ANTERO RESOURCES

Antero Resources
Cottrill Unit 3H
Harrison West Virginia
Northing: 14259106.85
Easting: 1787759.35
Sidetrack 1

WELL DETAILS: Cottrill Unit 3H

Ground Level: 1175.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14259106.85	1787759.35	39° 15' 56.572 N	80° 28' 45.912 W	

PROJECT DETAILS: Harrison West Virginia

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

REFERENCE INFORMATION

Coordinate (N/E) Reference: Well Cottrill Unit 3H, Grid North
Vertical (TVD) Reference: Cottrill Unit 3H 1175.0' GL + 23 KB @ 1198.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Cottrill Unit 3H 1175.0' GL + 23 KB @ 1198.0usft
Calculation Method: Minimum Curvature

LEGEND

- Cottrill Unit 1HR, Original Wellpath, Original Wellpath V0
- Cottrill Unit 3H, Original Wellpath, Original Wellpath V0
- Cottrill Unit 3H, Original Wellpath, Plan 5 V0
- Cottrill Unit 3H, Sidetrack 1, Plan 1 ST 1 V0
- Sidetrack 1

Genie Lightfoot
16:30, February 22 2013

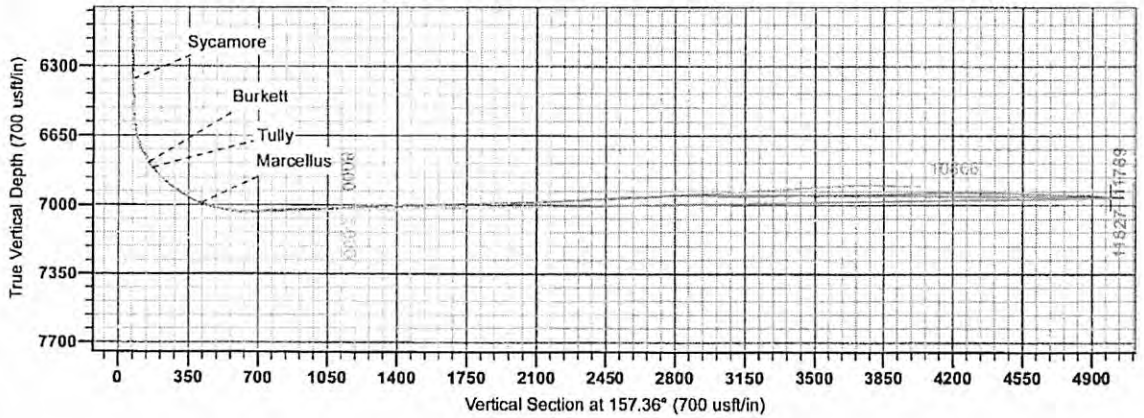
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

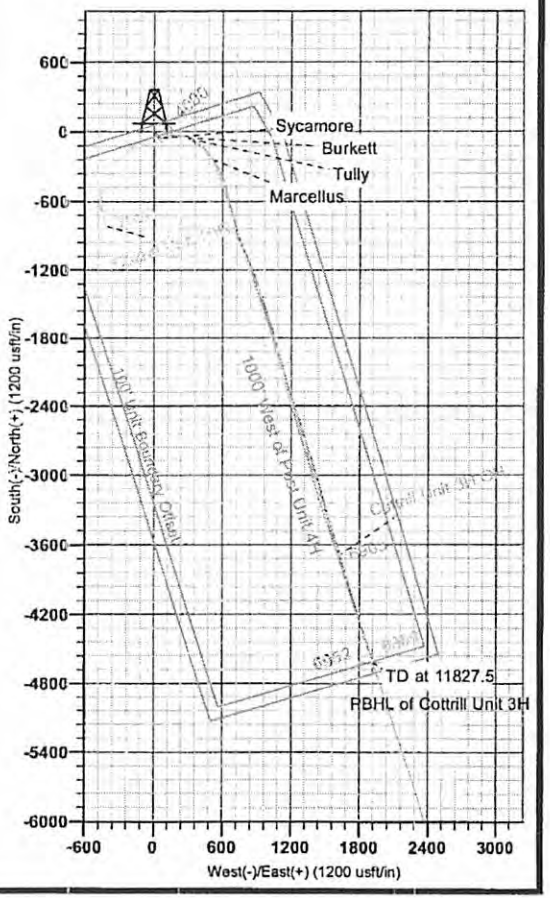
Scientific Drilling

To convert Magnetic North to Grid North, Subtract 8.95°
To convert True North to Grid North, Subtract 0.33°

Azimuths to Grid North
True North: -0.33°
Magnetic North: -8.96°

Magnetic Field
Strength: 52412.1snT
Dip Angle: 66.88°
Date: 2/6/2013
Model: IGRF2010





Antero Resources

Harrison West Virginia
Cottrill Pad
Cottrill Unit 3H
Sidetrack 1

Design: Sidetrack 1

EOW Completion Report

22 February, 2013

Scientific Drilling

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Cottrill Unit 3H
Project:	Harrison West Virginia	**TVD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Site:	Cottrill Pad	**MD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Well:	Cottrill Unit 3H	**North Reference:**	Grid
Wellbore:	Sidetrack 1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack 1	**Database:**	Oklahoma District Db

Project	Harrison West Virginia, Harrison County, USA		
Map System:	Universal Transverse Mercator (US Survey Fee	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site Cottrill Pad

Site Position:		**Northing:**	14,259,106.85 usft	**Latitude:**	39° 15' 56.572 N
From:	Map	**Easting:**	1,787,759.35 usft	**Longitude:**	80° 28' 45.912 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.33 °

Well Cottrill Unit 3H, Marcellus

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,259,106.85 usft	**Latitude:**	39° 15' 56.572 N
	+E/-W	0.0 usft	**Easting:**	1,787,759.35 usft	**Longitude:**	80° 28' 45.912 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	1,198.0 usft	**Ground Level:**	1,175.0 usft

Wellbore Sidetrack 1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/6/2013	-8.63	66.88	52,412

Design Sidetrack 1

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	9,631.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	157.36

Survey Program **Date** 2/22/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
110.0	6,273.0	Survey #1 Def Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
6,280.0	9,631.0	Survey #2 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1
9,664.0	11,789.0	Survey #1 MWD (Sidetrack 1)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
110.0	0.08	9.99	110.0	0.1	0.0	-0.1	0.07
210.0	0.22	357.48	210.0	0.3	0.0	-0.3	0.14
310.0	0.07	22.01	310.0	0.6	0.0	-0.5	0.16
410.0	0.19	157.88	410.0	0.5	0.1	-0.4	0.25
510.0	0.07	60.40	510.0	0.4	0.2	-0.2	0.21
610.0	0.20	146.47	610.0	0.2	0.4	-0.1	0.21
710.0	0.29	159.42	710.0	-0.1	0.6	0.3	0.11
810.0	0.40	138.21	810.0	-0.6	0.9	0.9	0.17
910.0	0.58	130.81	910.0	-1.2	1.5	1.7	0.19

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Cottrill Unit 3H
Project:	Harrison West Virginia	**TVD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Site:	Cottrill Pad	**MD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Well:	Cottrill Unit 3H	**North Reference:**	Grid
Wellbore:	Sidetrack 1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack 1	**Database:**	Oklahoma District Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,010.0	0.52	116.26	1,010.0	-1.8	2.3	2.5	0.15
1,110.0	0.38	97.62	1,110.0	-2.0	3.0	3.0	0.20
1,210.0	0.37	135.08	1,210.0	-2.3	3.6	3.5	0.24
1,310.0	0.60	149.91	1,310.0	-3.0	4.1	4.3	0.26
1,410.0	0.34	132.71	1,410.0	-3.6	4.6	5.1	0.29
1,510.0	0.61	130.90	1,510.0	-4.2	5.2	5.8	0.27
1,610.0	0.35	48.35	1,610.0	-4.3	5.8	6.2	0.66
1,710.0	0.33	133.66	1,710.0	-4.3	6.2	6.4	0.46
1,810.0	0.36	129.95	1,810.0	-4.7	6.7	6.9	0.04
1,910.0	0.10	283.91	1,910.0	-4.9	6.9	7.1	0.45
2,010.0	0.31	180.32	2,010.0	-5.1	6.8	7.3	0.35
2,110.0	0.01	307.62	2,110.0	-5.4	6.8	7.6	0.32
2,210.0	0.37	183.40	2,210.0	-5.7	6.7	7.9	0.38
2,310.0	0.22	8.97	2,310.0	-5.8	6.7	8.0	0.59
2,410.0	0.22	234.28	2,410.0	-5.8	6.6	7.9	0.41
2,510.0	0.32	59.35	2,510.0	-5.7	6.7	7.9	0.54
2,610.0	0.38	91.98	2,610.0	-5.6	7.3	8.0	0.20
2,710.0	0.41	110.34	2,710.0	-5.7	7.9	8.4	0.13
2,810.0	0.82	137.02	2,810.0	-6.4	8.8	9.3	0.49
2,910.0	0.66	157.88	2,909.9	-7.4	9.5	10.5	0.31
3,010.0	0.78	119.52	3,009.9	-8.3	10.3	11.6	0.49
3,110.0	0.91	140.56	3,109.9	-9.3	11.4	12.9	0.33
3,210.0	0.68	155.31	3,209.9	-10.4	12.1	14.3	0.31
3,310.0	0.94	130.14	3,309.9	-11.5	13.0	15.6	0.43
3,410.0	0.63	132.46	3,409.9	-12.4	14.0	16.8	0.31
3,510.0	0.81	140.21	3,509.9	-13.3	14.9	18.0	0.20
3,610.0	0.73	128.89	3,609.9	-14.2	15.8	19.2	0.17
3,710.0	0.94	140.06	3,709.9	-15.3	16.9	20.6	0.26
3,810.0	0.96	144.29	3,809.9	-16.6	17.9	22.2	0.07
3,910.0	1.03	129.61	3,909.8	-17.8	19.1	23.8	0.26
4,010.0	0.90	141.07	4,009.8	-19.0	20.2	25.3	0.23
4,110.0	1.12	150.87	4,109.8	-20.5	21.2	27.1	0.28
4,210.0	1.05	139.98	4,209.8	-22.0	22.3	28.9	0.22
4,310.0	1.28	130.00	4,309.8	-23.5	23.7	30.8	0.31
4,410.0	1.30	126.63	4,409.7	-24.9	25.5	32.7	0.08
4,510.0	1.40	140.55	4,509.7	-26.5	27.2	34.9	0.34
4,610.0	1.34	126.80	4,609.7	-28.1	28.9	37.1	0.33
4,710.0	1.58	133.93	4,709.7	-29.8	30.8	39.3	0.30
4,810.0	1.64	132.74	4,809.6	-31.7	32.9	41.9	0.07
4,910.0	1.61	137.51	4,909.6	-33.7	34.9	44.5	0.14
5,010.0	1.34	139.32	5,009.5	-35.6	36.6	47.0	0.27
5,110.0	1.29	134.02	5,109.5	-37.3	38.1	49.1	0.13
5,210.0	1.52	131.76	5,209.5	-39.0	39.9	51.3	0.24
5,310.0	1.49	132.28	5,309.5	-40.7	41.9	53.7	0.03
5,410.0	1.52	130.31	5,409.4	-42.5	43.9	56.1	0.06

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Cottrill Unit 3H
Project:	Harrison West Virginia	**TVD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Site:	Cottrill Pad	**MD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Well:	Cottrill Unit 3H	**North Reference:**	Grid
Wellbore:	Sidetrack 1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack 1	**Database:**	Oklahoma District Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,510.0	1.56	120.91	5,509.4	-44.0	46.0	58.3	0.26
5,610.0	1.48	131.69	5,609.4	-45.6	48.2	60.6	0.30
5,710.0	1.27	121.45	5,709.3	-47.0	50.1	62.7	0.32
5,810.0	1.07	125.22	5,809.3	-48.1	51.8	64.4	0.21
5,910.0	1.12	130.45	5,909.3	-49.3	53.3	66.0	0.11
6,010.0	1.22	129.65	6,009.3	-50.6	54.9	67.8	0.10
6,110.0	1.24	124.73	6,109.2	-51.9	56.6	69.7	0.11
6,210.0	1.13	122.26	6,209.2	-53.0	58.3	71.4	0.12
6,273.0	1.07	126.24	6,272.2	-53.7	59.3	72.4	0.15
6,283.0	1.04	122.34	6,282.2	-53.8	59.4	72.6	0.78
6,315.0	0.94	131.08	6,314.2	-54.2	59.9	73.0	0.57
6,347.0	1.32	114.00	6,346.2	-54.5	60.4	73.5	1.57
6,379.0	4.47	83.67	6,378.1	-54.5	62.0	74.2	10.61
6,410.0	9.23	75.77	6,408.9	-53.7	65.6	74.9	15.62
6,441.0	13.63	69.53	6,439.3	-51.9	71.5	75.4	14.72
6,472.0	17.30	70.09	6,469.2	-49.0	79.2	75.7	11.85
6,504.0	20.53	71.72	6,499.4	-45.6	89.0	76.4	10.23
6,535.0	23.11	74.06	6,528.2	-42.3	100.0	77.5	8.78
6,567.0	25.42	78.03	6,557.4	-39.1	112.8	79.5	8.83
6,599.0	28.20	82.29	6,586.0	-36.7	127.0	82.7	10.56
6,631.0	31.24	84.27	6,613.7	-34.8	142.8	87.1	9.98
6,663.0	34.59	84.87	6,640.6	-33.2	160.1	92.2	10.52
6,694.0	37.09	86.30	6,665.7	-31.8	178.2	97.9	8.50
6,726.0	40.17	90.56	6,690.7	-31.3	198.1	105.1	12.71
6,758.0	42.18	96.81	6,714.8	-32.6	219.1	114.5	14.30
6,790.0	42.84	102.83	6,738.4	-36.3	240.4	126.1	12.87
6,821.0	43.83	107.18	6,761.0	-41.8	260.9	139.1	10.14
6,853.0	44.65	108.85	6,783.9	-48.8	282.2	153.6	4.45
6,885.0	45.82	112.05	6,806.4	-56.7	303.4	169.1	7.99
6,916.0	47.88	116.42	6,827.6	-66.0	324.1	185.6	12.24
6,947.0	50.24	120.45	6,848.0	-77.1	344.6	203.9	12.42
6,979.0	52.17	123.41	6,868.0	-90.3	365.8	224.2	9.40
7,011.0	54.31	124.52	6,887.2	-104.7	387.0	245.6	7.24
7,043.0	56.84	129.81	6,905.3	-120.6	408.1	268.4	15.76
7,074.0	58.30	135.01	6,921.9	-138.3	427.4	292.1	14.92
7,106.0	59.36	138.09	6,938.5	-158.1	446.2	317.7	8.88
7,137.0	60.64	138.88	6,954.0	-178.2	464.0	343.1	4.68
7,169.0	63.78	140.62	6,968.9	-199.8	482.3	370.1	10.93
7,200.0	67.72	142.50	6,981.6	-222.0	499.8	397.3	13.86
7,232.0	70.91	145.51	6,992.9	-246.2	517.4	426.4	13.30
7,263.0	72.70	146.89	7,002.6	-270.7	533.8	455.3	7.16
7,295.0	75.00	149.10	7,011.5	-296.7	550.1	485.6	9.78
7,327.0	78.03	153.18	7,019.0	-324.0	565.1	516.5	15.60
7,359.0	81.18	156.29	7,024.7	-352.4	578.5	548.0	13.72

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Cottrill Unit 3H
Project:	Harrison West Virginia	**TVD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Site:	Cottrill Pad	**MD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Well:	Cottrill Unit 3H	**North Reference:**	Grid
Wellbore:	Sidetrack 1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack 1	**Database:**	Oklahoma District Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,391.0	83.31	158.42	7,029.0	-381.7	590.7	579.7	9.37
7,422.0	86.44	160.32	7,031.8	-410.6	601.6	610.5	11.80
7,447.0	89.97	162.01	7,032.6	-434.2	609.6	635.4	15.65
7,541.0	92.65	164.62	7,030.4	-524.2	636.6	728.9	3.98
7,637.0	92.79	166.73	7,025.9	-617.1	660.3	823.8	2.20
7,732.0	91.74	165.12	7,022.1	-709.2	683.4	917.6	2.02
7,828.0	91.11	165.86	7,019.8	-802.1	707.5	1,012.6	1.01
7,922.0	92.99	164.58	7,016.4	-893.0	731.4	1,105.7	2.42
8,018.0	91.91	156.69	7,012.3	-983.4	763.2	1,201.4	8.29
8,113.0	92.15	155.83	7,008.9	-1,070.3	801.4	1,296.3	0.94
8,209.0	92.92	157.74	7,004.7	-1,158.4	839.2	1,392.2	2.14
8,301.0	90.64	158.42	7,001.8	-1,243.7	873.6	1,484.1	2.59
8,396.0	90.74	161.20	7,000.7	-1,332.9	906.4	1,579.0	2.93
8,491.0	92.89	163.98	6,997.7	-1,423.4	934.8	1,673.6	3.70
8,586.0	92.82	163.10	6,992.9	-1,514.4	961.6	1,767.9	0.93
8,682.0	90.71	161.98	6,990.0	-1,606.0	990.4	1,863.5	2.49
8,777.0	90.27	160.46	6,989.2	-1,695.9	1,021.0	1,958.2	1.67
8,872.0	92.05	163.90	6,987.2	-1,786.3	1,050.1	2,052.9	4.08
8,967.0	93.39	165.33	6,982.7	-1,877.8	1,075.3	2,147.0	2.06
9,063.0	93.06	165.09	6,977.3	-1,970.5	1,099.7	2,241.9	0.42
9,157.0	93.39	164.39	6,972.0	-2,061.0	1,124.4	2,335.0	0.82
9,251.0	93.29	164.51	6,966.6	-2,151.4	1,149.6	2,428.1	0.17
9,346.0	91.36	162.26	6,962.7	-2,242.4	1,176.7	2,522.5	3.12
9,441.0	92.35	161.77	6,959.6	-2,332.7	1,206.0	2,617.2	1.16
9,536.0	92.99	161.45	6,955.2	-2,422.7	1,236.0	2,711.8	0.75
9,631.0	93.66	161.08	6,949.7	-2,512.5	1,266.4	2,806.4	0.81
9,664.0	89.80	161.90	6,948.7	-2,543.8	1,276.9	2,839.3	11.96
9,695.0	88.46	162.21	6,949.2	-2,573.3	1,286.5	2,870.2	4.44
9,727.0	88.12	162.40	6,950.1	-2,603.8	1,296.2	2,902.1	1.22
9,822.0	88.89	162.49	6,952.6	-2,694.3	1,324.8	2,996.7	0.82
9,917.0	88.83	161.88	6,954.5	-2,784.7	1,353.9	3,091.3	0.65
10,011.0	90.84	162.99	6,954.8	-2,874.3	1,382.2	3,184.9	2.44
10,105.0	92.25	163.85	6,952.2	-2,964.4	1,409.1	3,278.4	1.76
10,200.0	89.66	164.41	6,950.6	-3,055.8	1,435.0	3,372.7	2.79
10,295.0	91.51	164.15	6,949.7	-3,147.2	1,460.8	3,467.0	1.97
10,391.0	90.91	165.12	6,947.6	-3,239.7	1,486.2	3,562.2	1.19
10,485.0	89.63	162.67	6,947.2	-3,330.0	1,512.3	3,655.6	2.94
10,581.0	91.48	162.90	6,946.3	-3,421.7	1,540.7	3,751.1	1.94
10,676.0	91.38	162.54	6,943.9	-3,512.4	1,568.9	3,845.7	0.39
10,772.0	91.11	162.99	6,941.8	-3,604.1	1,597.3	3,941.2	0.55
10,866.0	92.35	162.31	6,939.0	-3,693.8	1,625.3	4,034.8	1.50
10,962.0	91.85	163.44	6,935.5	-3,785.4	1,653.6	4,130.3	1.29
11,056.0	89.50	163.11	6,934.4	-3,875.5	1,680.6	4,223.8	2.52
11,151.0	88.32	163.12	6,936.2	-3,966.3	1,708.2	4,318.3	1.24

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Cottrill Unit 3H
Project:	Harrison West Virginia	**TVD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Site:	Cottrill Pad	**MD Reference:**	Cottrill Unit 3H 1175 GL + 23 KB @ 1198.0usft
Well:	Cottrill Unit 3H	**North Reference:**	Grid
Wellbore:	Sidetrack 1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack 1	**Database:**	Oklahoma District Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,246.0	89.09	162.26	6,938.3	-4,057.0	1,736.5	4,412.8	1.21
11,340.0	89.73	162.26	6,939.3	-4,146.5	1,765.1	4,506.5	0.68
11,435.0	87.69	161.62	6,941.4	-4,236.8	1,794.6	4,601.2	2.25
11,529.0	87.82	162.03	6,945.1	-4,326.1	1,823.9	4,694.8	0.46
11,622.0	87.95	161.07	6,948.5	-4,414.2	1,853.3	4,787.5	1.04
11,716.0	88.93	161.25	6,951.1	-4,503.2	1,883.6	4,881.2	1.06
11,740.0	89.23	161.06	6,951.5	-4,525.9	1,891.4	4,905.2	1.48
11,789.0	89.43	161.85	6,952.0	-4,572.3	1,907.0	4,954.1	1.66
PBHL of Cottrill Unit 3H							

Checked By: _____ Approved By: _____ Date: _____