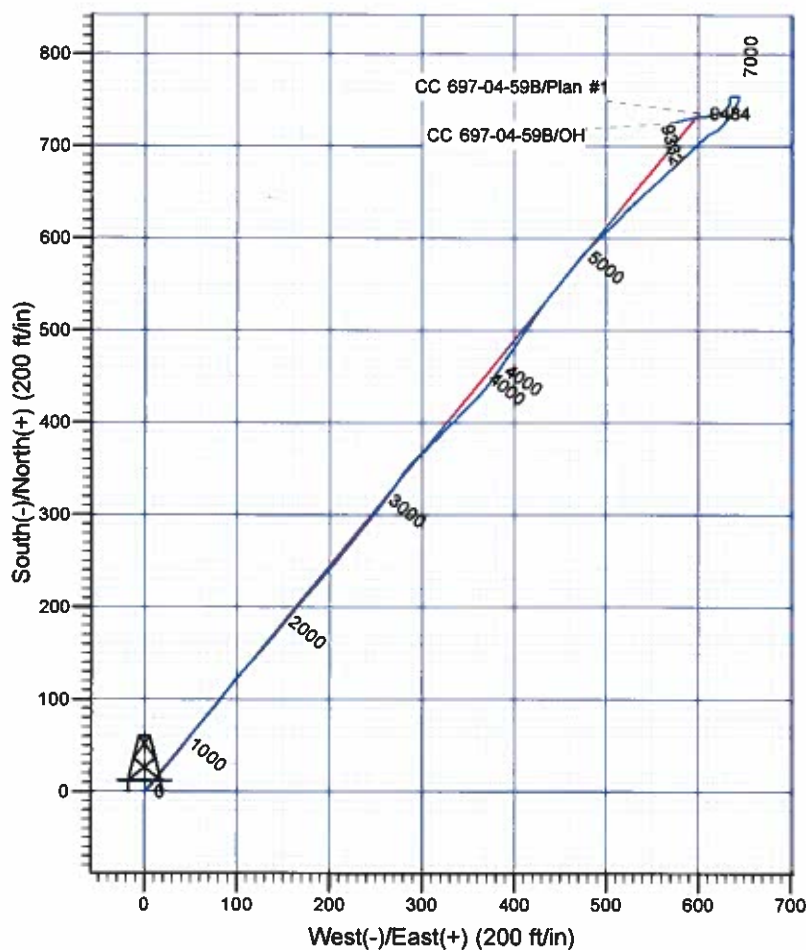
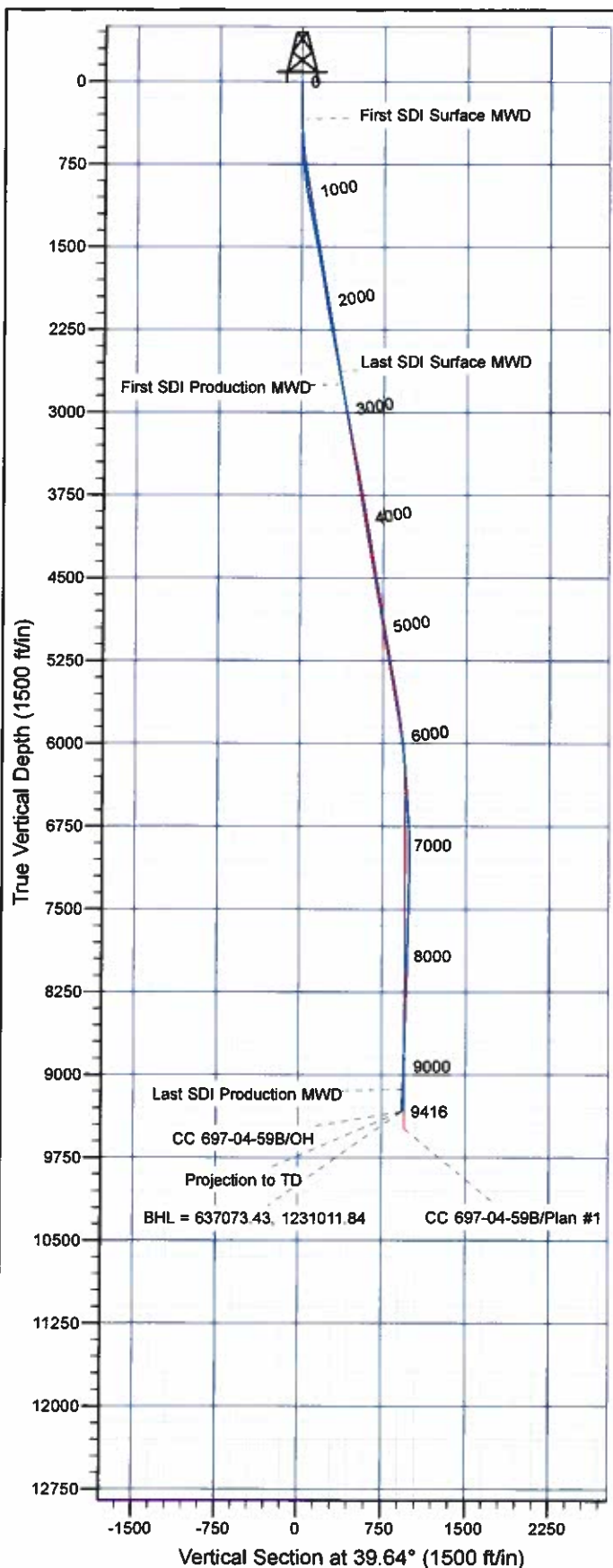




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-04D Pad
 Well: CC 697-04-59B
 Wellbore: OH
 Design: OH



Well Details: CC 697-04-59B

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	636364.98	1230414.78	39° 32' 56.044 N	108° 13' 46.120 W	D

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-04-59B - Slot D, True North
 Vertical (TVD) Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P)
 Section (VS) Reference: Slot - D(0.00N, 0.00E)
 Measured Depth Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P)
 Calculation Method: Minimum Curvature

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

Plan: OH

13:32, May 08 2012
 Created By: Janie Cooke

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-04D Pad
CC 697-04-59B - Slot D**

OH

Design: OH

Standard Survey Report

08 May, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-59B - Slot D
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-59B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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 697-04D Pad		
Site Position:		Northing:	635,530.62 usft
From:	Map	Easting:	1,230,276.10 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 32' 47.760 N
		Longitude:	108° 13' 47.570 W
		Grid Convergence:	-1.72 "

Well	CC 697-04-59B - Slot D		
Well Position	+N/-S	0.00 ft	Northing: 636,364.98 usft
	+E/-W	0.00 ft	Easting: 1,230,414.78 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 32' 56.044 N
		Longitude:	108° 13' 46.120 W
		Ground Level:	8,629.00 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2005-10	03/23/11	10.47
			Dip Angle
			(°)
			65.76
			Field Strength
			(nT)
			52,283

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			39.64

Survey Program	Date	05/08/12		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
339.00	2,659.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,775.00	9,416.00	Survey #2 - Production MWD (OH)	MWD-SDI	MWD - Standard ISCWSA

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
339.00	0.90	53.83	338.99	1.57	2.15	2.58	0.27	0.27	0.00
First SDI Surface MWD									
430.00	1.90	41.38	429.96	3.13	3.72	4.78	1.14	1.10	-13.68
522.00	2.40	42.19	521.89	5.70	6.03	8.23	0.54	0.54	0.88
613.00	3.34	41.59	612.78	9.09	9.06	12.78	1.03	1.03	-0.66
703.00	3.52	37.62	702.62	13.24	12.49	18.17	0.33	0.20	-4.41
792.00	4.84	36.83	791.38	18.41	16.41	24.65	1.48	1.48	-0.89
883.00	6.86	39.11	881.90	25.70	22.14	33.92	2.23	2.22	2.51
973.00	9.67	40.43	970.96	35.63	30.43	46.85	3.13	3.12	1.47

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-59B - Slot D
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-59B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
1,067.00	10.38	37.70	1,063.52	48.34	40.73	83.21	0.91	0.76	-2.90
1,162.00	10.82	37.26	1,156.90	62.21	51.37	80.67	0.47	0.46	-0.46
1,257.00	11.17	41.75	1,250.16	76.17	62.89	98.78	0.97	0.37	4.73
1,352.00	11.08	39.81	1,343.37	90.05	74.86	117.10	0.41	-0.09	-2.04
1,446.00	11.17	34.72	1,435.61	104.47	85.83	135.20	1.05	0.10	-5.41
1,541.00	10.90	38.14	1,528.85	119.10	96.62	153.35	0.75	-0.28	3.60
1,636.00	10.55	42.98	1,622.19	132.52	108.10	171.01	1.02	-0.37	5.09
1,731.00	9.85	41.40	1,715.69	144.98	119.40	187.82	0.79	-0.74	-1.66
1,825.00	8.97	41.40	1,808.43	156.51	129.56	203.18	0.94	-0.94	0.00
1,920.00	8.53	39.11	1,902.32	167.53	138.91	217.63	0.59	-0.46	-2.41
2,015.00	9.23	38.49	1,996.18	178.96	148.09	232.29	0.74	0.74	-0.65
2,109.00	10.29	38.85	2,088.82	191.40	158.05	248.22	1.13	1.13	0.38
2,204.00	10.82	40.08	2,182.21	204.83	169.11	265.62	0.61	0.56	1.29
2,299.00	11.43	40.34	2,275.43	218.83	180.95	283.95	0.64	0.64	0.27
2,394.00	10.73	40.43	2,368.66	232.74	192.78	302.21	0.74	-0.74	0.09
2,488.00	10.99	40.78	2,460.97	246.18	204.31	319.92	0.29	0.28	0.37
2,583.00	10.29	38.49	2,554.34	259.68	215.50	337.45	0.86	-0.74	-2.41
2,659.00	10.20	38.23	2,629.13	270.28	223.89	350.97	0.13	-0.12	-0.34
Last SDI Surface MWD									
2,775.00	10.82	39.33	2,743.18	286.77	237.15	372.12	0.56	0.53	0.95
First SDI Production MWD									
2,870.00	10.90	38.63	2,836.48	300.68	248.41	390.02	0.16	0.08	-0.74
2,965.00	10.55	36.43	2,929.82	314.70	259.18	407.68	0.57	-0.37	-2.32
3,060.00	10.73	35.20	3,023.19	328.92	269.44	425.18	0.31	0.19	-1.29
3,154.00	10.20	32.39	3,115.62	343.10	278.94	442.17	0.78	-0.56	-2.99
3,249.00	10.11	44.26	3,209.15	356.18	289.27	458.82	2.20	-0.09	12.49
3,344.00	11.17	46.10	3,302.51	368.53	301.72	476.28	1.17	1.12	1.94
3,438.00	11.17	44.96	3,394.73	381.29	314.71	494.39	0.23	0.00	-1.21
3,533.00	10.82	43.82	3,487.99	394.23	327.39	512.45	0.43	-0.37	-1.20
3,628.00	10.82	45.31	3,581.30	406.93	339.90	530.21	0.29	0.00	1.57
3,722.00	10.46	44.87	3,673.68	419.19	352.19	547.49	0.39	-0.38	-0.47
3,817.00	10.20	41.36	3,767.14	431.61	363.84	564.48	0.72	-0.27	-3.69
3,912.00	10.11	36.43	3,860.66	444.63	374.35	581.22	0.92	-0.09	-5.19
4,007.00	10.20	34.50	3,954.17	458.28	384.06	597.92	0.37	0.09	-2.03
4,101.00	9.23	34.68	4,046.82	471.33	393.07	613.72	1.03	-1.03	0.19
4,196.00	9.15	34.06	4,140.60	483.86	401.63	628.83	0.13	-0.08	-0.65
4,291.00	9.32	34.24	4,234.37	496.47	410.19	644.01	0.18	0.18	0.19
4,385.00	9.32	34.50	4,327.13	509.04	418.78	659.16	0.04	0.00	0.28
4,480.00	9.15	33.45	4,420.90	521.68	427.31	674.34	0.25	-0.18	-1.11
4,575.00	9.76	39.89	4,514.61	534.18	436.61	689.90	1.25	0.64	6.57
4,669.00	10.02	39.33	4,607.21	546.64	446.88	706.04	0.28	0.28	-0.38
4,764.00	10.02	38.28	4,700.76	559.52	457.24	722.57	0.19	0.00	-1.11
4,859.00	8.71	36.43	4,794.49	571.79	466.63	738.01	1.41	-1.38	-1.95

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-59B - Slot D
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-59B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
4,953.00	9.41	44.61	4,887.32	582.99	476.26	752.78	1.56	0.74	8.70
5,048.00	8.79	44.17	4,981.13	593.73	486.77	767.75	0.66	-0.65	-0.46
5,143.00	9.76	46.72	5,074.89	604.45	497.69	782.98	1.11	1.02	2.68
5,238.00	9.15	44.52	5,168.59	615.36	508.85	798.49	0.75	-0.64	-2.32
5,332.00	10.90	45.66	5,261.16	626.90	520.44	814.78	1.87	1.86	1.21
5,427.00	10.55	45.84	5,354.50	639.24	533.11	832.36	0.37	-0.37	0.19
5,521.00	9.85	45.93	5,447.01	650.83	545.08	848.91	0.74	-0.74	0.10
5,616.00	9.50	47.86	5,540.66	661.74	556.71	864.74	0.50	-0.37	2.03
5,711.00	8.79	48.04	5,634.45	671.85	567.92	879.68	0.75	-0.75	0.19
5,806.00	8.35	46.19	5,728.39	681.48	578.30	893.72	0.55	-0.46	-1.95
5,900.00	7.47	46.80	5,821.49	690.39	587.68	906.56	0.94	-0.94	0.65
5,995.00	7.30	46.19	5,915.71	698.79	596.53	918.68	0.20	-0.18	-0.64
6,089.00	6.95	45.05	6,008.98	706.94	604.87	930.28	0.40	-0.37	-1.21
6,184.00	5.10	60.60	6,103.46	713.08	612.62	939.94	2.58	-1.95	16.37
6,278.00	4.75	62.19	6,197.11	716.95	619.70	947.44	0.40	-0.37	1.69
6,373.00	4.84	40.12	6,291.79	721.85	625.76	955.08	1.93	0.09	-23.23
6,467.00	4.40	40.56	6,385.48	727.62	630.66	962.65	0.47	-0.47	0.47
6,562.00	4.13	36.08	6,480.22	733.15	635.04	969.71	0.45	-0.28	-4.72
6,657.00	3.43	33.27	6,575.01	738.29	638.62	975.95	0.76	-0.74	-2.96
6,751.00	3.25	23.78	6,668.85	743.08	641.24	981.31	0.62	-0.19	-10.10
6,846.00	2.73	19.73	6,763.72	747.68	643.08	986.02	0.59	-0.55	-4.26
6,940.00	2.73	16.04	6,857.82	751.93	644.46	990.18	0.19	0.00	-3.93
7,035.00	0.79	305.64	6,952.57	754.49	644.55	992.21	2.71	-2.04	-74.11
7,129.00	1.41	252.56	7,046.56	754.52	642.92	991.19	1.20	0.66	-56.47
7,223.00	1.49	264.25	7,140.53	754.05	640.60	989.35	0.33	0.09	12.44
7,318.00	1.85	271.01	7,235.49	753.96	637.84	987.51	0.43	0.38	7.12
7,413.00	1.23	270.84	7,330.45	754.00	635.29	985.92	0.65	-0.65	-0.18
7,507.00	1.14	176.18	7,424.44	753.08	634.34	984.61	1.85	-0.10	-100.70
7,601.00	1.41	171.96	7,518.42	751.00	634.57	983.15	0.30	0.29	-4.49
7,696.00	1.23	173.81	7,613.39	748.83	634.84	981.65	0.19	-0.19	1.95
7,791.00	1.58	206.77	7,708.36	746.65	634.36	979.67	0.91	0.37	34.69
7,885.00	1.58	210.81	7,802.33	744.38	633.11	977.12	0.12	0.00	4.30
7,980.00	2.02	217.05	7,897.28	741.92	631.43	974.15	0.51	0.46	6.57
8,075.00	1.06	211.34	7,992.25	739.83	629.97	971.61	1.02	-1.01	-6.01
8,170.00	1.23	233.31	8,087.23	738.47	628.69	969.75	0.49	0.18	23.13
8,264.00	1.49	249.57	8,181.20	737.44	626.74	967.71	0.49	0.28	17.30
8,359.00	1.76	254.93	8,276.16	736.63	624.17	965.45	0.33	0.28	5.64
8,454.00	2.29	255.19	8,371.10	735.77	620.93	962.72	0.56	0.56	0.27
8,537.66	2.91	253.36	8,454.68	734.73	617.28	959.59	0.74	0.74	-2.19
CC 697-04-59B Target									
8,549.00	2.99	253.17	8,466.00	734.56	616.72	959.11	0.74	0.74	-1.68
8,643.00	3.87	254.23	8,559.83	732.99	611.32	954.45	0.94	0.94	1.13
8,738.00	2.11	264.69	8,654.70	731.96	606.49	950.58	1.93	-1.85	11.01
8,833.00	0.97	278.92	8,749.66	731.92	603.96	948.93	1.26	-1.20	14.98

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-59B - Slot D
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-59B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
8,927.00	2.02	266.97	8,843.63	731.96	601.52	947.40	1.16	1.12	-12.71
9,022.00	2.46	260.20	8,938.56	731.52	597.84	944.72	0.54	0.46	-7.13
9,117.00	3.08	255.90	9,033.45	730.55	593.35	941.11	0.69	0.65	-4.53
9,211.00	3.61	255.90	9,127.29	729.22	588.03	936.69	0.56	0.56	0.00
Last SDI Production MWD									
9,416.00	3.61	255.90	9,331.88	726.07	575.51	926.28	0.00	0.00	0.00
Projection to TD - BHL = 637073.43, 1231011.84									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
339.00	338.99	1.57	2.15	First SDI Surface MWD
2,659.00	2,629.13	270.28	223.89	Last SDI Surface MWD
2,775.00	2,743.18	286.77	237.15	First SDI Production MWD
9,211.00	9,127.29	729.22	588.03	Last SDI Production MWD
9,416.00	9,331.88	726.07	575.51	Projection to TD
9,416.00	9,331.88	726.07	575.51	BHL = 637073.43, 1231011.84

Checked By: _____	Approved By: _____	Date: _____
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