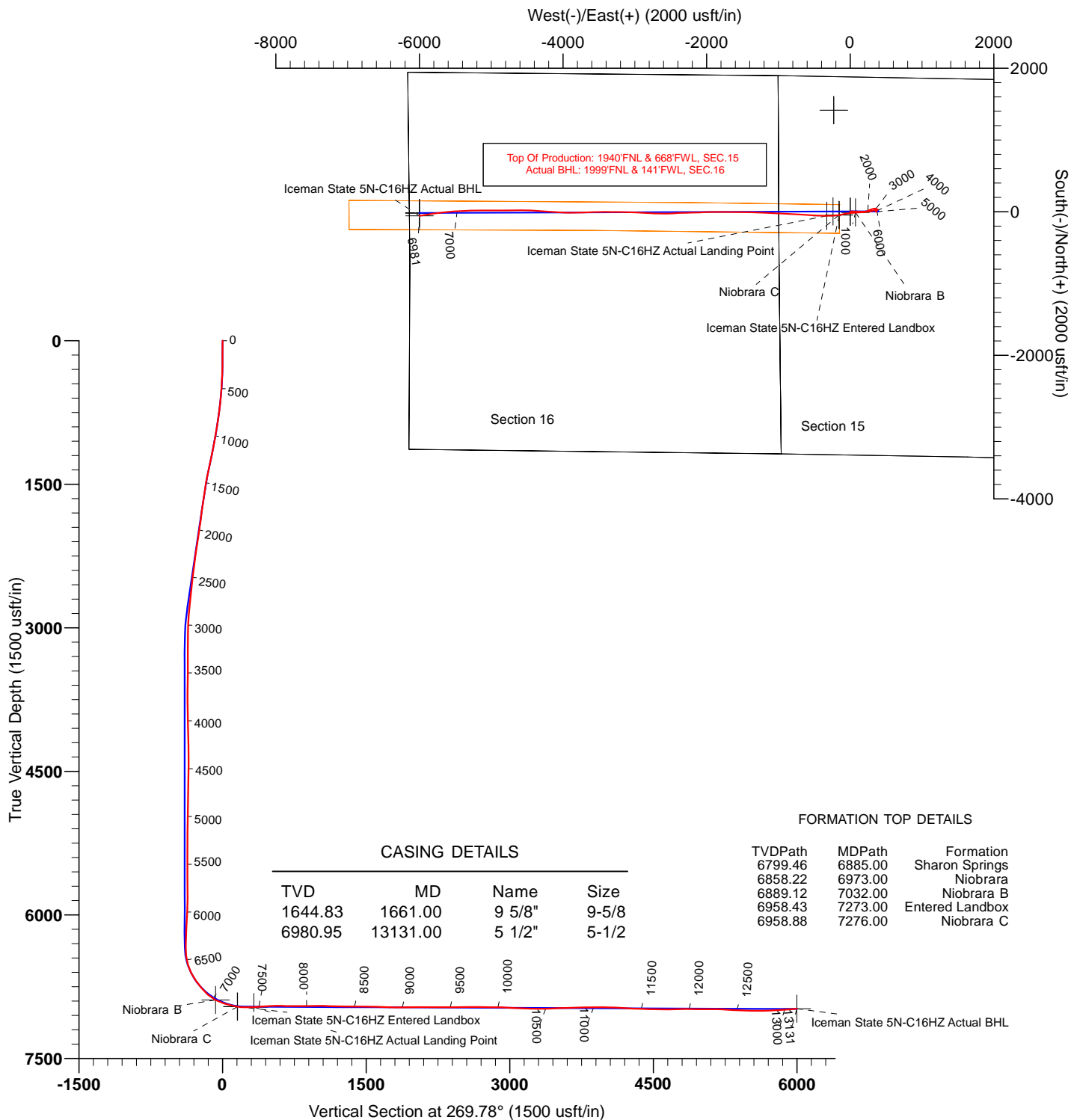


# US ROCKIES WATTENBERG PLANNING



Project: WELD-NAD83-UTMFT13N  
 Site: 3N-67W-15 Iceman Pad  
 Well: ICEMAN STATE 5N-C16HZ  
 Wellbore: PLAN A  
 Design: PDD Actual Surveys



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Niobrara B	6889.12	-9.78	73.26	14609677.15	1673242.25	40.227715	-104.882396	Point
Iceman State 5N-C16HZ Entered Landbox	6958.43	-44.83	-153.81	14609641.80	1673015.23	40.227619	-104.883209	Point
Niobrara C	6958.88	-45.24	-156.75	14609641.39	1673012.29	40.227618	-104.883220	Point
Iceman State 5N-C16HZ Actual Landing Point	6963.50	-56.13	-326.74	14609630.28	1672842.31	40.227588	-104.883829	Point
Iceman State 5N-C16HZ Actual BHL	6980.95	-57.69	-5999.68	14609621.21	1667169.38	40.227582	-104.904153	Point



# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-67W-15 Iceman Pad  
ICEMAN STATE 5N-C16HZ**

**PLAN A**

**Design: PDD Actual Surveys**

## **Standard Survey Report**

**02 October, 2015**

# PDD

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 5N-C16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Well:</b>	ICEMAN STATE 5N-C16HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	PLAN A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site		3N-67W-15 Iceman Pad, SECTION 17, TOWNSHIP 3 NORTH, RANGE 67 WEST						
Site Position:		Northing:	14,609,596.89	usft	Latitude:	40.227495		
From:	Lat/Long	Easting:	1,673,169.65	usft	Longitude:	-104.882656		
Position Uncertainty:	0.00	usft	Slot Radius:	13-3/16	"	Grid Convergence:	0.08	°

Well	ICEMAN STATE 5N-C16HZ, 1880' FNL 995' FWL					
Well Position	+N/-S	0.00 usft	Northing:	14,609,686.83 usft	Latitude:	40.227742
	+E/-W	0.00 usft	Easting:	1,673,168.97 usft	Longitude:	-104.882658
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,796.00 usft

<b>Wellbore</b>	PLAN A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/20/2014	8.45	66.77	52,667

<b>Design</b>	PDD Actual Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	269.78	

<b>Survey Program</b>	<b>Date</b>	10/2/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
128.00	1,620.00	Cathedral MWD Surface (PLAN A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,704.00	13,061.00	PDD MWD+IFR1 Curve/Lateral (PLAN A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	
13,131.00	13,131.00	Projection to Bit (PLAN A)	APC_BLIND	OWSG BLIND	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
128.00	0.30	22.90	128.00	0.31	0.13	-0.13	0.23	0.23	0.00	
189.00	0.40	14.00	189.00	0.66	0.24	-0.25	0.19	0.16	-14.59	
252.00	0.80	74.20	252.00	1.00	0.72	-0.72	1.10	0.63	95.56	
283.00	1.30	70.40	282.99	1.17	1.26	-1.26	1.63	1.61	-12.26	
345.00	2.40	62.30	344.96	2.01	3.07	-3.08	1.82	1.77	-13.06	
419.00	3.70	69.20	418.85	3.58	6.68	-6.69	1.82	1.76	9.32	
503.00	3.80	82.20	502.67	4.92	11.97	-11.99	1.02	0.12	15.48	
588.00	4.80	93.90	587.43	5.06	18.31	-18.33	1.56	1.18	13.76	

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 5N-C16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Well:</b>	ICEMAN STATE 5N-C16HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	PLAN A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

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)	
673.00	6.50	94.60	672.02	4.43	26.65	-26.67	2.00	2.00	0.82	
758.00	8.00	94.40	756.34	3.59	37.34	-37.36	1.76	1.76	-0.24	
843.00	8.80	93.00	840.42	2.80	49.74	-49.75	0.97	0.94	-1.65	
928.00	9.50	91.70	924.34	2.25	63.24	-63.25	0.86	0.82	-1.53	
1,012.00	9.80	89.40	1,007.15	2.12	77.32	-77.32	0.58	0.36	-2.74	
1,096.00	10.50	88.70	1,089.84	2.37	92.12	-92.13	0.85	0.83	-0.83	
1,181.00	11.70	91.30	1,173.25	2.35	108.48	-108.49	1.53	1.41	3.06	
1,265.00	12.20	92.80	1,255.43	1.72	125.86	-125.86	0.70	0.60	1.79	
1,350.00	11.90	93.30	1,338.55	0.78	143.58	-143.58	0.37	-0.35	0.59	
1,393.00	12.00	91.70	1,380.62	0.39	152.47	-152.47	0.80	0.23	-3.72	
1,435.00	11.40	89.50	1,421.75	0.30	160.99	-160.99	1.78	-1.43	-5.24	
1,520.00	9.10	88.20	1,505.39	0.58	176.11	-176.11	2.72	-2.71	-1.53	
1,563.00	8.40	86.60	1,547.89	0.88	182.64	-182.64	1.72	-1.63	-3.72	
1,605.00	8.30	87.00	1,589.44	1.22	188.73	-188.73	0.28	-0.24	0.95	
1,620.00	8.50	86.00	1,604.28	1.35	190.92	-190.92	1.65	1.33	-6.67	
1,704.00	8.38	86.50	1,687.37	2.16	203.22	-203.23	0.17	-0.14	0.59	
1,895.00	7.62	67.74	1,876.54	7.81	228.85	-228.87	1.42	-0.40	-9.82	
2,085.00	9.78	70.20	2,064.34	18.05	255.70	-255.76	1.15	1.14	1.29	
2,275.00	8.42	65.25	2,251.95	29.34	283.51	-283.62	0.83	-0.72	-2.60	
2,464.00	7.28	72.34	2,439.18	38.77	307.49	-307.64	0.79	-0.60	3.75	
2,655.00	6.37	87.99	2,628.84	42.81	329.62	-329.78	1.08	-0.47	8.19	
2,845.00	5.50	77.82	2,817.83	45.10	349.06	-349.23	0.72	-0.46	-5.35	
2,940.00	3.49	101.23	2,912.54	45.50	356.35	-356.52	2.83	-2.12	24.64	
3,035.00	2.36	153.13	3,007.43	43.19	360.07	-360.23	2.90	-1.18	54.63	
3,226.00	2.14	165.16	3,198.28	36.23	362.76	-362.90	0.27	-0.12	6.30	
3,321.00	1.80	171.85	3,293.22	33.04	363.43	-363.55	0.44	-0.36	7.04	
3,510.00	1.62	184.46	3,482.14	27.44	363.64	-363.74	0.22	-0.10	6.67	
3,699.00	2.37	158.58	3,671.03	21.14	364.86	-364.94	0.61	0.40	-13.69	
3,792.00	2.03	183.64	3,763.96	17.71	365.46	-365.53	1.09	-0.37	26.95	
4,078.00	2.22	227.60	4,049.78	8.93	361.05	-361.08	0.56	0.07	15.37	
4,269.00	1.25	233.24	4,240.69	5.18	356.64	-356.66	0.51	-0.51	2.96	
4,456.00	0.70	170.86	4,427.67	2.84	355.18	-355.19	0.60	-0.30	-33.36	
4,646.00	1.44	105.53	4,617.64	1.06	357.67	-357.67	0.69	0.39	-34.39	
4,836.00	0.80	123.91	4,807.60	-0.32	361.07	-361.07	0.38	-0.34	9.68	
5,028.00	1.76	39.39	4,999.57	1.22	364.06	-364.06	0.97	0.50	-44.02	
5,218.00	1.47	12.45	5,189.49	5.87	366.44	-366.46	0.42	-0.15	-14.18	
5,410.00	1.79	355.11	5,381.42	11.26	366.71	-366.75	0.30	0.16	-9.03	
5,599.00	2.00	353.17	5,570.31	17.48	366.07	-366.13	0.12	0.11	-1.03	
5,789.00	1.34	350.35	5,760.23	22.96	365.30	-365.39	0.35	-0.35	-1.48	
5,885.00	1.16	51.35	5,856.21	24.67	365.88	-365.97	1.33	-0.18	63.54	
6,075.00	3.30	83.88	6,046.06	26.46	372.82	-372.92	1.26	1.12	17.12	
6,268.00	2.85	53.31	6,238.80	29.92	382.19	-382.31	0.87	-0.23	-15.84	
6,361.00	1.48	20.25	6,331.73	32.42	384.46	-384.59	1.94	-1.47	-35.55	

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 5N-C16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Well:</b>	ICEMAN STATE 5N-C16HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	PLAN A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

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)
6,456.00	5.85	260.64	6,426.58	32.79	380.11	-380.23	7.06	4.60	-125.91
6,551.00	17.29	252.42	6,519.50	27.72	361.81	-361.91	12.14	12.04	-8.65
6,646.00	27.77	253.24	6,607.12	17.04	327.06	-327.13	11.04	11.03	0.86
6,741.00	35.69	258.11	6,687.87	4.93	278.67	-278.69	8.76	8.34	5.13
6,836.00	39.89	262.89	6,762.95	-4.56	221.29	-221.27	5.39	4.42	5.03
6,932.00	47.62	270.95	6,832.29	-7.78	155.14	-155.11	9.91	8.05	8.40
7,027.00	62.15	266.85	6,886.81	-9.52	77.68	-77.64	15.69	15.29	-4.32
7,122.00	72.82	259.99	6,923.17	-19.76	-9.28	9.36	13.06	11.23	-7.22
7,217.00	77.05	259.59	6,947.86	-36.02	-99.54	99.68	4.47	4.45	-0.42
7,312.00	84.07	263.55	6,963.43	-49.71	-192.17	192.36	8.46	7.39	4.17
7,407.00	93.06	269.07	6,965.81	-55.81	-286.81	287.03	11.10	9.46	5.81
7,502.00	94.28	271.30	6,959.73	-55.50	-381.61	381.82	2.67	1.28	2.35
7,598.00	93.25	273.34	6,953.43	-51.62	-477.32	477.51	2.38	-1.07	2.13
7,693.00	89.44	273.30	6,951.20	-46.12	-572.11	572.29	4.01	-4.01	-0.04
7,788.00	88.94	273.87	6,952.54	-40.18	-666.92	667.07	0.80	-0.53	0.60
7,883.00	89.57	273.68	6,953.77	-33.93	-761.70	761.83	0.69	0.66	-0.20
7,978.00	90.69	272.63	6,953.56	-28.70	-856.56	856.66	1.62	1.18	-1.11
8,073.00	92.01	271.90	6,951.32	-24.95	-951.45	951.54	1.59	1.39	-0.77
8,168.00	88.47	273.05	6,950.92	-20.85	-1,046.35	1,046.42	3.92	-3.73	1.21
8,263.00	88.42	272.66	6,953.50	-16.12	-1,141.19	1,141.25	0.41	-0.05	-0.41
8,358.00	88.74	272.70	6,955.86	-11.67	-1,236.06	1,236.10	0.34	0.34	0.04
8,454.00	89.13	271.54	6,957.64	-8.12	-1,331.98	1,332.00	1.27	0.41	-1.21
8,549.00	89.66	270.81	6,958.64	-6.18	-1,426.95	1,426.96	0.95	0.56	-0.77
8,645.00	90.33	270.67	6,958.65	-4.94	-1,522.94	1,522.95	0.71	0.70	-0.15
8,740.00	88.06	270.30	6,959.99	-4.13	-1,617.92	1,617.93	2.42	-2.39	-0.39
8,835.00	87.89	270.36	6,963.34	-3.59	-1,712.86	1,712.86	0.19	-0.18	0.06
8,931.00	88.69	269.81	6,966.21	-3.44	-1,808.82	1,808.82	1.01	0.83	-0.57
9,026.00	90.42	269.53	6,966.94	-3.99	-1,903.81	1,903.81	1.84	1.82	-0.29
9,122.00	92.11	268.58	6,964.83	-5.57	-1,999.77	1,999.78	2.02	1.76	-0.99
9,217.00	89.20	268.22	6,963.74	-8.23	-2,094.72	2,094.73	3.09	-3.06	-0.38
9,313.00	90.71	268.04	6,963.82	-11.36	-2,190.66	2,190.69	1.58	1.57	-0.19
9,408.00	88.81	268.18	6,964.21	-14.49	-2,285.60	2,285.64	2.01	-2.00	0.15
9,503.00	89.42	267.71	6,965.68	-17.90	-2,380.53	2,380.58	0.81	0.64	-0.49
9,598.00	91.13	266.79	6,965.22	-22.45	-2,475.42	2,475.48	2.04	1.80	-0.97
9,694.00	91.57	267.86	6,962.96	-26.93	-2,571.28	2,571.37	1.20	0.46	1.11
9,789.00	88.92	272.80	6,962.56	-26.39	-2,666.24	2,666.32	5.90	-2.79	5.20
9,884.00	88.84	273.64	6,964.41	-21.05	-2,761.07	2,761.13	0.89	-0.08	0.88
9,979.00	90.19	272.82	6,965.22	-15.70	-2,855.92	2,855.96	1.66	1.42	-0.86
10,073.00	87.26	272.01	6,967.31	-11.74	-2,949.80	2,949.82	3.23	-3.12	-0.86
10,167.00	86.89	271.75	6,972.11	-8.66	-3,043.63	3,043.64	0.48	-0.39	-0.28
10,263.00	87.56	271.68	6,976.75	-5.79	-3,139.47	3,139.47	0.70	0.70	-0.07
10,358.00	88.93	270.60	6,979.66	-3.90	-3,234.40	3,234.39	1.84	1.44	-1.14
10,453.00	90.33	270.06	6,980.28	-3.35	-3,329.40	3,329.38	1.58	1.47	-0.57

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 5N-C16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Well:</b>	ICEMAN STATE 5N-C16HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	PLAN A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

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)	
10,548.00	91.66	270.18	6,978.63	-3.16	-3,424.38	3,424.37	1.41	1.40	0.13	
10,643.00	93.33	269.39	6,974.49	-3.51	-3,519.29	3,519.27	1.94	1.76	-0.83	
10,738.00	90.95	268.06	6,970.94	-5.62	-3,614.19	3,614.18	2.87	-2.51	-1.40	
10,833.00	91.51	267.64	6,968.90	-9.19	-3,709.10	3,709.10	0.74	0.59	-0.44	
10,928.00	91.18	268.04	6,966.67	-12.77	-3,804.00	3,804.02	0.55	-0.35	0.42	
11,023.00	90.06	271.42	6,965.65	-13.21	-3,898.98	3,899.00	3.75	-1.18	3.56	
11,118.00	90.09	272.29	6,965.52	-10.14	-3,993.93	3,993.94	0.92	0.03	0.92	
11,213.00	86.98	273.99	6,967.95	-4.94	-4,088.74	4,088.73	3.73	-3.27	1.79	
11,307.00	86.65	274.01	6,973.17	1.61	-4,182.37	4,182.33	0.35	-0.35	0.02	
11,402.00	87.33	273.54	6,978.16	7.85	-4,277.03	4,276.97	0.87	0.72	-0.49	
11,497.00	88.08	273.86	6,981.97	13.98	-4,371.76	4,371.67	0.86	0.79	0.34	
11,593.00	88.99	273.16	6,984.42	19.86	-4,467.54	4,467.43	1.20	0.95	-0.73	
11,623.00	88.31	271.18	6,985.13	20.99	-4,497.51	4,497.40	6.98	-2.27	-6.60	
11,688.00	88.77	270.24	6,986.78	21.80	-4,562.48	4,562.37	1.61	0.71	-1.45	
11,783.00	90.59	269.46	6,987.31	21.55	-4,657.48	4,657.36	2.08	1.92	-0.82	
11,878.00	92.11	268.96	6,985.08	20.24	-4,752.44	4,752.33	1.68	1.60	-0.53	
11,974.00	89.44	269.35	6,983.78	18.82	-4,848.41	4,848.30	2.81	-2.78	0.41	
12,069.00	89.42	270.73	6,984.72	18.89	-4,943.40	4,943.29	1.45	-0.02	1.45	
12,164.00	90.25	270.42	6,985.00	19.84	-5,038.40	5,038.28	0.93	0.87	-0.33	
12,259.00	90.16	269.61	6,984.66	19.87	-5,133.40	5,133.28	0.86	-0.09	-0.85	
12,354.00	85.82	268.42	6,987.99	18.24	-5,228.30	5,228.19	4.74	-4.57	-1.25	
12,450.00	86.86	268.12	6,994.12	15.34	-5,324.06	5,323.96	1.13	1.08	-0.31	
12,545.00	88.03	266.98	6,998.35	11.29	-5,418.87	5,418.79	1.72	1.23	-1.20	
12,641.00	89.04	266.23	7,000.80	5.60	-5,514.67	5,514.61	1.31	1.05	-0.78	
12,736.00	90.59	264.72	7,001.11	-1.89	-5,609.37	5,609.34	2.28	1.63	-1.59	
12,831.00	91.76	262.95	6,999.16	-12.09	-5,703.80	5,703.80	2.23	1.23	-1.86	
12,927.00	93.06	261.80	6,995.13	-24.82	-5,798.86	5,798.91	1.81	1.35	-1.20	
13,021.00	94.21	260.80	6,989.17	-39.00	-5,891.59	5,891.69	1.62	1.22	-1.06	
13,061.00	94.30	260.06	6,986.20	-45.64	-5,930.92	5,931.05	1.86	0.23	-1.85	
13,131.00	94.30	260.06	6,980.95	-57.69	-5,999.68	5,999.85	0.00	0.00	0.00	

# PDD

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 5N-C16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4796+20 @ 4816.00usft (p462)
<b>Well:</b>	ICEMAN STATE 5N-C16HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	PLAN A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PDD Actual Surveys	<b>Database:</b>	EDM 5000.1 Single User Db

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Niobrara B - actual wellpath misses target center by 0.02usft at 7031.98usft MD (6889.11 TVD, -9.78 N, 73.27 E) - Point	0.00	0.00	6,889.12	-9.78	73.26	14,609,677.15	1,673,242.24	40.227715	-104.882396
Iceman State 5N-C16HZ - actual wellpath misses target center by 0.01usft at 7273.01usft MD (6958.43 TVD, -44.83 N, -153.82 E) - Point	0.00	0.00	6,958.43	-44.83	-153.81	14,609,641.80	1,673,015.22	40.227619	-104.883209
Niobrara C - actual wellpath misses target center by 0.01usft at 7276.01usft MD (6958.88 TVD, -45.24 N, -156.76 E) - Point	0.00	0.00	6,958.88	-45.24	-156.75	14,609,641.38	1,673,012.29	40.227618	-104.883220
Iceman State 5N-C16HZ - actual wellpath hits target center - Point	0.00	0.00	6,963.50	-56.13	-326.74	14,609,630.27	1,672,842.30	40.227588	-104.883829
Iceman State 5N-C16HZ - actual wellpath hits target center - Point	0.00	0.00	6,980.95	-57.69	-5,999.68	14,609,621.21	1,667,169.38	40.227582	-104.904153

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,661.00	1,644.83	9 5/8"	9-5/8	12-1/4	
13,131.00	6,980.95	5 1/2"	5-1/2	8-1/2	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,885.00	6,799.46	Sharon Springs		0.00		
6,973.00	6,858.22	Niobrara		0.00		
7,032.00	6,889.12	Niobrara B		0.00		
7,273.00	6,958.43	Entered Landbox		0.00		
7,276.00	6,958.88	Niobrara C		0.00		

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_