



Scientific Drilling

Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-08-53 Pad



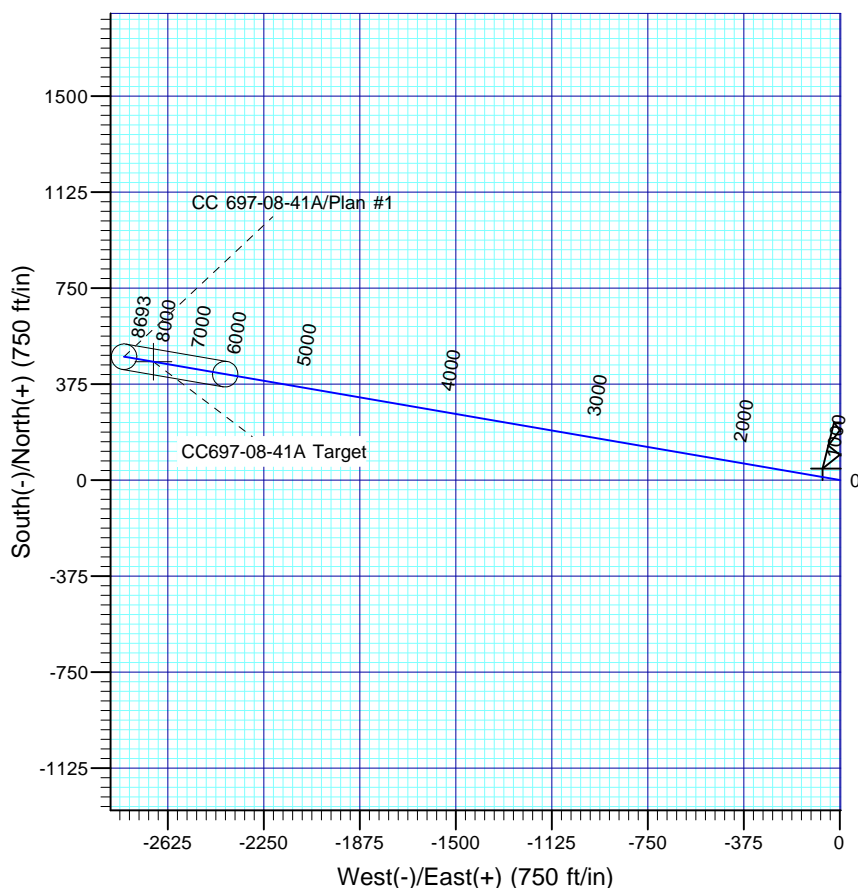
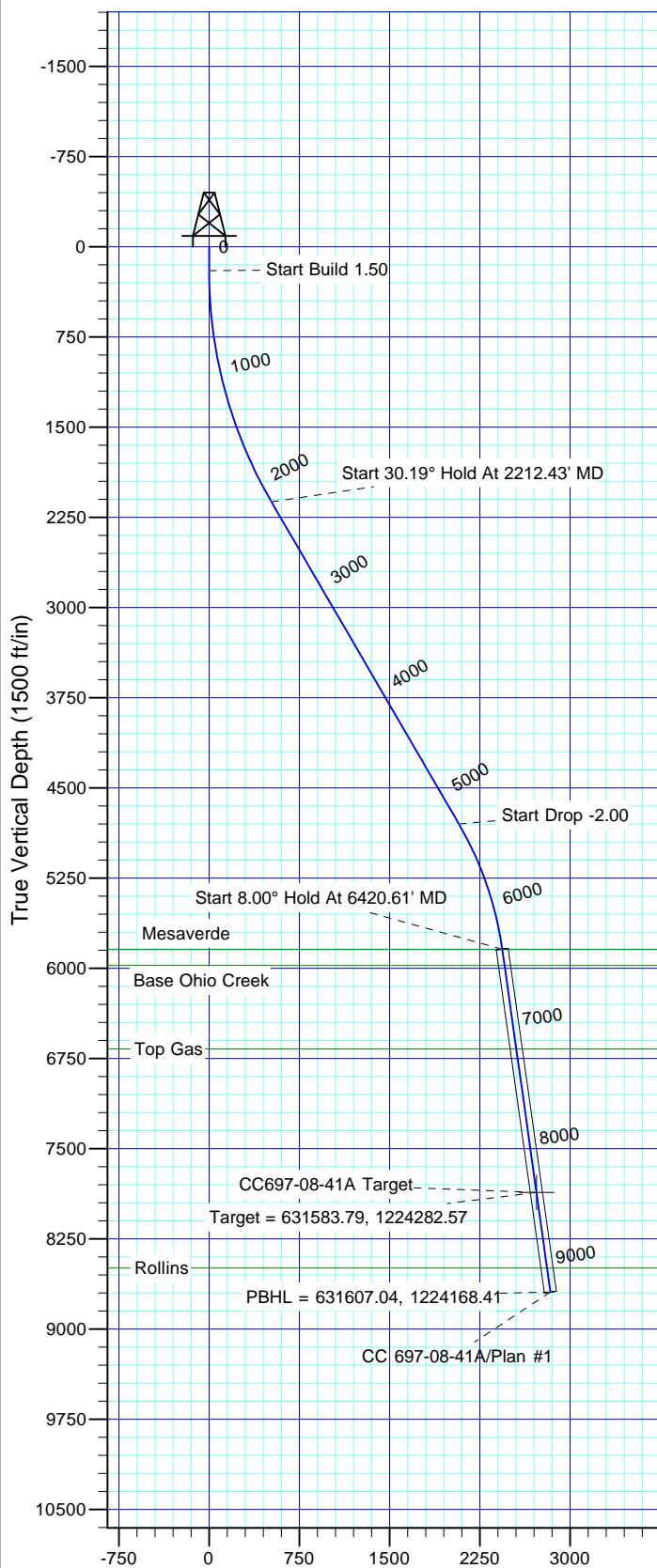
Well Details: CC 697-08-41A

TVD Reference: GL 8411' & RKB 30' @ 8441.00ft (H&P) Ground Level: 8411.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	631040.78	1226948.88	39° 32' 2.414 N	108° 14' 28.296 W	J

T M Azimuths to True North
Magnetic North: 10.54°

Magnetic Field
Strength: 52328.8snT
Dip Angle: 65.76°
Date: 9/1/2010
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5841.00	6420.60	Mesaverde
5976.00	6556.93	Base Ohio Creek
6671.00	7258.76	Top Gas
8493.00	9098.67	Rollins

Plan: Plan #1

3:18, September 02 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

CC 697-08-41A				Slot	J
	NAD83	NAD83	NAD27	NAD27	
	CO. CENTRAL	CO. CENTRAL	CO. CENTRAL	CO. CENTRAL	
	NORTH (FEET)	EAST (FEET)	NORTH (FEET)	EAST (FEET)	
SHL	1631050.19	2226788.50	631040.78	1226948.88	
Top Gas	1631559.77	2224286.44	631550.33	1224446.86	
BHL	1631616.48	2224007.98	631607.04	1224168.40	

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	2212.43	30.19	279.78	2120.61	88.01	-510.45	1.50	279.78	517.98	
4	5311.28	30.19	279.78	4799.24	352.75	-2045.94	0.00	0.00	2076.13	
5	6420.61	8.00	279.78	5841.00	414.02	-2401.30	2.00	180.00	2436.73	
6	8463.49	8.00	279.78	7864.00	462.32	-2681.48	0.00	0.00	2721.05	CC697-08-41A Target
7	9300.63	8.00	279.78	8693.00	482.12	-2796.30	0.00	0.00	2837.56	



OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08-53 Pad
CC 697-08-41A - Slot J**

OH

Plan: Plan #1

Standard Planning Report

02 September, 2010



Database:	Rockies-R5000.1	Local Co-ordinate Reference:	Well CC 697-08-41A - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8411' & RKB 30' @ 8441.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8411' & RKB 30' @ 8441.00ft (H&P)
Site:	Cascade Creek 697-08-53 Pad	North Reference:	True
Well:	CC 697-08-41A	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 697-08-53 Pad, Sec. 8 T6S R97W			
Site Position:		Northing:	630,837.78 usft	Latitude:	39° 32' 0.393 N
From:	Map	Easting:	1,226,897.42 usft	Longitude:	108° 14' 28.874 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.73 °

Well	CC 697-08-41A - Slot J					
Well Position	+N/-S	204.46 ft	Northing:	631,040.78 usft	Latitude:	39° 32' 2.414 N
	+E/-W	45.31 ft	Easting:	1,226,948.88 usft	Longitude:	108° 14' 28.296 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,411.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	9/1/2010	10.54	65.76	52,329

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	279.78

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	
2,212.43	30.19	279.78	2,120.62	88.01	-510.45	1.50	1.50	0.00	279.78	
5,311.28	30.19	279.78	4,799.24	352.75	-2,045.94	0.00	0.00	0.00	0.00	
6,420.61	8.00	279.78	5,841.00	414.02	-2,401.30	2.00	-2.00	0.00	180.00	
8,463.49	8.00	279.78	7,864.00	462.32	-2,681.48	0.00	0.00	0.00	0.00	CC697-08-41A Targe
9,300.63	8.00	279.78	8,693.00	482.12	-2,796.30	0.00	0.00	0.00	0.00	

Database:	Rockies-R5000.1	Local Co-ordinate Reference:	Well CC 697-08-41A - Slot J
Company:	OXY USA RMAT	TVD Reference:	GL 8411' & RKB 30' @ 8441.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8411' & RKB 30' @ 8441.00ft (H&P)
Site:	Cascade Creek 697-08-53 Pad	North Reference:	True
Well:	CC 697-08-41A	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
Start Build 1.50									
300.00	1.50	279.78	299.99	0.22	-1.29	1.31	1.50	1.50	0.00
400.00	3.00	279.78	399.91	0.89	-5.16	5.23	1.50	1.50	0.00
500.00	4.50	279.78	499.69	2.00	-11.60	11.77	1.50	1.50	0.00
600.00	6.00	279.78	599.27	3.56	-20.62	20.92	1.50	1.50	0.00
700.00	7.50	279.78	698.57	5.55	-32.20	32.68	1.50	1.50	0.00
800.00	9.00	279.78	797.54	7.99	-46.34	47.03	1.50	1.50	0.00
900.00	10.50	279.78	896.09	10.87	-63.03	63.96	1.50	1.50	0.00
1,000.00	12.00	279.78	994.16	14.18	-82.26	83.47	1.50	1.50	0.00
1,100.00	13.50	279.78	1,091.70	17.93	-104.00	105.54	1.50	1.50	0.00
1,200.00	15.00	279.78	1,188.62	22.11	-128.26	130.15	1.50	1.50	0.00
1,300.00	16.50	279.78	1,284.86	26.73	-155.01	157.30	1.50	1.50	0.00
1,400.00	18.00	279.78	1,380.36	31.76	-184.23	186.95	1.50	1.50	0.00
1,500.00	19.50	279.78	1,475.05	37.23	-215.91	219.09	1.50	1.50	0.00
1,600.00	21.00	279.78	1,568.86	43.11	-250.02	253.70	1.50	1.50	0.00
1,700.00	22.50	279.78	1,661.74	49.40	-286.53	290.76	1.50	1.50	0.00
1,800.00	24.00	279.78	1,753.62	56.11	-325.43	330.23	1.50	1.50	0.00
1,900.00	25.50	279.78	1,844.43	63.22	-366.69	372.10	1.50	1.50	0.00
2,000.00	27.00	279.78	1,934.12	70.74	-410.27	416.32	1.50	1.50	0.00
2,100.00	28.50	279.78	2,022.61	78.65	-456.15	462.88	1.50	1.50	0.00
2,200.00	30.00	279.78	2,109.86	86.95	-504.30	511.75	1.50	1.50	0.00
2,212.43	30.19	279.78	2,120.62	88.01	-510.45	517.98	1.50	1.50	0.00
Start 30.19° Hold At 2212.43' MD									
2,300.00	30.19	279.78	2,196.31	95.49	-553.84	562.01	0.00	0.00	0.00
2,400.00	30.19	279.78	2,282.75	104.03	-603.39	612.29	0.00	0.00	0.00
2,500.00	30.19	279.78	2,369.19	112.58	-652.94	662.57	0.00	0.00	0.00
2,600.00	30.19	279.78	2,455.63	121.12	-702.49	712.85	0.00	0.00	0.00
2,700.00	30.19	279.78	2,542.07	129.66	-752.04	763.14	0.00	0.00	0.00
2,800.00	30.19	279.78	2,628.51	138.20	-801.59	813.42	0.00	0.00	0.00
2,900.00	30.19	279.78	2,714.95	146.75	-851.14	863.70	0.00	0.00	0.00
3,000.00	30.19	279.78	2,801.38	155.29	-900.69	913.98	0.00	0.00	0.00
3,100.00	30.19	279.78	2,887.82	163.83	-950.24	964.26	0.00	0.00	0.00
3,200.00	30.19	279.78	2,974.26	172.38	-999.79	1,014.54	0.00	0.00	0.00
3,300.00	30.19	279.78	3,060.70	180.92	-1,049.34	1,064.83	0.00	0.00	0.00
3,400.00	30.19	279.78	3,147.14	189.46	-1,098.89	1,115.11	0.00	0.00	0.00
3,500.00	30.19	279.78	3,233.58	198.01	-1,148.44	1,165.39	0.00	0.00	0.00
3,600.00	30.19	279.78	3,320.02	206.55	-1,197.99	1,215.67	0.00	0.00	0.00
3,700.00	30.19	279.78	3,406.46	215.09	-1,247.54	1,265.95	0.00	0.00	0.00
3,800.00	30.19	279.78	3,492.90	223.64	-1,297.10	1,316.23	0.00	0.00	0.00
3,900.00	30.19	279.78	3,579.34	232.18	-1,346.65	1,366.51	0.00	0.00	0.00
4,000.00	30.19	279.78	3,665.78	240.72	-1,396.20	1,416.80	0.00	0.00	0.00
4,100.00	30.19	279.78	3,752.22	249.27	-1,445.75	1,467.08	0.00	0.00	0.00
4,200.00	30.19	279.78	3,838.66	257.81	-1,495.30	1,517.36	0.00	0.00	0.00
4,300.00	30.19	279.78	3,925.10	266.35	-1,544.85	1,567.64	0.00	0.00	0.00
4,400.00	30.19	279.78	4,011.54	274.90	-1,594.40	1,617.92	0.00	0.00	0.00
4,500.00	30.19	279.78	4,097.97	283.44	-1,643.95	1,668.20	0.00	0.00	0.00
4,600.00	30.19	279.78	4,184.41	291.98	-1,693.50	1,718.49	0.00	0.00	0.00
4,700.00	30.19	279.78	4,270.85	300.52	-1,743.05	1,768.77	0.00	0.00	0.00
4,800.00	30.19	279.78	4,357.29	309.07	-1,792.60	1,819.05	0.00	0.00	0.00
4,900.00	30.19	279.78	4,443.73	317.61	-1,842.15	1,869.33	0.00	0.00	0.00
5,000.00	30.19	279.78	4,530.17	326.15	-1,891.70	1,919.61	0.00	0.00	0.00

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Site:	Cascade Creek 697-08-53 Pad	North Reference:	True
Well:	CC 697-08-41A	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	30.19	279.78	4,616.61	334.70	-1,941.25	1,969.89	0.00	0.00	0.00
5,200.00	30.19	279.78	4,703.05	343.24	-1,990.80	2,020.18	0.00	0.00	0.00
5,300.00	30.19	279.78	4,789.49	351.78	-2,040.35	2,070.46	0.00	0.00	0.00
5,311.28	30.19	279.78	4,799.24	352.75	-2,045.94	2,076.13	0.00	0.00	0.00
Start Drop -2.00									
5,400.00	28.41	279.78	4,876.61	360.12	-2,088.73	2,119.54	2.00	-2.00	0.00
5,500.00	26.41	279.78	4,965.37	367.95	-2,134.09	2,165.58	2.00	-2.00	0.00
5,600.00	24.41	279.78	5,055.69	375.24	-2,176.38	2,208.49	2.00	-2.00	0.00
5,700.00	22.41	279.78	5,147.46	381.99	-2,215.53	2,248.22	2.00	-2.00	0.00
5,800.00	20.41	279.78	5,240.55	388.19	-2,251.51	2,284.73	2.00	-2.00	0.00
5,900.00	18.41	279.78	5,334.86	393.84	-2,284.26	2,317.96	2.00	-2.00	0.00
6,000.00	16.41	279.78	5,430.27	398.92	-2,313.75	2,347.89	2.00	-2.00	0.00
6,100.00	14.41	279.78	5,526.67	403.44	-2,339.94	2,374.46	2.00	-2.00	0.00
6,200.00	12.41	279.78	5,623.94	407.38	-2,362.79	2,397.65	2.00	-2.00	0.00
6,300.00	10.41	279.78	5,721.96	410.74	-2,382.29	2,417.44	2.00	-2.00	0.00
6,400.00	8.41	279.78	5,820.61	413.52	-2,398.41	2,433.79	2.00	-2.00	0.00
6,420.60	8.00	279.78	5,841.00	414.02	-2,401.30	2,436.73	2.00	-2.00	0.00
Start 8.00° Hold At 6420.61' MD - Mesaverde									
6,500.00	8.00	279.78	5,919.62	415.89	-2,412.19	2,447.78	0.00	0.00	0.00
6,556.93	8.00	279.78	5,976.00	417.24	-2,420.00	2,455.71	0.00	0.00	0.00
Base Ohio Creek									
6,600.00	8.00	279.78	6,018.65	418.26	-2,425.91	2,461.70	0.00	0.00	0.00
6,700.00	8.00	279.78	6,117.68	420.62	-2,439.62	2,475.62	0.00	0.00	0.00
6,800.00	8.00	279.78	6,216.70	422.99	-2,453.34	2,489.53	0.00	0.00	0.00
6,900.00	8.00	279.78	6,315.73	425.35	-2,467.05	2,503.45	0.00	0.00	0.00
7,000.00	8.00	279.78	6,414.76	427.72	-2,480.77	2,517.37	0.00	0.00	0.00
7,100.00	8.00	279.78	6,513.78	430.08	-2,494.48	2,531.29	0.00	0.00	0.00
7,200.00	8.00	279.78	6,612.81	432.45	-2,508.20	2,545.20	0.00	0.00	0.00
7,258.76	8.00	279.78	6,671.00	433.84	-2,516.26	2,553.38	0.00	0.00	0.00
Top Gas									
7,300.00	8.00	279.78	6,711.84	434.81	-2,521.91	2,559.12	0.00	0.00	0.00
7,400.00	8.00	279.78	6,810.86	437.18	-2,535.63	2,573.04	0.00	0.00	0.00
7,500.00	8.00	279.78	6,909.89	439.54	-2,549.34	2,586.96	0.00	0.00	0.00
7,600.00	8.00	279.78	7,008.92	441.90	-2,563.06	2,600.87	0.00	0.00	0.00
7,700.00	8.00	279.78	7,107.95	444.27	-2,576.77	2,614.79	0.00	0.00	0.00
7,800.00	8.00	279.78	7,206.97	446.63	-2,590.49	2,628.71	0.00	0.00	0.00
7,900.00	8.00	279.78	7,306.00	449.00	-2,604.20	2,642.63	0.00	0.00	0.00
8,000.00	8.00	279.78	7,405.03	451.36	-2,617.92	2,656.54	0.00	0.00	0.00
8,100.00	8.00	279.78	7,504.05	453.73	-2,631.63	2,670.46	0.00	0.00	0.00
8,200.00	8.00	279.78	7,603.08	456.09	-2,645.35	2,684.38	0.00	0.00	0.00
8,300.00	8.00	279.78	7,702.11	458.46	-2,659.06	2,698.29	0.00	0.00	0.00
8,400.00	8.00	279.78	7,801.13	460.82	-2,672.78	2,712.21	0.00	0.00	0.00
8,463.49	8.00	279.78	7,864.00	462.32	-2,681.48	2,721.05	0.00	0.00	0.00
Target = 631583.79, 1224282.57									
8,500.00	8.00	279.78	7,900.16	463.19	-2,686.49	2,726.13	0.00	0.00	0.00
8,600.00	8.00	279.78	7,999.19	465.55	-2,700.21	2,740.05	0.00	0.00	0.00
8,700.00	8.00	279.78	8,098.21	467.92	-2,713.92	2,753.96	0.00	0.00	0.00
8,800.00	8.00	279.78	8,197.24	470.28	-2,727.64	2,767.88	0.00	0.00	0.00
8,900.00	8.00	279.78	8,296.27	472.64	-2,741.35	2,781.80	0.00	0.00	0.00
9,000.00	8.00	279.78	8,395.29	475.01	-2,755.07	2,795.72	0.00	0.00	0.00
9,098.67	8.00	279.78	8,493.00	477.34	-2,768.60	2,809.45	0.00	0.00	0.00
Rollins									
9,100.00	8.00	279.78	8,494.32	477.37	-2,768.78	2,809.63	0.00	0.00	0.00

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Project:	Garfield County, CO NAD27	MD Reference:	GL 8411' & RKB 30' @ 8441.00ft (H&P)
Site:	Cascade Creek 697-08-53 Pad	North Reference:	True
Well:	CC 697-08-41A	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	8.00	279.78	8,593.35	479.74	-2,782.50	2,823.55	0.00	0.00	0.00
9,300.00	8.00	279.78	8,692.37	482.10	-2,796.21	2,837.47	0.00	0.00	0.00
9,300.63	8.00	279.78	8,693.00	482.12	-2,796.30	2,837.56	0.00	0.00	0.00
PBHL = 631607.04, 1224168.41									

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									
CC697-08-41A Target	-8.00	279.78	7,864.00	462.32	-2,681.48	631,583.79	1,224,282.57	39° 32' 6.982 N	108° 15' 2.521 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,420.60	5,841.00	Mesaverde		0.00	
6,556.93	5,976.00	Base Ohio Creek		0.00	
7,258.76	6,671.00	Top Gas		0.00	
9,098.67	8,493.00	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 1.50
2,212.43	2,120.62	88.01	-510.45	Start 30.19° Hold At 2212.43' MD
5,311.28	4,799.24	352.75	-2,045.94	Start Drop -2.00
6,420.61	5,841.00	414.02	-2,401.30	Start 8.00° Hold At 6420.61' MD
8,463.49	7,864.00	462.32	-2,681.48	Target = 631583.79, 1224282.57
9,300.63	8,693.00	482.12	-2,796.30	PBHL = 631607.04, 1224168.41