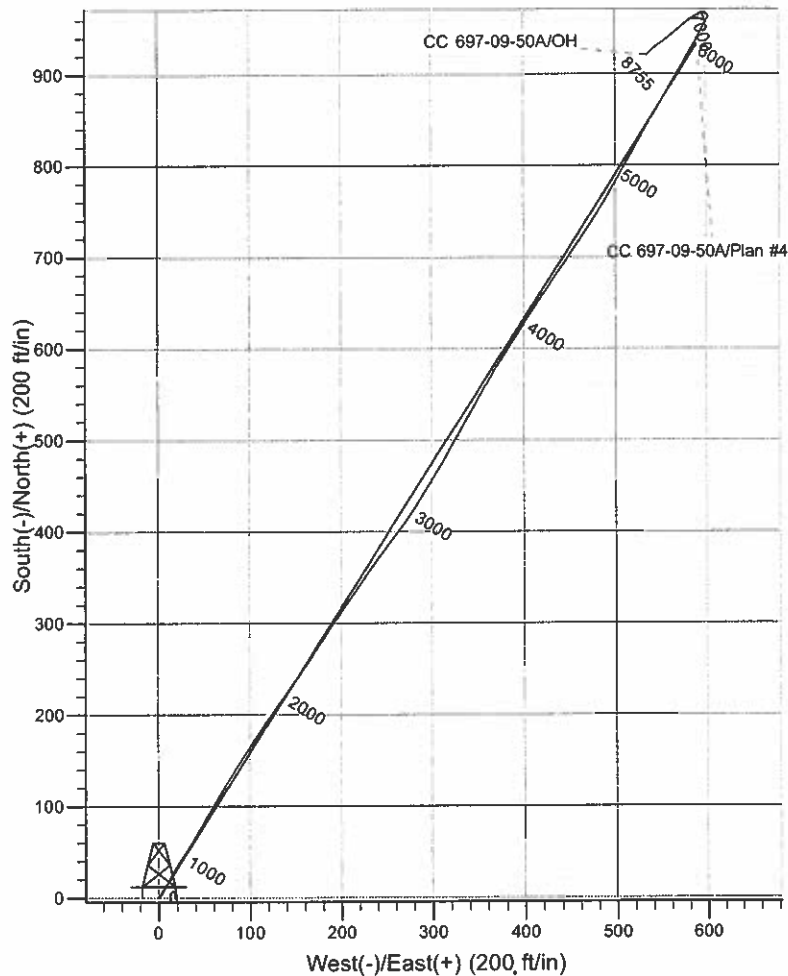
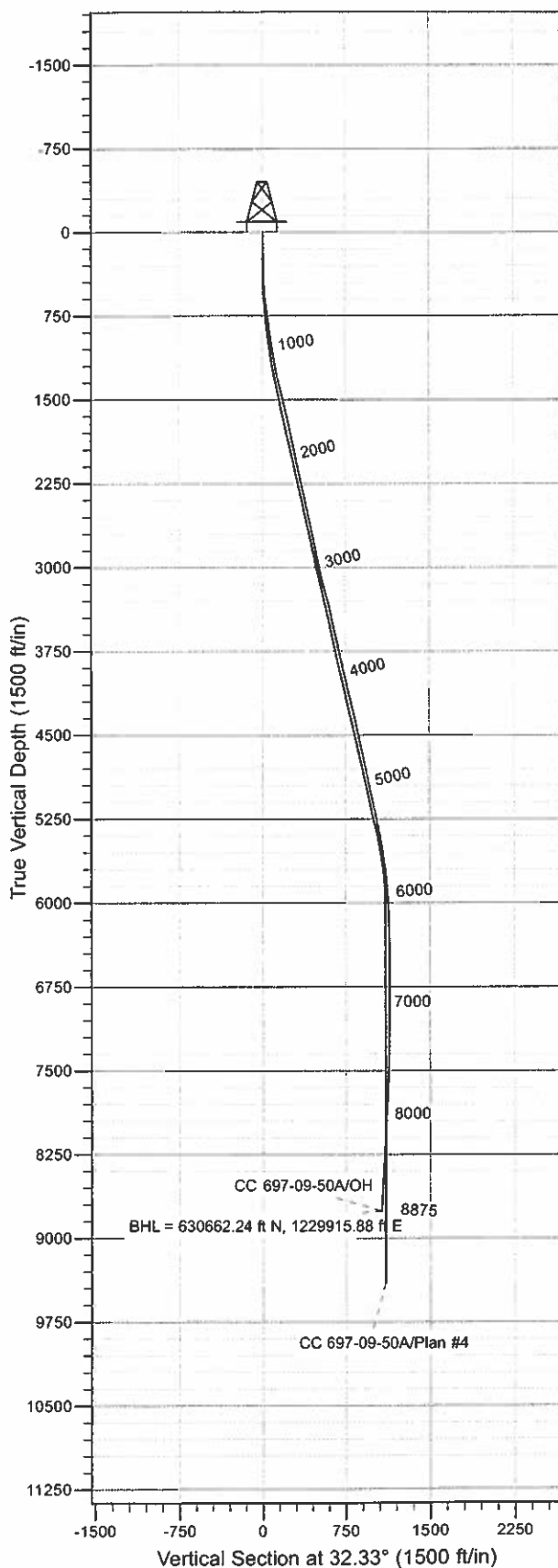




Scientific Drilling

Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-09-50A
Wellbore: OH
Design: OH



WELL DETAILS: CC 697-09-50A

Ground Level: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
 Northing 629758.07 Easting 1229353.67 Latitude 39° 31' 50.458 N Longitude 108° 13' 57.124 W F

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-09-50A - Slot F, True North
 Vertical (TVD) Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
 Section (VS) Reference: Slot - F(0.00N, 0.00E)
 Measured Depth Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
 Calculation Method: Minimum Curvature
 Local North: True
 Location: Sec 9 T6S R97W

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

Design: OH (CC 697-09-50A/OH)

Created By: Julie Cruse Date: 2010-09-30



Scientific Drilling

OXY USA RMAT

Garfield County, CO NAD27

Cascade Creek 609-14 Pad

CC 697-09-50A - Slot F

OH

Design: OH

Standard Survey Report

30 September, 2010



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-50A - Slot F
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-50A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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 609-14 Pad, Sec 9 T6S R97W		
Site Position:		Northing:	629,789.23 usft
From:	Map	Easting:	1,229,350.88 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 31' 50.765 N
		Longitude:	108° 13' 57.172 W
		Grid Convergence:	-1.72 °

Well	CC 697-09-50A - Slot F, 199' FSL 272' FWL		
Well Position	+N/-S	0.00 ft	Northing: 629,758.07 usft
	+E/-W	0.00 ft	Easting: 1,229,353.67 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 31' 50.458 N
		Longitude:	108° 13' 57.124 W
		Ground Level:	8,393.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2008-06-24	10.83	65.81	52,541

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00		32.33

Survey Program	Date	2010-09-30			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
370.00	2,660.00	Survey #1 - Surface (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,787.00	8,875.00	Survey #2 - Production (OH)	MWD-SDI	MWD - Standard ISCWSA	

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	
370.00	1.67	39.32	369.95	4.17	3.42	5.35	0.45	0.45	0.00	
First SDI MWD Survey										
432.00	2.80	27.08	431.90	6.22	4.68	7.76	1.97	1.82	-19.74	
524.00	4.75	30.52	523.70	11.50	7.64	13.80	2.13	2.12	3.74	
616.00	6.51	26.57	615.25	19.45	11.90	22.80	1.96	1.91	-4.29	
709.00	7.21	29.73	707.58	29.23	17.16	33.87	0.85	0.75	3.40	
801.00	7.83	33.51	798.79	39.47	23.48	45.91	0.86	0.67	4.11	
895.00	9.06	32.98	891.77	51.02	31.04	59.71	1.31	1.31	-0.56	
987.00	8.35	31.22	982.71	62.81	38.45	73.63	0.82	-0.77	-1.91	

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-50A - Slot F
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-50A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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)	
1,082.00	8.62	29.03	1,076.67	74.93	45.48	87.64	0.44	0.28	-2.31	
1,176.00	10.29	30.34	1,169.39	88.34	53.14	103.06	1.79	1.78	1.39	
1,271.00	12.40	30.87	1,262.53	104.42	62.66	121.74	2.22	2.22	0.56	
1,365.00	15.12	31.14	1,353.82	123.58	74.18	144.09	2.89	2.89	0.29	
1,460.00	14.95	33.24	1,445.57	144.43	87.30	168.73	0.60	-0.18	2.21	
1,555.00	12.40	33.16	1,537.87	163.22	99.60	191.18	2.68	-2.68	-0.08	
1,649.00	12.75	33.07	1,629.62	180.36	110.78	211.65	0.37	0.37	-0.10	
1,744.00	13.45	34.56	1,722.14	198.25	122.77	233.17	0.82	0.74	1.57	
1,839.00	12.13	34.91	1,814.78	215.53	134.75	254.18	1.39	-1.39	0.37	
1,934.00	11.08	36.32	1,907.84	231.07	145.87	273.26	1.14	-1.11	1.48	
2,028.00	11.52	33.60	2,000.02	246.17	156.41	291.66	0.74	0.47	-2.89	
2,123.00	12.22	33.16	2,092.99	262.48	167.16	311.19	0.74	0.74	-0.46	
2,218.00	12.93	33.24	2,185.71	279.79	178.49	331.87	0.75	0.75	0.08	
2,312.00	12.93	33.77	2,277.32	297.33	190.10	352.90	0.13	0.00	0.56	
2,407.00	12.57	34.83	2,369.98	314.65	201.91	373.86	0.45	-0.38	1.12	
2,501.00	12.84	34.39	2,461.68	331.67	213.65	394.51	0.31	0.29	-0.47	
2,596.00	12.66	34.83	2,554.34	348.92	225.56	415.46	0.22	-0.19	0.46	
2,660.00	12.13	35.79	2,616.85	360.13	233.50	429.18	0.89	-0.83	1.50	
Last Survey in 14 3/4" Hole										
2,787.00	11.26	37.28	2,741.21	380.82	248.81	454.85	0.73	-0.69	1.17	
First Survey in 8 3/4" Hole										
2,882.00	10.90	37.01	2,834.44	395.38	259.84	473.05	0.38	-0.38	-0.28	
2,976.00	11.52	37.01	2,926.64	409.97	270.84	491.26	0.66	0.66	0.00	
3,071.00	12.93	31.21	3,019.49	426.64	282.06	511.34	1.97	1.48	-6.11	
3,166.00	15.04	31.92	3,111.67	446.19	294.08	534.30	2.23	2.22	0.75	
3,260.00	15.12	31.65	3,202.43	466.98	306.96	558.75	0.11	0.09	-0.29	
3,355.00	13.98	28.05	3,294.39	487.65	318.86	582.58	1.53	-1.20	-3.79	
3,450.00	13.72	28.31	3,386.62	507.70	329.60	605.27	0.28	-0.27	0.27	
3,544.00	12.84	29.10	3,478.11	526.64	339.97	626.81	0.96	-0.94	0.84	
3,639.00	13.45	29.54	3,570.62	545.48	350.55	648.39	0.65	0.64	0.46	
3,734.00	13.10	30.77	3,663.08	564.34	361.50	670.19	0.47	-0.37	1.29	
3,828.00	12.28	30.33	3,754.78	582.12	372.00	690.83	0.88	-0.87	-0.47	
3,923.00	13.45	32.44	3,847.40	600.17	383.03	711.97	1.33	1.23	2.22	
4,018.00	13.01	32.62	3,939.88	618.50	394.72	733.71	0.47	-0.46	0.19	
4,113.00	12.40	32.80	4,032.55	636.08	406.01	754.61	0.64	-0.64	0.19	
4,207.00	13.63	32.71	4,124.13	653.88	417.46	775.77	1.31	1.31	-0.10	
4,302.00	13.19	33.59	4,216.54	672.33	429.51	797.80	0.51	-0.46	0.93	
4,397.00	12.84	33.41	4,309.10	690.17	441.32	819.19	0.37	-0.37	-0.19	
4,492.00	12.13	34.64	4,401.86	707.19	452.80	839.72	0.80	-0.75	1.29	
4,586.00	12.57	34.20	4,493.68	723.78	464.17	859.81	0.48	0.47	-0.47	
4,681.00	11.96	33.23	4,586.51	740.56	475.37	879.99	0.68	-0.64	-1.02	
4,776.00	12.05	29.37	4,679.44	757.44	485.63	899.73	0.85	0.09	-4.06	
4,870.00	11.78	30.42	4,771.41	774.26	495.30	919.12	0.37	-0.29	1.12	

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-09-50A
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well CC 697-09-50A - Slot F
TVD Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
MD Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Rockies-R5000.1

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)
4,965.00	12.22	29.81	4,864.33	791.35	505.21	938.86	0.48	0.46	-0.64
5,060.00	12.66	29.19	4,957.10	809.16	515.28	959.30	0.48	0.46	-0.65
5,155.00	12.31	29.89	5,049.86	827.03	525.41	979.81	0.40	-0.37	0.74
5,249.00	11.96	30.51	5,141.76	844.11	535.35	999.56	0.40	-0.37	0.66
5,344.00	11.78	30.33	5,234.73	860.96	545.24	1,019.09	0.19	-0.19	-0.19
5,439.00	11.52	30.95	5,327.77	877.46	555.02	1,038.26	0.30	-0.27	0.65
5,533.00	9.85	30.16	5,420.14	892.47	563.88	1,055.68	1.78	-1.78	-0.84
5,628.00	9.32	31.13	5,513.81	906.08	571.94	1,071.49	0.58	-0.56	1.02
5,723.00	7.74	29.19	5,607.76	918.25	579.04	1,085.57	1.69	-1.66	-2.04
5,817.00	7.39	29.81	5,700.94	929.02	585.13	1,097.93	0.38	-0.37	0.66
5,912.00	6.16	30.07	5,795.27	938.73	590.72	1,109.13	1.30	-1.29	0.27
6,007.00	4.31	25.68	5,889.87	946.36	594.83	1,117.77	1.99	-1.95	-4.62
6,102.00	3.52	27.87	5,984.65	952.16	597.74	1,124.22	0.85	-0.83	2.31
6,196.00	2.99	29.37	6,078.50	956.84	600.29	1,129.55	0.57	-0.56	1.60
6,291.00	1.67	23.83	6,173.42	960.27	602.06	1,133.39	1.41	-1.39	-5.83
6,386.00	0.97	14.51	6,268.39	962.31	602.82	1,135.52	0.77	-0.74	-9.81
6,480.00	0.88	344.46	6,362.38	963.78	602.83	1,136.77	0.52	-0.10	-31.97
6,575.00	0.70	311.23	6,457.37	964.86	602.20	1,137.35	0.51	-0.19	-34.98
6,670.00	0.62	313.61	6,552.36	965.60	601.39	1,137.54	0.09	-0.08	2.51
6,765.00	0.62	306.66	6,647.36	966.26	600.60	1,137.67	0.08	0.00	-7.32
6,859.00	0.88	275.55	6,741.35	966.64	599.48	1,137.39	0.50	0.28	-33.10
6,954.00	1.32	259.99	6,836.33	966.52	597.67	1,136.32	0.56	0.46	-16.38
7,049.00	0.53	271.15	6,931.32	966.34	596.16	1,135.36	0.85	-0.83	11.75
7,144.00	0.88	251.38	7,026.31	966.11	595.03	1,134.56	0.44	0.37	-20.81
7,239.00	0.35	263.68	7,121.31	965.85	594.05	1,133.82	0.57	-0.56	12.95
7,333.00	0.62	246.72	7,215.30	965.61	593.29	1,133.22	0.32	0.29	-18.04
7,428.00	1.06	238.46	7,310.29	964.95	592.07	1,132.00	0.48	0.46	-8.69
7,523.00	1.58	240.74	7,405.27	963.85	590.18	1,130.06	0.55	0.55	2.40
7,618.00	1.76	240.31	7,500.23	962.49	587.77	1,127.62	0.19	0.19	-0.45
7,712.00	2.37	236.61	7,594.17	960.70	584.89	1,124.58	0.66	0.65	-3.94
7,807.00	2.90	232.66	7,689.07	958.17	581.34	1,120.53	0.59	0.56	-4.16
7,901.00	3.08	234.06	7,782.94	955.24	577.41	1,115.96	0.21	0.19	1.49
7,996.00	3.17	225.19	7,877.80	951.89	573.48	1,111.03	0.52	0.09	-9.34
8,091.00	3.52	229.23	7,972.64	948.14	569.41	1,105.67	0.44	0.37	4.25
8,186.00	2.64	229.23	8,067.50	944.80	565.54	1,100.79	0.93	-0.93	0.00
8,280.00	2.99	235.73	8,161.38	942.01	561.88	1,096.47	0.50	0.37	6.91
8,375.00	3.69	232.48	8,256.22	938.75	557.40	1,091.33	0.76	0.74	-3.42
8,470.00	3.87	238.02	8,351.02	935.19	552.26	1,085.57	0.43	0.19	5.83
8,565.00	3.08	230.99	8,445.84	931.89	547.56	1,080.26	0.94	-0.83	-7.40
8,660.00	3.08	231.78	8,540.70	928.70	543.57	1,075.43	0.04	0.00	0.83
8,754.00	3.25	225.72	8,634.56	925.28	539.68	1,070.46	0.40	0.18	-6.45
8,817.00	3.17	227.21	8,697.46	922.85	537.12	1,067.04	0.18	-0.13	2.37
Last SDI MWD Survey									
8,875.00	3.17	227.21	8,755.37	920.67	534.77	1,063.94	0.00	0.00	0.00



Scientific Drilling
Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-50A - Slot F
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-50A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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)
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Projection to TD - BHL = 630662.24 ft N, 1229915.88 ft E

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
370.00	369.95	4.17	3.42	First SDI MWD Survey
2,660.00	2,616.85	360.13	233.50	Last Survey in 14 3/4" Hole
2,787.00	2,741.21	380.82	248.81	First Survey in 8 3/4" Hole
8,817.00	8,697.46	922.85	537.12	Last SDI MWD Survey
8,875.00	8,755.37	920.67	534.77	Projection to TD
8,875.00	8,755.37	920.67	534.77	BHL = 630662.24 ft N, 1229915.88 ft E

Checked By: _____ Approved By: _____ Date: _____