

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-67W-14 Norden 15-14HZ Pad

NORDEN 27N-14HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

11 November, 2015

Project: WELD-NAD83-UTMFT13N
 Site: 1N-67W-14 Norden 15-14HZ Pad
 Well: NORDEN 27N-14HZ
 Wellbore: Plan A
 Design: Permit Rev-1

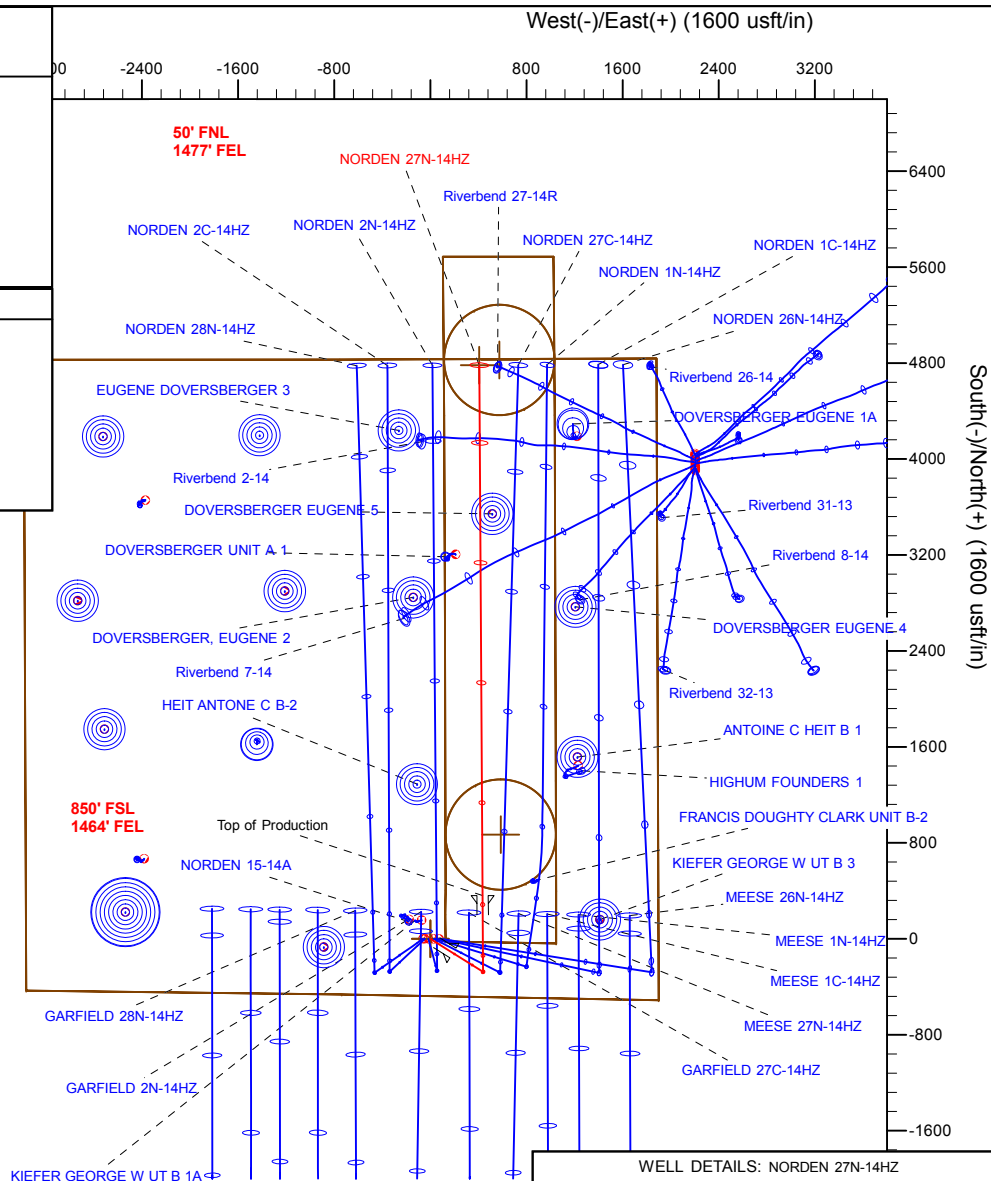
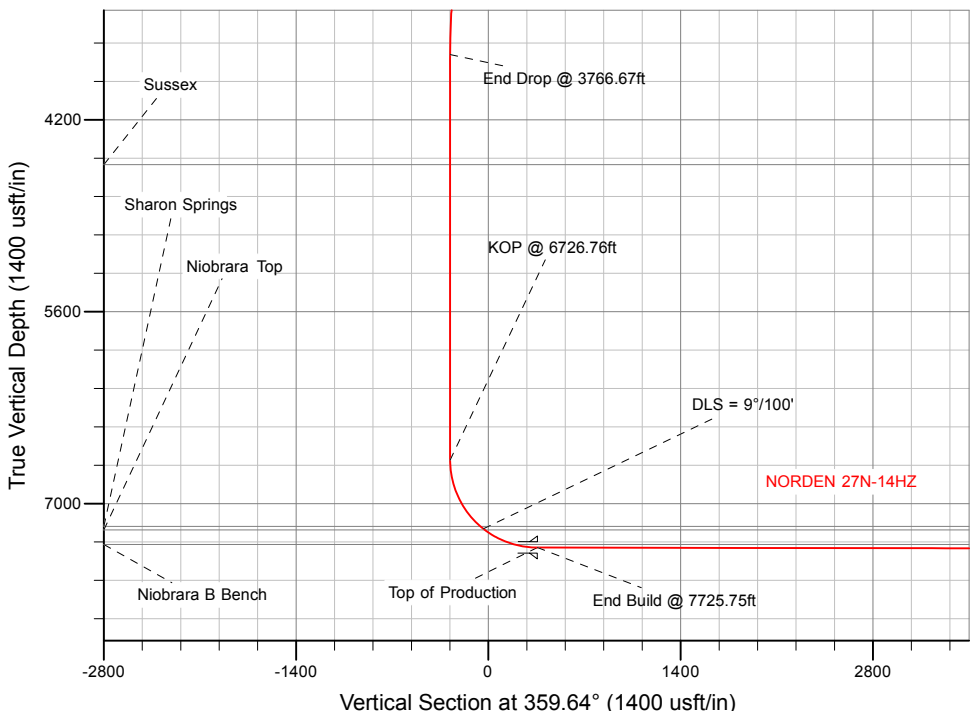
US ROCKIES WATTENBERG PLANNING

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	866.67	10.00	122.00	863.29	-30.75	49.21	1.50	122.00	-31.06	
4	3266.67	10.00	122.00	3226.83	-251.60	402.64	0.00	0.00	-254.12	
5	3766.67	0.00	0.00	3724.29	-274.66	439.55	2.00	180.00	-277.42	
6	6726.76	0.00	0.00	6684.38	-274.66	439.55	0.00	0.00	-277.42	
7	7725.75	89.91	359.64	7321.00	360.94	435.56	9.00	359.64	358.19	
8	12147.94	89.91	359.64	7328.00	4783.04	407.77	0.00	0.00	4780.38	NORDEN 27N-14HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NORDEN 27N-14HZ_SHL	0.00	0.00	0.00	40.045022	-104.855266	Point
NORDEN 27N-14HZ_TOE	7328.00	4783.04	407.77	40.058157	-104.853809	Point



WELL DETAILS: NORDEN 27N-14HZ	
Ground Level:	4951.00
RKB = 17' @ 4968.00usft (Drilling Rig)	
Plan: Permit Rev-1 (NORDEN 27N-14HZ/Plan A)	
Created By: Clint Eshelman	Date: 11/11/2015
Reviewed:	Date:

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 27N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 27N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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-14 Norden 15-14HZ Pad				
Site Position:		Northing:	14,543,161.05 usft	Latitude:	40.045023
From:	Lat/Long	Easting:	1,680,863.04 usft	Longitude:	-104.855480
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.09 °

Well	NORDEN 27N-14HZ					
Well Position	+N-S	-0.36 usft	Northing:	14,543,160.78 usft	Latitude:	40.045022
	+E-W	59.89 usft	Easting:	1,680,922.93 usft	Longitude:	-104.855266
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,951.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/10/2015	8.29	66.60	52,471

Design	Permit Rev-1			
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	359.64

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
866.67	10.00	122.00	863.29	-30.75	49.21	1.50	1.50	0.00	122.00	
3,266.67	10.00	122.00	3,226.83	-251.60	402.64	0.00	0.00	0.00	0.00	
3,766.67	0.00	0.00	3,724.29	-274.66	439.55	2.00	-2.00	0.00	180.00	
6,726.76	0.00	0.00	6,684.38	-274.66	439.55	0.00	0.00	0.00	0.00	
7,725.75	89.91	359.64	7,321.00	360.94	435.56	9.00	9.00	-0.04	359.64	
12,147.94	89.91	359.64	7,328.00	4,783.04	407.77	0.00	0.00	0.00	0.00	NORDEN 27N-14HZ_

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 27N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 27N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
Begin Nudge @ 200.00ft										
300.00	1.50	122.00	299.99	-0.69	1.11	-0.70	1.50	1.50	0.00	0.00
400.00	3.00	122.00	399.91	-2.77	4.44	-2.80	1.50	1.50	0.00	0.00
500.00	4.50	122.00	499.69	-6.24	9.99	-6.30	1.50	1.50	0.00	0.00
600.00	6.00	122.00	599.27	-11.09	17.75	-11.20	1.50	1.50	0.00	0.00
700.00	7.50	122.00	698.57	-17.32	27.71	-17.49	1.50	1.50	0.00	0.00
800.00	9.00	122.00	797.54	-24.92	39.88	-25.17	1.50	1.50	0.00	0.00
866.67	10.00	122.00	863.29	-30.75	49.21	-31.06	1.50	1.50	0.00	0.00
End Nudge @ 866.67ft										
900.00	10.00	122.00	896.11	-33.82	54.12	-34.16	0.00	0.00	0.00	0.00
1,000.00	10.00	122.00	994.59	-43.02	68.85	-43.45	0.00	0.00	0.00	0.00
1,100.00	10.00	122.00	1,093.08	-52.22	83.57	-52.75	0.00	0.00	0.00	0.00
1,200.00	10.00	122.00	1,191.56	-61.42	98.30	-62.04	0.00	0.00	0.00	0.00
1,300.00	10.00	122.00	1,290.04	-70.63	113.03	-71.34	0.00	0.00	0.00	0.00
1,336.52	10.00	122.00	1,326.00	-73.99	118.40	-74.73	0.00	0.00	0.00	0.00
Fox Hills										
1,400.00	10.00	122.00	1,388.52	-79.83	127.75	-80.63	0.00	0.00	0.00	0.00
1,500.00	10.00	122.00	1,487.00	-89.03	142.48	-89.92	0.00	0.00	0.00	0.00
1,600.00	10.00	122.00	1,585.48	-98.23	157.20	-99.22	0.00	0.00	0.00	0.00
1,700.00	10.00	122.00	1,683.96	-107.43	171.93	-108.51	0.00	0.00	0.00	0.00
1,800.00	10.00	122.00	1,782.44	-116.64	186.66	-117.81	0.00	0.00	0.00	0.00
1,817.83	10.00	122.00	1,800.00	-118.28	189.28	-119.46	0.00	0.00	0.00	0.00
9 5/8"										
1,900.00	10.00	122.00	1,880.92	-125.84	201.38	-127.10	0.00	0.00	0.00	0.00
2,000.00	10.00	122.00	1,979.40	-135.04	216.11	-136.40	0.00	0.00	0.00	0.00
2,100.00	10.00	122.00	2,077.88	-144.24	230.84	-145.69	0.00	0.00	0.00	0.00
2,200.00	10.00	122.00	2,176.36	-153.44	245.56	-154.98	0.00	0.00	0.00	0.00
2,300.00	10.00	122.00	2,274.85	-162.65	260.29	-164.28	0.00	0.00	0.00	0.00
2,400.00	10.00	122.00	2,373.33	-171.85	275.01	-173.57	0.00	0.00	0.00	0.00
2,500.00	10.00	122.00	2,471.81	-181.05	289.74	-182.87	0.00	0.00	0.00	0.00
2,600.00	10.00	122.00	2,570.29	-190.25	304.47	-192.16	0.00	0.00	0.00	0.00
2,700.00	10.00	122.00	2,668.77	-199.45	319.19	-201.46	0.00	0.00	0.00	0.00
2,800.00	10.00	122.00	2,767.25	-208.66	333.92	-210.75	0.00	0.00	0.00	0.00
2,900.00	10.00	122.00	2,865.73	-217.86	348.65	-220.04	0.00	0.00	0.00	0.00
3,000.00	10.00	122.00	2,964.21	-227.06	363.37	-229.34	0.00	0.00	0.00	0.00
3,100.00	10.00	122.00	3,062.69	-236.26	378.10	-238.63	0.00	0.00	0.00	0.00
3,200.00	10.00	122.00	3,161.17	-245.46	392.82	-247.93	0.00	0.00	0.00	0.00
3,266.67	10.00	122.00	3,226.83	-251.60	402.64	-254.12	0.00	0.00	0.00	0.00
Begin Drop @ 3266.67ft										
3,300.00	9.33	122.00	3,259.69	-254.56	407.39	-257.12	2.00	-2.00	0.00	0.00
3,400.00	7.33	122.00	3,358.62	-262.24	419.68	-264.88	2.00	-2.00	0.00	0.00
3,500.00	5.33	122.00	3,458.01	-268.09	429.03	-270.78	2.00	-2.00	0.00	0.00
3,600.00	3.33	122.00	3,557.72	-272.09	435.44	-274.82	2.00	-2.00	0.00	0.00
3,700.00	1.33	122.00	3,657.63	-274.25	438.89	-277.00	2.00	-2.00	0.00	0.00
3,766.67	0.00	0.00	3,724.29	-274.66	439.55	-277.42	2.00	-2.00	0.00	0.00
End Drop @ 3766.67ft										
3,800.00	0.00	0.00	3,757.62	-274.66	439.55	-277.42	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,857.62	-274.66	439.55	-277.42	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,957.62	-274.66	439.55	-277.42	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,057.62	-274.66	439.55	-277.42	0.00	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 27N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 27N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	0.00	0.00	4,157.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,300.00	0.00	0.00	4,257.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,400.00	0.00	0.00	4,357.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,500.00	0.00	0.00	4,457.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,570.38	0.00	0.00	4,528.00	-274.66	439.55	-277.42	0.00	0.00	0.00
Sussex									
4,600.00	0.00	0.00	4,557.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,700.00	0.00	0.00	4,657.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,800.00	0.00	0.00	4,757.62	-274.66	439.55	-277.42	0.00	0.00	0.00
4,900.00	0.00	0.00	4,857.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,000.00	0.00	0.00	4,957.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,100.00	0.00	0.00	5,057.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,200.00	0.00	0.00	5,157.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,300.00	0.00	0.00	5,257.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,400.00	0.00	0.00	5,357.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,500.00	0.00	0.00	5,457.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,600.00	0.00	0.00	5,557.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,700.00	0.00	0.00	5,657.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,800.00	0.00	0.00	5,757.62	-274.66	439.55	-277.42	0.00	0.00	0.00
5,900.00	0.00	0.00	5,857.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,000.00	0.00	0.00	5,957.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,100.00	0.00	0.00	6,057.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,200.00	0.00	0.00	6,157.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,257.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,400.00	0.00	0.00	6,357.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,457.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,557.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,657.62	-274.66	439.55	-277.42	0.00	0.00	0.00
6,726.76	0.00	0.00	6,684.38	-274.66	439.55	-277.42	0.00	0.00	0.00
KOP @ 6726.76ft									
6,800.00	6.59	359.64	6,757.46	-270.45	439.52	-273.21	9.00	9.00	0.00
6,900.00	15.59	359.64	6,855.49	-251.23	439.40	-253.99	9.00	9.00	0.00
7,000.00	24.59	359.64	6,949.31	-216.92	439.19	-219.67	9.00	9.00	0.00
7,100.00	33.59	359.64	7,036.61	-168.35	438.88	-171.10	9.00	9.00	0.00
7,200.00	42.59	359.64	7,115.23	-106.72	438.50	-109.47	9.00	9.00	0.00
7,273.73	49.23	359.64	7,166.50	-53.79	438.16	-56.55	9.00	9.00	0.00
Sharon Springs									
7,300.00	51.59	359.64	7,183.24	-33.55	438.04	-36.30	9.00	9.00	0.00
DLS = 9°/100'									
7,313.48	52.80	359.64	7,191.50	-22.90	437.97	-25.66	9.00	9.00	0.00
Niobrara Top									
7,400.00	60.59	359.64	7,238.97	49.35	437.51	46.60	9.00	9.00	0.00
7,500.00	69.59	359.64	7,281.04	139.96	436.95	137.21	9.00	9.00	0.00
7,556.24	74.65	359.64	7,298.30	193.46	436.61	190.71	9.00	9.00	0.00
Niobrara B Bench									
7,600.00	78.59	359.64	7,308.42	236.03	436.34	233.28	9.00	9.00	0.00
7,700.00	87.59	359.64	7,320.44	335.20	435.72	332.45	9.00	9.00	0.00
7,725.75	89.91	359.64	7,321.00	360.94	435.56	358.20	9.00	9.00	0.00
End Build @ 7725.75ft - Top of Production									
7,800.00	89.91	359.64	7,321.12	435.19	435.09	432.45	0.00	0.00	0.00
7,900.00	89.91	359.64	7,321.28	535.19	434.46	532.45	0.00	0.00	0.00
8,000.00	89.91	359.64	7,321.43	635.18	433.83	632.44	0.00	0.00	0.00
8,100.00	89.91	359.64	7,321.59	735.18	433.20	732.44	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 27N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 27N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)
8,200.00	89.91	359.64	7,321.75	835.18	432.58	832.44	0.00	0.00	0.00
8,300.00	89.91	359.64	7,321.91	935.18	431.95	932.44	0.00	0.00	0.00
8,400.00	89.91	359.64	7,322.07	1,035.17	431.32	1,032.44	0.00	0.00	0.00
8,500.00	89.91	359.64	7,322.23	1,135.17	430.69	1,132.44	0.00	0.00	0.00
8,600.00	89.91	359.64	7,322.38	1,235.17	430.06	1,232.44	0.00	0.00	0.00
8,700.00	89.91	359.64	7,322.54	1,335.17	429.43	1,332.44	0.00	0.00	0.00
8,800.00	89.91	359.64	7,322.70	1,435.17	428.81	1,432.44	0.00	0.00	0.00
8,900.00	89.91	359.64	7,322.86	1,535.16	428.18	1,532.44	0.00	0.00	0.00
9,000.00	89.91	359.64	7,323.02	1,635.16	427.55	1,632.44	0.00	0.00	0.00
9,100.00	89.91	359.64	7,323.18	1,735.16	426.92	1,732.44	0.00	0.00	0.00
9,200.00	89.91	359.64	7,323.33	1,835.16	426.29	1,832.44	0.00	0.00	0.00
9,300.00	89.91	359.64	7,323.49	1,935.16	425.66	1,932.44	0.00	0.00	0.00
9,400.00	89.91	359.64	7,323.65	2,035.15	425.04	2,032.44	0.00	0.00	0.00
9,500.00	89.91	359.64	7,323.81	2,135.15	424.41	2,132.44	0.00	0.00	0.00
9,600.00	89.91	359.64	7,323.97	2,235.15	423.78	2,232.44	0.00	0.00	0.00
9,700.00	89.91	359.64	7,324.13	2,335.15	423.15	2,332.44	0.00	0.00	0.00
9,800.00	89.91	359.64	7,324.28	2,435.15	422.52	2,432.44	0.00	0.00	0.00
9,900.00	89.91	359.64	7,324.44	2,535.14	421.89	2,532.44	0.00	0.00	0.00
10,000.00	89.91	359.64	7,324.60	2,635.14	421.27	2,632.44	0.00	0.00	0.00
10,100.00	89.91	359.64	7,324.76	2,735.14	420.64	2,732.44	0.00	0.00	0.00
10,200.00	89.91	359.64	7,324.92	2,835.14	420.01	2,832.44	0.00	0.00	0.00
10,300.00	89.91	359.64	7,325.08	2,935.14	419.38	2,932.44	0.00	0.00	0.00
10,400.00	89.91	359.64	7,325.23	3,035.13	418.75	3,032.44	0.00	0.00	0.00
10,500.00	89.91	359.64	7,325.39	3,135.13	418.12	3,132.44	0.00	0.00	0.00
10,600.00	89.91	359.64	7,325.55	3,235.13	417.50	3,232.44	0.00	0.00	0.00
10,700.00	89.91	359.64	7,325.71	3,335.13	416.87	3,332.44	0.00	0.00	0.00
10,800.00	89.91	359.64	7,325.87	3,435.12	416.24	3,432.44	0.00	0.00	0.00
10,900.00	89.91	359.64	7,326.02	3,535.12	415.61	3,532.44	0.00	0.00	0.00
11,000.00	89.91	359.64	7,326.18	3,635.12	414.98	3,632.44	0.00	0.00	0.00
11,100.00	89.91	359.64	7,326.34	3,735.12	414.35	3,732.44	0.00	0.00	0.00
11,200.00	89.91	359.64	7,326.50	3,835.12	413.73	3,832.44	0.00	0.00	0.00
11,300.00	89.91	359.64	7,326.66	3,935.11	413.10	3,932.44	0.00	0.00	0.00
11,400.00	89.91	359.64	7,326.82	4,035.11	412.47	4,032.44	0.00	0.00	0.00
11,500.00	89.91	359.64	7,326.97	4,135.11	411.84	4,132.44	0.00	0.00	0.00
11,600.00	89.91	359.64	7,327.13	4,235.11	411.21	4,232.44	0.00	0.00	0.00
11,700.00	89.91	359.64	7,327.29	4,335.11	410.58	4,332.44	0.00	0.00	0.00
11,800.00	89.91	359.64	7,327.45	4,435.10	409.96	4,432.44	0.00	0.00	0.00
11,900.00	89.91	359.64	7,327.61	4,535.10	409.33	4,532.44	0.00	0.00	0.00
12,000.00	89.91	359.64	7,327.77	4,635.10	408.70	4,632.44	0.00	0.00	0.00
12,100.00	89.91	359.64	7,327.92	4,735.10	408.07	4,732.44	0.00	0.00	0.00
12,147.94	89.91	359.64	7,328.00	4,783.04	407.77	4,780.38	0.00	0.00	0.00
TD Well @ 12147.94ft									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 27N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 27N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
- Shape										
NORDEN 27N-14HZ_Hc - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,543,160.78	1,680,922.93	40.045022	-104.855266	
Point 1			0.00	5,686.46	1,024.41	14,548,848.90	1,681,938.10			
Point 2			0.00	5,289.95	1,029.06	14,548,452.40	1,681,943.39			
Point 3			0.00	4,369.94	1,035.77	14,547,532.40	1,681,951.60			
Point 4			0.00	2,658.43	1,041.59	14,545,820.90	1,681,960.20			
Point 5			0.00	1,321.52	1,045.41	14,544,484.00	1,681,966.19			
Point 6			0.00	401.32	1,046.42	14,543,563.80	1,681,968.70			
Point 7			0.00	-38.29	1,046.50	14,543,124.19	1,681,969.49			
Point 8			0.00	-30.04	586.42	14,543,131.69	1,681,509.40			
Point 9			0.00	-21.79	126.43	14,543,139.20	1,681,049.40			
Point 10			0.00	204.81	126.40	14,543,365.79	1,681,049.00			
Point 11			0.00	408.01	126.43	14,543,568.99	1,681,048.70			
Point 12			0.00	2,655.02	121.68	14,545,815.99	1,681,040.30			
Point 13			0.00	4,366.53	115.76	14,547,527.49	1,681,031.60			
Point 14			0.00	5,687.55	104.41	14,548,848.49	1,681,018.10			
Point 15			0.00	5,687.41	564.41	14,548,849.10	1,681,478.10			
Point 16			0.00	5,686.46	1,024.41	14,548,848.90	1,681,938.10			
NORDEN 27N-14HZ_46 - plan misses target center by 4860.76usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	4,826.69	574.51	14,547,988.40	1,681,489.60	40.058277	-104.853213	
NORDEN 27N-14HZ_Sf - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,543,160.78	1,680,922.93	40.045022	-104.855266	
NORDEN 27N-14HZ_46 - plan misses target center by 1048.80usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	869.56	586.38	14,544,031.30	1,681,507.90	40.047410	-104.853171	
1N-R67W-Sec. 14_Secti - plan misses target center by 6009.28usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-39.00	-5,412.85	-2,609.77	14,537,743.70	1,678,321.96	40.030157	-104.864589	
Point 1			-39.00	10,240.97	-771.13	14,547,983.39	1,677,534.19			
Point 2			-39.00	10,241.68	1,854.89	14,547,988.37	1,680,160.20			
Point 3			-39.00	10,251.55	4,492.80	14,548,002.53	1,682,798.09			
Point 4			-39.00	4,901.92	4,512.15	14,542,652.94	1,682,826.14			
Point 5			-39.00	4,948.86	1,873.61	14,542,695.59	1,680,187.53			
Point 6			-39.00	4,981.70	-753.18	14,542,724.16	1,677,560.69			
Point 7			-39.00	7,611.26	-762.09	14,545,353.70	1,677,547.50			
NORDEN 27N-14HZ_TC - plan hits target center - Point	0.00	0.00	7,328.00	4,783.04	407.77	14,547,944.48	1,681,322.93	40.058157	-104.853809	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,817.83	1,800.00	9 5/8"	9-5/8	13-1/2		
7,725.75	7,321.00	Top of Production	5-1/2	7-7/8		

Anadarko

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 27N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,336.52	1,326.00	Fox Hills			
4,570.38	4,528.00	Sussex			
7,273.73	7,166.50	Sharon Springs			
7,313.48	7,191.50	Niobrara Top			
7,556.24	7,298.30	Niobrara B Bench			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
200.00	200.00	0.00	0.00		Begin Nudge @ 200.00ft
866.67	863.29	-30.75	49.21		End Nudge @ 866.67ft
3,266.67	3,226.83	-251.60	402.64		Begin Drop @ 3266.67ft
3,766.67	3,724.29	-274.66	439.55		End Drop @ 3766.67ft
6,726.76	6,684.38	-274.66	439.55		KOP @ 6726.76ft
7,300.00	7,183.24	-33.55	438.04		DLS = 9°/100'
7,725.75	7,321.00	360.94	435.56		End Build @ 7725.75ft
12,147.94	7,328.00	4,783.04	407.77		TD Well @ 12147.94ft