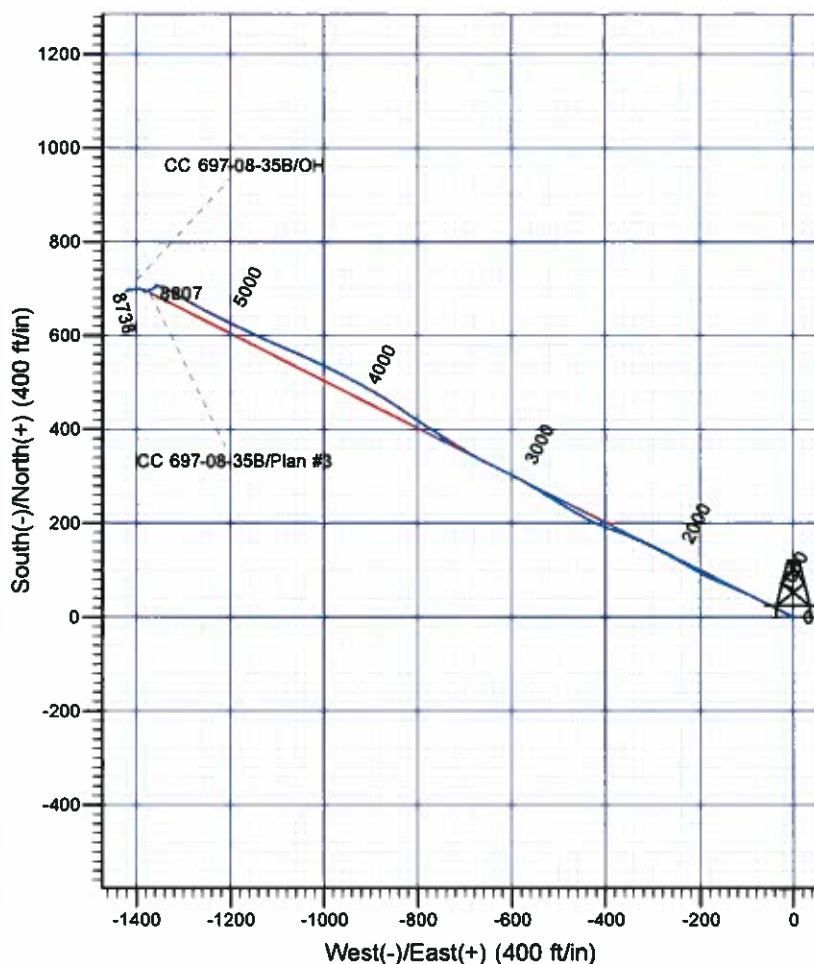
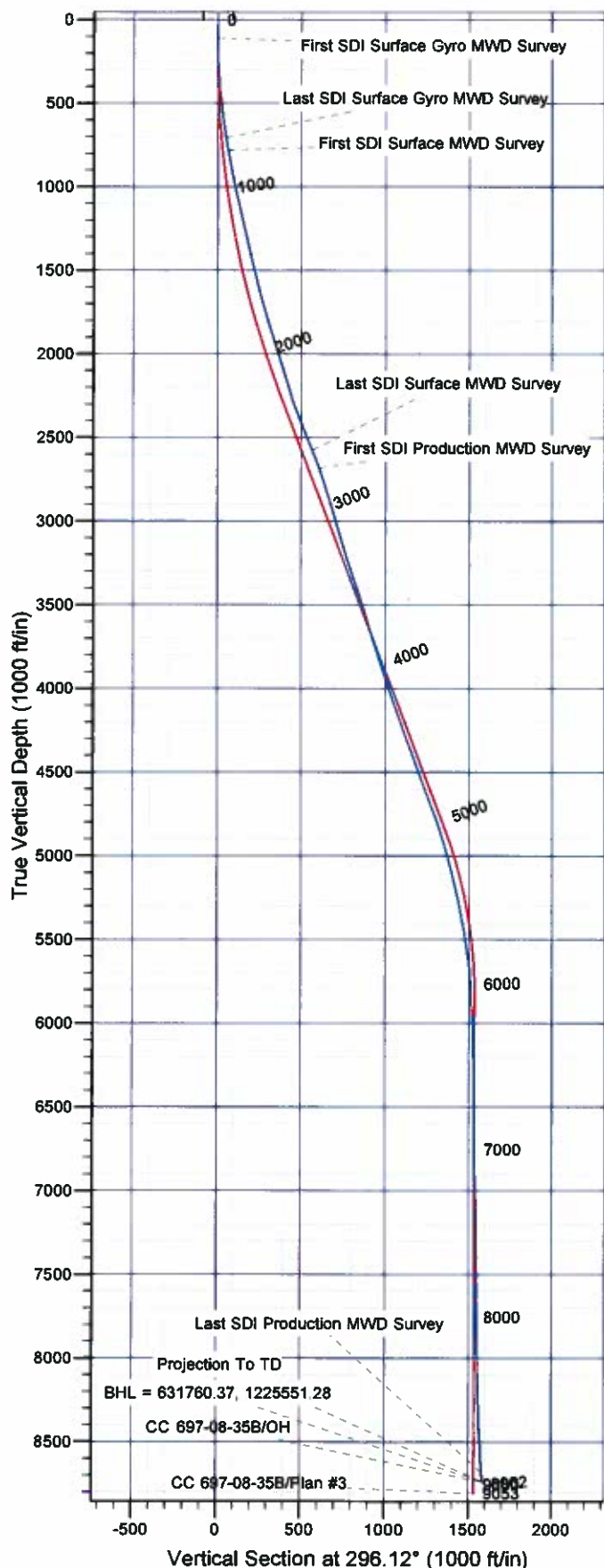




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08-63 Pad
 Well: CC 697-08-35B
 Wellbore: OH
 Design: OH



Well Details: CC 697-08-35B

TVD Reference: GL 8379' & RKB 30' @ 8409.00ft (H&P 330)						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	631023.37	1226852.38	39° 32' 2.243 N	108° 14' 28.245 W	M

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-08-35B - Slot M, True North

Vertical (TVD) Reference: GL 8379' & RKB 30' @ 8409.00ft (H&P 330)

Section (VS) Reference: Slot - M(0.00N, 0.00E)

Measured Depth Reference: GL 8379' & RKB 30' @ 8409.00ft (H&P 330)

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

16:31, December 31 2011
 Created By: Rex Hall

OXY USA RMAT

Garfield County, CO NAD27

Cascade Creek 697-08-53 Pad

CC 697-08-35B - Slot M

OH

Design: OH

Standard Survey Report

31 December, 2011

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-35B - Slot M
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Site:	Cascade Creek 697-08-53 Pad	MD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Well:	CC 697-08-35B	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 697-08-53 Pad, Sec. 8 T6S R97W			
Site Position:		Northing:	630,837.78 usft	Latitude:	39° 32' 0.393 N
From:	Map	Easting:	1,226,897.42 usft	Longitude:	108° 14' 28.874 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.73 °

Well	CC 697-08-35B - Slot M					
Well Position	+N/-S	0.00 ft	Northing:	631,023.37 usft	Latitude:	39° 32' 2.243 N
	+E/-W	0.00 ft	Easting:	1,226,952.38 usft	Longitude:	108° 14' 28.245 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,379.00 ft

Wellbore	OH				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	09/01/10	10.54	65.76	52,329

Design	OH				
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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	296.12

Survey Program		Date	12/31/11		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
110.00	711.00	Survey #1 - Surface Gyro MWD (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
785.00	2,653.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,766.00	8,962.00	Survey #3 - 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
	110.00	0.35	101.95	110.00	-0.07	0.33	-0.33	0.32	0.32	0.00
First SDI Surface Gyro MWD Survey										
	170.00	0.97	288.63	170.00	0.05	0.03	0.00	2.20	1.03	-288.87
	260.00	2.02	300.06	259.97	1.09	-2.07	2.34	1.21	1.17	12.70
	349.00	4.22	299.36	348.83	3.48	-6.28	7.17	2.47	2.47	-0.79
	439.00	4.75	294.08	438.55	6.63	-12.57	14.20	0.75	0.59	-5.87
	528.00	7.13	292.85	527.07	10.28	-21.02	23.40	2.68	2.67	-1.38
	619.00	8.62	302.26	617.21	16.11	-32.00	35.82	2.16	1.64	10.34

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-35B - Slot M
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Site:	Cascade Creek 697-08-53 Pad	MD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Well:	CC 697-08-35B	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)
711.00	9.59	299.71	708.05	23.59	-44.48	50.32	1.14	1.05	-2.77
Last SDI Surface Gyro MWD Survey									
785.00	9.85	290.89	780.99	28.90	-55.75	62.78	2.04	0.35	-11.92
First SDI Surface MWD Survey									
875.00	10.48	295.69	869.58	35.19	-70.32	78.63	1.17	0.70	5.33
965.00	11.67	297.07	957.90	42.89	-85.80	95.92	1.35	1.32	1.53
1,060.00	13.04	294.90	1,050.70	51.77	-104.08	116.24	1.52	1.44	-2.28
1,154.00	14.03	290.47	1,142.09	60.22	-124.37	138.18	1.52	1.05	-4.71
1,249.00	12.21	294.30	1,234.61	68.38	-144.32	159.69	2.12	-1.92	4.03
1,344.00	12.27	292.21	1,327.45	76.33	-162.82	179.80	0.47	0.06	-2.20
1,439.00	12.81	294.13	1,420.19	84.45	-181.78	200.40	0.72	0.57	2.02
1,533.00	14.88	301.67	1,511.46	95.05	-201.56	222.83	2.92	2.20	8.02
1,628.00	15.06	299.30	1,603.23	107.50	-222.71	247.29	0.67	0.19	-2.49
1,722.00	15.13	298.28	1,693.99	119.29	-244.16	271.74	0.29	0.07	-1.09
1,817.00	16.80	298.80	1,785.32	131.77	-267.11	297.85	1.76	1.76	0.55
1,912.00	16.62	296.60	1,876.31	144.47	-291.29	325.15	0.69	-0.19	-2.32
2,007.00	17.85	296.51	1,967.05	157.05	-316.47	353.29	1.30	1.29	-0.09
2,101.00	18.20	294.67	2,056.43	169.61	-342.70	382.38	0.71	0.37	-1.96
2,196.00	15.92	289.13	2,147.25	180.08	-368.50	410.14	2.94	-2.40	-5.83
2,290.00	17.59	289.22	2,237.26	188.98	-394.09	437.04	1.78	1.78	0.10
2,385.00	20.14	295.28	2,327.16	200.69	-422.44	467.66	3.38	2.68	6.38
2,480.00	21.10	299.06	2,416.07	215.98	-452.18	501.09	1.73	1.01	3.98
2,575.00	22.51	300.91	2,504.28	233.63	-482.73	536.29	1.65	1.48	1.95
2,653.00	21.90	301.88	2,576.49	248.98	-507.90	565.64	0.91	-0.78	1.24
Last SDI Surface MWD Survey									
2,766.00	20.22	300.81	2,681.94	270.12	-542.57	606.07	1.53	-1.49	-0.95
First SDI Production MWD Survey									
2,861.00	18.03	300.02	2,771.69	285.88	-569.40	637.11	2.32	-2.31	-0.83
2,956.00	15.92	297.38	2,862.55	299.23	-593.70	664.81	2.36	-2.22	-2.78
3,051.00	15.92	296.15	2,953.90	310.97	-616.97	690.86	0.36	0.00	-1.29
3,145.00	15.74	295.63	3,044.34	322.16	-640.03	716.50	0.24	-0.19	-0.55
3,240.00	17.23	297.56	3,135.43	334.25	-664.13	743.45	1.67	1.57	2.03
3,335.00	17.85	299.93	3,226.02	348.02	-689.22	772.05	1.00	0.65	2.49
3,430.00	19.35	302.30	3,316.05	363.70	-715.14	802.22	1.77	1.58	2.49
3,524.00	19.17	303.45	3,404.79	380.53	-741.18	833.01	0.45	-0.19	1.22
3,619.00	16.88	303.10	3,495.12	396.66	-765.75	862.18	2.41	-2.41	-0.37
3,713.00	16.53	302.74	3,585.16	411.34	-788.43	889.01	0.39	-0.37	-0.38
3,808.00	17.32	305.03	3,676.04	426.77	-811.38	916.40	1.09	0.83	2.41
3,903.00	17.41	305.21	3,766.71	443.08	-834.57	944.41	0.11	0.09	0.19
3,997.00	17.76	303.01	3,856.32	459.00	-858.09	972.53	0.80	0.37	-2.34
4,092.00	18.47	299.58	3,946.61	474.32	-883.32	1,001.93	1.35	0.75	-3.61
4,187.00	19.35	297.73	4,036.49	489.07	-910.34	1,032.69	1.12	0.93	-1.95
4,281.00	18.55	298.44	4,125.39	503.44	-937.28	1,063.19	0.89	-0.85	0.76
4,376.00	19.17	298.35	4,215.29	518.04	-964.29	1,093.88	0.65	0.65	-0.09

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-35B - Slot M
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Site:	Cascade Creek 697-08-53 Pad	MD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Well:	CC 697-08-35B	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)
4,471.00	20.31	295.10	4,304.71	532.45	-992.95	1,125.95	1.67	1.20	-3.42
4,566.00	19.96	294.66	4,393.90	546.21	-1,022.62	1,158.64	0.40	-0.37	-0.46
4,661.00	20.93	293.52	4,482.92	559.74	-1,052.91	1,191.81	1.10	1.02	-1.20
4,755.00	20.40	292.29	4,570.87	572.66	-1,083.46	1,224.93	0.73	-0.56	-1.31
4,850.00	20.84	294.75	4,659.79	586.01	-1,114.13	1,258.34	1.02	0.46	2.59
4,945.00	19.87	294.66	4,748.85	599.82	-1,144.15	1,291.37	1.02	-1.02	-0.09
5,040.00	17.59	294.22	4,838.82	612.45	-1,171.92	1,321.86	2.40	-2.40	-0.46
5,134.00	16.62	296.06	4,928.66	624.18	-1,196.95	1,349.50	1.18	-1.03	1.96
5,229.00	15.12	296.59	5,020.03	635.70	-1,220.23	1,375.48	1.59	-1.58	0.56
5,323.00	13.72	297.38	5,111.07	646.31	-1,241.10	1,398.89	1.50	-1.49	0.84
5,418.00	12.93	297.47	5,203.51	656.40	-1,260.53	1,420.78	0.83	-0.83	0.09
5,513.00	12.22	298.61	5,296.23	666.11	-1,278.79	1,441.45	0.79	-0.75	1.20
5,608.00	10.20	298.96	5,389.42	675.00	-1,294.98	1,459.89	2.13	-2.13	0.37
5,702.00	9.58	300.28	5,482.02	682.98	-1,309.01	1,476.01	0.70	-0.66	1.40
5,797.00	8.00	303.01	5,575.90	690.56	-1,321.38	1,490.46	1.72	-1.66	2.87
5,892.00	5.98	304.68	5,670.19	696.98	-1,331.00	1,501.91	2.14	-2.13	1.76
5,987.00	3.87	307.67	5,764.83	701.76	-1,337.61	1,509.95	2.24	-2.22	3.15
6,081.00	3.52	280.24	5,858.64	704.21	-1,342.96	1,515.83	1.90	-0.37	-29.18
6,176.00	3.25	259.68	5,953.48	704.25	-1,348.48	1,520.80	1.30	-0.28	-21.64
6,271.00	1.93	285.61	6,048.39	704.19	-1,352.67	1,524.54	1.82	-1.39	27.29
6,365.00	1.41	315.14	6,142.35	705.44	-1,355.01	1,527.19	1.05	-0.55	31.41
6,460.00	1.32	320.15	6,237.32	707.11	-1,356.53	1,529.30	0.16	-0.09	5.27
6,555.00	0.44	270.14	6,332.31	707.95	-1,357.60	1,530.63	1.15	-0.93	-52.64
6,649.00	0.44	220.04	6,426.31	707.67	-1,358.19	1,531.04	0.40	0.00	-53.30
6,744.00	1.14	202.20	6,521.30	706.52	-1,358.78	1,531.06	0.77	0.74	-18.78
6,839.00	1.58	203.69	6,616.27	704.44	-1,359.67	1,530.94	0.46	0.46	1.57
6,933.00	1.93	221.18	6,710.23	702.07	-1,361.23	1,531.30	0.68	0.37	18.61
7,028.00	2.29	242.01	6,805.16	699.97	-1,363.96	1,532.83	0.89	0.38	21.93
7,123.00	3.08	248.96	6,900.06	698.16	-1,368.02	1,535.67	0.90	0.83	7.32
7,217.00	3.08	250.19	6,993.92	696.40	-1,372.75	1,539.15	0.07	0.00	1.31
7,312.00	2.64	254.84	7,088.81	694.96	-1,377.26	1,542.57	0.52	-0.46	4.89
7,407.00	1.67	248.78	7,183.74	693.89	-1,380.67	1,545.15	1.05	-1.02	-6.38
7,502.00	0.79	251.68	7,278.71	693.18	-1,382.58	1,546.56	0.93	-0.93	3.05
7,596.00	0.44	42.94	7,372.71	693.25	-1,382.95	1,546.91	1.27	-0.37	160.91
7,691.00	0.53	2.42	7,467.71	693.95	-1,382.68	1,546.99	0.36	0.09	-42.65
7,786.00	0.79	313.64	7,562.70	694.84	-1,383.14	1,547.79	0.63	0.27	-51.35
7,880.00	1.23	301.95	7,656.69	695.82	-1,384.46	1,549.41	0.51	0.47	-12.44
7,975.00	0.44	301.16	7,751.68	696.55	-1,385.64	1,550.79	0.83	-0.83	-0.83
8,070.00	0.26	242.54	7,846.68	696.64	-1,386.14	1,551.28	0.40	-0.19	-61.71
8,165.00	0.70	291.41	7,941.67	696.75	-1,386.87	1,551.98	0.59	0.46	51.44
8,259.00	1.14	289.30	8,035.66	697.27	-1,388.29	1,553.48	0.47	0.47	-2.24
8,354.00	1.06	293.87	8,130.64	697.94	-1,389.99	1,555.30	0.12	-0.08	4.81
8,449.00	1.49	287.19	8,225.62	698.66	-1,391.97	1,557.40	0.48	0.45	-7.03

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-35B - Slot M
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Site:	Cascade Creek 697-08-53 Pad	MD Reference:	GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Well:	CC 697-08-35B	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)
8,543.00	2.55	267.94	8,319.56	698.95	-1,395.23	1,560.45	1.32	1.13	-20.48
8,638.00	3.08	267.94	8,414.45	698.78	-1,399.89	1,564.56	0.56	0.56	0.00
8,732.00	3.61	263.28	8,508.29	698.34	-1,405.35	1,569.27	0.63	0.56	-4.96
8,827.00	4.57	258.80	8,603.04	697.26	-1,412.03	1,574.80	1.06	1.01	-4.72
8,906.00	4.75	253.44	8,681.78	695.71	-1,418.26	1,579.71	0.60	0.23	-6.78
Last SDI Production MWD Survey									
8,962.00	4.75	253.44	8,737.59	694.39	-1,422.70	1,583.12	0.00	0.00	0.00
Projection To TD - BHL = 631760.37, 1225551.28									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
110.00	110.00	-0.07	0.33	First SDI Surface Gyro MWD Survey
711.00	708.05	23.59	-44.48	Last SDI Surface Gyro MWD Survey
785.00	780.99	28.90	-55.75	First SDI Surface MWD Survey
2,653.00	2,576.49	248.98	-507.90	Last SDI Surface MWD Survey
2,766.00	2,681.94	270.12	-542.57	First SDI Production MWD Survey
8,906.00	8,681.78	695.71	-1,418.26	Last SDI Production MWD Survey
8,962.00	8,737.59	694.39	-1,422.70	Projection To TD
8,962.00	8,737.59	694.39	-1,422.70	BHL = 631760.37, 1225551.28

Checked By: _____	Approved By: _____	Date: _____
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