

WELL DETAILS: Norden 2N-14HZ

GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)	4951.00
Northing 14543160.76	Easting 1680907.82
Latitude 40.0450220	Longitude -104.8553200

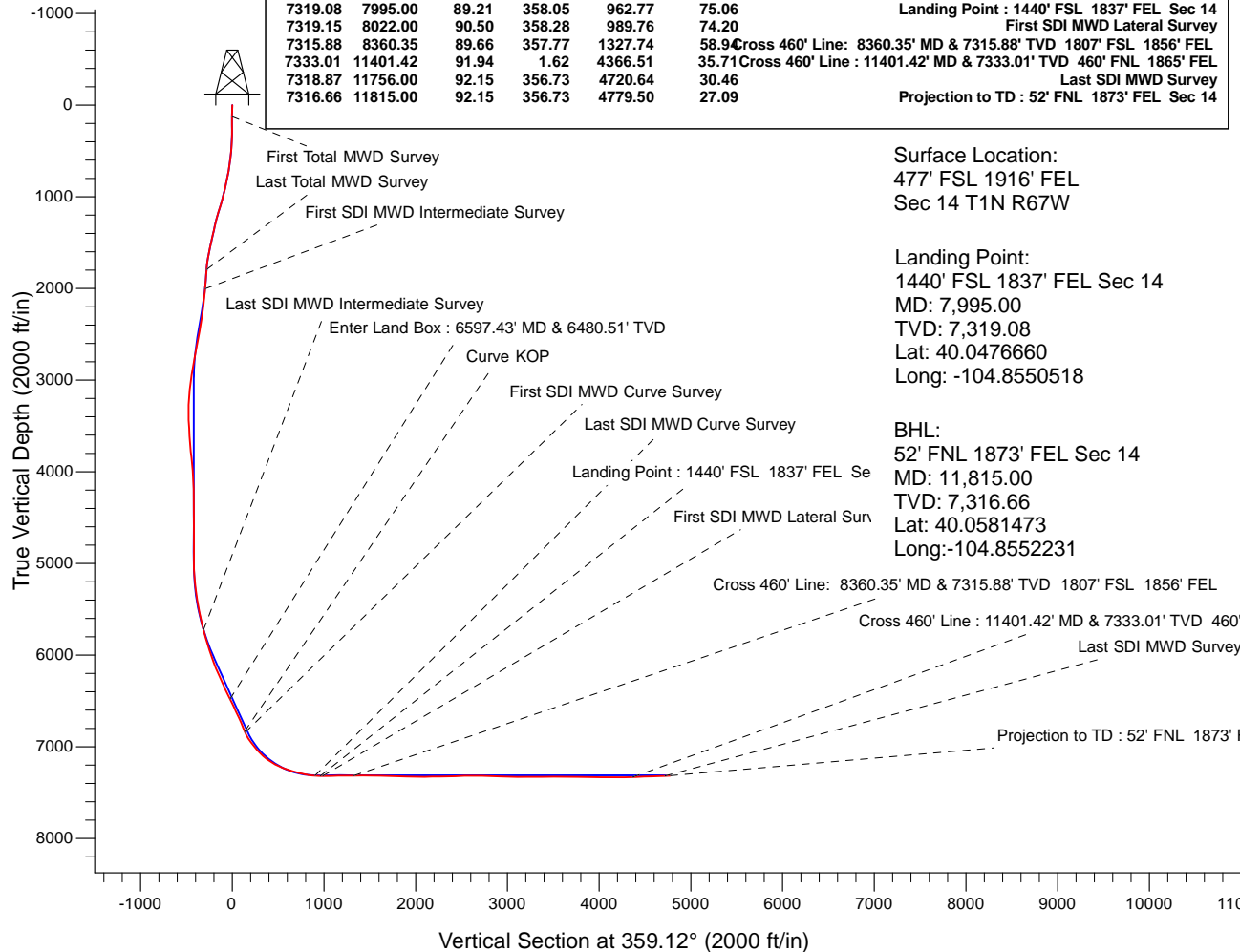
Design: OH (Norden 2N-14HZ/OH)
Created By: Seth Burstad Date: 9-22-2017

PROJECT DETAILS: US Rockies Wattenberg Planning UTM83

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)
System Datum: Mean Sea Level
Local North: True

ANNOTATIONS

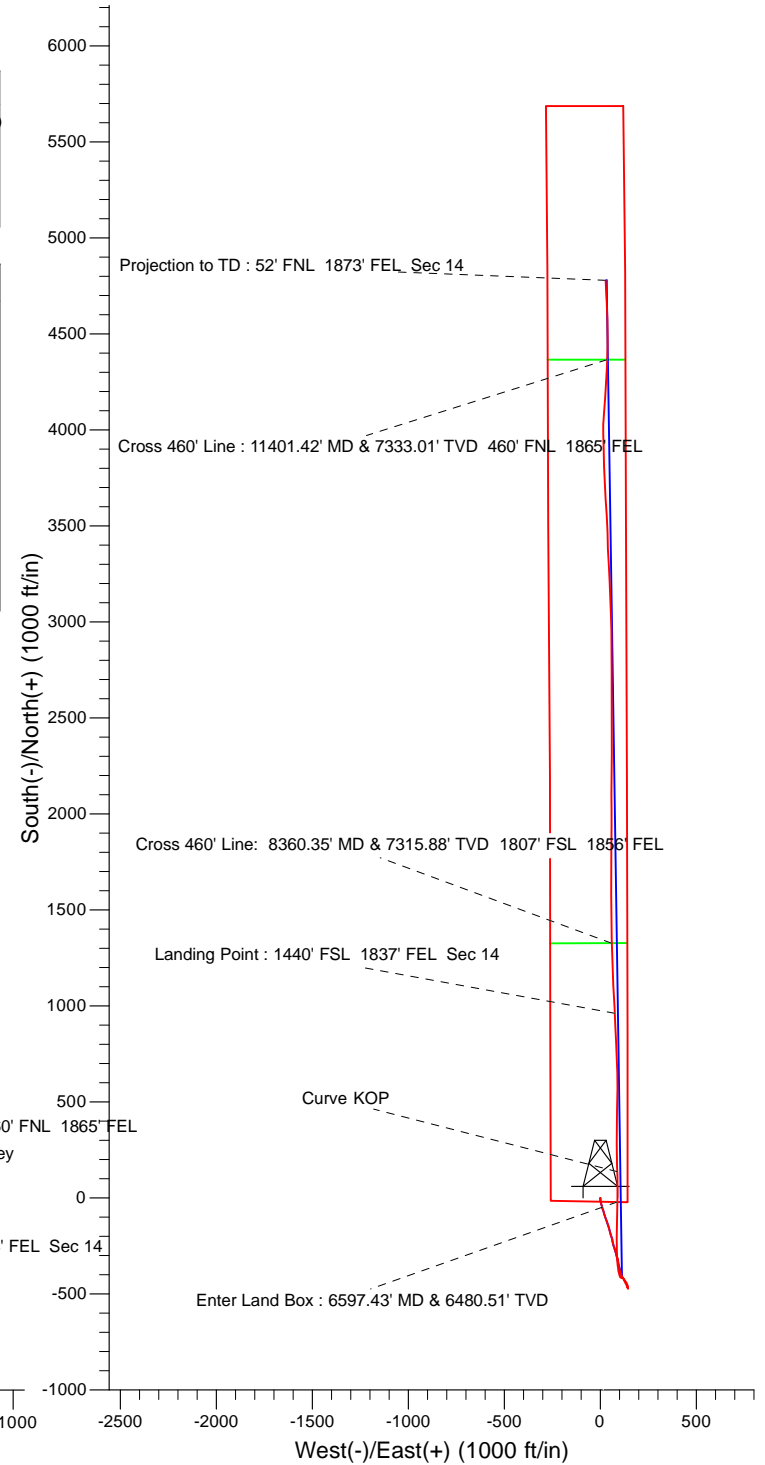
TVD	MD	Inc	Azi	+N/-S	+E/-W	Annotation
126.00	126.00	0.31	234.71	-0.20	-0.28	First Total MWD Survey
1795.47	1828.00	4.48	167.04	-278.51	78.79	Last Total MWD Survey
2004.86	2038.00	4.29	160.85	-293.92	83.21	First SDI MWD Intermediate Survey
5724.42	5786.00	15.60	356.74	-308.88	87.06	Last SDI MWD Intermediate Survey
6480.59	6597.43	26.30	3.45	-20.99	88.32	Enter Land Box : 6597.43' MD & 6480.51' TVD
6832.00	6983.00	22.68	357.34	137.46	88.73	Curve KOP
6844.93	6997.00	22.60	356.79	142.84	88.45	First SDI MWD Curve Survey
7316.82	7936.00	86.40	357.55	903.87	77.32	Last SDI MWD Curve Survey
7319.08	7995.00	89.21	358.05	962.77	75.06	Landing Point : 1440' FSL 1837' FEL Sec 14
7319.15	8022.00	90.50	358.28	989.76	74.20	First SDI MWD Lateral Survey
7315.88	8360.35	89.66	357.77	1327.74	58.90	Cross 460' Line : 8360.35' MD & 7315.88' TVD 1807' FSL 1856' FEL
7333.01	11401.42	91.94	1.62	4366.51	35.71	Cross 460' Line : 11401.42' MD & 7333.01' TVD 460' FNL 1865' FEL
7318.87	11756.00	92.15	356.73	4720.64	30.46	Last SDI MWD Survey
7316.66	11815.00	92.15	356.73	4779.50	27.09	Projection to TD : 52' FNL 1873' FEL Sec 14



Surface Location:
 477' FSL 1916' FEL
 Sec 14 T1N R67W

Landing Point:
 1440' FSL 1837' FEL Sec 14
 MD: 7,995.00
 TVD: 7,319.08
 Lat: 40.0476660
 Long: -104.8550518

BHL:
 52' FNL 1873' FEL Sec 14
 MD: 11,815.00
 TVD: 7,316.66
 Lat: 40.0581473
 Long: -104.8552231





US ROCKIES REGION PLANNING

US Rockies Wattenberg Planning UTM83

Norden 15-14HZ Pad

Norden 2N-14HZ

OH

Design: OH

Standard Survey Report

22 September, 2017



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Norden 2N-14HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Site:	Norden 15-14HZ Pad	MD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Well:	Norden 2N-14HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Project	US Rockies Wattenberg Planning UTM83		
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	Norden 15-14HZ Pad, Site Center : Norden 26N-14HZ				
Site Position:		Northing:	14,543,160.20 usft	Latitude:	40.0450200
From:	Lat/Long	Easting:	1,681,012.77 usft	Longitude:	-104.8549450
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.09 °

Well	Norden 2N-14HZ, 477' FSL 1916' FEL Sec 14 T1N R67W					
Well Position	+N/-S	0.00 ft	Northing:	14,543,160.76 usft	Latitude:	40.0450220
	+E/-W	0.00 ft	Easting:	1,680,907.82 usft	Longitude:	-104.8553200
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,951.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/3/2017	8.33	66.47	52,213

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	359.12	

Survey Program	Date	9/22/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
126.00	1,828.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
2,038.00	5,786.00	Survey #2 - Intermediate (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	
5,888.00	11,815.00	Survey #3 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
126.00	0.31	234.71	126.00	-0.20	-0.28	-0.19	0.25	0.25	0.00	
First Total MWD Survey										
158.00	0.79	245.96	158.00	-0.34	-0.55	-0.33	1.53	1.50	35.16	
189.00	0.18	295.53	189.00	-0.40	-0.79	-0.39	2.22	-1.97	159.90	
221.00	0.35	348.44	221.00	-0.29	-0.85	-0.27	0.88	0.53	165.34	
284.00	0.70	111.76	283.99	-0.24	-0.54	-0.23	1.49	0.56	195.75	
316.00	1.36	161.06	315.99	-0.67	-0.23	-0.67	3.27	2.06	154.06	
348.00	2.29	169.41	347.97	-1.66	0.01	-1.66	3.02	2.91	26.09	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Norden 2N-14HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Site:	Norden 15-14HZ Pad	MD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Well:	Norden 2N-14HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
380.00	2.50	184.62	379.95	-2.98	0.07	-2.98	2.08	0.66	47.53	
411.00	2.50	180.05	410.92	-4.33	0.02	-4.33	0.64	0.00	-14.74	
443.00	3.65	183.30	442.87	-6.05	-0.04	-6.05	3.63	3.59	10.16	
475.00	4.31	174.07	474.79	-8.26	0.02	-8.26	2.87	2.06	-28.84	
507.00	5.05	173.10	506.69	-10.86	0.32	-10.86	2.33	2.31	-3.03	
539.00	5.76	167.74	538.54	-13.82	0.83	-13.83	2.72	2.22	-16.75	
569.00	6.37	168.27	568.38	-16.92	1.48	-16.94	2.04	2.03	1.77	
601.00	7.43	167.13	600.14	-20.68	2.31	-20.71	3.34	3.31	-3.56	
633.00	8.22	167.97	631.85	-24.93	3.24	-24.98	2.49	2.47	2.63	
696.00	9.80	165.10	694.07	-34.52	5.56	-34.60	2.61	2.51	-4.56	
728.00	10.46	164.05	725.57	-39.94	7.06	-40.05	2.14	2.06	-3.28	
759.00	10.90	163.35	756.03	-45.46	8.67	-45.59	1.48	1.42	-2.26	
791.00	11.12	161.94	787.44	-51.29	10.50	-51.45	1.09	0.69	-4.41	
823.00	11.87	160.71	818.80	-57.33	12.54	-57.52	2.47	2.34	-3.84	
854.00	12.52	163.52	849.10	-63.56	14.55	-63.78	2.84	2.10	9.06	
886.00	12.57	164.49	880.34	-70.24	16.46	-70.49	0.68	0.16	3.03	
918.00	13.27	164.14	911.53	-77.13	18.40	-77.41	2.20	2.19	-1.09	
949.00	14.37	162.47	941.63	-84.22	20.53	-84.53	3.77	3.55	-5.39	
981.00	15.07	162.06	972.58	-91.97	23.01	-92.31	2.21	2.19	-1.28	
1,012.00	15.73	159.92	1,002.46	-99.75	25.69	-100.13	2.81	2.13	-6.90	
1,044.00	16.74	160.80	1,033.19	-108.17	28.69	-108.60	3.25	3.16	2.75	
1,076.00	16.88	161.15	1,063.82	-116.92	31.71	-117.40	0.54	0.44	1.09	
1,107.00	17.14	159.13	1,093.46	-125.45	34.79	-125.97	2.08	0.84	-6.52	
1,139.00	17.84	160.18	1,123.99	-134.47	38.13	-135.04	2.40	2.19	3.28	
1,171.00	17.62	163.61	1,154.47	-143.73	41.16	-144.34	3.34	-0.69	10.72	
1,202.00	17.14	164.84	1,184.05	-152.64	43.68	-153.29	1.95	-1.55	3.97	
1,234.00	16.65	164.93	1,214.67	-161.61	46.11	-162.30	1.53	-1.53	0.28	
1,266.00	15.51	165.28	1,245.42	-170.18	48.39	-170.90	3.58	-3.56	1.09	
1,297.00	14.77	165.72	1,275.34	-178.02	50.41	-178.77	2.42	-2.39	1.42	
1,329.00	13.32	163.08	1,306.38	-185.50	52.49	-186.28	4.95	-4.53	-8.25	
1,361.00	12.83	161.50	1,337.55	-192.39	54.69	-193.21	1.90	-1.53	-4.94	
1,392.00	13.36	160.71	1,367.75	-199.04	56.97	-199.89	1.80	1.71	-2.55	
1,424.00	13.32	163.96	1,398.88	-206.07	59.21	-206.96	2.35	-0.13	10.16	
1,456.00	12.57	167.13	1,430.07	-213.01	61.00	-213.92	3.23	-2.34	9.91	
1,487.00	12.48	167.65	1,460.33	-219.57	62.47	-220.50	0.47	-0.29	1.68	
1,519.00	12.88	169.24	1,491.55	-226.45	63.88	-227.41	1.66	1.25	4.97	
1,583.00	11.99	164.92	1,554.05	-239.88	66.94	-240.88	2.01	-1.39	-6.75	
1,614.00	12.56	164.49	1,584.34	-246.24	68.68	-247.26	1.86	1.84	-1.39	
1,645.00	11.38	163.87	1,614.67	-252.42	70.43	-253.47	3.83	-3.81	-2.00	
1,677.00	11.11	162.29	1,646.06	-258.39	72.24	-259.47	1.28	-0.84	-4.94	
1,708.00	10.42	160.62	1,676.51	-263.88	74.08	-264.99	2.44	-2.23	-5.39	
1,740.00	8.56	162.02	1,708.07	-268.88	75.78	-270.01	5.86	-5.81	4.38	
1,772.00	7.16	161.76	1,739.77	-273.04	77.14	-274.19	4.38	-4.38	-0.81	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Norden 2N-14HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Site:	Norden 15-14HZ Pad	MD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Well:	Norden 2N-14HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,804.00	5.71	162.90	1,771.57	-276.45	78.23	-277.62	4.55	-4.53	3.56	
1,828.00	4.48	167.04	1,795.47	-278.51	78.79	-279.68	5.35	-5.13	17.25	
Last Total MWD Survey										
2,038.00	4.29	160.85	2,004.86	-293.92	83.21	-295.16	0.24	-0.09	-2.95	
First SDI MWD Intermediate Survey										
2,123.00	6.21	161.89	2,089.50	-301.29	85.68	-302.57	2.26	2.26	1.22	
2,208.00	6.33	161.06	2,173.99	-310.09	88.63	-311.42	0.18	0.14	-0.98	
2,293.00	7.59	165.82	2,258.36	-319.97	91.52	-321.34	1.63	1.48	5.60	
2,380.00	8.59	171.49	2,344.50	-331.97	93.89	-333.37	1.47	1.15	6.52	
2,467.00	9.70	174.60	2,430.39	-345.69	95.54	-347.12	1.40	1.28	3.57	
2,553.00	10.95	172.06	2,515.00	-360.99	97.35	-362.44	1.55	1.45	-2.95	
2,638.00	11.27	163.13	2,598.41	-376.94	100.88	-378.44	2.06	0.38	-10.51	
2,723.00	11.77	157.02	2,681.70	-392.87	106.68	-394.46	1.55	0.59	-7.19	
2,809.00	12.91	153.64	2,765.71	-409.55	114.37	-411.26	1.57	1.33	-3.93	
2,894.00	10.54	153.52	2,848.93	-425.02	122.05	-426.85	2.79	-2.79	-0.14	
2,979.00	9.54	153.79	2,932.63	-438.30	128.63	-440.22	1.18	-1.18	0.32	
3,064.00	8.07	154.66	3,016.63	-450.01	134.29	-452.02	1.74	-1.73	1.02	
3,149.00	6.69	153.63	3,100.92	-459.84	139.04	-461.92	1.63	-1.62	-1.21	
3,234.00	2.86	169.54	3,185.61	-466.36	141.63	-468.48	4.73	-4.51	18.72	
3,320.00	3.35	145.24	3,271.49	-470.54	143.45	-472.69	1.62	0.57	-28.26	
3,405.00	0.38	263.49	3,356.44	-472.61	144.59	-474.78	4.17	-3.49	139.12	
3,490.00	1.82	320.61	3,441.43	-471.60	143.45	-473.75	1.94	1.69	67.20	
3,574.00	3.73	7.25	3,525.33	-467.86	142.95	-470.00	3.35	2.27	55.52	
3,659.00	3.65	5.64	3,610.16	-462.42	143.56	-464.57	0.15	-0.09	-1.89	
3,743.00	5.15	345.22	3,693.91	-456.12	142.87	-458.26	2.56	1.79	-24.31	
3,828.00	6.63	336.36	3,778.46	-447.93	139.92	-450.03	2.04	1.74	-10.42	
3,913.00	7.10	326.31	3,862.86	-439.07	135.04	-441.09	1.52	0.55	-11.82	
3,997.00	5.69	322.92	3,946.33	-431.42	129.65	-433.36	1.74	-1.68	-4.04	
4,083.00	4.46	323.63	4,031.99	-425.33	125.10	-427.20	1.43	-1.43	0.83	
4,167.00	3.53	324.34	4,115.79	-420.60	121.65	-422.42	1.11	-1.11	0.85	
4,252.00	2.17	317.94	4,200.68	-417.28	119.05	-419.06	1.64	-1.60	-7.53	
4,337.00	0.90	296.19	4,285.65	-415.79	117.37	-417.54	1.62	-1.49	-25.59	
4,422.00	0.82	283.72	4,370.64	-415.35	116.18	-417.08	0.24	-0.09	-14.67	
4,506.00	0.86	277.26	4,454.63	-415.13	114.97	-416.84	0.12	0.05	-7.69	
4,591.00	0.72	274.64	4,539.62	-415.00	113.81	-416.70	0.17	-0.16	-3.08	
4,678.00	0.71	275.02	4,626.62	-414.91	112.73	-416.59	0.01	-0.01	0.44	
4,763.00	0.96	276.84	4,711.61	-414.78	111.50	-416.44	0.30	0.29	2.14	
4,848.00	1.07	259.05	4,796.59	-414.85	110.01	-416.49	0.39	0.13	-20.93	
4,933.00	0.98	254.45	4,881.58	-415.19	108.53	-416.81	0.14	-0.11	-5.41	
5,018.00	1.09	235.27	4,966.57	-415.85	107.17	-417.44	0.43	0.13	-22.56	
5,103.00	2.42	322.95	5,051.54	-414.88	105.42	-416.45	3.07	1.56	103.15	
5,188.00	3.34	336.39	5,136.43	-411.17	103.35	-412.71	1.34	1.08	15.81	
5,273.00	6.92	340.88	5,221.07	-404.07	100.68	-405.56	4.23	4.21	5.28	
5,359.00	7.93	346.76	5,306.35	-393.40	97.62	-394.85	1.47	1.17	6.84	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Norden 2N-14HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Site:	Norden 15-14HZ Pad	MD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Well:	Norden 2N-14HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,444.00	8.67	348.25	5,390.46	-381.42	94.97	-382.83	0.91	0.87	1.75	
5,529.00	12.01	350.86	5,474.07	-366.41	92.26	-367.78	3.97	3.93	3.07	
5,614.00	11.49	355.97	5,557.29	-349.23	90.26	-350.58	1.37	-0.61	6.01	
5,701.00	13.71	354.52	5,642.19	-330.32	88.67	-331.64	2.58	2.55	-1.67	
5,786.00	15.60	356.74	5,724.42	-308.88	87.06	-310.18	2.32	2.22	2.61	
Last SDI MWD Intermediate Survey										
5,888.00	14.93	357.65	5,822.82	-282.06	85.74	-283.34	0.70	-0.66	0.89	
5,974.00	15.00	1.48	5,905.91	-259.87	85.57	-261.15	1.15	0.08	4.45	
6,059.00	17.70	358.62	5,987.46	-235.95	85.54	-237.23	3.31	3.18	-3.36	
6,145.00	20.80	359.89	6,068.65	-207.60	85.20	-208.88	3.64	3.60	1.48	
6,229.00	24.77	3.46	6,146.08	-175.11	86.23	-176.41	5.00	4.73	4.25	
6,314.00	23.85	0.29	6,223.55	-140.15	87.40	-141.47	1.88	-1.08	-3.73	
6,399.00	22.89	358.09	6,301.57	-106.44	86.93	-107.76	1.53	-1.13	-2.59	
6,486.00	26.09	359.50	6,380.74	-70.39	86.20	-71.70	3.74	3.68	1.62	
6,571.00	26.58	4.44	6,456.92	-32.73	87.51	-34.07	2.64	0.58	5.81	
6,597.43	26.30	3.45	6,480.59	-20.99	88.32	-22.35	1.97	-1.05	-3.74	
Enter Land Box : 6597.43' MD & 6480.51' TVD										
6,656.00	25.71	1.19	6,533.23	4.66	89.37	3.29	1.97	-1.01	-3.86	
6,741.00	24.66	359.25	6,610.15	40.83	89.52	39.45	1.57	-1.24	-2.28	
6,826.00	23.73	0.04	6,687.68	75.66	89.30	74.28	1.16	-1.09	0.93	
6,911.00	23.12	0.12	6,765.68	109.45	89.34	108.07	0.72	-0.72	0.09	
6,983.00	22.68	357.34	6,832.00	137.46	88.73	136.08	1.62	-0.61	-3.86	
Curve KOP										
6,997.00	22.60	356.79	6,844.93	142.84	88.45	141.46	1.62	-0.57	-3.94	
First SDI MWD Curve Survey										
7,082.00	34.97	358.77	6,919.28	183.66	87.01	182.30	14.59	14.55	2.33	
7,167.00	38.02	359.16	6,987.60	234.20	86.10	232.85	3.60	3.59	0.46	
7,253.00	43.49	359.81	7,052.72	290.32	85.62	288.97	6.38	6.36	0.76	
7,338.00	49.37	0.77	7,111.29	351.87	85.95	350.51	6.97	6.92	1.13	
7,423.00	56.04	0.28	7,162.76	419.45	86.56	418.07	7.86	7.85	-0.58	
7,508.00	64.08	1.60	7,205.15	493.03	87.80	491.63	9.55	9.46	1.55	
7,594.00	69.78	0.18	7,238.84	572.11	89.01	570.68	6.80	6.63	-1.65	
7,679.00	73.38	358.58	7,265.69	652.74	88.12	651.30	4.60	4.24	-1.88	
7,764.00	76.55	357.91	7,287.74	734.78	85.61	733.37	3.81	3.73	-0.79	
7,851.00	79.09	356.66	7,306.09	819.71	81.57	818.36	3.24	2.92	-1.44	
7,936.00	86.40	357.55	7,316.82	903.87	77.32	902.57	8.66	8.60	1.05	
Last SDI MWD Curve Survey										
7,995.00	89.21	358.05	7,319.08	962.77	75.06	961.51	4.84	4.77	0.85	
Landing Point : 1440' FSL 1837' FEL Sec 14										
8,022.00	90.50	358.28	7,319.15	989.76	74.20	988.50	4.84	4.77	0.85	
First SDI MWD Lateral Survey										
8,107.00	91.18	357.13	7,317.90	1,074.68	70.79	1,073.47	1.57	0.80	-1.35	
8,193.00	90.20	357.59	7,316.86	1,160.58	66.83	1,159.42	1.26	-1.14	0.53	
8,278.00	90.74	356.91	7,316.17	1,245.48	62.76	1,244.37	1.02	0.64	-0.80	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Norden 2N-14HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Site:	Norden 15-14HZ Pad	MD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Well:	Norden 2N-14HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,360.35	89.66	357.77	7,315.88	1,327.74	58.94	1,326.68	1.67	-1.31	1.05	
Cross 460' Line: 8360.35' MD & 7315.88' TVD 1807' FSL 1856' FEL										
8,363.00	89.63	357.80	7,315.89	1,330.39	58.83	1,329.33	1.67	-1.31	1.05	
8,450.00	89.66	359.88	7,316.43	1,417.36	57.07	1,416.32	2.39	0.03	2.39	
8,536.00	89.53	359.80	7,317.04	1,503.36	56.83	1,502.31	0.18	-0.15	-0.09	
8,621.00	90.20	359.21	7,317.24	1,588.36	56.10	1,587.31	1.05	0.79	-0.69	
8,706.00	88.49	0.79	7,318.21	1,673.34	56.10	1,672.29	2.74	-2.01	1.86	
8,791.00	87.68	1.14	7,321.05	1,758.28	57.53	1,757.19	1.04	-0.95	0.41	
8,876.00	87.18	0.17	7,324.86	1,843.19	58.50	1,842.08	1.28	-0.59	-1.14	
8,962.00	89.83	0.23	7,327.11	1,929.15	58.80	1,928.02	3.08	3.08	0.07	
9,047.00	89.53	359.28	7,327.58	2,014.15	58.44	2,013.02	1.17	-0.35	-1.12	
9,132.00	90.24	359.87	7,327.75	2,099.15	57.81	2,098.01	1.09	0.84	0.69	
9,217.00	90.71	1.17	7,327.05	2,184.14	58.58	2,182.98	1.63	0.55	1.53	
9,302.00	90.97	0.62	7,325.80	2,269.12	59.90	2,267.93	0.72	0.31	-0.65	
9,387.00	91.11	0.02	7,324.26	2,354.10	60.38	2,352.90	0.72	0.16	-0.71	
9,472.00	91.75	359.84	7,322.14	2,439.08	60.28	2,437.86	0.78	0.75	-0.21	
9,558.00	92.11	359.03	7,319.24	2,525.02	59.43	2,523.81	1.03	0.42	-0.94	
9,643.00	90.37	0.22	7,317.40	2,610.00	58.87	2,608.78	2.48	-2.05	1.40	
9,728.00	89.46	0.79	7,317.53	2,694.99	59.62	2,693.76	1.26	-1.07	0.67	
9,814.00	88.05	359.26	7,319.40	2,780.97	59.66	2,779.72	2.42	-1.64	-1.78	
9,901.00	88.22	359.66	7,322.23	2,867.92	58.84	2,866.67	0.50	0.20	0.46	
9,988.00	88.08	358.80	7,325.04	2,954.86	57.67	2,953.63	1.00	-0.16	-0.99	
10,073.00	87.75	357.78	7,328.13	3,039.77	55.14	3,038.56	1.26	-0.39	-1.20	
10,158.00	89.83	357.78	7,329.92	3,124.68	51.84	3,123.52	2.45	2.45	0.00	
10,244.00	90.77	357.79	7,329.47	3,210.61	48.52	3,209.49	1.09	1.09	0.01	
10,329.00	90.30	356.33	7,328.68	3,295.50	44.16	3,294.43	1.80	-0.55	-1.72	
10,414.00	90.10	357.81	7,328.38	3,380.38	39.82	3,379.37	1.76	-0.24	1.74	
10,499.00	90.44	358.56	7,327.98	3,465.34	37.12	3,464.36	0.97	0.40	0.88	
10,587.00	90.07	356.16	7,327.59	3,553.24	33.07	3,552.31	2.76	-0.42	-2.73	
10,672.00	89.36	356.77	7,328.01	3,638.07	27.83	3,637.22	1.10	-0.84	0.72	
10,758.00	89.50	356.81	7,328.87	3,723.93	23.02	3,723.14	0.17	0.16	0.05	
10,845.00	89.36	358.38	7,329.74	3,810.85	19.36	3,810.10	1.81	-0.16	1.80	
10,930.00	88.89	358.55	7,331.03	3,895.81	17.09	3,895.09	0.59	-0.55	0.20	
11,016.00	89.13	359.23	7,332.52	3,981.78	15.42	3,981.07	0.84	0.28	0.79	
11,101.00	88.25	3.61	7,334.46	4,066.71	17.53	4,065.96	5.25	-1.04	5.15	
11,186.00	90.47	4.72	7,335.41	4,151.47	23.70	4,150.62	2.92	2.61	1.31	
11,271.00	89.97	3.65	7,335.09	4,236.24	29.90	4,235.29	1.39	-0.59	-1.26	
11,356.00	91.17	2.16	7,334.24	4,321.13	34.21	4,320.09	2.25	1.41	-1.75	
11,401.42	91.94	1.62	7,333.01	4,366.51	35.71	4,365.44	2.09	1.71	-1.20	
Cross 460' Line : 11401.42' MD & 7333.01' TVD 460' FNL 1865' FEL										
11,441.00	92.62	1.14	7,331.43	4,406.04	36.66	4,404.96	2.09	1.71	-1.20	
11,527.00	92.89	0.01	7,327.30	4,491.94	37.52	4,490.83	1.35	0.31	-1.31	
11,612.00	91.61	358.66	7,323.96	4,576.86	36.53	4,575.76	2.19	-1.51	-1.59	
11,697.00	92.22	357.29	7,321.12	4,661.76	33.53	4,660.69	1.76	0.72	-1.61	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Norden 2N-14HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Site:	Norden 15-14HZ Pad	MD Reference:	GL 4951' & KB 17' @ 4968.00ft (Xtreme 24)
Well:	Norden 2N-14HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,756.00	92.15	356.73	7,318.87	4,720.64	30.46	4,719.61	0.96	-0.12	-0.95
Last SDI MWD Survey									
11,815.00	92.15	356.73	7,316.66	4,779.50	27.09	4,778.52	0.00	0.00	0.00
Projection to TD : 52' FNL 1873' FEL Sec 14									

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
126.00	126.00	-0.20	-0.28	First Total MWD Survey
1,828.00	1,795.47	-278.51	78.79	Last Total MWD Survey
2,038.00	2,004.86	-293.92	83.21	First SDI MWD Intermediate Survey
5,786.00	5,724.42	-308.88	87.06	Last SDI MWD Intermediate Survey
6,597.43	6,480.59	-20.99	88.32	Enter Land Box : 6597.43' MD & 6480.51' TVD
6,983.00	6,832.00	137.46	88.73	Curve KOP
6,997.00	6,844.93	142.84	88.45	First SDI MWD Curve Survey
7,936.00	7,316.82	903.87	77.32	Last SDI MWD Curve Survey
7,995.00	7,319.08	962.77	75.06	Landing Point : 1440' FSL 1837' FEL Sec 14
8,022.00	7,319.15	989.76	74.20	First SDI MWD Lateral Survey
8,360.35	7,315.88	1,327.74	58.94	Cross 460' Line: 8360.35' MD & 7315.88' TVD 1807' FSL 1856' FEL
11,401.42	7,333.01	4,366.51	35.71	Cross 460' Line : 11401.42' MD & 7333.01' TVD 460' FNL 1865' FEL
11,756.00	7,318.87	4,720.64	30.46	Last SDI MWD Survey
11,815.00	7,316.66	4,779.50	27.09	Projection to TD : 52' FNL 1873' FEL Sec 14

Checked By: _____ Approved By: _____ Date: _____