Fermanagh District Council

Environmental Health Department

Local Air Quality Management

Updating and Screening Assessment

September 2006

European Union
Structural Funds

Building Sustainable Prosperity

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INTRODUCTION AND BACKGROUND

Under the Environment (Northern Ireland) Order 2002, District Councils in Northern Ireland are required to carry out a Review and Assessment of their local air quality. The process is set out in the Department of the Environment's Local Air Quality Management Policy Guidance LAQM PGNI(03).
Where an area within the district is identified as being at risk of exceeding an air quality objective, the local authority must declare an air quality management area (AQMA).

The First Stage Review and Assessment of local air quality for Fermanagh was completed in August 2001, in line with the commitment then given to the Environment and Heritage Service. This review identified that the air quality objectives at risk of being exceeded in the Fermanagh District Council area were those for three of the Government's strategy pollutants namely Nitrogen Dioxide, Sulphur Dioxide, and Particulate Matter.
This meant that a Second/Third Stage Review and Assessment was required for these three pollutants. Consultants were subsequently appointed to carry out part of this assessment.

The Second Stage assessment, which involved computer modelling, was carried out for Nitrogen Dioxide and Particulate Matter from road traffic at three road sections/junctions. This modelling predicted no exceedences of either the Nitrogen Dioxide or Particulate Matter objectives from traffic sources.
The Third Stage assessment, which involved computer modelling of emissions from domestic solid fuel burning, suggested that there was unlikely to be an exceedence of the Sulphur Dioxide or Particulate Matter objectives from this source.
Consequently, the first round of Review and Assessment of Local Air Quality, carried out in accordance with the then current technical guidance "Department of the Environment, Transport and the Regions Review and Assessment: Pollutant Specific Guidance LAQM.TG4 (00) May 2000", indicated that the Government's Air Quality Objectives were likely to be met. There was therefore no requirement to declare an Air Quality Management Area within the Fermanagh District Council area.

The objective of this current round of assessment, Updating and Screening, is to consider any matters that have changed since the first round that may lead to a risk of an air quality objective being exceeded. Such changes include the consideration of new objectives, new monitoring data, new sources or significant changes to existing sources within FDC area and surrounding authorities. This assessment considers each of these matters on a pollutant-by-pollutant basis.

Where the Updating and Screening Assessment identifies a risk that an air quality objective will be exceeded at a location with relevant public exposure then a Detailed Assessment must be carried out. The aim of the Detailed Assessment should be to identify with reasonable certainty whether or not a likely exceedence will occur.

This document reports on the first phase, the Updating and Screening Assessment, and

follows the checklist approach adopted in the Department of Environment Food and Rural Affairs Technical Guidance LAQM.TG (03). The next phase, if deemed necessary, would be a Detailed Assessment, to be undertaken in 2007.

In Northern Ireland the air quality objectives contained in the Government's Air Quality Strategy are incorporated into the Air Quality Regulations (Northern Ireland) 2003. This provides the statutory basis for the system of LAQM.

INDIVIDUAL POLLUTANTS

Each pollutant is considered in turn, and the checklists available within the recently revised Technical Guidance document provide the structure for assessing each pollutant separately. An indication as to the need to undertake a detailed assessment is provided at the end of each pollutant section.

UK AIR QUALITY OBJECTIVES

[Air Quality Regulations (NI) 2003]

Pollutant	Air Quality Objective Levels	Target Date for Achievement
Benzene	16.25µg/m^3 (5ppb) when expressed as a running annual mean	31 December 2003
	3.25µg/m^3 when expressed as a running annual mean	31 December 2010
1,3-butadiene	2.25µg/m^3 (1ppb) when expressed as a running annual mean	31 December 2003
Carbon monoxide	10mg/m^3 (8.6ppm) when expressed as a maximum daily running 8 hour mean	31 December 2003
Lead	0.5µg/m^3 when expressed as an annual mean	31 December 2004
	0.25mg/m^3 when expressed as an annual mean	31 December 2008
Nitrogen dioxide	200µg/m^3 (105ppb) when expressed as a 1 hour mean, not to be exceeded more than 18 times a year	31 December 2005
	40µg/m^3 (21ppb) when expressed as an annual mean	31 December 2005
Sulphur dioxide	350µg/m^3 (132ppb) when expressed as a 1 hour mean, not to be exceeded more than 24 times a year	31 December 2004
	125µg/m^3 (47ppb) when expressed as a 24 hour mean, not to be exceeded more than 3 times a year	31 December 2004
	266µg/m^3 (100ppb) when expressed as a 15 minute mean, not to be exceeded more than 35 times a year	31 December 2005
Particles (PM_{10})	50µg/m^3 when expressed as a 24 hour mean, not to be exceeded more than 35 times a year	31 December 2004
	40µg/m^3 when expressed as an annual mean	31 December 2004

Carbon Monoxide

The main source of carbon monoxide in the United Kingdom is currently road transport, which accounts for 67% (2000) of emissions. Road traffic emissions account for a larger proportion of the total within urban areas where maximum concentrations are most likely near busy congested roads. Annual emissions of carbon monoxide have been falling steadily since the 1970's and are expected to continue to do so. Projections indicated that road transport emissions would have declined by a further 42% between 2000 and 2005. The current policy measures in place are considered sufficient in ensuring that the objective for CO is achieved by the target date of 31 December 2003 across the UK.

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The relevant Carbon Monoxide Objective is:

Maximum daily running 8-hour mean to be achieved by 31 December 2003: **10mg/m^3**

Updating and Screening Assessment Summary Checklist for Carbon Monoxide	
Monitoring data	Carbon Monoxide is not monitored within the Fermanagh District Council area.
Very busy roads or junctions in built-up areas	There are no very busy roads or junctions within the Fermanagh District Council area which exceed the AADT thresholds. [Very busy is defined as: • Single carriageway road with daily average traffic flow exceeding 80,000 vehicles per day • Dual carriageway roads with daily average traffic flows which exceed 120,000 vehicles per day]

Updating & Screening Summary for Carbon Monoxide

The assessment has indicated that the Carbon Monoxide objective is unlikely to be exceeded at any location in the FDC area, and therefore a detailed assessment will not be required.

Benzene

The major source of benzene is motor vehicle emissions, which in 1996 accounted nationally for 64% of emissions. Running annual mean concentrations of benzene measured at urban background, roadside and kerbside locations are already below the 2003 objective of 16.25µg/ m³ (5ppb) even close to heavily congested roads. The increasing numbers of vehicles equipped with three-way catalysts will significantly reduce emissions of benzene in future years.

The relevant Benzene Objectives are:

Running annual mean to be achieved by 31 December 2003: **16.25 µg/m3**
Running annual mean to be achieved by 31 December 2010: **5µg/m3**

Updating and Screening Assessment Summary Checklist for Benzene	
Monitoring data outside an AQMA	Benzene is not monitored locally within Fermanagh District Council Area.
Very busy roads or junctions in built up areas	There are no sufficiently busy roads within Fermanagh District Council Area. (i.e. single carriageway roads where the AADT>80,000, or dual carriageways where the AADT>120,000 or motorways where the AADT>140,000).
New industrial sources	There are no industrial sources that emit sufficient emissions of benzene within Fermanagh District Council area, or in neighbouring authorities, to consider for the purpose of this assessment.
Petrol stations	There are no petrol stations in the Fermanagh District Council area with an annual throughput of more than 2000 m^3 and with a busy road nearby. A busy road is defined as one with more than 30,000 vehicles per day. A list of petrol filling stations is included in the list of Prescribed processes in the District in Appendix 1.
Major fuel storage depots (petrol only)	There are no major petroleum fuel depots in the Fermanagh District Council area.

Updating & Screening Summary for Benzene

The assessment has indicated that the benzene objectives are unlikely to be exceeded at any location in the district, and therefore a detailed assessment will not be required.

1,3-Butadiene

1,3-butadiene is an accepted carcinogen for which no absolutely safe level can be defined. It is potentially damaging to the genetic structure within cells.
The main sources of 1,3-butadiene within the United Kingdom are emissions from motor vehicle exhausts and its use as an industrial chemical. Concentrations of 1,3-butadiene measured at all urban background and roadside locations across the UK already experience concentrations less than 2.25µg/m^3, and the objective is not expected to cause a problem for local authorities in Round 2.
The fitting of catalytic converters to petrol vehicles and planned improvements to fuel quality are expected to reduce existing levels and the phased installation of petrol vapour recovery at petrol stations is also expected to keep levels of 1,3-butadiene below 2.25µg/m^3.

The relevant 1,3-butadiene objective is:

Running annual mean to be achieved by 31 December 2003: **2.25µg/m^3 (1ppb)**

Updating and Screening Assessment Summary Checklist for 1,3-butadiene	
Monitoring data	1,3-butadiene is not monitored locally within Fermanagh District Council Area. However national monitoring has shown that running annual mean concentrations of 1,3- butadiene measured at all urban background/ centre and roadside locations are already below the 2003 objective level.
New industrial sources.	There are no new or existing industrial processes that would be considered as significant sources of this pollutant within Fermanagh District Council Area.

Updating & Screening Summary for 1,3-butadiene

The assessment has indicated that the 1,3-butadiene objective is unlikely to be exceeded at any location in the district, and therefore a detailed assessment will not be required.

Lead

Lead has been shown to have a pronounced effect on human health and has been associated with acute and chronic damage to the nervous system and kidney damage. Exposure to high concentrations of lead is toxic.

Within the United Kingdom the most common source of lead emissions is petrol engine vehicles which account for 65% of emissions (1996) and industrial sources (18%) (1996). It is added to petrol in the form of tetraethyl lead to enhance the octane rating of fuel. Other uses include the manufacture of batteries, paints, glazes and radiation shielding. The concentration of lead in air has significantly decreased in recent years with restrictions having been placed on the maximum permissible lead content of petrol.

The relevant Lead objectives are:

Annual mean to be achieved by 31 December 2004: **0.5µg/m^3**
Annual mean to be achieved by 31 December 2008: **0.25mg/m^3**

Updating and Screening Assessment Summary Checklist for Lead	
Monitoring data	Lead is not monitored locally within Fermanagh District Council Area.
New industrial sources	There are no new industrial processes within Fermanagh District Council area, or in neighbouring authorities, to consider for the purpose of this assessment.
Industrial sources with substantially increased emissions, or new relevant exposure	There are no industrial sources with substantially increased emissions to consider for the purpose of this assessment.

Updating & Screening Summary for Lead
The assessment has indicated that the lead objectives are unlikely to be exceeded at any location in the Council area, and therefore a detailed assessment will not be required.

Nitrogen Dioxide

Nitrogen Dioxide (NO_2) and nitric oxide (NO) are both oxides of nitrogen and are collectively referred to as NOx. Nitrogen dioxide is produced by the oxidation of nitric oxide in the atmosphere and there is a complex relationship between emissions of NOx and the resulting concentration of NO_2. Nitrogen dioxide is associated with adverse effects on human health. It can at certain levels affect lung function. Repetitive exposure causes changes in lung structure, lung metabolism and the lungs ability to fight bacterial infection. Animal toxicological studies suggest that peak concentrations contribute more to the toxicity than does the duration of exposure although the latter is relevant. For this reason the Government have set two national air quality objectives; both hourly means and an annual mean.

The main sources of NOx in the United Kingdom are

- road transport which accounted for 50% of total emissions in 1995
- the generation of electricity (20%)
- commercial and industrial operations (12%)

National studies have shown that whilst the annual mean objective of nitrogen dioxide is likely to be met at urban background locations (outside of London), the objective may be exceeded at roadside locations close to busy road links. The objectives for which this assessment applies are listed below, and relevant locations with respect to the NO2 objectives are considered by the checklist approach as recommended in the technical guidance.

The relevant Nitrogen Dioxide objectives are:

A 1-hour mean, not to be exceeded more than 18 times a year, to be achieved by 31 December 2005: **200µg/m^3 (105ppb)**
Annual mean to be achieved by 31 December 2005: **40µg/m^3 (21ppb)**

Updating and Screening Assessment Summary Checklist for Nitrogen Dioxide	
Monitoring data outside an AQMA	NO_2 is currently monitored in the Fermanagh District Council area, using passive diffusion tubes at four locations in Enniskillen. The results for 2004 and 2005 are shown in Appendix 2 and do not show any concentrations which exceed the objectives. The tubes are analysed by Eurofins and they supply a bias correction factor of 0.79, obtained from their co-location study, which has been incorporated into the results.
Monitoring data within an AQMA	There are no AQMA's in the Fermanagh District Council area
Narrow congested streets with residential properties close to the kerb	There are no narrow congested streets within the district which need be considered under this parameter.
Junctions.	Previous DMRB modelling predicted no NO_2 levels close to the objectives at the three busiest junctions in the district. There has been no significant change in traffic flows or exposure at these locations.
Busy streets where people may spend 1-hour or more close to traffic	There are no locations in the district where people would be closely exposed to traffic for a 1-hour period or more.
Roads with high flow of buses and/or HGVs.	There are no roads within the District with HGVs or buses greater than 25% of the traffic flow.
New roads constructed or proposed since the previous round of R&A	There have been no new roads constructed since the previous round of assessment which would have any significant effect on NO_2 .The proposed Cherrymount link road is not anticipated to be located within 10m of residential properties, nor is the traffic flow likely to exceed 10 000 AADT.
Roads with significantly changed traffic flows, or new relevant exposure	There are no roads within the district with significantly changed traffic flows nor any new relevant exposure. Appendix 3 shows the most recent DRD Roads Service traffic flow data for the area.
Bus Stations	The main bus station for the district, in Enniskillen, has no relevant

	exposure within 10m.
New industrial sources.	There is one new Part A industrial source of NO_2 to be considered. This includes a Combined Heat and Power plant together with a wood pelleting plant at Laragh, Enniskillen. However the Environmental Statement that accompanied the application for a PPC Permit has been examined and the predicted NO_2 emissions are well below the objectives. (The exposure at the nearest receptor is predicted to be approximately 25% of the 1-hour limit value and < 1% of the annual mean objective so will not cause any exceedences)
Industrial sources with substantially increased emissions, or new relevant exposure	There are no industrial sources with substantially increased emissions nor any new relevant exposure to consider. A cement manufacturing plant at Gortmullen, Derrylin has re-commenced operations again since the last round of assessment but the Environmental Statement that accompanied the application for a PPC Permit has predicted no significant NO_2 impact.
Aircraft	There are no airports within the district with a throughput of passengers greater than 5 million ppa.

Updating & Screening Summary for Nitrogen Dioxide

The assessment has indicated that the Nitrogen Dioxide objectives are unlikely to be exceeded at any location in the Council area, and therefore a further detailed assessment will not be required.

Sulphur Dioxide

Sulphur dioxide is a colourless corrosive acidic gas with a choking taste. At high concentrations it is a strong irritant to the eyes and mucus membranes. At very low concentrations sulphur dioxide is an acute respiratory irritant causing airways to narrow and inducing coughing. Whilst these effects are reversible in healthy individuals the consequences can be more severe in those persons who have ailments of the cardio-respiratory system.
Recent studies have shown that individuals who suffer from asthma may be particularly susceptible to those concentrations which are experienced during pollution episodes.

Sulphur dioxide may also be converted through chemical reactions in the atmosphere to form sulphate particulate matter. Sulphur dioxide combines with water vapour in the atmosphere to produce acid rain. This acidic solution is very corrosive and damages the stone work of buildings.

Throughout the UK the main sources of sulphur dioxide (2000) are:

- coal fired power stations (71%)
- industry
- domestic (4%)
- road transport (<1%)

The previous round of Review and Assessment for the Fermanagh District Council area, which involved computer modelling of emissions from domestic solid fuel burning, in a $1km^2$ of the densest housing, suggested that there was unlikely to be an exceedence of the Sulphur Dioxide objectives from this source. Since then the NIHE are continuing to implement their programme of replacing solid fuel room-heaters in their properties with oil-fired boilers. This will have the effect of further reducing SO_2 emissions.

The relevant Sulphur Dioxide objectives are:

A 1-hour mean, not to be exceeded more than 24 times a year, to be achieved by 31 December 2004: **350µg/m^3 (132ppb)**
A 24-hour mean, not to be exceeded more than 3 times a year, to be achieved by 31 December 2004: **125µg/m^3 (47ppb)**
A 15-minute mean, not to be exceeded more than 35 times a year, to be achieved by 31 December 2005: **266µg/m^3 (100ppb)**

Updating and Screening Assessment Summary Checklist for <u>Sulphur Dioxide</u>	
Monitoring data outside an AQMA	Sulphur Dioxide is not monitored within the Fermanagh District Council area.
Monitoring data within an AQMA	There are no AQMA's in the Fermanagh District Council area
New industrial sources	There is one new Part A industrial source of SO_2 to be considered. This includes a Combined Heat and Power plant together with a wood pelleting plant at Laragh, Enniskillen. However the Environmental Statement that accompanied the application for a PPC Permit has been examined and the predicted SO_2 emissions are negligible and well below the objectives.
Industrial sources with substantially increased emissions, or new relevant exposure	There are no industrial sources with substantially increased emissions nor any new relevant exposure to consider. A cement manufacturing plant at Gortmullen, Derrylin has re-commenced operations again since the last round of assessment but the Environmental Statement that accompanied the application for a PPC Permit has predicted no significant SO_2 impact.
Areas of domestic coal burning	Previous ADMS modelling for domestic solid fuel consumption in the last round of assessment predicted that exceedances of the SO_2 objectives are unlikely. Since then there has been a decline in the usage of solid fuel for space heating in the area as the NIHE continue with their programme of replacement of solid fuel with oil.
Small Boilers > 5 MW (thermal).	There are no known small boilers of greater than 5 MW th capacity within the district.
Shipping and Railway Locomotives	Not applicable for this district

Updating & Screening Summary for Sulphur Dioxide

The assessment has indicated that the Sulphur Dioxide objectives are unlikely to be exceeded at any location in the Council area, and therefore a further detailed assessment will not be required.

Particulates (PM_{10})

Historically, interest in particulate matter focused mainly on smoke, which can cause health problems, especially in combination with other pollutants. However, recent epidemiological evidence is also linking concentrations of particles in the atmosphere with human health effects. Particles can vary widely in size and composition. The PM_{10} (particles measuring 10μm or less) standard was designed to identify those particles likely to be inhaled by humans, and PM_{10} has become the generally accepted measure of particulate material in the atmosphere in the UK and in Europe.

The main sources of primary PM_{10} are:

- road transport (all road transport emits PM_{10}, but diesel vehicles emit a greater mass of particulate per vehicle kilometre),
- stationary combustion (domestic coal combustion has traditionally been the major source of particulate emissions in the UK), and
- industrial processes (including bulk handling, construction, mining and quarrying).

Emissions of PM_{10} from the UK have declined since 1970. This is due mainly to the reduction in coal use. Domestic and commercial emissions have fallen from 263 kilotonnes (54% of the total emission) in 1970 to 41 kilotonnes (27%) in 2004.

The relevant PM_{10} objectives are:
A 24-hour mean, not to be exceeded more than 35 times a year, to be achieved by 31 December 2004: **50μg/m^3**
Annual mean to be achieved by 31 December 2004: **40μg/m^3**

Updating and Screening Assessment Summary Checklist for PM_{10}	

Monitoring data outside an AQMA	PM_{10} is not monitored within the Fermanagh District Council area.
Monitoring data within an AQMA	There are no AQMA's in the Fermanagh District Council area
Junctions	Previous DMRB modelling predicted no PM_{10} levels close to the objectives at the three busiest junctions in the district. There has been no significant change in traffic flows or exposure at these locations.
Roads with high flow of buses and/or HGVs	There are no roads within the District with HGVs or buses greater than 25% of the traffic flow.
New roads constructed or proposed since last round of R&A	There have been no new roads constructed since the previous round of assessment which would have any significant effect on PM_{10} .The proposed Cherrymount link road is not anticipated to be located within 10m of residential properties, nor is the traffic flow likely to exceed 10 000 AADT.
Roads with significantly changed traffic flows, or new relevant exposure	There are no roads within the district with significantly changed traffic flows nor any new relevant exposure. Appendix 3 shows the most recent DRD Roads Service traffic flow data for the area.
Roads close to the objective during the second round of Review and Assessment	There are no roads which were found to be close to the objective during the first round of assessment and which have significantly changed traffic flows.
New industrial sources	There is one potential new Part A industrial source of PM_{10} to be considered. This includes a Combined Heat and Power plant together with a wood pelleting plant at Laragh, Enniskillen. However the Environmental Statement that accompanied the application for a PPC Permit has been examined and the predicted PM_{10} emissions are negligible and well below the objectives.
Industrial sources with substantially increased emissions, or new relevant exposure	There are no industrial sources with substantially increased emissions nor any new relevant exposure to consider. A cement manufacturing plant at Gortmullen, Derrylin has re-commenced operations again since the last round of assessment but the Environmental Statement that accompanied the application for a PPC Permit has predicted no significant PM_{10} impact.

Areas of domestic solid fuel burning	Previous ADMS modelling for domestic solid fuel consumption in the last round of assessment predicted that exceedances of the PM_{10} objectives are unlikely. Since then there has been a decline in the usage of solid fuel for space heating in the area as the NIHE continue with their programme of replacement of solid fuel with oil. In addition, whilst there would likely be more than 50 houses burning solid fuel in the densest 500 x 500m grid square, applying the criterion in the Technical Guidance nomogram would indicate that the PM_{10} objective would not be breached.
Quarries / landfill sites / opencast coal / handling of dusty cargoes at ports etc.	Previous assessments for PM_{10} emissions from quarries in the area did not predict any exceedences for the objective. There has been no change in this situation and there have been no recent complaints about dust emissions from activities within quarries. The Council landfill site at Glassmullagh has closed and the new site at Drummee has come into operation. It is not expected that there will be any significant PM_{10} emissions from this site.
Aircraft	There are no airports within the district with a throughput of passengers greater than 10 million ppa.

Updating & Screening Summary for Particulates

The assessment has indicated that the Particulates (PM_{10}) objectives are unlikely to be exceeded at any location in the Council area, and therefore a further detailed assessment will not be required.

CONCLUSIONS

This assessment has indicated that the relevant air quality objectives will be met by the appropriate dates and consequently there is no need for a further detailed assessment in 2007.
Fermanagh District Council will of course continue to review and assess air quality in the area in line with statutory requirements and pollutant specific guidance.

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Appendix 1

Industrial Pollution Control

List of Processes currently Authorised / Permitted

Fermanagh District Council Area

Ref No	Operator	Process Type
99/C/0001	P McCBRIDE ENNISKILLEN	PETROLEUM
99/C/0002	K COURTNEY LISNASKEA	PETROLEUM
99/C/0004	BEATTY FUELS BALLINAMALLARD	COAL
99/C/0005	G DOLAN ENNISKILLEN	PETROLEUM
00/C/0008	TRACEY CONCRETE ENNISKILLEN	CEMENT
01/C/009	BALCAS LARAGH ENNISKILLEN	TIMBER
02/C/010	RTD CRAWFORD LISBELLAW	TIMBER
03/C/011	WEBTECH ENNISKILLEN	COATING
0022/99/B	RJ MITTEN MAGHERADUNBAR	MINERAL
0023/99B	RJ MITTEN DONAGH	MINERAL
0053/99B	B McCAFFREY KNOCKNINNY	MINERAL & CEMENT
0062/99B	ACHESON & GLOVER BELCOO	MINERAL & CEMENT
0063/99B	ACHESON & GLOVER CRIEVEHILL	MINERAL & CEMENT
0073/99B	S QUINN GROUP GORTMULLAN	MINERAL & CEMENT
0074/99B	S QUINN GROUP DOON	MINERAL
0075/99B	P CLARKE & SONS LISNASKEA	MINERAL TARMAC & CEMENT
0079/99A P0054/04A	S QUINN GROUP GORTMULLAN	CEMENT MANUFACTURE & MINERAL
0119/00B	TARMAC NORTHERN LTD EDERNY	MINERAL, CEMENT & TARMAC
0121/00B	J BALFOUR & SONS IRVINESTOWN	MINERAL & TARMAC
0148/01/B	QUINN GLASS TONEYMORE	GLASS MANUFACTURE
0167/01B	DEANE PUBLIC WORKS ROOSKY	MINERAL
0179/02B	McCAFFREY CONCRETE UMERA	MINERAL & CEMENT
0186/03A	BALCAS LTD LARAGH ENNISKILLEN	COMBUSTION
0189/03B	HAROLD GRAHAM EDERNEY	MINERAL
P0044/04A	FERMANAGH DISTRICT COUNCIL DRUMMEE LANDFILL SITE	LANDFILL WASTE DISPOSAL
0195/04B	McCAFFREY CONCRETE PRODUCTS	MINERAL
0210/04/B	COLTON QUARRIES LTD LACK	MINERAL
P0082/05A	P CLARKE & SONS LISNASKEA	COMBUSTION (Waste Oil)

Appendix 2

Nitrogen Dioxide Diffusion Tube Results

Nitrogen Dioxide Diffusion Tube Results for Enniskillen 2004				
Location	**Corrected Result**	**Bias Correction Factor**	**Lab Used**	**Method of obtaining Bias Adjustment**
Townhall Street	11.9	0.79	Eurofins	Co-location study
Belmore Street	18.2	0.79	Eurofins	Co-location study
Tempo Road	4.2	0.79	Eurofins	Co-location study
Rossole Road	5.4	0.79	Eurofins	Co-location study

Nitrogen Dioxide Diffusion Tube Results for Enniskillen 2005				
Location	**Corrected Result**	**Bias Correction Factor**	**Lab Used**	**Method of obtaining Bias Adjustment**
Townhall Street	22.4	0.79	Eurofins	Co-location study
Belmore Street	29.8	0.79	Eurofins	Co-location study
Tempo Road	7.4	0.79	Eurofins	Co-location study
Rossole Road	8.3	0.79	Eurofins	Co-location study

Appendix 3

DRD Roads Service Traffic Flow Data

ENNISKILLEN AREA

Location	Date	24hr 7Day Average
A32 Donnellys	Feb 2003	10372
Cornagrade Rd	Jun 2003	10271
Tempo Rd	Jun 2005	8050
A4 Tamlaght	Jul 2006	11683
The Brook	Aug 2006	12650
Throughpass	Jul 2006	16916
Sligo Rd	May 2006	13417