



Scientific Drilling
Rocky Mountain Operations

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



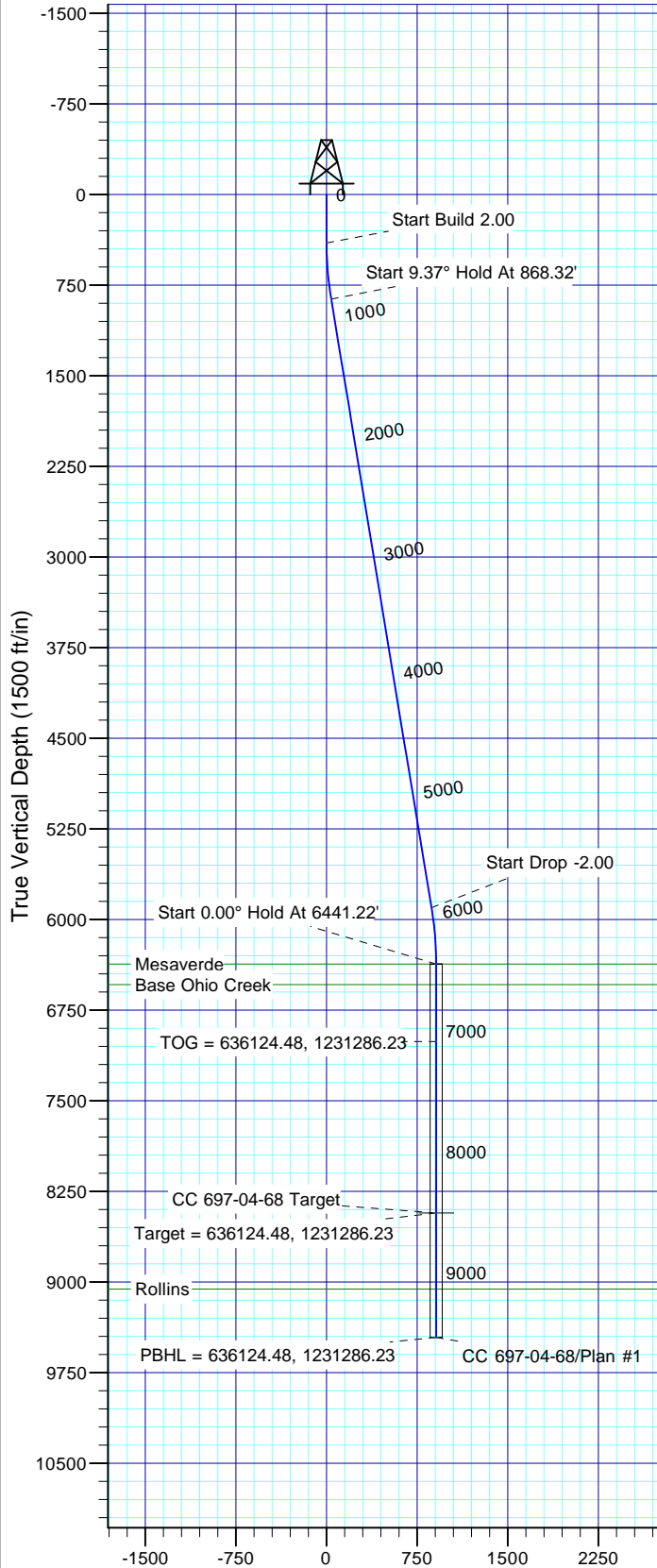
Well Details: CC 697-04-68

TVD Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P) Ground Level: 8629.00
+N/-S 0.00 +E/-W 0.00 Northing 636359.20 Easting 1230409.99 Latitude 39° 32' 55.985 N Longitude 108° 13' 46.179 W Slot F

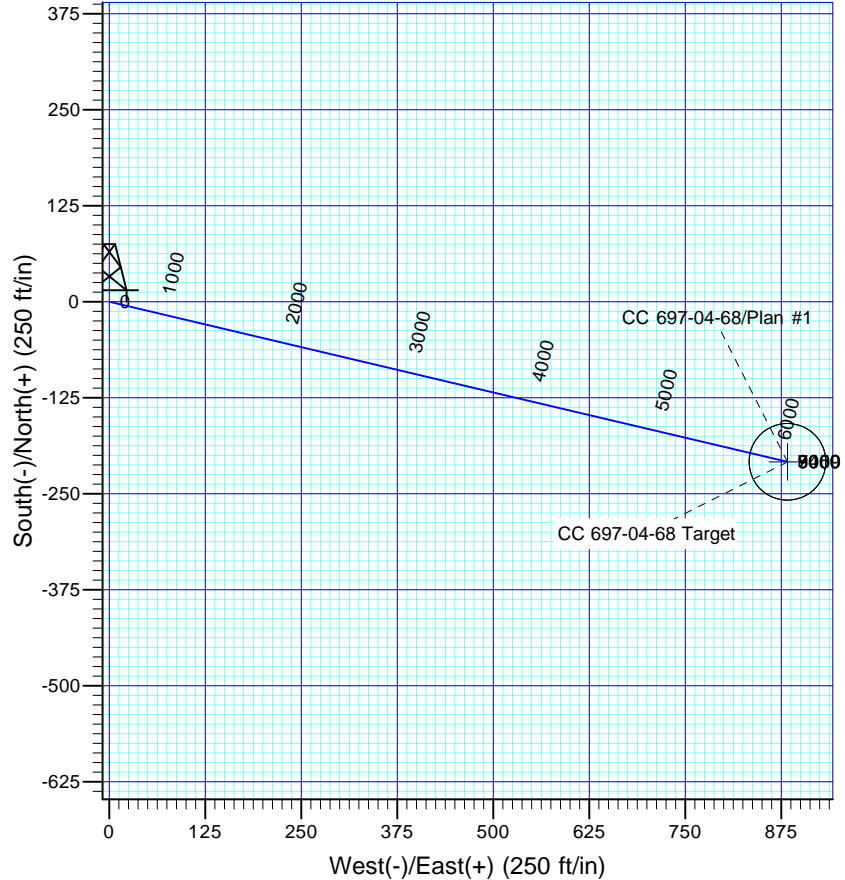


Azimuths to True North
Magnetic North: 10.47°

Magnetic Field
Strength: 52282.5nT
Dip Angle: 65.76°
Date: 2011/03/24
Model: IGRF2005-10



Vertical Section at 103.27° (1500 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6369.00	6441.22	Mesaverde
6539.00	6611.22	Base Ohio Creek
9059.00	9131.22	Rollins

Plan: Plan #1

14:56, 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	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	868.32	9.37	103.27	866.23	-8.77	37.17	2.00	103.27	38.19	
4	5972.90	9.37	103.27	5902.77	-199.52	845.73	0.00	0.00	868.94	
5	6441.22	0.00	0.00	6369.00	-208.29	882.90	2.00	180.00	907.14	
6	8501.22	0.00	0.00	8429.00	-208.29	882.90	0.00	0.00	907.14	CC 697-04-68 Target
7	9531.22	0.00	0.00	9459.00	-208.29	882.90	0.00	0.00	907.14	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-04D Pad
CC 697-04-68 - Slot F**

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 697-04-68 - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-68	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 697-04-68 - Slot F				
Well Position	+N/-S	832.23 ft	Northing:	636,359.20 usft	Latitude:	39° 32' 55.985 N
	+E/-W	108.94 ft	Easting:	1,230,409.99 usft	Longitude:	108° 13' 46.179 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	2011/03/24	10.47	65.76	52,282

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	103.27	

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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
868.32	9.37	103.27	866.23	-8.77	37.17	2.00	2.00	0.00	103.27	
5,972.90	9.37	103.27	5,902.77	-199.52	845.73	0.00	0.00	0.00	0.00	
6,441.22	0.00	0.00	6,369.00	-208.29	882.90	2.00	-2.00	0.00	180.00	
8,501.22	0.00	0.00	8,429.00	-208.29	882.90	0.00	0.00	0.00	0.00	CC 697-04-68 Target
9,531.22	0.00	0.00	9,459.00	-208.29	882.90	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-68 - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-68	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
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
Start Build 2.00									
500.00	2.00	103.27	499.98	-0.40	1.70	1.75	2.00	2.00	0.00
600.00	4.00	103.27	599.84	-1.60	6.79	6.98	2.00	2.00	0.00
700.00	6.00	103.27	699.45	-3.60	15.27	15.69	2.00	2.00	0.00
800.00	8.00	103.27	798.70	-6.40	27.14	27.88	2.00	2.00	0.00
868.32	9.37	103.27	866.23	-8.77	37.17	38.19	2.00	2.00	0.00
Start 9.37° Hold At 868.32'									
900.00	9.37	103.27	897.49	-9.95	42.19	43.35	0.00	0.00	0.00
1,000.00	9.37	103.27	996.16	-13.69	58.03	59.62	0.00	0.00	0.00
1,100.00	9.37	103.27	1,094.83	-17.43	73.87	75.90	0.00	0.00	0.00
1,200.00	9.37	103.27	1,193.49	-21.16	89.71	92.17	0.00	0.00	0.00
1,300.00	9.37	103.27	1,292.16	-24.90	105.55	108.45	0.00	0.00	0.00
1,400.00	9.37	103.27	1,390.83	-28.64	121.39	124.72	0.00	0.00	0.00
1,500.00	9.37	103.27	1,489.50	-32.38	137.23	141.00	0.00	0.00	0.00
1,600.00	9.37	103.27	1,588.16	-36.11	153.07	157.27	0.00	0.00	0.00
1,700.00	9.37	103.27	1,686.83	-39.85	168.91	173.55	0.00	0.00	0.00
1,800.00	9.37	103.27	1,785.50	-43.59	184.75	189.82	0.00	0.00	0.00
1,900.00	9.37	103.27	1,884.16	-47.32	200.59	206.10	0.00	0.00	0.00
2,000.00	9.37	103.27	1,982.83	-51.06	216.43	222.37	0.00	0.00	0.00
2,100.00	9.37	103.27	2,081.50	-54.80	232.27	238.65	0.00	0.00	0.00
2,200.00	9.37	103.27	2,180.16	-58.53	248.11	254.92	0.00	0.00	0.00
2,300.00	9.37	103.27	2,278.83	-62.27	263.95	271.19	0.00	0.00	0.00
2,400.00	9.37	103.27	2,377.50	-66.01	279.79	287.47	0.00	0.00	0.00
2,500.00	9.37	103.27	2,476.16	-69.74	295.63	303.74	0.00	0.00	0.00
2,600.00	9.37	103.27	2,574.83	-73.48	311.47	320.02	0.00	0.00	0.00
2,700.00	9.37	103.27	2,673.50	-77.22	327.31	336.29	0.00	0.00	0.00
2,800.00	9.37	103.27	2,772.16	-80.95	343.15	352.57	0.00	0.00	0.00
2,900.00	9.37	103.27	2,870.83	-84.69	358.99	368.84	0.00	0.00	0.00
3,000.00	9.37	103.27	2,969.50	-88.43	374.83	385.12	0.00	0.00	0.00
3,100.00	9.37	103.27	3,068.16	-92.17	390.67	401.39	0.00	0.00	0.00
3,200.00	9.37	103.27	3,166.83	-95.90	406.51	417.67	0.00	0.00	0.00
3,300.00	9.37	103.27	3,265.50	-99.64	422.35	433.94	0.00	0.00	0.00
3,400.00	9.37	103.27	3,364.16	-103.38	438.19	450.21	0.00	0.00	0.00
3,500.00	9.37	103.27	3,462.83	-107.11	454.03	466.49	0.00	0.00	0.00
3,600.00	9.37	103.27	3,561.50	-110.85	469.87	482.76	0.00	0.00	0.00
3,700.00	9.37	103.27	3,660.16	-114.59	485.71	499.04	0.00	0.00	0.00
3,800.00	9.37	103.27	3,758.83	-118.32	501.54	515.31	0.00	0.00	0.00
3,900.00	9.37	103.27	3,857.50	-122.06	517.38	531.59	0.00	0.00	0.00
4,000.00	9.37	103.27	3,956.17	-125.80	533.22	547.86	0.00	0.00	0.00
4,100.00	9.37	103.27	4,054.83	-129.53	549.06	564.14	0.00	0.00	0.00
4,200.00	9.37	103.27	4,153.50	-133.27	564.90	580.41	0.00	0.00	0.00
4,300.00	9.37	103.27	4,252.17	-137.01	580.74	596.69	0.00	0.00	0.00
4,400.00	9.37	103.27	4,350.83	-140.75	596.58	612.96	0.00	0.00	0.00
4,500.00	9.37	103.27	4,449.50	-144.48	612.42	629.24	0.00	0.00	0.00
4,600.00	9.37	103.27	4,548.17	-148.22	628.26	645.51	0.00	0.00	0.00
4,700.00	9.37	103.27	4,646.83	-151.96	644.10	661.78	0.00	0.00	0.00
4,800.00	9.37	103.27	4,745.50	-155.69	659.94	678.06	0.00	0.00	0.00
4,900.00	9.37	103.27	4,844.17	-159.43	675.78	694.33	0.00	0.00	0.00
5,000.00	9.37	103.27	4,942.83	-163.17	691.62	710.61	0.00	0.00	0.00

Scientific Drilling International

Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-68	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	9.37	103.27	5,041.50	-166.90	707.46	726.88	0.00	0.00	0.00
5,200.00	9.37	103.27	5,140.17	-170.64	723.30	743.16	0.00	0.00	0.00
5,300.00	9.37	103.27	5,238.83	-174.38	739.14	759.43	0.00	0.00	0.00
5,400.00	9.37	103.27	5,337.50	-178.11	754.98	775.71	0.00	0.00	0.00
5,500.00	9.37	103.27	5,436.17	-181.85	770.82	791.98	0.00	0.00	0.00
5,600.00	9.37	103.27	5,534.83	-185.59	786.66	808.26	0.00	0.00	0.00
5,700.00	9.37	103.27	5,633.50	-189.32	802.50	824.53	0.00	0.00	0.00
5,800.00	9.37	103.27	5,732.17	-193.06	818.34	840.81	0.00	0.00	0.00
5,900.00	9.37	103.27	5,830.83	-196.80	834.18	857.08	0.00	0.00	0.00
5,972.90	9.37	103.27	5,902.77	-199.52	845.73	868.94	0.00	0.00	0.00
Start Drop -2.00									
6,000.00	8.82	103.27	5,929.52	-200.51	849.90	873.23	2.00	-2.00	0.00
6,100.00	6.82	103.27	6,028.59	-203.63	863.15	886.84	2.00	-2.00	0.00
6,200.00	4.82	103.27	6,128.06	-205.96	873.02	896.99	2.00	-2.00	0.00
6,300.00	2.82	103.27	6,227.84	-207.49	879.51	903.66	2.00	-2.00	0.00
6,400.00	0.82	103.27	6,327.78	-208.22	882.61	906.84	2.00	-2.00	0.00
6,441.22	0.00	0.00	6,369.00	-208.29	882.90	907.14	2.00	-2.00	-250.54
Start 0.00° Hold At 6441.22' - Mesaverde									
6,500.00	0.00	0.00	6,427.78	-208.29	882.90	907.14	0.00	0.00	0.00
6,600.00	0.00	0.00	6,527.78	-208.29	882.90	907.14	0.00	0.00	0.00
6,611.22	0.00	0.00	6,539.00	-208.29	882.90	907.14	0.00	0.00	0.00
Base Ohio Creek									
6,700.00	0.00	0.00	6,627.78	-208.29	882.90	907.14	0.00	0.00	0.00
6,800.00	0.00	0.00	6,727.78	-208.29	882.90	907.14	0.00	0.00	0.00
6,900.00	0.00	0.00	6,827.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,000.00	0.00	0.00	6,927.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,081.22	0.00	0.00	7,009.00	-208.29	882.90	907.14	0.00	0.00	0.00
TOG = 636124.48, 1231286.23									
7,100.00	0.00	0.00	7,027.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,200.00	0.00	0.00	7,127.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,300.00	0.00	0.00	7,227.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,400.00	0.00	0.00	7,327.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,500.00	0.00	0.00	7,427.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,600.00	0.00	0.00	7,527.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,700.00	0.00	0.00	7,627.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,800.00	0.00	0.00	7,727.78	-208.29	882.90	907.14	0.00	0.00	0.00
7,900.00	0.00	0.00	7,827.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,000.00	0.00	0.00	7,927.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,100.00	0.00	0.00	8,027.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,200.00	0.00	0.00	8,127.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,300.00	0.00	0.00	8,227.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,400.00	0.00	0.00	8,327.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,500.00	0.00	0.00	8,427.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,501.22	0.00	0.00	8,429.00	-208.29	882.90	907.14	0.00	0.00	0.00
Target = 636124.48, 1231286.23									
8,600.00	0.00	0.00	8,527.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,700.00	0.00	0.00	8,627.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,800.00	0.00	0.00	8,727.78	-208.29	882.90	907.14	0.00	0.00	0.00
8,900.00	0.00	0.00	8,827.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,000.00	0.00	0.00	8,927.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,100.00	0.00	0.00	9,027.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,131.22	0.00	0.00	9,059.00	-208.29	882.90	907.14	0.00	0.00	0.00
Rollins									

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-68 - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-68	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	9,127.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,300.00	0.00	0.00	9,227.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,400.00	0.00	0.00	9,327.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,500.00	0.00	0.00	9,427.78	-208.29	882.90	907.14	0.00	0.00	0.00
9,531.22	0.00	0.00	9,459.00	-208.29	882.90	907.14	0.00	0.00	0.00
PBHL = 636124.48, 1231286.23									

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									
CC 697-04-68 Target	0.00	0.00	8,429.00	-208.29	882.90	636,124.48	1,231,286.23	39° 32' 53.926 N	108° 13' 34.908 W
- plan hits target center									
- Circle (radius 50.00)									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,441.22	6,369.00	Mesaverde		0.00		
6,611.22	6,539.00	Base Ohio Creek		0.00		
9,131.22	9,059.00	Rollins		0.00		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
400.00	400.00	0.00	0.00	Start Build 2.00
868.32	866.23	-8.77	37.17	Start 9.37° Hold At 868.32'
5,972.90	5,902.77	-199.52	845.73	Start Drop -2.00
6,441.22	6,369.00	-208.29	882.90	Start 0.00° Hold At 6441.22'
7,081.22	7,009.00	-208.29	882.90	TOG = 636124.48, 1231286.23
8,501.22	8,429.00	-208.29	882.90	Target = 636124.48, 1231286.23
9,531.22	9,459.00	-208.29	882.90	PBHL = 636124.48, 1231286.23