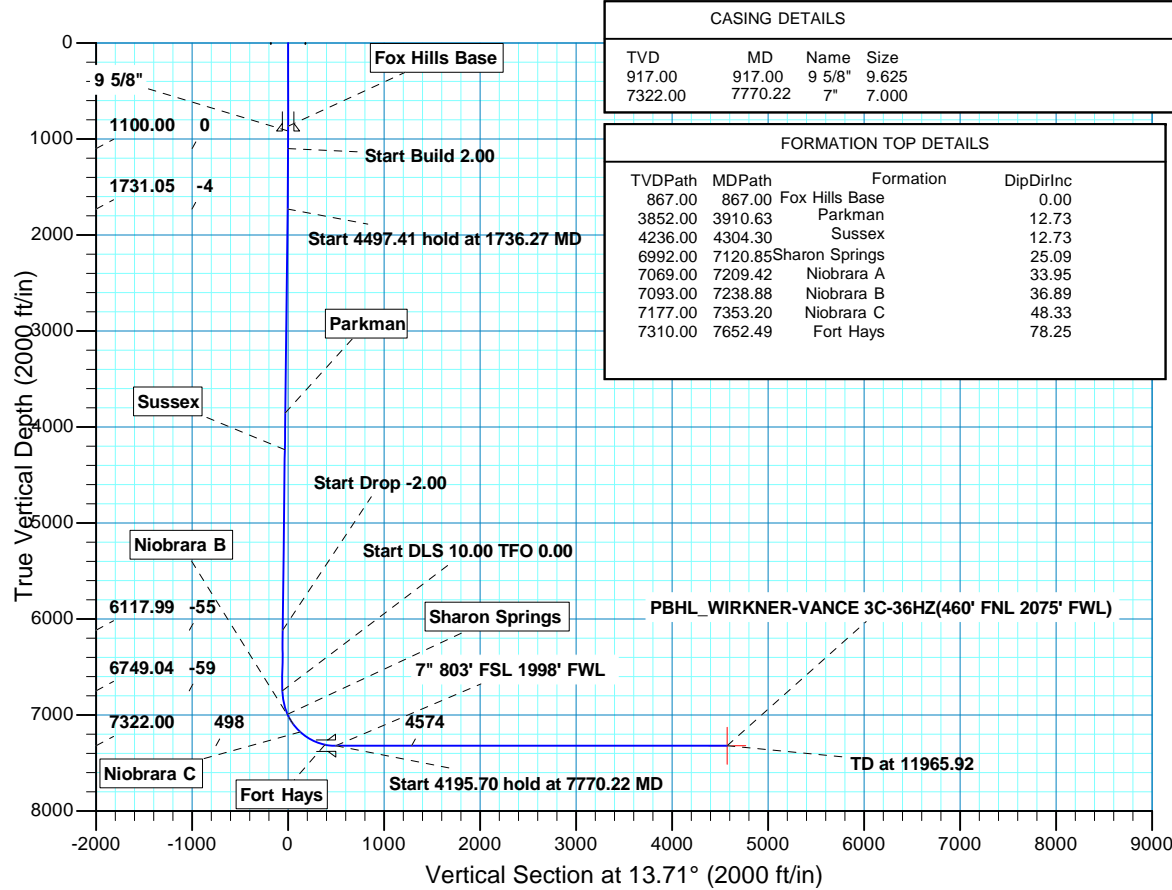
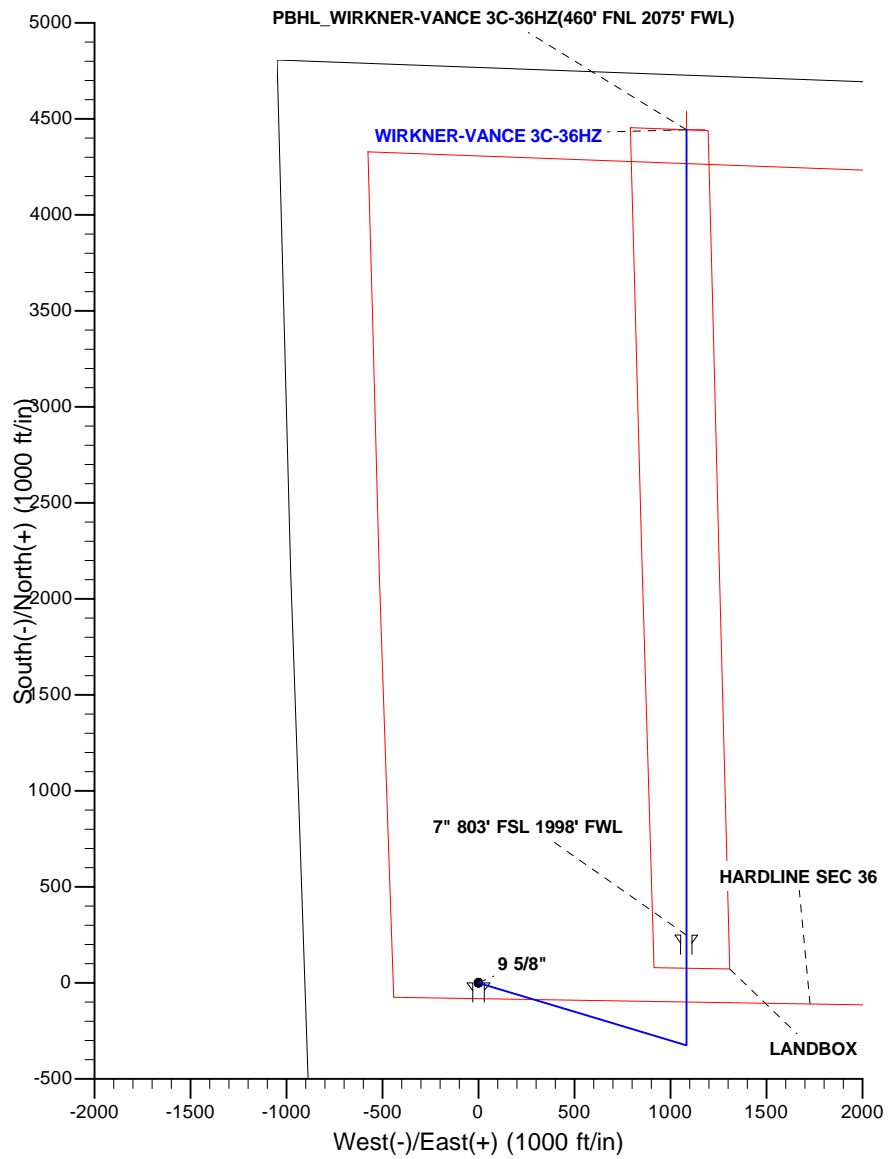


WELL DETAILS: WIRKNER-VANCE 3C-36HZ									
GL 4822 & KB 17 @ 4839.00ft (ASSUMED)									
+N-/S	+E-/W	Northing	Easting	Latitude	Longitude				
0.00	0.00	1307340.45	3182963.28	40.1751909	-104.8452300				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N-/S	+E-/W	Dleg	TFace	V Sect	Target
0.00	0.00	0.00	0.00	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	
1736.27	12.73	106.69	1731.05	-20.21	67.40	2.00	106.69	-3.67	
6233.68	12.73	106.69	6117.99	-304.79	1016.33	0.00	0.00	-55.32	
6869.95	0.00	0.00	6749.04	-325.00	1083.73	2.00	180.00	-58.98	
7770.22	90.03	0.00	7322.00	248.23	1083.73	10.00	0.00	497.93	
11965.92	90.03	0.00	7320.00	4443.93	1083.73	0.00	0.004574.17		PBHL_WIRKNER-VANCE 3C-36HZ(460' FNL 2075' FWL)
DESIGN TARGET DETAILS									
Name	TVD	+N-/S	+E-/W	Northing	Easting	Latitude	Longitude	Shape	
PBHL	7320.00	4443.93	1083.73	1311792.26	3184014.16	40.1873900	-104.8413510	Point	
- plan hits target center									



CASING DETAILS			
TVD	MD	Name	Size
917.00	917.00	9 5/8"	9.625
7322.00	7770.22	7"	7.000
FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	DipDirInc
867.00	867.00	Fox Hills Base	0.00
3852.00	3910.63	Parkman	12.73
4236.00	4304.30	Sussex	12.73
6992.00	7120.85	Sharon Springs	25.09
7069.00	7209.42	Niobrara A	33.95
7093.00	7238.88	Niobrara B	36.89
7177.00	7353.20	Niobrara C	48.33
7310.00	7652.49	Fort Hays	78.25



Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WIRKNER-VANCE 3C-36HZ PAD

WIRKNER-VANCE 3C-36HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

06 August, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 3C-36HZ
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 3C-36HZ	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:	1,307,250.94 usft	Latitude:	40.1749450	
From:	Lat/Long	Easting:	3,182,974.56 usft	Longitude:	-104.8451920
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.42 °

Well	WIRKNER-VANCE 3C-36HZ, 366 FSL 856 FWL					
Well Position	+N/-S	89.59 ft	Northing:	1,307,340.45 usft	Latitude:	40.1751910
	+E/-W	-10.62 ft	Easting:	3,182,963.28 usft	Longitude:	-104.8452300
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	8.65	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	13.71

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	
1,736.27	12.73	106.69	1,731.05	-20.21	67.40	2.00	2.00	0.00	106.69	
6,233.68	12.73	106.69	6,117.99	-304.79	1,016.33	0.00	0.00	0.00	0.00	
6,869.95	0.00	0.00	6,749.04	-325.00	1,083.73	2.00	-2.00	0.00	180.00	
7,770.22	90.03	0.00	7,322.00	248.23	1,083.73	10.00	10.00	0.00	0.00	
11,965.92	90.03	0.00	7,320.00	4,443.93	1,083.73	0.00	0.00	0.00	0.00	PBHL_WIRKNER-VA

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 3C-36HZ
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 3C-36HZ	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	106.69	1,199.98	-0.50	1.67	-0.09	2.00	2.00	0.00	0.00
1,300.00	4.00	106.69	1,299.84	-2.00	6.68	-0.36	2.00	2.00	0.00	0.00
1,400.00	6.00	106.69	1,399.45	-4.51	15.03	-0.82	2.00	2.00	0.00	0.00
1,500.00	8.00	106.69	1,498.70	-8.01	26.70	-1.45	2.00	2.00	0.00	0.00
1,600.00	10.00	106.69	1,597.47	-12.50	41.69	-2.27	2.00	2.00	0.00	0.00
1,700.00	12.00	106.69	1,695.62	-17.98	59.96	-3.26	2.00	2.00	0.00	0.00
1,736.27	12.73	106.69	1,731.05	-20.21	67.40	-3.67	2.00	2.00	0.00	0.00
Start 4497.41 hold at 1736.27 MD										
1,800.00	12.73	106.69	1,793.22	-24.25	80.85	-4.40	0.00	0.00	0.00	0.00
1,900.00	12.73	106.69	1,890.76	-30.57	101.95	-5.55	0.00	0.00	0.00	0.00
2,000.00	12.73	106.69	1,988.30	-36.90	123.05	-6.70	0.00	0.00	0.00	0.00
2,100.00	12.73	106.69	2,085.85	-43.23	144.15	-7.85	0.00	0.00	0.00	0.00
2,200.00	12.73	106.69	2,183.39	-49.56	165.25	-8.99	0.00	0.00	0.00	0.00
2,300.00	12.73	106.69	2,280.94	-55.88	186.35	-10.14	0.00	0.00	0.00	0.00
2,400.00	12.73	106.69	2,378.48	-62.21	207.45	-11.29	0.00	0.00	0.00	0.00
2,500.00	12.73	106.69	2,476.02	-68.54	228.54	-12.44	0.00	0.00	0.00	0.00
2,600.00	12.73	106.69	2,573.57	-74.87	249.64	-13.59	0.00	0.00	0.00	0.00
2,700.00	12.73	106.69	2,671.11	-81.19	270.74	-14.74	0.00	0.00	0.00	0.00
2,800.00	12.73	106.69	2,768.65	-87.52	291.84	-15.88	0.00	0.00	0.00	0.00
2,900.00	12.73	106.69	2,866.20	-93.85	312.94	-17.03	0.00	0.00	0.00	0.00
3,000.00	12.73	106.69	2,963.74	-100.18	334.04	-18.18	0.00	0.00	0.00	0.00
3,100.00	12.73	106.69	3,061.28	-106.50	355.14	-19.33	0.00	0.00	0.00	0.00
3,200.00	12.73	106.69	3,158.83	-112.83	376.24	-20.48	0.00	0.00	0.00	0.00
3,300.00	12.73	106.69	3,256.37	-119.16	397.34	-21.63	0.00	0.00	0.00	0.00
3,400.00	12.73	106.69	3,353.92	-125.49	418.44	-22.77	0.00	0.00	0.00	0.00
3,500.00	12.73	106.69	3,451.46	-131.81	439.54	-23.92	0.00	0.00	0.00	0.00
3,600.00	12.73	106.69	3,549.00	-138.14	460.64	-25.07	0.00	0.00	0.00	0.00
3,700.00	12.73	106.69	3,646.55	-144.47	481.74	-26.22	0.00	0.00	0.00	0.00
3,800.00	12.73	106.69	3,744.09	-150.80	502.84	-27.37	0.00	0.00	0.00	0.00
3,900.00	12.73	106.69	3,841.63	-157.12	523.94	-28.52	0.00	0.00	0.00	0.00
3,910.63	12.73	106.69	3,852.00	-157.80	526.18	-28.64	0.00	0.00	0.00	0.00
Parkman										
4,000.00	12.73	106.69	3,939.18	-163.45	545.04	-29.66	0.00	0.00	0.00	0.00
4,100.00	12.73	106.69	4,036.72	-169.78	566.14	-30.81	0.00	0.00	0.00	0.00
4,200.00	12.73	106.69	4,134.27	-176.11	587.23	-31.96	0.00	0.00	0.00	0.00
4,300.00	12.73	106.69	4,231.81	-182.43	608.33	-33.11	0.00	0.00	0.00	0.00
4,304.30	12.73	106.69	4,236.00	-182.71	609.24	-33.16	0.00	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 3C-36HZ
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 3C-36HZ	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									
4,400.00	12.73	106.69	4,329.35	-188.76	629.43	-34.26	0.00	0.00	0.00
4,500.00	12.73	106.69	4,426.90	-195.09	650.53	-35.41	0.00	0.00	0.00
4,600.00	12.73	106.69	4,524.44	-201.42	671.63	-36.56	0.00	0.00	0.00
4,700.00	12.73	106.69	4,621.98	-207.74	692.73	-37.70	0.00	0.00	0.00
4,800.00	12.73	106.69	4,719.53	-214.07	713.83	-38.85	0.00	0.00	0.00
4,900.00	12.73	106.69	4,817.07	-220.40	734.93	-40.00	0.00	0.00	0.00
5,000.00	12.73	106.69	4,914.62	-226.73	756.03	-41.15	0.00	0.00	0.00
5,100.00	12.73	106.69	5,012.16	-233.05	777.13	-42.30	0.00	0.00	0.00
5,200.00	12.73	106.69	5,109.70	-239.38	798.23	-43.45	0.00	0.00	0.00
5,300.00	12.73	106.69	5,207.25	-245.71	819.33	-44.59	0.00	0.00	0.00
5,400.00	12.73	106.69	5,304.79	-252.04	840.43	-45.74	0.00	0.00	0.00
5,500.00	12.73	106.69	5,402.33	-258.36	861.53	-46.89	0.00	0.00	0.00
5,600.00	12.73	106.69	5,499.88	-264.69	882.63	-48.04	0.00	0.00	0.00
5,700.00	12.73	106.69	5,597.42	-271.02	903.73	-49.19	0.00	0.00	0.00
5,800.00	12.73	106.69	5,694.97	-277.35	924.82	-50.34	0.00	0.00	0.00
5,900.00	12.73	106.69	5,792.51	-283.67	945.92	-51.48	0.00	0.00	0.00
6,000.00	12.73	106.69	5,890.05	-290.00	967.02	-52.63	0.00	0.00	0.00
6,100.00	12.73	106.69	5,987.60	-296.33	988.12	-53.78	0.00	0.00	0.00
6,200.00	12.73	106.69	6,085.14	-302.66	1,009.22	-54.93	0.00	0.00	0.00
6,233.68	12.73	106.69	6,117.99	-304.79	1,016.33	-55.32	0.00	0.00	0.00
Start Drop -2.00									
6,300.00	11.40	106.69	6,182.85	-308.77	1,029.60	-56.04	2.00	-2.00	0.00
6,400.00	9.40	106.69	6,281.20	-313.95	1,046.89	-56.98	2.00	-2.00	0.00
6,500.00	7.40	106.69	6,380.12	-318.15	1,060.88	-57.74	2.00	-2.00	0.00
6,600.00	5.40	106.69	6,479.49	-321.35	1,071.56	-58.32	2.00	-2.00	0.00
6,700.00	3.40	106.69	6,579.19	-323.55	1,078.90	-58.72	2.00	-2.00	0.00
6,800.00	1.40	106.69	6,679.10	-324.75	1,082.91	-58.94	2.00	-2.00	0.00
6,869.95	0.00	0.00	6,749.04	-325.00	1,083.73	-58.98	2.00	-2.00	0.00
Start DLS 10.00 TFO 0.00									
6,900.00	3.01	0.00	6,779.08	-324.21	1,083.73	-58.22	10.00	10.00	0.00
7,000.00	13.01	0.00	6,877.98	-310.30	1,083.73	-44.71	10.00	10.00	0.00
7,100.00	23.01	0.00	6,972.96	-279.43	1,083.73	-14.71	10.00	10.00	0.00
7,120.85	25.09	0.00	6,992.00	-270.94	1,083.73	-6.46	10.00	10.00	0.00
Sharon Springs									
7,200.00	33.01	0.00	7,061.14	-232.54	1,083.73	30.85	10.00	10.00	0.00
7,209.42	33.95	0.00	7,069.00	-227.34	1,083.73	35.90	10.00	10.00	0.00
Niobrara A									
7,238.88	36.89	0.00	7,093.00	-210.27	1,083.73	52.48	10.00	10.00	0.00
Niobrara B									
7,300.00	43.01	0.00	7,139.84	-171.04	1,083.73	90.59	10.00	10.00	0.00
7,353.20	48.33	0.00	7,177.00	-133.00	1,083.73	127.55	10.00	10.00	0.00
Niobrara C									
7,400.00	53.01	0.00	7,206.66	-96.81	1,083.73	162.71	10.00	10.00	0.00
7,500.00	63.01	0.00	7,259.57	-12.11	1,083.73	245.00	10.00	10.00	0.00
7,600.00	73.01	0.00	7,296.98	80.49	1,083.73	334.96	10.00	10.00	0.00
7,652.49	78.25	0.00	7,310.00	131.32	1,083.73	384.34	10.00	10.00	0.00
Fort Hays									
7,700.00	83.01	0.00	7,317.73	178.19	1,083.73	429.88	10.00	10.00	0.00
7,770.22	90.03	0.00	7,322.00	248.23	1,083.73	497.93	10.00	10.00	0.00
Start 4195.70 hold at 7770.22 MD - 7" 803' FSL 1998' FWL									
7,800.00	90.03	0.00	7,321.98	278.01	1,083.73	526.86	0.00	0.00	0.00
7,900.00	90.03	0.00	7,321.94	378.01	1,083.73	624.01	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 3C-36HZ
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 3C-36HZ	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)
8,000.00	90.03	0.00	7,321.89	478.01	1,083.73	721.17	0.00	0.00	0.00
8,100.00	90.03	0.00	7,321.84	578.01	1,083.73	818.32	0.00	0.00	0.00
8,200.00	90.03	0.00	7,321.79	678.01	1,083.73	915.47	0.00	0.00	0.00
8,300.00	90.03	0.00	7,321.75	778.01	1,083.73	1,012.62	0.00	0.00	0.00
8,400.00	90.03	0.00	7,321.70	878.01	1,083.73	1,109.78	0.00	0.00	0.00
8,500.00	90.03	0.00	7,321.65	978.01	1,083.73	1,206.93	0.00	0.00	0.00
8,600.00	90.03	0.00	7,321.60	1,078.01	1,083.73	1,304.08	0.00	0.00	0.00
8,700.00	90.03	0.00	7,321.56	1,178.01	1,083.73	1,401.23	0.00	0.00	0.00
8,800.00	90.03	0.00	7,321.51	1,278.01	1,083.73	1,498.39	0.00	0.00	0.00
8,900.00	90.03	0.00	7,321.46	1,378.01	1,083.73	1,595.54	0.00	0.00	0.00
9,000.00	90.03	0.00	7,321.41	1,478.01	1,083.73	1,692.69	0.00	0.00	0.00
9,100.00	90.03	0.00	7,321.36	1,578.01	1,083.73	1,789.85	0.00	0.00	0.00
9,200.00	90.03	0.00	7,321.32	1,678.01	1,083.73	1,887.00	0.00	0.00	0.00
9,300.00	90.03	0.00	7,321.27	1,778.01	1,083.73	1,984.15	0.00	0.00	0.00
9,400.00	90.03	0.00	7,321.22	1,878.01	1,083.73	2,081.30	0.00	0.00	0.00
9,500.00	90.03	0.00	7,321.17	1,978.01	1,083.73	2,178.46	0.00	0.00	0.00
9,600.00	90.03	0.00	7,321.13	2,078.01	1,083.73	2,275.61	0.00	0.00	0.00
9,700.00	90.03	0.00	7,321.08	2,178.01	1,083.73	2,372.76	0.00	0.00	0.00
9,800.00	90.03	0.00	7,321.03	2,278.01	1,083.73	2,469.92	0.00	0.00	0.00
9,900.00	90.03	0.00	7,320.98	2,378.01	1,083.73	2,567.07	0.00	0.00	0.00
10,000.00	90.03	0.00	7,320.94	2,478.01	1,083.73	2,664.22	0.00	0.00	0.00
10,100.00	90.03	0.00	7,320.89	2,578.01	1,083.73	2,761.37	0.00	0.00	0.00
10,200.00	90.03	0.00	7,320.84	2,678.01	1,083.73	2,858.53	0.00	0.00	0.00
10,300.00	90.03	0.00	7,320.79	2,778.01	1,083.73	2,955.68	0.00	0.00	0.00
10,400.00	90.03	0.00	7,320.75	2,878.01	1,083.73	3,052.83	0.00	0.00	0.00
10,500.00	90.03	0.00	7,320.70	2,978.01	1,083.73	3,149.99	0.00	0.00	0.00
10,600.00	90.03	0.00	7,320.65	3,078.01	1,083.73	3,247.14	0.00	0.00	0.00
10,700.00	90.03	0.00	7,320.60	3,178.01	1,083.73	3,344.29	0.00	0.00	0.00
10,800.00	90.03	0.00	7,320.56	3,278.01	1,083.73	3,441.44	0.00	0.00	0.00
10,900.00	90.03	0.00	7,320.51	3,378.01	1,083.73	3,538.60	0.00	0.00	0.00
11,000.00	90.03	0.00	7,320.46	3,478.01	1,083.73	3,635.75	0.00	0.00	0.00
11,100.00	90.03	0.00	7,320.41	3,578.01	1,083.73	3,732.90	0.00	0.00	0.00
11,200.00	90.03	0.00	7,320.36	3,678.01	1,083.73	3,830.05	0.00	0.00	0.00
11,300.00	90.03	0.00	7,320.32	3,778.01	1,083.73	3,927.21	0.00	0.00	0.00
11,400.00	90.03	0.00	7,320.27	3,878.01	1,083.73	4,024.36	0.00	0.00	0.00
11,500.00	90.03	0.00	7,320.22	3,978.01	1,083.73	4,121.51	0.00	0.00	0.00
11,600.00	90.03	0.00	7,320.17	4,078.01	1,083.73	4,218.67	0.00	0.00	0.00
11,700.00	90.03	0.00	7,320.13	4,178.01	1,083.73	4,315.82	0.00	0.00	0.00
11,800.00	90.03	0.00	7,320.08	4,278.01	1,083.73	4,412.97	0.00	0.00	0.00
11,900.00	90.03	0.00	7,320.03	4,378.01	1,083.73	4,510.12	0.00	0.00	0.00
11,965.92	90.03	0.00	7,320.00	4,443.93	1,083.73	4,574.17	0.00	0.00	0.00
TD at 11965.92 - PBHL_WIRKNER-VANCE 3C-36HZ(460' FNL 2075' 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 - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,320.00	4,443.93	1,083.73	1,311,792.26	3,184,014.16	40.1873900	-104.8413510

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 3C-36HZ
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 3C-36HZ	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	
7,770.22	7,322.00	7" 803' FSL 1998' FWL	7.000	7.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
867.00	867.00	Fox Hills Base			
3,910.63	3,852.00	Parkman			
4,304.30	4,236.00	Sussex			
7,120.85	6,992.00	Sharon Springs			
7,209.42	7,069.00	Niobrara A			
7,238.88	7,093.00	Niobrara B			
7,353.20	7,177.00	Niobrara C			
7,652.49	7,310.00	Fort Hays			

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	
1,736.27	1,731.05	-20.21	67.40	Start 4497.41 hold at 1736.27 MD	
6,233.68	6,117.99	-304.79	1,016.33	Start Drop -2.00	
6,869.95	6,749.04	-325.00	1,083.73	Start DLS 10.00 TFO 0.00	
7,770.22	7,322.00	248.23	1,083.73	Start 4195.70 hold at 7770.22 MD	
11,965.92	7,320.00	4,443.93	1,083.73	TD at 11965.92	