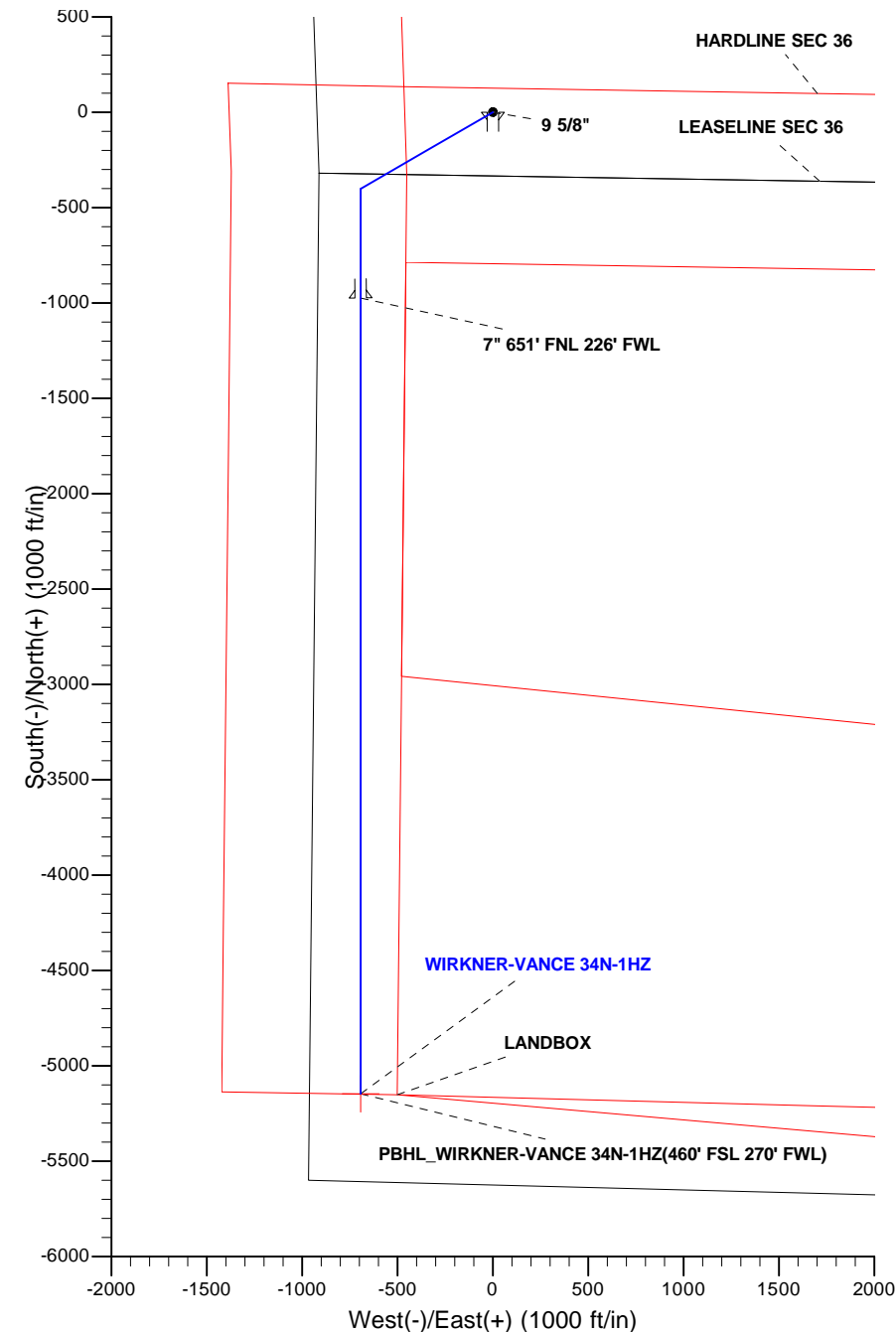
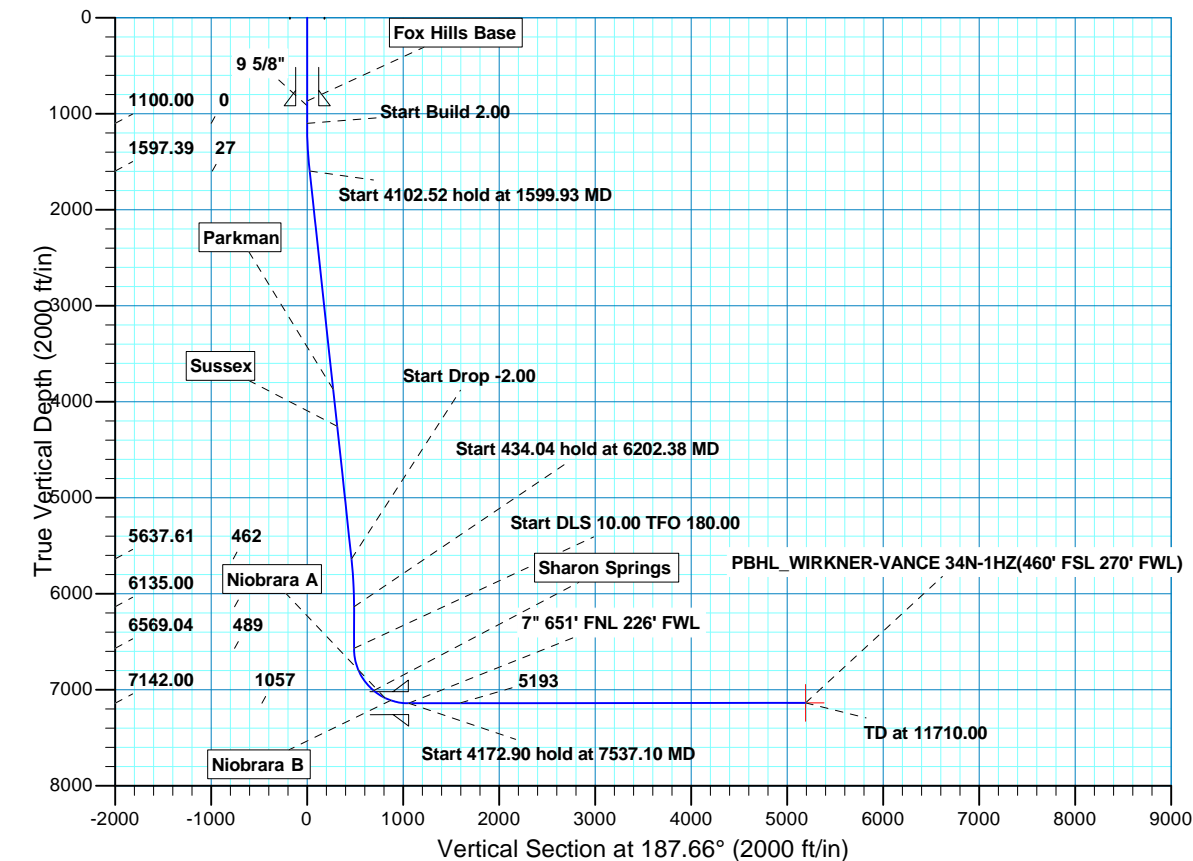


WELL DETAILS: WIRKNER-VANCE 34N-1HZ																			
GL 4822 & KB 17 @ 4839.00ft (ASSUMED)																			
+N/-S		+E/-W		Northing		Easting		Latitude		Longitude									
0.00		0.00		1307307.42		3183029.75		40.1750989		-104.8449930									
SECTION DETAILS																			
MD		Inc		Azi		TVD		+N/-S		+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		0.00	
1100.00		0.00		0.00		1100.00		0.00		0.00		0.00		0.00		0.00		0.00	
1599.93		10.00		239.97		1597.39		-21.77		-37.67		2.00		239.97		26.60			
5702.45		10.00		239.97		5637.61		-378.23		-654.35		0.00		0.00		462.06			
6202.38		0.00		0.00		6135.00		-400.00		-692.02		2.00		180.00		488.65			
6636.42		0.00		0.00		6569.04		-400.00		-692.02		0.00		0.00		488.65			
7537.10		90.07		180.00		7142.00		-973.64		-692.02		10.00		180.00		1057.18			
11710.00		90.07		180.00		7137.00		-5146.54		-692.02		0.00		0.005192.86				PBHL_WIRKNER-VANCE 34N-1HZ(460' FSL 270' 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			
3870.00		3907.58		Parkman				10.00		7142.00		7537.10		7"		7.000			
4254.00		4297.50		Sussex				10.00											
7010.00		7139.61		Sharon Springs				50.32											
7087.00		7283.32		Niobrara A				64.69											
7111.00		7347.09		Niobrara B				71.07											





# Scientific Drilling

## **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WIRKNER-VANCE 3C-36HZ PAD**

**WIRKNER-VANCE 34N-1HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**20 June, 2013**

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well WIRKNER-VANCE 34N-1HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Site:</b>	WIRKNER-VANCE 3C-36HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	WIRKNER-VANCE 34N-1HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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

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

<b>Well</b>	WIRKNER-VANCE 34N-1HZ, 333 FSL 921 FWL			
<b>Well Position</b>	<b>+N/-S</b>	-119.15 ft	<b>Northing:</b>	1,307,307.42 usft
	<b>+E/-W</b>	13.97 ft	<b>Easting:</b>	3,183,029.75 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40.1750989
				<b>Longitude:</b> -104.8449930
				<b>Ground Level:</b> 4,822.00 ft

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

<b>Design</b>	PLAN #1 PRELIMINARY			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	187.66

<b>Plan Sections</b>										
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	
1,599.93	10.00	239.97	1,597.39	-21.77	-37.67	2.00	2.00	0.00	239.97	
5,702.45	10.00	239.97	5,637.61	-378.23	-654.35	0.00	0.00	0.00	0.00	
6,202.38	0.00	0.00	6,135.00	-400.00	-692.02	2.00	-2.00	0.00	180.00	
6,636.42	0.00	0.00	6,569.04	-400.00	-692.02	0.00	0.00	0.00	0.00	
7,537.10	90.07	180.00	7,142.00	-973.64	-692.02	10.00	10.00	19.98	180.00	
11,710.00	90.07	180.00	7,137.00	-5,146.54	-692.02	0.00	0.00	0.00	0.00	PBHL_WIRKNER-VA

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well WIRKNER-VANCE 34N-1HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Site:</b>	WIRKNER-VANCE 3C-36HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	WIRKNER-VANCE 34N-1HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
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
300.00	0.00	0.00	300.00	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
500.00	0.00	0.00	500.00	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
700.00	0.00	0.00	700.00	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
867.00	0.00	0.00	867.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Base</b>									
900.00	0.00	0.00	900.00	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
<b>9 5/8"</b>									
1,000.00	0.00	0.00	1,000.00	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
<b>Start Build 2.00</b>									
1,200.00	2.00	239.97	1,199.98	-0.87	-1.51	1.07	2.00	2.00	0.00
1,300.00	4.00	239.97	1,299.84	-3.49	-6.04	4.27	2.00	2.00	0.00
1,400.00	6.00	239.97	1,399.45	-7.85	-13.59	9.59	2.00	2.00	0.00
1,500.00	8.00	239.97	1,498.70	-13.95	-24.14	17.04	2.00	2.00	0.00
1,599.93	10.00	239.97	1,597.39	-21.77	-37.67	26.60	2.00	2.00	0.00
<b>Start 4102.52 hold at 1599.93 MD</b>									
1,600.00	10.00	239.97	1,597.47	-21.78	-37.68	26.61	0.00	0.00	0.00
1,700.00	10.00	239.97	1,695.95	-30.47	-52.71	37.22	0.00	0.00	0.00
1,800.00	10.00	239.97	1,794.43	-39.16	-67.74	47.84	0.00	0.00	0.00
1,900.00	10.00	239.97	1,892.91	-47.85	-82.78	58.45	0.00	0.00	0.00
2,000.00	10.00	239.97	1,991.39	-56.53	-97.81	69.06	0.00	0.00	0.00
2,100.00	10.00	239.97	2,089.87	-65.22	-112.84	79.68	0.00	0.00	0.00
2,200.00	10.00	239.97	2,188.35	-73.91	-127.87	90.29	0.00	0.00	0.00
2,300.00	10.00	239.97	2,286.83	-82.60	-142.90	100.91	0.00	0.00	0.00
2,400.00	10.00	239.97	2,385.32	-91.29	-157.94	111.52	0.00	0.00	0.00
2,500.00	10.00	239.97	2,483.80	-99.98	-172.97	122.14	0.00	0.00	0.00
2,600.00	10.00	239.97	2,582.28	-108.67	-188.00	132.75	0.00	0.00	0.00
2,700.00	10.00	239.97	2,680.76	-117.35	-203.03	143.37	0.00	0.00	0.00
2,800.00	10.00	239.97	2,779.24	-126.04	-218.06	153.98	0.00	0.00	0.00
2,900.00	10.00	239.97	2,877.72	-134.73	-233.09	164.59	0.00	0.00	0.00
3,000.00	10.00	239.97	2,976.20	-143.42	-248.13	175.21	0.00	0.00	0.00
3,100.00	10.00	239.97	3,074.68	-152.11	-263.16	185.82	0.00	0.00	0.00
3,200.00	10.00	239.97	3,173.17	-160.80	-278.19	196.44	0.00	0.00	0.00
3,300.00	10.00	239.97	3,271.65	-169.49	-293.22	207.05	0.00	0.00	0.00
3,400.00	10.00	239.97	3,370.13	-178.18	-308.25	217.67	0.00	0.00	0.00
3,500.00	10.00	239.97	3,468.61	-186.86	-323.29	228.28	0.00	0.00	0.00
3,600.00	10.00	239.97	3,567.09	-195.55	-338.32	238.89	0.00	0.00	0.00
3,700.00	10.00	239.97	3,665.57	-204.24	-353.35	249.51	0.00	0.00	0.00
3,800.00	10.00	239.97	3,764.05	-212.93	-368.38	260.12	0.00	0.00	0.00
3,900.00	10.00	239.97	3,862.53	-221.62	-383.41	270.74	0.00	0.00	0.00
3,907.58	10.00	239.97	3,870.00	-222.28	-384.55	271.54	0.00	0.00	0.00
<b>Parkman</b>									
4,000.00	10.00	239.97	3,961.01	-230.31	-398.45	281.35	0.00	0.00	0.00
4,100.00	10.00	239.97	4,059.50	-239.00	-413.48	291.97	0.00	0.00	0.00
4,200.00	10.00	239.97	4,157.98	-247.68	-428.51	302.58	0.00	0.00	0.00
4,297.50	10.00	239.97	4,254.00	-256.16	-443.17	312.93	0.00	0.00	0.00

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Site:</b>	WIRKNER-VANCE 3C-36HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	WIRKNER-VANCE 34N-1HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
<b>Sussex</b>									
4,300.00	10.00	239.97	4,256.46	-256.37	-443.54	313.19	0.00	0.00	0.00
4,400.00	10.00	239.97	4,354.94	-265.06	-458.57	323.81	0.00	0.00	0.00
4,500.00	10.00	239.97	4,453.42	-273.75	-473.60	334.42	0.00	0.00	0.00
4,600.00	10.00	239.97	4,551.90	-282.44	-488.64	345.04	0.00	0.00	0.00
4,700.00	10.00	239.97	4,650.38	-291.13	-503.67	355.65	0.00	0.00	0.00
4,800.00	10.00	239.97	4,748.86	-299.82	-518.70	366.27	0.00	0.00	0.00
4,900.00	10.00	239.97	4,847.35	-308.50	-533.73	376.88	0.00	0.00	0.00
5,000.00	10.00	239.97	4,945.83	-317.19	-548.76	387.49	0.00	0.00	0.00
5,100.00	10.00	239.97	5,044.31	-325.88	-563.80	398.11	0.00	0.00	0.00
5,200.00	10.00	239.97	5,142.79	-334.57	-578.83	408.72	0.00	0.00	0.00
5,300.00	10.00	239.97	5,241.27	-343.26	-593.86	419.34	0.00	0.00	0.00
5,400.00	10.00	239.97	5,339.75	-351.95	-608.89	429.95	0.00	0.00	0.00
5,500.00	10.00	239.97	5,438.23	-360.64	-623.92	440.57	0.00	0.00	0.00
5,600.00	10.00	239.97	5,536.71	-369.32	-638.95	451.18	0.00	0.00	0.00
5,700.00	10.00	239.97	5,635.20	-378.01	-653.99	461.80	0.00	0.00	0.00
5,702.45	10.00	239.97	5,637.61	-378.23	-654.35	462.06	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,800.00	8.05	239.97	5,733.95	-385.88	-667.60	471.41	2.00	-2.00	0.00
5,900.00	6.05	239.97	5,833.19	-392.02	-678.22	478.91	2.00	-2.00	0.00
6,000.00	4.05	239.97	5,932.79	-396.42	-685.84	484.29	2.00	-2.00	0.00
6,100.00	2.05	239.97	6,032.65	-399.08	-690.44	487.54	2.00	-2.00	0.00
6,200.00	0.05	239.97	6,132.62	-400.00	-692.02	488.65	2.00	-2.00	0.00
6,202.38	0.00	0.00	6,135.00	-400.00	-692.02	488.65	2.00	-2.00	0.00
<b>Start 434.04 hold at 6202.38 MD</b>									
6,300.00	0.00	0.00	6,232.62	-400.00	-692.02	488.65	0.00	0.00	0.00
6,400.00	0.00	0.00	6,332.62	-400.00	-692.02	488.65	0.00	0.00	0.00
6,500.00	0.00	0.00	6,432.62	-400.00	-692.02	488.65	0.00	0.00	0.00
6,600.00	0.00	0.00	6,532.62	-400.00	-692.02	488.65	0.00	0.00	0.00
6,636.42	0.00	0.00	6,569.04	-400.00	-692.02	488.65	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 180.00</b>									
6,700.00	6.36	180.00	6,632.49	-403.52	-692.02	492.15	10.00	10.00	0.00
6,800.00	16.36	180.00	6,730.41	-423.19	-692.02	511.64	10.00	10.00	0.00
6,900.00	26.36	180.00	6,823.43	-459.57	-692.02	547.69	10.00	10.00	0.00
7,000.00	36.36	180.00	6,908.71	-511.54	-692.02	599.20	10.00	10.00	0.00
7,100.00	46.36	180.00	6,983.67	-577.53	-692.02	664.61	10.00	10.00	0.00
7,139.61	50.32	180.00	7,010.00	-607.12	-692.02	693.93	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,200.00	56.36	180.00	7,046.04	-655.54	-692.02	741.92	10.00	10.00	0.00
7,283.32	64.69	180.00	7,087.00	-728.01	-692.02	813.74	10.00	10.00	0.00
<b>Niobrara A</b>									
7,300.00	66.36	180.00	7,093.91	-743.19	-692.02	828.79	10.00	10.00	0.00
7,347.09	71.07	180.00	7,111.00	-787.05	-692.02	872.26	10.00	10.00	0.00
<b>Niobrara B</b>									
7,400.00	76.36	180.00	7,125.84	-837.83	-692.02	922.58	10.00	10.00	0.00
7,500.00	86.36	180.00	7,140.84	-936.57	-692.02	1,020.44	10.00	10.00	0.00
7,537.10	90.07	180.00	7,142.00	-973.64	-692.02	1,057.18	10.00	10.00	0.00
<b>Start 4172.90 hold at 7537.10 MD - 7" 651' FNL 226' FWL</b>									
7,600.00	90.07	180.00	7,141.92	-1,036.54	-692.02	1,119.52	0.00	0.00	0.00
7,700.00	90.07	180.00	7,141.80	-1,136.54	-692.02	1,218.63	0.00	0.00	0.00
7,800.00	90.07	180.00	7,141.68	-1,236.54	-692.02	1,317.74	0.00	0.00	0.00
7,900.00	90.07	180.00	7,141.56	-1,336.54	-692.02	1,416.84	0.00	0.00	0.00
8,000.00	90.07	180.00	7,141.44	-1,436.54	-692.02	1,515.95	0.00	0.00	0.00

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well WIRKNER-VANCE 34N-1HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Site:</b>	WIRKNER-VANCE 3C-36HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	WIRKNER-VANCE 34N-1HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	90.07	180.00	7,141.32	-1,536.54	-692.02	1,615.06	0.00	0.00	0.00	
8,200.00	90.07	180.00	7,141.20	-1,636.54	-692.02	1,714.17	0.00	0.00	0.00	
8,300.00	90.07	180.00	7,141.08	-1,736.54	-692.02	1,813.28	0.00	0.00	0.00	
8,400.00	90.07	180.00	7,140.96	-1,836.54	-692.02	1,912.38	0.00	0.00	0.00	
8,500.00	90.07	180.00	7,140.84	-1,936.54	-692.02	2,011.49	0.00	0.00	0.00	
8,600.00	90.07	180.00	7,140.72	-2,036.54	-692.02	2,110.60	0.00	0.00	0.00	
8,700.00	90.07	180.00	7,140.60	-2,136.54	-692.02	2,209.71	0.00	0.00	0.00	
8,800.00	90.07	180.00	7,140.49	-2,236.54	-692.02	2,308.82	0.00	0.00	0.00	
8,900.00	90.07	180.00	7,140.37	-2,336.54	-692.02	2,407.92	0.00	0.00	0.00	
9,000.00	90.07	180.00	7,140.25	-2,436.54	-692.02	2,507.03	0.00	0.00	0.00	
9,100.00	90.07	180.00	7,140.13	-2,536.54	-692.02	2,606.14	0.00	0.00	0.00	
9,200.00	90.07	180.00	7,140.01	-2,636.54	-692.02	2,705.25	0.00	0.00	0.00	
9,300.00	90.07	180.00	7,139.89	-2,736.54	-692.02	2,804.36	0.00	0.00	0.00	
9,400.00	90.07	180.00	7,139.77	-2,836.54	-692.02	2,903.46	0.00	0.00	0.00	
9,500.00	90.07	180.00	7,139.65	-2,936.54	-692.02	3,002.57	0.00	0.00	0.00	
9,600.00	90.07	180.00	7,139.53	-3,036.54	-692.02	3,101.68	0.00	0.00	0.00	
9,700.00	90.07	180.00	7,139.41	-3,136.54	-692.02	3,200.79	0.00	0.00	0.00	
9,800.00	90.07	180.00	7,139.29	-3,236.54	-692.02	3,299.90	0.00	0.00	0.00	
9,900.00	90.07	180.00	7,139.17	-3,336.54	-692.02	3,399.00	0.00	0.00	0.00	
10,000.00	90.07	180.00	7,139.05	-3,436.54	-692.02	3,498.11	0.00	0.00	0.00	
10,100.00	90.07	180.00	7,138.93	-3,536.54	-692.02	3,597.22	0.00	0.00	0.00	
10,200.00	90.07	180.00	7,138.81	-3,636.54	-692.02	3,696.33	0.00	0.00	0.00	
10,300.00	90.07	180.00	7,138.69	-3,736.54	-692.02	3,795.43	0.00	0.00	0.00	
10,400.00	90.07	180.00	7,138.57	-3,836.54	-692.02	3,894.54	0.00	0.00	0.00	
10,500.00	90.07	180.00	7,138.45	-3,936.54	-692.02	3,993.65	0.00	0.00	0.00	
10,600.00	90.07	180.00	7,138.33	-4,036.54	-692.02	4,092.76	0.00	0.00	0.00	
10,700.00	90.07	180.00	7,138.21	-4,136.54	-692.02	4,191.87	0.00	0.00	0.00	
10,800.00	90.07	180.00	7,138.09	-4,236.54	-692.02	4,290.97	0.00	0.00	0.00	
10,900.00	90.07	180.00	7,137.97	-4,336.54	-692.02	4,390.08	0.00	0.00	0.00	
11,000.00	90.07	180.00	7,137.85	-4,436.54	-692.02	4,489.19	0.00	0.00	0.00	
11,100.00	90.07	180.00	7,137.73	-4,536.54	-692.02	4,588.30	0.00	0.00	0.00	
11,200.00	90.07	180.00	7,137.61	-4,636.54	-692.02	4,687.41	0.00	0.00	0.00	
11,300.00	90.07	180.00	7,137.49	-4,736.54	-692.02	4,786.51	0.00	0.00	0.00	
11,400.00	90.07	180.00	7,137.37	-4,836.54	-692.02	4,885.62	0.00	0.00	0.00	
11,500.00	90.07	180.00	7,137.25	-4,936.54	-692.02	4,984.73	0.00	0.00	0.00	
11,600.00	90.07	180.00	7,137.13	-5,036.54	-692.02	5,083.84	0.00	0.00	0.00	
11,700.00	90.07	180.00	7,137.01	-5,136.54	-692.02	5,182.95	0.00	0.00	0.00	
11,710.00	90.07	180.00	7,137.00	-5,146.54	-692.02	5,192.86	0.00	0.00	0.00	
PBHL_WIRKNER-VANCE 34N-1HZ(460' FSL 270' FWL)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
PBHL_WIRKNER-VANC	0.00	0.00	7,137.00	-5,146.54	-692.02	1,302,155.92	3,182,375.76	40.1609710	-104.8474690	
- plan hits target center										
- Point										

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well WIRKNER-VANCE 34N-1HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4822 & KB 17 @ 4839.00ft (ASSUMED)
<b>Site:</b>	WIRKNER-VANCE 3C-36HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	WIRKNER-VANCE 34N-1HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	
7,537.10	7,142.00	7" 651' FNL 226' FWL	7.000	7.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
867.00	867.00	Fox Hills Base			
3,907.58	3,870.00	Parkman			
4,297.50	4,254.00	Sussex			
7,139.61	7,010.00	Sharon Springs			
7,283.32	7,087.00	Niobrara A			
7,347.09	7,111.00	Niobrara B			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00	
1,599.93	1,597.39	-21.77	-37.67	Start 4102.52 hold at 1599.93 MD	
5,702.45	5,637.61	-378.23	-654.35	Start Drop -2.00	
6,202.38	6,135.00	-400.00	-692.02	Start 434.04 hold at 6202.38 MD	
6,636.42	6,569.04	-400.00	-692.02	Start DLS 10.00 TFO 180.00	
7,537.10	7,142.00	-973.64	-692.02	Start 4172.90 hold at 7537.10 MD	
11,710.00	7,137.00	-5,146.54	-692.02	TD at 11710.00	