

US ROCKIES WATTENBERG PLANNING

**ADAMS-NAD83-UTMFT13N
1S-63W-01 LEWTON 27-1 Pad
Lewton 26J-36HZ**

Plan A (Pilot Hole)

Plan: Permit Rev-1

Standard Planning Report

03 August, 2016



Azimuths to True North
Magnetic North: 7.96°

Magnetic Field
Strength: 52443.5snT
Dip Angle: 66.62°
Date: 5/9/2016
Model: IGRF2010

SITE: 1S-63W-01 LEWTON 27-1 Pad

Well: Lewton 26J-36HZ
Wellbore: Plan A (Pilot Hole)
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1386.00	1397.02	Fox Hills
4119.00	4133.41	Sussex
6402.00	6416.41	Niobrara Top
6749.00	6763.41	Codell
6821.00	6835.41	Greenhorn
7039.00	7053.41	Graneros
7188.00	7202.41	J Sand
7320.00	7334.41	Skull Creek
7392.00	7406.41	Dakota
7931.00	7945.41	Lykins
8201.00	8215.41	Permian
8421.00	8435.41	Lyons

WELL DETAILS: Lewton 26J-36HZ

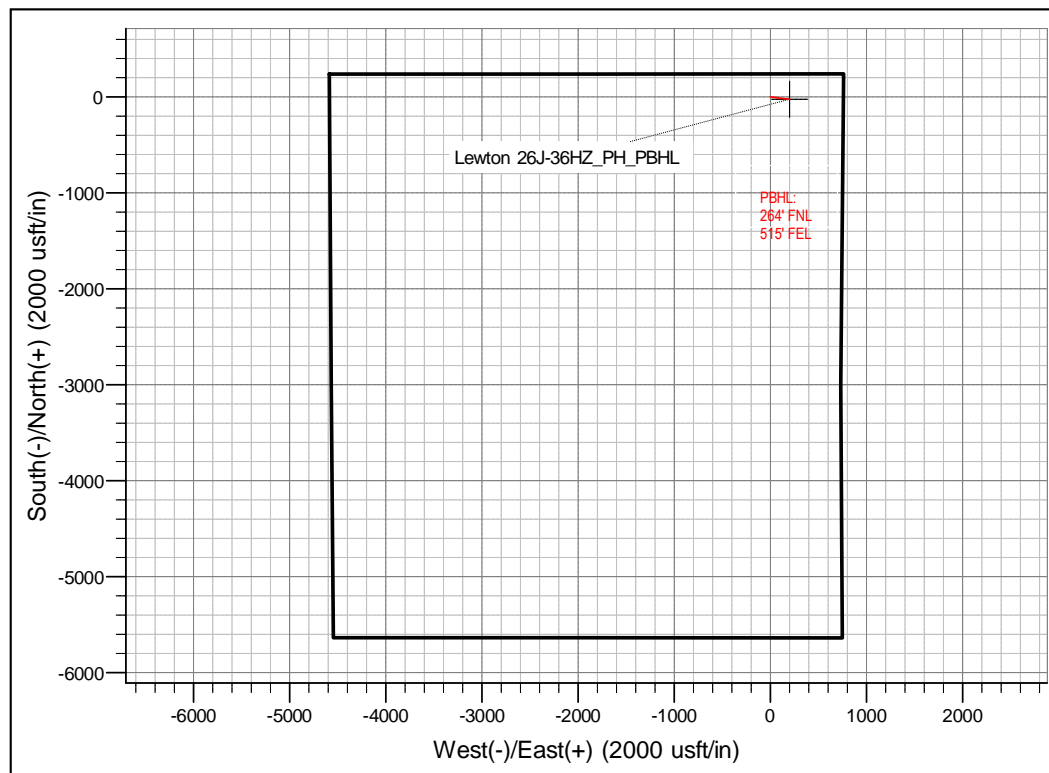
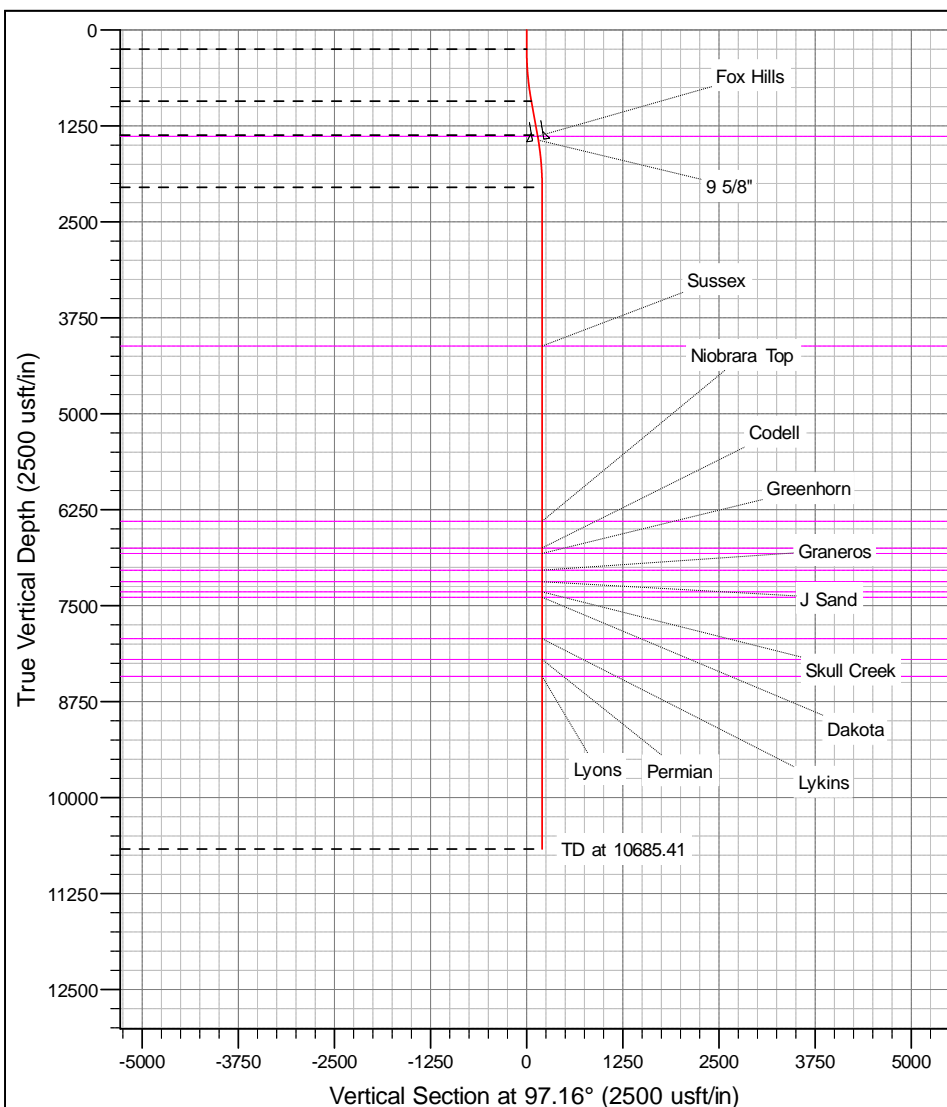
+N/-S	+E/-W	GL: 4974.00	RKB @ 4991.00usft (D Rig)	Longitude	Slot
0.00	0.00	Northing 14527346.79	Easting 1814202.54	Latitude 40.000023	-104.379451

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
932.81	10.24	97.16	929.18	-7.59	60.39	1.50	60.87
1381.61	10.24	97.16	1370.82	-17.54	139.57	0.00	140.67
2064.41	0.00	0.00	2050.00	-25.13	199.96	1.50	201.53
10685.41	0.00	0.00	10671.00	-25.13	199.96	0.00	201.54

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lewton 26J-36HZ_PH_PBHL	10671.00	-25.13	199.96	14527323.06	1814402.67	39.999954	-104.378737



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well Lewton 26J-36HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4991.00usft (D Rig)
Project:	ADAMS-NAD83-UTMFT13N	MD Reference:	RKB @ 4991.00usft (D Rig)
Site:	1S-63W-01 LEWTON 27-1 Pad	North Reference:	True
Well:	Lewton 26J-36HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A (Pilot Hole)		
Design:	Permit Rev-1		

Project	ADAMS-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		1S-63W-01 LEWTON 27-1 Pad			
Site Position:		Northing:	14,527,346.80 usft	Latitude:	40.000023
From:	Lat/Long	Easting:	1,814,202.54 usft	Longitude:	-104.379451
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	Lewton 26J-36HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,527,346.80 usft	Latitude:	40.000023
	+E/-W	0.00 usft	Easting:	1,814,202.54 usft	Longitude:	-104.379451
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,974.00 usft

Wellbore	Plan A (Pilot Hole)				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/9/2016	7.96	66.62	52,443

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	97.16

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	
932.81	10.24	97.16	929.18	-7.59	60.39	1.50	1.50	0.00	97.16	
1,381.61	10.24	97.16	1,370.82	-17.54	139.57	0.00	0.00	0.00	0.00	
2,064.41	0.00	0.00	2,050.00	-25.13	199.96	1.50	-1.50	0.00	180.00	
10,685.41	0.00	0.00	10,671.00	-25.13	199.96	0.00	0.00	0.00	0.00	Lewton 26J-36HZ_F

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well Lewton 26J-36HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4991.00usft (D Rig)
Project:	ADAMS-NAD83-UTMFT13N	MD Reference:	RKB @ 4991.00usft (D Rig)
Site:	1S-63W-01 LEWTON 27-1 Pad	North Reference:	True
Well:	Lewton 26J-36HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A (Pilot Hole)		
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	97.16	300.00	-0.04	0.32	0.33	1.50	1.50	0.00
400.00	2.25	97.16	399.96	-0.37	2.92	2.94	1.50	1.50	0.00
500.00	3.75	97.16	499.82	-1.02	8.11	8.18	1.50	1.50	0.00
600.00	5.25	97.16	599.51	-2.00	15.90	16.02	1.50	1.50	0.00
700.00	6.75	97.16	698.96	-3.30	26.27	26.48	1.50	1.50	0.00
800.00	8.25	97.16	798.10	-4.93	39.22	39.53	1.50	1.50	0.00
900.00	9.75	97.16	896.87	-6.88	54.74	55.17	1.50	1.50	0.00
932.81	10.24	97.16	929.18	-7.59	60.39	60.87	1.50	1.50	0.00
1,000.00	10.24	97.16	995.30	-9.08	72.25	72.81	0.00	0.00	0.00
1,100.00	10.24	97.16	1,093.71	-11.30	89.89	90.59	0.00	0.00	0.00
1,200.00	10.24	97.16	1,192.11	-13.51	107.53	108.38	0.00	0.00	0.00
1,300.00	10.24	97.16	1,290.52	-15.73	125.17	126.16	0.00	0.00	0.00
1,381.61	10.24	97.16	1,370.82	-17.54	139.57	140.67	0.00	0.00	0.00
1,397.02	10.01	97.16	1,386.00	-17.88	142.26	143.38	1.50	-1.50	0.00
Fox Hills									
1,400.00	9.97	97.16	1,388.93	-17.94	142.77	143.89	1.50	-1.50	0.00
1,447.74	9.25	97.16	1,436.00	-18.94	150.68	151.86	1.50	-1.50	0.00
9 5/8"									
1,500.00	8.47	97.16	1,487.64	-19.94	158.66	159.91	1.50	-1.50	0.00
1,600.00	6.97	97.16	1,586.73	-21.61	171.98	173.34	1.50	-1.50	0.00
1,700.00	5.47	97.16	1,686.14	-22.96	182.73	184.16	1.50	-1.50	0.00
1,800.00	3.97	97.16	1,785.80	-23.99	190.88	192.38	1.50	-1.50	0.00
1,900.00	2.47	97.16	1,885.64	-24.69	196.45	198.00	1.50	-1.50	0.00
2,000.00	0.97	97.16	1,985.59	-25.06	199.42	200.99	1.50	-1.50	0.00
2,064.41	0.00	0.00	2,050.00	-25.13	199.96	201.53	1.50	-1.50	0.00
2,100.00	0.00	0.00	2,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,200.00	0.00	0.00	2,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,300.00	0.00	0.00	2,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,400.00	0.00	0.00	2,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,500.00	0.00	0.00	2,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,600.00	0.00	0.00	2,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,700.00	0.00	0.00	2,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,800.00	0.00	0.00	2,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
2,900.00	0.00	0.00	2,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,000.00	0.00	0.00	2,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,100.00	0.00	0.00	3,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,200.00	0.00	0.00	3,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,300.00	0.00	0.00	3,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,400.00	0.00	0.00	3,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,500.00	0.00	0.00	3,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,600.00	0.00	0.00	3,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,700.00	0.00	0.00	3,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,800.00	0.00	0.00	3,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
3,900.00	0.00	0.00	3,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,000.00	0.00	0.00	3,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,100.00	0.00	0.00	4,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,133.41	0.00	0.00	4,119.00	-25.13	199.96	201.53	0.00	0.00	0.00
Sussex									
4,200.00	0.00	0.00	4,185.59	-25.13	199.96	201.53	0.00	0.00	0.00

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: ADAMS-NAD83-UTMFT13N
Site: 1S-63W-01 LEWTON 27-1 Pad
Well: Lewton 26J-36HZ
Wellbore: Plan A (Pilot Hole)
Design: Permit Rev-1

Local Co-ordinate Reference: Well Lewton 26J-36HZ
TVD Reference: RKB @ 4991.00usft (D Rig)
MD Reference: RKB @ 4991.00usft (D Rig)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	4,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,400.00	0.00	0.00	4,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,500.00	0.00	0.00	4,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,600.00	0.00	0.00	4,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,700.00	0.00	0.00	4,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,800.00	0.00	0.00	4,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
4,900.00	0.00	0.00	4,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,000.00	0.00	0.00	4,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,100.00	0.00	0.00	5,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,200.00	0.00	0.00	5,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,300.00	0.00	0.00	5,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,400.00	0.00	0.00	5,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,500.00	0.00	0.00	5,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,600.00	0.00	0.00	5,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,700.00	0.00	0.00	5,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,800.00	0.00	0.00	5,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
5,900.00	0.00	0.00	5,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,000.00	0.00	0.00	5,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,100.00	0.00	0.00	6,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,200.00	0.00	0.00	6,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,300.00	0.00	0.00	6,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,400.00	0.00	0.00	6,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,416.41	0.00	0.00	6,402.00	-25.13	199.96	201.53	0.00	0.00	0.00
Niobrara Top									
6,500.00	0.00	0.00	6,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,600.00	0.00	0.00	6,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,700.00	0.00	0.00	6,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,763.41	0.00	0.00	6,749.00	-25.13	199.96	201.53	0.00	0.00	0.00
Codell									
6,800.00	0.00	0.00	6,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
6,835.41	0.00	0.00	6,821.00	-25.13	199.96	201.53	0.00	0.00	0.00
Greenhorn									
6,900.00	0.00	0.00	6,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,000.00	0.00	0.00	6,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,053.41	0.00	0.00	7,039.00	-25.13	199.96	201.53	0.00	0.00	0.00
Graneros									
7,100.00	0.00	0.00	7,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,200.00	0.00	0.00	7,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,202.41	0.00	0.00	7,188.00	-25.13	199.96	201.53	0.00	0.00	0.00
J Sand									
7,300.00	0.00	0.00	7,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,334.41	0.00	0.00	7,320.00	-25.13	199.96	201.53	0.00	0.00	0.00
Skull Creek									
7,400.00	0.00	0.00	7,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,406.41	0.00	0.00	7,392.00	-25.13	199.96	201.53	0.00	0.00	0.00
Dakota									
7,500.00	0.00	0.00	7,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,600.00	0.00	0.00	7,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,700.00	0.00	0.00	7,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,800.00	0.00	0.00	7,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,900.00	0.00	0.00	7,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
7,945.41	0.00	0.00	7,931.00	-25.13	199.96	201.53	0.00	0.00	0.00
Lykins									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well Lewton 26J-36HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4991.00usft (D Rig)
Project:	ADAMS-NAD83-UTMFT13N	MD Reference:	RKB @ 4991.00usft (D Rig)
Site:	1S-63W-01 LEWTON 27-1 Pad	North Reference:	True
Well:	Lewton 26J-36HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A (Pilot Hole)		
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)
8,000.00	0.00	0.00	7,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,100.00	0.00	0.00	8,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,200.00	0.00	0.00	8,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,215.41	0.00	0.00	8,201.00	-25.13	199.96	201.53	0.00	0.00	0.00
Permian									
8,300.00	0.00	0.00	8,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,400.00	0.00	0.00	8,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,435.41	0.00	0.00	8,421.00	-25.13	199.96	201.53	0.00	0.00	0.00
Lyons									
8,500.00	0.00	0.00	8,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,600.00	0.00	0.00	8,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,700.00	0.00	0.00	8,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,800.00	0.00	0.00	8,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
8,900.00	0.00	0.00	8,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,000.00	0.00	0.00	8,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,100.00	0.00	0.00	9,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,200.00	0.00	0.00	9,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,300.00	0.00	0.00	9,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,400.00	0.00	0.00	9,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,500.00	0.00	0.00	9,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,600.00	0.00	0.00	9,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,700.00	0.00	0.00	9,685.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,800.00	0.00	0.00	9,785.59	-25.13	199.96	201.53	0.00	0.00	0.00
9,900.00	0.00	0.00	9,885.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,000.00	0.00	0.00	9,985.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,100.00	0.00	0.00	10,085.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,200.00	0.00	0.00	10,185.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,300.00	0.00	0.00	10,285.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,400.00	0.00	0.00	10,385.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,500.00	0.00	0.00	10,485.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,600.00	0.00	0.00	10,585.59	-25.13	199.96	201.53	0.00	0.00	0.00
10,685.41	0.00	0.00	10,671.00	-25.13	199.96	201.54	0.00	0.00	0.00
Lewton 26J-36HZ_PH_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									
Lewton 26J-36HZ_PH	0.00	0.00	10,671.00	-25.13	199.96	14,527,323.07	1,814,402.68	39.999954	-104.378737
- plan hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,447.74	1,436.00	9 5/8"	9-5/8	13-1/2

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well Lewton 26J-36HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4991.00usft (D Rig)
Project:	ADAMS-NAD83-UTMFT13N	MD Reference:	RKB @ 4991.00usft (D Rig)
Site:	1S-63W-01 LEWTON 27-1 Pad	North Reference:	True
Well:	Lewton 26J-36HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A (Pilot Hole)		
Design:	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,397.02	1,386.00	Fox Hills				
4,133.41	4,119.00	Sussex				
6,416.41	6,402.00	Niobrara Top				
6,763.41	6,749.00	Codell				
6,835.41	6,821.00	Greenhorn				
7,053.41	7,039.00	Graneros				
7,202.41	7,188.00	J Sand				
7,334.41	7,320.00	Skull Creek				
7,406.41	7,392.00	Dakota				
7,945.41	7,931.00	Lykins				
8,215.41	8,201.00	Permian				
8,435.41	8,421.00	Lyons				