



Scientific Drilling
Rocky Mountain Operations

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



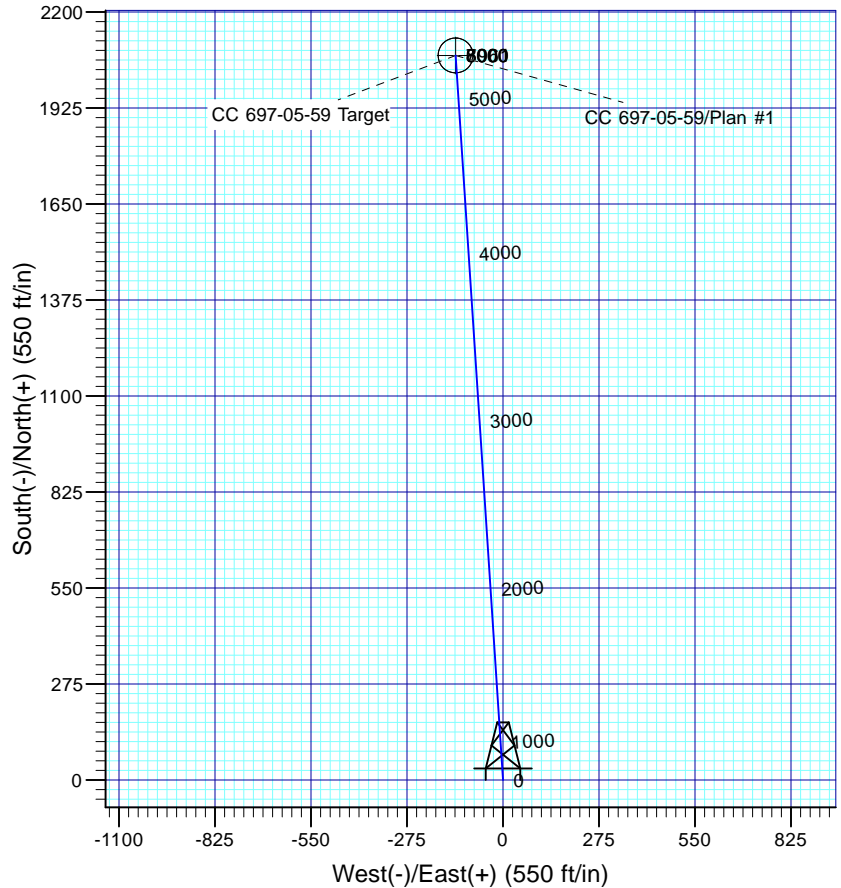
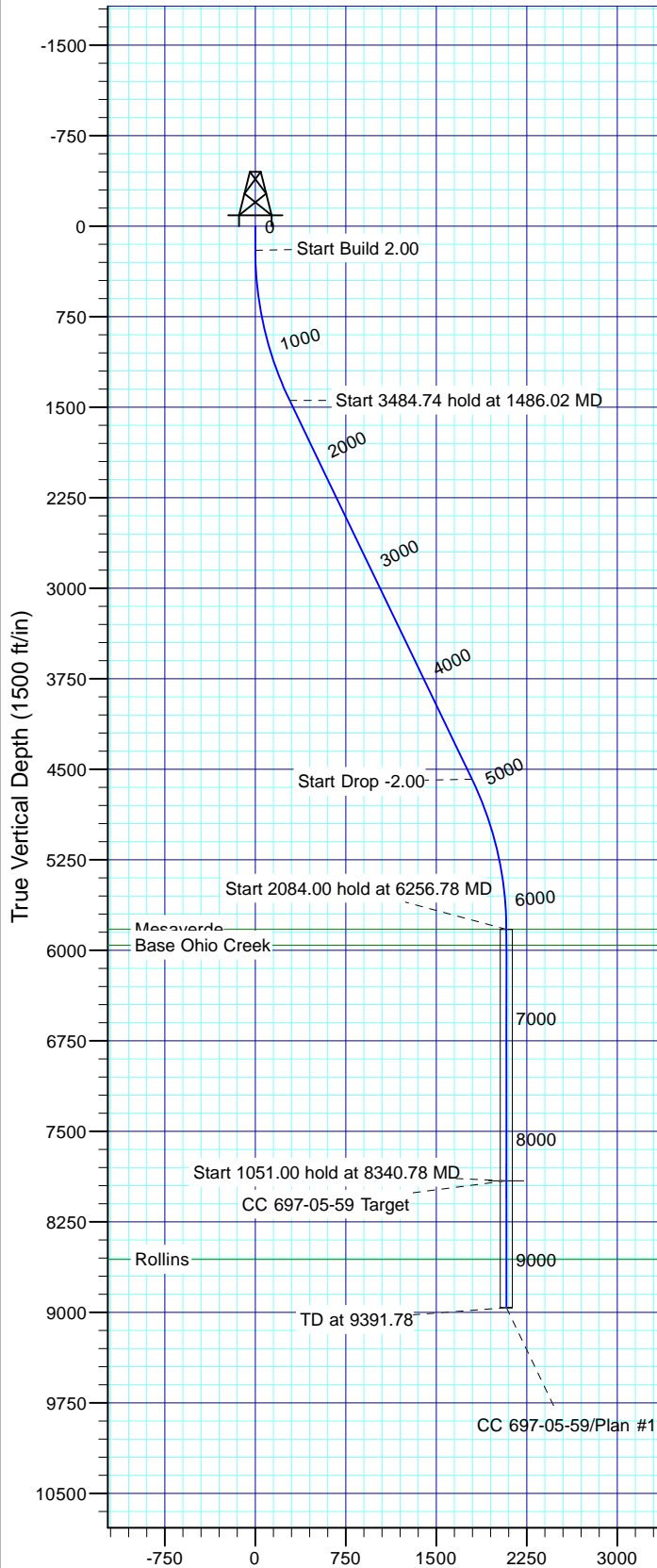
Well Details: CC 697-05-59

TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig) Ground Level: 8401.00
+N/-S 0.00 +E/-W 0.00 Northing 634639.26 Easting 1225754.12 Latitude 39° 32' 37.607 N Longitude 108° 14' 44.926 W Slot E



Azimuths to True North
Magnetic North: 10.48°

Magnetic Field
Strength: 52229.6snT
Dip Angle: 65.73°
Date: 5/24/2011
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5826.00	6256.78	Mesaverde
5956.00	6386.78	Base Ohio Creek
8561.00	8991.78	Rollins

Plan: Plan #1

15:38, May 25 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1486.02	25.72	356.24	1443.26	283.23	-18.59	2.00	356.24	283.84	
4	4970.76	25.72	356.24	4582.74	1792.28	-117.66	0.00	0.001796.14		
5	6256.78	0.00	0.00	5826.00	2075.51	-136.25	2.00	180.002079.98		
6	8340.78	0.00	0.00	7910.00	2075.51	-136.25	0.00	0.002079.98		
7	9391.78	0.00	0.00	8961.00	2075.51	-136.25	0.00	0.002079.98		CC 697-05-59 Target

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-59 - Slot E**

OH

Plan: Plan #1

Standard Planning Report

25 May, 2011





Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-05-59 - Slot E
Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-05-59	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 697-08A Pad, Sec 8 T6S R97W				
Site Position:		Northing:	635,765.16 usft	Latitude:	39° 32' 48.728 N
From:	Lat/Long	Easting:	1,225,748.33 usft	Longitude:	108° 14' 45.434 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.73 °

Well	CC 697-05-59 - Slot E					
Well Position	+N/-S	-1,125.21 ft	Northing:	634,639.27 usft	Latitude:	39° 32' 37.607 N
	+E/-W	39.82 ft	Easting:	1,225,754.12 usft	Longitude:	108° 14' 44.926 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,401.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/24/2011	10.48	65.73	52,230

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	356.24

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	
1,486.02	25.72	356.24	1,443.26	283.23	-18.59	2.00	2.00	0.00	356.24	
4,970.76	25.72	356.24	4,582.74	1,792.28	-117.66	0.00	0.00	0.00	0.00	
6,256.78	0.00	0.00	5,826.00	2,075.51	-136.25	2.00	-2.00	0.00	180.00	
8,340.78	0.00	0.00	7,910.00	2,075.51	-136.25	0.00	0.00	0.00	0.00	CC 697-05-59 Target
9,391.78	0.00	0.00	8,961.00	2,075.51	-136.25	0.00	0.00	0.00	0.00	



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-05-59 - Slot E
Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-05-59	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
300.00	2.00	356.24	299.98	1.74	-0.11	1.75	2.00	2.00	0.00
400.00	4.00	356.24	399.84	6.96	-0.46	6.98	2.00	2.00	0.00
500.00	6.00	356.24	499.45	15.66	-1.03	15.69	2.00	2.00	0.00
600.00	8.00	356.24	598.70	27.82	-1.83	27.88	2.00	2.00	0.00
700.00	10.00	356.24	697.47	43.43	-2.85	43.52	2.00	2.00	0.00
800.00	12.00	356.24	795.62	62.47	-4.10	62.60	2.00	2.00	0.00
900.00	14.00	356.24	893.06	84.91	-5.57	85.10	2.00	2.00	0.00
1,000.00	16.00	356.24	989.64	110.74	-7.27	110.98	2.00	2.00	0.00
1,100.00	18.00	356.24	1,085.27	139.91	-9.18	140.21	2.00	2.00	0.00
1,200.00	20.00	356.24	1,179.82	172.40	-11.32	172.77	2.00	2.00	0.00
1,300.00	22.00	356.24	1,273.17	208.15	-13.67	208.60	2.00	2.00	0.00
1,400.00	24.00	356.24	1,365.21	247.14	-16.22	247.67	2.00	2.00	0.00
1,486.02	25.72	356.24	1,443.26	283.23	-18.59	283.84	2.00	2.00	0.00
1,500.00	25.72	356.24	1,455.86	289.28	-18.99	289.90	0.00	0.00	0.00
1,600.00	25.72	356.24	1,545.95	332.59	-21.83	333.30	0.00	0.00	0.00
1,700.00	25.72	356.24	1,636.04	375.89	-24.68	376.70	0.00	0.00	0.00
1,800.00	25.72	356.24	1,726.13	419.19	-27.52	420.10	0.00	0.00	0.00
1,900.00	25.72	356.24	1,816.22	462.50	-30.36	463.49	0.00	0.00	0.00
2,000.00	25.72	356.24	1,906.32	505.80	-33.21	506.89	0.00	0.00	0.00
2,100.00	25.72	356.24	1,996.41	549.11	-36.05	550.29	0.00	0.00	0.00
2,200.00	25.72	356.24	2,086.50	592.41	-38.89	593.69	0.00	0.00	0.00
2,300.00	25.72	356.24	2,176.59	635.72	-41.73	637.09	0.00	0.00	0.00
2,400.00	25.72	356.24	2,266.69	679.02	-44.58	680.48	0.00	0.00	0.00
2,500.00	25.72	356.24	2,356.78	722.33	-47.42	723.88	0.00	0.00	0.00
2,600.00	25.72	356.24	2,446.87	765.63	-50.26	767.28	0.00	0.00	0.00
2,700.00	25.72	356.24	2,536.96	808.94	-53.11	810.68	0.00	0.00	0.00
2,800.00	25.72	356.24	2,627.06	852.24	-55.95	854.08	0.00	0.00	0.00
2,900.00	25.72	356.24	2,717.15	895.55	-58.79	897.47	0.00	0.00	0.00
3,000.00	25.72	356.24	2,807.24	938.85	-61.63	940.87	0.00	0.00	0.00
3,100.00	25.72	356.24	2,897.33	982.16	-64.48	984.27	0.00	0.00	0.00
3,200.00	25.72	356.24	2,987.42	1,025.46	-67.32	1,027.67	0.00	0.00	0.00
3,300.00	25.72	356.24	3,077.52	1,068.77	-70.16	1,071.07	0.00	0.00	0.00
3,400.00	25.72	356.24	3,167.61	1,112.07	-73.01	1,114.46	0.00	0.00	0.00
3,500.00	25.72	356.24	3,257.70	1,155.38	-75.85	1,157.86	0.00	0.00	0.00
3,600.00	25.72	356.24	3,347.79	1,198.68	-78.69	1,201.26	0.00	0.00	0.00
3,700.00	25.72	356.24	3,437.89	1,241.98	-81.53	1,244.66	0.00	0.00	0.00
3,800.00	25.72	356.24	3,527.98	1,285.29	-84.38	1,288.06	0.00	0.00	0.00
3,900.00	25.72	356.24	3,618.07	1,328.59	-87.22	1,331.45	0.00	0.00	0.00
4,000.00	25.72	356.24	3,708.16	1,371.90	-90.06	1,374.85	0.00	0.00	0.00
4,100.00	25.72	356.24	3,798.25	1,415.20	-92.91	1,418.25	0.00	0.00	0.00
4,200.00	25.72	356.24	3,888.35	1,458.51	-95.75	1,461.65	0.00	0.00	0.00
4,300.00	25.72	356.24	3,978.44	1,501.81	-98.59	1,505.05	0.00	0.00	0.00
4,400.00	25.72	356.24	4,068.53	1,545.12	-101.43	1,548.44	0.00	0.00	0.00
4,500.00	25.72	356.24	4,158.62	1,588.42	-104.28	1,591.84	0.00	0.00	0.00
4,600.00	25.72	356.24	4,248.72	1,631.73	-107.12	1,635.24	0.00	0.00	0.00
4,700.00	25.72	356.24	4,338.81	1,675.03	-109.96	1,678.64	0.00	0.00	0.00
4,800.00	25.72	356.24	4,428.90	1,718.34	-112.81	1,722.04	0.00	0.00	0.00
4,900.00	25.72	356.24	4,518.99	1,761.64	-115.65	1,765.43	0.00	0.00	0.00
4,970.76	25.72	356.24	4,582.74	1,792.28	-117.66	1,796.14	0.00	0.00	0.00
5,000.00	25.14	356.24	4,609.15	1,804.81	-118.48	1,808.70	2.00	-2.00	0.00
5,100.00	23.14	356.24	4,700.40	1,845.61	-121.16	1,849.58	2.00	-2.00	0.00



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Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-05-59	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)
5,200.00	21.14	356.24	4,793.03	1,883.21	-123.63	1,887.26	2.00	-2.00	0.00
5,300.00	19.14	356.24	4,886.91	1,917.56	-125.88	1,921.69	2.00	-2.00	0.00
5,400.00	17.14	356.24	4,981.94	1,948.62	-127.92	1,952.81	2.00	-2.00	0.00
5,500.00	15.14	356.24	5,077.99	1,976.35	-129.74	1,980.60	2.00	-2.00	0.00
5,600.00	13.14	356.24	5,174.96	2,000.71	-131.34	2,005.02	2.00	-2.00	0.00
5,700.00	11.14	356.24	5,272.72	2,021.69	-132.72	2,026.04	2.00	-2.00	0.00
5,800.00	9.14	356.24	5,371.16	2,039.25	-133.87	2,043.64	2.00	-2.00	0.00
5,900.00	7.14	356.24	5,470.14	2,053.37	-134.80	2,057.79	2.00	-2.00	0.00
6,000.00	5.14	356.24	5,569.57	2,064.03	-135.50	2,068.48	2.00	-2.00	0.00
6,100.00	3.14	356.24	5,669.30	2,071.23	-135.97	2,075.69	2.00	-2.00	0.00
6,200.00	1.14	356.24	5,769.23	2,074.95	-136.22	2,079.41	2.00	-2.00	0.00
6,256.78	0.00	0.00	5,826.00	2,075.51	-136.25	2,079.98	2.00	-2.00	0.00
Mesaverde									
6,300.00	0.00	0.00	5,869.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
6,386.78	0.00	0.00	5,956.00	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
Base Ohio Creek									
6,400.00	0.00	0.00	5,969.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
6,500.00	0.00	0.00	6,069.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
6,600.00	0.00	0.00	6,169.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
6,700.00	0.00	0.00	6,269.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
6,800.00	0.00	0.00	6,369.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
6,900.00	0.00	0.00	6,469.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,000.00	0.00	0.00	6,569.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,100.00	0.00	0.00	6,669.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,200.00	0.00	0.00	6,769.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,300.00	0.00	0.00	6,869.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,400.00	0.00	0.00	6,969.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,500.00	0.00	0.00	7,069.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,600.00	0.00	0.00	7,169.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,700.00	0.00	0.00	7,269.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,800.00	0.00	0.00	7,369.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
7,900.00	0.00	0.00	7,469.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,000.00	0.00	0.00	7,569.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,100.00	0.00	0.00	7,669.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,200.00	0.00	0.00	7,769.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,300.00	0.00	0.00	7,869.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,340.78	0.00	0.00	7,910.00	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,400.00	0.00	0.00	7,969.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,500.00	0.00	0.00	8,069.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,600.00	0.00	0.00	8,169.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,700.00	0.00	0.00	8,269.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,800.00	0.00	0.00	8,369.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,900.00	0.00	0.00	8,469.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
8,991.78	0.00	0.00	8,561.00	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
Rollins									
9,000.00	0.00	0.00	8,569.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
9,100.00	0.00	0.00	8,669.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
9,200.00	0.00	0.00	8,769.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
9,300.00	0.00	0.00	8,869.22	2,075.51	-136.25	2,079.98	0.00	0.00	0.00
9,391.78	0.00	0.00	8,961.00	2,075.51	-136.25	2,079.98	0.00	0.00	0.00



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Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-05-59	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
CC 697-05-59 Target	0.00	0.00	7,910.00	2,075.51	-136.25	636,717.94	1,225,680.65	39° 32' 58.121 N	108° 14' 46.666 W
- plan hits target center									
- Circle (radius 50.00)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
6,256.78	5,826.00	Mesaverde		0.00		
6,386.78	5,956.00	Base Ohio Creek		0.00		
8,991.78	8,561.00	Rollins		0.00		