



Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 604-12-13 Annex Pad



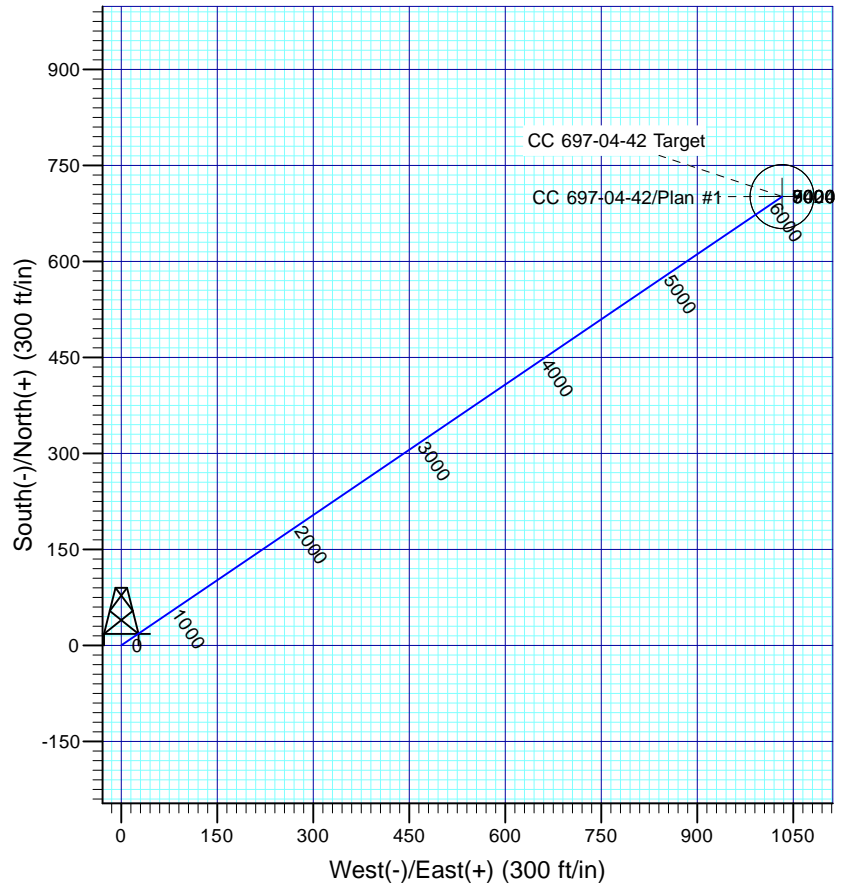
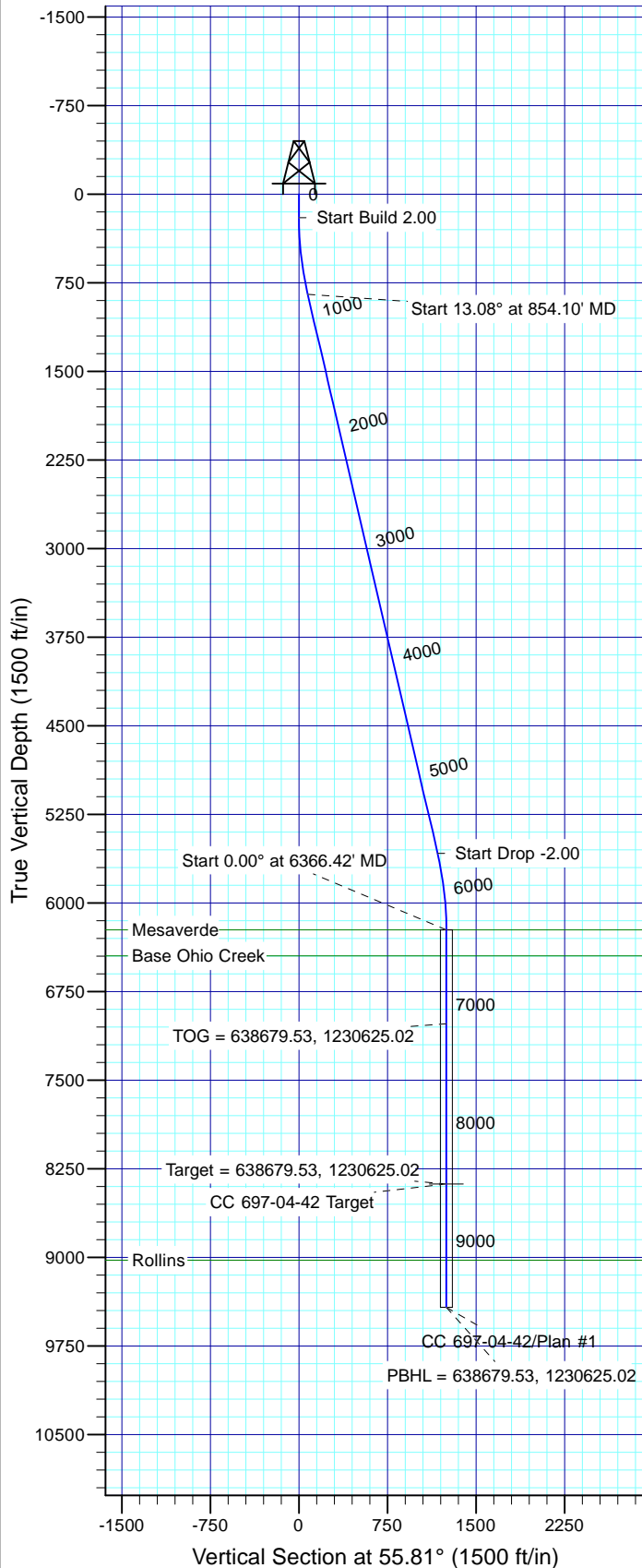
Well Details: CC 697-04-42

TVD Reference: GL 8529' & RKB 30' @ 8559.00ft (H&P Rig) Ground Level: 8529.00
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.00 0.00 638009.48 1229571.76 39° 33' 12.040 N 108° 13' 57.509 W T



Azimuths to True North
Magnetic North: 10.46°

Magnetic Field
Strength: 52229.4snT
Dip Angle: 65.74°
Date: 6/15/2011
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6229.00	6366.42	Mesaverde
6449.00	6586.42	Base Ohio Creek
9024.00	9161.42	Rollins

Plan: Plan #1

14:27, June 16 2011

Created By: Janie Cooke

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	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	854.10	13.08	55.81	848.43	41.78	61.50	2.00	55.81	74.35	
4	5712.32	13.08	55.81	5580.57	659.65	971.13	0.00	0.001173.99		
5	6366.42	0.00	0.00	6229.00	701.43	1032.64	2.00	180.001248.34		
6	8517.42	0.00	0.00	8380.00	701.43	1032.64	0.00	0.001248.34		
7	9561.42	0.00	0.00	9424.00	701.43	1032.64	0.00	0.001248.34		

CC 697-04-42 Target

OXY USA RMAT

Garfield County, CO NAD27

Cascade Creek 604-12-13 Annex Pad

CC 697-04-42 - Slot T

OH

Plan: Plan #1

Standard Planning Report

16 June, 2011





Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-04-42 - Slot T
Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-42	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 604-12-13 Annex Pad			
Site Position:		Northing:	638,644.56 usft	Latitude:	39° 33' 18.364 N
From:	Lat/Long	Easting:	1,229,740.19 usft	Longitude:	108° 13' 55.603 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.72 °

Well	CC 697-04-42 - Slot T					
Well Position	+N/-S	-639.85 ft	Northing:	638,009.48 usft	Latitude:	39° 33' 12.040 N
	+E/-W	-149.26 ft	Easting:	1,229,571.76 usft	Longitude:	108° 13' 57.509 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,529.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/15/2011	10.46	65.74	52,229

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	55.81

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
854.10	13.08	55.81	848.43	41.78	61.50	2.00	2.00	0.00	55.81	
5,712.32	13.08	55.81	5,580.57	659.65	971.13	0.00	0.00	0.00	0.00	
6,366.42	0.00	0.00	6,229.00	701.43	1,032.64	2.00	-2.00	0.00	180.00	
8,517.42	0.00	0.00	8,380.00	701.43	1,032.64	0.00	0.00	0.00	0.00	CC 697-04-42 Target
9,561.42	0.00	0.00	9,424.00	701.43	1,032.64	0.00	0.00	0.00	0.00	



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-04-42 - Slot T
Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-42	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
Start Build 2.00									
300.00	2.00	55.81	299.98	0.98	1.44	1.75	2.00	2.00	0.00
400.00	4.00	55.81	399.84	3.92	5.77	6.98	2.00	2.00	0.00
500.00	6.00	55.81	499.45	8.82	12.98	15.69	2.00	2.00	0.00
600.00	8.00	55.81	598.70	15.67	23.06	27.88	2.00	2.00	0.00
700.00	10.00	55.81	697.47	24.45	36.00	43.52	2.00	2.00	0.00
800.00	12.00	55.81	795.62	35.18	51.79	62.60	2.00	2.00	0.00
854.10	13.08	55.81	848.43	41.78	61.50	74.35	2.00	2.00	0.00
Start 13.08° at 854.10' MD									
900.00	13.08	55.81	893.14	47.61	70.10	84.74	0.00	0.00	0.00
1,000.00	13.08	55.81	990.55	60.33	88.82	107.37	0.00	0.00	0.00
1,100.00	13.08	55.81	1,087.95	73.05	107.54	130.01	0.00	0.00	0.00
1,200.00	13.08	55.81	1,185.35	85.77	126.27	152.64	0.00	0.00	0.00
1,300.00	13.08	55.81	1,282.76	98.49	144.99	175.28	0.00	0.00	0.00
1,400.00	13.08	55.81	1,380.16	111.20	163.71	197.91	0.00	0.00	0.00
1,500.00	13.08	55.81	1,477.57	123.92	182.44	220.55	0.00	0.00	0.00
1,600.00	13.08	55.81	1,574.97	136.64	201.16	243.18	0.00	0.00	0.00
1,700.00	13.08	55.81	1,672.38	149.36	219.89	265.82	0.00	0.00	0.00
1,800.00	13.08	55.81	1,769.78	162.08	238.61	288.45	0.00	0.00	0.00
1,900.00	13.08	55.81	1,867.19	174.80	257.33	311.08	0.00	0.00	0.00
2,000.00	13.08	55.81	1,964.59	187.51	276.06	333.72	0.00	0.00	0.00
2,100.00	13.08	55.81	2,062.00	200.23	294.78	356.35	0.00	0.00	0.00
2,200.00	13.08	55.81	2,159.40	212.95	313.50	378.99	0.00	0.00	0.00
2,300.00	13.08	55.81	2,256.81	225.67	332.23	401.62	0.00	0.00	0.00
2,400.00	13.08	55.81	2,354.21	238.39	350.95	424.26	0.00	0.00	0.00
2,500.00	13.08	55.81	2,451.62	251.10	369.67	446.89	0.00	0.00	0.00
2,600.00	13.08	55.81	2,549.02	263.82	388.40	469.53	0.00	0.00	0.00
2,700.00	13.08	55.81	2,646.43	276.54	407.12	492.16	0.00	0.00	0.00
2,800.00	13.08	55.81	2,743.83	289.26	425.84	514.80	0.00	0.00	0.00
2,900.00	13.08	55.81	2,841.23	301.98	444.57	537.43	0.00	0.00	0.00
3,000.00	13.08	55.81	2,938.64	314.70	463.29	560.06	0.00	0.00	0.00
3,100.00	13.08	55.81	3,036.04	327.41	482.02	582.70	0.00	0.00	0.00
3,200.00	13.08	55.81	3,133.45	340.13	500.74	605.33	0.00	0.00	0.00
3,300.00	13.08	55.81	3,230.85	352.85	519.46	627.97	0.00	0.00	0.00
3,400.00	13.08	55.81	3,328.26	365.57	538.19	650.60	0.00	0.00	0.00
3,500.00	13.08	55.81	3,425.66	378.29	556.91	673.24	0.00	0.00	0.00
3,600.00	13.08	55.81	3,523.07	391.00	575.63	695.87	0.00	0.00	0.00
3,700.00	13.08	55.81	3,620.47	403.72	594.36	718.51	0.00	0.00	0.00
3,800.00	13.08	55.81	3,717.88	416.44	613.08	741.14	0.00	0.00	0.00
3,900.00	13.08	55.81	3,815.28	429.16	631.80	763.78	0.00	0.00	0.00
4,000.00	13.08	55.81	3,912.69	441.88	650.53	786.41	0.00	0.00	0.00
4,100.00	13.08	55.81	4,010.09	454.59	669.25	809.04	0.00	0.00	0.00
4,200.00	13.08	55.81	4,107.50	467.31	687.97	831.68	0.00	0.00	0.00
4,300.00	13.08	55.81	4,204.90	480.03	706.70	854.31	0.00	0.00	0.00
4,400.00	13.08	55.81	4,302.31	492.75	725.42	876.95	0.00	0.00	0.00
4,500.00	13.08	55.81	4,399.71	505.47	744.15	899.58	0.00	0.00	0.00
4,600.00	13.08	55.81	4,497.11	518.19	762.87	922.22	0.00	0.00	0.00
4,700.00	13.08	55.81	4,594.52	530.90	781.59	944.85	0.00	0.00	0.00
4,800.00	13.08	55.81	4,691.92	543.62	800.32	967.49	0.00	0.00	0.00
4,900.00	13.08	55.81	4,789.33	556.34	819.04	990.12	0.00	0.00	0.00
5,000.00	13.08	55.81	4,886.73	569.06	837.76	1,012.76	0.00	0.00	0.00



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Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-42	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)
5,100.00	13.08	55.81	4,984.14	581.78	856.49	1,035.39	0.00	0.00	0.00
5,200.00	13.08	55.81	5,081.54	594.49	875.21	1,058.02	0.00	0.00	0.00
5,300.00	13.08	55.81	5,178.95	607.21	893.93	1,080.66	0.00	0.00	0.00
5,400.00	13.08	55.81	5,276.35	619.93	912.66	1,103.29	0.00	0.00	0.00
5,500.00	13.08	55.81	5,373.76	632.65	931.38	1,125.93	0.00	0.00	0.00
5,600.00	13.08	55.81	5,471.16	645.37	950.10	1,148.56	0.00	0.00	0.00
5,700.00	13.08	55.81	5,568.57	658.09	968.83	1,171.20	0.00	0.00	0.00
5,712.32	13.08	55.81	5,580.57	659.65	971.13	1,173.99	0.00	0.00	0.00
Start Drop -2.00									
5,800.00	11.33	55.81	5,666.26	670.07	986.47	1,192.52	2.00	-2.00	0.00
5,900.00	9.33	55.81	5,764.64	680.14	1,001.30	1,210.45	2.00	-2.00	0.00
6,000.00	7.33	55.81	5,863.58	688.28	1,013.28	1,224.93	2.00	-2.00	0.00
6,100.00	5.33	55.81	5,962.96	694.47	1,022.40	1,235.96	2.00	-2.00	0.00
6,200.00	3.33	55.81	6,062.67	698.71	1,028.64	1,243.50	2.00	-2.00	0.00
6,300.00	1.33	55.81	6,162.58	701.00	1,032.00	1,247.57	2.00	-2.00	0.00
6,366.42	0.00	0.00	6,229.00	701.43	1,032.64	1,248.34	2.00	-2.00	-84.03
Start 0.00° at 6366.42' MD - Mesaverde									
6,400.00	0.00	0.00	6,262.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
6,500.00	0.00	0.00	6,362.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
6,586.42	0.00	0.00	6,449.00	701.43	1,032.64	1,248.34	0.00	0.00	0.00
Base Ohio Creek									
6,600.00	0.00	0.00	6,462.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
6,700.00	0.00	0.00	6,562.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
6,800.00	0.00	0.00	6,662.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
6,900.00	0.00	0.00	6,762.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,000.00	0.00	0.00	6,862.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,100.00	0.00	0.00	6,962.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,161.42	0.00	0.00	7,024.00	701.43	1,032.64	1,248.34	0.00	0.00	0.00
TOG = 638679.53, 1230625.02									
7,200.00	0.00	0.00	7,062.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,300.00	0.00	0.00	7,162.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,400.00	0.00	0.00	7,262.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,500.00	0.00	0.00	7,362.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,600.00	0.00	0.00	7,462.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,700.00	0.00	0.00	7,562.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,800.00	0.00	0.00	7,662.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
7,900.00	0.00	0.00	7,762.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,000.00	0.00	0.00	7,862.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,100.00	0.00	0.00	7,962.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,200.00	0.00	0.00	8,062.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,300.00	0.00	0.00	8,162.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,400.00	0.00	0.00	8,262.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,500.00	0.00	0.00	8,362.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,517.42	0.00	0.00	8,380.00	701.43	1,032.64	1,248.34	0.00	0.00	0.00
Target = 638679.53, 1230625.02									
8,600.00	0.00	0.00	8,462.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,700.00	0.00	0.00	8,562.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,800.00	0.00	0.00	8,662.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
8,900.00	0.00	0.00	8,762.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,000.00	0.00	0.00	8,862.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,100.00	0.00	0.00	8,962.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,161.42	0.00	0.00	9,024.00	701.43	1,032.64	1,248.34	0.00	0.00	0.00
Rollins									



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Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-42	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)
9,200.00	0.00	0.00	9,062.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,300.00	0.00	0.00	9,162.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,400.00	0.00	0.00	9,262.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,500.00	0.00	0.00	9,362.58	701.43	1,032.64	1,248.34	0.00	0.00	0.00
9,561.42	0.00	0.00	9,424.00	701.43	1,032.64	1,248.34	0.00	0.00	0.00
PBHL = 638679.53, 1230625.02									

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									
CC 697-04-42 Target	0.00	0.00	8,380.00	701.43	1,032.64	638,679.54	1,230,625.02	39° 33' 18.972 N	108° 13' 44.325 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,366.42	6,229.00	Mesaverde		0.00	
6,586.42	6,449.00	Base Ohio Creek		0.00	
9,161.42	9,024.00	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
200.00	200.00	0.00	0.00	Start Build 2.00
854.10	848.43	41.78	61.50	Start 13.08° at 854.10' MD
5,712.32	5,580.57	659.65	971.13	Start Drop -2.00
6,366.42	6,229.00	701.43	1,032.64	Start 0.00° at 6366.42' MD
7,161.42	7,024.00	701.43	1,032.64	TOG = 638679.53, 1230625.02
8,517.42	8,380.00	701.43	1,032.64	Target = 638679.53, 1230625.02
9,561.42	9,424.00	701.43	1,032.64	PBHL = 638679.53, 1230625.02