



Scientific Drilling
Rocky Mountain Operations

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



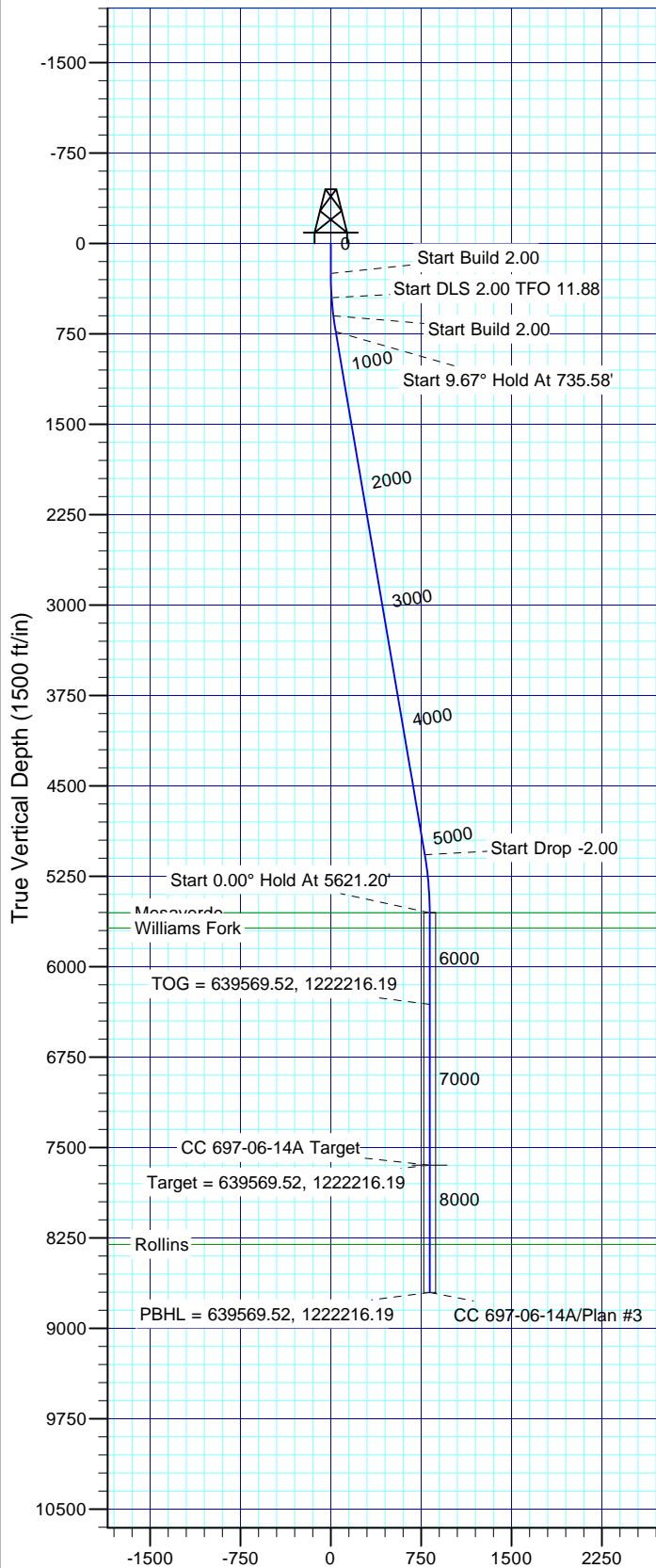
Well Details: CC 697-06-14A

TVD Reference: GL 8184' & RKB 30' @ 8214.00ft (H&P) Ground Level: 8184.00
+N/-S 0.00 +E/-W 0.00 Northing 639472.34 Easting 1223031.77 Latitude 39° 33' 24.539 N Longitude 108° 15' 21.533 W Slot H

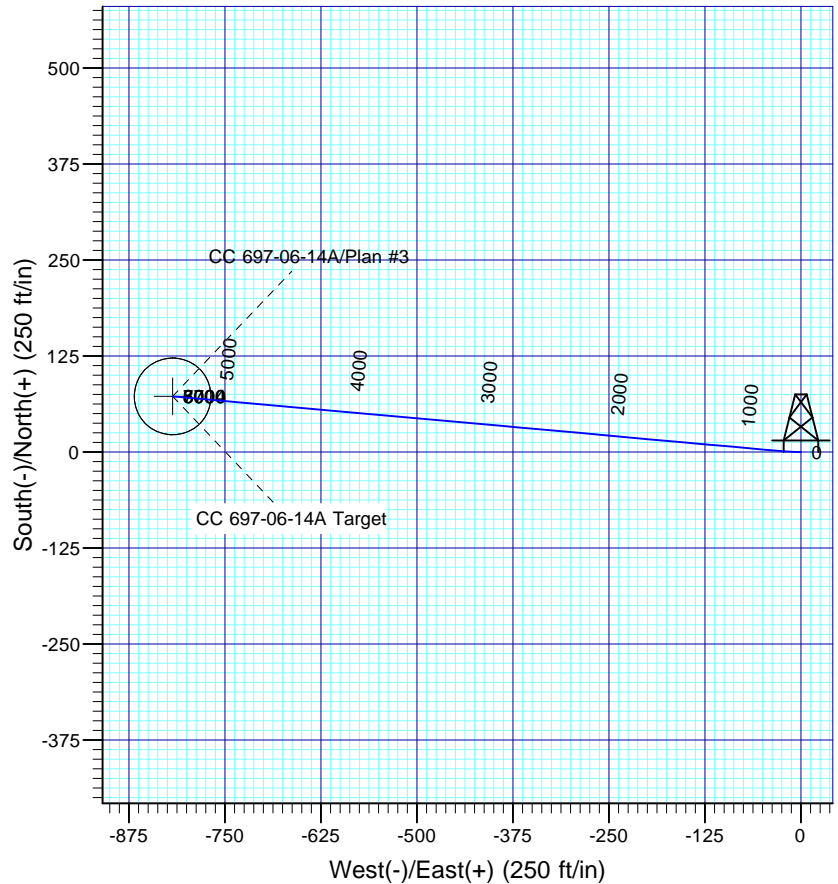


Azimuths to True North
Magnetic North: 10.51°

Magnetic Field
Strength: 52311.9snT
Dip Angle: 65.77°
Date: 2010/12/20
Model: IGRF2005-10



Vertical Section at 275.06° (1500 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5554.00	5621.20	Mesaverde
5679.00	5746.20	Williams Fork
8304.00	8371.20	Rollins

Plan: Plan #3

20:34, 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	VSec	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	450.00	4.00	270.00	449.84	0.00	-6.98	2.00	270.00	6.95	
4	601.86	7.00	275.13	600.98	0.83	-21.49	2.00	11.88	21.48	CC 697-06-14A Target
5	735.58	9.67	275.13	733.27	2.56	-40.80	2.00	0.00	40.87	
6	5137.48	9.67	275.13	5072.57	68.75	-777.57	0.00	0.00	780.61	
7	5621.20	0.00	0.00	5554.00	72.40	-818.15	2.00	180.00	821.35	
8	7715.20	0.00	0.00	7648.00	72.40	-818.15	0.00	0.00	821.35	CC 697-06-14A Target
9	8771.20	0.00	0.00	8704.00	72.40	-818.15	0.00	0.00	821.35	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-06A Pad
CC 697-06-14A - Slot H**

OH

Plan: Plan #3

Standard Planning Report

03 February, 2011

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-14A - Slot H
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 697-06-14A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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 697-06-14A - Slot H					
Well Position	+N/-S	33.95 ft	Northing:	639,472.34 usft	Latitude:	39° 33' 24.539 N
	+E/-W	126.87 ft	Easting:	1,223,031.77 usft	Longitude:	108° 15' 21.533 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 #3			
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	275.06

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	
450.00	4.00	270.00	449.84	0.00	-6.98	2.00	2.00	0.00	270.00	
601.86	7.00	275.13	600.98	0.83	-21.49	2.00	1.98	3.38	11.88	CC 697-06-14A Target
735.58	9.67	275.13	733.27	2.56	-40.80	2.00	2.00	0.00	0.00	
5,137.48	9.67	275.13	5,072.57	68.75	-777.57	0.00	0.00	0.00	0.00	
5,621.20	0.00	0.00	5,554.00	72.40	-818.15	2.00	-2.00	0.00	180.00	
7,715.20	0.00	0.00	7,648.00	72.40	-818.15	0.00	0.00	0.00	0.00	CC 697-06-14A Target
8,771.20	0.00	0.00	8,704.00	72.40	-818.15	0.00	0.00	0.00	0.00	

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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 697-06-14A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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	270.00	300.00	0.00	-0.44	0.43	2.00	2.00	0.00
400.00	3.00	270.00	399.93	0.00	-3.93	3.91	2.00	2.00	0.00
450.00	4.00	270.00	449.84	0.00	-6.98	6.95	2.00	2.00	0.00
Start DLS 2.00 TFO 11.88									
500.00	4.98	272.37	499.68	0.09	-10.89	10.86	2.00	1.97	4.74
600.00	6.96	275.10	599.14	0.81	-21.27	21.26	2.00	1.98	2.73
601.86	7.00	275.13	600.98	0.83	-21.49	21.48	2.00	1.99	1.94
Start Build 2.00									
700.00	8.96	275.13	698.17	2.05	-35.07	35.11	2.00	2.00	0.00
735.58	9.67	275.13	733.27	2.56	-40.80	40.87	2.00	2.00	0.00
Start 9.67° Hold At 735.58'									
800.00	9.67	275.13	796.78	3.53	-51.59	51.70	0.00	0.00	0.00
900.00	9.67	275.13	895.36	5.04	-68.32	68.50	0.00	0.00	0.00
1,000.00	9.67	275.13	993.94	6.54	-85.06	85.31	0.00	0.00	0.00
1,100.00	9.67	275.13	1,092.51	8.04	-101.80	102.11	0.00	0.00	0.00
1,200.00	9.67	275.13	1,191.09	9.55	-118.54	118.92	0.00	0.00	0.00
1,300.00	9.67	275.13	1,289.67	11.05	-135.27	135.72	0.00	0.00	0.00
1,400.00	9.67	275.13	1,388.25	12.55	-152.01	152.53	0.00	0.00	0.00
1,500.00	9.67	275.13	1,486.83	14.06	-168.75	169.33	0.00	0.00	0.00
1,600.00	9.67	275.13	1,585.40	15.56	-185.49	186.14	0.00	0.00	0.00
1,700.00	9.67	275.13	1,683.98	17.06	-202.22	202.94	0.00	0.00	0.00
1,800.00	9.67	275.13	1,782.56	18.57	-218.96	219.75	0.00	0.00	0.00
1,900.00	9.67	275.13	1,881.14	20.07	-235.70	236.55	0.00	0.00	0.00
2,000.00	9.67	275.13	1,979.72	21.58	-252.44	253.36	0.00	0.00	0.00
2,100.00	9.67	275.13	2,078.29	23.08	-269.17	270.16	0.00	0.00	0.00
2,200.00	9.67	275.13	2,176.87	24.58	-285.91	286.97	0.00	0.00	0.00
2,300.00	9.67	275.13	2,275.45	26.09	-302.65	303.77	0.00	0.00	0.00
2,400.00	9.67	275.13	2,374.03	27.59	-319.39	320.58	0.00	0.00	0.00
2,500.00	9.67	275.13	2,472.60	29.09	-336.12	337.38	0.00	0.00	0.00
2,600.00	9.67	275.13	2,571.18	30.60	-352.86	354.19	0.00	0.00	0.00
2,700.00	9.67	275.13	2,669.76	32.10	-369.60	370.99	0.00	0.00	0.00
2,800.00	9.67	275.13	2,768.34	33.61	-386.34	387.80	0.00	0.00	0.00
2,900.00	9.67	275.13	2,866.92	35.11	-403.07	404.60	0.00	0.00	0.00
3,000.00	9.67	275.13	2,965.49	36.61	-419.81	421.41	0.00	0.00	0.00
3,100.00	9.67	275.13	3,064.07	38.12	-436.55	438.21	0.00	0.00	0.00
3,200.00	9.67	275.13	3,162.65	39.62	-453.29	455.02	0.00	0.00	0.00
3,300.00	9.67	275.13	3,261.23	41.12	-470.02	471.82	0.00	0.00	0.00
3,400.00	9.67	275.13	3,359.81	42.63	-486.76	488.63	0.00	0.00	0.00
3,500.00	9.67	275.13	3,458.38	44.13	-503.50	505.43	0.00	0.00	0.00
3,600.00	9.67	275.13	3,556.96	45.63	-520.24	522.24	0.00	0.00	0.00
3,700.00	9.67	275.13	3,655.54	47.14	-536.98	539.04	0.00	0.00	0.00
3,800.00	9.67	275.13	3,754.12	48.64	-553.71	555.84	0.00	0.00	0.00
3,900.00	9.67	275.13	3,852.69	50.15	-570.45	572.65	0.00	0.00	0.00
4,000.00	9.67	275.13	3,951.27	51.65	-587.19	589.45	0.00	0.00	0.00
4,100.00	9.67	275.13	4,049.85	53.15	-603.93	606.26	0.00	0.00	0.00
4,200.00	9.67	275.13	4,148.43	54.66	-620.66	623.06	0.00	0.00	0.00
4,300.00	9.67	275.13	4,247.01	56.16	-637.40	639.87	0.00	0.00	0.00
4,400.00	9.67	275.13	4,345.58	57.66	-654.14	656.67	0.00	0.00	0.00
4,500.00	9.67	275.13	4,444.16	59.17	-670.88	673.48	0.00	0.00	0.00

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Planning Report

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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 697-06-14A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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)
4,600.00	9.67	275.13	4,542.74	60.67	-687.61	690.28	0.00	0.00	0.00
4,700.00	9.67	275.13	4,641.32	62.18	-704.35	707.09	0.00	0.00	0.00
4,800.00	9.67	275.13	4,739.90	63.68	-721.09	723.89	0.00	0.00	0.00
4,900.00	9.67	275.13	4,838.47	65.18	-737.83	740.70	0.00	0.00	0.00
5,000.00	9.67	275.13	4,937.05	66.69	-754.56	757.50	0.00	0.00	0.00
5,100.00	9.67	275.13	5,035.63	68.19	-771.30	774.31	0.00	0.00	0.00
5,137.48	9.67	275.13	5,072.57	68.75	-777.57	780.61	0.00	0.00	0.00
Start Drop -2.00									
5,200.00	8.42	275.13	5,134.32	69.63	-787.37	790.44	2.00	-2.00	0.00
5,300.00	6.42	275.13	5,233.47	70.79	-800.24	803.36	2.00	-2.00	0.00
5,400.00	4.42	275.13	5,333.02	71.64	-809.65	812.81	2.00	-2.00	0.00
5,500.00	2.42	275.13	5,432.84	72.17	-815.60	818.78	2.00	-2.00	0.00
5,600.00	0.42	275.13	5,532.80	72.39	-818.07	821.27	2.00	-2.00	0.00
5,621.20	0.00	0.00	5,554.00	72.40	-818.15	821.35	2.00	-2.00	0.00
Start 0.00° Hold At 5621.20' - Mesaverde									
5,700.00	0.00	0.00	5,632.80	72.40	-818.15	821.35	0.00	0.00	0.00
5,746.20	0.00	0.00	5,679.00	72.40	-818.15	821.35	0.00	0.00	0.00
Williams Fork									
5,800.00	0.00	0.00	5,732.80	72.40	-818.15	821.35	0.00	0.00	0.00
5,900.00	0.00	0.00	5,832.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,000.00	0.00	0.00	5,932.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,100.00	0.00	0.00	6,032.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,200.00	0.00	0.00	6,132.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,300.00	0.00	0.00	6,232.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,381.20	0.00	0.00	6,314.00	72.40	-818.15	821.35	0.00	0.00	0.00
TOG = 639569.52, 1222216.19									
6,400.00	0.00	0.00	6,332.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,500.00	0.00	0.00	6,432.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,600.00	0.00	0.00	6,532.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,700.00	0.00	0.00	6,632.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,800.00	0.00	0.00	6,732.80	72.40	-818.15	821.35	0.00	0.00	0.00
6,900.00	0.00	0.00	6,832.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,000.00	0.00	0.00	6,932.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,100.00	0.00	0.00	7,032.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,200.00	0.00	0.00	7,132.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,300.00	0.00	0.00	7,232.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,400.00	0.00	0.00	7,332.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,500.00	0.00	0.00	7,432.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,600.00	0.00	0.00	7,532.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,700.00	0.00	0.00	7,632.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,715.20	0.00	0.00	7,648.00	72.40	-818.15	821.35	0.00	0.00	0.00
Target = 639569.52, 1222216.19									
7,800.00	0.00	0.00	7,732.80	72.40	-818.15	821.35	0.00	0.00	0.00
7,900.00	0.00	0.00	7,832.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,000.00	0.00	0.00	7,932.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,100.00	0.00	0.00	8,032.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,200.00	0.00	0.00	8,132.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,300.00	0.00	0.00	8,232.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,371.20	0.00	0.00	8,304.00	72.40	-818.15	821.35	0.00	0.00	0.00
Rollins									
8,400.00	0.00	0.00	8,332.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,500.00	0.00	0.00	8,432.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,600.00	0.00	0.00	8,532.80	72.40	-818.15	821.35	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-14A - Slot H
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 697-06-14A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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)
8,700.00	0.00	0.00	8,632.80	72.40	-818.15	821.35	0.00	0.00	0.00
8,771.20	0.00	0.00	8,704.00	72.40	-818.15	821.35	0.00	0.00	0.00
PBHL = 639569.52, 1222216.19									

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 697-06-14A Target	0.00	0.00	7,648.00	72.40	-818.15	639,569.53	1,222,216.19	39° 33' 25.254 N	108° 15' 31.979 W
- plan hits target center									
- Circle (radius 50.00)									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,621.20	5,554.00	Mesaverde		0.00		
5,746.20	5,679.00	Williams Fork		0.00		
8,371.20	8,304.00	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
450.00	449.84	0.00	-6.98	Start DLS 2.00 TFO 11.88
601.86	600.98	0.83	-21.49	Start Build 2.00
735.58	733.27	2.56	-40.80	Start 9.67° Hold At 735.58'
5,137.48	5,072.57	68.75	-777.57	Start Drop -2.00
5,621.20	5,554.00	72.40	-818.15	Start 0.00° Hold At 5621.20'
6,381.20	6,314.00	72.40	-818.15	TOG = 639569.52, 1222216.19
7,715.20	7,648.00	72.40	-818.15	Target = 639569.52, 1222216.19
8,771.20	8,704.00	72.40	-818.15	PBHL = 639569.52, 1222216.19