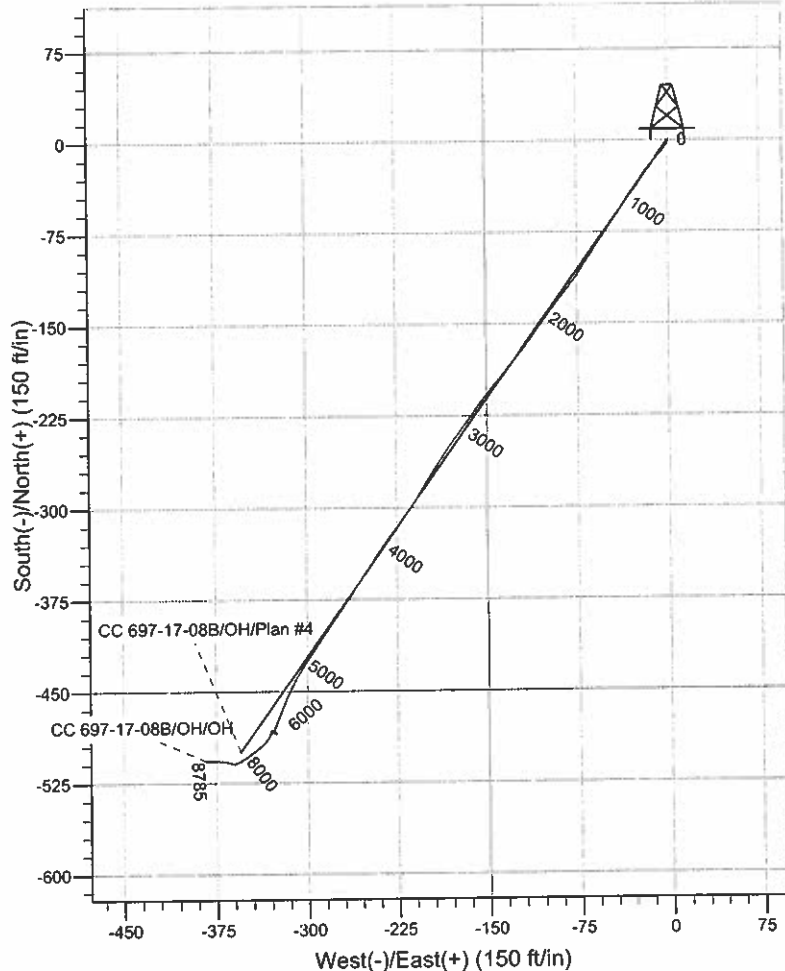
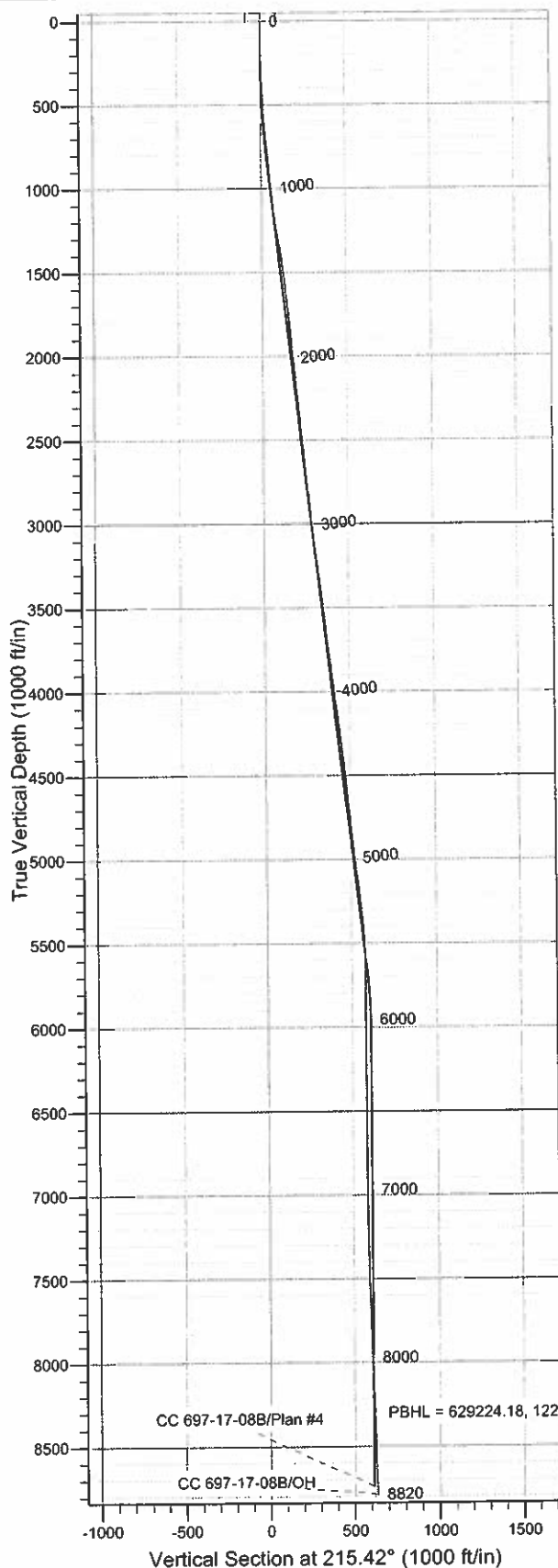




Scientific Drilling
Rocky Mountain Operations

Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-17-08B
Wellbore: OH
Design: OH

OXY USA RMAT



WELL DETAILS: CC 697-17-08B

Ground Level: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)				
North	East	Lat	Long	
0.00	0.00	629712.56	1229353.57	39° 31' 50.008 N 108° 13' 57.108 W R

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-17-08B - Slot R, True North
Vertical (TVD) Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Section (VS) Reference: Slot - R(0.00N, 0.00E)
Measured Depth Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Calculation Method: Minimum Curvature
Local North: No north reference data is available
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 697-17-08B/OH)

Created By: Julie Cruse Date: 2010-06-30

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-17-08B
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well CC 697-17-08B - Slot R
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: 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 609-14 Pad, Sec 9 T6S R97W			
Site Position:		Northing:	629,789.23 ft	Latitude: 39° 31' 50.765 N
From:	Map	Easting:	1,229,350.88 ft	Longitude: 108° 13' 57.172 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence: -1.72 °

Well	CC 697-17-08B - Slot R, 146' FSL 264' FWL			
Well Position	+N/-S	0.00 ft	Northing: 629,712.56 ft	Latitude: 39° 31' 50.008 N
	+E/-W	0.00 ft	Easting: 1,229,353.57 ft	Longitude: 108° 13' 57.108 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level: 8,393.00 ft

Wellbore	OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)
	IGRF200510	2008-06-24	10.82	65.81
				Field Strength (nT) 52,539

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	215.42

Survey Program	Date	2010-06-30		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
92.00	553.00	Survey #1 - Surface Gyro (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3
619.00	2,883.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,983.00	8,820.00	Survey #3 - 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)	Bulld 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
	92.00	0.08	36.41	92.00	0.05	0.04	-0.06	0.09	0.09	0.00
	122.00	0.31	56.72	122.00	0.11	0.12	-0.16	0.79	0.77	67.70
	153.00	0.40	148.78	153.00	0.07	0.24	-0.20	1.66	0.29	296.97
	184.00	1.12	199.51	184.00	-0.31	0.20	0.14	2.97	2.32	163.65
	215.00	1.63	207.44	214.99	-0.99	-0.10	0.87	1.75	1.65	25.58
	245.00	2.19	209.95	244.97	-1.86	-0.59	1.86	1.89	1.87	8.37
	276.00	2.90	216.46	275.94	-3.01	-1.35	3.23	2.47	2.29	21.00
	307.00	2.65	212.68	306.90	-4.24	-2.20	4.73	1.00	-0.81	-12.19
	338.00	2.75	207.40	337.87	-5.51	-2.93	6.19	0.86	0.32	-17.03
	368.00	3.06	208.50	367.83	-6.85	-3.64	7.69	1.05	1.03	3.67

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-17-08B
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well CC 697-17-08B - Slot R
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: 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)
399.00	2.23	210.57	398.80	-8.09	-4.35	9.12	2.69	-2.68	6.68
430.00	2.17	217.77	429.77	-9.08	-5.01	10.30	0.91	-0.19	23.23
461.00	2.28	225.02	460.75	-9.98	-5.81	11.50	0.97	0.35	23.39
553.00	3.76	224.02	552.62	-13.44	-9.20	16.28	1.61	1.61	-1.09
Last Gyro Survey									
619.00	4.69	218.44	618.44	-17.11	-12.38	21.12	1.54	1.41	-8.45
First MWD Survey									
712.00	6.24	216.79	711.02	-24.14	-17.77	29.97	1.68	1.67	-1.77
804.00	6.51	216.44	802.45	-32.34	-23.86	40.18	0.30	0.29	-0.38
897.00	5.28	213.89	894.95	-40.13	-29.38	49.73	1.35	-1.32	-2.74
990.00	5.19	213.02	987.57	-47.21	-34.06	58.21	0.13	-0.10	-0.94
1,084.00	6.51	213.10	1,081.07	-55.24	-39.29	67.78	1.40	1.40	0.09
1,179.00	8.09	214.25	1,175.30	-65.27	-45.99	79.85	1.67	1.66	1.21
1,274.00	9.94	213.81	1,269.12	-77.61	-54.32	94.73	1.95	1.95	-0.46
1,368.00	9.15	214.33	1,361.82	-90.53	-63.04	110.31	0.85	-0.84	0.55
1,463.00	7.74	211.35	1,455.79	-102.23	-70.63	124.25	1.55	-1.48	-3.14
1,557.00	6.60	214.42	1,549.05	-112.09	-76.98	135.96	1.28	-1.21	3.27
1,652.00	5.63	217.32	1,643.51	-120.30	-82.89	146.08	1.07	-1.02	3.05
1,747.00	5.89	219.78	1,738.03	-127.75	-88.84	155.59	0.38	0.27	2.59
1,841.00	6.60	218.02	1,831.47	-135.72	-95.25	165.80	0.78	0.76	-1.87
1,936.00	5.45	216.00	1,925.95	-143.67	-101.26	175.77	1.23	-1.21	-2.13
2,031.00	5.72	212.22	2,020.50	-151.32	-106.44	185.00	0.48	0.28	-3.98
2,126.00	6.60	216.53	2,114.95	-159.71	-112.21	195.19	1.05	0.93	4.54
2,220.00	6.24	217.85	2,208.36	-168.09	-118.56	205.69	0.41	-0.38	1.40
2,315.00	5.98	218.55	2,302.82	-176.04	-124.82	215.79	0.28	-0.27	0.74
2,410.00	5.89	218.73	2,397.31	-183.71	-130.95	225.60	0.10	-0.09	0.19
2,504.00	5.98	217.15	2,490.81	-191.37	-136.92	235.31	0.20	0.10	-1.68
2,599.00	6.42	220.49	2,585.25	-199.36	-143.36	245.55	0.60	0.46	3.52
2,694.00	5.89	218.99	2,679.70	-207.18	-149.88	255.70	0.58	-0.56	-1.58
2,788.00	6.33	216.27	2,773.17	-215.11	-155.98	265.70	0.56	0.47	-2.89
2,883.00	6.07	214.16	2,867.61	-223.49	-161.90	275.96	0.36	-0.27	-2.22
Last Survey in 14 3/4" Hole									
2,983.00	5.45	216.26	2,967.11	-231.69	-167.67	285.99	0.65	-0.62	2.10
First Survey in 8 3/4" Hole									
3,078.00	6.07	218.63	3,061.63	-239.26	-173.48	295.52	0.70	0.65	2.49
3,173.00	7.56	214.76	3,155.95	-248.31	-180.18	306.78	1.64	1.57	-4.07
3,267.00	8.18	213.01	3,249.07	-259.00	-187.35	319.65	0.71	0.66	-1.86
3,362.00	7.74	214.06	3,343.15	-269.97	-194.61	332.79	0.49	-0.46	1.11
3,457.00	7.03	210.72	3,437.36	-280.27	-201.16	344.98	0.87	-0.75	-3.52
3,552.00	6.68	209.23	3,531.69	-290.09	-206.83	356.27	0.41	-0.37	-1.57
3,646.00	7.21	216.78	3,625.00	-299.58	-213.03	367.60	1.12	0.56	8.03
3,741.00	6.60	215.82	3,719.31	-308.78	-219.80	379.02	0.65	-0.64	-1.01
3,836.00	7.30	218.10	3,813.61	-317.96	-226.72	390.51	0.79	0.74	2.40
3,930.00	7.74	215.73	3,906.80	-327.80	-234.10	402.81	0.57	0.47	-2.52
4,025.00	7.39	215.11	4,000.97	-337.99	-241.35	415.31	0.38	-0.37	-0.65
4,120.00	6.51	212.83	4,095.27	-347.51	-247.78	426.80	0.97	-0.93	-2.40
4,215.00	7.30	213.97	4,189.59	-357.04	-254.07	438.22	0.84	0.83	1.20
4,309.00	7.12	214.50	4,282.84	-366.80	-260.71	450.01	0.20	-0.19	0.56
4,404.00	5.54	212.74	4,377.26	-375.51	-266.53	460.48	1.68	-1.66	-1.85
4,499.00	6.42	218.54	4,471.74	-383.52	-272.31	470.36	1.12	0.93	6.11
4,594.00	6.16	212.48	4,566.17	-391.97	-278.36	480.76	0.75	-0.27	-6.38
4,688.00	6.07	213.36	4,659.64	-400.38	-283.80	490.76	0.14	-0.10	0.94
4,783.00	5.72	212.21	4,754.13	-408.58	-289.09	500.51	0.39	-0.37	-1.21
4,878.00	6.33	215.91	4,848.61	-416.83	-294.68	510.47	0.76	0.64	3.89

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-17-08B
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well CC 697-17-08B - Slot R
GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
True
Minimum Curvature
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)
4,972.00	7.12	214.59	4,941.96	-425.82	-301.03	521.48	0.86	0.84	-1.40
5,067.00	7.03	208.79	5,036.24	-435.76	-307.17	533.14	0.76	-0.09	-6.11
5,162.00	6.77	207.64	5,130.55	-445.82	-312.57	544.46	0.31	-0.27	-1.21
5,256.00	6.68	202.55	5,223.91	-455.78	-317.24	555.28	0.64	-0.10	-5.41
5,351.00	6.60	200.96	5,318.27	-465.98	-321.31	565.96	0.21	-0.08	-1.67
5,446.00	5.01	203.34	5,412.78	-474.88	-324.90	575.30	1.69	-1.67	2.51
5,540.00	2.90	196.22	5,506.55	-480.94	-327.20	581.56	2.30	-2.24	-7.57
5,635.00	0.26	228.47	5,601.51	-483.39	-328.03	584.04	2.82	-2.78	33.95
5,730.00	0.44	107.18	5,696.51	-483.64	-327.84	584.13	0.65	0.19	-127.67
5,825.00	0.62	93.12	5,791.50	-483.77	-326.98	583.75	0.23	0.19	-14.80
5,919.00	0.53	114.92	5,885.50	-483.99	-326.08	583.39	0.25	-0.10	23.19
6,014.00	0.70	320.50	5,980.49	-483.72	-326.05	583.16	1.26	0.18	-162.55
6,109.00	0.88	317.07	6,075.49	-482.74	-326.91	582.86	0.20	0.19	-3.61
6,204.00	0.70	283.41	6,170.48	-482.07	-327.98	582.94	0.51	-0.19	-35.43
6,298.00	0.44	261.08	6,264.47	-481.99	-328.89	583.40	0.36	-0.28	-23.76
6,393.00	0.97	236.03	6,359.46	-482.50	-329.92	584.41	0.63	0.56	-26.37
6,488.00	0.35	7.96	6,454.46	-482.66	-330.54	584.91	1.30	-0.65	138.87
6,582.00	0.09	85.39	6,548.46	-482.37	-330.43	584.60	0.36	-0.28	82.37
6,677.00	0.26	110.70	6,643.46	-482.44	-330.15	584.50	0.19	0.18	26.64
6,772.00	0.70	133.11	6,738.46	-482.92	-329.53	584.52	0.49	0.46	23.59
6,866.00	0.44	219.42	6,832.45	-483.59	-329.34	584.96	0.85	-0.28	91.82
6,961.00	0.97	235.77	6,927.45	-484.32	-330.24	586.08	0.59	0.56	17.21
7,056.00	0.26	253.26	7,022.44	-484.84	-331.11	587.00	0.76	-0.75	18.41
7,151.00	0.44	147.26	7,117.44	-485.20	-331.12	587.31	0.60	0.19	-111.58
7,246.00	0.79	195.87	7,212.43	-486.14	-331.10	588.06	0.63	0.37	51.17
7,340.00	1.06	220.39	7,306.42	-487.43	-331.84	589.54	0.50	0.29	26.09
7,435.00	1.23	213.71	7,401.40	-488.94	-332.97	591.43	0.23	0.18	-7.03
7,530.00	2.11	225.40	7,496.36	-491.02	-334.79	594.17	0.99	0.93	12.31
7,625.00	2.73	221.97	7,591.28	-493.93	-337.54	598.14	0.67	0.65	-3.61
7,719.00	1.32	237.53	7,685.22	-496.18	-339.95	601.37	1.60	-1.50	16.55
7,814.00	1.67	228.56	7,780.18	-497.68	-341.92	603.73	0.44	0.37	-9.44
7,909.00	1.67	234.45	7,875.14	-499.40	-344.08	606.39	0.18	0.00	6.20
8,003.00	2.02	233.84	7,969.09	-501.17	-346.53	609.26	0.37	0.37	-0.65
8,098.00	2.29	231.73	8,064.03	-503.34	-349.37	612.67	0.30	0.28	-2.22
8,193.00	2.55	239.28	8,158.94	-505.59	-352.68	616.42	0.43	0.27	7.95
8,288.00	2.64	242.54	8,253.85	-507.68	-356.44	620.30	0.18	0.09	3.43
8,382.00	1.49	260.91	8,347.78	-508.87	-359.57	623.09	1.40	-1.22	19.54
8,477.00	2.55	285.87	8,442.72	-508.49	-362.82	624.66	1.43	1.12	26.27
8,572.00	3.34	279.54	8,537.60	-507.45	-367.58	626.57	0.90	0.83	-6.66
8,667.00	3.78	274.62	8,632.42	-506.74	-373.43	629.39	0.56	0.46	-5.18
8,761.00	3.52	267.06	8,726.23	-506.64	-379.40	632.76	0.58	-0.28	-8.04
Last SDI Survey									
8,820.00	3.52	267.06	8,785.11	-506.83	-383.02	635.01	0.00	0.00	0.00
Projection to TD									

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
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Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
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North Reference:
Survey Calculation Method:
Database:

Well CC 697-17-08B - Slot R
 GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
 GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
 True
 Minimum Curvature
 EDM 2003.16 Multi User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
CC 697-17-08B Target - actual wellpath misses target center by 11.63ft at 7885.12ft MD (7851.27 TVD, -498.99 N, -343.52 E) - Circle (radius 50.00)	0.00	0.00	7,851.00	-499.29	-355.15	629,224.18	1,228,983.57	39° 31' 45.073 N	108° 14' 1.640 W
CC 697-17-08B Target 2 - actual wellpath misses target center by 10.42ft at 7936.13ft MD (7902.26 TVD, -499.88 N, -344.74 E) - Circle (radius 50.00)	0.00	0.00	7,902.00	-499.29	-355.15	629,224.18	1,228,983.57	39° 31' 45.073 N	108° 14' 1.640 W
CC 697-17-08B 8° - actual wellpath misses target center by 10.42ft at 7936.13ft MD (7902.26 TVD, -499.88 N, -344.74 E) - Circle (radius 50.00)	0.00	0.00	7,902.00	-499.29	-355.15	629,224.18	1,228,983.57	39° 31' 45.073 N	108° 14' 1.640 W

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
553.00	552.62	-13.44	-9.20	Last Gyro Survey
619.00	618.44	-17.11	-12.38	First MWD Survey
2,883.00	2,867.61	-223.49	-161.90	Last Survey in 14 3/4" Hole
2,983.00	2,967.11	-231.69	-167.67	First Survey in 8 3/4" Hole
8,761.00	8,726.23	-506.64	-379.40	Last SDI Survey
8,820.00	8,785.11	-506.83	-383.02	Projection to TD

Checked By: _____ Approved By: _____ Date: _____