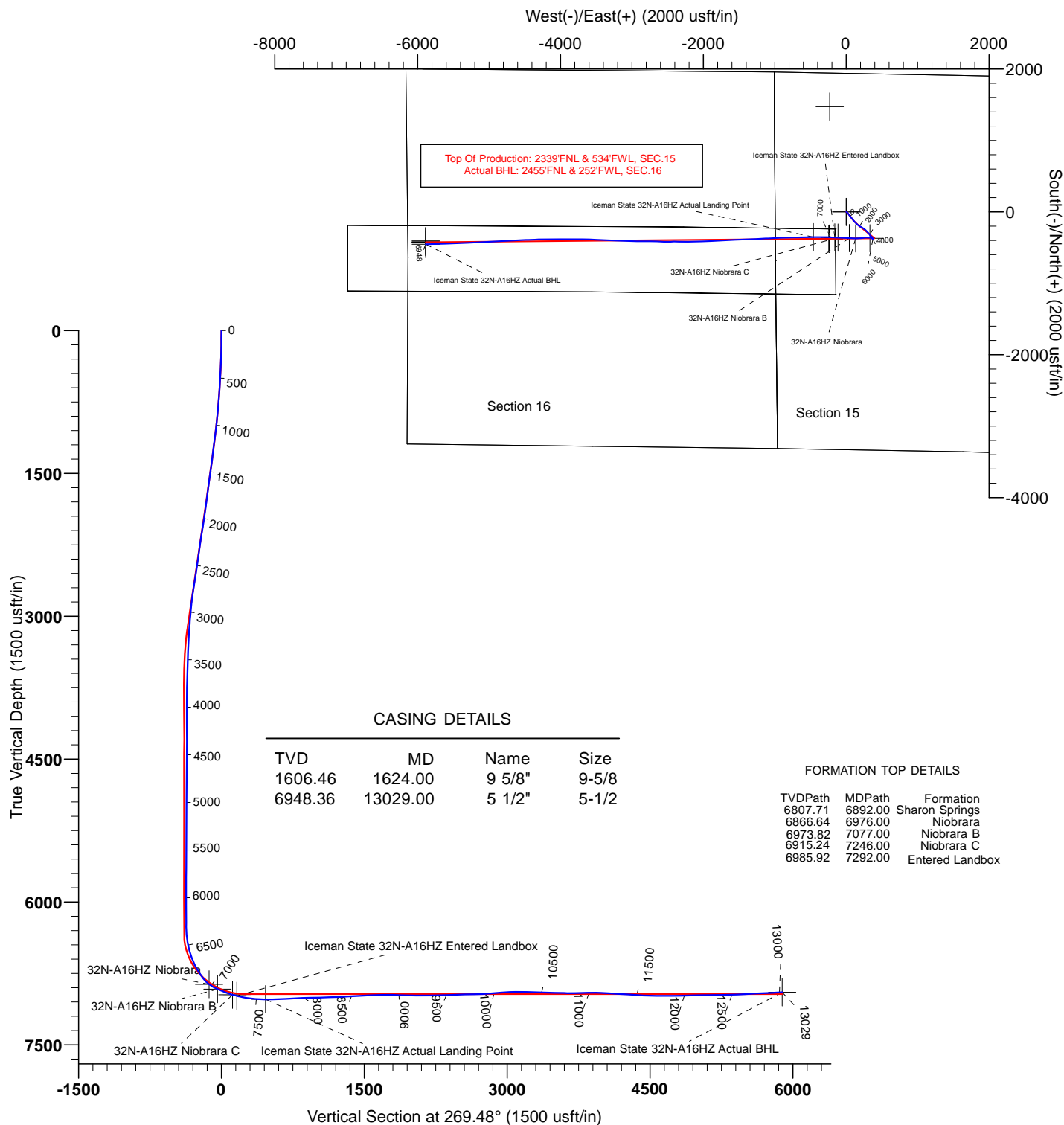


# US ROCKIES WATTENBERG PLANNING



Project: WELD-NAD83-UTMFT13N  
 Site: 3N-67W-15 Iceman Pad  
 Well: ICEMAN STATE 32N-A16HZ  
 Wellbore: PLAN A  
 Design: PDD Actual Surveys



TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
32N-A16HZ Niobrara	6866.64	-371.63	132.60	14609255.29	1673302.42	40.226556	-104.882182	Point
32N-A16HZ Niobrara B	6915.24	-367.51	44.40	14609259.30	1673214.23	40.226568	-104.882498	Point
Iceman State 32N-A16HZ Actual BHL	6948.36	-453.80	-5884.20	14609165.16	1667285.74	40.226329	-104.903738	Point
32N-A16HZ Niobrara C	6973.82	-358.82	-113.71	14609267.78	1673056.10	40.226592	-104.883064	Point
Iceman State 32N-A16HZ Entered Landbox	6985.92	-356.83	-158.04	14609269.71	1673011.77	40.226597	-104.883223	Point
Iceman State 32N-A16HZ Actual Landing Point	7022.41	-353.45	-458.90	14609272.70	1672710.90	40.226606	-104.884301	Point



# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-67W-15 Iceman Pad  
ICEMAN STATE 32N-A16HZ**

**PLAN A**

**Design: PDD Actual Surveys**

## **Standard Survey Report**

**05 October, 2015**

**PDD**  
Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 32N-A16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Well:</b>	ICEMAN STATE 32N-A16HZ	<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 32N-A16HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,609,626.75 usft	Latitude:	40.227577
	+E/-W	0.00 usft	Easting:	1,673,169.33 usft	Longitude:	-104.882657
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,797.00 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	269.48	

<b>Survey Program</b>	<b>Date</b>	10/5/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
158.00	1,589.00	Cathedral MWD Surface (PLAN A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,704.00	12,960.00	PDD MWD+IFR1+MSA Curve/Lateral (PLA	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

<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	
158.00	1.10	61.00	157.99	0.74	1.33	-1.33	0.70	0.70	0.00	
220.00	1.20	81.80	219.98	1.12	2.49	-2.50	0.69	0.16	33.55	
282.00	1.80	89.70	281.96	1.21	4.11	-4.12	1.02	0.97	12.74	
376.00	3.30	132.80	375.87	-0.62	7.57	-7.56	2.48	1.60	45.85	
461.00	4.30	139.30	460.68	-4.69	11.44	-11.40	1.28	1.18	7.65	
545.00	4.50	140.40	544.43	-9.62	15.59	-15.51	0.26	0.24	1.31	
630.00	6.20	139.40	629.06	-15.68	20.71	-20.56	2.00	2.00	-1.18	
715.00	6.70	136.30	713.52	-22.75	27.12	-26.91	0.72	0.59	-3.65	
800.00	8.50	141.40	797.77	-31.24	34.47	-34.18	2.26	2.12	6.00	

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 32N-A16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Well:</b>	ICEMAN STATE 32N-A16HZ	<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)
885.00	9.10	146.70	881.77	-41.77	42.08	-41.70	1.19	0.71	6.24
970.00	9.90	141.40	965.61	-53.10	50.33	-49.84	1.39	0.94	-6.24
1,053.00	12.10	142.70	1,047.08	-65.60	60.05	-59.45	2.67	2.65	1.57
1,137.00	11.30	143.20	1,129.33	-79.19	70.31	-69.59	0.96	-0.95	0.60
1,222.00	12.00	143.90	1,212.58	-93.00	80.51	-79.66	0.84	0.82	0.82
1,307.00	12.00	140.80	1,295.72	-106.98	91.30	-90.33	0.76	0.00	-3.65
1,392.00	11.90	137.70	1,378.88	-120.31	102.78	-101.69	0.76	-0.12	-3.65
1,477.00	11.20	137.90	1,462.16	-132.92	114.22	-113.01	0.82	-0.82	0.24
1,562.00	11.00	134.10	1,545.57	-144.69	125.57	-124.26	0.89	-0.24	-4.47
1,589.00	10.90	134.10	1,572.08	-148.26	129.26	-127.91	0.37	-0.37	0.00
1,704.00	10.12	133.92	1,685.15	-162.83	144.34	-142.86	0.68	-0.68	-0.15
1,894.00	10.34	133.83	1,872.13	-186.21	168.66	-166.96	0.12	0.12	-0.05
2,084.00	10.82	115.82	2,058.95	-205.79	197.02	-195.14	1.75	0.25	-9.48
2,274.00	9.58	120.53	2,245.95	-221.59	226.68	-224.66	0.79	-0.65	2.48
2,464.00	9.93	126.87	2,433.21	-239.44	253.40	-251.22	0.59	0.18	3.34
2,654.00	12.73	133.55	2,619.50	-263.70	281.68	-279.28	1.62	1.47	3.52
2,844.00	11.33	139.69	2,805.33	-292.35	308.92	-306.26	1.00	-0.74	3.23
3,035.00	8.75	143.97	2,993.40	-318.40	329.61	-326.70	1.41	-1.35	2.24
3,225.00	5.13	135.13	3,181.98	-336.11	344.10	-341.03	1.98	-1.91	-4.66
3,415.00	3.02	140.30	3,371.49	-345.98	353.29	-350.13	1.12	-1.11	2.72
3,603.00	2.12	112.48	3,559.30	-351.12	359.67	-356.47	0.80	-0.48	-14.80
3,791.00	1.42	113.30	3,747.21	-353.37	365.02	-361.80	0.38	-0.38	0.43
3,982.00	1.03	164.98	3,938.17	-355.97	367.64	-364.39	0.59	-0.20	27.06
4,173.00	1.35	198.86	4,129.14	-359.76	367.36	-364.08	0.40	0.16	17.74
4,361.00	1.88	199.50	4,317.06	-364.76	365.61	-362.29	0.28	0.28	0.34
4,551.00	1.52	141.38	4,506.99	-369.67	366.14	-362.77	0.89	-0.19	-30.59
4,741.00	1.07	132.63	4,696.94	-372.84	369.02	-365.62	0.26	-0.24	-4.60
4,932.00	0.46	184.81	4,887.92	-374.82	370.27	-366.85	0.45	-0.32	27.32
5,123.00	0.13	331.83	5,078.92	-375.38	370.10	-366.68	0.30	-0.17	76.98
5,314.00	0.61	150.23	5,269.92	-376.06	370.50	-367.07	0.39	0.25	93.40
5,504.00	0.79	157.57	5,459.91	-378.14	371.49	-368.05	0.11	0.10	3.86
5,694.00	0.97	75.59	5,649.89	-378.95	373.55	-370.10	0.61	0.10	-43.15
5,789.00	0.59	59.21	5,744.88	-378.50	374.75	-371.30	0.47	-0.41	-17.24
5,979.00	0.17	292.94	5,934.88	-377.90	375.33	-371.88	0.37	-0.22	-66.46
6,074.00	0.36	313.97	6,029.88	-377.63	374.98	-371.54	0.22	0.20	22.13
6,265.00	1.76	335.53	6,220.84	-374.54	373.33	-369.91	0.75	0.73	11.29
6,360.00	3.04	306.50	6,315.76	-371.72	370.70	-367.31	1.82	1.35	-30.56
6,456.00	9.11	282.27	6,411.19	-368.59	361.22	-357.86	6.73	6.32	-25.24
6,550.00	15.61	283.32	6,502.96	-364.09	341.62	-338.30	6.92	6.91	1.12
6,646.00	21.54	275.26	6,593.93	-359.49	311.47	-308.19	6.72	6.18	-8.40
6,741.00	27.54	265.53	6,680.35	-359.60	272.15	-268.88	7.60	6.32	-10.24
6,836.00	32.87	261.55	6,762.43	-365.11	224.72	-221.40	5.99	5.61	-4.19
6,931.00	43.55	267.13	6,836.99	-370.55	166.35	-162.98	11.80	11.24	5.87

# PDD

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 32N-A16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Well:</b>	ICEMAN STATE 32N-A16HZ	<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)
6,963.00	51.02	268.39	6,858.68	-371.45	142.87	-139.49	23.52	23.34	3.94
7,026.00	62.87	273.58	6,893.00	-370.39	90.20	-86.84	20.03	18.81	8.24
7,121.00	67.58	273.62	6,932.80	-364.97	4.14	-0.83	4.96	4.96	0.04
7,216.00	72.59	272.62	6,965.15	-360.12	-85.02	88.28	5.37	5.27	-1.05
7,311.00	76.45	272.53	6,990.50	-356.01	-176.46	179.69	4.06	4.06	-0.09
7,406.00	81.17	270.69	7,008.93	-353.41	-269.59	272.79	5.32	4.97	-1.94
7,501.00	86.05	269.92	7,019.50	-352.91	-363.97	367.16	5.20	5.14	-0.81
7,596.00	90.44	269.43	7,022.41	-353.45	-458.90	462.09	4.65	4.62	-0.52
7,692.00	91.17	269.78	7,021.06	-354.11	-554.89	558.08	0.84	0.76	0.36
7,787.00	91.82	268.99	7,018.58	-355.13	-649.85	653.04	1.08	0.68	-0.83
7,882.00	93.35	268.25	7,014.30	-357.41	-744.72	747.93	1.79	1.61	-0.78
7,976.00	93.04	268.17	7,009.06	-360.34	-838.53	841.76	0.34	-0.33	-0.09
8,072.00	90.91	267.90	7,005.75	-363.63	-934.41	937.67	2.24	-2.22	-0.28
8,167.00	90.63	267.69	7,004.47	-367.29	-1,029.33	1,032.62	0.37	-0.29	-0.22
8,262.00	92.38	266.64	7,001.98	-371.99	-1,124.17	1,127.50	2.15	1.84	-1.11
8,357.00	92.67	266.94	6,997.79	-377.30	-1,218.93	1,222.31	0.44	0.31	0.32
8,453.00	93.27	267.50	6,992.82	-381.95	-1,314.69	1,318.10	0.85	0.63	0.58
8,548.00	92.77	267.66	6,987.81	-385.96	-1,409.47	1,412.92	0.55	-0.53	0.17
8,644.00	92.63	267.98	6,983.29	-389.60	-1,505.30	1,508.77	0.36	-0.15	0.33
8,739.00	92.53	267.22	6,979.01	-393.58	-1,600.12	1,603.62	0.81	-0.11	-0.80
8,834.00	91.20	267.51	6,975.92	-397.94	-1,694.96	1,698.51	1.43	-1.40	0.31
8,930.00	88.20	267.60	6,976.42	-402.04	-1,790.87	1,794.44	3.13	-3.13	0.09
9,025.00	88.39	267.50	6,979.25	-406.10	-1,885.74	1,889.34	0.23	0.20	-0.11
9,121.00	88.63	267.02	6,981.75	-410.68	-1,981.59	1,985.24	0.56	0.25	-0.50
9,216.00	89.52	268.23	6,983.28	-414.62	-2,076.50	2,080.17	1.58	0.94	1.27
9,311.00	91.01	269.22	6,982.84	-416.73	-2,171.47	2,175.16	1.88	1.57	1.04
9,407.00	91.49	270.68	6,980.75	-416.82	-2,267.44	2,271.13	1.60	0.50	1.52
9,502.00	91.92	270.62	6,977.92	-415.74	-2,362.39	2,366.07	0.46	0.45	-0.06
9,597.00	92.29	269.00	6,974.43	-416.06	-2,457.33	2,461.00	1.75	0.39	-1.71
9,693.00	91.38	270.82	6,971.36	-416.21	-2,553.27	2,556.94	2.12	-0.95	1.90
9,788.00	91.01	271.97	6,969.38	-413.89	-2,648.22	2,651.87	1.27	-0.39	1.21
9,882.00	92.90	271.18	6,966.17	-411.31	-2,742.13	2,745.75	2.18	2.01	-0.84
9,978.00	95.14	270.09	6,959.44	-410.25	-2,837.88	2,841.48	2.59	2.33	-1.14
10,072.00	94.89	270.20	6,951.22	-410.01	-2,931.52	2,935.12	0.29	-0.27	0.12
10,166.00	91.55	271.21	6,945.94	-408.86	-3,025.35	3,028.93	3.71	-3.55	1.07
10,262.00	90.13	272.43	6,944.54	-405.81	-3,121.28	3,124.84	1.95	-1.48	1.27
10,357.00	87.98	272.20	6,946.10	-401.97	-3,216.19	3,219.70	2.28	-2.26	-0.24
10,452.00	87.99	273.03	6,949.44	-397.64	-3,311.03	3,314.50	0.87	0.01	0.87
10,547.00	88.53	272.26	6,952.33	-393.26	-3,405.88	3,409.31	0.99	0.57	-0.81
10,642.00	88.53	272.29	6,954.76	-389.49	-3,500.78	3,504.17	0.03	0.00	0.03
10,737.00	89.04	272.16	6,956.78	-385.80	-3,595.68	3,599.04	0.55	0.54	-0.14
10,832.00	90.44	270.34	6,957.21	-383.73	-3,690.65	3,693.98	2.42	1.47	-1.92
10,927.00	92.12	270.00	6,955.09	-383.45	-3,785.63	3,788.95	1.80	1.77	-0.36

# PDD Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 32N-A16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Well:</b>	ICEMAN STATE 32N-A16HZ	<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)
11,022.00	90.68	270.67	6,952.77	-382.89	-3,880.59	3,883.91	1.67	-1.52	0.71
11,117.00	87.44	270.28	6,954.32	-382.10	-3,975.56	3,978.87	3.44	-3.41	-0.41
11,212.00	86.99	269.57	6,958.94	-382.23	-4,070.45	4,073.75	0.88	-0.47	-0.75
11,306.00	86.04	269.29	6,964.65	-383.16	-4,164.27	4,167.58	1.05	-1.01	-0.30
11,401.00	86.29	269.56	6,971.01	-384.11	-4,259.05	4,262.36	0.39	0.26	0.28
11,496.00	86.07	268.05	6,977.34	-386.09	-4,353.82	4,357.14	1.60	-0.23	-1.59
11,591.00	87.12	267.13	6,982.98	-390.08	-4,448.57	4,451.92	1.47	1.11	-0.97
11,625.00	88.36	267.18	6,984.32	-391.76	-4,482.50	4,485.87	3.65	3.65	0.15
11,687.00	88.74	267.49	6,985.89	-394.64	-4,544.41	4,547.80	0.79	0.61	0.50
11,782.00	90.20	267.45	6,986.77	-398.84	-4,639.31	4,642.74	1.54	1.54	-0.04
11,877.00	90.25	266.99	6,986.40	-403.44	-4,734.20	4,737.66	0.49	0.05	-0.48
11,972.00	91.66	267.09	6,984.81	-408.35	-4,829.05	4,832.56	1.49	1.48	0.11
12,068.00	91.53	266.43	6,982.14	-413.77	-4,924.86	4,928.42	0.70	-0.14	-0.69
12,163.00	91.28	266.36	6,979.81	-419.74	-5,019.65	5,023.25	0.27	-0.26	-0.07
12,258.00	91.01	266.99	6,977.91	-425.25	-5,114.47	5,118.12	0.72	-0.28	0.66
12,353.00	90.61	268.02	6,976.57	-429.39	-5,209.37	5,213.05	1.16	-0.42	1.08
12,449.00	90.60	267.71	6,975.56	-432.96	-5,305.29	5,309.01	0.32	-0.01	-0.32
12,544.00	91.94	268.22	6,973.45	-436.34	-5,400.21	5,403.95	1.51	1.41	0.54
12,640.00	93.75	267.07	6,968.69	-440.28	-5,496.00	5,499.77	2.23	1.89	-1.20
12,735.00	93.40	268.59	6,962.76	-443.87	-5,590.75	5,594.55	1.64	-0.37	1.60
12,830.00	91.92	268.46	6,958.35	-446.31	-5,685.61	5,689.43	1.56	-1.56	-0.14
12,926.00	93.03	268.29	6,954.21	-449.03	-5,781.48	5,785.32	1.17	1.16	-0.18
12,960.00	93.30	267.15	6,952.33	-450.38	-5,815.40	5,819.25	3.44	0.79	-3.35
13,029.00	93.30	267.15	6,948.36	-453.80	-5,884.20	5,888.08	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 32N-A16HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Site:</b>	3N-67W-15 Iceman Pad	<b>MD Reference:</b>	4797+20 @ 4817.00usft (p462)
<b>Well:</b>	ICEMAN STATE 32N-A16HZ	<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
32N-A16HZ Niobrara - actual wellpath misses target center by 0.02usft at 6975.98usft MD (6866.63 TVD, -371.63 N, 132.62 E) - Point	0.00	0.00	6,866.64	-371.63	132.60	14,609,255.29	1,673,302.42	40.226557	-104.882182
32N-A16HZ Niobrara B - actual wellpath hits target center - Point	0.00	0.00	6,915.24	-367.51	44.40	14,609,259.29	1,673,214.22	40.226568	-104.882498
Iceman State 32N-A16H - actual wellpath hits target center - Point	0.00	0.00	6,948.36	-453.80	-5,884.20	14,609,165.16	1,667,285.73	40.226329	-104.903738
32N-A16HZ Niobrara C - actual wellpath hits target center - Point	0.00	0.00	6,973.82	-358.82	-113.71	14,609,267.78	1,673,056.10	40.226592	-104.883065
Iceman State 32N-A16H - actual wellpath hits target center - Point	0.00	0.00	6,985.92	-356.83	-158.04	14,609,269.71	1,673,011.77	40.226597	-104.883223
Iceman State 32N-A16H - actual wellpath hits target center - Point	0.00	0.00	7,022.41	-353.45	-458.90	14,609,272.69	1,672,710.90	40.226606	-104.884301

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,624.00	1,606.46	9 5/8"		9-5/8	13-1/2
13,029.00	6,948.36	5 1/2"		5-1/2	8-1/2

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,892.00	6,807.71	Sharon Springs		0.00		
6,976.00	6,866.64	Niobrara		0.00		
7,077.00	6,915.24	Niobrara B		0.00		
7,246.00	6,973.82	Niobrara C		0.00		
7,292.00	6,985.92	Entered Landbox		0.00		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
13,029.00	6,948.36	-453.80	-5,884.20	Projection to Bit	

Checked By: _____	Approved By: _____	Date: _____
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