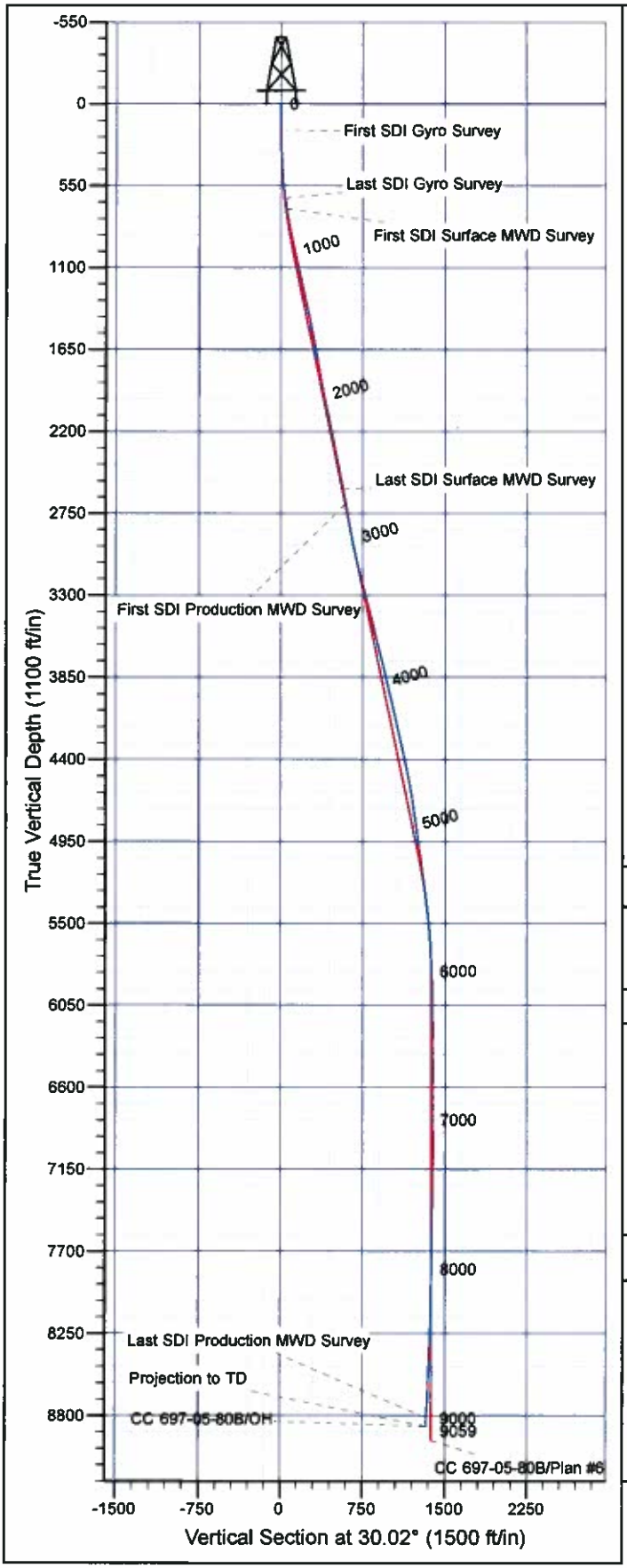
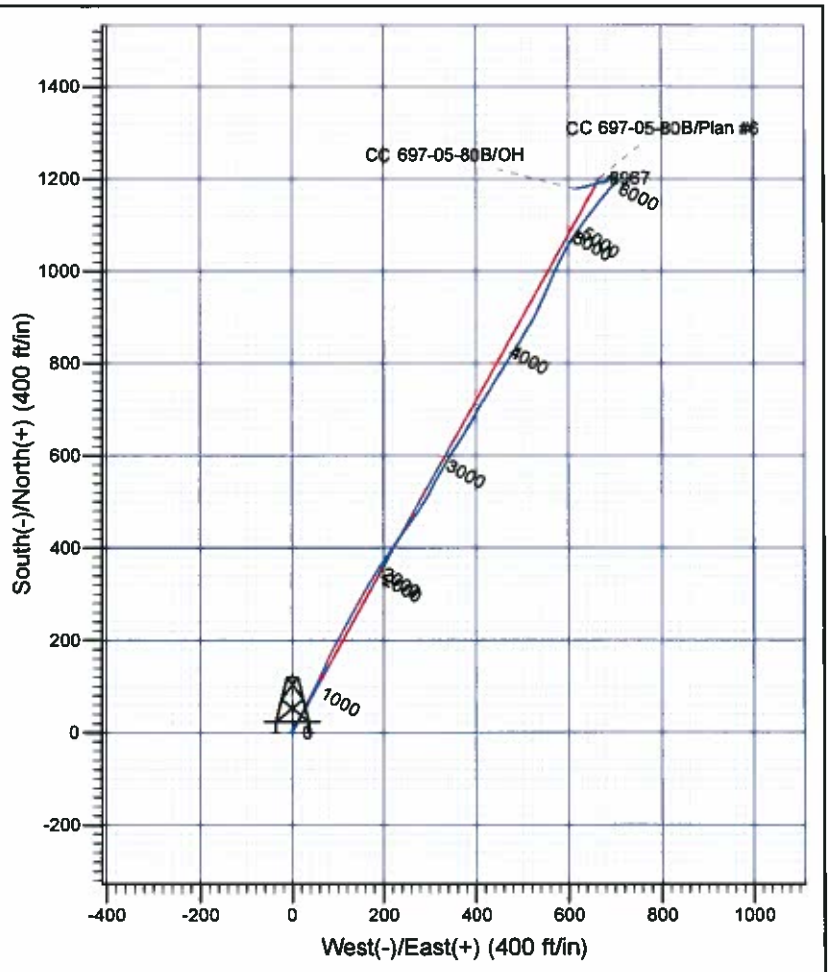
Scientific Drilling
Rocky Mountain Operations

Company:	OXY USA RMAT
Project:	Garfield County, CO NAD27
Site:	Cascade Creek 608-41 Pad
Well:	CC 697-05-80B
Wellbore:	OH
Design:	OH

OXY





Well Details: CC 697-05-80B

TVD Reference: GL 8407' & RKB 30' @ 8437.00ft (Ground Level: 8407.00)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	633963.23	1228110.50	39° 32' 31.631 N	108° 14' 14.600 W	E

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-80B - Slot E, True North
Vertical (TVD) Reference: GL 8407' & RKB 30' @ 8437.00ft (H&P)
Section (VS) Reference: Slot - E(0.00N, 0.00E)
Measured Depth Reference: GL 8407' & RKB 30' @ 8437.00ft (H&P)
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

15:43, July 18 2011
Created By: Janie Cooke

OXY USA RMAT

Garfield County, CO NAD27
Cascade Creek 608-41 Pad
CC 697-05-80B - Slot E

OH

Design: OH

Standard Survey Report

18 July, 2011

Scientific Drilling International, Inc.

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-80B - Slot E
Project:	Garfield County, CO NAD27	**TVD Reference:**	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Site:	Cascade Creek 608-41 Pad	**MD Reference:**	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-80B	**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 608-41 Pad, SEction 8 T6S R97W

Site Position:		**Northing:**	633,966.95 usft	**Latitude:**	39° 32' 31.685 N
From:	Map	**Easting:**	1,228,168.67 usft	**Longitude:**	108° 14' 13.859 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-1.73 °

Well CC 697-05-80B - Slot E,

Well Position	**+N/-S**	0.00 ft	**Northing:**	633,963.23 usft	**Latitude:**	39° 32' 31.631 N
	+E/-W	0.00 ft	**Easting:**	1,228,110.50 usft	**Longitude:**	108° 14' 14.600 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	8,407.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	10/15/2008	10.79	65.81	52,516

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	30.02

Survey Program **Date** 7/18/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
177.00	636.00	Survey #1 - Gyro MWD (OH)	Gyro	
708.00	2,664.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,765.00	9,059.00	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
177.00	1.23	337.50	176.99	1.76	-0.73	1.16	0.69	0.69	0.00
First SDI Gyro Survey									
269.00	1.41	0.26	268.96	3.80	-1.10	2.74	0.60	0.20	24.74
361.00	3.34	23.29	360.88	7.39	-0.03	6.38	2.30	2.10	25.03
452.00	5.72	35.60	451.59	13.52	3.65	13.53	2.81	2.62	13.53
544.00	7.65	36.12	542.96	22.19	9.93	24.18	2.10	2.10	0.57
636.00	10.82	29.53	633.76	34.66	17.80	38.91	3.63	3.45	-7.16

Scientific Drilling International, Inc.

Survey Report

Company:	OXY USA RMAT	**Local Co-ordinate Reference:**	Well CC 697-05-80B - Slot E
Project:	Garfield County, CO NAD27	**TVD Reference:**	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Site:	Cascade Creek 608-41 Pad	**MD Reference:**	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-80B	**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									
708.00	12.57	27.97	704.26	47.46	24.81	53.50	2.47	2.43	-2.17
First SDI Surface MWD Survey									
800.00	14.51	27.71	793.70	66.50	34.86	75.02	2.11	2.11	-0.28
892.00	15.65	26.65	882.53	87.80	45.79	98.93	1.27	1.24	-1.15
985.00	16.44	24.90	971.91	110.95	56.96	124.56	1.00	0.85	-1.88
1,079.00	17.15	24.37	1,061.90	135.64	68.27	151.60	0.77	0.76	-0.56
1,173.00	17.41	26.74	1,151.66	160.82	80.32	179.43	0.80	0.28	2.52
1,268.00	16.53	26.13	1,242.52	185.65	92.67	207.10	0.95	-0.93	-0.64
1,363.00	16.00	28.15	1,333.72	209.32	104.80	233.67	0.82	-0.56	2.13
1,457.00	15.65	28.76	1,424.16	231.86	117.01	259.30	0.41	-0.37	0.65
1,552.00	15.04	31.31	1,515.77	253.63	129.58	284.43	0.96	-0.64	2.68
1,646.00	15.74	30.87	1,606.40	274.99	142.46	309.37	0.75	0.74	-0.47
1,741.00	13.45	28.76	1,698.33	295.74	154.39	333.31	2.47	-2.41	-2.22
1,836.00	13.01	28.32	1,790.81	314.84	164.78	355.04	0.48	-0.46	-0.46
1,930.00	14.42	32.63	1,882.13	334.01	176.11	377.31	1.85	1.50	4.59
2,025.00	15.74	32.98	1,973.85	354.78	189.50	402.00	1.39	1.39	0.37
2,119.00	15.30	32.98	2,064.42	375.88	203.19	427.11	0.47	-0.47	0.00
2,214.00	15.83	35.27	2,155.94	396.97	217.50	452.54	0.85	0.56	2.41
2,308.00	16.36	34.56	2,246.26	418.34	232.41	478.50	0.60	0.56	-0.76
2,403.00	14.77	36.06	2,337.77	439.15	247.13	503.88	1.73	-1.67	1.58
2,497.00	16.09	34.74	2,428.38	459.54	261.61	528.78	1.45	1.40	-1.40
2,592.00	15.65	34.12	2,519.76	480.97	276.30	554.68	0.50	-0.46	-0.65
2,664.00	14.60	34.39	2,589.26	496.50	286.87	573.42	1.46	-1.46	0.38
Last SDI Surface MWD Survey									
2,765.00	12.70	25.60	2,687.42	517.02	298.86	597.18	2.78	-1.88	-8.70
First SDI Production MWD Survey									
2,860.00	13.45	27.00	2,779.95	536.28	308.39	618.63	0.86	0.79	1.47
2,954.00	14.25	30.78	2,871.22	555.96	319.27	641.11	1.28	0.85	4.02
3,049.00	15.12	26.65	2,963.12	577.08	330.81	665.17	1.43	0.92	-4.35
3,144.00	17.41	32.54	3,054.32	600.14	344.02	691.75	2.97	2.41	6.20
3,238.00	18.64	33.59	3,143.70	624.51	359.89	720.79	1.35	1.31	1.12
3,333.00	21.19	30.81	3,233.02	651.91	377.09	753.12	2.86	2.68	-2.93
3,427.00	19.26	28.49	3,321.22	680.13	393.19	785.60	2.22	-2.05	-2.47
3,522.00	18.73	29.90	3,411.05	707.12	408.27	816.52	0.74	-0.56	1.48
3,616.00	17.67	32.45	3,500.34	732.25	423.44	845.87	1.41	-1.13	2.71
3,711.00	17.41	30.78	3,590.93	756.62	438.45	874.48	0.60	-0.27	-1.76
3,805.00	20.05	32.54	3,679.94	782.29	454.32	904.65	2.87	2.81	1.87
3,900.00	18.29	30.78	3,769.67	808.83	470.71	935.82	1.95	-1.85	-1.85
3,994.00	17.94	33.42	3,859.01	833.59	486.23	965.03	0.95	-0.37	2.81
4,089.00	17.50	30.60	3,949.51	858.10	501.56	993.91	1.02	-0.46	-2.97
4,183.00	16.00	30.69	4,039.52	881.40	515.37	1,021.00	1.60	-1.60	0.10
4,278.00	17.59	26.03	4,130.47	905.56	528.35	1,048.42	2.19	1.67	-4.91
4,372.00	18.11	24.71	4,219.94	931.60	540.69	1,077.13	0.70	0.55	-1.40

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Site:	Cascade Creek 608-41 Pad	**MD Reference:**	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-80B	**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)
4,467.00	16.53	23.66	4,310.63	957.39	552.29	1,105.27	1.70	-1.66	-1.11
4,562.00	14.77	22.60	4,402.11	980.95	562.37	1,130.71	1.88	-1.85	-1.12
4,656.00	15.92	27.00	4,492.76	1,003.50	572.82	1,155.47	1.74	1.22	4.68
4,751.00	14.42	23.84	4,584.44	1,025.93	583.52	1,180.24	1.80	-1.58	-3.33
4,845.00	12.13	30.60	4,675.93	1,045.14	593.28	1,201.76	2.94	-2.44	7.19
4,940.00	10.46	32.10	4,769.09	1,061.04	602.95	1,220.36	1.78	-1.76	1.58
5,034.00	12.22	34.82	4,861.25	1,076.44	613.16	1,238.80	1.96	1.87	2.89
5,129.00	9.67	32.89	4,954.52	1,091.39	623.24	1,256.79	2.71	-2.68	-2.03
5,223.00	9.94	36.14	5,047.14	1,104.57	632.31	1,272.74	0.65	0.29	3.46
5,310.00	10.90	37.28	5,132.71	1,117.18	641.72	1,288.37	1.13	1.10	1.31
5,412.00	10.11	37.37	5,233.00	1,131.97	652.99	1,306.81	0.77	-0.77	0.09
5,507.00	9.58	38.16	5,326.60	1,144.81	662.94	1,322.91	0.58	-0.56	0.83
5,601.00	8.88	38.07	5,419.38	1,156.68	672.25	1,337.83	0.74	-0.74	-0.10
5,696.00	6.42	40.10	5,513.53	1,166.51	680.19	1,350.33	2.60	-2.59	2.14
5,790.00	5.80	39.66	5,606.99	1,174.19	686.61	1,360.18	0.66	-0.66	-0.47
5,885.00	4.13	47.21	5,701.63	1,180.21	692.18	1,368.18	1.88	-1.76	7.95
5,979.00	3.43	42.91	5,795.43	1,184.57	696.58	1,374.16	0.80	-0.74	-4.57
6,074.00	2.81	37.81	5,890.29	1,188.49	699.94	1,379.24	0.71	-0.65	-5.37
6,168.00	1.67	30.34	5,984.22	1,191.49	702.05	1,382.89	1.25	-1.21	-7.95
6,263.00	1.14	6.96	6,079.19	1,193.62	702.86	1,385.14	0.81	-0.56	-24.61
6,357.00	1.14	341.03	6,173.17	1,195.44	702.67	1,386.62	0.54	0.00	-27.59
6,452.00	0.88	331.89	6,268.15	1,196.97	702.02	1,387.62	0.32	-0.27	-9.62
6,546.00	0.62	314.75	6,362.15	1,197.97	701.32	1,388.13	0.36	-0.28	-18.23
6,641.00	0.88	274.06	6,457.14	1,198.38	700.22	1,387.94	0.61	0.27	-42.83
6,735.00	1.32	266.77	6,551.12	1,198.37	698.42	1,387.03	0.49	0.47	-7.76
6,830.00	2.11	287.60	6,646.08	1,198.84	695.66	1,386.06	1.05	0.83	21.93
6,924.00	2.37	311.77	6,740.01	1,200.66	692.57	1,386.08	1.03	0.28	25.71
7,019.00	1.76	331.10	6,834.95	1,203.24	690.39	1,387.24	0.97	-0.64	20.35
7,114.00	0.97	48.97	6,929.93	1,205.05	690.30	1,388.75	1.92	-0.83	81.97
7,208.00	0.18	211.48	7,023.92	1,205.44	690.82	1,389.35	1.22	-0.84	172.88
7,303.00	1.23	259.47	7,118.92	1,205.13	689.74	1,388.54	1.18	1.11	50.52
7,397.00	1.23	229.32	7,212.89	1,204.29	687.98	1,386.93	0.68	0.00	-32.07
7,492.00	1.76	230.73	7,307.86	1,202.70	686.08	1,384.61	0.56	0.56	1.48
7,586.00	1.93	183.97	7,401.82	1,200.21	684.85	1,381.83	1.57	0.18	-49.74
7,680.00	1.49	173.16	7,495.78	1,197.42	684.89	1,379.43	0.58	-0.47	-11.50
7,775.00	0.79	192.41	7,590.76	1,195.55	684.89	1,377.82	0.83	-0.74	20.26
7,870.00	1.06	229.85	7,685.75	1,194.34	684.08	1,376.37	0.68	0.28	39.41
7,964.00	1.85	248.84	7,779.71	1,193.24	682.00	1,374.37	0.97	0.84	20.20
8,059.00	1.49	271.77	7,874.68	1,192.72	679.34	1,372.59	0.79	-0.38	24.14
8,153.00	1.32	263.25	7,968.65	1,192.63	677.04	1,371.37	0.29	-0.18	-9.06
8,247.00	1.76	264.22	8,062.61	1,192.36	674.53	1,369.87	0.47	0.47	1.03
8,342.00	2.46	262.02	8,157.55	1,191.93	671.06	1,367.76	0.74	0.74	-2.32
8,436.00	3.25	255.69	8,251.43	1,190.99	666.48	1,364.66	0.90	0.84	-6.73

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Site:	Cascade Creek 608-41 Pad	**MD Reference:**	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-80B	**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)
8,531.00	4.31	250.07	8,346.22	1,189.11	660.51	1,360.05	1.18	1.12	-5.92
8,625.00	4.66	252.09	8,439.94	1,186.73	653.56	1,354.51	0.41	0.37	2.15
8,719.00	4.57	255.34	8,533.63	1,184.61	646.30	1,349.04	0.29	-0.10	3.46
8,814.00	4.75	261.32	8,628.32	1,183.05	638.75	1,343.92	0.55	0.19	6.29
8,908.00	5.72	255.52	8,721.92	1,181.30	630.37	1,338.20	1.17	1.03	-6.17
9,003.00	5.72	258.85	8,816.45	1,179.20	621.14	1,331.77	0.35	0.00	3.51
Last SDI Production MWD Survey									
9,059.00	5.72	258.85	8,872.17	1,178.12	615.67	1,328.09	0.00	0.00	0.00
Projection to TD									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
177.00	176.99	1.76	-0.73	First SDI Gyro Survey
636.00	633.76	34.66	17.80	Last SDI Gyro Survey
708.00	704.26	47.46	24.81	First SDI Surface MWD Survey
2,664.00	2,589.26	496.50	286.67	Last SDI Surface MWD Survey
2,765.00	2,687.42	517.02	298.86	First SDI Production MWD Survey
9,003.00	8,816.45	1,179.20	621.14	Last SDI Production MWD Survey
9,059.00	8,872.17	1,178.12	615.67	Projection to TD

Checked By: _____ Approved By: _____ Date: _____