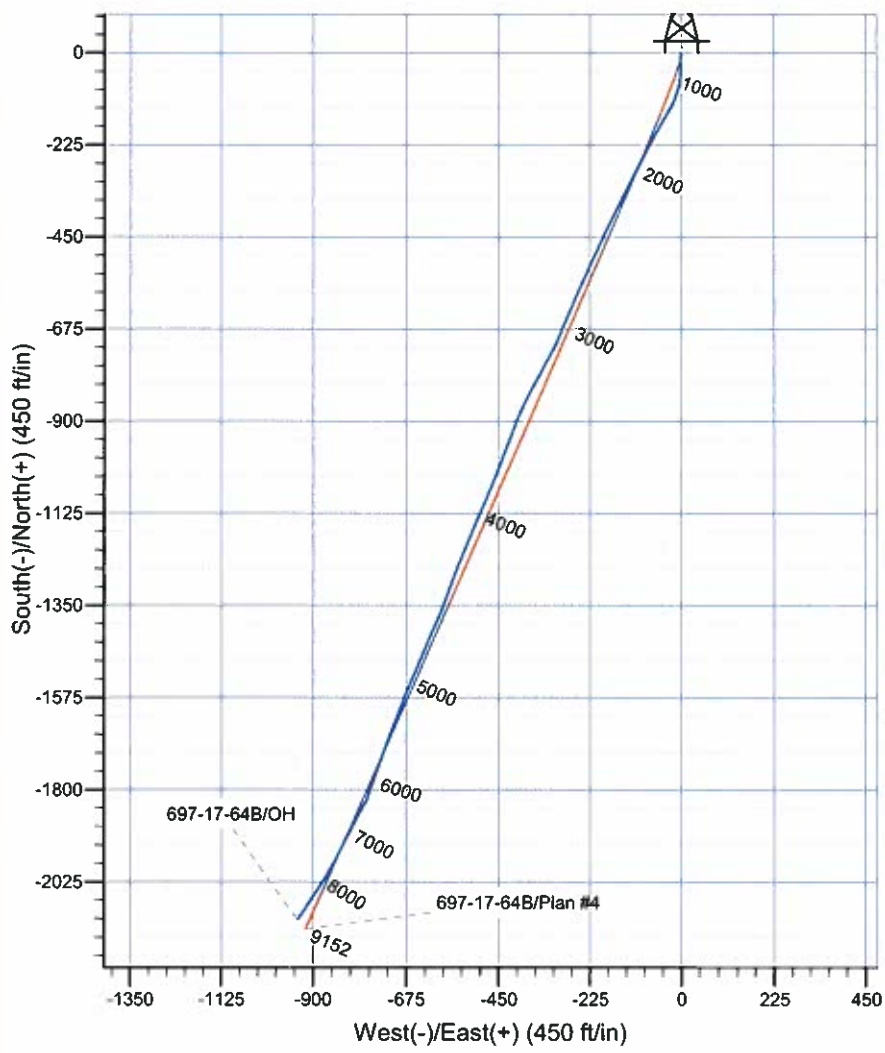
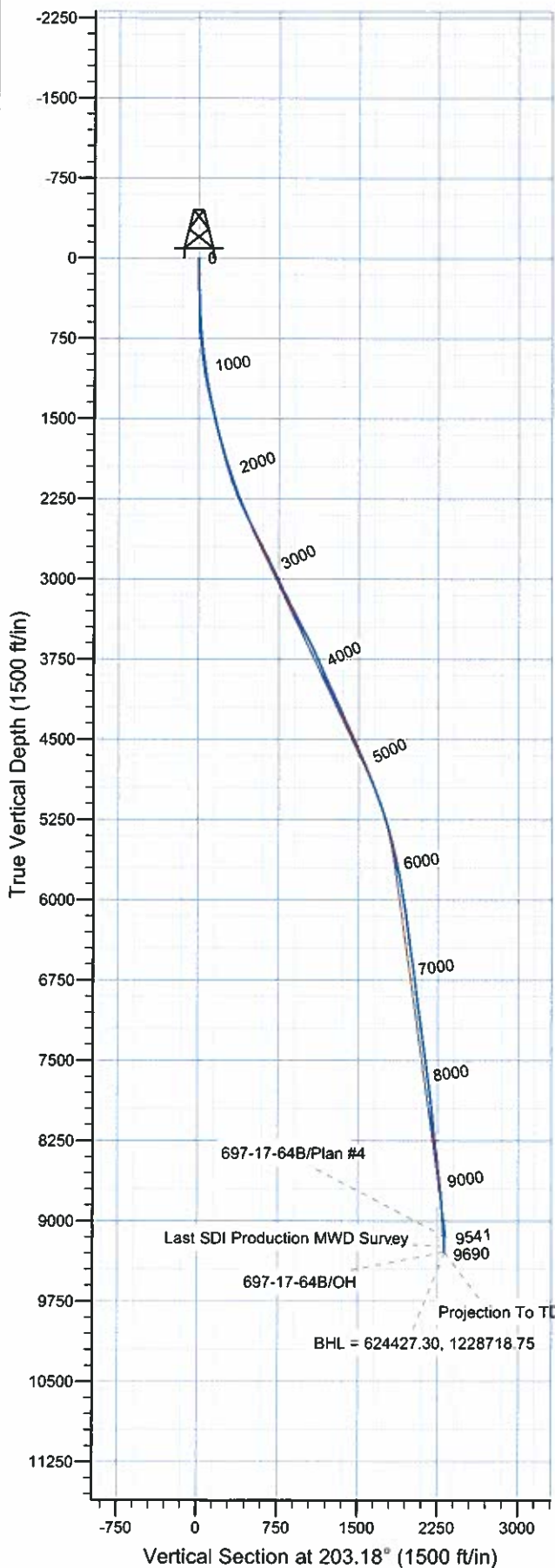




Scientific Drilling
Rocky Mountain Operations

Project: Garfield County, CO NAD27
Site: Cascade Creek 697-16A II Pad
Well: 697-17-64B
Wellbore: OH
Design: OH

OXY USA RMAT



WELL DETAILS: 697-17-64B

+N/-S	+E/-W	Ground Level	GL 8312' & RKB 30' @ 8342.00ft
0.00	0.00	626515.26	1229719.75
		39° 31' 18.530 N	108° 13' 51.210 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well 697-17-64B, True North
Vertical (TVD) Reference: GL 8312' & RKB 30' @ 8342.00ft
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 8312' & RKB 30' @ 8342.00ft
Calculation Method: Minimum Curvature
Local North: True
Location: Sec 16 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 (697-17-64B/OH)

Created By: Rex Hall Date: 2010-03-09



Scientific Drilling
Rocky Mountain Operations

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-16A II Pad
697-17-64B
OH**

Design: OH

Standard Survey Report

09 March, 2010



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-17-64B
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Site:	Cascade Creek 697-16A II Pad	MD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Well:	697-17-64B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.16 Multi-User Db

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 697-16A II Pad, Sec 16 T6S R97W				
Site Position:		Northing:	626,314.75 ft	Latitude:	39° 31' 16.584 N
From:	Map	Easting:	1,229,837.54 ft	Longitude:	108° 13' 49.631 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	-1.72 °

Well	697-17-64B					
Well Position	+N/-S	0.00 ft	Northing:	626,515.26 ft	Latitude:	39° 31' 18.530 N
	+E/-W	0.00 ft	Easting:	1,229,719.75 ft	Longitude:	108° 13' 51.210 W
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	8,312.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	11/5/2009	10.64	65.77	52,403

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	203.18	

Survey Program	Date	3/9/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
178.00	453.00	Survey #1 - Surface Gyro MWD (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3	
533.00	2,693.00	Survey #2 - Surface (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,786.00	9,690.00	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	
178.00	0.62	153.19	178.00	-0.86	0.43	0.62	0.35	0.35	0.00	
First SDI Surface Gyro Survey										
270.00	1.41	182.64	269.98	-2.43	0.61	2.00	1.00	0.86	32.01	
301.00	1.76	177.98	300.97	-3.29	0.61	2.79	1.20	1.13	-15.03	
330.00	1.41	182.64	329.96	-4.09	0.61	3.52	1.29	-1.21	16.07	
361.00	1.76	177.54	360.95	-4.95	0.61	4.31	1.22	1.13	-16.45	
453.00	1.50	188.96	452.91	-7.55	0.48	6.75	0.45	-0.28	12.41	
Last SDI Surface Gyro Survey										
533.00	1.71	209.96	532.88	-9.62	-0.28	8.95	0.78	0.26	26.25	
First SDI Surface MWD Survey										

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-17-64B
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Site:	Cascade Creek 697-16A II Pad	MD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Well:	697-17-64B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.16 Multi-User Db

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)	
625.00	2.36	187.60	624.82	-12.69	-1.21	12.14	1.10	0.71	-24.30	
717.00	4.00	177.12	716.68	-17.77	-1.30	16.85	1.88	1.78	-11.39	
810.00	5.64	174.21	809.35	-25.56	-0.68	23.76	1.78	1.76	-3.13	
903.00	6.82	179.03	901.80	-35.62	-0.12	32.80	1.39	1.27	5.18	
996.00	8.33	182.01	993.98	-47.88	-0.27	44.12	1.68	1.62	3.20	
1,088.00	10.80	189.82	1,084.70	-63.03	-1.97	58.72	3.03	2.68	8.49	
1,180.00	11.55	190.90	1,174.95	-80.57	-5.18	76.11	0.85	0.82	1.17	
1,276.00	12.28	199.22	1,268.89	-99.65	-10.36	95.69	1.94	0.76	8.67	
1,370.00	13.59	203.50	1,360.51	-119.22	-18.06	116.70	1.73	1.39	4.55	
1,464.00	15.27	209.95	1,451.75	-139.39	-28.25	139.25	1.80	0.72	6.86	
1,559.00	15.17	211.39	1,543.63	-160.14	-40.57	163.18	1.02	0.95	1.52	
1,653.00	14.31	210.04	1,634.54	-180.70	-52.79	186.89	0.99	-0.91	-1.44	
1,748.00	14.22	208.00	1,726.61	-201.16	-64.14	210.17	0.54	-0.09	-2.15	
1,842.00	14.92	208.12	1,817.58	-222.03	-75.27	233.73	0.75	0.74	0.13	
1,937.00	15.80	207.45	1,909.19	-244.29	-86.99	258.82	0.94	0.93	-0.71	
2,031.00	17.26	207.31	1,999.30	-268.04	-99.29	285.49	1.55	1.55	-0.15	
2,126.00	19.60	207.56	2,089.42	-294.70	-113.13	315.44	2.46	2.46	0.26	
2,220.00	20.67	207.53	2,177.68	-323.39	-128.09	347.70	1.14	1.14	-0.03	
2,315.00	23.14	206.48	2,265.81	-354.97	-144.17	383.06	2.63	2.60	-1.11	
2,410.00	25.16	207.10	2,352.49	-389.66	-161.69	421.85	2.14	2.13	0.65	
2,504.00	26.01	207.08	2,437.28	-425.80	-180.18	462.35	0.90	0.90	-0.02	
2,599.00	26.80	205.62	2,522.36	-463.66	-198.92	504.53	1.08	0.83	-1.54	
2,693.00	27.02	203.63	2,606.19	-502.33	-216.65	547.05	0.99	0.23	-2.12	
Last SDI Surface MWD Survey										
2,786.00	26.29	205.57	2,689.30	-540.26	-234.00	588.75	1.22	-0.78	2.09	
First SDI Production MWD Survey										
2,881.00	26.64	204.51	2,774.35	-578.62	-251.92	631.07	0.62	0.37	-1.12	
2,976.00	26.82	202.75	2,859.20	-617.76	-269.04	673.79	0.85	0.19	-1.85	
3,070.00	24.27	202.49	2,944.00	-655.17	-284.64	714.32	2.72	-2.71	-0.28	
3,165.00	24.53	203.54	3,030.52	-691.29	-299.98	753.56	0.53	0.27	1.11	
3,259.00	27.08	207.94	3,115.15	-728.09	-317.80	794.41	3.39	2.71	4.68	
3,354.00	27.26	208.55	3,199.66	-766.31	-338.33	837.62	0.35	0.19	0.64	
3,448.00	26.56	208.82	3,283.48	-803.63	-358.75	879.97	0.76	-0.74	0.29	
3,543.00	27.35	206.88	3,368.16	-841.70	-378.86	922.88	1.24	0.83	-2.04	
3,637.00	27.70	204.07	3,451.53	-880.91	-397.53	966.28	1.43	0.37	-2.99	
3,732.00	27.61	199.94	3,535.68	-921.77	-414.05	1,010.34	2.02	-0.09	-4.35	
3,826.00	26.20	200.56	3,619.51	-961.68	-428.76	1,052.81	1.53	-1.50	0.66	
3,921.00	24.53	201.52	3,705.35	-999.66	-443.36	1,093.48	1.81	-1.76	1.01	
4,015.00	24.18	201.96	3,790.98	-1,035.67	-457.72	1,132.23	0.42	-0.37	0.47	
4,110.00	23.30	201.35	3,877.94	-1,071.21	-471.84	1,170.46	0.96	-0.93	-0.64	
4,204.00	24.53	203.90	3,963.87	-1,106.37	-486.51	1,208.56	1.71	1.31	2.71	
4,299.00	26.20	202.67	4,049.71	-1,143.75	-502.59	1,249.25	1.84	1.76	-1.29	
4,393.00	25.24	203.11	4,134.40	-1,181.34	-518.45	1,290.04	1.04	-1.02	0.47	
4,488.00	23.74	203.54	4,220.85	-1,217.50	-534.04	1,329.42	1.59	-1.58	0.45	
4,583.00	23.74	201.17	4,307.81	-1,252.86	-548.58	1,367.66	1.00	0.00	-2.49	
4,678.00	25.59	200.64	4,394.14	-1,289.90	-562.72	1,407.27	1.96	1.95	-0.56	
4,772.00	24.36	199.50	4,479.35	-1,327.17	-576.35	1,446.90	1.41	-1.31	-1.21	
4,867.00	23.65	201.35	4,566.13	-1,363.39	-589.83	1,485.49	1.09	-0.75	1.95	
4,961.00	24.53	203.98	4,651.95	-1,398.78	-604.62	1,523.85	1.48	0.94	2.80	
5,056.00	23.13	202.58	4,738.85	-1,434.03	-619.80	1,562.23	1.59	-1.47	-1.47	
5,150.00	22.34	202.84	4,825.54	-1,467.54	-633.83	1,598.56	0.85	-0.84	0.28	
5,245.00	21.37	203.46	4,913.71	-1,500.06	-647.72	1,633.92	1.05	-1.02	0.65	
5,339.00	20.84	203.81	5,001.41	-1,531.07	-661.29	1,667.77	0.58	-0.56	0.37	
5,434.00	19.87	201.61	5,090.48	-1,561.54	-674.06	1,700.80	1.30	-1.02	-2.32	

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-17-64B
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Site:	Cascade Creek 697-16A II Pad	MD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Well:	697-17-64B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.16 Multi-User Db

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)
5,529.00	17.94	200.47	5,180.35	-1,590.26	-685.13	1,731.56	2.07	-2.03	-1.20
5,623.00	17.50	201.08	5,269.89	-1,617.01	-695.27	1,760.14	0.51	-0.47	0.65
5,718.00	15.56	201.61	5,360.96	-1,642.18	-705.10	1,787.16	2.05	-2.04	0.56
5,812.00	14.68	199.41	5,451.70	-1,665.14	-713.70	1,811.65	1.12	-0.94	-2.34
5,907.00	13.89	200.21	5,543.77	-1,687.19	-721.64	1,835.05	0.86	-0.83	0.84
6,002.00	12.66	200.12	5,636.23	-1,707.67	-729.16	1,856.83	1.29	-1.29	-0.09
6,097.00	11.87	200.38	5,729.06	-1,726.61	-736.15	1,876.98	0.83	-0.83	0.27
6,192.00	10.90	200.73	5,822.19	-1,744.16	-742.73	1,895.72	1.02	-1.02	0.37
6,286.00	9.76	198.89	5,914.66	-1,760.02	-748.46	1,912.54	1.26	-1.21	-1.96
6,381.00	9.06	197.74	6,008.38	-1,774.76	-753.34	1,928.02	0.76	-0.74	-1.21
6,476.00	8.27	198.80	6,102.30	-1,788.35	-757.82	1,942.28	0.85	-0.83	1.12
6,571.00	7.65	199.94	6,196.38	-1,800.76	-762.18	1,955.40	0.67	-0.65	1.20
6,665.00	7.47	201.08	6,289.56	-1,812.35	-766.51	1,967.76	0.25	-0.19	1.21
6,760.00	6.77	199.85	6,383.83	-1,823.37	-770.63	1,979.52	0.75	-0.74	-1.29
6,854.00	8.44	208.99	6,477.00	-1,834.62	-775.86	1,991.91	2.19	1.78	9.72
6,949.00	8.53	209.70	6,570.96	-1,846.84	-782.73	2,005.85	0.15	0.09	0.75
7,044.00	7.83	207.76	6,665.00	-1,858.69	-789.23	2,019.30	0.79	-0.74	-2.04
7,138.00	7.21	206.97	6,758.19	-1,869.61	-794.89	2,031.57	0.67	-0.66	-0.84
7,233.00	6.42	208.82	6,852.52	-1,879.58	-800.16	2,042.80	0.86	-0.83	1.95
7,328.00	8.35	207.50	6,946.72	-1,890.35	-805.90	2,054.97	2.04	2.03	-1.39
7,423.00	8.18	206.71	7,040.74	-1,902.51	-812.13	2,068.59	0.22	-0.18	-0.83
7,517.00	7.56	205.57	7,133.85	-1,914.06	-817.80	2,081.44	0.68	-0.66	-1.21
7,612.00	7.12	203.63	7,228.07	-1,925.09	-822.86	2,093.58	0.53	-0.46	-2.04
7,707.00	8.44	206.97	7,322.20	-1,936.70	-828.38	2,106.42	1.47	1.39	3.52
7,802.00	8.53	207.76	7,416.16	-1,949.14	-834.82	2,120.40	0.16	0.09	0.83
7,896.00	8.18	207.85	7,509.16	-1,961.23	-841.19	2,134.01	0.37	-0.37	0.10
7,991.00	7.47	207.15	7,603.27	-1,972.70	-847.17	2,146.91	0.75	-0.75	-0.74
8,086.00	6.33	207.68	7,697.59	-1,982.83	-852.42	2,158.29	1.20	-1.20	0.56
8,181.00	7.47	208.73	7,791.90	-1,992.88	-857.82	2,169.66	1.21	1.20	1.11
8,275.00	7.21	210.22	7,885.13	-2,003.34	-863.73	2,181.60	0.34	-0.28	1.59
8,370.00	6.51	211.98	7,979.44	-2,013.06	-869.58	2,192.83	0.77	-0.74	1.85
8,465.00	5.45	211.46	8,073.93	-2,021.47	-874.79	2,202.62	1.12	-1.12	-0.55
8,560.00	4.75	214.71	8,168.55	-2,028.56	-879.38	2,210.94	0.80	-0.74	3.42
8,655.00	5.98	213.74	8,263.13	-2,035.91	-884.37	2,219.66	1.30	1.29	-1.02
8,749.00	7.39	213.21	8,356.49	-2,045.04	-890.40	2,230.43	1.50	1.50	-0.56
8,844.00	7.65	211.28	8,450.67	-2,055.55	-897.03	2,242.70	0.38	0.27	-2.03
8,939.00	7.21	212.42	8,544.88	-2,065.99	-903.51	2,254.85	0.49	-0.46	1.20
9,034.00	6.24	214.53	8,639.22	-2,075.27	-909.63	2,265.79	1.05	-1.02	2.22
9,128.00	5.72	212.25	8,732.71	-2,083.44	-915.03	2,275.43	0.61	-0.55	-2.43
9,223.00	5.19	212.16	8,827.28	-2,091.09	-919.84	2,284.35	0.56	-0.56	-0.09
9,318.00	4.40	211.10	8,921.95	-2,097.84	-924.01	2,292.20	0.84	-0.83	-1.12
9,413.00	3.96	214.18	9,016.69	-2,103.68	-927.74	2,299.03	0.52	-0.46	3.24
9,507.00	3.69	216.11	9,110.48	-2,108.81	-931.34	2,305.16	0.32	-0.29	2.05
9,635.00	3.08	218.93	9,238.26	-2,114.81	-935.93	2,312.49	0.49	-0.48	2.20
Last SDI Production MWD Survey									
9,690.00	3.08	218.93	9,293.18	-2,117.11	-937.79	2,315.33	0.00	0.00	0.00
Projection To TD - BHL = 624427.30, 1228718.75									

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-17-64B
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Site:	Cascade Creek 697-16A II Pad	MD Reference:	GL 8312' & RKB 30' @ 8342.00ft
Well:	697-17-64B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.16 Multi-User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
697-17-64B WF Target	-8.00	203.62	7,744.00	-1,959.17	-838.86	624,582.19	1,228,822.39	39° 30' 59.166 N	108° 14' 1.914 W
- actual wellpath misses target center by 32.41ft at 8128.80ft MD (7740.11 TVD, -1987.17 N, -854.72 E)									
- Circle (radius 50.00)									

Checked By: _____ Approved By: _____ Date: _____