

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-68W-03 HAMMER 3-5HZ PAD
HAMMER 3-1HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

07 February, 2017



Azimuths to True North
Magnetic North: 8.20°

Magnetic Field
Strength: 52343.3snT
Dip Angle: 66.56°
Date: 1/31/2017
Model: IGRF2010

SITE: 1N-68W-03 HAMMER 3-5HZ PAD

Well: HAMMER 3-1HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1094.00	1100.84	Fox Hills
4153.00	4188.56	Parkman
4537.00	4572.56	Sussex
7391.00	7468.32	Sharon Springs
7452.00	7556.78	Niobrara
7567.00	7796.21	Nio B

WELL DETAILS: HAMMER 3-1HZ

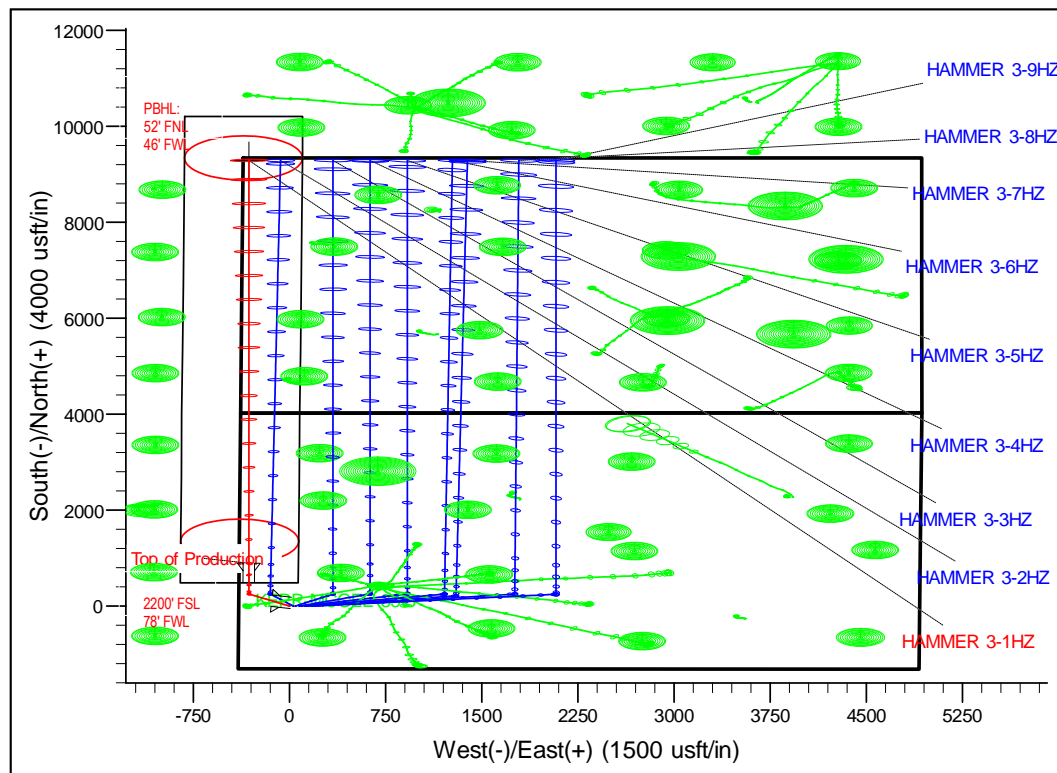
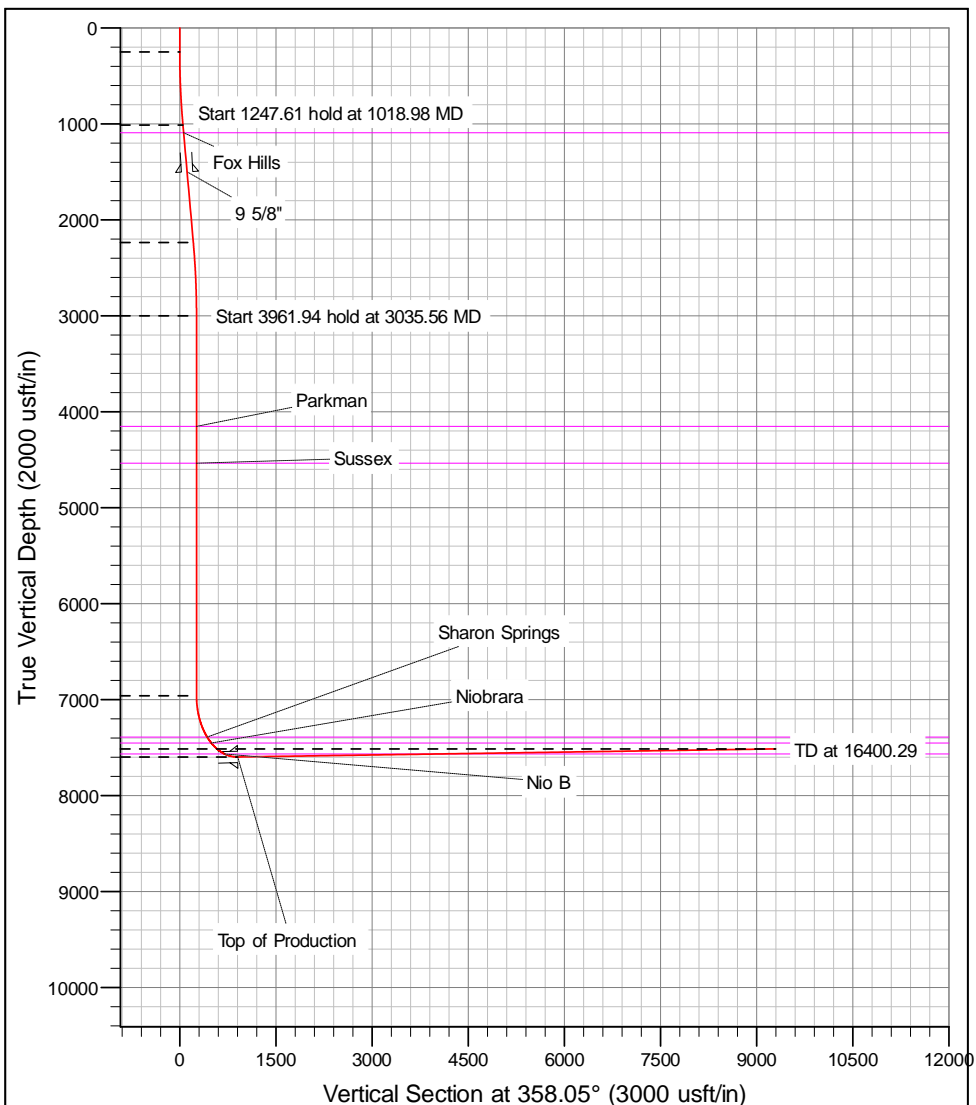
+N/-S	+E/-W	GL: 5045.00 Northing	RKB @ 5062.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14554633.02	1641108.46	40.076617	-104.997527	

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
1018.98	11.53	308.44	1013.79	47.96	-60.43	1.50	49.98
2266.59	11.53	308.44	2236.21	203.04	-255.83	0.00	211.63
3035.56	0.00	0.00	3000.00	251.00	-316.26	1.50	261.61
6997.51	0.00	0.00	6961.94	251.00	-316.26	0.00	261.61
8003.84	90.57	0.00	7598.53	893.95	-316.26	9.00	904.19
16400.29	90.57	0.00	7515.00	9289.99	-316.20	0.00	9295.37

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Hammer 3-1HZ_PBHL	7515.00	9289.99	-316.20	14563923.00	1640792.00	40.102129	-104.998658



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	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		1N-68W-03 HAMMER 3-5HZ PAD			
Site Position:		Northing:	14,554,633.01 usft	Latitude:	40.076617
From:	Lat/Long	Easting:	1,641,108.45 usft	Longitude:	-104.997527
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.00 °

Well	HAMMER 3-1HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,554,633.01 usft	Latitude:	40.076617
	+E/-W	0.00 usft	Easting:	1,641,108.45 usft	Longitude:	-104.997527
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,045.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/31/2017	8.20	66.56	52,343.25626848

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	358.05

Plan Survey Tool Program	Date	2/7/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,510.01	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:standard declination	
2	1,510.01	16,400.29	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:crustal field declinat	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	
1,018.98	11.53	308.44	1,013.79	47.96	-60.43	1.50	1.50	0.00	308.44	
2,266.59	11.53	308.44	2,236.21	203.04	-255.83	0.00	0.00	0.00	0.00	
3,035.56	0.00	0.00	3,000.00	251.00	-316.26	1.50	-1.50	0.00	180.00	
6,997.51	0.00	0.00	6,961.94	251.00	-316.26	0.00	0.00	0.00	0.00	
8,003.84	90.57	0.00	7,598.53	893.95	-316.26	9.00	9.00	0.00	0.00	
16,400.29	90.57	0.00	7,515.00	9,289.99	-316.20	0.00	0.00	0.00	0.00	Hammer 3-1HZ_PB

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	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	308.44	300.00	0.20	-0.26	0.21	1.50	1.50	0.00
400.00	2.25	308.44	399.96	1.83	-2.31	1.91	1.50	1.50	0.00
500.00	3.75	308.44	499.82	5.08	-6.41	5.30	1.50	1.50	0.00
600.00	5.25	308.44	599.51	9.96	-12.55	10.38	1.50	1.50	0.00
700.00	6.75	308.44	698.96	16.46	-20.74	17.16	1.50	1.50	0.00
800.00	8.25	308.44	798.10	24.57	-30.96	25.61	1.50	1.50	0.00
900.00	9.75	308.44	896.87	34.30	-43.22	35.75	1.50	1.50	0.00
1,000.00	11.25	308.44	995.19	45.63	-57.49	47.56	1.50	1.50	0.00
1,018.98	11.53	308.44	1,013.79	47.96	-60.43	49.98	1.50	1.50	0.00
1,100.00	11.53	308.44	1,093.18	58.03	-73.12	60.48	0.00	0.00	0.00
1,100.84	11.53	308.44	1,094.00	58.13	-73.25	60.59	0.00	0.00	0.00
Fox Hills									
1,200.00	11.53	308.44	1,191.16	70.46	-88.78	73.44	0.00	0.00	0.00
1,300.00	11.53	308.44	1,289.14	82.89	-104.44	86.39	0.00	0.00	0.00
1,400.00	11.53	308.44	1,387.12	95.32	-120.10	99.35	0.00	0.00	0.00
1,500.00	11.53	308.44	1,485.10	107.75	-135.77	112.31	0.00	0.00	0.00
1,515.21	11.53	308.44	1,500.00	109.64	-138.15	114.28	0.00	0.00	0.00
9 5/8"									
1,600.00	11.53	308.44	1,583.08	120.18	-151.43	125.26	0.00	0.00	0.00
1,700.00	11.53	308.44	1,681.06	132.61	-167.09	138.22	0.00	0.00	0.00
1,800.00	11.53	308.44	1,779.04	145.04	-182.75	151.18	0.00	0.00	0.00
1,900.00	11.53	308.44	1,877.02	157.47	-198.42	164.13	0.00	0.00	0.00
2,000.00	11.53	308.44	1,975.00	169.90	-214.08	177.09	0.00	0.00	0.00
2,100.00	11.53	308.44	2,072.98	182.34	-229.74	190.04	0.00	0.00	0.00
2,200.00	11.53	308.44	2,170.96	194.77	-245.41	203.00	0.00	0.00	0.00
2,266.59	11.53	308.44	2,236.21	203.04	-255.83	211.63	0.00	0.00	0.00
2,300.00	11.03	308.44	2,268.97	207.11	-260.96	215.86	1.50	-1.50	0.00
2,400.00	9.53	308.44	2,367.36	218.21	-274.94	227.43	1.50	-1.50	0.00
2,500.00	8.03	308.44	2,466.19	227.70	-286.90	237.33	1.50	-1.50	0.00
2,600.00	6.53	308.44	2,565.38	235.58	-296.83	245.54	1.50	-1.50	0.00
2,700.00	5.03	308.44	2,664.87	241.84	-304.72	252.07	1.50	-1.50	0.00
2,800.00	3.53	308.44	2,764.59	246.49	-310.57	256.91	1.50	-1.50	0.00
2,900.00	2.03	308.44	2,864.46	249.50	-314.38	260.05	1.50	-1.50	0.00
3,000.00	0.53	308.44	2,964.44	250.90	-316.13	261.51	1.50	-1.50	0.00
3,035.56	0.00	0.00	3,000.00	251.00	-316.26	261.61	1.50	-1.50	0.00
3,100.00	0.00	0.00	3,064.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,200.00	0.00	0.00	3,164.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,300.00	0.00	0.00	3,264.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,400.00	0.00	0.00	3,364.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,500.00	0.00	0.00	3,464.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,600.00	0.00	0.00	3,564.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,700.00	0.00	0.00	3,664.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,800.00	0.00	0.00	3,764.44	251.00	-316.26	261.61	0.00	0.00	0.00
3,900.00	0.00	0.00	3,864.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,000.00	0.00	0.00	3,964.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,100.00	0.00	0.00	4,064.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,188.56	0.00	0.00	4,153.00	251.00	-316.26	261.61	0.00	0.00	0.00
Parkman									
4,200.00	0.00	0.00	4,164.44	251.00	-316.26	261.61	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	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)
4,300.00	0.00	0.00	4,264.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,400.00	0.00	0.00	4,364.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,500.00	0.00	0.00	4,464.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,572.56	0.00	0.00	4,537.00	251.00	-316.26	261.61	0.00	0.00	0.00
Sussex									
4,600.00	0.00	0.00	4,564.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,700.00	0.00	0.00	4,664.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,800.00	0.00	0.00	4,764.44	251.00	-316.26	261.61	0.00	0.00	0.00
4,900.00	0.00	0.00	4,864.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,000.00	0.00	0.00	4,964.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,100.00	0.00	0.00	5,064.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,200.00	0.00	0.00	5,164.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,300.00	0.00	0.00	5,264.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,400.00	0.00	0.00	5,364.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,500.00	0.00	0.00	5,464.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,600.00	0.00	0.00	5,564.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,700.00	0.00	0.00	5,664.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,800.00	0.00	0.00	5,764.44	251.00	-316.26	261.61	0.00	0.00	0.00
5,900.00	0.00	0.00	5,864.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,000.00	0.00	0.00	5,964.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,100.00	0.00	0.00	6,064.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,200.00	0.00	0.00	6,164.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,300.00	0.00	0.00	6,264.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,400.00	0.00	0.00	6,364.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,500.00	0.00	0.00	6,464.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,600.00	0.00	0.00	6,564.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,700.00	0.00	0.00	6,664.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,800.00	0.00	0.00	6,764.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,900.00	0.00	0.00	6,864.44	251.00	-316.26	261.61	0.00	0.00	0.00
6,997.51	0.00	0.00	6,961.94	251.00	-316.26	261.61	0.00	0.00	0.00
7,000.00	0.22	0.00	6,964.44	251.00	-316.26	261.62	9.00	9.00	0.00
7,100.00	9.22	0.00	7,063.99	259.23	-316.26	269.84	9.00	9.00	0.00
7,200.00	18.22	0.00	7,161.04	282.93	-316.26	293.53	9.00	9.00	0.00
7,300.00	27.22	0.00	7,253.18	321.52	-316.26	332.10	9.00	9.00	0.00
7,400.00	36.22	0.00	7,338.15	374.05	-316.26	384.60	9.00	9.00	0.00
7,468.33	42.37	0.00	7,391.00	417.31	-316.26	427.82	9.00	9.00	0.00
Sharon Springs									
7,500.00	45.22	0.00	7,413.86	439.23	-316.26	449.73	9.00	9.00	0.00
7,556.78	50.33	0.00	7,452.00	481.26	-316.26	491.74	9.00	9.00	0.00
Niobrara									
7,600.00	54.22	0.00	7,478.44	515.44	-316.26	525.90	9.00	9.00	0.00
7,700.00	63.22	0.00	7,530.30	600.83	-316.26	611.24	9.00	9.00	0.00
7,796.21	71.88	0.00	7,567.00	689.66	-316.26	700.02	9.00	9.00	0.00
Nio B									
7,800.00	72.22	0.00	7,568.17	693.27	-316.26	703.62	9.00	9.00	0.00
7,900.00	81.22	0.00	7,591.11	790.49	-316.26	800.80	9.00	9.00	0.00
8,000.00	90.22	0.00	7,598.56	890.11	-316.26	900.36	9.00	9.00	0.00
8,003.84	90.57	0.00	7,598.53	893.95	-316.26	904.19	9.00	9.00	0.00
Top of Production - HAMMER 3-1HZ_PHL									
8,100.00	90.57	0.00	7,597.57	990.11	-316.26	1,000.29	0.00	0.00	0.00
8,200.00	90.57	0.00	7,596.58	1,090.10	-316.25	1,100.23	0.00	0.00	0.00
8,300.00	90.57	0.00	7,595.58	1,190.10	-316.25	1,200.17	0.00	0.00	0.00
8,400.00	90.57	0.00	7,594.59	1,290.09	-316.25	1,300.11	0.00	0.00	0.00
8,500.00	90.57	0.00	7,593.59	1,390.09	-316.25	1,400.04	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	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)
8,600.00	90.57	0.00	7,592.60	1,490.08	-316.25	1,499.98	0.00	0.00	0.00
8,700.00	90.57	0.00	7,591.60	1,590.08	-316.25	1,599.92	0.00	0.00	0.00
8,800.00	90.57	0.00	7,590.61	1,690.07	-316.25	1,699.85	0.00	0.00	0.00
8,900.00	90.57	0.00	7,589.61	1,790.07	-316.25	1,799.79	0.00	0.00	0.00
9,000.00	90.57	0.00	7,588.62	1,890.06	-316.25	1,899.73	0.00	0.00	0.00
9,100.00	90.57	0.00	7,587.63	1,990.06	-316.25	1,999.67	0.00	0.00	0.00
9,200.00	90.57	0.00	7,586.63	2,090.05	-316.25	2,099.60	0.00	0.00	0.00
9,300.00	90.57	0.00	7,585.64	2,190.05	-316.25	2,199.54	0.00	0.00	0.00
9,400.00	90.57	0.00	7,584.64	2,290.04	-316.25	2,299.48	0.00	0.00	0.00
9,500.00	90.57	0.00	7,583.65	2,390.04	-316.25	2,399.41	0.00	0.00	0.00
9,600.00	90.57	0.00	7,582.65	2,490.04	-316.25	2,499.35	0.00	0.00	0.00
9,700.00	90.57	0.00	7,581.66	2,590.03	-316.24	2,599.29	0.00	0.00	0.00
9,800.00	90.57	0.00	7,580.66	2,690.03	-316.24	2,699.23	0.00	0.00	0.00
9,900.00	90.57	0.00	7,579.67	2,790.02	-316.24	2,799.16	0.00	0.00	0.00
10,000.00	90.57	0.00	7,578.67	2,890.02	-316.24	2,899.10	0.00	0.00	0.00
10,100.00	90.57	0.00	7,577.68	2,990.01	-316.24	2,999.04	0.00	0.00	0.00
10,200.00	90.57	0.00	7,576.68	3,090.01	-316.24	3,098.97	0.00	0.00	0.00
10,300.00	90.57	0.00	7,575.69	3,190.00	-316.24	3,198.91	0.00	0.00	0.00
10,400.00	90.57	0.00	7,574.69	3,290.00	-316.24	3,298.85	0.00	0.00	0.00
10,500.00	90.57	0.00	7,573.70	3,389.99	-316.24	3,398.79	0.00	0.00	0.00
10,600.00	90.57	0.00	7,572.70	3,489.99	-316.24	3,498.72	0.00	0.00	0.00
10,700.00	90.57	0.00	7,571.71	3,589.98	-316.24	3,598.66	0.00	0.00	0.00
10,800.00	90.57	0.00	7,570.71	3,689.98	-316.24	3,698.60	0.00	0.00	0.00
10,900.00	90.57	0.00	7,569.72	3,789.97	-316.24	3,798.53	0.00	0.00	0.00
11,000.00	90.57	0.00	7,568.72	3,889.97	-316.24	3,898.47	0.00	0.00	0.00
11,100.00	90.57	0.00	7,567.73	3,989.96	-316.24	3,998.41	0.00	0.00	0.00
11,200.00	90.57	0.00	7,566.73	4,089.96	-316.23	4,098.35	0.00	0.00	0.00
11,300.00	90.57	0.00	7,565.74	4,189.95	-316.23	4,198.28	0.00	0.00	0.00
11,400.00	90.57	0.00	7,564.74	4,289.95	-316.23	4,298.22	0.00	0.00	0.00
11,500.00	90.57	0.00	7,563.75	4,389.94	-316.23	4,398.16	0.00	0.00	0.00
11,600.00	90.57	0.00	7,562.75	4,489.94	-316.23	4,498.09	0.00	0.00	0.00
11,700.00	90.57	0.00	7,561.76	4,589.93	-316.23	4,598.03	0.00	0.00	0.00
11,800.00	90.57	0.00	7,560.76	4,689.93	-316.23	4,697.97	0.00	0.00	0.00
11,900.00	90.57	0.00	7,559.77	4,789.92	-316.23	4,797.91	0.00	0.00	0.00
12,000.00	90.57	0.00	7,558.78	4,889.92	-316.23	4,897.84	0.00	0.00	0.00
12,100.00	90.57	0.00	7,557.78	4,989.91	-316.23	4,997.78	0.00	0.00	0.00
12,200.00	90.57	0.00	7,556.79	5,089.91	-316.23	5,097.72	0.00	0.00	0.00
12,300.00	90.57	0.00	7,555.79	5,189.90	-316.23	5,197.65	0.00	0.00	0.00
12,400.00	90.57	0.00	7,554.80	5,289.90	-316.23	5,297.59	0.00	0.00	0.00
12,500.00	90.57	0.00	7,553.80	5,389.89	-316.23	5,397.53	0.00	0.00	0.00
12,600.00	90.57	0.00	7,552.81	5,489.89	-316.23	5,497.47	0.00	0.00	0.00
12,700.00	90.57	0.00	7,551.81	5,589.88	-316.22	5,597.40	0.00	0.00	0.00
12,800.00	90.57	0.00	7,550.82	5,689.88	-316.22	5,697.34	0.00	0.00	0.00
12,900.00	90.57	0.00	7,549.82	5,789.87	-316.22	5,797.28	0.00	0.00	0.00
13,000.00	90.57	0.00	7,548.83	5,889.87	-316.22	5,897.22	0.00	0.00	0.00
13,100.00	90.57	0.00	7,547.83	5,989.86	-316.22	5,997.15	0.00	0.00	0.00
13,200.00	90.57	0.00	7,546.84	6,089.86	-316.22	6,097.09	0.00	0.00	0.00
13,300.00	90.57	0.00	7,545.84	6,189.85	-316.22	6,197.03	0.00	0.00	0.00
13,400.00	90.57	0.00	7,544.85	6,289.85	-316.22	6,296.96	0.00	0.00	0.00
13,500.00	90.57	0.00	7,543.85	6,389.84	-316.22	6,396.90	0.00	0.00	0.00
13,600.00	90.57	0.00	7,542.86	6,489.84	-316.22	6,496.84	0.00	0.00	0.00
13,700.00	90.57	0.00	7,541.86	6,589.83	-316.22	6,596.78	0.00	0.00	0.00
13,800.00	90.57	0.00	7,540.87	6,689.83	-316.22	6,696.71	0.00	0.00	0.00
13,900.00	90.57	0.00	7,539.87	6,789.82	-316.22	6,796.65	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	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)	
14,000.00	90.57	0.00	7,538.88	6,889.82	-316.22	6,896.59	0.00	0.00	0.00	
14,100.00	90.57	0.00	7,537.88	6,989.81	-316.22	6,996.52	0.00	0.00	0.00	
14,200.00	90.57	0.00	7,536.89	7,089.81	-316.21	7,096.46	0.00	0.00	0.00	
14,300.00	90.57	0.00	7,535.89	7,189.80	-316.21	7,196.40	0.00	0.00	0.00	
14,400.00	90.57	0.00	7,534.90	7,289.80	-316.21	7,296.34	0.00	0.00	0.00	
14,500.00	90.57	0.00	7,533.90	7,389.79	-316.21	7,396.27	0.00	0.00	0.00	
14,600.00	90.57	0.00	7,532.91	7,489.79	-316.21	7,496.21	0.00	0.00	0.00	
14,700.00	90.57	0.00	7,531.92	7,589.78	-316.21	7,596.15	0.00	0.00	0.00	
14,800.00	90.57	0.00	7,530.92	7,689.78	-316.21	7,696.08	0.00	0.00	0.00	
14,900.00	90.57	0.00	7,529.93	7,789.77	-316.21	7,796.02	0.00	0.00	0.00	
15,000.00	90.57	0.00	7,528.93	7,889.77	-316.21	7,895.96	0.00	0.00	0.00	
15,100.00	90.57	0.00	7,527.94	7,989.76	-316.21	7,995.90	0.00	0.00	0.00	
15,200.00	90.57	0.00	7,526.94	8,089.76	-316.21	8,095.83	0.00	0.00	0.00	
15,300.00	90.57	0.00	7,525.95	8,189.75	-316.21	8,195.77	0.00	0.00	0.00	
15,400.00	90.57	0.00	7,524.95	8,289.75	-316.21	8,295.71	0.00	0.00	0.00	
15,500.00	90.57	0.00	7,523.96	8,389.74	-316.21	8,395.64	0.00	0.00	0.00	
15,600.00	90.57	0.00	7,522.96	8,489.74	-316.21	8,495.58	0.00	0.00	0.00	
15,700.00	90.57	0.00	7,521.97	8,589.73	-316.20	8,595.52	0.00	0.00	0.00	
15,800.00	90.57	0.00	7,520.97	8,689.73	-316.20	8,695.46	0.00	0.00	0.00	
15,900.00	90.57	0.00	7,519.98	8,789.72	-316.20	8,795.39	0.00	0.00	0.00	
16,000.00	90.57	0.00	7,518.98	8,889.72	-316.20	8,895.33	0.00	0.00	0.00	
16,100.00	90.57	0.00	7,517.99	8,989.71	-316.20	8,995.27	0.00	0.00	0.00	
16,200.00	90.57	0.00	7,516.99	9,089.71	-316.20	9,095.20	0.00	0.00	0.00	
16,300.00	90.57	0.00	7,516.00	9,189.70	-316.20	9,195.14	0.00	0.00	0.00	
16,400.00	90.57	0.00	7,515.00	9,289.70	-316.20	9,295.08	0.00	0.00	0.00	
16,400.29	90.57	0.00	7,515.00	9,289.99	-316.20	9,295.37	0.00	0.00	0.00	
Hammer 3-1HZ_PBHL										

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									
Hammer 3-1HZ_PBHL	0.00	0.00	7,515.00	9,289.99	-316.20	14,563,922.99	1,640,792.00	40.102129	-104.998658
- plan hits target center									
- Point									
HAMMER 3-1HZ_PHL	0.00	0.00	7,598.53	893.95	-316.26	14,555,526.96	1,640,792.17	40.079072	-104.998658
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,515.21	1,500.00	9 5/8"	9-5/8	13-1/2	
8,003.84	7,598.53	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HAMMER 3-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5062.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5062.00usft (D Rig)
Site:	1N-68W-03 HAMMER 3-5HZ PAD	North Reference:	True
Well:	HAMMER 3-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,100.84	1,094.00	Fox Hills				
4,188.56	4,153.00	Parkman				
4,572.56	4,537.00	Sussex				
7,468.33	7,391.00	Sharon Springs				
7,556.78	7,452.00	Niobrara				
7,796.21	7,567.00	Nio B				