

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

HOPPER STATE 9N-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 9N-34SLHZ
Wellbore: Plan A
Design: Permit Rev-4

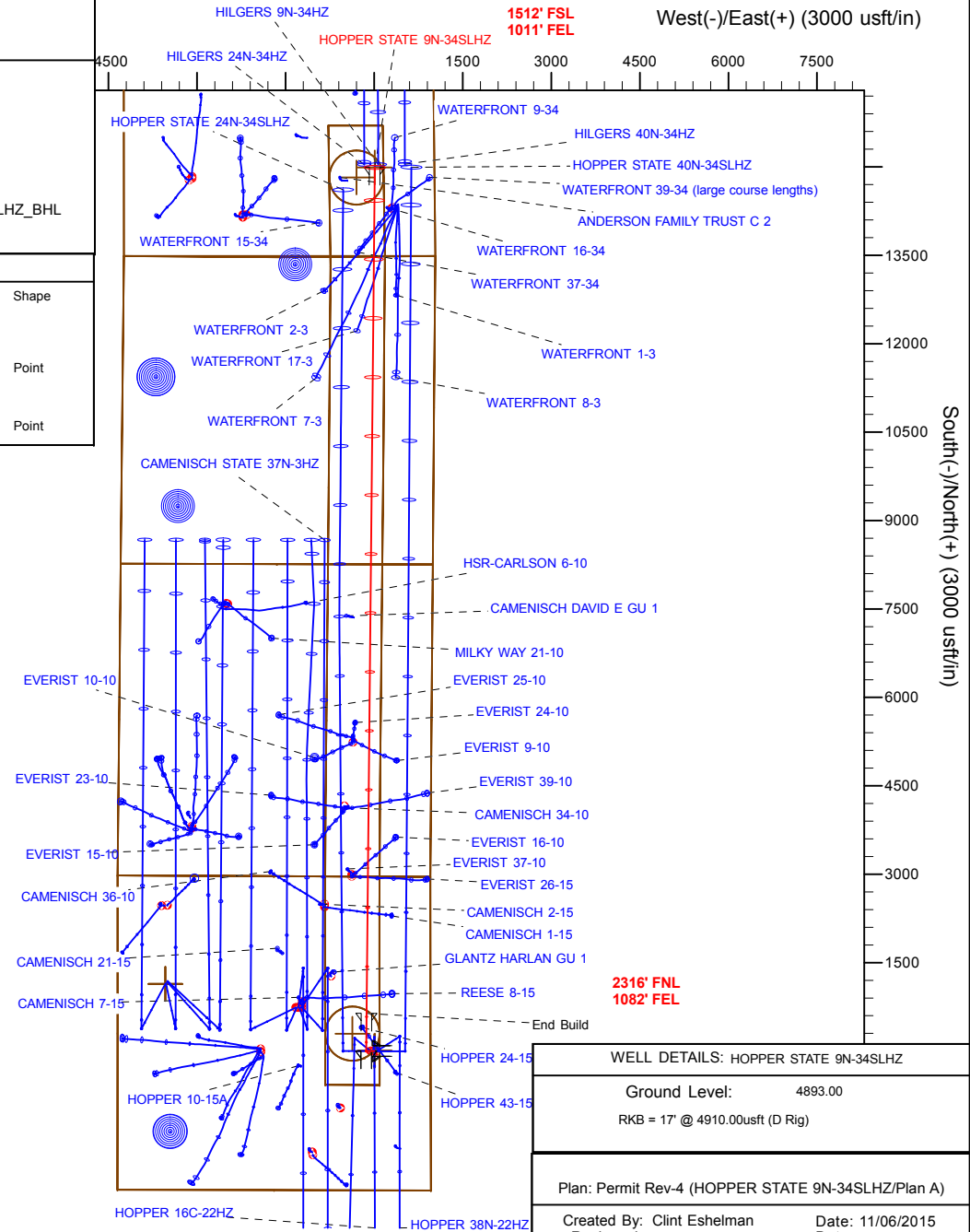
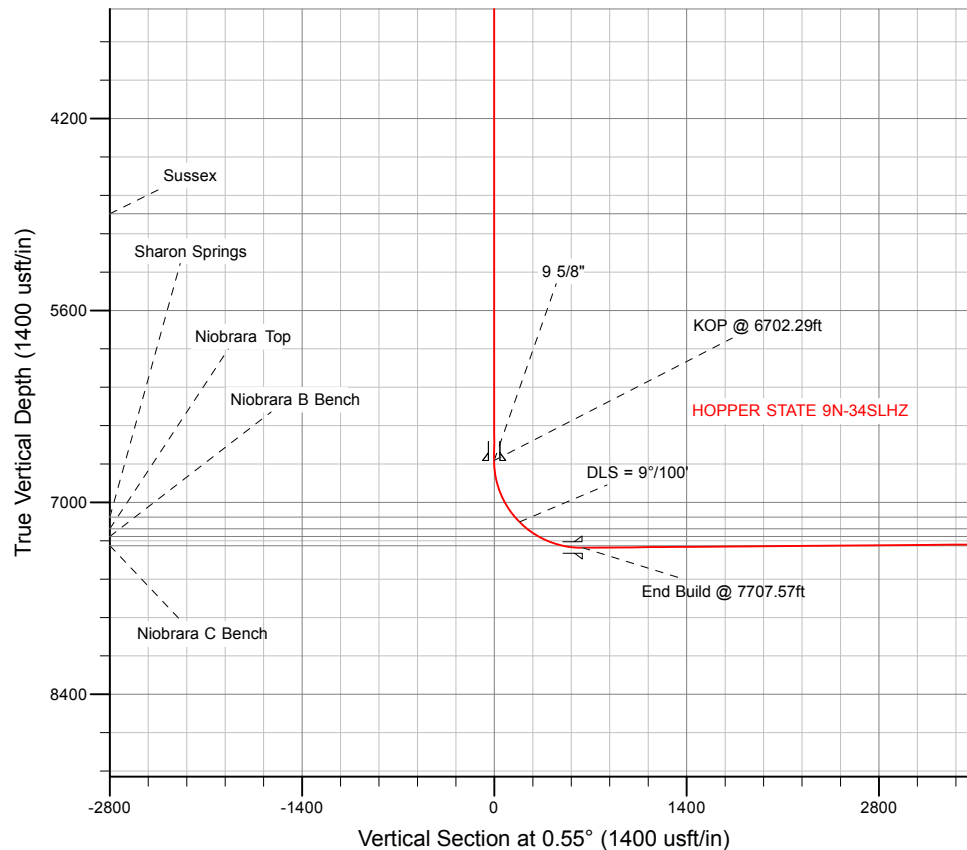
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	
3	883.33	8.00	270.00	881.60	0.00	-37.17	1.50	270.00	-0.36	
4	1383.33	8.00	270.00	1376.74	0.00	-106.76	0.00	0.00	-1.02	
5	1783.33	0.00	0.00	1775.44	0.00	-134.64	2.00	180.00	-1.29	
6	6702.29	0.00	0.00	6694.40	0.00	-134.64	0.00	0.00	-1.29	
7	7707.57	90.48	0.55	7331.00	641.87	-128.51	9.00	0.55	640.61	
8	22060.38	90.48	0.55	7212.00	14993.53	8.66	0.00	0.00	14992.92	HOPPER STATE 9N-34SLHZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HOPPER STATE 9N-34SLHZ_SHL	0.00	0.00	0.00	40.137952	-104.983175	Point
HOPPER STATE 9N-34SLHZ_BHL	7212.00	14993.53	8.66	40.179126	-104.983144	Point



WELL DETAILS: HOPPER STATE 9N-34SLHZ

Ground Level: 4893.00

RKB = 17' @ 4910.00usft (D Rig)

Plan: Permit Rev-4 (HOPPER STATE 9N-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 9N-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 9N-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 9N-34SLHZ					
Well Position	+N/-S	-12.02 usft	Northing:	14,576,968.41 usft	Latitude:	40.137952
	+E/-W	47.79 usft	Easting:	1,645,119.02 usft	Longitude:	-104.983175
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	0.55

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	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
883.33	8.00	270.00	881.60	0.00	-37.17	1.50	1.50	0.00	270.00	
1,383.33	8.00	270.00	1,376.74	0.00	-106.76	0.00	0.00	0.00	0.00	
1,783.33	0.00	0.00	1,775.44	0.00	-134.64	2.00	-2.00	0.00	180.00	
6,702.29	0.00	0.00	6,694.40	0.00	-134.64	0.00	0.00	0.00	0.00	
7,707.57	90.48	0.55	7,331.00	641.87	-128.51	9.00	9.00	0.05	0.55	
22,060.38	90.48	0.55	7,212.00	14,993.53	8.66	0.00	0.00	0.00	0.00	HOPPER STATE 9N-34SLHZ

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 9N-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 9N-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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 350.00ft									
400.00	0.75	270.00	400.00	0.00	-0.33	0.00	1.50	1.50	0.00
500.00	2.25	270.00	499.96	0.00	-2.94	-0.03	1.50	1.50	0.00
600.00	3.75	270.00	599.82	0.00	-8.18	-0.08	1.50	1.50	0.00
700.00	5.25	270.00	699.51	0.00	-16.02	-0.15	1.50	1.50	0.00
800.00	6.75	270.00	798.96	0.00	-26.48	-0.25	1.50	1.50	0.00
821.19	7.07	270.00	820.00	0.00	-29.03	-0.28	1.50	1.50	0.00
Fox Hills									
851.44	7.52	270.00	850.00	0.00	-32.87	-0.32	1.50	1.50	0.00
13 3/8" - 9 5/8"									
883.33	8.00	270.00	881.60	0.00	-37.17	-0.36	1.50	1.50	0.00
End Nudge @ 883.33ft									
900.00	8.00	270.00	898.11	0.00	-39.49	-0.38	0.00	0.00	0.00
1,000.00	8.00	270.00	997.13	0.00	-53.41	-0.51	0.00	0.00	0.00
1,100.00	8.00	270.00	1,096.16	0.00	-67.33	-0.65	0.00	0.00	0.00
1,200.00	8.00	270.00	1,195.19	0.00	-81.24	-0.78	0.00	0.00	0.00
1,300.00	8.00	270.00	1,294.21	0.00	-95.16	-0.91	0.00	0.00	0.00
1,383.33	8.00	270.00	1,376.73	0.00	-106.76	-1.02	0.00	0.00	0.00
Begin Drop @ 1383.33ft									
1,400.00	7.67	270.00	1,393.25	0.00	-109.03	-1.05	2.00	-2.00	0.00
1,500.00	5.67	270.00	1,492.57	0.00	-120.64	-1.16	2.00	-2.00	0.00
1,600.00	3.67	270.00	1,592.23	0.00	-128.78	-1.24	2.00	-2.00	0.00
1,700.00	1.67	270.00	1,692.12	0.00	-133.43	-1.28	2.00	-2.00	0.00
1,783.33	0.00	270.00	1,775.43	0.00	-134.64	-1.29	2.00	-2.00	0.00
End Drop @ 1783.33ft									
1,800.00	0.00	0.00	1,792.10	0.00	-134.64	-1.29	0.00	0.00	0.00
1,900.00	0.00	0.00	1,892.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,000.00	0.00	0.00	1,992.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,100.00	0.00	0.00	2,092.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,200.00	0.00	0.00	2,192.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,300.00	0.00	0.00	2,292.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,400.00	0.00	0.00	2,392.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,500.00	0.00	0.00	2,492.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,600.00	0.00	0.00	2,592.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,700.00	0.00	0.00	2,692.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,800.00	0.00	0.00	2,792.10	0.00	-134.64	-1.29	0.00	0.00	0.00
2,900.00	0.00	0.00	2,892.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,000.00	0.00	0.00	2,992.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,100.00	0.00	0.00	3,092.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,200.00	0.00	0.00	3,192.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,300.00	0.00	0.00	3,292.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,400.00	0.00	0.00	3,392.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,500.00	0.00	0.00	3,492.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,600.00	0.00	0.00	3,592.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,700.00	0.00	0.00	3,692.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,800.00	0.00	0.00	3,792.10	0.00	-134.64	-1.29	0.00	0.00	0.00
3,900.00	0.00	0.00	3,892.10	0.00	-134.64	-1.29	0.00	0.00	0.00

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Planning Report

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Site:	2N-68W-15 Hopper 9-15HZ Pad	North Reference:	True
Well:	HOPPER STATE 9N-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	3,992.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,100.00	0.00	0.00	4,092.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,200.00	0.00	0.00	4,192.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,300.00	0.00	0.00	4,292.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,400.00	0.00	0.00	4,392.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,500.00	0.00	0.00	4,492.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,600.00	0.00	0.00	4,592.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,700.00	0.00	0.00	4,692.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,800.00	0.00	0.00	4,792.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,900.00	0.00	0.00	4,892.10	0.00	-134.64	-1.29	0.00	0.00	0.00
4,902.90	0.00	0.00	4,895.00	0.00	-134.64	-1.29	0.00	0.00	0.00
Sussex									
5,000.00	0.00	0.00	4,992.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,100.00	0.00	0.00	5,092.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,200.00	0.00	0.00	5,192.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,300.00	0.00	0.00	5,292.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,400.00	0.00	0.00	5,392.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,500.00	0.00	0.00	5,492.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,600.00	0.00	0.00	5,592.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,700.00	0.00	0.00	5,692.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,800.00	0.00	0.00	5,792.10	0.00	-134.64	-1.29	0.00	0.00	0.00
5,900.00	0.00	0.00	5,892.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,000.00	0.00	0.00	5,992.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,100.00	0.00	0.00	6,092.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,200.00	0.00	0.00	6,192.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,300.00	0.00	0.00	6,292.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,400.00	0.00	0.00	6,392.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,500.00	0.00	0.00	6,492.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,600.00	0.00	0.00	6,592.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,700.00	0.00	0.00	6,692.10	0.00	-134.64	-1.29	0.00	0.00	0.00
6,702.29	0.00	0.00	6,694.39	0.00	-134.64	-1.29	0.00	0.00	0.00
KOP @ 6702.29ft - 9 5/8" - 5 1/2"									
6,800.00	8.79	0.55	6,791.72	7.48	-134.57	6.19	9.00	9.00	0.00
6,900.00	17.79	0.55	6,888.94	30.45	-134.35	29.16	9.00	9.00	0.00
7,000.00	26.79	0.55	6,981.37	68.35	-133.99	67.06	9.00	9.00	0.00
7,100.00	35.79	0.55	7,066.74	120.23	-133.49	118.95	9.00	9.00	0.00
7,152.10	40.48	0.55	7,107.70	152.40	-133.18	151.11	9.00	9.00	0.00
Sharon Springs									
7,200.00	44.79	0.55	7,142.93	184.83	-132.87	183.55	9.00	9.00	0.00
DLS = 9°/100'									
7,274.64	51.51	0.55	7,192.70	240.40	-132.34	239.12	9.00	9.00	0.00
Niobrara Top									
7,300.00	53.79	0.55	7,208.08	260.56	-132.15	259.28	9.00	9.00	0.00
7,375.97	60.63	0.55	7,249.20	324.39	-131.54	323.11	9.00	9.00	0.00
Niobrara B Bench									
7,400.00	62.79	0.55	7,260.59	345.54	-131.34	344.27	9.00	9.00	0.00
7,500.00	71.79	0.55	7,299.15	437.69	-130.46	436.42	9.00	9.00	0.00
7,565.14	77.66	0.55	7,316.30	500.50	-129.86	499.23	9.00	9.00	0.00
Niobrara C Bench									
7,600.00	80.79	0.55	7,322.82	534.74	-129.53	533.47	9.00	9.00	0.00
7,700.00	89.79	0.55	7,331.01	634.30	-128.58	633.03	9.00	9.00	0.00
7,707.57	90.47	0.55	7,331.00	641.87	-128.51	640.60	9.00	9.00	0.00
End Build @ 7707.57ft - End Build									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 9N-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 9N-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)
7,800.00	90.48	0.55	7,330.23	734.29	-127.62	733.03	0.00	0.00	0.00
7,900.00	90.48	0.55	7,329.40	834.28	-126.67	833.03	0.00	0.00	0.00
8,000.00	90.48	0.55	7,328.57	934.27	-125.71	933.02	0.00	0.00	0.00
8,100.00	90.48	0.55	7,327.74	1,034.27	-124.75	1,033.02	0.00	0.00	0.00
8,200.00	90.48	0.55	7,326.91	1,134.26	-123.80	1,133.02	0.00	0.00	0.00
8,300.00	90.48	0.55	7,326.08	1,234.25	-122.84	1,233.01	0.00	0.00	0.00
8,400.00	90.48	0.55	7,325.25	1,334.24	-121.89	1,333.01	0.00	0.00	0.00
8,500.00	90.48	0.55	7,324.43	1,434.23	-120.93	1,433.01	0.00	0.00	0.00
8,600.00	90.48	0.55	7,323.60	1,534.23	-119.98	1,533.00	0.00	0.00	0.00
8,700.00	90.48	0.55	7,322.77	1,634.22	-119.02	1,633.00	0.00	0.00	0.00
8,800.00	90.48	0.55	7,321.94	1,734.21	-118.07	1,733.00	0.00	0.00	0.00
8,900.00	90.48	0.55	7,321.11	1,834.20	-117.11	1,832.99	0.00	0.00	0.00
9,000.00	90.48	0.55	7,320.28	1,934.19	-116.15	1,932.99	0.00	0.00	0.00
9,100.00	90.48	0.55	7,319.45	2,034.19	-115.20	2,032.99	0.00	0.00	0.00
9,200.00	90.48	0.55	7,318.62	2,134.18	-114.24	2,132.98	0.00	0.00	0.00
9,300.00	90.48	0.55	7,317.79	2,234.17	-113.29	2,232.98	0.00	0.00	0.00
9,400.00	90.48	0.55	7,316.96	2,334.16	-112.33	2,332.98	0.00	0.00	0.00
9,500.00	90.48	0.55	7,316.14	2,434.15	-111.38	2,432.97	0.00	0.00	0.00
9,600.00	90.48	0.55	7,315.31	2,534.15	-110.42	2,532.97	0.00	0.00	0.00
9,700.00	90.48	0.55	7,314.48	2,634.14	-109.46	2,632.97	0.00	0.00	0.00
9,800.00	90.48	0.55	7,313.65	2,734.13	-108.51	2,732.96	0.00	0.00	0.00
9,900.00	90.48	0.55	7,312.82	2,834.12	-107.55	2,832.96	0.00	0.00	0.00
10,000.00	90.48	0.55	7,311.99	2,934.11	-106.60	2,932.96	0.00	0.00	0.00
10,100.00	90.48	0.55	7,311.16	3,034.11	-105.64	3,032.95	0.00	0.00	0.00
10,200.00	90.48	0.55	7,310.33	3,134.10	-104.69	3,132.95	0.00	0.00	0.00
10,300.00	90.48	0.55	7,309.50	3,234.09	-103.73	3,232.94	0.00	0.00	0.00
10,400.00	90.48	0.55	7,308.67	3,334.08	-102.77	3,332.94	0.00	0.00	0.00
10,500.00	90.48	0.55	7,307.84	3,434.07	-101.82	3,432.94	0.00	0.00	0.00
10,600.00	90.48	0.55	7,307.02	3,534.07	-100.86	3,532.93	0.00	0.00	0.00
10,700.00	90.48	0.55	7,306.19	3,634.06	-99.91	3,632.93	0.00	0.00	0.00
10,800.00	90.48	0.55	7,305.36	3,734.05	-98.95	3,732.93	0.00	0.00	0.00
10,900.00	90.48	0.55	7,304.53	3,834.04	-98.00	3,832.92	0.00	0.00	0.00
11,000.00	90.48	0.55	7,303.70	3,934.03	-97.04	3,932.92	0.00	0.00	0.00
11,100.00	90.48	0.55	7,302.87	4,034.03	-96.09	4,032.92	0.00	0.00	0.00
11,200.00	90.48	0.55	7,302.04	4,134.02	-95.13	4,132.91	0.00	0.00	0.00
11,300.00	90.48	0.55	7,301.21	4,234.01	-94.17	4,232.91	0.00	0.00	0.00
11,400.00	90.48	0.55	7,300.38	4,334.00	-93.22	4,332.91	0.00	0.00	0.00
11,500.00	90.48	0.55	7,299.55	4,433.99	-92.26	4,432.90	0.00	0.00	0.00
11,600.00	90.48	0.55	7,298.72	4,533.99	-91.31	4,532.90	0.00	0.00	0.00
11,700.00	90.48	0.55	7,297.90	4,633.98	-90.35	4,632.90	0.00	0.00	0.00
11,800.00	90.48	0.55	7,297.07	4,733.97	-89.40	4,732.89	0.00	0.00	0.00
11,900.00	90.48	0.55	7,296.24	4,833.96	-88.44	4,832.89	0.00	0.00	0.00
12,000.00	90.48	0.55	7,295.41	4,933.95	-87.48	4,932.89	0.00	0.00	0.00
12,100.00	90.48	0.55	7,294.58	5,033.95	-86.53	5,032.88	0.00	0.00	0.00
12,200.00	90.48	0.55	7,293.75	5,133.94	-85.57	5,132.88	0.00	0.00	0.00
12,300.00	90.48	0.55	7,292.92	5,233.93	-84.62	5,232.88	0.00	0.00	0.00
12,400.00	90.48	0.55	7,292.09	5,333.92	-83.66	5,332.87	0.00	0.00	0.00
12,500.00	90.48	0.55	7,291.26	5,433.91	-82.71	5,432.87	0.00	0.00	0.00
12,600.00	90.48	0.55	7,290.43	5,533.91	-81.75	5,532.87	0.00	0.00	0.00
12,700.00	90.48	0.55	7,289.60	5,633.90	-80.79	5,632.86	0.00	0.00	0.00
12,800.00	90.48	0.55	7,288.78	5,733.89	-79.84	5,732.86	0.00	0.00	0.00
12,900.00	90.48	0.55	7,287.95	5,833.88	-78.88	5,832.86	0.00	0.00	0.00
13,000.00	90.48	0.55	7,287.12	5,933.87	-77.93	5,932.85	0.00	0.00	0.00
13,100.00	90.48	0.55	7,286.29	6,033.87	-76.97	6,032.85	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 9N-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 9N-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)
13,200.00	90.48	0.55	7,285.46	6,133.86	-76.02	6,132.85	0.00	0.00	0.00
13,300.00	90.48	0.55	7,284.63	6,233.85	-75.06	6,232.84	0.00	0.00	0.00
13,400.00	90.48	0.55	7,283.80	6,333.84	-74.11	6,332.84	0.00	0.00	0.00
13,500.00	90.48	0.55	7,282.97	6,433.83	-73.15	6,432.84	0.00	0.00	0.00
13,600.00	90.48	0.55	7,282.14	6,533.83	-72.19	6,532.83	0.00	0.00	0.00
13,700.00	90.48	0.55	7,281.31	6,633.82	-71.24	6,632.83	0.00	0.00	0.00
13,800.00	90.48	0.55	7,280.48	6,733.81	-70.28	6,732.82	0.00	0.00	0.00
13,900.00	90.48	0.55	7,279.66	6,833.80	-69.33	6,832.82	0.00	0.00	0.00
14,000.00	90.48	0.55	7,278.83	6,933.79	-68.37	6,932.82	0.00	0.00	0.00
14,100.00	90.48	0.55	7,278.00	7,033.79	-67.42	7,032.81	0.00	0.00	0.00
14,200.00	90.48	0.55	7,277.17	7,133.78	-66.46	7,132.81	0.00	0.00	0.00
14,300.00	90.48	0.55	7,276.34	7,233.77	-65.50	7,232.81	0.00	0.00	0.00
14,400.00	90.48	0.55	7,275.51	7,333.76	-64.55	7,332.80	0.00	0.00	0.00
14,500.00	90.48	0.55	7,274.68	7,433.75	-63.59	7,432.80	0.00	0.00	0.00
14,600.00	90.48	0.55	7,273.85	7,533.75	-62.64	7,532.80	0.00	0.00	0.00
14,700.00	90.48	0.55	7,273.02	7,633.74	-61.68	7,632.79	0.00	0.00	0.00
14,800.00	90.48	0.55	7,272.19	7,733.73	-60.73	7,732.79	0.00	0.00	0.00
14,900.00	90.48	0.55	7,271.37	7,833.72	-59.77	7,832.79	0.00	0.00	0.00
15,000.00	90.48	0.55	7,270.54	7,933.71	-58.81	7,932.78	0.00	0.00	0.00
15,100.00	90.48	0.55	7,269.71	8,033.71	-57.86	8,032.78	0.00	0.00	0.00
15,200.00	90.48	0.55	7,268.88	8,133.70	-56.90	8,132.78	0.00	0.00	0.00
15,300.00	90.48	0.55	7,268.05	8,233.69	-55.95	8,232.77	0.00	0.00	0.00
15,400.00	90.48	0.55	7,267.22	8,333.68	-54.99	8,332.77	0.00	0.00	0.00
15,500.00	90.48	0.55	7,266.39	8,433.67	-54.04	8,432.77	0.00	0.00	0.00
15,600.00	90.48	0.55	7,265.56	8,533.67	-53.08	8,532.76	0.00	0.00	0.00
15,700.00	90.48	0.55	7,264.73	8,633.66	-52.13	8,632.76	0.00	0.00	0.00
15,800.00	90.48	0.55	7,263.90	8,733.65	-51.17	8,732.76	0.00	0.00	0.00
15,900.00	90.48	0.55	7,263.07	8,833.64	-50.21	8,832.75	0.00	0.00	0.00
16,000.00	90.48	0.55	7,262.25	8,933.63	-49.26	8,932.75	0.00	0.00	0.00
16,100.00	90.48	0.55	7,261.42	9,033.63	-48.30	9,032.75	0.00	0.00	0.00
16,200.00	90.48	0.55	7,260.59	9,133.62	-47.35	9,132.74	0.00	0.00	0.00
16,300.00	90.48	0.55	7,259.76	9,233.61	-46.39	9,232.74	0.00	0.00	0.00
16,400.00	90.48	0.55	7,258.93	9,333.60	-45.44	9,332.74	0.00	0.00	0.00
16,500.00	90.48	0.55	7,258.10	9,433.59	-44.48	9,432.73	0.00	0.00	0.00
16,600.00	90.48	0.55	7,257.27	9,533.59	-43.52	9,532.73	0.00	0.00	0.00
16,700.00	90.48	0.55	7,256.44	9,633.58	-42.57	9,632.73	0.00	0.00	0.00
16,800.00	90.48	0.55	7,255.61	9,733.57	-41.61	9,732.72	0.00	0.00	0.00
16,900.00	90.48	0.55	7,254.78	9,833.56	-40.66	9,832.72	0.00	0.00	0.00
17,000.00	90.48	0.55	7,253.95	9,933.55	-39.70	9,932.71	0.00	0.00	0.00
17,100.00	90.48	0.55	7,253.13	10,033.55	-38.75	10,032.71	0.00	0.00	0.00
17,200.00	90.48	0.55	7,252.30	10,133.54	-37.79	10,132.71	0.00	0.00	0.00
17,300.00	90.48	0.55	7,251.47	10,233.53	-36.83	10,232.70	0.00	0.00	0.00
17,400.00	90.48	0.55	7,250.64	10,333.52	-35.88	10,332.70	0.00	0.00	0.00
17,500.00	90.48	0.55	7,249.81	10,433.51	-34.92	10,432.70	0.00	0.00	0.00
17,600.00	90.48	0.55	7,248.98	10,533.51	-33.97	10,532.69	0.00	0.00	0.00
17,700.00	90.48	0.55	7,248.15	10,633.50	-33.01	10,632.69	0.00	0.00	0.00
17,800.00	90.48	0.55	7,247.32	10,733.49	-32.06	10,732.69	0.00	0.00	0.00
17,900.00	90.48	0.55	7,246.49	10,833.48	-31.10	10,832.68	0.00	0.00	0.00
18,000.00	90.48	0.55	7,245.66	10,933.47	-30.15	10,932.68	0.00	0.00	0.00
18,100.00	90.48	0.55	7,244.83	11,033.47	-29.19	11,032.68	0.00	0.00	0.00
18,200.00	90.48	0.55	7,244.01	11,133.46	-28.23	11,132.67	0.00	0.00	0.00
18,300.00	90.48	0.55	7,243.18	11,233.45	-27.28	11,232.67	0.00	0.00	0.00
18,400.00	90.48	0.55	7,242.35	11,333.44	-26.32	11,332.67	0.00	0.00	0.00
18,500.00	90.48	0.55	7,241.52	11,433.43	-25.37	11,432.66	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 9N-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 9N-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)
18,600.00	90.48	0.55	7,240.69	11,533.43	-24.41	11,532.66	0.00	0.00	0.00
18,700.00	90.48	0.55	7,239.86	11,633.42	-23.46	11,632.66	0.00	0.00	0.00
18,800.00	90.48	0.55	7,239.03	11,733.41	-22.50	11,732.65	0.00	0.00	0.00
18,900.00	90.48	0.55	7,238.20	11,833.40	-21.54	11,832.65	0.00	0.00	0.00
19,000.00	90.48	0.55	7,237.37	11,933.39	-20.59	11,932.65	0.00	0.00	0.00
19,100.00	90.48	0.55	7,236.54	12,033.39	-19.63	12,032.64	0.00	0.00	0.00
19,200.00	90.48	0.55	7,235.71	12,133.38	-18.68	12,132.64	0.00	0.00	0.00
19,300.00	90.48	0.55	7,234.89	12,233.37	-17.72	12,232.64	0.00	0.00	0.00
19,400.00	90.48	0.55	7,234.06	12,333.36	-16.77	12,332.63	0.00	0.00	0.00
19,500.00	90.48	0.55	7,233.23	12,433.35	-15.81	12,432.63	0.00	0.00	0.00
19,600.00	90.48	0.55	7,232.40	12,533.35	-14.85	12,532.63	0.00	0.00	0.00
19,700.00	90.48	0.55	7,231.57	12,633.34	-13.90	12,632.62	0.00	0.00	0.00
19,800.00	90.48	0.55	7,230.74	12,733.33	-12.94	12,732.62	0.00	0.00	0.00
19,900.00	90.48	0.55	7,229.91	12,833.32	-11.99	12,832.62	0.00	0.00	0.00
20,000.00	90.48	0.55	7,229.08	12,933.31	-11.03	12,932.61	0.00	0.00	0.00
20,100.00	90.48	0.55	7,228.25	13,033.31	-10.08	13,032.61	0.00	0.00	0.00
20,200.00	90.48	0.55	7,227.42	13,133.30	-9.12	13,132.60	0.00	0.00	0.00
20,300.00	90.48	0.55	7,226.60	13,233.29	-8.17	13,232.60	0.00	0.00	0.00
20,400.00	90.48	0.55	7,225.77	13,333.28	-7.21	13,332.60	0.00	0.00	0.00
20,500.00	90.48	0.55	7,224.94	13,433.27	-6.25	13,432.59	0.00	0.00	0.00
20,600.00	90.48	0.55	7,224.11	13,533.27	-5.30	13,532.59	0.00	0.00	0.00
20,700.00	90.48	0.55	7,223.28	13,633.26	-4.34	13,632.59	0.00	0.00	0.00
20,800.00	90.48	0.55	7,222.45	13,733.25	-3.39	13,732.58	0.00	0.00	0.00
20,900.00	90.48	0.55	7,221.62	13,833.24	-2.43	13,832.58	0.00	0.00	0.00
21,000.00	90.48	0.55	7,220.79	13,933.23	-1.48	13,932.58	0.00	0.00	0.00
21,100.00	90.48	0.55	7,219.96	14,033.23	-0.52	14,032.57	0.00	0.00	0.00
21,200.00	90.48	0.55	7,219.13	14,133.22	0.44	14,132.57	0.00	0.00	0.00
21,300.00	90.48	0.55	7,218.30	14,233.21	1.39	14,232.57	0.00	0.00	0.00
21,400.00	90.48	0.55	7,217.48	14,333.20	2.35	14,332.56	0.00	0.00	0.00
21,500.00	90.48	0.55	7,216.65	14,433.19	3.30	14,432.56	0.00	0.00	0.00
21,600.00	90.48	0.55	7,215.82	14,533.19	4.26	14,532.56	0.00	0.00	0.00
21,700.00	90.48	0.55	7,214.99	14,633.18	5.21	14,632.55	0.00	0.00	0.00
21,800.00	90.48	0.55	7,214.16	14,733.17	6.17	14,732.55	0.00	0.00	0.00
21,900.00	90.48	0.55	7,213.33	14,833.16	7.13	14,832.55	0.00	0.00	0.00
22,000.00	90.48	0.55	7,212.50	14,933.15	8.08	14,932.54	0.00	0.00	0.00
22,060.38	90.48	0.55	7,212.00	14,993.52	8.66	14,992.92	0.00	0.00	0.00
TD Well @ 22060.38ft - 5 1/2"									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 9N-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 9N-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 9N-34SLHZ	0.00	0.00	0.00	14,820.91	-301.33	14,591,789.27	1,644,814.89	40.178652	-104.984254
- plan misses target center by 7219.79usft at 21944.61usft MD (7212.96 TVD, 14877.77 N, 7.55 E)									
- Circle (radius 460.00)									
HOPPER STATE 9N-34SLHZ	0.00	0.00	0.00	0.00	0.00	14,576,968.41	1,645,119.02	40.137952	-104.983175
- plan hits target center									
- Point									
HOPPER STATE 9N-34SLHZ	0.00	0.00	0.00	296.58	-368.66	14,577,264.92	1,644,750.31	40.138767	-104.984494
- plan misses target center by 473.15usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
HOPPER STATE 9N-34SLHZ	0.00	0.00	0.00	11.65	12.30	14,576,980.07	1,645,131.32	40.137984	-104.983131
- plan misses target center by 16.94usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	15,690.84	-790.31	14,592,670.76	1,644,338.04		
Point 2			0.00	15,692.38	129.84	14,592,672.47	1,645,258.19		
Point 3			0.00	14,811.61	146.42	14,591,791.71	1,645,274.94		
Point 4			0.00	13,488.86	171.33	14,590,468.96	1,645,300.10		
Point 5			0.00	11,803.11	156.02	14,588,783.21	1,645,285.11		
Point 6			0.00	8,242.73	124.10	14,585,222.82	1,645,253.86		
Point 7			0.00	6,918.37	111.49	14,583,898.46	1,645,241.50		
Point 8			0.00	5,594.15	98.88	14,582,574.24	1,645,229.14		
Point 9			0.00	4,269.94	86.28	14,581,250.02	1,645,216.79		
Point 10			0.00	2,948.38	73.69	14,579,928.46	1,645,204.45		
Point 11			0.00	1,618.44	76.36	14,578,598.52	1,645,207.37		
Point 12			0.00	285.57	79.04	14,577,265.65	1,645,210.31		
Point 13			0.00	-585.33	79.74	14,576,394.75	1,645,211.17		
Point 14			0.00	-583.19	-840.26	14,576,396.72	1,644,291.17		
Point 15			0.00	284.28	-840.95	14,577,264.19	1,644,290.32		
Point 16			0.00	2,951.84	-846.31	14,579,931.75	1,644,284.45		
Point 17			0.00	5,602.91	-821.08	14,582,582.82	1,644,309.18		
Point 18			0.00	8,251.17	-795.86	14,585,231.09	1,644,333.90		
Point 19			0.00	9,556.28	-784.38	14,586,536.20	1,644,345.13		
Point 20			0.00	10,861.68	-772.88	14,587,841.60	1,644,356.38		
Point 21			0.00	13,304.01	-749.90	14,590,283.94	1,644,378.90		
Point 22			0.00	14,806.91	-773.65	14,591,786.83	1,644,354.87		
Point 23			0.00	15,690.84	-790.31	14,592,670.76	1,644,338.04		
2N-R68W-Sec. 15_Secti	0.00	0.00	21.00	1,142.22	-3,537.30	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan misses target center by 3717.14usft at 21.00usft MD (21.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			21.00	1,838.97	-809.58	14,579,948.78	1,640,771.58		
Point 2			21.00	1,825.91	1,838.52	14,579,936.23	1,643,419.68		
Point 3			21.00	1,813.87	4,487.46	14,579,924.69	1,646,068.63		
Point 4			21.00	-845.15	4,491.86	14,577,265.67	1,646,073.53		
Point 5			21.00	-3,504.52	4,495.41	14,574,606.30	1,646,077.58		
Point 6			21.00	-3,497.58	1,841.43	14,574,612.74	1,643,423.60		
Point 7			21.00	-3,492.17	-813.11	14,574,617.64	1,640,769.06		
Point 8			21.00	-835.71	-811.34	14,577,274.10	1,640,770.33		
2N-R68W-Sec. 3_Sectio	0.00	0.00	21.00	1,142.22	-3,537.30	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan misses target center by 3717.14usft at 21.00usft MD (21.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			21.00	12,346.53	-703.08	14,590,456.36	1,640,876.09		
Point 2			21.00	12,327.66	1,945.29	14,590,438.00	1,643,524.47		
Point 3			21.00	12,348.39	4,570.76	14,590,459.22	1,646,149.93		
Point 4			21.00	9,783.31	4,550.84	14,587,894.14	1,646,130.50		
Point 5			21.00	7,116.64	4,529.53	14,585,227.46	1,646,109.69		
Point 6			21.00	7,121.75	1,889.82	14,585,232.08	1,643,469.98		

Anadarko

Planning Report

Database:	PLANNING				Local Co-ordinate Reference:		Well HOPPER STATE 9N-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 9N-34SLHZ				Survey Calculation Method:		Minimum Curvature		
Wellbore:	Plan A								
Design:	Permit Rev-4								
Point 7			21.00	7,126.42	-756.60	14,585,236.24	1,640,823.56		
2N-R68W-Sec. 10_Secti	0.00	0.00	21.00	1,142.22	-3,537.30	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan misses target center by 3717.14usft at 21.00usft MD (21.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			21.00	7,126.42	-756.60	14,585,236.24	1,640,823.56		
Point 2			21.00	7,121.75	1,889.82	14,585,232.08	1,643,469.98		
Point 3			21.00	7,116.64	4,529.53	14,585,227.46	1,646,109.69		
Point 4			21.00	4,479.82	4,509.34	14,582,590.64	1,646,090.00		
Point 5			21.00	1,813.87	4,487.46	14,579,924.69	1,646,068.63		
Point 6			21.00	1,825.91	1,838.52	14,579,936.23	1,643,419.68		
Point 7			21.00	1,838.97	-809.58	14,579,948.78	1,640,771.58		
Point 8			21.00	4,495.81	-782.94	14,582,605.63	1,640,797.72		
3N-R68W-Sec. 34_Secti	0.00	0.00	-106.00	25,000.44	195.44	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 12398.65usft at 22060.38usft MD (7212.00 TVD, 14993.52 N, 8.66 E)									
- Polygon									
Point 1			-106.00	-6,204.04	-4,436.84	14,595,764.01	1,640,874.07		
Point 2			-106.00	-6,154.53	782.53	14,595,814.51	1,646,093.43		
Point 3			-106.00	-11,510.48	839.68	14,590,458.57	1,646,151.59		
Point 4			-106.00	-11,511.55	-4,434.16	14,590,456.50	1,640,877.75		
HOPPER STATE 9N-34SLHZ	0.00	0.00	7,212.00	14,993.53	8.66	14,591,961.94	1,645,124.84	40.179126	-104.983144
- plan misses target center by 0.01usft at 22060.38usft MD (7212.00 TVD, 14993.52 N, 8.66 E)									
- Point									

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	
851.44	850.00	13 3/8"	13-3/8	17-1/4	
851.44	850.00	9 5/8"	9-5/8	12-1/4	
6,702.29	6,694.39	9 5/8"	9-5/8	12-1/4	
6,702.29	6,694.39	5 1/2"	5-1/2	8-1/2	
7,707.57	7,331.00	End Build	5-1/2	8-1/2	
22,060.38	7,212.00	5 1/2"	5-1/2	8-1/2	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
821.19	820.00	Fox Hills			
4,902.90	4,895.00	Sussex			
7,152.10	7,107.70	Sharon Springs			
7,274.64	7,192.70	Niobrara Top			
7,375.97	7,249.20	Niobrara B Bench			
7,565.14	7,316.30	Niobrara C Bench			

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HOPPER STATE 9N-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 9N-34SLHZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
350.00	350.00	0.00	0.00	Begin Nudge @ 350.00ft
883.33	881.60	0.00	-37.17	End Nudge @ 883.33ft
1,383.33	1,376.73	0.00	-106.76	Begin Drop @ 1383.33ft
1,783.33	1,775.43	0.00	-134.64	End Drop @ 1783.33ft
6,702.29	6,694.39	0.00	-134.64	KOP @ 6702.29ft
7,200.00	7,142.93	184.83	-132.87	DLS = 9°/100'
7,707.57	7,331.00	641.87	-128.51	End Build @ 7707.57ft
22,060.38	7,212.00	14,993.53	8.66	TD Well @ 22060.38ft