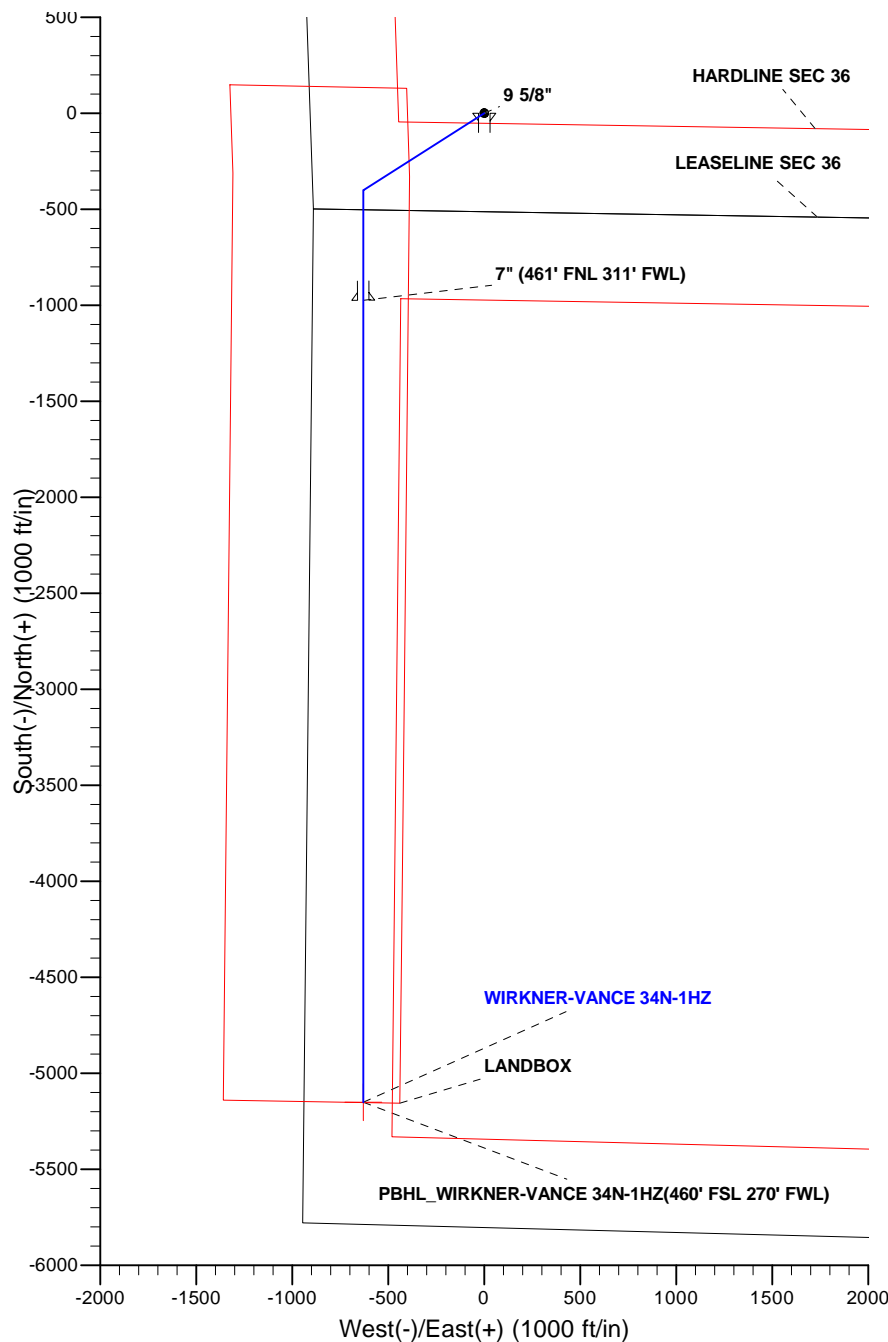
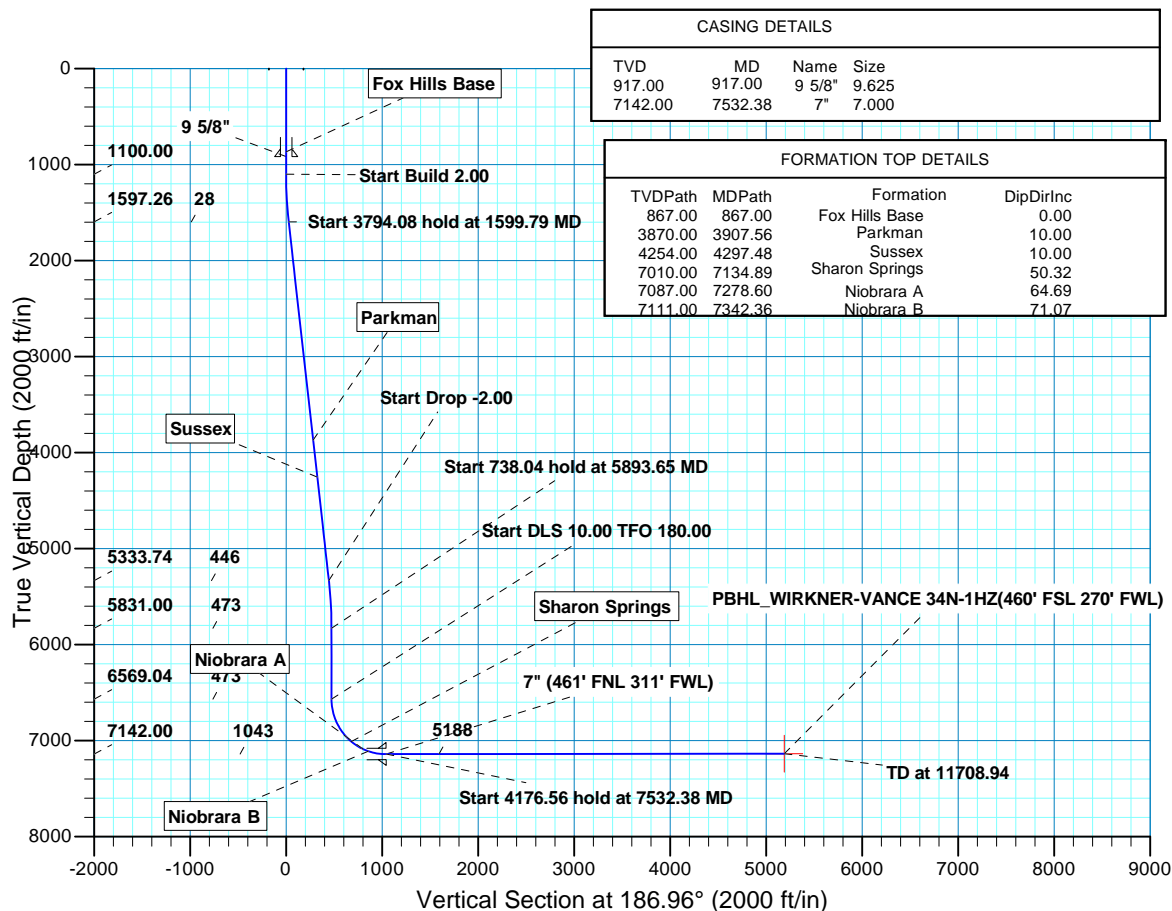


WELL DETAILS: WIRKNER-VANCE 34N-1HZ										
GL 4822 & KB 17 @ 4839.00ft (ASSUMED)										
+N/-S		+E/-W		Northing		Easting		Latitude		Longitude
0.00		0.00		1307310.62		3182966.85		40.1751090		-104.8452180
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1599.79	10.00	237.55	1597.26	-23.33	-36.70	2.00	237.55	27.61		
5393.87	10.00	237.55	5333.74	-376.67	-592.44	0.00	0.00	445.73		
5893.65	0.00	0.00	5831.00	-400.00	-629.14	2.00	180.00	473.34		
6631.69	0.00	0.00	6569.04	-400.00	-629.14	0.00	0.00	473.34		
7532.38	90.07	180.00	7142.00	-973.64	-629.14	10.00	180.00	1042.75		
11708.94	90.07	180.00	7137.00	-5150.20	-629.14	0.00	0.005188.48	PBHL_WIRKNER-VANCE 34N-1HZ(460' FSL 270' FWL)		
DESIGN TARGET DETAILS										
Name		TVD		+N/-S		+E/-W		Northing		Easting
PBHL		7137.00		-5150.20		-629.14		1302155.92		3182375.76
		- plan hits target center						40.1609710		-104.8474690
								Shape		Point





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

06 August, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 34N-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 34N-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:	1,307,250.94 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 34N-1HZ, 336 FSL 859 FWL			
Well Position	+N/-S	59.73 ft	Northing:	1,307,310.62 usft
	+E/-W	-7.27 ft	Easting:	3,182,966.85 usft
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	186.96

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	
1,599.79	10.00	237.55	1,597.26	-23.33	-36.70	2.00	2.00	0.00	237.55	
5,393.87	10.00	237.55	5,333.74	-376.67	-592.44	0.00	0.00	0.00	0.00	
5,893.66	0.00	0.00	5,831.00	-400.00	-629.14	2.00	-2.00	0.00	180.00	
6,631.70	0.00	0.00	6,569.04	-400.00	-629.14	0.00	0.00	0.00	0.00	
7,532.38	90.07	180.00	7,142.00	-973.64	-629.14	10.00	10.00	19.98	180.00	
11,708.94	90.07	180.00	7,137.00	-5,150.20	-629.14	0.00	0.00	0.00	0.00	PBHL_WIRKNER-VA

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 34N-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 34N-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
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
Fox Hills Base									
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
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
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,200.00	2.00	237.55	1,199.98	-0.94	-1.47	1.11	2.00	2.00	0.00
1,300.00	4.00	237.55	1,299.84	-3.74	-5.89	4.43	2.00	2.00	0.00
1,400.00	6.00	237.55	1,399.45	-8.42	-13.24	9.96	2.00	2.00	0.00
1,500.00	8.00	237.55	1,498.70	-14.96	-23.53	17.70	2.00	2.00	0.00
1,599.79	10.00	237.55	1,597.26	-23.33	-36.70	27.61	2.00	2.00	0.00
Start 3794.08 hold at 1599.79 MD									
1,600.00	10.00	237.55	1,597.47	-23.35	-36.73	27.63	0.00	0.00	0.00
1,700.00	10.00	237.55	1,695.95	-32.66	-51.38	38.65	0.00	0.00	0.00
1,800.00	10.00	237.55	1,794.43	-41.98	-66.02	49.67	0.00	0.00	0.00
1,900.00	10.00	237.55	1,892.91	-51.29	-80.67	60.69	0.00	0.00	0.00
2,000.00	10.00	237.55	1,991.39	-60.60	-95.32	71.71	0.00	0.00	0.00
2,100.00	10.00	237.55	2,089.88	-69.92	-109.97	82.73	0.00	0.00	0.00
2,200.00	10.00	237.55	2,188.36	-79.23	-124.61	93.75	0.00	0.00	0.00
2,300.00	10.00	237.55	2,286.84	-88.54	-139.26	104.77	0.00	0.00	0.00
2,400.00	10.00	237.55	2,385.32	-97.85	-153.91	115.79	0.00	0.00	0.00
2,500.00	10.00	237.55	2,483.80	-107.17	-168.56	126.81	0.00	0.00	0.00
2,600.00	10.00	237.55	2,582.29	-116.48	-183.21	137.84	0.00	0.00	0.00
2,700.00	10.00	237.55	2,680.77	-125.79	-197.85	148.86	0.00	0.00	0.00
2,800.00	10.00	237.55	2,779.25	-135.11	-212.50	159.88	0.00	0.00	0.00
2,900.00	10.00	237.55	2,877.73	-144.42	-227.15	170.90	0.00	0.00	0.00
3,000.00	10.00	237.55	2,976.21	-153.73	-241.80	181.92	0.00	0.00	0.00
3,100.00	10.00	237.55	3,074.70	-163.04	-256.44	192.94	0.00	0.00	0.00
3,200.00	10.00	237.55	3,173.18	-172.36	-271.09	203.96	0.00	0.00	0.00
3,300.00	10.00	237.55	3,271.66	-181.67	-285.74	214.98	0.00	0.00	0.00
3,400.00	10.00	237.55	3,370.14	-190.98	-300.39	226.00	0.00	0.00	0.00
3,500.00	10.00	237.55	3,468.62	-200.30	-315.03	237.02	0.00	0.00	0.00
3,600.00	10.00	237.55	3,567.11	-209.61	-329.68	248.04	0.00	0.00	0.00
3,700.00	10.00	237.55	3,665.59	-218.92	-344.33	259.06	0.00	0.00	0.00
3,800.00	10.00	237.55	3,764.07	-228.23	-358.98	270.08	0.00	0.00	0.00
3,900.00	10.00	237.55	3,862.55	-237.55	-373.63	281.10	0.00	0.00	0.00
3,907.56	10.00	237.55	3,870.00	-238.25	-374.73	281.93	0.00	0.00	0.00
Parkman									
4,000.00	10.00	237.55	3,961.03	-246.86	-388.27	292.12	0.00	0.00	0.00
4,100.00	10.00	237.55	4,059.52	-256.17	-402.92	303.14	0.00	0.00	0.00
4,200.00	10.00	237.55	4,158.00	-265.49	-417.57	314.16	0.00	0.00	0.00
4,297.48	10.00	237.55	4,254.00	-274.56	-431.85	324.90	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 34N-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 34N-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	237.55	4,256.48	-274.80	-432.22	325.18	0.00	0.00	0.00
4,400.00	10.00	237.55	4,354.96	-284.11	-446.86	336.20	0.00	0.00	0.00
4,500.00	10.00	237.55	4,453.45	-293.42	-461.51	347.22	0.00	0.00	0.00
4,600.00	10.00	237.55	4,551.93	-302.74	-476.16	358.24	0.00	0.00	0.00
4,700.00	10.00	237.55	4,650.41	-312.05	-490.81	369.26	0.00	0.00	0.00
4,800.00	10.00	237.55	4,748.89	-321.36	-505.46	380.28	0.00	0.00	0.00
4,900.00	10.00	237.55	4,847.37	-330.68	-520.10	391.30	0.00	0.00	0.00
5,000.00	10.00	237.55	4,945.86	-339.99	-534.75	402.32	0.00	0.00	0.00
5,100.00	10.00	237.55	5,044.34	-349.30	-549.40	413.34	0.00	0.00	0.00
5,200.00	10.00	237.55	5,142.82	-358.61	-564.05	424.36	0.00	0.00	0.00
5,300.00	10.00	237.55	5,241.30	-367.93	-578.69	435.38	0.00	0.00	0.00
5,393.87	10.00	237.55	5,333.74	-376.67	-592.44	445.73	0.00	0.00	0.00
Start Drop -2.00									
5,400.00	9.87	237.55	5,339.78	-377.24	-593.34	446.40	2.00	-2.00	0.00
5,500.00	7.87	237.55	5,438.58	-385.51	-606.35	456.19	2.00	-2.00	0.00
5,600.00	5.87	237.55	5,537.86	-391.93	-616.45	463.79	2.00	-2.00	0.00
5,700.00	3.87	237.55	5,637.49	-396.49	-623.62	469.18	2.00	-2.00	0.00
5,800.00	1.87	237.55	5,737.36	-399.18	-627.85	472.36	2.00	-2.00	0.00
5,893.66	0.00	0.00	5,831.00	-400.00	-629.14	473.34	2.00	-2.00	0.00
Start 738.04 hold at 5893.65 MD									
5,900.00	0.00	0.00	5,837.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,000.00	0.00	0.00	5,937.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,100.00	0.00	0.00	6,037.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,200.00	0.00	0.00	6,137.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,300.00	0.00	0.00	6,237.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,400.00	0.00	0.00	6,337.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,500.00	0.00	0.00	6,437.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,600.00	0.00	0.00	6,537.35	-400.00	-629.14	473.34	0.00	0.00	0.00
6,631.70	0.00	0.00	6,569.04	-400.00	-629.14	473.34	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
6,700.00	6.83	180.00	6,637.18	-404.07	-629.14	477.37	10.00	10.00	0.00
6,800.00	16.83	180.00	6,734.94	-424.54	-629.14	497.70	10.00	10.00	0.00
6,900.00	26.83	180.00	6,827.65	-461.68	-629.14	534.56	10.00	10.00	0.00
7,000.00	36.83	180.00	6,912.50	-514.36	-629.14	586.85	10.00	10.00	0.00
7,100.00	46.83	180.00	6,986.92	-580.96	-629.14	652.96	10.00	10.00	0.00
7,134.89	50.32	180.00	7,010.00	-607.12	-629.14	678.93	10.00	10.00	0.00
Sharon Springs									
7,200.00	56.83	180.00	7,048.64	-659.48	-629.14	730.90	10.00	10.00	0.00
7,278.60	64.69	180.00	7,087.00	-728.01	-629.14	798.93	10.00	10.00	0.00
Niobrara A									
7,300.00	66.83	180.00	7,095.79	-747.53	-629.14	818.30	10.00	10.00	0.00
7,342.37	71.07	180.00	7,111.00	-787.05	-629.14	857.53	10.00	10.00	0.00
Niobrara B									
7,400.00	76.83	180.00	7,126.93	-842.42	-629.14	912.49	10.00	10.00	0.00
7,500.00	86.83	180.00	7,141.12	-941.28	-629.14	1,010.62	10.00	10.00	0.00
7,532.38	90.07	180.00	7,142.00	-973.64	-629.14	1,042.75	10.00	10.00	0.00
Start 4176.56 hold at 7532.38 MD - 7" (461' FNL 311' FWL)									
7,600.00	90.07	180.00	7,141.92	-1,041.26	-629.14	1,109.87	0.00	0.00	0.00
7,700.00	90.07	180.00	7,141.80	-1,141.26	-629.14	1,209.13	0.00	0.00	0.00
7,800.00	90.07	180.00	7,141.68	-1,241.26	-629.14	1,308.39	0.00	0.00	0.00
7,900.00	90.07	180.00	7,141.56	-1,341.26	-629.14	1,407.65	0.00	0.00	0.00
8,000.00	90.07	180.00	7,141.44	-1,441.26	-629.14	1,506.92	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 34N-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 34N-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	90.07	180.00	7,141.32	-1,541.26	-629.14	1,606.18	0.00	0.00	0.00	
8,200.00	90.07	180.00	7,141.20	-1,641.26	-629.14	1,705.44	0.00	0.00	0.00	
8,300.00	90.07	180.00	7,141.08	-1,741.26	-629.14	1,804.70	0.00	0.00	0.00	
8,400.00	90.07	180.00	7,140.96	-1,841.26	-629.14	1,903.96	0.00	0.00	0.00	
8,500.00	90.07	180.00	7,140.84	-1,941.26	-629.14	2,003.23	0.00	0.00	0.00	
8,600.00	90.07	180.00	7,140.72	-2,041.26	-629.14	2,102.49	0.00	0.00	0.00	
8,700.00	90.07	180.00	7,140.60	-2,141.26	-629.14	2,201.75	0.00	0.00	0.00	
8,800.00	90.07	180.00	7,140.48	-2,241.26	-629.14	2,301.01	0.00	0.00	0.00	
8,900.00	90.07	180.00	7,140.36	-2,341.26	-629.14	2,400.27	0.00	0.00	0.00	
9,000.00	90.07	180.00	7,140.24	-2,441.26	-629.14	2,499.54	0.00	0.00	0.00	
9,100.00	90.07	180.00	7,140.12	-2,541.26	-629.14	2,598.80	0.00	0.00	0.00	
9,200.00	90.07	180.00	7,140.00	-2,641.26	-629.14	2,698.06	0.00	0.00	0.00	
9,300.00	90.07	180.00	7,139.88	-2,741.26	-629.14	2,797.32	0.00	0.00	0.00	
9,400.00	90.07	180.00	7,139.76	-2,841.26	-629.14	2,896.58	0.00	0.00	0.00	
9,500.00	90.07	180.00	7,139.64	-2,941.26	-629.14	2,995.85	0.00	0.00	0.00	
9,600.00	90.07	180.00	7,139.52	-3,041.26	-629.14	3,095.11	0.00	0.00	0.00	
9,700.00	90.07	180.00	7,139.40	-3,141.26	-629.14	3,194.37	0.00	0.00	0.00	
9,800.00	90.07	180.00	7,139.28	-3,241.26	-629.14	3,293.63	0.00	0.00	0.00	
9,900.00	90.07	180.00	7,139.16	-3,341.26	-629.14	3,392.89	0.00	0.00	0.00	
10,000.00	90.07	180.00	7,139.04	-3,441.26	-629.14	3,492.16	0.00	0.00	0.00	
10,100.00	90.07	180.00	7,138.93	-3,541.26	-629.14	3,591.42	0.00	0.00	0.00	
10,200.00	90.07	180.00	7,138.81	-3,641.26	-629.14	3,690.68	0.00	0.00	0.00	
10,300.00	90.07	180.00	7,138.69	-3,741.26	-629.14	3,789.94	0.00	0.00	0.00	
10,400.00	90.07	180.00	7,138.57	-3,841.26	-629.14	3,889.20	0.00	0.00	0.00	
10,500.00	90.07	180.00	7,138.45	-3,941.26	-629.14	3,988.47	0.00	0.00	0.00	
10,600.00	90.07	180.00	7,138.33	-4,041.26	-629.14	4,087.73	0.00	0.00	0.00	
10,700.00	90.07	180.00	7,138.21	-4,141.26	-629.14	4,186.99	0.00	0.00	0.00	
10,800.00	90.07	180.00	7,138.09	-4,241.26	-629.14	4,286.25	0.00	0.00	0.00	
10,900.00	90.07	180.00	7,137.97	-4,341.26	-629.14	4,385.51	0.00	0.00	0.00	
11,000.00	90.07	180.00	7,137.85	-4,441.26	-629.14	4,484.78	0.00	0.00	0.00	
11,100.00	90.07	180.00	7,137.73	-4,541.26	-629.14	4,584.04	0.00	0.00	0.00	
11,200.00	90.07	180.00	7,137.61	-4,641.26	-629.14	4,683.30	0.00	0.00	0.00	
11,300.00	90.07	180.00	7,137.49	-4,741.26	-629.14	4,782.56	0.00	0.00	0.00	
11,400.00	90.07	180.00	7,137.37	-4,841.26	-629.14	4,881.82	0.00	0.00	0.00	
11,500.00	90.07	180.00	7,137.25	-4,941.26	-629.14	4,981.09	0.00	0.00	0.00	
11,600.00	90.07	180.00	7,137.13	-5,041.26	-629.14	5,080.35	0.00	0.00	0.00	
11,700.00	90.07	180.00	7,137.01	-5,141.26	-629.14	5,179.61	0.00	0.00	0.00	
11,708.94	90.07	180.00	7,137.00	-5,150.20	-629.14	5,188.48	0.00	0.00	0.00	
TD at 11708.94 - 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	-5,150.20	-629.14	1,302,155.92	3,182,375.76	40.1609710	-104.8474690	
- plan hits target center										
- Point										

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 34N-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 34N-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	
7,532.38	7,142.00	7" (461' FNL 311' FWL)	7.000	7.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
867.00	867.00	Fox Hills Base			
3,907.56	3,870.00	Parkman			
4,297.48	4,254.00	Sussex			
7,134.89	7,010.00	Sharon Springs			
7,278.60	7,087.00	Niobrara A			
7,342.37	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	
1,599.79	1,597.26	-23.33	-36.70	Start 3794.08 hold at 1599.79 MD	
5,393.87	5,333.74	-376.67	-592.44	Start Drop -2.00	
5,893.66	5,831.00	-400.00	-629.14	Start 738.04 hold at 5893.65 MD	
6,631.70	6,569.04	-400.00	-629.14	Start DLS 10.00 TFO 180.00	
7,532.38	7,142.00	-973.64	-629.14	Start 4176.56 hold at 7532.38 MD	
11,708.94	7,137.00	-5,150.20	-629.14	TD at 11708.94	