



Scientific Drilling
Rocky Mountain Operations

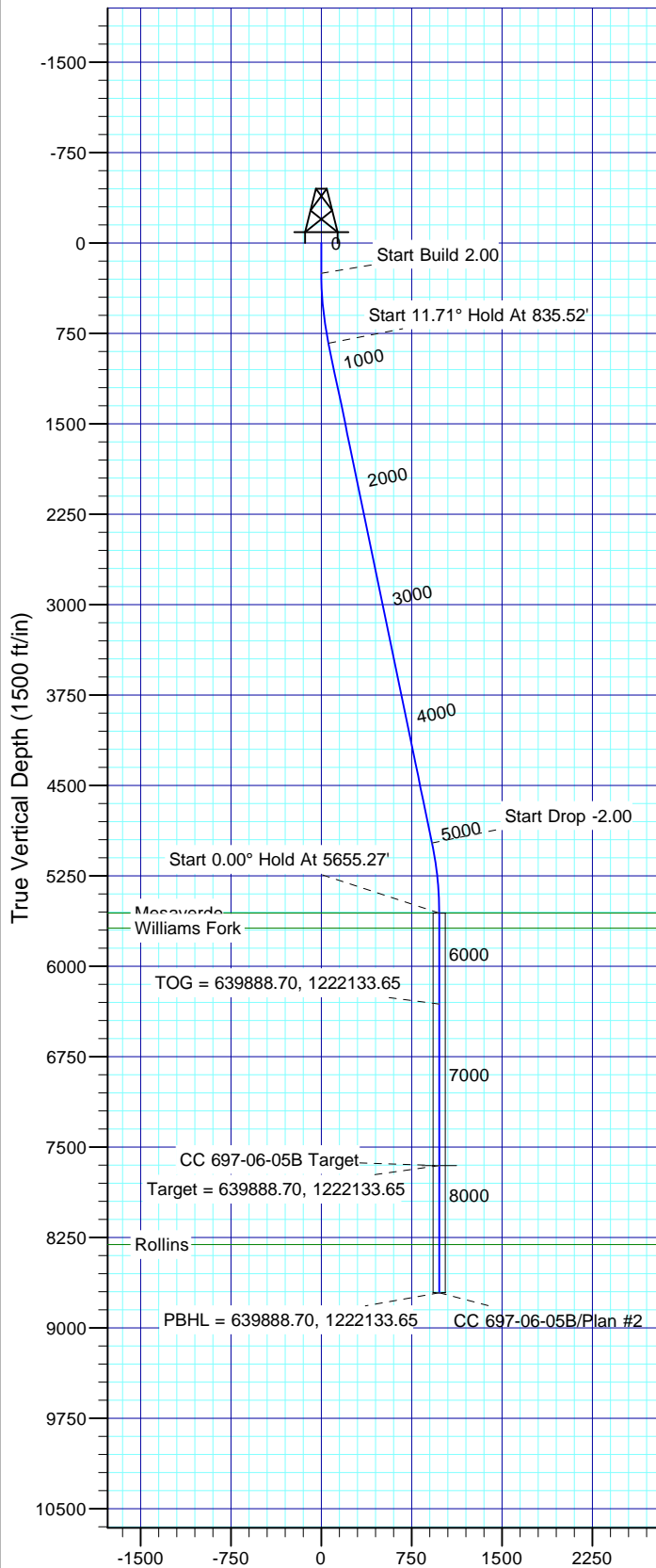
Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06A Pad



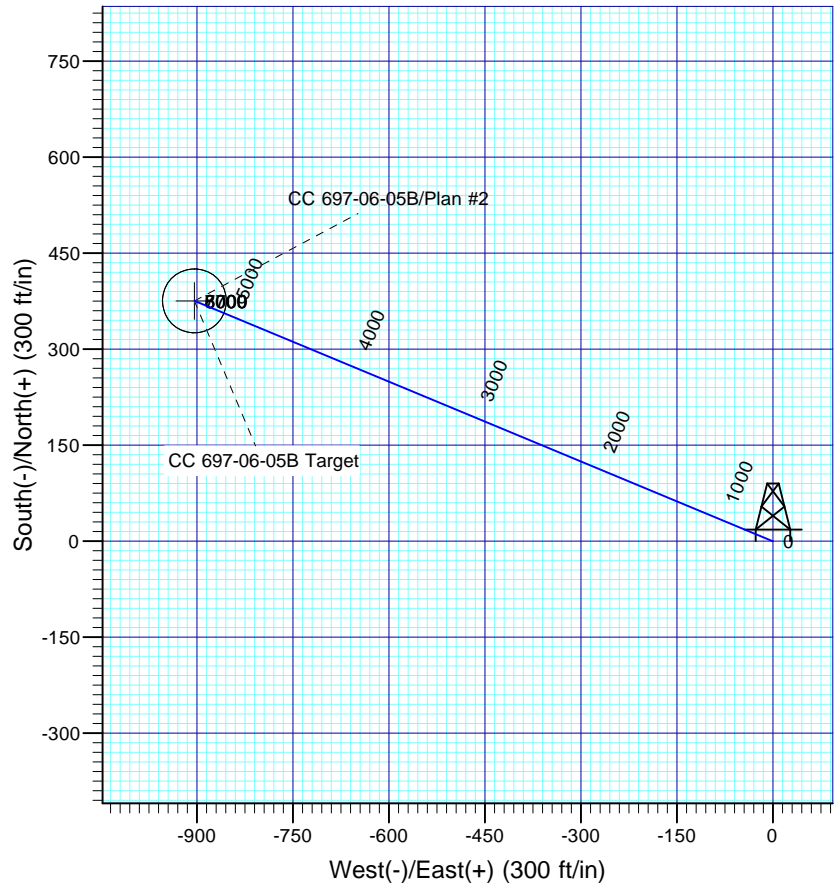
Well Details: CC 697-06-05B

TVD Reference: GL 8184' & RKB 30' @ 8214.00ft (H&P) Ground Level: 8184.00
+N/-S 0.00 +E/-W 0.00 Northing 639486.02 Easting 1223025.62 Latitude 39° 33' 24.672 N Longitude 108° 15' 21.617 W Slot D

T M Azimuths to True North
Magnetic North: 10.51°
Magnetic Field
Strength: 52311.9snT
Dip Angle: 65.77°
Date: 2010/12/20
Model: IGRF2005-10



Vertical Section at 292.56° (1500 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5559.00	5655.27	Mesaverde
5684.00	5780.27	Williams Fork
8309.00	8405.27	Rollins

Plan: Plan #2

20:20, February 03 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	VSEct	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	835.52	11.71	292.56	831.45	22.88	-55.07	2.00	292.56	59.63	
4	5069.75	11.71	292.56	4977.55	352.57	-848.71	0.00	0.00	919.03	
5	5655.27	0.00	0.00	5559.00	375.44	-903.78	2.00	180.00	978.66	
6	7749.27	0.00	0.00	7653.00	375.44	-903.78	0.00	0.00	978.66	CC 697-06-05B Target
7	8805.27	0.00	0.00	8709.00	375.44	-903.78	0.00	0.00	978.66	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-06A Pad
CC 697-06-05B - Slot D**

OH

Plan: Plan #2

Standard Planning Report

03 February, 2011

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-05B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-05B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 697-06A Pad, Sec 6 T6S R97W			
Site Position:		Northing:	639,442.25 usft	Latitude:	39° 33' 24.203 N
From:	Map	Easting:	1,222,903.93 usft	Longitude:	108° 15' 23.153 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.74 °

Well	CC 697-06-05B - Slot D					
Well Position	+N/-S	47.44 ft	Northing:	639,486.02 usft	Latitude:	39° 33' 24.672 N
	+E/-W	120.31 ft	Easting:	1,223,025.62 usft	Longitude:	108° 15' 21.617 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,184.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2010/12/20	10.51	65.77	52,312

Design	Plan #2			
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	292.56

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	
835.52	11.71	292.56	831.45	22.88	-55.07	2.00	2.00	0.00	292.56	
5,069.75	11.71	292.56	4,977.55	352.57	-848.71	0.00	0.00	0.00	0.00	
5,655.27	0.00	0.00	5,559.00	375.44	-903.78	2.00	-2.00	0.00	180.00	
7,749.27	0.00	0.00	7,653.00	375.44	-903.78	0.00	0.00	0.00	0.00	CC 697-06-05B Target
8,805.27	0.00	0.00	8,709.00	375.44	-903.78	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-05B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-05B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	292.56	300.00	0.17	-0.40	0.44	2.00	2.00	0.00
400.00	3.00	292.56	399.93	1.51	-3.63	3.93	2.00	2.00	0.00
500.00	5.00	292.56	499.68	4.18	-10.07	10.90	2.00	2.00	0.00
600.00	7.00	292.56	599.13	8.19	-19.72	21.35	2.00	2.00	0.00
700.00	9.00	292.56	698.15	13.53	-32.57	35.27	2.00	2.00	0.00
800.00	11.00	292.56	796.63	20.19	-48.61	52.63	2.00	2.00	0.00
835.52	11.71	292.56	831.45	22.88	-55.07	59.63	2.00	2.00	0.00
Start 11.71° Hold At 835.52'									
900.00	11.71	292.56	894.59	27.90	-67.15	72.71	0.00	0.00	0.00
1,000.00	11.71	292.56	992.51	35.68	-85.89	93.01	0.00	0.00	0.00
1,100.00	11.71	292.56	1,090.43	43.47	-104.64	113.31	0.00	0.00	0.00
1,200.00	11.71	292.56	1,188.35	51.25	-123.38	133.60	0.00	0.00	0.00
1,300.00	11.71	292.56	1,286.26	59.04	-142.13	153.90	0.00	0.00	0.00
1,400.00	11.71	292.56	1,384.18	66.83	-160.87	174.20	0.00	0.00	0.00
1,500.00	11.71	292.56	1,482.10	74.61	-179.61	194.49	0.00	0.00	0.00
1,600.00	11.71	292.56	1,580.02	82.40	-198.36	214.79	0.00	0.00	0.00
1,700.00	11.71	292.56	1,677.94	90.19	-217.10	235.09	0.00	0.00	0.00
1,800.00	11.71	292.56	1,775.86	97.97	-235.84	255.38	0.00	0.00	0.00
1,900.00	11.71	292.56	1,873.78	105.76	-254.59	275.68	0.00	0.00	0.00
2,000.00	11.71	292.56	1,971.69	113.55	-273.33	295.98	0.00	0.00	0.00
2,100.00	11.71	292.56	2,069.61	121.33	-292.07	316.27	0.00	0.00	0.00
2,200.00	11.71	292.56	2,167.53	129.12	-310.82	336.57	0.00	0.00	0.00
2,300.00	11.71	292.56	2,265.45	136.91	-329.56	356.87	0.00	0.00	0.00
2,400.00	11.71	292.56	2,363.37	144.69	-348.31	377.16	0.00	0.00	0.00
2,500.00	11.71	292.56	2,461.29	152.48	-367.05	397.46	0.00	0.00	0.00
2,600.00	11.71	292.56	2,559.21	160.26	-385.79	417.76	0.00	0.00	0.00
2,700.00	11.71	292.56	2,657.12	168.05	-404.54	438.05	0.00	0.00	0.00
2,800.00	11.71	292.56	2,755.04	175.84	-423.28	458.35	0.00	0.00	0.00
2,900.00	11.71	292.56	2,852.96	183.62	-442.02	478.65	0.00	0.00	0.00
3,000.00	11.71	292.56	2,950.88	191.41	-460.77	498.94	0.00	0.00	0.00
3,100.00	11.71	292.56	3,048.80	199.20	-479.51	519.24	0.00	0.00	0.00
3,200.00	11.71	292.56	3,146.72	206.98	-498.25	539.54	0.00	0.00	0.00
3,300.00	11.71	292.56	3,244.64	214.77	-517.00	559.83	0.00	0.00	0.00
3,400.00	11.71	292.56	3,342.55	222.56	-535.74	580.13	0.00	0.00	0.00
3,500.00	11.71	292.56	3,440.47	230.34	-554.48	600.43	0.00	0.00	0.00
3,600.00	11.71	292.56	3,538.39	238.13	-573.23	620.72	0.00	0.00	0.00
3,700.00	11.71	292.56	3,636.31	245.91	-591.97	641.02	0.00	0.00	0.00
3,800.00	11.71	292.56	3,734.23	253.70	-610.72	661.31	0.00	0.00	0.00
3,900.00	11.71	292.56	3,832.15	261.49	-629.46	681.61	0.00	0.00	0.00
4,000.00	11.71	292.56	3,930.07	269.27	-648.20	701.91	0.00	0.00	0.00
4,100.00	11.71	292.56	4,027.98	277.06	-666.95	722.20	0.00	0.00	0.00
4,200.00	11.71	292.56	4,125.90	284.85	-685.69	742.50	0.00	0.00	0.00
4,300.00	11.71	292.56	4,223.82	292.63	-704.43	762.80	0.00	0.00	0.00
4,400.00	11.71	292.56	4,321.74	300.42	-723.18	783.09	0.00	0.00	0.00
4,500.00	11.71	292.56	4,419.66	308.21	-741.92	803.39	0.00	0.00	0.00
4,600.00	11.71	292.56	4,517.58	315.99	-760.66	823.69	0.00	0.00	0.00
4,700.00	11.71	292.56	4,615.50	323.78	-779.41	843.98	0.00	0.00	0.00
4,800.00	11.71	292.56	4,713.41	331.56	-798.15	864.28	0.00	0.00	0.00
4,900.00	11.71	292.56	4,811.33	339.35	-816.89	884.58	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-05B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-05B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
5,000.00	11.71	292.56	4,909.25	347.14	-835.64	904.87	0.00	0.00	0.00
5,069.75	11.71	292.56	4,977.55	352.57	-848.71	919.03	0.00	0.00	0.00
Start Drop -2.00									
5,100.00	11.11	292.56	5,007.20	354.86	-854.24	925.01	2.00	-2.00	0.00
5,200.00	9.11	292.56	5,105.65	361.59	-870.44	942.56	2.00	-2.00	0.00
5,300.00	7.11	292.56	5,204.64	367.00	-883.46	956.66	2.00	-2.00	0.00
5,400.00	5.11	292.56	5,304.07	371.08	-893.28	967.29	2.00	-2.00	0.00
5,500.00	3.11	292.56	5,403.81	373.83	-899.89	974.45	2.00	-2.00	0.00
5,600.00	1.11	292.56	5,503.74	375.24	-903.28	978.12	2.00	-2.00	0.00
5,655.27	0.00	0.00	5,559.00	375.44	-903.78	978.66	2.00	-2.00	0.00
Start 0.00° Hold At 5655.27' - Mesaverde									
5,700.00	0.00	0.00	5,603.73	375.44	-903.78	978.66	0.00	0.00	0.00
5,780.27	0.00	0.00	5,684.00	375.44	-903.78	978.66	0.00	0.00	0.00
Williams Fork									
5,800.00	0.00	0.00	5,703.73	375.44	-903.78	978.66	0.00	0.00	0.00
5,900.00	0.00	0.00	5,803.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,000.00	0.00	0.00	5,903.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,100.00	0.00	0.00	6,003.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,200.00	0.00	0.00	6,103.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,300.00	0.00	0.00	6,203.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,400.00	0.00	0.00	6,303.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,410.27	0.00	0.00	6,314.00	375.44	-903.78	978.66	0.00	0.00	0.00
TOG = 639888.70, 1222133.65									
6,500.00	0.00	0.00	6,403.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,600.00	0.00	0.00	6,503.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,700.00	0.00	0.00	6,603.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,800.00	0.00	0.00	6,703.73	375.44	-903.78	978.66	0.00	0.00	0.00
6,900.00	0.00	0.00	6,803.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,000.00	0.00	0.00	6,903.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,100.00	0.00	0.00	7,003.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,200.00	0.00	0.00	7,103.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,300.00	0.00	0.00	7,203.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,400.00	0.00	0.00	7,303.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,500.00	0.00	0.00	7,403.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,600.00	0.00	0.00	7,503.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,700.00	0.00	0.00	7,603.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,749.27	0.00	0.00	7,653.00	375.44	-903.78	978.66	0.00	0.00	0.00
Target = 639888.70, 1222133.65									
7,800.00	0.00	0.00	7,703.73	375.44	-903.78	978.66	0.00	0.00	0.00
7,900.00	0.00	0.00	7,803.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,000.00	0.00	0.00	7,903.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,100.00	0.00	0.00	8,003.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,200.00	0.00	0.00	8,103.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,300.00	0.00	0.00	8,203.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,400.00	0.00	0.00	8,303.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,405.27	0.00	0.00	8,309.00	375.44	-903.78	978.66	0.00	0.00	0.00
Rollins									
8,500.00	0.00	0.00	8,403.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,600.00	0.00	0.00	8,503.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,700.00	0.00	0.00	8,603.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,800.00	0.00	0.00	8,703.73	375.44	-903.78	978.66	0.00	0.00	0.00
8,805.27	0.00	0.00	8,709.00	375.44	-903.78	978.66	0.00	0.00	0.00
PBHL = 639888.70, 1222133.65									

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-05B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-05B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 697-06-05B Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,653.00	375.44	-903.78	639,888.71	1,222,133.65	39° 33' 28.383 N	108° 15' 33.156 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,655.27	5,559.00	Mesaverde		0.00	
5,780.27	5,684.00	Williams Fork		0.00	
8,405.27	8,309.00	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
835.52	831.45	22.88	-55.07	Start 11.71° Hold At 835.52'
5,069.75	4,977.55	352.57	-848.71	Start Drop -2.00
5,655.27	5,559.00	375.44	-903.78	Start 0.00° Hold At 5655.27'
6,410.27	6,314.00	375.44	-903.78	TOG = 639888.70, 1222133.65
7,749.27	7,653.00	375.44	-903.78	Target = 639888.70, 1222133.65
8,805.27	8,709.00	375.44	-903.78	PBHL = 639888.70, 1222133.65