



Scientific Drilling
Rocky Mountain Operations

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



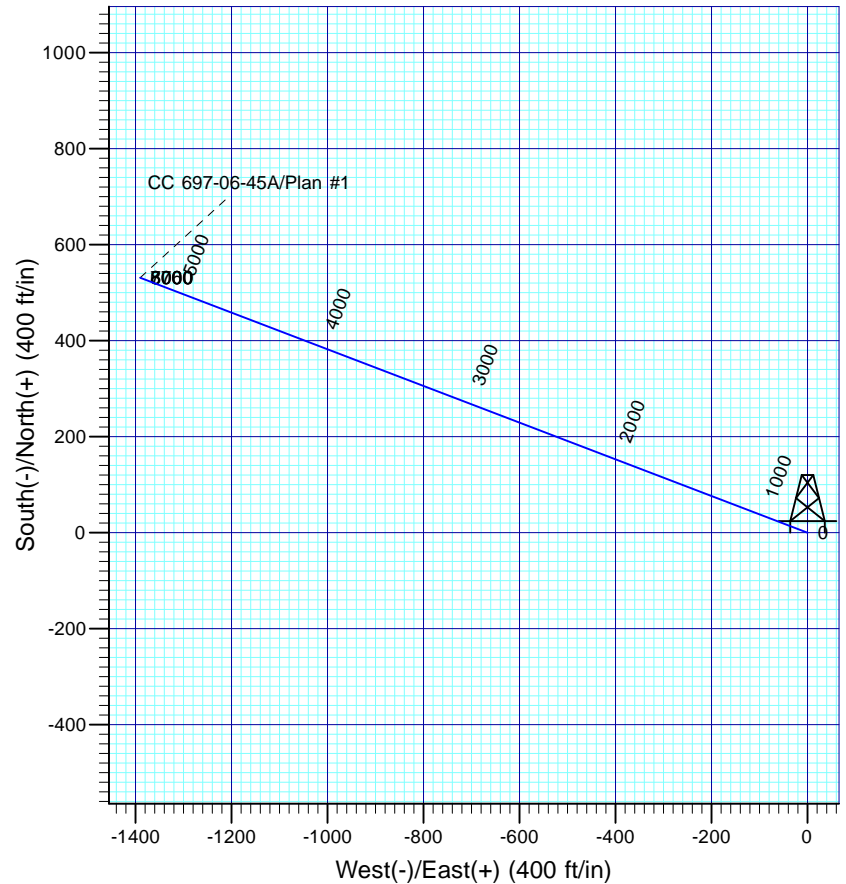
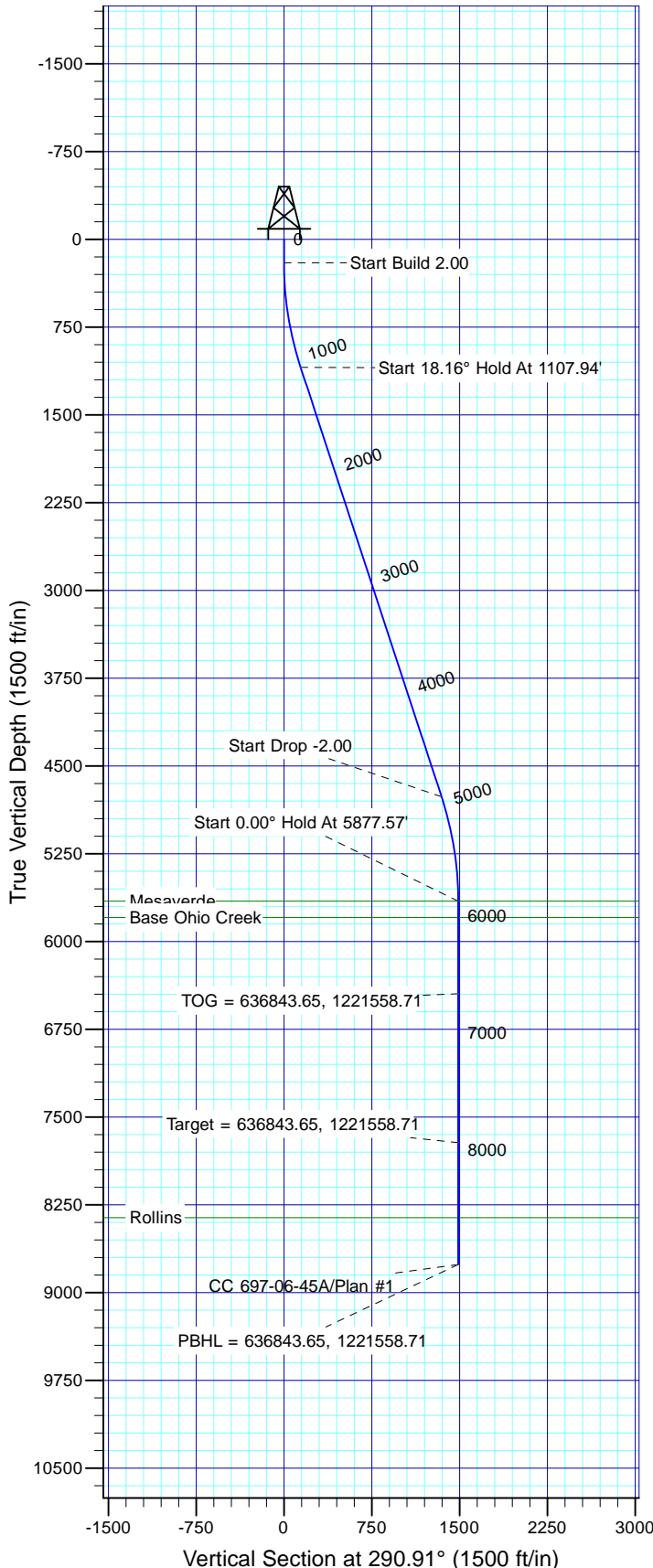
Well Details: CC 697-06-45A

TVD Reference: GL 8345' & RKB 30' @ 8375.00ft (H&P) Ground Level: 8345.00
+N/-S 0.00 +E/-W 0.00 Northing 636270.25 Easting 1222932.72 Latitude 39° 32' 52.876 N Longitude 108° 15' 21.557 W Slot H



Azimuths to True North
Magnetic North: 10.35°

Magnetic Field
Strength: 52188.5nT
Dip Angle: 65.73°
Date: 03/06/2012
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5655.00	5877.57	Mesaverde
5795.00	6017.57	Base Ohio Creek
8360.00	8582.57	Rollins

Plan: Plan #1

13:32, March 07 2012
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	1107.94	18.16	290.91	1092.82	50.93	-133.28	2.00	290.91	142.68	
4	4969.63	18.16	290.91	4762.18	480.53	-1257.49	0.00	0.001346.18		
5	5877.57	0.00	0.00	5655.00	531.46	-1390.77	2.00	180.001488.86		
6	7941.32	0.00	0.00	7718.75	531.46	-1390.77	0.00	0.001488.86		
7	8982.57	0.00	0.00	8760.00	531.46	-1390.77	0.00	0.001488.86		

CC 697-06-45A Target

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-06D Pad
CC 697-06-45A - Slot H**

OH

Plan: Plan #1

Standard Planning Report

07 March, 2012





Database: EDM-R5000-JanieCooke-Local
Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06D Pad
Well: CC 697-06-45A
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well CC 697-06-45A - Slot H
TVD Reference: GL 8345' & RKB 30' @ 8375.00ft (H&P)
MD Reference: GL 8345' & RKB 30' @ 8375.00ft (H&P)
North Reference: True
Survey Calculation Method: Minimum Curvature

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 697-06D Pad, Sec 6 T6S R97W			
Site Position:		Northing:	636,260.71 usft	Latitude: 39° 32' 52.746 N
From: Map		Easting:	1,222,814.04 usft	Longitude: 108° 15' 23.068 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -1.74 °

Well	CC 697-06-45A - Slot H			
Well Position	+N/-S	13.14 ft	Northing:	636,270.25 usft
	+E/-W	118.34 ft	Easting:	1,222,932.72 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 39° 32' 52.876 N
				Longitude: 108° 15' 21.557 W
				Ground Level: 8,345.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	03/06/2012	10.35	65.73	52,188

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	290.91

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	
1,107.94	18.16	290.91	1,092.82	50.93	-133.28	2.00	2.00	0.00	290.91	
4,969.63	18.16	290.91	4,762.18	480.53	-1,257.49	0.00	0.00	0.00	0.00	
5,877.57	0.00	0.00	5,655.00	531.46	-1,390.77	2.00	-2.00	0.00	180.00	
7,941.32	0.00	0.00	7,718.75	531.46	-1,390.77	0.00	0.00	0.00	0.00	CC 697-06-45A Target
8,982.57	0.00	0.00	8,760.00	531.46	-1,390.77	0.00	0.00	0.00	0.00	



Database: EDM-R5000-JanieCooke-Local
Company: OXY USA RMat
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06D Pad
Well: CC 697-06-45A
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well CC 697-06-45A - Slot H
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 True
 Minimum Curvature

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	290.91	299.98	0.62	-1.63	1.75	2.00	2.00	0.00
400.00	4.00	290.91	399.84	2.49	-6.52	6.98	2.00	2.00	0.00
500.00	6.00	290.91	499.45	5.60	-14.66	15.69	2.00	2.00	0.00
600.00	8.00	290.91	598.70	9.95	-26.04	27.88	2.00	2.00	0.00
700.00	10.00	290.91	697.47	15.54	-40.66	43.52	2.00	2.00	0.00
800.00	12.00	290.91	795.62	22.35	-58.48	62.60	2.00	2.00	0.00
900.00	14.00	290.91	893.06	30.38	-79.49	85.10	2.00	2.00	0.00
1,000.00	16.00	290.91	989.64	39.61	-103.67	110.98	2.00	2.00	0.00
1,100.00	18.00	290.91	1,085.27	50.05	-130.98	140.21	2.00	2.00	0.00
1,107.94	18.16	290.91	1,092.82	50.93	-133.28	142.68	2.00	2.00	0.00
Start 18.16° Hold At 1107.94'									
1,200.00	18.16	290.91	1,180.29	61.17	-160.08	171.37	0.00	0.00	0.00
1,300.00	18.16	290.91	1,275.31	72.30	-189.19	202.53	0.00	0.00	0.00
1,400.00	18.16	290.91	1,370.33	83.42	-218.30	233.70	0.00	0.00	0.00
1,500.00	18.16	290.91	1,465.35	94.55	-247.41	264.86	0.00	0.00	0.00
1,600.00	18.16	290.91	1,560.37	105.67	-276.53	296.03	0.00	0.00	0.00
1,700.00	18.16	290.91	1,655.39	116.79	-305.64	327.19	0.00	0.00	0.00
1,800.00	18.16	290.91	1,750.41	127.92	-334.75	358.36	0.00	0.00	0.00
1,900.00	18.16	290.91	1,845.43	139.04	-363.86	389.52	0.00	0.00	0.00
2,000.00	18.16	290.91	1,940.45	150.17	-392.97	420.69	0.00	0.00	0.00
2,100.00	18.16	290.91	2,035.47	161.29	-422.09	451.85	0.00	0.00	0.00
2,200.00	18.16	290.91	2,130.49	172.42	-451.20	483.02	0.00	0.00	0.00
2,300.00	18.16	290.91	2,225.51	183.54	-480.31	514.18	0.00	0.00	0.00
2,400.00	18.16	290.91	2,320.53	194.67	-509.42	545.35	0.00	0.00	0.00
2,500.00	18.16	290.91	2,415.55	205.79	-538.53	576.52	0.00	0.00	0.00
2,600.00	18.16	290.91	2,510.57	216.92	-567.65	607.68	0.00	0.00	0.00
2,700.00	18.16	290.91	2,605.59	228.04	-596.76	638.85	0.00	0.00	0.00
2,800.00	18.16	290.91	2,700.61	239.17	-625.87	670.01	0.00	0.00	0.00
2,900.00	18.16	290.91	2,795.63	250.29	-654.98	701.18	0.00	0.00	0.00
3,000.00	18.16	290.91	2,890.64	261.42	-684.09	732.34	0.00	0.00	0.00
3,100.00	18.16	290.91	2,985.66	272.54	-713.21	763.51	0.00	0.00	0.00
3,200.00	18.16	290.91	3,080.68	283.67	-742.32	794.67	0.00	0.00	0.00
3,300.00	18.16	290.91	3,175.70	294.79	-771.43	825.84	0.00	0.00	0.00
3,400.00	18.16	290.91	3,270.72	305.92	-800.54	857.00	0.00	0.00	0.00
3,500.00	18.16	290.91	3,365.74	317.04	-829.65	888.17	0.00	0.00	0.00
3,600.00	18.16	290.91	3,460.76	328.16	-858.77	919.33	0.00	0.00	0.00
3,700.00	18.16	290.91	3,555.78	339.29	-887.88	950.50	0.00	0.00	0.00
3,800.00	18.16	290.91	3,650.80	350.41	-916.99	981.66	0.00	0.00	0.00
3,900.00	18.16	290.91	3,745.82	361.54	-946.10	1,012.83	0.00	0.00	0.00
4,000.00	18.16	290.91	3,840.84	372.66	-975.21	1,043.99	0.00	0.00	0.00
4,100.00	18.16	290.91	3,935.86	383.79	-1,004.33	1,075.16	0.00	0.00	0.00
4,200.00	18.16	290.91	4,030.88	394.91	-1,033.44	1,106.32	0.00	0.00	0.00
4,300.00	18.16	290.91	4,125.90	406.04	-1,062.55	1,137.49	0.00	0.00	0.00
4,400.00	18.16	290.91	4,220.92	417.16	-1,091.66	1,168.65	0.00	0.00	0.00
4,500.00	18.16	290.91	4,315.94	428.29	-1,120.78	1,199.82	0.00	0.00	0.00
4,600.00	18.16	290.91	4,410.96	439.41	-1,149.89	1,230.98	0.00	0.00	0.00
4,700.00	18.16	290.91	4,505.98	450.54	-1,179.00	1,262.15	0.00	0.00	0.00
4,800.00	18.16	290.91	4,601.00	461.66	-1,208.11	1,293.32	0.00	0.00	0.00
4,900.00	18.16	290.91	4,696.02	472.79	-1,237.22	1,324.48	0.00	0.00	0.00
4,969.63	18.16	290.91	4,762.18	480.53	-1,257.49	1,346.18	0.00	0.00	0.00



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Well: CC 697-06-45A
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
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MD Reference:
North Reference:
Survey Calculation Method:

Well CC 697-06-45A - Slot H
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 GL 8345' & RKB 30' @ 8375.00ft (H&P)
 True
 Minimum Curvature

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)
Start Drop -2.00									
5,000.00	17.55	290.91	4,791.09	483.86	-1,266.19	1,355.49	2.00	-2.00	0.00
5,100.00	15.55	290.91	4,886.94	494.02	-1,292.80	1,383.98	2.00	-2.00	0.00
5,200.00	13.55	290.91	4,983.73	502.99	-1,316.27	1,409.10	2.00	-2.00	0.00
5,300.00	11.55	290.91	5,081.33	510.75	-1,336.57	1,430.83	2.00	-2.00	0.00
5,400.00	9.55	290.91	5,179.64	517.29	-1,353.67	1,449.14	2.00	-2.00	0.00
5,500.00	7.55	290.91	5,278.52	522.59	-1,367.56	1,464.01	2.00	-2.00	0.00
5,600.00	5.55	290.91	5,377.86	526.67	-1,378.22	1,475.42	2.00	-2.00	0.00
5,700.00	3.55	290.91	5,477.54	529.50	-1,385.63	1,483.36	2.00	-2.00	0.00
5,800.00	1.55	290.91	5,577.44	531.09	-1,389.79	1,487.81	2.00	-2.00	0.00
5,877.57	0.00	0.00	5,655.00	531.46	-1,390.77	1,488.86	2.00	-2.00	89.06
Start 0.00° Hold At 5877.57' - Mesaverde									
5,900.00	0.00	0.00	5,677.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,000.00	0.00	0.00	5,777.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,017.57	0.00	0.00	5,795.00	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
Base Ohio Creek									
6,100.00	0.00	0.00	5,877.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,200.00	0.00	0.00	5,977.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,300.00	0.00	0.00	6,077.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,400.00	0.00	0.00	6,177.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,500.00	0.00	0.00	6,277.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,600.00	0.00	0.00	6,377.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,667.57	0.00	0.00	6,445.00	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
TOG = 636843.65, 1221558.71									
6,700.00	0.00	0.00	6,477.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,800.00	0.00	0.00	6,577.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
6,900.00	0.00	0.00	6,677.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,000.00	0.00	0.00	6,777.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,100.00	0.00	0.00	6,877.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,200.00	0.00	0.00	6,977.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,300.00	0.00	0.00	7,077.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,400.00	0.00	0.00	7,177.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,500.00	0.00	0.00	7,277.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,600.00	0.00	0.00	7,377.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,700.00	0.00	0.00	7,477.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,800.00	0.00	0.00	7,577.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,900.00	0.00	0.00	7,677.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
7,941.32	0.00	0.00	7,718.75	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
Target = 636843.65, 1221558.71									
8,000.00	0.00	0.00	7,777.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,100.00	0.00	0.00	7,877.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,200.00	0.00	0.00	7,977.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,300.00	0.00	0.00	8,077.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,400.00	0.00	0.00	8,177.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,500.00	0.00	0.00	8,277.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,582.57	0.00	0.00	8,360.00	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
Rollins									
8,600.00	0.00	0.00	8,377.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,700.00	0.00	0.00	8,477.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,800.00	0.00	0.00	8,577.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,900.00	0.00	0.00	8,677.43	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
8,982.57	0.00	0.00	8,760.00	531.46	-1,390.77	1,488.86	0.00	0.00	0.00
PBHL = 636843.65, 1221558.71									



Database:	EDM-R5000-JanieCooke-Local	Local Co-ordinate Reference:	Well CC 697-06-45A - Slot H
Company:	OXY USA RMAT	TVD Reference:	GL 8345' & RKB 30' @ 8375.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8345' & RKB 30' @ 8375.00ft (H&P)
Site:	Cascade Creek 697-06D Pad	North Reference:	True
Well:	CC 697-06-45A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
CC 697-06-45A Target	0.00	0.00	7,718.75	531.46	-1,390.77	636,843.66	1,221,558.71	39° 32' 58.128 N	108° 15' 39.312 W
- plan hits target center									
- Circle (radius 50.00)									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,877.57	5,655.00	Mesaverde		0.00	
6,017.57	5,795.00	Base Ohio Creek		0.00	
8,582.57	8,360.00	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
1,107.94	1,092.82	50.93	-133.28	Start 18.16° Hold At 1107.94'
4,969.63	4,762.18	480.53	-1,257.49	Start Drop -2.00
5,877.57	5,655.00	531.46	-1,390.77	Start 0.00° Hold At 5877.57'
6,667.57	6,445.00	531.46	-1,390.77	TOG = 636843.65, 1221558.71
7,941.32	7,718.75	531.46	-1,390.77	Target = 636843.65, 1221558.71
8,982.57	8,760.00	531.46	-1,390.77	PBHL = 636843.65, 1221558.71