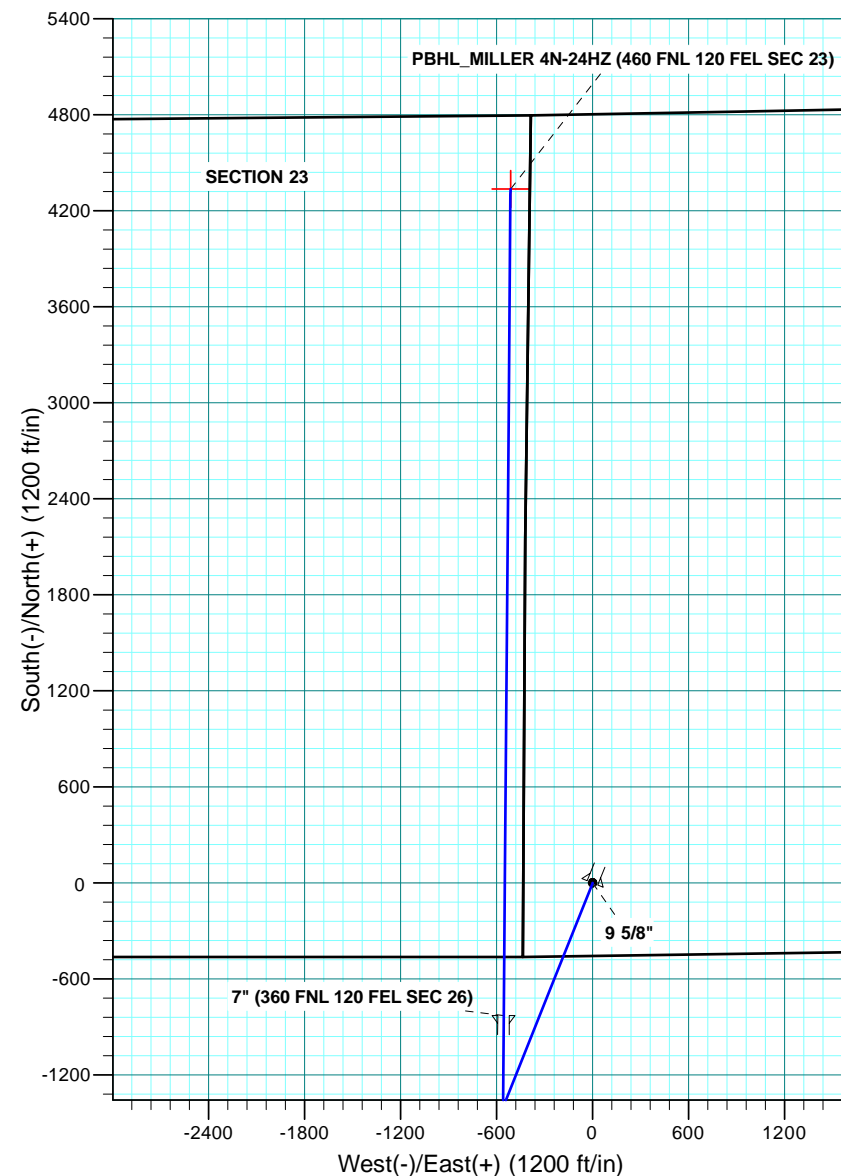
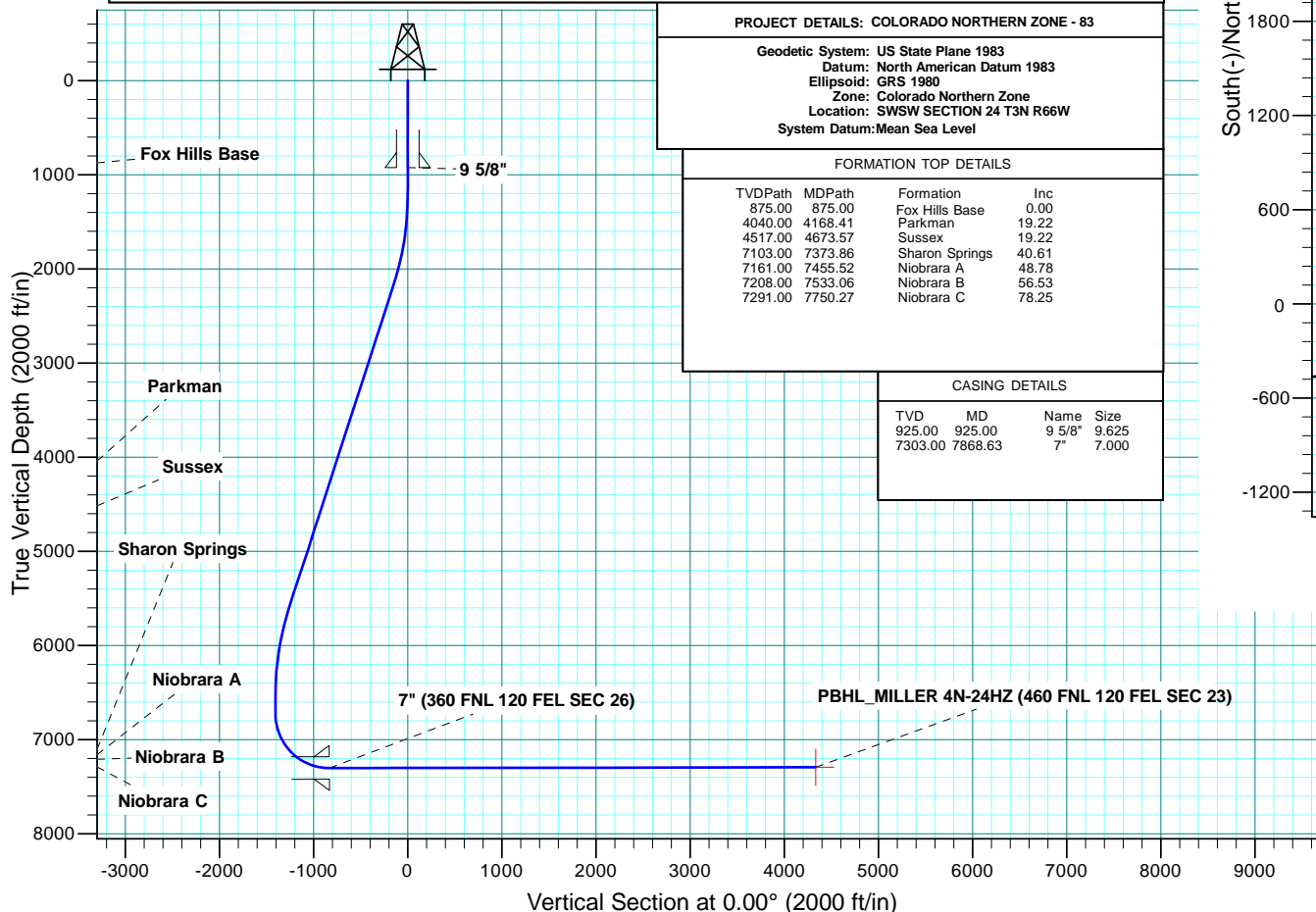


WELL DETAILS: MILLER 4N-24HZ										
GL 5016 & KB 17 @ 5033.00ft (ASSUMED)										
		+N/-S 0.00	+E/-W 0.00	Northing 1318352.95	Easting 3214126.42	Latitude 40.2047350	Longitude -104.7333710			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1225.00	0.00	0.00	1225.00	0.00	0.00	0.00	0.00	0.00		Start Build 2.00
2185.97	19.22	201.75	2168.05	-148.31	-59.15	2.00	201.75	-148.31		Start 3621.76 hold at 2185.97 MD
5807.73	19.22	201.75	5587.95	-1255.69	-500.86	0.00	0.00	-1255.69		Start Drop -2.00
6768.70	0.00	0.00	6531.00	-1404.00	-560.01	2.00	180.00	-1404.00		Start 199.04 hold at 6768.70 MD
6967.74	0.00	0.00	6730.04	-1404.00	-560.01	0.00	0.00	-1404.00		Start DLS 10.00 TFO 0.47
7868.63	90.09	0.47	7303.00	-830.17	-555.31	10.00	0.47	-830.17		Start 5166.08 hold at 7868.63 MD
13034.70	90.09	0.47	7295.00	4335.72	-513.01	0.00	0.00	4335.72	PBHL_MILLER 4N-24HZ	TD at 13034.70
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL	7295.00	4335.72	-513.01	1322684.07	3213575.95	40.2166370	-104.7352080	Point		

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83										
Geodetic System: US State Plane 1983										
Datum: North American Datum 1983										
Ellipsoid: GRS 1980										
Zone: Colorado Northern Zone										
Location: SWSW SECTION 24 T3N R66W										
System Datum: Mean Sea Level										

FORMATION TOP DETAILS				
TVDP	MDP	Formation	Inc	
875.00	875.00	Fox Hills Base	0.00	
4040.00	4168.41	Parkman	19.22	
4517.00	4673.57	Sussex	19.22	
7103.00	7373.86	Sharon Springs	40.61	
7161.00	7455.52	Niobrara A	48.78	
7208.00	7533.06	Niobrara B	56.53	
7291.00	7750.27	Niobrara C	78.25	

CASING DETAILS				
TVDP	MD	Name	Size	
925.00	925.00	9 5/8"	9.625	
7303.00	7868.63	7"	7.000	





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

MILLER 13-24HZ PAD

MILLER 4N-24HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

08 April, 2014

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well MILLER 4N-24HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Site:	MILLER 13-24HZ PAD	North Reference:	True
Well:	MILLER 4N-24HZ	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	MILLER 13-24HZ PAD, SWSW SECTION 24 T3N R66W			
Site Position:		Northing:	1,318,293.21 usft	Latitude: 40.2045710
From:	Lat/Long	Easting:	3,214,126.94 usft	Longitude: -104.7333710
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.50 °

Well	MILLER 4N-24HZ			
Well Position	+N/-S	59.74 ft	Northing:	1,318,352.95 usft
	+E/-W	0.00 ft	Easting:	3,214,126.42 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	5,016.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	10/9/2013	8.55	66.81	52,714

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	0.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,225.00	0.00	0.00	1,225.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,185.97	19.22	201.75	2,168.05	-148.31	-59.15	2.00	2.00	0.00	201.75	
5,807.73	19.22	201.75	5,587.95	-1,255.69	-500.86	0.00	0.00	0.00	0.00	
6,768.70	0.00	0.00	6,531.00	-1,404.00	-560.01	2.00	-2.00	0.00	180.00	
6,967.74	0.00	0.00	6,730.04	-1,404.00	-560.01	0.00	0.00	0.00	0.00	
7,868.63	90.09	0.47	7,303.00	-830.17	-555.31	10.00	10.00	0.05	0.47	
13,034.70	90.09	0.47	7,295.00	4,335.72	-513.01	0.00	0.00	0.00	0.00	PBHL_MILLER 4N-24

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well MILLER 4N-24HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Site:	MILLER 13-24HZ PAD	North Reference:	True
Well:	MILLER 4N-24HZ	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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
875.00	0.00	0.00	875.00	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
925.00	0.00	0.00	925.00	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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,225.00	0.00	0.00	1,225.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,300.00	1.50	201.75	1,299.99	-0.91	-0.36	-0.91	2.00	2.00	0.00
1,400.00	3.50	201.75	1,399.89	-4.96	-1.98	-4.96	2.00	2.00	0.00
1,500.00	5.50	201.75	1,499.58	-12.25	-4.89	-12.25	2.00	2.00	0.00
1,600.00	7.50	201.75	1,598.93	-22.76	-9.08	-22.76	2.00	2.00	0.00
1,700.00	9.50	201.75	1,697.83	-36.49	-14.56	-36.49	2.00	2.00	0.00
1,800.00	11.50	201.75	1,796.15	-53.42	-21.31	-53.42	2.00	2.00	0.00
1,900.00	13.50	201.75	1,893.77	-73.52	-29.33	-73.52	2.00	2.00	0.00
2,000.00	15.50	201.75	1,990.58	-96.78	-38.60	-96.78	2.00	2.00	0.00
2,100.00	17.50	201.75	2,086.46	-123.16	-49.12	-123.16	2.00	2.00	0.00
2,185.97	19.22	201.75	2,168.05	-148.31	-59.15	-148.31	2.00	2.00	0.00
Start 3621.76 hold at 2185.97 MD									
2,200.00	19.22	201.75	2,181.30	-152.60	-60.87	-152.60	0.00	0.00	0.00
2,300.00	19.22	201.75	2,275.72	-183.17	-73.06	-183.17	0.00	0.00	0.00
2,400.00	19.22	201.75	2,370.15	-213.75	-85.26	-213.75	0.00	0.00	0.00
2,500.00	19.22	201.75	2,464.58	-244.32	-97.45	-244.32	0.00	0.00	0.00
2,600.00	19.22	201.75	2,559.00	-274.90	-109.65	-274.90	0.00	0.00	0.00
2,700.00	19.22	201.75	2,653.43	-305.48	-121.84	-305.48	0.00	0.00	0.00
2,800.00	19.22	201.75	2,747.86	-336.05	-134.04	-336.05	0.00	0.00	0.00
2,900.00	19.22	201.75	2,842.28	-366.63	-146.24	-366.63	0.00	0.00	0.00
3,000.00	19.22	201.75	2,936.71	-397.20	-158.43	-397.20	0.00	0.00	0.00
3,100.00	19.22	201.75	3,031.14	-427.78	-170.63	-427.78	0.00	0.00	0.00
3,200.00	19.22	201.75	3,125.56	-458.36	-182.82	-458.36	0.00	0.00	0.00
3,300.00	19.22	201.75	3,219.99	-488.93	-195.02	-488.93	0.00	0.00	0.00
3,400.00	19.22	201.75	3,314.42	-519.51	-207.21	-519.51	0.00	0.00	0.00
3,500.00	19.22	201.75	3,408.84	-550.08	-219.41	-550.08	0.00	0.00	0.00
3,600.00	19.22	201.75	3,503.27	-580.66	-231.61	-580.66	0.00	0.00	0.00
3,700.00	19.22	201.75	3,597.70	-611.24	-243.80	-611.24	0.00	0.00	0.00
3,800.00	19.22	201.75	3,692.12	-641.81	-256.00	-641.81	0.00	0.00	0.00
3,900.00	19.22	201.75	3,786.55	-672.39	-268.19	-672.39	0.00	0.00	0.00
4,000.00	19.22	201.75	3,880.98	-702.96	-280.39	-702.96	0.00	0.00	0.00
4,100.00	19.22	201.75	3,975.40	-733.54	-292.59	-733.54	0.00	0.00	0.00
4,168.41	19.22	201.75	4,040.00	-754.46	-300.93	-754.46	0.00	0.00	0.00
Parkman									
4,200.00	19.22	201.75	4,069.83	-764.12	-304.78	-764.12	0.00	0.00	0.00
4,300.00	19.22	201.75	4,164.26	-794.69	-316.98	-794.69	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well MILLER 4N-24HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Site:	MILLER 13-24HZ PAD	North Reference:	True
Well:	MILLER 4N-24HZ	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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,400.00	19.22	201.75	4,258.68	-825.27	-329.17	-825.27	0.00	0.00	0.00
4,500.00	19.22	201.75	4,353.11	-855.84	-341.37	-855.84	0.00	0.00	0.00
4,600.00	19.22	201.75	4,447.54	-886.42	-353.56	-886.42	0.00	0.00	0.00
4,673.57	19.22	201.75	4,517.00	-908.91	-362.54	-908.91	0.00	0.00	0.00
Sussex									
4,700.00	19.22	201.75	4,541.96	-917.00	-365.76	-917.00	0.00	0.00	0.00
4,800.00	19.22	201.75	4,636.39	-947.57	-377.96	-947.57	0.00	0.00	0.00
4,900.00	19.22	201.75	4,730.81	-978.15	-390.15	-978.15	0.00	0.00	0.00
5,000.00	19.22	201.75	4,825.24	-1,008.72	-402.35	-1,008.72	0.00	0.00	0.00
5,100.00	19.22	201.75	4,919.67	-1,039.30	-414.54	-1,039.30	0.00	0.00	0.00
5,200.00	19.22	201.75	5,014.09	-1,069.87	-426.74	-1,069.87	0.00	0.00	0.00
5,300.00	19.22	201.75	5,108.52	-1,100.45	-438.93	-1,100.45	0.00	0.00	0.00
5,400.00	19.22	201.75	5,202.95	-1,131.03	-451.13	-1,131.03	0.00	0.00	0.00
5,500.00	19.22	201.75	5,297.37	-1,161.60	-463.33	-1,161.60	0.00	0.00	0.00
5,600.00	19.22	201.75	5,391.80	-1,192.18	-475.52	-1,192.18	0.00	0.00	0.00
5,700.00	19.22	201.75	5,486.23	-1,222.75	-487.72	-1,222.75	0.00	0.00	0.00
5,800.00	19.22	201.75	5,580.65	-1,253.33	-499.91	-1,253.33	0.00	0.00	0.00
5,807.73	19.22	201.75	5,587.95	-1,255.69	-500.86	-1,255.69	0.00	0.00	0.00
Start Drop -2.00									
5,900.00	17.37	201.75	5,675.55	-1,282.60	-511.59	-1,282.60	2.00	-2.00	0.00
6,000.00	15.37	201.75	5,771.49	-1,308.78	-522.03	-1,308.78	2.00	-2.00	0.00
6,100.00	13.37	201.75	5,868.36	-1,331.84	-531.23	-1,331.84	2.00	-2.00	0.00
6,200.00	11.37	201.75	5,966.03	-1,351.74	-539.17	-1,351.74	2.00	-2.00	0.00
6,300.00	9.37	201.75	6,064.39	-1,368.47	-545.84	-1,368.47	2.00	-2.00	0.00
6,400.00	7.37	201.75	6,163.32	-1,381.99	-551.23	-1,381.99	2.00	-2.00	0.00
6,500.00	5.37	201.75	6,262.70	-1,392.30	-555.34	-1,392.30	2.00	-2.00	0.00
6,600.00	3.37	201.75	6,362.40	-1,399.39	-558.17	-1,399.39	2.00	-2.00	0.00
6,700.00	1.37	201.75	6,462.31	-1,403.24	-559.70	-1,403.24	2.00	-2.00	0.00
6,768.70	0.00	0.00	6,531.00	-1,404.00	-560.01	-1,404.00	2.00	-2.00	0.00
Start 199.04 hold at 6768.70 MD									
6,800.00	0.00	0.00	6,562.30	-1,404.00	-560.01	-1,404.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,662.30	-1,404.00	-560.01	-1,404.00	0.00	0.00	0.00
6,967.74	0.00	0.00	6,730.04	-1,404.00	-560.01	-1,404.00	0.00	0.00	0.00
Start DLS 10.00 TFO 0.47									
7,000.00	3.23	0.47	6,762.29	-1,403.09	-560.00	-1,403.09	10.00	10.00	0.00
7,100.00	13.23	0.47	6,861.13	-1,388.80	-559.89	-1,388.80	10.00	10.00	0.00
7,200.00	23.23	0.47	6,955.99	-1,357.57	-559.63	-1,357.57	10.00	10.00	0.00
7,300.00	33.23	0.47	7,043.99	-1,310.33	-559.24	-1,310.33	10.00	10.00	0.00
7,373.86	40.61	0.47	7,103.00	-1,266.00	-558.88	-1,266.00	10.00	10.00	0.00
Sharon Springs									
7,400.00	43.23	0.47	7,122.45	-1,248.54	-558.74	-1,248.54	10.00	10.00	0.00
7,455.52	48.78	0.47	7,161.00	-1,208.61	-558.41	-1,208.61	10.00	10.00	0.00
Niobrara A									
7,500.00	53.23	0.47	7,188.98	-1,174.06	-558.13	-1,174.06	10.00	10.00	0.00
7,533.06	56.53	0.47	7,208.00	-1,147.02	-557.91	-1,147.02	10.00	10.00	0.00
Niobrara B									
7,600.00	63.23	0.47	7,241.57	-1,089.15	-557.43	-1,089.15	10.00	10.00	0.00
7,700.00	73.23	0.47	7,278.62	-996.41	-556.67	-996.41	10.00	10.00	0.00
7,750.27	78.25	0.47	7,291.00	-947.70	-556.27	-947.70	10.00	10.00	0.00
Niobrara C									
7,800.00	83.23	0.47	7,299.00	-898.64	-555.87	-898.64	10.00	10.00	0.00
7,868.63	90.09	0.47	7,303.00	-830.17	-555.31	-830.17	10.00	10.00	0.00
Start 5166.08 hold at 7868.63 MD - 7" (360 FNL 120 FEL SEC 26)									

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well MILLER 4N-24HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Site:	MILLER 13-24HZ PAD	North Reference:	True
Well:	MILLER 4N-24HZ	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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,900.00	90.09	0.47	7,302.95	-798.80	-555.05	-798.80	0.00	0.00	0.00
8,000.00	90.09	0.47	7,302.80	-698.80	-554.24	-698.80	0.00	0.00	0.00
8,100.00	90.09	0.47	7,302.64	-598.81	-553.42	-598.81	0.00	0.00	0.00
8,200.00	90.09	0.47	7,302.49	-498.81	-552.60	-498.81	0.00	0.00	0.00
8,300.00	90.09	0.47	7,302.33	-398.81	-551.78	-398.81	0.00	0.00	0.00
8,400.00	90.09	0.47	7,302.18	-298.82	-550.96	-298.82	0.00	0.00	0.00
8,500.00	90.09	0.47	7,302.02	-198.82	-550.14	-198.82	0.00	0.00	0.00
8,600.00	90.09	0.47	7,301.87	-98.82	-549.32	-98.82	0.00	0.00	0.00
8,700.00	90.09	0.47	7,301.71	1.17	-548.50	1.17	0.00	0.00	0.00
8,800.00	90.09	0.47	7,301.56	101.17	-547.68	101.17	0.00	0.00	0.00
8,900.00	90.09	0.47	7,301.40	201.16	-546.87	201.16	0.00	0.00	0.00
9,000.00	90.09	0.47	7,301.25	301.16	-546.05	301.16	0.00	0.00	0.00
9,100.00	90.09	0.47	7,301.09	401.16	-545.23	401.16	0.00	0.00	0.00
9,200.00	90.09	0.47	7,300.94	501.15	-544.41	501.15	0.00	0.00	0.00
9,300.00	90.09	0.47	7,300.78	601.15	-543.59	601.15	0.00	0.00	0.00
9,400.00	90.09	0.47	7,300.63	701.15	-542.77	701.15	0.00	0.00	0.00
9,500.00	90.09	0.47	7,300.47	801.14	-541.95	801.14	0.00	0.00	0.00
9,600.00	90.09	0.47	7,300.32	901.14	-541.13	901.14	0.00	0.00	0.00
9,700.00	90.09	0.47	7,300.16	1,001.14	-540.31	1,001.14	0.00	0.00	0.00
9,800.00	90.09	0.47	7,300.01	1,101.13	-539.50	1,101.13	0.00	0.00	0.00
9,900.00	90.09	0.47	7,299.85	1,201.13	-538.68	1,201.13	0.00	0.00	0.00
10,000.00	90.09	0.47	7,299.70	1,301.13	-537.86	1,301.13	0.00	0.00	0.00
10,100.00	90.09	0.47	7,299.54	1,401.12	-537.04	1,401.12	0.00	0.00	0.00
10,200.00	90.09	0.47	7,299.39	1,501.12	-536.22	1,501.12	0.00	0.00	0.00
10,300.00	90.09	0.47	7,299.23	1,601.12	-535.40	1,601.12	0.00	0.00	0.00
10,400.00	90.09	0.47	7,299.08	1,701.11	-534.58	1,701.11	0.00	0.00	0.00
10,500.00	90.09	0.47	7,298.92	1,801.11	-533.76	1,801.11	0.00	0.00	0.00
10,600.00	90.09	0.47	7,298.77	1,901.11	-532.95	1,901.11	0.00	0.00	0.00
10,700.00	90.09	0.47	7,298.61	2,001.10	-532.13	2,001.10	0.00	0.00	0.00
10,800.00	90.09	0.47	7,298.46	2,101.10	-531.31	2,101.10	0.00	0.00	0.00
10,900.00	90.09	0.47	7,298.31	2,201.10	-530.49	2,201.10	0.00	0.00	0.00
11,000.00	90.09	0.47	7,298.15	2,301.09	-529.67	2,301.09	0.00	0.00	0.00
11,100.00	90.09	0.47	7,298.00	2,401.09	-528.85	2,401.09	0.00	0.00	0.00
11,200.00	90.09	0.47	7,297.84	2,501.08	-528.03	2,501.08	0.00	0.00	0.00
11,300.00	90.09	0.47	7,297.69	2,601.08	-527.21	2,601.08	0.00	0.00	0.00
11,400.00	90.09	0.47	7,297.53	2,701.08	-526.39	2,701.08	0.00	0.00	0.00
11,500.00	90.09	0.47	7,297.38	2,801.07	-525.58	2,801.07	0.00	0.00	0.00
11,600.00	90.09	0.47	7,297.22	2,901.07	-524.76	2,901.07	0.00	0.00	0.00
11,700.00	90.09	0.47	7,297.07	3,001.07	-523.94	3,001.07	0.00	0.00	0.00
11,800.00	90.09	0.47	7,296.91	3,101.06	-523.12	3,101.06	0.00	0.00	0.00
11,900.00	90.09	0.47	7,296.76	3,201.06	-522.30	3,201.06	0.00	0.00	0.00
12,000.00	90.09	0.47	7,296.60	3,301.06	-521.48	3,301.06	0.00	0.00	0.00
12,100.00	90.09	0.47	7,296.45	3,401.05	-520.66	3,401.05	0.00	0.00	0.00
12,200.00	90.09	0.47	7,296.29	3,501.05	-519.84	3,501.05	0.00	0.00	0.00
12,300.00	90.09	0.47	7,296.14	3,601.05	-519.02	3,601.05	0.00	0.00	0.00
12,400.00	90.09	0.47	7,295.98	3,701.04	-518.21	3,701.04	0.00	0.00	0.00
12,500.00	90.09	0.47	7,295.83	3,801.04	-517.39	3,801.04	0.00	0.00	0.00
12,600.00	90.09	0.47	7,295.67	3,901.04	-516.57	3,901.04	0.00	0.00	0.00
12,700.00	90.09	0.47	7,295.52	4,001.03	-515.75	4,001.03	0.00	0.00	0.00
12,800.00	90.09	0.47	7,295.36	4,101.03	-514.93	4,101.03	0.00	0.00	0.00
12,900.00	90.09	0.47	7,295.21	4,201.03	-514.11	4,201.03	0.00	0.00	0.00
13,000.00	90.09	0.47	7,295.05	4,301.02	-513.29	4,301.02	0.00	0.00	0.00
13,034.70	90.09	0.47	7,295.00	4,335.72	-513.01	4,335.72	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well MILLER 4N-24HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5016 & KB 17 @ 5033.00ft (ASSUMED)
Site:	MILLER 13-24HZ PAD	North Reference:	True
Well:	MILLER 4N-24HZ	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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
TD at 13034.70 - PBHL_MILLER 4N-24HZ (460 FNL 120 FEL SEC 23)									

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_MILLER 4N-24HZ	0.00	0.00	7,295.00	4,335.72	-513.01	1,322,684.06	3,213,575.95	40.2166370	-104.7352080
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
925.00	925.00	9 5/8"	9.625	12.250	
7,868.63	7,303.00	7" (360 FNL 120 FEL SEC 26)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
875.00	875.00	Fox Hills Base				
4,168.41	4,040.00	Parkman				
4,673.57	4,517.00	Sussex				
7,373.86	7,103.00	Sharon Springs				
7,455.52	7,161.00	Niobrara A				
7,533.06	7,208.00	Niobrara B				
7,750.27	7,291.00	Niobrara C				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,225.00	1,225.00	0.00	0.00	Start Build 2.00	
2,185.97	2,168.05	-148.31	-59.15	Start 3621.76 hold at 2185.97 MD	
5,807.73	5,587.95	-1,255.69	-500.86	Start Drop -2.00	
6,768.70	6,531.00	-1,404.00	-560.01	Start 199.04 hold at 6768.70 MD	
6,967.74	6,730.04	-1,404.00	-560.01	Start DLS 10.00 TFO 0.47	
7,868.63	7,303.00	-830.17	-555.31	Start 5166.08 hold at 7868.63 MD	
13,034.70	7,295.00	4,335.72	-513.01	TD at 13034.70	