



Scientific Drilling

Rocky Mountain Operations

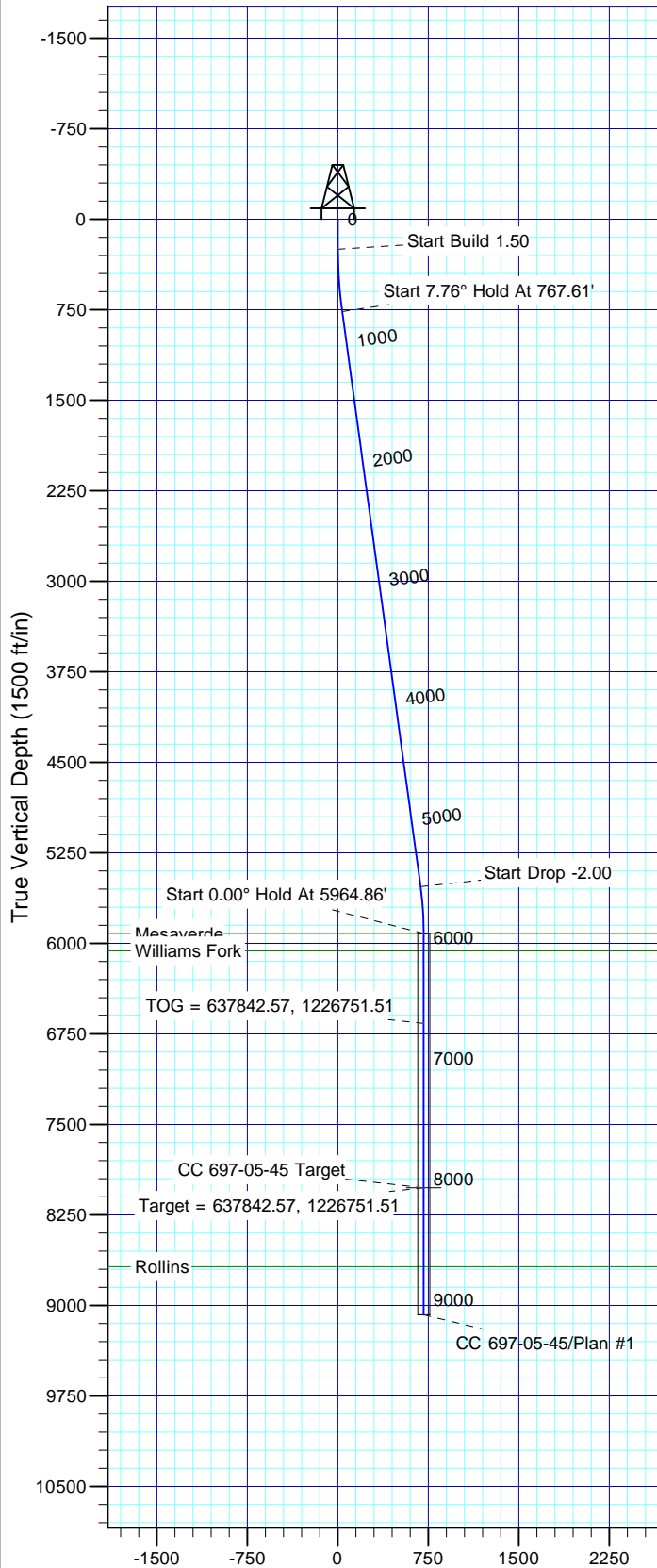
Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-05C Pad



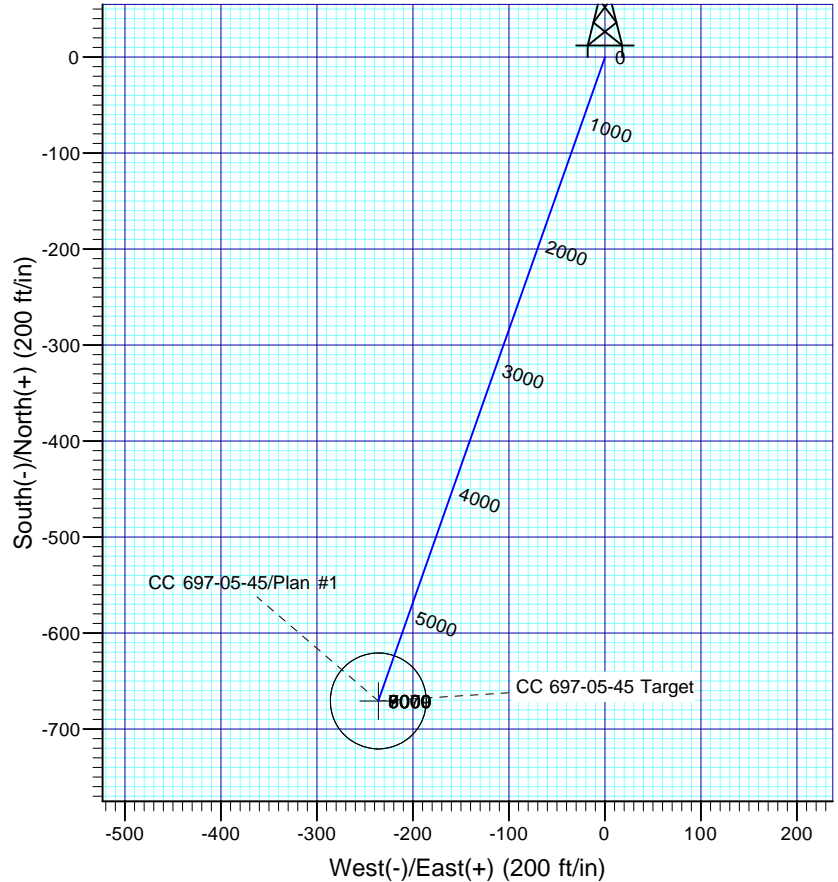
Well Details: CC 697-05-45

TVD Reference: GL 8429' & RKB 30' @ 8459.00ft (H&P) Ground Level: 8429.00
+N/-S 0.00 +E/-W 0.00 Northing 638505.76 Easting 1227007.70 Latitude 39° 33' 16.179 N Longitude 108° 14' 30.421 W Slot C

T M Azimuths to True North
Magnetic North: 10.51°
Magnetic Field
Strength: 52311.5nT
Dip Angle: 65.77°
Date: 2010/12/16
Model: IGRF2005-10



Vertical Section at 199.39° (1500 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5918.00	5964.86	Mesaverde
6063.00	6109.86	Williams Fork
8679.00	8725.86	Rollins

Plan: Plan #1

14:38, December 28 2010
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	V Sect	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	767.61	7.76	199.39	766.02	-33.03	-11.63	1.50	199.39	35.02	
4	5576.65	7.76	199.39	5530.98	-645.85	-227.34	0.00	0.00	684.69	
5	5964.86	0.00	0.00	5918.00	-670.62	-236.06	2.00	180.00	710.96	
6	8071.86	0.00	0.00	8025.00	-670.62	-236.06	0.00	0.00	710.96	CC 697-05-45 Target
7	9125.86	0.00	0.00	9079.00	-670.62	-236.06	0.00	0.00	710.96	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-45 - Slot C**

OH

Plan: Plan #1

Standard Planning Report

28 December, 2010

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-45	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 697-05C Pad, Sec. 5 T6S R97W			
Site Position:		Northing:	637,463.43 usft	Latitude:	39° 33' 5.626 N
From:	Map	Easting:	1,226,150.07 usft	Longitude:	108° 14' 40.963 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.73 °

Well	CC 697-05-45 - Slot C					
Well Position	+N/-S	1,067.77 ft	Northing:	638,505.76 usft	Latitude:	39° 33' 16.179 N
	+E/-W	825.76 ft	Easting:	1,227,007.70 usft	Longitude:	108° 14' 30.421 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,429.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2010/12/16	10.51	65.77	52,312

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	199.39

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	
767.61	7.76	199.39	766.02	-33.03	-11.63	1.50	1.50	0.00	199.39	
5,576.65	7.76	199.39	5,530.98	-645.85	-227.34	0.00	0.00	0.00	0.00	
5,964.86	0.00	0.00	5,918.00	-670.62	-236.06	2.00	-2.00	0.00	180.00	
8,071.86	0.00	0.00	8,025.00	-670.62	-236.06	0.00	0.00	0.00	0.00	CC 697-05-45 Target
9,125.86	0.00	0.00	9,079.00	-670.62	-236.06	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-45	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 1.50									
300.00	0.75	199.39	300.00	-0.31	-0.11	0.33	1.50	1.50	0.00
400.00	2.25	199.39	399.96	-2.78	-0.98	2.94	1.50	1.50	0.00
500.00	3.75	199.39	499.82	-7.71	-2.72	8.18	1.50	1.50	0.00
600.00	5.25	199.39	599.51	-15.11	-5.32	16.02	1.50	1.50	0.00
700.00	6.75	199.39	698.96	-24.97	-8.79	26.48	1.50	1.50	0.00
767.61	7.76	199.39	766.02	-33.03	-11.63	35.02	1.50	1.50	0.00
Start 7.76° Hold At 767.61'									
800.00	7.76	199.39	798.12	-37.16	-13.08	39.39	0.00	0.00	0.00
900.00	7.76	199.39	897.20	-49.90	-17.56	52.90	0.00	0.00	0.00
1,000.00	7.76	199.39	996.29	-62.64	-22.05	66.41	0.00	0.00	0.00
1,100.00	7.76	199.39	1,095.37	-75.39	-26.54	79.92	0.00	0.00	0.00
1,200.00	7.76	199.39	1,194.45	-88.13	-31.02	93.43	0.00	0.00	0.00
1,300.00	7.76	199.39	1,293.54	-100.87	-35.51	106.94	0.00	0.00	0.00
1,400.00	7.76	199.39	1,392.62	-113.62	-39.99	120.45	0.00	0.00	0.00
1,500.00	7.76	199.39	1,491.70	-126.36	-44.48	133.96	0.00	0.00	0.00
1,600.00	7.76	199.39	1,590.79	-139.10	-48.96	147.47	0.00	0.00	0.00
1,700.00	7.76	199.39	1,689.87	-151.85	-53.45	160.98	0.00	0.00	0.00
1,800.00	7.76	199.39	1,788.95	-164.59	-57.93	174.49	0.00	0.00	0.00
1,900.00	7.76	199.39	1,888.04	-177.33	-62.42	188.00	0.00	0.00	0.00
2,000.00	7.76	199.39	1,987.12	-190.08	-66.91	201.51	0.00	0.00	0.00
2,100.00	7.76	199.39	2,086.20	-202.82	-71.39	215.02	0.00	0.00	0.00
2,200.00	7.76	199.39	2,185.29	-215.56	-75.88	228.53	0.00	0.00	0.00
2,300.00	7.76	199.39	2,284.37	-228.30	-80.36	242.04	0.00	0.00	0.00
2,400.00	7.76	199.39	2,383.45	-241.05	-84.85	255.54	0.00	0.00	0.00
2,500.00	7.76	199.39	2,482.54	-253.79	-89.33	269.05	0.00	0.00	0.00
2,600.00	7.76	199.39	2,581.62	-266.53	-93.82	282.56	0.00	0.00	0.00
2,700.00	7.76	199.39	2,680.70	-279.28	-98.30	296.07	0.00	0.00	0.00
2,800.00	7.76	199.39	2,779.79	-292.02	-102.79	309.58	0.00	0.00	0.00
2,900.00	7.76	199.39	2,878.87	-304.76	-107.28	323.09	0.00	0.00	0.00
3,000.00	7.76	199.39	2,977.95	-317.51	-111.76	336.60	0.00	0.00	0.00
3,100.00	7.76	199.39	3,077.04	-330.25	-116.25	350.11	0.00	0.00	0.00
3,200.00	7.76	199.39	3,176.12	-342.99	-120.73	363.62	0.00	0.00	0.00
3,300.00	7.76	199.39	3,275.20	-355.74	-125.22	377.13	0.00	0.00	0.00
3,400.00	7.76	199.39	3,374.29	-368.48	-129.70	390.64	0.00	0.00	0.00
3,500.00	7.76	199.39	3,473.37	-381.22	-134.19	404.15	0.00	0.00	0.00
3,600.00	7.76	199.39	3,572.45	-393.96	-138.67	417.66	0.00	0.00	0.00
3,700.00	7.76	199.39	3,671.54	-406.71	-143.16	431.17	0.00	0.00	0.00
3,800.00	7.76	199.39	3,770.62	-419.45	-147.64	444.68	0.00	0.00	0.00
3,900.00	7.76	199.39	3,869.70	-432.19	-152.13	458.19	0.00	0.00	0.00
4,000.00	7.76	199.39	3,968.78	-444.94	-156.62	471.70	0.00	0.00	0.00
4,100.00	7.76	199.39	4,067.87	-457.68	-161.10	485.21	0.00	0.00	0.00
4,200.00	7.76	199.39	4,166.95	-470.42	-165.59	498.72	0.00	0.00	0.00
4,300.00	7.76	199.39	4,266.03	-483.17	-170.07	512.23	0.00	0.00	0.00
4,400.00	7.76	199.39	4,365.12	-495.91	-174.56	525.73	0.00	0.00	0.00
4,500.00	7.76	199.39	4,464.20	-508.65	-179.04	539.24	0.00	0.00	0.00
4,600.00	7.76	199.39	4,563.28	-521.40	-183.53	552.75	0.00	0.00	0.00
4,700.00	7.76	199.39	4,662.37	-534.14	-188.01	566.26	0.00	0.00	0.00
4,800.00	7.76	199.39	4,761.45	-546.88	-192.50	579.77	0.00	0.00	0.00
4,900.00	7.76	199.39	4,860.53	-559.63	-196.99	593.28	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-45	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)
5,000.00	7.76	199.39	4,959.62	-572.37	-201.47	606.79	0.00	0.00	0.00
5,100.00	7.76	199.39	5,058.70	-585.11	-205.96	620.30	0.00	0.00	0.00
5,200.00	7.76	199.39	5,157.78	-597.85	-210.44	633.81	0.00	0.00	0.00
5,300.00	7.76	199.39	5,256.87	-610.60	-214.93	647.32	0.00	0.00	0.00
5,400.00	7.76	199.39	5,355.95	-623.34	-219.41	660.83	0.00	0.00	0.00
5,500.00	7.76	199.39	5,455.03	-636.08	-223.90	674.34	0.00	0.00	0.00
5,576.65	7.76	199.39	5,530.98	-645.85	-227.34	684.69	0.00	0.00	0.00
Start Drop -2.00									
5,600.00	7.30	199.39	5,554.13	-648.74	-228.35	687.75	2.00	-2.00	0.00
5,700.00	5.30	199.39	5,653.52	-659.08	-231.99	698.72	2.00	-2.00	0.00
5,800.00	3.30	199.39	5,753.24	-666.15	-234.48	706.21	2.00	-2.00	0.00
5,900.00	1.30	199.39	5,853.15	-669.93	-235.81	710.22	2.00	-2.00	0.00
5,964.86	0.00	0.00	5,918.00	-670.62	-236.06	710.96	2.00	-2.00	0.00
Start 0.00° Hold At 5964.86' - Mesaverde									
6,000.00	0.00	0.00	5,953.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,100.00	0.00	0.00	6,053.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,109.86	0.00	0.00	6,063.00	-670.62	-236.06	710.96	0.00	0.00	0.00
Williams Fork									
6,200.00	0.00	0.00	6,153.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,300.00	0.00	0.00	6,253.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,400.00	0.00	0.00	6,353.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,500.00	0.00	0.00	6,453.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,600.00	0.00	0.00	6,553.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,700.00	0.00	0.00	6,653.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,710.86	0.00	0.00	6,664.00	-670.62	-236.06	710.96	0.00	0.00	0.00
TOG = 637842.57, 1226751.51									
6,800.00	0.00	0.00	6,753.14	-670.62	-236.06	710.96	0.00	0.00	0.00
6,900.00	0.00	0.00	6,853.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,000.00	0.00	0.00	6,953.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,100.00	0.00	0.00	7,053.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,200.00	0.00	0.00	7,153.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,300.00	0.00	0.00	7,253.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,400.00	0.00	0.00	7,353.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,500.00	0.00	0.00	7,453.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,600.00	0.00	0.00	7,553.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,700.00	0.00	0.00	7,653.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,800.00	0.00	0.00	7,753.14	-670.62	-236.06	710.96	0.00	0.00	0.00
7,900.00	0.00	0.00	7,853.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,000.00	0.00	0.00	7,953.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,071.86	0.00	0.00	8,025.00	-670.62	-236.06	710.96	0.00	0.00	0.00
Target = 637842.57, 1226751.51									
8,100.00	0.00	0.00	8,053.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,200.00	0.00	0.00	8,153.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,300.00	0.00	0.00	8,253.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,400.00	0.00	0.00	8,353.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,500.00	0.00	0.00	8,453.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,600.00	0.00	0.00	8,553.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,700.00	0.00	0.00	8,653.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,725.86	0.00	0.00	8,679.00	-670.62	-236.06	710.96	0.00	0.00	0.00
Rollins									
8,800.00	0.00	0.00	8,753.14	-670.62	-236.06	710.96	0.00	0.00	0.00
8,900.00	0.00	0.00	8,853.14	-670.62	-236.06	710.96	0.00	0.00	0.00
9,000.00	0.00	0.00	8,953.14	-670.62	-236.06	710.96	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-45	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)
9,100.00	0.00	0.00	9,053.14	-670.62	-236.06	710.96	0.00	0.00	0.00
9,125.86	0.00	0.00	9,079.00	-670.62	-236.06	710.96	0.00	0.00	0.00
PBHL = 637842.57, 1226751.51									

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 697-05-45 Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,025.00	-670.62	-236.06	637,842.57	1,226,751.51	39° 33' 9.551 N	108° 14' 33.434 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,964.86	5,918.00	Mesaverde		0.00	
6,109.86	6,063.00	Williams Fork		0.00	
8,725.86	8,679.00	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 1.50
767.61	766.02	-33.03	-11.63	Start 7.76° Hold At 767.61'
5,576.65	5,530.98	-645.85	-227.34	Start Drop -2.00
5,964.86	5,918.00	-670.62	-236.06	Start 0.00° Hold At 5964.86'
6,710.86	6,664.00	-670.62	-236.06	TOG = 637842.57, 1226751.51
8,071.86	8,025.00	-670.62	-236.06	Target = 637842.57, 1226751.51
9,125.86	9,079.00	-670.62	-236.06	PBHL = 637842.57, 1226751.51