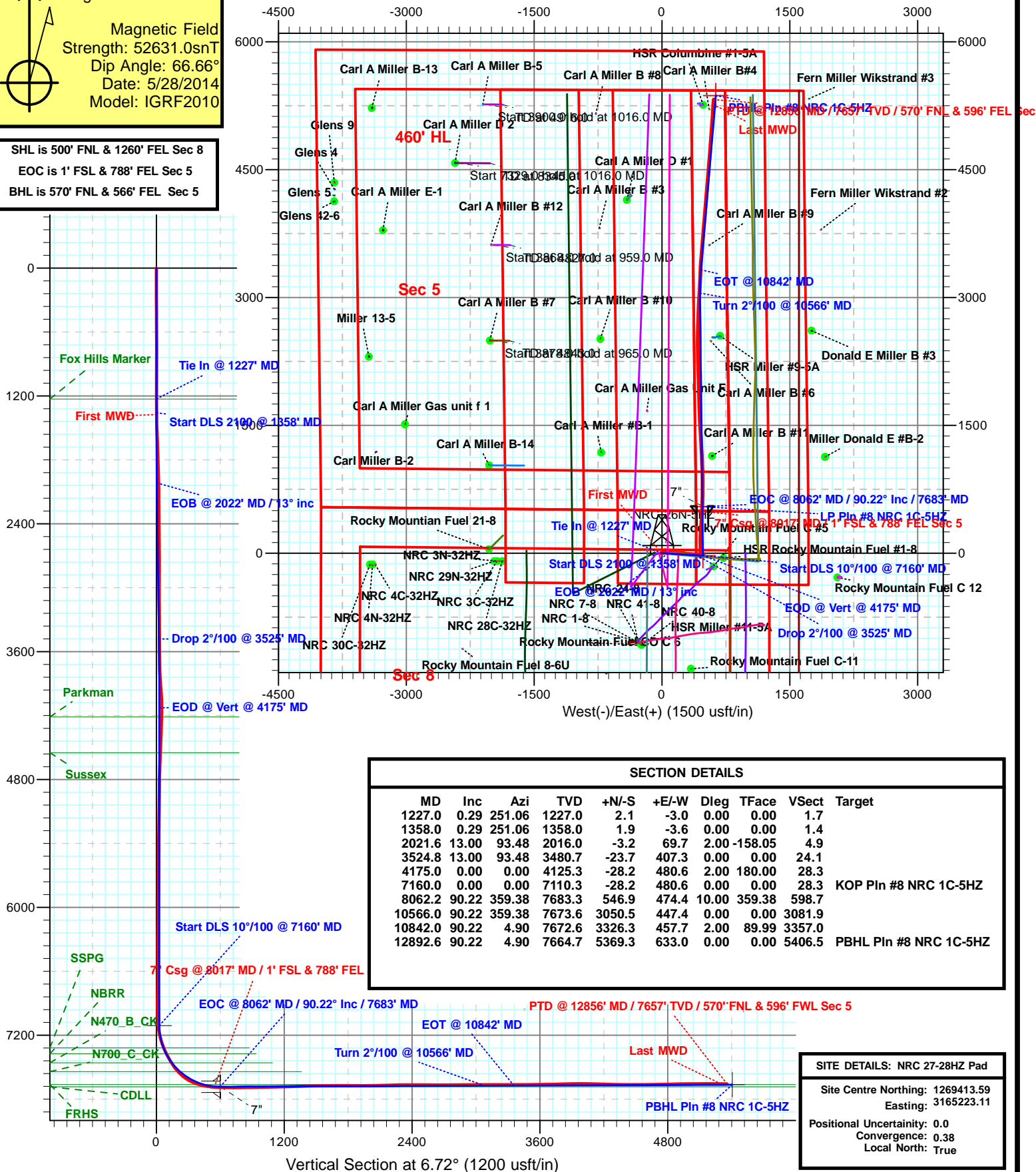


Weld Co., Co (NAD 83) NRC 1C-5HZ Xtreme 23 Plan #8

T
Mazimuths to True North
Magnetic North: 8.52°

Magnetic Field
Strength: 52631.0snT
Dip Angle: 66.66°
Date: 5/28/2014
Model: IGRF2010

SHL is 500' FNL & 1260' FEL Sec 8
EOC is 1' FSL & 788' FEL Sec 5
BHL is 570' FNL & 566' FEL Sec 5





Anadarko

Weld Co., Co (NAD 83)

NRC 27-28HZ Pad

NRC 1C-5HZ

Wellbore #1

Design: OH

Standard Survey Report

25 June, 2014



Company:	Anadarko	Local Co-ordinate Reference:	Well NRC 1C-5HZ
Project:	Weld Co., Co (NAD 83)	TVD Reference:	Well @ 5025.0usft (Xtreme 23)
Site:	NRC 27-28HZ Pad	MD Reference:	Well @ 5025.0usft (Xtreme 23)
Well:	NRC 1C-5HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Weld Co., Co (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						NRC 27-28HZ Pad											
Site Position:						Northing:			1,269,413.58 usft			Latitude:			40° 4' 17.114 N		
From:			Lat/Long			Easting:			3,165,223.11 usft			Longitude:			104° 54' 34.626 W		
Position Uncertainty:			0.0 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.38 °		

Well	NRC 1C-5HZ					
Well Position	+N-S	0.0 usft	Northing:	1,269,413.58 usft	Latitude:	40° 4' 17.114 N
	+E-W	0.0 usft	Easting:	3,165,223.11 usft	Longitude:	104° 54' 34.626 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	5,009.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/28/2014	8.52	66.66	52,631

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	74.46	

Survey Program	Date	6/25/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	1,227.0	Survey #1 (Wellbore #1)	CT_GYRO_MS	Continuous Gyro Multishot	
1,375.0	12,856.0	Survey #2 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.12	75.89	100.0	0.0	0.1	0.1	0.12	0.12	0.00	
200.0	0.14	58.19	200.0	0.1	0.3	0.3	0.04	0.02	-17.70	
300.0	0.26	37.53	300.0	0.4	0.5	0.6	0.14	0.12	-20.66	
400.0	0.29	353.43	400.0	0.8	0.7	0.8	0.21	0.03	-44.10	
500.0	0.54	320.52	500.0	1.4	0.3	0.7	0.34	0.25	-32.91	
600.0	0.34	327.73	600.0	2.0	-0.1	0.4	0.21	-0.20	7.21	
700.0	0.41	322.52	700.0	2.6	-0.5	0.2	0.08	0.07	-5.21	
800.0	0.33	286.28	800.0	2.9	-1.0	-0.2	0.24	-0.08	-36.24	
900.0	0.27	291.68	900.0	3.1	-1.5	-0.6	0.07	-0.06	5.40	

Company:	Anadarko	Local Co-ordinate Reference:	Well NRC 1C-5HZ
Project:	Weld Co., Co (NAD 83)	TVD Reference:	Well @ 5025.0usft (Xtreme 23)
Site:	NRC 27-28HZ Pad	MD Reference:	Well @ 5025.0usft (Xtreme 23)
Well:	NRC 1C-5HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	0.42	247.37	1,000.0	3.0	-2.1	-1.2	0.29	0.15	-44.31
1,100.0	0.36	220.77	1,100.0	2.7	-2.6	-1.8	0.19	-0.06	-26.60
1,200.0	0.30	195.77	1,200.0	2.2	-2.9	-2.2	0.15	-0.06	-25.00
1,227.0	0.29	251.06	1,227.0	2.1	-3.0	-2.3	1.01	-0.04	204.78
1,375.0	0.90	331.70	1,375.0	3.0	-3.9	-2.9	0.61	0.41	54.49
First MWD									
1,468.0	2.40	67.20	1,467.9	4.4	-2.4	-1.2	2.84	1.61	102.69
1,566.0	4.90	66.80	1,565.7	6.8	3.3	5.0	2.55	2.55	-0.41
1,657.0	7.30	79.60	1,656.2	9.4	12.6	14.6	3.02	2.64	14.07
1,748.0	9.10	88.50	1,746.3	10.6	25.5	27.4	2.41	1.98	9.78
1,840.0	10.40	85.90	1,837.0	11.4	41.0	42.6	1.49	1.41	-2.83
1,932.0	11.00	87.30	1,927.4	12.4	58.1	59.3	0.71	0.65	1.52
2,024.0	13.00	90.40	2,017.3	12.8	77.2	77.8	2.28	2.17	3.37
2,116.0	15.60	98.10	2,106.5	10.9	99.8	99.1	3.50	2.83	8.37
2,208.0	15.90	93.80	2,195.0	8.4	124.6	122.3	1.31	0.33	-4.67
2,300.0	14.90	96.70	2,283.7	6.2	148.9	145.1	1.37	-1.09	3.15
2,392.0	14.20	95.00	2,372.8	3.8	171.9	166.7	0.89	-0.76	-1.85
2,484.0	13.50	96.10	2,462.1	1.7	193.8	187.2	0.81	-0.76	1.20
2,576.0	12.50	89.20	2,551.8	0.7	214.5	206.8	2.01	-1.09	-7.50
2,668.0	10.60	95.10	2,641.9	0.0	232.9	224.4	2.43	-2.07	6.41
2,761.0	9.30	94.70	2,733.5	-1.3	248.9	239.4	1.40	-1.40	-0.43
2,852.0	9.90	94.70	2,823.2	-2.6	264.0	253.7	0.66	0.66	0.00
2,945.0	10.20	102.50	2,914.8	-5.0	280.0	268.4	1.50	0.32	8.39
3,037.0	8.90	100.60	3,005.5	-8.1	295.0	282.0	1.45	-1.41	-2.07
3,130.0	9.90	94.10	3,097.3	-10.0	310.0	296.0	1.57	1.08	-6.99
3,222.0	11.20	88.90	3,187.7	-10.4	326.8	312.1	1.75	1.41	-5.65
3,314.0	11.80	95.80	3,277.9	-11.2	345.1	329.5	1.63	0.65	7.50
3,400.0	10.30	96.10	3,362.3	-12.9	361.5	344.8	1.75	-1.74	0.35
3,485.0	11.00	96.10	3,445.8	-14.5	377.1	359.5	0.82	0.82	0.00
3,571.0	10.70	98.90	3,530.3	-16.6	393.2	374.3	0.71	-0.35	3.26
3,656.0	10.60	91.60	3,613.8	-18.1	408.8	389.0	1.59	-0.12	-8.59
3,741.0	9.00	90.70	3,697.6	-18.4	423.3	402.9	1.89	-1.88	-1.06
3,827.0	6.90	85.60	3,782.7	-18.1	435.1	414.4	2.57	-2.44	-5.93
3,912.0	6.60	63.50	3,867.2	-15.5	444.6	424.2	3.06	-0.35	-26.00
3,997.0	8.90	63.80	3,951.4	-10.4	454.9	435.4	2.71	2.71	0.35
4,082.0	8.90	78.70	4,035.4	-6.2	467.2	448.5	2.70	0.00	17.53
4,168.0	5.90	93.20	4,120.7	-5.2	478.2	459.3	4.08	-3.49	16.86
4,253.0	3.40	117.20	4,205.4	-6.5	484.8	465.3	3.67	-2.94	28.24
4,338.0	2.80	161.70	4,290.3	-9.7	487.7	467.2	2.84	-0.71	52.35
4,423.0	2.50	167.80	4,375.2	-13.5	488.7	467.2	0.48	-0.35	7.18
4,508.0	2.10	175.70	4,460.1	-16.8	489.2	466.8	0.60	-0.47	9.29
4,593.0	2.30	174.80	4,545.0	-20.1	489.5	466.2	0.24	0.24	-1.06
4,679.0	1.90	187.40	4,631.0	-23.2	489.5	465.3	0.71	-0.47	14.65

Company:	Anadarko	Local Co-ordinate Reference:	Well NRC 1C-5HZ
Project:	Weld Co., Co (NAD 83)	TVD Reference:	Well @ 5025.0usft (Xtreme 23)
Site:	NRC 27-28HZ Pad	MD Reference:	Well @ 5025.0usft (Xtreme 23)
Well:	NRC 1C-5HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,764.0	1.40	180.10	4,715.9	-25.6	489.3	464.5	0.64	-0.59	-8.59
4,849.0	0.90	191.80	4,800.9	-27.3	489.1	463.9	0.65	-0.59	13.76
4,934.0	0.50	166.10	4,885.9	-28.3	489.1	463.6	0.59	-0.47	-30.24
5,020.0	1.10	183.60	4,971.9	-29.5	489.1	463.3	0.75	0.70	20.35
5,105.0	1.10	197.50	5,056.9	-31.1	488.8	462.6	0.31	0.00	16.35
5,190.0	0.50	191.50	5,141.9	-32.3	488.5	462.0	0.71	-0.71	-7.06
5,275.0	0.90	189.60	5,226.9	-33.3	488.3	461.5	0.47	0.47	-2.24
5,361.0	0.80	213.20	5,312.9	-34.5	487.9	460.8	0.42	-0.12	27.44
5,446.0	0.90	260.10	5,397.9	-35.1	486.9	459.7	0.80	0.12	55.18
5,531.0	0.90	263.10	5,482.9	-35.3	485.6	458.4	0.06	0.00	3.53
5,616.0	1.20	255.30	5,567.8	-35.6	484.1	456.8	0.39	0.35	-9.18
5,701.0	0.90	235.40	5,652.8	-36.2	482.6	455.3	0.55	-0.35	-23.41
5,785.0	1.60	252.00	5,736.8	-36.9	481.0	453.5	0.93	0.83	19.76
5,871.0	1.90	268.10	5,822.8	-37.3	478.4	450.9	0.67	0.35	18.72
5,956.0	1.20	253.10	5,907.7	-37.6	476.2	448.7	0.95	-0.82	-17.65
6,041.0	1.70	251.10	5,992.7	-38.3	474.1	446.5	0.59	0.59	-2.35
6,126.0	1.40	256.00	6,077.7	-39.0	471.9	444.2	0.39	-0.35	5.76
6,211.0	1.30	256.70	6,162.7	-39.4	470.0	442.2	0.12	-0.12	0.82
6,296.0	2.00	245.00	6,247.6	-40.3	467.7	439.8	0.91	0.82	-13.76
6,381.0	3.10	274.10	6,332.5	-40.7	464.1	436.2	1.96	1.29	34.24
6,466.0	2.30	279.40	6,417.4	-40.3	460.1	432.5	0.98	-0.94	6.24
6,551.0	1.70	283.90	6,502.4	-39.7	457.2	429.8	0.73	-0.71	5.29
6,637.0	1.00	290.70	6,588.4	-39.2	455.2	428.1	0.83	-0.81	7.91
6,722.0	0.80	260.10	6,673.4	-39.0	454.0	426.9	0.60	-0.24	-36.00
6,807.0	1.00	258.90	6,758.3	-39.2	452.6	425.6	0.24	0.24	-1.41
6,892.0	1.10	271.30	6,843.3	-39.4	451.1	424.1	0.29	0.12	14.59
7,063.0	0.70	259.00	7,014.3	-39.5	448.4	421.4	0.26	-0.23	-7.19
7,148.0	4.70	355.50	7,099.2	-36.1	447.6	421.6	5.68	4.71	113.53
7,191.0	8.20	2.20	7,141.9	-31.3	447.6	422.9	8.31	8.14	15.58
7,233.0	11.50	5.40	7,183.3	-24.2	448.1	425.3	7.96	7.86	7.62
7,276.0	14.60	6.90	7,225.2	-14.5	449.2	428.9	7.25	7.21	3.49
7,319.0	18.10	4.40	7,266.5	-2.5	450.4	433.2	8.30	8.14	-5.81
7,361.0	21.40	2.80	7,306.0	11.7	451.2	437.9	7.96	7.86	-3.81
7,403.0	24.10	2.10	7,344.7	27.9	451.9	442.9	6.46	6.43	-1.67
7,446.0	27.10	0.30	7,383.5	46.5	452.3	448.2	7.21	6.98	-4.19
7,489.0	29.50	359.50	7,421.3	66.9	452.2	453.6	5.65	5.58	-1.86
7,531.0	33.00	359.60	7,457.2	88.7	452.1	459.3	8.33	8.33	0.24
7,574.0	36.30	359.10	7,492.6	113.1	451.8	465.6	7.70	7.67	-1.16
7,616.0	39.80	359.40	7,525.7	139.0	451.5	472.2	8.34	8.33	0.71
7,658.0	44.20	0.30	7,556.9	167.1	451.4	479.7	10.57	10.48	2.14
7,701.0	50.40	2.30	7,586.0	198.7	452.1	488.8	14.82	14.42	4.65
7,743.0	56.90	3.70	7,610.9	232.4	453.9	499.6	15.71	15.48	3.33
7,786.0	63.90	4.30	7,632.1	269.7	456.5	512.1	16.32	16.28	1.40

Company:	Anadarko	Local Co-ordinate Reference:	Well NRC 1C-5HZ
Project:	Weld Co., Co (NAD 83)	TVD Reference:	Well @ 5025.0usft (Xtreme 23)
Site:	NRC 27-28HZ Pad	MD Reference:	Well @ 5025.0usft (Xtreme 23)
Well:	NRC 1C-5HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,829.0	69.70	4.90	7,649.1	309.1	459.7	525.7	13.55	13.49	1.40
7,871.0	73.80	4.60	7,662.2	348.8	463.0	539.5	9.79	9.76	-0.71
7,914.0	77.30	4.20	7,672.9	390.3	466.2	553.7	8.19	8.14	-0.93
7,955.0	81.60	2.90	7,680.5	430.5	468.7	566.9	10.94	10.49	-3.17
8,017.0	85.42	2.21	7,687.5	492.1	471.4	586.1	6.25	6.15	-1.12
7" Csg @ 8017' MD / 1' FSL & 788' FEL Sec 5 - 7"									
8,072.0	88.80	1.60	7,690.2	547.0	473.3	602.5	6.25	6.15	-1.10
8,157.0	89.70	1.20	7,691.4	631.9	475.3	627.3	1.16	1.06	-0.47
8,242.0	90.70	1.50	7,691.1	716.9	477.3	652.0	1.23	1.18	0.35
8,327.0	90.60	1.00	7,690.1	801.9	479.2	676.5	0.60	-0.12	-0.59
8,412.0	90.20	358.20	7,689.5	886.9	478.6	698.7	3.33	-0.47	-3.29
8,497.0	91.40	357.80	7,688.3	971.8	475.6	718.6	1.49	1.41	-0.47
8,583.0	91.50	357.70	7,686.1	1,057.7	472.3	738.4	0.16	0.12	-0.12
8,668.0	91.50	357.40	7,683.9	1,142.6	468.6	757.7	0.35	0.00	-0.35
8,753.0	91.40	356.70	7,681.8	1,227.5	464.3	776.2	0.83	-0.12	-0.82
8,838.0	92.10	356.70	7,679.2	1,312.3	459.4	794.2	0.82	0.82	0.00
8,924.0	91.50	357.00	7,676.5	1,398.1	454.6	812.7	0.78	-0.70	0.35
9,009.0	90.70	357.40	7,674.8	1,483.0	450.5	831.4	1.05	-0.94	0.47
9,094.0	91.40	357.10	7,673.3	1,567.9	446.4	850.2	0.90	0.82	-0.35
9,179.0	89.90	357.60	7,672.3	1,652.8	442.5	869.2	1.86	-1.76	0.59
9,265.0	89.40	357.50	7,672.8	1,738.7	438.8	888.7	0.59	-0.58	-0.12
9,350.0	89.60	358.30	7,673.6	1,823.6	435.7	908.4	0.97	0.24	0.94
9,435.0	90.00	359.40	7,673.9	1,908.6	434.0	929.6	1.38	0.47	1.29
9,521.0	91.00	359.70	7,673.1	1,994.6	433.3	951.9	1.21	1.16	0.35
9,606.0	92.10	358.40	7,670.8	2,079.6	431.9	973.4	2.00	1.29	-1.53
9,691.0	91.90	357.70	7,667.9	2,164.5	429.0	993.3	0.86	-0.24	-0.82
9,776.0	90.80	357.50	7,665.9	2,249.4	425.5	1,012.6	1.32	-1.29	-0.24
9,861.0	90.10	358.10	7,665.2	2,334.3	422.2	1,032.3	1.08	-0.82	0.71
9,947.0	90.00	359.70	7,665.1	2,420.3	420.5	1,053.7	1.86	-0.12	1.86
10,032.0	89.10	0.80	7,665.8	2,505.3	420.9	1,076.8	1.67	-1.06	1.29
10,117.0	90.00	0.70	7,666.4	2,590.3	422.0	1,100.7	1.07	1.06	-0.12
10,202.0	89.90	2.00	7,666.5	2,675.2	424.0	1,125.4	1.53	-0.12	1.53
10,287.0	90.70	1.80	7,666.1	2,760.2	426.8	1,150.9	0.97	0.94	-0.24
10,373.0	90.90	2.70	7,664.9	2,846.1	430.2	1,177.1	1.07	0.23	1.05
10,458.0	90.50	3.20	7,663.8	2,931.0	434.6	1,204.1	0.75	-0.47	0.59
10,543.0	89.00	3.30	7,664.2	3,015.8	439.4	1,231.5	1.77	-1.76	0.12
10,629.0	89.80	2.80	7,665.1	3,101.7	444.0	1,258.9	1.10	0.93	-0.58
10,714.0	90.60	2.30	7,664.8	3,186.6	447.8	1,285.3	1.11	0.94	-0.59
10,799.0	90.20	1.90	7,664.2	3,271.6	450.9	1,311.1	0.67	-0.47	-0.47
10,884.0	89.60	2.20	7,664.4	3,356.5	453.9	1,336.7	0.79	-0.71	0.35
10,969.0	90.70	4.20	7,664.1	3,441.4	458.7	1,364.1	2.69	1.29	2.35
11,055.0	90.80	5.20	7,663.0	3,527.1	465.7	1,393.8	1.17	0.12	1.16
11,140.0	90.40	5.00	7,662.1	3,611.7	473.3	1,423.8	0.53	-0.47	-0.24
11,225.0	91.50	4.60	7,660.7	3,696.4	480.4	1,453.3	1.38	1.29	-0.47

Company:	Anadarko	Local Co-ordinate Reference:	Well NRC 1C-5HZ
Project:	Weld Co., Co (NAD 83)	TVD Reference:	Well @ 5025.0usft (Xtreme 23)
Site:	NRC 27-28HZ Pad	MD Reference:	Well @ 5025.0usft (Xtreme 23)
Well:	NRC 1C-5HZ	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,310.0	91.90	5.20	7,658.2	3,781.1	487.6	1,483.0	0.85	0.47	0.71	
11,396.0	91.60	5.30	7,655.6	3,866.7	495.5	1,513.5	0.37	-0.35	0.12	
11,481.0	89.40	5.40	7,654.8	3,951.3	503.4	1,543.8	2.59	-2.59	0.12	
11,565.0	88.70	4.20	7,656.2	4,035.0	510.5	1,573.0	1.65	-0.83	-1.43	
11,649.0	88.30	4.60	7,658.4	4,118.7	516.9	1,601.7	0.67	-0.48	0.48	
11,734.0	88.20	3.90	7,661.0	4,203.4	523.2	1,630.4	0.83	-0.12	-0.82	
11,820.0	89.00	4.60	7,663.1	4,289.2	529.6	1,659.5	1.24	0.93	0.81	
11,905.0	90.00	4.60	7,663.9	4,373.9	536.4	1,688.8	1.18	1.18	0.00	
11,991.0	89.30	4.90	7,664.4	4,459.6	543.5	1,718.6	0.89	-0.81	0.35	
12,076.0	90.30	4.40	7,664.7	4,544.3	550.4	1,748.0	1.32	1.18	-0.59	
12,161.0	91.50	4.70	7,663.3	4,629.0	557.1	1,777.2	1.46	1.41	0.35	
12,246.0	91.50	4.70	7,661.1	4,713.7	564.1	1,806.6	0.00	0.00	0.00	
12,332.0	91.20	4.90	7,659.1	4,799.4	571.3	1,836.5	0.42	-0.35	0.23	
12,417.0	90.90	4.60	7,657.5	4,884.1	578.3	1,865.9	0.50	-0.35	-0.35	
12,502.0	90.80	4.50	7,656.3	4,968.8	585.1	1,895.1	0.17	-0.12	-0.12	
12,587.0	90.40	3.50	7,655.4	5,053.6	591.0	1,923.6	1.27	-0.47	-1.18	
12,672.0	89.90	3.30	7,655.2	5,138.5	596.0	1,951.2	0.63	-0.59	-0.24	
12,756.0	89.30	4.00	7,655.7	5,222.3	601.4	1,978.8	1.10	-0.71	0.83	
12,799.0	89.20	3.90	7,656.3	5,265.2	604.4	1,993.1	0.33	-0.23	-0.23	
Last MWD										
12,856.0	89.20	3.90	7,657.1	5,322.0	608.2	2,012.1	0.00	0.00	0.00	
PTD @ 12856' MD / 7657' TVD / 570' FNL & 596' FWL Sec 5										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
8,017.0	7,687.5	7"	7	8-3/4	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,375.0	1,375.0	3.0	-3.9	First MWD	
8,017.0	7,687.5	492.1	471.4	7" Csg @ 8017' MD / 1' FSL & 788' FEL Sec 5	
12,799.0	7,656.3	5,265.2	604.4	Last MWD	
12,856.0	7,657.1	5,322.0	608.2	PTD @ 12856' MD / 7657' TVD / 570' FNL & 596' FWL Sec 5	

Checked By: _____	Approved By: _____	Date: _____
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Job Number: CO14306AN

Company: Anadarko

Lease/Well: NRC 1C -5HZ

Location:

Rig Name: Xtreme 23

RKB: 16

G.L. or M.S.L.: MSL

State/Country: CO

Declination: 8.52

Grid: .38

File name: C:\WINSERVE\C14306N.SVY

Date/Time: 26-Jun-14 / 23:56

Curve Name: NRC 1C - 5HZ As Drilled

Integrity Directional Services

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane 6.72

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>Course Length FT</i>	<i>C L O S U R E Distance FT</i>	<i>Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
Tied Into Gyro										
1227.00	.29	250.68	1226.98	2.06	-2.97	1.70		3.61	304.75	.00
First MWD Survey										
1375.00	.90	331.70	1374.97	2.96	-3.87	2.49	148.00	4.88	307.37	.61
1468.00	2.40	67.20	1467.94	4.36	-2.43	4.04	93.00	4.99	330.90	2.84
1566.00	4.90	66.80	1565.74	6.80	3.31	7.14	98.00	7.57	25.98	2.55
1657.00	7.30	79.60	1656.22	9.38	12.57	10.78	91.00	15.69	53.29	3.02
1748.00	9.10	88.50	1746.29	10.61	25.46	13.52	91.00	27.58	67.38	2.41
1840.00	10.40	85.90	1836.96	11.39	41.01	16.11	92.00	42.57	74.47	1.49
1932.00	11.00	87.30	1927.36	12.40	58.06	19.11	92.00	59.37	77.94	.71
2024.00	13.00	90.40	2017.34	12.74	77.18	21.69	92.00	78.22	80.63	2.28
2116.00	15.60	98.10	2106.49	10.93	99.78	22.53	92.00	100.38	83.75	3.50
2208.00	15.90	93.80	2195.04	8.35	124.60	22.87	92.00	124.88	86.17	1.31
2300.00	14.90	96.70	2283.74	6.13	148.93	23.52	92.00	149.05	87.64	1.37
2392.00	14.20	95.00	2372.79	3.77	171.91	23.86	92.00	171.96	88.74	.89
2484.00	13.50	96.10	2462.11	1.64	193.83	24.31	92.00	193.84	89.51	.81
2576.00	12.50	89.20	2551.76	.64	214.47	25.73	92.00	214.47	89.83	2.01
2668.00	10.60	95.10	2641.90	.03	232.85	27.28	92.00	232.85	89.99	2.43
2761.00	9.30	94.70	2733.50	-1.35	248.86	27.78	93.00	248.87	90.31	1.40
2852.00	9.90	94.70	2823.22	-2.59	263.99	28.32	91.00	264.00	90.56	.66
2945.00	10.20	102.50	2914.80	-5.03	280.00	27.77	93.00	280.04	91.03	1.50
3037.00	8.90	100.60	3005.52	-8.10	294.95	26.47	92.00	295.06	91.57	1.45
3130.00	9.90	94.10	3097.27	-10.00	309.99	26.35	93.00	310.15	91.85	1.57

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Course Length FT	C L O S U R E Distance FT	Direction Deg	Dogleg Severity Deg/100
3222.00	11.20	88.90	3187.72	-10.39	326.81	27.92	92.00	326.98	91.82	1.75
3314.00	11.80	95.80	3277.88	-11.17	345.11	29.29	92.00	345.29	91.85	1.63
3400.00	10.30	96.10	3362.28	-12.87	361.50	29.52	86.00	361.73	92.04	1.75
3485.00	11.00	96.10	3445.81	-14.54	377.12	29.69	85.00	377.40	92.21	.82
3571.00	10.70	98.90	3530.28	-16.65	393.17	29.47	86.00	393.52	92.43	.71
3656.00	10.60	91.60	3613.82	-18.09	408.78	29.87	85.00	409.18	92.53	1.59
3741.00	9.00	90.70	3697.57	-18.39	423.24	31.26	85.00	423.64	92.49	1.89
3827.00	6.90	85.60	3782.74	-18.08	435.12	32.97	86.00	435.50	92.38	2.57
3912.00	6.60	63.50	3867.17	-15.50	444.58	36.63	85.00	444.85	92.00	3.06
3997.00	8.90	63.80	3951.39	-10.42	454.86	42.88	85.00	454.98	91.31	2.71
4082.00	8.90	78.70	4035.37	-6.23	467.21	48.49	85.00	467.25	90.76	2.70
4168.00	5.90	93.20	4120.66	-5.17	478.15	50.82	86.00	478.17	90.62	4.08
4253.00	3.40	117.20	4205.38	-6.57	484.75	50.20	85.00	484.80	90.78	3.67
4338.00	2.80	161.70	4290.26	-9.69	487.65	47.44	85.00	487.74	91.14	2.84
4423.00	2.50	167.80	4375.17	-13.47	488.69	43.80	85.00	488.88	91.58	.48
4508.00	2.10	175.70	4460.10	-16.84	489.20	40.52	85.00	489.49	91.97	.60
4593.00	2.30	174.80	4545.04	-20.09	489.47	37.32	85.00	489.88	92.35	.24
4679.00	1.90	187.40	4630.98	-23.22	489.44	34.21	86.00	489.99	92.72	.71
4764.00	1.40	180.10	4715.95	-25.66	489.26	31.77	85.00	489.93	93.00	.64
4849.00	.90	191.80	4800.93	-27.35	489.12	30.07	85.00	489.88	93.20	.65
4934.00	.50	166.10	4885.93	-28.36	489.07	29.06	85.00	489.89	93.32	.59
5020.00	1.10	183.60	4971.92	-29.55	489.11	27.89	86.00	490.00	93.46	.75
5105.00	1.10	197.50	5056.90	-31.14	488.81	26.27	85.00	489.81	93.65	.31
5190.00	.50	191.50	5141.89	-32.29	488.50	25.10	85.00	489.56	93.78	.71
5275.00	.90	189.60	5226.89	-33.31	488.31	24.06	85.00	489.44	93.90	.47
5361.00	.80	213.20	5312.88	-34.48	487.87	22.85	86.00	489.09	94.04	.42
5446.00	.90	260.10	5397.87	-35.09	486.89	22.13	85.00	488.15	94.12	.80
5531.00	.90	263.10	5482.86	-35.28	485.57	21.78	85.00	486.85	94.16	.06
5616.00	1.20	255.30	5567.84	-35.59	484.04	21.30	85.00	485.35	94.21	.39
5701.00	.90	235.40	5652.83	-36.19	482.63	20.53	85.00	483.99	94.29	.55
5785.00	1.60	252.00	5736.81	-36.93	480.97	19.61	84.00	482.39	94.39	.93
5871.00	1.90	268.70	5822.77	-37.33	478.41	18.90	86.00	479.86	94.46	.68
5956.00	1.20	253.70	5907.74	-37.62	476.14	18.36	85.00	477.63	94.52	.95
6041.00	1.70	251.10	5992.71	-38.27	474.10	17.47	85.00	475.64	94.62	.59
6126.00	1.40	256.00	6077.68	-38.93	471.90	16.55	85.00	473.50	94.72	.39
6211.00	1.30	256.70	6162.66	-39.41	469.95	15.86	85.00	471.60	94.79	.12
6296.00	2.00	245.00	6247.62	-40.26	467.67	14.75	85.00	469.40	94.92	.91
6381.00	3.10	274.10	6332.54	-40.72	464.03	13.86	85.00	465.81	95.01	1.96
6466.00	2.30	279.40	6417.44	-40.27	460.05	13.84	85.00	461.81	95.00	.98
6551.00	1.70	283.90	6502.39	-39.69	457.15	14.07	85.00	458.87	94.96	.73
6637.00	1.00	290.70	6588.37	-39.12	455.21	14.41	86.00	456.89	94.91	.83
6722.00	.80	260.10	6673.36	-38.96	453.93	14.42	85.00	455.60	94.91	.60
6807.00	1.00	258.90	6758.35	-39.21	452.62	14.03	85.00	454.31	94.95	.24
6892.00	1.10	271.30	6843.33	-39.33	451.07	13.72	85.00	452.79	94.98	.29
6978.00	1.10	256.80	6929.32	-39.50	449.44	13.36	86.00	451.18	95.02	.32

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Course Length FT	C L O S U R E Distance FT	Direction Deg	Dogleg Severity Deg/100
7063.00	.70	259.00	7014.31	-39.79	448.14	12.93	85.00	449.90	95.07	.47
7148.00	4.70	355.50	7099.21	-36.41	447.36	16.19	85.00	448.84	94.65	5.68
7191.00	8.20	2.20	7141.93	-31.59	447.34	20.97	43.00	448.45	94.04	8.31
7233.00	11.50	5.40	7183.31	-24.43	447.85	28.15	42.00	448.51	93.12	7.96
7276.00	14.60	6.90	7225.19	-14.78	448.90	37.85	43.00	449.14	91.89	7.25
7319.00	18.10	4.40	7266.45	-2.73	450.06	49.95	43.00	450.07	90.35	8.30
7361.00	21.40	2.80	7305.97	11.43	450.94	64.12	42.00	451.08	88.55	7.96
7403.00	24.10	2.10	7344.70	27.66	451.63	80.31	42.00	452.47	86.50	6.46
7446.00	27.10	.30	7383.47	46.23	452.00	98.80	43.00	454.36	84.16	7.21
7489.00	29.50	359.50	7421.33	66.61	451.96	119.04	43.00	456.84	81.62	5.65
7531.00	33.00	359.60	7457.23	88.40	451.79	140.66	42.00	460.36	78.93	8.33
7574.00	36.30	359.10	7492.60	112.84	451.51	164.90	43.00	465.39	75.97	7.70
7616.00	39.80	359.40	7525.67	138.72	451.17	190.56	42.00	472.02	72.91	8.34
7658.00	44.20	.30	7556.88	166.82	451.11	218.46	42.00	480.96	69.71	10.57
7701.00	50.40	2.30	7586.02	198.39	451.85	249.90	43.00	493.49	66.30	14.82
7743.00	56.90	3.70	7610.91	232.15	453.64	283.64	42.00	509.59	62.90	15.71
7786.00	63.90	4.30	7632.13	269.42	456.25	320.96	43.00	529.86	59.44	16.32
7829.00	69.70	4.90	7649.06	308.80	459.42	360.44	43.00	553.56	56.09	13.55
7871.00	73.80	4.60	7662.21	348.54	462.73	400.30	42.00	579.31	53.01	9.79
7914.00	77.30	4.20	7672.94	390.05	465.92	441.89	43.00	607.64	50.06	8.19
7955.00	81.60	2.90	7680.45	430.27	468.41	482.13	41.00	636.04	47.43	10.94
Actual 7" Casing										
8072.00	88.80	1.60	7690.23	546.69	472.98	598.28	117.00	722.90	40.87	6.25
8157.00	89.70	1.20	7691.35	631.66	475.05	682.91	85.00	790.36	36.95	1.16
8242.00	90.70	1.50	7691.05	716.63	477.06	767.54	85.00	860.90	33.65	1.23
8327.00	90.60	1.00	7690.08	801.61	478.91	852.14	85.00	933.77	30.86	.60
8412.00	90.20	358.20	7689.49	886.60	478.32	936.48	85.00	1007.39	28.35	3.33
8497.00	91.40	357.80	7688.30	971.53	475.35	1020.48	85.00	1081.59	26.07	1.49
8583.00	91.50	357.70	7686.13	1057.44	471.98	1105.41	86.00	1157.99	24.05	.16
8668.00	91.50	357.40	7683.90	1142.33	468.34	1189.29	85.00	1234.61	22.29	.35
8753.00	91.40	356.70	7681.75	1227.19	463.97	1273.05	85.00	1311.97	20.71	.83
8838.00	92.10	356.70	7679.16	1312.01	459.08	1356.72	85.00	1390.01	19.29	.82
8924.00	91.50	357.00	7676.45	1397.84	454.36	1441.40	86.00	1469.83	18.01	.78
9009.00	90.70	357.40	7674.82	1482.72	450.21	1525.22	85.00	1549.56	16.89	1.05
9094.00	91.40	357.10	7673.27	1567.61	446.13	1609.04	85.00	1629.85	15.89	.90
9179.00	89.90	357.60	7672.30	1652.51	442.20	1692.90	85.00	1710.65	14.98	1.86
9265.00	89.40	357.50	7672.83	1738.43	438.52	1777.80	86.00	1792.89	14.16	.59
9350.00	89.60	358.30	7673.57	1823.37	435.41	1861.79	85.00	1874.63	13.43	.97
9435.00	90.00	359.40	7673.86	1908.35	433.70	1945.99	85.00	1957.01	12.80	1.38
9521.00	91.00	359.70	7673.11	1994.34	433.03	2031.31	86.00	2040.81	12.25	1.21
9606.00	92.10	358.40	7670.82	2079.30	431.62	2115.52	85.00	2123.62	11.73	2.00
9691.00	91.90	357.70	7667.85	2164.19	428.73	2199.49	85.00	2206.25	11.21	.86
9776.00	90.80	357.50	7665.85	2249.09	425.17	2283.40	85.00	2288.93	10.70	1.32
9861.00	90.10	358.10	7665.18	2334.03	421.91	2367.36	85.00	2371.85	10.25	1.08

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Course Length FT	C L O S U R E Distance FT	Direction Deg	Dogleg Severity Deg/100
9947.00	90.00	359.70	7665.10	2420.01	420.26	2452.56	86.00	2456.23	9.85	1.86
10032.00	89.10	.80	7665.77	2505.00	420.63	2537.02	85.00	2540.07	9.53	1.67
10117.00	90.00	.70	7666.44	2589.99	421.74	2621.55	85.00	2624.11	9.25	1.07
10202.00	89.90	2.00	7666.51	2674.97	423.74	2706.18	85.00	2708.32	9.00	1.53
10287.00	90.70	1.80	7666.07	2759.92	426.56	2790.87	85.00	2792.69	8.79	.97
10373.00	90.90	2.70	7664.87	2845.84	429.94	2876.60	86.00	2878.14	8.59	1.07
10458.00	90.50	3.20	7663.83	2930.72	434.31	2961.41	85.00	2962.73	8.43	.75
10543.00	89.00	3.30	7664.20	3015.58	439.13	3046.25	85.00	3047.39	8.29	1.77
10629.00	89.80	2.80	7665.10	3101.46	443.70	3132.07	86.00	3133.03	8.14	1.10
10714.00	90.60	2.30	7664.80	3186.37	447.49	3216.84	85.00	3217.64	7.99	1.11
10799.00	90.20	1.90	7664.21	3271.31	450.60	3301.57	85.00	3302.20	7.84	.67
10884.00	89.60	2.20	7664.36	3356.26	453.64	3386.28	85.00	3386.78	7.70	.79
10969.00	90.70	4.20	7664.14	3441.12	458.39	3471.12	85.00	3471.51	7.59	2.69
11055.00	90.80	5.20	7663.01	3526.82	465.43	3557.05	86.00	3557.40	7.52	1.17
11140.00	90.40	5.00	7662.12	3611.48	472.99	3642.02	85.00	3642.32	7.46	.53
11225.00	91.50	4.60	7660.71	3696.17	480.10	3726.95	85.00	3727.22	7.40	1.38
11310.00	91.90	5.20	7658.19	3780.82	487.36	3811.87	85.00	3812.10	7.35	.85
11396.00	91.60	5.30	7655.56	3866.42	495.22	3897.81	86.00	3898.00	7.30	.37
11481.00	89.40	5.40	7654.82	3951.04	503.15	3982.77	85.00	3982.95	7.26	2.59
11565.00	88.70	4.20	7656.21	4034.73	510.17	4066.71	84.00	4066.86	7.21	1.65
11649.00	88.30	4.60	7658.41	4118.46	516.62	4150.61	84.00	4150.73	7.15	.67
11734.00	88.20	3.90	7661.01	4203.18	522.91	4235.49	85.00	4235.58	7.09	.83
11820.00	89.00	4.60	7663.11	4288.92	529.28	4321.39	86.00	4321.45	7.04	1.24
11905.00	90.00	4.60	7663.85	4373.64	536.10	4406.33	85.00	4406.37	6.99	1.18
11991.00	89.30	4.90	7664.38	4459.34	543.22	4492.27	86.00	4492.31	6.95	.89
12076.00	90.30	4.40	7664.67	4544.06	550.11	4577.22	85.00	4577.24	6.90	1.32
12161.00	91.50	4.70	7663.34	4628.78	556.85	4662.14	85.00	4662.16	6.86	1.46
12246.00	91.50	4.70	7661.11	4713.47	563.82	4747.06	85.00	4747.07	6.82	.00
12332.00	91.20	4.90	7659.09	4799.14	571.01	4832.99	86.00	4832.99	6.79	.42
12417.00	90.90	4.60	7657.53	4883.83	578.05	4917.92	85.00	4917.92	6.75	.50
12502.00	90.80	4.50	7656.27	4968.56	584.79	5002.85	85.00	5002.85	6.71	.17
12587.00	90.40	3.50	7655.38	5053.34	590.72	5087.75	85.00	5087.75	6.67	1.27
12672.00	89.90	3.30	7655.16	5138.19	595.76	5172.61	85.00	5172.62	6.61	.63
12756.00	89.30	4.00	7655.74	5222.02	601.11	5256.48	84.00	5256.50	6.57	1.10
Last MWD Survey										
12799.00	89.20	3.90	7656.30	5264.91	604.07	5299.43	43.00	5299.46	6.55	.33
Straight Line Projection to TD										
12856.00	89.20	3.90	7657.10	5321.78	607.95	5356.36	57.00	5356.39	6.52	.00