



Scientific Drilling
Rocky Mountain Operations

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



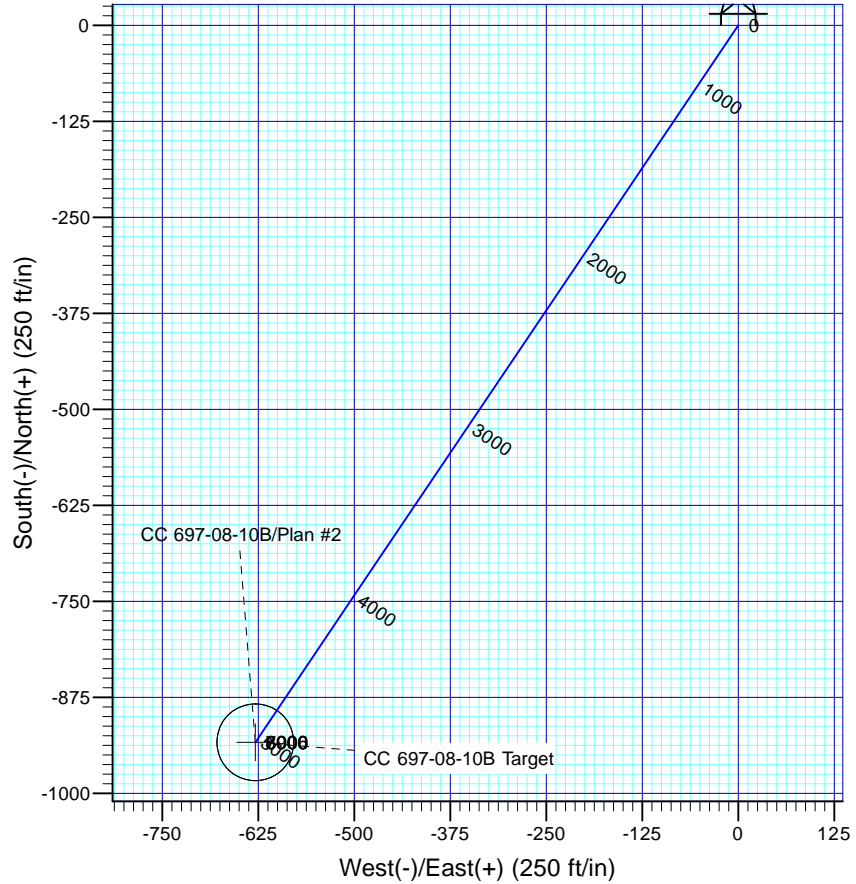
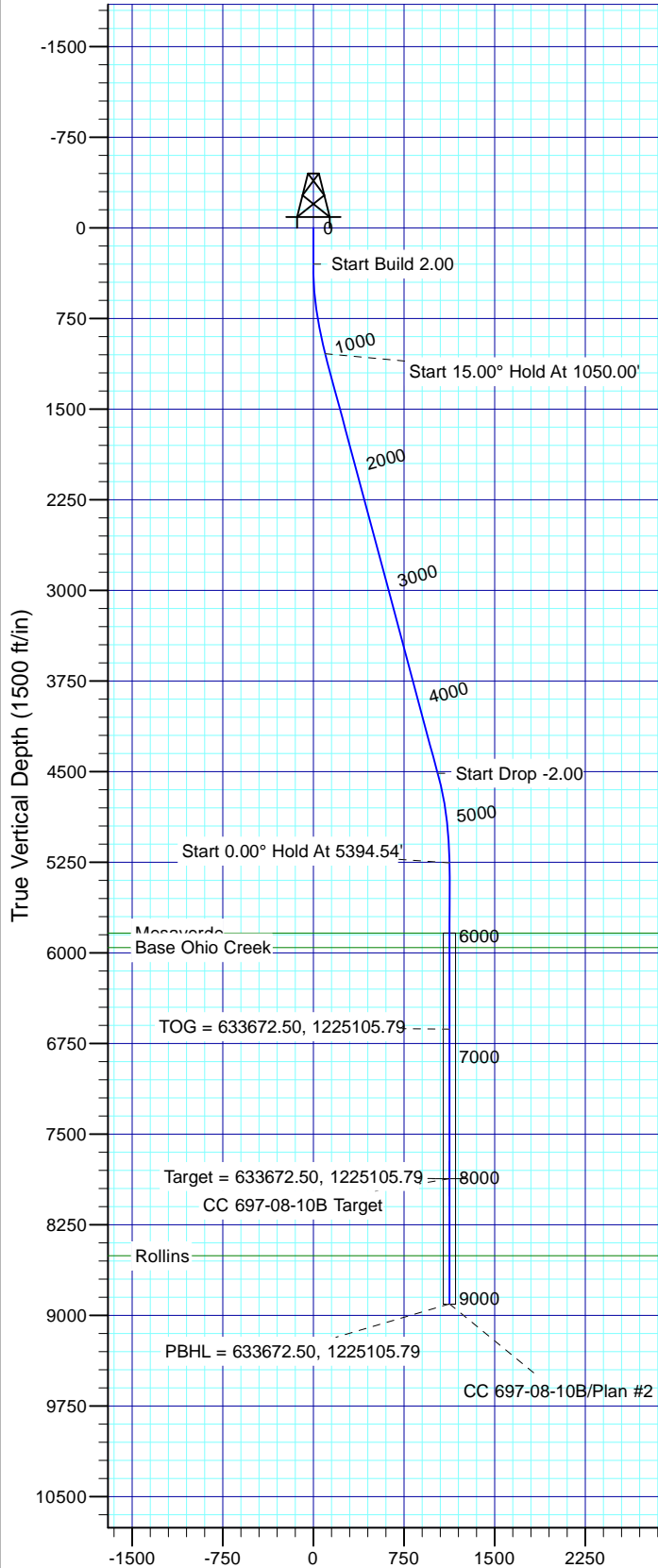
Well Details: CC 697-08-10B

TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig) Ground Level: 8401.00
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.00 0.00 634586.50 1225762.68 39° 32' 37.089 N 108° 14' 44.797 W T



Azimuths to True North
Magnetic North: 10.77°

Magnetic Field
Strength: 52497.5nT
Dip Angle: 65.81°
Date: 12/23/2008
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5836.00	5975.56	Mesaverde
5956.00	6095.56	Base Ohio Creek
8506.00	8645.56	Rollins

Plan: Plan #2

8:35, May 26 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	V Sect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1050.00	15.00	213.97	1041.46	-80.95	-54.55	2.00	213.97	97.62	
4	4644.54	15.00	213.97	4513.52	-852.49	-574.41	0.00	0.00	0.001027.95	
5	5394.54	0.00	0.00	5254.98	-933.44	-628.96	2.00	180.00	1125.57	
6	8008.56	0.00	0.00	7869.00	-933.44	-628.96	0.00	0.00	1125.57	CC 697-08-10B Target
7	9045.56	0.00	0.00	8906.00	-933.44	-628.96	0.00	0.00	1125.57	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-08-10B - Slot T**

OH

Plan: Plan #2

Standard Planning Report

26 May, 2011





Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-08-10B - Slot T
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 697-08-10B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 697-08-10B - Slot T, 372' FNL & 1806' FWL					
Well Position	+N/-S	-1,177.68 ft	Northing:	634,586.51 usft	Latitude:	39° 32' 37.089 N
	+E/-W	49.96 ft	Easting:	1,225,762.67 usft	Longitude:	108° 14' 44.797 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)
	IGRF2005-10	12/23/2008	10.77	65.81	52,498

Design	Plan #2			
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	213.97

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,050.00	15.00	213.97	1,041.46	-80.95	-54.55	2.00	2.00	0.00	213.97	
4,644.54	15.00	213.97	4,513.52	-852.49	-574.41	0.00	0.00	0.00	0.00	
5,394.54	0.00	0.00	5,254.98	-933.44	-628.96	2.00	-2.00	0.00	180.00	
8,008.56	0.00	0.00	7,869.00	-933.44	-628.96	0.00	0.00	0.00	0.00	CC 697-08-10B Target
9,045.56	0.00	0.00	8,906.00	-933.44	-628.96	0.00	0.00	0.00	0.00	



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-08-10B - Slot T
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 697-08-10B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
400.00	2.00	213.97	399.98	-1.45	-0.98	1.75	2.00	2.00	0.00
500.00	4.00	213.97	499.84	-5.79	-3.90	6.98	2.00	2.00	0.00
600.00	6.00	213.97	599.45	-13.01	-8.77	15.69	2.00	2.00	0.00
700.00	8.00	213.97	698.70	-23.12	-15.58	27.88	2.00	2.00	0.00
800.00	10.00	213.97	797.47	-36.09	-24.32	43.52	2.00	2.00	0.00
900.00	12.00	213.97	895.62	-51.92	-34.98	62.60	2.00	2.00	0.00
1,000.00	14.00	213.97	993.06	-70.57	-47.55	85.10	2.00	2.00	0.00
1,050.00	15.00	213.97	1,041.46	-80.95	-54.55	97.62	2.00	2.00	0.00
Start 15.00° Hold At 1050.00'									
1,100.00	15.00	213.97	1,089.76	-91.68	-61.78	110.56	0.00	0.00	0.00
1,200.00	15.00	213.97	1,186.35	-113.15	-76.24	136.44	0.00	0.00	0.00
1,300.00	15.00	213.97	1,282.94	-134.61	-90.70	162.32	0.00	0.00	0.00
1,400.00	15.00	213.97	1,379.54	-156.08	-105.17	188.20	0.00	0.00	0.00
1,500.00	15.00	213.97	1,476.13	-177.54	-119.63	214.08	0.00	0.00	0.00
1,600.00	15.00	213.97	1,572.72	-199.01	-134.09	239.97	0.00	0.00	0.00
1,700.00	15.00	213.97	1,669.31	-220.47	-148.55	265.85	0.00	0.00	0.00
1,800.00	15.00	213.97	1,765.91	-241.93	-163.02	291.73	0.00	0.00	0.00
1,900.00	15.00	213.97	1,862.50	-263.40	-177.48	317.61	0.00	0.00	0.00
2,000.00	15.00	213.97	1,959.09	-284.86	-191.94	343.49	0.00	0.00	0.00
2,100.00	15.00	213.97	2,055.68	-306.33	-206.41	369.38	0.00	0.00	0.00
2,200.00	15.00	213.97	2,152.28	-327.79	-220.87	395.26	0.00	0.00	0.00
2,300.00	15.00	213.97	2,248.87	-349.25	-235.33	421.14	0.00	0.00	0.00
2,400.00	15.00	213.97	2,345.46	-370.72	-249.79	447.02	0.00	0.00	0.00
2,500.00	15.00	213.97	2,442.05	-392.18	-264.26	472.90	0.00	0.00	0.00
2,600.00	15.00	213.97	2,538.65	-413.65	-278.72	498.78	0.00	0.00	0.00
2,700.00	15.00	213.97	2,635.24	-435.11	-293.18	524.67	0.00	0.00	0.00
2,800.00	15.00	213.97	2,731.83	-456.57	-307.64	550.55	0.00	0.00	0.00
2,900.00	15.00	213.97	2,828.42	-478.04	-322.11	576.43	0.00	0.00	0.00
3,000.00	15.00	213.97	2,925.02	-499.50	-336.57	602.31	0.00	0.00	0.00
3,100.00	15.00	213.97	3,021.61	-520.97	-351.03	628.19	0.00	0.00	0.00
3,200.00	15.00	213.97	3,118.20	-542.43	-365.49	654.08	0.00	0.00	0.00
3,300.00	15.00	213.97	3,214.80	-563.89	-379.96	679.96	0.00	0.00	0.00
3,400.00	15.00	213.97	3,311.39	-585.36	-394.42	705.84	0.00	0.00	0.00
3,500.00	15.00	213.97	3,407.98	-606.82	-408.88	731.72	0.00	0.00	0.00
3,600.00	15.00	213.97	3,504.57	-628.29	-423.35	757.60	0.00	0.00	0.00
3,700.00	15.00	213.97	3,601.17	-649.75	-437.81	783.49	0.00	0.00	0.00
3,800.00	15.00	213.97	3,697.76	-671.21	-452.27	809.37	0.00	0.00	0.00
3,900.00	15.00	213.97	3,794.35	-692.68	-466.73	835.25	0.00	0.00	0.00
4,000.00	15.00	213.97	3,890.94	-714.14	-481.20	861.13	0.00	0.00	0.00
4,100.00	15.00	213.97	3,987.54	-735.61	-495.66	887.01	0.00	0.00	0.00
4,200.00	15.00	213.97	4,084.13	-757.07	-510.12	912.90	0.00	0.00	0.00
4,300.00	15.00	213.97	4,180.72	-778.53	-524.58	938.78	0.00	0.00	0.00
4,400.00	15.00	213.97	4,277.31	-800.00	-539.05	964.66	0.00	0.00	0.00
4,500.00	15.00	213.97	4,373.91	-821.46	-553.51	990.54	0.00	0.00	0.00
4,600.00	15.00	213.97	4,470.50	-842.93	-567.97	1,016.42	0.00	0.00	0.00
4,644.54	15.00	213.97	4,513.52	-852.49	-574.41	1,027.95	0.00	0.00	0.00
Start Drop -2.00									
4,700.00	13.89	213.97	4,567.23	-863.96	-582.14	1,041.79	2.00	-2.00	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 697-08-10B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
4,800.00	11.89	213.97	4,664.70	-882.46	-594.61	1,064.09	2.00	-2.00	0.00
4,900.00	9.89	213.97	4,762.90	-898.13	-605.17	1,082.99	2.00	-2.00	0.00
5,000.00	7.89	213.97	4,861.69	-910.94	-613.80	1,098.44	2.00	-2.00	0.00
5,100.00	5.89	213.97	4,960.96	-920.89	-620.51	1,110.44	2.00	-2.00	0.00
5,200.00	3.89	213.97	5,060.59	-927.96	-625.27	1,118.96	2.00	-2.00	0.00
5,300.00	1.89	213.97	5,160.46	-932.15	-628.09	1,124.01	2.00	-2.00	0.00
5,394.54	0.00	0.00	5,254.98	-933.44	-628.96	1,125.57	2.00	-2.00	0.00
Start 0.00° Hold At 5394.54'									
5,400.00	0.00	0.00	5,260.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
5,500.00	0.00	0.00	5,360.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
5,600.00	0.00	0.00	5,460.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
5,700.00	0.00	0.00	5,560.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
5,800.00	0.00	0.00	5,660.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
5,900.00	0.00	0.00	5,760.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
5,975.56	0.00	0.00	5,836.00	-933.44	-628.96	1,125.57	0.00	0.00	0.00
Mesaverde									
6,000.00	0.00	0.00	5,860.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,095.56	0.00	0.00	5,956.00	-933.44	-628.96	1,125.57	0.00	0.00	0.00
Base Ohio Creek									
6,100.00	0.00	0.00	5,960.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,200.00	0.00	0.00	6,060.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,300.00	0.00	0.00	6,160.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,400.00	0.00	0.00	6,260.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,500.00	0.00	0.00	6,360.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,600.00	0.00	0.00	6,460.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,700.00	0.00	0.00	6,560.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,770.56	0.00	0.00	6,631.00	-933.44	-628.96	1,125.57	0.00	0.00	0.00
TOG = 633672.50, 1225105.79									
6,800.00	0.00	0.00	6,660.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
6,900.00	0.00	0.00	6,760.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,000.00	0.00	0.00	6,860.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,100.00	0.00	0.00	6,960.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,200.00	0.00	0.00	7,060.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,300.00	0.00	0.00	7,160.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,400.00	0.00	0.00	7,260.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,500.00	0.00	0.00	7,360.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,600.00	0.00	0.00	7,460.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,700.00	0.00	0.00	7,560.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,800.00	0.00	0.00	7,660.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
7,900.00	0.00	0.00	7,760.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,000.00	0.00	0.00	7,860.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,008.56	0.00	0.00	7,869.00	-933.44	-628.96	1,125.57	0.00	0.00	0.00
Target = 633672.50, 1225105.79									
8,100.00	0.00	0.00	7,960.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,200.00	0.00	0.00	8,060.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,300.00	0.00	0.00	8,160.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,400.00	0.00	0.00	8,260.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,500.00	0.00	0.00	8,360.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,600.00	0.00	0.00	8,460.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,645.56	0.00	0.00	8,506.00	-933.44	-628.96	1,125.57	0.00	0.00	0.00
Rollins									
8,700.00	0.00	0.00	8,560.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
8,800.00	0.00	0.00	8,660.44	-933.44	-628.96	1,125.57	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 697-08-10B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
8,900.00	0.00	0.00	8,760.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
9,000.00	0.00	0.00	8,860.44	-933.44	-628.96	1,125.57	0.00	0.00	0.00
9,045.56	0.00	0.00	8,906.00	-933.44	-628.96	1,125.57	0.00	0.00	0.00
PBHL = 633672.50, 1225105.79									

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 697-08-10B Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,869.00	-933.44	-628.96	633,672.51	1,225,105.79	39° 32' 27.863 N	108° 14' 52.825 W

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,975.56	5,836.00	Mesaverde		0.00		
6,095.56	5,956.00	Base Ohio Creek		0.00		
8,645.56	8,506.00	Rollins		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
300.00	300.00	0.00	0.00	Start Build 2.00	
1,050.00	1,041.46	-80.95	-54.55	Start 15.00° Hold At 1050.00'	
4,644.54	4,513.52	-852.49	-574.41	Start Drop -2.00	
5,394.54	5,254.98	-933.44	-628.96	Start 0.00° Hold At 5394.54'	
6,770.56	6,631.00	-933.44	-628.96	TOG = 633672.50, 1225105.79	
8,008.56	7,869.00	-933.44	-628.96	Target = 633672.50, 1225105.79	
9,045.56	8,906.00	-933.44	-628.96	PBHL = 633672.50, 1225105.79	