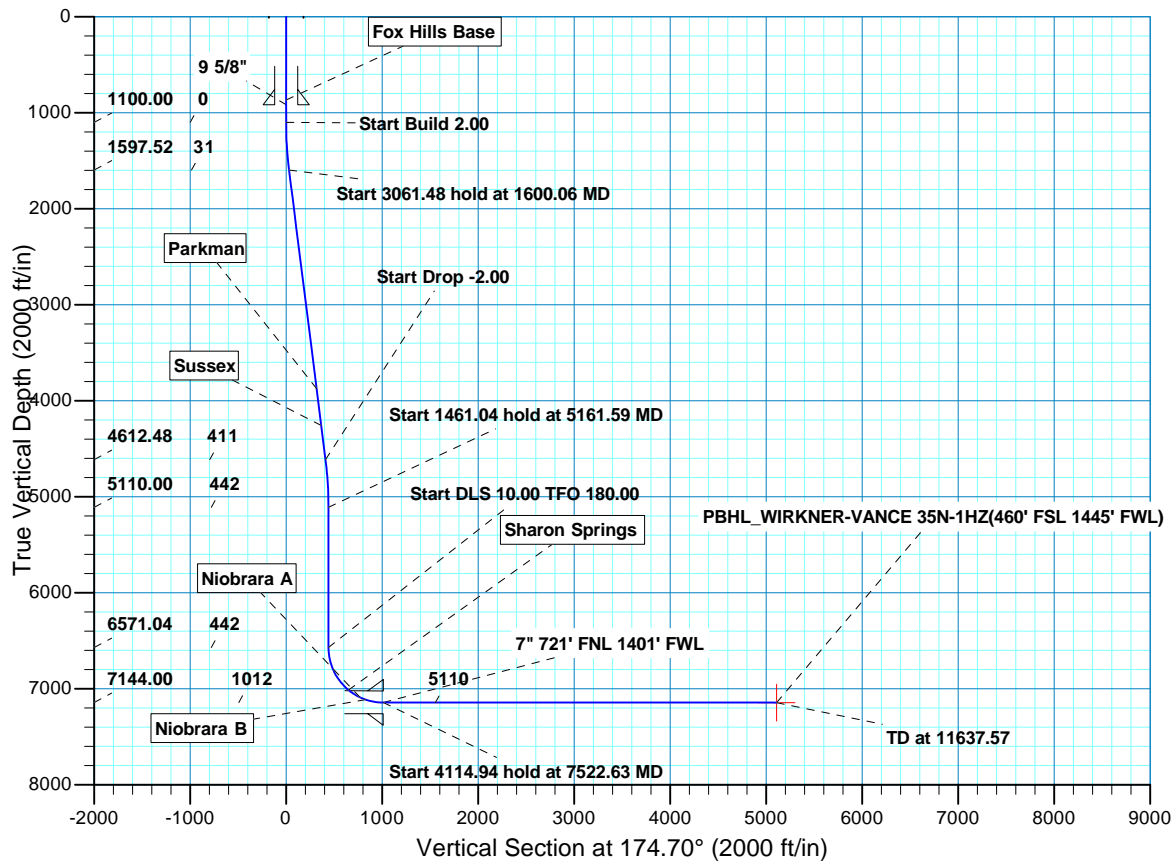
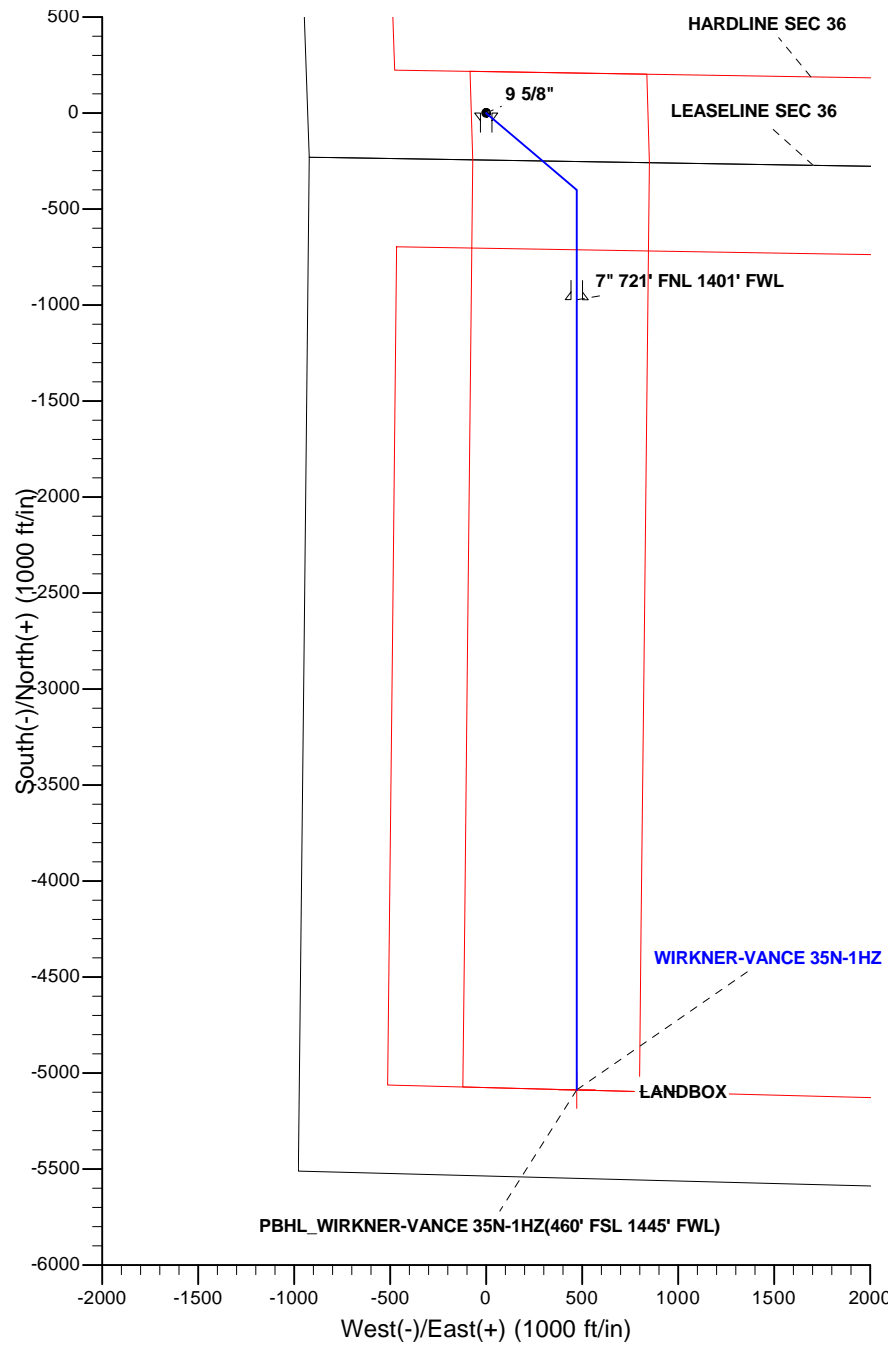


WELL DETAILS: WIRKNER-VANCE 35N-1HZ									
GL 4822 & KB 17 @ 4839.00ft (ASSUMED)									
+N-/S	+E-/W	Northing	Easting	Latitude	Longitude				
0.00	0.00	1307218.25	3183041.02	40.1748539	-104.8449550				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N-/S	+E-/W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
1600.06	10.00	130.28	1597.52	-28.14	33.21	2.00	130.28	31.09	
4661.54	10.00	130.28	4612.48	-371.86	438.85	0.00	0.00	410.81	
5161.59	0.00	0.00	5110.00	-400.00	472.06	2.00	180.00	441.90	
6622.63	0.00	0.00	6571.04	-400.00	472.06	0.00	0.00	441.90	
7522.63	90.00	180.00	7144.00	-972.96	472.06	10.00	180.00	012.41	
11637.56	90.00	180.00	7144.00	-5087.89	472.06	0.00	0.005109.74		PBHL_WIRKNER-VANCE 35N-1HZ(460' FSL 1445' FWL)
FORMATION TOP DETAILS				CASING DETAILS					
TVDPATH	MDPATH	Formation	DipDirInc	TVD	MD	Name	Size		
867.00	867.00	Fox Hills Base	0.00	917.00	917.00	9 5/8"	9.625		
3872.00	3909.63	Parkman	10.00	7144.00	7522.63	7"	7.000		
4256.00	4299.56	Sussex	10.00						
7012.00	7125.83	Sharon Springs	50.32						
7089.00	7269.54	Niobrara A	64.69						
7113.00	7333.30	Niobrara B	71.07						





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WIRKNER-VANCE 3C-36HZ PAD

WIRKNER-VANCE 35N-1HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

20 June, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35N-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35N-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	WIRKNER-VANCE 3C-36HZ PAD, SECTION 36 T3N R67W				
Site Position:	Northing:	1,307,426.46 usft	Latitude:	40.1754260	
From:	Lat/Long	Easting:	3,183,014.90 usft	Longitude:	-104.8450430
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.42 °

Well	WIRKNER-VANCE 35N-1HZ, 244 FSL 929 FWL					
Well Position	+N/-S	-208.40 ft	Northing:	1,307,218.25 usft	Latitude:	40.1748539
	+E/-W	24.59 ft	Easting:	3,183,041.03 usft	Longitude:	-104.8449550
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,822.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	2013/06/18	8.64	66.78	52,727

Design	PLAN #1 PRELIMINARY			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	174.70

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
1,600.06	10.00	130.28	1,597.52	-28.14	33.21	2.00	2.00	0.00	130.28	
4,661.54	10.00	130.28	4,612.48	-371.86	438.85	0.00	0.00	0.00	0.00	
5,161.59	0.00	0.00	5,110.00	-400.00	472.06	2.00	-2.00	0.00	180.00	
6,622.63	0.00	0.00	6,571.04	-400.00	472.06	0.00	0.00	0.00	0.00	
7,522.63	90.00	180.00	7,144.00	-972.96	472.06	10.00	10.00	-20.00	180.00	
11,637.57	90.00	180.00	7,144.00	-5,087.89	472.06	0.00	0.00	0.00	0.00	PBHL_WIRKNER-VA

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35N-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35N-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	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	0.00
200.00	0.00	0.00	200.00	0.00	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	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
867.00	0.00	0.00	867.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base										
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
917.00	0.00	0.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,000.00	0.00	0.00	1,000.00	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	0.00
Start Build 2.00										
1,200.00	2.00	130.28	1,199.98	-1.13	1.33	1.25	2.00	2.00	2.00	0.00
1,300.00	4.00	130.28	1,299.84	-4.51	5.32	4.98	2.00	2.00	2.00	0.00
1,400.00	6.00	130.28	1,399.45	-10.15	11.97	11.21	2.00	2.00	2.00	0.00
1,500.00	8.00	130.28	1,498.70	-18.02	21.27	19.91	2.00	2.00	2.00	0.00
1,600.00	10.00	130.28	1,597.47	-28.14	33.21	31.08	2.00	2.00	2.00	0.00
1,600.06	10.00	130.28	1,597.52	-28.14	33.21	31.09	2.00	2.00	2.00	0.00
Start 3061.48 hold at 1600.06 MD										
1,700.00	10.00	130.28	1,695.95	-39.36	46.45	43.49	0.00	0.00	0.00	0.00
1,800.00	10.00	130.28	1,794.43	-50.59	59.70	55.89	0.00	0.00	0.00	0.00
1,900.00	10.00	130.28	1,892.91	-61.82	72.95	68.29	0.00	0.00	0.00	0.00
2,000.00	10.00	130.28	1,991.39	-73.04	86.20	80.70	0.00	0.00	0.00	0.00
2,100.00	10.00	130.28	2,089.87	-84.27	99.45	93.10	0.00	0.00	0.00	0.00
2,200.00	10.00	130.28	2,188.35	-95.50	112.70	105.50	0.00	0.00	0.00	0.00
2,300.00	10.00	130.28	2,286.83	-106.73	125.95	117.91	0.00	0.00	0.00	0.00
2,400.00	10.00	130.28	2,385.31	-117.95	139.20	130.31	0.00	0.00	0.00	0.00
2,500.00	10.00	130.28	2,483.79	-129.18	152.45	142.71	0.00	0.00	0.00	0.00
2,600.00	10.00	130.28	2,582.27	-140.41	165.70	155.12	0.00	0.00	0.00	0.00
2,700.00	10.00	130.28	2,680.75	-151.63	178.95	167.52	0.00	0.00	0.00	0.00
2,800.00	10.00	130.28	2,779.23	-162.86	192.20	179.92	0.00	0.00	0.00	0.00
2,900.00	10.00	130.28	2,877.71	-174.09	205.45	192.32	0.00	0.00	0.00	0.00
3,000.00	10.00	130.28	2,976.19	-185.32	218.70	204.73	0.00	0.00	0.00	0.00
3,100.00	10.00	130.28	3,074.67	-196.54	231.95	217.13	0.00	0.00	0.00	0.00
3,200.00	10.00	130.28	3,173.15	-207.77	245.20	229.53	0.00	0.00	0.00	0.00
3,300.00	10.00	130.28	3,271.63	-219.00	258.45	241.94	0.00	0.00	0.00	0.00
3,400.00	10.00	130.28	3,370.11	-230.22	271.70	254.34	0.00	0.00	0.00	0.00
3,500.00	10.00	130.28	3,468.59	-241.45	284.95	266.74	0.00	0.00	0.00	0.00
3,600.00	10.00	130.28	3,567.07	-252.68	298.20	279.15	0.00	0.00	0.00	0.00
3,700.00	10.00	130.28	3,665.55	-263.91	311.45	291.55	0.00	0.00	0.00	0.00
3,800.00	10.00	130.28	3,764.04	-275.13	324.70	303.95	0.00	0.00	0.00	0.00
3,900.00	10.00	130.28	3,862.52	-286.36	337.95	316.36	0.00	0.00	0.00	0.00
3,909.63	10.00	130.28	3,872.00	-287.44	339.23	317.55	0.00	0.00	0.00	0.00
Parkman										
4,000.00	10.00	130.28	3,961.00	-297.59	351.20	328.76	0.00	0.00	0.00	0.00
4,100.00	10.00	130.28	4,059.48	-308.81	364.45	341.16	0.00	0.00	0.00	0.00
4,200.00	10.00	130.28	4,157.96	-320.04	377.70	353.57	0.00	0.00	0.00	0.00
4,299.56	10.00	130.28	4,256.00	-331.22	390.89	365.91	0.00	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35N-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35N-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Sussex									
4,300.00	10.00	130.28	4,256.44	-331.27	390.95	365.97	0.00	0.00	0.00
4,400.00	10.00	130.28	4,354.92	-342.49	404.20	378.37	0.00	0.00	0.00
4,500.00	10.00	130.28	4,453.40	-353.72	417.45	390.78	0.00	0.00	0.00
4,600.00	10.00	130.28	4,551.88	-364.95	430.70	403.18	0.00	0.00	0.00
4,661.54	10.00	130.28	4,612.48	-371.86	438.85	410.81	0.00	0.00	0.00
Start Drop -2.00									
4,700.00	9.23	130.28	4,650.40	-376.01	443.75	415.40	2.00	-2.00	0.00
4,800.00	7.23	130.28	4,749.37	-385.27	454.68	425.62	2.00	-2.00	0.00
4,900.00	5.23	130.28	4,848.77	-392.28	462.96	433.38	2.00	-2.00	0.00
5,000.00	3.23	130.28	4,948.49	-397.05	468.59	438.65	2.00	-2.00	0.00
5,100.00	1.23	130.28	5,048.41	-399.57	471.56	441.43	2.00	-2.00	0.00
5,161.59	0.00	0.00	5,110.00	-400.00	472.06	441.90	2.00	-2.00	0.00
Start 1461.04 hold at 5161.59 MD									
5,200.00	0.00	0.00	5,148.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,300.00	0.00	0.00	5,248.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,400.00	0.00	0.00	5,348.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,500.00	0.00	0.00	5,448.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,600.00	0.00	0.00	5,548.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,700.00	0.00	0.00	5,648.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,800.00	0.00	0.00	5,748.41	-400.00	472.06	441.90	0.00	0.00	0.00
5,900.00	0.00	0.00	5,848.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,000.00	0.00	0.00	5,948.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,100.00	0.00	0.00	6,048.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,200.00	0.00	0.00	6,148.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,300.00	0.00	0.00	6,248.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,400.00	0.00	0.00	6,348.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,500.00	0.00	0.00	6,448.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,600.00	0.00	0.00	6,548.41	-400.00	472.06	441.90	0.00	0.00	0.00
6,622.63	0.00	0.00	6,571.04	-400.00	472.06	441.90	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
6,700.00	7.74	180.00	6,648.17	-405.22	472.06	447.09	10.00	10.00	0.00
6,800.00	17.74	180.00	6,745.59	-427.23	472.06	469.02	10.00	10.00	0.00
6,900.00	27.74	180.00	6,837.70	-465.84	472.06	507.46	10.00	10.00	0.00
7,000.00	37.74	180.00	6,921.71	-519.85	472.06	561.23	10.00	10.00	0.00
7,100.00	47.74	180.00	6,995.07	-587.62	472.06	628.72	10.00	10.00	0.00
7,125.83	50.32	180.00	7,012.00	-607.12	472.06	648.14	10.00	10.00	0.00
Sharon Springs									
7,200.00	57.74	180.00	7,055.54	-667.11	472.06	707.87	10.00	10.00	0.00
7,269.54	64.69	180.00	7,089.00	-728.01	472.06	768.51	10.00	10.00	0.00
Niobrara A									
7,300.00	67.74	180.00	7,101.29	-755.89	472.06	796.26	10.00	10.00	0.00
7,333.30	71.07	180.00	7,113.00	-787.05	472.06	827.30	10.00	10.00	0.00
Niobrara B									
7,400.00	77.74	180.00	7,130.92	-851.26	472.06	891.23	10.00	10.00	0.00
7,500.00	87.74	180.00	7,143.55	-950.33	472.06	989.88	10.00	10.00	0.00
7,522.63	90.00	180.00	7,144.00	-972.96	472.06	1,012.41	10.00	10.00	0.00
Start 4114.94 hold at 7522.63 MD - 7" 721' FNL 1401' FWL									
7,600.00	90.00	180.00	7,144.00	-1,050.33	472.06	1,089.45	0.00	0.00	0.00
7,700.00	90.00	180.00	7,144.00	-1,150.33	472.06	1,189.02	0.00	0.00	0.00
7,800.00	90.00	180.00	7,144.00	-1,250.33	472.06	1,288.59	0.00	0.00	0.00
7,900.00	90.00	180.00	7,144.00	-1,350.33	472.06	1,388.16	0.00	0.00	0.00
8,000.00	90.00	180.00	7,144.00	-1,450.33	472.06	1,487.73	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35N-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35N-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,100.00	90.00	180.00	7,144.00	-1,550.33	472.06	1,587.31	0.00	0.00	0.00	
8,200.00	90.00	180.00	7,144.00	-1,650.33	472.06	1,686.88	0.00	0.00	0.00	
8,300.00	90.00	180.00	7,144.00	-1,750.33	472.06	1,786.45	0.00	0.00	0.00	
8,400.00	90.00	180.00	7,144.00	-1,850.33	472.06	1,886.02	0.00	0.00	0.00	
8,500.00	90.00	180.00	7,144.00	-1,950.33	472.06	1,985.60	0.00	0.00	0.00	
8,600.00	90.00	180.00	7,144.00	-2,050.33	472.06	2,085.17	0.00	0.00	0.00	
8,700.00	90.00	180.00	7,144.00	-2,150.33	472.06	2,184.74	0.00	0.00	0.00	
8,800.00	90.00	180.00	7,144.00	-2,250.33	472.06	2,284.31	0.00	0.00	0.00	
8,900.00	90.00	180.00	7,144.00	-2,350.33	472.06	2,383.89	0.00	0.00	0.00	
9,000.00	90.00	180.00	7,144.00	-2,450.33	472.06	2,483.46	0.00	0.00	0.00	
9,100.00	90.00	180.00	7,144.00	-2,550.33	472.06	2,583.03	0.00	0.00	0.00	
9,200.00	90.00	180.00	7,144.00	-2,650.33	472.06	2,682.60	0.00	0.00	0.00	
9,300.00	90.00	180.00	7,144.00	-2,750.33	472.06	2,782.18	0.00	0.00	0.00	
9,400.00	90.00	180.00	7,144.00	-2,850.33	472.06	2,881.75	0.00	0.00	0.00	
9,500.00	90.00	180.00	7,144.00	-2,950.33	472.06	2,981.32	0.00	0.00	0.00	
9,600.00	90.00	180.00	7,144.00	-3,050.33	472.06	3,080.89	0.00	0.00	0.00	
9,700.00	90.00	180.00	7,144.00	-3,150.33	472.06	3,180.46	0.00	0.00	0.00	
9,800.00	90.00	180.00	7,144.00	-3,250.33	472.06	3,280.04	0.00	0.00	0.00	
9,900.00	90.00	180.00	7,144.00	-3,350.33	472.06	3,379.61	0.00	0.00	0.00	
10,000.00	90.00	180.00	7,144.00	-3,450.33	472.06	3,479.18	0.00	0.00	0.00	
10,100.00	90.00	180.00	7,144.00	-3,550.33	472.06	3,578.75	0.00	0.00	0.00	
10,200.00	90.00	180.00	7,144.00	-3,650.33	472.06	3,678.33	0.00	0.00	0.00	
10,300.00	90.00	180.00	7,144.00	-3,750.33	472.06	3,777.90	0.00	0.00	0.00	
10,400.00	90.00	180.00	7,144.00	-3,850.33	472.06	3,877.47	0.00	0.00	0.00	
10,500.00	90.00	180.00	7,144.00	-3,950.33	472.06	3,977.04	0.00	0.00	0.00	
10,600.00	90.00	180.00	7,144.00	-4,050.33	472.06	4,076.62	0.00	0.00	0.00	
10,700.00	90.00	180.00	7,144.00	-4,150.33	472.06	4,176.19	0.00	0.00	0.00	
10,800.00	90.00	180.00	7,144.00	-4,250.33	472.06	4,275.76	0.00	0.00	0.00	
10,900.00	90.00	180.00	7,144.00	-4,350.33	472.06	4,375.33	0.00	0.00	0.00	
11,000.00	90.00	180.00	7,144.00	-4,450.33	472.06	4,474.90	0.00	0.00	0.00	
11,100.00	90.00	180.00	7,144.00	-4,550.33	472.06	4,574.48	0.00	0.00	0.00	
11,200.00	90.00	180.00	7,144.00	-4,650.33	472.06	4,674.05	0.00	0.00	0.00	
11,300.00	90.00	180.00	7,144.00	-4,750.33	472.06	4,773.62	0.00	0.00	0.00	
11,400.00	90.00	180.00	7,144.00	-4,850.33	472.06	4,873.19	0.00	0.00	0.00	
11,500.00	90.00	180.00	7,144.00	-4,950.33	472.06	4,972.77	0.00	0.00	0.00	
11,600.00	90.00	180.00	7,144.00	-5,050.33	472.06	5,072.34	0.00	0.00	0.00	
11,637.57	90.00	180.00	7,144.00	-5,087.89	472.06	5,109.75	0.00	0.00	0.00	
TD at 11637.57 - PBHL_WIRKNER-VANCE 35N-1HZ(460' FSL 1445' FWL)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL_WIRKNER-VANC	0.00	0.00	7,144.00	-5,087.89	472.06	1,302,133.99	3,183,550.66	40.1608870	-104.8432660	
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35N-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35N-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (in)	Hole Diameter (in)	
917.00	917.00	9 5/8"		9.625	12.250	
7,522.63	7,144.00	7" 721' FNL 1401' FWL		7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
867.00	867.00	Fox Hills Base				
3,909.63	3,872.00	Parkman				
4,299.56	4,256.00	Sussex				
7,125.83	7,012.00	Sharon Springs				
7,269.54	7,089.00	Niobrara A				
7,333.30	7,113.00	Niobrara B				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,100.00	1,100.00	0.00	0.00	Start Build 2.00	
1,600.06	1,597.52	-28.14	33.21	Start 3061.48 hold at 1600.06 MD	
4,661.54	4,612.48	-371.86	438.85	Start Drop -2.00	
5,161.59	5,110.00	-400.00	472.06	Start 1461.04 hold at 5161.59 MD	
6,622.63	6,571.04	-400.00	472.06	Start DLS 10.00 TFO 180.00	
7,522.63	7,144.00	-972.96	472.06	Start 4114.94 hold at 7522.63 MD	
11,637.57	7,144.00	-5,087.89	472.06	TD at 11637.57	