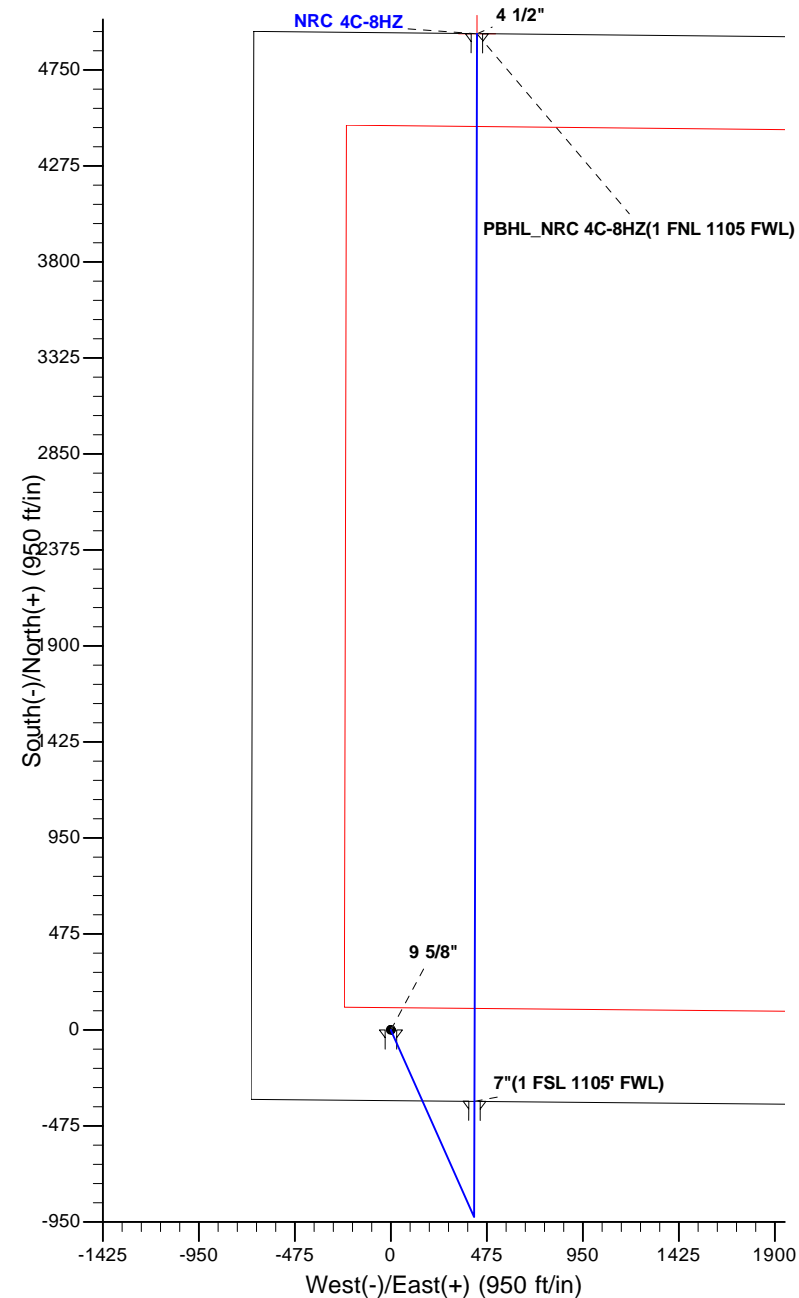
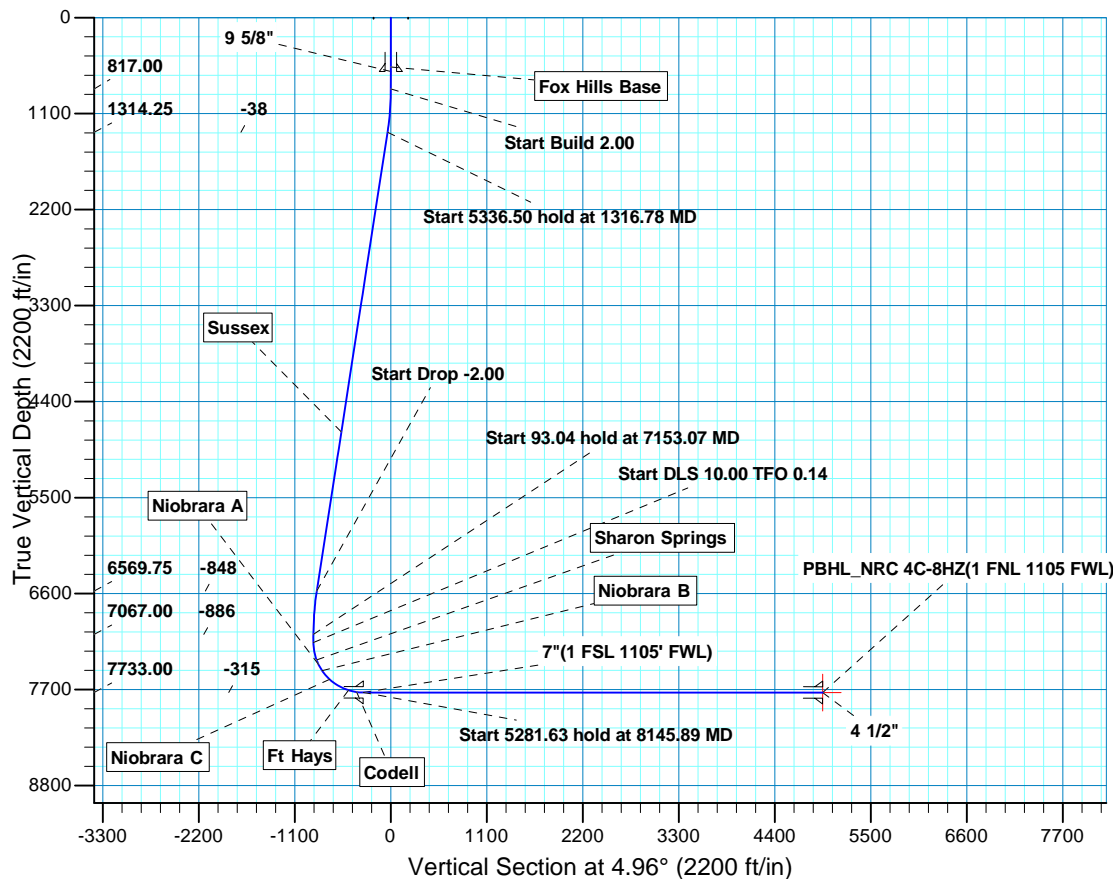


WELL DETAILS: NRC 4C-8HZ																	
GL 5049 & KB 17 @ 5066.00ft (ASSUMED)																	
+N/-S 0.00		+E/-W 0.00		Northing 1264991.12		Easting 3161931.72		Latitude 40.0593400		Longitude -104.9214820							
SECTION DETAILS																	
MD		Azi		TVD		+N/-S		+E/-W		Dleg		TFace		VSEct		Target	
0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
817.00		0.00		0.00		817.00		0.00		0.00		0.00		0.00		0.00	
1316.78		10.00		155.95		1314.25		-39.71		17.72		2.00		155.95		-38.03	
6653.28		10.00		155.95		6569.75		-885.59		395.18		0.00		0.00		-848.15	
7153.07		0.00		0.00		7067.00		-925.30		412.90		2.00		180.00		-886.18	
7246.11		0.00		0.00		7160.04		-925.30		412.90		0.00		0.00		-886.18	
8145.89		89.98		0.14		7733.00		-352.56		414.31		10.00		0.14		-315.46	
13427.52		89.98		0.14		7735.00		4929.05		427.34		0.00		0.00		4947.54	
PBHL_NRC 4C-8HZ(1 FNL 1105 FWL)																	
FORMATION TOP DETAILS										CASING DETAILS							
TVDPATH		MDPATH		FORMATION		DIPDIRINC				TVD		MD		NAME		SIZE	
567.00		567.00		Fox Hills Base		0.00				617.00		617.00		9 5/8"		9.625	
4747.00		4802.44		Sussex		10.00				7733.00		8145.89		7"		7.000	
7360.00		7450.37		Sharon Springs		20.43				7735.00		13427.52		4 1/2"		4.500	
7411.00		7505.87		Niobrara A		25.98											
7483.00		7589.21		Niobrara B		34.31											
7583.00		7721.89		Niobrara C		47.58											
7707.00		7972.85		Ft Hays		72.67											
7728.00		8070.37		Codell		82.43											





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

NRC 13-8HZ PAD

NRC 4C-8HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

03 July, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well NRC 4C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Site:	NRC 13-8HZ PAD	North Reference:	True
Well:	NRC 4C-8HZ	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	NRC 13-8HZ PAD, SECTION 8 T1N R67W			
Site Position:		Northing:	1,264,991.47 usft	Latitude: 40.0593420
From:	Lat/Long	Easting:	3,161,871.82 usft	Longitude: -104.9216960
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.37 °

Well	NRC 4C-8HZ, 350 FSL 690 FWL			
Well Position	+N/-S	-0.74 ft	Northing:	1,264,991.12 usft
	+E/-W	59.90 ft	Easting:	3,161,931.72 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 5,049.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	2013/07/03	8.67	66.67	52,650

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	4.96

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	
817.00	0.00	0.00	817.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,316.78	10.00	155.95	1,314.25	-39.71	17.72	2.00	2.00	0.00	155.95	
6,653.28	10.00	155.95	6,569.75	-885.59	395.18	0.00	0.00	0.00	0.00	
7,153.07	0.00	0.00	7,067.00	-925.30	412.90	2.00	-2.00	0.00	180.00	
7,246.11	0.00	0.00	7,160.04	-925.30	412.90	0.00	0.00	0.00	0.00	
8,145.89	89.98	0.14	7,733.00	-352.56	414.31	10.00	10.00	0.02	0.14	
13,427.52	89.98	0.14	7,735.00	4,929.05	427.34	0.00	0.00	0.00	0.00	PBHL_NRC 4C-8HZ(

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well NRC 4C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Site:	NRC 13-8HZ PAD	North Reference:	True
Well:	NRC 4C-8HZ	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
567.00	0.00	0.00	567.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
617.00	0.00	0.00	617.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
817.00	0.00	0.00	817.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
900.00	1.66	155.95	899.99	-1.10	0.49	-1.05	2.00	2.00	0.00
1,000.00	3.66	155.95	999.88	-5.34	2.38	-5.11	2.00	2.00	0.00
1,100.00	5.66	155.95	1,099.54	-12.75	5.69	-12.22	2.00	2.00	0.00
1,200.00	7.66	155.95	1,198.86	-23.35	10.42	-22.36	2.00	2.00	0.00
1,300.00	9.66	155.95	1,297.72	-37.09	16.55	-35.53	2.00	2.00	0.00
1,316.78	10.00	155.95	1,314.25	-39.71	17.72	-38.03	2.00	2.00	0.00
Start 5336.50 hold at 1316.78 MD									
1,400.00	10.00	155.95	1,396.21	-52.90	23.61	-50.66	0.00	0.00	0.00
1,500.00	10.00	155.95	1,494.69	-68.75	30.68	-65.85	0.00	0.00	0.00
1,600.00	10.00	155.95	1,593.17	-84.60	37.75	-81.03	0.00	0.00	0.00
1,700.00	10.00	155.95	1,691.65	-100.45	44.83	-96.21	0.00	0.00	0.00
1,800.00	10.00	155.95	1,790.13	-116.30	51.90	-111.39	0.00	0.00	0.00
1,900.00	10.00	155.95	1,888.62	-132.16	58.97	-126.57	0.00	0.00	0.00
2,000.00	10.00	155.95	1,987.10	-148.01	66.05	-141.75	0.00	0.00	0.00
2,100.00	10.00	155.95	2,085.58	-163.86	73.12	-156.93	0.00	0.00	0.00
2,200.00	10.00	155.95	2,184.06	-179.71	80.19	-172.11	0.00	0.00	0.00
2,300.00	10.00	155.95	2,282.54	-195.56	87.26	-187.29	0.00	0.00	0.00
2,400.00	10.00	155.95	2,381.03	-211.41	94.34	-202.47	0.00	0.00	0.00
2,500.00	10.00	155.95	2,479.51	-227.26	101.41	-217.65	0.00	0.00	0.00
2,600.00	10.00	155.95	2,577.99	-243.11	108.48	-232.83	0.00	0.00	0.00
2,700.00	10.00	155.95	2,676.47	-258.96	115.56	-248.01	0.00	0.00	0.00
2,800.00	10.00	155.95	2,774.95	-274.81	122.63	-263.19	0.00	0.00	0.00
2,900.00	10.00	155.95	2,873.44	-290.66	129.70	-278.37	0.00	0.00	0.00
3,000.00	10.00	155.95	2,971.92	-306.51	136.78	-293.55	0.00	0.00	0.00
3,100.00	10.00	155.95	3,070.40	-322.37	143.85	-308.74	0.00	0.00	0.00
3,200.00	10.00	155.95	3,168.88	-338.22	150.92	-323.92	0.00	0.00	0.00
3,300.00	10.00	155.95	3,267.37	-354.07	158.00	-339.10	0.00	0.00	0.00
3,400.00	10.00	155.95	3,365.85	-369.92	165.07	-354.28	0.00	0.00	0.00
3,500.00	10.00	155.95	3,464.33	-385.77	172.14	-369.46	0.00	0.00	0.00
3,600.00	10.00	155.95	3,562.81	-401.62	179.22	-384.64	0.00	0.00	0.00
3,700.00	10.00	155.95	3,661.29	-417.47	186.29	-399.82	0.00	0.00	0.00
3,800.00	10.00	155.95	3,759.78	-433.32	193.36	-415.00	0.00	0.00	0.00
3,900.00	10.00	155.95	3,858.26	-449.17	200.44	-430.18	0.00	0.00	0.00
4,000.00	10.00	155.95	3,956.74	-465.02	207.51	-445.36	0.00	0.00	0.00
4,100.00	10.00	155.95	4,055.22	-480.87	214.58	-460.54	0.00	0.00	0.00
4,200.00	10.00	155.95	4,153.70	-496.72	221.65	-475.72	0.00	0.00	0.00
4,300.00	10.00	155.95	4,252.19	-512.57	228.73	-490.90	0.00	0.00	0.00
4,400.00	10.00	155.95	4,350.67	-528.43	235.80	-506.08	0.00	0.00	0.00
4,500.00	10.00	155.95	4,449.15	-544.28	242.87	-521.26	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well NRC 4C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Site:	NRC 13-8HZ PAD	North Reference:	True
Well:	NRC 4C-8HZ	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)
4,600.00	10.00	155.95	4,547.63	-560.13	249.95	-536.45	0.00	0.00	0.00
4,700.00	10.00	155.95	4,646.11	-575.98	257.02	-551.63	0.00	0.00	0.00
4,800.00	10.00	155.95	4,744.60	-591.83	264.09	-566.81	0.00	0.00	0.00
4,802.44	10.00	155.95	4,747.00	-592.22	264.27	-567.18	0.00	0.00	0.00
Sussex									
4,900.00	10.00	155.95	4,843.08	-607.68	271.17	-581.99	0.00	0.00	0.00
5,000.00	10.00	155.95	4,941.56	-623.53	278.24	-597.17	0.00	0.00	0.00
5,100.00	10.00	155.95	5,040.04	-639.38	285.31	-612.35	0.00	0.00	0.00
5,200.00	10.00	155.95	5,138.53	-655.23	292.39	-627.53	0.00	0.00	0.00
5,300.00	10.00	155.95	5,237.01	-671.08	299.46	-642.71	0.00	0.00	0.00
5,400.00	10.00	155.95	5,335.49	-686.93	306.53	-657.89	0.00	0.00	0.00
5,500.00	10.00	155.95	5,433.97	-702.78	313.61	-673.07	0.00	0.00	0.00
5,600.00	10.00	155.95	5,532.45	-718.64	320.68	-688.25	0.00	0.00	0.00
5,700.00	10.00	155.95	5,630.94	-734.49	327.75	-703.43	0.00	0.00	0.00
5,800.00	10.00	155.95	5,729.42	-750.34	334.83	-718.61	0.00	0.00	0.00
5,900.00	10.00	155.95	5,827.90	-766.19	341.90	-733.79	0.00	0.00	0.00
6,000.00	10.00	155.95	5,926.38	-782.04	348.97	-748.97	0.00	0.00	0.00
6,100.00	10.00	155.95	6,024.86	-797.89	356.05	-764.15	0.00	0.00	0.00
6,200.00	10.00	155.95	6,123.35	-813.74	363.12	-779.34	0.00	0.00	0.00
6,300.00	10.00	155.95	6,221.83	-829.59	370.19	-794.52	0.00	0.00	0.00
6,400.00	10.00	155.95	6,320.31	-845.44	377.26	-809.70	0.00	0.00	0.00
6,500.00	10.00	155.95	6,418.79	-861.29	384.34	-824.88	0.00	0.00	0.00
6,600.00	10.00	155.95	6,517.27	-877.14	391.41	-840.06	0.00	0.00	0.00
6,653.28	10.00	155.95	6,569.75	-885.59	395.18	-848.15	0.00	0.00	0.00
Start Drop -2.00									
6,700.00	9.06	155.95	6,615.82	-892.65	398.33	-854.91	2.00	-2.00	0.00
6,800.00	7.06	155.95	6,714.83	-905.46	404.05	-867.17	2.00	-2.00	0.00
6,900.00	5.06	155.95	6,814.26	-915.10	408.35	-876.41	2.00	-2.00	0.00
7,000.00	3.06	155.95	6,914.01	-921.57	411.23	-882.60	2.00	-2.00	0.00
7,100.00	1.06	155.95	7,013.94	-924.85	412.70	-885.75	2.00	-2.00	0.00
7,153.07	0.00	0.00	7,067.00	-925.30	412.90	-886.18	2.00	-2.00	0.00
Start 93.04 hold at 7153.07 MD									
7,200.00	0.00	0.00	7,113.93	-925.30	412.90	-886.18	0.00	0.00	0.00
7,246.11	0.00	0.00	7,160.04	-925.30	412.90	-886.18	0.00	0.00	0.00
Start DLS 10.00 TFO 0.14									
7,300.00	5.39	0.14	7,213.85	-922.77	412.91	-883.65	10.00	10.00	0.00
7,400.00	15.39	0.14	7,312.09	-904.76	412.95	-865.71	10.00	10.00	0.00
7,450.37	20.43	0.14	7,360.00	-889.27	412.99	-850.28	10.00	10.00	0.00
Sharon Springs									
7,500.00	25.39	0.14	7,405.71	-869.96	413.04	-831.03	10.00	10.00	0.00
7,505.87	25.98	0.14	7,411.00	-867.41	413.04	-828.50	10.00	10.00	0.00
Niobrara A									
7,589.21	34.31	0.14	7,483.00	-825.61	413.15	-786.83	10.00	10.00	0.00
Niobrara B									
7,600.00	35.39	0.14	7,491.86	-819.44	413.16	-780.69	10.00	10.00	0.00
7,700.00	45.39	0.14	7,567.93	-754.72	413.32	-716.20	10.00	10.00	0.00
7,721.89	47.58	0.14	7,583.00	-738.85	413.36	-700.38	10.00	10.00	0.00
Niobrara C									
7,800.00	55.39	0.14	7,631.60	-677.78	413.51	-639.53	10.00	10.00	0.00
7,900.00	65.39	0.14	7,680.95	-590.95	413.72	-553.01	10.00	10.00	0.00
7,972.85	72.67	0.14	7,707.00	-522.98	413.89	-485.27	10.00	10.00	0.00
Ft Hays									
8,000.00	75.39	0.14	7,714.47	-496.87	413.96	-459.26	10.00	10.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well NRC 4C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Site:	NRC 13-8HZ PAD	North Reference:	True
Well:	NRC 4C-8HZ	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)
8,070.37	82.43	0.14	7,728.00	-427.86	414.13	-390.49	10.00	10.00	0.00
Codell									
8,100.00	85.39	0.14	7,731.14	-398.40	414.20	-361.14	10.00	10.00	0.00
8,145.89	89.98	0.14	7,733.00	-352.56	414.31	-315.46	10.00	10.00	0.00
Start 5281.63 hold at 8145.89 MD - 7"(1 FSL 1105' FWL)									
8,200.00	89.98	0.14	7,733.02	-298.45	414.45	-261.54	0.00	0.00	0.00
8,300.00	89.98	0.14	7,733.06	-198.45	414.69	-161.89	0.00	0.00	0.00
8,400.00	89.98	0.14	7,733.09	-98.45	414.94	-62.24	0.00	0.00	0.00
8,500.00	89.98	0.14	7,733.13	1.55	415.19	37.40	0.00	0.00	0.00
8,600.00	89.98	0.14	7,733.17	101.55	415.43	137.05	0.00	0.00	0.00
8,700.00	89.98	0.14	7,733.21	201.55	415.68	236.70	0.00	0.00	0.00
8,800.00	89.98	0.14	7,733.25	301.55	415.93	336.35	0.00	0.00	0.00
8,900.00	89.98	0.14	7,733.28	401.55	416.17	435.99	0.00	0.00	0.00
9,000.00	89.98	0.14	7,733.32	501.55	416.42	535.64	0.00	0.00	0.00
9,100.00	89.98	0.14	7,733.36	601.55	416.67	635.29	0.00	0.00	0.00
9,200.00	89.98	0.14	7,733.40	701.55	416.91	734.94	0.00	0.00	0.00
9,300.00	89.98	0.14	7,733.44	801.55	417.16	834.58	0.00	0.00	0.00
9,400.00	89.98	0.14	7,733.47	901.55	417.41	934.23	0.00	0.00	0.00
9,500.00	89.98	0.14	7,733.51	1,001.55	417.65	1,033.88	0.00	0.00	0.00
9,600.00	89.98	0.14	7,733.55	1,101.55	417.90	1,133.52	0.00	0.00	0.00
9,700.00	89.98	0.14	7,733.59	1,201.55	418.15	1,233.17	0.00	0.00	0.00
9,800.00	89.98	0.14	7,733.62	1,301.54	418.39	1,332.82	0.00	0.00	0.00
9,900.00	89.98	0.14	7,733.66	1,401.54	418.64	1,432.47	0.00	0.00	0.00
10,000.00	89.98	0.14	7,733.70	1,501.54	418.89	1,532.11	0.00	0.00	0.00
10,100.00	89.98	0.14	7,733.74	1,601.54	419.13	1,631.76	0.00	0.00	0.00
10,200.00	89.98	0.14	7,733.78	1,701.54	419.38	1,731.41	0.00	0.00	0.00
10,300.00	89.98	0.14	7,733.81	1,801.54	419.63	1,831.06	0.00	0.00	0.00
10,400.00	89.98	0.14	7,733.85	1,901.54	419.87	1,930.70	0.00	0.00	0.00
10,500.00	89.98	0.14	7,733.89	2,001.54	420.12	2,030.35	0.00	0.00	0.00
10,600.00	89.98	0.14	7,733.93	2,101.54	420.36	2,130.00	0.00	0.00	0.00
10,700.00	89.98	0.14	7,733.97	2,201.54	420.61	2,229.64	0.00	0.00	0.00
10,800.00	89.98	0.14	7,734.00	2,301.54	420.86	2,329.29	0.00	0.00	0.00
10,900.00	89.98	0.14	7,734.04	2,401.54	421.10	2,428.94	0.00	0.00	0.00
11,000.00	89.98	0.14	7,734.08	2,501.54	421.35	2,528.59	0.00	0.00	0.00
11,100.00	89.98	0.14	7,734.12	2,601.54	421.60	2,628.23	0.00	0.00	0.00
11,200.00	89.98	0.14	7,734.16	2,701.54	421.84	2,727.88	0.00	0.00	0.00
11,300.00	89.98	0.14	7,734.19	2,801.54	422.09	2,827.53	0.00	0.00	0.00
11,400.00	89.98	0.14	7,734.23	2,901.54	422.34	2,927.18	0.00	0.00	0.00
11,500.00	89.98	0.14	7,734.27	3,001.54	422.58	3,026.82	0.00	0.00	0.00
11,600.00	89.98	0.14	7,734.31	3,101.54	422.83	3,126.47	0.00	0.00	0.00
11,700.00	89.98	0.14	7,734.35	3,201.54	423.08	3,226.12	0.00	0.00	0.00
11,800.00	89.98	0.14	7,734.38	3,301.54	423.32	3,325.76	0.00	0.00	0.00
11,900.00	89.98	0.14	7,734.42	3,401.54	423.57	3,425.41	0.00	0.00	0.00
12,000.00	89.98	0.14	7,734.46	3,501.54	423.82	3,525.06	0.00	0.00	0.00
12,100.00	89.98	0.14	7,734.50	3,601.54	424.06	3,624.71	0.00	0.00	0.00
12,200.00	89.98	0.14	7,734.53	3,701.54	424.31	3,724.35	0.00	0.00	0.00
12,300.00	89.98	0.14	7,734.57	3,801.54	424.56	3,824.00	0.00	0.00	0.00
12,400.00	89.98	0.14	7,734.61	3,901.54	424.80	3,923.65	0.00	0.00	0.00
12,500.00	89.98	0.14	7,734.65	4,001.54	425.05	4,023.30	0.00	0.00	0.00
12,600.00	89.98	0.14	7,734.69	4,101.54	425.30	4,122.94	0.00	0.00	0.00
12,700.00	89.98	0.14	7,734.72	4,201.54	425.54	4,222.59	0.00	0.00	0.00
12,800.00	89.98	0.14	7,734.76	4,301.54	425.79	4,322.24	0.00	0.00	0.00
12,900.00	89.98	0.14	7,734.80	4,401.54	426.04	4,421.88	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well NRC 4C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Site:	NRC 13-8HZ PAD	North Reference:	True
Well:	NRC 4C-8HZ	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)
13,000.00	89.98	0.14	7,734.84	4,501.54	426.28	4,521.53	0.00	0.00	0.00
13,100.00	89.98	0.14	7,734.88	4,601.53	426.53	4,621.18	0.00	0.00	0.00
13,200.00	89.98	0.14	7,734.91	4,701.53	426.78	4,720.83	0.00	0.00	0.00
13,300.00	89.98	0.14	7,734.95	4,801.53	427.02	4,820.47	0.00	0.00	0.00
13,400.00	89.98	0.14	7,734.99	4,901.53	427.27	4,920.12	0.00	0.00	0.00
13,427.52	89.98	0.14	7,735.00	4,929.05	427.34	4,947.54	0.00	0.00	0.00
TD at 13427.52 - PBHL_NRC 4C-8HZ(1 FNL 1105 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_NRC 4C-8HZ(1 F	0.00	0.00	7,735.00	4,929.05	427.34	1,269,922.84	3,162,326.89	40.0728710	-104.9199550
- plan hits target center									
- Circle (radius 0.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
617.00	617.00	9 5/8"	9.625	12.250	
8,145.89	7,733.00	7"(1 FSL 1105' FWL)	7.000	7.500	
13,427.52	7,735.00	4 1/2"	4.500	6.125	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
567.00	567.00	Fox Hills Base		0.00	
4,802.44	4,747.00	Sussex			
7,450.37	7,360.00	Sharon Springs			
7,505.87	7,411.00	Niobrara A			
7,589.21	7,483.00	Niobrara B			
7,721.89	7,583.00	Niobrara C			
7,972.85	7,707.00	Ft Hays			
8,070.37	7,728.00	Codell			

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well NRC 4C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5049 & KB 17 @ 5066.00ft (ASSUMED)
Site:	NRC 13-8HZ PAD	North Reference:	True
Well:	NRC 4C-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
817.00	817.00	0.00	0.00	Start Build 2.00
1,316.78	1,314.25	-39.71	17.72	Start 5336.50 hold at 1316.78 MD
6,653.28	6,569.75	-885.59	395.18	Start Drop -2.00
7,153.07	7,067.00	-925.30	412.90	Start 93.04 hold at 7153.07 MD
7,246.11	7,160.04	-925.30	412.90	Start DLS 10.00 TFO 0.14
8,145.89	7,733.00	-352.56	414.31	Start 5281.63 hold at 8145.89 MD
13,427.52	7,735.00	4,929.05	427.34	TD at 13427.52