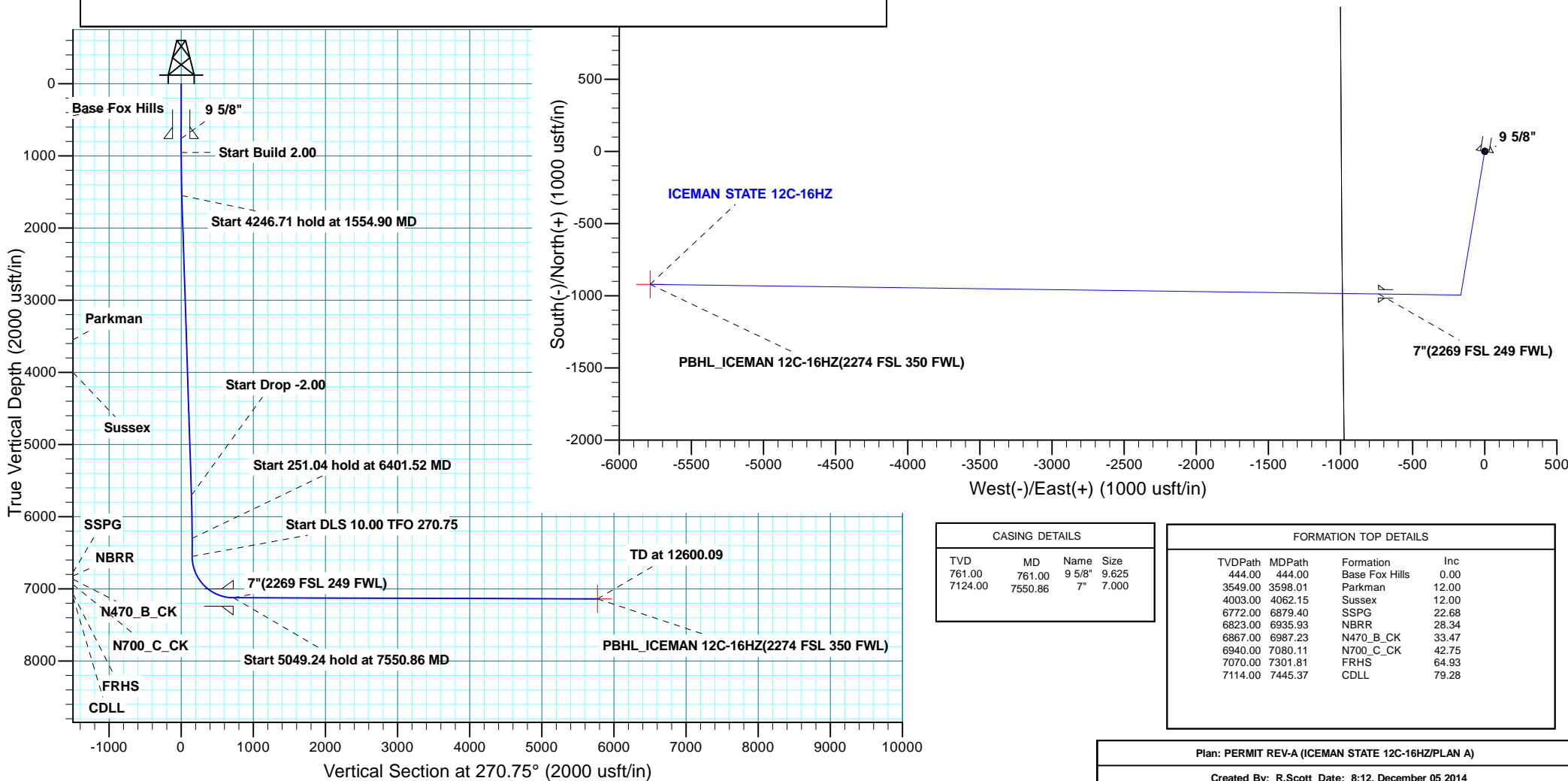


SHL: ICEMAN STATE 12C-16HZ								
GL 4797 & KB 17 @ 4814.00usft (ASSUMED)								
	+N-S	+E-W	Northing	Easting	Latitude	Longitude		
	0.00	0.00	14609567.03	1673169.69	40.227413	-104.882656		
DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Shape	
PBHL 7139.00	-920.93	-5785.60	14608638.45	1667385.32	40.224882	-104.903383	Point	
- plan hits target center								
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
955.00	0.00	0.00	955.00	0.00	0.00	0.00	0.00	0.00
1554.90	12.00	189.46	1550.53	-61.73	-10.28	2.00	189.46	9.47
5801.62	12.00	189.46	5704.47	-932.54	-155.33	0.00	0.00	143.11
6401.52	0.00	0.00	6300.00	-994.27	-165.61	2.00	180.00	152.58
6652.56	0.00	0.00	6551.04	-994.27	-165.61	0.00	0.00	152.58
7550.86	89.83	270.75	7124.00	-986.82	-736.82	10.00	270.75	723.84
12600.09	89.83	270.75	7139.00	-920.93	-5785.60	0.00	0.00	5773.09
PBHL_ICEMAN 12C-16HZ(2274 FSL 350 FWL)								





Scientific Drilling

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

ICEMAN PAD

ICEMAN STATE 12C-16HZ

PLAN A

Plan: PERMIT REV-A

Standard Planning Report

04 December, 2014

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 12C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 12C-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 12C-16HZ, 2000' FNL 995' FWL					
Well Position	+N/-S	30.22 usft	Northing:	14,609,567.03 usft	Latitude:	40.227413
	+E/-W	-0.28 usft	Easting:	1,673,169.69 usft	Longitude:	-104.882656
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,797.00 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	270.75

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	
955.00	0.00	0.00	955.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,554.90	12.00	189.46	1,550.53	-61.73	-10.28	2.00	2.00	0.00	189.46	
5,801.62	12.00	189.46	5,704.47	-932.54	-155.33	0.00	0.00	0.00	0.00	
6,401.52	0.00	0.00	6,300.00	-994.27	-165.61	2.00	-2.00	0.00	180.00	
6,652.56	0.00	0.00	6,551.04	-994.27	-165.61	0.00	0.00	0.00	0.00	
7,550.86	89.83	270.75	7,124.00	-986.82	-736.82	10.00	10.00	-9.94	270.75	
12,600.09	89.83	270.75	7,139.00	-920.93	-5,785.60	0.00	0.00	0.00	0.00	PBHL_ICEMAN 12C-

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 12C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 12C-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
444.00	0.00	0.00	444.00	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
761.00	0.00	0.00	761.00	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
955.00	0.00	0.00	955.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,000.00	0.90	189.46	1,000.00	-0.35	-0.06	0.05	2.00	2.00	0.00
1,100.00	2.90	189.46	1,099.94	-3.62	-0.60	0.56	2.00	2.00	0.00
1,200.00	4.90	189.46	1,199.70	-10.33	-1.72	1.58	2.00	2.00	0.00
1,300.00	6.90	189.46	1,299.17	-20.47	-3.41	3.14	2.00	2.00	0.00
1,400.00	8.90	189.46	1,398.21	-34.02	-5.67	5.22	2.00	2.00	0.00
1,500.00	10.90	189.46	1,496.72	-50.98	-8.49	7.82	2.00	2.00	0.00
1,554.90	12.00	189.46	1,550.53	-61.73	-10.28	9.47	2.00	2.00	0.00
Start 4246.71 hold at 1554.90 MD									
1,600.00	12.00	189.46	1,594.64	-70.98	-11.82	10.89	0.00	0.00	0.00
1,700.00	12.00	189.46	1,692.46	-91.48	-15.24	14.04	0.00	0.00	0.00
1,800.00	12.00	189.46	1,790.27	-111.99	-18.65	17.19	0.00	0.00	0.00
1,900.00	12.00	189.46	1,888.09	-132.50	-22.07	20.33	0.00	0.00	0.00
2,000.00	12.00	189.46	1,985.90	-153.00	-25.48	23.48	0.00	0.00	0.00
2,100.00	12.00	189.46	2,083.72	-173.51	-28.90	26.63	0.00	0.00	0.00
2,200.00	12.00	189.46	2,181.53	-194.01	-32.32	29.77	0.00	0.00	0.00
2,300.00	12.00	189.46	2,279.35	-214.52	-35.73	32.92	0.00	0.00	0.00
2,400.00	12.00	189.46	2,377.16	-235.02	-39.15	36.07	0.00	0.00	0.00
2,500.00	12.00	189.46	2,474.98	-255.53	-42.56	39.21	0.00	0.00	0.00
2,600.00	12.00	189.46	2,572.79	-276.03	-45.98	42.36	0.00	0.00	0.00
2,700.00	12.00	189.46	2,670.61	-296.54	-49.39	45.51	0.00	0.00	0.00
2,800.00	12.00	189.46	2,768.43	-317.04	-52.81	48.65	0.00	0.00	0.00
2,900.00	12.00	189.46	2,866.24	-337.55	-56.22	51.80	0.00	0.00	0.00
3,000.00	12.00	189.46	2,964.06	-358.05	-59.64	54.95	0.00	0.00	0.00
3,100.00	12.00	189.46	3,061.87	-378.56	-63.05	58.09	0.00	0.00	0.00
3,200.00	12.00	189.46	3,159.69	-399.07	-66.47	61.24	0.00	0.00	0.00
3,300.00	12.00	189.46	3,257.50	-419.57	-69.89	64.39	0.00	0.00	0.00
3,400.00	12.00	189.46	3,355.32	-440.08	-73.30	67.53	0.00	0.00	0.00
3,500.00	12.00	189.46	3,453.13	-460.58	-76.72	70.68	0.00	0.00	0.00
3,598.01	12.00	189.46	3,549.00	-480.68	-80.06	73.77	0.00	0.00	0.00
Parkman									
3,600.00	12.00	189.46	3,550.95	-481.09	-80.13	73.83	0.00	0.00	0.00
3,700.00	12.00	189.46	3,648.76	-501.59	-83.55	76.97	0.00	0.00	0.00
3,800.00	12.00	189.46	3,746.58	-522.10	-86.96	80.12	0.00	0.00	0.00
3,900.00	12.00	189.46	3,844.40	-542.60	-90.38	83.27	0.00	0.00	0.00
4 000.00	12.00	189.46	3 942.21	-563.11	-93.79	86.42	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 12C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 12C-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)
4,062.15	12.00	189.46	4,003.00	-575.85	-95.92	88.37	0.00	0.00	0.00
Sussex									
4,100.00	12.00	189.46	4,040.03	-583.61	-97.21	89.56	0.00	0.00	0.00
4,200.00	12.00	189.46	4,137.84	-604.12	-100.62	92.71	0.00	0.00	0.00
4,300.00	12.00	189.46	4,235.66	-624.63	-104.04	95.86	0.00	0.00	0.00
4,400.00	12.00	189.46	4,333.47	-645.13	-107.46	99.00	0.00	0.00	0.00
4,500.00	12.00	189.46	4,431.29	-665.64	-110.87	102.15	0.00	0.00	0.00
4,600.00	12.00	189.46	4,529.10	-686.14	-114.29	105.30	0.00	0.00	0.00
4,700.00	12.00	189.46	4,626.92	-706.65	-117.70	108.44	0.00	0.00	0.00
4,800.00	12.00	189.46	4,724.73	-727.15	-121.12	111.59	0.00	0.00	0.00
4,900.00	12.00	189.46	4,822.55	-747.66	-124.53	114.74	0.00	0.00	0.00
5,000.00	12.00	189.46	4,920.37	-768.16	-127.95	117.88	0.00	0.00	0.00
5,100.00	12.00	189.46	5,018.18	-788.67	-131.36	121.03	0.00	0.00	0.00
5,200.00	12.00	189.46	5,116.00	-809.17	-134.78	124.18	0.00	0.00	0.00
5,300.00	12.00	189.46	5,213.81	-829.68	-138.20	127.32	0.00	0.00	0.00
5,400.00	12.00	189.46	5,311.63	-850.18	-141.61	130.47	0.00	0.00	0.00
5,500.00	12.00	189.46	5,409.44	-870.69	-145.03	133.62	0.00	0.00	0.00
5,600.00	12.00	189.46	5,507.26	-891.20	-148.44	136.76	0.00	0.00	0.00
5,700.00	12.00	189.46	5,605.07	-911.70	-151.86	139.91	0.00	0.00	0.00
5,800.00	12.00	189.46	5,702.89	-932.21	-155.27	143.06	0.00	0.00	0.00
5,801.62	12.00	189.46	5,704.47	-932.54	-155.33	143.11	0.00	0.00	0.00
Start Drop -2.00									
5,900.00	10.03	189.46	5,801.04	-951.08	-158.42	145.95	2.00	-2.00	0.00
6,000.00	8.03	189.46	5,899.79	-966.56	-160.99	148.33	2.00	-2.00	0.00
6,100.00	6.03	189.46	5,999.04	-978.63	-163.01	150.18	2.00	-2.00	0.00
6,200.00	4.03	189.46	6,098.65	-987.28	-164.45	151.51	2.00	-2.00	0.00
6,300.00	2.03	189.46	6,198.50	-992.50	-165.31	152.31	2.00	-2.00	0.00
6,400.00	0.03	189.46	6,298.48	-994.27	-165.61	152.58	2.00	-2.00	0.00
6,401.52	0.00	0.00	6,300.00	-994.27	-165.61	152.58	2.00	-2.00	0.00
Start 251.04 hold at 6401.52 MD									
6,500.00	0.00	0.00	6,398.48	-994.27	-165.61	152.58	0.00	0.00	0.00
6,600.00	0.00	0.00	6,498.48	-994.27	-165.61	152.58	0.00	0.00	0.00
6,652.56	0.00	0.00	6,551.04	-994.27	-165.61	152.58	0.00	0.00	0.00
Start DLS 10.00 TFO 270.75									
6,700.00	4.74	270.75	6,598.42	-994.24	-167.57	154.54	10.00	10.00	0.00
6,800.00	14.74	270.75	6,696.86	-994.02	-184.47	171.45	10.00	10.00	0.00
6,879.40	22.68	270.75	6,772.00	-993.69	-209.93	196.90	10.00	10.00	0.00
SSPG									
6,900.00	24.74	270.75	6,790.86	-993.58	-218.21	205.19	10.00	10.00	0.00
6,935.93	28.34	270.75	6,823.00	-993.37	-234.26	221.24	10.00	10.00	0.00
NBRR									
6,987.23	33.47	270.75	6,867.00	-993.03	-260.60	247.57	10.00	10.00	0.00
N470_B_CK									
7,000.00	34.74	270.75	6,877.57	-992.94	-267.76	254.74	10.00	10.00	0.00
7,080.11	42.75	270.75	6,940.00	-992.28	-317.85	304.84	10.00	10.00	0.00
N700_C_CK									
7,100.00	44.74	270.75	6,954.37	-992.10	-331.60	318.59	10.00	10.00	0.00
7,200.00	54.74	270.75	7,018.91	-991.11	-407.82	394.81	10.00	10.00	0.00
7,300.00	64.74	270.75	7,069.23	-989.98	-494.08	481.08	10.00	10.00	0.00
7,301.81	64.93	270.75	7,070.00	-989.96	-495.72	482.72	10.00	10.00	0.00
FRHS									

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 12C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 12C-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)
7,400.00	74.74	270.75	7,103.81	-988.76	-587.77	574.77	10.00	10.00	0.00
7,445.37	79.28	270.75	7,114.00	-988.18	-631.96	618.97	10.00	10.00	0.00
CDLL									
7,500.00	84.74	270.75	7,121.59	-987.48	-686.04	673.05	10.00	10.00	0.00
7,550.86	89.83	270.75	7,124.00	-986.82	-736.82	723.84	10.00	10.00	0.00
Start 5049.24 hold at 7550.86 MD - 7" (2269 FSL 249 FWL)									
7,600.00	89.83	270.75	7,124.14	-986.17	-785.95	772.98	0.00	0.00	0.00
7,700.00	89.83	270.75	7,124.44	-984.87	-885.94	872.98	0.00	0.00	0.00
7,800.00	89.83	270.75	7,124.74	-983.56	-985.94	972.98	0.00	0.00	0.00
7,900.00	89.83	270.75	7,125.03	-982.26	-1,085.93	1,072.98	0.00	0.00	0.00
8,000.00	89.83	270.75	7,125.33	-980.95	-1,185.92	1,172.98	0.00	0.00	0.00
8,100.00	89.83	270.75	7,125.63	-979.65	-1,285.91	1,272.98	0.00	0.00	0.00
8,200.00	89.83	270.75	7,125.92	-978.34	-1,385.90	1,372.98	0.00	0.00	0.00
8,300.00	89.83	270.75	7,126.22	-977.04	-1,485.89	1,472.97	0.00	0.00	0.00
8,400.00	89.83	270.75	7,126.52	-975.74	-1,585.88	1,572.97	0.00	0.00	0.00
8,500.00	89.83	270.75	7,126.82	-974.43	-1,685.87	1,672.97	0.00	0.00	0.00
8,600.00	89.83	270.75	7,127.11	-973.13	-1,785.86	1,772.97	0.00	0.00	0.00
8,700.00	89.83	270.75	7,127.41	-971.82	-1,885.86	1,872.97	0.00	0.00	0.00
8,800.00	89.83	270.75	7,127.71	-970.52	-1,985.85	1,972.97	0.00	0.00	0.00
8,900.00	89.83	270.75	7,128.00	-969.21	-2,085.84	2,072.97	0.00	0.00	0.00
9,000.00	89.83	270.75	7,128.30	-967.91	-2,185.83	2,172.97	0.00	0.00	0.00
9,100.00	89.83	270.75	7,128.60	-966.60	-2,285.82	2,272.97	0.00	0.00	0.00
9,200.00	89.83	270.75	7,128.90	-965.30	-2,385.81	2,372.97	0.00	0.00	0.00
9,300.00	89.83	270.75	7,129.19	-963.99	-2,485.80	2,472.97	0.00	0.00	0.00
9,400.00	89.83	270.75	7,129.49	-962.69	-2,585.79	2,572.97	0.00	0.00	0.00
9,500.00	89.83	270.75	7,129.79	-961.38	-2,685.78	2,672.97	0.00	0.00	0.00
9,600.00	89.83	270.75	7,130.08	-960.08	-2,785.77	2,772.97	0.00	0.00	0.00
9,700.00	89.83	270.75	7,130.38	-958.77	-2,885.77	2,872.97	0.00	0.00	0.00
9,800.00	89.83	270.75	7,130.68	-957.47	-2,985.76	2,972.97	0.00	0.00	0.00
9,900.00	89.83	270.75	7,130.98	-956.16	-3,085.75	3,072.97	0.00	0.00	0.00
10,000.00	89.83	270.75	7,131.27	-954.86	-3,185.74	3,172.97	0.00	0.00	0.00
10,100.00	89.83	270.75	7,131.57	-953.55	-3,285.73	3,272.97	0.00	0.00	0.00
10,200.00	89.83	270.75	7,131.87	-952.25	-3,385.72	3,372.97	0.00	0.00	0.00
10,300.00	89.83	270.75	7,132.17	-950.94	-3,485.71	3,472.97	0.00	0.00	0.00
10,400.00	89.83	270.75	7,132.46	-949.64	-3,585.70	3,572.97	0.00	0.00	0.00
10,500.00	89.83	270.75	7,132.76	-948.33	-3,685.69	3,672.97	0.00	0.00	0.00
10,600.00	89.83	270.75	7,133.06	-947.03	-3,785.69	3,772.96	0.00	0.00	0.00
10,700.00	89.83	270.75	7,133.35	-945.72	-3,885.68	3,872.96	0.00	0.00	0.00
10,800.00	89.83	270.75	7,133.65	-944.42	-3,985.67	3,972.96	0.00	0.00	0.00
10,900.00	89.83	270.75	7,133.95	-943.11	-4,085.66	4,072.96	0.00	0.00	0.00
11,000.00	89.83	270.75	7,134.25	-941.81	-4,185.65	4,172.96	0.00	0.00	0.00
11,100.00	89.83	270.75	7,134.54	-940.50	-4,285.64	4,272.96	0.00	0.00	0.00
11,200.00	89.83	270.75	7,134.84	-939.20	-4,385.63	4,372.96	0.00	0.00	0.00
11,300.00	89.83	270.75	7,135.14	-937.89	-4,485.62	4,472.96	0.00	0.00	0.00
11,400.00	89.83	270.75	7,135.43	-936.59	-4,585.61	4,572.96	0.00	0.00	0.00
11,500.00	89.83	270.75	7,135.73	-935.28	-4,685.60	4,672.96	0.00	0.00	0.00
11,600.00	89.83	270.75	7,136.03	-933.98	-4,785.60	4,772.96	0.00	0.00	0.00
11,700.00	89.83	270.75	7,136.33	-932.67	-4,885.59	4,872.96	0.00	0.00	0.00
11,800.00	89.83	270.75	7,136.62	-931.37	-4,985.58	4,972.96	0.00	0.00	0.00
11,900.00	89.83	270.75	7,136.92	-930.06	-5,085.57	5,072.96	0.00	0.00	0.00
12,000.00	89.83	270.75	7,137.22	-928.76	-5,185.56	5,172.96	0.00	0.00	0.00
12,100.00	89.83	270.75	7,137.51	-927.45	-5,285.55	5,272.96	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 12C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 12C-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)
12,200.00	89.83	270.75	7,137.81	-926.15	-5,385.54	5,372.96	0.00	0.00	0.00
12,300.00	89.83	270.75	7,138.11	-924.84	-5,485.53	5,472.96	0.00	0.00	0.00
12,400.00	89.83	270.75	7,138.41	-923.54	-5,585.52	5,572.96	0.00	0.00	0.00
12,500.00	89.83	270.75	7,138.70	-922.23	-5,685.52	5,672.96	0.00	0.00	0.00
12,600.00	89.83	270.75	7,139.00	-920.93	-5,785.51	5,772.96	0.00	0.00	0.00
12,600.09	89.83	270.75	7,139.00	-920.93	-5,785.60	5,773.05	0.00	0.00	0.00
TD at 12600.09 - PBHL_ICEMAN 12C-16HZ(2274 FSL 350 FWL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_ICEMAN 12C-16I	0.00	0.00	7,139.00	-920.93	-5,785.60	14,608,638.45	1,667,385.31	40.224882	-104.903383
- plan hits target center									
- Point									

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	
7,550.86	7,124.00	7" (2269 FSL 249 FWL)	7.000	8.750	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
444.00	443.00	Base Fox Hills			
3,598.01	3,548.00	Parkman			
4,062.15	4,002.00	Sussex			
6,879.40	6,771.00	SSPG			
6,935.93	6,822.00	NBRR			
6,987.23	6,866.00	N470_B_CK			
7,080.11	6,939.00	N700_C_CK			
7,301.81	7,069.00	FRHS			
7,445.37	7,113.00	CDLL			

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 12C-16HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4797 & KB 17 @ 4814.00usft (ASSUMED)
Site:	ICEMAN PAD	North Reference:	True
Well:	ICEMAN STATE 12C-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)	
955.00	955.00	0.00	0.00	Start Build 2.00
1,554.90	1,550.53	-61.73	-10.28	Start 4246.71 hold at 1554.90 MD
5,801.62	5,704.47	-932.54	-155.33	Start Drop -2.00
6,401.52	6,300.00	-994.27	-165.61	Start 251.04 hold at 6401.52 MD
6,652.56	6,551.04	-994.27	-165.61	Start DLS 10.00 TFO 270.75
7,550.86	7,124.00	-986.82	-736.82	Start 5049.24 hold at 7550.86 MD
12,600.09	7,139.00	-920.93	-5,785.60	TD at 12600.09