

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**1N-67W-22 Wagner 8-22HZ Pad**

**WAGNER 1N-E10HZ**

**Plan A**

**Plan: Permit Rev-2**

## **Standard Survey Report**

**17 March, 2016**

Project: WELD-NAD83-UTMFT13N  
Site: 1N-67W-22 Wagner 8-22HZ Pad  
Well: WAGNER 1N-E10HZ  
Wellbore: Plan A  
Design: Permit Rev-2

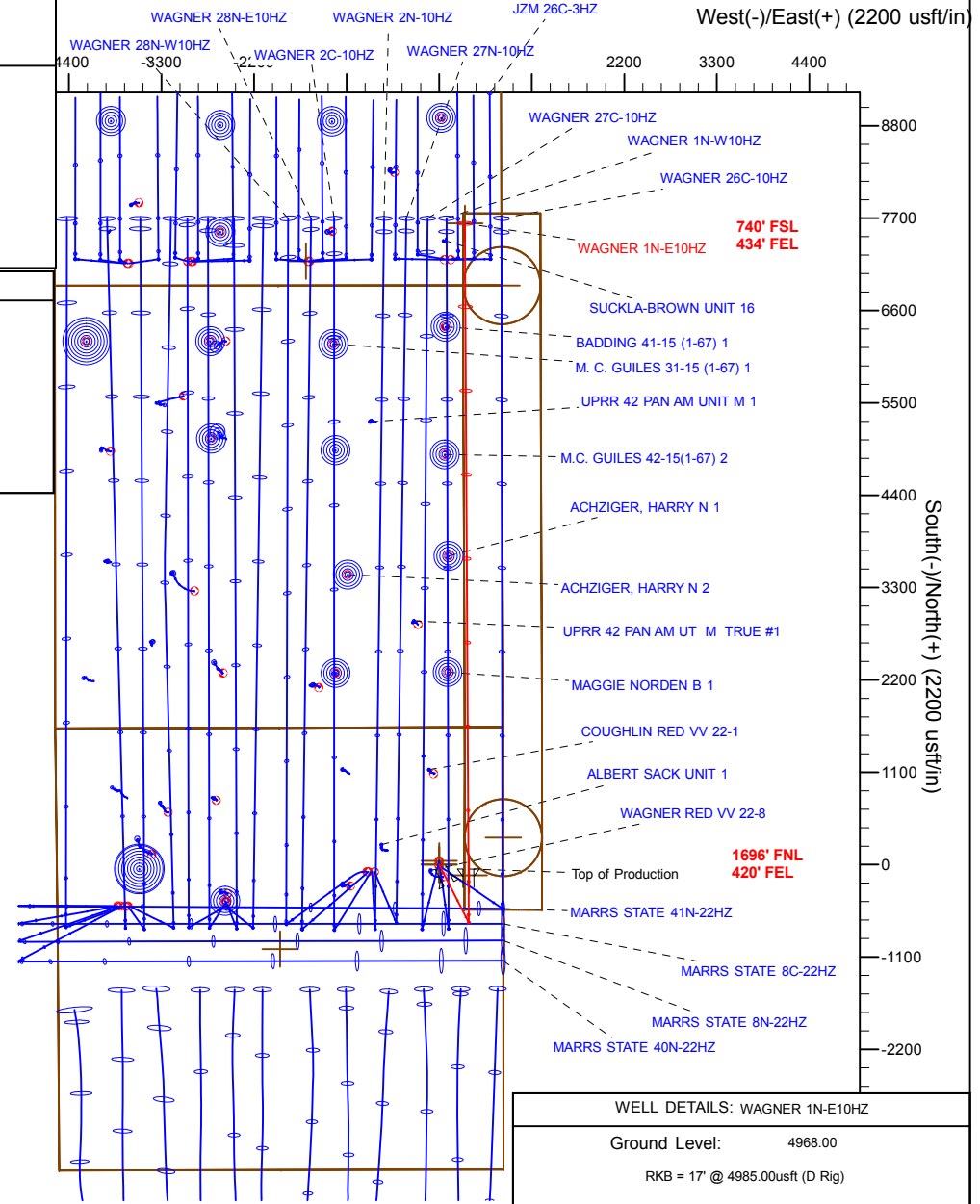
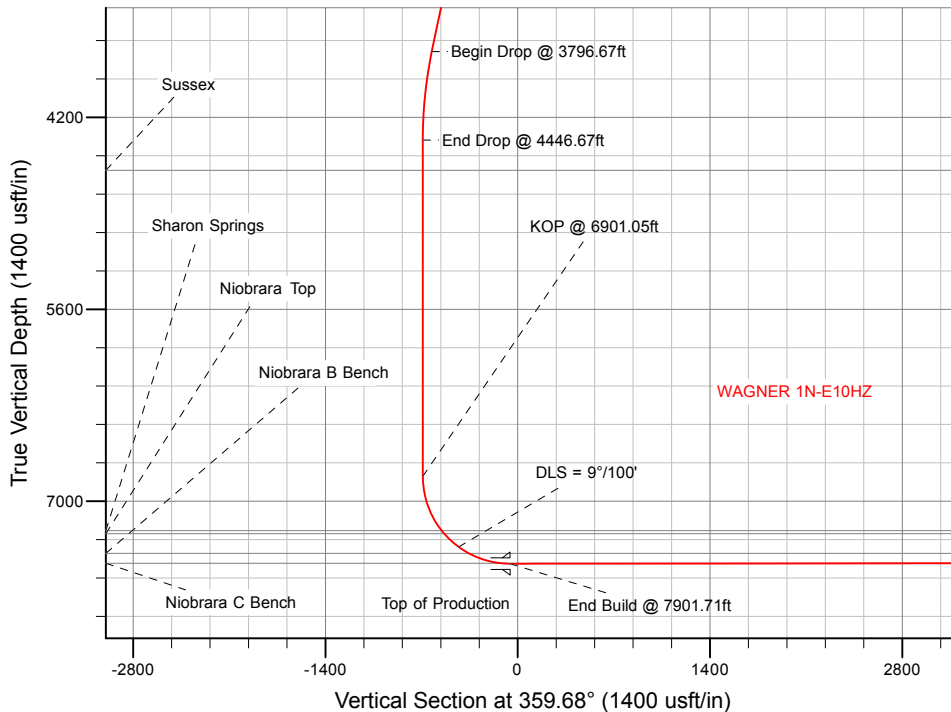
# US ROCKIES WATTENBERG PLANNING

## 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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1116.67	13.00	153.00	1109.25	-87.23	44.45	1.50	153.00	-87.48	
4	3796.67	13.00	153.00	3720.56	-624.39	318.14	0.00	0.00	-626.16	
5	4446.67	0.00	0.00	4365.00	-689.81	351.48	2.00	180.00	-691.76	
6	6901.05	0.00	0.00	6819.38	-689.81	351.48	0.00	0.00	-691.76	
7	7901.71	90.06	359.68	7456.00	-52.54	347.97	9.00	359.68	-54.48	
8	15593.84	90.06	359.68	7448.00	7639.47	305.62	0.00	0.00	7637.64	WAGNER 1N-E10HZ_Toe

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
WAGNER 1N-E10HZ_SHL	0.00	0.00	0.00	40.039332	-104.869995	Point
WAGNER 1N-E10HZ_Toe	7448.00	7639.47	305.62	40.060311	-104.868903	Point



WELL DETAILS: WAGNER 1N-E10HZ

Ground Level: 4968.00

RKB = 17' @ 4985.00usft (D Rig)

Plan: Permit Rev-2 (WAGNER 1N-E10HZ/Plan A)

Created By: Clint Eshelman Date: 3/18/2016  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<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)		

<b>Site</b>	1N-67W-22 Wagner 8-22HZ Pad		
<b>Site Position:</b>		<b>Northing:</b>	14,541,127.24 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,676,804.01 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40.039455
		<b>Longitude:</b>	-104.869994
		<b>Grid Convergence:</b>	0.08 °

<b>Well</b>	WAGNER 1N-E10HZ		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	3.28 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	40.039332
		<b>Longitude:</b>	-104.869995
		<b>Ground Level:</b>	4,968.00 usft

<b>Wellbore</b>	Plan A		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF2010	1/29/2016	8.27
			<b>Dip Angle (°)</b>
			66.58
			<b>Field Strength (nT)</b>
			52,443

<b>Design</b>	Permit Rev-2		
<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>
	0.00	0.00	0.00
			<b>Direction (°)</b>
			359.68

<b>Survey Tool Program</b>	<b>Date</b>	3/17/2016		
<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-2 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination
1,800.00	15,593.84	Permit Rev-2 (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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 250.00ft</b>									
300.00	0.75	153.00	300.00	-0.29	0.15	-0.29	1.50	1.50	0.00
400.00	2.25	153.00	399.96	-2.62	1.34	-2.63	1.50	1.50	0.00
500.00	3.75	153.00	499.82	-7.29	3.71	-7.31	1.50	1.50	0.00
600.00	5.25	153.00	599.51	-14.28	7.27	-14.32	1.50	1.50	0.00
700.00	6.75	153.00	698.96	-23.59	12.02	-23.66	1.50	1.50	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<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)
800.00	8.25	153.00	798.10	-35.22	17.95	-35.32	1.50	1.50	0.00
900.00	9.75	153.00	896.87	-49.16	25.05	-49.30	1.50	1.50	0.00
1,000.00	11.25	153.00	995.19	-65.40	33.32	-65.58	1.50	1.50	0.00
1,100.00	12.75	153.00	1,093.00	-83.92	42.76	-84.16	1.50	1.50	0.00
1,116.67	13.00	153.00	1,109.25	-87.23	44.45	-87.48	1.50	1.50	0.00
<b>End Nudge @ 1116.67ft</b>									
1,200.00	13.00	153.00	1,190.45	-103.93	52.96	-104.23	0.00	0.00	0.00
1,300.00	13.00	153.00	1,287.88	-123.97	63.17	-124.33	0.00	0.00	0.00
1,362.72	13.00	153.00	1,349.00	-136.55	69.57	-136.93	0.00	0.00	0.00
<b>Fox Hills</b>									
1,400.00	13.00	153.00	1,385.32	-144.02	73.38	-144.43	0.00	0.00	0.00
1,500.00	13.00	153.00	1,482.76	-164.06	83.59	-164.53	0.00	0.00	0.00
1,600.00	13.00	153.00	1,580.20	-184.10	93.81	-184.63	0.00	0.00	0.00
1,700.00	13.00	153.00	1,677.63	-204.15	104.02	-204.73	0.00	0.00	0.00
1,800.00	13.00	153.00	1,775.07	-224.19	114.23	-224.83	0.00	0.00	0.00
1,825.59	13.00	153.00	1,800.00	-229.32	116.84	-229.97	0.00	0.00	0.00
<b>9 5/8"</b>									
1,900.00	13.00	153.00	1,872.51	-244.23	124.44	-244.93	0.00	0.00	0.00
2,000.00	13.00	153.00	1,969.94	-264.28	134.66	-265.03	0.00	0.00	0.00
2,100.00	13.00	153.00	2,067.38	-284.32	144.87	-285.13	0.00	0.00	0.00
2,200.00	13.00	153.00	2,164.82	-304.36	155.08	-305.23	0.00	0.00	0.00
2,300.00	13.00	153.00	2,262.25	-324.41	165.29	-325.33	0.00	0.00	0.00
2,400.00	13.00	153.00	2,359.69	-344.45	175.51	-345.43	0.00	0.00	0.00
2,500.00	13.00	153.00	2,457.13	-364.49	185.72	-365.53	0.00	0.00	0.00
2,600.00	13.00	153.00	2,554.57	-384.54	195.93	-385.63	0.00	0.00	0.00
2,700.00	13.00	153.00	2,652.00	-404.58	206.14	-405.73	0.00	0.00	0.00
2,800.00	13.00	153.00	2,749.44	-424.62	216.36	-425.83	0.00	0.00	0.00
2,900.00	13.00	153.00	2,846.88	-444.67	226.57	-445.93	0.00	0.00	0.00
3,000.00	13.00	153.00	2,944.31	-464.71	236.78	-466.03	0.00	0.00	0.00
3,100.00	13.00	153.00	3,041.75	-484.75	246.99	-486.13	0.00	0.00	0.00
3,200.00	13.00	153.00	3,139.19	-504.80	257.21	-506.23	0.00	0.00	0.00
3,300.00	13.00	153.00	3,236.62	-524.84	267.42	-526.33	0.00	0.00	0.00
3,400.00	13.00	153.00	3,334.06	-544.88	277.63	-546.43	0.00	0.00	0.00
3,500.00	13.00	153.00	3,431.50	-564.93	287.84	-566.53	0.00	0.00	0.00
3,600.00	13.00	153.00	3,528.94	-584.97	298.06	-586.63	0.00	0.00	0.00
3,700.00	13.00	153.00	3,626.37	-605.01	308.27	-606.73	0.00	0.00	0.00
3,796.67	13.00	153.00	3,720.56	-624.39	318.14	-626.16	0.00	0.00	0.00
<b>Begin Drop @ 3796.67ft</b>									
3,800.00	12.93	153.00	3,723.81	-625.06	318.48	-626.82	2.00	-2.00	0.00
3,900.00	10.93	153.00	3,821.64	-643.48	327.87	-645.30	2.00	-2.00	0.00
4,000.00	8.93	153.00	3,920.14	-658.85	335.70	-660.71	2.00	-2.00	0.00
4,100.00	6.93	153.00	4,019.18	-671.14	341.97	-673.04	2.00	-2.00	0.00
4,200.00	4.93	153.00	4,118.64	-680.35	346.66	-682.28	2.00	-2.00	0.00
4,300.00	2.93	153.00	4,218.40	-686.47	349.77	-688.41	2.00	-2.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<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)
4,400.00	0.93	153.00	4,318.33	-689.47	351.30	-691.42	2.00	-2.00	0.00
4,446.67	0.00	0.00	4,365.00	-689.81	351.48	-691.76	2.00	-2.00	0.00
<b>End Drop @ 4446.67ft</b>									
4,500.00	0.00	0.00	4,418.33	-689.81	351.48	-691.76	0.00	0.00	0.00
4,600.00	0.00	0.00	4,518.33	-689.81	351.48	-691.76	0.00	0.00	0.00
4,667.67	0.00	0.00	4,586.00	-689.81	351.48	-691.76	0.00	0.00	0.00
<b>Sussex</b>									
4,700.00	0.00	0.00	4,618.33	-689.81	351.48	-691.76	0.00	0.00	0.00
4,800.00	0.00	0.00	4,718.33	-689.81	351.48	-691.76	0.00	0.00	0.00
4,900.00	0.00	0.00	4,818.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,000.00	0.00	0.00	4,918.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,100.00	0.00	0.00	5,018.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,200.00	0.00	0.00	5,118.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,300.00	0.00	0.00	5,218.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,400.00	0.00	0.00	5,318.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,500.00	0.00	0.00	5,418.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,600.00	0.00	0.00	5,518.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,700.00	0.00	0.00	5,618.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,800.00	0.00	0.00	5,718.33	-689.81	351.48	-691.76	0.00	0.00	0.00
5,900.00	0.00	0.00	5,818.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,000.00	0.00	0.00	5,918.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,100.00	0.00	0.00	6,018.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,200.00	0.00	0.00	6,118.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,300.00	0.00	0.00	6,218.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,400.00	0.00	0.00	6,318.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,500.00	0.00	0.00	6,418.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,600.00	0.00	0.00	6,518.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,700.00	0.00	0.00	6,618.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,800.00	0.00	0.00	6,718.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,900.00	0.00	0.00	6,818.33	-689.81	351.48	-691.76	0.00	0.00	0.00
6,901.05	0.00	0.00	6,819.38	-689.81	351.48	-691.76	0.00	0.00	0.00
<b>KOP @ 6901.05ft</b>									
7,000.00	8.91	359.68	6,917.93	-682.14	351.43	-684.09	9.00	9.00	0.00
7,100.00	17.91	359.68	7,015.11	-658.98	351.31	-660.93	9.00	9.00	0.00
7,200.00	26.91	359.68	7,107.47	-620.90	351.10	-622.85	9.00	9.00	0.00
7,300.00	35.91	359.68	7,192.73	-568.84	350.81	-570.79	9.00	9.00	0.00
7,326.55	38.30	359.68	7,213.90	-552.83	350.72	-554.78	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,356.42	40.98	359.68	7,236.90	-533.78	350.62	-535.73	9.00	9.00	0.00
<b>Niobrara Top</b>									
7,400.00	44.91	359.68	7,268.80	-504.09	350.45	-506.04	9.00	9.00	0.00
7,500.00	53.91	359.68	7,333.80	-428.24	350.04	-430.18	9.00	9.00	0.00
<b>DLS = 9°/100'</b>									
7,589.98	62.00	359.68	7,381.50	-352.03	349.62	-353.98	9.00	9.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<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>									
7,600.00	62.91	359.68	7,386.14	-343.15	349.57	-345.09	9.00	9.00	0.00
7,700.00	71.91	359.68	7,424.52	-250.92	349.06	-252.86	9.00	9.00	0.00
7,800.00	80.91	359.68	7,448.00	-153.82	348.53	-155.77	9.00	9.00	0.00
7,829.66	83.57	359.68	7,452.00	-124.44	348.36	-126.38	9.00	9.00	0.00
<b>Niobrara C Bench</b>									
7,900.00	89.91	359.68	7,456.00	-54.25	347.98	-56.19	9.00	9.00	0.00
7,901.71	90.06	359.68	7,456.00	-52.54	347.97	-54.48	8.99	8.99	0.00
<b>End Build @ 7901.71ft - Top of Production</b>									
8,000.00	90.06	359.68	7,455.90	45.75	347.43	43.81	0.00	0.00	0.00
8,100.00	90.06	359.68	7,455.79	145.75	346.88	143.81	0.00	0.00	0.00
8,200.00	90.06	359.68	7,455.69	245.75	346.33	243.81	0.00	0.00	0.00
8,300.00	90.06	359.68	7,455.58	345.75	345.77	343.81	0.00	0.00	0.00
8,400.00	90.06	359.68	7,455.48	445.75	345.22	443.81	0.00	0.00	0.00
8,500.00	90.06	359.68	7,455.38	545.74	344.67	543.81	0.00	0.00	0.00
8,600.00	90.06	359.68	7,455.27	645.74	344.12	643.81	0.00	0.00	0.00
8,700.00	90.06	359.68	7,455.17	745.74	343.57	743.81	0.00	0.00	0.00
8,800.00	90.06	359.68	7,455.06	845.74	343.02	843.81	0.00	0.00	0.00
8,900.00	90.06	359.68	7,454.96	945.74	342.47	943.81	0.00	0.00	0.00
9,000.00	90.06	359.68	7,454.86	1,045.74	341.92	1,043.81	0.00	0.00	0.00
9,100.00	90.06	359.68	7,454.75	1,145.73	341.37	1,143.81	0.00	0.00	0.00
9,200.00	90.06	359.68	7,454.65	1,245.73	340.82	1,243.81	0.00	0.00	0.00
9,300.00	90.06	359.68	7,454.54	1,345.73	340.27	1,343.81	0.00	0.00	0.00
9,400.00	90.06	359.68	7,454.44	1,445.73	339.72	1,443.81	0.00	0.00	0.00
9,500.00	90.06	359.68	7,454.34	1,545.73	339.17	1,543.81	0.00	0.00	0.00
9,600.00	90.06	359.68	7,454.23	1,645.73	338.62	1,643.81	0.00	0.00	0.00
9,700.00	90.06	359.68	7,454.13	1,745.72	338.07	1,743.81	0.00	0.00	0.00
9,800.00	90.06	359.68	7,454.02	1,845.72	337.52	1,843.81	0.00	0.00	0.00
9,900.00	90.06	359.68	7,453.92	1,945.72	336.97	1,943.81	0.00	0.00	0.00
10,000.00	90.06	359.68	7,453.82	2,045.72	336.42	2,043.81	0.00	0.00	0.00
10,100.00	90.06	359.68	7,453.71	2,145.72	335.87	2,143.81	0.00	0.00	0.00
10,200.00	90.06	359.68	7,453.61	2,245.72	335.31	2,243.81	0.00	0.00	0.00
10,300.00	90.06	359.68	7,453.50	2,345.72	334.76	2,343.81	0.00	0.00	0.00
10,400.00	90.06	359.68	7,453.40	2,445.71	334.21	2,443.81	0.00	0.00	0.00
10,500.00	90.06	359.68	7,453.30	2,545.71	333.66	2,543.81	0.00	0.00	0.00
10,600.00	90.06	359.68	7,453.19	2,645.71	333.11	2,643.81	0.00	0.00	0.00
10,700.00	90.06	359.68	7,453.09	2,745.71	332.56	2,743.81	0.00	0.00	0.00
10,800.00	90.06	359.68	7,452.98	2,845.71	332.01	2,843.81	0.00	0.00	0.00
10,900.00	90.06	359.68	7,452.88	2,945.71	331.46	2,943.81	0.00	0.00	0.00
11,000.00	90.06	359.68	7,452.78	3,045.70	330.91	3,043.81	0.00	0.00	0.00
11,100.00	90.06	359.68	7,452.67	3,145.70	330.36	3,143.81	0.00	0.00	0.00
11,200.00	90.06	359.68	7,452.57	3,245.70	329.81	3,243.81	0.00	0.00	0.00
11,300.00	90.06	359.68	7,452.46	3,345.70	329.26	3,343.81	0.00	0.00	0.00
11,400.00	90.06	359.68	7,452.36	3,445.70	328.71	3,443.81	0.00	0.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<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)
11,500.00	90.06	359.68	7,452.26	3,545.70	328.16	3,543.81	0.00	0.00	0.00
11,600.00	90.06	359.68	7,452.15	3,645.70	327.61	3,643.81	0.00	0.00	0.00
11,700.00	90.06	359.68	7,452.05	3,745.69	327.06	3,743.81	0.00	0.00	0.00
11,800.00	90.06	359.68	7,451.94	3,845.69	326.51	3,843.81	0.00	0.00	0.00
11,900.00	90.06	359.68	7,451.84	3,945.69	325.96	3,943.81	0.00	0.00	0.00
12,000.00	90.06	359.68	7,451.74	4,045.69	325.41	4,043.81	0.00	0.00	0.00
12,100.00	90.06	359.68	7,451.63	4,145.69	324.85	4,143.81	0.00	0.00	0.00
12,200.00	90.06	359.68	7,451.53	4,245.69	324.30	4,243.81	0.00	0.00	0.00
12,300.00	90.06	359.68	7,451.43	4,345.68	323.75	4,343.81	0.00	0.00	0.00
12,400.00	90.06	359.68	7,451.32	4,445.68	323.20	4,443.81	0.00	0.00	0.00
12,500.00	90.06	359.68	7,451.22	4,545.68	322.65	4,543.81	0.00	0.00	0.00
12,600.00	90.06	359.68	7,451.11	4,645.68	322.10	4,643.81	0.00	0.00	0.00
12,700.00	90.06	359.68	7,451.01	4,745.68	321.55	4,743.81	0.00	0.00	0.00
12,800.00	90.06	359.68	7,450.91	4,845.68	321.00	4,843.81	0.00	0.00	0.00
12,900.00	90.06	359.68	7,450.80	4,945.67	320.45	4,943.81	0.00	0.00	0.00
13,000.00	90.06	359.68	7,450.70	5,045.67	319.90	5,043.81	0.00	0.00	0.00
13,100.00	90.06	359.68	7,450.59	5,145.67	319.35	5,143.81	0.00	0.00	0.00
13,200.00	90.06	359.68	7,450.49	5,245.67	318.80	5,243.81	0.00	0.00	0.00
13,300.00	90.06	359.68	7,450.39	5,345.67	318.25	5,343.81	0.00	0.00	0.00
13,400.00	90.06	359.68	7,450.28	5,445.67	317.70	5,443.81	0.00	0.00	0.00
13,500.00	90.06	359.68	7,450.18	5,545.67	317.15	5,543.81	0.00	0.00	0.00
13,600.00	90.06	359.68	7,450.07	5,645.66	316.60	5,643.81	0.00	0.00	0.00
13,700.00	90.06	359.68	7,449.97	5,745.66	316.05	5,743.81	0.00	0.00	0.00
13,800.00	90.06	359.68	7,449.87	5,845.66	315.50	5,843.81	0.00	0.00	0.00
13,900.00	90.06	359.68	7,449.76	5,945.66	314.95	5,943.81	0.00	0.00	0.00
14,000.00	90.06	359.68	7,449.66	6,045.66	314.39	6,043.81	0.00	0.00	0.00
14,100.00	90.06	359.68	7,449.55	6,145.66	313.84	6,143.81	0.00	0.00	0.00
14,200.00	90.06	359.68	7,449.45	6,245.65	313.29	6,243.81	0.00	0.00	0.00
14,300.00	90.06	359.68	7,449.35	6,345.65	312.74	6,343.81	0.00	0.00	0.00
14,400.00	90.06	359.68	7,449.24	6,445.65	312.19	6,443.81	0.00	0.00	0.00
14,500.00	90.06	359.68	7,449.14	6,545.65	311.64	6,543.81	0.00	0.00	0.00
14,600.00	90.06	359.68	7,449.03	6,645.65	311.09	6,643.81	0.00	0.00	0.00
14,700.00	90.06	359.68	7,448.93	6,745.65	310.54	6,743.81	0.00	0.00	0.00
14,800.00	90.06	359.68	7,448.83	6,845.64	309.99	6,843.81	0.00	0.00	0.00
14,900.00	90.06	359.68	7,448.72	6,945.64	309.44	6,943.81	0.00	0.00	0.00
15,000.00	90.06	359.68	7,448.62	7,045.64	308.89	7,043.81	0.00	0.00	0.00
15,100.00	90.06	359.68	7,448.51	7,145.64	308.34	7,143.81	0.00	0.00	0.00
15,200.00	90.06	359.68	7,448.41	7,245.64	307.79	7,243.81	0.00	0.00	0.00
15,300.00	90.06	359.68	7,448.31	7,345.64	307.24	7,343.81	0.00	0.00	0.00
15,400.00	90.06	359.68	7,448.20	7,445.64	306.69	7,443.81	0.00	0.00	0.00
15,500.00	90.06	359.68	7,448.10	7,545.63	306.14	7,543.81	0.00	0.00	0.00
15,593.84	90.06	359.68	7,448.00	7,639.47	305.62	7,637.64	0.00	0.00	0.00
TD Well @ 15593.84ft									

**Anadarko**  
Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<b>Database:</b>	PLANNING



# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<b>Database:</b>	PLANNING

### 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
1N-R67W-Sec. 22_Secti - plan misses target center by 2140.09usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	-1,004.91	-1,889.48	14,540,074.78	1,674,915.79	40.036572	-104.876746
Point 1		0.00	2,627.78	-2,674.22		14,542,698.65	1,672,237.74		
Point 2		0.00	2,636.63	-12.49		14,542,711.39	1,674,899.45		
Point 3		0.00	2,645.60	2,649.28		14,542,724.24	1,677,561.21		
Point 4		0.00	9.73	2,650.67		14,540,088.38	1,677,566.44		
Point 5		0.00	-2,626.39	2,652.38		14,537,452.26	1,677,572.00		
Point 6		0.00	-2,631.96	12.48		14,537,442.84	1,674,932.11		
Point 7		0.00	-2,637.68	-2,626.99		14,537,433.27	1,672,292.65		
Point 8		0.00	-9.70	-2,642.90		14,540,061.22	1,672,272.91		
WAGNER 1N-E10HZ_S - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,541,082.45	1,676,803.80	40.039332	-104.869995
1N-R67W-Sec. 15_Secti - plan misses target center by 44.79usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	44.79	0.28	14,541,127.24	1,676,804.01	40.039455	-104.869994
Point 1		0.00	6,851.58	-4,568.26		14,547,972.15	1,672,225.76		
Point 2		0.00	6,853.93	-1,913.35		14,547,978.37	1,674,880.66		
Point 3		0.00	6,855.16	741.27		14,547,983.48	1,677,535.27		
Point 4		0.00	4,225.46	750.46		14,545,353.79	1,677,548.30		
Point 5		0.00	1,595.89	759.53		14,542,724.24	1,677,561.21		
Point 6		0.00	1,586.93	-1,902.25		14,542,711.39	1,674,899.45		
Point 7		0.00	1,578.07	-4,563.97		14,542,698.65	1,672,237.74		
Point 8		0.00	4,213.91	-4,566.57		14,545,334.48	1,672,231.30		
WAGNER 1N-E10HZ_H - plan misses target center by 376.97usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-127.08	354.90	14,540,955.88	1,677,158.88	40.038983	-104.868727
WAGNER 1N-E10HZ_4t - plan misses target center by 826.94usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	321.54	761.87	14,541,405.10	1,677,565.20	40.040215	-104.867273
WAGNER 1N-E10HZ_H - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,541,082.45	1,676,803.80	40.039332	-104.869995
Point 1		0.00	7,758.30	1,202.23		14,548,842.50	1,677,994.70		
Point 2		0.00	6,897.80	1,204.37		14,547,982.00	1,677,998.10		
Point 3		0.00	5,591.09	1,208.17		14,546,675.30	1,678,003.80		
Point 4		0.00	4,282.28	1,211.85		14,545,366.50	1,678,009.40		
Point 5		0.00	2,952.28	1,215.41		14,544,036.50	1,678,014.90		
Point 6		0.00	1,632.67	1,222.59		14,542,716.90	1,678,024.00		
Point 7		0.00	318.77	1,221.87		14,541,403.00	1,678,025.20		
Point 8		0.00	-537.93	1,221.42		14,540,546.30	1,678,026.00		
Point 9		0.00	-535.26	761.42		14,540,548.30	1,677,566.00		
Point 10		0.00	-536.89	301.42		14,540,546.00	1,677,106.00		
Point 11		0.00	319.91	301.87		14,541,402.80	1,677,105.20		
Point 12		0.00	1,636.81	302.59		14,542,719.70	1,677,104.00		
Point 13		0.00	2,953.82	295.41		14,544,036.70	1,677,094.90		
Point 14		0.00	4,281.23	291.85		14,545,364.10	1,677,089.40		
Point 15		0.00	5,589.23	288.16		14,546,672.10	1,677,083.80		
Point 16		0.00	6,897.44	284.37		14,547,980.30	1,677,078.10		
Point 17		0.00	7,758.25	282.23		14,548,841.10	1,677,074.70		
Point 18		0.00	7,758.47	742.23		14,548,842.00	1,677,534.70		
Point 19		0.00	7,758.30	1,202.23		14,548,842.50	1,677,994.70		
WAGNER 1N-E10HZ_4t - plan misses target center by 6937.72usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)	0.00	0.00	0.00	6,897.67	744.37	14,547,981.20	1,677,538.10	40.058274	-104.867335

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well WAGNER 1N-E10HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Site:</b>	1N-67W-22 Wagner 8-22HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 4985.00usft (D Rig)
<b>Well:</b>	WAGNER 1N-E10HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-2	<b>Database:</b>	PLANNING

- Circle (radius 460.00)									
1N-R67W-Sec. 10_Secti	0.00	0.00	-95.00	7,187.16	-1,585.40	14,548,267.29	1,675,207.90	40.059069	-104.875661
- plan misses target center by 7360.56usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1		-95.00	4,992.86	-2,976.12		14,553,255.80	1,672,224.50		
Point 2		-95.00	4,994.59	-331.69		14,553,261.39	1,674,868.92		
Point 3		-95.00	4,996.25	2,313.07		14,553,266.91	1,677,513.68		
Point 4		-95.00	2,354.63	2,320.05		14,550,625.30	1,677,524.51		
Point 5		-95.00	-287.06	2,326.97		14,547,983.63	1,677,535.29		
Point 6		-95.00	-288.46	-327.65		14,547,978.35	1,674,880.67		
Point 7		-95.00	-290.97	-2,982.55		14,547,971.97	1,672,225.78		
WAGNER 1N-E10HZ_Tc	0.00	0.00	7,448.00	7,639.47	305.62	14,548,722.35	1,677,098.26	40.060311	-104.868903
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,825.59	1,800.00	9 5/8"	9-5/8	13-1/2	
7,901.71	7,456.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,362.72	1,349.00	Fox Hills				
4,667.67	4,586.00	Sussex				
7,326.55	7,213.90	Sharon Springs				
7,356.42	7,236.90	Niobrara Top				
7,589.98	7,381.50	Niobrara B Bench				
7,829.66	7,452.00	Niobrara C Bench				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250	250	0	0	Begin Nudge @ 250.00ft	
1117	1109	-87	44	End Nudge @ 1116.67ft	
3797	3721	-624	318	Begin Drop @ 3796.67ft	
4447	4365	-690	351	End Drop @ 4446.67ft	
6901	6819	-690	351	KOP @ 6901.05ft	
7500	7334	-428	350	DLS = 9°/100'	
7902	7456	-53	348	End Build @ 7901.71ft	
15,594	7448	7639	306	TD Well @ 15593.84ft	

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