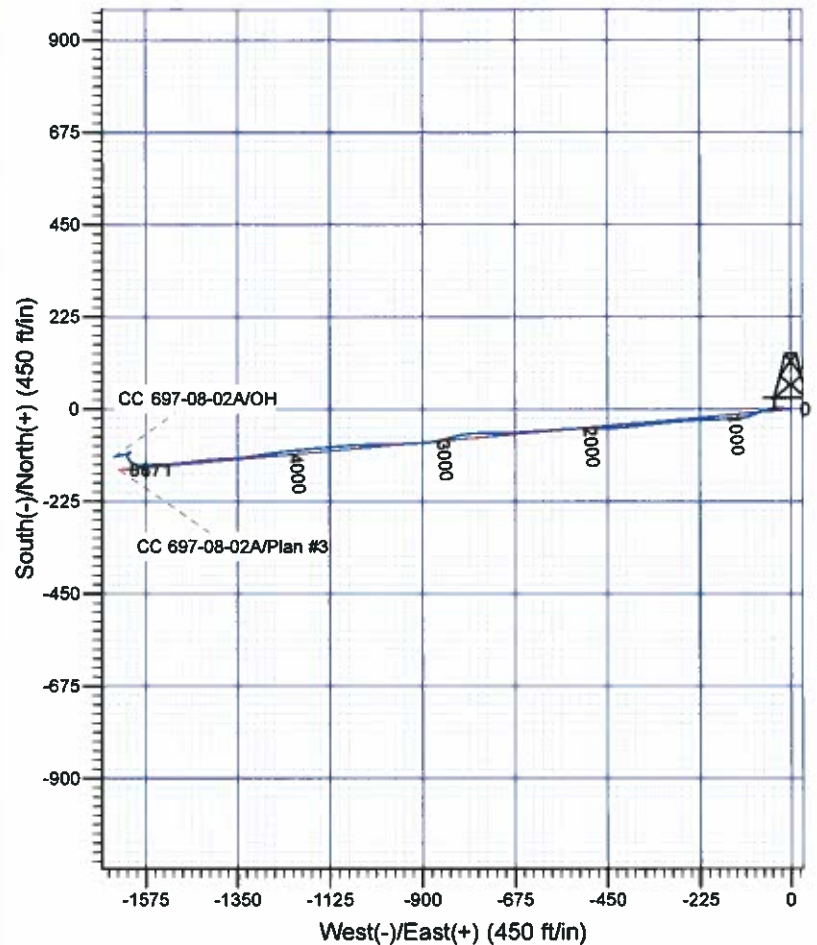
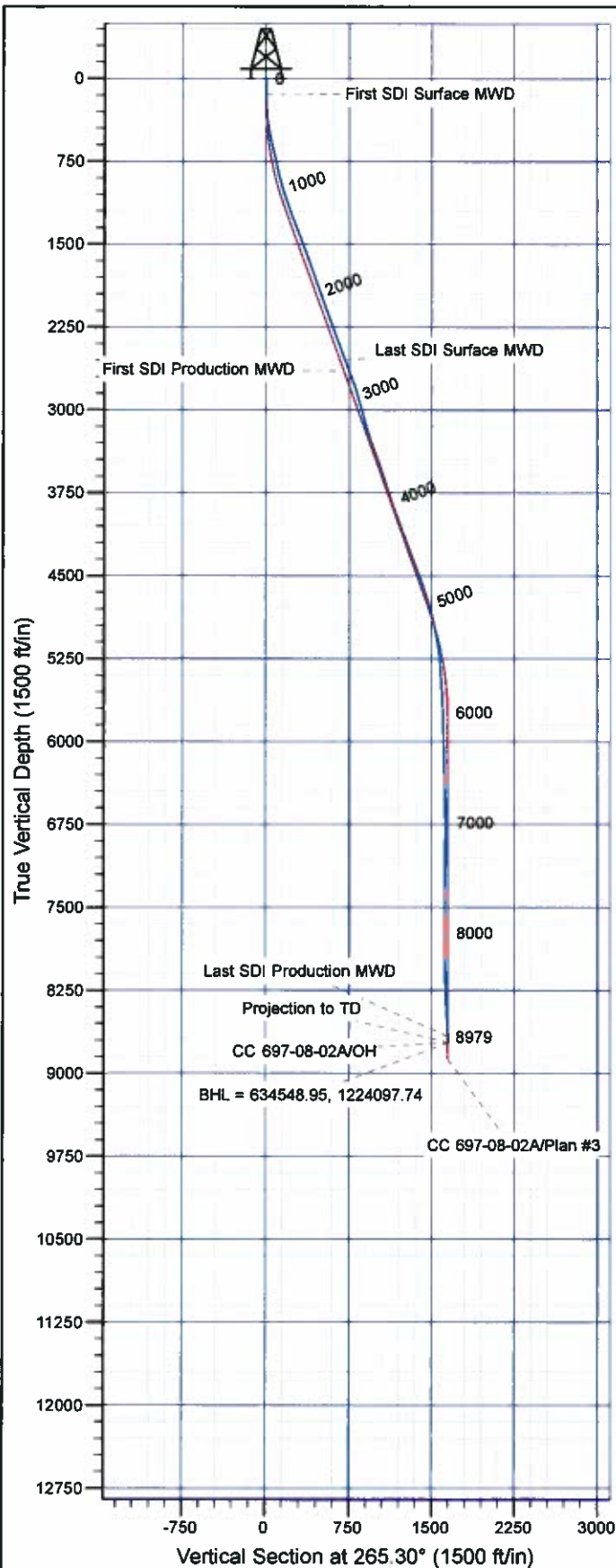




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08A Pad
 Well: CC 697-08-02A
 Wellbore: OH
 Design: OH



Well Details: CC 697-08-02A

TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig) Level: 8401.00		Northing		Easting		Latitude		Longitude		Slot
+N/-S	+E/-W	634614.70	1225752.42	39° 32' 37.364 N	108° 14' 44.938 W					L

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-08-02A - Slot L, True North
 Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Section (VS) Reference: Slot - L(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

11:32, May 30 2012
 Created By: Janie Collins

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-08-02A - Slot L**

OH

Design: OH

Standard Survey Report

30 May, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-02A - Slot L
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 697-08-02A	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 697-08-02A - Slot L, 351' FNL & 1798' FWL					
Well Position	+N/-S	0.00 ft	Northing:	634,614.70 usft	Latitude:	39° 32' 37.364 N
	+E/-W	0.00 ft	Easting:	1,225,752.42 usft	Longitude:	108° 14' 44.938 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	2008/12/22	10.78	65.80	52,475

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	285.30	

Survey Program	Date	2012/05/30			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
145.00	2,666.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,773.00	8,979.00	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
145.00	0.93	279.93	144.99	0.20	-1.16	1.14	0.64	0.64	0.00
First SDI Surface MWD									
235.00	2.67	263.52	234.95	0.09	-3.96	3.94	2.00	1.93	-18.23
327.00	5.00	279.36	326.74	0.50	-10.05	9.97	2.76	2.53	17.22
420.00	8.48	279.62	419.08	2.31	-20.81	20.55	3.74	3.74	0.28
511.00	11.43	269.55	508.71	3.36	-36.45	36.05	3.75	3.24	-11.07
601.00	13.98	255.84	596.52	0.63	-55.91	55.67	4.37	2.83	-15.23
691.00	13.98	244.41	683.87	-6.73	-76.26	76.56	3.06	0.00	-12.70
783.00	12.40	250.39	773.44	-14.84	-95.59	96.49	2.27	-1.72	6.50

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-02A - Slot L
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 697-08-02A	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	13.37	259.09	862.16	-20.12	-115.13	116.39	2.38	1.07	9.56
964.00	15.65	267.00	949.29	-22.72	-137.47	138.87	3.35	2.53	8.79
1,058.00	16.53	267.44	1,039.61	-23.98	-163.50	164.91	0.95	0.94	0.47
1,153.00	19.08	268.06	1,130.05	-25.11	-192.52	193.93	2.69	2.68	0.65
1,247.00	20.31	267.70	1,218.55	-26.29	-224.18	225.58	1.31	1.31	-0.38
1,342.00	21.37	265.86	1,307.33	-28.20	-257.92	259.36	1.31	1.12	-1.94
1,437.00	21.46	264.19	1,395.77	-31.21	-292.47	294.04	0.65	0.09	-1.76
1,531.00	20.93	263.40	1,483.42	-34.88	-326.25	328.01	0.64	-0.56	-0.84
1,626.00	20.14	263.13	1,572.38	-38.78	-359.35	361.32	0.84	-0.83	-0.28
1,720.00	18.20	262.61	1,661.16	-42.61	-389.97	392.15	2.07	-2.06	-0.55
1,815.00	18.99	266.30	1,751.20	-45.51	-420.11	422.43	1.49	0.83	3.88
1,909.00	20.05	269.11	1,839.80	-46.75	-451.49	453.80	1.51	1.13	2.99
2,004.00	18.82	269.64	1,929.39	-47.10	-483.10	485.33	1.31	-1.29	0.56
2,099.00	20.40	268.23	2,018.88	-47.71	-514.97	517.15	1.74	1.66	-1.48
2,193.00	19.17	267.35	2,107.33	-48.93	-546.76	548.93	1.35	-1.31	-0.94
2,288.00	19.70	265.95	2,196.91	-50.78	-578.32	580.53	0.74	0.56	-1.47
2,382.00	20.40	265.24	2,285.21	-53.26	-610.45	612.76	0.79	0.74	-0.76
2,477.00	20.49	266.03	2,374.23	-55.78	-643.53	645.94	0.31	0.09	0.83
2,571.00	19.87	267.97	2,462.46	-57.49	-675.91	678.35	0.97	-0.66	2.06
2,666.00	20.94	269.07	2,551.50	-58.33	-709.02	711.42	1.20	1.13	1.16
Last SDI Surface MWD									
2,773.00	20.94	270.42	2,651.43	-58.51	-747.26	749.54	0.45	0.00	1.26
First SDI Production MWD									
2,868.00	21.02	265.60	2,740.14	-59.69	-781.23	783.49	1.82	0.08	-5.07
2,962.00	18.38	256.63	2,828.65	-64.41	-812.47	815.01	4.26	-2.81	-9.54
3,057.00	14.25	252.68	2,919.81	-71.36	-838.21	841.24	4.50	-4.35	-4.16
3,151.00	14.77	257.77	3,010.81	-77.34	-860.97	864.41	1.46	0.55	5.41
3,246.00	16.09	263.66	3,102.39	-81.36	-885.89	889.58	2.16	1.39	6.20
3,340.00	19.52	268.23	3,191.88	-83.28	-914.54	918.29	3.94	3.65	4.86
3,435.00	18.38	267.44	3,281.73	-84.44	-945.37	949.11	1.23	-1.20	-0.83
3,529.00	19.87	269.20	3,370.54	-85.33	-976.15	979.86	1.70	1.59	1.87
3,624.00	19.70	268.67	3,459.94	-85.93	-1,008.30	1,011.95	0.26	-0.18	-0.56
3,718.00	17.67	268.67	3,548.98	-86.62	-1,038.41	1,042.01	2.16	-2.16	0.00
3,813.00	18.99	266.56	3,639.16	-87.89	-1,068.25	1,071.86	1.55	1.39	-2.22
3,907.00	17.59	263.49	3,728.41	-90.41	-1,097.63	1,101.35	1.81	-1.49	-3.27
4,002.00	18.64	265.68	3,818.70	-93.19	-1,127.03	1,130.88	1.32	1.11	2.31
4,096.00	19.96	265.51	3,907.41	-95.57	-1,158.01	1,161.95	1.41	1.40	-0.18
4,190.00	21.63	263.84	3,995.29	-98.69	-1,191.23	1,195.31	1.89	1.78	-1.78
4,285.00	20.31	264.01	4,083.99	-102.29	-1,225.04	1,229.30	1.39	-1.39	0.18
4,379.00	21.98	261.82	4,171.66	-106.49	-1,258.68	1,263.17	1.97	1.78	-2.33
4,474.00	21.02	261.46	4,260.05	-111.55	-1,293.12	1,297.92	1.02	-1.01	-0.38
4,568.00	19.17	261.20	4,348.32	-116.42	-1,325.05	1,330.13	1.97	-1.97	-0.28
4,663.00	21.54	267.27	4,437.40	-119.64	-1,357.89	1,363.13	3.34	2.49	6.39

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-02A - Slot L
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 697-08-02A	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)
4,757.00	20.97	266.75	4,525.00	-121.41	-1,391.92	1,397.19	0.64	-0.61	-0.55
4,852.00	18.99	264.54	4,614.28	-123.85	-1,424.28	1,429.64	2.23	-2.08	-2.33
4,946.00	17.76	261.29	4,703.49	-127.47	-1,453.68	1,459.24	1.70	-1.31	-3.46
5,041.00	15.04	265.07	4,794.62	-130.73	-1,480.29	1,486.03	3.07	-2.86	3.98
5,135.00	13.19	264.10	4,885.78	-132.88	-1,503.11	1,508.95	1.98	-1.97	-1.03
5,230.00	12.13	264.01	4,978.46	-135.03	-1,523.82	1,529.76	1.12	-1.12	-0.09
5,324.00	9.06	267.27	5,070.85	-136.42	-1,541.04	1,547.04	3.33	-3.27	3.47
5,419.00	7.65	268.14	5,164.84	-136.98	-1,554.83	1,560.83	1.49	-1.48	0.92
5,513.00	7.39	269.81	5,258.03	-137.20	-1,567.13	1,573.10	0.36	-0.28	1.78
5,608.00	4.48	265.95	5,352.51	-137.48	-1,576.94	1,582.91	3.09	-3.06	-4.06
5,703.00	2.81	267.44	5,447.32	-137.85	-1,582.97	1,588.94	1.76	-1.76	1.57
5,797.00	2.73	265.33	5,541.21	-138.14	-1,587.50	1,593.48	0.14	-0.09	-2.24
5,892.00	2.11	269.37	5,636.12	-138.34	-1,591.51	1,597.49	0.68	-0.65	4.25
5,986.00	1.85	280.62	5,730.07	-138.08	-1,594.73	1,600.88	0.50	-0.28	11.97
6,081.00	1.67	288.80	5,825.02	-137.35	-1,597.55	1,603.43	0.32	-0.19	8.61
6,175.00	1.93	289.94	5,918.98	-136.37	-1,600.33	1,606.12	0.28	0.28	1.21
6,270.00	1.93	289.68	6,013.92	-135.28	-1,603.34	1,609.03	0.01	0.00	-0.27
6,364.00	1.67	301.98	6,107.88	-134.03	-1,605.99	1,611.57	0.49	-0.28	13.09
6,459.00	1.76	309.98	6,202.83	-132.36	-1,608.28	1,613.72	0.27	0.09	8.42
6,554.00	2.02	316.40	6,297.78	-130.21	-1,610.58	1,615.81	0.35	0.27	6.76
6,648.00	2.02	320.44	6,391.72	-127.73	-1,612.76	1,617.80	0.15	0.00	4.30
6,743.00	1.93	324.75	6,486.67	-125.13	-1,614.74	1,619.57	0.18	-0.09	4.54
6,837.00	2.11	330.37	6,580.61	-122.33	-1,616.51	1,621.10	0.28	0.19	5.98
6,932.00	2.29	328.09	6,675.54	-119.20	-1,618.38	1,622.71	0.21	0.19	-2.40
7,026.00	1.85	336.70	6,769.48	-116.22	-1,619.97	1,624.05	0.57	-0.47	9.16
7,121.00	1.49	356.65	6,864.44	-113.57	-1,620.65	1,624.51	0.71	-0.38	21.00
7,215.00	2.02	33.74	6,958.40	-110.98	-1,619.80	1,623.45	1.30	0.56	39.46
7,310.00	2.90	39.01	7,053.31	-107.72	-1,617.36	1,620.75	0.96	0.93	5.55
7,405.00	1.23	26.97	7,148.24	-104.94	-1,615.39	1,618.55	1.81	-1.76	-12.67
7,499.00	0.26	335.38	7,242.23	-103.85	-1,615.02	1,618.09	1.16	-1.03	-54.88
7,594.00	0.53	153.27	7,337.23	-104.04	-1,614.91	1,618.00	0.83	0.28	187.25
7,688.00	0.79	152.92	7,431.23	-105.01	-1,614.42	1,617.59	0.28	0.28	-0.37
7,783.00	0.44	143.60	7,526.22	-105.89	-1,613.90	1,617.15	0.38	-0.37	-9.81
7,877.00	0.26	205.83	7,620.22	-106.37	-1,613.78	1,617.07	0.42	-0.19	66.20
7,972.00	0.35	170.76	7,715.22	-106.85	-1,613.83	1,617.16	0.21	0.09	-36.92
8,067.00	0.35	209.70	7,810.22	-107.39	-1,613.93	1,617.30	0.25	0.00	40.99
8,092.03	0.32	206.95	7,835.25	-107.52	-1,614.00	1,617.38	0.12	-0.10	-10.99
CC 697-08-02A Rev Target									
8,161.00	0.26	196.69	7,904.22	-107.84	-1,614.13	1,617.54	0.12	-0.09	-14.87
8,256.00	0.53	250.39	7,999.21	-108.19	-1,614.61	1,618.04	0.45	0.28	56.53
8,350.00	1.41	270.87	8,093.20	-108.32	-1,616.17	1,619.61	0.99	0.94	21.79
8,445.00	1.85	256.54	8,188.16	-108.66	-1,618.83	1,622.29	0.63	0.46	-15.08
8,539.00	2.73	259.27	8,282.09	-109.43	-1,622.51	1,626.02	0.94	0.94	2.90
8,634.00	3.46	257.28	8,376.95	-110.48	-1,627.53	1,631.11	0.78	0.77	-2.09

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-08-02A - Slot L
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 697-08-02A	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)
8,728.00	3.87	256.89	8,470.75	-111.83	-1,633.38	1,637.05	0.44	0.44	-0.41
8,823.00	4.40	260.41	8,565.51	-113.16	-1,640.10	1,643.86	0.62	0.56	3.71
8,924.00	4.48	256.54	8,666.20	-114.73	-1,647.76	1,651.61	0.31	0.08	-3.83
Last SDI Production MWD									
8,979.00	4.48	256.54	8,721.04	-115.73	-1,651.93	1,655.86	0.00	0.00	0.00
Projection to TD - BHL = 634548.95, 1224097.74									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
145.00	144.99	0.20	-1.16	First SDI Surface MWD
2,666.00	2,551.50	-58.33	-709.02	Last SDI Surface MWD
2,773.00	2,651.43	-58.51	-747.26	First SDI Production MWD
8,924.00	8,666.20	-114.73	-1,647.76	Last SDI Production MWD
8,979.00	8,721.04	-115.73	-1,651.93	Projection to TD
8,979.00	8,721.04	-115.73	-1,651.93	BHL = 634548.95, 1224097.74

Checked By: _____ Approved By: _____ Date: _____