

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-68W-15 Hopper 9-15HZ Pad

HOPPER STATE 24N-34SLHZ

Plan A

Plan: Permit Rev-4

Standard Planning Report

06 November, 2015

Project: WELD-NAD83-UTMFT13N
Site: 2N-68W-15 Hopper 9-15HZ Pad
Well: HOPPER STATE 24N-34SLHZ
Wellbore: Plan A
Design: Permit Rev-4

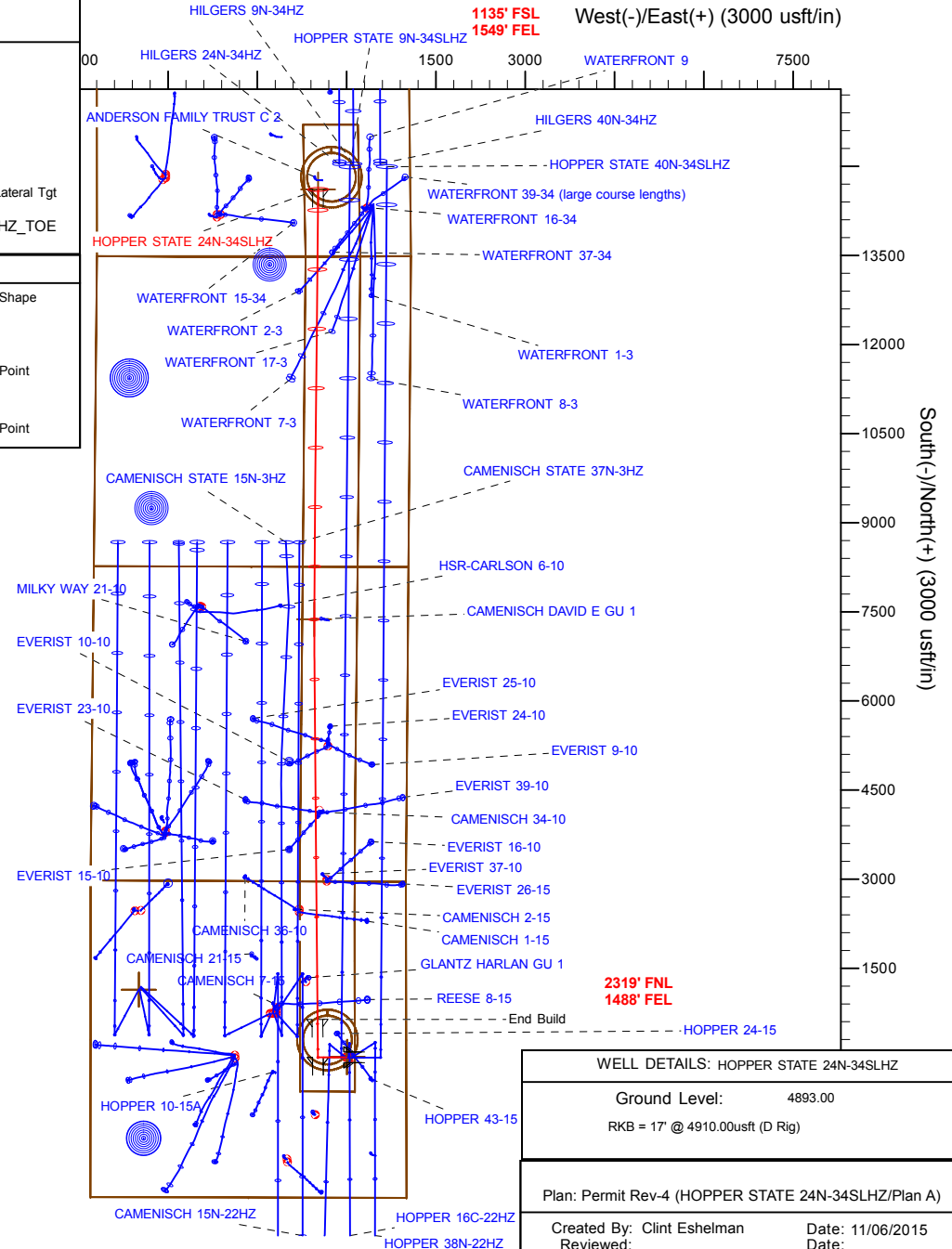
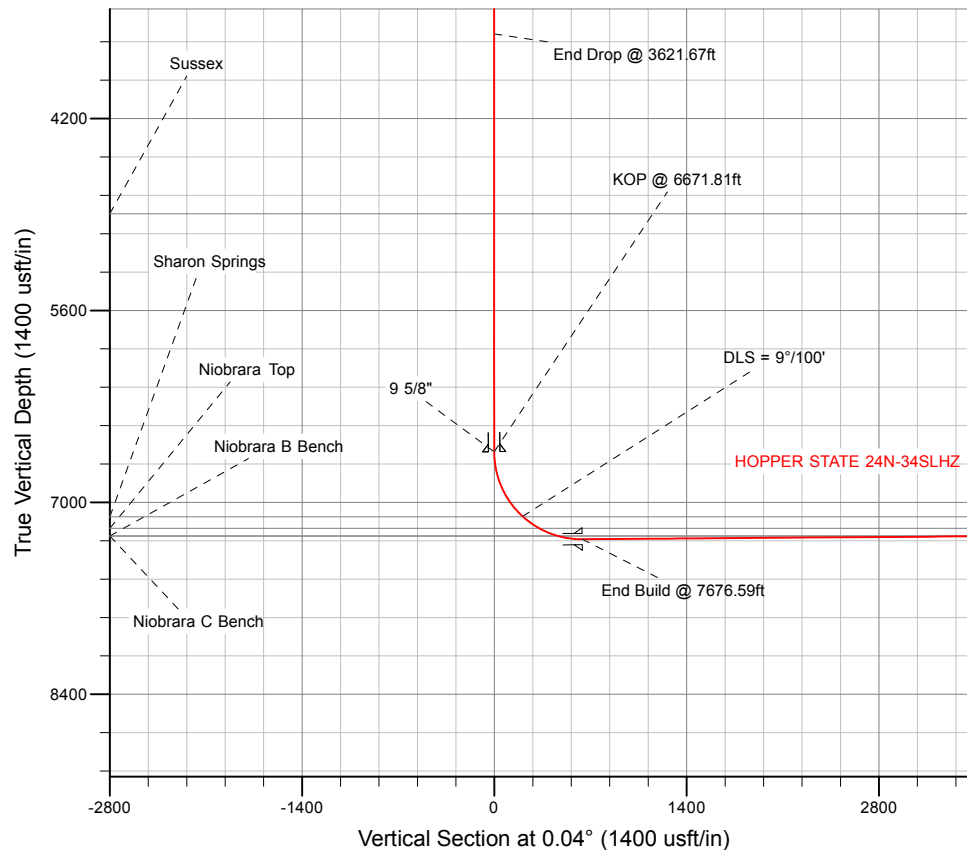
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	916.67	10.00	270.00	913.29	0.00	-58.03	1.50	270.00	-0.04	
4	3121.67	10.00	270.00	3084.79	0.00	-440.92	0.00	0.00	-0.31	
5	3621.67	0.00	0.00	3582.25	0.00	-484.45	2.00	180.00	-0.34	
6	6671.81	0.00	0.00	6632.39	0.00	-484.45	0.00	0.00	-0.34	
7	7676.59	90.43	359.51	7269.00	641.38	-489.96	9.00	359.51	641.04	
8	14409.83	90.43	359.51	7218.38	7374.18	-547.85	0.00	0.00	7373.80	HOPPER STATE 24N-34SLHZ_Lateral Tgt
9	14461.36	90.43	0.54	7217.99	7425.71	-547.83	2.00	89.95	7425.32	
10	21648.70	90.43	0.54	7163.86	14612.52	-480.34	0.00	0.00	14612.18	HOPPER STATE 24N-34SLHZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HOPPER STATE 24N-34SLHZ_SHL	0.00	0.00	0.00	40.137952	-104.983336	Point
HOPPER STATE 24N-34SLHZ_TOE	7163.86	14612.52	-480.34	40.178080	-104.985056	Point



WELL DETAILS: HOPPER STATE 24N-34SLHZ

Ground Level: 4893.00
RKB = 17' @ 4910.00usft (D Rig)

Plan: Permit Rev-4 (HOPPER STATE 24N-34SLHZ/Plan A)

Created By: Clint Eshelman Date: 11/06/2015
Reviewed: Date:

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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-68W-15 Hopper 9-15HZ Pad			
Site Position:		Northing:	14,576,980.42 usft	Latitude:	40.137985
From:	Lat/Long	Easting:	1,645,071.23 usft	Longitude:	-104.983346
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.01 °

Well	HOPPER STATE 24N-34SLHZ					
Well Position	+N/-S	-12.02 usft	Northing:	14,576,968.40 usft	Latitude:	40.137952
	+E/-W	2.79 usft	Easting:	1,645,074.03 usft	Longitude:	-104.983336
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,893.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/9/2015	8.39	66.66	52,524

Design	Permit Rev-4			
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	0.04

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
916.67	10.00	270.00	913.29	0.00	-58.03	1.50	1.50	0.00	270.00	
3,121.67	10.00	270.00	3,084.79	0.00	-440.92	0.00	0.00	0.00	0.00	
3,621.67	0.00	0.00	3,582.25	0.00	-484.45	2.00	-2.00	18.00	180.00	
6,671.81	0.00	0.00	6,632.39	0.00	-484.45	0.00	0.00	0.00	0.00	
7,676.59	90.43	359.51	7,269.00	641.38	-489.96	9.00	9.00	-0.05	359.51	
14,409.83	90.43	359.51	7,218.38	7,374.18	-547.85	0.00	0.00	0.00	0.00	HOPPER STATE 24N
14,461.36	90.43	0.54	7,217.99	7,425.71	-547.83	2.00	0.00	2.00	89.95	
21,648.70	90.43	0.54	7,163.86	14,612.52	-480.34	0.00	0.00	0.00	0.00	HOPPER STATE 24N

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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
13 3/8"									
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
Begin Nudge @ 250.00ft									
300.00	0.75	270.00	300.00	0.00	-0.33	0.00	1.50	1.50	0.00
400.00	2.25	270.00	399.96	0.00	-2.94	0.00	1.50	1.50	0.00
500.00	3.75	270.00	499.82	0.00	-8.18	-0.01	1.50	1.50	0.00
600.00	5.25	270.00	599.51	0.00	-16.02	-0.01	1.50	1.50	0.00
700.00	6.75	270.00	698.96	0.00	-26.48	-0.02	1.50	1.50	0.00
800.00	8.25	270.00	798.10	0.00	-39.53	-0.03	1.50	1.50	0.00
822.14	8.58	270.00	820.00	0.00	-42.77	-0.03	1.50	1.50	0.00
Fox Hills									
852.50	9.04	270.00	850.00	0.00	-47.42	-0.03	1.50	1.50	0.00
13 3/8" - 9 5/8"									
900.00	9.75	270.00	896.87	0.00	-55.17	-0.04	1.50	1.50	0.00
916.67	10.00	270.00	913.29	0.00	-58.03	-0.04	1.50	1.50	0.00
End Nudge @ 916.67ft									
1,000.00	10.00	270.00	995.35	0.00	-72.50	-0.05	0.00	0.00	0.00
1,100.00	10.00	270.00	1,093.84	0.00	-89.87	-0.06	0.00	0.00	0.00
1,200.00	10.00	270.00	1,192.32	0.00	-107.23	-0.07	0.00	0.00	0.00
1,300.00	10.00	270.00	1,290.80	0.00	-124.60	-0.09	0.00	0.00	0.00
1,400.00	10.00	270.00	1,389.28	0.00	-141.96	-0.10	0.00	0.00	0.00
1,500.00	10.00	270.00	1,487.76	0.00	-159.32	-0.11	0.00	0.00	0.00
1,600.00	10.00	270.00	1,586.24	0.00	-176.69	-0.12	0.00	0.00	0.00
1,700.00	10.00	270.00	1,684.72	0.00	-194.05	-0.14	0.00	0.00	0.00
1,800.00	10.00	270.00	1,783.20	0.00	-211.42	-0.15	0.00	0.00	0.00
1,900.00	10.00	270.00	1,881.68	0.00	-228.78	-0.16	0.00	0.00	0.00
2,000.00	10.00	270.00	1,980.16	0.00	-246.15	-0.17	0.00	0.00	0.00
2,100.00	10.00	270.00	2,078.64	0.00	-263.51	-0.18	0.00	0.00	0.00
2,200.00	10.00	270.00	2,177.12	0.00	-280.88	-0.20	0.00	0.00	0.00
2,300.00	10.00	270.00	2,275.60	0.00	-298.24	-0.21	0.00	0.00	0.00
2,400.00	10.00	270.00	2,374.09	0.00	-315.61	-0.22	0.00	0.00	0.00
2,500.00	10.00	270.00	2,472.57	0.00	-332.97	-0.23	0.00	0.00	0.00
2,600.00	10.00	270.00	2,571.05	0.00	-350.34	-0.24	0.00	0.00	0.00
2,700.00	10.00	270.00	2,669.53	0.00	-367.70	-0.26	0.00	0.00	0.00
2,800.00	10.00	270.00	2,768.01	0.00	-385.07	-0.27	0.00	0.00	0.00
2,900.00	10.00	270.00	2,866.49	0.00	-402.43	-0.28	0.00	0.00	0.00
3,000.00	10.00	270.00	2,964.97	0.00	-419.80	-0.29	0.00	0.00	0.00
3,100.00	10.00	270.00	3,063.45	0.00	-437.16	-0.31	0.00	0.00	0.00
3,121.67	10.00	270.00	3,084.79	0.00	-440.92	-0.31	0.00	0.00	0.00
Begin Drop @ 3121.67ft									
3,200.00	8.43	270.00	3,162.11	0.00	-453.47	-0.32	2.00	-2.00	0.00
3,300.00	6.43	270.00	3,261.26	0.00	-466.41	-0.33	2.00	-2.00	0.00
3,400.00	4.43	270.00	3,360.81	0.00	-475.88	-0.33	2.00	-2.00	0.00
3,500.00	2.43	270.00	3,460.62	0.00	-481.86	-0.34	2.00	-2.00	0.00
3,600.00	0.43	270.00	3,560.59	0.00	-484.37	-0.34	2.00	-2.00	0.00
3,621.67	0.00	0.00	3,582.26	0.00	-484.45	-0.34	2.00	-2.00	415.32
End Drop @ 3621.67ft									
3,700.00	0.00	0.00	3,660.59	0.00	-484.45	-0.34	0.00	0.00	0.00
3,800.00	0.00	0.00	3,760.59	0.00	-484.45	-0.34	0.00	0.00	0.00
3,900.00	0.00	0.00	3,860.59	0.00	-484.45	-0.34	0.00	0.00	0.00

Anadarko

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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)
4,000.00	0.00	0.00	3,960.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,100.00	0.00	0.00	4,060.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,200.00	0.00	0.00	4,160.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,300.00	0.00	0.00	4,260.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,400.00	0.00	0.00	4,360.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,500.00	0.00	0.00	4,460.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,600.00	0.00	0.00	4,560.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,700.00	0.00	0.00	4,660.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,800.00	0.00	0.00	4,760.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,900.00	0.00	0.00	4,860.59	0.00	-484.45	-0.34	0.00	0.00	0.00
4,934.41	0.00	0.00	4,895.00	0.00	-484.45	-0.34	0.00	0.00	0.00
Sussex									
5,000.00	0.00	0.00	4,960.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,100.00	0.00	0.00	5,060.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,200.00	0.00	0.00	5,160.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,300.00	0.00	0.00	5,260.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,400.00	0.00	0.00	5,360.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,500.00	0.00	0.00	5,460.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,600.00	0.00	0.00	5,560.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,700.00	0.00	0.00	5,660.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,800.00	0.00	0.00	5,760.59	0.00	-484.45	-0.34	0.00	0.00	0.00
5,900.00	0.00	0.00	5,860.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,000.00	0.00	0.00	5,960.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,100.00	0.00	0.00	6,060.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,200.00	0.00	0.00	6,160.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,300.00	0.00	0.00	6,260.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,400.00	0.00	0.00	6,360.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,500.00	0.00	0.00	6,460.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,600.00	0.00	0.00	6,560.59	0.00	-484.45	-0.34	0.00	0.00	0.00
6,671.81	0.00	0.00	6,632.40	0.00	-484.45	-0.34	0.00	0.00	0.00
KOP @ 6671.81ft - 9 5/8" - 5 1/2"									
6,700.00	2.54	359.51	6,660.58	0.62	-484.45	0.29	9.00	9.00	-1.75
6,800.00	11.54	359.51	6,759.72	12.86	-484.56	12.52	9.00	9.00	0.00
6,900.00	20.54	359.51	6,855.73	40.46	-484.79	40.12	9.00	9.00	0.00
7,000.00	29.54	359.51	6,946.24	82.74	-485.16	82.40	9.00	9.00	0.00
7,100.00	38.54	359.51	7,029.02	138.65	-485.64	138.31	9.00	9.00	0.00
7,200.00	47.54	359.51	7,102.04	206.82	-486.23	206.49	9.00	9.00	0.00
DLS = 9°/100'									
7,203.66	47.87	359.51	7,104.50	209.53	-486.25	209.19	9.00	9.00	0.00
Sharon Springs									
7,300.00	56.54	359.51	7,163.49	285.58	-486.90	285.24	9.00	9.00	0.00
7,350.22	61.04	359.51	7,189.50	328.52	-487.27	328.18	8.96	8.96	0.00
Niobrara Top									
7,400.00	65.54	359.51	7,211.87	372.98	-487.65	372.64	9.04	9.04	0.00
7,498.99	74.45	359.51	7,245.70	465.90	-488.45	465.56	9.00	9.00	0.00
Niobrara B Bench - Niobrara C Bench									
7,500.00	74.54	359.51	7,245.97	466.87	-488.46	466.53	9.00	9.00	0.00
7,600.00	83.54	359.51	7,264.97	564.94	-489.30	564.60	9.00	9.00	0.00
7,676.59	90.43	359.51	7,269.00	641.38	-489.96	641.04	9.00	9.00	0.00
End Build @ 7676.59ft - End Build									
7,700.00	90.43	359.51	7,268.82	664.79	-490.16	664.45	0.00	0.00	0.00
7,800.00	90.43	359.51	7,268.07	764.78	-491.02	764.44	0.00	0.00	0.00
7,900.00	90.43	359.51	7,267.32	864.77	-491.88	864.43	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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)	
8,000.00	90.43	359.51	7,266.56	964.77	-492.74	964.42	0.00	0.00	0.00	
8,100.00	90.43	359.51	7,265.81	1,064.76	-493.60	1,064.42	0.00	0.00	0.00	
8,200.00	90.43	359.51	7,265.06	1,164.76	-494.46	1,164.41	0.00	0.00	0.00	
8,300.00	90.43	359.51	7,264.31	1,264.75	-495.32	1,264.40	0.00	0.00	0.00	
8,400.00	90.43	359.51	7,263.56	1,364.74	-496.18	1,364.40	0.00	0.00	0.00	
8,500.00	90.43	359.51	7,262.81	1,464.74	-497.04	1,464.39	0.00	0.00	0.00	
8,600.00	90.43	359.51	7,262.05	1,564.73	-497.90	1,564.38	0.00	0.00	0.00	
8,700.00	90.43	359.51	7,261.30	1,664.72	-498.76	1,664.37	0.00	0.00	0.00	
8,800.00	90.43	359.51	7,260.55	1,764.72	-499.62	1,764.37	0.00	0.00	0.00	
8,900.00	90.43	359.51	7,259.80	1,864.71	-500.48	1,864.36	0.00	0.00	0.00	
9,000.00	90.43	359.51	7,259.05	1,964.70	-501.34	1,964.35	0.00	0.00	0.00	
9,100.00	90.43	359.51	7,258.30	2,064.70	-502.20	2,064.35	0.00	0.00	0.00	
9,200.00	90.43	359.51	7,257.54	2,164.69	-503.06	2,164.34	0.00	0.00	0.00	
9,300.00	90.43	359.51	7,256.79	2,264.68	-503.92	2,264.33	0.00	0.00	0.00	
9,400.00	90.43	359.51	7,256.04	2,364.68	-504.78	2,364.32	0.00	0.00	0.00	
9,500.00	90.43	359.51	7,255.29	2,464.67	-505.64	2,464.32	0.00	0.00	0.00	
9,600.00	90.43	359.51	7,254.54	2,564.66	-506.50	2,564.31	0.00	0.00	0.00	
9,700.00	90.43	359.51	7,253.79	2,664.66	-507.36	2,664.30	0.00	0.00	0.00	
9,800.00	90.43	359.51	7,253.03	2,764.65	-508.22	2,764.30	0.00	0.00	0.00	
9,900.00	90.43	359.51	7,252.28	2,864.64	-509.08	2,864.29	0.00	0.00	0.00	
10,000.00	90.43	359.51	7,251.53	2,964.64	-509.94	2,964.28	0.00	0.00	0.00	
10,100.00	90.43	359.51	7,250.78	3,064.63	-510.80	3,064.27	0.00	0.00	0.00	
10,200.00	90.43	359.51	7,250.03	3,164.62	-511.65	3,164.27	0.00	0.00	0.00	
10,300.00	90.43	359.51	7,249.27	3,264.62	-512.51	3,264.26	0.00	0.00	0.00	
10,400.00	90.43	359.51	7,248.52	3,364.61	-513.37	3,364.25	0.00	0.00	0.00	
10,500.00	90.43	359.51	7,247.77	3,464.61	-514.23	3,464.25	0.00	0.00	0.00	
10,600.00	90.43	359.51	7,247.02	3,564.60	-515.09	3,564.24	0.00	0.00	0.00	
10,700.00	90.43	359.51	7,246.27	3,664.59	-515.95	3,664.23	0.00	0.00	0.00	
10,800.00	90.43	359.51	7,245.52	3,764.59	-516.81	3,764.22	0.00	0.00	0.00	
10,900.00	90.43	359.51	7,244.76	3,864.58	-517.67	3,864.22	0.00	0.00	0.00	
11,000.00	90.43	359.51	7,244.01	3,964.57	-518.53	3,964.21	0.00	0.00	0.00	
11,100.00	90.43	359.51	7,243.26	4,064.57	-519.39	4,064.20	0.00	0.00	0.00	
11,200.00	90.43	359.51	7,242.51	4,164.56	-520.25	4,164.20	0.00	0.00	0.00	
11,300.00	90.43	359.51	7,241.76	4,264.55	-521.11	4,264.19	0.00	0.00	0.00	
11,400.00	90.43	359.51	7,241.01	4,364.55	-521.97	4,364.18	0.00	0.00	0.00	
11,500.00	90.43	359.51	7,240.25	4,464.54	-522.83	4,464.17	0.00	0.00	0.00	
11,600.00	90.43	359.51	7,239.50	4,564.53	-523.69	4,564.17	0.00	0.00	0.00	
11,700.00	90.43	359.51	7,238.75	4,664.53	-524.55	4,664.16	0.00	0.00	0.00	
11,800.00	90.43	359.51	7,238.00	4,764.52	-525.41	4,764.15	0.00	0.00	0.00	
11,900.00	90.43	359.51	7,237.25	4,864.51	-526.27	4,864.15	0.00	0.00	0.00	
12,000.00	90.43	359.51	7,236.50	4,964.51	-527.13	4,964.14	0.00	0.00	0.00	
12,100.00	90.43	359.51	7,235.74	5,064.50	-527.99	5,064.13	0.00	0.00	0.00	
12,200.00	90.43	359.51	7,234.99	5,164.49	-528.85	5,164.12	0.00	0.00	0.00	
12,300.00	90.43	359.51	7,234.24	5,264.49	-529.71	5,264.12	0.00	0.00	0.00	
12,400.00	90.43	359.51	7,233.49	5,364.48	-530.57	5,364.11	0.00	0.00	0.00	
12,500.00	90.43	359.51	7,232.74	5,464.48	-531.43	5,464.10	0.00	0.00	0.00	
12,600.00	90.43	359.51	7,231.99	5,564.47	-532.29	5,564.10	0.00	0.00	0.00	
12,700.00	90.43	359.51	7,231.23	5,664.46	-533.15	5,664.09	0.00	0.00	0.00	
12,800.00	90.43	359.51	7,230.48	5,764.46	-534.01	5,764.08	0.00	0.00	0.00	
12,900.00	90.43	359.51	7,229.73	5,864.45	-534.87	5,864.07	0.00	0.00	0.00	
13,000.00	90.43	359.51	7,228.98	5,964.44	-535.73	5,964.07	0.00	0.00	0.00	
13,100.00	90.43	359.51	7,228.23	6,064.44	-536.59	6,064.06	0.00	0.00	0.00	
13,200.00	90.43	359.51	7,227.47	6,164.43	-537.45	6,164.05	0.00	0.00	0.00	
13,300.00	90.43	359.51	7,226.72	6,264.42	-538.31	6,264.05	0.00	0.00	0.00	

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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)
13,400.00	90.43	359.51	7,225.97	6,364.42	-539.16	6,364.04	0.00	0.00	0.00
13,500.00	90.43	359.51	7,225.22	6,464.41	-540.02	6,464.03	0.00	0.00	0.00
13,600.00	90.43	359.51	7,224.47	6,564.40	-540.88	6,564.02	0.00	0.00	0.00
13,700.00	90.43	359.51	7,223.72	6,664.40	-541.74	6,664.02	0.00	0.00	0.00
13,800.00	90.43	359.51	7,222.96	6,764.39	-542.60	6,764.01	0.00	0.00	0.00
13,900.00	90.43	359.51	7,222.21	6,864.38	-543.46	6,864.00	0.00	0.00	0.00
14,000.00	90.43	359.51	7,221.46	6,964.38	-544.32	6,964.00	0.00	0.00	0.00
14,100.00	90.43	359.51	7,220.71	7,064.37	-545.18	7,063.99	0.00	0.00	0.00
14,200.00	90.43	359.51	7,219.96	7,164.36	-546.04	7,163.98	0.00	0.00	0.00
14,300.00	90.43	359.51	7,219.21	7,264.36	-546.90	7,263.97	0.00	0.00	0.00
14,400.00	90.43	359.51	7,218.45	7,364.35	-547.76	7,363.97	0.00	0.00	0.00
14,409.83	90.43	359.51	7,218.38	7,374.18	-547.85	7,373.80	0.00	0.00	0.00
Turn to BHL @ 14409.83ft									
14,461.36	90.43	0.54	7,217.99	7,425.71	-547.83	7,425.32	2.00	0.00	2.00
End Turn @ 14461.36ft									
14,500.00	90.43	0.54	7,217.70	7,464.35	-547.46	7,463.96	0.00	0.00	0.00
14,600.00	90.43	0.54	7,216.95	7,564.34	-546.52	7,563.95	0.00	0.00	0.00
14,700.00	90.43	0.54	7,216.20	7,664.33	-545.59	7,663.95	0.00	0.00	0.00
14,800.00	90.43	0.54	7,215.44	7,764.32	-544.65	7,763.94	0.00	0.00	0.00
14,900.00	90.43	0.54	7,214.69	7,864.32	-543.71	7,863.94	0.00	0.00	0.00
15,000.00	90.43	0.54	7,213.94	7,964.31	-542.77	7,963.93	0.00	0.00	0.00
15,100.00	90.43	0.54	7,213.18	8,064.30	-541.83	8,063.92	0.00	0.00	0.00
15,200.00	90.43	0.54	7,212.43	8,164.29	-540.89	8,163.92	0.00	0.00	0.00
15,300.00	90.43	0.54	7,211.68	8,264.29	-539.95	8,263.91	0.00	0.00	0.00
15,400.00	90.43	0.54	7,210.92	8,364.28	-539.01	8,363.90	0.00	0.00	0.00
15,500.00	90.43	0.54	7,210.17	8,464.27	-538.07	8,463.90	0.00	0.00	0.00
15,600.00	90.43	0.54	7,209.42	8,564.27	-537.13	8,563.89	0.00	0.00	0.00
15,700.00	90.43	0.54	7,208.66	8,664.26	-536.20	8,663.88	0.00	0.00	0.00
15,800.00	90.43	0.54	7,207.91	8,764.25	-535.26	8,763.88	0.00	0.00	0.00
15,900.00	90.43	0.54	7,207.16	8,864.24	-534.32	8,863.87	0.00	0.00	0.00
16,000.00	90.43	0.54	7,206.40	8,964.24	-533.38	8,963.86	0.00	0.00	0.00
16,100.00	90.43	0.54	7,205.65	9,064.23	-532.44	9,063.86	0.00	0.00	0.00
16,200.00	90.43	0.54	7,204.90	9,164.22	-531.50	9,163.85	0.00	0.00	0.00
16,300.00	90.43	0.54	7,204.14	9,264.22	-530.56	9,263.84	0.00	0.00	0.00
16,400.00	90.43	0.54	7,203.39	9,364.21	-529.62	9,363.84	0.00	0.00	0.00
16,500.00	90.43	0.54	7,202.64	9,464.20	-528.68	9,463.83	0.00	0.00	0.00
16,600.00	90.43	0.54	7,201.89	9,564.19	-527.74	9,563.82	0.00	0.00	0.00
16,700.00	90.43	0.54	7,201.13	9,664.19	-526.81	9,663.82	0.00	0.00	0.00
16,800.00	90.43	0.54	7,200.38	9,764.18	-525.87	9,763.81	0.00	0.00	0.00
16,900.00	90.43	0.54	7,199.63	9,864.17	-524.93	9,863.80	0.00	0.00	0.00
17,000.00	90.43	0.54	7,198.87	9,964.16	-523.99	9,963.80	0.00	0.00	0.00
17,100.00	90.43	0.54	7,198.12	10,064.16	-523.05	10,063.79	0.00	0.00	0.00
17,200.00	90.43	0.54	7,197.37	10,164.15	-522.11	10,163.78	0.00	0.00	0.00
17,300.00	90.43	0.54	7,196.61	10,264.14	-521.17	10,263.78	0.00	0.00	0.00
17,400.00	90.43	0.54	7,195.86	10,364.14	-520.23	10,363.77	0.00	0.00	0.00
17,500.00	90.43	0.54	7,195.11	10,464.13	-519.29	10,463.76	0.00	0.00	0.00
17,600.00	90.43	0.54	7,194.35	10,564.12	-518.36	10,563.76	0.00	0.00	0.00
17,700.00	90.43	0.54	7,193.60	10,664.11	-517.42	10,663.75	0.00	0.00	0.00
17,800.00	90.43	0.54	7,192.85	10,764.11	-516.48	10,763.74	0.00	0.00	0.00
17,900.00	90.43	0.54	7,192.09	10,864.10	-515.54	10,863.74	0.00	0.00	0.00
18,000.00	90.43	0.54	7,191.34	10,964.09	-514.60	10,963.73	0.00	0.00	0.00
18,100.00	90.43	0.54	7,190.59	11,064.08	-513.66	11,063.72	0.00	0.00	0.00
18,200.00	90.43	0.54	7,189.83	11,164.08	-512.72	11,163.72	0.00	0.00	0.00
18,300.00	90.43	0.54	7,189.08	11,264.07	-511.78	11,263.71	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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)
18,400.00	90.43	0.54	7,188.33	11,364.06	-510.84	11,363.70	0.00	0.00	0.00
18,500.00	90.43	0.54	7,187.57	11,464.06	-509.90	11,463.70	0.00	0.00	0.00
18,600.00	90.43	0.54	7,186.82	11,564.05	-508.97	11,563.69	0.00	0.00	0.00
18,700.00	90.43	0.54	7,186.07	11,664.04	-508.03	11,663.68	0.00	0.00	0.00
18,800.00	90.43	0.54	7,185.32	11,764.03	-507.09	11,763.68	0.00	0.00	0.00
18,900.00	90.43	0.54	7,184.56	11,864.03	-506.15	11,863.67	0.00	0.00	0.00
19,000.00	90.43	0.54	7,183.81	11,964.02	-505.21	11,963.66	0.00	0.00	0.00
19,100.00	90.43	0.54	7,183.06	12,064.01	-504.27	12,063.66	0.00	0.00	0.00
19,200.00	90.43	0.54	7,182.30	12,164.01	-503.33	12,163.65	0.00	0.00	0.00
19,300.00	90.43	0.54	7,181.55	12,264.00	-502.39	12,263.64	0.00	0.00	0.00
19,400.00	90.43	0.54	7,180.80	12,363.99	-501.45	12,363.64	0.00	0.00	0.00
19,500.00	90.43	0.54	7,180.04	12,463.98	-500.52	12,463.63	0.00	0.00	0.00
19,600.00	90.43	0.54	7,179.29	12,563.98	-499.58	12,563.62	0.00	0.00	0.00
19,700.00	90.43	0.54	7,178.54	12,663.97	-498.64	12,663.62	0.00	0.00	0.00
19,800.00	90.43	0.54	7,177.78	12,763.96	-497.70	12,763.61	0.00	0.00	0.00
19,900.00	90.43	0.54	7,177.03	12,863.95	-496.76	12,863.60	0.00	0.00	0.00
20,000.00	90.43	0.54	7,176.28	12,963.95	-495.82	12,963.60	0.00	0.00	0.00
20,100.00	90.43	0.54	7,175.52	13,063.94	-494.88	13,063.59	0.00	0.00	0.00
20,200.00	90.43	0.54	7,174.77	13,163.93	-493.94	13,163.58	0.00	0.00	0.00
20,300.00	90.43	0.54	7,174.02	13,263.93	-493.00	13,263.58	0.00	0.00	0.00
20,400.00	90.43	0.54	7,173.26	13,363.92	-492.06	13,363.57	0.00	0.00	0.00
20,500.00	90.43	0.54	7,172.51	13,463.91	-491.13	13,463.56	0.00	0.00	0.00
20,600.00	90.43	0.54	7,171.76	13,563.90	-490.19	13,563.56	0.00	0.00	0.00
20,700.00	90.43	0.54	7,171.01	13,663.90	-489.25	13,663.55	0.00	0.00	0.00
20,800.00	90.43	0.54	7,170.25	13,763.89	-488.31	13,763.55	0.00	0.00	0.00
20,900.00	90.43	0.54	7,169.50	13,863.88	-487.37	13,863.54	0.00	0.00	0.00
21,000.00	90.43	0.54	7,168.75	13,963.87	-486.43	13,963.53	0.00	0.00	0.00
21,100.00	90.43	0.54	7,167.99	14,063.87	-485.49	14,063.53	0.00	0.00	0.00
21,200.00	90.43	0.54	7,167.24	14,163.86	-484.55	14,163.52	0.00	0.00	0.00
21,300.00	90.43	0.54	7,166.49	14,263.85	-483.61	14,263.51	0.00	0.00	0.00
21,400.00	90.43	0.54	7,165.73	14,363.85	-482.67	14,363.51	0.00	0.00	0.00
21,500.00	90.43	0.54	7,164.98	14,463.84	-481.74	14,463.50	0.00	0.00	0.00
21,600.00	90.43	0.54	7,164.23	14,563.83	-480.80	14,563.49	0.00	0.00	0.00
21,648.70	90.43	0.54	7,163.86	14,612.52	-480.34	14,612.18	0.00	0.00	0.00
TD Well @ 21648.70ft									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
HOPPER STATE 24N-34	0.00	0.00	0.00	0.00	0.00	14,576,968.40	1,645,074.03	40.137952	-104.983336
- plan hits target center									
- Point									
2N-R68W-Sec. 15_Secti	0.00	0.00	21.00	1,142.22	-3,492.30	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan misses target center by 3674.35usft at 21.00usft MD (21.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			21.00	1,838.97	-809.58	14,579,948.79	1,640,771.58		
Point 2			21.00	1,825.91	1,838.52	14,579,936.22	1,643,419.69		
Point 3			21.00	1,813.87	4,487.46	14,579,924.68	1,646,068.63		
Point 4			21.00	-845.15	4,491.86	14,577,265.66	1,646,073.53		
Point 5			21.00	-3,504.52	4,495.41	14,574,606.29	1,646,077.58		
Point 6			21.00	-3,497.58	1,841.43	14,574,612.73	1,643,423.60		
Point 7			21.00	-3,492.17	-813.11	14,574,617.64	1,640,769.05		
Point 8			21.00	-835.71	-811.34	14,577,274.11	1,640,770.33		
2N-R68W-Sec. 3_Sectio	0.00	0.00	21.00	1,142.22	-3,492.30	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan misses target center by 3674.35usft at 21.00usft MD (21.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			21.00	12,346.53	-703.08	14,590,456.37	1,640,876.11		
Point 2			21.00	12,327.66	1,945.29	14,590,437.99	1,643,524.49		
Point 3			21.00	12,348.39	4,570.76	14,590,459.21	1,646,149.95		
Point 4			21.00	9,783.31	4,550.84	14,587,894.13	1,646,130.52		
Point 5			21.00	7,116.64	4,529.53	14,585,227.46	1,646,109.71		
Point 6			21.00	7,121.75	1,889.82	14,585,232.07	1,643,469.99		
Point 7			21.00	7,126.42	-756.60	14,585,236.25	1,640,823.57		
2N-R68W-Sec. 10_Secti	0.00	0.00	21.00	1,142.22	-3,492.30	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan misses target center by 3674.35usft at 21.00usft MD (21.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			21.00	7,126.42	-756.60	14,585,236.25	1,640,823.57		
Point 2			21.00	7,121.75	1,889.82	14,585,232.07	1,643,469.99		
Point 3			21.00	7,116.64	4,529.53	14,585,227.46	1,646,109.71		
Point 4			21.00	4,479.82	4,509.34	14,582,590.63	1,646,090.01		
Point 5			21.00	1,813.87	4,487.46	14,579,924.68	1,646,068.63		
Point 6			21.00	1,825.91	1,838.52	14,579,936.22	1,643,419.69		
Point 7			21.00	1,838.97	-809.58	14,579,948.79	1,640,771.58		
Point 8			21.00	4,495.81	-782.94	14,582,605.63	1,640,797.73		
3N-R68W-Sec. 34_Secti	0.00	0.00	-106.00	25,000.44	240.39	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 12699.58usft at 21648.70usft MD (7163.86 TVD, 14612.52 N, -480.34 E)									
- Polygon									
Point 1			-106.00	-6,204.04	-4,436.84	14,595,764.02	1,640,874.06		
Point 2			-106.00	-6,154.53	782.53	14,595,814.51	1,646,093.42		
Point 3			-106.00	-11,510.48	839.68	14,590,458.57	1,646,151.57		
Point 4			-106.00	-11,511.55	-4,434.16	14,590,456.51	1,640,877.73		
HOPPER STATE 24N-34	0.00	0.00	7,163.86	14,612.52	-480.34	14,591,580.84	1,644,590.95	40.178080	-104.985056
- plan hits target center									
- Point									
HOPPER STATE 24N-34	0.00	0.00	7,218.38	7,374.18	-547.85	14,584,342.48	1,644,524.80	40.158202	-104.985297
- plan hits target center									
- Point									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 24N-34SLHZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4910.00usft (D Rig)
Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 24N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
0.00	0.00	13 3/8"	13-3/8	17-1/4	
852.50	850.00	13 3/8"	13-3/8	17-1/4	
852.50	850.00	9 5/8"	9-5/8	12-1/4	
6,671.81	6,632.40	9 5/8"	9-5/8	12-1/4	
6,671.81	6,632.40	5 1/2"	5-1/2	8-1/2	
7,676.59	7,269.00	End Build	5-1/2	8-1/2	
21,648.70	7,163.86	5 1/2"	5-1/2	8-1/2	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
822.14	820.00	Fox Hills			
4,934.41	4,895.00	Sussex			
7,203.66	7,104.50	Sharon Springs			
7,350.22	7,189.50	Niobrara Top			
7,498.99	7,245.70	Niobrara B Bench			
7,498.99	7,245.70	Niobrara C Bench			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft	
916.67	913.29	0.00	-58.03	End Nudge @ 916.67ft	
3,121.67	3,084.79	0.00	-440.92	Begin Drop @ 3121.67ft	
3,621.67	3,582.26	0.00	-484.45	End Drop @ 3621.67ft	
6,671.81	6,632.40	0.00	-484.45	KOP @ 6671.81ft	
7,200.00	7,102.04	206.82	-486.23	DLS = 9°/100'	
7,676.59	7,269.00	641.38	-489.96	End Build @ 7676.59ft	
14,409.83	7,218.38	7,374.18	-547.85	Turn to BHL @ 14409.83ft	
14,461.36	7,217.99	7,425.71	-547.83	End Turn @ 14461.36ft	
21,648.70	7,163.86	14,612.52	-480.34	TD Well @ 21648.70ft	