



Scientific Drilling
Rocky Mountain Operations

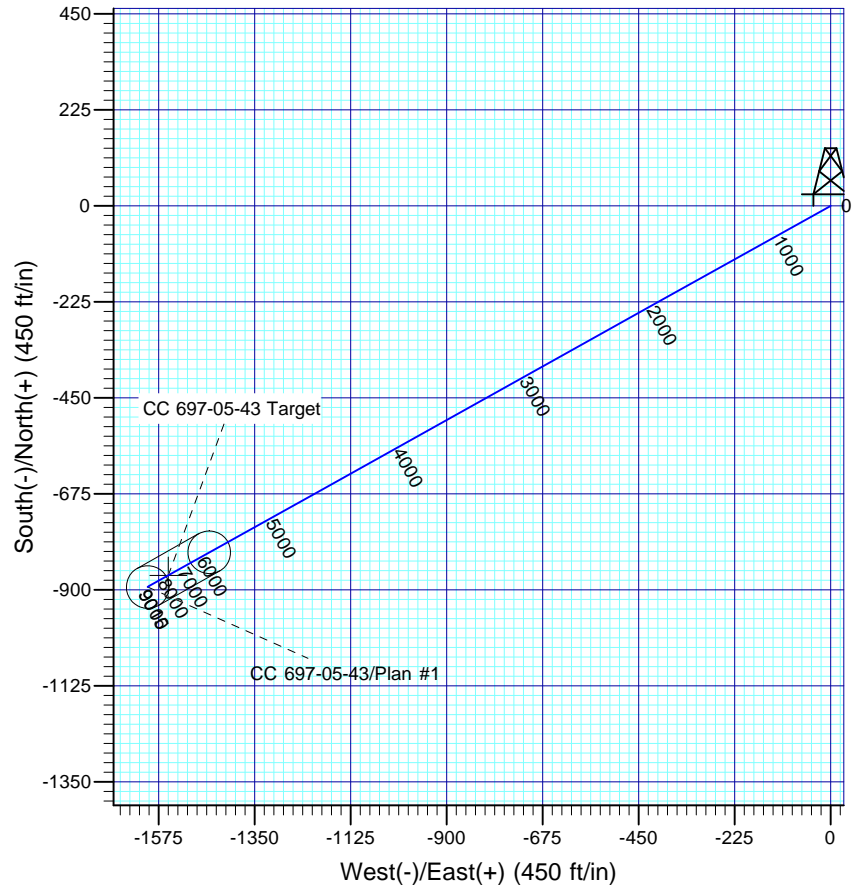
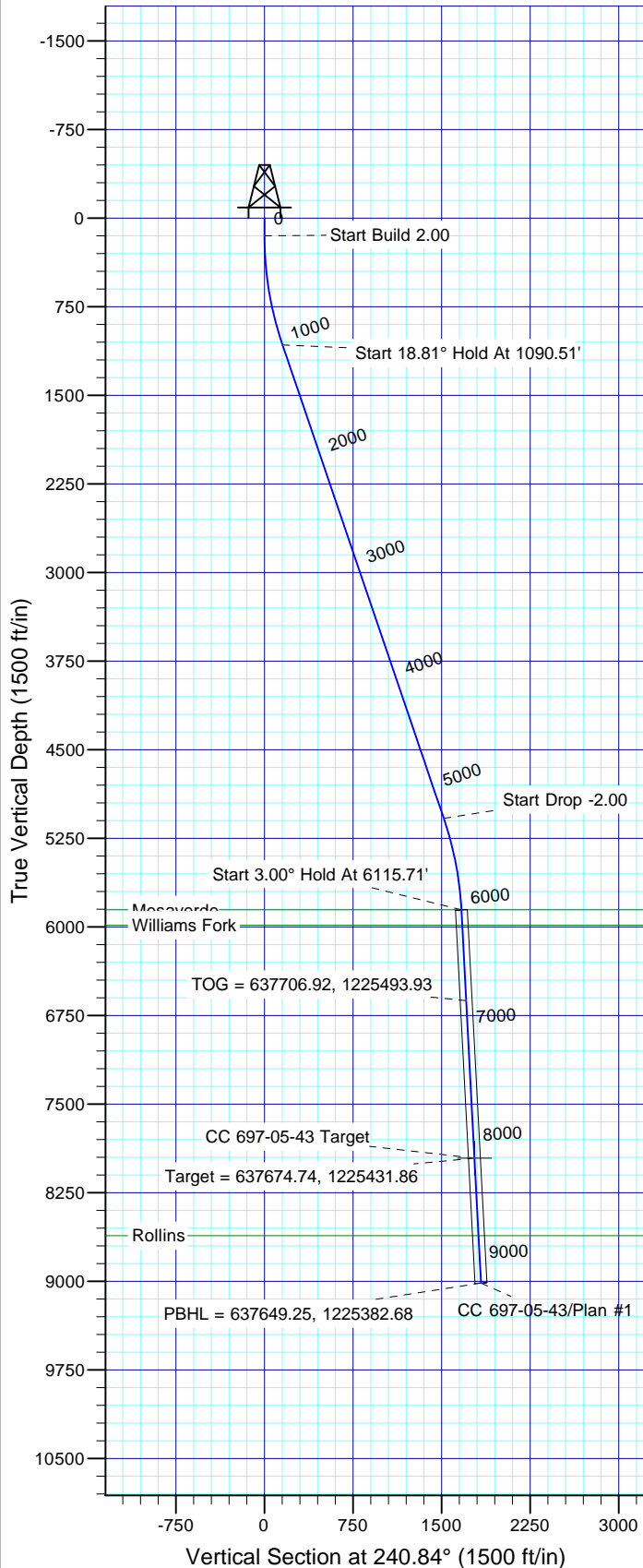
Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-05C Pad



Well Details: CC 697-05-43

TVD Reference: GL 8429' & RKB 30' @ 8459.00ft (H&P) Ground Level: 8429.00
+N/-S 0.00 +E/-W 0.00 Northing 638493.88 Easting 1227010.05 Latitude 39° 33' 16.062 N Longitude 108° 14' 30.386 W Slot B

T M Azimuths to True North
Magnetic North: 10.51°
Magnetic Field
Strength: 52311.5nT
Dip Angle: 65.77°
Date: 2010/12/16
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5856.00	6115.85	Mesaverde
5986.00	6246.03	Williams Fork
8615.00	8878.64	Rollins

Plan: Plan #1

14:35, December 28 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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	1090.80	18.82	240.84	1073.98	-74.60	-133.69	2.00	240.84	153.10	
4	5325.05	18.82	240.84	5081.95	-740.03	-1326.29	0.00	0.00	0.00	
5	6115.86	3.00	240.84	5856.00	-812.71	-1456.55	2.00	180.00	1667.95	
6	8220.74	3.00	240.84	7958.00	-866.39	-1552.75	0.00	0.00	0.00	
7	9279.19	3.00	240.84	9015.00	-893.38	-1601.13	0.00	0.00	0.00	CC 697-05-43 Target

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-43 - Slot B**

OH

Plan: Plan #1

Standard Planning Report

28 December, 2010

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-43	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 697-05C Pad, Sec. 5 T6S R97W		
Site Position:		Northing:	637,463.43 usft
From:	Map	Easting:	1,226,150.07 usft
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in
		Latitude:	39° 33' 5.626 N
		Longitude:	108° 14' 40.963 W
		Grid Convergence:	-1.73 °

Well	CC 697-05-43 - Slot B		
Well Position	+N/-S	1,055.97 ft	Northing: 638,493.88 usft
	+E/-W	828.46 ft	Easting: 1,227,010.05 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	Latitude: 39° 33' 16.062 N
			Longitude: 108° 14' 30.386 W
			Ground Level: 8,429.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2010/12/16	10.51	65.77	52,312

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	240.84

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	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,090.80	18.82	240.84	1,073.98	-74.60	-133.69	2.00	2.00	0.00	240.84	
5,325.06	18.82	240.84	5,081.95	-740.03	-1,326.29	0.00	0.00	0.00	0.00	
6,115.86	3.00	240.84	5,856.00	-812.71	-1,456.55	2.00	-2.00	0.00	180.00	
8,220.74	3.00	240.84	7,958.00	-866.39	-1,552.75	0.00	0.00	0.00	0.00	CC 697-05-43 Target
9,279.19	3.00	240.84	9,015.00	-893.38	-1,601.13	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-43	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
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
200.00	1.00	240.84	200.00	-0.21	-0.38	0.44	2.00	2.00	0.00
300.00	3.00	240.84	299.93	-1.91	-3.43	3.93	2.00	2.00	0.00
400.00	5.00	240.84	399.68	-5.31	-9.52	10.90	2.00	2.00	0.00
500.00	7.00	240.84	499.13	-10.40	-18.65	21.35	2.00	2.00	0.00
600.00	9.00	240.84	598.15	-17.19	-30.80	35.27	2.00	2.00	0.00
700.00	11.00	240.84	696.63	-25.65	-45.96	52.63	2.00	2.00	0.00
800.00	13.00	240.84	794.44	-35.78	-64.12	73.42	2.00	2.00	0.00
900.00	15.00	240.84	891.46	-47.56	-85.24	97.62	2.00	2.00	0.00
1,000.00	17.00	240.84	987.58	-60.99	-109.31	125.18	2.00	2.00	0.00
1,090.51	18.81	240.84	1,073.71	-74.55	-133.61	153.00	2.00	2.00	0.00
Start 18.81° Hold At 1090.51'									
1,090.80	18.82	240.84	1,073.98	-74.60	-133.69	153.10	2.00	2.00	0.00
1,100.00	18.82	240.84	1,082.69	-76.04	-136.28	156.06	0.00	0.00	0.00
1,200.00	18.82	240.84	1,177.34	-91.76	-164.45	188.32	0.00	0.00	0.00
1,300.00	18.82	240.84	1,272.00	-107.47	-192.62	220.57	0.00	0.00	0.00
1,400.00	18.82	240.84	1,366.66	-123.19	-220.78	252.82	0.00	0.00	0.00
1,500.00	18.82	240.84	1,461.31	-138.90	-248.95	285.08	0.00	0.00	0.00
1,600.00	18.82	240.84	1,555.97	-154.62	-277.11	317.33	0.00	0.00	0.00
1,700.00	18.82	240.84	1,650.62	-170.34	-305.28	349.58	0.00	0.00	0.00
1,800.00	18.82	240.84	1,745.28	-186.05	-333.44	381.84	0.00	0.00	0.00
1,900.00	18.82	240.84	1,839.94	-201.77	-361.61	414.09	0.00	0.00	0.00
2,000.00	18.82	240.84	1,934.59	-217.48	-389.77	446.34	0.00	0.00	0.00
2,100.00	18.82	240.84	2,029.25	-233.20	-417.94	478.60	0.00	0.00	0.00
2,200.00	18.82	240.84	2,123.90	-248.91	-446.10	510.85	0.00	0.00	0.00
2,300.00	18.82	240.84	2,218.56	-264.63	-474.27	543.10	0.00	0.00	0.00
2,400.00	18.82	240.84	2,313.22	-280.34	-502.43	575.35	0.00	0.00	0.00
2,500.00	18.82	240.84	2,407.87	-296.06	-530.60	607.61	0.00	0.00	0.00
2,600.00	18.82	240.84	2,502.53	-311.77	-558.77	639.86	0.00	0.00	0.00
2,700.00	18.82	240.84	2,597.18	-327.49	-586.93	672.11	0.00	0.00	0.00
2,800.00	18.82	240.84	2,691.84	-343.21	-615.10	704.37	0.00	0.00	0.00
2,900.00	18.82	240.84	2,786.49	-358.92	-643.26	736.62	0.00	0.00	0.00
3,000.00	18.82	240.84	2,881.15	-374.64	-671.43	768.87	0.00	0.00	0.00
3,100.00	18.82	240.84	2,975.81	-390.35	-699.59	801.13	0.00	0.00	0.00
3,200.00	18.82	240.84	3,070.46	-406.07	-727.76	833.38	0.00	0.00	0.00
3,300.00	18.82	240.84	3,165.12	-421.78	-755.92	865.63	0.00	0.00	0.00
3,400.00	18.82	240.84	3,259.77	-437.50	-784.09	897.89	0.00	0.00	0.00
3,500.00	18.82	240.84	3,354.43	-453.21	-812.25	930.14	0.00	0.00	0.00
3,600.00	18.82	240.84	3,449.09	-468.93	-840.42	962.39	0.00	0.00	0.00
3,700.00	18.82	240.84	3,543.74	-484.65	-868.58	994.65	0.00	0.00	0.00
3,800.00	18.82	240.84	3,638.40	-500.36	-896.75	1,026.90	0.00	0.00	0.00
3,900.00	18.82	240.84	3,733.05	-516.08	-924.92	1,059.15	0.00	0.00	0.00
4,000.00	18.82	240.84	3,827.71	-531.79	-953.08	1,091.41	0.00	0.00	0.00
4,100.00	18.82	240.84	3,922.37	-547.51	-981.25	1,123.66	0.00	0.00	0.00
4,200.00	18.82	240.84	4,017.02	-563.22	-1,009.41	1,155.91	0.00	0.00	0.00
4,300.00	18.82	240.84	4,111.68	-578.94	-1,037.58	1,188.16	0.00	0.00	0.00
4,400.00	18.82	240.84	4,206.33	-594.65	-1,065.74	1,220.42	0.00	0.00	0.00
4,500.00	18.82	240.84	4,300.99	-610.37	-1,093.91	1,252.67	0.00	0.00	0.00
4,600.00	18.82	240.84	4,395.64	-626.08	-1,122.07	1,284.92	0.00	0.00	0.00
4,700.00	18.82	240.84	4,490.30	-641.80	-1,150.24	1,317.18	0.00	0.00	0.00
4,800.00	18.82	240.84	4,584.96	-657.52	-1,178.40	1,349.43	0.00	0.00	0.00

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Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-43	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)
4,900.00	18.82	240.84	4,679.61	-673.23	-1,206.57	1,381.68	0.00	0.00	0.00
5,000.00	18.82	240.84	4,774.27	-688.95	-1,234.73	1,413.94	0.00	0.00	0.00
5,100.00	18.82	240.84	4,868.92	-704.66	-1,262.90	1,446.19	0.00	0.00	0.00
5,200.00	18.82	240.84	4,963.58	-720.38	-1,291.07	1,478.44	0.00	0.00	0.00
5,300.00	18.82	240.84	5,058.24	-736.09	-1,319.23	1,510.70	0.00	0.00	0.00
5,325.06	18.82	240.84	5,081.95	-740.03	-1,326.29	1,518.78	0.00	0.00	0.00
5,325.20	18.82	240.84	5,082.09	-740.05	-1,326.33	1,518.82	0.00	0.00	0.00
Start Drop -2.00									
5,400.00	17.32	240.84	5,153.20	-751.35	-1,346.58	1,542.02	2.00	-2.00	0.00
5,500.00	15.32	240.84	5,249.17	-765.04	-1,371.12	1,570.11	2.00	-2.00	0.00
5,600.00	13.32	240.84	5,346.06	-777.09	-1,392.71	1,594.84	2.00	-2.00	0.00
5,700.00	11.32	240.84	5,443.75	-787.49	-1,411.34	1,616.17	2.00	-2.00	0.00
5,800.00	9.32	240.84	5,542.13	-796.21	-1,426.98	1,634.08	2.00	-2.00	0.00
5,900.00	7.32	240.84	5,641.07	-803.26	-1,439.61	1,648.54	2.00	-2.00	0.00
6,000.00	5.32	240.84	5,740.46	-808.62	-1,449.22	1,659.55	2.00	-2.00	0.00
6,100.00	3.32	240.84	5,840.17	-812.29	-1,455.79	1,667.08	2.00	-2.00	0.00
6,115.71	3.00	240.84	5,855.86	-812.71	-1,456.55	1,667.94	2.00	-2.00	0.00
Start 3.00° Hold At 6115.71'									
6,115.85	3.00	240.84	5,856.00	-812.71	-1,456.55	1,667.95	2.00	-2.00	0.00
Mesaverde									
6,200.00	3.00	240.84	5,940.03	-814.86	-1,460.40	1,672.35	0.00	0.00	0.00
6,246.03	3.00	240.84	5,986.00	-816.03	-1,462.50	1,674.76	0.00	0.00	0.00
Williams Fork									
6,300.00	3.00	240.84	6,039.89	-817.41	-1,464.97	1,677.59	0.00	0.00	0.00
6,400.00	3.00	240.84	6,139.76	-819.96	-1,469.54	1,682.82	0.00	0.00	0.00
6,500.00	3.00	240.84	6,239.62	-822.51	-1,474.11	1,688.05	0.00	0.00	0.00
6,600.00	3.00	240.84	6,339.48	-825.06	-1,478.68	1,693.29	0.00	0.00	0.00
6,700.00	3.00	240.84	6,439.34	-827.61	-1,483.25	1,698.52	0.00	0.00	0.00
6,800.00	3.00	240.84	6,539.21	-830.16	-1,487.82	1,703.75	0.00	0.00	0.00
6,884.91	3.00	240.84	6,624.00	-832.33	-1,491.70	1,708.20	0.00	0.00	0.00
TOG = 637706.92, 1225493.93									
6,900.00	3.00	240.84	6,639.07	-832.71	-1,492.39	1,708.99	0.00	0.00	0.00
7,000.00	3.00	240.84	6,738.93	-835.26	-1,496.96	1,714.22	0.00	0.00	0.00
7,100.00	3.00	240.84	6,838.80	-837.81	-1,501.53	1,719.45	0.00	0.00	0.00
7,200.00	3.00	240.84	6,938.66	-840.36	-1,506.10	1,724.69	0.00	0.00	0.00
7,300.00	3.00	240.84	7,038.52	-842.91	-1,510.67	1,729.92	0.00	0.00	0.00
7,400.00	3.00	240.84	7,138.39	-845.46	-1,515.24	1,735.16	0.00	0.00	0.00
7,500.00	3.00	240.84	7,238.25	-848.01	-1,519.81	1,740.39	0.00	0.00	0.00
7,600.00	3.00	240.84	7,338.11	-850.56	-1,524.38	1,745.62	0.00	0.00	0.00
7,700.00	3.00	240.84	7,437.97	-853.11	-1,528.95	1,750.86	0.00	0.00	0.00
7,800.00	3.00	240.84	7,537.84	-855.66	-1,533.52	1,756.09	0.00	0.00	0.00
7,900.00	3.00	240.84	7,637.70	-858.21	-1,538.09	1,761.32	0.00	0.00	0.00
8,000.00	3.00	240.84	7,737.56	-860.76	-1,542.66	1,766.56	0.00	0.00	0.00
8,100.00	3.00	240.84	7,837.43	-863.31	-1,547.23	1,771.79	0.00	0.00	0.00
8,200.00	3.00	240.84	7,937.29	-865.86	-1,551.80	1,777.02	0.00	0.00	0.00
8,220.59	3.00	240.84	7,957.85	-866.39	-1,552.75	1,778.10	0.00	0.00	0.00
Target = 637674.74, 1225431.86									
8,220.74	3.00	240.84	7,958.00	-866.39	-1,552.75	1,778.11	0.00	0.00	0.00
8,300.00	3.00	240.84	8,037.15	-868.41	-1,556.37	1,782.26	0.00	0.00	0.00
8,400.00	3.00	240.84	8,137.02	-870.96	-1,560.95	1,787.49	0.00	0.00	0.00
8,500.00	3.00	240.84	8,236.88	-873.51	-1,565.52	1,792.73	0.00	0.00	0.00
8,600.00	3.00	240.84	8,336.74	-876.06	-1,570.09	1,797.96	0.00	0.00	0.00
8,700.00	3.00	240.84	8,436.60	-878.61	-1,574.66	1,803.19	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8429' & RKB 30' @ 8459.00ft (H&P)
Site:	Cascade Creek 697-05C Pad	North Reference:	True
Well:	CC 697-05-43	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)
8,800.00	3.00	240.84	8,536.47	-881.16	-1,579.23	1,808.43	0.00	0.00	0.00
8,878.64	3.00	240.84	8,615.00	-883.17	-1,582.82	1,812.54	0.00	0.00	0.00
Rollins									
8,900.00	3.00	240.84	8,636.33	-883.71	-1,583.80	1,813.66	0.00	0.00	0.00
9,000.00	3.00	240.84	8,736.19	-886.26	-1,588.37	1,818.89	0.00	0.00	0.00
9,100.00	3.00	240.84	8,836.06	-888.81	-1,592.94	1,824.13	0.00	0.00	0.00
9,200.00	3.00	240.84	8,935.92	-891.36	-1,597.51	1,829.36	0.00	0.00	0.00
9,279.04	3.00	240.84	9,014.85	-893.38	-1,601.12	1,833.50	0.00	0.00	0.00
PBHL = 637649.25, 1225382.68									
9,279.19	3.00	240.84	9,015.00	-893.38	-1,601.13	1,833.50	0.00	0.00	0.00

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 697-05-43 Target - plan hits target center - Circle (radius 50.00)	-3.00	240.56	7,958.00	-866.39	-1,552.75	637,674.74	1,225,431.86	39° 33' 7.499 N	108° 14' 50.210 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,115.85	5,856.00	Mesaverde		0.00	
6,246.03	5,986.00	Williams Fork		0.00	
8,878.64	8,615.00	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
150.00	150.00	0.00	0.00	Start Build 2.00
1,090.51	1,073.71	-74.55	-133.61	Start 18.81° Hold At 1090.51'
5,325.20	5,082.09	-740.05	-1,326.33	Start Drop -2.00
6,115.71	5,855.86	-812.71	-1,456.55	Start 3.00° Hold At 6115.71'
6,884.91	6,624.00	-832.33	-1,491.70	TOG = 637706.92, 1225493.93
8,220.59	7,957.85	-866.39	-1,552.75	Target = 637674.74, 1225431.86
9,279.04	9,014.85	-893.38	-1,601.12	PBHL = 637649.25, 1225382.68