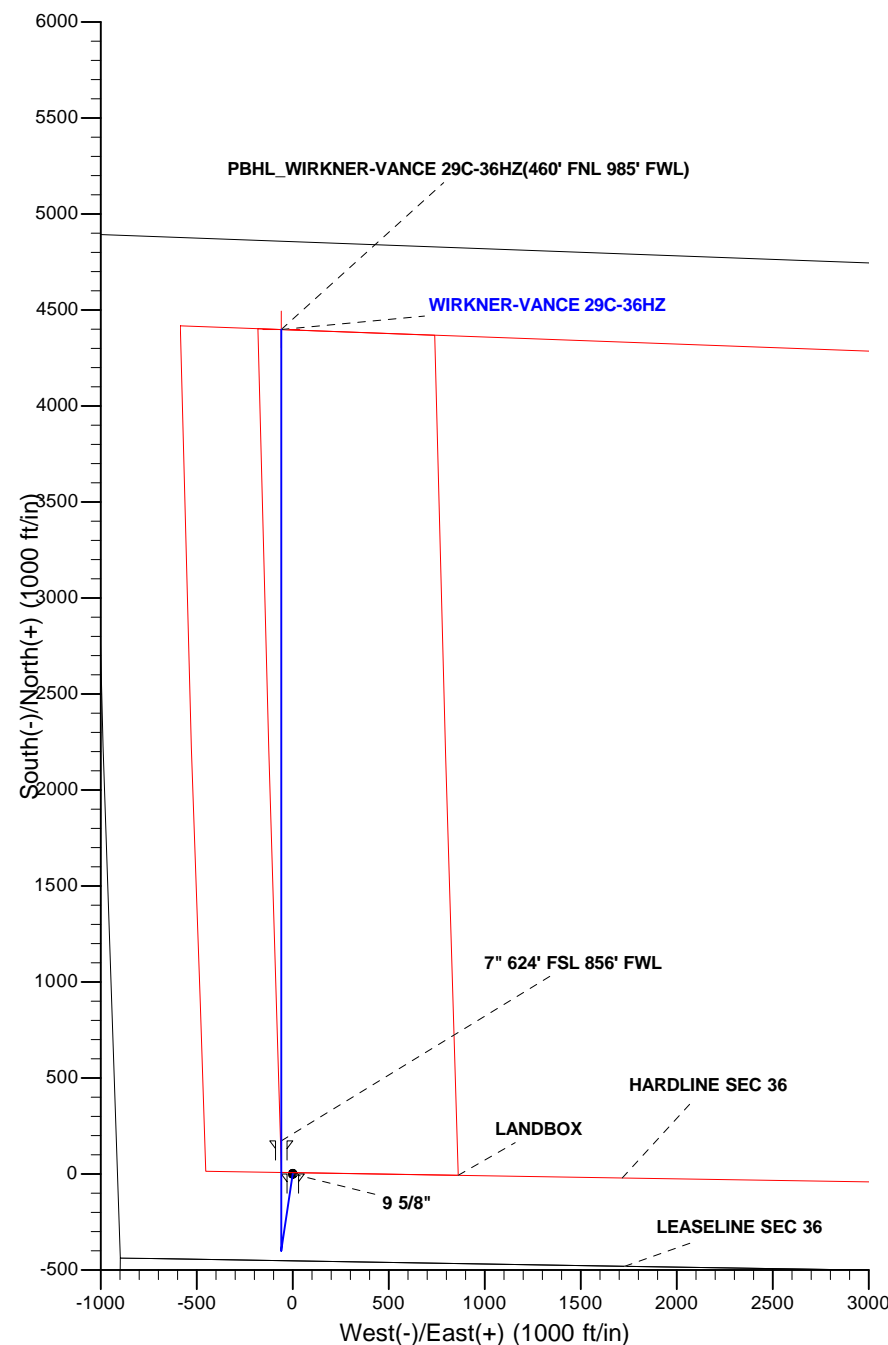
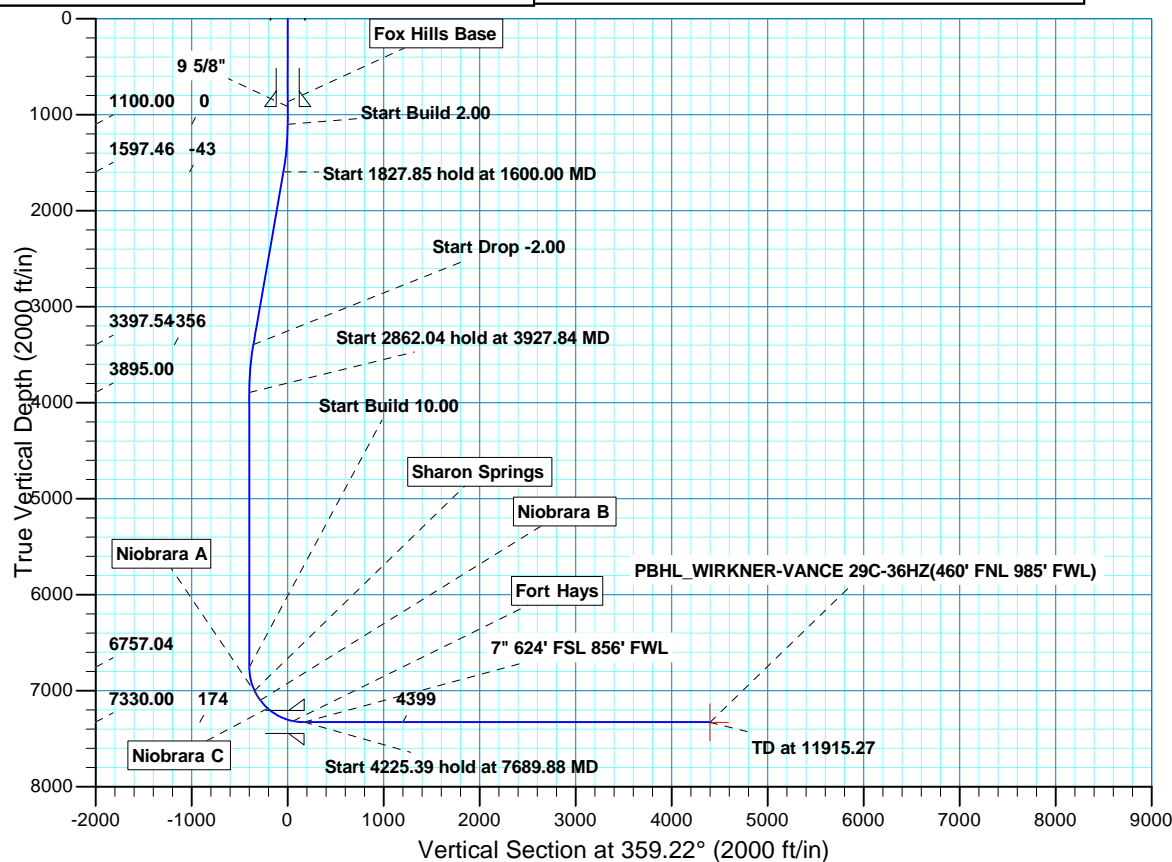


WELL DETAILS: WIRKNER-VANCE 29C-36HZ																			
GL 4822 & KB 17 @ 4839.00ft (ASSUMED)																			
+N/-S		+E/-W		Northing		Easting		Latitude		Longitude									
0.00		0.00		1307426.47		3183014.90		40.1754260		-104.8450430									
SECTION DETAILS																			
MD		Inc		Azi		TVD		+N/-S		+E/-W		Dleg		TFace		VSept		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	
1600.00		10.00		188.50		1597.46		-43.04		-6.43		2.00		188.50		-42.95			
3427.84		10.00		188.50		3397.54		-356.96		-53.35		0.00		0.00		-356.20			
3927.84		0.00		0.00		3895.00		-400.00		-59.79		2.00		180.00		-399.15			
6789.88		0.00		0.00		6757.04		-400.00		-59.79		0.00		0.00		-399.15			
7689.88		90.00		0.00		7330.00		172.96		-59.79		10.00		0.00		173.75			
11915.27		90.00		0.00		7330.00		4398.35		-59.79		0.00		0.00		4398.76		PBHL WIRKNER-VANCE 29C-36HZ(460' FNL 985' 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			
3860.00		3892.84		Parkman				0.70		7330.00		7689.88		7"		7.000			
4244.00		4276.84		Sussex				0.00											
7000.00		7040.78		Sharon Springs				25.09											
7077.00		7129.35		Niobrara A				33.95											
7101.00		7158.81		Niobrara B				36.89											
7185.00		7273.13		Niobrara C				48.33											
7318.00		7572.42		Fort Hays				78.25											





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WIRKNER-VANCE 3C-36HZ PAD

WIRKNER-VANCE 29C-36HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

20 June, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 29C-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 29C-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:	1,307,426.46 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 29C-36HZ, 452 FSL 912 FWL			
Well Position	+N/-S	0.00 ft	Northing:	1,307,426.46 usft
	+E/-W	0.00 ft	Easting:	3,183,014.90 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	8.64	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	359.22

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	
1,600.00	10.00	188.50	1,597.46	-43.04	-6.43	2.00	2.00	0.00	188.50	
3,427.84	10.00	188.50	3,397.54	-356.96	-53.35	0.00	0.00	0.00	0.00	
3,927.84	0.00	0.00	3,895.00	-400.00	-59.79	2.00	-2.00	0.00	180.00	
6,789.88	0.00	0.00	6,757.04	-400.00	-59.79	0.00	0.00	0.00	0.00	
7,689.88	90.00	0.00	7,330.00	172.96	-59.79	10.00	10.00	0.00	0.00	
11,915.27	90.00	0.00	7,330.00	4,398.35	-59.79	0.00	0.00	0.00	0.00	PBHL_WIRKNER-VA

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 29C-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 29C-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
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	188.50	1,199.98	-1.73	-0.26	-1.72	2.00	2.00	0.00
1,300.00	4.00	188.50	1,299.84	-6.90	-1.03	-6.89	2.00	2.00	0.00
1,400.00	6.00	188.50	1,399.45	-15.52	-2.32	-15.49	2.00	2.00	0.00
1,500.00	8.00	188.50	1,498.70	-27.57	-4.12	-27.52	2.00	2.00	0.00
1,600.00	10.00	188.50	1,597.46	-43.04	-6.43	-42.95	2.00	2.00	0.00
Start 1827.85 hold at 1600.00 MD									
1,700.00	10.00	188.50	1,695.95	-60.22	-9.00	-60.09	0.00	0.00	0.00
1,800.00	10.00	188.50	1,794.43	-77.39	-11.57	-77.23	0.00	0.00	0.00
1,900.00	10.00	188.50	1,892.91	-94.57	-14.13	-94.37	0.00	0.00	0.00
2,000.00	10.00	188.50	1,991.39	-111.74	-16.70	-111.50	0.00	0.00	0.00
2,100.00	10.00	188.50	2,089.87	-128.91	-19.27	-128.64	0.00	0.00	0.00
2,200.00	10.00	188.50	2,188.35	-146.09	-21.84	-145.78	0.00	0.00	0.00
2,300.00	10.00	188.50	2,286.83	-163.26	-24.40	-162.92	0.00	0.00	0.00
2,400.00	10.00	188.50	2,385.31	-180.44	-26.97	-180.05	0.00	0.00	0.00
2,500.00	10.00	188.50	2,483.79	-197.61	-29.54	-197.19	0.00	0.00	0.00
2,600.00	10.00	188.50	2,582.27	-214.78	-32.10	-214.33	0.00	0.00	0.00
2,700.00	10.00	188.50	2,680.75	-231.96	-34.67	-231.46	0.00	0.00	0.00
2,800.00	10.00	188.50	2,779.24	-249.13	-37.24	-248.60	0.00	0.00	0.00
2,900.00	10.00	188.50	2,877.72	-266.31	-39.80	-265.74	0.00	0.00	0.00
3,000.00	10.00	188.50	2,976.20	-283.48	-42.37	-282.88	0.00	0.00	0.00
3,100.00	10.00	188.50	3,074.68	-300.65	-44.94	-300.01	0.00	0.00	0.00
3,200.00	10.00	188.50	3,173.16	-317.83	-47.51	-317.15	0.00	0.00	0.00
3,300.00	10.00	188.50	3,271.64	-335.00	-50.07	-334.29	0.00	0.00	0.00
3,400.00	10.00	188.50	3,370.12	-352.17	-52.64	-351.43	0.00	0.00	0.00
3,427.84	10.00	188.50	3,397.54	-356.96	-53.35	-356.20	0.00	0.00	0.00
Start Drop -2.00									
3,500.00	8.56	188.50	3,468.75	-368.46	-55.07	-367.68	2.00	-2.00	0.00
3,600.00	6.56	188.50	3,567.88	-381.47	-57.02	-380.66	2.00	-2.00	0.00
3,700.00	4.56	188.50	3,667.40	-391.04	-58.45	-390.21	2.00	-2.00	0.00
3,800.00	2.56	188.50	3,767.20	-397.18	-59.37	-396.34	2.00	-2.00	0.00
3,892.84	0.70	188.50	3,860.00	-399.79	-59.76	-398.94	2.00	-2.00	0.00
Parkman									
3,900.00	0.56	188.50	3,867.16	-399.87	-59.77	-399.02	2.00	-2.00	0.00
3,927.84	0.00	0.00	3,895.00	-400.00	-59.79	-399.15	2.00	-2.00	0.00
Start 2862.04 hold at 3927.84 MD									
4,000.00	0.00	0.00	3,967.16	-400.00	-59.79	-399.15	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 29C-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 29C-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)
4,100.00	0.00	0.00	4,067.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,200.00	0.00	0.00	4,167.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,276.84	0.00	0.00	4,244.00	-400.00	-59.79	-399.15	0.00	0.00	0.00
Sussex									
4,300.00	0.00	0.00	4,267.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,400.00	0.00	0.00	4,367.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,500.00	0.00	0.00	4,467.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,600.00	0.00	0.00	4,567.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,700.00	0.00	0.00	4,667.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,800.00	0.00	0.00	4,767.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
4,900.00	0.00	0.00	4,867.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,000.00	0.00	0.00	4,967.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,100.00	0.00	0.00	5,067.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,200.00	0.00	0.00	5,167.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,300.00	0.00	0.00	5,267.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,400.00	0.00	0.00	5,367.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,500.00	0.00	0.00	5,467.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,600.00	0.00	0.00	5,567.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,700.00	0.00	0.00	5,667.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,800.00	0.00	0.00	5,767.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
5,900.00	0.00	0.00	5,867.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,000.00	0.00	0.00	5,967.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,100.00	0.00	0.00	6,067.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,200.00	0.00	0.00	6,167.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,300.00	0.00	0.00	6,267.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,400.00	0.00	0.00	6,367.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,500.00	0.00	0.00	6,467.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,600.00	0.00	0.00	6,567.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,700.00	0.00	0.00	6,667.16	-400.00	-59.79	-399.15	0.00	0.00	0.00
6,789.88	0.00	0.00	6,757.04	-400.00	-59.79	-399.15	0.00	0.00	0.00
Start Build 10.00									
6,800.00	1.01	0.00	6,767.16	-399.91	-59.79	-399.06	10.00	10.00	0.00
6,900.00	11.01	0.00	6,866.49	-389.45	-59.79	-388.60	10.00	10.00	0.00
7,000.00	21.01	0.00	6,962.48	-361.90	-59.79	-361.05	10.00	10.00	0.00
7,040.78	25.09	0.00	7,000.00	-345.94	-59.79	-345.09	10.00	10.00	0.00
Sharon Springs									
7,100.00	31.01	0.00	7,052.24	-318.10	-59.79	-317.26	10.00	10.00	0.00
7,129.35	33.95	0.00	7,077.00	-302.34	-59.79	-301.50	10.00	10.00	0.00
Niobrara A									
7,158.81	36.89	0.00	7,101.00	-285.27	-59.79	-284.43	10.00	10.00	0.00
Niobrara B									
7,200.00	41.01	0.00	7,133.03	-259.38	-59.79	-258.54	10.00	10.00	0.00
7,273.13	48.33	0.00	7,185.00	-208.00	-59.79	-207.17	10.00	10.00	0.00
Niobrara C									
7,300.00	51.01	0.00	7,202.39	-187.52	-59.79	-186.69	10.00	10.00	0.00
7,400.00	61.01	0.00	7,258.22	-104.71	-59.79	-103.89	10.00	10.00	0.00
7,500.00	71.01	0.00	7,298.82	-13.46	-59.79	-12.65	10.00	10.00	0.00
7,572.42	78.25	0.00	7,318.00	56.32	-59.79	57.13	10.00	10.00	0.00
Fort Hays									
7,600.00	81.01	0.00	7,322.96	83.45	-59.79	84.25	10.00	10.00	0.00
7,689.88	90.00	0.00	7,330.00	172.96	-59.79	173.76	10.00	10.00	0.00
Start 4225.39 hold at 7689.88 MD - 7" 624' FSL 856' FWL									
7,700.00	90.00	0.00	7,330.00	183.08	-59.79	183.88	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 29C-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 29C-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)
7,800.00	90.00	0.00	7,330.00	283.08	-59.79	283.87	0.00	0.00	0.00
7,900.00	90.00	0.00	7,330.00	383.08	-59.79	383.86	0.00	0.00	0.00
8,000.00	90.00	0.00	7,330.00	483.08	-59.79	483.85	0.00	0.00	0.00
8,100.00	90.00	0.00	7,330.00	583.08	-59.79	583.84	0.00	0.00	0.00
8,200.00	90.00	0.00	7,330.00	683.08	-59.79	683.83	0.00	0.00	0.00
8,300.00	90.00	0.00	7,330.00	783.08	-59.79	783.82	0.00	0.00	0.00
8,400.00	90.00	0.00	7,330.00	883.08	-59.79	883.81	0.00	0.00	0.00
8,500.00	90.00	0.00	7,330.00	983.08	-59.79	983.80	0.00	0.00	0.00
8,600.00	90.00	0.00	7,330.00	1,083.08	-59.79	1,083.79	0.00	0.00	0.00
8,700.00	90.00	0.00	7,330.00	1,183.08	-59.79	1,183.78	0.00	0.00	0.00
8,800.00	90.00	0.00	7,330.00	1,283.08	-59.79	1,283.77	0.00	0.00	0.00
8,900.00	90.00	0.00	7,330.00	1,383.08	-59.79	1,383.76	0.00	0.00	0.00
9,000.00	90.00	0.00	7,330.00	1,483.08	-59.79	1,483.76	0.00	0.00	0.00
9,100.00	90.00	0.00	7,330.00	1,583.08	-59.79	1,583.75	0.00	0.00	0.00
9,200.00	90.00	0.00	7,330.00	1,683.08	-59.79	1,683.74	0.00	0.00	0.00
9,300.00	90.00	0.00	7,330.00	1,783.08	-59.79	1,783.73	0.00	0.00	0.00
9,400.00	90.00	0.00	7,330.00	1,883.08	-59.79	1,883.72	0.00	0.00	0.00
9,500.00	90.00	0.00	7,330.00	1,983.08	-59.79	1,983.71	0.00	0.00	0.00
9,600.00	90.00	0.00	7,330.00	2,083.08	-59.79	2,083.70	0.00	0.00	0.00
9,700.00	90.00	0.00	7,330.00	2,183.08	-59.79	2,183.69	0.00	0.00	0.00
9,800.00	90.00	0.00	7,330.00	2,283.08	-59.79	2,283.68	0.00	0.00	0.00
9,900.00	90.00	0.00	7,330.00	2,383.08	-59.79	2,383.67	0.00	0.00	0.00
10,000.00	90.00	0.00	7,330.00	2,483.08	-59.79	2,483.66	0.00	0.00	0.00
10,100.00	90.00	0.00	7,330.00	2,583.08	-59.79	2,583.65	0.00	0.00	0.00
10,200.00	90.00	0.00	7,330.00	2,683.08	-59.79	2,683.64	0.00	0.00	0.00
10,300.00	90.00	0.00	7,330.00	2,783.08	-59.79	2,783.64	0.00	0.00	0.00
10,400.00	90.00	0.00	7,330.00	2,883.08	-59.79	2,883.63	0.00	0.00	0.00
10,500.00	90.00	0.00	7,330.00	2,983.08	-59.79	2,983.62	0.00	0.00	0.00
10,600.00	90.00	0.00	7,330.00	3,083.08	-59.79	3,083.61	0.00	0.00	0.00
10,700.00	90.00	0.00	7,330.00	3,183.08	-59.79	3,183.60	0.00	0.00	0.00
10,800.00	90.00	0.00	7,330.00	3,283.08	-59.79	3,283.59	0.00	0.00	0.00
10,900.00	90.00	0.00	7,330.00	3,383.08	-59.79	3,383.58	0.00	0.00	0.00
11,000.00	90.00	0.00	7,330.00	3,483.08	-59.79	3,483.57	0.00	0.00	0.00
11,100.00	90.00	0.00	7,330.00	3,583.08	-59.79	3,583.56	0.00	0.00	0.00
11,200.00	90.00	0.00	7,330.00	3,683.08	-59.79	3,683.55	0.00	0.00	0.00
11,300.00	90.00	0.00	7,330.00	3,783.08	-59.79	3,783.54	0.00	0.00	0.00
11,400.00	90.00	0.00	7,330.00	3,883.08	-59.79	3,883.53	0.00	0.00	0.00
11,500.00	90.00	0.00	7,330.00	3,983.08	-59.79	3,983.52	0.00	0.00	0.00
11,600.00	90.00	0.00	7,330.00	4,083.08	-59.79	4,083.52	0.00	0.00	0.00
11,700.00	90.00	0.00	7,330.00	4,183.08	-59.79	4,183.51	0.00	0.00	0.00
11,800.00	90.00	0.00	7,330.00	4,283.08	-59.79	4,283.50	0.00	0.00	0.00
11,900.00	90.00	0.00	7,330.00	4,383.08	-59.79	4,383.49	0.00	0.00	0.00
11,915.27	90.00	0.00	7,330.00	4,398.35	-59.79	4,398.76	0.00	0.00	0.00
TD at 11915.27 - PBHL_WIRKNER-VANCE 29C-36HZ(460' FNL 985' FWL)									

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well WIRKNER-VANCE 29C-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 29C-36HZ	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	7,330.00	4,398.35	-59.79	1,311,824.25	3,182,922.62	40.1875000	-104.8452570
- plan hits target center									
- Point									

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	
7,689.88	7,330.00	7" 624' FSL 856' FWL	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
867.00	868.00	Fox Hills Base				
3,892.84	3,861.00	Parkman				
4,276.84	4,245.00	Sussex				
7,040.78	7,001.00	Sharon Springs				
7,129.35	7,078.00	Niobrara A				
7,158.81	7,102.00	Niobrara B				
7,273.13	7,186.00	Niobrara C				
7,572.42	7,319.00	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	
1,600.00	1,597.46	-43.04	-6.43	Start 1827.85 hold at 1600.00 MD	
3,427.84	3,397.54	-356.96	-53.35	Start Drop -2.00	
3,927.84	3,895.00	-400.00	-59.79	Start 2862.04 hold at 3927.84 MD	
6,789.88	6,757.04	-400.00	-59.79	Start Build 10.00	
7,689.88	7,330.00	172.96	-59.79	Start 4225.39 hold at 7689.88 MD	
11,915.27	7,330.00	4,398.35	-59.79	TD at 11915.27	