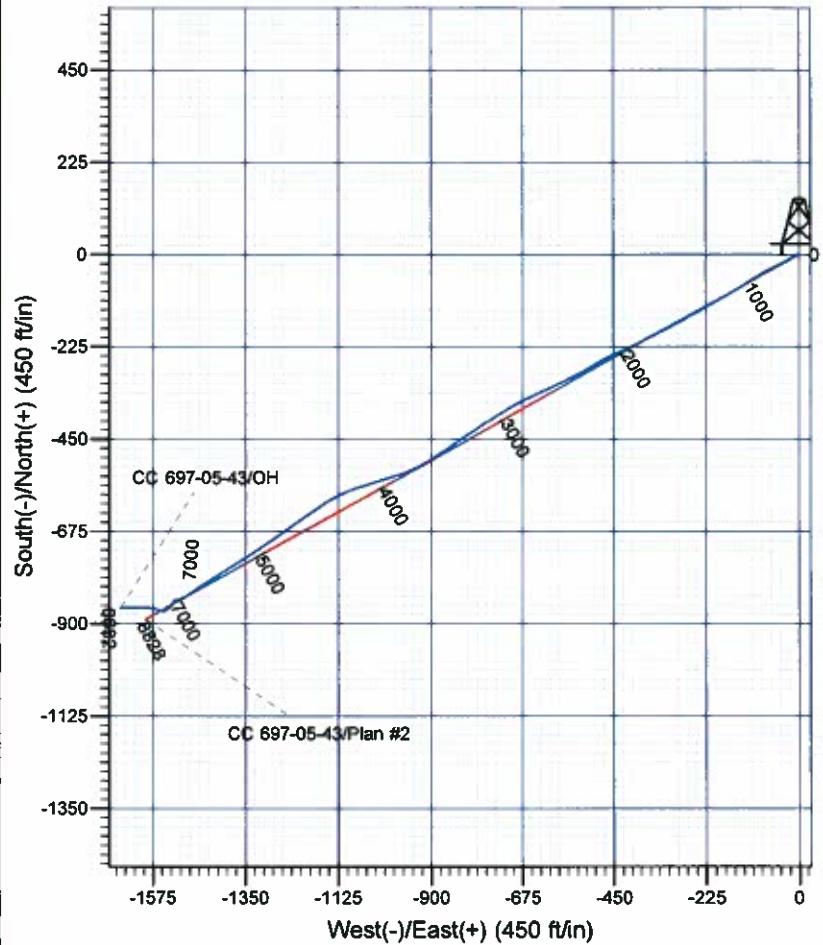
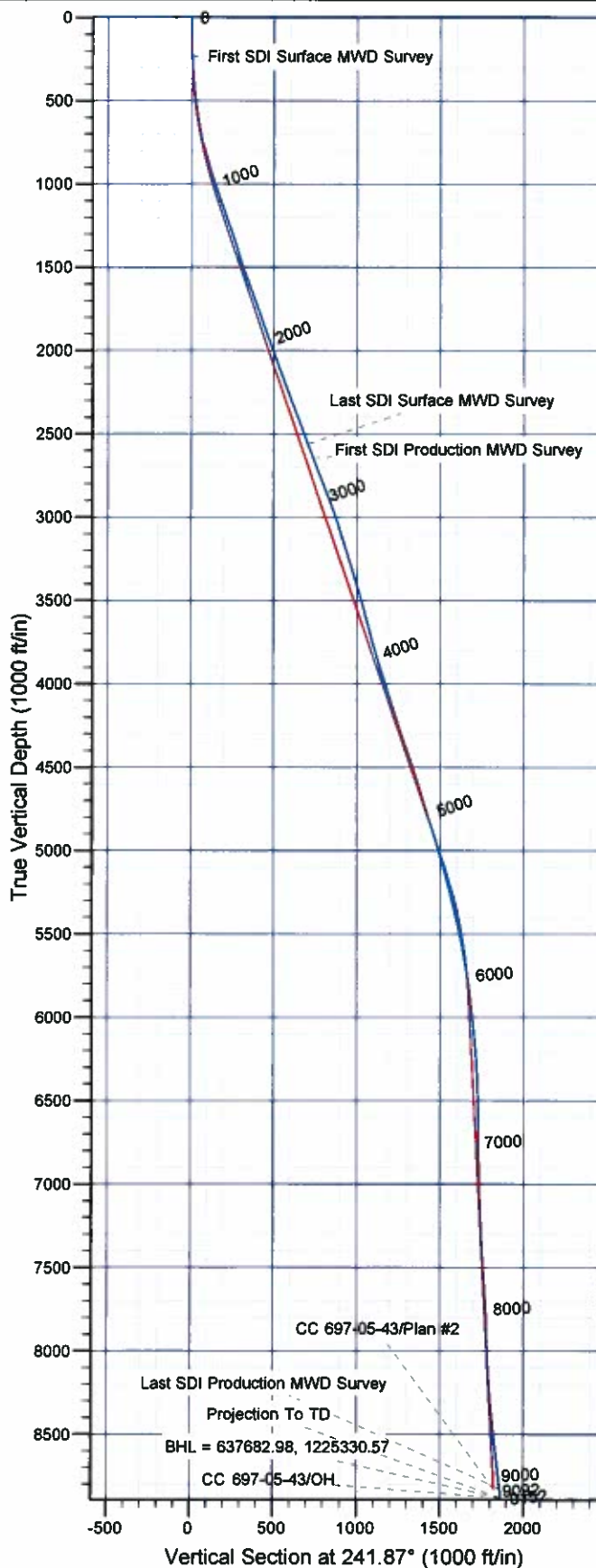




Scientific Drilling

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06C Pad
Well: CC 697-05-43
Wellbore: OH
Design: OH



Well Details: CC 697-05-43

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	638494.17	1227010.16	39° 33' 16.065 N	108° 14' 30.385 W	B

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-43 - Slot B, True North
Vertical (TVD) Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Section (VS) Reference: Slot - B(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

12:26, February 17 2012
Created By: Rex Hall

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-43 - Slot B**

OH

Design: OH

Standard Survey Report

17 February, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
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 697-05-43	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 697-05-43 - Slot B					
Well Position	+N/-S	0.00 ft	Northing:	638,494.17 usft	Latitude:	39° 33' 16.065 N
	+E/-W	0.00 ft	Easting:	1,227,010.16 usft	Longitude:	108° 14' 30.385 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	241.87	

Survey Program	Date	02/14/12			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
234.00	2,675.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,763.00	9,152.00	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
234.00	2.13	263.36	233.95	-0.50	-4.32	4.05	0.91	0.91	0.00
First SDI Surface MWD Survey									
324.00	3.56	241.04	323.84	-2.05	-8.43	8.40	1.98	1.59	-24.80
414.00	6.29	240.65	413.49	-5.82	-15.17	16.12	3.03	3.03	-0.43
504.00	7.47	236.84	502.85	-11.44	-24.37	26.88	1.41	1.31	-4.23
594.00	8.62	240.41	591.96	-17.97	-35.13	39.45	1.39	1.28	3.97
684.00	10.90	244.45	680.65	-24.97	-48.67	54.70	2.64	2.53	4.49
774.00	13.98	240.76	768.53	-33.95	-65.84	74.07	3.53	3.42	-4.10
864.00	16.97	241.38	855.26	-45.56	-86.86	98.08	3.33	3.32	0.69

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
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 697-05-43	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)
955.00	19.87	239.53	941.59	-59.76	-111.85	126.82	3.25	3.19	-2.03
1,050.00	18.11	238.65	1,031.41	-75.63	-138.38	157.69	1.88	-1.85	-0.93
1,144.00	19.35	238.12	1,120.43	-91.48	-164.08	187.82	1.33	1.32	-0.56
1,239.00	18.38	238.39	1,210.33	-107.62	-190.20	218.47	1.03	-1.02	0.28
1,333.00	20.05	239.09	1,299.09	-123.67	-216.65	249.36	1.79	1.78	0.74
1,428.00	17.32	240.15	1,389.07	-139.07	-242.89	279.77	2.90	-2.87	1.12
1,522.00	17.67	241.55	1,478.73	-152.83	-267.57	308.02	0.58	0.37	1.49
1,617.00	19.70	241.02	1,568.71	-167.46	-294.26	338.45	2.14	2.14	-0.56
1,711.00	20.75	242.52	1,656.92	-182.82	-322.89	370.95	1.25	1.12	1.60
1,806.00	20.66	242.52	1,745.78	-198.32	-352.69	404.53	0.09	-0.09	0.00
1,900.00	20.22	243.84	1,833.86	-213.14	-381.98	437.35	0.68	-0.47	1.40
1,995.00	19.79	246.39	1,923.13	-226.81	-411.45	469.79	1.02	-0.45	2.68
2,089.00	19.52	247.18	2,011.66	-239.28	-440.51	501.29	0.40	-0.29	0.84
2,184.00	19.96	240.23	2,101.09	-253.49	-469.22	533.31	2.51	0.46	-7.32
2,278.00	20.05	239.44	2,189.41	-269.65	-497.02	565.44	0.30	0.10	-0.84
2,373.00	20.49	241.29	2,278.53	-285.91	-525.63	598.34	0.82	0.46	1.95
2,467.00	20.84	243.84	2,366.49	-301.19	-555.06	631.50	1.03	0.37	2.71
2,562.00	20.75	244.80	2,455.30	-315.80	-585.46	665.20	0.37	-0.09	1.01
2,656.00	21.10	245.86	2,543.10	-329.81	-615.97	698.71	0.55	0.37	1.13
2,675.00	21.28	245.59	2,560.81	-332.64	-622.23	705.56	1.08	0.95	-1.42
Last SDI Surface MWD Survey									
2,763.00	21.12	245.56	2,642.86	-345.80	-651.20	737.32	0.18	-0.18	-0.03
First SDI Production MWD Survey									
2,857.00	21.46	242.61	2,730.44	-360.71	-681.89	771.41	1.20	0.36	-3.14
2,952.00	21.28	239.27	2,818.92	-377.52	-712.14	806.01	1.29	-0.19	-3.52
3,046.00	20.14	238.83	2,906.84	-394.61	-740.65	839.21	1.22	-1.21	-0.47
3,141.00	18.73	237.24	2,996.43	-411.33	-767.47	870.75	1.59	-1.48	-1.67
3,235.00	17.50	236.81	3,085.77	-427.23	-791.99	899.87	1.32	-1.31	-0.46
3,330.00	17.41	236.45	3,176.39	-442.91	-815.79	928.25	0.15	-0.09	-0.38
3,424.00	16.97	235.31	3,266.19	-458.49	-838.79	955.87	0.59	-0.47	-1.21
3,519.00	17.23	234.87	3,356.99	-474.47	-861.69	983.61	0.31	0.27	-0.46
3,614.00	16.27	238.12	3,447.96	-489.60	-884.50	1,010.86	1.41	-1.01	3.42
3,708.00	15.04	237.60	3,538.47	-503.09	-905.98	1,036.16	1.32	-1.31	-0.55
3,803.00	14.77	241.55	3,630.28	-515.46	-927.04	1,060.56	1.11	-0.28	4.16
3,897.00	15.04	245.68	3,721.12	-526.20	-948.69	1,084.71	1.17	0.29	4.39
3,992.00	16.44	252.36	3,812.56	-535.35	-972.73	1,110.24	2.41	1.47	7.03
4,086.00	17.94	252.98	3,902.36	-543.62	-999.25	1,137.52	1.61	1.60	0.66
4,181.00	18.11	252.19	3,992.70	-552.41	-1,027.30	1,166.40	0.31	0.18	-0.83
4,275.00	17.67	253.07	4,082.15	-561.04	-1,054.86	1,194.77	0.55	-0.47	0.94
4,369.00	18.20	250.60	4,171.59	-570.07	-1,082.35	1,223.28	0.99	0.56	-2.63
4,464.00	18.29	246.65	4,261.81	-580.90	-1,110.03	1,252.80	1.30	0.09	-4.16
4,559.00	18.91	241.11	4,351.86	-594.25	-1,137.20	1,283.05	1.97	0.65	-5.83
4,653.00	19.52	235.14	4,440.63	-610.59	-1,163.43	1,313.88	2.19	0.65	-6.35

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
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 697-05-43	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	18.55	235.14	4,530.43	-828.30	-1,188.85	1,344.65	1.02	-1.02	0.00
4,843.00	16.36	235.49	4,621.05	-844.52	-1,212.28	1,372.95	2.31	-2.31	0.37
4,937.00	16.88	233.47	4,711.13	-860.14	-1,234.15	1,399.61	0.83	0.55	-2.15
5,032.00	17.76	235.05	4,801.82	-876.65	-1,257.11	1,427.64	1.05	0.93	1.66
5,126.00	17.32	234.96	4,891.45	-892.90	-1,280.32	1,455.77	0.47	-0.47	-0.10
5,221.00	16.80	236.01	4,982.27	-708.69	-1,303.28	1,483.47	0.64	-0.55	1.11
5,315.00	15.74	235.93	5,072.50	-723.43	-1,325.11	1,509.66	1.13	-1.13	-0.09
5,410.00	15.04	236.72	5,164.10	-737.41	-1,346.08	1,534.75	0.77	-0.74	0.83
5,504.00	14.07	237.51	5,255.08	-750.24	-1,365.92	1,558.29	1.05	-1.03	0.84
5,599.00	13.37	237.86	5,347.37	-762.29	-1,384.96	1,580.77	0.74	-0.74	0.37
5,693.00	12.75	238.30	5,438.94	-773.52	-1,402.99	1,601.96	0.67	-0.66	0.47
5,788.00	12.13	238.21	5,531.71	-784.29	-1,420.39	1,622.38	0.65	-0.65	-0.09
5,882.00	9.94	237.07	5,623.96	-793.90	-1,435.60	1,640.33	2.34	-2.33	-1.21
5,977.00	9.15	236.54	5,717.65	-802.52	-1,448.78	1,656.02	0.84	-0.83	-0.56
6,071.00	7.30	236.54	5,810.67	-809.94	-1,460.00	1,669.41	1.97	-1.97	0.00
6,166.00	6.51	234.26	5,904.99	-816.41	-1,469.41	1,680.76	0.88	-0.83	-2.40
6,260.00	6.33	233.38	5,998.40	-822.61	-1,477.89	1,691.16	0.22	-0.19	-0.94
6,355.00	6.60	234.17	6,092.79	-828.93	-1,486.52	1,701.75	0.30	0.28	0.83
6,449.00	5.54	238.83	6,186.26	-834.45	-1,494.78	1,711.64	1.24	-1.13	4.96
6,544.00	3.25	255.35	6,280.98	-837.50	-1,501.31	1,718.84	2.73	-2.41	17.39
6,638.00	2.20	247.62	6,374.87	-838.86	-1,505.56	1,723.22	1.18	-1.12	-8.22
6,732.00	1.49	220.46	6,468.83	-840.48	-1,508.02	1,726.16	1.18	-0.76	-28.89
6,827.00	1.14	197.17	6,563.80	-842.32	-1,509.10	1,727.98	0.67	-0.37	-24.52
6,922.00	0.44	232.67	6,658.79	-843.45	-1,509.67	1,729.01	0.87	-0.74	37.37
7,016.00	0.97	296.48	6,752.79	-843.31	-1,510.67	1,729.83	0.93	0.56	67.88
7,111.00	1.49	284.09	6,847.76	-842.65	-1,512.59	1,731.21	0.61	0.55	-13.04
7,205.00	1.93	284.27	6,941.72	-841.96	-1,515.31	1,733.28	0.47	0.47	0.19
7,300.00	2.37	269.24	7,036.66	-841.59	-1,518.82	1,736.21	0.75	0.46	-15.82
7,394.00	2.37	225.03	7,130.58	-842.99	-1,522.14	1,739.79	1.90	0.00	-47.03
7,489.00	2.81	212.28	7,225.49	-846.35	-1,524.77	1,743.70	0.76	0.46	-13.42
7,583.00	3.34	207.89	7,319.35	-850.72	-1,527.28	1,747.97	0.62	0.56	-4.67
7,678.00	3.25	216.77	7,414.19	-855.32	-1,530.19	1,752.71	0.54	-0.09	9.35
7,772.00	3.69	225.91	7,508.02	-859.56	-1,533.96	1,758.03	0.75	0.47	9.72
7,867.00	4.48	228.19	7,602.78	-864.16	-1,538.92	1,764.57	0.85	0.83	2.40
7,961.00	3.69	241.55	7,696.54	-868.05	-1,544.31	1,771.16	1.31	-0.84	14.21
8,056.00	2.29	266.19	7,791.42	-869.63	-1,548.90	1,775.95	1.97	-1.47	25.94
8,150.00	2.20	287.96	7,885.35	-869.20	-1,552.49	1,778.91	0.91	-0.10	23.16
8,245.00	3.17	288.05	7,980.24	-867.83	-1,556.72	1,782.00	1.02	1.02	0.09
8,339.00	3.96	289.80	8,074.06	-865.92	-1,562.24	1,785.97	0.85	0.84	1.86
8,434.00	4.84	279.96	8,168.78	-864.12	-1,569.28	1,791.32	1.22	0.93	-10.36
8,528.00	5.54	279.52	8,262.39	-862.68	-1,577.66	1,798.04	0.75	0.74	-0.47
8,623.00	6.24	275.57	8,356.89	-861.42	-1,587.32	1,805.96	0.85	0.74	-4.16
8,717.00	7.03	271.70	8,450.26	-860.75	-1,598.15	1,815.20	0.97	0.84	-4.12
8,812.00	7.21	270.38	8,544.53	-860.54	-1,609.93	1,825.49	0.26	0.19	-1.39

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-43 - Slot B
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 697-05-43	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	7.47	288.62	8,637.76	-860.65	-1,621.93	1,836.13	0.37	0.28	-1.87
9,001.00	7.83	288.09	8,731.91	-861.01	-1,634.58	1,847.45	0.39	0.38	-0.56
9,095.00	7.39	268.80	8,825.08	-861.35	-1,647.02	1,858.58	0.48	-0.47	0.76
Last SDI Production MWD Survey									
9,152.00	7.39	268.80	8,881.61	-861.51	-1,654.35	1,865.12	0.00	0.00	0.00
BHL = 637682.98, 1225330.57 - Projection To TD									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
234.00	233.95	-0.50	-4.32	First SDI Surface MWD Survey
2,675.00	2,580.81	-332.64	-622.23	Last SDI Surface MWD Survey
2,763.00	2,642.86	-345.80	-651.20	First SDI Production MWD Survey
9,095.00	8,825.08	-861.35	-1,647.02	Last SDI Production MWD Survey
9,152.00	8,881.61	-861.51	-1,654.35	BHL = 637682.98, 1225330.57
9,152.00	8,881.61	-861.51	-1,654.35	Projection To TD

Checked By: _____ Approved By: _____ Date: _____