

OXY USA RMAT

Garfield County, CO

Cascade Creek 603-23-32 Pad

697-03-67D

OH

Survey: Survey #1

Standard Survey Report

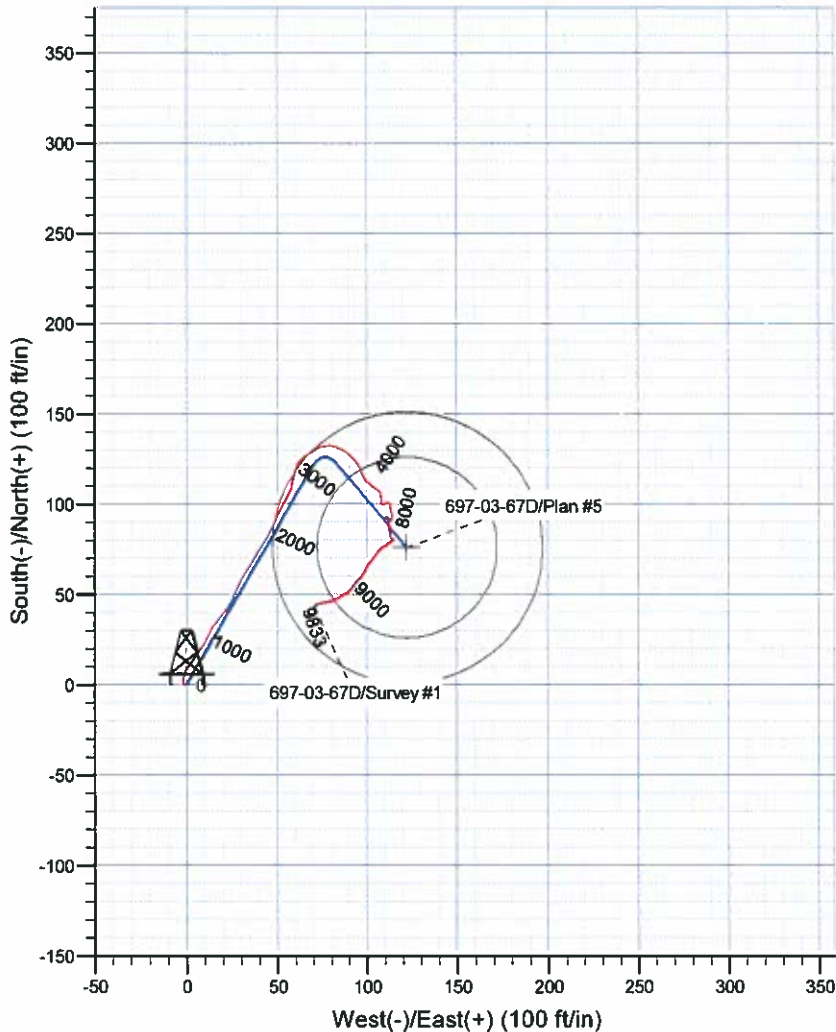
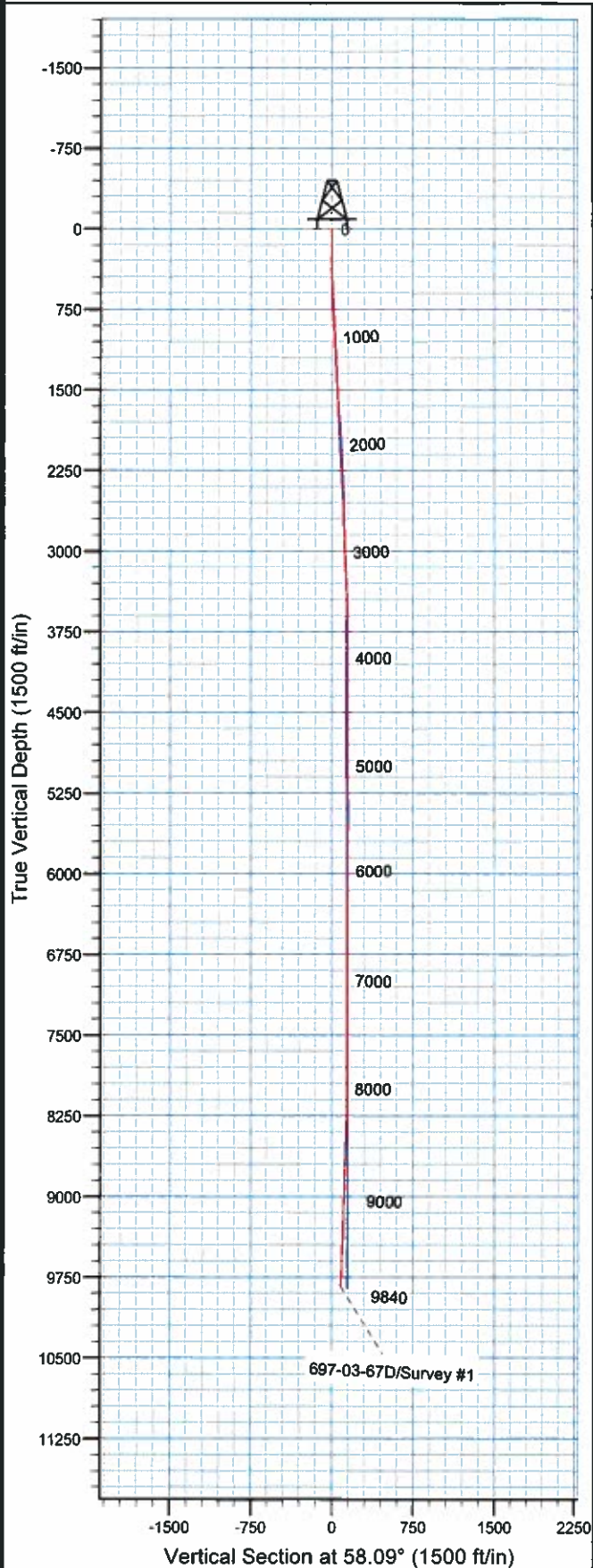
04 October, 2006



Scientific Drilling
Rocky Mountain Operations

Project: Garfield County, CO
Site: Cascade Creek 603-23-32 Pad
Well: 697-03-67D
Wellbore: OH
Design: OH

OXY USA RMAT



WELL DETAILS: 697-03-67D

+N/-S	+E/-W	Ground Level: Northing	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687) Easting	Latitude	Longitude	Slot
0.00	0.00	636049.49	1235960.40	39° 32' 54.554 N	106° 12' 35.267 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well 697-03-67D, True North
Vertical (TVD) Reference: GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Calculation Method: Minimum Curvature
Local North: True
Location: Sec. 3 T6S R97W

PROJECT DETAILS: Garfield County, CO

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

Survey: Survey #1 (697-03-67D/OH)

Created By: Julie Cruse Date: 2006-10-04

Scientific Drilling

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-03-67D
Project:	Garfield County, CO	TVD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Site:	Cascade Creek 603-23-32 Pad	MD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Well:	697-03-67D	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.14.1.0 Single User Db

Project	Garfield County, CO		
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 603-23-32 Pad, Sec. 3 T6S R97W			
Site Position:		Northing:	636,059.20 ft	Latitude:	39° 32' 54.656 N
From:	Map	Easting:	1,235,979.37 ft	Longitude:	108° 12' 35.028 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.71 °

Well	697-03-67D, SHL: 1378' FSL, 1424' FWL					
Well Position	+N/-S	0.00 ft	Northing:	636,049.49 ft	Latitude:	39° 32' 54.554 N
	+E/-W	0.00 ft	Easting:	1,235,960.40 ft	Longitude:	108° 12' 35.267 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,609.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2006-08-31	11.05	65.87	52,727

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth:
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	58.09

Survey Program	Date	2006-10-04		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
116.00	9,840.00	Survey #1 (OH)	MWD	MWD - Standard

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
116.00	0.47	269.26	116.00	-0.01	-0.48	-0.41	0.41	0.41	0.00
209.00	0.43	307.50	209.00	0.20	-1.13	-0.86	0.32	-0.04	41.12
301.00	0.64	346.66	300.99	0.91	-1.53	-0.81	0.45	0.23	42.57
394.00	0.87	356.23	393.98	2.12	-1.69	-0.32	0.28	0.25	10.29
485.00	1.16	16.34	484.97	3.69	-1.48	0.70	0.50	0.32	22.10
555.00	1.71	20.79	554.95	5.35	-0.91	2.06	0.80	0.79	6.36
647.00	2.25	25.81	646.89	8.26	0.36	4.68	0.62	0.59	5.46
739.00	2.97	35.34	738.80	11.83	2.53	8.40	0.91	0.78	10.36
831.00	3.92	37.54	830.63	16.27	5.82	13.54	1.04	1.03	2.39
923.00	4.71	26.60	922.37	22.14	9.43	19.71	1.24	0.86	-11.89
1,016.00	4.43	26.10	1,015.07	28.78	12.72	26.01	0.30	-0.30	-0.54
1,106.00	3.69	37.71	1,104.85	34.19	16.02	31.67	1.22	-0.82	12.90

Scientific Drilling

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-03-67D
Project:	Garfield County, CO	TVD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Site:	Cascade Creek 603-23-32 Pad	MD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Well:	697-03-67D	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.14.1.0 Single 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)
1,198.00	3.12	44.85	1,196.69	38.31	19.60	36.89	0.77	-0.62	7.76
1,294.00	2.76	29.08	1,292.56	42.18	22.56	41.45	0.92	-0.37	-16.43
1,390.00	3.53	27.11	1,388.42	46.83	25.04	46.00	0.81	0.80	-2.05
1,486.00	4.33	22.71	1,484.19	52.81	27.78	51.49	0.89	0.83	-4.58
1,582.00	4.18	29.30	1,579.93	59.20	30.89	57.51	0.53	-0.16	6.86
1,678.00	4.13	31.83	1,675.67	65.19	34.43	63.68	0.20	-0.05	2.64
1,774.00	5.09	32.67	1,771.36	71.71	38.55	70.63	1.00	1.00	0.87
1,870.00	4.71	31.30	1,867.01	78.66	42.90	77.99	0.41	-0.40	-1.43
1,966.00	3.45	27.09	1,962.77	84.60	46.26	83.99	1.35	-1.31	-4.39
2,062.00	2.90	19.96	2,058.62	89.46	48.40	88.37	0.70	-0.57	-7.43
2,158.00	2.63	29.03	2,154.51	93.66	50.30	92.21	0.53	-0.28	9.45
2,253.00	2.36	30.74	2,249.42	97.25	52.36	95.85	0.29	-0.28	1.80
2,349.00	2.62	25.45	2,345.33	100.93	54.31	99.45	0.36	0.27	-5.51
2,445.00	2.46	30.83	2,441.23	104.68	56.31	103.13	0.30	-0.17	5.60
2,541.00	1.99	18.03	2,537.16	108.04	57.88	106.24	0.71	-0.49	-13.33
2,637.00	1.98	4.32	2,633.10	111.28	58.52	108.49	0.49	-0.01	-14.28
2,733.00	1.89	19.09	2,729.05	114.42	59.17	110.70	0.53	-0.09	15.39
2,771.00	2.03	15.90	2,767.03	115.66	59.56	111.69	0.47	0.37	-8.39
2,893.00	1.61	11.75	2,888.97	119.42	60.50	114.47	0.36	-0.34	-3.40
2,989.00	2.64	33.02	2,984.90	122.59	61.98	117.41	1.33	1.07	22.16
3,085.00	3.17	55.82	3,080.78	125.94	65.38	122.06	1.31	0.55	23.75
3,181.00	2.80	51.85	3,176.65	128.88	69.42	127.05	0.44	-0.39	-4.14
3,277.00	2.84	68.23	3,272.53	131.21	73.47	131.72	0.84	0.04	17.06
3,373.00	2.98	89.13	3,368.41	132.13	78.17	136.20	1.11	0.15	21.77
3,469.00	3.28	108.26	3,464.27	131.31	83.28	140.09	1.13	0.31	19.93
3,565.00	3.74	123.02	3,560.09	128.74	88.51	143.18	1.05	0.48	15.37
3,661.00	3.72	141.26	3,655.89	124.61	93.08	144.88	1.23	-0.02	19.00
3,757.00	2.94	155.16	3,751.73	119.94	96.07	144.95	1.16	-0.81	14.48
3,853.00	2.20	159.56	3,847.64	115.98	97.75	144.28	0.80	-0.77	4.58
3,949.00	1.38	145.66	3,943.59	113.30	99.04	143.96	0.96	-0.85	-14.48
4,045.00	0.91	101.44	4,039.57	112.19	100.44	144.56	1.01	-0.49	-46.06
4,141.00	0.63	148.33	4,135.56	111.59	101.46	145.12	0.69	-0.29	48.84
4,237.00	0.36	179.22	4,231.56	110.84	101.75	144.96	0.39	-0.28	32.18
4,333.00	0.24	339.35	4,327.56	110.73	101.68	144.84	0.62	-0.12	166.80
4,429.00	1.65	128.18	4,423.55	110.06	102.69	145.35	1.94	1.47	155.03
4,525.00	1.84	120.84	4,519.50	108.42	105.10	146.53	0.31	0.20	-7.65
4,621.00	1.22	133.27	4,615.47	106.93	107.17	147.49	0.73	-0.65	12.95
4,717.00	1.36	184.86	4,711.45	105.09	107.82	147.07	1.18	0.15	53.74
4,813.00	0.24	98.83	4,807.44	103.93	107.92	146.54	1.42	-1.17	-89.61
4,909.00	0.37	176.21	4,903.44	103.59	108.14	146.55	0.41	0.14	80.60
5,005.00	1.01	171.93	4,999.43	102.44	108.28	146.06	0.67	0.67	-4.46
5,101.00	0.79	187.44	5,095.42	100.95	108.31	145.30	0.34	-0.23	16.16
5,197.00	0.76	141.55	5,191.41	99.79	108.62	144.95	0.63	-0.03	-47.80
5,293.00	1.60	60.29	5,287.39	99.96	110.18	146.37	1.73	0.87	-84.65
5,389.00	0.74	73.54	5,383.37	100.80	111.94	148.30	0.93	-0.90	13.80
5,485.00	1.53	166.65	5,479.36	99.72	112.83	148.49	1.81	0.82	96.99
5,581.00	2.08	167.16	5,575.31	96.78	113.52	147.52	0.57	0.57	0.53
5,677.00	1.32	174.47	5,671.27	93.98	114.01	146.46	0.82	-0.79	7.61
5,772.00	0.66	180.21	5,766.25	92.34	114.11	145.68	0.70	-0.69	6.04
5,868.00	0.51	183.72	5,862.25	91.36	114.08	145.14	0.16	-0.16	3.66
5,964.00	0.22	275.55	5,958.25	90.96	113.87	144.74	0.59	-0.30	95.66
6,060.00	0.56	306.81	6,054.24	91.25	113.31	144.42	0.41	0.35	32.56
6,156.00	0.55	293.08	6,150.24	91.72	112.51	143.99	0.14	-0.01	-14.30
6,252.00	0.31	285.20	6,246.24	91.96	111.84	143.55	0.26	-0.25	-8.21

Scientific Drilling

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-03-67D
Project:	Garfield County, CO	TVD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Site:	Cascade Creek 603-23-32 Pad	MD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Well:	697-03-67D	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.14.1.0 Single 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)
6,348.00	0.48	271.25	6,342.23	92.04	111.19	143.03	0.20	0.18	-14.53
6,435.00	0.41	283.52	6,429.23	92.12	110.52	142.51	0.14	-0.08	14.10
6,529.77	0.27	68.75	6,524.00	92.28	110.40	142.49	0.69	-0.15	153.24
697-03-67D WF Target									
6,598.00	0.73	82.08	6,592.23	92.40	110.98	143.05	0.69	0.67	19.54
6,692.00	0.11	157.93	6,686.23	92.40	111.61	143.58	0.76	-0.66	80.69
6,785.00	1.55	159.82	6,779.21	91.14	112.08	143.31	1.55	1.55	2.03
6,879.00	2.06	178.25	6,873.17	88.26	112.57	142.20	0.82	0.54	19.61
6,973.00	0.82	184.12	6,967.14	85.90	112.57	140.96	1.33	-1.32	6.24
7,066.00	0.50	71.20	7,060.13	85.36	112.90	140.96	1.20	-0.34	-121.42
7,160.00	0.48	189.29	7,154.13	85.11	113.23	141.10	0.89	-0.02	125.63
7,254.00	1.01	186.37	7,248.12	83.89	113.07	140.33	0.57	0.56	-3.11
7,348.00	1.50	166.49	7,342.10	81.87	113.27	139.43	0.69	0.52	-21.15
7,442.00	1.35	102.73	7,436.08	80.43	114.64	139.83	1.61	-0.16	-67.83
7,537.00	0.26	282.74	7,531.07	80.24	115.52	140.47	1.69	-1.15	-189.46
7,630.00	0.44	255.47	7,624.07	80.19	114.97	139.98	0.26	0.19	-29.32
7,723.00	0.31	257.88	7,717.06	80.05	114.38	139.40	0.14	-0.14	2.59
7,816.00	0.67	223.37	7,810.06	79.60	113.76	138.64	0.48	0.39	-37.11
7,909.00	0.58	179.90	7,903.06	78.74	113.38	137.87	0.51	-0.10	-46.74
8,002.00	0.78	284.76	7,996.05	78.43	112.77	137.18	1.17	0.22	112.75
8,095.00	0.51	180.16	8,089.05	78.17	112.16	136.53	1.11	-0.29	-112.47
8,188.00	0.86	249.57	8,182.04	77.52	111.50	135.63	0.89	0.38	74.63
8,281.00	1.06	235.51	8,275.03	76.79	110.14	134.08	0.33	0.22	-15.12
8,374.00	0.94	241.24	8,368.02	75.93	108.76	132.46	0.17	-0.13	6.16
8,467.00	1.69	220.27	8,460.99	74.52	107.21	130.40	0.95	0.81	-22.55
8,559.00	2.49	219.38	8,552.93	71.94	105.06	127.21	0.87	0.87	-0.97
8,652.00	2.17	217.66	8,645.85	68.98	102.71	123.65	0.35	-0.34	-1.85
8,735.00	2.11	210.02	8,728.79	66.42	100.98	120.83	0.35	-0.07	-9.20
8,830.00	2.44	212.33	8,823.72	63.19	99.02	117.46	0.36	0.35	2.43
8,924.00	2.02	211.48	8,917.65	60.09	97.09	114.18	0.45	-0.45	-0.90
9,017.00	2.09	228.08	9,010.59	57.56	94.97	111.04	0.64	0.08	17.85
9,111.00	1.88	212.78	9,104.53	55.12	92.86	107.96	0.60	-0.22	-16.28
9,205.00	1.55	213.98	9,198.49	52.77	91.32	105.41	0.35	-0.35	1.28
9,299.00	1.79	236.59	9,292.45	50.90	89.38	102.78	0.74	0.26	24.05
9,394.00	2.09	240.59	9,387.40	49.24	86.63	99.57	0.35	0.32	4.21
9,488.00	1.84	240.08	9,481.34	47.64	83.83	96.35	0.27	-0.27	-0.54
9,583.00	2.38	255.14	9,576.28	46.37	80.60	92.94	0.81	0.57	15.85
9,676.00	2.31	263.04	9,669.20	45.65	76.88	89.39	0.36	-0.08	8.49
9,770.00	2.34	252.09	9,763.12	44.83	73.17	85.81	0.47	0.03	-11.65
9,780.00	2.39	250.09	9,773.12	44.70	72.78	85.41	0.96	0.50	-20.00
9,831.93	2.39	250.09	9,825.00	43.96	70.74	83.29	0.00	0.00	0.00
697-03-75D BHL									
9,840.00	2.39	250.09	9,833.06	43.85	70.43	82.96	0.00	0.00	0.00
Projection to TD									

Scientific Drilling

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well 697-03-67D
Project:	Garfield County, CO	TVD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Site:	Cascade Creek 603-23-32 Pad	MD Reference:	GL 8609' & RKB 25' @ 8634.00ft (Nabors 687)
Well:	697-03-67D	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.14.1.0 Single User Db

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
697-03-75D BHL	0.00	0.00	9 825.00	-582.71	102.02	635,464.00	1,236,045.00	39° 32' 48.795 N	108° 12' 33.964 W
- survey misses by 627.40ft at 9839.60ft MD (9832.67 TVD, 43.85 N, 70.44 E)									
- Circle (radius 50.00)									
697-03-67D BHL	0.00	0.00	9 857.00	76.19	122.38	636,122.00	1,236,085.00	39° 32' 55.307 N	108° 12' 33.704 W
- survey misses by 65.72ft at 9840.00ft MD (9833.06 TVD, 43.85 N, 70.43 E)									
- Circle (radius 50.00)									
697-03-67D WF Target	0.00	0.00	6 524.00	76.19	122.38	636,122.00	1,236,085.00	39° 32' 55.307 N	108° 12' 33.704 W
- survey misses by 20.06ft at 6529.84ft MD (6524.07 TVD, 92.28 N, 110.40 E)									
- Circle (radius 75.00)									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
9,840.00	9,833.06	43.85	70.43	Projection to TD

Checked By: _____ Approved By: _____ Date: _____