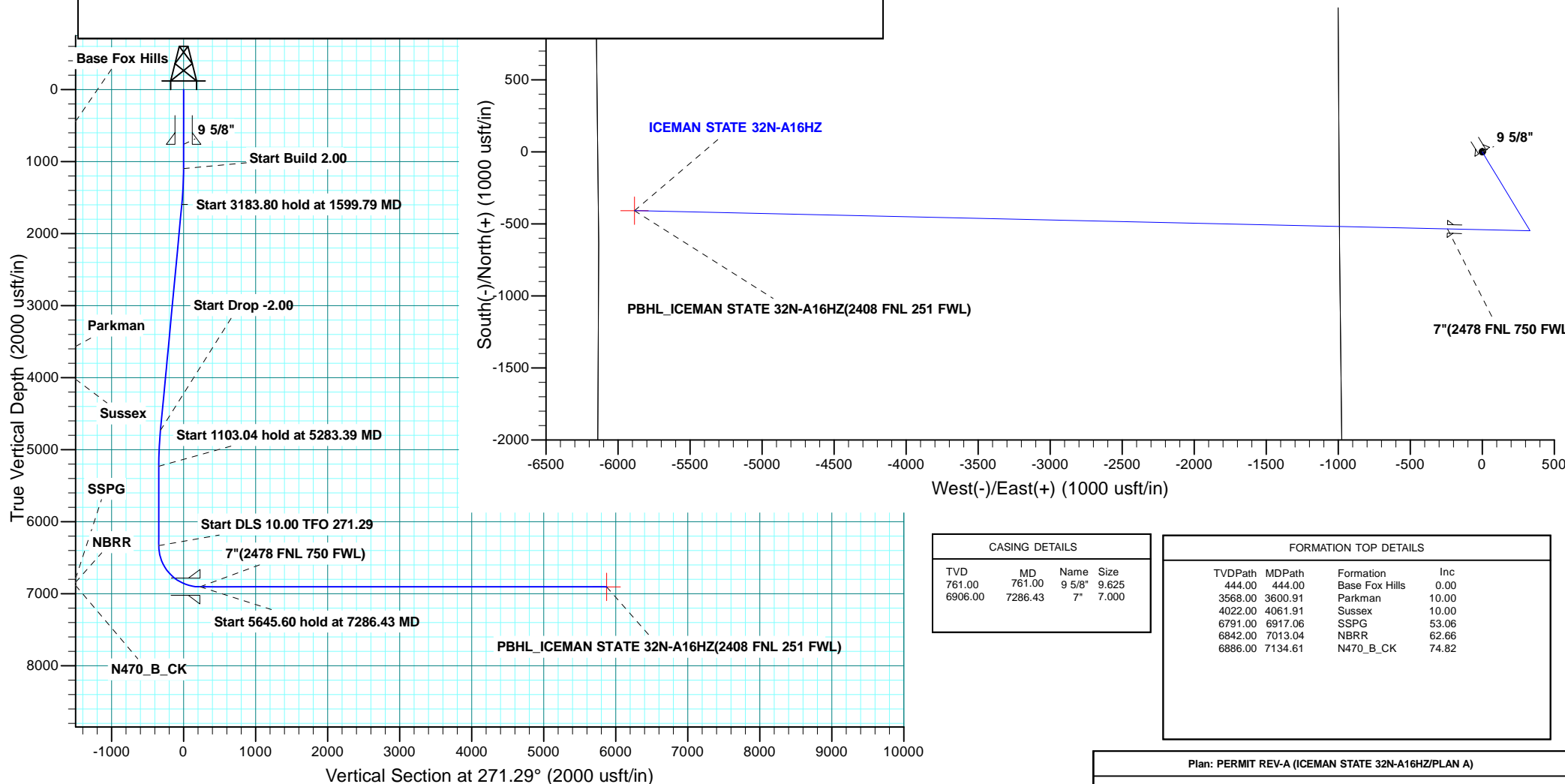


SHL: ICEMAN STATE 32N-A16HZ							
GL 4797 & KB 17 @ 4814.00usft (ASSUMED)							
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
	0.00	0.00	14609626.75	1673169.34	40.227577	-104.882657	
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 6906.00	-407.00	-5885.48	14609211.97	1667284.40	40.226457	-104.903743	Point
- 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
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00
1599.79	10.00	148.78	1597.26	-37.19	22.54	2.00	148.78
4783.60	10.00	148.78	4732.74	-509.81	308.96	0.00	0.00
5283.39	0.00	0.00	5230.00	-547.00	331.50	2.00	180.00
6386.43	0.00	0.00	6333.04	-547.00	331.50	0.00	0.00
7286.43	90.00	271.29	6906.00	-534.10	-241.31	10.00	271.29
12932.03	90.00	271.29	6906.00	-407.00	-5885.48	0.00	0.00



CASING DETAILS			
TVD	MD	Name	Size
761.00	761.00	9 5/8"	9.625
6906.00	7286.43	7"	7.000

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
444.00	444.00	Base Fox Hills	0.00
3568.00	3600.91	Parkman	10.00
4022.00	4061.91	Sussex	10.00
6791.00	6917.06	SSPG	53.06
6842.00	7013.04	NBRR	62.66
6886.00	7134.61	N470_B_CK	74.82



Scientific Drilling

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

ICEMAN PAD

ICEMAN STATE 32N-A16HZ

PLAN A

Plan: PERMIT REV-A

Standard Planning Report

04 December, 2014

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 32N-A16HZ
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 32N-A16HZ	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 32N-A16HZ, 1940' FNL 995' FWL					
Well Position	+N/-S	89.95 usft	Northing:	14,609,626.75 usft	Latitude:	40.227577
	+E/-W	-0.56 usft	Easting:	1,673,169.33 usft	Longitude:	-104.882657
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	271.29

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	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,599.79	10.00	148.78	1,597.26	-37.19	22.54	2.00	2.00	0.00	148.78	
4,783.60	10.00	148.78	4,732.74	-509.81	308.96	0.00	0.00	0.00	0.00	
5,283.39	0.00	0.00	5,230.00	-547.00	331.50	2.00	-2.00	0.00	180.00	
6,386.43	0.00	0.00	6,333.04	-547.00	331.50	0.00	0.00	0.00	0.00	
7,286.43	90.00	271.29	6,906.00	-534.10	-241.31	10.00	10.00	-9.86	271.29	
12,932.03	90.00	271.29	6,906.00	-407.00	-5,885.48	0.00	0.00	0.00	0.00	PBHL_ICEMAN STAT

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 32N-A16HZ
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 32N-A16HZ	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
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,200.00	2.00	148.78	1,199.98	-1.49	0.90	-0.94	2.00	2.00	0.00
1,300.00	4.00	148.78	1,299.84	-5.97	3.62	-3.75	2.00	2.00	0.00
1,400.00	6.00	148.78	1,399.45	-13.42	8.13	-8.43	2.00	2.00	0.00
1,500.00	8.00	148.78	1,498.70	-23.84	14.45	-14.98	2.00	2.00	0.00
1,599.79	10.00	148.78	1,597.26	-37.19	22.54	-23.37	2.00	2.00	0.00
Start 3183.80 hold at 1599.79 MD									
1,600.00	10.00	148.78	1,597.47	-37.22	22.56	-23.39	0.00	0.00	0.00
1,700.00	10.00	148.78	1,695.95	-52.07	31.55	-32.72	0.00	0.00	0.00
1,800.00	10.00	148.78	1,794.43	-66.91	40.55	-42.05	0.00	0.00	0.00
1,900.00	10.00	148.78	1,892.91	-81.75	49.55	-51.37	0.00	0.00	0.00
2,000.00	10.00	148.78	1,991.39	-96.60	58.54	-60.70	0.00	0.00	0.00
2,100.00	10.00	148.78	2,089.88	-111.44	67.54	-70.03	0.00	0.00	0.00
2,200.00	10.00	148.78	2,188.36	-126.29	76.53	-79.36	0.00	0.00	0.00
2,300.00	10.00	148.78	2,286.84	-141.13	85.53	-88.69	0.00	0.00	0.00
2,400.00	10.00	148.78	2,385.32	-155.98	94.53	-98.01	0.00	0.00	0.00
2,500.00	10.00	148.78	2,483.80	-170.82	103.52	-107.34	0.00	0.00	0.00
2,600.00	10.00	148.78	2,582.29	-185.67	112.52	-116.67	0.00	0.00	0.00
2,700.00	10.00	148.78	2,680.77	-200.51	121.52	-126.00	0.00	0.00	0.00
2,800.00	10.00	148.78	2,779.25	-215.35	130.51	-135.33	0.00	0.00	0.00
2,900.00	10.00	148.78	2,877.73	-230.20	139.51	-144.66	0.00	0.00	0.00
3,000.00	10.00	148.78	2,976.21	-245.04	148.50	-153.98	0.00	0.00	0.00
3,100.00	10.00	148.78	3,074.70	-259.89	157.50	-163.31	0.00	0.00	0.00
3,200.00	10.00	148.78	3,173.18	-274.73	166.50	-172.64	0.00	0.00	0.00
3,300.00	10.00	148.78	3,271.66	-289.58	175.49	-181.97	0.00	0.00	0.00
3,400.00	10.00	148.78	3,370.14	-304.42	184.49	-191.30	0.00	0.00	0.00
3,500.00	10.00	148.78	3,468.62	-319.27	193.49	-200.62	0.00	0.00	0.00
3,600.00	10.00	148.78	3,567.11	-334.11	202.48	-209.95	0.00	0.00	0.00
3,600.91	10.00	148.78	3,568.00	-334.25	202.56	-210.04	0.00	0.00	0.00
Parkman									
3,700.00	10.00	148.78	3,665.59	-348.96	211.48	-219.28	0.00	0.00	0.00
3,800.00	10.00	148.78	3,764.07	-363.80	220.47	-228.61	0.00	0.00	0.00
3,900.00	10.00	148.78	3,862.55	-378.64	229.47	-237.94	0.00	0.00	0.00
4,000.00	10.00	148.78	3,961.03	-393.49	238.47	-247.27	0.00	0.00	0.00
4,061.91	10.00	148.78	4,022.00	-402.68	244.04	-253.04	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 32N-A16HZ
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 32N-A16HZ	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)
Sussex									
4,100.00	10.00	148.78	4,059.52	-408.33	247.46	-256.59	0.00	0.00	0.00
4,200.00	10.00	148.78	4,158.00	-423.18	256.46	-265.92	0.00	0.00	0.00
4,300.00	10.00	148.78	4,256.48	-438.02	265.46	-275.25	0.00	0.00	0.00
4,400.00	10.00	148.78	4,354.96	-452.87	274.45	-284.58	0.00	0.00	0.00
4,500.00	10.00	148.78	4,453.44	-467.71	283.45	-293.91	0.00	0.00	0.00
4,600.00	10.00	148.78	4,551.93	-482.56	292.44	-303.23	0.00	0.00	0.00
4,700.00	10.00	148.78	4,650.41	-497.40	301.44	-312.56	0.00	0.00	0.00
4,783.60	10.00	148.78	4,732.74	-509.81	308.96	-320.36	0.00	0.00	0.00
Start Drop -2.00									
4,800.00	9.67	148.78	4,748.90	-512.20	310.41	-321.87	2.00	-2.00	0.00
4,900.00	7.67	148.78	4,847.75	-525.09	318.22	-329.96	2.00	-2.00	0.00
5,000.00	5.67	148.78	4,947.07	-535.02	324.24	-336.20	2.00	-2.00	0.00
5,100.00	3.67	148.78	5,046.73	-541.98	328.46	-340.58	2.00	-2.00	0.00
5,200.00	1.67	148.78	5,146.62	-545.96	330.87	-343.08	2.00	-2.00	0.00
5,283.39	0.00	0.00	5,230.00	-547.00	331.50	-343.73	2.00	-2.00	0.00
Start 1103.04 hold at 5283.39 MD									
5,300.00	0.00	0.00	5,246.61	-547.00	331.50	-343.73	0.00	0.00	0.00
5,400.00	0.00	0.00	5,346.61	-547.00	331.50	-343.73	0.00	0.00	0.00
5,500.00	0.00	0.00	5,446.61	-547.00	331.50	-343.73	0.00	0.00	0.00
5,600.00	0.00	0.00	5,546.61	-547.00	331.50	-343.73	0.00	0.00	0.00
5,700.00	0.00	0.00	5,646.61	-547.00	331.50	-343.73	0.00	0.00	0.00
5,800.00	0.00	0.00	5,746.61	-547.00	331.50	-343.73	0.00	0.00	0.00
5,900.00	0.00	0.00	5,846.61	-547.00	331.50	-343.73	0.00	0.00	0.00
6,000.00	0.00	0.00	5,946.61	-547.00	331.50	-343.73	0.00	0.00	0.00
6,100.00	0.00	0.00	6,046.61	-547.00	331.50	-343.73	0.00	0.00	0.00
6,200.00	0.00	0.00	6,146.61	-547.00	331.50	-343.73	0.00	0.00	0.00
6,300.00	0.00	0.00	6,246.61	-547.00	331.50	-343.73	0.00	0.00	0.00
6,386.43	0.00	0.00	6,333.04	-547.00	331.50	-343.73	0.00	0.00	0.00
Start DLS 10.00 TFO 271.29									
6,400.00	1.36	271.29	6,346.61	-547.00	331.34	-343.57	10.00	10.00	0.00
6,500.00	11.36	271.29	6,445.87	-546.75	320.28	-332.51	10.00	10.00	0.00
6,600.00	21.36	271.29	6,541.70	-546.11	292.17	-304.39	10.00	10.00	0.00
6,700.00	31.36	271.29	6,631.19	-545.12	247.84	-260.05	10.00	10.00	0.00
6,800.00	41.36	271.29	6,711.62	-543.78	188.65	-200.84	10.00	10.00	0.00
6,900.00	51.36	271.29	6,780.55	-542.16	116.39	-128.57	10.00	10.00	0.00
6,917.06	53.06	271.29	6,791.00	-541.85	102.92	-115.09	10.00	10.00	0.00
SSPG									
7,000.00	61.36	271.29	6,835.88	-540.28	33.27	-45.42	10.00	10.00	0.00
7,013.04	62.66	271.29	6,842.00	-540.02	21.76	-33.91	10.00	10.00	0.00
NBRR									
7,100.00	71.36	271.29	6,875.93	-538.22	-58.20	46.07	10.00	10.00	0.00
7,134.61	74.82	271.29	6,886.00	-537.48	-91.30	79.17	10.00	10.00	0.00
N470_B_CK									
7,200.00	81.36	271.29	6,899.49	-536.04	-155.23	143.12	10.00	10.00	0.00
7,286.43	90.00	271.29	6,906.00	-534.10	-241.31	229.22	10.00	10.00	0.00
Start 5645.60 hold at 7286.43 MD - 7" (2478 FNL 750 FWL)									
7,300.00	90.00	271.29	6,906.00	-533.80	-254.88	242.79	0.00	0.00	0.00
7,400.00	90.00	271.29	6,906.00	-531.54	-354.85	342.79	0.00	0.00	0.00
7,500.00	90.00	271.29	6,906.00	-529.29	-454.83	442.79	0.00	0.00	0.00
7,600.00	90.00	271.29	6,906.00	-527.04	-554.80	542.79	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 32N-A16HZ
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 32N-A16HZ	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)
7,700.00	90.00	271.29	6,906.00	-524.79	-654.78	642.79	0.00	0.00	0.00
7,800.00	90.00	271.29	6,906.00	-522.54	-754.75	742.79	0.00	0.00	0.00
7,900.00	90.00	271.29	6,906.00	-520.29	-854.72	842.79	0.00	0.00	0.00
8,000.00	90.00	271.29	6,906.00	-518.04	-954.70	942.79	0.00	0.00	0.00
8,100.00	90.00	271.29	6,906.00	-515.78	-1,054.67	1,042.79	0.00	0.00	0.00
8,200.00	90.00	271.29	6,906.00	-513.53	-1,154.65	1,142.79	0.00	0.00	0.00
8,300.00	90.00	271.29	6,906.00	-511.28	-1,254.62	1,242.79	0.00	0.00	0.00
8,400.00	90.00	271.29	6,906.00	-509.03	-1,354.60	1,342.79	0.00	0.00	0.00
8,500.00	90.00	271.29	6,906.00	-506.78	-1,454.57	1,442.79	0.00	0.00	0.00
8,600.00	90.00	271.29	6,906.00	-504.53	-1,554.55	1,542.79	0.00	0.00	0.00
8,700.00	90.00	271.29	6,906.00	-502.28	-1,654.52	1,642.79	0.00	0.00	0.00
8,800.00	90.00	271.29	6,906.00	-500.03	-1,754.50	1,742.79	0.00	0.00	0.00
8,900.00	90.00	271.29	6,906.00	-497.77	-1,854.47	1,842.79	0.00	0.00	0.00
9,000.00	90.00	271.29	6,906.00	-495.52	-1,954.45	1,942.79	0.00	0.00	0.00
9,100.00	90.00	271.29	6,906.00	-493.27	-2,054.42	2,042.79	0.00	0.00	0.00
9,200.00	90.00	271.29	6,906.00	-491.02	-2,154.40	2,142.79	0.00	0.00	0.00
9,300.00	90.00	271.29	6,906.00	-488.77	-2,254.37	2,242.79	0.00	0.00	0.00
9,400.00	90.00	271.29	6,906.00	-486.52	-2,354.34	2,342.79	0.00	0.00	0.00
9,500.00	90.00	271.29	6,906.00	-484.27	-2,454.32	2,442.79	0.00	0.00	0.00
9,600.00	90.00	271.29	6,906.00	-482.01	-2,554.29	2,542.79	0.00	0.00	0.00
9,700.00	90.00	271.29	6,906.00	-479.76	-2,654.27	2,642.79	0.00	0.00	0.00
9,800.00	90.00	271.29	6,906.00	-477.51	-2,754.24	2,742.79	0.00	0.00	0.00
9,900.00	90.00	271.29	6,906.00	-475.26	-2,854.22	2,842.79	0.00	0.00	0.00
10,000.00	90.00	271.29	6,906.00	-473.01	-2,954.19	2,942.79	0.00	0.00	0.00
10,100.00	90.00	271.29	6,906.00	-470.76	-3,054.17	3,042.79	0.00	0.00	0.00
10,200.00	90.00	271.29	6,906.00	-468.51	-3,154.14	3,142.79	0.00	0.00	0.00
10,300.00	90.00	271.29	6,906.00	-466.26	-3,254.12	3,242.79	0.00	0.00	0.00
10,400.00	90.00	271.29	6,906.00	-464.00	-3,354.09	3,342.79	0.00	0.00	0.00
10,500.00	90.00	271.29	6,906.00	-461.75	-3,454.07	3,442.79	0.00	0.00	0.00
10,600.00	90.00	271.29	6,906.00	-459.50	-3,554.04	3,542.79	0.00	0.00	0.00
10,700.00	90.00	271.29	6,906.00	-457.25	-3,654.02	3,642.79	0.00	0.00	0.00
10,800.00	90.00	271.29	6,906.00	-455.00	-3,753.99	3,742.79	0.00	0.00	0.00
10,900.00	90.00	271.29	6,906.00	-452.75	-3,853.96	3,842.79	0.00	0.00	0.00
11,000.00	90.00	271.29	6,906.00	-450.50	-3,953.94	3,942.79	0.00	0.00	0.00
11,100.00	90.00	271.29	6,906.00	-448.25	-4,053.91	4,042.79	0.00	0.00	0.00
11,200.00	90.00	271.29	6,906.00	-445.99	-4,153.89	4,142.79	0.00	0.00	0.00
11,300.00	90.00	271.29	6,906.00	-443.74	-4,253.86	4,242.79	0.00	0.00	0.00
11,400.00	90.00	271.29	6,906.00	-441.49	-4,353.84	4,342.79	0.00	0.00	0.00
11,500.00	90.00	271.29	6,906.00	-439.24	-4,453.81	4,442.79	0.00	0.00	0.00
11,600.00	90.00	271.29	6,906.00	-436.99	-4,553.79	4,542.79	0.00	0.00	0.00
11,700.00	90.00	271.29	6,906.00	-434.74	-4,653.76	4,642.79	0.00	0.00	0.00
11,800.00	90.00	271.29	6,906.00	-432.49	-4,753.74	4,742.79	0.00	0.00	0.00
11,900.00	90.00	271.29	6,906.00	-430.23	-4,853.71	4,842.79	0.00	0.00	0.00
12,000.00	90.00	271.29	6,906.00	-427.98	-4,953.69	4,942.79	0.00	0.00	0.00
12,100.00	90.00	271.29	6,906.00	-425.73	-5,053.66	5,042.79	0.00	0.00	0.00
12,200.00	90.00	271.29	6,906.00	-423.48	-5,153.63	5,142.79	0.00	0.00	0.00
12,300.00	90.00	271.29	6,906.00	-421.23	-5,253.61	5,242.79	0.00	0.00	0.00
12,400.00	90.00	271.29	6,906.00	-418.98	-5,353.58	5,342.79	0.00	0.00	0.00
12,500.00	90.00	271.29	6,906.00	-416.73	-5,453.56	5,442.79	0.00	0.00	0.00
12,600.00	90.00	271.29	6,906.00	-414.48	-5,553.53	5,542.79	0.00	0.00	0.00
12,700.00	90.00	271.29	6,906.00	-412.22	-5,653.51	5,642.79	0.00	0.00	0.00
12,800.00	90.00	271.29	6,906.00	-409.97	-5,753.48	5,742.79	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well ICEMAN STATE 32N-A16HZ
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 32N-A16HZ	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)
12,900.00	90.00	271.29	6,906.00	-407.72	-5,853.46	5,842.79	0.00	0.00	0.00
12,932.03	90.00	271.29	6,906.00	-407.00	-5,885.48	5,874.83	0.00	0.00	0.00
TD at 12932.03 - PBHL_ICEMAN STATE 32N-A16HZ(2406 FNL 254 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 STATE :	0.00	0.00	6,906.00	-407.00	-5,885.48	14,609,211.96	1,667,284.40	40.226458	-104.903743
- plan hits target center									
- Point									

Casing Points						Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name					
761.00	761.00	9 5/8"				9.625	13.500
7,286.43	6,906.00	7" (2478 FNL 750 FWL)				7.000	8.750

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
444.00	444.00	Base Fox Hills				
3,600.91	3,568.00	Parkman				
4,061.91	4,022.00	Sussex				
6,917.06	6,791.00	SSPG				
7,013.04	6,842.00	NBRR				
7,134.61	6,886.00	N470_B_CK				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00
1,599.79	1,597.26	-37.19	22.54	Start 3183.80 hold at 1599.79 MD
4,783.60	4,732.74	-509.81	308.96	Start Drop -2.00
5,283.39	5,230.00	-547.00	331.50	Start 1103.04 hold at 5283.39 MD
6,386.43	6,333.04	-547.00	331.50	Start DLS 10.00 TFO 271.29
7,286.43	6,906.00	-534.10	-241.31	Start 5645.60 hold at 7286.43 MD
12,932.03	6,906.00	-407.00	-5,885.48	TD at 12932.03