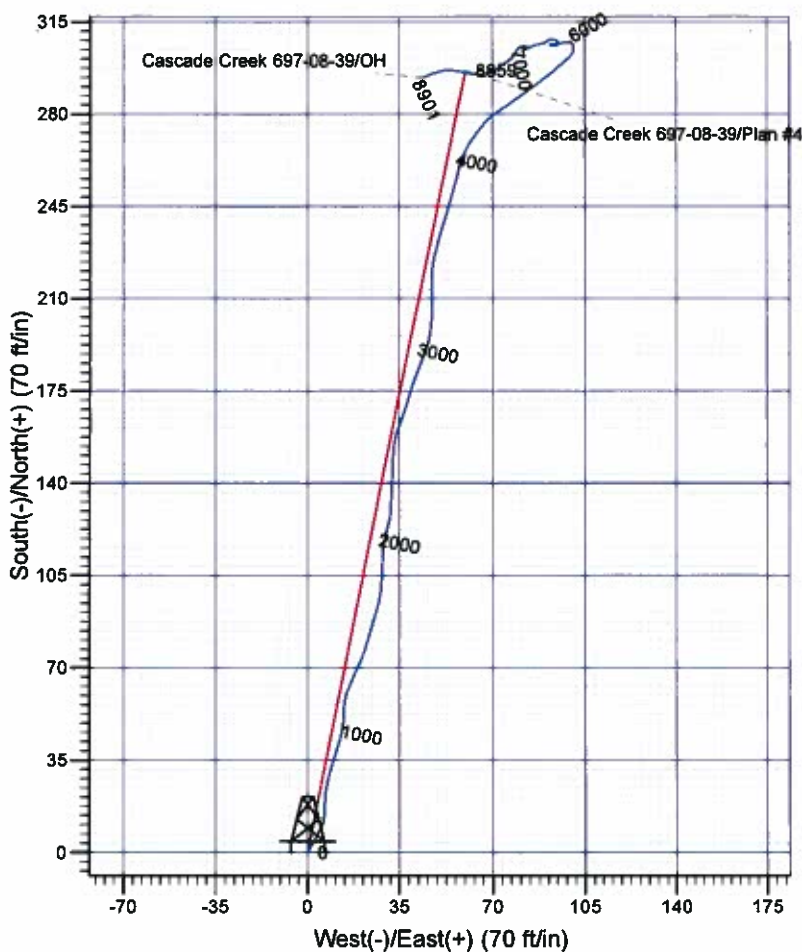
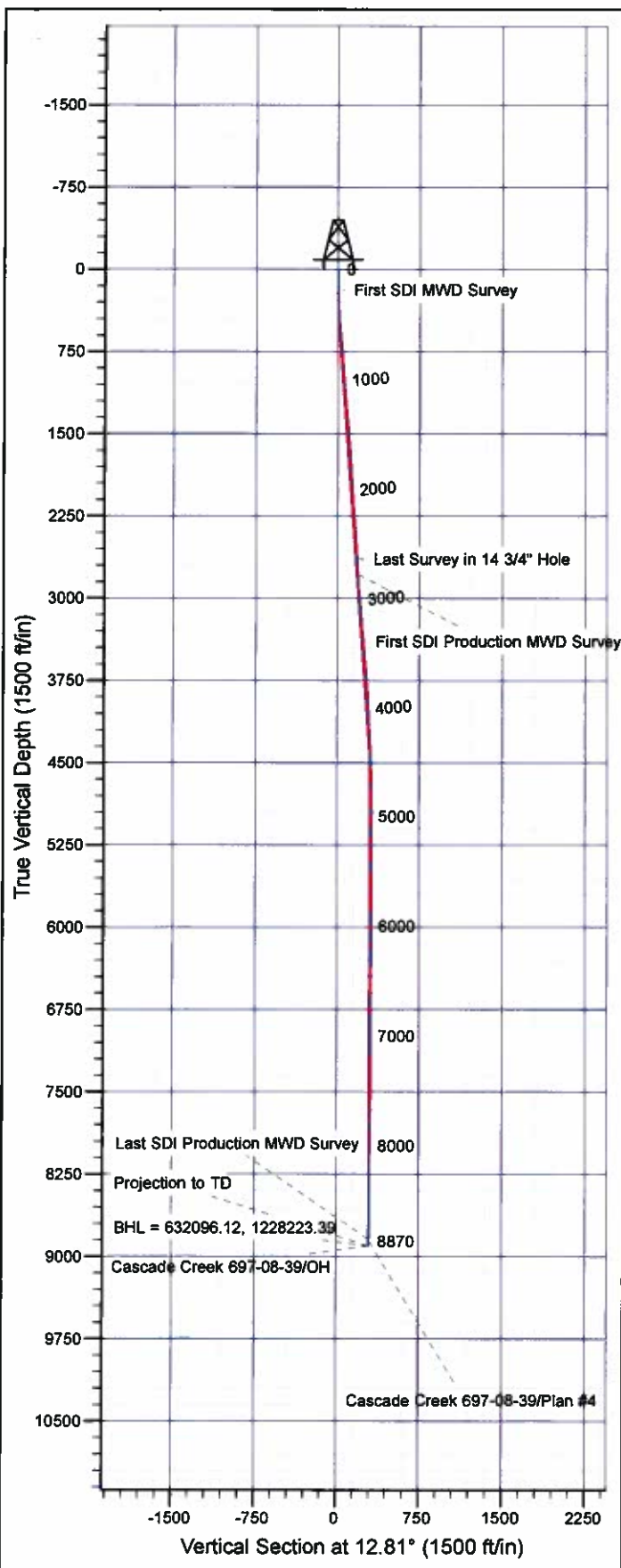




Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 608-43-31 Pad
Well: Cascade Creek 697-08-39
Wellbore: OH
Design: OH



Well Details: Cascade Creek 697-08-39

TVD Reference: GL 8479' & RKB 30' @ 8509.00ft (H&P) Ground Level: 8479.00		Latitude		Longitude	Slot
+N/-S	+E/-W	North	East		K
0.00	0.00	631803.77	1228170.61	39° 32' 10.316 N 108° 14' 13.003 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Cascade Creek 697-08-39 - Slot K, True North
Vertical (TVD) Reference: GL 8479' & RKB 30' @ 8509.00ft (H&P)
Section (VS) Reference: Slot - K(0.00N, 0.00E)
Measured Depth Reference: GL 8479' & RKB 30' @ 8509.00ft (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

15:59, March 10 2011
Created By: Janie Cooke

OXY USA RMAT

Garfield County, CO NAD27

Cascade Creek 608-43-31 Pad

Cascade Creek 697-08-39 - Slot K

OH

Design: OH

Standard Survey Report

10 March, 2011

Scientific Drilling International, Inc.

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Cascade Creek 697-08-39 - Slot K
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Site:	Cascade Creek 608-43-31 Pad	MD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Well:	Cascade Creek 697-08-39	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	RockiesEDM-5000.1

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 608-43-31 Pad, Sec 8 T6S R97W			
Site Position:		Northing:	39.54 usft	Latitude: 37° 37' 28.115 N
From:	Map	Easting:	-108.24 usft	Longitude: 112° 24' 37.715 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -4.36 °

Well	Cascade Creek 697-08-39 - Slot K,			
Well Position	+N-S	0.00 ft	Northing: 631,803.77 usft	Latitude: 39° 32' 10.316 N
	+E-W	0.00 ft	Easting: 1,228,170.61 usft	Longitude: 108° 14' 13.003 W
Position Uncertainty		0.00 ft	Wellhead Elevation: ft	Ground Level: 8,479.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	11/19/2008	10.77	65.81	52,503

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	12.81	

Survey Program	Date	3/10/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
188.00	2,650.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,790.00	8,915.00	Survey #2 - Production MWD (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
188.00	2.26	29.55	187.95	3.23	1.83	3.55	1.20	1.20	0.00
First SDI MWD Survey									
250.00	2.62	27.66	249.89	5.54	3.09	6.09	0.59	0.58	-3.05
342.00	2.45	31.03	341.80	9.09	5.08	9.99	0.25	-0.18	3.66
434.00	3.39	3.99	433.69	13.49	6.28	14.55	1.79	1.02	-29.39
526.00	4.84	2.71	525.45	20.08	6.65	21.06	1.58	1.58	-1.39
618.00	6.60	14.13	616.99	29.09	8.13	30.16	2.27	1.91	12.41
711.00	5.72	20.29	709.45	38.62	11.04	40.10	1.18	-0.95	6.62
803.00	4.13	8.24	801.11	46.20	13.11	47.95	2.05	-1.73	-13.10

Scientific Drilling International, Inc.

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Cascade Creek 697-08-39 - Slot K
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Site:	Cascade Creek 608-43-31 Pad	MD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Well:	Cascade Creek 697-08-39	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	RockiesEDM-5000.1

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)
897.00	4.66	1.21	894.84	53.36	13.67	55.07	0.80	0.56	-7.48
989.00	4.31	18.88	986.56	60.37	14.87	62.16	1.54	-0.38	19.21
1,084.00	4.22	26.70	1,081.30	66.87	17.59	69.11	0.62	-0.09	8.23
1,179.00	4.48	22.40	1,176.02	73.42	20.58	76.16	0.44	0.27	-4.53
1,273.00	5.98	15.63	1,269.63	81.53	23.30	84.67	1.72	1.60	-7.20
1,368.00	5.89	17.74	1,364.12	90.94	26.12	94.47	0.25	-0.09	2.22
1,463.00	4.57	5.70	1,458.73	99.35	27.98	103.08	1.80	-1.39	-12.67
1,558.00	3.67	3.41	1,553.47	106.32	28.54	110.00	0.76	-0.74	-2.41
1,653.00	4.75	0.77	1,648.20	113.45	28.79	117.01	0.95	0.93	-2.78
1,747.00	3.96	17.74	1,741.93	120.43	29.83	124.05	1.60	-0.84	18.05
1,842.00	2.73	9.56	1,836.77	125.79	31.20	129.58	1.39	-1.29	-8.61
1,937.00	3.17	3.76	1,931.64	130.64	31.75	134.43	0.56	0.46	-6.11
2,031.00	3.69	3.15	2,025.47	136.26	32.09	139.98	0.55	0.55	-0.65
2,126.00	4.57	2.09	2,120.23	143.09	32.39	146.71	0.93	0.93	-1.12
2,221.00	4.75	2.00	2,214.91	150.80	32.67	154.29	0.19	0.19	-0.09
2,316.00	4.31	15.72	2,309.62	158.17	33.77	161.72	1.23	-0.46	14.44
2,410.00	4.31	22.75	2,403.35	164.83	36.10	168.73	0.56	0.00	7.48
2,505.00	3.69	14.57	2,498.12	171.08	38.25	175.30	0.89	-0.65	-8.61
2,600.00	3.69	17.12	2,592.92	176.96	39.92	181.41	0.17	0.00	2.68
2,650.00	3.78	19.06	2,642.82	180.06	40.93	184.65	0.31	0.18	3.88
Last Survey in 14 3/4" Hole									
2,790.00	2.90	24.22	2,782.58	187.65	43.89	192.71	0.66	-0.63	3.69
First SDI Production MWD Survey									
2,885.00	3.43	16.57	2,877.43	192.56	45.68	197.90	0.71	0.56	-8.05
2,980.00	5.45	4.27	2,972.15	199.79	46.83	205.20	2.34	2.13	-12.95
3,074.00	5.19	1.37	3,065.74	208.49	47.26	213.78	0.40	-0.28	-3.09
3,169.00	4.92	356.97	3,160.37	216.85	47.15	221.91	0.50	-0.28	-4.63
3,264.00	5.36	13.06	3,255.00	225.24	47.94	230.27	1.58	0.46	16.94
3,359.00	5.19	17.98	3,349.59	233.65	50.27	238.98	0.51	-0.18	5.18
3,453.00	4.84	14.90	3,443.23	241.53	52.60	247.18	0.47	-0.37	-3.28
3,548.00	4.66	17.45	3,537.91	249.08	54.79	255.03	0.29	-0.19	2.68
3,643.00	4.48	14.02	3,632.61	256.36	56.84	262.59	0.34	-0.19	-3.61
3,737.00	4.31	16.57	3,726.33	263.31	58.74	269.78	0.28	-0.18	2.71
3,832.00	4.40	36.88	3,821.06	269.65	61.95	276.67	1.62	0.09	21.38
3,927.00	4.31	35.82	3,915.79	275.46	66.22	283.28	0.13	-0.09	-1.12
4,022.00	4.31	58.21	4,010.52	280.34	71.28	289.16	1.60	0.00	21.46
4,116.00	4.48	54.45	4,104.25	284.44	77.20	294.47	0.23	0.18	-1.87
4,211.00	3.67	53.75	4,198.99	288.49	82.81	299.67	0.64	-0.64	-0.74
4,306.00	3.61	52.70	4,293.79	292.20	87.77	304.38	0.28	-0.27	-1.11
4,401.00	2.90	52.34	4,388.64	295.48	92.05	308.53	0.75	-0.75	-0.38
4,495.00	2.81	47.95	4,482.52	298.47	95.65	312.25	0.25	-0.10	-4.67
4,590.00	2.81	46.89	4,577.41	301.63	99.07	316.08	0.05	0.00	-1.12
4,685.00	1.14	358.03	4,672.35	304.16	100.74	318.93	2.35	-1.76	-51.43

Scientific Drilling International, Inc.

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Cascade Creek 697-08-39 - Slot K
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Site:	Cascade Creek 608-43-31 Pad	MD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Well:	Cascade Creek 697-08-39	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	RockiesEDM-5000.1

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)
4,780.00	1.49	359.70	4,767.33	306.34	100.70	321.04	0.37	0.37	1.78
4,874.00	1.58	267.15	4,861.31	307.50	99.40	321.88	2.36	0.10	-98.46
4,969.00	1.67	259.85	4,956.27	307.19	98.73	320.99	0.24	0.09	-7.88
5,063.00	0.53	219.16	5,050.25	306.61	95.11	320.07	1.40	-1.21	-43.29
5,158.00	0.97	260.12	5,145.24	306.13	94.04	319.36	0.70	0.46	43.12
5,253.00	1.06	273.92	5,240.23	306.06	92.37	318.92	0.27	0.09	14.53
5,347.00	0.35	49.97	5,334.22	306.30	91.72	319.01	1.42	-0.76	144.73
5,442.00	0.26	73.70	5,429.22	306.55	92.15	319.35	0.16	-0.09	24.98
5,536.00	0.70	94.80	5,523.22	306.56	92.93	319.53	0.50	0.47	22.45
5,631.00	0.35	61.31	5,618.21	306.65	93.76	319.80	0.48	-0.37	-35.25
5,726.00	0.26	102.27	5,713.21	306.74	94.23	320.00	0.24	-0.09	43.12
5,820.00	0.26	132.15	5,807.21	306.55	94.59	319.90	0.14	0.00	31.79
5,915.00	0.44	20.79	5,902.21	306.75	94.88	320.15	0.62	0.19	-117.22
6,010.00	0.53	331.48	5,997.21	307.48	94.80	320.84	0.43	0.09	-51.91
6,105.00	0.70	290.44	6,092.20	308.07	94.05	321.25	0.48	0.18	-43.20
6,200.00	1.14	273.65	6,187.19	308.33	92.56	321.18	0.54	0.46	-17.67
6,294.00	0.53	234.28	6,281.18	308.13	91.28	320.70	0.86	-0.65	-41.88
6,389.00	0.62	230.23	6,376.18	307.55	90.52	319.96	0.10	0.09	-4.26
6,484.00	0.70	245.26	6,471.17	306.98	89.60	319.20	0.20	0.08	15.82
6,578.00	1.49	284.51	6,565.15	306.62	87.86	318.47	0.92	0.84	20.48
6,673.00	1.14	245.35	6,660.13	306.11	85.77	317.51	0.59	-0.37	-20.17
6,768.00	1.58	242.80	6,755.10	305.12	83.75	316.09	0.47	0.46	-2.68
6,862.00	0.79	271.10	6,849.08	304.54	81.95	315.13	1.02	-0.84	30.11
6,957.00	0.88	68.78	6,944.08	304.81	81.98	315.40	1.72	0.09	165.98
7,052.00	0.62	85.83	7,039.07	305.11	83.17	315.96	0.36	-0.27	17.95
7,146.00	0.26	32.74	7,133.07	305.33	83.79	316.31	0.54	-0.38	-56.48
7,241.00	0.18	298.61	7,228.06	305.58	83.78	316.55	0.34	-0.08	-99.08
7,335.00	0.62	269.08	7,322.06	305.65	83.14	316.47	0.50	0.47	-31.41
7,430.00	1.14	281.04	7,417.05	305.82	81.70	316.32	0.58	0.55	12.59
7,525.00	1.32	223.55	7,512.03	305.21	80.02	315.35	1.26	0.19	-60.52
7,620.00	0.79	198.15	7,607.02	303.79	79.06	313.76	0.73	-0.56	-26.74
7,714.00	0.79	223.47	7,701.01	302.70	78.41	312.55	0.37	0.00	26.94
7,809.00	0.79	206.94	7,796.00	301.65	77.66	311.36	0.24	0.00	-17.40
7,904.00	0.97	242.28	7,890.99	300.69	76.65	310.20	0.59	0.19	37.20
7,998.00	0.79	232.17	7,984.98	299.92	75.44	309.18	0.25	-0.19	-10.76
8,093.00	1.49	227.51	8,079.96	298.68	74.01	307.66	0.74	0.74	-4.91
8,188.00	1.93	237.00	8,174.92	296.98	71.76	305.50	0.55	0.46	9.99
8,282.00	1.76	253.17	8,268.87	295.70	69.05	303.65	0.58	-0.18	17.20
8,377.00	1.85	262.75	8,363.82	295.08	66.13	302.40	0.33	0.09	10.08
8,472.00	2.29	278.31	8,458.76	295.16	62.73	301.73	0.75	0.46	16.38
8,567.00	2.20	284.73	8,553.69	295.90	59.09	301.64	0.28	-0.09	6.76
8,661.00	2.20	276.03	8,647.62	296.55	55.55	301.49	0.35	0.00	-9.26
8,756.00	2.46	264.86	8,742.54	296.56	51.71	300.64	0.55	0.27	-11.76
8,856.00	3.25	245.53	8,842.42	295.19	46.99	298.26	1.23	0.79	-19.33

Scientific Drilling International, Inc.

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Cascade Creek 697-08-39 - Slot K
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Site:	Cascade Creek 608-43-31 Pad	MD Reference:	GL 8479' & RKB 30' @ 8509.00ft (H&P)
Well:	Cascade Creek 697-08-39	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	RockiesEDM-5000.1

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)
Last SDI Production MWD Survey									
8,915.00	3.25	245.53	8,901.32	293.81	43.94	296.24	0.00	0.00	0.00
Projection to TD - BHL = 632096.12, 1228223.39									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
188.00	187.95	3.23	1.83	First SDI MWD Survey	
2,650.00	2,642.82	180.06	40.93	Last Survey in 14 3/4" Hole	
2,790.00	2,782.58	187.65	43.89	First SDI Production MWD Survey	
8,856.00	8,842.42	295.19	46.99	Last SDI Production MWD Survey	
8,915.00	8,901.32	293.81	43.94	Projection to TD	
8,915.00	8,901.32	293.81	43.94	BHL = 632096.12, 1228223.39	

Checked By: _____ Approved By: _____ Date: _____