

US ROCKIES WATTENBERG PLANNING

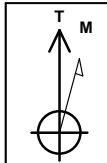
**WELD-NAD83-UTMFT13N
3N-65W-33 CANNON 1-33HZ
CANNON 27C-9HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

16 November, 2016



Azimuths to True North
Magnetic North: 8.07°

Magnetic Field
Strength: 52465.8snT
Dip Angle: 66.71°
Date: 10/26/2016
Model: IGRF2010

SITE: 3N-65W-33 CANNON 1-33HZ

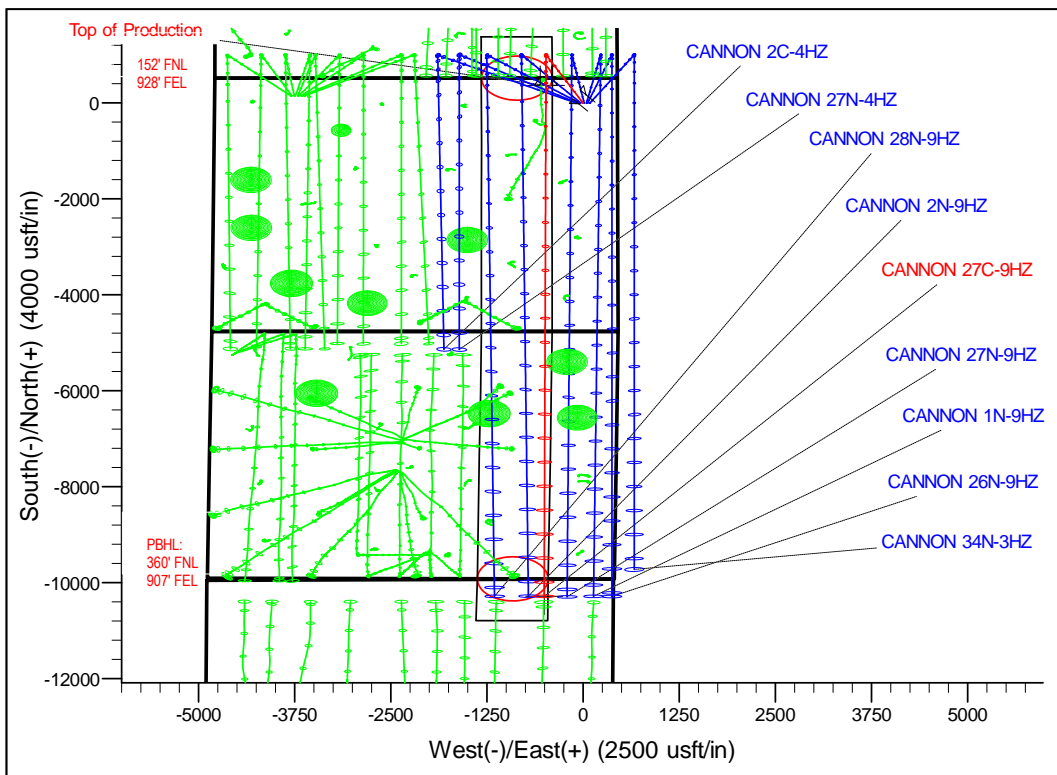
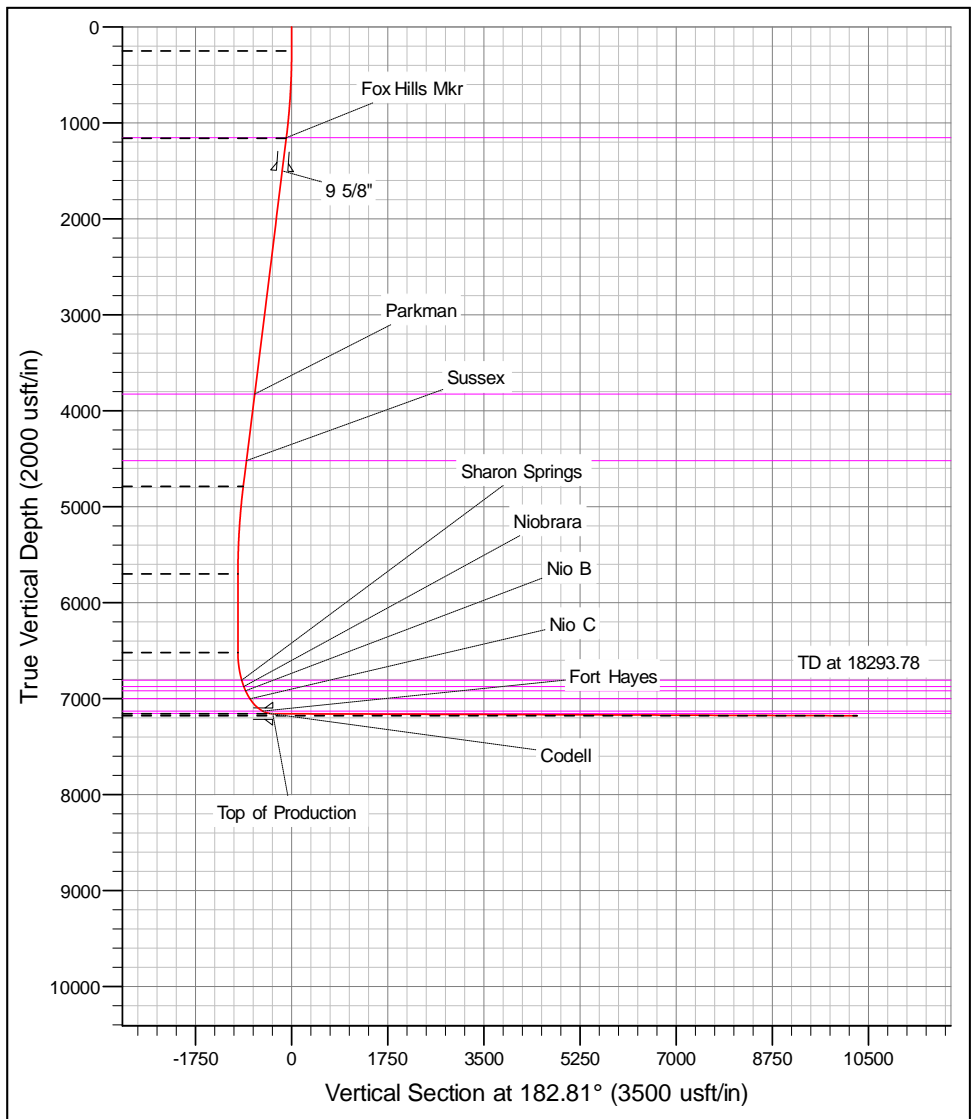
Well: CANNON 27C-9HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1155.00	1163.69	Fox Hills Mkr
3827.00	3915.01	Parkman
4520.00	4628.59	Sussex
6809.00	6945.18	Sharon Springs
6876.00	7022.83	Niobrara
6919.00	7076.12	Nio B
7003.00	7192.74	Nio C
7131.00	7459.38	Fort Hayes
7155.00	7580.03	Codell

WELL DETAILS: CANNON 27C-9HZ						
+N/-S	+E/-W	GL: 4835.00	RKB @ 4852.00usft (D Rig)			
		Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	14595279.28	1735155.24	40.187740	-104.660779	

SECTION DETAILS							
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00
1169.47	13.79	334.40	1160.61	99.32	-47.58	1.50	-96.87
4905.97	13.79	334.40	4789.39	902.68	-432.42	0.00	-880.38
5825.44	0.00	0.00	5700.00	1002.00	-480.00	1.50	-977.24
6647.38	0.00	0.00	6521.94	1002.00	-480.00	0.00	-977.24
7646.16	89.89	180.13	7158.56	366.60	-481.41	9.00	-342.54
18293.78	89.89	180.13	7179.00	-10280.97	-505.00	0.00	0293.37

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
CANNON 27C-9HZ_PBHL	7179.00	-10280.97	-505.00	14584996.46	1734689.53	40.159508	-104.662586



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CANNON 27C-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4852.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4852.00usft (D Rig)
Site:	3N-65W-33 CANNON 1-33HZ	North Reference:	True
Well:	CANNON 27C-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	3N-65W-33 CANNON 1-33HZ		
Site Position:		Northing:	14,595,280.03 usft
From:	Lat/Long	Easting:	1,735,065.31 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	40.187743
		Longitude:	-104.661101
		Grid Convergence:	0.22 °

Well	CANNON 27C-9HZ					
Well Position	+N-S	-1.09 usft	Northing:	14,595,279.28 usft	Latitude:	40.187740
	+E-W	89.93 usft	Easting:	1,735,155.24 usft	Longitude:	-104.660779
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,835.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/26/2016	8.07	66.71	52,465.81233834

Design	Permit Rev-1			
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	182.81

Plan Survey Tool Program	Date	11/16/2016			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,293.78	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:Rockies, crustal dex	

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,169.47	13.79	334.40	1,160.61	99.32	-47.58	1.50	1.50	0.00	334.40	
4,905.97	13.79	334.40	4,789.39	902.68	-432.42	0.00	0.00	0.00	0.00	
5,825.44	0.00	0.00	5,700.00	1,002.00	-480.00	1.50	-1.50	0.00	180.00	
6,647.38	0.00	0.00	6,521.94	1,002.00	-480.00	0.00	0.00	0.00	0.00	
7,646.16	89.89	180.13	7,158.56	366.60	-481.41	9.00	9.00	0.00	180.13	
18,293.78	89.89	180.13	7,179.00	-10,280.97	-505.00	0.00	0.00	0.00	0.00	CANNON 27C-9HZ

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CANNON 27C-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4852.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4852.00usft (D Rig)
Site:	3N-65W-33 CANNON 1-33HZ	North Reference:	True
Well:	CANNON 27C-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.75	334.40	300.00	0.30	-0.14	-0.29	1.50	1.50	0.00
400.00	2.25	334.40	399.96	2.66	-1.27	-2.59	1.50	1.50	0.00
500.00	3.75	334.40	499.82	7.38	-3.53	-7.19	1.50	1.50	0.00
600.00	5.25	334.40	599.51	14.45	-6.92	-14.09	1.50	1.50	0.00
700.00	6.75	334.40	698.96	23.88	-11.44	-23.29	1.50	1.50	0.00
800.00	8.25	334.40	798.10	35.65	-17.08	-34.77	1.50	1.50	0.00
900.00	9.75	334.40	896.87	49.76	-23.84	-48.53	1.50	1.50	0.00
1,000.00	11.25	334.40	995.19	66.19	-31.71	-64.56	1.50	1.50	0.00
1,100.00	12.75	334.40	1,093.00	84.94	-40.69	-82.84	1.50	1.50	0.00
1,163.69	13.71	334.40	1,155.00	98.08	-46.99	-95.66	1.50	1.50	0.00
Fox Hills Mkr									
1,169.47	13.79	334.40	1,160.61	99.32	-47.58	-96.87	1.50	1.50	0.00
1,200.00	13.79	334.40	1,190.27	105.89	-50.72	-103.27	0.00	0.00	0.00
1,300.00	13.79	334.40	1,287.38	127.39	-61.02	-124.24	0.00	0.00	0.00
1,400.00	13.79	334.40	1,384.50	148.89	-71.32	-145.21	0.00	0.00	0.00
1,500.00	13.79	334.40	1,481.62	170.39	-81.62	-166.18	0.00	0.00	0.00
1,518.93	13.79	334.40	1,500.00	174.46	-83.57	-170.15	0.00	0.00	0.00
9 5/8"									
1,600.00	13.79	334.40	1,578.73	191.89	-91.92	-187.15	0.00	0.00	0.00
1,700.00	13.79	334.40	1,675.85	213.39	-102.22	-208.12	0.00	0.00	0.00
1,800.00	13.79	334.40	1,772.97	234.89	-112.52	-229.09	0.00	0.00	0.00
1,900.00	13.79	334.40	1,870.08	256.39	-122.82	-250.05	0.00	0.00	0.00
2,000.00	13.79	334.40	1,967.20	277.89	-133.12	-271.02	0.00	0.00	0.00
2,100.00	13.79	334.40	2,064.32	299.39	-143.42	-291.99	0.00	0.00	0.00
2,200.00	13.79	334.40	2,161.43	320.89	-153.72	-312.96	0.00	0.00	0.00
2,300.00	13.79	334.40	2,258.55	342.39	-164.02	-333.93	0.00	0.00	0.00
2,400.00	13.79	334.40	2,355.67	363.89	-174.32	-354.90	0.00	0.00	0.00
2,500.00	13.79	334.40	2,452.78	385.39	-184.62	-375.87	0.00	0.00	0.00
2,600.00	13.79	334.40	2,549.90	406.89	-194.92	-396.84	0.00	0.00	0.00
2,700.00	13.79	334.40	2,647.02	428.39	-205.22	-417.81	0.00	0.00	0.00
2,800.00	13.79	334.40	2,744.13	449.89	-215.52	-438.77	0.00	0.00	0.00
2,900.00	13.79	334.40	2,841.25	471.39	-225.82	-459.74	0.00	0.00	0.00
3,000.00	13.79	334.40	2,938.37	492.89	-236.12	-480.71	0.00	0.00	0.00
3,100.00	13.79	334.40	3,035.48	514.39	-246.41	-501.68	0.00	0.00	0.00
3,200.00	13.79	334.40	3,132.60	535.89	-256.71	-522.65	0.00	0.00	0.00
3,300.00	13.79	334.40	3,229.72	557.39	-267.01	-543.62	0.00	0.00	0.00
3,400.00	13.79	334.40	3,326.83	578.89	-277.31	-564.59	0.00	0.00	0.00
3,500.00	13.79	334.40	3,423.95	600.39	-287.61	-585.56	0.00	0.00	0.00
3,600.00	13.79	334.40	3,521.07	621.89	-297.91	-606.53	0.00	0.00	0.00
3,700.00	13.79	334.40	3,618.18	643.39	-308.21	-627.50	0.00	0.00	0.00
3,800.00	13.79	334.40	3,715.30	664.89	-318.51	-648.46	0.00	0.00	0.00
3,900.00	13.79	334.40	3,812.42	686.39	-328.81	-669.43	0.00	0.00	0.00
3,915.01	13.79	334.40	3,827.00	689.62	-330.36	-672.58	0.00	0.00	0.00
Parkman									
4,000.00	13.79	334.40	3,909.54	707.89	-339.11	-690.40	0.00	0.00	0.00
4,100.00	13.79	334.40	4,006.65	729.39	-349.41	-711.37	0.00	0.00	0.00
4,200.00	13.79	334.40	4,103.77	750.89	-359.71	-732.34	0.00	0.00	0.00
4,300.00	13.79	334.40	4,200.89	772.39	-370.01	-753.31	0.00	0.00	0.00
4,400.00	13.79	334.40	4,298.00	793.89	-380.31	-774.28	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CANNON 27C-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4852.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4852.00usft (D Rig)
Site:	3N-65W-33 CANNON 1-33HZ	North Reference:	True
Well:	CANNON 27C-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)	
4,500.00	13.79	334.40	4,395.12	815.39	-390.61	-795.25	0.00	0.00	0.00	
4,600.00	13.79	334.40	4,492.24	836.89	-400.91	-816.22	0.00	0.00	0.00	
4,628.59	13.79	334.40	4,520.00	843.04	-403.85	-822.21	0.00	0.00	0.00	
Sussex										
4,700.00	13.79	334.40	4,589.35	858.39	-411.21	-837.18	0.00	0.00	0.00	
4,800.00	13.79	334.40	4,686.47	879.89	-421.51	-858.15	0.00	0.00	0.00	
4,900.00	13.79	334.40	4,783.59	901.39	-431.80	-879.12	0.00	0.00	0.00	
4,905.97	13.79	334.40	4,789.39	902.68	-432.42	-880.38	0.00	0.00	0.00	
5,000.00	12.38	334.40	4,880.97	921.88	-441.62	-899.10	1.50	-1.50	0.00	
5,100.00	10.88	334.40	4,978.91	940.06	-450.33	-916.83	1.50	-1.50	0.00	
5,200.00	9.38	334.40	5,077.35	955.92	-457.93	-932.31	1.50	-1.50	0.00	
5,300.00	7.88	334.40	5,176.22	969.46	-464.41	-945.51	1.50	-1.50	0.00	
5,400.00	6.38	334.40	5,275.44	980.65	-469.77	-956.43	1.50	-1.50	0.00	
5,500.00	4.88	334.40	5,374.95	989.50	-474.01	-965.06	1.50	-1.50	0.00	
5,600.00	3.38	334.40	5,474.69	996.00	-477.13	-971.39	1.50	-1.50	0.00	
5,700.00	1.88	334.40	5,574.58	1,000.14	-479.11	-975.43	1.50	-1.50	0.00	
5,800.00	0.38	334.40	5,674.56	1,001.92	-479.96	-977.17	1.50	-1.50	0.00	
5,825.44	0.00	0.00	5,700.00	1,002.00	-480.00	-977.24	1.50	-1.50	0.00	
5,900.00	0.00	0.00	5,774.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,874.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,974.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,074.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,174.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,274.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,374.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,474.56	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,647.38	0.00	0.00	6,521.94	1,002.00	-480.00	-977.24	0.00	0.00	0.00	
6,700.00	4.74	180.13	6,574.50	999.83	-480.00	-975.07	9.00	9.00	0.00	
6,800.00	13.74	180.13	6,673.10	983.79	-480.04	-959.06	9.00	9.00	0.00	
6,900.00	22.74	180.13	6,767.98	952.53	-480.11	-927.83	9.00	9.00	0.00	
6,945.18	26.80	180.13	6,809.00	933.61	-480.15	-908.93	9.00	9.00	0.00	
Sharon Springs										
7,000.00	31.74	180.13	6,856.80	906.81	-480.21	-882.16	9.00	9.00	0.00	
7,022.83	33.79	180.13	6,876.00	894.46	-480.24	-869.82	9.00	9.00	0.00	
Niobrara										
7,076.12	38.59	180.13	6,919.00	863.00	-480.31	-838.40	9.00	9.00	0.00	
Nio B										
7,100.00	40.74	180.13	6,937.38	847.76	-480.34	-823.18	9.00	9.00	0.00	
7,192.74	49.08	180.13	7,003.00	782.35	-480.49	-757.84	9.00	9.00	0.00	
Nio C										
7,200.00	49.74	180.13	7,007.73	776.84	-480.50	-752.33	9.00	9.00	0.00	
7,300.00	58.74	180.13	7,066.11	695.78	-480.68	-671.36	9.00	9.00	0.00	
7,400.00	67.74	180.13	7,111.10	606.58	-480.88	-582.26	9.00	9.00	0.00	
7,459.38	73.08	180.13	7,131.00	550.66	-481.00	-526.40	9.00	9.00	0.00	
Fort Hayes										
7,500.00	76.74	180.13	7,141.58	511.45	-481.09	-487.23	9.00	9.00	0.00	
7,580.03	83.94	180.13	7,155.00	432.61	-481.26	-408.47	9.00	9.00	0.00	
Codell										
7,600.00	85.74	180.13	7,156.80	412.72	-481.31	-388.61	9.00	9.00	0.00	
7,646.16	89.89	180.13	7,158.56	366.60	-481.41	-342.54	9.00	9.00	0.00	
Top of Production - CANNON 27C-9HZ_PHL										
7,700.00	89.89	180.13	7,158.66	312.76	-481.53	-288.76	0.00	0.00	0.00	
7,800.00	89.89	180.13	7,158.85	212.76	-481.75	-188.87	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CANNON 27C-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4852.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4852.00usft (D Rig)
Site:	3N-65W-33 CANNON 1-33HZ	North Reference:	True
Well:	CANNON 27C-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)	
7,900.00	89.89	180.13	7,159.05	112.76	-481.97	-88.98	0.00	0.00	0.00	
8,000.00	89.89	180.13	7,159.24	12.76	-482.19	10.91	0.00	0.00	0.00	
8,100.00	89.89	180.13	7,159.43	-87.24	-482.41	110.80	0.00	0.00	0.00	
8,200.00	89.89	180.13	7,159.62	-187.24	-482.64	210.69	0.00	0.00	0.00	
8,300.00	89.89	180.13	7,159.81	-287.24	-482.86	310.58	0.00	0.00	0.00	
8,400.00	89.89	180.13	7,160.01	-387.24	-483.08	410.47	0.00	0.00	0.00	
8,500.00	89.89	180.13	7,160.20	-487.24	-483.30	510.36	0.00	0.00	0.00	
8,600.00	89.89	180.13	7,160.39	-587.23	-483.52	610.25	0.00	0.00	0.00	
8,700.00	89.89	180.13	7,160.58	-687.23	-483.74	710.14	0.00	0.00	0.00	
8,800.00	89.89	180.13	7,160.77	-787.23	-483.96	810.03	0.00	0.00	0.00	
8,900.00	89.89	180.13	7,160.97	-887.23	-484.19	909.92	0.00	0.00	0.00	
9,000.00	89.89	180.13	7,161.16	-987.23	-484.41	1,009.81	0.00	0.00	0.00	
9,100.00	89.89	180.13	7,161.35	-1,087.23	-484.63	1,109.70	0.00	0.00	0.00	
9,200.00	89.89	180.13	7,161.54	-1,187.23	-484.85	1,209.59	0.00	0.00	0.00	
9,300.00	89.89	180.13	7,161.73	-1,287.23	-485.07	1,309.48	0.00	0.00	0.00	
9,400.00	89.89	180.13	7,161.93	-1,387.23	-485.29	1,409.37	0.00	0.00	0.00	
9,500.00	89.89	180.13	7,162.12	-1,487.23	-485.52	1,509.26	0.00	0.00	0.00	
9,600.00	89.89	180.13	7,162.31	-1,587.23	-485.74	1,609.15	0.00	0.00	0.00	
9,700.00	89.89	180.13	7,162.50	-1,687.23	-485.96	1,709.04	0.00	0.00	0.00	
9,800.00	89.89	180.13	7,162.69	-1,787.23	-486.18	1,808.93	0.00	0.00	0.00	
9,900.00	89.89	180.13	7,162.89	-1,887.23	-486.40	1,908.82	0.00	0.00	0.00	
10,000.00	89.89	180.13	7,163.08	-1,987.23	-486.62	2,008.71	0.00	0.00	0.00	
10,100.00	89.89	180.13	7,163.27	-2,087.23	-486.84	2,108.60	0.00	0.00	0.00	
10,200.00	89.89	180.13	7,163.46	-2,187.23	-487.07	2,208.49	0.00	0.00	0.00	
10,300.00	89.89	180.13	7,163.65	-2,287.23	-487.29	2,308.38	0.00	0.00	0.00	
10,400.00	89.89	180.13	7,163.85	-2,387.23	-487.51	2,408.27	0.00	0.00	0.00	
10,500.00	89.89	180.13	7,164.04	-2,487.23	-487.73	2,508.16	0.00	0.00	0.00	
10,600.00	89.89	180.13	7,164.23	-2,587.23	-487.95	2,608.05	0.00	0.00	0.00	
10,700.00	89.89	180.13	7,164.42	-2,687.23	-488.17	2,707.94	0.00	0.00	0.00	
10,800.00	89.89	180.13	7,164.61	-2,787.23	-488.40	2,807.83	0.00	0.00	0.00	
10,900.00	89.89	180.13	7,164.81	-2,887.22	-488.62	2,907.72	0.00	0.00	0.00	
11,000.00	89.89	180.13	7,165.00	-2,987.22	-488.84	3,007.61	0.00	0.00	0.00	
11,100.00	89.89	180.13	7,165.19	-3,087.22	-489.06	3,107.50	0.00	0.00	0.00	
11,200.00	89.89	180.13	7,165.38	-3,187.22	-489.28	3,207.39	0.00	0.00	0.00	
11,300.00	89.89	180.13	7,165.57	-3,287.22	-489.50	3,307.28	0.00	0.00	0.00	
11,400.00	89.89	180.13	7,165.77	-3,387.22	-489.73	3,407.17	0.00	0.00	0.00	
11,500.00	89.89	180.13	7,165.96	-3,487.22	-489.95	3,507.06	0.00	0.00	0.00	
11,600.00	89.89	180.13	7,166.15	-3,587.22	-490.17	3,606.95	0.00	0.00	0.00	
11,700.00	89.89	180.13	7,166.34	-3,687.22	-490.39	3,706.84	0.00	0.00	0.00	
11,800.00	89.89	180.13	7,166.53	-3,787.22	-490.61	3,806.73	0.00	0.00	0.00	
11,900.00	89.89	180.13	7,166.72	-3,887.22	-490.83	3,906.62	0.00	0.00	0.00	
12,000.00	89.89	180.13	7,166.92	-3,987.22	-491.05	4,006.51	0.00	0.00	0.00	
12,100.00	89.89	180.13	7,167.11	-4,087.22	-491.28	4,106.40	0.00	0.00	0.00	
12,200.00	89.89	180.13	7,167.30	-4,187.22	-491.50	4,206.29	0.00	0.00	0.00	
12,300.00	89.89	180.13	7,167.49	-4,287.22	-491.72	4,306.18	0.00	0.00	0.00	
12,400.00	89.89	180.13	7,167.68	-4,387.22	-491.94	4,406.07	0.00	0.00	0.00	
12,500.00	89.89	180.13	7,167.88	-4,487.22	-492.16	4,505.96	0.00	0.00	0.00	
12,600.00	89.89	180.13	7,168.07	-4,587.22	-492.38	4,605.85	0.00	0.00	0.00	
12,700.00	89.89	180.13	7,168.26	-4,687.22	-492.61	4,705.74	0.00	0.00	0.00	
12,800.00	89.89	180.13	7,168.45	-4,787.22	-492.83	4,805.63	0.00	0.00	0.00	
12,900.00	89.89	180.13	7,168.64	-4,887.22	-493.05	4,905.52	0.00	0.00	0.00	
13,000.00	89.89	180.13	7,168.84	-4,987.22	-493.27	5,005.41	0.00	0.00	0.00	
13,100.00	89.89	180.13	7,169.03	-5,087.22	-493.49	5,105.30	0.00	0.00	0.00	
13,200.00	89.89	180.13	7,169.22	-5,187.21	-493.71	5,205.19	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CANNON 27C-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4852.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4852.00usft (D Rig)
Site:	3N-65W-33 CANNON 1-33HZ	North Reference:	True
Well:	CANNON 27C-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)	
13,300.00	89.89	180.13	7,169.41	-5,287.21	-493.94	5,305.08	0.00	0.00	0.00	
13,400.00	89.89	180.13	7,169.60	-5,387.21	-494.16	5,404.97	0.00	0.00	0.00	
13,500.00	89.89	180.13	7,169.80	-5,487.21	-494.38	5,504.86	0.00	0.00	0.00	
13,600.00	89.89	180.13	7,169.99	-5,587.21	-494.60	5,604.75	0.00	0.00	0.00	
13,700.00	89.89	180.13	7,170.18	-5,687.21	-494.82	5,704.64	0.00	0.00	0.00	
13,800.00	89.89	180.13	7,170.37	-5,787.21	-495.04	5,804.53	0.00	0.00	0.00	
13,900.00	89.89	180.13	7,170.56	-5,887.21	-495.26	5,904.42	0.00	0.00	0.00	
14,000.00	89.89	180.13	7,170.76	-5,987.21	-495.49	6,004.31	0.00	0.00	0.00	
14,100.00	89.89	180.13	7,170.95	-6,087.21	-495.71	6,104.20	0.00	0.00	0.00	
14,200.00	89.89	180.13	7,171.14	-6,187.21	-495.93	6,204.09	0.00	0.00	0.00	
14,300.00	89.89	180.13	7,171.33	-6,287.21	-496.15	6,303.98	0.00	0.00	0.00	
14,400.00	89.89	180.13	7,171.52	-6,387.21	-496.37	6,403.87	0.00	0.00	0.00	
14,500.00	89.89	180.13	7,171.72	-6,487.21	-496.59	6,503.76	0.00	0.00	0.00	
14,600.00	89.89	180.13	7,171.91	-6,587.21	-496.82	6,603.65	0.00	0.00	0.00	
14,700.00	89.89	180.13	7,172.10	-6,687.21	-497.04	6,703.54	0.00	0.00	0.00	
14,800.00	89.89	180.13	7,172.29	-6,787.21	-497.26	6,803.43	0.00	0.00	0.00	
14,900.00	89.89	180.13	7,172.48	-6,887.21	-497.48	6,903.32	0.00	0.00	0.00	
15,000.00	89.89	180.13	7,172.68	-6,987.21	-497.70	7,003.21	0.00	0.00	0.00	
15,100.00	89.89	180.13	7,172.87	-7,087.21	-497.92	7,103.10	0.00	0.00	0.00	
15,200.00	89.89	180.13	7,173.06	-7,187.21	-498.15	7,202.99	0.00	0.00	0.00	
15,300.00	89.89	180.13	7,173.25	-7,287.21	-498.37	7,302.88	0.00	0.00	0.00	
15,400.00	89.89	180.13	7,173.44	-7,387.21	-498.59	7,402.77	0.00	0.00	0.00	
15,500.00	89.89	180.13	7,173.64	-7,487.21	-498.81	7,502.66	0.00	0.00	0.00	
15,600.00	89.89	180.13	7,173.83	-7,587.20	-499.03	7,602.55	0.00	0.00	0.00	
15,700.00	89.89	180.13	7,174.02	-7,687.20	-499.25	7,702.44	0.00	0.00	0.00	
15,800.00	89.89	180.13	7,174.21	-7,787.20	-499.47	7,802.33	0.00	0.00	0.00	
15,900.00	89.89	180.13	7,174.40	-7,887.20	-499.70	7,902.22	0.00	0.00	0.00	
16,000.00	89.89	180.13	7,174.60	-7,987.20	-499.92	8,002.11	0.00	0.00	0.00	
16,100.00	89.89	180.13	7,174.79	-8,087.20	-500.14	8,102.00	0.00	0.00	0.00	
16,200.00	89.89	180.13	7,174.98	-8,187.20	-500.36	8,201.89	0.00	0.00	0.00	
16,300.00	89.89	180.13	7,175.17	-8,287.20	-500.58	8,301.78	0.00	0.00	0.00	
16,400.00	89.89	180.13	7,175.36	-8,387.20	-500.80	8,401.67	0.00	0.00	0.00	
16,500.00	89.89	180.13	7,175.56	-8,487.20	-501.03	8,501.56	0.00	0.00	0.00	
16,600.00	89.89	180.13	7,175.75	-8,587.20	-501.25	8,601.45	0.00	0.00	0.00	
16,700.00	89.89	180.13	7,175.94	-8,687.20	-501.47	8,701.34	0.00	0.00	0.00	
16,800.00	89.89	180.13	7,176.13	-8,787.20	-501.69	8,801.23	0.00	0.00	0.00	
16,900.00	89.89	180.13	7,176.32	-8,887.20	-501.91	8,901.12	0.00	0.00	0.00	
17,000.00	89.89	180.13	7,176.52	-8,987.20	-502.13	9,001.01	0.00	0.00	0.00	
17,100.00	89.89	180.13	7,176.71	-9,087.20	-502.35	9,100.90	0.00	0.00	0.00	
17,200.00	89.89	180.13	7,176.90	-9,187.20	-502.58	9,200.79	0.00	0.00	0.00	
17,300.00	89.89	180.13	7,177.09	-9,287.20	-502.80	9,300.68	0.00	0.00	0.00	
17,400.00	89.89	180.13	7,177.28	-9,387.20	-503.02	9,400.57	0.00	0.00	0.00	
17,500.00	89.89	180.13	7,177.48	-9,487.20	-503.24	9,500.46	0.00	0.00	0.00	
17,600.00	89.89	180.13	7,177.67	-9,587.20	-503.46	9,600.35	0.00	0.00	0.00	
17,700.00	89.89	180.13	7,177.86	-9,687.20	-503.68	9,700.24	0.00	0.00	0.00	
17,800.00	89.89	180.13	7,178.05	-9,787.20	-503.91	9,800.13	0.00	0.00	0.00	
17,900.00	89.89	180.13	7,178.24	-9,887.19	-504.13	9,900.02	0.00	0.00	0.00	
18,000.00	89.89	180.13	7,178.44	-9,987.19	-504.35	9,999.91	0.00	0.00	0.00	
18,100.00	89.89	180.13	7,178.63	-10,087.19	-504.57	10,099.80	0.00	0.00	0.00	
18,200.00	89.89	180.13	7,178.82	-10,187.19	-504.79	10,199.69	0.00	0.00	0.00	
18,293.78	89.89	180.13	7,179.00	-10,280.97	-505.00	10,293.37	0.00	0.00	0.00	
CANNON 27C-9HZ_PBHL										

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CANNON 27C-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4852.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4852.00usft (D Rig)
Site:	3N-65W-33 CANNON 1-33HZ	North Reference:	True
Well:	CANNON 27C-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
- Shape										
CANNON 27C-9HZ_P - plan hits target center - Point	0.00	0.00	7,158.56	366.60	-481.41	14,595,644.04	1,734,672.44	40.188747	-104.662503	
CANNON 27C-9HZ_P - plan hits target center - Point	0.00	0.00	7,179.00	-10,280.97	-505.00	14,584,996.45	1,734,689.53	40.159508	-104.662587	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,518.93	1,500.00	9 5/8"	9-5/8	13-1/2		
7,646.16	7,158.56	Top of Production	5-1/2	8-1/2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,163.69	1,155.00	Fox Hills Mkr				
3,915.01	3,827.00	Parkman				
4,628.59	4,520.00	Sussex				
6,945.18	6,809.00	Sharon Springs				
7,022.83	6,876.00	Niobrara				
7,076.12	6,919.00	Nio B				
7,192.74	7,003.00	Nio C				
7,459.38	7,131.00	Fort Hayes				
7,580.03	7,155.00	Codell				