

# **APPENDIX 1**

# **APPENDIX 2**

**Estimation of Annual Mean Nitrogen Dioxide Concentration from Short Term Monitoring Data as Per Box 6.5 Page 6.8 Technical Guidance TG(03)**

**Comparison of Newtownabbey Borough Council Site 1 NO<sub>2</sub> Diffusion Tube Results (2004) to Belfast Central AURN Site**

Table 1

<b>Diffusion Tube Monitoring Period 2004</b>	<b>Belfast City Council Annual Mean (AM) 2004</b>	<b>Belfast City Council Period Mean (PM) 2004</b>	<b>Ratio (AM Divided by PM)</b>
January	28	37	
February	28	39	
March	28	33	
April	28	24	
May	28	24	
June	28	21	
July	28	19	
August	28	24	
October	28	29	
November	28	31	
December	28	34	
<b>Average (11 months)</b>	<b>28</b>	<b>29</b>	<b>0.97</b>

Site 1 average based on 11 months' monitoring = 27

**Annual Mean = (27 x 0.97) = 26**

**Comparison of Newtownabbey Borough Council Site 11 NO<sub>2</sub> Diffusion Tube Results (2004) to Belfast Central AURN Site**

Table 2

<b>Diffusion Tube Monitoring Period 2004</b>	<b>Belfast City Council Annual Mean (AM) 2004</b>	<b>Belfast City Council Period Mean (PM) 2004</b>	<b>Ratio (AM Divided by PM)</b>
January	28	37	
February	28	39	
March	28	33	
April	28	24	
June	28	21	
August	28	24	
September	28	23	
October	28	29	
November	28	31	
December	28	34	
<b>Average (10 months)</b>	<b>28</b>	<b>29.5</b>	<b>0.95</b>

Site 11 average based on 10 months' monitoring = 24

**Annual Mean = (24 x 0.95) = 23**

**Comparison of Newtownabbey Borough Council Site 12 NO<sub>2</sub> Diffusion Tube Results (2004) to Belfast Central AURN Site**

Table 3

<b>Diffusion Tube Monitoring Period 2004</b>	<b>Belfast City Council Annual Mean (AM) 2004</b>	<b>Belfast City Council Period Mean (PM) 2004</b>	<b>Ratio (AM Divided by PM)</b>
April	28	24	
May	28	24	
June	28	21	
July	28	19	
August	28	24	
September	28	23	
October	28	29	
November	28	31	
December	28	34	
<b>Average (9 months)</b>	<b>28</b>	<b>25.4</b>	<b>1.10</b>

Site 12 average based on 9 months' monitoring = 30

**Annual Mean = (30 x 1.10) = 33**

**Comparison of Newtownabbey Borough Council Site 43 NO<sub>2</sub> Diffusion Tube Results (2004) to Belfast Central AURN Site**

Table 4

<b>Diffusion Tube Monitoring Period 2004</b>	<b>Belfast City Council Annual Mean (AM) 2004</b>	<b>Belfast City Council Period Mean (PM) 2004</b>	<b>Ratio (AM Divided by PM)</b>
July	28	19	
August	28	24	
September	28	23	
October	28	29	
November	28	31	
December	28	34	
<b>Average (6 months)</b>	<b>28</b>	<b>26.7</b>	<b>1.05</b>

Site 43 average based on 6 months' monitoring = 30

**Annual Mean = (30 x 1.05) = 31.5**

# **APPENDIX 3**

## BIAS ADJUSTMENT FACTORS 2004

### As Per Air Quality Consultants Guidance "Methodology Used in the Survey of Diffusion Tube Collocation Studies"

Table 5 – Shore Road

Month (04)	Cont. Analyser	Tubes			Tube Average	Adjusted Analyser	Adjusted Tube
		Site 36	Site 37	Site 38			
Jan	33	22	14	22	19.3	33	19.3
Feb	38	18	27	30	25	38	25
Mar*	28	26	31	40	32.3	-	-
Apr	28	22	20	20	20.7	28	20.7
May	29	7	16	18	13.7	29	13.7
Jun	24	19	25	23	22.3	24	22.3
Jul	23	-	14	-	14	33	14
Aug	26	-	-	-	-	-	-
Sept	24	14	19	25	19.3	24	19.3
Oct	31	18	21	21	20	31	20
Nov	33	23	29	27	26.3	33	26.3
Dec	31	20	20	26	22	31	22
<b>Period Mean</b>						<b>30.4</b>	<b>20.3</b>

\* Only 54% data capture, therefore < 75%

$$\text{Bias adjustment factor} = \frac{30.4}{20.3} = 1.5$$

$$\text{Shore Road Bias Adjustment Factor} = 1.5$$

$$\text{Bias Adjustment Factor After Orthogonal Regression} = 1.45$$

Table 6 - Mallusk

Month (04)	Cont. Analyser	Tubes			Tube Average	Adjusted Analyser	Adjusted Tube
		Site 36	Site 37	Site 38			
Jan	33	22	21	15	19.3	33	19.3
Feb	45	29	32	30	30.3	45	30.3
Mar*	29	21	40	34	31.7	-	-
Apr	29	21	22	28	23.7	29	23.7
May	33	19	24	30	24.3	33	24.3
Jun	26	27	26	18	23.7	26	23.7
Jul	25	28	13	24	21.7	25	21.7
Aug	28	22	15	14	17	28	17
Sept	24	20	9	17	15.3	24	15.3
Oct	33	33	32	15	26.7	33	26.7
Nov	36	39	39	18	32	36	32
Dec	32	32	34	33	33	32	32
<b>Period Mean</b>						<b>31.3</b>	<b>24.2</b>

\* Only 54% data capture, therefore < 75%

$$\text{Bias adjustment factor} = \frac{31.3}{24.2} = 1.3$$

**Mallusk Bias Adjustment Factor = 1.3**

## PART A, B AND C PROCESSES WITHIN NEWTOWNABBEY BOROUGH COUNCIL

### Part A IPC Processes

Site Operator Name	Site Address
Brett Martin Limited	24 Roughfort Road, Mallusk

### Part A IPPC Processes

Site Operator Name	Site Address
NK Coatings Limited	4 Michelin Road, Mallusk
Diageo Baileys Global Supply	Hightown Industrial Estate, Mallusk Road, Newtownabbey

### Part B IPC Processes

Site Operator Name	Site Address
RMC Quarries (Ulster) Ltd	1 Sealstown Road, Mallusk
Ready Use Concrete	Boyd's Quarry, 140 Mallusk Road, Newtownabbey
James Boyd & Sons Ltd	140 Mallusk Road, Newtownabbey
F P McCann Ltd	Boyd's Quarry, 140 Mallusk Road, Newtownabbey
NK Coatings Limited	4 Michelin Road, Mallusk
Brett Martin Limited	24 Roughfort Road, Mallusk

### Part C Processes

#### Vapour Recovery

Site Operator Name	Site Address
Spar	119 Manse Road, Newtownabbey
Spar	91 Templepatrick Road, Ballyclare
Spar	45 Mallusk Road, Newtownabbey
Spar	290 Antrim Road, Newtownabbey
Glenabbey Filling Station	492 Antrim Road, Newtownabbey
Whitehouse Filling Station	Shore Road, Newtownabbey
Twinburn Filling Station	Monkstown Road, Newtownabbey
Ballyrobert Cash Stores	47 Mossley Road, Ballyrobert
Forecourt Centre	Station Road, Doagh
J Gordon and Sons	175 Doagh Road, Newtownabbey
Hazelbank Service Station	448 Shore Road, Newtownabbey
Glen Service Station	88 Ballyclare Road, Newtownabbey
Moyola Park Service Station	387 Antrim Road, Newtownabbey
O'Neill Road Filling Station	O'Neill Road, Newtownabbey
Rathcoole Filling Station	45 Doagh Road, Newtownabbey
Tesco Filling Station	Abbey Retail Park, Newtownabbey
Trackside Service Station	Shore Road, Newtownabbey
N Watt & Sons	4 Ballynure Road, Ballyclare

<b>Site Operator Name</b>	<b>Site Address</b>
Ballynure Filling Station	3 Larne Road, Ballynure

Cement Processes

<b>Site Operator Name</b>	<b>Site Address</b>
Mega-Mix (94) Ltd	60 Ballycraigy Road, Newtownabbey
Abbey-Crete	372 Ballyclare Road, Newtownabbey
Frank McIlroy Ltd	Cloughfern Avenue, Newtownabbey
Roadmix	60 Ballycraigy Road, Newtownabbey
RMC Ulster Ltd	Ballypalady Road, Doagh
RMC Ulster Ltd	Sealstown Road, Mallusk
St Gobain	Dennison Industrial Estate, Ballyclare

Coal Processes

<b>Site Operator Name</b>	<b>Site Address</b>
Home Fuels Ltd	Central Park, Mallusk

Coating Processes

<b>Site Operator Name</b>	<b>Site Address</b>
F G Wilson (Eng) Ltd	Doagh Road, Newtownabbey
Montracon Ltd	50 Mallusk Road, Newtownabbey
J E Coulter Ltd	Commercial Way, Mallusk

Timber Processes

<b>Site Operator Name</b>	<b>Site Address</b>
McLaughlin & Harvey	Trench Road, Mallusk

# **APPENDIX 4**