

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

NORDEN 1C-14HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

10 November, 2015

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

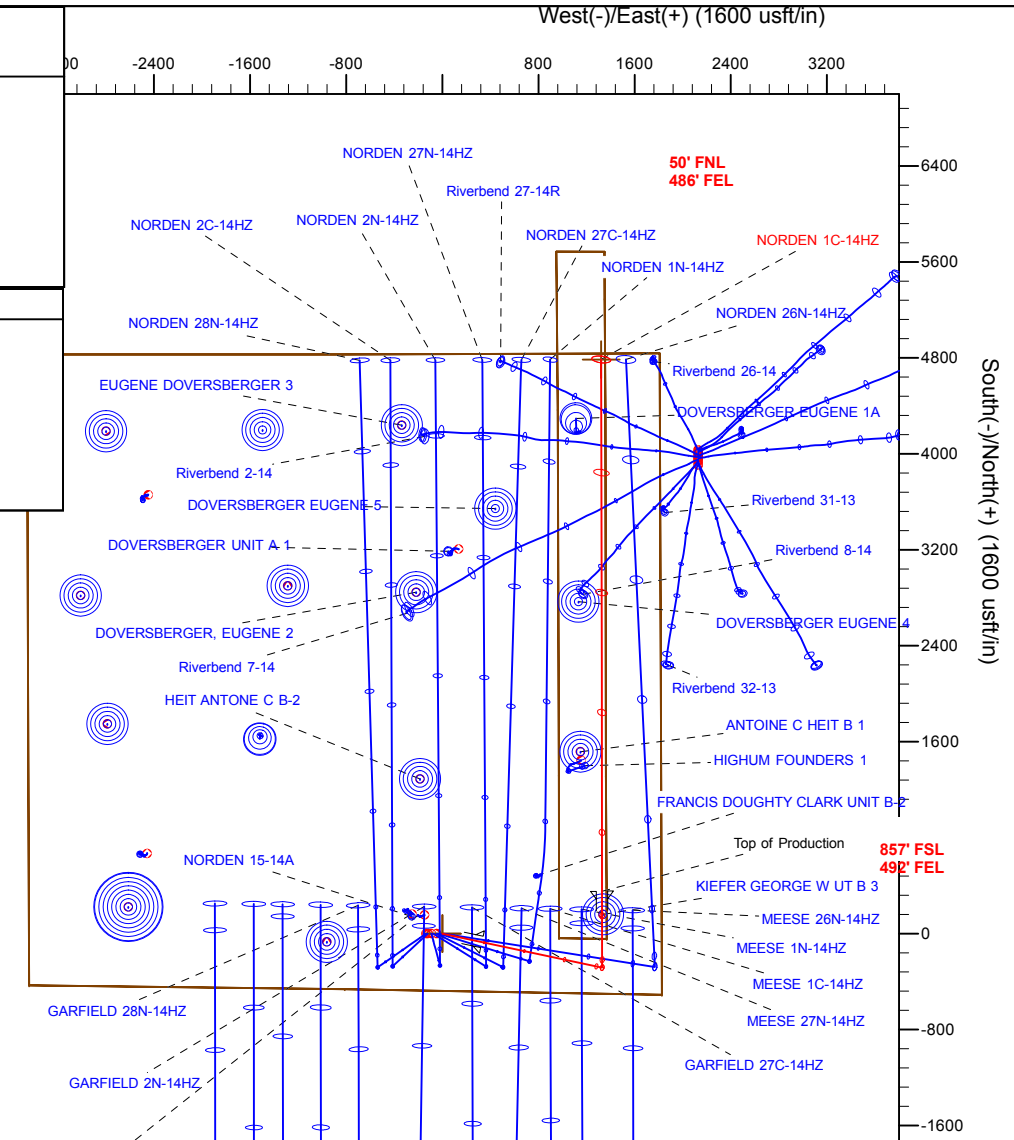
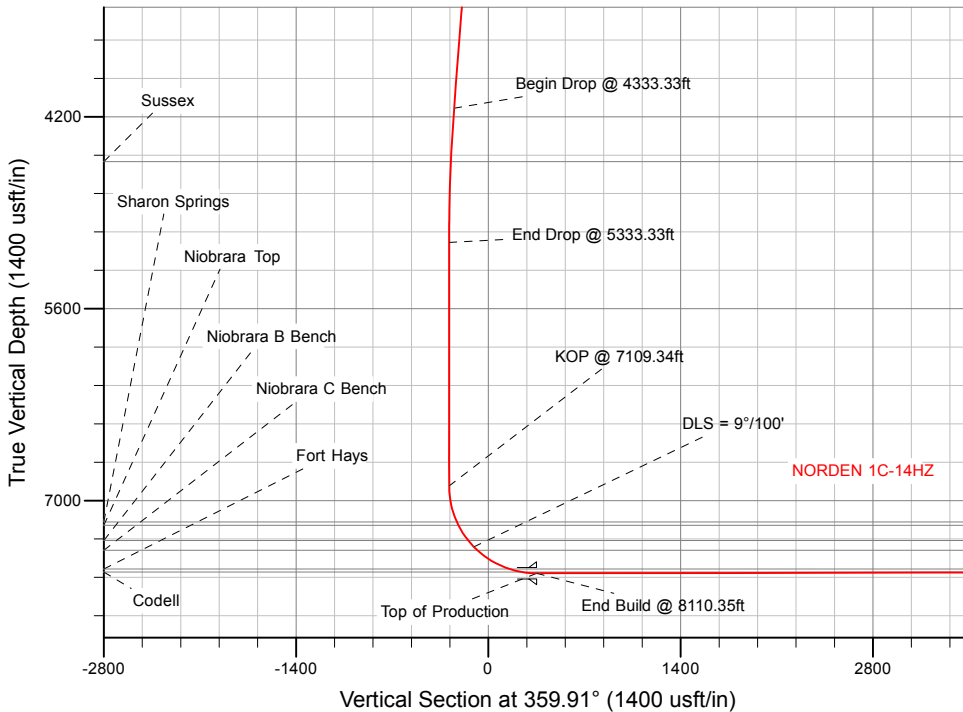
US ROCKIES WATTENBERG PLANNING

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	1533.33	20.00	102.00	1506.42	-47.89	225.32	1.50	102.00	-48.25	
4	4333.33	20.00	102.00	4137.56	-247.00	1162.05	0.00	0.00	-248.83	
5	5333.33	0.00	0.00	5117.38	-282.92	1331.05	2.00	-180.00	-285.01	
6	7109.34	0.00	0.00	6893.39	-282.92	1331.05	0.00	0.00	-285.01	
7	8110.35	90.09	359.91	7530.00	354.70	1330.03	9.00	359.91	352.61	
8	12542.74	90.09	359.91	7523.00	4787.08	1323.00	0.00	0.00	4785.00	NORDEN 1C-14HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NORDEN 1C-14HZ_SHL	0.00	0.00	0.00	40.045020	-104.854998	Point
NORDEN 1C-14HZ_TOE	7523.00	4787.08	1323.00	40.058166	-104.850270	Point



WELL DETAILS: NORDEN 1C-14HZ	
Ground Level:	4951.00
RKB = 17' @ 4968.00usft	
Plan: Permit Rev-1 (NORDEN 1C-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 1C-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 1C-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 1C-14HZ					
Well Position	+N-S	-1.09 usft	Northing:	14,543,160.17 usft	Latitude:	40.045020
	+E-W	134.90 usft	Easting:	1,680,997.94 usft	Longitude:	-104.854998
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	359.91

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	
1,533.33	20.00	102.00	1,506.42	-47.89	225.32	1.50	1.50	0.00	102.00	
4,333.33	20.00	102.00	4,137.56	-247.00	1,162.05	0.00	0.00	0.00	0.00	
5,333.33	0.00	0.00	5,117.38	-282.92	1,331.05	2.00	-2.00	-10.20	-180.00	
7,109.34	0.00	0.00	6,893.39	-282.92	1,331.05	0.00	0.00	0.00	0.00	
8,110.35	90.09	359.91	7,530.00	354.70	1,330.03	9.00	9.00	-0.01	359.91	
12,542.74	90.09	359.91	7,523.00	4,787.08	1,323.00	0.00	0.00	0.00	0.00	NORDEN 1C-14HZ_T

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 1C-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 1C-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	102.00	299.99	-0.27	1.28	-0.27	1.50	1.50	0.00	0.00
400.00	3.00	102.00	399.91	-1.09	5.12	-1.10	1.50	1.50	0.00	0.00
500.00	4.50	102.00	499.69	-2.45	11.52	-2.47	1.50	1.50	0.00	0.00
600.00	6.00	102.00	599.27	-4.35	20.47	-4.38	1.50	1.50	0.00	0.00
700.00	7.50	102.00	698.57	-6.79	31.96	-6.84	1.50	1.50	0.00	0.00
800.00	9.00	102.00	797.54	-9.78	46.00	-9.85	1.50	1.50	0.00	0.00
900.00	10.50	102.00	896.09	-13.30	62.56	-13.40	1.50	1.50	0.00	0.00
1,000.00	12.00	102.00	994.16	-17.35	81.65	-17.48	1.50	1.50	0.00	0.00
1,100.00	13.50	102.00	1,091.70	-21.94	103.23	-22.10	1.50	1.50	0.00	0.00
1,200.00	15.00	102.00	1,188.62	-27.06	127.31	-27.26	1.50	1.50	0.00	0.00
1,300.00	16.50	102.00	1,284.86	-32.70	153.86	-32.95	1.50	1.50	0.00	0.00
1,342.98	17.14	102.00	1,326.00	-35.29	166.03	-35.55	1.50	1.50	0.00	0.00
Fox Hills										
1,400.00	18.00	102.00	1,380.36	-38.87	182.87	-39.16	1.50	1.50	0.00	0.00
1,500.00	19.50	102.00	1,475.05	-45.55	214.31	-45.89	1.50	1.50	0.00	0.00
1,533.33	20.00	102.00	1,506.42	-47.89	225.32	-48.25	1.50	1.50	0.00	0.00
End Nudge @ 1533.33ft										
1,600.00	20.00	102.00	1,569.07	-52.63	247.63	-53.02	0.00	0.00	0.00	0.00
1,700.00	20.00	102.00	1,663.04	-59.75	281.08	-60.19	0.00	0.00	0.00	0.00
1,800.00	20.00	102.00	1,757.01	-66.86	314.54	-67.35	0.00	0.00	0.00	0.00
1,845.75	20.00	102.00	1,800.00	-70.11	329.84	-70.63	0.00	0.00	0.00	0.00
9 5/8"										
1,900.00	20.00	102.00	1,850.97	-73.97	347.99	-74.51	0.00	0.00	0.00	0.00
2,000.00	20.00	102.00	1,944.94	-81.08	381.44	-81.68	0.00	0.00	0.00	0.00
2,100.00	20.00	102.00	2,038.91	-88.19	414.90	-88.84	0.00	0.00	0.00	0.00
2,200.00	20.00	102.00	2,132.88	-95.30	448.35	-96.00	0.00	0.00	0.00	0.00
2,300.00	20.00	102.00	2,226.85	-102.41	481.81	-103.17	0.00	0.00	0.00	0.00
2,400.00	20.00	102.00	2,320.82	-109.52	515.26	-110.33	0.00	0.00	0.00	0.00
2,500.00	20.00	102.00	2,414.79	-116.63	548.72	-117.50	0.00	0.00	0.00	0.00
2,600.00	20.00	102.00	2,508.76	-123.74	582.17	-124.66	0.00	0.00	0.00	0.00
2,700.00	20.00	102.00	2,602.73	-130.86	615.63	-131.82	0.00	0.00	0.00	0.00
2,800.00	20.00	102.00	2,696.70	-137.97	649.08	-138.99	0.00	0.00	0.00	0.00
2,900.00	20.00	102.00	2,790.67	-145.08	682.54	-146.15	0.00	0.00	0.00	0.00
3,000.00	20.00	102.00	2,884.64	-152.19	715.99	-153.31	0.00	0.00	0.00	0.00
3,100.00	20.00	102.00	2,978.61	-159.30	749.45	-160.48	0.00	0.00	0.00	0.00
3,200.00	20.00	102.00	3,072.58	-166.41	782.90	-167.64	0.00	0.00	0.00	0.00
3,300.00	20.00	102.00	3,166.54	-173.52	816.35	-174.80	0.00	0.00	0.00	0.00
3,400.00	20.00	102.00	3,260.51	-180.63	849.81	-181.97	0.00	0.00	0.00	0.00
3,500.00	20.00	102.00	3,354.48	-187.74	883.26	-189.13	0.00	0.00	0.00	0.00
3,600.00	20.00	102.00	3,448.45	-194.85	916.72	-196.29	0.00	0.00	0.00	0.00
3,700.00	20.00	102.00	3,542.42	-201.97	950.17	-203.46	0.00	0.00	0.00	0.00
3,800.00	20.00	102.00	3,636.39	-209.08	983.63	-210.62	0.00	0.00	0.00	0.00
3,900.00	20.00	102.00	3,730.36	-216.19	1,017.08	-217.78	0.00	0.00	0.00	0.00
4,000.00	20.00	102.00	3,824.33	-223.30	1,050.54	-224.95	0.00	0.00	0.00	0.00
4,100.00	20.00	102.00	3,918.30	-230.41	1,083.99	-232.11	0.00	0.00	0.00	0.00
4,200.00	20.00	102.00	4,012.27	-237.52	1,117.45	-239.28	0.00	0.00	0.00	0.00
4,300.00	20.00	102.00	4,106.24	-244.63	1,150.90	-246.44	0.00	0.00	0.00	0.00
4,333.33	20.00	102.00	4,137.56	-247.00	1,162.05	-248.83	0.00	0.00	0.00	0.00
Begin Drop @ 4333.33ft										
4,400.00	18.67	102.00	4,200.47	-251.59	1,183.64	-253.45	2.00	-2.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 1C-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 1C-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)	
4,500.00	16.67	102.00	4,295.74	-257.90	1,213.32	-259.81	2.00	-2.00	0.00	
4,600.00	14.67	102.00	4,392.02	-263.51	1,239.74	-265.46	2.00	-2.00	0.00	
4,700.00	12.67	102.00	4,489.19	-268.43	1,262.85	-270.41	2.00	-2.00	0.00	
4,739.72	11.87	102.00	4,528.00	-270.18	1,271.10	-272.18	2.00	-2.00	0.00	
Sussex										
4,800.00	10.67	102.00	4,587.12	-272.63	1,282.63	-274.64	2.00	-2.00	0.00	
4,900.00	8.67	102.00	4,685.69	-276.12	1,299.05	-278.16	2.00	-2.00	0.00	
5,000.00	6.67	102.00	4,784.79	-278.90	1,312.10	-280.96	2.00	-2.00	0.00	
5,100.00	4.67	102.00	4,884.30	-280.95	1,321.76	-283.02	2.00	-2.00	0.00	
5,200.00	2.67	102.00	4,984.09	-282.28	1,328.01	-284.36	2.00	-2.00	0.00	
5,300.00	0.67	102.00	5,084.04	-282.88	1,330.86	-284.97	2.00	-2.00	0.00	
5,333.33	0.00	100.99	5,117.37	-282.92	1,331.05	-285.01	2.00	-2.00	-3.04	
End Drop @ 5333.33ft										
5,400.00	0.00	0.00	5,184.04	-282.92	1,331.05	-285.01	0.00	0.00	-151.47	
5,500.00	0.00	0.00	5,284.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,384.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,484.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,584.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,684.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,784.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,884.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,200.00	0.00	0.00	5,984.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,084.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,184.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,284.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,384.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,484.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,584.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,684.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,784.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,884.04	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
7,109.34	0.00	0.00	6,893.38	-282.92	1,331.05	-285.01	0.00	0.00	0.00	
KOP @ 7109.34ft										
7,200.00	8.16	359.91	6,983.74	-276.48	1,331.04	-278.57	9.00	9.00	-0.10	
7,300.00	17.16	359.91	7,081.21	-254.59	1,331.00	-256.68	9.00	9.00	0.00	
7,379.71	24.33	359.91	7,155.70	-226.37	1,330.96	-228.46	9.00	9.00	0.00	
Sharon Springs										
7,400.00	26.16	359.91	7,174.05	-217.72	1,330.94	-219.81	9.00	9.00	0.00	
7,407.43	26.83	359.91	7,180.70	-214.40	1,330.94	-216.49	9.00	9.00	0.00	
Niobrara Top										
7,500.00	35.16	359.91	7,259.98	-166.78	1,330.86	-168.87	9.00	9.00	0.00	
7,538.41	38.62	359.91	7,290.70	-143.72	1,330.82	-145.81	9.00	9.00	0.00	
Niobrara B Bench										
7,600.00	44.16	359.91	7,336.89	-103.02	1,330.76	-105.11	9.00	9.00	0.00	
DLS = 9°/100'										
7,637.05	47.49	359.91	7,362.70	-76.45	1,330.72	-78.54	9.00	9.00	0.00	
Niobrara C Bench										
7,700.00	53.16	359.91	7,402.87	-28.02	1,330.64	-30.11	9.00	9.00	0.00	
7,800.00	62.16	359.91	7,456.32	56.38	1,330.51	54.29	9.00	9.00	0.00	
7,900.00	71.16	359.91	7,495.89	148.11	1,330.36	146.02	9.00	9.00	0.00	
7,908.87	71.96	359.91	7,498.70	156.52	1,330.35	154.43	9.00	9.00	0.00	
Fort Hays										
8,000.00	80.16	359.91	7,520.64	244.89	1,330.21	242.80	9.00	9.00	0.00	

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 1C-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 1C-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)	
8,000.36	80.19	359.91	7,520.70	245.25	1,330.21	243.16	9.00	9.00	0.00	
Codell										
8,100.00	89.16	359.91	7,529.94	344.35	1,330.05	342.26	9.00	9.00	0.00	
8,110.35	90.09	359.91	7,530.00	354.70	1,330.03	352.61	9.00	9.00	0.00	
End Build @ 8110.35ft - Top of Production										
8,200.00	90.09	359.91	7,529.86	444.35	1,329.89	442.26	0.00	0.00	0.00	
8,300.00	90.09	359.91	7,529.71	544.35	1,329.73	542.26	0.00	0.00	0.00	
8,400.00	90.09	359.91	7,529.55	644.35	1,329.57	642.26	0.00	0.00	0.00	
8,500.00	90.09	359.91	7,529.39	744.35	1,329.42	742.26	0.00	0.00	0.00	
8,600.00	90.09	359.91	7,529.23	844.35	1,329.26	842.26	0.00	0.00	0.00	
8,700.00	90.09	359.91	7,529.07	944.35	1,329.10	942.26	0.00	0.00	0.00	
8,800.00	90.09	359.91	7,528.91	1,044.35	1,328.94	1,042.26	0.00	0.00	0.00	
8,900.00	90.09	359.91	7,528.76	1,144.35	1,328.78	1,142.26	0.00	0.00	0.00	
9,000.00	90.09	359.91	7,528.60	1,244.35	1,328.62	1,242.26	0.00	0.00	0.00	
9,100.00	90.09	359.91	7,528.44	1,344.35	1,328.46	1,342.26	0.00	0.00	0.00	
9,200.00	90.09	359.91	7,528.28	1,444.35	1,328.30	1,442.26	0.00	0.00	0.00	
9,300.00	90.09	359.91	7,528.12	1,544.35	1,328.15	1,542.26	0.00	0.00	0.00	
9,400.00	90.09	359.91	7,527.97	1,644.35	1,327.99	1,642.26	0.00	0.00	0.00	
9,500.00	90.09	359.91	7,527.81	1,744.35	1,327.83	1,742.26	0.00	0.00	0.00	
9,600.00	90.09	359.91	7,527.65	1,844.35	1,327.67	1,842.26	0.00	0.00	0.00	
9,700.00	90.09	359.91	7,527.49	1,944.35	1,327.51	1,942.26	0.00	0.00	0.00	
9,800.00	90.09	359.91	7,527.33	2,044.35	1,327.35	2,042.26	0.00	0.00	0.00	
9,900.00	90.09	359.91	7,527.18	2,144.35	1,327.19	2,142.26	0.00	0.00	0.00	
10,000.00	90.09	359.91	7,527.02	2,244.35	1,327.03	2,242.26	0.00	0.00	0.00	
10,100.00	90.09	359.91	7,526.86	2,344.35	1,326.88	2,342.26	0.00	0.00	0.00	
10,200.00	90.09	359.91	7,526.70	2,444.35	1,326.72	2,442.26	0.00	0.00	0.00	
10,300.00	90.09	359.91	7,526.54	2,544.35	1,326.56	2,542.26	0.00	0.00	0.00	
10,400.00	90.09	359.91	7,526.39	2,644.35	1,326.40	2,642.26	0.00	0.00	0.00	
10,500.00	90.09	359.91	7,526.23	2,744.35	1,326.24	2,742.26	0.00	0.00	0.00	
10,600.00	90.09	359.91	7,526.07	2,844.35	1,326.08	2,842.26	0.00	0.00	0.00	
10,700.00	90.09	359.91	7,525.91	2,944.35	1,325.92	2,942.26	0.00	0.00	0.00	
10,800.00	90.09	359.91	7,525.75	3,044.35	1,325.77	3,042.26	0.00	0.00	0.00	
10,900.00	90.09	359.91	7,525.60	3,144.35	1,325.61	3,142.26	0.00	0.00	0.00	
11,000.00	90.09	359.91	7,525.44	3,244.35	1,325.45	3,242.26	0.00	0.00	0.00	
11,100.00	90.09	359.91	7,525.28	3,344.35	1,325.29	3,342.26	0.00	0.00	0.00	
11,200.00	90.09	359.91	7,525.12	3,444.35	1,325.13	3,442.26	0.00	0.00	0.00	
11,300.00	90.09	359.91	7,524.96	3,544.35	1,324.97	3,542.26	0.00	0.00	0.00	
11,400.00	90.09	359.91	7,524.81	3,644.35	1,324.81	3,642.26	0.00	0.00	0.00	
11,500.00	90.09	359.91	7,524.65	3,744.34	1,324.65	3,742.26	0.00	0.00	0.00	
11,600.00	90.09	359.91	7,524.49	3,844.34	1,324.50	3,842.26	0.00	0.00	0.00	
11,700.00	90.09	359.91	7,524.33	3,944.34	1,324.34	3,942.26	0.00	0.00	0.00	
11,800.00	90.09	359.91	7,524.17	4,044.34	1,324.18	4,042.26	0.00	0.00	0.00	
11,900.00	90.09	359.91	7,524.02	4,144.34	1,324.02	4,142.26	0.00	0.00	0.00	
12,000.00	90.09	359.91	7,523.86	4,244.34	1,323.86	4,242.26	0.00	0.00	0.00	
12,100.00	90.09	359.91	7,523.70	4,344.34	1,323.70	4,342.26	0.00	0.00	0.00	
12,200.00	90.09	359.91	7,523.54	4,444.34	1,323.54	4,442.26	0.00	0.00	0.00	
12,300.00	90.09	359.91	7,523.38	4,544.34	1,323.39	4,542.26	0.00	0.00	0.00	
12,400.00	90.09	359.91	7,523.23	4,644.34	1,323.23	4,642.26	0.00	0.00	0.00	
12,500.00	90.09	359.91	7,523.07	4,744.34	1,323.07	4,742.26	0.00	0.00	0.00	
12,542.74	90.09	359.91	7,523.00	4,787.08	1,323.00	4,785.00	0.00	0.00	0.00	
TD Well @ 12542.74ft										

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 1C-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 1C-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 1C-14HZ_SHI - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,543,160.17	1,680,997.94	40.045020	-104.854998	
NORDEN 1C-14HZ_Har - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,543,160.17	1,680,997.94	40.045020	-104.854998	
Point 1			0.00	5,686.23	1,350.32	14,548,848.59	1,682,339.00			
Point 2			0.00	5,293.53	1,351.08	14,548,455.90	1,682,340.40			
Point 3			0.00	4,373.52	1,357.58	14,547,535.90	1,682,348.39			
Point 4			0.00	1,315.30	1,363.00	14,544,477.69	1,682,358.79			
Point 5			0.00	395.10	1,366.90	14,543,557.50	1,682,364.19			
Point 6			0.00	-44.61	1,368.79	14,543,117.79	1,682,366.80			
Point 7			0.00	-37.56	971.50	14,543,124.20	1,681,969.50			
Point 8			0.00	402.04	971.42	14,543,563.79	1,681,968.70			
Point 9			0.00	1,322.24	970.41	14,544,483.99	1,681,966.19			
Point 10			0.00	4,370.66	960.78	14,547,532.39	1,681,951.60			
Point 11			0.00	5,687.18	949.42	14,548,848.89	1,681,938.10			
Point 12			0.00	5,686.23	1,350.32	14,548,848.59	1,682,339.00			
1N-R67W-Sec. 14_Secti - plan misses target center by 6041.58usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-39.00	-5,412.12	-2,684.79	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	1,677,534.16			
Point 2			-39.00	10,241.68	1,854.89	14,547,988.38	1,680,160.17			
Point 3			-39.00	10,251.55	4,492.80	14,548,002.54	1,682,798.06			
Point 4			-39.00	4,901.92	4,512.15	14,542,652.95	1,682,826.12			
Point 5			-39.00	4,948.86	1,873.61	14,542,695.60	1,680,187.51			
Point 6			-39.00	4,981.70	-753.18	14,542,724.16	1,677,560.67			
Point 7			-39.00	7,611.26	-762.09	14,545,353.70	1,677,547.48			
NORDEN 1C-14HZ_TOI - plan hits target center - Point	0.00	0.00	7,523.00	4,787.08	1,323.00	14,547,949.40	1,682,313.14	40.058166	-104.850270	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,845.75	1,800.00	9 5/8"	9-5/8	13-1/2		
8,110.35	7,530.00	Top of Production	5-1/2	7-7/8		

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 1C-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 1C-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 (°)	
1,342.98	1,326.00	Fox Hills				
4,739.72	4,528.00	Sussex				
7,379.71	7,155.70	Sharon Springs				
7,407.43	7,180.70	Niobrara Top				
7,538.41	7,290.70	Niobrara B Bench				
7,637.05	7,362.70	Niobrara C Bench				
7,908.87	7,498.70	Fort Hays				
8,000.36	7,520.70	Codell				

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
1,533.33	1,506.42	-47.89	225.32		End Nudge @ 1533.33ft
4,333.33	4,137.56	-247.00	1,162.05		Begin Drop @ 4333.33ft
5,333.33	5,117.37	-282.92	1,331.05		End Drop @ 5333.33ft
7,109.34	6,893.38	-282.92	1,331.05		KOP @ 7109.34ft
7,600.00	7,336.89	-103.02	1,330.76		DLS = 9°/100'
8,110.35	7,530.00	354.70	1,330.03		End Build @ 8110.35ft
12,542.74	7,523.00	4,787.08	1,323.00		TD Well @ 12542.74ft