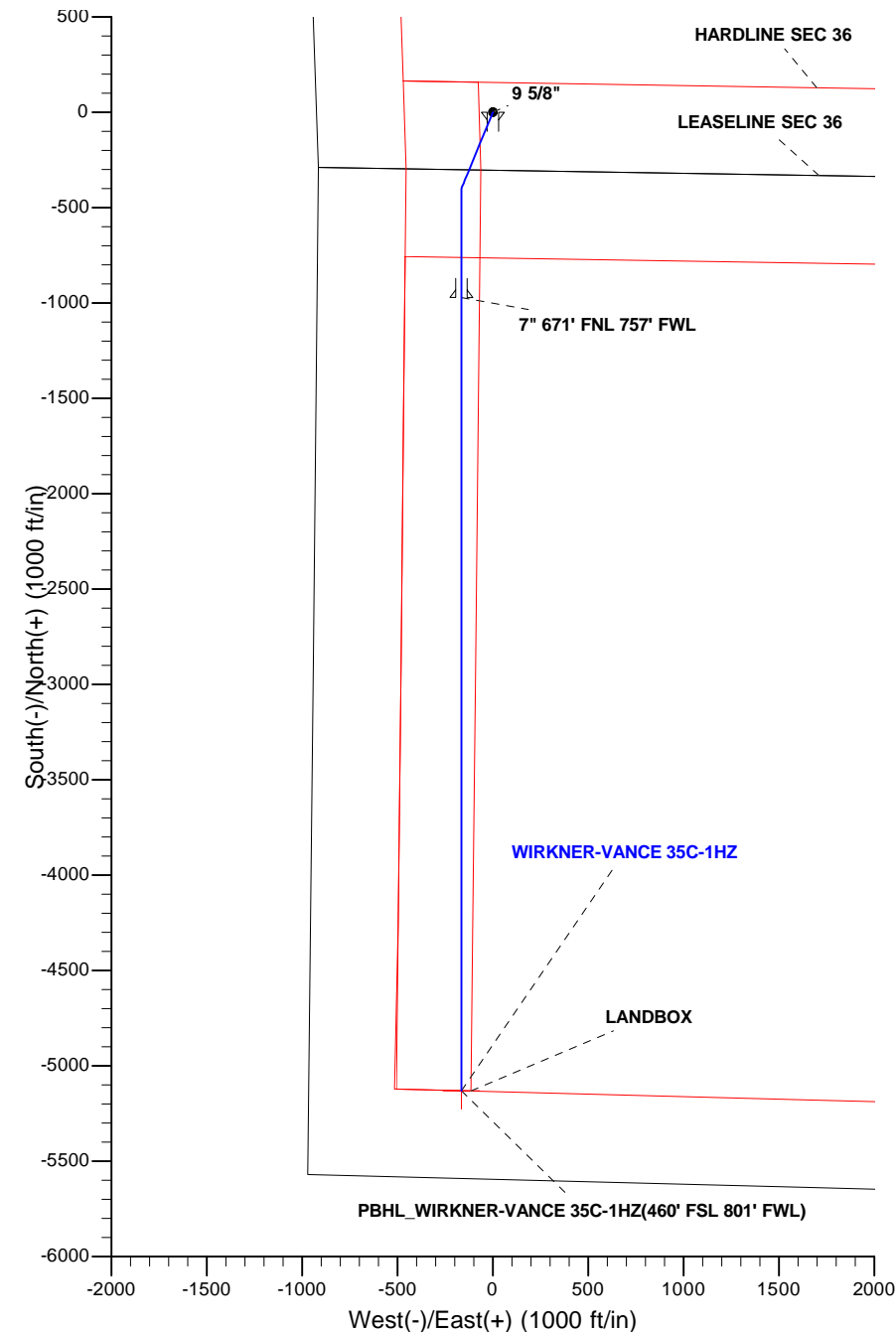
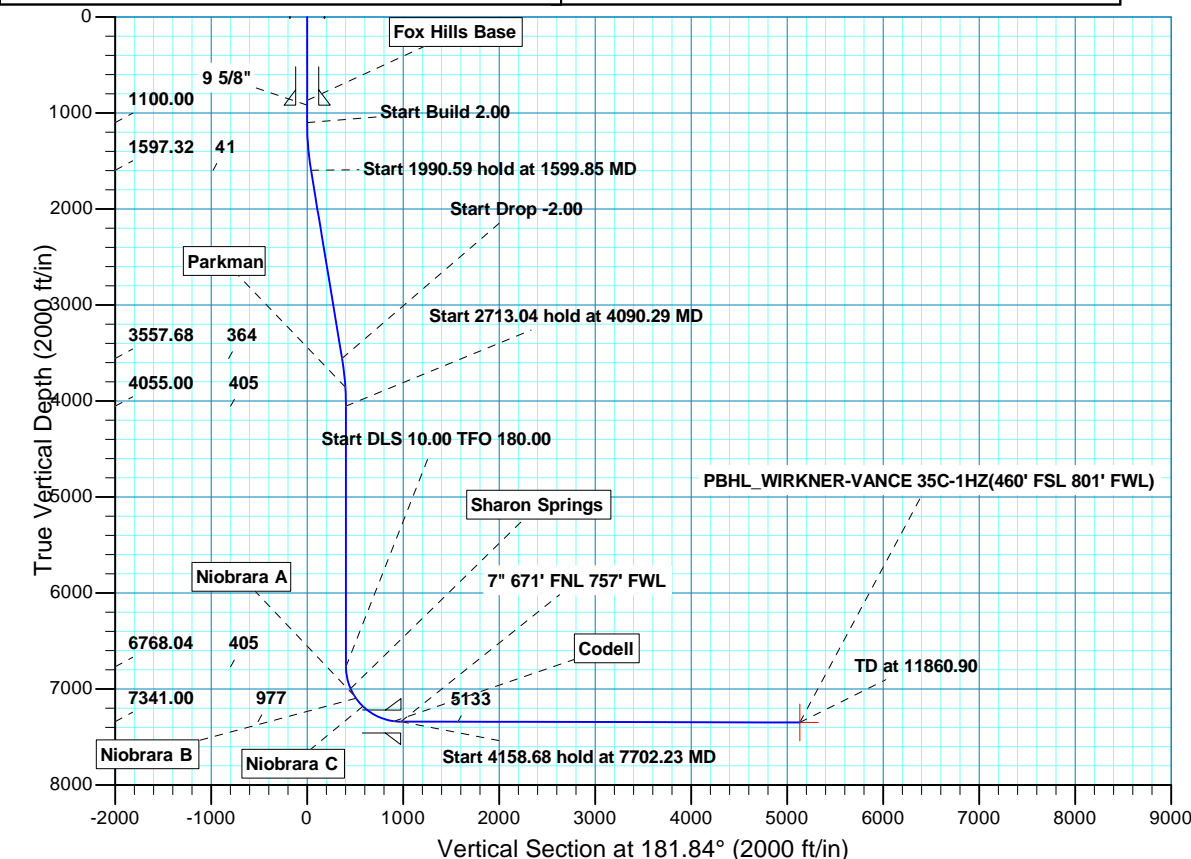


WELL DETAILS: WIRKNER-VANCE 35C-1HZ																			
GL 4823 & KB 17 @ 4840.00ft (ASSUMED)																			
+N/-S		+E/-W		Northing		Easting		Latitude		Longitude									
0.00		0.00		1307277.58		3183033.60		40.1750169		-104.8449800									
SECTION DETAILS																			
MD		Inc		Azi		TVD		+N/-S		+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	
1599.85		10.00		202.37		1597.32		-40.22		-16.55		2.00		202.37		40.73			
3590.44		10.00		202.37		3557.68		-359.78		-148.07		0.00		0.00		364.34			
4090.29		0.00		0.00		4055.00		-400.00		-164.62		2.00		180.00		405.07			
6803.33		0.00		0.00		6768.04		-400.00		-164.62		0.00		0.00		405.07			
7702.23		89.89		180.00		7341.00		-971.86		-164.62		10.00		180.00		976.63			
11860.90		89.89		180.00		7349.00		-5130.52		-164.62		0.00		0.005133.16		PBHL_WIRKNER-VANCE 35C-1HZ(460' FSL 801' FWL)			
FORMATION TOP DETAILS										CASING DETAILS									
TVDPath		MDPath		Formation				DipDirInc		TVD		MD		Name		Size			
868.00		868.00		Fox Hills Base				0.00		918.00		918.00		9 5/8"		9.625			
3856.00		3891.13		Parkman				3.98		7341.00		7702.23		7"		7.000			
4240.00		4275.29		Sussex				0.00											
6996.00		7037.78		Sharon Springs				23.44											
7073.00		7124.91		Niobrara A				32.16											
7097.00		7153.72		Niobrara B				35.04											
7181.00		7264.49		Niobrara C				46.12											
7314.00		7526.74		Fort Hays				72.34											
7336.00		7627.60		Codell				82.43											





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WIRKNER-VANCE 3C-36HZ PAD

WIRKNER-VANCE 35C-1HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

20 June, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35C-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35C-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 35C-1HZ, 304 FSL 924 FWL			
Well Position	+N/-S	-149.02 ft	Northing:	1,307,277.58 usft
	+E/-W	17.60 ft	Easting:	3,183,033.60 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 4,823.00 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	181.84

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	
1,599.85	10.00	202.37	1,597.32	-40.22	-16.55	2.00	2.00	0.00	202.37	
3,590.44	10.00	202.37	3,557.68	-359.78	-148.07	0.00	0.00	0.00	0.00	
4,090.29	0.00	0.00	4,055.00	-400.00	-164.62	2.00	-2.00	0.00	180.00	
6,803.33	0.00	0.00	6,768.04	-400.00	-164.62	0.00	0.00	0.00	0.00	
7,702.23	89.89	180.00	7,341.00	-971.86	-164.62	10.00	10.00	-20.02	180.00	
11,860.90	89.89	180.00	7,349.00	-5,130.52	-164.62	0.00	0.00	0.00	0.00	PBHL_WIRKNER-VA

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35C-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35C-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
868.00	0.00	0.00	868.00	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
918.00	0.00	0.00	918.00	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	202.37	1,199.98	-1.61	-0.66	1.63	2.00	2.00	0.00
1,300.00	4.00	202.37	1,299.84	-6.45	-2.66	6.54	2.00	2.00	0.00
1,400.00	6.00	202.37	1,399.45	-14.51	-5.97	14.70	2.00	2.00	0.00
1,500.00	8.00	202.37	1,498.70	-25.78	-10.61	26.11	2.00	2.00	0.00
1,599.85	10.00	202.37	1,597.32	-40.22	-16.55	40.73	2.00	2.00	0.00
Start 1990.59 hold at 1599.85 MD									
1,600.00	10.00	202.37	1,597.47	-40.25	-16.56	40.76	0.00	0.00	0.00
1,700.00	10.00	202.37	1,695.95	-56.30	-23.17	57.01	0.00	0.00	0.00
1,800.00	10.00	202.37	1,794.43	-72.35	-29.78	73.27	0.00	0.00	0.00
1,900.00	10.00	202.37	1,892.91	-88.41	-36.38	89.53	0.00	0.00	0.00
2,000.00	10.00	202.37	1,991.39	-104.46	-42.99	105.79	0.00	0.00	0.00
2,100.00	10.00	202.37	2,089.87	-120.51	-49.60	122.04	0.00	0.00	0.00
2,200.00	10.00	202.37	2,188.36	-136.57	-56.20	138.30	0.00	0.00	0.00
2,300.00	10.00	202.37	2,286.84	-152.62	-62.81	154.56	0.00	0.00	0.00
2,400.00	10.00	202.37	2,385.32	-168.67	-69.42	170.81	0.00	0.00	0.00
2,500.00	10.00	202.37	2,483.80	-184.73	-76.02	187.07	0.00	0.00	0.00
2,600.00	10.00	202.37	2,582.28	-200.78	-82.63	203.33	0.00	0.00	0.00
2,700.00	10.00	202.37	2,680.76	-216.83	-89.24	219.58	0.00	0.00	0.00
2,800.00	10.00	202.37	2,779.25	-232.89	-95.85	235.84	0.00	0.00	0.00
2,900.00	10.00	202.37	2,877.73	-248.94	-102.45	252.10	0.00	0.00	0.00
3,000.00	10.00	202.37	2,976.21	-264.99	-109.06	268.35	0.00	0.00	0.00
3,100.00	10.00	202.37	3,074.69	-281.05	-115.67	284.61	0.00	0.00	0.00
3,200.00	10.00	202.37	3,173.17	-297.10	-122.27	300.87	0.00	0.00	0.00
3,300.00	10.00	202.37	3,271.65	-313.15	-128.88	317.12	0.00	0.00	0.00
3,400.00	10.00	202.37	3,370.14	-329.21	-135.49	333.38	0.00	0.00	0.00
3,500.00	10.00	202.37	3,468.62	-345.26	-142.09	349.64	0.00	0.00	0.00
3,590.44	10.00	202.37	3,557.68	-359.78	-148.07	364.34	0.00	0.00	0.00
Start Drop -2.00									
3,600.00	9.81	202.37	3,567.10	-361.30	-148.69	365.88	2.00	-2.00	0.00
3,700.00	7.81	202.37	3,665.92	-375.45	-154.52	380.22	2.00	-2.00	0.00
3,800.00	5.81	202.37	3,765.21	-386.41	-159.03	391.31	2.00	-2.00	0.00
3,891.13	3.98	202.37	3,856.00	-393.60	-161.99	398.59	2.00	-2.00	0.00
Parkman									
3,900.00	3.81	202.37	3,864.85	-394.16	-162.22	399.16	2.00	-2.00	0.00
4,000.00	1.81	202.37	3,964.73	-398.68	-164.08	403.74	2.00	-2.00	0.00
4,090.29	0.00	0.00	4,055.00	-400.00	-164.62	405.07	2.00	-2.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35C-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35C-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)
Start 2713.04 hold at 4090.29 MD									
4,100.00	0.00	0.00	4,064.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,200.00	0.00	0.00	4,164.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,275.29	0.00	0.00	4,240.00	-400.00	-164.62	405.07	0.00	0.00	0.00
Sussex									
4,300.00	0.00	0.00	4,264.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,400.00	0.00	0.00	4,364.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,500.00	0.00	0.00	4,464.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,600.00	0.00	0.00	4,564.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,700.00	0.00	0.00	4,664.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,800.00	0.00	0.00	4,764.71	-400.00	-164.62	405.07	0.00	0.00	0.00
4,900.00	0.00	0.00	4,864.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,000.00	0.00	0.00	4,964.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,100.00	0.00	0.00	5,064.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,200.00	0.00	0.00	5,164.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,300.00	0.00	0.00	5,264.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,400.00	0.00	0.00	5,364.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,500.00	0.00	0.00	5,464.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,600.00	0.00	0.00	5,564.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,700.00	0.00	0.00	5,664.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,800.00	0.00	0.00	5,764.71	-400.00	-164.62	405.07	0.00	0.00	0.00
5,900.00	0.00	0.00	5,864.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,000.00	0.00	0.00	5,964.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,100.00	0.00	0.00	6,064.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,200.00	0.00	0.00	6,164.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,300.00	0.00	0.00	6,264.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,400.00	0.00	0.00	6,364.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,500.00	0.00	0.00	6,464.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,600.00	0.00	0.00	6,564.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,700.00	0.00	0.00	6,664.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,800.00	0.00	0.00	6,764.71	-400.00	-164.62	405.07	0.00	0.00	0.00
6,803.33	0.00	0.00	6,768.04	-400.00	-164.62	405.07	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
6,900.00	9.67	180.00	6,864.25	-408.14	-164.62	413.21	10.00	10.00	0.00
7,000.00	19.67	180.00	6,960.87	-433.42	-164.62	438.48	10.00	10.00	0.00
7,037.78	23.44	180.00	6,996.00	-447.30	-164.62	452.35	10.00	10.00	0.00
Sharon Springs									
7,100.00	29.67	180.00	7,051.63	-475.11	-164.62	480.14	10.00	10.00	0.00
7,124.91	32.16	180.00	7,073.00	-487.90	-164.62	492.93	10.00	10.00	0.00
Niobrara A									
7,153.72	35.04	180.00	7,097.00	-503.85	-164.62	508.87	10.00	10.00	0.00
Niobrara B									
7,200.00	39.67	180.00	7,133.77	-531.91	-164.62	536.92	10.00	10.00	0.00
7,264.49	46.12	180.00	7,181.00	-575.79	-164.62	580.77	10.00	10.00	0.00
Niobrara C									
7,300.00	49.67	180.00	7,204.80	-602.12	-164.62	607.09	10.00	10.00	0.00
7,400.00	59.67	180.00	7,262.56	-683.60	-164.62	688.53	10.00	10.00	0.00
7,500.00	69.67	180.00	7,305.30	-773.87	-164.62	778.75	10.00	10.00	0.00
7,526.74	72.34	180.00	7,314.00	-799.15	-164.62	804.02	10.00	10.00	0.00
Fort Hays									
7,600.00	79.67	180.00	7,331.71	-870.19	-164.62	875.02	10.00	10.00	0.00
7,627.60	82.43	180.00	7,336.00	-897.45	-164.62	902.26	10.00	10.00	0.00
Codell									

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35C-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35C-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)
7,700.00	89.67	180.00	7,340.99	-969.63	-164.62	974.41	10.00	10.00	0.00
7,702.23	89.89	180.00	7,341.00	-971.86	-164.62	976.64	9.98	9.98	0.00
Start 4158.68 hold at 7702.23 MD - 7" 671' FNL 757' FWL									
7,800.00	89.89	180.00	7,341.19	-1,069.63	-164.62	1,074.36	0.00	0.00	0.00
7,900.00	89.89	180.00	7,341.38	-1,169.63	-164.62	1,174.31	0.00	0.00	0.00
8,000.00	89.89	180.00	7,341.57	-1,269.63	-164.62	1,274.26	0.00	0.00	0.00
8,100.00	89.89	180.00	7,341.76	-1,369.63	-164.62	1,374.20	0.00	0.00	0.00
8,200.00	89.89	180.00	7,341.95	-1,469.63	-164.62	1,474.15	0.00	0.00	0.00
8,300.00	89.89	180.00	7,342.15	-1,569.63	-164.62	1,574.10	0.00	0.00	0.00
8,400.00	89.89	180.00	7,342.34	-1,669.63	-164.62	1,674.05	0.00	0.00	0.00
8,500.00	89.89	180.00	7,342.53	-1,769.63	-164.62	1,774.00	0.00	0.00	0.00
8,600.00	89.89	180.00	7,342.72	-1,869.63	-164.62	1,873.95	0.00	0.00	0.00
8,700.00	89.89	180.00	7,342.92	-1,969.63	-164.62	1,973.89	0.00	0.00	0.00
8,800.00	89.89	180.00	7,343.11	-2,069.63	-164.62	2,073.84	0.00	0.00	0.00
8,900.00	89.89	180.00	7,343.30	-2,169.63	-164.62	2,173.79	0.00	0.00	0.00
9,000.00	89.89	180.00	7,343.49	-2,269.63	-164.62	2,273.74	0.00	0.00	0.00
9,100.00	89.89	180.00	7,343.69	-2,369.63	-164.62	2,373.69	0.00	0.00	0.00
9,200.00	89.89	180.00	7,343.88	-2,469.63	-164.62	2,473.64	0.00	0.00	0.00
9,300.00	89.89	180.00	7,344.07	-2,569.63	-164.62	2,573.58	0.00	0.00	0.00
9,400.00	89.89	180.00	7,344.26	-2,669.63	-164.62	2,673.53	0.00	0.00	0.00
9,500.00	89.89	180.00	7,344.46	-2,769.63	-164.62	2,773.48	0.00	0.00	0.00
9,600.00	89.89	180.00	7,344.65	-2,869.63	-164.62	2,873.43	0.00	0.00	0.00
9,700.00	89.89	180.00	7,344.84	-2,969.63	-164.62	2,973.38	0.00	0.00	0.00
9,800.00	89.89	180.00	7,345.03	-3,069.63	-164.62	3,073.33	0.00	0.00	0.00
9,900.00	89.89	180.00	7,345.23	-3,169.63	-164.62	3,173.28	0.00	0.00	0.00
10,000.00	89.89	180.00	7,345.42	-3,269.63	-164.62	3,273.22	0.00	0.00	0.00
10,100.00	89.89	180.00	7,345.61	-3,369.63	-164.62	3,373.17	0.00	0.00	0.00
10,200.00	89.89	180.00	7,345.80	-3,469.63	-164.62	3,473.12	0.00	0.00	0.00
10,300.00	89.89	180.00	7,346.00	-3,569.63	-164.62	3,573.07	0.00	0.00	0.00
10,400.00	89.89	180.00	7,346.19	-3,669.63	-164.62	3,673.02	0.00	0.00	0.00
10,500.00	89.89	180.00	7,346.38	-3,769.62	-164.62	3,772.97	0.00	0.00	0.00
10,600.00	89.89	180.00	7,346.57	-3,869.62	-164.62	3,872.91	0.00	0.00	0.00
10,700.00	89.89	180.00	7,346.77	-3,969.62	-164.62	3,972.86	0.00	0.00	0.00
10,800.00	89.89	180.00	7,346.96	-4,069.62	-164.62	4,072.81	0.00	0.00	0.00
10,900.00	89.89	180.00	7,347.15	-4,169.62	-164.62	4,172.76	0.00	0.00	0.00
11,000.00	89.89	180.00	7,347.34	-4,269.62	-164.62	4,272.71	0.00	0.00	0.00
11,100.00	89.89	180.00	7,347.54	-4,369.62	-164.62	4,372.66	0.00	0.00	0.00
11,200.00	89.89	180.00	7,347.73	-4,469.62	-164.62	4,472.60	0.00	0.00	0.00
11,300.00	89.89	180.00	7,347.92	-4,569.62	-164.62	4,572.55	0.00	0.00	0.00
11,400.00	89.89	180.00	7,348.11	-4,669.62	-164.62	4,672.50	0.00	0.00	0.00
11,500.00	89.89	180.00	7,348.31	-4,769.62	-164.62	4,772.45	0.00	0.00	0.00
11,600.00	89.89	180.00	7,348.50	-4,869.62	-164.62	4,872.40	0.00	0.00	0.00
11,700.00	89.89	180.00	7,348.69	-4,969.62	-164.62	4,972.35	0.00	0.00	0.00
11,800.00	89.89	180.00	7,348.88	-5,069.62	-164.62	5,072.29	0.00	0.00	0.00
11,860.90	89.89	180.00	7,349.00	-5,130.52	-164.62	5,133.16	0.00	0.00	0.00
PBHL_WIRKNER-VANCE 35C-1HZ(460' FSL 801' FWL)									

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 35C-1HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4823 & KB 17 @ 4840.00ft (ASSUMED)
Site:	WIRKNER-VANCE 3C-36HZ PAD	North Reference:	True
Well:	WIRKNER-VANCE 35C-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

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	7,349.00	-5,130.52	-164.62	1,302,145.99	3,182,906.88	40.1609330	-104.8455690
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
918.00	918.00	9 5/8"	9.625	12.250	
7,702.23	7,341.00	7" 671' FNL 757' FWL	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
868.00	868.00	Fox Hills Base				
3,891.13	3,856.00	Parkman				
4,275.29	4,240.00	Sussex				
7,037.78	6,996.00	Sharon Springs				
7,124.91	7,073.00	Niobrara A				
7,153.72	7,097.00	Niobrara B				
7,264.49	7,181.00	Niobrara C				
7,526.74	7,314.00	Fort Hays				
7,627.60	7,336.00	Codell				

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
1,599.85	1,597.32	-40.22	-16.55	Start 1990.59 hold at 1599.85 MD
3,590.44	3,557.68	-359.78	-148.07	Start Drop -2.00
4,090.29	4,055.00	-400.00	-164.62	Start 2713.04 hold at 4090.29 MD
6,803.33	6,768.04	-400.00	-164.62	Start DLS 10.00 TFO 180.00
7,702.23	7,341.00	-971.86	-164.62	Start 4158.68 hold at 7702.23 MD
11,860.90	7,349.00	-5,130.52	-164.62	TD at 11860.90