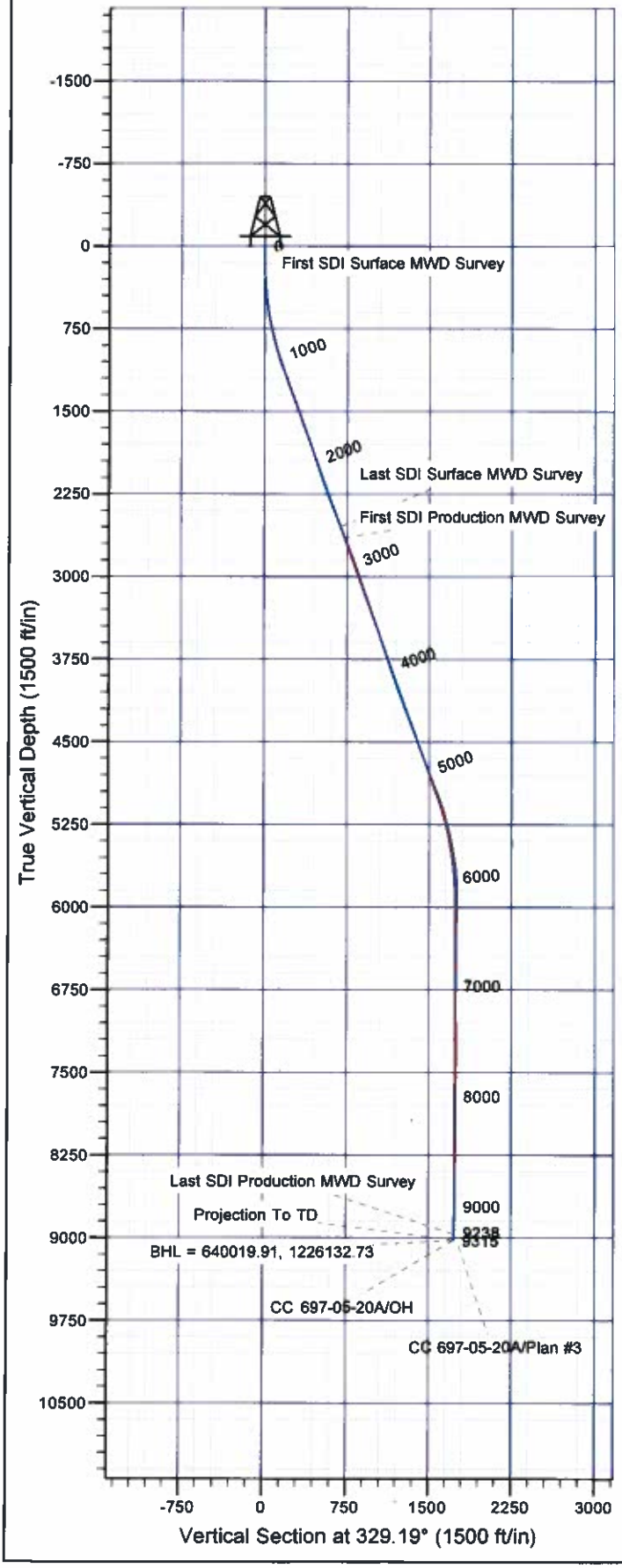
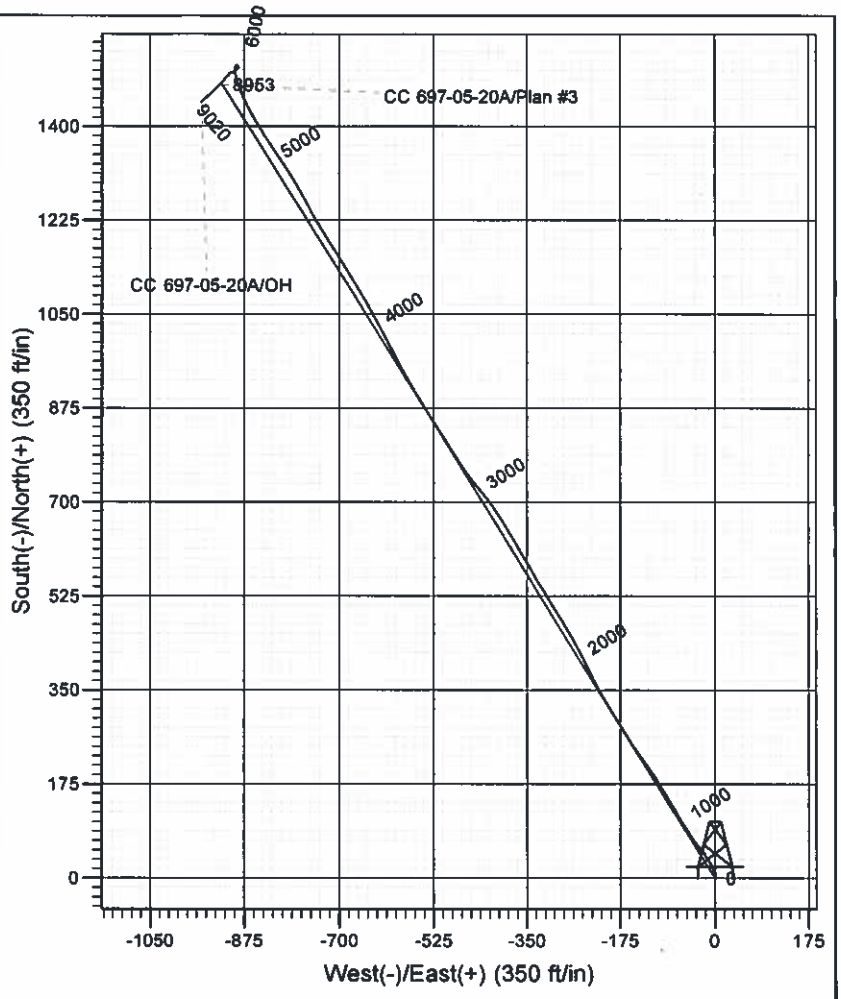
Scientific Drilling

Company:	OXY USA RMAT
Project:	Garfield County, CO NAD27
Site:	Cascade Creek 697-05C Pad
Well:	CC 697-05-20A
Wellbore:	OH
Design:	OH

OXY





Well Details: CC 697-05-20A

TVD Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353) Ground Level: 8423.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	638546.00	1227041.74	39° 33' 16.587 N	108° 14' 30.002 W	Q

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-20A - Slot Q, True North
Vertical (TVD) Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Section (VS) Reference: Slot - Q(0.00N, 0.00E)
Measured Depth Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
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

11:21, December 15 2011
Created By: Rex Hall

OXY USA RMAT

Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-20A - Slot Q

OH

Design: OH

Standard Survey Report

15 December, 2011

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-20A - Slot Q
Project:	Garfield County, CO NAD27	**TVD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	**MD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-20A	**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 697-05C Pad, Sec. 5 T6S R97W

Site Position:		**Northing:**	637,463.43 usft	**Latitude:**	39° 33' 5.626 N
From:	Map	**Easting:**	1,226,150.07 usft	**Longitude:**	108° 14' 40.963 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	0.000 in	**Grid Convergence:**	-1.73 °

Well CC 697-05-20A - Slot Q

Well Position	**+N/-S**	0.00 ft	**Northing:**	638,546.00 usft	**Latitude:**	39° 33' 16.587 N
	+E/-W	0.00 ft	**Easting:**	1,227,041.74 usft	**Longitude:**	108° 14' 30.002 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	8,423.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/16/10	10.51	65.77	52,312

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	329.19

Survey Program **Date** 12/15/11

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
153.00	2,658.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,763.00	9,315.00	Survey #2 - 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
153.00	0.61	19.28	153.00	0.77	0.27	0.52	0.40	0.40	0.00
First SDI Surface MWD Survey									
243.00	1.68	12.52	242.98	2.51	0.71	1.79	1.20	1.19	-7.51
333.00	3.34	355.83	332.89	6.41	0.81	5.09	2.00	1.84	-18.54
424.00	5.72	333.07	423.61	13.10	-1.44	11.99	3.23	2.62	-25.01
513.00	8.09	333.24	511.95	22.65	-6.27	22.66	2.66	2.66	0.19
603.00	9.41	327.71	600.91	34.52	-13.05	36.33	1.74	1.47	-6.14
693.00	11.26	322.96	689.44	47.76	-22.27	52.43	2.26	2.06	-5.28
784.00	13.10	321.55	778.39	62.93	-34.04	71.48	2.05	2.02	-1.55

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-20A - Slot Q
Project:	Garfield County, CO NAD27	**TVD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	**MD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-20A	**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)
874.00	13.98	327.97	865.89	80.13	-46.15	92.46	1.93	0.98	7.13
964.00	16.18	328.94	952.79	100.09	-58.39	115.87	2.46	2.44	1.08
1,059.00	18.38	329.64	1,043.50	124.36	-72.79	144.09	2.33	2.32	0.74
1,154.00	20.66	329.73	1,133.03	151.76	-88.81	175.83	2.40	2.40	0.09
1,248.00	20.66	327.71	1,220.99	180.10	-106.02	208.99	0.76	0.00	-2.15
1,343.00	19.61	324.46	1,310.18	207.24	-124.24	241.63	1.61	-1.11	-3.42
1,437.00	19.08	325.77	1,398.87	232.78	-142.06	272.69	0.73	-0.56	1.39
1,532.00	19.79	327.62	1,488.46	259.20	-159.40	304.26	0.99	0.75	1.95
1,626.00	21.10	328.76	1,576.54	287.10	-176.70	337.09	1.46	1.39	1.21
1,721.00	18.82	327.80	1,665.83	314.70	-193.74	369.51	2.42	-2.40	-1.01
1,815.00	18.73	329.47	1,754.83	340.53	-209.48	399.76	0.58	-0.10	1.78
1,910.00	19.26	333.51	1,844.66	367.69	-224.22	430.64	1.49	0.56	4.25
2,004.00	18.82	333.60	1,933.51	395.14	-237.88	461.22	0.47	-0.47	0.10
2,099.00	19.26	332.37	2,023.32	422.75	-251.96	492.14	0.63	0.46	-1.29
2,194.00	19.43	329.90	2,112.95	450.30	-267.15	523.58	0.88	0.18	-2.60
2,288.00	19.26	328.59	2,201.65	477.06	-283.07	554.72	0.50	-0.18	-1.39
2,382.00	20.49	328.15	2,290.05	504.27	-299.83	586.67	1.32	1.31	-0.47
2,477.00	20.58	327.80	2,379.01	532.52	-317.50	619.99	0.16	0.09	-0.37
2,571.00	21.98	329.29	2,466.60	561.63	-335.29	654.10	1.60	1.49	1.59
2,658.00	21.90	330.08	2,547.30	589.69	-351.70	686.60	0.35	-0.09	0.91
Last SDI Surface MWD Survey									
2,763.00	21.80	329.03	2,644.76	623.38	-371.50	725.68	0.38	-0.10	-1.00
First SDI Production MWD Survey									
2,857.00	22.09	327.98	2,731.95	653.33	-389.85	760.81	0.52	0.31	-1.12
2,952.00	21.10	326.12	2,820.28	682.67	-408.86	795.74	1.27	-1.04	-1.96
3,046.00	18.64	321.46	2,908.68	708.48	-427.65	827.53	3.11	-2.62	-4.96
3,141.00	19.08	320.32	2,998.58	732.30	-447.03	857.92	0.60	0.46	-1.20
3,235.00	18.64	324.98	3,087.54	756.43	-465.46	888.08	1.67	-0.47	4.96
3,330.00	20.14	327.79	3,177.15	782.70	-482.89	919.57	1.86	1.58	2.96
3,425.00	18.64	327.00	3,266.76	809.27	-499.88	951.10	1.60	-1.58	-0.83
3,519.00	20.40	327.88	3,355.35	835.75	-516.77	982.49	1.90	1.87	0.94
3,614.00	19.08	326.65	3,444.77	862.74	-534.11	1,014.55	1.46	-1.39	-1.29
3,708.00	19.43	330.43	3,533.51	889.18	-550.27	1,045.54	1.38	0.37	4.02
3,803.00	17.76	328.14	3,623.55	915.23	-565.72	1,075.82	1.92	-1.76	-2.41
3,897.00	19.08	333.51	3,712.74	941.16	-580.14	1,105.48	2.29	1.40	5.71
3,992.00	17.85	332.28	3,802.85	967.95	-593.84	1,135.50	1.36	-1.29	-1.29
4,086.00	19.26	331.48	3,891.96	994.32	-607.94	1,165.38	1.52	1.50	-0.85
4,181.00	21.02	332.28	3,981.15	1,023.18	-623.35	1,198.05	1.88	1.85	0.84
4,275.00	19.43	332.01	4,069.35	1,051.91	-638.53	1,230.50	1.69	-1.69	-0.29
4,370.00	20.75	329.02	4,158.57	1,080.29	-654.61	1,263.12	1.76	1.39	-3.15
4,464.00	21.72	328.14	4,246.19	1,109.34	-672.36	1,297.16	1.09	1.03	-0.94
4,559.00	19.96	329.90	4,334.97	1,138.30	-689.78	1,330.95	1.97	-1.85	1.85
4,654.00	21.10	327.79	4,423.93	1,166.80	-707.02	1,364.26	1.43	1.20	-2.22

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-20A - Slot Q
Project:	Garfield County, CO NAD27	**TVD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	**MD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-20A	**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)
4,748.00	20.84	327.71	4,511.71	1,195.25	-724.97	1,397.89	0.28	-0.28	-0.09
4,843.00	21.02	330.25	4,600.44	1,224.33	-742.46	1,431.82	0.97	0.19	2.67
4,937.00	20.14	332.98	4,688.44	1,253.38	-758.18	1,464.82	1.38	-0.94	2.90
5,032.00	19.96	329.73	4,777.69	1,281.96	-773.78	1,497.36	1.19	-0.19	-3.42
5,126.00	23.48	329.29	4,865.00	1,311.92	-791.44	1,532.14	3.75	3.74	-0.47
5,221.00	21.72	326.56	4,952.71	1,342.87	-810.79	1,568.63	2.16	-1.85	-2.87
5,315.00	19.43	326.38	5,040.70	1,370.40	-829.03	1,601.62	2.44	-2.44	-0.19
5,410.00	17.59	327.18	5,130.79	1,395.63	-845.56	1,631.75	1.96	-1.94	0.84
5,504.00	14.33	332.10	5,221.15	1,417.85	-858.71	1,657.58	3.75	-3.47	5.23
5,599.00	13.54	332.54	5,313.36	1,438.11	-869.34	1,680.42	0.84	-0.83	0.46
5,693.00	11.78	340.36	5,405.08	1,456.91	-877.64	1,700.82	2.61	-1.87	8.32
5,788.00	11.08	340.71	5,498.19	1,474.66	-883.91	1,719.28	0.74	-0.74	0.37
5,882.00	8.88	342.56	5,590.76	1,490.11	-889.07	1,735.19	2.36	-2.34	1.97
5,977.00	5.80	354.86	5,684.98	1,501.89	-891.70	1,746.65	3.62	-3.24	12.95
6,071.00	2.73	20.44	5,778.72	1,508.72	-891.35	1,752.34	3.76	-3.27	27.21
6,166.00	2.11	37.47	5,873.63	1,512.23	-889.49	1,754.40	0.99	-0.65	17.93
6,260.00	0.88	70.63	5,967.60	1,513.84	-887.76	1,754.90	1.55	-1.31	35.28
6,355.00	1.41	139.09	6,062.58	1,513.20	-886.30	1,753.60	1.43	0.56	72.06
6,449.00	1.93	154.56	6,156.54	1,510.90	-884.87	1,750.89	0.73	0.55	16.46
6,544.00	0.70	206.94	6,251.52	1,508.94	-884.44	1,748.98	1.69	-1.29	55.14
6,638.00	1.06	248.25	6,345.51	1,508.10	-885.51	1,748.82	0.75	0.38	43.95
6,733.00	1.67	249.75	6,440.48	1,507.30	-887.63	1,749.21	0.64	0.64	1.58
6,827.00	1.06	220.39	6,534.46	1,506.16	-889.47	1,749.18	0.97	-0.65	-31.23
6,922.00	0.79	177.68	6,629.44	1,504.84	-890.02	1,748.32	0.76	-0.28	-44.96
7,016.00	1.41	176.09	6,723.43	1,503.04	-889.91	1,746.72	0.66	0.66	-1.69
7,111.00	0.62	224.43	6,818.41	1,501.50	-890.19	1,745.55	1.16	-0.83	50.88
7,205.00	0.97	257.74	6,912.40	1,500.97	-891.33	1,745.67	0.60	0.37	35.44
7,300.00	1.85	259.41	7,007.37	1,500.52	-893.62	1,746.45	0.93	0.93	1.76
7,394.00	2.73	259.77	7,101.30	1,499.84	-897.31	1,747.77	0.94	0.94	0.38
7,489.00	2.11	249.66	7,196.21	1,498.83	-901.18	1,748.88	0.79	-0.65	-10.64
7,583.00	1.23	184.53	7,290.18	1,497.22	-902.88	1,748.37	2.07	-0.94	-69.29
7,678.00	1.32	159.04	7,385.16	1,495.19	-902.57	1,746.46	0.60	0.09	-26.83
7,772.00	0.53	241.40	7,479.15	1,493.97	-902.57	1,745.41	1.44	-0.84	87.62
7,867.00	1.23	279.10	7,574.14	1,493.92	-903.96	1,746.08	0.92	0.74	39.68
7,961.00	0.97	253.88	7,668.12	1,493.86	-905.72	1,746.93	0.58	-0.28	-26.83
8,056.00	1.14	201.49	7,763.10	1,492.75	-906.84	1,746.56	0.99	0.18	-55.15
8,150.00	2.29	209.93	7,857.06	1,490.26	-908.12	1,745.07	1.25	1.22	8.98
8,245.00	1.76	225.66	7,952.00	1,487.59	-910.11	1,743.80	0.80	-0.56	16.56
8,339.00	0.26	234.80	8,045.98	1,486.46	-911.31	1,743.45	1.60	-1.60	9.72
8,434.00	0.88	208.88	8,140.98	1,485.70	-911.84	1,743.06	0.69	0.65	-27.28
8,528.00	1.32	226.72	8,234.96	1,484.32	-912.98	1,742.46	0.59	0.47	18.98
8,623.00	2.55	218.46	8,329.91	1,481.92	-915.09	1,741.48	1.32	1.29	-8.69
8,717.00	3.52	225.14	8,423.77	1,478.24	-918.44	1,740.04	1.10	1.03	7.11
8,812.00	4.66	222.24	8,518.53	1,473.33	-923.10	1,738.20	1.22	1.20	-3.05

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-20A - Slot Q
Project:	Garfield County, CO NAD27	**TVD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	**MD Reference:**	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-20A	**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)
8,906.00	4.48	227.51	8,612.23	1,468.02	-928.37	1,736.35	0.49	-0.19	5.61
9,001.00	3.87	227.42	8,706.98	1,463.35	-933.47	1,734.94	0.64	-0.64	-0.09
9,095.00	4.57	226.63	8,800.72	1,458.63	-938.53	1,733.48	0.75	0.74	-0.84
9,190.00	5.10	227.42	8,895.39	1,453.17	-944.39	1,731.80	0.56	0.56	0.83
9,260.00	5.28	230.59	8,965.10	1,449.02	-949.17	1,730.68	0.48	0.26	4.53
Last SDI Production MWD Survey									
9,315.00	5.28	230.59	9,019.87	1,445.81	-953.08	1,729.93	0.00	0.00	0.00
Projection To TD - BHL = 640019.91, 1226132.73									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
153.00	153.00	0.77	0.27	First SDI Surface MWD Survey
2,658.00	2,547.30	589.69	-351.70	Last SDI Surface MWD Survey
2,763.00	2,644.76	623.38	-371.50	First SDI Production MWD Survey
9,260.00	8,965.10	1,449.02	-949.17	Last SDI Production MWD Survey
9,315.00	9,019.87	1,445.81	-953.08	Projection To TD
9,315.00	9,019.87	1,445.81	-953.08	BHL = 640019.91, 1226132.73

Checked By: _____ Approved By: _____ Date: _____