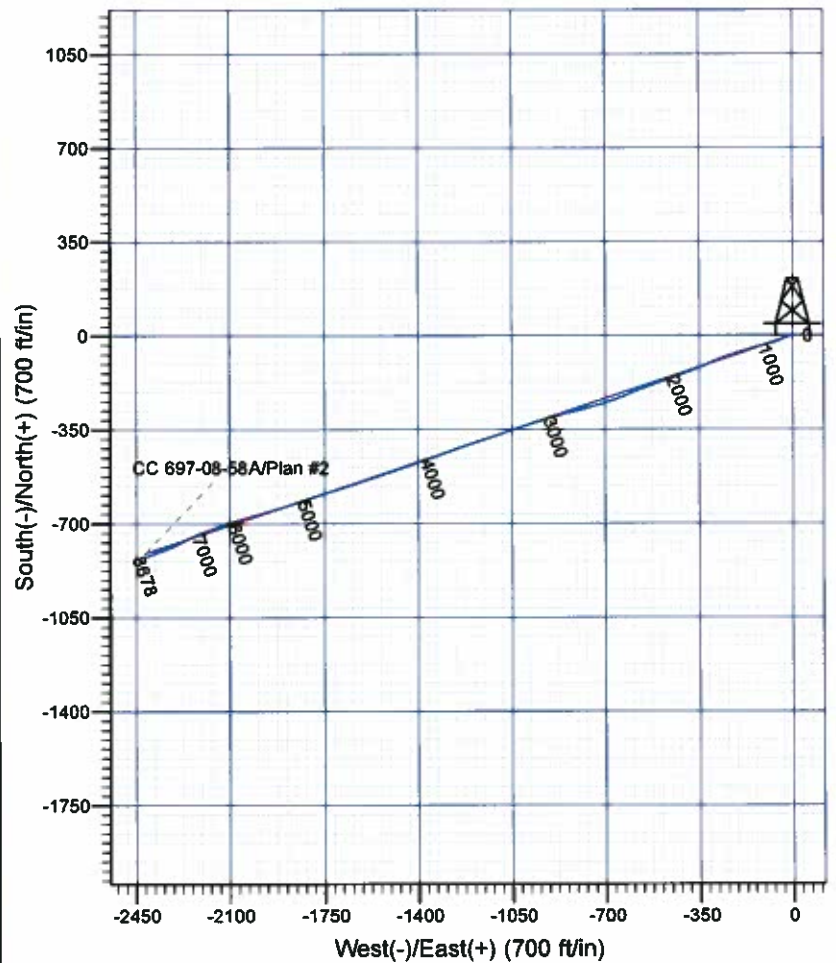
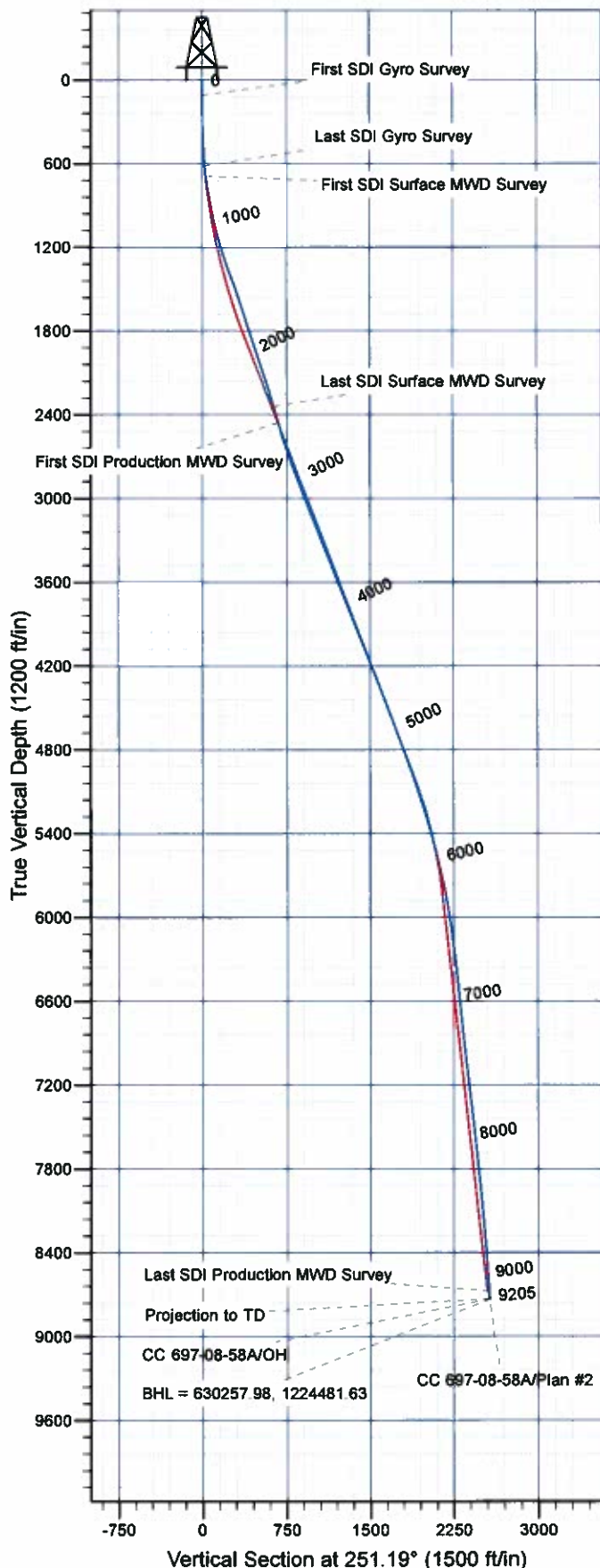




Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMA
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-08-53 Pad
Well: CC 697-08-58A
Wellbore: OH
Design: OH



Well Details: CC 697-08-58A

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	831012.76	1226936.15	39° 32' 2.134 N	108° 14' 28.422 W	R

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-08-58A - Slot R, True North
Vertical (TVD) Reference: GL 8379' & RKB 30' @ 8409.00ft (H&P 330)
Section (VS) Reference: Slot - R(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

14:57, September 27 2011
Created By: Janie Cooke

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08-53 Pad
CC 697-08-58A - Slot R**

OH

Design: OH

Standard Survey Report

27 September, 2011





Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-58A - Slot R
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 697-08-58A	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 697-08-58A - Slot R				
Well Position	+N/-S	0.00 ft	Northing:	631,012.76 usft	Latitude: 39° 32' 2.134 N
	+E/-W	0.00 ft	Easting:	1,226,938.15 usft	Longitude: 108° 14' 28.422 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level: 8,379.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	09/01/2010	10.54	65.76	52,329

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		251.19

Survey Program	Date	09/27/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
110.00	619.00	Survey #1 - Gyro Survey (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3	
694.00	2,453.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,576.00	9,205.00	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	0.09	165.76	110.00	-0.08	0.02	0.01	0.08	0.08	0.00	
First SDI Gyro Survey										
170.00	0.26	174.02	170.00	-0.26	0.05	0.04	0.29	0.28	13.77	
260.00	0.35	214.10	260.00	-0.70	-0.09	0.31	0.25	0.10	44.53	
349.00	1.76	288.90	348.98	-0.48	-1.53	1.60	1.91	1.58	84.04	
439.00	3.17	274.57	438.90	0.17	-5.32	4.98	1.70	1.57	-15.92	
528.00	5.45	258.57	527.64	-0.47	-11.92	11.43	2.87	2.56	-17.98	
619.00	7.83	241.61	618.04	-4.28	-21.61	21.83	3.36	2.62	-18.64	



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-58A - Slot R
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 697-08-58A	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)
Last SDI Gyro Survey									
694.00	10.20	240.71	692.10	-9.96	-31.90	33.40	3.17	3.16	-1.20
First SDI Surface MWD Survey									
785.00	12.40	245.02	781.34	-18.03	-47.78	51.04	2.59	2.42	4.74
875.00	12.93	254.95	869.16	-24.72	-66.27	70.70	2.49	0.59	11.03
965.00	14.07	254.25	956.67	-30.31	-86.52	91.67	1.28	1.27	-0.78
1,060.00	15.74	254.86	1,048.47	-36.81	-110.07	116.06	1.77	1.76	0.64
1,154.00	17.76	253.90	1,138.48	-44.11	-136.16	143.11	2.17	2.15	-1.02
1,249.00	20.75	254.95	1,228.15	-52.50	-166.34	174.38	3.17	3.15	1.11
1,344.00	23.74	254.42	1,316.07	-62.01	-201.02	210.28	3.15	3.15	-0.56
1,439.00	25.06	251.35	1,402.59	-73.58	-238.50	249.49	1.93	1.39	-3.23
1,533.00	23.74	246.69	1,488.20	-87.44	-274.75	288.27	2.48	-1.40	-4.96
1,628.00	22.51	245.37	1,575.56	-102.58	-308.84	325.42	1.40	-1.29	-1.39
1,722.00	21.19	248.71	1,662.81	-116.25	-341.03	360.30	1.93	-1.40	3.55
1,817.00	20.75	248.89	1,751.52	-128.55	-372.73	394.27	0.47	-0.46	0.19
1,912.00	22.51	249.94	1,839.83	-140.85	-405.51	429.27	1.90	1.85	1.11
2,007.00	22.77	249.77	1,927.51	-153.44	-439.84	465.83	0.28	0.27	-0.18
2,101.00	22.16	251.00	2,014.37	-165.50	-473.68	501.74	0.82	-0.65	1.31
2,196.00	22.86	250.38	2,102.14	-177.53	-508.00	538.11	0.78	0.74	-0.65
2,290.00	22.34	249.41	2,188.92	-189.95	-541.92	574.22	0.68	-0.55	-1.03
2,385.00	20.93	247.48	2,277.22	-202.80	-574.50	609.20	1.66	-1.48	-2.03
2,453.00	20.05	247.13	2,340.92	-211.98	-596.46	632.95	1.31	-1.29	-0.51
Last SDI Surface MWD Survey									
2,576.00	18.99	249.06	2,456.85	-227.33	-634.58	673.98	1.01	-0.86	1.57
First SDI Production MWD Survey									
2,671.00	19.35	250.21	2,546.58	-238.18	-663.82	705.17	0.55	0.38	1.21
2,766.00	23.57	251.96	2,634.98	-249.39	-696.71	739.91	4.49	4.44	1.84
2,860.00	24.36	254.78	2,720.88	-260.30	-733.28	778.05	1.48	0.84	3.00
2,955.00	25.15	253.90	2,807.15	-271.05	-771.59	817.77	0.92	0.83	-0.93
3,050.00	26.20	255.83	2,892.77	-281.78	-811.32	858.84	1.41	1.11	2.03
3,145.00	25.85	256.01	2,978.13	-291.92	-851.75	900.38	0.38	-0.37	0.19
3,239.00	26.82	253.02	3,062.38	-303.07	-891.92	942.00	1.75	1.03	-3.18
3,334.00	26.38	252.67	3,147.33	-315.61	-932.56	984.52	0.49	-0.46	-0.37
3,429.00	27.00	253.46	3,232.20	-328.04	-973.38	1,027.16	0.75	0.65	0.83
3,524.00	25.85	252.23	3,317.28	-340.50	-1,013.78	1,069.42	1.34	-1.21	-1.29
3,618.00	27.08	251.35	3,401.43	-353.60	-1,053.57	1,111.31	1.37	1.31	-0.94
3,713.00	25.68	251.17	3,486.53	-367.16	-1,093.54	1,153.52	1.48	-1.47	-0.19
3,807.00	26.64	251.61	3,570.90	-380.38	-1,132.81	1,194.96	1.04	1.02	0.47
3,902.00	27.00	251.88	3,655.68	-393.80	-1,173.52	1,237.82	0.40	0.38	0.28
3,997.00	25.68	250.47	3,740.82	-407.39	-1,213.42	1,279.97	1.54	-1.39	-1.48
4,091.00	27.70	250.29	3,824.80	-421.57	-1,253.18	1,322.18	2.15	2.15	-0.19
4,186.00	27.26	250.56	3,909.08	-436.26	-1,294.49	1,366.02	0.48	-0.46	0.28
4,281.00	26.73	250.56	3,993.73	-450.61	-1,335.15	1,409.13	0.56	-0.56	0.00
4,375.00	25.94	250.65	4,077.97	-464.46	-1,374.48	1,450.83	0.84	-0.84	0.10



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-58A - Slot R
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 697-08-58A	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)
4,470.00	26.56	252.05	4,163.17	-477.89	-1,414.29	1,492.85	0.92	0.65	1.47
4,565.00	25.94	251.96	4,248.38	-490.87	-1,454.26	1,534.86	0.65	-0.65	-0.09
4,660.00	26.47	251.00	4,333.61	-504.20	-1,494.03	1,576.81	0.71	0.56	-1.01
4,755.00	25.59	250.47	4,418.98	-517.95	-1,533.39	1,618.50	0.96	-0.93	-0.56
4,849.00	26.56	250.82	4,503.41	-531.64	-1,572.37	1,659.81	1.04	1.03	0.37
4,944.00	25.32	252.40	4,588.84	-544.76	-1,611.79	1,701.36	1.49	-1.31	1.66
5,039.00	25.32	252.05	4,674.71	-557.16	-1,650.48	1,741.98	0.16	0.00	-0.37
5,133.00	25.94	252.58	4,759.46	-569.51	-1,689.22	1,782.64	0.70	0.66	0.56
5,228.00	25.15	251.70	4,845.17	-582.07	-1,728.21	1,823.59	0.92	-0.83	-0.93
5,323.00	24.09	251.96	4,931.54	-594.42	-1,765.82	1,863.17	1.12	-1.12	0.27
5,417.00	23.48	251.35	5,017.55	-606.35	-1,801.80	1,901.08	0.70	-0.65	-0.65
5,512.00	21.98	251.52	5,105.17	-618.03	-1,836.60	1,937.78	1.58	-1.58	0.18
5,607.00	22.07	250.73	5,193.24	-629.56	-1,870.31	1,973.41	0.33	0.09	-0.83
5,701.00	20.05	253.72	5,280.96	-639.91	-1,902.45	2,007.17	2.43	-2.15	3.18
5,796.00	19.26	253.11	5,370.42	-649.02	-1,933.07	2,039.10	0.86	-0.83	-0.64
5,891.00	18.82	252.14	5,460.22	-658.27	-1,962.65	2,070.08	0.57	-0.46	-1.02
5,986.00	17.15	254.34	5,550.58	-666.76	-1,990.72	2,099.39	1.90	-1.76	2.32
6,080.00	16.27	254.07	5,640.61	-674.11	-2,016.73	2,126.38	0.94	-0.94	-0.29
6,175.00	15.56	254.34	5,731.97	-681.20	-2,041.80	2,152.39	0.75	-0.75	0.28
6,270.00	13.10	254.95	5,824.00	-687.44	-2,064.47	2,175.86	2.59	-2.59	0.64
6,364.00	12.40	256.36	5,915.69	-692.59	-2,084.56	2,196.54	0.81	-0.74	1.50
6,459.00	11.26	256.45	6,008.67	-697.16	-2,103.49	2,215.94	1.20	-1.20	0.09
6,554.00	10.02	246.78	6,102.04	-702.60	-2,120.10	2,233.42	2.28	-1.31	-10.18
6,648.00	9.23	245.81	6,194.72	-708.91	-2,134.50	2,249.07	0.86	-0.84	-1.03
6,743.00	8.44	248.98	6,288.59	-714.53	-2,147.95	2,263.63	0.98	-0.83	3.34
6,838.00	7.91	248.98	6,382.62	-719.38	-2,160.56	2,277.13	0.56	-0.56	0.00
6,932.00	7.47	249.68	6,475.78	-723.82	-2,172.33	2,289.70	0.48	-0.47	0.74
7,027.00	6.95	251.79	6,570.03	-727.76	-2,183.58	2,301.62	0.61	-0.55	2.22
7,122.00	6.51	252.58	6,664.37	-731.17	-2,194.18	2,312.75	0.47	-0.46	0.83
7,217.00	7.12	247.48	6,758.70	-735.04	-2,204.76	2,324.01	0.90	0.64	-5.37
7,311.00	8.44	247.92	6,851.83	-739.86	-2,216.53	2,336.71	1.41	1.40	0.47
7,406.00	7.83	250.38	6,945.88	-744.65	-2,229.09	2,350.14	0.74	-0.64	2.59
7,501.00	8.62	242.73	7,039.90	-750.09	-2,241.51	2,363.65	1.42	0.83	-8.05
7,596.00	8.88	243.53	7,133.80	-756.62	-2,254.40	2,377.96	0.30	0.27	0.84
7,690.00	8.27	242.47	7,226.74	-762.98	-2,266.89	2,391.83	0.67	-0.65	-1.13
7,785.00	7.74	242.47	7,320.82	-769.09	-2,278.63	2,404.91	0.56	-0.56	0.00
7,879.00	7.47	240.89	7,413.99	-774.99	-2,289.58	2,417.18	0.36	-0.29	-1.68
7,974.00	8.71	246.43	7,508.05	-780.87	-2,301.57	2,430.42	1.54	1.31	5.83
8,069.00	8.62	246.60	7,601.96	-786.58	-2,314.69	2,444.69	0.10	-0.09	0.18
8,164.00	8.27	246.95	7,695.93	-792.08	-2,327.51	2,458.60	0.37	-0.37	0.37
8,258.00	7.74	248.36	7,789.02	-797.06	-2,339.62	2,471.66	0.60	-0.56	1.50
8,353.00	7.03	246.25	7,883.23	-801.76	-2,350.89	2,483.84	0.80	-0.75	-2.22
8,448.00	6.42	246.60	7,977.57	-806.21	-2,361.08	2,494.93	0.64	-0.64	0.37



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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 697-08-58A	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)
8,542.00	6.42	252.40	8,070.98	-809.89	-2,370.91	2,505.42	0.69	0.00	6.17
8,637.00	6.60	253.28	8,165.37	-813.06	-2,381.21	2,516.19	0.22	0.19	0.93
8,731.00	6.33	250.03	8,258.77	-816.39	-2,391.25	2,526.77	0.48	-0.29	-3.46
8,826.00	5.54	250.65	8,353.26	-819.70	-2,400.50	2,536.59	0.83	-0.83	0.65
8,921.00	5.36	251.70	8,447.84	-822.61	-2,409.04	2,545.61	0.22	-0.19	1.11
9,015.00	5.19	251.96	8,541.44	-825.30	-2,417.25	2,554.25	0.18	-0.18	0.28
9,110.00	4.66	259.61	8,636.09	-827.33	-2,425.13	2,562.37	0.89	-0.56	8.05
9,149.00	4.57	261.10	8,674.96	-827.86	-2,428.22	2,565.47	0.38	-0.23	3.82
Last SDI Production MWD Survey									
9,205.00	4.57	261.10	8,730.78	-828.55	-2,432.63	2,569.86	0.00	0.00	0.00
Projection to TD - BHL = 630257.98, 1224481.63									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
110.00	110.00	-0.08	0.02	First SDI Gyro Survey
619.00	618.04	-4.28	-21.61	Last SDI Gyro Survey
694.00	692.10	-9.96	-31.90	First SDI Surface MWD Survey
2,453.00	2,340.92	-211.98	-596.46	Last SDI Surface MWD Survey
2,576.00	2,456.85	-227.33	-634.58	First SDI Production MWD Survey
9,149.00	8,674.96	-827.86	-2,428.22	Last SDI Production MWD Survey
9,205.00	8,730.78	-828.55	-2,432.63	Projection to TD
9,205.00	8,730.78	-828.55	-2,432.63	BHL = 630257.98, 1224481.63

Checked By: _____ Approved By: _____ Date: _____