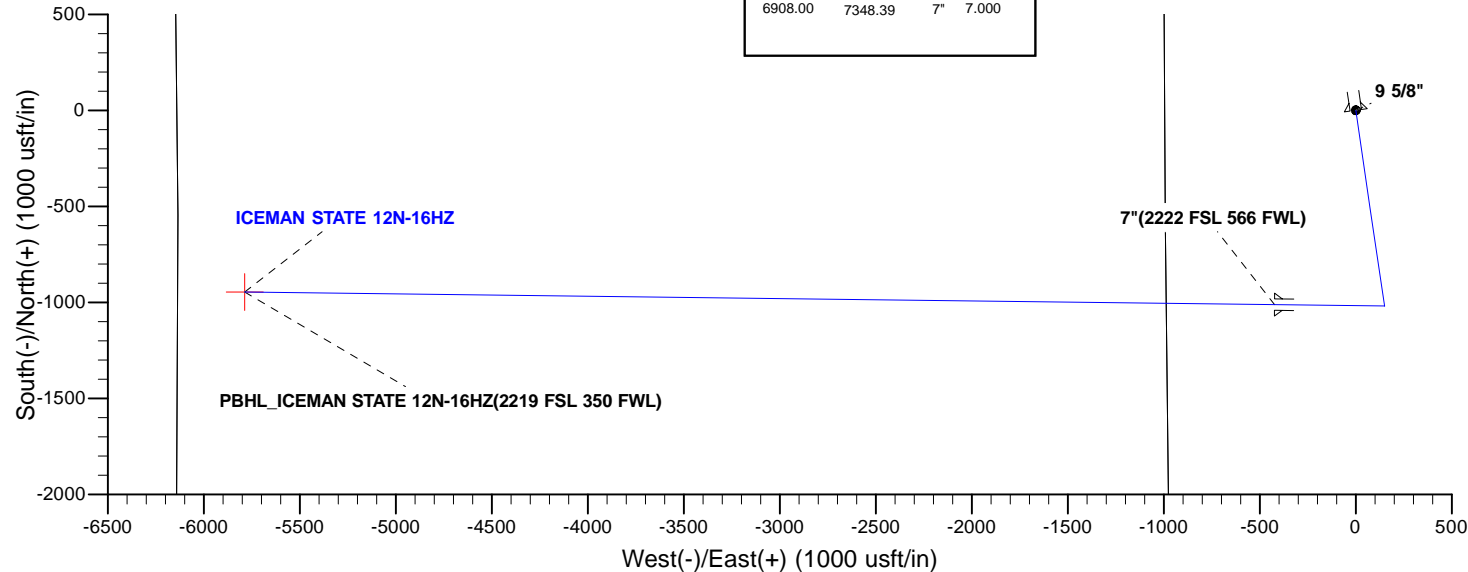
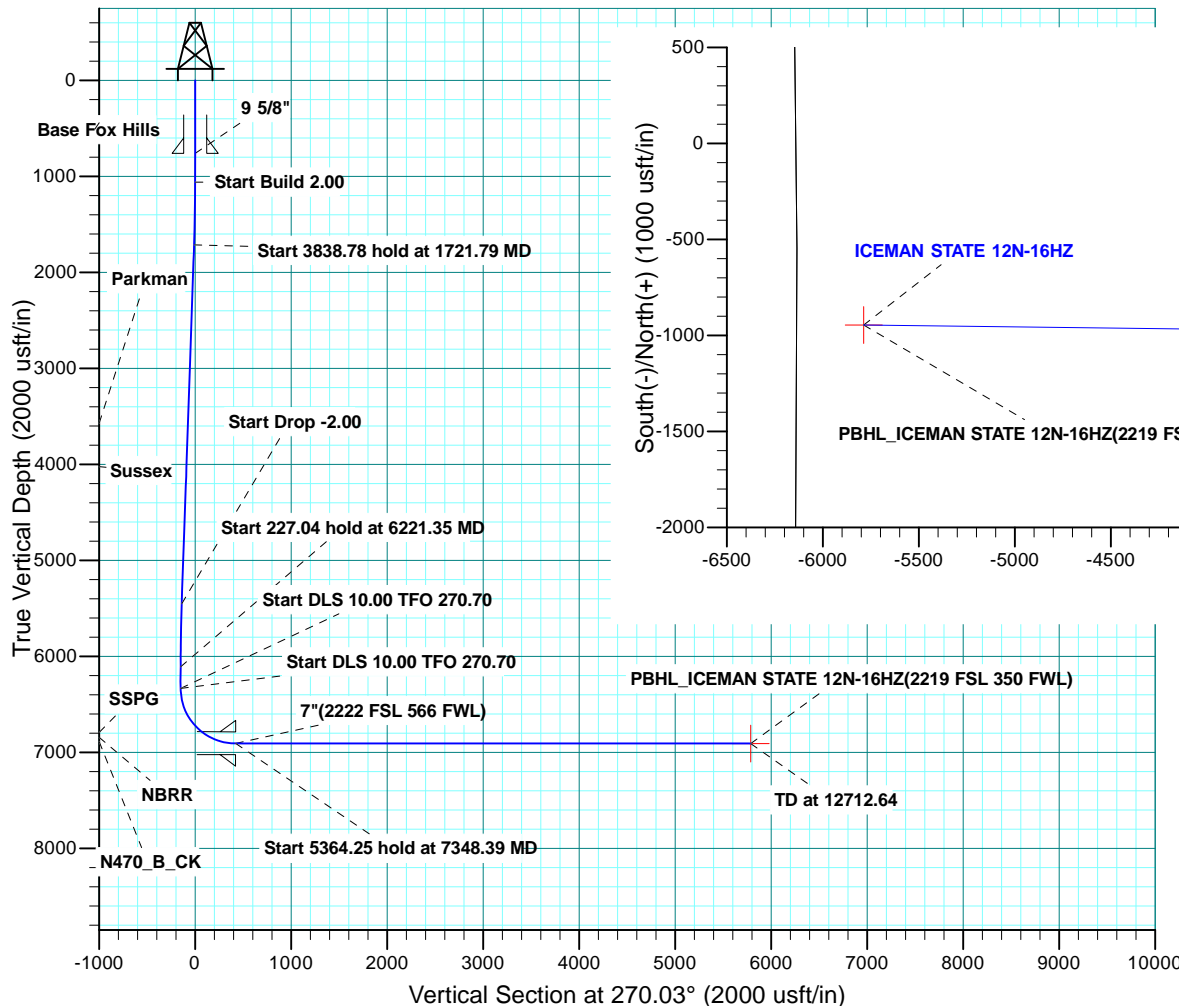


WELL DETAILS: ICEMAN STATE 12N-16HZ								
GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)								
		+N/-S 0.00	+E/-W 0.00	Northing 14609536.80	Easting 1673170.01	Latitude 40.227330	Longitude -104.882655	
SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1061.00	0.00	0.00	1061.00	0.00	0.00	0.00	0.00	0.00
1721.79	13.22	171.62	1715.94	-75.06	11.06	2.00	171.62	-11.10
5560.57	13.22	171.62	5453.06	-943.31	138.94	0.00	0.00	-139.44
6221.35	0.00	0.00	6108.00	-1018.37	150.00	2.00	180.00	-150.53
6448.39	0.00	0.00	6335.04	-1018.37	150.00	0.00	0.00	-150.53
7348.39	90.00	270.70	6908.00	-1011.35	-422.91	10.00	270.70	422.39
12712.64	90.00	270.70	6908.00	-945.67	-5786.76	0.00	0.00	5786.26
PBHL_ICEMAN STATE 12N-16HZ(2219 FSL 350 FWL)								
DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL 6908.00		-945.67	-5786.76	14608583.48	1667384.51	40.224731	-104.903386	Point
- plan hits target center								

PROJECT DETAILS: WELD-NAD83-UTMFT13N	
Geodetic System: Universal Transverse Mercator (US Survey Feet)	
Datum: North American Datum 1983	
Ellipsoid: GRS 1980	
Zone: Zone 13N (108 W to 102 W)	
Location: SECTION 17, TOWNSHIP 3 NORTH, RANGE 67 WEST	
System Datum: Mean Sea Level	

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
444.00	444.00	Base Fox Hills	0.00
3570.00	3626.28	Parkman	13.22
4024.00	4092.63	Sussex	13.22
6793.00	6979.02	SSPG	53.06
6844.00	7075.00	NBRR	62.66
6888.00	7196.57	N470_B_CK	74.82

CASING DETAILS			
TVD	MD	Name	Size
761.00	761.00	9 5/8"	9.625
6908.00	7348.39	7"	7.000





Scientific Drilling

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**ICEMAN PAD**

**ICEMAN STATE 12N-16HZ**

**PLAN A**

**Plan: PERMIT REV-2**

## **Standard Planning Report**

**17 December, 2014**

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 12N-16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Site:</b>	ICEMAN PAD	<b>North Reference:</b>	True
<b>Well:</b>	ICEMAN STATE 12N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

<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	ICEMAN PAD, SECTION 17, TOWNSHIP 3 NORTH, RANGE 67 WEST				
Site Position:		Northing:	14,609,536.80 usft	Latitude:	40.227330
From:	Lat/Long	Easting:	1,673,170.01 usft	Longitude:	-104.882655
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.08

Well	ICEMAN STATE 12N-16HZ, 2030' FNL 995' FWL					
Well Position	+N/-S	0.00 usft	Northing:	14,609,536.80 usft	Latitude:	40.227330
	+E/-W	0.00 usft	Easting:	1,673,170.01 usft	Longitude:	-104.882655
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>	PERMIT REV-2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	270.03

<b>Plan Sections</b>										
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	
1,061.00	0.00	0.00	1,061.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,721.79	13.22	171.62	1,715.94	-75.06	11.06	2.00	2.00	0.00	171.62	
5,560.57	13.22	171.62	5,453.06	-943.31	138.94	0.00	0.00	0.00	0.00	
6,221.35	0.00	0.00	6,108.00	-1,018.37	150.00	2.00	-2.00	0.00	180.00	
6,448.39	0.00	0.00	6,335.04	-1,018.37	150.00	0.00	0.00	0.00	0.00	
7,348.39	90.00	270.70	6,908.00	-1,011.35	-422.91	10.00	10.00	-9.92	270.70	
12,712.64	90.00	270.70	6,908.00	-945.67	-5,786.76	0.00	0.00	0.00	0.00	PBHL_ICEMAN STAT

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 12N-16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Site:</b>	ICEMAN PAD	<b>North Reference:</b>	True
<b>Well:</b>	ICEMAN STATE 12N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

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
100.00	0.00	0.00	100.00	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
444.00	0.00	0.00	444.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
761.00	0.00	0.00	761.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,061.00	0.00	0.00	1,061.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,100.00	0.78	171.62	1,100.00	-0.26	0.04	-0.04	2.00	2.00	0.00
1,200.00	2.78	171.62	1,199.94	-3.34	0.49	-0.49	2.00	2.00	0.00
1,300.00	4.78	171.62	1,299.72	-9.86	1.45	-1.46	2.00	2.00	0.00
1,400.00	6.78	171.62	1,399.21	-19.82	2.92	-2.93	2.00	2.00	0.00
1,500.00	8.78	171.62	1,498.28	-33.21	4.89	-4.91	2.00	2.00	0.00
1,600.00	10.78	171.62	1,596.82	-50.02	7.37	-7.39	2.00	2.00	0.00
1,700.00	12.78	171.62	1,694.71	-70.21	10.34	-10.38	2.00	2.00	0.00
1,721.79	13.22	171.62	1,715.94	-75.06	11.06	-11.10	2.00	2.00	0.00
<b>Start 3838.78 hold at 1721.79 MD</b>									
1,800.00	13.22	171.62	1,792.08	-92.75	13.66	-13.71	0.00	0.00	0.00
1,900.00	13.22	171.62	1,889.43	-115.37	16.99	-17.05	0.00	0.00	0.00
2,000.00	13.22	171.62	1,986.78	-137.99	20.32	-20.40	0.00	0.00	0.00
2,100.00	13.22	171.62	2,084.14	-160.60	23.66	-23.74	0.00	0.00	0.00
2,200.00	13.22	171.62	2,181.49	-183.22	26.99	-27.08	0.00	0.00	0.00
2,300.00	13.22	171.62	2,278.84	-205.84	30.32	-30.43	0.00	0.00	0.00
2,400.00	13.22	171.62	2,376.19	-228.46	33.65	-33.77	0.00	0.00	0.00
2,500.00	13.22	171.62	2,473.54	-251.07	36.98	-37.11	0.00	0.00	0.00
2,599.99	13.22	171.62	2,570.89	-273.69	40.31	-40.46	0.00	0.00	0.00
2,699.99	13.22	171.62	2,668.24	-296.31	43.64	-43.80	0.00	0.00	0.00
2,799.99	13.22	171.62	2,765.60	-318.93	46.98	-47.14	0.00	0.00	0.00
2,899.99	13.22	171.62	2,862.95	-341.55	50.31	-50.49	0.00	0.00	0.00
2,999.99	13.22	171.62	2,960.30	-364.16	53.64	-53.83	0.00	0.00	0.00
3,099.99	13.22	171.62	3,057.65	-386.78	56.97	-57.17	0.00	0.00	0.00
3,199.99	13.22	171.62	3,155.00	-409.40	60.30	-60.52	0.00	0.00	0.00
3,299.99	13.22	171.62	3,252.35	-432.02	63.63	-63.86	0.00	0.00	0.00
3,399.99	13.22	171.62	3,349.70	-454.63	66.97	-67.20	0.00	0.00	0.00
3,499.99	13.22	171.62	3,447.06	-477.25	70.30	-70.55	0.00	0.00	0.00
3,599.99	13.22	171.62	3,544.41	-499.87	73.63	-73.89	0.00	0.00	0.00
3,626.28	13.22	171.62	3,570.00	-505.82	74.50	-74.77	0.00	0.00	0.00
<b>Parkman</b>									
3,699.99	13.22	171.62	3,641.76	-522.49	76.96	-77.23	0.00	0.00	0.00
3,799.99	13.22	171.62	3,739.11	-545.11	80.29	-80.58	0.00	0.00	0.00
3,899.99	13.22	171.62	3,836.46	-567.72	83.62	-83.92	0.00	0.00	0.00
3,999.99	13.22	171.62	3,933.81	-590.34	86.95	-87.26	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 12N-16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Site:</b>	ICEMAN PAD	<b>North Reference:</b>	True
<b>Well:</b>	ICEMAN STATE 12N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

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)
4,092.63	13.22	171.62	4,024.00	-611.29	90.04	-90.36	0.00	0.00	0.00
<b>Sussex</b>									
4,099.99	13.22	171.62	4,031.16	-612.96	90.29	-90.61	0.00	0.00	0.00
4,199.99	13.22	171.62	4,128.52	-635.58	93.62	-93.95	0.00	0.00	0.00
4,299.99	13.22	171.62	4,225.87	-658.19	96.95	-97.29	0.00	0.00	0.00
4,399.99	13.22	171.62	4,323.22	-680.81	100.28	-100.64	0.00	0.00	0.00
4,499.99	13.22	171.62	4,420.57	-703.43	103.61	-103.98	0.00	0.00	0.00
4,599.99	13.22	171.62	4,517.92	-726.05	106.94	-107.32	0.00	0.00	0.00
4,699.99	13.22	171.62	4,615.27	-748.67	110.27	-110.67	0.00	0.00	0.00
4,799.99	13.22	171.62	4,712.62	-771.28	113.61	-114.01	0.00	0.00	0.00
4,899.99	13.22	171.62	4,809.98	-793.90	116.94	-117.35	0.00	0.00	0.00
4,999.99	13.22	171.62	4,907.33	-816.52	120.27	-120.70	0.00	0.00	0.00
5,099.99	13.22	171.62	5,004.68	-839.14	123.60	-124.04	0.00	0.00	0.00
5,199.99	13.22	171.62	5,102.03	-861.75	126.93	-127.38	0.00	0.00	0.00
5,299.99	13.22	171.62	5,199.38	-884.37	130.26	-130.73	0.00	0.00	0.00
5,399.99	13.22	171.62	5,296.73	-906.99	133.59	-134.07	0.00	0.00	0.00
5,499.99	13.22	171.62	5,394.08	-929.61	136.93	-137.41	0.00	0.00	0.00
5,560.57	13.22	171.62	5,453.06	-943.31	138.94	-139.44	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,599.99	12.43	171.62	5,491.50	-951.96	140.22	-140.72	2.00	-2.00	0.00
5,699.99	10.43	171.62	5,589.51	-971.56	143.11	-143.61	2.00	-2.00	0.00
5,799.99	8.43	171.62	5,688.15	-987.77	145.49	-146.01	2.00	-2.00	0.00
5,899.99	6.43	171.62	5,787.31	-1,000.56	147.38	-147.90	2.00	-2.00	0.00
5,999.99	4.43	171.62	5,886.85	-1,009.91	148.75	-149.28	2.00	-2.00	0.00
6,099.99	2.43	171.62	5,986.67	-1,015.83	149.63	-150.16	2.00	-2.00	0.00
6,199.99	0.43	171.62	6,086.63	-1,018.29	149.99	-150.52	2.00	-2.00	0.00
6,221.35	0.00	0.00	6,108.00	-1,018.37	150.00	-150.53	2.00	-2.00	0.00
<b>Start 227.04 hold at 6221.35 MD</b>									
6,299.99	0.00	0.00	6,186.63	-1,018.37	150.00	-150.53	0.00	0.00	0.00
6,399.99	0.00	0.00	6,286.63	-1,018.37	150.00	-150.53	0.00	0.00	0.00
6,448.39	0.00	0.00	6,335.04	-1,018.37	150.00	-150.53	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 270.70</b>									
6,499.99	5.16	270.70	6,386.56	-1,018.34	147.68	-148.21	10.00	10.00	0.00
6,599.99	15.16	270.70	6,484.87	-1,018.13	130.06	-130.60	10.00	10.00	0.00
6,699.99	25.16	270.70	6,578.63	-1,017.70	95.65	-96.18	10.00	10.00	0.00
6,799.99	35.16	270.70	6,664.98	-1,017.09	45.47	-46.01	10.00	10.00	0.00
6,899.99	45.16	270.70	6,741.31	-1,016.30	-18.93	18.40	10.00	10.00	0.00
6,979.02	53.06	270.70	6,793.00	-1,015.57	-78.62	78.09	10.00	10.00	0.00
<b>SSPG</b>									
6,999.99	55.16	270.70	6,805.29	-1,015.36	-95.61	95.08	10.00	10.00	0.00
7,075.00	62.66	270.70	6,844.00	-1,014.58	-159.80	159.27	10.00	10.00	0.00
<b>NBRR</b>									
7,099.99	65.16	270.70	6,854.99	-1,014.30	-182.23	181.70	10.00	10.00	0.00
7,196.57	74.82	270.70	6,888.00	-1,013.19	-272.87	272.34	10.00	10.00	0.00
<b>N470_B_CK</b>									
7,199.99	75.16	270.70	6,888.88	-1,013.15	-276.17	275.64	10.00	10.00	0.00
7,299.99	85.16	270.70	6,905.95	-1,011.95	-374.57	374.04	10.00	10.00	0.00
7,348.39	90.00	270.70	6,908.00	-1,011.35	-422.91	422.38	10.00	10.00	0.00
<b>Start 5364.25 hold at 7348.39 MD - 7"(2222 FSL 566 FWL)</b>									
7,399.99	90.00	270.70	6,908.00	-1,010.72	-474.50	473.97	0.00	0.00	0.00
7,499.99	90.00	270.70	6,908.00	-1,009.50	-574.49	573.97	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 12N-16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Site:</b>	ICEMAN PAD	<b>North Reference:</b>	True
<b>Well:</b>	ICEMAN STATE 12N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

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)
7,599.98	90.00	270.70	6,908.00	-1,008.27	-674.49	673.96	0.00	0.00	0.00
7,699.98	90.00	270.70	6,908.00	-1,007.05	-774.48	773.95	0.00	0.00	0.00
7,799.98	90.00	270.70	6,908.00	-1,005.82	-874.47	873.95	0.00	0.00	0.00
7,899.98	90.00	270.70	6,908.00	-1,004.60	-974.46	973.94	0.00	0.00	0.00
7,999.98	90.00	270.70	6,908.00	-1,003.38	-1,074.46	1,073.93	0.00	0.00	0.00
8,099.98	90.00	270.70	6,908.00	-1,002.15	-1,174.45	1,173.92	0.00	0.00	0.00
8,199.98	90.00	270.70	6,908.00	-1,000.93	-1,274.44	1,273.92	0.00	0.00	0.00
8,299.98	90.00	270.70	6,908.00	-999.70	-1,374.43	1,373.91	0.00	0.00	0.00
8,399.98	90.00	270.70	6,908.00	-998.48	-1,474.43	1,473.90	0.00	0.00	0.00
8,499.98	90.00	270.70	6,908.00	-997.25	-1,574.42	1,573.90	0.00	0.00	0.00
8,599.98	90.00	270.70	6,908.00	-996.03	-1,674.41	1,673.89	0.00	0.00	0.00
8,699.98	90.00	270.70	6,908.00	-994.80	-1,774.40	1,773.88	0.00	0.00	0.00
8,799.98	90.00	270.70	6,908.00	-993.58	-1,874.39	1,873.87	0.00	0.00	0.00
8,899.98	90.00	270.70	6,908.00	-992.36	-1,974.39	1,973.87	0.00	0.00	0.00
8,999.98	90.00	270.70	6,908.00	-991.13	-2,074.38	2,073.86	0.00	0.00	0.00
9,099.98	90.00	270.70	6,908.00	-989.91	-2,174.37	2,173.85	0.00	0.00	0.00
9,199.98	90.00	270.70	6,908.00	-988.68	-2,274.36	2,273.85	0.00	0.00	0.00
9,299.98	90.00	270.70	6,908.00	-987.46	-2,374.36	2,373.84	0.00	0.00	0.00
9,399.98	90.00	270.70	6,908.00	-986.23	-2,474.35	2,473.83	0.00	0.00	0.00
9,499.98	90.00	270.70	6,908.00	-985.01	-2,574.34	2,573.82	0.00	0.00	0.00
9,599.98	90.00	270.70	6,908.00	-983.78	-2,674.33	2,673.82	0.00	0.00	0.00
9,699.98	90.00	270.70	6,908.00	-982.56	-2,774.33	2,773.81	0.00	0.00	0.00
9,799.98	90.00	270.70	6,908.00	-981.34	-2,874.32	2,873.80	0.00	0.00	0.00
9,899.98	90.00	270.70	6,908.00	-980.11	-2,974.31	2,973.80	0.00	0.00	0.00
9,999.98	90.00	270.70	6,908.00	-978.89	-3,074.30	3,073.79	0.00	0.00	0.00
10,099.98	90.00	270.70	6,908.00	-977.66	-3,174.29	3,173.78	0.00	0.00	0.00
10,199.98	90.00	270.70	6,908.00	-976.44	-3,274.29	3,273.78	0.00	0.00	0.00
10,299.98	90.00	270.70	6,908.00	-975.21	-3,374.28	3,373.77	0.00	0.00	0.00
10,399.98	90.00	270.70	6,908.00	-973.99	-3,474.27	3,473.76	0.00	0.00	0.00
10,499.98	90.00	270.70	6,908.00	-972.76	-3,574.26	3,573.75	0.00	0.00	0.00
10,599.98	90.00	270.70	6,908.00	-971.54	-3,674.26	3,673.75	0.00	0.00	0.00
10,699.98	90.00	270.70	6,908.00	-970.31	-3,774.25	3,773.74	0.00	0.00	0.00
10,799.98	90.00	270.70	6,908.00	-969.09	-3,874.24	3,873.73	0.00	0.00	0.00
10,899.98	90.00	270.70	6,908.00	-967.87	-3,974.23	3,973.73	0.00	0.00	0.00
10,999.98	90.00	270.70	6,908.00	-966.64	-4,074.23	4,073.72	0.00	0.00	0.00
11,099.98	90.00	270.70	6,908.00	-965.42	-4,174.22	4,173.71	0.00	0.00	0.00
11,199.98	90.00	270.70	6,908.00	-964.19	-4,274.21	4,273.70	0.00	0.00	0.00
11,299.98	90.00	270.70	6,908.00	-962.97	-4,374.20	4,373.70	0.00	0.00	0.00
11,399.98	90.00	270.70	6,908.00	-961.74	-4,474.19	4,473.69	0.00	0.00	0.00
11,499.98	90.00	270.70	6,908.00	-960.52	-4,574.19	4,573.68	0.00	0.00	0.00
11,599.98	90.00	270.70	6,908.00	-959.29	-4,674.18	4,673.68	0.00	0.00	0.00
11,699.98	90.00	270.70	6,908.00	-958.07	-4,774.17	4,773.67	0.00	0.00	0.00
11,799.98	90.00	270.70	6,908.00	-956.85	-4,874.16	4,873.66	0.00	0.00	0.00
11,899.98	90.00	270.70	6,908.00	-955.62	-4,974.16	4,973.66	0.00	0.00	0.00
11,999.98	90.00	270.70	6,908.00	-954.40	-5,074.15	5,073.65	0.00	0.00	0.00
12,099.98	90.00	270.70	6,908.00	-953.17	-5,174.14	5,173.64	0.00	0.00	0.00
12,199.98	90.00	270.70	6,908.00	-951.95	-5,274.13	5,273.63	0.00	0.00	0.00
12,299.98	90.00	270.70	6,908.00	-950.72	-5,374.13	5,373.63	0.00	0.00	0.00
12,399.98	90.00	270.70	6,908.00	-949.50	-5,474.12	5,473.62	0.00	0.00	0.00
12,499.98	90.00	270.70	6,908.00	-948.27	-5,574.11	5,573.61	0.00	0.00	0.00
12,599.98	90.00	270.70	6,908.00	-947.05	-5,674.10	5,673.61	0.00	0.00	0.00
12,699.97	90.00	270.70	6,908.00	-945.83	-5,774.09	5,773.60	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well ICEMAN STATE 12N-16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4797 & KB 17 @ 4814.00usft (Original Well Elev)
<b>Site:</b>	ICEMAN PAD	<b>North Reference:</b>	True
<b>Well:</b>	ICEMAN STATE 12N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

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)
12,712.64	90.00	270.70	6,908.00	-945.67	-5,786.76	5,786.26	0.00	0.00	0.00
TD at 12712.64 - PBHL_ICEMAN STATE 12N-16HZ(2219 FSL 350 FWL)									

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
PBHL_ICEMAN STATE - plan hits target center - Point	0.00	0.00	6,908.00	-945.67	-5,786.76	14,608,583.48	1,667,384.51	40.224731	-104.903387

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
761.00	761.00	9 5/8"	9.625	13.500	
7,348.39	6,908.00	7"(2222 FSL 566 FWL)	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
444.00	444.00	Base Fox Hills				
3,626.28	3,570.00	Parkman				
4,092.63	4,024.00	Sussex				
6,979.02	6,793.00	SSPG				
7,075.00	6,844.00	NBRR				
7,196.57	6,888.00	N470_B_CK				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,061.00	1,061.00	0.00	0.00	Start Build 2.00
1,721.79	1,715.94	-75.06	11.06	Start 3838.78 hold at 1721.79 MD
5,560.57	5,453.06	-943.31	138.94	Start Drop -2.00
6,221.35	6,108.00	-1,018.37	150.00	Start 227.04 hold at 6221.35 MD
6,448.39	6,335.04	-1,018.37	150.00	Start DLS 10.00 TFO 270.70
7,348.39	6,908.00	-1,011.35	-422.91	Start 5364.25 hold at 7348.39 MD
12,712.64	6,908.00	-945.67	-5,786.76	TD at 12712.64