

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

WAGNER 28N-W10HZ

Plan A

Plan: Permit Rev-2

Standard Survey Report

17 March, 2016

Project: WELD-NAD83-UTMFT13N
Site: 1N-67W-22 Wagner 7-22HZ Pad
Well: WAGNER 28N-W10HZ
Wellbore: Plan A
Design: Permit Rev-2

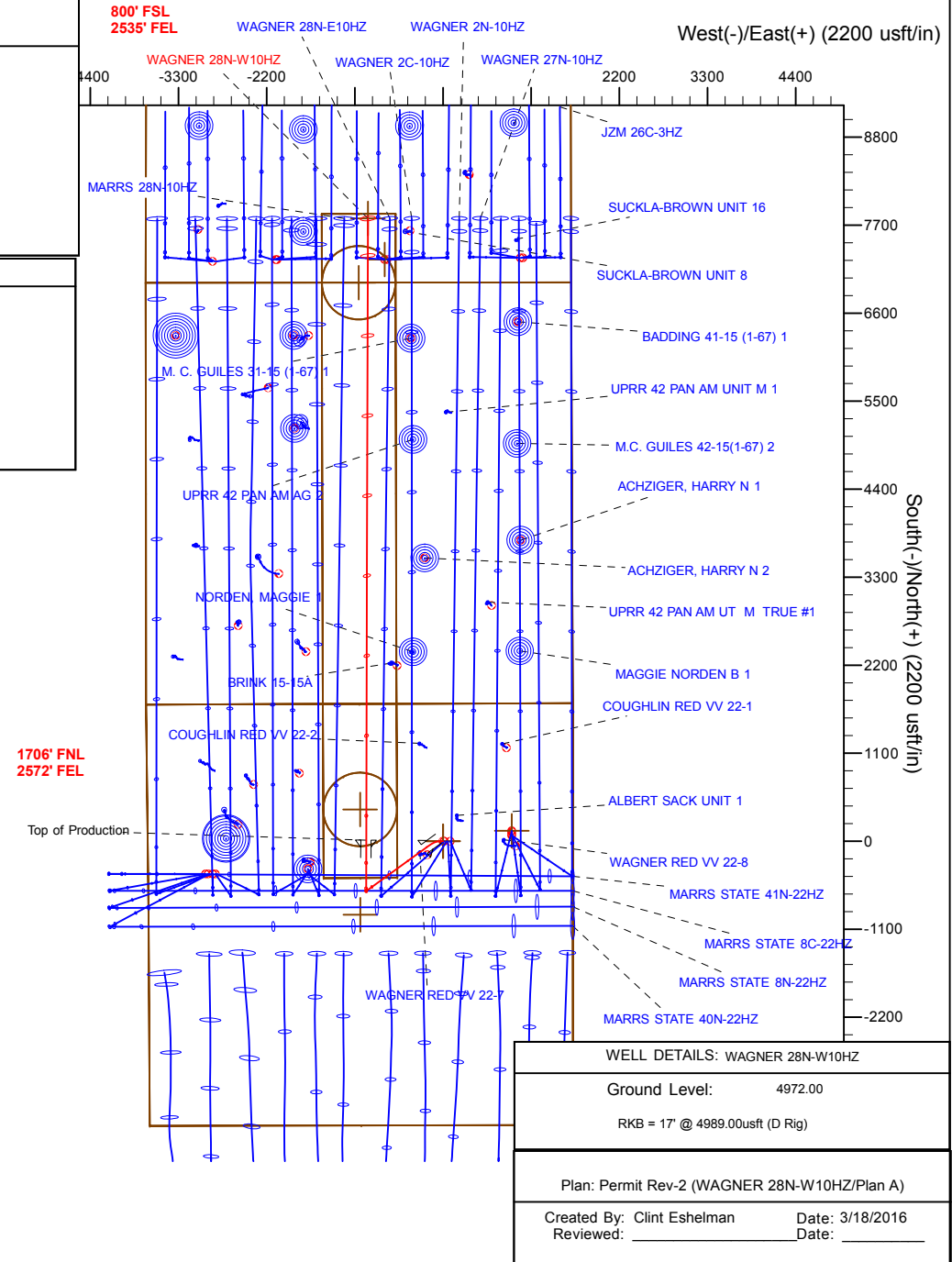
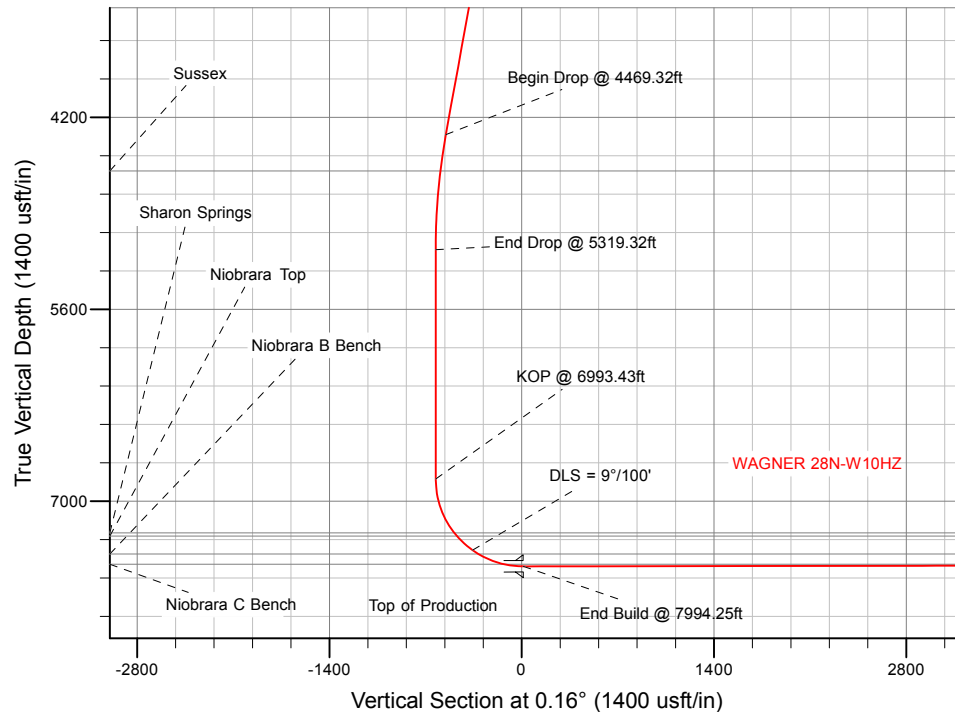
US ROCKIES WATTENBERG PLANNING

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	666.67	7.00	270.00	665.51	0.00	-28.47	1.50	270.00	-0.08	
4	866.67	7.00	270.00	864.02	0.00	-52.85	0.00	0.00	-0.15	
5	1669.32	17.00	234.00	1649.03	-69.22	-197.21	1.50	-55.47	-69.77	
6	4469.32	17.00	234.00	4326.69	-550.41	-859.51	0.00	0.00	-552.81	
7	5319.32	0.00	0.00	5164.27	-623.99	-960.78	2.00	180.00	-626.67	
8	6993.43	0.00	0.00	6838.38	-623.99	-960.78	0.00	0.00	-626.67	
9	7994.25	90.07	0.16	7475.00	13.45	-958.98	9.00	0.16	10.77	
10	15764.80	90.07	0.16	7465.00	7783.96	-937.08	0.00	0.00	7781.31	WAGNER 28N-W10HZ_Toe

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
WAGNER 28N-W10HZ_SHL	0.00	0.00	0.00	40.039097	-104.873060	Point
WAGNER 28N-W10HZ_Toe	7465.00	7783.96	-937.08	40.060473	-104.876409	Point



WELL DETAILS: WAGNER 28N-W10HZ

Ground Level: 4972.00

RKB = 17' @ 4989.00usft (D Rig)

Plan: Permit Rev-2 (WAGNER 28N-W10HZ/Plan A)

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

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	PLANNING

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		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 28N-W10HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,540,995.63 usft	Latitude:	40.039097
	+E/-W	0.00 usft	Easting:	1,675,946.05 usft	Longitude:	-104.873060
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,972.00 usft

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

Design	Permit Rev-2				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		0.16

Survey Tool Program	Date	3/17/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,800.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,800.00	15,764.80	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

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	
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	
Begin Nudge @ 200.00ft										
300.00	1.50	270.00	299.99	0.00	-1.31	0.00	1.50	1.50	0.00	
400.00	3.00	270.00	399.91	0.00	-5.23	-0.01	1.50	1.50	0.00	
500.00	4.50	270.00	499.69	0.00	-11.77	-0.03	1.50	1.50	0.00	
600.00	6.00	270.00	599.27	0.00	-20.92	-0.06	1.50	1.50	0.00	
666.67	7.00	270.00	665.51	0.00	-28.47	-0.08	1.50	1.50	0.00	

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	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)
End Nudge @ 666.67ft									
700.00	7.00	270.00	698.59	0.00	-32.53	-0.09	0.00	0.00	0.00
800.00	7.00	270.00	797.85	0.00	-44.72	-0.12	0.00	0.00	0.00
866.67	7.00	270.00	864.02	0.00	-52.85	-0.15	0.00	0.00	0.00
Continue Nudge @ 866.67ft									
900.00	7.29	266.75	897.09	-0.12	-56.99	-0.28	1.50	0.89	-9.74
1,000.00	8.30	258.51	996.17	-1.92	-70.40	-2.11	1.50	1.00	-8.25
1,100.00	9.43	252.13	1,094.97	-5.87	-85.27	-6.11	1.50	1.13	-6.38
1,200.00	10.66	247.15	1,193.44	-11.98	-101.59	-12.26	1.50	1.22	-4.97
1,300.00	11.95	243.22	1,291.50	-20.23	-119.36	-20.56	1.50	1.29	-3.94
1,362.96	12.78	241.15	1,353.00	-26.53	-131.27	-26.89	1.50	1.32	-3.29
Fox Hills									
1,400.00	13.28	240.05	1,389.09	-30.63	-138.54	-31.01	1.50	1.34	-2.97
1,500.00	14.64	237.45	1,486.13	-43.16	-159.15	-43.60	1.50	1.36	-2.60
1,600.00	16.03	235.29	1,582.57	-57.82	-181.15	-58.32	1.50	1.39	-2.16
1,669.32	17.00	234.00	1,649.03	-69.22	-197.21	-69.77	1.50	1.40	-1.87
End Nudge @ 1669.32ft									
1,700.00	17.00	234.00	1,678.37	-74.50	-204.47	-75.07	0.00	0.00	0.00
1,800.00	17.00	234.00	1,774.00	-91.68	-228.12	-92.32	0.00	0.00	0.00
1,827.19	17.00	234.00	1,800.00	-96.35	-234.55	-97.01	0.00	0.00	0.00
9 5/8"									
1,900.00	17.00	234.00	1,869.63	-108.87	-251.78	-109.57	0.00	0.00	0.00
2,000.00	17.00	234.00	1,965.26	-126.05	-275.43	-126.82	0.00	0.00	0.00
2,100.00	17.00	234.00	2,060.89	-143.24	-299.08	-144.07	0.00	0.00	0.00
2,200.00	17.00	234.00	2,156.52	-160.42	-322.74	-161.32	0.00	0.00	0.00
2,300.00	17.00	234.00	2,252.15	-177.61	-346.39	-178.57	0.00	0.00	0.00
2,400.00	17.00	234.00	2,347.79	-194.79	-370.04	-195.82	0.00	0.00	0.00
2,500.00	17.00	234.00	2,443.42	-211.98	-393.70	-213.08	0.00	0.00	0.00
2,600.00	17.00	234.00	2,539.05	-229.16	-417.35	-230.33	0.00	0.00	0.00
2,700.00	17.00	234.00	2,634.68	-246.35	-441.00	-247.58	0.00	0.00	0.00
2,800.00	17.00	234.00	2,730.31	-263.53	-464.66	-264.83	0.00	0.00	0.00
2,900.00	17.00	234.00	2,825.94	-280.72	-488.31	-282.08	0.00	0.00	0.00
3,000.00	17.00	234.00	2,921.57	-297.90	-511.96	-299.33	0.00	0.00	0.00
3,100.00	17.00	234.00	3,017.20	-315.09	-535.62	-316.58	0.00	0.00	0.00
3,200.00	17.00	234.00	3,112.83	-332.27	-559.27	-333.83	0.00	0.00	0.00
3,300.00	17.00	234.00	3,208.46	-349.46	-582.92	-351.09	0.00	0.00	0.00
3,400.00	17.00	234.00	3,304.09	-366.64	-606.58	-368.34	0.00	0.00	0.00
3,500.00	17.00	234.00	3,399.72	-383.83	-630.23	-385.59	0.00	0.00	0.00
3,600.00	17.00	234.00	3,495.35	-401.01	-653.88	-402.84	0.00	0.00	0.00
3,700.00	17.00	234.00	3,590.98	-418.20	-677.54	-420.09	0.00	0.00	0.00
3,800.00	17.00	234.00	3,686.61	-435.38	-701.19	-437.34	0.00	0.00	0.00
3,900.00	17.00	234.00	3,782.24	-452.57	-724.84	-454.59	0.00	0.00	0.00
4,000.00	17.00	234.00	3,877.87	-469.75	-748.50	-471.84	0.00	0.00	0.00
4,100.00	17.00	234.00	3,973.50	-486.94	-772.15	-489.09	0.00	0.00	0.00

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Survey Report

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Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	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)
4,200.00	17.00	234.00	4,069.13	-504.13	-795.80	-506.35	0.00	0.00	0.00
4,300.00	17.00	234.00	4,164.76	-521.31	-819.46	-523.60	0.00	0.00	0.00
4,400.00	17.00	234.00	4,260.39	-538.50	-843.11	-540.85	0.00	0.00	0.00
4,469.32	17.00	234.00	4,326.69	-550.41	-859.51	-552.81	0.00	0.00	0.00
Begin Drop @ 4469.32ft									
4,500.00	16.39	234.00	4,356.07	-555.59	-866.64	-558.01	2.00	-2.00	0.00
4,600.00	14.39	234.00	4,452.48	-571.18	-888.10	-573.66	2.00	-2.00	0.00
4,700.00	12.39	234.00	4,549.76	-584.79	-906.83	-587.32	2.00	-2.00	0.00
4,741.13	11.56	234.00	4,590.00	-589.81	-913.74	-592.36	2.00	-2.00	0.00
Sussex									
4,800.00	10.39	234.00	4,647.79	-596.39	-922.80	-598.97	2.00	-2.00	0.00
4,900.00	8.39	234.00	4,746.44	-605.98	-936.00	-608.59	2.00	-2.00	0.00
5,000.00	6.39	234.00	4,845.61	-613.54	-946.40	-616.18	2.00	-2.00	0.00
5,100.00	4.39	234.00	4,945.16	-619.05	-953.99	-621.72	2.00	-2.00	0.00
5,200.00	2.39	234.00	5,044.98	-622.53	-958.77	-625.20	2.00	-2.00	0.00
5,300.00	0.39	234.00	5,144.95	-623.95	-960.73	-626.63	2.00	-2.00	0.00
5,319.32	0.00	0.00	5,164.27	-623.99	-960.78	-626.67	2.00	-2.00	652.17
End Drop @ 5319.32ft									
5,400.00	0.00	0.00	5,244.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
5,500.00	0.00	0.00	5,344.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
5,600.00	0.00	0.00	5,444.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
5,700.00	0.00	0.00	5,544.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
5,800.00	0.00	0.00	5,644.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
5,900.00	0.00	0.00	5,744.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,000.00	0.00	0.00	5,844.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,100.00	0.00	0.00	5,944.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,200.00	0.00	0.00	6,044.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,300.00	0.00	0.00	6,144.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,400.00	0.00	0.00	6,244.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,500.00	0.00	0.00	6,344.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,600.00	0.00	0.00	6,444.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,700.00	0.00	0.00	6,544.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,800.00	0.00	0.00	6,644.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,900.00	0.00	0.00	6,744.95	-623.99	-960.78	-626.67	0.00	0.00	0.00
6,993.43	0.00	0.00	6,838.38	-623.99	-960.78	-626.67	0.00	0.00	0.00
KOP @ 6993.43ft									
7,000.00	0.59	0.16	6,844.95	-623.95	-960.78	-626.63	9.00	9.00	0.00
7,100.00	9.59	0.16	6,944.45	-615.09	-960.75	-617.77	9.00	9.00	0.00
7,200.00	18.59	0.16	7,041.34	-590.77	-960.69	-593.45	9.00	9.00	0.00
7,300.00	27.59	0.16	7,133.24	-551.59	-960.58	-554.27	9.00	9.00	0.00
7,400.00	36.59	0.16	7,217.87	-498.52	-960.43	-501.20	9.00	9.00	0.00
7,417.28	38.15	0.16	7,231.60	-488.03	-960.40	-490.71	9.00	9.00	0.00
Sharon Springs									
7,447.08	40.83	0.16	7,254.60	-469.08	-960.34	-471.76	9.00	9.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	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)
Niobrara Top									
7,500.00	45.59	0.16	7,293.16	-432.86	-960.24	-435.54	9.00	9.00	0.00
7,600.00	54.59	0.16	7,357.25	-356.23	-960.02	-358.91	9.00	9.00	0.00
DLS = 9°/100'									
7,651.97	59.27	0.16	7,385.60	-312.69	-959.90	-315.37	9.00	9.00	0.00
Niobrara B Bench									
7,700.00	63.59	0.16	7,408.57	-270.52	-959.78	-273.20	9.00	9.00	0.00
7,800.00	72.59	0.16	7,445.84	-177.84	-959.52	-180.52	9.00	9.00	0.00
7,853.12	77.37	0.16	7,459.60	-126.55	-959.38	-129.23	9.00	9.00	0.00
Niobrara C Bench									
7,900.00	81.59	0.16	7,468.16	-80.47	-959.25	-83.14	9.00	9.00	0.00
7,994.25	90.07	0.16	7,475.00	13.45	-958.98	10.77	9.00	9.00	0.00
End Build @ 7994.25ft - Top of Production									
8,000.00	90.07	0.16	7,474.99	19.20	-958.97	16.52	0.00	0.00	0.00
8,100.00	90.07	0.16	7,474.86	119.20	-958.68	116.52	0.00	0.00	0.00
8,200.00	90.07	0.16	7,474.74	219.20	-958.40	216.52	0.00	0.00	0.00
8,300.00	90.07	0.16	7,474.61	319.20	-958.12	316.52	0.00	0.00	0.00
8,400.00	90.07	0.16	7,474.48	419.20	-957.84	416.52	0.00	0.00	0.00
8,500.00	90.07	0.16	7,474.35	519.20	-957.56	516.52	0.00	0.00	0.00
8,600.00	90.07	0.16	7,474.22	619.20	-957.28	616.52	0.00	0.00	0.00
8,700.00	90.07	0.16	7,474.09	719.20	-956.99	716.52	0.00	0.00	0.00
8,800.00	90.07	0.16	7,473.96	819.19	-956.71	816.52	0.00	0.00	0.00
8,900.00	90.07	0.16	7,473.84	919.19	-956.43	916.52	0.00	0.00	0.00
9,000.00	90.07	0.16	7,473.71	1,019.19	-956.15	1,016.52	0.00	0.00	0.00
9,100.00	90.07	0.16	7,473.58	1,119.19	-955.87	1,116.52	0.00	0.00	0.00
9,200.00	90.07	0.16	7,473.45	1,219.19	-955.58	1,216.52	0.00	0.00	0.00
9,300.00	90.07	0.16	7,473.32	1,319.19	-955.30	1,316.52	0.00	0.00	0.00
9,400.00	90.07	0.16	7,473.19	1,419.19	-955.02	1,416.52	0.00	0.00	0.00
9,500.00	90.07	0.16	7,473.06	1,519.19	-954.74	1,516.52	0.00	0.00	0.00
9,600.00	90.07	0.16	7,472.93	1,619.19	-954.46	1,616.52	0.00	0.00	0.00
9,700.00	90.07	0.16	7,472.81	1,719.19	-954.17	1,716.52	0.00	0.00	0.00
9,800.00	90.07	0.16	7,472.68	1,819.19	-953.89	1,816.52	0.00	0.00	0.00
9,900.00	90.07	0.16	7,472.55	1,919.19	-953.61	1,916.52	0.00	0.00	0.00
10,000.00	90.07	0.16	7,472.42	2,019.19	-953.33	2,016.52	0.00	0.00	0.00
10,100.00	90.07	0.16	7,472.29	2,119.19	-953.05	2,116.52	0.00	0.00	0.00
10,200.00	90.07	0.16	7,472.16	2,219.19	-952.77	2,216.52	0.00	0.00	0.00
10,300.00	90.07	0.16	7,472.03	2,319.19	-952.48	2,316.52	0.00	0.00	0.00
10,400.00	90.07	0.16	7,471.90	2,419.19	-952.20	2,416.52	0.00	0.00	0.00
10,500.00	90.07	0.16	7,471.78	2,519.19	-951.92	2,516.52	0.00	0.00	0.00
10,600.00	90.07	0.16	7,471.65	2,619.19	-951.64	2,616.52	0.00	0.00	0.00
10,700.00	90.07	0.16	7,471.52	2,719.19	-951.36	2,716.52	0.00	0.00	0.00
10,800.00	90.07	0.16	7,471.39	2,819.19	-951.07	2,816.52	0.00	0.00	0.00
10,900.00	90.07	0.16	7,471.26	2,919.18	-950.79	2,916.52	0.00	0.00	0.00
11,000.00	90.07	0.16	7,471.13	3,019.18	-950.51	3,016.52	0.00	0.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	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)
11,100.00	90.07	0.16	7,471.00	3,119.18	-950.23	3,116.52	0.00	0.00	0.00
11,200.00	90.07	0.16	7,470.88	3,219.18	-949.95	3,216.52	0.00	0.00	0.00
11,300.00	90.07	0.16	7,470.75	3,319.18	-949.66	3,316.52	0.00	0.00	0.00
11,400.00	90.07	0.16	7,470.62	3,419.18	-949.38	3,416.52	0.00	0.00	0.00
11,500.00	90.07	0.16	7,470.49	3,519.18	-949.10	3,516.52	0.00	0.00	0.00
11,600.00	90.07	0.16	7,470.36	3,619.18	-948.82	3,616.52	0.00	0.00	0.00
11,700.00	90.07	0.16	7,470.23	3,719.18	-948.54	3,716.52	0.00	0.00	0.00
11,800.00	90.07	0.16	7,470.10	3,819.18	-948.26	3,816.52	0.00	0.00	0.00
11,900.00	90.07	0.16	7,469.97	3,919.18	-947.97	3,916.52	0.00	0.00	0.00
12,000.00	90.07	0.16	7,469.85	4,019.18	-947.69	4,016.52	0.00	0.00	0.00
12,100.00	90.07	0.16	7,469.72	4,119.18	-947.41	4,116.52	0.00	0.00	0.00
12,200.00	90.07	0.16	7,469.59	4,219.18	-947.13	4,216.52	0.00	0.00	0.00
12,300.00	90.07	0.16	7,469.46	4,319.18	-946.85	4,316.52	0.00	0.00	0.00
12,400.00	90.07	0.16	7,469.33	4,419.18	-946.56	4,416.52	0.00	0.00	0.00
12,500.00	90.07	0.16	7,469.20	4,519.18	-946.28	4,516.52	0.00	0.00	0.00
12,600.00	90.07	0.16	7,469.07	4,619.18	-946.00	4,616.52	0.00	0.00	0.00
12,700.00	90.07	0.16	7,468.94	4,719.18	-945.72	4,716.52	0.00	0.00	0.00
12,800.00	90.07	0.16	7,468.82	4,819.18	-945.44	4,816.52	0.00	0.00	0.00
12,900.00	90.07	0.16	7,468.69	4,919.18	-945.15	4,916.52	0.00	0.00	0.00
13,000.00	90.07	0.16	7,468.56	5,019.17	-944.87	5,016.52	0.00	0.00	0.00
13,100.00	90.07	0.16	7,468.43	5,119.17	-944.59	5,116.52	0.00	0.00	0.00
13,200.00	90.07	0.16	7,468.30	5,219.17	-944.31	5,216.52	0.00	0.00	0.00
13,300.00	90.07	0.16	7,468.17	5,319.17	-944.03	5,316.52	0.00	0.00	0.00
13,400.00	90.07	0.16	7,468.04	5,419.17	-943.75	5,416.52	0.00	0.00	0.00
13,500.00	90.07	0.16	7,467.91	5,519.17	-943.46	5,516.52	0.00	0.00	0.00
13,600.00	90.07	0.16	7,467.79	5,619.17	-943.18	5,616.52	0.00	0.00	0.00
13,700.00	90.07	0.16	7,467.66	5,719.17	-942.90	5,716.52	0.00	0.00	0.00
13,800.00	90.07	0.16	7,467.53	5,819.17	-942.62	5,816.52	0.00	0.00	0.00
13,900.00	90.07	0.16	7,467.40	5,919.17	-942.34	5,916.52	0.00	0.00	0.00
14,000.00	90.07	0.16	7,467.27	6,019.17	-942.05	6,016.52	0.00	0.00	0.00
14,100.00	90.07	0.16	7,467.14	6,119.17	-941.77	6,116.52	0.00	0.00	0.00
14,200.00	90.07	0.16	7,467.01	6,219.17	-941.49	6,216.52	0.00	0.00	0.00
14,300.00	90.07	0.16	7,466.89	6,319.17	-941.21	6,316.52	0.00	0.00	0.00
14,400.00	90.07	0.16	7,466.76	6,419.17	-940.93	6,416.52	0.00	0.00	0.00
14,500.00	90.07	0.16	7,466.63	6,519.17	-940.65	6,516.52	0.00	0.00	0.00
14,600.00	90.07	0.16	7,466.50	6,619.17	-940.36	6,616.52	0.00	0.00	0.00
14,700.00	90.07	0.16	7,466.37	6,719.17	-940.08	6,716.52	0.00	0.00	0.00
14,800.00	90.07	0.16	7,466.24	6,819.17	-939.80	6,816.51	0.00	0.00	0.00
14,900.00	90.07	0.16	7,466.11	6,919.17	-939.52	6,916.51	0.00	0.00	0.00
15,000.00	90.07	0.16	7,465.98	7,019.16	-939.24	7,016.51	0.00	0.00	0.00
15,100.00	90.07	0.16	7,465.86	7,119.16	-938.95	7,116.51	0.00	0.00	0.00
15,200.00	90.07	0.16	7,465.73	7,219.16	-938.67	7,216.51	0.00	0.00	0.00
15,300.00	90.07	0.16	7,465.60	7,319.16	-938.39	7,316.51	0.00	0.00	0.00
15,400.00	90.07	0.16	7,465.47	7,419.16	-938.11	7,416.51	0.00	0.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	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)	
15,500.00	90.07	0.16	7,465.34	7,519.16	-937.83	7,516.51	0.00	0.00	0.00	
15,600.00	90.07	0.16	7,465.21	7,619.16	-937.54	7,616.51	0.00	0.00	0.00	
15,700.00	90.07	0.16	7,465.08	7,719.16	-937.26	7,716.51	0.00	0.00	0.00	
15,764.80	90.07	0.16	7,465.00	7,783.96	-937.08	7,781.31	0.00	0.00	0.00	
TD Well @ 15764.80ft										

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	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
WAGNER 28N-W10HZ_ - plan misses target center by 1108.78usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	397.74	-1,034.99	14,541,391.90	1,674,910.50	40.040189	-104.876758
WAGNER 28N-W10HZ_ - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,540,995.63	1,675,946.05	40.039097	-104.873060
WAGNER 28N-W10HZ_ - plan misses target center by 7060.87usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	6,981.97	-1,052.61	14,547,976.10	1,674,883.50	40.058271	-104.876822
WAGNER 28N-W10HZ_ - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,540,995.63	1,675,946.05	40.039097	-104.873060
Point 1		0.00	7,842.81	-593.28		14,548,837.60	1,675,341.60		
Point 2		0.00	6,982.21	-592.60		14,547,977.00	1,675,343.50		
Point 3		0.00	5,667.11	-589.58		14,546,661.90	1,675,348.40		
Point 4		0.00	4,352.20	-587.05		14,545,347.00	1,675,352.80		
Point 5		0.00	3,033.30	-584.13		14,544,028.10	1,675,357.60		
Point 6		0.00	1,717.09	-581.21		14,542,711.90	1,675,362.40		
Point 7		0.00	399.38	-574.99		14,541,394.20	1,675,370.50		
Point 8		0.00	-457.73	-570.91		14,540,537.10	1,675,375.80		
Point 9		0.00	-459.37	-1,030.91		14,540,534.80	1,674,915.80		
Point 10		0.00	-461.52	-1,490.92		14,540,532.00	1,674,455.80		
Point 11		0.00	395.99	-1,494.99		14,541,389.50	1,674,450.50		
Point 12		0.00	1,713.90	-1,501.21		14,542,707.40	1,674,442.40		
Point 13		0.00	3,030.41	-1,504.14		14,544,023.90	1,674,437.60		
Point 14		0.00	4,347.21	-1,507.06		14,545,340.70	1,674,432.80		
Point 15		0.00	5,664.32	-1,509.58		14,546,657.80	1,674,428.40		
Point 16		0.00	6,981.52	-1,512.61		14,547,975.00	1,674,423.50		
Point 17		0.00	7,842.22	-1,513.28		14,548,835.70	1,674,421.60		
Point 18		0.00	7,842.57	-1,053.28		14,548,836.70	1,674,881.60		
Point 19		0.00	7,842.81	-593.28		14,548,837.60	1,675,341.60		
1N-R67W-Sec. 22_Secti - plan misses target center by 1381.82usft at 4.00usft MD (4.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	4.00	-919.39	-1,031.58	14,540,074.78	1,674,915.79	40.036572	-104.876746
Point 1		4.00	2,627.78	-2,674.22		14,542,698.75	1,672,237.83		
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		14,542,724.15	1,677,561.30		
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		14,537,452.17	1,677,571.91		
Point 6		4.00	-2,631.96	12.48		14,537,442.84	1,674,932.02		
Point 7		4.00	-2,637.68	-2,626.99		14,537,433.36	1,672,292.56		
Point 8		4.00	-9.70	-2,642.90		14,540,061.31	1,672,272.91		
1N-R67W-Sec. 15_Secti - plan misses target center by 867.99usft at 4.00usft MD (4.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	4.00	130.38	858.14	14,541,127.24	1,676,804.01	40.039455	-104.869994
Point 1		4.00	6,851.58	-4,568.26		14,547,972.30	1,672,225.99		
Point 2		4.00	6,853.93	-1,913.35		14,547,978.44	1,674,880.89		
Point 3		4.00	6,855.16	741.27		14,547,983.45	1,677,535.51		
Point 4		4.00	4,225.46	750.46		14,545,353.77	1,677,548.45		
Point 5		4.00	1,595.89	759.53		14,542,724.21	1,677,561.27		
Point 6		4.00	1,586.93	-1,902.25		14,542,711.46	1,674,899.50		
Point 7		4.00	1,578.07	-4,563.97		14,542,698.80	1,672,237.80		
Point 8		4.00	4,213.91	-4,566.57		14,545,334.64	1,672,231.44		
1N-R67W-Sec. 10_Secti - plan misses target center by 7309.59usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)	0.00	0.00	-91.00	7,272.69	-727.79	14,548,267.29	1,675,207.90	40.059069	-104.875661

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well WAGNER 28N-W10HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Site:	1N-67W-22 Wagner 7-22HZ Pad	MD Reference:	RKB = 17' @ 4989.00usft (D Rig)
Well:	WAGNER 28N-W10HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-2	Database:	PLANNING

- Polygon									
Point 1	-91.00	4,992.86	-2,976.12	14,553,255.90	1,672,224.67				
Point 2	-91.00	4,994.59	-331.69	14,553,261.40	1,674,869.09				
Point 3	-91.00	4,996.25	2,313.07	14,553,266.83	1,677,513.85				
Point 4	-91.00	2,354.63	2,320.05	14,550,625.22	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	1,674,880.66				
Point 7	-91.00	-290.97	-2,982.55	14,547,972.07	1,672,225.77				
WAGNER 28N-W10HZ_	0.00	0.00	7,465.00	7,783.96	-937.08	14,548,778.25	1,674,997.88	40.060473	-104.876409
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,827.19	1,800.00	9 5/8"	9-5/8	13-1/2	
7,994.25	7,475.00	Top of Production	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,362.96	1,353.00	Fox Hills			
4,741.13	4,590.00	Sussex			
7,417.28	7,231.60	Sharon Springs			
7,447.08	7,254.60	Niobrara Top			
7,651.97	7,385.60	Niobrara B Bench			
7,853.12	7,459.60	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	
667	666	0	-28	End Nudge @ 666.67ft	
867	864	0	-53	Continue Nudge @ 866.67ft	
1669	1649	-69	-197	End Nudge @ 1669.32ft	
4469	4327	-550	-860	Begin Drop @ 4469.32ft	
5319	5164	-624	-961	End Drop @ 5319.32ft	
6993	6838	-624	-961	KOP @ 6993.43ft	
7600	7357	-356	-960	DLS = 9°/100'	
7994	7475	13	-959	End Build @ 7994.25ft	
15,765	7465	7784	-937	TD Well @ 15764.80ft	

Checked By: _____ Approved By: _____ Date: _____