97	0.53	-0.53	0.00	
10,952.00	89.20	179.00	7,216.28	-2,970.83	-665.92	2,968.96	0.62	-0.53	-0.32	
11,047.00	88.70	178.90	7,218.02	-3,065.80	-664.18	3,063.93	0.54	-0.53	-0.11	
11,141.00	89.40	180.50	7,219.58	-3,159.78	-663.69	3,157.92	1.86	0.74	1.70	
11,236.00	90.50	181.50	7,219.66	-3,254.76	-665.35	3,252.89	1.56	1.16	1.05	
11,330.00	91.00	181.30	7,218.43	-3,348.73	-667.65	3,346.85	0.57	0.53	-0.21	
11,425.00	91.90	181.30	7,216.02	-3,443.67	-669.80	3,441.79	0.95	0.95	0.00	
11,519.00	91.50	179.30	7,213.24	-3,537.62	-670.29	3,535.74	2.17	-0.43	-2.13	
11,614.00	89.50	178.60	7,212.41	-3,632.60	-668.55	3,630.72	2.23	-2.11	-0.74	
11,708.00	89.60	178.50	7,213.14	-3,726.57	-666.17	3,724.69	0.15	0.11	-0.11	
11,803.00	89.80	178.90	7,213.64	-3,821.54	-664.02	3,819.67	0.47	0.21	0.42	
11,897.00	90.20	178.80	7,213.64	-3,915.52	-662.13	3,913.66	0.44	0.43	-0.11	
11,992.00	90.20	178.30	7,213.31	-4,010.49	-659.73	4,008.63	0.53	0.00	-0.53	
12,086.00	90.30	178.70	7,212.90	-4,104.46	-657.27	4,102.61	0.44	0.11	0.43	
12,181.00	88.50	177.10	7,213.90	-4,199.38	-653.79	4,197.54	2.53	-1.89	-1.68	
12,275.00	89.00	177.50	7,215.95	-4,293.25	-649.36	4,291.42	0.68	0.53	0.43	

PDD

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well POWERS 2C-27HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Site:	2N-65W-22 Powers 2-22 Pad	MD Reference:	4894'+25' @ 4919.00usft ((H&P 307))
Well:	POWERS 2C-27HZ	North Reference:	True
Wellbore:	POWERS 2C-27HZ	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	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)
12,370.00	89.80	178.00	7,216.94	-4,388.17	-645.63	4,386.35	0.99	0.84	0.53
12,464.00	90.70	178.50	7,216.53	-4,482.13	-642.76	4,480.32	1.10	0.96	0.53
12,559.00	90.20	178.40	7,215.78	-4,577.09	-640.19	4,575.28	0.54	-0.53	-0.11
12,653.00	90.00	178.20	7,215.62	-4,671.05	-637.40	4,669.25	0.30	-0.21	-0.21
12,748.00	91.00	178.40	7,214.79	-4,766.00	-634.58	4,764.21	1.07	1.05	0.21
12,842.00	91.00	180.40	7,213.15	-4,859.98	-633.60	4,858.19	2.13	0.00	2.13
12,937.00	91.00	180.50	7,211.49	-4,954.96	-634.35	4,953.17	0.11	0.00	0.11
13,031.00	91.10	180.40	7,209.77	-5,048.94	-635.08	5,047.15	0.15	0.11	-0.11
13,125.00	90.10	181.20	7,208.79	-5,142.93	-636.40	5,141.13	1.36	-1.06	0.85
13,219.00	90.80	181.40	7,208.05	-5,236.90	-638.53	5,235.09	0.77	0.74	0.21
13,242.00	91.40	181.60	7,207.61	-5,259.89	-639.13	5,258.08	2.75	2.61	0.87
13,315.00	91.40	181.60	7,205.82	-5,332.84	-641.17	5,331.02	0.00	0.00	0.00

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									
Powers 2C-27HZ Entere	0.00	0.00	3,965.08	599.63	-450.88	14,575,060.76	1,739,079.67	40.132177	-104.647015
- actual wellpath hits target center									
- Point									
Powers 2C-27HZ Codell	0.00	0.00	7,180.32	553.37	-657.60	14,575,013.69	1,738,873.13	40.132050	-104.647755
- actual wellpath hits target center									
- Point									
Powers 2C-27HZ Actual	0.00	0.00	7,191.87	522.49	-656.83	14,574,982.81	1,738,874.02	40.131965	-104.647752
- actual wellpath hits target center									
- Point									
Powers 2C-27HZ Actual	0.00	0.00	7,205.82	-5,332.84	-641.17	14,569,127.59	1,738,913.05	40.115886	-104.647696
- actual wellpath hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,867.00	1,844.19	9 5/8"	9-5/8	13-1/2	
13,315.00	7,205.82	5 1/2"	5-1/2	8-1/2	

PDD

Survey Report

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

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,050.00	3,965.08	Entered Landbox		0.00		
6,962.00	6,831.21	Sharon Springs		0.00		
7,027.00	6,890.81	Niobrara		0.00		
7,087.00	6,944.01	Niobrara B		0.00		
7,189.00	7,029.42	Niobrara C		0.00		
7,378.00	7,159.58	Fort Hays		0.00		
7,423.00	7,180.32	Codell		0.00		
7,456.00	7,191.87	Landing Depth		0.00		
13,315.00	7,205.82	Toe Depth		0.00		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
13,315.00	7,205.82	-5,332.84	-641.17	Projection to Bit	

Checked By: _____ Approved By: _____ Date: _____