

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**1N-67W-22 Wagner 7-22HZ Pad**

**WAGNER 2N-10HZ**

**Plan A**

**Plan: Permit Rev-1**

## **Standard Survey Report**

**02 February, 2016**

Project: WELD-NAD83-UTMFT13N  
Site: 1N-67W-22 Wagner 7-22HZ Pad  
Well: WAGNER 2N-10HZ  
Wellbore: Plan A  
Design: Permit Rev-1

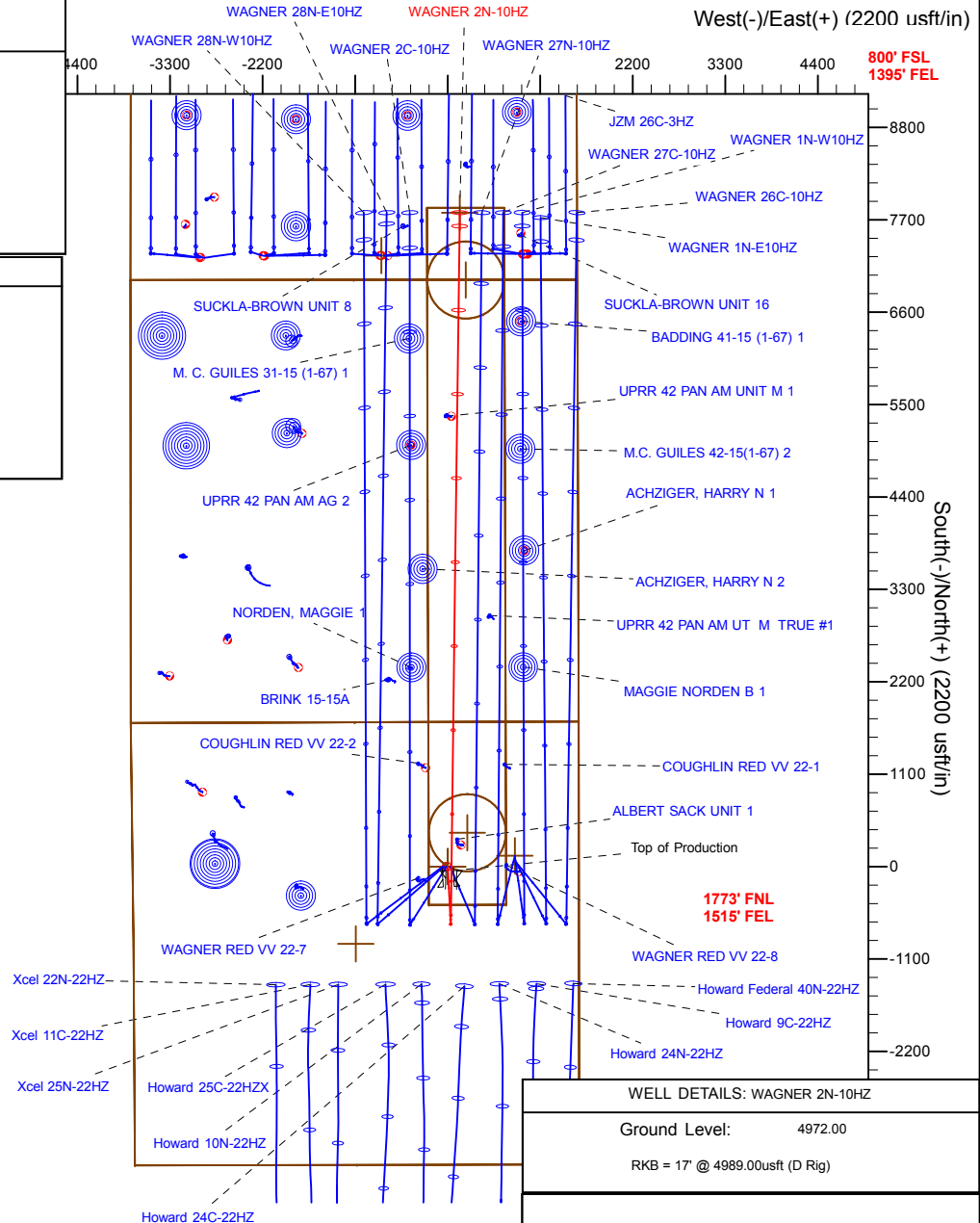
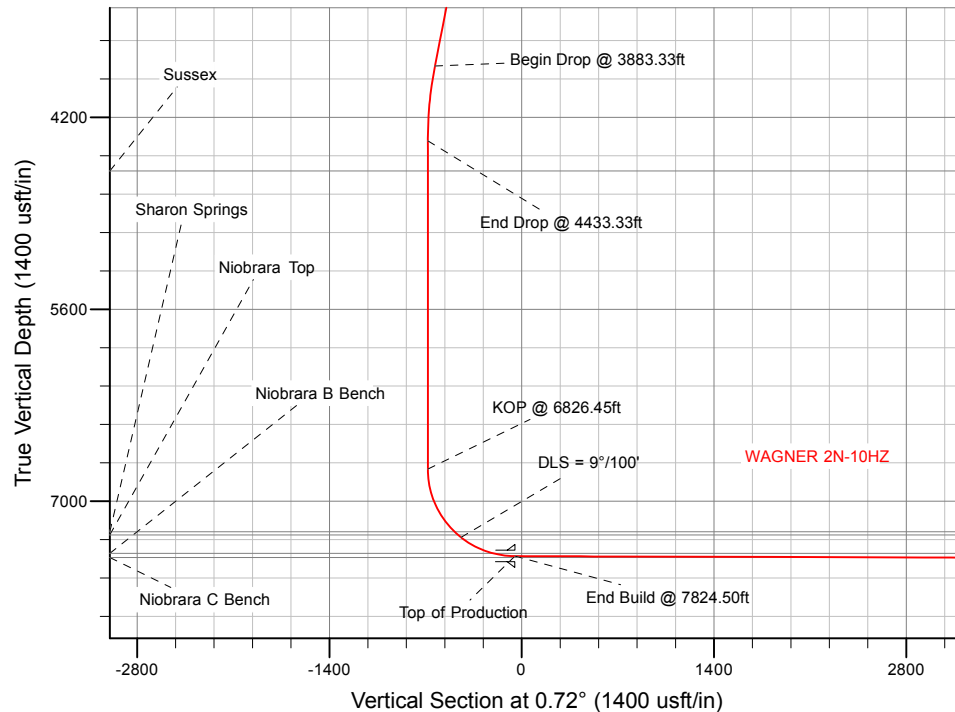
# US ROCKIES WATTENBERG PLANNING

## 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	933.33	11.00	177.00	928.84	-70.08	3.67	1.50	177.00	-70.03	
4	3883.33	11.00	177.00	3824.64	-632.20	33.13	0.00	0.00	-631.73	
5	4433.33	0.00	0.00	4371.26	-684.76	35.89	2.00	-180.00	-684.26	
6	6826.45	0.00	0.00	6764.38	-684.76	35.89	0.00	0.00	-684.25	
7	7824.50	89.82	0.72	7401.00	-50.14	43.87	9.00	0.72	-49.59	
8	15660.70	89.82	0.72	7425.00	7785.40	142.44	0.00	0.00	7786.58	WAGNER 2N-10HZ_Toe

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
WAGNER 2N-10HZ_SHL	0.00	0.00	0.00	40.039095	-104.872845	Point
WAGNER 2N-10HZ_Toe	7425.00	7785.40	142.44	40.060475	-104.872336	Point



## WELL DETAILS: WAGNER 2N-10HZ

Ground Level: 4972.00

RKB = 17" @ 4989.00usft (D Rig)

Plan: Permit Rev-1 (WAGNER 2N-10HZ/Plan A)

Created By: Clint Eshelman

Date: 2/3/2016

Reviewed: \_\_\_\_\_

Date: \_\_\_\_\_

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

<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	1N-67W-22 Wagner 7-22HZ Pad				
Site Position:		Northing:	14,540,995.63 usft	Latitude:	40.039097
From:	Lat/Long	Easting:	1,675,946.05 usft	Longitude:	-104.873060
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.08 °

Well		WAGNER 2N-10HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,540,994.99 usft	Latitude:	40.039095
	+E/-W	0.00 usft	Easting:	1,676,006.23 usft	Longitude:	-104.872845
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,972.00 usft

<b>Wellbore</b>	Plan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/29/2016	8.27	66.58	52,442

<b>Design</b>	Permit Rev-1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	0.72	

<b>Survey Tool Program</b>	<b>Date</b>	2/2/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	1,800.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,800.00	15,660.70	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

<b>Planned 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	
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	
<b>Begin Nudge @ 200.00ft</b>										
300.00	1.50	177.00	299.99	-1.31	0.07	-1.31	1.50	1.50	0.00	
400.00	3.00	177.00	399.91	-5.23	0.27	-5.22	1.50	1.50	0.00	
500.00	4.50	177.00	499.69	-11.76	0.62	-11.75	1.50	1.50	0.00	
600.00	6.00	177.00	599.27	-20.90	1.10	-20.88	1.50	1.50	0.00	
700.00	7.50	177.00	698.57	-32.63	1.71	-32.61	1.50	1.50	0.00	
800.00	9.00	177.00	797.54	-46.96	2.46	-46.93	1.50	1.50	0.00	

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
900.00	10.50	177.00	896.09	-63.87	3.35	-63.83	1.50	1.50	0.00
933.33	11.00	177.00	928.83	-70.08	3.67	-70.03	1.50	1.50	0.00
<b>End Nudge @ 933.33ft</b>									
1,000.00	11.00	177.00	994.28	-82.79	4.34	-82.72	0.00	0.00	0.00
1,100.00	11.00	177.00	1,092.44	-101.84	5.34	-101.77	0.00	0.00	0.00
1,200.00	11.00	177.00	1,190.60	-120.90	6.34	-120.81	0.00	0.00	0.00
1,300.00	11.00	177.00	1,288.77	-139.95	7.33	-139.85	0.00	0.00	0.00
1,365.44	11.00	177.00	1,353.00	-152.42	7.99	-152.31	0.00	0.00	0.00
<b>Fox Hills</b>									
1,400.00	11.00	177.00	1,386.93	-159.00	8.33	-158.89	0.00	0.00	0.00
1,500.00	11.00	177.00	1,485.09	-178.06	9.33	-177.93	0.00	0.00	0.00
1,600.00	11.00	177.00	1,583.25	-197.11	10.33	-196.97	0.00	0.00	0.00
1,700.00	11.00	177.00	1,681.42	-216.17	11.33	-216.01	0.00	0.00	0.00
1,800.00	11.00	177.00	1,779.58	-235.22	12.33	-235.05	0.00	0.00	0.00
1,820.80	11.00	177.00	1,800.00	-239.19	12.54	-239.01	0.00	0.00	0.00
<b>9 5/8"</b>									
1,900.00	11.00	177.00	1,877.74	-254.28	13.33	-254.09	0.00	0.00	0.00
2,000.00	11.00	177.00	1,975.91	-273.33	14.32	-273.13	0.00	0.00	0.00
2,100.00	11.00	177.00	2,074.07	-292.39	15.32	-292.17	0.00	0.00	0.00
2,200.00	11.00	177.00	2,172.23	-311.44	16.32	-311.21	0.00	0.00	0.00
2,300.00	11.00	177.00	2,270.39	-330.50	17.32	-330.25	0.00	0.00	0.00
2,400.00	11.00	177.00	2,368.56	-349.55	18.32	-349.29	0.00	0.00	0.00
2,500.00	11.00	177.00	2,466.72	-368.61	19.32	-368.34	0.00	0.00	0.00
2,600.00	11.00	177.00	2,564.88	-387.66	20.32	-387.38	0.00	0.00	0.00
2,700.00	11.00	177.00	2,663.04	-406.72	21.32	-406.42	0.00	0.00	0.00
2,800.00	11.00	177.00	2,761.21	-425.77	22.31	-425.46	0.00	0.00	0.00
2,900.00	11.00	177.00	2,859.37	-444.83	23.31	-444.50	0.00	0.00	0.00
3,000.00	11.00	177.00	2,957.53	-463.88	24.31	-463.54	0.00	0.00	0.00
3,100.00	11.00	177.00	3,055.70	-482.94	25.31	-482.58	0.00	0.00	0.00
3,200.00	11.00	177.00	3,153.86	-501.99	26.31	-501.62	0.00	0.00	0.00
3,300.00	11.00	177.00	3,252.02	-521.05	27.31	-520.66	0.00	0.00	0.00
3,400.00	11.00	177.00	3,350.18	-540.10	28.31	-539.70	0.00	0.00	0.00
3,500.00	11.00	177.00	3,448.35	-559.15	29.30	-558.74	0.00	0.00	0.00
3,600.00	11.00	177.00	3,546.51	-578.21	30.30	-577.78	0.00	0.00	0.00
3,700.00	11.00	177.00	3,644.67	-597.26	31.30	-596.82	0.00	0.00	0.00
3,800.00	11.00	177.00	3,742.83	-616.32	32.30	-615.86	0.00	0.00	0.00
3,883.33	11.00	177.00	3,824.63	-632.20	33.13	-631.73	0.00	0.00	0.00
<b>Begin Drop @ 3883.33ft</b>									
3,900.00	10.67	177.00	3,841.01	-635.33	33.30	-634.86	2.00	-2.00	0.00
4,000.00	8.67	177.00	3,939.58	-652.09	34.17	-651.61	2.00	-2.00	0.00
4,100.00	6.67	177.00	4,038.68	-665.42	34.87	-664.93	2.00	-2.00	0.00
4,200.00	4.67	177.00	4,138.19	-675.28	35.39	-674.78	2.00	-2.00	0.00
4,300.00	2.67	177.00	4,237.98	-681.66	35.72	-681.16	2.00	-2.00	0.00
4,400.00	0.67	177.00	4,337.93	-684.57	35.88	-684.06	2.00	-2.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
4,433.33	0.00	176.95	4,371.26	-684.76	35.89	-684.26	2.00	-2.00	-0.16
<b>End Drop @ 4433.33ft</b>									
4,500.00	0.00	0.00	4,437.93	-684.76	35.89	-684.26	0.00	0.00	-265.41
4,600.00	0.00	0.00	4,537.93	-684.76	35.89	-684.26	0.00	0.00	0.00
4,652.07	0.00	0.00	4,590.00	-684.76	35.89	-684.26	0.00	0.00	0.00
<b>Sussex</b>									
4,700.00	0.00	0.00	4,637.93	-684.76	35.89	-684.26	0.00	0.00	0.00
4,800.00	0.00	0.00	4,737.93	-684.76	35.89	-684.26	0.00	0.00	0.00
4,900.00	0.00	0.00	4,837.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,000.00	0.00	0.00	4,937.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,100.00	0.00	0.00	5,037.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,200.00	0.00	0.00	5,137.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,300.00	0.00	0.00	5,237.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,400.00	0.00	0.00	5,337.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,500.00	0.00	0.00	5,437.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,600.00	0.00	0.00	5,537.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,700.00	0.00	0.00	5,637.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,800.00	0.00	0.00	5,737.93	-684.76	35.89	-684.26	0.00	0.00	0.00
5,900.00	0.00	0.00	5,837.93	-684.76	35.89	-684.26	0.00	0.00	0.00
6,000.00	0.00	0.00	5,937.93	-684.76	35.89	-684.26	0.00	0.00	0.00
6,100.00	0.00	0.00	6,037.93	-684.76	35.89	-684.26	0.00	0.00	0.00
6,200.00	0.00	0.00	6,137.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,300.00	0.00	0.00	6,237.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,400.00	0.00	0.00	6,337.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,500.00	0.00	0.00	6,437.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,600.00	0.00	0.00	6,537.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,700.00	0.00	0.00	6,637.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,800.00	0.00	0.00	6,737.93	-684.76	35.89	-684.25	0.00	0.00	0.00
6,826.45	0.00	0.00	6,764.38	-684.76	35.89	-684.25	0.00	0.00	0.00
<b>KOP @ 6826.45ft</b>									
6,900.00	6.62	0.72	6,837.77	-680.52	35.94	-680.01	9.00	9.00	0.98
7,000.00	15.62	0.72	6,935.79	-661.25	36.18	-660.75	9.00	9.00	0.00
7,100.00	24.62	0.72	7,029.59	-626.89	36.61	-626.38	9.00	9.00	0.00
7,200.00	33.62	0.72	7,116.86	-578.28	37.23	-577.77	9.00	9.00	0.00
7,300.00	42.62	0.72	7,195.45	-516.62	38.00	-516.10	9.00	9.00	0.00
7,338.39	46.07	0.72	7,222.90	-489.79	38.34	-489.27	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,372.51	49.15	0.72	7,245.90	-464.60	38.66	-464.08	9.00	9.00	0.00
<b>Niobrara Top</b>									
7,400.00	51.62	0.72	7,263.43	-443.42	38.92	-442.90	9.00	9.00	0.00
<b>DLS = 9°/100'</b>									
7,500.00	60.62	0.72	7,319.12	-360.50	39.97	-359.97	9.00	9.00	0.00
7,600.00	69.62	0.72	7,361.15	-269.88	41.11	-269.34	9.00	9.00	0.00
7,668.07	75.75	0.72	7,381.40	-204.93	41.92	-204.39	9.00	9.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
<b>Niobrara B Bench</b>									
7,700.00	78.62	0.72	7,388.48	-173.80	42.31	-173.26	9.00	9.00	0.00
7,800.00	87.62	0.72	7,400.45	-74.63	43.56	-74.08	9.00	9.00	0.00
7,824.50	89.82	0.72	7,401.00	-50.14	43.87	-49.59	9.00	9.00	0.00
<b>End Build @ 7824.50ft - Top of Production</b>									
7,900.00	89.82	0.72	7,401.23	25.35	44.82	25.91	0.00	0.00	0.00
8,000.00	89.82	0.72	7,401.54	125.34	46.08	125.91	0.00	0.00	0.00
8,100.00	89.82	0.72	7,401.84	225.34	47.34	225.91	0.00	0.00	0.00
8,200.00	89.82	0.72	7,402.15	325.33	48.59	325.91	0.00	0.00	0.00
8,300.00	89.82	0.72	7,402.45	425.32	49.85	425.91	0.00	0.00	0.00
8,400.00	89.82	0.72	7,402.76	525.31	51.11	525.91	0.00	0.00	0.00
8,500.00	89.82	0.72	7,403.07	625.30	52.37	625.91	0.00	0.00	0.00
8,600.00	89.82	0.72	7,403.37	725.29	53.63	725.91	0.00	0.00	0.00
8,700.00	89.82	0.72	7,403.68	825.29	54.88	825.91	0.00	0.00	0.00
8,800.00	89.82	0.72	7,403.99	925.28	56.14	925.91	0.00	0.00	0.00
8,900.00	89.82	0.72	7,404.29	1,025.27	57.40	1,025.91	0.00	0.00	0.00
9,000.00	89.82	0.72	7,404.60	1,125.26	58.66	1,125.91	0.00	0.00	0.00
9,100.00	89.82	0.72	7,404.90	1,225.25	59.91	1,225.91	0.00	0.00	0.00
9,200.00	89.82	0.72	7,405.21	1,325.24	61.17	1,325.91	0.00	0.00	0.00
9,300.00	89.82	0.72	7,405.52	1,425.24	62.43	1,425.91	0.00	0.00	0.00
9,400.00	89.82	0.72	7,405.82	1,525.23	63.69	1,525.91	0.00	0.00	0.00
9,500.00	89.82	0.72	7,406.13	1,625.22	64.95	1,625.91	0.00	0.00	0.00
9,600.00	89.82	0.72	7,406.44	1,725.21	66.20	1,725.91	0.00	0.00	0.00
9,700.00	89.82	0.72	7,406.74	1,825.20	67.46	1,825.91	0.00	0.00	0.00
9,800.00	89.82	0.72	7,407.05	1,925.19	68.72	1,925.91	0.00	0.00	0.00
9,900.00	89.82	0.72	7,407.36	2,025.19	69.98	2,025.91	0.00	0.00	0.00
10,000.00	89.82	0.72	7,407.66	2,125.18	71.24	2,125.90	0.00	0.00	0.00
10,100.00	89.82	0.72	7,407.97	2,225.17	72.49	2,225.90	0.00	0.00	0.00
10,200.00	89.82	0.72	7,408.27	2,325.16	73.75	2,325.90	0.00	0.00	0.00
10,300.00	89.82	0.72	7,408.58	2,425.15	75.01	2,425.90	0.00	0.00	0.00
10,400.00	89.82	0.72	7,408.89	2,525.14	76.27	2,525.90	0.00	0.00	0.00
10,500.00	89.82	0.72	7,409.19	2,625.14	77.52	2,625.90	0.00	0.00	0.00
10,600.00	89.82	0.72	7,409.50	2,725.13	78.78	2,725.90	0.00	0.00	0.00
10,700.00	89.82	0.72	7,409.81	2,825.12	80.04	2,825.90	0.00	0.00	0.00
10,800.00	89.82	0.72	7,410.11	2,925.11	81.30	2,925.90	0.00	0.00	0.00
10,900.00	89.82	0.72	7,410.42	3,025.10	82.56	3,025.90	0.00	0.00	0.00
10,926.76	89.82	0.72	7,410.50	3,051.86	82.89	3,052.66	0.00	0.00	0.00
<b>Niobrara C Bench</b>									
11,000.00	89.82	0.72	7,410.72	3,125.09	83.81	3,125.90	0.00	0.00	0.00
11,100.00	89.82	0.72	7,411.03	3,225.09	85.07	3,225.90	0.00	0.00	0.00
11,200.00	89.82	0.72	7,411.34	3,325.08	86.33	3,325.90	0.00	0.00	0.00
11,300.00	89.82	0.72	7,411.64	3,425.07	87.59	3,425.90	0.00	0.00	0.00
11,400.00	89.82	0.72	7,411.95	3,525.06	88.85	3,525.90	0.00	0.00	0.00
11,500.00	89.82	0.72	7,412.26	3,625.05	90.10	3,625.90	0.00	0.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
11,600.00	89.82	0.72	7,412.56	3,725.04	91.36	3,725.90	0.00	0.00	0.00
11,700.00	89.82	0.72	7,412.87	3,825.03	92.62	3,825.90	0.00	0.00	0.00
11,800.00	89.82	0.72	7,413.17	3,925.03	93.88	3,925.90	0.00	0.00	0.00
11,900.00	89.82	0.72	7,413.48	4,025.02	95.14	4,025.90	0.00	0.00	0.00
12,000.00	89.82	0.72	7,413.79	4,125.01	96.39	4,125.90	0.00	0.00	0.00
12,100.00	89.82	0.72	7,414.09	4,225.00	97.65	4,225.89	0.00	0.00	0.00
12,200.00	89.82	0.72	7,414.40	4,324.99	98.91	4,325.89	0.00	0.00	0.00
12,300.00	89.82	0.72	7,414.71	4,424.98	100.17	4,425.89	0.00	0.00	0.00
12,400.00	89.82	0.72	7,415.01	4,524.98	101.42	4,525.89	0.00	0.00	0.00
12,500.00	89.82	0.72	7,415.32	4,624.97	102.68	4,625.89	0.00	0.00	0.00
12,600.00	89.82	0.72	7,415.63	4,724.96	103.94	4,725.89	0.00	0.00	0.00
12,700.00	89.82	0.72	7,415.93	4,824.95	105.20	4,825.89	0.00	0.00	0.00
12,800.00	89.82	0.72	7,416.24	4,924.94	106.46	4,925.89	0.00	0.00	0.00
12,900.00	89.82	0.72	7,416.54	5,024.93	107.71	5,025.89	0.00	0.00	0.00
13,000.00	89.82	0.72	7,416.85	5,124.93	108.97	5,125.89	0.00	0.00	0.00
13,100.00	89.82	0.72	7,417.16	5,224.92	110.23	5,225.89	0.00	0.00	0.00
13,200.00	89.82	0.72	7,417.46	5,324.91	111.49	5,325.89	0.00	0.00	0.00
13,300.00	89.82	0.72	7,417.77	5,424.90	112.75	5,425.89	0.00	0.00	0.00
13,400.00	89.82	0.72	7,418.08	5,524.89	114.00	5,525.89	0.00	0.00	0.00
13,500.00	89.82	0.72	7,418.38	5,624.88	115.26	5,625.89	0.00	0.00	0.00
13,600.00	89.82	0.72	7,418.69	5,724.88	116.52	5,725.89	0.00	0.00	0.00
13,700.00	89.82	0.72	7,418.99	5,824.87	117.78	5,825.89	0.00	0.00	0.00
13,800.00	89.82	0.72	7,419.30	5,924.86	119.03	5,925.89	0.00	0.00	0.00
13,900.00	89.82	0.72	7,419.61	6,024.85	120.29	6,025.89	0.00	0.00	0.00
14,000.00	89.82	0.72	7,419.91	6,124.84	121.55	6,125.89	0.00	0.00	0.00
14,100.00	89.82	0.72	7,420.22	6,224.83	122.81	6,225.89	0.00	0.00	0.00
14,200.00	89.82	0.72	7,420.53	6,324.83	124.07	6,325.89	0.00	0.00	0.00
14,300.00	89.82	0.72	7,420.83	6,424.82	125.32	6,425.88	0.00	0.00	0.00
14,400.00	89.82	0.72	7,421.14	6,524.81	126.58	6,525.88	0.00	0.00	0.00
14,500.00	89.82	0.72	7,421.44	6,624.80	127.84	6,625.88	0.00	0.00	0.00
14,600.00	89.82	0.72	7,421.75	6,724.79	129.10	6,725.88	0.00	0.00	0.00
14,700.00	89.82	0.72	7,422.06	6,824.78	130.36	6,825.88	0.00	0.00	0.00
14,800.00	89.82	0.72	7,422.36	6,924.78	131.61	6,925.88	0.00	0.00	0.00
14,900.00	89.82	0.72	7,422.67	7,024.77	132.87	7,025.88	0.00	0.00	0.00
15,000.00	89.82	0.72	7,422.98	7,124.76	134.13	7,125.88	0.00	0.00	0.00
15,100.00	89.82	0.72	7,423.28	7,224.75	135.39	7,225.88	0.00	0.00	0.00
15,200.00	89.82	0.72	7,423.59	7,324.74	136.64	7,325.88	0.00	0.00	0.00
15,300.00	89.82	0.72	7,423.90	7,424.73	137.90	7,425.88	0.00	0.00	0.00
15,400.00	89.82	0.72	7,424.20	7,524.72	139.16	7,525.88	0.00	0.00	0.00
15,500.00	89.82	0.72	7,424.51	7,624.72	140.42	7,625.88	0.00	0.00	0.00
15,600.00	89.82	0.72	7,424.81	7,724.71	141.68	7,725.88	0.00	0.00	0.00
15,660.70	89.82	0.72	7,425.00	7,785.40	142.44	7,786.58	0.00	0.00	0.00
TD Well @ 15660.70ft									

**Anadarko**  
Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING



# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
WAGNER 2N-10HZ_46C	0.00	0.00	0.00	-914.94	236.46	14,540,080.40	1,676,244.00	40.036583	-104.872000
- plan misses target center by 945.00usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
WAGNER 2N-10HZ_SH	0.00	0.00	0.00	0.00	0.00	14,540,994.99	1,676,006.23	40.039095	-104.872845
- plan hits target center									
- Point									
WAGNER 2N-10HZ_Hai	0.00	0.00	0.00	0.00	0.00	14,540,994.99	1,676,006.23	40.039095	-104.872845
- plan hits target center									
- Polygon									
Point 1		0.00	7,844.35	673.07		14,548,840.30	1,676,668.10		
Point 2		0.00	6,983.55	674.54		14,547,979.50	1,676,670.80		
Point 3		0.00	5,673.74	677.97		14,546,669.70	1,676,676.10		
Point 4		0.00	4,364.13	681.10		14,545,360.10	1,676,681.10		
Point 5		0.00	3,038.73	684.31		14,544,034.70	1,676,686.20		
Point 6		0.00	1,721.72	689.43		14,542,717.70	1,676,693.20		
Point 7		0.00	404.81	692.25		14,541,400.80	1,676,697.90		
Point 8		0.00	-912.09	695.06		14,540,083.90	1,676,702.60		
Point 9		0.00	-1,770.60	697.84		14,539,225.40	1,676,706.60		
Point 10		0.00	-1,771.94	237.84		14,539,223.40	1,676,246.60		
Point 11		0.00	-1,773.28	-222.17		14,539,221.40	1,675,786.60		
Point 12		0.00	-915.48	-224.94		14,540,079.20	1,675,782.60		
Point 13		0.00	401.63	-227.76		14,541,396.30	1,675,777.90		
Point 14		0.00	1,718.63	-230.58		14,542,713.30	1,675,773.20		
Point 15		0.00	3,035.44	-235.70		14,544,030.10	1,675,766.20		
Point 16		0.00	4,356.35	-238.91		14,545,351.00	1,675,761.10		
Point 17		0.00	5,669.65	-242.04		14,546,664.30	1,675,756.10		
Point 18		0.00	6,983.06	-245.46		14,547,977.70	1,675,750.80		
Point 19		0.00	7,843.76	-246.93		14,548,838.40	1,675,748.10		
Point 20		0.00	7,844.11	213.07		14,548,839.40	1,676,208.10		
Point 21		0.00	7,844.35	673.07		14,548,840.30	1,676,668.10		
WAGNER 2N-10HZ_Her	0.00	0.00	0.00	-44.43	52.90	14,540,950.64	1,676,059.19	40.038973	-104.872656
- plan misses target center by 69.08usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
WAGNER 2N-10HZ_46C	0.00	0.00	0.00	6,983.30	214.54	14,547,978.60	1,676,210.80	40.058272	-104.872079
- plan misses target center by 6986.60usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
1N-R67W-Sec. 22_Secti	0.00	0.00	4.00	-918.66	-1,091.76	14,540,074.78	1,674,915.79	40.036572	-104.876746
- plan misses target center by 1426.84usft at 4.00usft MD (4.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1		4.00	2,627.78	-2,674.22		14,542,698.74	1,672,237.82		
Point 2		4.00	2,636.63	-12.49		14,542,711.39	1,674,899.54		
Point 3		4.00	2,645.60	2,649.28		14,542,724.16	1,677,561.29		
Point 4		4.00	9.73	2,650.67		14,540,088.29	1,677,566.44		
Point 5		4.00	-2,626.39	2,652.38		14,537,452.18	1,677,571.92		
Point 6		4.00	-2,631.96	12.48		14,537,442.84	1,674,932.03		
Point 7		4.00	-2,637.68	-2,626.99		14,537,433.35	1,672,292.57		
Point 8		4.00	-9.70	-2,642.90		14,540,061.31	1,672,272.91		
1N-R67W-Sec. 15_Secti	0.00	0.00	4.00	131.10	797.97	14,541,127.24	1,676,804.01	40.039455	-104.869994
- plan misses target center by 808.67usft at 4.00usft MD (4.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1		4.00	6,851.58	-4,568.26		14,547,972.29	1,672,225.97		
Point 2		4.00	6,853.93	-1,913.35		14,547,978.43	1,674,880.88		
Point 3		4.00	6,855.16	741.27		14,547,983.45	1,677,535.49		
Point 4		4.00	4,225.46	750.46		14,545,353.77	1,677,548.44		
Point 5		4.00	1,595.89	759.53		14,542,724.21	1,677,561.26		

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 2N-10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 7-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4989.00usft (D Rig)
<b>Well:</b>	WAGNER 2N-10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

Point 6		4.00	1,586.93	-1,902.25	14,542,711.45	1,674,899.50		
Point 7		4.00	1,578.07	-4,563.97	14,542,698.79	1,672,237.79		
Point 8		4.00	4,213.91	-4,566.57	14,545,334.63	1,672,231.43		
1N-R67W-Sec. 10_Secti	0.00	0.00	-91.00	7,273.43	-787.95	14,548,267.29	1,675,207.90	40.059069 -104.875661
- plan misses target center by 7316.55usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)								
- Polygon								
Point 1		-91.00	4,992.86	-2,976.12	14,553,255.90	1,672,224.66		
Point 2		-91.00	4,994.59	-331.69	14,553,261.40	1,674,869.08		
Point 3		-91.00	4,996.25	2,313.07	14,553,266.84	1,677,513.84		
Point 4		-91.00	2,354.63	2,320.05	14,550,625.23	1,677,524.59		
Point 5		-91.00	-287.06	2,326.97	14,547,983.55	1,677,535.28		
Point 6		-91.00	-288.46	-327.65	14,547,978.36	1,674,880.67		
Point 7		-91.00	-290.97	-2,982.55	14,547,972.06	1,672,225.77		
WAGNER 2N-10HZ_Toe	0.00	0.00	7,425.00	7,785.40	142.44	14,548,780.59	1,676,137.56	40.060475 -104.872336
- plan hits target center								
- Point								

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,820.80	1,800.00	9 5/8"	9-5/8	13-1/2	
7,824.50	7,401.00	Top of Production	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,365.44	1,353.00	Fox Hills			
4,652.07	4,590.00	Sussex			
7,338.39	7,222.90	Sharon Springs			
7,372.51	7,245.90	Niobrara Top			
7,668.07	7,381.40	Niobrara B Bench			
10,926.76	7,410.50	Niobrara C Bench			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200	200	0	0	Begin Nudge @ 200.00ft	
933	929	-70	4	End Nudge @ 933.33ft	
3883	3825	-632	33	Begin Drop @ 3883.33ft	
4433	4371	-685	36	End Drop @ 4433.33ft	
6826	6764	-685	36	KOP @ 6826.45ft	
7400	7263	-443	39	DLS = 9°/100'	
7825	7401	-50	44	End Build @ 7824.50ft	
15,661	7425	7785	142	TD Well @ 15660.70ft	

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