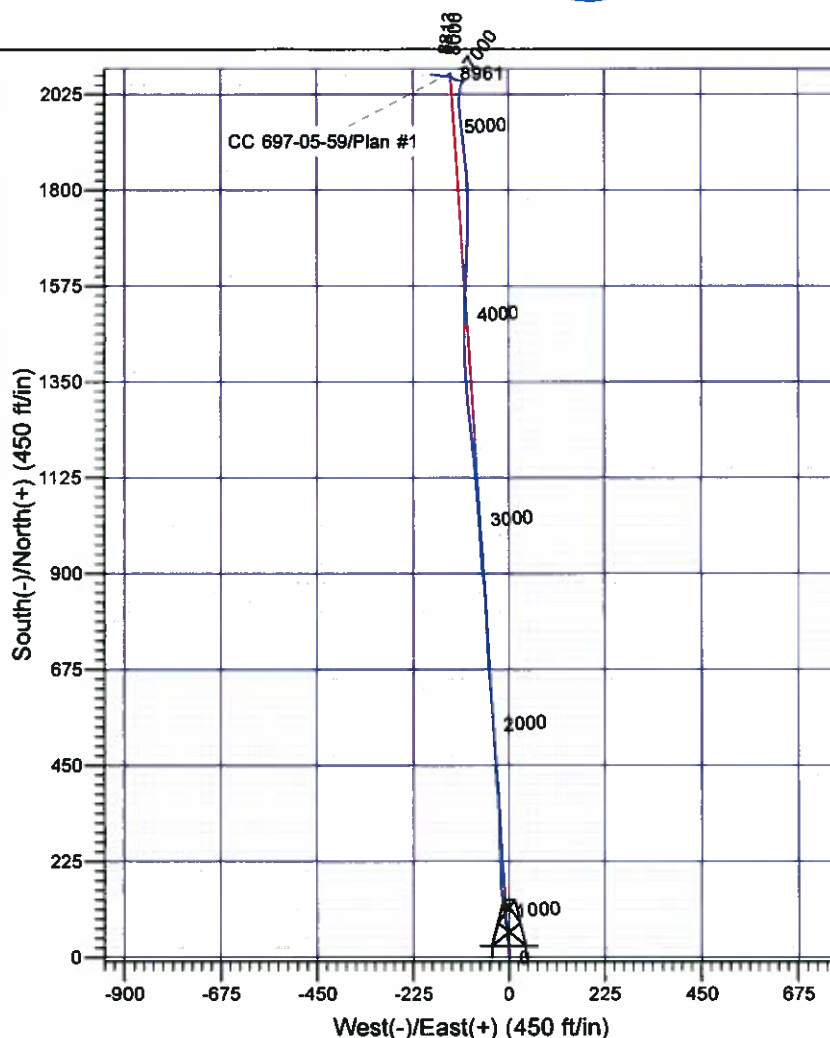
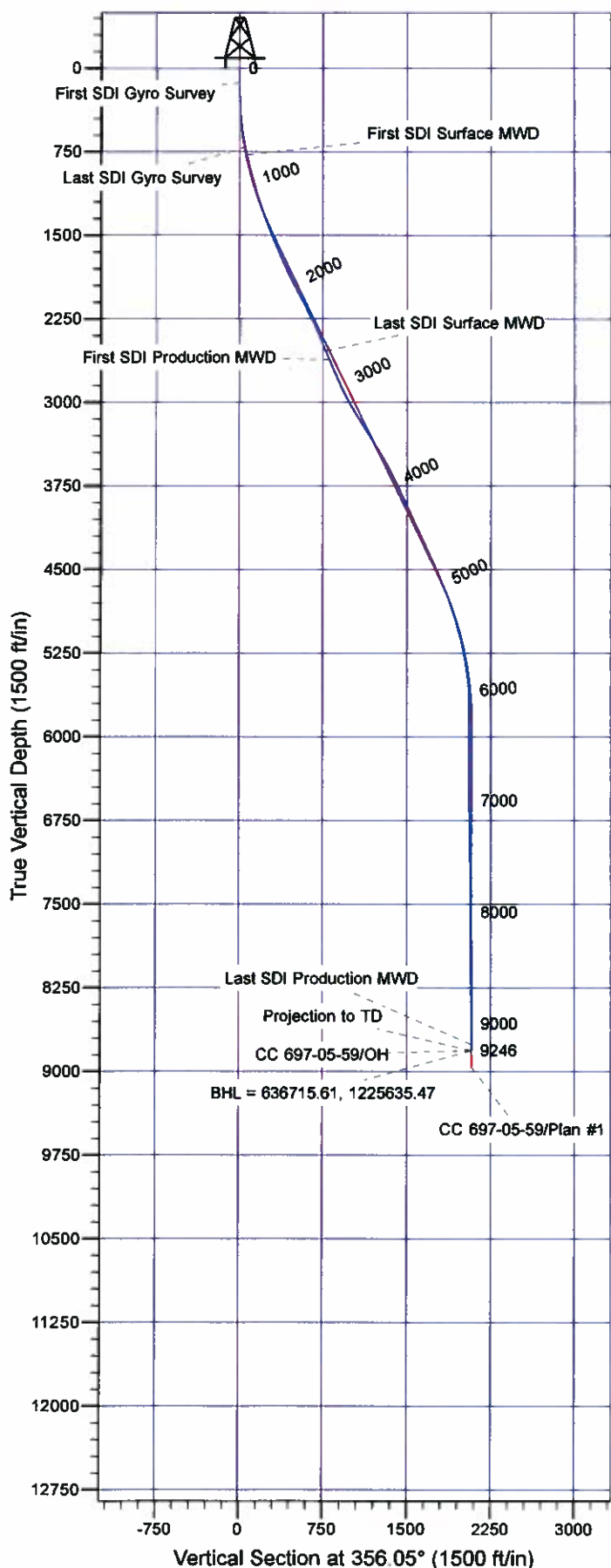




Scientific Drilling

Company: OXY USA RMAI
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08A Pad
 Well: CC 697-05-59
 Wellbore: OH
 Design: OH



Well Details: CC 697-05-59

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	634639.26	1225754.12	39° 32' 37.607 N	108° 14' 44.926 W	E

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-59 - Slot E, True North
 Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Section (VS) Reference: Slot - E(0.00N, 0.00E)
 Measured Depth Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 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

10:12, June 19 2012
 Created By: Janie Collins

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-59 - Slot E**

OH

Design: OH

Standard Survey Report

19 June, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-59 - Slot E
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-59	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 697-08A Pad, Sec 8 T6S R97W				
Site Position:		Northing:	635,765.16 usft	Latitude:	39° 32' 48.728 N
From:	Lat/Long	Easting:	1,225,748.33 usft	Longitude:	108° 14' 45.434 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.73 °

Well	CC 697-05-59 - Slot E					
Well Position	+N/-S	0.00 ft	Northing:	634,639.27 usft	Latitude:	39° 32' 37.607 N
	+E/-W	0.00 ft	Easting:	1,225,754.12 usft	Longitude:	108° 14' 44.926 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,401.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/05/24	10.48	65.73	52,230

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	356.05	

Survey Program	Date	2012/06/19			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
134.00	711.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
783.00	2,688.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,772.00	9,246.00	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
134.00	0.70	35.60	134.00	0.67	0.48	0.63	0.52	0.52	0.00
First SDI Gyro Survey									
165.00	1.23	21.62	164.99	1.13	0.71	1.08	1.86	1.71	-45.10
195.00	0.97	21.36	194.99	1.66	0.92	1.60	0.87	-0.87	-0.87
255.00	1.58	15.47	254.97	2.93	1.33	2.84	1.04	1.02	-9.82
347.00	2.73	342.60	346.91	6.25	1.01	6.16	1.79	1.25	-35.73
439.00	4.49	354.90	438.72	11.93	0.03	11.90	2.08	1.91	13.37
531.00	6.77	357.71	530.27	20.93	-0.50	20.92	2.50	2.48	3.05

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-59 - Slot E
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-59	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)
621.00	10.38	354.29	619.25	34.31	-1.52	34.33	4.05	4.01	-3.80
711.00	11.79	352.88	707.57	51.50	-3.47	51.61	1.60	1.57	-1.57
Last SDI Gyro Survey									
783.00	12.75	351.90	777.93	66.66	-5.50	66.88	1.36	1.33	-1.36
First SDI Surface MWD									
873.00	13.89	349.44	865.50	87.12	-8.88	87.52	1.41	1.27	-2.73
964.00	14.68	350.06	953.69	109.21	-12.87	109.84	0.88	0.87	0.68
1,058.00	16.00	354.80	1,044.34	133.85	-16.10	134.64	1.94	1.40	5.04
1,153.00	17.67	355.51	1,135.27	161.26	-18.42	162.15	1.77	1.76	0.75
1,247.00	18.55	357.79	1,224.61	190.43	-20.11	191.36	1.20	0.94	2.43
1,342.00	19.35	358.67	1,314.46	221.26	-21.06	222.19	0.89	0.84	0.93
1,437.00	20.93	359.46	1,403.65	253.96	-21.58	254.85	1.69	1.66	0.83
1,531.00	23.65	0.17	1,490.62	289.61	-21.69	290.42	2.91	2.89	0.76
1,626.00	23.83	358.67	1,577.58	327.86	-22.08	328.60	0.66	0.19	-1.58
1,720.00	22.95	355.51	1,663.86	365.11	-23.95	365.89	1.63	-0.94	-3.36
1,815.00	23.92	354.63	1,751.02	402.75	-27.20	403.67	1.09	1.02	-0.93
1,909.00	25.85	355.51	1,836.29	442.16	-30.59	443.22	2.09	2.05	0.94
2,004.00	26.82	356.47	1,921.43	484.20	-33.53	485.36	1.12	1.02	1.01
2,099.00	28.05	357.18	2,005.75	527.90	-35.95	529.12	1.34	1.29	0.75
2,193.00	28.14	356.03	2,088.67	572.09	-38.57	573.39	0.58	0.10	-1.22
2,287.00	25.41	354.89	2,172.58	614.30	-41.90	615.72	2.96	-2.90	-1.21
2,382.00	24.18	354.72	2,258.82	653.97	-45.51	655.56	1.30	-1.29	-0.18
2,477.00	23.74	355.51	2,345.64	692.41	-48.80	694.13	0.57	-0.46	0.83
2,571.00	23.30	356.56	2,431.83	729.83	-51.39	731.64	0.65	-0.47	1.12
2,665.00	23.65	357.79	2,518.05	767.23	-53.24	769.07	0.64	0.37	1.31
2,688.00	23.21	358.41	2,539.15	776.37	-53.54	778.21	2.19	-1.91	2.70
Last SDI Surface MWD									
2,772.00	22.29	358.53	2,616.62	808.84	-54.41	810.67	1.10	-1.10	0.14
First SDI Production MWD									
2,867.00	23.49	356.28	2,704.14	845.75	-56.10	847.60	1.56	1.26	-2.37
2,961.00	23.08	352.36	2,790.49	882.71	-59.76	884.73	1.70	-0.44	-4.17
3,056.00	25.08	355.77	2,877.22	921.25	-63.73	923.45	2.56	2.11	3.59
3,150.00	29.80	357.10	2,960.62	964.47	-66.38	966.75	5.06	5.02	1.41
3,245.00	29.23	355.76	3,043.29	1,011.18	-69.29	1,013.55	0.92	-0.60	-1.41
3,339.00	31.01	355.33	3,124.60	1,058.20	-72.96	1,060.71	1.91	1.89	-0.46
3,434.00	30.77	354.86	3,206.12	1,106.79	-77.13	1,109.48	0.36	-0.25	-0.49
3,529.00	31.61	354.85	3,287.39	1,155.79	-81.54	1,158.67	0.88	0.88	-0.01
3,623.00	31.89	353.69	3,367.32	1,205.01	-86.48	1,208.10	0.71	0.30	-1.23
3,717.00	31.66	353.14	3,447.23	1,254.18	-92.15	1,257.55	0.39	-0.24	-0.59
3,812.00	29.50	354.54	3,529.02	1,302.22	-97.36	1,305.84	2.39	-2.27	1.47
3,906.00	27.20	357.56	3,611.74	1,346.74	-100.48	1,350.46	2.88	-2.45	3.21
4,001.00	25.87	357.85	3,696.73	1,389.14	-102.18	1,392.88	1.41	-1.40	0.31
4,095.00	24.13	357.58	3,781.92	1,428.83	-103.76	1,432.59	1.86	-1.85	-0.29
4,190.00	25.55	359.70	3,868.13	1,468.72	-104.69	1,472.45	1.76	1.49	2.23

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-59 - Slot E
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-59	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)
4,284.00	24.04	359.99	3,953.47	1,508.14	-104.80	1,511.78	1.61	-1.61	0.31
4,378.00	24.53	3.94	4,039.15	1,546.76	-103.46	1,550.21	1.80	0.52	4.20
4,473.00	25.85	2.80	4,125.12	1,587.12	-101.09	1,590.32	1.48	1.39	-1.20
4,567.00	24.80	2.01	4,210.08	1,627.29	-99.40	1,630.28	1.17	-1.12	-0.84
4,662.00	26.64	2.19	4,295.67	1,668.49	-97.89	1,671.27	1.94	1.94	0.19
4,756.00	24.71	0.87	4,380.38	1,709.20	-96.78	1,711.81	2.14	-2.05	-1.40
4,851.00	23.48	1.48	4,467.10	1,747.97	-95.99	1,750.44	1.32	-1.29	0.64
4,945.00	23.13	358.58	4,553.44	1,785.15	-95.97	1,787.53	1.28	-0.37	-3.09
5,040.00	23.48	355.86	4,640.69	1,822.68	-97.79	1,825.09	1.19	0.37	-2.86
5,134.00	20.84	353.93	4,727.74	1,857.99	-100.91	1,860.53	2.91	-2.81	-2.05
5,229.00	19.52	354.28	4,816.90	1,890.59	-104.28	1,893.29	1.40	-1.39	0.37
5,323.00	17.59	354.10	4,906.01	1,920.35	-107.31	1,923.18	2.05	-2.05	-0.19
5,418.00	15.92	352.87	4,996.98	1,947.56	-110.40	1,950.54	1.80	-1.76	-1.29
5,513.00	14.51	352.43	5,088.65	1,972.28	-113.59	1,975.43	1.49	-1.48	-0.46
5,607.00	11.96	358.32	5,180.15	1,993.70	-115.42	1,996.92	3.07	-2.71	6.27
5,702.00	10.11	2.28	5,273.39	2,011.87	-115.38	2,015.04	2.10	-1.95	4.17
5,796.00	9.23	2.01	5,366.05	2,027.65	-114.79	2,030.74	0.94	-0.94	-0.29
5,891.00	8.09	12.21	5,459.97	2,041.80	-113.11	2,044.74	2.01	-1.20	10.74
5,986.00	3.87	37.69	5,554.45	2,050.87	-109.73	2,053.56	5.14	-4.44	26.82
6,080.00	1.49	54.83	5,648.34	2,054.09	-106.79	2,056.57	2.64	-2.53	18.23
6,175.00	1.32	59.58	5,743.31	2,055.35	-104.84	2,057.70	0.22	-0.18	5.00
6,269.00	0.35	58.79	5,837.30	2,056.05	-103.66	2,058.31	1.03	-1.03	-0.84
6,364.00	0.35	352.52	5,932.30	2,056.49	-103.45	2,058.73	0.40	0.00	-69.76
6,458.00	0.26	281.33	6,026.30	2,056.82	-103.70	2,059.08	0.39	-0.10	-75.73
6,553.00	0.62	298.29	6,121.29	2,057.10	-104.36	2,059.41	0.40	0.38	17.85
6,647.00	0.70	285.90	6,215.29	2,057.50	-105.36	2,059.87	0.17	0.09	-13.18
6,742.00	0.79	277.46	6,310.28	2,057.74	-106.57	2,060.20	0.15	0.09	-8.88
6,837.00	1.14	287.39	6,405.27	2,058.11	-108.12	2,060.67	0.41	0.37	10.45
6,931.00	1.41	274.03	6,499.24	2,058.47	-110.16	2,061.17	0.43	0.29	-14.21
7,025.00	1.58	255.58	6,593.21	2,058.23	-112.57	2,061.10	0.54	0.18	-19.63
7,120.00	1.85	263.40	6,688.17	2,057.73	-115.37	2,060.79	0.38	0.28	8.23
7,215.00	2.11	280.71	6,783.11	2,057.88	-118.61	2,061.16	0.68	0.27	18.22
7,309.00	3.08	285.37	6,877.02	2,058.87	-122.74	2,062.43	1.06	1.03	4.96
7,404.00	3.34	304.62	6,971.87	2,061.12	-127.48	2,065.00	1.16	0.27	20.26
7,498.00	2.20	311.12	7,065.76	2,063.86	-131.09	2,067.99	1.26	-1.21	6.91
7,593.00	1.32	323.25	7,160.71	2,065.93	-133.12	2,070.20	1.00	-0.93	12.77
7,687.00	1.23	318.15	7,254.69	2,067.55	-134.44	2,071.90	0.15	-0.10	-5.43
7,782.00	0.70	290.20	7,349.68	2,068.51	-135.67	2,072.95	0.73	-0.56	-29.42
7,877.00	0.97	280.85	7,444.67	2,068.59	-137.01	2,073.11	0.52	0.28	-30.89
7,971.00	1.67	266.47	7,538.64	2,068.38	-139.16	2,073.05	0.76	0.74	5.98
8,066.00	2.02	257.77	7,633.59	2,067.94	-142.18	2,072.82	0.47	0.37	-9.16
8,160.00	3.08	263.75	7,727.50	2,067.31	-146.31	2,072.48	1.16	1.13	6.36
8,255.00	3.08	276.32	7,822.36	2,067.31	-151.38	2,072.83	0.71	0.00	13.23

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-59 - Slot E
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-59	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)
8,341.93	2.42	289.61	7,909.19	2,068.18	-155.43	2,073.98	1.05	-0.76	15.29
CC 697-05-59 Target									
8,349.00	2.37	291.00	7,916.26	2,068.29	-155.70	2,074.10	1.05	-0.66	19.69
8,444.00	3.25	270.69	8,011.14	2,069.02	-160.23	2,075.14	1.39	0.93	-21.38
8,539.00	2.55	280.54	8,106.02	2,069.44	-165.00	2,075.89	0.90	-0.74	10.37
8,633.00	1.76	34.71	8,199.98	2,071.01	-166.24	2,077.54	3.88	-0.84	121.46
8,728.00	0.53	136.75	8,294.97	2,071.89	-165.10	2,078.34	2.04	-1.29	107.41
8,822.00	0.88	232.55	8,388.96	2,071.14	-165.38	2,077.61	1.14	0.37	101.91
8,916.00	1.32	267.44	8,482.95	2,070.65	-167.03	2,077.23	0.83	0.47	37.12
9,011.00	2.20	275.44	8,577.90	2,070.77	-169.94	2,077.56	0.96	0.93	8.42
9,095.00	2.64	274.03	8,661.83	2,071.06	-173.48	2,078.09	0.53	0.52	-1.68
9,191.00	3.17	276.05	8,757.70	2,071.50	-178.32	2,078.86	0.56	0.55	2.10
Last SDI Production MWD									
9,246.00	3.17	276.05	8,812.62	2,071.82	-181.35	2,079.38	0.00	0.00	0.00
Projection to TD - BHL = 836715.61, 1225635.47									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
134.00	134.00	0.67	0.48	First SDI Gyro Survey
711.00	707.57	51.50	-3.47	Last SDI Gyro Survey
783.00	777.93	66.66	-5.50	First SDI Surface MWD
2,688.00	2,539.15	776.37	-53.54	Last SDI Surface MWD
2,772.00	2,616.62	808.84	-54.41	First SDI Production MWD
9,191.00	8,757.70	2,071.50	-178.32	Last SDI Production MWD
9,246.00	8,812.62	2,071.82	-181.35	Projection to TD
9,246.00	8,812.62	2,071.82	-181.35	BHL = 836715.61, 1225635.47

Checked By: _____ Approved By: _____ Date: _____