



Scientific Drilling
Rocky Mountain Operations

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



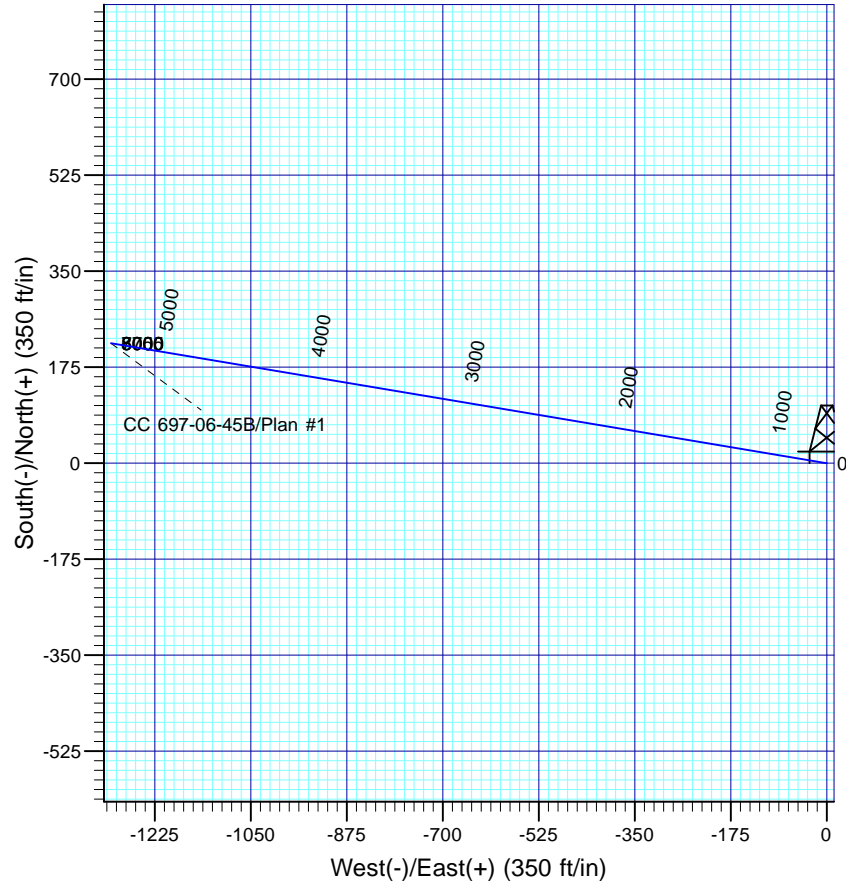
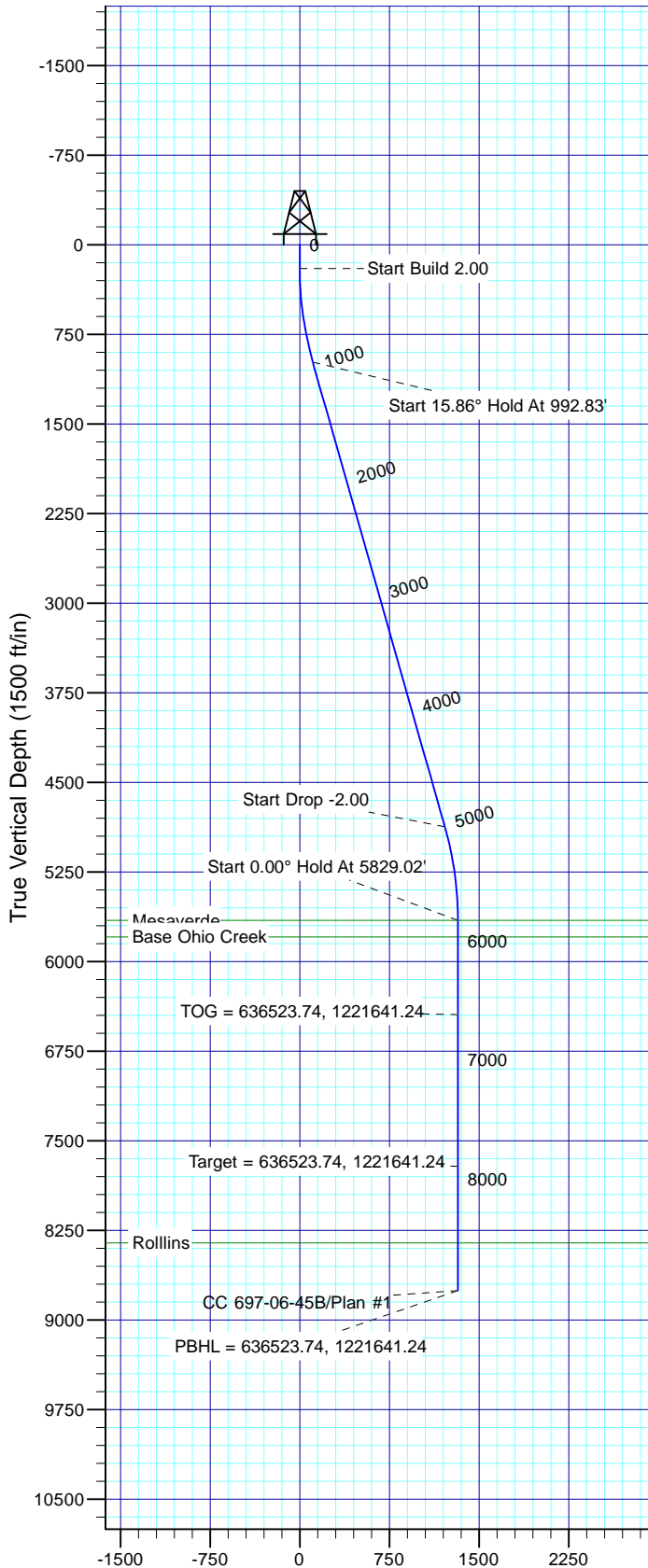
Well Details: CC 697-06-45B

TVD Reference: GL 8345' & RKB 30' @ 8375.00ft (H&P) Ground Level: 8345.00
+N/-S 0.00 +E/-W 0.00 Northing 636265.57 Easting 1222938.58 Latitude 39° 32' 52.831 N Longitude 108° 15' 21.480 W Slot J



Azimuths to True North
Magnetic North: 10.38°

Magnetic Field
Strength: 52151.9snT
Dip Angle: 65.71°
Date: 03/06/2012
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5655.00	5829.02	Mesaverde
5795.00	5969.02	Base Ohio Creek
8355.00	8529.02	Rollins

Plan: Plan #1

13:34, March 07 2012
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	V Sect	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	992.83	15.86	279.52	982.75	18.02	-107.51	2.00	279.52	109.01	
4	5036.19	15.86	279.52	4872.25	200.68	-1197.07	0.00	0.00	1213.78	
5	5829.02	0.00	0.00	5655.00	218.70	-1304.58	2.00	180.00	322.78	
6	7889.02	0.00	0.00	7715.00	218.70	-1304.58	0.00	0.00	322.78	CC 697-06-45B
7	8929.02	0.00	0.00	8755.00	218.70	-1304.58	0.00	0.00	322.78	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-06D Pad
CC 697-06-45B - Slot J**

OH

Plan: Plan #1

Standard Planning Report

07 March, 2012





Database:	EDM-R5000-JanieCooke-Local	Local Co-ordinate Reference:	Well CC 697-06-45B - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8345' & RKB 30' @ 8375.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8345' & RKB 30' @ 8375.00ft (H&P)
Site:	Cascade Creek 697-06D Pad	North Reference:	True
Well:	CC 697-06-45B	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 697-06D Pad, Sec 6 T6S R97W		
Site Position:		Northing:	636,260.71 usft
From:	Map	Easting:	1,222,814.04 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 32' 52.746 N
		Longitude:	108° 15' 23.068 W
		Grid Convergence:	-1.74 °

Well	CC 697-06-45B - Slot J		
Well Position	+N/-S	8.64 ft	Northing:
	+E/-W	124.34 ft	Easting:
Position Uncertainty	0.00 ft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/06/2012	10.38	65.71	52,152

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	279.52

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	
992.83	15.86	279.52	982.75	18.02	-107.51	2.00	2.00	0.00	279.52	
5,036.19	15.86	279.52	4,872.25	200.68	-1,197.07	0.00	0.00	0.00	0.00	
5,829.02	0.00	0.00	5,655.00	218.70	-1,304.58	2.00	-2.00	0.00	180.00	
7,889.02	0.00	0.00	7,715.00	218.70	-1,304.58	0.00	0.00	0.00	0.00	CC 697-06-45B
8,929.02	0.00	0.00	8,755.00	218.70	-1,304.58	0.00	0.00	0.00	0.00	



Database: EDM-R5000-JanieCooke-Local
Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06D Pad
Well: CC 697-06-45B
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well CC 697-06-45B - Slot J
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 True
 Minimum Curvature

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	279.52	299.98	0.29	-1.72	1.75	2.00	2.00	0.00
400.00	4.00	279.52	399.84	1.15	-6.88	6.98	2.00	2.00	0.00
500.00	6.00	279.52	499.45	2.59	-15.48	15.69	2.00	2.00	0.00
600.00	8.00	279.52	598.70	4.61	-27.50	27.88	2.00	2.00	0.00
700.00	10.00	279.52	697.47	7.20	-42.92	43.52	2.00	2.00	0.00
800.00	12.00	279.52	795.62	10.35	-61.74	62.60	2.00	2.00	0.00
900.00	14.00	279.52	893.06	14.07	-83.93	85.10	2.00	2.00	0.00
992.83	15.86	279.52	982.75	18.02	-107.51	109.01	2.00	2.00	0.00
Start 15.86° Hold At 992.83'									
1,000.00	15.86	279.52	989.65	18.35	-109.44	110.97	0.00	0.00	0.00
1,100.00	15.86	279.52	1,085.84	22.86	-136.39	138.29	0.00	0.00	0.00
1,200.00	15.86	279.52	1,182.04	27.38	-163.34	165.61	0.00	0.00	0.00
1,300.00	15.86	279.52	1,278.23	31.90	-190.28	192.94	0.00	0.00	0.00
1,400.00	15.86	279.52	1,374.42	36.42	-217.23	220.26	0.00	0.00	0.00
1,500.00	15.86	279.52	1,470.62	40.93	-244.18	247.58	0.00	0.00	0.00
1,600.00	15.86	279.52	1,566.81	45.45	-271.12	274.91	0.00	0.00	0.00
1,700.00	15.86	279.52	1,663.01	49.97	-298.07	302.23	0.00	0.00	0.00
1,800.00	15.86	279.52	1,759.20	54.49	-325.02	329.55	0.00	0.00	0.00
1,900.00	15.86	279.52	1,855.40	59.00	-351.96	356.88	0.00	0.00	0.00
2,000.00	15.86	279.52	1,951.59	63.52	-378.91	384.20	0.00	0.00	0.00
2,100.00	15.86	279.52	2,047.79	68.04	-405.86	411.52	0.00	0.00	0.00
2,200.00	15.86	279.52	2,143.98	72.56	-432.80	438.84	0.00	0.00	0.00
2,300.00	15.86	279.52	2,240.18	77.07	-459.75	466.17	0.00	0.00	0.00
2,400.00	15.86	279.52	2,336.37	81.59	-486.70	493.49	0.00	0.00	0.00
2,500.00	15.86	279.52	2,432.57	86.11	-513.65	520.81	0.00	0.00	0.00
2,600.00	15.86	279.52	2,528.76	90.63	-540.59	548.14	0.00	0.00	0.00
2,700.00	15.86	279.52	2,624.96	95.14	-567.54	575.46	0.00	0.00	0.00
2,800.00	15.86	279.52	2,721.15	99.66	-594.49	602.78	0.00	0.00	0.00
2,900.00	15.86	279.52	2,817.35	104.18	-621.43	630.10	0.00	0.00	0.00
3,000.00	15.86	279.52	2,913.54	108.69	-648.38	657.43	0.00	0.00	0.00
3,100.00	15.86	279.52	3,009.74	113.21	-675.33	684.75	0.00	0.00	0.00
3,200.00	15.86	279.52	3,105.93	117.73	-702.27	712.07	0.00	0.00	0.00
3,300.00	15.86	279.52	3,202.13	122.25	-729.22	739.40	0.00	0.00	0.00
3,400.00	15.86	279.52	3,298.32	126.76	-756.17	766.72	0.00	0.00	0.00
3,500.00	15.86	279.52	3,394.52	131.28	-783.11	794.04	0.00	0.00	0.00
3,600.00	15.86	279.52	3,490.71	135.80	-810.06	821.37	0.00	0.00	0.00
3,700.00	15.86	279.52	3,586.91	140.32	-837.01	848.69	0.00	0.00	0.00
3,800.00	15.86	279.52	3,683.10	144.83	-863.96	876.01	0.00	0.00	0.00
3,900.00	15.86	279.52	3,779.30	149.35	-890.90	903.33	0.00	0.00	0.00
4,000.00	15.86	279.52	3,875.49	153.87	-917.85	930.66	0.00	0.00	0.00
4,100.00	15.86	279.52	3,971.69	158.39	-944.80	957.98	0.00	0.00	0.00
4,200.00	15.86	279.52	4,067.88	162.90	-971.74	985.30	0.00	0.00	0.00
4,300.00	15.86	279.52	4,164.08	167.42	-998.69	1,012.63	0.00	0.00	0.00
4,400.00	15.86	279.52	4,260.27	171.94	-1,025.64	1,039.95	0.00	0.00	0.00
4,500.00	15.86	279.52	4,356.47	176.46	-1,052.58	1,067.27	0.00	0.00	0.00
4,600.00	15.86	279.52	4,452.66	180.97	-1,079.53	1,094.60	0.00	0.00	0.00
4,700.00	15.86	279.52	4,548.86	185.49	-1,106.48	1,121.92	0.00	0.00	0.00
4,800.00	15.86	279.52	4,645.05	190.01	-1,133.43	1,149.24	0.00	0.00	0.00
4,900.00	15.86	279.52	4,741.25	194.53	-1,160.37	1,176.56	0.00	0.00	0.00
5,000.00	15.86	279.52	4,837.44	199.04	-1,187.32	1,203.89	0.00	0.00	0.00



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Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06D Pad
Well: CC 697-06-45B
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
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MD Reference:
North Reference:
Survey Calculation Method:

Well CC 697-06-45B - Slot J
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 True
 Minimum Curvature

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)
5,036.19	15.86	279.52	4,872.25	200.68	-1,197.07	1,213.78	0.00	0.00	0.00
Start Drop -2.00									
5,100.00	14.58	279.52	4,933.82	203.45	-1,213.59	1,230.53	2.00	-2.00	0.00
5,200.00	12.58	279.52	5,031.02	207.33	-1,236.75	1,254.01	2.00	-2.00	0.00
5,300.00	10.58	279.52	5,128.98	210.65	-1,256.54	1,274.08	2.00	-2.00	0.00
5,400.00	8.58	279.52	5,227.58	213.40	-1,272.96	1,290.72	2.00	-2.00	0.00
5,500.00	6.58	279.52	5,326.70	215.58	-1,285.97	1,303.91	2.00	-2.00	0.00
5,600.00	4.58	279.52	5,426.23	217.19	-1,295.56	1,313.64	2.00	-2.00	0.00
5,700.00	2.58	279.52	5,526.03	218.22	-1,301.72	1,319.88	2.00	-2.00	0.00
5,800.00	0.58	279.52	5,625.98	218.68	-1,304.44	1,322.64	2.00	-2.00	0.00
5,829.02	0.00	0.00	5,655.00	218.70	-1,304.58	1,322.78	2.00	-2.00	0.00
Start 0.00° Hold At 5829.02' - Mesaverde									
5,900.00	0.00	0.00	5,725.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
5,969.02	0.00	0.00	5,795.00	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
Base Ohio Creek									
6,000.00	0.00	0.00	5,825.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,100.00	0.00	0.00	5,925.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,200.00	0.00	0.00	6,025.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,300.00	0.00	0.00	6,125.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,400.00	0.00	0.00	6,225.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,500.00	0.00	0.00	6,325.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,600.00	0.00	0.00	6,425.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,619.02	0.00	0.00	6,445.00	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
TOG = 636523.74, 1221641.24									
6,700.00	0.00	0.00	6,525.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,800.00	0.00	0.00	6,625.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
6,900.00	0.00	0.00	6,725.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,000.00	0.00	0.00	6,825.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,100.00	0.00	0.00	6,925.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,200.00	0.00	0.00	7,025.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,300.00	0.00	0.00	7,125.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,400.00	0.00	0.00	7,225.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,500.00	0.00	0.00	7,325.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,600.00	0.00	0.00	7,425.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,700.00	0.00	0.00	7,525.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,800.00	0.00	0.00	7,625.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
7,889.02	0.00	0.00	7,715.00	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
Target = 636523.74, 1221641.24									
7,900.00	0.00	0.00	7,725.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,000.00	0.00	0.00	7,825.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,100.00	0.00	0.00	7,925.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,200.00	0.00	0.00	8,025.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,300.00	0.00	0.00	8,125.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,400.00	0.00	0.00	8,225.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,500.00	0.00	0.00	8,325.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,529.02	0.00	0.00	8,355.00	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
Rollins									
8,600.00	0.00	0.00	8,425.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,700.00	0.00	0.00	8,525.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,800.00	0.00	0.00	8,625.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,900.00	0.00	0.00	8,725.98	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
8,929.02	0.00	0.00	8,755.00	218.70	-1,304.58	1,322.78	0.00	0.00	0.00
PBHL = 636523.74, 1221641.24									



Database:	EDM-R5000-JanieCooke-Local	Local Co-ordinate Reference:	Well CC 697-06-45B - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8345' & RKB 30' @ 8375.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8345' & RKB 30' @ 8375.00ft (H&P)
Site:	Cascade Creek 697-06D Pad	North Reference:	True
Well:	CC 697-06-45B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
CC 697-06-45B	0.00	0.00	7,715.00	218.70	-1,304.58	636,523.74	1,221,641.23	39° 32' 54.992 N	108° 15' 38.135 W
- plan hits target center									
- Circle (radius 50.00)									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,829.02	5,655.00	Mesaverde		0.00	
5,969.02	5,795.00	Base Ohio Creek		0.00	
8,529.02	8,355.00	Rollins		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.00	200.00	0.00	0.00	Start Build 2.00
992.83	982.75	18.02	-107.51	Start 15.86° Hold At 992.83'
5,036.19	4,872.25	200.68	-1,197.07	Start Drop -2.00
5,829.02	5,655.00	218.70	-1,304.58	Start 0.00° Hold At 5829.02'
6,619.02	6,445.00	218.70	-1,304.58	TOG = 636523.74, 1221641.24
7,889.02	7,715.00	218.70	-1,304.58	Target = 636523.74, 1221641.24
8,929.02	8,755.00	218.70	-1,304.58	PBHL = 636523.74, 1221641.24