



Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 604-12-13 Annex Pad



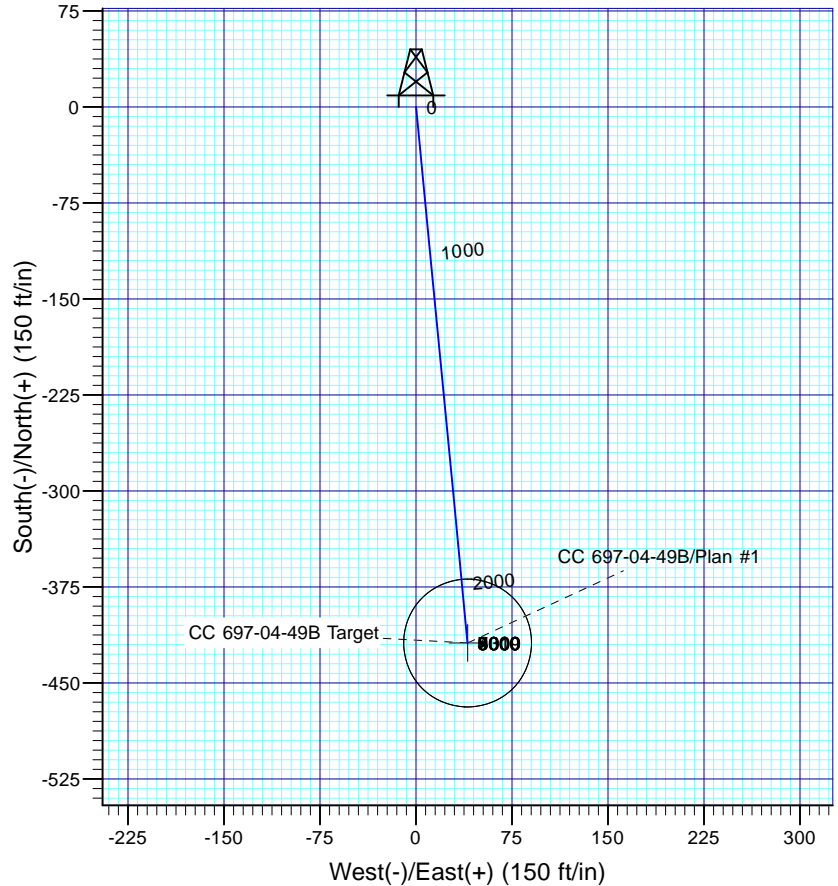
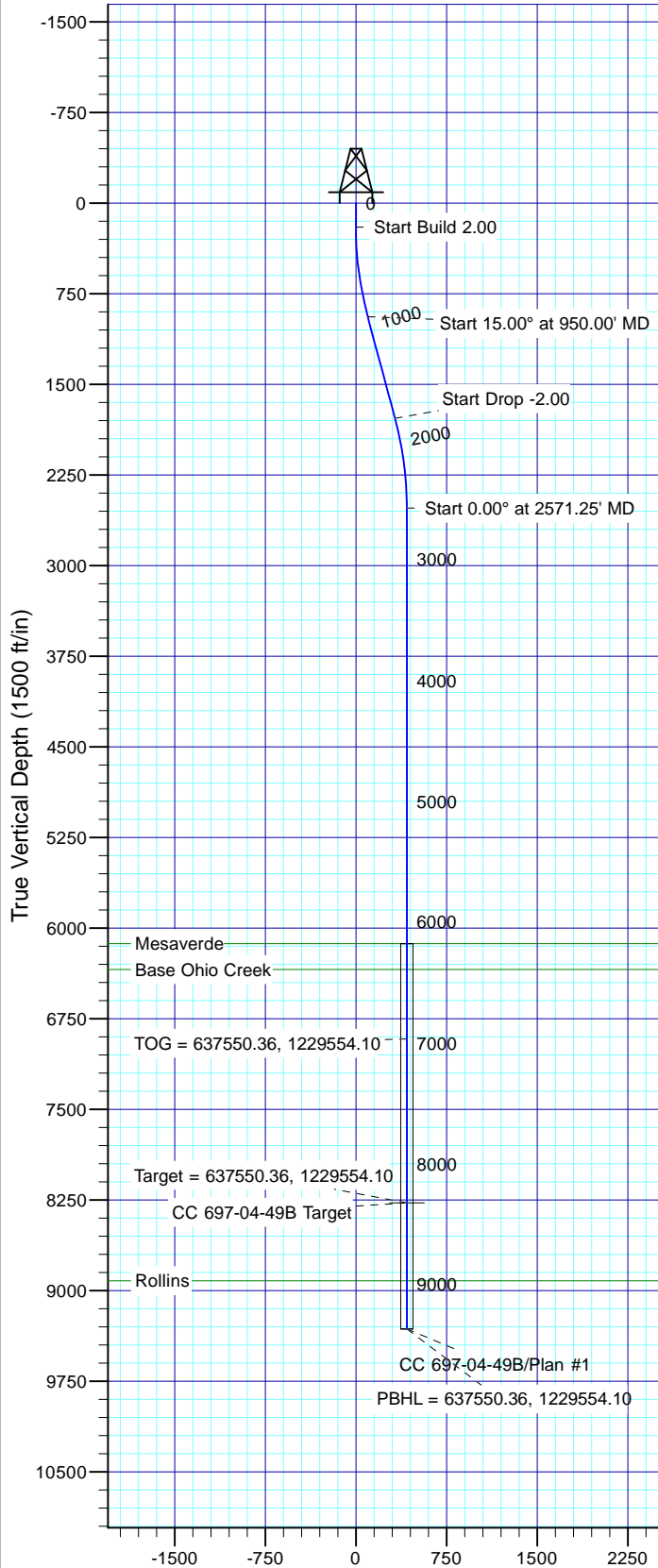
Well Details: CC 697-04-49B

TVD Reference: GL 8529' & RKB 30' @ 8559.00ft (H&P Rig) Ground Level: 8529.00
+N/-S 0.00 +E/-W 0.00 Northing 637970.18 Easting 1229526.42 Latitude 39° 33' 11.638 N Longitude 108° 13' 58.073 W Slot D



Azimuths to True North
Magnetic North: 10.46°

Magnetic Field
Strength: 52229.3snT
Dip Angle: 65.74°
Date: 6/15/2011
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6129.00	6175.76	Mesaverde
6344.00	6390.76	Base Ohio Creek
8919.00	8965.76	Rollins

Plan: Plan #1

14:14, June 16 2011

Created By: Janie Cooke

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	950.00	15.00	174.50	941.46	-97.17	9.35	2.00	174.50	97.62	
4	1821.25	15.00	174.50	1783.03	-321.63	30.94	0.00	0.00	323.11	
5	2571.25	0.00	0.00	2524.49	-418.79	40.29	2.00	180.00	420.73	
6	8321.76	0.00	0.00	8275.00	-418.79	40.29	0.00	0.00	420.73	CC 697-04-49B Target
7	9365.76	0.00	0.00	9319.00	-418.79	40.29	0.00	0.00	420.73	

OXY USA RMAT

Garfield County, CO NAD27

Cascade Creek 604-12-13 Annex Pad

CC 697-04-49B - Slot D

OH

Plan: Plan #1

Standard Planning Report

16 June, 2011





Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-04-49B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-49B	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 604-12-13 Annex Pad		
Site Position:		Northing:	638,644.56 usft
From:	Lat/Long	Easting:	1,229,740.19 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 33' 18.364 N
		Longitude:	108° 13' 55.603 W
		Grid Convergence:	-1.72 °

Well	CC 697-04-49B - Slot D		
Well Position	+N/-S	-680.50 ft	Northing: 637,970.18 usft
	+E/-W	-193.40 ft	Easting: 1,229,526.42 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	Latitude: 39° 33' 11.638 N
			Longitude: 108° 13' 58.073 W
			Ground Level: 8,529.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/15/2011	10.46	65.74	52,229

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	174.50

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	
950.00	15.00	174.50	941.46	-97.17	9.35	2.00	2.00	0.00	174.50	
1,821.25	15.00	174.50	1,783.03	-321.63	30.94	0.00	0.00	0.00	0.00	
2,571.25	0.00	0.00	2,524.49	-418.79	40.29	2.00	-2.00	0.00	180.00	
8,321.76	0.00	0.00	8,275.00	-418.79	40.29	0.00	0.00	0.00	0.00	CC 697-04-49B Target
9,365.76	0.00	0.00	9,319.00	-418.79	40.29	0.00	0.00	0.00	0.00	



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-04-49B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-49B	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 2.00									
300.00	2.00	174.50	299.98	-1.74	0.17	1.75	2.00	2.00	0.00
400.00	4.00	174.50	399.84	-6.95	0.67	6.98	2.00	2.00	0.00
500.00	6.00	174.50	499.45	-15.62	1.50	15.69	2.00	2.00	0.00
600.00	8.00	174.50	598.70	-27.75	2.67	27.88	2.00	2.00	0.00
700.00	10.00	174.50	697.47	-43.32	4.17	43.52	2.00	2.00	0.00
800.00	12.00	174.50	795.62	-62.31	6.00	62.60	2.00	2.00	0.00
900.00	14.00	174.50	893.06	-84.71	8.15	85.10	2.00	2.00	0.00
950.00	15.00	174.50	941.46	-97.17	9.35	97.62	2.00	2.00	0.00
Start 15.00° at 950.00' MD									
1,000.00	15.00	174.50	989.76	-110.05	10.59	110.56	0.00	0.00	0.00
1,100.00	15.00	174.50	1,086.35	-135.81	13.07	136.44	0.00	0.00	0.00
1,200.00	15.00	174.50	1,182.94	-161.57	15.54	162.32	0.00	0.00	0.00
1,300.00	15.00	174.50	1,279.54	-187.34	18.02	188.20	0.00	0.00	0.00
1,400.00	15.00	174.50	1,376.13	-213.10	20.50	214.08	0.00	0.00	0.00
1,500.00	15.00	174.50	1,472.72	-238.86	22.98	239.97	0.00	0.00	0.00
1,600.00	15.00	174.50	1,569.31	-264.63	25.46	265.85	0.00	0.00	0.00
1,700.00	15.00	174.50	1,665.91	-290.39	27.94	291.73	0.00	0.00	0.00
1,800.00	15.00	174.50	1,762.50	-316.15	30.42	317.61	0.00	0.00	0.00
1,821.25	15.00	174.50	1,783.03	-321.63	30.94	323.11	0.00	0.00	0.00
Start Drop -2.00									
1,900.00	13.43	174.50	1,859.36	-340.87	32.79	342.45	2.00	-2.00	0.00
2,000.00	11.43	174.50	1,957.01	-362.29	34.85	363.96	2.00	-2.00	0.00
2,100.00	9.43	174.50	2,055.36	-380.30	36.59	382.05	2.00	-2.00	0.00
2,200.00	7.43	174.50	2,154.27	-394.88	37.99	396.71	2.00	-2.00	0.00
2,300.00	5.43	174.50	2,253.64	-406.02	39.06	407.90	2.00	-2.00	0.00
2,400.00	3.43	174.50	2,353.34	-413.70	39.80	415.61	2.00	-2.00	0.00
2,500.00	1.43	174.50	2,453.24	-417.91	40.21	419.84	2.00	-2.00	0.00
2,571.25	0.00	0.00	2,524.49	-418.79	40.29	420.73	2.00	-2.00	0.00
Start 0.00° at 2571.25' MD									
2,600.00	0.00	0.00	2,553.24	-418.79	40.29	420.73	0.00	0.00	0.00
2,700.00	0.00	0.00	2,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
2,800.00	0.00	0.00	2,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
2,900.00	0.00	0.00	2,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,000.00	0.00	0.00	2,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,100.00	0.00	0.00	3,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,200.00	0.00	0.00	3,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,300.00	0.00	0.00	3,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,400.00	0.00	0.00	3,353.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,500.00	0.00	0.00	3,453.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,600.00	0.00	0.00	3,553.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,700.00	0.00	0.00	3,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,800.00	0.00	0.00	3,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
3,900.00	0.00	0.00	3,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,000.00	0.00	0.00	3,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,100.00	0.00	0.00	4,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,200.00	0.00	0.00	4,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,300.00	0.00	0.00	4,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,400.00	0.00	0.00	4,353.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,500.00	0.00	0.00	4,453.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,600.00	0.00	0.00	4,553.24	-418.79	40.29	420.73	0.00	0.00	0.00



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-04-49B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-49B	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)
4,700.00	0.00	0.00	4,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,800.00	0.00	0.00	4,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
4,900.00	0.00	0.00	4,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,000.00	0.00	0.00	4,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,100.00	0.00	0.00	5,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,200.00	0.00	0.00	5,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,300.00	0.00	0.00	5,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,400.00	0.00	0.00	5,353.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,500.00	0.00	0.00	5,453.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,600.00	0.00	0.00	5,553.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,700.00	0.00	0.00	5,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,800.00	0.00	0.00	5,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
5,900.00	0.00	0.00	5,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,000.00	0.00	0.00	5,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,100.00	0.00	0.00	6,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,175.76	0.00	0.00	6,129.00	-418.79	40.29	420.73	0.00	0.00	0.00
Mesaverde									
6,200.00	0.00	0.00	6,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,300.00	0.00	0.00	6,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,390.76	0.00	0.00	6,344.00	-418.79	40.29	420.73	0.00	0.00	0.00
Base Ohio Creek									
6,400.00	0.00	0.00	6,353.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,500.00	0.00	0.00	6,453.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,600.00	0.00	0.00	6,553.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,700.00	0.00	0.00	6,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,800.00	0.00	0.00	6,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,900.00	0.00	0.00	6,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
6,965.76	0.00	0.00	6,919.00	-418.79	40.29	420.73	0.00	0.00	0.00
TOG = 637550.36, 1229554.10									
7,000.00	0.00	0.00	6,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,100.00	0.00	0.00	7,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,200.00	0.00	0.00	7,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,300.00	0.00	0.00	7,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,400.00	0.00	0.00	7,353.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,500.00	0.00	0.00	7,453.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,600.00	0.00	0.00	7,553.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,700.00	0.00	0.00	7,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,800.00	0.00	0.00	7,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
7,900.00	0.00	0.00	7,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,000.00	0.00	0.00	7,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,100.00	0.00	0.00	8,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,200.00	0.00	0.00	8,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,300.00	0.00	0.00	8,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,321.76	0.00	0.00	8,275.00	-418.79	40.29	420.73	0.00	0.00	0.00
Target = 637550.36, 1229554.10									
8,400.00	0.00	0.00	8,353.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,500.00	0.00	0.00	8,453.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,600.00	0.00	0.00	8,553.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,700.00	0.00	0.00	8,653.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,800.00	0.00	0.00	8,753.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,900.00	0.00	0.00	8,853.24	-418.79	40.29	420.73	0.00	0.00	0.00
8,965.76	0.00	0.00	8,919.00	-418.79	40.29	420.73	0.00	0.00	0.00
Rollins									



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-04-49B - Slot D
Company:	OXY USA RMAT	TVD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8529' & RKB 30' @ 8559.00ft (H&P Rig)
Site:	Cascade Creek 604-12-13 Annex Pad	North Reference:	True
Well:	CC 697-04-49B	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)
9,000.00	0.00	0.00	8,953.24	-418.79	40.29	420.73	0.00	0.00	0.00
9,100.00	0.00	0.00	9,053.24	-418.79	40.29	420.73	0.00	0.00	0.00
9,200.00	0.00	0.00	9,153.24	-418.79	40.29	420.73	0.00	0.00	0.00
9,300.00	0.00	0.00	9,253.24	-418.79	40.29	420.73	0.00	0.00	0.00
9,365.76	0.00	0.00	9,319.00	-418.79	40.29	420.73	0.00	0.00	0.00
PBHL = 637550.36, 1229554.10									

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 697-04-49B Target	0.00	0.00	8,275.00	-418.79	40.29	637,550.37	1,229,554.09	39° 33' 7.499 N	108° 13' 57.558 W
- plan hits target center									
- Circle (radius 50.00)									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,175.76	6,129.00	Mesaverde		0.00		
6,390.76	6,344.00	Base Ohio Creek		0.00		
8,965.76	8,919.00	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 2.00
950.00	941.46	-97.17	9.35	Start 15.00° at 950.00' MD
1,821.25	1,783.03	-321.63	30.94	Start Drop -2.00
2,571.25	2,524.49	-418.79	40.29	Start 0.00° at 2571.25' MD
6,965.76	6,919.00	-418.79	40.29	TOG = 637550.36, 1229554.10
8,321.76	8,275.00	-418.79	40.29	Target = 637550.36, 1229554.10
9,365.76	9,319.00	-418.79	40.29	PBHL = 637550.36, 1229554.10