



Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMA
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-04D Pad



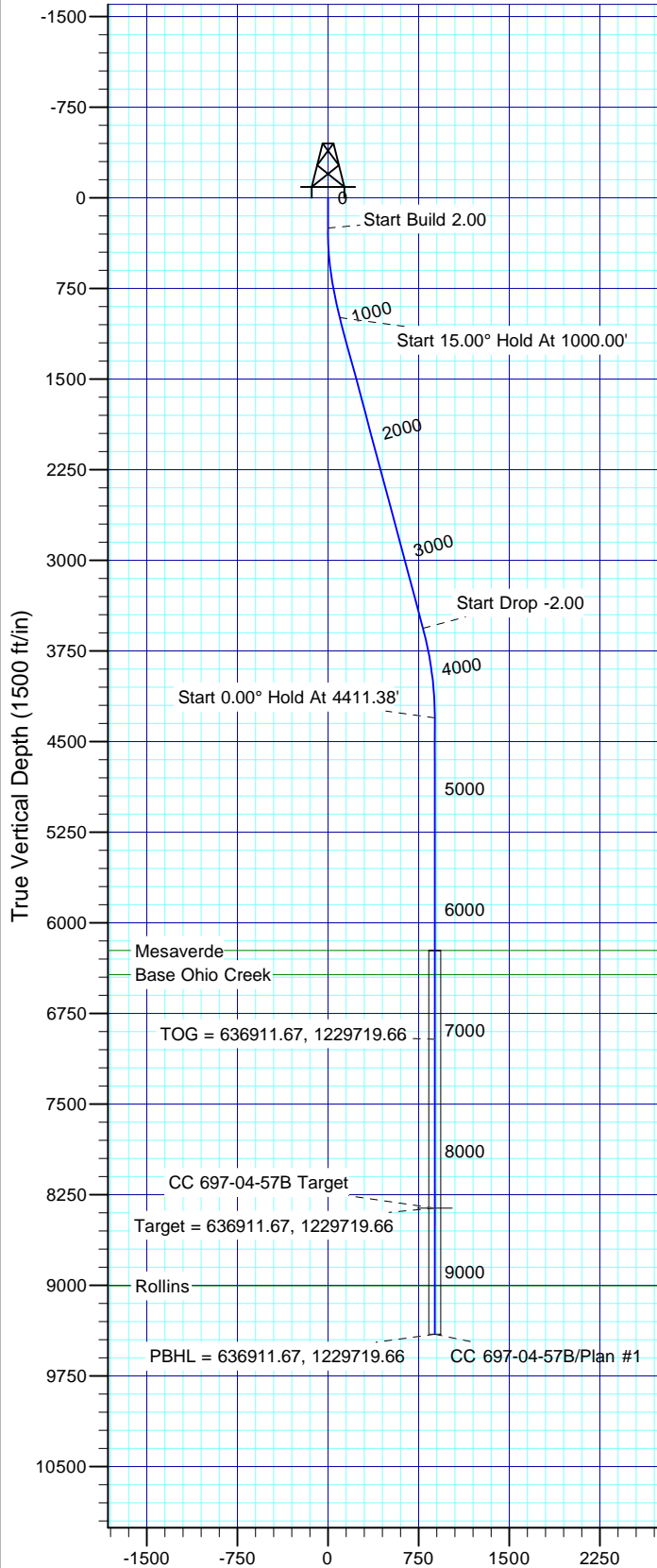
Well Details: CC 697-04-57B

TVD Reference: GL 8629' & RBK 30' @ 8659.00ft (H&P) Ground Level: 8629.00
+N/-S 0.00 +E/-W 0.00 Northing 636347.66 Easting 1230400.41 Latitude 39° 32' 55.868 N Longitude 108° 13' 46.297 W Slot J

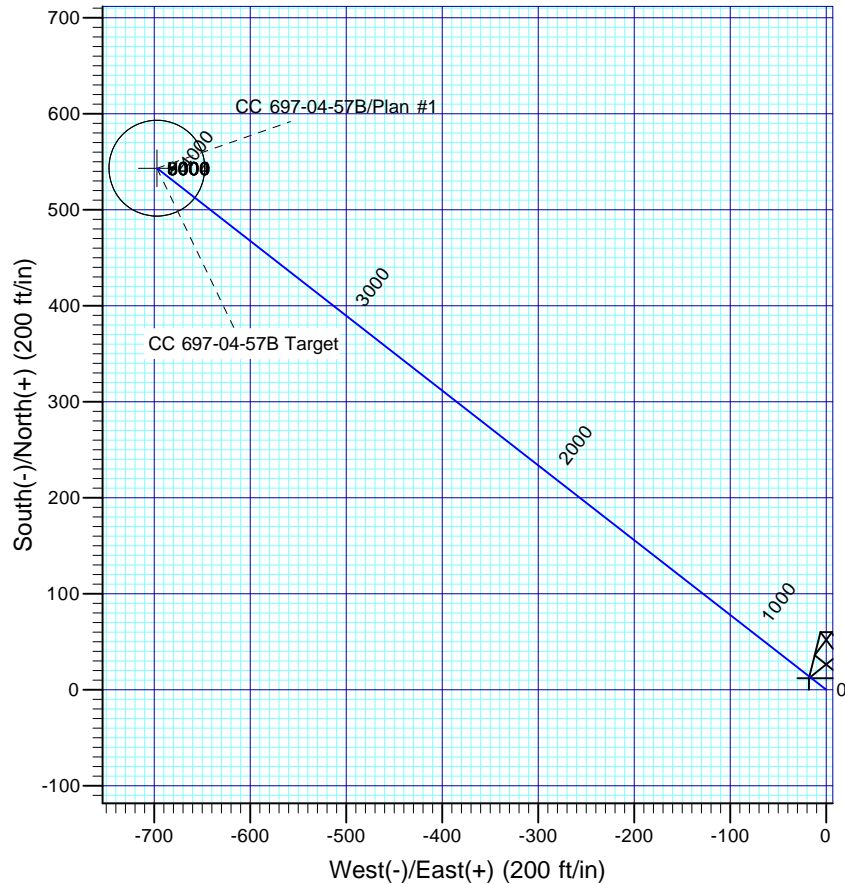


Azimuths to True North
Magnetic North: 10.47°

Magnetic Field
Strength: 52282.7snT
Dip Angle: 65.76°
Date: 2011/03/23
Model: IGRF2005-10



Vertical Section at 307.92° (1500 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6229.00	6336.76	Mesaverde
6429.00	6536.76	Base Ohio Creek
9004.00	9111.76	Rollins

Plan: Plan #1

15:10, March 29 2011
Created By: Rex Hall

PROJECT DETAILS: Garfield County, CO NAD27

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1000.00	15.00	307.92	991.46	59.99	-77.01	2.00	307.92	97.62	
4	3661.38	15.00	307.92	3562.16	483.32	-620.39	0.00	0.00	786.43	
5	4411.38	0.00	0.00	4303.62	543.31	-697.39	2.00	180.00	884.05	
6	8467.76	0.00	0.00	8360.00	543.31	-697.39	0.00	0.00	884.05	CC 697-04-57B Target
7	9511.76	0.00	0.00	9404.00	543.31	-697.39	0.00	0.00	884.05	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-04D Pad
CC 697-04-57B - Slot J**

OH

Plan: Plan #1

Standard Planning Report

29 March, 2011

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-57B - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-57B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Garfield County, CO NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site		Cascade Creek 697-04D Pad				
Site Position:		Northing:	635,530.62 usft	Latitude:	39° 32' 47.760 N	
From:	Map	Easting:	1,230,276.10 usft	Longitude:	108° 13' 47.570 W	
Position Uncertainty:		0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.72 °

Well	CC 697-04-57B - Slot J					
Well Position	+N/-S	820.41 ft	Northing:	636,347.66 usft	Latitude:	39° 32' 55.868 N
	+E/-W	99.71 ft	Easting:	1,230,400.41 usft	Longitude:	108° 13' 46.297 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,629.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2011/03/23	10.47	65.76	52,283

Design	Plan #1			
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	307.92

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	15.00	307.92	991.46	59.99	-77.01	2.00	2.00	0.00	307.92	
3,661.38	15.00	307.92	3,562.16	483.32	-620.39	0.00	0.00	0.00	0.00	
4,411.38	0.00	0.00	4,303.62	543.31	-697.39	2.00	-2.00	0.00	180.00	
8,467.76	0.00	0.00	8,360.00	543.31	-697.39	0.00	0.00	0.00	0.00	CC 697-04-57B Target
9,511.76	0.00	0.00	9,404.00	543.31	-697.39	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-57B - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-57B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
300.00	1.00	307.92	300.00	0.27	-0.34	0.44	2.00	2.00	0.00
400.00	3.00	307.92	399.93	2.41	-3.10	3.93	2.00	2.00	0.00
500.00	5.00	307.92	499.68	6.70	-8.60	10.90	2.00	2.00	0.00
600.00	7.00	307.92	599.13	13.12	-16.85	21.35	2.00	2.00	0.00
700.00	9.00	307.92	698.15	21.68	-27.82	35.27	2.00	2.00	0.00
800.00	11.00	307.92	796.63	32.35	-41.52	52.63	2.00	2.00	0.00
900.00	13.00	307.92	894.44	45.12	-57.92	73.42	2.00	2.00	0.00
1,000.00	15.00	307.92	991.46	59.99	-77.01	97.62	2.00	2.00	0.00
Start 15.00° Hold At 1000.00'									
1,100.00	15.00	307.92	1,088.05	75.90	-97.42	123.50	0.00	0.00	0.00
1,200.00	15.00	307.92	1,184.65	91.80	-117.84	149.38	0.00	0.00	0.00
1,300.00	15.00	307.92	1,281.24	107.71	-138.26	175.26	0.00	0.00	0.00
1,400.00	15.00	307.92	1,377.83	123.62	-158.67	201.14	0.00	0.00	0.00
1,500.00	15.00	307.92	1,474.42	139.52	-179.09	227.02	0.00	0.00	0.00
1,600.00	15.00	307.92	1,571.02	155.43	-199.51	252.91	0.00	0.00	0.00
1,700.00	15.00	307.92	1,667.61	171.34	-219.93	278.79	0.00	0.00	0.00
1,800.00	15.00	307.92	1,764.20	187.24	-240.34	304.67	0.00	0.00	0.00
1,900.00	15.00	307.92	1,860.80	203.15	-260.76	330.55	0.00	0.00	0.00
2,000.00	15.00	307.92	1,957.39	219.05	-281.18	356.43	0.00	0.00	0.00
2,100.00	15.00	307.92	2,053.98	234.96	-301.59	382.32	0.00	0.00	0.00
2,200.00	15.00	307.92	2,150.57	250.87	-322.01	408.20	0.00	0.00	0.00
2,300.00	15.00	307.92	2,247.17	266.77	-342.43	434.08	0.00	0.00	0.00
2,400.00	15.00	307.92	2,343.76	282.68	-362.85	459.96	0.00	0.00	0.00
2,500.00	15.00	307.92	2,440.35	298.59	-383.26	485.84	0.00	0.00	0.00
2,600.00	15.00	307.92	2,536.94	314.49	-403.68	511.73	0.00	0.00	0.00
2,700.00	15.00	307.92	2,633.54	330.40	-424.10	537.61	0.00	0.00	0.00
2,800.00	15.00	307.92	2,730.13	346.30	-444.52	563.49	0.00	0.00	0.00
2,900.00	15.00	307.92	2,826.72	362.21	-464.93	589.37	0.00	0.00	0.00
3,000.00	15.00	307.92	2,923.31	378.12	-485.35	615.25	0.00	0.00	0.00
3,100.00	15.00	307.92	3,019.91	394.02	-505.77	641.14	0.00	0.00	0.00
3,200.00	15.00	307.92	3,116.50	409.93	-526.18	667.02	0.00	0.00	0.00
3,300.00	15.00	307.92	3,213.09	425.84	-546.60	692.90	0.00	0.00	0.00
3,400.00	15.00	307.92	3,309.68	441.74	-567.02	718.78	0.00	0.00	0.00
3,500.00	15.00	307.92	3,406.28	457.65	-587.44	744.66	0.00	0.00	0.00
3,600.00	15.00	307.92	3,502.87	473.55	-607.85	770.54	0.00	0.00	0.00
3,661.38	15.00	307.92	3,562.16	483.32	-620.39	786.43	0.00	0.00	0.00
Start Drop -2.00									
3,700.00	14.23	307.92	3,599.53	489.31	-628.07	796.18	2.00	-2.00	0.00
3,800.00	12.23	307.92	3,696.87	503.37	-646.12	819.06	2.00	-2.00	0.00
3,900.00	10.23	307.92	3,794.95	515.33	-661.48	838.53	2.00	-2.00	0.00
4,000.00	8.23	307.92	3,893.65	525.19	-674.13	854.56	2.00	-2.00	0.00
4,100.00	6.23	307.92	3,992.85	532.92	-684.05	867.14	2.00	-2.00	0.00
4,200.00	4.23	307.92	4,092.43	538.52	-691.24	876.25	2.00	-2.00	0.00
4,300.00	2.23	307.92	4,192.27	541.98	-695.68	881.88	2.00	-2.00	0.00
4,400.00	0.23	307.92	4,292.24	543.30	-697.37	884.02	2.00	-2.00	0.00
4,411.38	0.00	0.00	4,303.62	543.31	-697.39	884.05	2.00	-2.00	0.00
Start 0.00° Hold At 4411.38'									
4,500.00	0.00	0.00	4,392.24	543.31	-697.39	884.05	0.00	0.00	0.00
4,600.00	0.00	0.00	4,492.24	543.31	-697.39	884.05	0.00	0.00	0.00

Scientific Drilling International

Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-57B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)
4,700.00	0.00	0.00	4,592.24	543.31	-697.39	884.05	0.00	0.00	0.00
4,800.00	0.00	0.00	4,692.24	543.31	-697.39	884.05	0.00	0.00	0.00
4,900.00	0.00	0.00	4,792.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,000.00	0.00	0.00	4,892.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,100.00	0.00	0.00	4,992.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,200.00	0.00	0.00	5,092.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,300.00	0.00	0.00	5,192.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,400.00	0.00	0.00	5,292.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,500.00	0.00	0.00	5,392.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,600.00	0.00	0.00	5,492.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,700.00	0.00	0.00	5,592.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,800.00	0.00	0.00	5,692.24	543.31	-697.39	884.05	0.00	0.00	0.00
5,900.00	0.00	0.00	5,792.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,000.00	0.00	0.00	5,892.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,100.00	0.00	0.00	5,992.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,200.00	0.00	0.00	6,092.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,300.00	0.00	0.00	6,192.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,336.76	0.00	0.00	6,229.00	543.31	-697.39	884.05	0.00	0.00	0.00
Mesaverde									
6,400.00	0.00	0.00	6,292.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,500.00	0.00	0.00	6,392.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,536.76	0.00	0.00	6,429.00	543.31	-697.39	884.05	0.00	0.00	0.00
Base Ohio Creek									
6,600.00	0.00	0.00	6,492.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,700.00	0.00	0.00	6,592.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,800.00	0.00	0.00	6,692.24	543.31	-697.39	884.05	0.00	0.00	0.00
6,900.00	0.00	0.00	6,792.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,000.00	0.00	0.00	6,892.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,071.76	0.00	0.00	6,964.00	543.31	-697.39	884.05	0.00	0.00	0.00
TOG = 636911.67, 1229719.66									
7,100.00	0.00	0.00	6,992.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,200.00	0.00	0.00	7,092.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,300.00	0.00	0.00	7,192.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,400.00	0.00	0.00	7,292.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,500.00	0.00	0.00	7,392.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,600.00	0.00	0.00	7,492.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,700.00	0.00	0.00	7,592.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,800.00	0.00	0.00	7,692.24	543.31	-697.39	884.05	0.00	0.00	0.00
7,900.00	0.00	0.00	7,792.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,000.00	0.00	0.00	7,892.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,100.00	0.00	0.00	7,992.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,200.00	0.00	0.00	8,092.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,300.00	0.00	0.00	8,192.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,400.00	0.00	0.00	8,292.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,467.76	0.00	0.00	8,360.00	543.31	-697.39	884.05	0.00	0.00	0.00
Target = 636911.67, 1229719.66									
8,500.00	0.00	0.00	8,392.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,600.00	0.00	0.00	8,492.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,700.00	0.00	0.00	8,592.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,800.00	0.00	0.00	8,692.24	543.31	-697.39	884.05	0.00	0.00	0.00
8,900.00	0.00	0.00	8,792.24	543.31	-697.39	884.05	0.00	0.00	0.00
9,000.00	0.00	0.00	8,892.24	543.31	-697.39	884.05	0.00	0.00	0.00
9,100.00	0.00	0.00	8,992.24	543.31	-697.39	884.05	0.00	0.00	0.00

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-57B - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-57B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)	
9,111.76	0.00	0.00	9,004.00	543.31	-697.39	884.05	0.00	0.00	0.00	
Rollins										
9,200.00	0.00	0.00	9,092.24	543.31	-697.39	884.05	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,192.24	543.31	-697.39	884.05	0.00	0.00	0.00	
9,400.00	0.00	0.00	9,292.24	543.31	-697.39	884.05	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,392.24	543.31	-697.39	884.05	0.00	0.00	0.00	
9,511.76	0.00	0.00	9,404.00	543.31	-697.39	884.05	0.00	0.00	0.00	
PBHL = 636911.67, 1229719.66										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
CC 697-04-57B Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,360.00	543.31	-697.39	636,911.68	1,229,719.65	39° 33' 1.238 N	108° 13' 55.200 W	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,336.76	6,229.00	Mesaverde		0.00		
6,536.76	6,429.00	Base Ohio Creek		0.00		
9,111.76	9,004.00	Rollins		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
250.00	250.00	0.00	0.00	Start Build 2.00	
1,000.00	991.46	59.99	-77.01	Start 15.00° Hold At 1000.00'	
3,661.38	3,562.16	483.32	-620.39	Start Drop -2.00	
4,411.38	4,303.62	543.31	-697.39	Start 0.00° Hold At 4411.38'	
7,071.76	6,964.00	543.31	-697.39	TOG = 636911.67, 1229719.66	
8,467.76	8,360.00	543.31	-697.39	Target = 636911.67, 1229719.66	
9,511.76	9,404.00	543.31	-697.39	PBHL = 636911.67, 1229719.66	