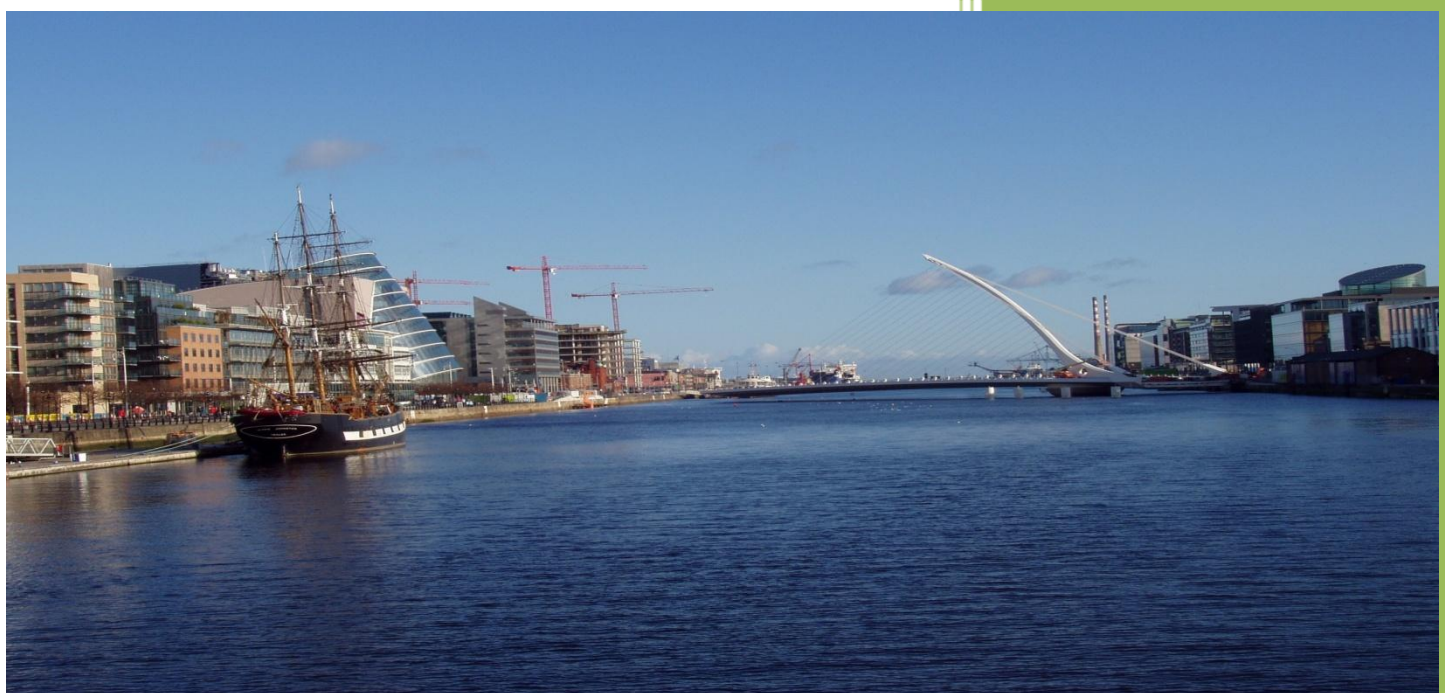


# 2013

## Air Quality Monitoring and Noise Control Unit Annual Report



Comhairle Cathrach  
Bhaile Átha Cliath  
Dublin City Council

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## Introduction

This annual report deals with the activities of the Air Quality Monitoring and Noise Control Unit of Dublin City Council during 2013. These activities include:

- Enforcement of air pollution control legislation
- Monitoring of environmental noise and enforcement of noise control legislation
- Environmental air quality monitoring
- Enforcement of legislation relating to control of Volatile Organic Compounds (VOC's)
- Research
- Provision of expertise on an ongoing basis to other services and departments in Dublin City Council

The areas of enforcement of air pollution and noise control legislation continued to be a challenge during 2013. The number of complaints for air pollution and noise pollution both decreased.

Air quality during 2013 continued to be generally good. Levels of nitrogen dioxide, sulphur dioxide and carbon monoxide are well below EU limit values.

Investigation of complaints made by the public in relation to air quality and noise is a major element of the Unit's work. In 2013, 128 air pollution complaints and 448 noise complaints were investigated.

In addition to completing noise monitoring at 20 outdoor events, 188 Fuel Regulation inspections were carried out and 34 Certificates were issued to premises under solvents' legislation.

## Air Pollution complaints

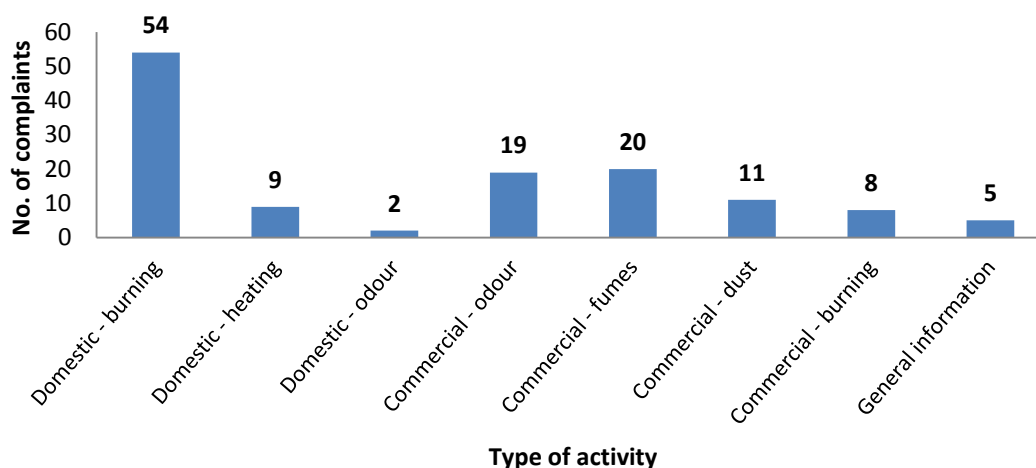
The Unit investigates complaints made by members of the public aggrieved by ongoing air pollution issues or once-off air pollution incidents. Common sources of complaint include odours emissions e.g. from commercial kitchen extraction systems, dust emissions from commercial premises and neighbours carrying out backyard burning.

Each complaint is dealt with individually, and in many cases, working in tandem with the commercial premises allows the situation to be remedied to the satisfaction of the complainant.

Where nuisance has been established and persists, despite the involvement of this Unit, a notice may be served under Section 26 of the Air Pollution Act 1987. Non-compliance with the notice can lead to court proceedings but in the majority of cases this proves unnecessary.

There were 128 complaints recorded by the Unit in 2013, a decrease of almost 14% on the number in 2012. Figure 1, below, shows that the most common types of complaint received by the Unit relate to domestic burning, commercial odour issues and commercial fumes.

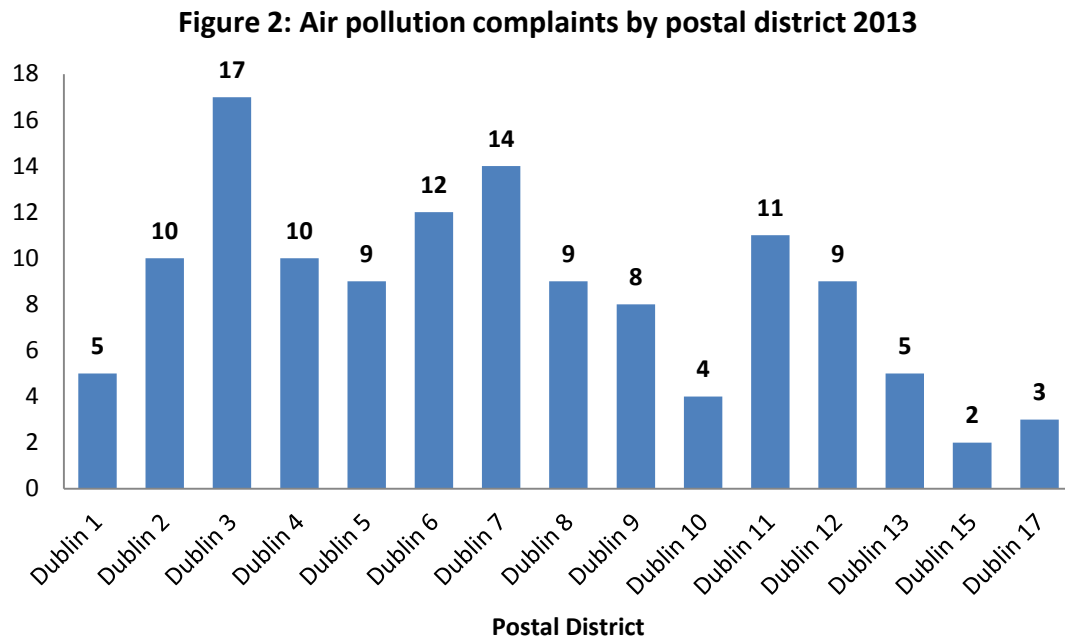
**Figure 1: Air Complaints by Type 2013**



Complaints about newly-installed flues on house extensions continue to be problematic, especially when the flues are emitting at ground floor level. Outdoor wood burning stoves in back gardens are also a new source of complaint.

Another common complaint dealt with is cooking odours from restaurants and takeaways. These can be challenging to enforce depending on the ingredients used and type of food being produced. Ideally, solutions to potential odour nuisance should be installed at the fitting out phase, as it proves difficult to retrospectively install filtration systems after the problem has been identified.

Figure 2 below shows that most complaints were received in Dublin 3, Dublin 7 and Dublin 6.



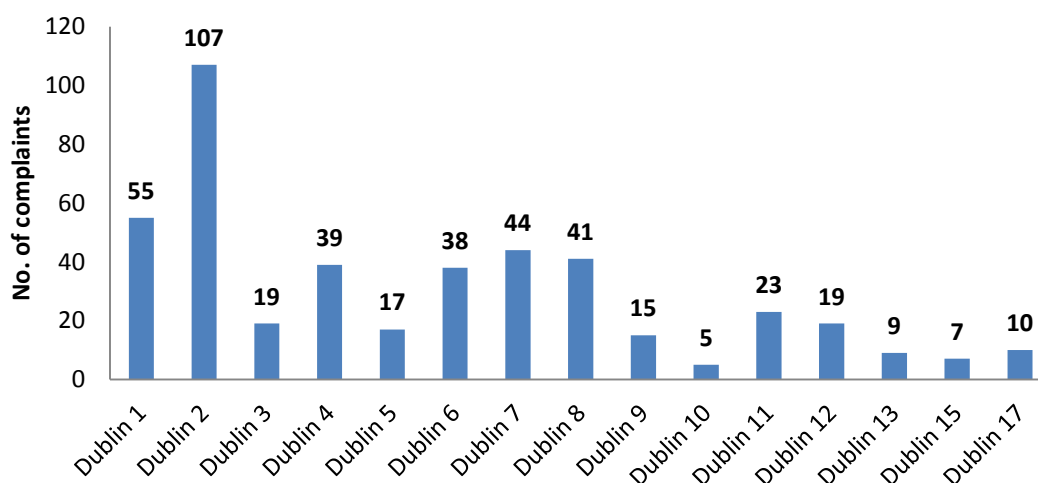
## Noise complaints

The Unit deals with complaints in relation to noise pollution from commercial and industrial premises. The Unit does not deal with neighbour noise nuisance complaints as there is provision in the legislation for individuals to deal with this on their own behalf. Environmental Health Officers (E.H.O.s) give advice to the public about how they can take their own action. The information is also found on the Unit's webpage on the Dublin City Council website.

A notice can be served, by this Unit, in relation to any "*premises, processes or works*" causing a noise nuisance. Failure to comply with the terms of the notice within the time period specified can lead to the initiation of legal proceedings.

The number of complaints dealt with by the Unit in 2013 was 448 which is a decrease on 2012's complaint numbers (510). As can be seen from Figure 3, the city centre postal district of Dublin 2 was the busiest area of the city, followed by Dublin 1, 7, 8 and 4. The huge disparity between Dublin 2 and the other city centre postal districts may be attributed, in part, to the receipt of a large number of complaints about buskers in the area. A total of 35 complaints about buskers were received in 2013 for Dublin 2.

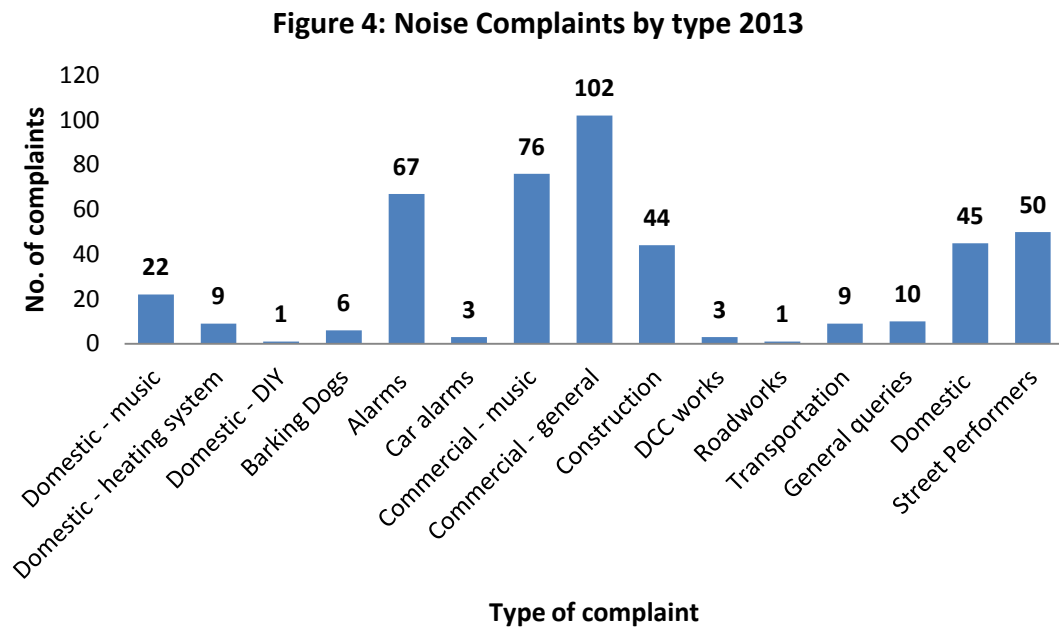
**Figure 3: Noise complaints by postal district 2013**



Complaints regarding commercial properties typically include noise emanating from music venues, noisy plant and equipment servicing buildings and early morning deliveries to retail units.

The construction industry continues to generate complaints despite the downturn in the number of sites in the city. In 2013, work commenced in the city on the new LUAS line. However, it did not generate any additional noise complaints during 2013.

See Figure 4 for more details on the types of complaints that caused nuisance in 2013.





## Outdoor events in Dublin during 2013

The wide variety of outdoor events held in Dublin annually contributes to the vibrant social scene in the city. The Unit carries out noise monitoring at the larger outdoor music events.

Notice is served by the Air Quality Monitoring & Noise Control Unit on both the promoter and the owner of the venue where the concert is taking place detailing noise limits for the event. If there are breaches of the notice conditions, the Unit may take legal proceedings against both the promoter and/or venue owner.

Table 1 details the outdoor events at which noise monitoring was carried out during 2013.

**Table 1: Outdoor Events Dublin 2013**

| <b>Date</b>                | <b>Location</b>           | <b>Artist</b>            |
|----------------------------|---------------------------|--------------------------|
| June 1 <sup>st</sup>       | Royal Hospital Kilmainham | Forbidden Fruit Festival |
| June 2 <sup>nd</sup>       | Royal Hospital Kilmainham | Forbidden Fruit Festival |
| June 14 <sup>th</sup>      | Aviva                     | Robbie Williams          |
| June 15 <sup>th</sup>      | RDS                       | Neil Young               |
| June 21 <sup>st</sup>      | Aviva                     | Rihanna                  |
| June 29 <sup>th</sup>      | RDS                       | Rod Stewart              |
| July 10 <sup>th</sup>      | Phoenix Park              | Justin Timberlake        |
| July 7 <sup>th</sup>       | Phoenix Park              | Swedish House Mafia      |
| July 11 <sup>th</sup>      | Iveagh Gardens            | Imelda May               |
| July 12 <sup>th</sup>      | Iveagh Gardens            | Tallest Man On Earth     |
| July 13 <sup>th</sup>      | Phoenix Park              | The Killers              |
| July 14 <sup>th</sup>      | Phoenix Park              | Mumford & Sons           |
| July 18 <sup>th</sup>      | Iveagh Gardens            | Grizzly Bear             |
| July 19 <sup>th</sup>      | Iveagh Gardens            | Josh Ritter              |
| July 20 <sup>th</sup>      | Iveagh Gardens            | Beach House              |
| July 21 <sup>st</sup>      | Iveagh Gardens            | Glen Hansard             |
| July 27 <sup>th</sup>      | Royal Hospital Kilmainham | Ennio Morricone          |
| July 28 <sup>th</sup>      | Royal Hospital Kilmainham | Ennio Morricone          |
| August 1 <sup>st</sup>     | Royal Hospital Kilmainham | Blur                     |
| September 18 <sup>th</sup> | Aviva                     | Roger Waters             |

## **Enforcement proceedings in 2013**

During 2013 the Unit served notice under the Environmental Protection Agency Act 1992 on 14 premises and all of the promoters/premises hosting outdoor events in the city.

Cases were heard in September 2013 relating to breaches of noise limits at the Bruce Springsteen concert in July of 2012. Both defendants pleaded guilty and the Probation Act was applied. Costs of €2,200 were awarded to the Council, with an additional €2,500 contribution made to Pieta House from each defendant.

## Fuel Regulations

Enforcing the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuel) Regulations 1998 to 2012 involves targeted unannounced inspections of fuel depots, vehicles and retail outlets around the city. The legislation places the onus firmly on the coal merchants working in the industry to supply compliant fuel.

In August 2012, the Air Pollution Act, 1987 (Marketing, Sale, Distribution and Burning of Specified Fuels) Regulations 2012 introduced a prohibition on the burning of specified fuel in private dwellings in specified areas. Specified fuel is any bituminous fuel, or admixture of bituminous fuel. The legislation also extended the ban in Dublin to include all of the city and county areas for the first time.

The Unit carried out 188 inspections in the winter heating season between October 2012 to March 2013.

There was general compliance across the city in relation to fuel offered for sale. The only issues that required attention were failure of some baggers to have the correct wording on the sealed bags. The 2013 breakdown of inspections is shown in Table 2 below.

**Table 2: Fuel Regulations Inspections 2013**

|                 |            |
|-----------------|------------|
| <b>Shops</b>    | <b>128</b> |
| <b>Depots</b>   | <b>5</b>   |
| <b>Garages</b>  | <b>46</b>  |
| <b>Vehicles</b> | <b>9</b>   |
| <b>Total</b>    | <b>188</b> |

## Air Quality Monitoring

There are a number of air monitoring sites around Dublin City that are operated and maintained by the Air Quality Monitoring and Noise Control Unit.

The Air Quality Standards Regulations 2011 (S.I. 180 of 2011) transposed the Clean Air for Europe (CAFÉ) Directive 2008 (2008/50/EC) into Irish law. The Regulations outline the requirements for monitoring pollutants, and the target values for each pollutant.

Several of these monitoring sites are deemed to be 'multi-pollutant', i.e., monitoring two or more pollutants at one location. The multi-pollutant sites at Winetavern Street and Coleraine Street provide a good picture of air quality in the city. The site at Ballyfermot is back in the network after renovations at the site location.

The analysers monitoring Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) and Carbon Monoxide (CO) at the multi-pollutant sites run continuously while the Particulate Matter (PM) analysers use filters that are collected and weighed after two week periods. Three new PM sites were introduced in 2013 at Davitt Road, St Anne's Park Raheny and Finglas.

In November 2012, the Unit took over the operation of 3 multi-pollutant sites in County Dublin on behalf of Fingal County Council, Dun Laoghaire/ Rathdown County Council and South Dublin County Council. The data for these sites is included in this report. The support of our colleagues in the three Councils is acknowledged and very much appreciated.

### **Sites**

Along with the multi-pollutant sites, there are other individual sites operated by the Unit. All of the city sites are incorporated into the Quality Management System.

#### **Multi-pollutant sites**

Winetavern Street – PM<sub>10</sub>, NO<sub>2</sub>, CO, SO<sub>2</sub>  
Coleraine Street – PM<sub>2.5</sub>, NO<sub>2</sub>, CO, SO<sub>2</sub>  
Dun Laoghaire – PM<sub>10</sub>, NO<sub>2</sub>  
Blanchardstown - PM<sub>10</sub>, NO<sub>2</sub>  
Old Bawn - PM<sub>10</sub>, SO<sub>2</sub>

#### **PM<sub>10</sub> only sites**

Phoenix Park  
Rathmines  
Finglas

Ballyfermot  
Davitt Road  
St Anne's Park

#### **PM<sub>2.5</sub> only**

Marino

## Sulphur Dioxide (SO<sub>2</sub>)

### Sources

The main source of SO<sub>2</sub> in Dublin is space heating from residential and industrial premises.

### Health and environmental effects

There are a number of health effects associated with exposure to high levels of SO<sub>2</sub>, including breathing problems and worsening of respiratory and cardiovascular disease. People with asthma, or chronic lung disease or heart disease are the most sensitive to SO<sub>2</sub>.

SO<sub>2</sub> along with NO<sub>2</sub>, is a precursor of acid rain. It is therefore responsible for acidification of lakes and streams and accelerated corrosion of buildings.

**Table 3: Limit values for Sulphur Dioxide**

|  | Averaging period | Limit Value  |
|--|------------------|--|
| Hourly limit for the protection of human health      | 1 hour           | 350µg/m <sup>3</sup> not to be exceeded more than 24 times a calendar year |
| Daily limit value for the protection of human health | 24 hours         | 125µg/m <sup>3</sup> not be exceeded more than 3 times a calendar year     |
| Limit value for the protection of ecosystems         | Calendar year    | 20µg/m <sup>3</sup>  |

### Results and discussion

Levels of SO<sub>2</sub> in Dublin at the two multi-pollutant sites are outlined below. The results are low and well within the limits set out in the Standards.

**Table 4: SO<sub>2</sub> results for Dublin 2013**

| Site              | Annual daily mean µg/m <sup>3</sup> | Hourly max µg/m <sup>3</sup> |
|-------------------|-------------------------------------|------------------------------|
| Winetavern Street | 1                                   | 25                           |
| Coleraine Street  | 2                                   | 24                           |
| Old Bawn          | 4                                   | 35                           |

Overall, the SO<sub>2</sub> levels were very low. The annual daily means at Winetavern Street and Coleraine Street increased slightly on 2012 results with the maximum hourly value for Winetavern Street increasing slightly and for Coleraine Street decreasing. This is the first year that Dublin City Council monitored at Old Bawn. The sites remained significantly below the legal limit values.

## Nitrogen Dioxide (NO<sub>2</sub>)

### *Nature and Sources*

Nitrogen Dioxide (NO<sub>2</sub>) is a gas produced from the burning of fossil fuels in vehicles, industrial plant, power plants and other commercial and residential sources that burn fuel.

### *Health and Environmental effects*

NO<sub>2</sub> irritates the lungs and lowers resistance to respiratory infection, especially for those already suffering with breathing difficulties e.g. asthma, bronchitis. NO<sub>2</sub> along with SO<sub>2</sub>, is a precursor of acid rain. It is therefore responsible for acidification of lakes and streams and accelerated corrosion of buildings.

**Table 5: Limit values for Nitrogen Dioxide**

|   | Averaging period | Limit Value   |
|---|------------------|---|
| Hourly limit value for the protection of human health | 1 hour           | 200µg/m <sup>3</sup> not to be exceeded more than 18 times in a calendar year |
| Annual limit value for the protection of human health | Calendar year    | 40µg/m <sup>3</sup>   |

### *Results and discussion*

There are 3 Dublin City Council sites monitoring NO<sub>2</sub> continuously – Winetavern Street and Coleraine Street are situated adjacent to heavily trafficked roads and Ballyfermot is situated in a predominantly residential area.

**Table 6: NO<sub>2</sub> results for Dublin 2013**

| Site             | Annual mean (µg/m <sup>3</sup> ) | No. of times NO <sub>2</sub> hourly level >200µg/m <sup>3</sup> |
|------------------|----------------------------------|---|
| Winetavern St    | 31                               | 0   |
| Coleraine Street | 26                               | 0   |
| Ballyfermot      | 16*                              | 0   |
| St. Annes Park   | 12                               | 0   |
| Dun Laoghaire    | 16                               | 0   |
| Blanchardstown   | 28                               | 0   |

\* The Ballyfermot site operated from 15<sup>th</sup> March 2013.

The NO<sub>2</sub> levels at Winetavern Street are slightly up on 2012 results but remain well within the EU limit values. NO<sub>2</sub> pollution levels at Coleraine Street remain the same as last year. The Ballyfermot site had been out of commission since September 2010 but recommenced operation in March 2013. The Dun Laoghaire and Blanchardstown sites joined the network in 2013.

## Carbon Monoxide (CO)

### *Nature and sources*

Carbon monoxide (CO) is colourless, odourless gas produced during the incomplete combustion of fuels. The main source of environmental CO is traffic.

### *Health and environmental effects*

CO interferes with the distribution of oxygen in the blood to the rest of the body. Depending on the level of exposure, the symptoms include fatigue, headache, disorientation, nausea and dizziness. These symptoms are similar to that of flu or food poisoning so it may prove difficult to diagnose. However, it has the potential to kill or poison in high levels, especially in poorly ventilated premises.

**Table 7: Limit value for Carbon Monoxide for the protection of human health**

| Averaging Period        | Limit Value         |
|-------------------------|---------------------|
| Maximum Daily 8-hr mean | 10mg/m <sup>3</sup> |

### *Results and discussion*

There are two sites monitoring CO in the city, at Winetavern Street and Coleraine Street. As can be seen from below, the results remain very low in comparison with the limit set out in the legislation.

**Table 8: CO results for Dublin City 2013**

| Site              | 8 hour rolling mean (mg/m <sup>3</sup> ) |
|-------------------|--|
| Winetavern Street | 0.0                                      |
| Coleraine Street  | 0.4                                      |

## Particulate Matter (PM<sub>2.5</sub> & PM<sub>10</sub>)

### *Nature and sources*

The main sources of particulate matter (PM) are vehicular traffic, dust from construction sites, construction equipment and any crushing and grinding operations. Indoors, the main sources are tobacco smoke, wood burning stoves, fireplaces and other home heating sources.

### *Health and environmental effects*

When inhaled, the particles can evade the body's natural defence system and lodge in the lungs. Symptoms of exposure include a sore throat, persistent cough, wheezing, shortness of breath and chest pain. PM can increase the number of asthma attacks, or aggravate bronchitis depending on the exposure. However, those already susceptible are a greater cause for concern. This includes children, the elderly and those already suffering with breathing difficulties.

There are different types of PM, but the coarse particles known as PM<sub>10</sub> are monitored at 10 sites and the finer PM<sub>2.5</sub> are monitored at 2 sites. The CAFÉ directive provides the legal requirements for monitoring PM.

**Table 9: Target value for PM<sub>2.5</sub>**

|   | <b>Averaging period</b> | <b>Target value</b> |
|---|-------------------------|---------------------|
| <b>Annual target value for the protection of human health</b> | Calendar year           | 25µg/m <sup>3</sup> |

**Table 10: Limit value for PM<sub>10</sub>**

|   | <b>Averaging period</b> | <b>Limit value</b>   |
|---|-------------------------|--|
| <b>24 hour limit value for the protection of human health</b> | 24 hours                | 50µg/m <sup>3</sup> not to be exceeded more than 35 times in a calendar year |
| <b>Annual limit value for the protection of human health</b>  | Calendar year           | 40µg/m <sup>3</sup>  |



## Results and discussion

The annual PM<sub>10</sub> mean value for all sites was below the 40µg/m<sup>3</sup> limit value. The addition of Davitt Road, Finglas and St Anne's Park into the network gives better coverage of the city. The inclusion of the results from the county sites indicates trends across the county and not just localised issues.

The Blanchardstown site is close to the N3 slip road from the M50 so there were quite a number of days in excess of 50µg/m<sup>3</sup> at this site due to the volume of traffic nearby.

**Table 11: PM<sub>10</sub> results for Dublin 2013**

| Site                   | 2013 Annual Mean µg/m <sup>3</sup> | No. of days >50µg/m <sup>3</sup> |
|------------------------|------------------------------------|----------------------------------|
| Phoenix Park           | 14                                 | 3                                |
| Rathmines              | 17                                 | 8                                |
| Winetavern Street      | 14                                 | 3                                |
| Ballyfermot            | 12                                 | 3                                |
| Davitt Road            | 13                                 | 1                                |
| Finglas                | 15                                 | 3                                |
| St Anne's Park, Raheny | 19                                 | 1                                |
| Dun Laoghaire          | 17                                 | 5                                |
| Old Bawn               | 17                                 | 5                                |
| Blanchardstown         | 20                                 | 11                               |

Davitt Road operated from 27 March 2013

Ballyfermot operated from 28 February 2013

Dun Laoghaire site ceased PM monitoring on 8 November 2013

The number of days in excess of 50µg/m<sup>3</sup> at all sites is well below the legislative requirements.

As can be seen from Table 12, PM<sub>2.5</sub> levels are within the annual target value as set down in the CAFÉ Directive (detailed in Table 9). As yet, no daily limit value exists for PM<sub>2.5</sub>. The maximum daily value for PM<sub>2.5</sub> was 62µg/m<sup>3</sup> at Coleraine Street and 55µg/m<sup>3</sup> at Marino, both occurring on the same day in March 2013.

**Table 12: PM<sub>2.5</sub> results for Dublin City 2013**

| Site         | Annual mean (µg/m <sup>3</sup> ) |
|--------------|----------------------------------|
| Marino       | 9                                |
| Coleraine St | 11                               |

## **Control of Volatile Organic Compounds (VOC's)**

VOC's are air pollutants which can have detrimental effects on human health by contributing to respiratory illnesses. Some VOC's are mutagenic or toxic to reproduction and harmful to the unborn. They also have harmful environmental effects (e.g. crop, vegetation and materials damage, reduced visibility etc.) when they chemically react with oxides of nitrogen and sunlight to form ground-level ozone. Potential sources include vehicle emissions, fuel combustion and domestic solvent usage.

### **Role of Dublin City Council**

#### ***Solvents Regulations***

The European Union (Installations and Activities using Organic Solvents) Regulations 2012 replaced the 2002 Regulations covering dry cleaning, pharmaceutical industries etc. A panel of Approved Assessors was appointed by the EPA for the purposes of carrying out the inspections. The Regulations allow Dublin City Council to issue Certificates of Compliance for up to 3 years. The fines for uncertified operators have increased from €3,000 to €5,000 or imprisonment, or both.

In 2013, 12 Certificates of Compliance were issued to Dry Cleaners.

#### ***Decorative Paints Regulations***

The European Union (Paints, Varnishes, Vehicle Refinishing Products and Activities) Regulations 2013 replaced the 2007 Regulations. A panel of Approved Assessors was appointed by the EPA for the purposes of carrying out the inspections. Any premises spraying or refinishing vehicles must apply for a Certificate of Compliance from the Council. The Regulations allow Dublin City Council to issue Certificates of Compliance for up to 3 years. The fines for uncertified operators have increased from €3,000 to €5,000 or imprisonment, or both.

In 2013, 22 Certificates of Approval were issued to vehicle refinishing premises.

## STRIVE research project

In 2010, the Air Quality Monitoring and Noise Control Unit of Dublin City Council together with the Environmental Health Sciences Institute (EHSI) and Dublin Institute of Technology (DIT), with the assistance of the Health Service Executive (HSE), successfully tendered for an EPA funded project assessing the use of Bituminous fuels in the domestic setting in Ireland and its contribution to PM<sub>10</sub>, PM<sub>2.5</sub> and Polycyclic Aromatic Hydrocarbons (PAH) levels.

Four centres around Ireland were selected for air quality monitoring. These centres are Tralee, Killarney, Letterkenny and Navan. The rationale for choosing these locations was:

1. Each of these is a major population centre in accordance with the Central Statistic Office Census 2006.
2. Ongoing continuous monitoring of air quality is not carried out at any of these locations.
3. Previous air quality studies (carried out in Navan and Tralee by the EPA) indicate levels of PM<sub>10</sub> greater than other towns in Ireland where a ban on solid bituminous fuels sales exists.
4. The national natural gas grid is available in Navan but not in the three other centres
5. There is a ban on the sale of bituminous fuels in Tralee but not at the other locations.

The monitoring commenced in 2011 at all four locations and continued into early 2012.

The results show that air quality in some of these smaller towns is of concern. Particulate pollution levels in some of them were significantly worse than in Dublin city. Higher pollution levels were observed during the “heating season” suggesting that residential heating is contributing to these higher pollution levels. The fact that the traffic densities in Dublin are much greater than in these four towns would suggest very strongly that traffic is not the main contributor to the higher pollution levels, especially since these higher levels are detected during the heating season. In general of the centres where monitoring was undertaken, the highest pollution levels were observed in those towns which had the highest percentage of residential oil and coal heating.

In 2013 the project report was submitted to the EPA, where it is currently being peer reviewed.

## **Ambient Atmospheric Ammonia in Ireland**

In 2013, the Air Quality Monitoring and Noise Control Unit of Dublin City Council assisted a University College Dublin (UCD) research project in relation to atmospheric ammonia levels in Ireland.

The project was an all-Ireland project and the Unit assisted by providing two monitoring locations, one at Winetavern Street and one at Phoenix Park and changing ammonia sampling badges at the required intervals.

The sampling program is set to last until mid-2014.

Further information is available at [www.ucd.ie/ammonia/](http://www.ucd.ie/ammonia/)

## **Reference Material and Internet Addresses**

For information on services provided by the Air Quality Monitoring & Noise Control Unit of Dublin City Council:

<http://www.dublincity.ie/main-menu-services-water-waste-and-environment/air-quality-monitoring-and-noise-control>

For Information on real-time air quality monitoring:

<http://www.epa.ie/air/quality/data/>

For updates on developments at European Union level on air quality:

<http://ec.europa.eu/environment/air/index.htm>

For information on developments at European Level on noise control:

<http://ec.europa.eu/environment/noise/home.htm>

For information on national environmental issues:

<http://www.environ.ie/en/>

For information on VOCs and Solvents

<http://www.environ.ie/en/Environment/Atmosphere/AirQuality/VolatileOrganicCompounds/>