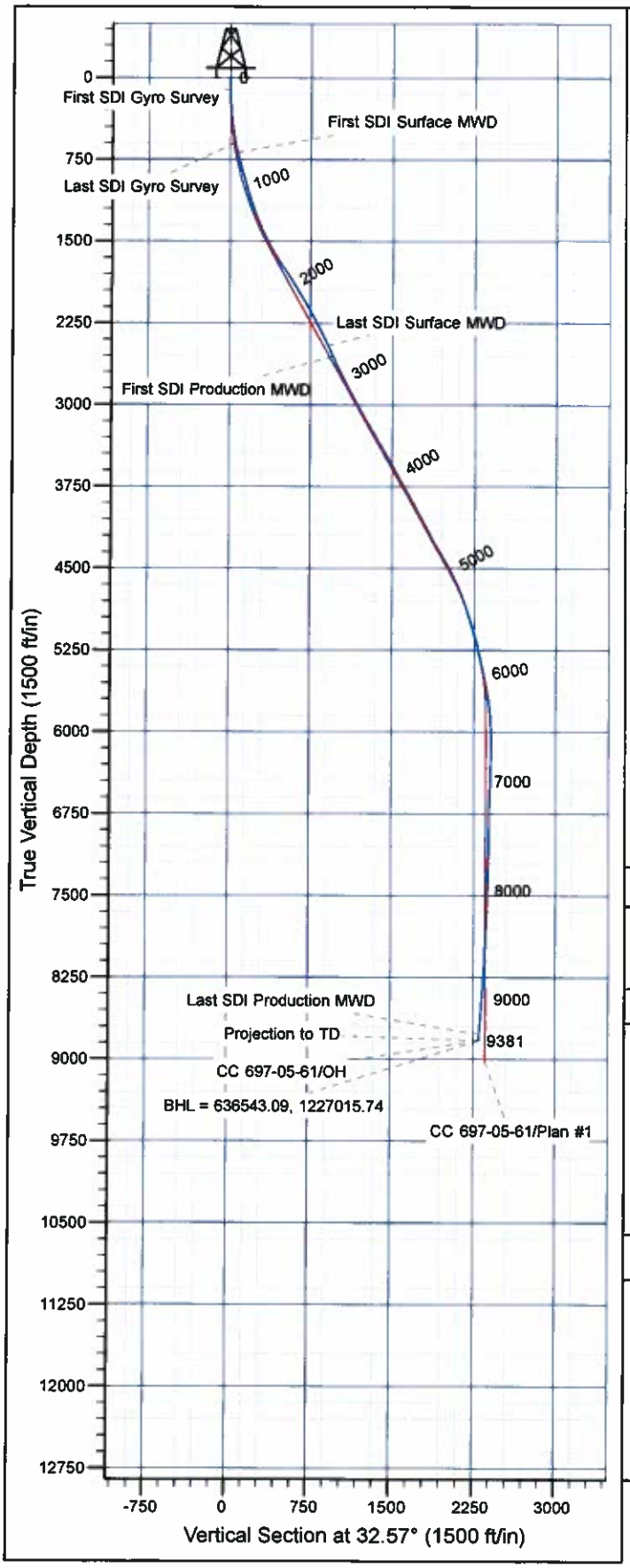
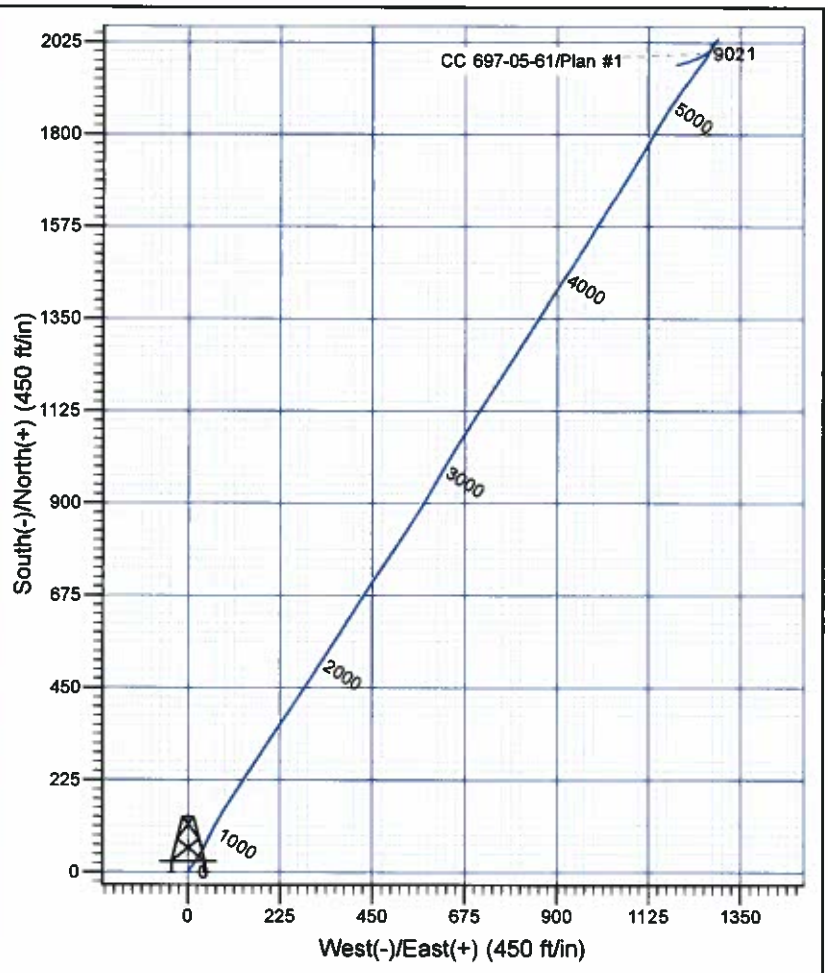
Scientific Drilling

Company:	OXY USA RMAT
Project:	Garfield County, CO NAD27
Site:	Cascade Creek 697-08A Pad
Well:	CC 697-05-61
Wellbore:	OH
Design:	OH





Well Details: CC 697-05-61

TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig) Ground Level: 8401.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	634611.07	1225764.38	39° 32' 37.332 N	108° 14' 44.784 W	M

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-61 - Slot M, True North
Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Section (VS) Reference: Slot - M(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

10:20, May 23 2012
Created By: Janie Cooke

OXY USA RMAT

Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-61 - Slot M

OH

Design: OH

Standard Survey Report

23 May, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-61 - Slot M
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 697-05-61	**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 697-05-61 - Slot M

Well Position	**+N/-S**	0.00 ft	**Northing:**	634,611.07 usft	**Latitude:**	39° 32' 37.332 N
	+E/-W	0.00 ft	**Easting:**	1,225,764.38 usft	**Longitude:**	108° 14' 44.784 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	05/24/11	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	32.57

Survey Program **Date** 05/23/12

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
104.00	601.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
691.00	2,666.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,772.00	9,381.00	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
104.00	0.00	347.17	104.00	0.00	0.00	0.00	0.00	0.00	0.00
First SDI Gyro Survey									
165.00	1.06	26.98	165.00	0.50	0.26	0.56	1.74	1.74	0.00
255.00	3.70	34.45	254.91	3.64	2.28	4.29	2.95	2.93	8.30
347.00	6.16	37.35	346.56	10.01	6.95	12.18	2.69	2.67	3.15
439.00	7.83	33.66	437.88	19.15	13.42	23.37	1.88	1.82	-4.01
511.00	8.90	34.57	509.11	27.82	19.30	33.84	1.50	1.49	1.26
601.00	11.17	33.77	597.73	40.80	28.10	49.51	2.53	2.52	-0.89

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-61 - Slot M
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 697-05-61	**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									
691.00	13.89	26.53	685.58	57.72	37.77	68.97	3.48	3.02	-8.04
First SDI Surface MWD									
783.00	15.83	25.13	774.50	78.96	48.03	92.40	2.14	2.11	-1.52
873.00	15.83	26.01	861.09	101.11	58.63	116.77	0.27	0.00	0.98
964.00	16.53	28.64	948.48	123.62	70.28	142.01	1.11	0.77	2.89
1,058.00	17.85	32.95	1,038.29	147.45	84.52	169.76	1.95	1.40	4.59
1,153.00	17.94	33.21	1,128.69	171.91	100.45	198.95	0.13	0.09	0.27
1,247.00	20.22	32.95	1,217.52	197.66	117.22	229.68	2.43	2.43	-0.28
1,342.00	22.51	32.60	1,305.99	226.76	135.95	264.28	2.41	2.41	-0.37
1,437.00	24.53	33.65	1,393.09	258.50	156.68	302.19	2.17	2.13	1.11
1,531.00	27.17	33.21	1,477.68	292.70	179.25	343.17	2.82	2.81	-0.47
1,626.00	30.43	33.74	1,560.91	330.87	204.50	388.92	3.44	3.43	0.56
1,720.00	32.27	34.88	1,641.19	371.25	232.07	437.80	2.06	1.96	1.21
1,815.00	33.50	34.53	1,720.96	413.66	261.44	489.34	1.31	1.29	-0.37
1,909.00	33.77	33.30	1,799.23	456.86	290.49	541.39	0.78	0.29	-1.31
2,004.00	33.50	31.81	1,878.32	501.21	318.80	594.01	0.91	-0.28	-1.57
2,099.00	30.69	32.95	1,958.80	543.84	345.81	644.48	3.03	-2.96	1.20
2,193.00	32.01	32.42	2,039.07	585.01	372.22	693.38	1.43	1.40	-0.56
2,287.00	29.46	33.04	2,119.86	625.42	398.18	741.42	2.73	-2.71	0.66
2,382.00	27.17	32.33	2,203.49	663.34	422.52	786.47	2.44	-2.41	-0.75
2,477.00	26.91	32.60	2,288.11	699.78	445.70	829.66	0.30	-0.27	0.28
2,571.00	27.17	33.48	2,371.83	735.60	469.00	872.39	0.51	0.28	0.94
2,666.00	25.15	33.74	2,457.10	770.48	492.18	914.27	2.13	-2.13	0.27
Last SDI Surface MWD									
2,772.00	23.21	34.52	2,553.79	806.42	516.53	957.67	1.85	-1.83	0.74
First SDI Production MWD									
2,867.00	25.27	31.83	2,640.41	839.08	537.84	996.66	2.46	2.17	-2.83
2,961.00	27.70	31.28	2,724.54	874.80	559.77	1,038.57	2.60	2.59	-0.59
3,056.00	27.44	31.37	2,808.75	912.36	582.63	1,082.52	0.28	-0.27	0.09
3,150.00	27.61	29.08	2,892.12	949.89	604.49	1,125.92	1.14	0.18	-2.44
3,245.00	29.90	30.84	2,975.40	989.47	627.33	1,171.57	2.57	2.41	1.85
3,339.00	27.79	29.70	3,057.73	1,028.62	650.20	1,216.88	2.32	-2.24	-1.21
3,434.00	31.04	32.60	3,140.48	1,068.51	674.38	1,263.50	3.73	3.42	3.05
3,529.00	30.07	33.04	3,222.28	1,109.09	700.55	1,311.80	1.05	-1.02	0.46
3,623.00	28.75	32.25	3,304.17	1,147.95	725.45	1,357.95	1.46	-1.40	-0.84
3,717.00	30.25	33.21	3,385.98	1,186.89	750.49	1,404.24	1.67	1.60	1.02
3,812.00	28.67	33.12	3,468.69	1,226.00	776.05	1,450.96	1.66	-1.66	-0.09
3,906.00	29.46	32.69	3,550.86	1,264.34	800.85	1,496.62	0.87	0.84	-0.46
4,001.00	27.52	32.69	3,634.35	1,302.47	825.33	1,541.93	2.04	-2.04	0.00
4,095.00	28.84	32.42	3,717.20	1,339.89	849.21	1,586.32	1.41	1.40	-0.29
4,189.00	29.63	32.60	3,799.23	1,378.60	873.88	1,632.23	0.85	0.84	0.19
4,284.00	28.58	32.16	3,882.23	1,417.62	898.63	1,678.44	1.13	-1.11	-0.46
4,378.00	29.46	34.00	3,964.43	1,455.82	923.53	1,724.03	1.33	0.94	1.96

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-61 - Slot M
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 697-05-61	**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)
4,473.00	28.05	33.39	4,047.72	1,493.84	948.89	1,769.73	1.52	-1.48	-0.64
4,567.00	28.05	31.45	4,130.68	1,531.15	972.58	1,813.92	0.97	0.00	-2.06
4,662.00	28.58	30.84	4,214.31	1,569.72	995.88	1,858.97	0.64	0.56	-0.64
4,756.00	28.93	32.69	4,296.72	1,608.16	1,019.69	1,904.18	1.02	0.37	1.97
4,851.00	30.16	32.77	4,379.36	1,647.56	1,045.02	1,951.02	1.30	1.29	0.08
4,945.00	29.28	32.69	4,461.00	1,686.77	1,070.22	1,997.62	0.94	-0.94	-0.09
5,040.00	26.91	32.33	4,544.80	1,724.49	1,094.26	2,042.36	2.50	-2.49	-0.38
5,134.00	24.09	31.19	4,629.63	1,758.88	1,115.58	2,082.82	3.04	-3.00	-1.21
5,229.00	21.54	30.31	4,717.19	1,790.53	1,134.42	2,119.63	2.71	-2.68	-0.93
5,323.00	19.61	29.17	4,805.19	1,819.20	1,150.82	2,152.62	2.10	-2.05	-1.21
5,418.00	18.20	31.28	4,895.07	1,845.80	1,166.30	2,183.37	1.65	-1.48	2.22
5,512.00	16.44	35.32	4,984.81	1,869.20	1,181.61	2,211.34	2.27	-1.87	4.30
5,607.00	15.65	34.62	5,076.11	1,890.72	1,196.66	2,237.57	0.86	-0.83	-0.74
5,702.00	14.86	35.50	5,167.76	1,911.18	1,211.02	2,262.54	0.87	-0.83	0.93
5,796.00	14.07	35.59	5,258.78	1,930.28	1,224.67	2,285.99	0.84	-0.84	0.10
5,891.00	13.45	35.85	5,351.05	1,948.63	1,237.86	2,308.55	0.66	-0.65	0.27
5,985.00	12.49	35.50	5,442.65	1,965.77	1,250.16	2,329.62	1.02	-1.02	-0.37
6,080.00	12.05	34.00	5,535.48	1,982.35	1,261.67	2,349.79	0.57	-0.46	-1.58
6,175.00	10.38	33.30	5,628.66	1,997.73	1,271.92	2,368.26	1.76	-1.76	-0.74
6,269.00	8.00	31.54	5,721.45	2,010.38	1,279.99	2,383.27	2.55	-2.53	-1.87
6,363.00	5.72	27.15	5,814.77	2,020.13	1,285.55	2,394.48	2.49	-2.43	-4.67
6,458.00	4.14	33.85	5,909.42	2,027.19	1,289.62	2,402.62	1.77	-1.66	7.05
6,553.00	2.29	32.51	6,004.26	2,031.64	1,292.55	2,407.95	1.95	-1.95	-1.41
6,647.00	0.70	196.86	6,098.24	2,032.67	1,293.39	2,409.27	3.16	-1.69	174.84
6,742.00	1.58	215.94	6,193.22	2,031.05	1,292.46	2,407.41	1.00	0.93	20.08
6,837.00	2.11	217.17	6,288.18	2,028.60	1,290.63	2,404.36	0.56	0.56	1.29
6,931.00	1.76	234.92	6,382.12	2,026.39	1,288.40	2,401.30	0.73	-0.37	18.88
7,025.00	1.93	233.60	6,476.07	2,024.62	1,285.95	2,398.48	0.19	0.18	-1.40
7,120.00	1.93	240.81	6,571.02	2,022.89	1,283.27	2,395.58	0.26	0.00	7.59
7,215.00	2.02	256.02	6,665.96	2,021.71	1,280.24	2,392.96	0.56	0.09	16.01
7,309.00	0.70	167.95	6,759.94	2,020.75	1,278.76	2,391.34	2.25	-1.40	-93.69
7,404.00	0.88	156.35	6,854.93	2,019.51	1,279.17	2,390.53	0.25	0.19	-12.21
7,498.00	0.79	152.74	6,948.92	2,018.27	1,279.76	2,389.80	0.11	-0.10	-3.84
7,593.00	0.94	163.85	7,043.91	2,016.94	1,280.27	2,388.96	0.24	0.16	11.69
7,687.00	1.06	190.89	7,137.90	2,015.35	1,280.32	2,387.64	0.51	0.13	28.77
7,782.00	1.58	201.98	7,232.87	2,013.27	1,279.67	2,385.54	0.61	0.55	11.65
7,877.00	1.85	202.84	7,327.83	2,010.64	1,278.58	2,382.74	0.29	0.28	0.93
7,971.00	1.58	223.67	7,421.79	2,008.31	1,277.10	2,379.97	0.72	-0.29	22.16
8,066.00	1.67	227.80	7,516.75	2,006.43	1,275.17	2,377.35	0.16	0.09	4.35
8,160.00	2.29	220.07	7,610.69	2,004.07	1,272.95	2,374.17	0.72	0.66	-8.22
8,255.00	2.99	228.94	7,705.59	2,000.99	1,269.86	2,369.91	0.85	0.74	9.34
8,349.00	2.73	232.37	7,799.48	1,998.02	1,266.23	2,365.45	0.33	-0.28	3.65
8,444.00	3.08	240.55	7,894.35	1,995.38	1,262.22	2,361.07	0.57	0.37	8.61

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-61 - Slot M
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 697-05-61	**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)
8,519.68	3.29	238.56	7,969.92	1,993.25	1,258.60	2,357.32	0.31	0.27	-2.63
CC 697-05-61 Target									
8,539.00	3.34	238.09	7,989.21	1,992.66	1,257.65	2,356.31	0.31	0.28	-2.43
8,633.00	3.25	241.07	8,083.05	1,989.93	1,252.99	2,351.50	0.21	-0.10	3.17
8,727.00	3.34	245.12	8,176.89	1,987.48	1,248.18	2,346.85	0.27	0.10	4.31
8,822.00	3.87	244.85	8,271.71	1,984.96	1,242.76	2,341.81	0.56	0.56	-0.28
8,916.00	5.01	251.27	8,365.42	1,982.29	1,236.00	2,335.92	1.32	1.21	6.83
9,011.00	5.72	251.53	8,460.01	1,979.46	1,227.58	2,329.00	0.75	0.75	0.27
9,105.00	5.98	252.68	8,553.52	1,976.52	1,218.47	2,321.62	0.30	0.28	1.22
9,200.00	5.45	253.20	8,648.04	1,973.74	1,209.42	2,314.41	0.56	-0.56	0.55
9,294.00	5.80	254.96	8,741.59	1,971.22	1,200.56	2,307.51	0.42	0.37	1.87
9,326.00	5.54	254.43	8,773.44	1,970.38	1,197.51	2,305.17	0.83	-0.81	-1.66
Last SDI Production MWD									
9,381.00	5.54	254.43	8,828.18	1,968.96	1,192.40	2,301.21	0.00	0.00	0.00
Projection to TD - BHL = 636543.09, 1227015.74									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
104.00	104.00	0.00	0.00	First SDI Gyro Survey
601.00	597.73	40.80	28.10	Last SDI Gyro Survey
691.00	685.58	57.72	37.77	First SDI Surface MWD
2,666.00	2,457.10	770.48	492.18	Last SDI Surface MWD
2,772.00	2,553.79	806.42	516.53	First SDI Production MWD
9,326.00	8,773.44	1,970.38	1,197.51	Last SDI Production MWD
9,381.00	8,828.18	1,968.96	1,192.40	Projection to TD
9,381.00	8,828.18	1,968.96	1,192.40	BHL = 636543.09, 1227015.74

Checked By: _____ Approved By: _____ Date: _____