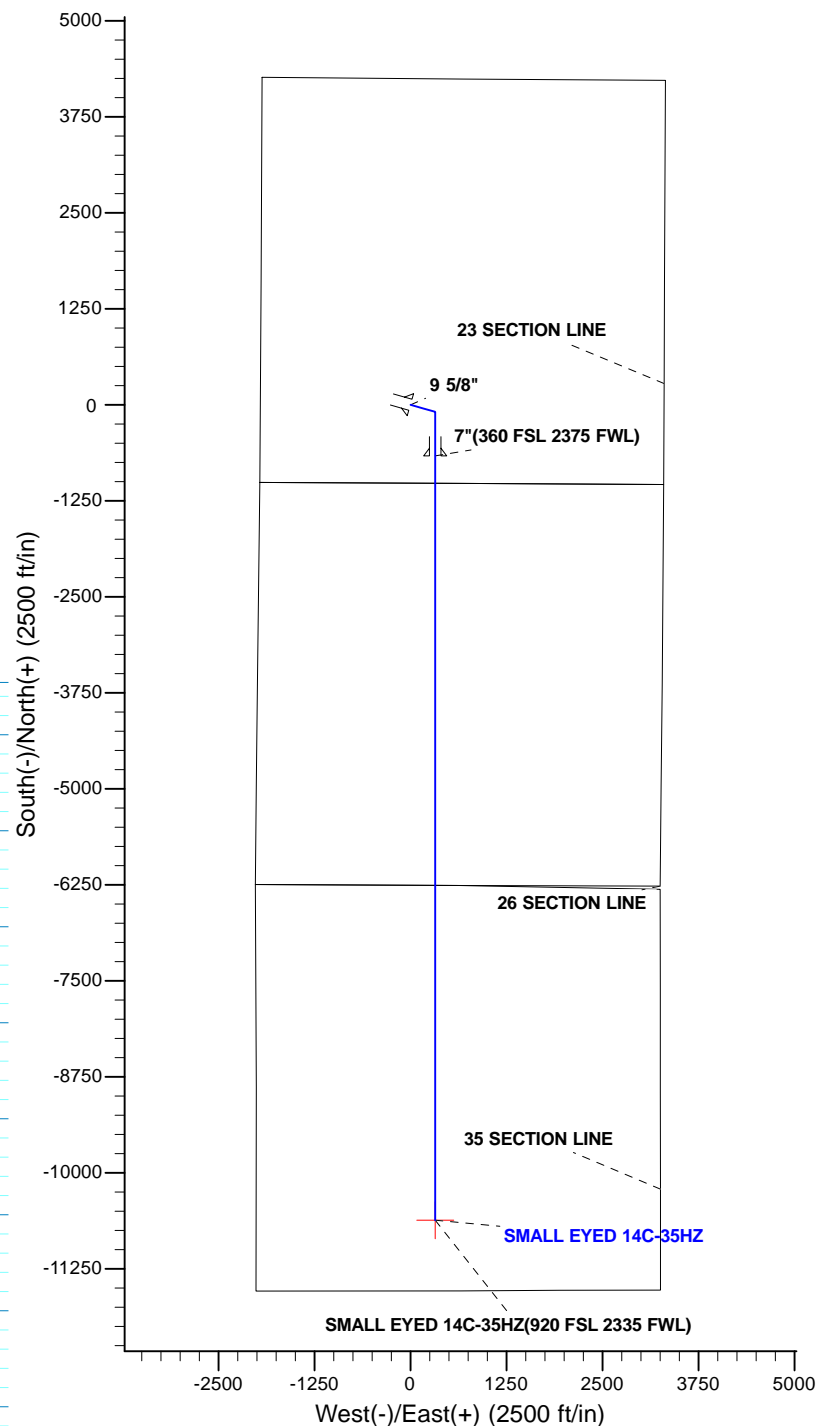
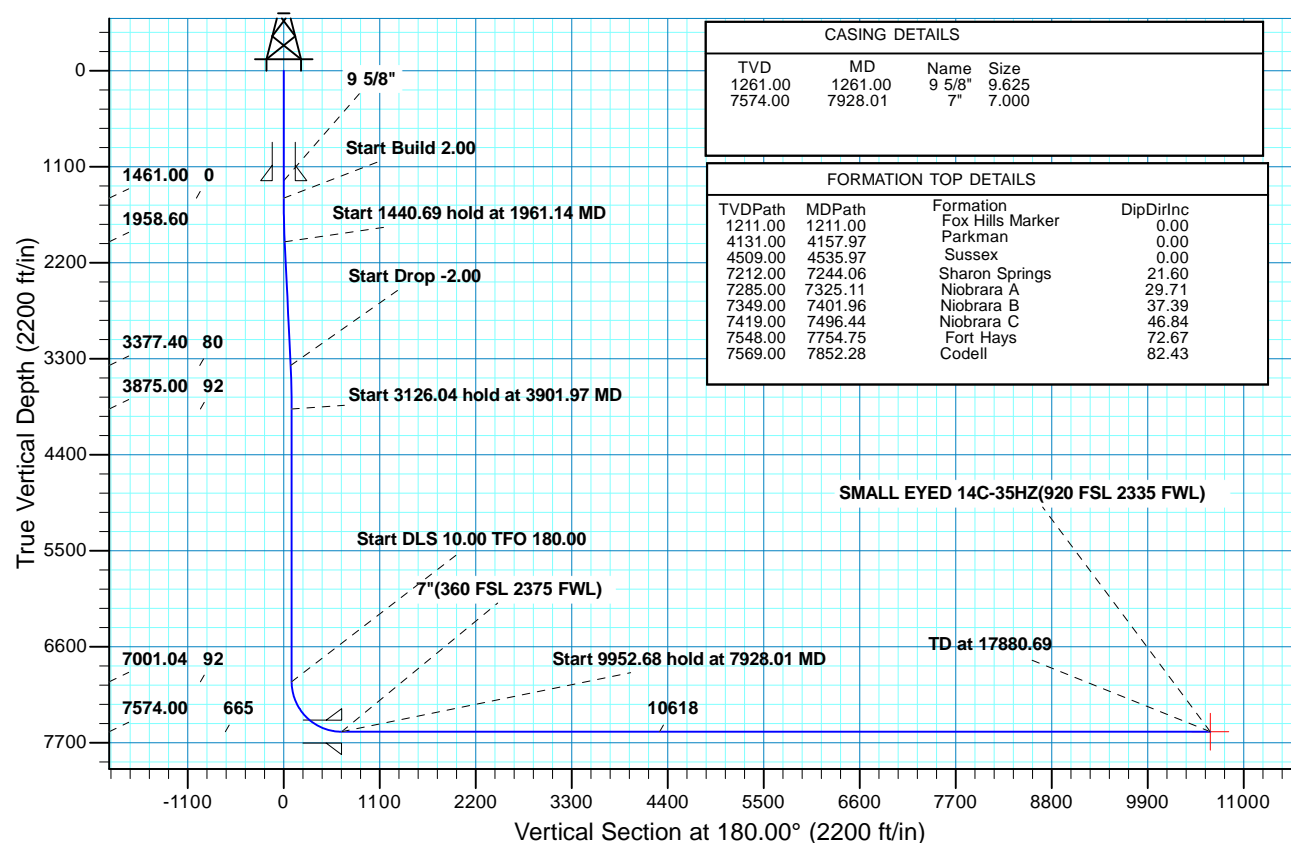


WELL DETAILS: SMALL EYED 14C-35HZ									
GL 4963 & KB 17 @ 4979.00ft (ASSUMED)									
+N/-S 0.00		+E/-W 0.00		Northing 1286907.66	Easting 3178849.72	Latitude 40.1191840		Longitude -104.8604780	
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1461.00	0.00	0.00	1461.00	0.00	0.00	0.00	0.00	0.00	
1961.14	10.00	105.83	1958.60	-11.88	41.90	2.00	105.83	11.88	
3401.83	10.00	105.83	3377.40	-80.12	282.65	0.00	0.00	80.12	
3901.97	0.00	0.00	3875.00	-92.00	324.55	2.00	180.00	92.00	
7028.01	0.00	0.00	7001.04	-92.00	324.55	0.00	0.00	92.00	
7928.01	90.00	180.00	7574.00	-664.96	324.55	10.00	180.00	664.96	
17880.69	90.00	180.00	7574.00	-10617.64	324.55	0.00	0.00	10617.64	SMALL EYED 14C-35HZ(920 FSL 2335 FWL)





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

SMALL EYED 23-23HZ

SMALL EYED 14C-35HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

18 February, 2014

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SMALL EYED 14C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Site:	SMALL EYED 23-23HZ	North Reference:	True
Well:	SMALL EYED 14C-35HZ	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	SMALL EYED 23-23HZ, SECTION 23 T2N R67W			
Site Position:		Northing:	1,286,907.66 usft	Latitude: 40.1191840
From:	Lat/Long	Easting:	3,178,849.72 usft	Longitude: -104.8604780
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.41 °

Well	SMALL EYED 14C-35HZ, 1020 FSL 1955 FWL			
Well Position	+N/-S	0.00 ft	Northing:	1,286,907.66 usft
	+E/-W	0.00 ft	Easting:	3,178,849.72 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level: 4,962.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	02/13/14	8.57	66.70	52,612

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	180.00

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	
1,461.00	0.00	0.00	1,461.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,961.14	10.00	105.83	1,958.60	-11.88	41.90	2.00	2.00	0.00	105.83	
3,401.83	10.00	105.83	3,377.40	-80.12	282.65	0.00	0.00	0.00	0.00	
3,901.97	0.00	0.00	3,875.00	-92.00	324.55	2.00	-2.00	0.00	180.00	
7,028.01	0.00	0.00	7,001.04	-92.00	324.55	0.00	0.00	0.00	0.00	
7,928.01	90.00	180.00	7,574.00	-664.96	324.55	10.00	10.00	20.00	180.00	
17,880.69	90.00	180.00	7,574.00	-10,617.64	324.55	0.00	0.00	0.00	0.00	SMALL EYED 14C-35

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SMALL EYED 14C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Site:	SMALL EYED 23-23HZ	North Reference:	True
Well:	SMALL EYED 14C-35HZ	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
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
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
1,211.00	0.00	0.00	1,211.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker									
1,261.00	0.00	0.00	1,261.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,461.00	0.00	0.00	1,461.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,500.00	0.78	105.83	1,500.00	-0.07	0.26	0.07	2.00	2.00	0.00
1,600.00	2.78	105.83	1,599.95	-0.92	3.24	0.92	2.00	2.00	0.00
1,700.00	4.78	105.83	1,699.72	-2.72	9.59	2.72	2.00	2.00	0.00
1,800.00	6.78	105.83	1,799.21	-5.46	19.27	5.46	2.00	2.00	0.00
1,900.00	8.78	105.83	1,898.28	-9.16	32.30	9.16	2.00	2.00	0.00
1,961.14	10.00	105.83	1,958.60	-11.88	41.90	11.88	2.00	2.00	0.00
Start 1440.69 hold at 1961.14 MD									
2,000.00	10.00	105.83	1,996.87	-13.72	48.39	13.72	0.00	0.00	0.00
2,100.00	10.00	105.83	2,095.35	-18.45	65.10	18.45	0.00	0.00	0.00
2,200.00	10.00	105.83	2,193.83	-23.19	81.81	23.19	0.00	0.00	0.00
2,300.00	10.00	105.83	2,292.31	-27.93	98.52	27.93	0.00	0.00	0.00
2,400.00	10.00	105.83	2,390.79	-32.67	115.24	32.67	0.00	0.00	0.00
2,500.00	10.00	105.83	2,489.27	-37.40	131.95	37.40	0.00	0.00	0.00
2,600.00	10.00	105.83	2,587.75	-42.14	148.66	42.14	0.00	0.00	0.00
2,700.00	10.00	105.83	2,686.23	-46.88	165.37	46.88	0.00	0.00	0.00
2,800.00	10.00	105.83	2,784.71	-51.61	182.08	51.61	0.00	0.00	0.00
2,900.00	10.00	105.83	2,883.19	-56.35	198.79	56.35	0.00	0.00	0.00
3,000.00	10.00	105.83	2,981.67	-61.09	215.50	61.09	0.00	0.00	0.00
3,100.00	10.00	105.83	3,080.15	-65.83	232.21	65.83	0.00	0.00	0.00
3,200.00	10.00	105.83	3,178.63	-70.56	248.92	70.56	0.00	0.00	0.00
3,300.00	10.00	105.83	3,277.11	-75.30	265.64	75.30	0.00	0.00	0.00
3,400.00	10.00	105.83	3,375.59	-80.04	282.35	80.04	0.00	0.00	0.00
3,401.83	10.00	105.83	3,377.40	-80.12	282.65	80.12	0.00	0.00	0.00
Start Drop -2.00									
3,500.00	8.04	105.83	3,474.34	-84.32	297.46	84.32	2.00	-2.00	0.00
3,600.00	6.04	105.83	3,573.59	-87.66	309.25	87.66	2.00	-2.00	0.00
3,700.00	4.04	105.83	3,673.19	-90.06	317.70	90.06	2.00	-2.00	0.00
3,800.00	2.04	105.83	3,773.05	-91.51	322.80	91.51	2.00	-2.00	0.00
3,900.00	0.04	105.83	3,873.03	-92.00	324.55	92.00	2.00	-2.00	0.00
3,901.97	0.00	0.00	3,875.00	-92.00	324.55	92.00	2.00	-2.00	0.00
Start 3126.04 hold at 3901.97 MD									
4,000.00	0.00	0.00	3,973.03	-92.00	324.55	92.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SMALL EYED 14C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Site:	SMALL EYED 23-23HZ	North Reference:	True
Well:	SMALL EYED 14C-35HZ	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	4,073.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,157.97	0.00	0.00	4,131.00	-92.00	324.55	92.00	0.00	0.00	0.00
Parkman									
4,200.00	0.00	0.00	4,173.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,273.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,373.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,473.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,535.97	0.00	0.00	4,509.00	-92.00	324.55	92.00	0.00	0.00	0.00
Sussex									
4,600.00	0.00	0.00	4,573.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,673.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,773.03	-92.00	324.55	92.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,873.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,973.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,073.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,173.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,273.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,373.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,473.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,573.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,673.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,773.03	-92.00	324.55	92.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,873.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,973.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,073.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,173.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,273.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,373.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,473.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,573.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,673.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,773.03	-92.00	324.55	92.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,873.03	-92.00	324.55	92.00	0.00	0.00	0.00
7,000.00	0.00	0.00	6,973.03	-92.00	324.55	92.00	0.00	0.00	0.00
7,028.01	0.00	0.00	7,001.04	-92.00	324.55	92.00	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
7,100.00	7.20	180.00	7,072.84	-96.52	324.55	96.52	10.00	10.00	0.00
7,200.00	17.20	180.00	7,170.46	-117.62	324.55	117.62	10.00	10.00	0.00
7,244.06	21.60	180.00	7,212.00	-132.25	324.55	132.25	10.00	10.00	0.00
Sharon Springs									
7,300.00	27.20	180.00	7,262.93	-155.35	324.55	155.35	10.00	10.00	0.00
7,325.11	29.71	180.00	7,285.00	-167.32	324.55	167.32	10.00	10.00	0.00
Niobrara A									
7,400.00	37.20	180.00	7,347.44	-208.57	324.55	208.57	10.00	10.00	0.00
7,401.96	37.39	180.00	7,349.00	-209.76	324.55	209.76	10.00	10.00	0.00
Niobrara B									
7,496.44	46.84	180.00	7,419.00	-273.05	324.55	273.05	10.00	10.00	0.00
Niobrara C									
7,500.00	47.20	180.00	7,421.43	-275.66	324.55	275.66	10.00	10.00	0.00
7,600.00	57.20	180.00	7,482.64	-354.57	324.55	354.57	10.00	10.00	0.00
7,700.00	67.20	180.00	7,529.22	-442.92	324.55	442.92	10.00	10.00	0.00
7,754.75	72.67	180.00	7,548.00	-494.33	324.55	494.33	10.00	10.00	0.00
Fort Hays									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SMALL EYED 14C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Site:	SMALL EYED 23-23HZ	North Reference:	True
Well:	SMALL EYED 14C-35HZ	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	77.20	180.00	7,559.76	-538.01	324.55	538.01	10.00	10.00	0.00
7,852.28	82.43	180.00	7,569.00	-589.45	324.55	589.45	10.00	10.00	0.00
Codell									
7,900.00	87.20	180.00	7,573.31	-636.96	324.55	636.96	10.00	10.00	0.00
7,928.01	90.00	180.00	7,574.00	-664.95	324.55	664.95	10.00	10.00	0.00
Start 9952.68 hold at 7928.01 MD - 7"(360 FSL 2375 FWL)									
8,000.00	90.00	180.00	7,574.00	-736.94	324.55	736.94	0.00	0.00	0.00
8,100.00	90.00	180.00	7,574.00	-836.94	324.55	836.94	0.00	0.00	0.00
8,200.00	90.00	180.00	7,574.00	-936.94	324.55	936.94	0.00	0.00	0.00
8,300.00	90.00	180.00	7,574.00	-1,036.94	324.55	1,036.94	0.00	0.00	0.00
8,400.00	90.00	180.00	7,574.00	-1,136.94	324.55	1,136.94	0.00	0.00	0.00
8,500.00	90.00	180.00	7,574.00	-1,236.94	324.55	1,236.94	0.00	0.00	0.00
8,600.00	90.00	180.00	7,574.00	-1,336.94	324.55	1,336.94	0.00	0.00	0.00
8,700.00	90.00	180.00	7,574.00	-1,436.94	324.55	1,436.94	0.00	0.00	0.00
8,800.00	90.00	180.00	7,574.00	-1,536.94	324.55	1,536.94	0.00	0.00	0.00
8,900.00	90.00	180.00	7,574.00	-1,636.94	324.55	1,636.94	0.00	0.00	0.00
9,000.00	90.00	180.00	7,574.00	-1,736.94	324.55	1,736.94	0.00	0.00	0.00
9,100.00	90.00	180.00	7,574.00	-1,836.94	324.55	1,836.94	0.00	0.00	0.00
9,200.00	90.00	180.00	7,574.00	-1,936.94	324.55	1,936.94	0.00	0.00	0.00
9,300.00	90.00	180.00	7,574.00	-2,036.94	324.55	2,036.94	0.00	0.00	0.00
9,400.00	90.00	180.00	7,574.00	-2,136.94	324.55	2,136.94	0.00	0.00	0.00
9,500.00	90.00	180.00	7,574.00	-2,236.94	324.55	2,236.94	0.00	0.00	0.00
9,600.00	90.00	180.00	7,574.00	-2,336.94	324.55	2,336.94	0.00	0.00	0.00
9,700.00	90.00	180.00	7,574.00	-2,436.94	324.55	2,436.94	0.00	0.00	0.00
9,800.00	90.00	180.00	7,574.00	-2,536.94	324.55	2,536.94	0.00	0.00	0.00
9,900.00	90.00	180.00	7,574.00	-2,636.94	324.55	2,636.94	0.00	0.00	0.00
10,000.00	90.00	180.00	7,574.00	-2,736.94	324.55	2,736.94	0.00	0.00	0.00
10,100.00	90.00	180.00	7,574.00	-2,836.94	324.55	2,836.94	0.00	0.00	0.00
10,200.00	90.00	180.00	7,574.00	-2,936.94	324.55	2,936.94	0.00	0.00	0.00
10,300.00	90.00	180.00	7,574.00	-3,036.94	324.55	3,036.94	0.00	0.00	0.00
10,400.00	90.00	180.00	7,574.00	-3,136.94	324.55	3,136.94	0.00	0.00	0.00
10,500.00	90.00	180.00	7,574.00	-3,236.94	324.55	3,236.94	0.00	0.00	0.00
10,600.00	90.00	180.00	7,574.00	-3,336.94	324.55	3,336.94	0.00	0.00	0.00
10,700.00	90.00	180.00	7,574.00	-3,436.94	324.55	3,436.94	0.00	0.00	0.00
10,800.00	90.00	180.00	7,574.00	-3,536.94	324.55	3,536.94	0.00	0.00	0.00
10,900.00	90.00	180.00	7,574.00	-3,636.94	324.55	3,636.94	0.00	0.00	0.00
11,000.00	90.00	180.00	7,574.00	-3,736.94	324.55	3,736.94	0.00	0.00	0.00
11,100.00	90.00	180.00	7,574.00	-3,836.94	324.55	3,836.94	0.00	0.00	0.00
11,200.00	90.00	180.00	7,574.00	-3,936.94	324.55	3,936.94	0.00	0.00	0.00
11,300.00	90.00	180.00	7,574.00	-4,036.94	324.55	4,036.94	0.00	0.00	0.00
11,400.00	90.00	180.00	7,574.00	-4,136.94	324.55	4,136.94	0.00	0.00	0.00
11,500.00	90.00	180.00	7,574.00	-4,236.94	324.55	4,236.94	0.00	0.00	0.00
11,600.00	90.00	180.00	7,574.00	-4,336.94	324.55	4,336.94	0.00	0.00	0.00
11,700.00	90.00	180.00	7,574.00	-4,436.94	324.55	4,436.94	0.00	0.00	0.00
11,800.00	90.00	180.00	7,574.00	-4,536.94	324.55	4,536.94	0.00	0.00	0.00
11,900.00	90.00	180.00	7,574.00	-4,636.94	324.55	4,636.94	0.00	0.00	0.00
12,000.00	90.00	180.00	7,574.00	-4,736.94	324.55	4,736.94	0.00	0.00	0.00
12,100.00	90.00	180.00	7,574.00	-4,836.94	324.55	4,836.94	0.00	0.00	0.00
12,200.00	90.00	180.00	7,574.00	-4,936.94	324.55	4,936.94	0.00	0.00	0.00
12,300.00	90.00	180.00	7,574.00	-5,036.94	324.55	5,036.94	0.00	0.00	0.00
12,400.00	90.00	180.00	7,574.00	-5,136.94	324.55	5,136.94	0.00	0.00	0.00
12,500.00	90.00	180.00	7,574.00	-5,236.94	324.55	5,236.94	0.00	0.00	0.00
12,600.00	90.00	180.00	7,574.00	-5,336.94	324.55	5,336.94	0.00	0.00	0.00
12,700.00	90.00	180.00	7,574.00	-5,436.94	324.55	5,436.94	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SMALL EYED 14C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Site:	SMALL EYED 23-23HZ	North Reference:	True
Well:	SMALL EYED 14C-35HZ	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)
12,800.00	90.00	180.00	7,574.00	-5,536.94	324.55	5,536.94	0.00	0.00	0.00
12,900.00	90.00	180.00	7,574.00	-5,636.94	324.55	5,636.94	0.00	0.00	0.00
13,000.00	90.00	180.00	7,574.00	-5,736.94	324.55	5,736.94	0.00	0.00	0.00
13,100.00	90.00	180.00	7,574.00	-5,836.94	324.55	5,836.94	0.00	0.00	0.00
13,200.00	90.00	180.00	7,574.00	-5,936.94	324.55	5,936.94	0.00	0.00	0.00
13,300.00	90.00	180.00	7,574.00	-6,036.94	324.55	6,036.94	0.00	0.00	0.00
13,400.00	90.00	180.00	7,574.00	-6,136.94	324.55	6,136.94	0.00	0.00	0.00
13,500.00	90.00	180.00	7,574.00	-6,236.94	324.55	6,236.94	0.00	0.00	0.00
13,600.00	90.00	180.00	7,574.00	-6,336.94	324.55	6,336.94	0.00	0.00	0.00
13,700.00	90.00	180.00	7,574.00	-6,436.94	324.55	6,436.94	0.00	0.00	0.00
13,800.00	90.00	180.00	7,574.00	-6,536.94	324.55	6,536.94	0.00	0.00	0.00
13,900.00	90.00	180.00	7,574.00	-6,636.94	324.55	6,636.94	0.00	0.00	0.00
14,000.00	90.00	180.00	7,574.00	-6,736.94	324.55	6,736.94	0.00	0.00	0.00
14,100.00	90.00	180.00	7,574.00	-6,836.94	324.55	6,836.94	0.00	0.00	0.00
14,200.00	90.00	180.00	7,574.00	-6,936.94	324.55	6,936.94	0.00	0.00	0.00
14,300.00	90.00	180.00	7,574.00	-7,036.94	324.55	7,036.94	0.00	0.00	0.00
14,400.00	90.00	180.00	7,574.00	-7,136.94	324.55	7,136.94	0.00	0.00	0.00
14,500.00	90.00	180.00	7,574.00	-7,236.94	324.55	7,236.94	0.00	0.00	0.00
14,600.00	90.00	180.00	7,574.00	-7,336.94	324.55	7,336.94	0.00	0.00	0.00
14,700.00	90.00	180.00	7,574.00	-7,436.94	324.55	7,436.94	0.00	0.00	0.00
14,800.00	90.00	180.00	7,574.00	-7,536.94	324.55	7,536.94	0.00	0.00	0.00
14,900.00	90.00	180.00	7,574.00	-7,636.94	324.55	7,636.94	0.00	0.00	0.00
15,000.00	90.00	180.00	7,574.00	-7,736.94	324.55	7,736.94	0.00	0.00	0.00
15,100.00	90.00	180.00	7,574.00	-7,836.94	324.55	7,836.94	0.00	0.00	0.00
15,200.00	90.00	180.00	7,574.00	-7,936.94	324.55	7,936.94	0.00	0.00	0.00
15,300.00	90.00	180.00	7,574.00	-8,036.94	324.55	8,036.94	0.00	0.00	0.00
15,400.00	90.00	180.00	7,574.00	-8,136.94	324.55	8,136.94	0.00	0.00	0.00
15,500.00	90.00	180.00	7,574.00	-8,236.94	324.55	8,236.94	0.00	0.00	0.00
15,600.00	90.00	180.00	7,574.00	-8,336.94	324.55	8,336.94	0.00	0.00	0.00
15,700.00	90.00	180.00	7,574.00	-8,436.94	324.55	8,436.94	0.00	0.00	0.00
15,800.00	90.00	180.00	7,574.00	-8,536.94	324.55	8,536.94	0.00	0.00	0.00
15,900.00	90.00	180.00	7,574.00	-8,636.94	324.55	8,636.94	0.00	0.00	0.00
16,000.00	90.00	180.00	7,574.00	-8,736.94	324.55	8,736.94	0.00	0.00	0.00
16,100.00	90.00	180.00	7,574.00	-8,836.94	324.55	8,836.94	0.00	0.00	0.00
16,200.00	90.00	180.00	7,574.00	-8,936.94	324.55	8,936.94	0.00	0.00	0.00
16,300.00	90.00	180.00	7,574.00	-9,036.94	324.55	9,036.94	0.00	0.00	0.00
16,400.00	90.00	180.00	7,574.00	-9,136.94	324.55	9,136.94	0.00	0.00	0.00
16,500.00	90.00	180.00	7,574.00	-9,236.94	324.55	9,236.94	0.00	0.00	0.00
16,600.00	90.00	180.00	7,574.00	-9,336.94	324.55	9,336.94	0.00	0.00	0.00
16,700.00	90.00	180.00	7,574.00	-9,436.94	324.55	9,436.94	0.00	0.00	0.00
16,800.00	90.00	180.00	7,574.00	-9,536.94	324.55	9,536.94	0.00	0.00	0.00
16,900.00	90.00	180.00	7,574.00	-9,636.94	324.55	9,636.94	0.00	0.00	0.00
17,000.00	90.00	180.00	7,574.00	-9,736.94	324.55	9,736.94	0.00	0.00	0.00
17,100.00	90.00	180.00	7,574.00	-9,836.94	324.55	9,836.94	0.00	0.00	0.00
17,200.00	90.00	180.00	7,574.00	-9,936.94	324.55	9,936.94	0.00	0.00	0.00
17,300.00	90.00	180.00	7,574.00	-10,036.94	324.55	10,036.94	0.00	0.00	0.00
17,400.00	90.00	180.00	7,574.00	-10,136.94	324.55	10,136.94	0.00	0.00	0.00
17,500.00	90.00	180.00	7,574.00	-10,236.94	324.55	10,236.94	0.00	0.00	0.00
17,600.00	90.00	180.00	7,574.00	-10,336.94	324.55	10,336.94	0.00	0.00	0.00
17,700.00	90.00	180.00	7,574.00	-10,436.94	324.55	10,436.94	0.00	0.00	0.00
17,800.00	90.00	180.00	7,574.00	-10,536.94	324.55	10,536.94	0.00	0.00	0.00
17,880.69	90.00	180.00	7,574.00	-10,617.64	324.55	10,617.64	0.00	0.00	0.00
TD at 17880.69 - SMALL EYED 14C-35HZ(920 FSL 2335 FWL)									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SMALL EYED 14C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4963 & KB 17 @ 4979.00ft (ASSUMED)
Site:	SMALL EYED 23-23HZ	North Reference:	True
Well:	SMALL EYED 14C-35HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
SMALL EYED 14C-35HZ	0.00	0.00	7,574.00	-10,617.64	324.55	1,276,292.67	3,179,250.83	40.0900370	-104.8593180
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(ft)	(ft)		(in)	(in)	
1,261.00	1,261.00	9 5/8"	9.625	12.250	
7,928.01	7,574.00	7"(360 FSL 2375 FWL)	7.000	7.500	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
1,211.00	1,211.00	Fox Hills Marker				
4,157.97	4,131.00	Parkman				
4,535.97	4,509.00	Sussex				
7,244.06	7,212.00	Sharon Springs				
7,325.11	7,285.00	Niobrara A				
7,401.96	7,349.00	Niobrara B				
7,496.44	7,419.00	Niobrara C				
7,754.75	7,548.00	Fort Hays				
7,852.28	7,569.00	Codell				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
1,461.00	1,461.00	0.00	0.00	Start Build 2.00	
1,961.14	1,958.60	-11.88	41.90	Start 1440.69 hold at 1961.14 MD	
3,401.83	3,377.40	-80.12	282.65	Start Drop -2.00	
3,901.97	3,875.00	-92.00	324.55	Start 3126.04 hold at 3901.97 MD	
7,028.01	7,001.04	-92.00	324.55	Start DLS 10.00 TFO 180.00	
7,928.01	7,574.00	-664.96	324.55	Start 9952.68 hold at 7928.01 MD	
17,880.69	7,574.00	-10,617.64	324.55	TD at 17880.69	