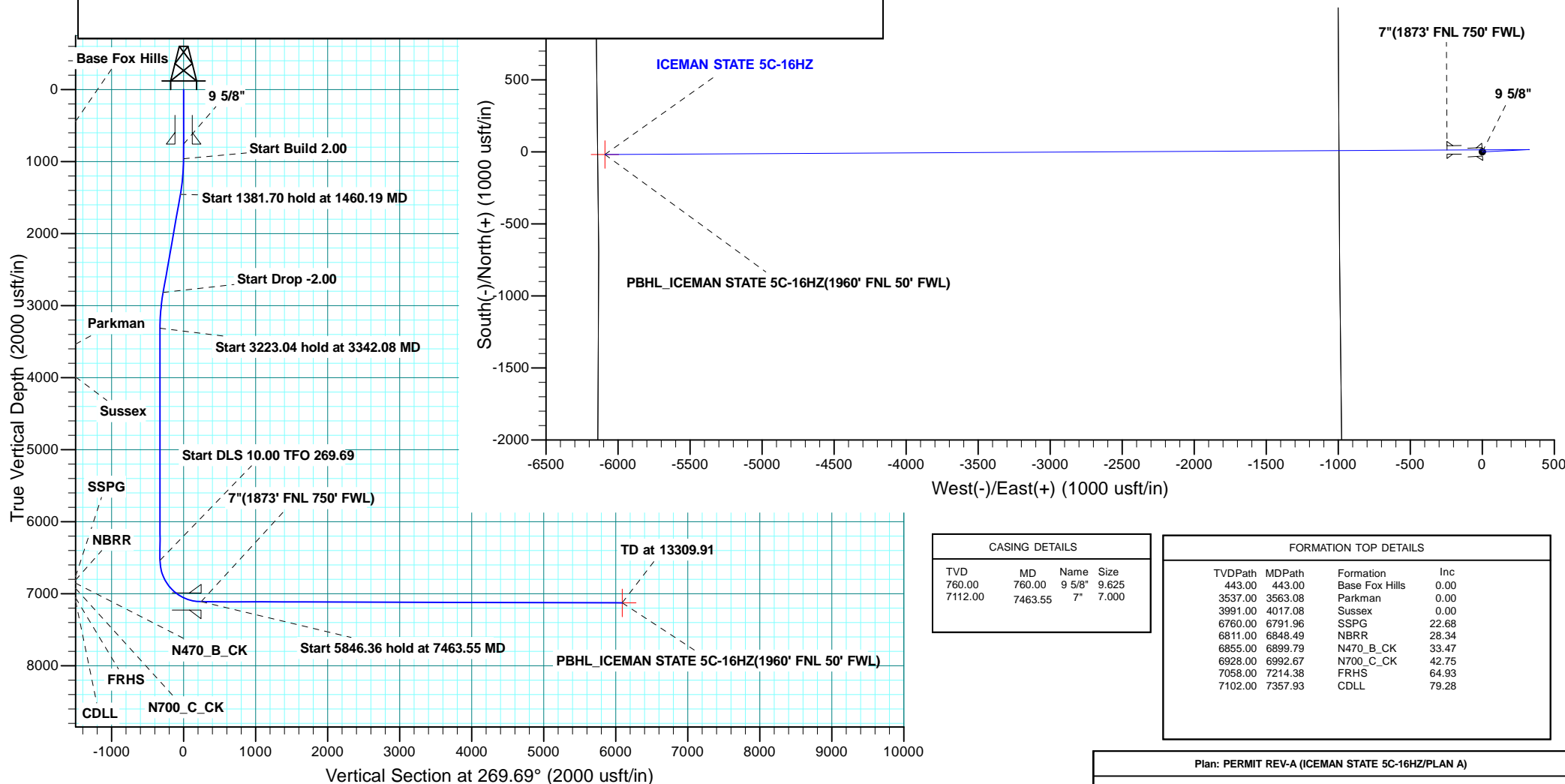


SHL: ICEMAN STATE 5C-16HZ GL							
4797& KB 17 @ 4814.00usft (ASSUMED)							
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
	0.00	0.00	14609686.84	1673168.98	40.227742	-104.882658	
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 7128.00		-17.82	-6090.93	14609660.96	1667078.07	40.227691	-104.904480
- plan hits target center							
SECTION DETAILS							
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
960.00	0.00	0.00	960.00	0.00	0.00	0.00	0.00
1460.19	10.00	87.06	1457.65	2.24	43.50	2.00	87.06
2841.89	10.00	87.06	2818.35	14.56	283.20	0.00	0.00
3342.08	0.00	0.00	3316.00	16.80	326.70	2.00	180.00
6565.12	0.00	0.00	6539.04	16.80	326.70	0.00	0.00
7463.55	89.84	269.69	7112.00	13.72	-244.68	10.00	269.69
13309.91	89.84	269.69	7128.00	-17.82	-6090.93	0.00	0.00



CASING DETAILS			
TVD	MD	Name	Size
760.00	760.00	9 5/8"	9.625
7112.00	7463.55	7"	7.000

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
443.00	443.00	Base Fox Hills	0.00
3537.00	3563.08	Parkman	0.00
3991.00	4017.08	Sussex	0.00
6760.00	6791.96	SSPG	22.68
6811.00	6848.49	NBRR	28.34
6855.00	6899.79	N470_B_CK	33.47
6928.00	6992.67	N700_C_CK	42.75
7058.00	7214.38	FRHS	64.93
7102.00	7357.93	CDLL	79.28



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

ICEMAN PAD

ICEMAN STATE 5C-16HZ

PLAN A

Plan: PERMIT REV-A

Standard Planning Report

04 December, 2014

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 5C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 5C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-A		

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	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 5C-16HZ, 1880' FNL 995' FWL					
Well Position	+N/-S	150.03 usft	Northing:	14,609,686.83 usft	Latitude:	40.227742
	+E/-W	-0.84 usft	Easting:	1,673,168.97 usft	Longitude:	-104.882658
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,796.00 usft

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

Design	PERMIT REV-A			
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	269.69

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	
960.00	0.00	0.00	960.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,460.19	10.00	87.06	1,457.65	2.24	43.50	2.00	2.00	0.00	87.06	
2,841.89	10.00	87.06	2,818.35	14.56	283.20	0.00	0.00	0.00	0.00	
3,342.08	0.00	0.00	3,316.00	16.80	326.70	2.00	-2.00	0.00	180.00	
6,565.12	0.00	0.00	6,539.04	16.80	326.70	0.00	0.00	0.00	0.00	
7,463.55	89.84	269.69	7,112.00	13.72	-244.68	10.00	10.00	-10.05	269.69	
13,309.91	89.84	269.69	7,128.00	-17.82	-6,090.93	0.00	0.00	0.00	0.00	PBHL_ICEMAN STAT

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 5C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 5C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-A		

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	
443.00	0.00	0.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	
Base Fox Hills										
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	
760.00	0.00	0.00	760.00	0.00	0.00	0.00	0.00	0.00	0.00	
9 5/8"										
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	
960.00	0.00	0.00	960.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start Build 2.00										
1,000.00	0.80	87.06	1,000.00	0.01	0.28	-0.28	2.00	2.00	0.00	
1,100.00	2.80	87.06	1,099.94	0.18	3.42	-3.42	2.00	2.00	0.00	
1,200.00	4.80	87.06	1,199.72	0.52	10.03	-10.04	2.00	2.00	0.00	
1,300.00	6.80	87.06	1,299.20	1.03	20.13	-20.13	2.00	2.00	0.00	
1,400.00	8.80	87.06	1,398.27	1.73	33.68	-33.69	2.00	2.00	0.00	
1,460.19	10.00	87.06	1,457.65	2.24	43.50	-43.51	2.00	2.00	0.00	
Start 1381.70 hold at 1460.19 MD										
1,500.00	10.00	87.06	1,496.86	2.59	50.40	-50.42	0.00	0.00	0.00	
1,600.00	10.00	87.06	1,595.34	3.48	67.75	-67.77	0.00	0.00	0.00	
1,700.00	10.00	87.06	1,693.82	4.38	85.10	-85.12	0.00	0.00	0.00	
1,800.00	10.00	87.06	1,792.30	5.27	102.45	-102.48	0.00	0.00	0.00	
1,900.00	10.00	87.06	1,890.78	6.16	119.80	-119.83	0.00	0.00	0.00	
2,000.00	10.00	87.06	1,989.26	7.05	137.15	-137.18	0.00	0.00	0.00	
2,100.00	10.00	87.06	2,087.74	7.94	154.50	-154.54	0.00	0.00	0.00	
2,200.00	10.00	87.06	2,186.21	8.84	171.84	-171.89	0.00	0.00	0.00	
2,300.00	10.00	87.06	2,284.69	9.73	189.19	-189.24	0.00	0.00	0.00	
2,400.00	10.00	87.06	2,383.17	10.62	206.54	-206.59	0.00	0.00	0.00	
2,500.00	10.00	87.06	2,481.65	11.51	223.89	-223.95	0.00	0.00	0.00	
2,600.00	10.00	87.06	2,580.13	12.41	241.24	-241.30	0.00	0.00	0.00	
2,700.00	10.00	87.06	2,678.61	13.30	258.59	-258.65	0.00	0.00	0.00	
2,800.00	10.00	87.06	2,777.09	14.19	275.93	-276.01	0.00	0.00	0.00	
2,841.89	10.00	87.06	2,818.35	14.56	283.20	-283.28	0.00	0.00	0.00	
Start Drop -2.00										
2,900.00	8.84	87.06	2,875.67	15.05	292.70	-292.78	2.00	-2.00	0.00	
3,000.00	6.84	87.06	2,974.73	15.75	306.33	-306.41	2.00	-2.00	0.00	
3,100.00	4.84	87.06	3,074.21	16.28	316.49	-316.57	2.00	-2.00	0.00	
3,200.00	2.84	87.06	3,173.98	16.62	323.18	-323.27	2.00	-2.00	0.00	
3,300.00	0.84	87.06	3,273.92	16.78	326.39	-326.48	2.00	-2.00	0.00	
3,342.08	0.00	0.00	3,316.00	16.80	326.70	-326.79	2.00	-2.00	0.00	
Start 3223.04 hold at 3342.08 MD										
3,400.00	0.00	0.00	3,373.92	16.80	326.70	-326.79	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,473.92	16.80	326.70	-326.79	0.00	0.00	0.00	
3,563.08	0.00	0.00	3,537.00	16.80	326.70	-326.79	0.00	0.00	0.00	
Parkman										
3,600.00	0.00	0.00	3,573.92	16.80	326.70	-326.79	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,673.92	16.80	326.70	-326.79	0.00	0.00	0.00	

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 5C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 5C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-A		

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)
3,800.00	0.00	0.00	3,773.92	16.80	326.70	-326.79	0.00	0.00	0.00
3,900.00	0.00	0.00	3,873.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,000.00	0.00	0.00	3,973.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,017.08	0.00	0.00	3,991.00	16.80	326.70	-326.79	0.00	0.00	0.00
Sussex									
4,100.00	0.00	0.00	4,073.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,200.00	0.00	0.00	4,173.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,300.00	0.00	0.00	4,273.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,400.00	0.00	0.00	4,373.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,500.00	0.00	0.00	4,473.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,600.00	0.00	0.00	4,573.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,700.00	0.00	0.00	4,673.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,800.00	0.00	0.00	4,773.92	16.80	326.70	-326.79	0.00	0.00	0.00
4,900.00	0.00	0.00	4,873.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,000.00	0.00	0.00	4,973.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,100.00	0.00	0.00	5,073.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,200.00	0.00	0.00	5,173.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,300.00	0.00	0.00	5,273.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,400.00	0.00	0.00	5,373.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,500.00	0.00	0.00	5,473.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,600.00	0.00	0.00	5,573.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,700.00	0.00	0.00	5,673.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,800.00	0.00	0.00	5,773.92	16.80	326.70	-326.79	0.00	0.00	0.00
5,900.00	0.00	0.00	5,873.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,000.00	0.00	0.00	5,973.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,100.00	0.00	0.00	6,073.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,200.00	0.00	0.00	6,173.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,300.00	0.00	0.00	6,273.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,400.00	0.00	0.00	6,373.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,500.00	0.00	0.00	6,473.92	16.80	326.70	-326.79	0.00	0.00	0.00
6,565.12	0.00	0.00	6,539.04	16.80	326.70	-326.79	0.00	0.00	0.00
Start DLS 10.00 TFO 269.69									
6,600.00	3.49	269.69	6,573.90	16.79	325.64	-325.72	10.00	10.00	0.00
6,700.00	13.49	269.69	6,672.68	16.71	310.90	-310.98	10.00	10.00	0.00
6,791.96	22.68	269.69	6,760.00	16.56	282.38	-282.47	10.00	10.00	0.00
SSPG									
6,800.00	23.49	269.69	6,767.39	16.54	279.23	-279.31	10.00	10.00	0.00
6,848.49	28.34	269.69	6,811.00	16.43	258.04	-258.13	10.00	10.00	0.00
NBRR									
6,899.79	33.47	269.69	6,855.00	16.29	231.71	-231.79	10.00	10.00	0.00
N470_B_CK									
6,900.00	33.49	269.69	6,855.17	16.29	231.59	-231.68	10.00	10.00	0.00
6,992.67	42.75	269.69	6,928.00	15.98	174.45	-174.53	10.00	10.00	0.00
N700_C_CK									
7,000.00	43.49	269.69	6,933.35	15.95	169.44	-169.52	10.00	10.00	0.00
7,100.00	53.49	269.69	6,999.54	15.55	94.65	-94.73	10.00	10.00	0.00
7,200.00	63.49	269.69	7,051.75	15.09	9.51	-9.59	10.00	10.00	0.00
7,214.38	64.93	269.69	7,058.00	15.02	-3.43	3.35	10.00	10.00	0.00
FRHS									
7,300.00	73.49	269.69	7,088.37	14.59	-83.41	83.33	10.00	10.00	0.00
7,357.93	79.28	269.69	7,102.00	14.28	-139.68	139.60	10.00	10.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 5C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 5C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-A		

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)
CDLL									
7,400.00	83.49	269.69	7,108.30	14.06	-181.27	181.19	10.00	10.00	0.00
7,463.55	89.84	269.69	7,112.00	13.72	-244.68	244.60	10.00	10.00	0.00
Start 5846.36 hold at 7463.55 MD - 7"(1873" FNL 750' FWL)									
7,500.00	89.84	269.69	7,112.10	13.52	-281.13	281.05	0.00	0.00	0.00
7,600.00	89.84	269.69	7,112.37	12.98	-381.12	381.05	0.00	0.00	0.00
7,700.00	89.84	269.69	7,112.64	12.44	-481.12	481.05	0.00	0.00	0.00
7,800.00	89.84	269.69	7,112.92	11.90	-581.12	581.05	0.00	0.00	0.00
7,900.00	89.84	269.69	7,113.19	11.36	-681.12	681.05	0.00	0.00	0.00
8,000.00	89.84	269.69	7,113.46	10.82	-781.12	781.05	0.00	0.00	0.00
8,100.00	89.84	269.69	7,113.74	10.28	-881.12	881.05	0.00	0.00	0.00
8,200.00	89.84	269.69	7,114.01	9.74	-981.11	981.05	0.00	0.00	0.00
8,300.00	89.84	269.69	7,114.29	9.21	-1,081.11	1,081.05	0.00	0.00	0.00
8,400.00	89.84	269.69	7,114.56	8.67	-1,181.11	1,181.05	0.00	0.00	0.00
8,500.00	89.84	269.69	7,114.83	8.13	-1,281.11	1,281.05	0.00	0.00	0.00
8,600.00	89.84	269.69	7,115.11	7.59	-1,381.11	1,381.05	0.00	0.00	0.00
8,700.00	89.84	269.69	7,115.38	7.05	-1,481.10	1,481.04	0.00	0.00	0.00
8,800.00	89.84	269.69	7,115.65	6.51	-1,581.10	1,581.04	0.00	0.00	0.00
8,900.00	89.84	269.69	7,115.93	5.97	-1,681.10	1,681.04	0.00	0.00	0.00
9,000.00	89.84	269.69	7,116.20	5.43	-1,781.10	1,781.04	0.00	0.00	0.00
9,100.00	89.84	269.69	7,116.48	4.89	-1,881.10	1,881.04	0.00	0.00	0.00
9,200.00	89.84	269.69	7,116.75	4.35	-1,981.10	1,981.04	0.00	0.00	0.00
9,300.00	89.84	269.69	7,117.02	3.81	-2,081.09	2,081.04	0.00	0.00	0.00
9,400.00	89.84	269.69	7,117.30	3.27	-2,181.09	2,181.04	0.00	0.00	0.00
9,500.00	89.84	269.69	7,117.57	2.73	-2,281.09	2,281.04	0.00	0.00	0.00
9,600.00	89.84	269.69	7,117.84	2.19	-2,381.09	2,381.04	0.00	0.00	0.00
9,700.00	89.84	269.69	7,118.12	1.65	-2,481.09	2,481.04	0.00	0.00	0.00
9,800.00	89.84	269.69	7,118.39	1.11	-2,581.08	2,581.04	0.00	0.00	0.00
9,900.00	89.84	269.69	7,118.67	0.57	-2,681.08	2,681.04	0.00	0.00	0.00
10,000.00	89.84	269.69	7,118.94	0.03	-2,781.08	2,781.04	0.00	0.00	0.00
10,100.00	89.84	269.69	7,119.21	-0.51	-2,881.08	2,881.04	0.00	0.00	0.00
10,200.00	89.84	269.69	7,119.49	-1.05	-2,981.08	2,981.04	0.00	0.00	0.00
10,300.00	89.84	269.69	7,119.76	-1.58	-3,081.08	3,081.04	0.00	0.00	0.00
10,400.00	89.84	269.69	7,120.03	-2.12	-3,181.07	3,181.04	0.00	0.00	0.00
10,500.00	89.84	269.69	7,120.31	-2.66	-3,281.07	3,281.04	0.00	0.00	0.00
10,600.00	89.84	269.69	7,120.58	-3.20	-3,381.07	3,381.04	0.00	0.00	0.00
10,700.00	89.84	269.69	7,120.86	-3.74	-3,481.07	3,481.04	0.00	0.00	0.00
10,800.00	89.84	269.69	7,121.13	-4.28	-3,581.07	3,581.04	0.00	0.00	0.00
10,900.00	89.84	269.69	7,121.40	-4.82	-3,681.06	3,681.04	0.00	0.00	0.00
11,000.00	89.84	269.69	7,121.68	-5.36	-3,781.06	3,781.04	0.00	0.00	0.00
11,100.00	89.84	269.69	7,121.95	-5.90	-3,881.06	3,881.04	0.00	0.00	0.00
11,200.00	89.84	269.69	7,122.22	-6.44	-3,981.06	3,981.04	0.00	0.00	0.00
11,300.00	89.84	269.69	7,122.50	-6.98	-4,081.06	4,081.04	0.00	0.00	0.00
11,400.00	89.84	269.69	7,122.77	-7.52	-4,181.06	4,181.03	0.00	0.00	0.00
11,500.00	89.84	269.69	7,123.05	-8.06	-4,281.05	4,281.03	0.00	0.00	0.00
11,600.00	89.84	269.69	7,123.32	-8.60	-4,381.05	4,381.03	0.00	0.00	0.00
11,700.00	89.84	269.69	7,123.59	-9.14	-4,481.05	4,481.03	0.00	0.00	0.00
11,800.00	89.84	269.69	7,123.87	-9.68	-4,581.05	4,581.03	0.00	0.00	0.00
11,900.00	89.84	269.69	7,124.14	-10.22	-4,681.05	4,681.03	0.00	0.00	0.00
12,000.00	89.84	269.69	7,124.41	-10.76	-4,781.04	4,781.03	0.00	0.00	0.00
12,100.00	89.84	269.69	7,124.69	-11.30	-4,881.04	4,881.03	0.00	0.00	0.00
12,200.00	89.84	269.69	7,124.96	-11.83	-4,981.04	4,981.03	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 5C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 5C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-A		

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)
12,300.00	89.84	269.69	7,125.24	-12.37	-5,081.04	5,081.03	0.00	0.00	0.00
12,400.00	89.84	269.69	7,125.51	-12.91	-5,181.04	5,181.03	0.00	0.00	0.00
12,500.00	89.84	269.69	7,125.78	-13.45	-5,281.04	5,281.03	0.00	0.00	0.00
12,600.00	89.84	269.69	7,126.06	-13.99	-5,381.03	5,381.03	0.00	0.00	0.00
12,700.00	89.84	269.69	7,126.33	-14.53	-5,481.03	5,481.03	0.00	0.00	0.00
12,800.00	89.84	269.69	7,126.60	-15.07	-5,581.03	5,581.03	0.00	0.00	0.00
12,900.00	89.84	269.69	7,126.88	-15.61	-5,681.03	5,681.03	0.00	0.00	0.00
13,000.00	89.84	269.69	7,127.15	-16.15	-5,781.03	5,781.03	0.00	0.00	0.00
13,100.00	89.84	269.69	7,127.43	-16.69	-5,881.02	5,881.03	0.00	0.00	0.00
13,200.00	89.84	269.69	7,127.70	-17.23	-5,981.02	5,981.03	0.00	0.00	0.00
13,300.00	89.84	269.69	7,127.97	-17.77	-6,081.02	6,081.03	0.00	0.00	0.00
13,309.91	89.84	269.69	7,128.00	-17.82	-6,090.93	6,090.94	0.00	0.00	0.00
TD at 13309.91 - PBHL_ICEMAN STATE 5C-16HZ(1960' FNL 50' 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	7,128.00	-17.82	-6,090.93	14,609,660.95	1,667,078.07	40.227691	-104.904480

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
760.00	760.00	9 5/8"	9.625	13.500	
7,463.55	7,112.00	7"(1873" FNL 750' FWL)	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
443.00	444.00	Base Fox Hills				
3,563.08	3,538.00	Parkman				
4,017.08	3,992.00	Sussex				
6,791.96	6,761.00	SSPG				
6,848.49	6,812.00	NBRR				
6,899.79	6,856.00	N470_B_CK				
6,992.67	6,929.00	N700_C_CK				
7,214.38	7,059.00	FRHS				
7,357.93	7,103.00	CDLL				

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 5C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4813.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 5C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-A		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
960.00	960.00	0.00	0.00	Start Build 2.00
1,460.19	1,457.65	2.24	43.50	Start 1381.70 hold at 1460.19 MD
2,841.89	2,818.35	14.56	283.20	Start Drop -2.00
3,342.08	3,316.00	16.80	326.70	Start 3223.04 hold at 3342.08 MD
6,565.12	6,539.04	16.80	326.70	Start DLS 10.00 TFO 269.69
7,463.55	7,112.00	13.72	-244.68	Start 5846.36 hold at 7463.55 MD
13,309.91	7,128.00	-17.82	-6,090.93	TD at 13309.91