Air Quality in Ireland 2016

Indicators of Air Quality

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

Our Responsibilities

Licensing

We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities *(e.g. landfills, incinerators, waste transfer stations)*;
- large scale industrial activities (*e.g. pharmaceutical, cement manufacturing, power plants)*;
- intensive agriculture *(e.g. pigs, poultry)*;
- the contained use and controlled release of Genetically Modified Organisms *(GMOs)*;
- sources of ionising radiation *(e.g. x-ray and radiotherapy equipment, industrial sources)*;
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

National Environmental Enforcement

- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by co-ordinating a national enforcement network, targeting offenders and overseeing remediation.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

Water Management

- Monitoring and reporting on the quality of rivers, lakes, transitional and coastal waters of Ireland and groundwaters; measuring water levels and river flows.
- National coordination and oversight of the Water Framework Directive.
- Monitoring and reporting on Bathing Water Quality.

Monitoring, Analysing and Reporting on the Environment

- Monitoring air quality and implementing the EU Clean Air for Europe (CAFÉ) Directive.
- Independent reporting to inform decision making by national and local government *(e.g. periodic reporting on the State of Ireland's Environment and Indicator Reports)*.

Regulating Ireland's Greenhouse Gas Emissions

- Preparing Ireland's greenhouse gas inventories and projections.
- Implementing the Emissions Trading Directive, for over 100 of the largest producers of carbon dioxide in Ireland.

Environmental Research and Development

- Funding environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability.

Strategic Environmental Assessment

- Assessing the impact of proposed plans and programmes on the Irish environment *(e.g. major development plans)*.

Radiological Protection

- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making *(e.g. My Local Environment, Radon Maps)*.
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

Management and structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiological Protection
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

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An Ghníomhaireacht um Chaomhnú Comhshaoil
PO Box 3000
Johnstown Castle Estate
County Wexford, Ireland

Telephone: +353 53 9160600
Lo Call: 1890 33 55 99
Fax: +353 53 9160699
Email: info@epa.ie
Web site: www.epa.ie

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Glossary

>	*Greater than*
AOT40	*This is a measure of the overall exposure of plants to ozone. It is the sum of the excess hourly concentrations greater than 80 µg/m^3 and is expressed as ug/m3 hours. Only values measured between 08:00 and 20:00 Central European Time each day from May to July are used for the calculation. (The name AOT40 refers to 40ppb which is the same as 80 µg/m^3)*
As	*Arsenic*
AEI	*Average exposure indicator*
Assessment Threshold	*Concentration at which varying levels of monitoring must be implemented*
Cd	*Cadmium*
CAFE	*Clean Air for Europe Directive (2008/50/EC)*
CEC	*Council of the European Communities*
C_6H_6	*Benzene*
CLRTAP	*Convention on Long-Range Transboundary Air Pollution*
CO	*Carbon monoxide*
DECLG	*Department of Environment, Community and Local Government*
EC	*European Commission*
EC/OC	*Elemental carbon/organic carbon*
EMEP	*European Monitoring and Evaluation Programme*
EPA	*Environmental Protection Agency*
EU	*European Union*
Hg	*Mercury*
LAT	*Lower assessment threshold*
Limit value	*Level to be attained and not exceeded*
mg/m^3	*Milligrammes per cubic metre*
na	*Not applicable*
ng/m^3	*Nanogrammes per cubic metre*
NH_3	*Ammonia*
Ni	*Nickel*
NO	*Nitric oxide*

NO_2	*Nitrogen dioxide*
NO_x	*Oxides of nitrogen*
O_3	*Ozone*
PAH	*Polycyclic aromatic hydrocarbon*
Pb	*Lead*
PM_{10}	*Particulate matter with diameter < 10 µm*
$PM_{2.5}$	*Particulate matter with diameter < 2.5 µm*
ppb	*Parts per billion*
SO_2	*Sulphur dioxide*
Target value	*Level to be attained where possible over a given period*
Troposphere	*Region of the atmosphere from ground level to ~10-15 kilometres*
Stratosphere	*Region of the atmosphere from ~15 kilometres to 50 kilometres*
VOCs	*Volatile organic compounds*
yr	*year*
UAT	*Upper assessment threshold*
µm	*Micron*
µg/m^3	*Microgrammes per cubic metre*
µg/m^3.h	*Microgrammes per cubic metre hours*
µg/m^2/day	*Microgrammes per square metre per day*
Zone A	*Dublin*
Zone B	*Cork*
Zone C	*Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Bray, Carlow, Dundalk, Ennis, Naas, Tralee, Celbridge, Letterkenny, Mullingar, Navan, Newbridge, Portlaoise, Greystones and Leixlip.*
Zone D	*Remainder of State (excluding Zones A, B and C)*

Executive Summary

Air Quality in Ireland 2016

During 2016 ambient air was monitored at 30 stations in Ireland. Data collected from these stations was assessed against legislative and target values for the protection of health and vegetation/ecosystems. Concentrations observed were also compared to the World Health Organisation (WHO) air quality guideline values (EEA estimated reference level used for PAH). Report highlights include:

- No levels above the EU limit value were recorded at any of the ambient air quality network monitoring sites in Ireland in 2016.
- WHO guideline values were exceeded at a number of monitoring sites for particulate matter (PM_{10} and $PM_{2.5}$), ozone, SO_2 and NO_2:
    - the PM_{10} 24hr guideline was exceeded at 11 monitoring sites
    - the $PM_{2.5}$ 24hr guideline was exceeded at 9 monitoring sites and the annual guideline at 2 monitoring sites
    - the Ozone guideline was exceeded at 7 monitoring sites
    - the SO_2 24hr guideline was exceeded at 2 monitoring sites
    - the NO_2 1hr guideline was exceeded at 1 monitoring site
- EEA reference levels were exceeded as follows:
    - the PAH at 4 reference level was exceeded monitoring sites
- 2016 dioxin survey shows that concentrations of dioxins and similar pollutants remain at a consistently low level in the Irish environment

Challenges

Maintaining our standard of air quality in Ireland is a growing challenge. Overcoming this challenge is taking on an increased importance with the further understanding of the links between poor air quality and human health. The European Environment Agency (EEA) have

estimated a figure of 1,510 premature deaths in Ireland in 2014 (EEA 2017) directly attributable to air quality, with the predominant culprit being fine particulate matter ($PM_{2.5}$) from the use of solid fuels such as wood, coal and peat for home heating. It is becoming increasingly apparent that there is no safe level of air pollution, a position that is held by the WHO and is reflected in their much stricter (than EU limit values) air quality guideline values. The clear benefits in terms of health improvements of reducing the people's exposure to poor air quality is also supported by significant economic savings in doing so. This is highlighted by the OECD report on the economic cost of air pollution (OECD 2016).

Solutions

The implementation of the new Ambient Air Quality Monitoring Programme (AAMP) by the EPA will be key to tackling the issues surrounding air quality in Ireland. The two key sectors that predominantly impact negatively on air quality are residential heating and transport. The AAMP seeks to address these key issues by firstly informing the public on the status of air quality in Ireland. This will be achieved through an expansion of the monitoring network with a greater emphasis on provision of real-time particulate matter levels. In conjunction with this network expansion, the AAMP will implement a programme of citizen engagement which will be used to highlight the links between air quality, health and the actions or clean air choices that can be taken by citizens to directly impact and improve their local air quality. Namely these are -

Any shift from the burning of solid fuel to cleaner, more energy efficient methods of home heating which will result in cleaner air quality for the consumer, their family and neighbours with a resultant improvement in their health.

A transition in our modes of transport away from the use of the private diesel and petrol powered motor cars to alternative modes of transport such as walking, cycling and forms of transport that are environmentally friendly and sustainable such as electric motor powered vehicles. This is especially important in our at-risk urban environments.

To incentivise and compliment these behavioural changes in the public it is imperative that Ireland adopts policy solutions that can marry the twin issues of ambient air quality and climate change mitigation. The government's 'Clean Air Strategy' which is due for publication should point the way forward in terms of policy solutions for Ireland in this regard.

1 Introduction

This report provides an overview of the ambient air quality in Ireland in 2016. It is based on monitoring data from 30 stations across Ireland. The measured concentrations are compared with both EU legislative standards and WHO air quality guidelines for a range of air pollutants (Appendix 1 provides an introduction to these standards).

1.1 Air quality monitoring network in Ireland in 2016

There was one new station added to the network in 2016 with the establishment of Bishopstown CIT in Cork, while two stations closed in 2016, St. Anne's Park and Davitt Road, both in Dublin.

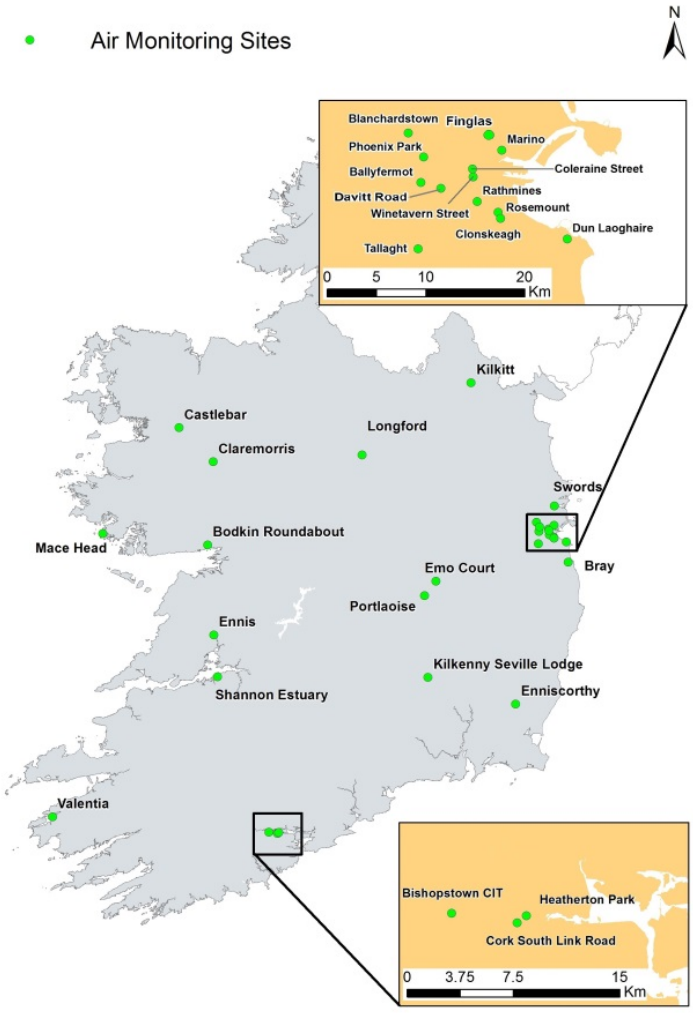
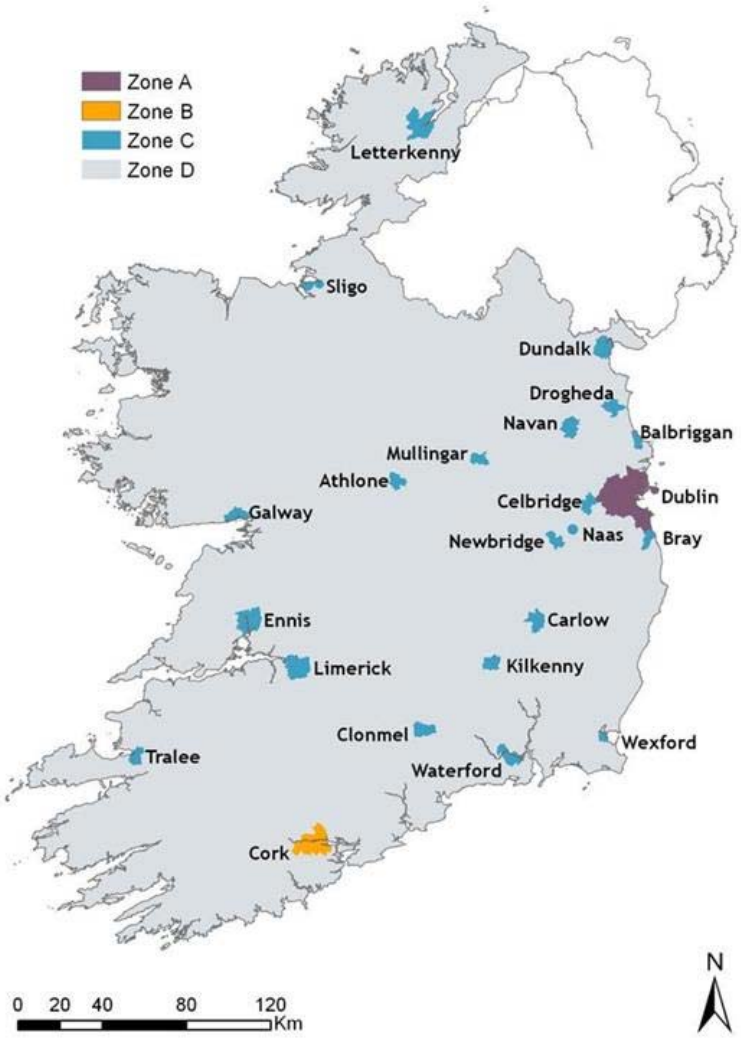


Figure 1.1 Air quality monitoring sites in Ireland in 2016

1.2 Air quality zones in Ireland in 2016

EU legislation on air quality requires that Member States divide their territory into zones for the assessment and management of air quality. These zones are designated to take account of population counts from the 2011 CSO Census. The zones in place in Ireland in 2016 are shown in Figure 1.2. Zone A is the Dublin conurbation; Zone B is the Cork conurbation with Zone C comprising 23 large towns in Ireland with a population >15,000. Zone D is the remaining area of Ireland.

The air quality in each zone is assessed and classified with respect to upper and lower assessment thresholds based on measurements over the previous five years. Upper and lower assessment thresholds are prescribed in the legislation for each pollutant. The number of monitoring locations required is dependent on population size and whether ambient air quality concentrations exceed the upper assessment threshold, are between the upper and lower assessment thresholds, or are below the lower assessment threshold.



1.3 National Ambient Air Quality Monitoring Programme (AAMP)

Following a comprehensive review of the current status of ambient air quality monitoring in Ireland, a new national ambient air quality monitoring programme under Section 65 of the EPA Act, will strengthen the capacity and capability to provide more comprehensive, localised air quality information linked to public health advice. This programme was issued for public consultation during 2016.

The new programme will involve a greatly expanded national monitoring network providing enhanced real-time information to the public, supplemented by an additional increased local authority capacity to conduct 'local' air monitoring. The network will be supported and augmented by increased modelling and forecasting capability, with the aim of providing an ongoing air quality forecast to the public. Supporting both elements will be citizen engagement and citizen science initiatives to encourage greater understanding and involvement of the public in air quality issues. The AAMP is built around three key pillars:

1.3.1. National monitoring network

A new national monitoring network will be established which will provide improved spatial coverage across rural and urban centres. The siting of the stations will be based on the criteria of population size, vulnerability to air quality issues and spatial distribution. The network of sites will monitor a range of important air quality parameters including particulates, heavy metals, inorganic and organic gases.

1.3.2. Modelling and forecasting

There is an increasing awareness of the need for Ireland to develop its capacity and capability in ambient air quality modelling. This proposal aims to provide, on a phased basis, the following modelling capability:

- General ambient air quality modelling at urban and regional scales
- Ambient air quality forecast modelling
- Incident response/ point source modelling in relation to ambient air quality incidents

Ambient air quality modelling as proposed here will enable the provision of information for locations between monitoring stations and provide source identification information. It will also allow scenarios to be modelled to inform general air quality policy development and assist in forming air quality plans. Modelling will also pave the way for the provision for the first time in Ireland, of an operational air quality forecast model. An ambient air quality forecast will inform the public in advance of the predicted air quality and enable choices to be made regarding work and leisure activities; this is particularly important for those who are vulnerable from a health perspective.

1.3.3. Citizen engagement

Air quality related citizen engagement and citizen science will be progressed to raise awareness and understanding of air quality issues and encourage individual participation in improving air quality as follows:

- A programme of citizen engagement initiatives in partnership with key stakeholders to include for example: programmes to support interaction with schools.
- Developing opportunities for citizen science activities.

2 Air Quality Monitoring Results 2016

This Chapter presents the monitoring data obtained for 2016 in the ambient air quality monitoring network and the results of the 2016 dioxin survey. The EPA's air quality webpage (http://www.epa.ie/air/quality/reports/aqsupp) provides more detailed data, with summary statistics for the air quality data collected from the ambient air quality monitoring network as well as the full dioxin survey report. Details of the European Monitoring and Evaluation Programme (EMEP) network, which provides data on transboundary air pollution, are also provided on the webpage.

The air quality data measured are compared to the relevant EU legislative limits and target values, as well as the WHO air quality guideline values. Further information on the legislation and WHO guidelines are outlined in Appendix A: Legislation and Policy.

2.1 Nitrogen dioxide (NO_2)

NO_X refers to the two pollutants: nitric oxide (NO) and nitrogen dioxide (NO_2). They are produced during combustion at high temperatures with the main sources in Ireland coming from vehicles and power stations.

Short-term exposure to NO_2 is linked to adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in asthmatics. Long-term exposure is associated with increased risk of respiratory infection in children. NO_X is a major precursor in the formation of ground level ozone. It is also a major precursor in the formation of photochemical 'smog'. NO_X, along with SO_2, also contributes to acidic deposition. NO_2 was monitored at 14 sites in 2016. The results are compared to the EU annual limit value and the WHO air quality guideline value in Figure 2.1.

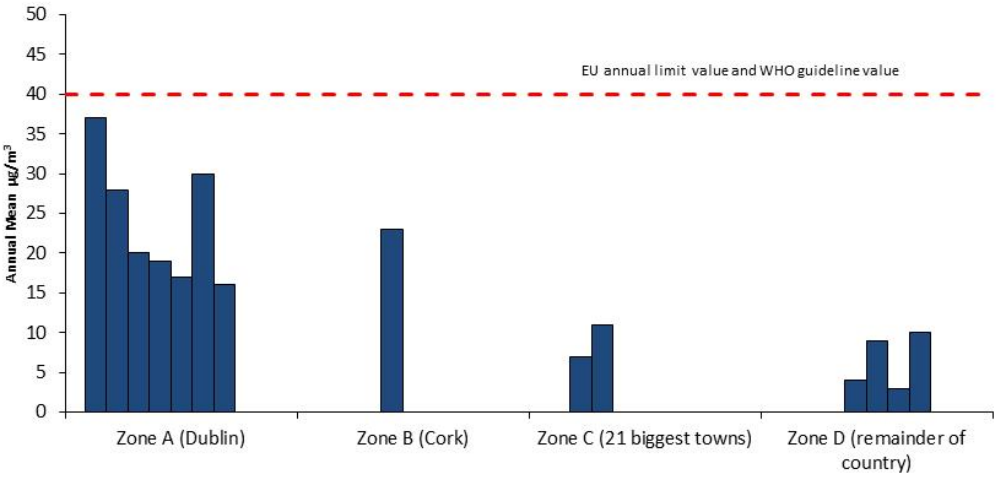


Figure 2.1 Annual mean NO_2 concentrations at individual monitoring stations in 2016

The NO_2 concentrations at all monitoring sites were below the EU annual limit value and WHO annual air quality guideline value, both of which are 40 µg/m^3. There were also no exceedances of the EU NO_2 hourly limit value (no more than 18 hours above 200 µg/m^3 in a calendar year at individual monitoring sites). There was one hourly average above 200 µg/m^3 at one station in 2016, this is above the hourly WHO air quality guideline.

2.2 Sulphur dioxide (SO_2)

SO_2 is a gas which is formed when sulphur containing fuels (mainly coal and oil) are burned in power stations, domestically, and elsewhere. Volcanic eruptions are the predominant natural source of sulphur dioxide.

Impacts of high concentrations of SO_2 include temporary breathing difficulties for those who suffer from respiratory conditions such as asthma. Longer-term exposure to high SO_2 concentrations can aggravate existing cardiovascular disease and respiratory illness.

SO_2 was monitored at 11 sites in 2016. The results are compared to the EU annual limit value and the WHO air quality guideline value in Figure 2.2. While no exceedances of the EU daily limit value were recorded in 2016, SO_2 concentrations were above the WHO air quality guideline value at two sites in 2016.

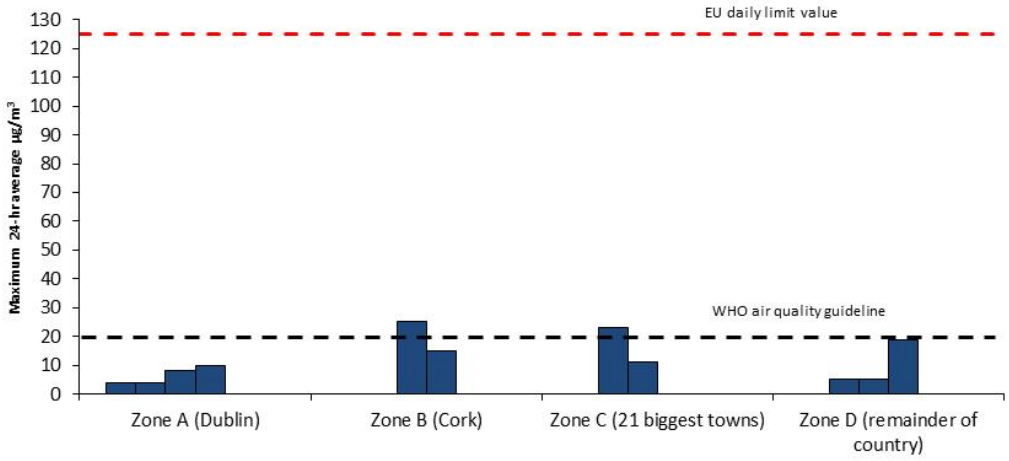


Figure 2.2 Daily maximum concentrations for SO_2 at individual monitoring stations in 2016

There were also no exceedances of the EU one hour limit value (no more than 24 hours > 350 µg/m^3 in a calendar year at individual monitoring sites).

2.3 Carbon monoxide (CO)

Carbon monoxide is a colourless gas, formed from incomplete oxidation during combustion of fuel. Sources of CO in Ireland are mainly from automobiles, although tobacco smoke and poorly adjusted and maintained combustion devices, such as boilers, contribute also. CO concentrations tend to be higher in areas with heavy traffic congestion.

CO enters the bloodstream through the lungs where it impairs oxygen delivery to the body's organs and tissue. The health impact of CO concentrations that may be found in ambient air is most serious for those who suffer from cardiovascular diseases such as angina. It may induce fatigue in healthy people. At higher concentrations not normally found in ambient air, CO is poisonous causing impaired vision and coordination, headaches, dizziness, confusion, nausea and death.

CO was monitored at 5 locations in 2016. All concentrations were below the EU limit value and WHO air quality guideline value (maximum daily 8-hour mean not to exceed 10 mg/m^3 at individual stations).

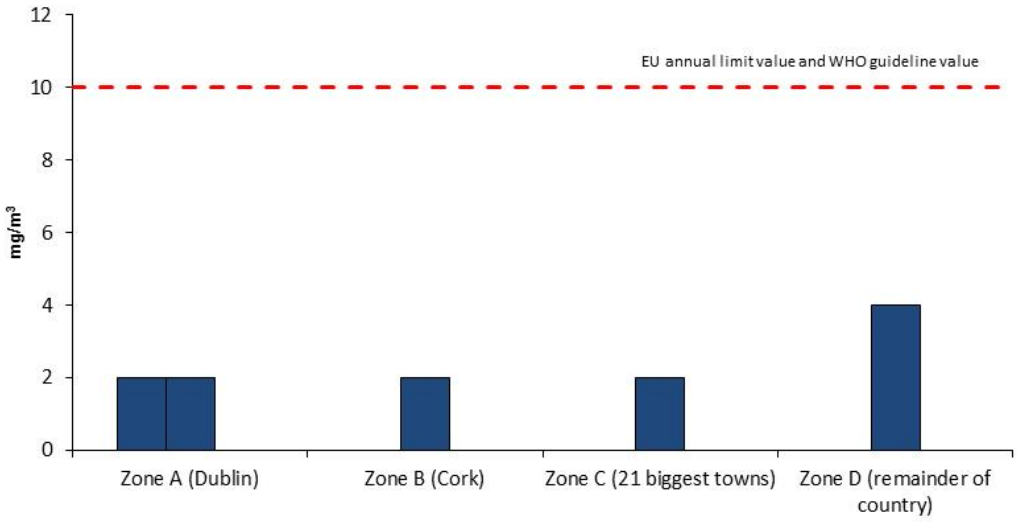


Figure 2.3 Max 8-hour mean CO Concentrations at individual stations in 2016

2.4 Ozone (O_3)

Ozone is formed as a secondary pollutant in the troposphere from the chemical reaction of NO_X, CO and volatile organic compounds (VOCs) in the presence of sunlight. Ozone can also be present in the troposphere due to downward flux from the ozone-rich stratosphere, where it occurs naturally and has an important role in absorbing harmful UV radiation. Ozone is readily transported from Atlantic and European regions due to the natural movement of air masses. Ground-level ozone is depleted through reactions with traffic-emitted pollutants; therefore, levels of ozone are higher in rural areas than in urban areas.

Ozone irritates the eyes, nose, throat and lungs. It can destroy throat and lung tissue leading to decrease in lung function and respiratory symptoms such as coughing, shortness of breath, aggravated asthma and other lung diseases. It can lead to premature mortality.

Ozone was monitored at 12 sites in 2016. All observed concentrations were below the EU limit value. This daily, 8-hour maximum, limit must not be exceeded on more than 25 days in the calendar year at individual sites. It was exceeded on one day at two sites in 2016.

Concentrations at seven monitoring sites were above the WHO air quality guideline value for ozone in 2016. This guideline value is exceeded if any maximum 8-hour concentration at a monitoring site exceeds 100 µg/m^3.

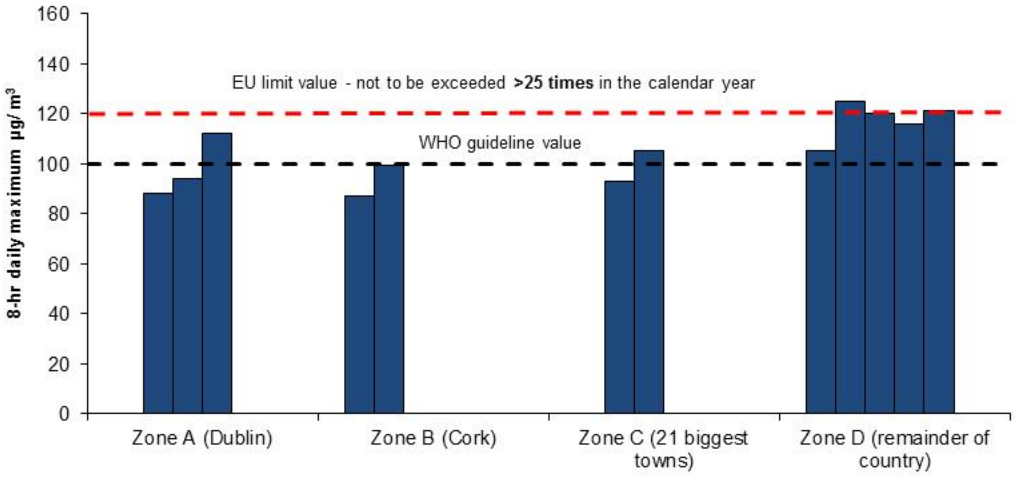


Figure 2.4 8-hour daily maximum ozone concentrations at individual stations in 2016

2.5 Particulate matter (PM_{10})

PM_{10} are particles with diameters of 10 µm or less. These particles can consist of direct emissions such as dust, emissions from combustion engines, from the burning of solid fuels or natural sources such as windblown salt, plant spores and pollens. These direct emissions are known as primary PM_{10}. PM_{10} can also be produced indirectly by formation of aerosols through reactions of other pollutants such as NO_X and SO_2; these are known as secondary PM_{10}. In Ireland, the main sources are solid fuel burning and vehicular traffic.

The health impacts of particulate matter relate to its ability to penetrate deep into the respiratory tract. This inhalation can increase the risk, frequency and severity of cardiopulmonary and respiratory disorders. It is particularly harmful for those who have a pre-existing respiratory illness. It also has a strong association with circulatory disease and mortality.

PM_{10} was monitored at 17 sites in 2016. All observed concentrations were below the EU annual limit value (annual mean concentrations at individual monitoring stations must not exceed 40 µg/m^3). There were also no exceedances of the EU daily limit value (no more than 35 days > 50 µg/m^3 at individual stations) Concentrations were also below the annual WHO air quality guideline value of 20 µg/m^3 (annual mean). However, 11 sites were above the daily WHO air quality guideline value (which states there should be no daily average value above 50 µg/m^3).

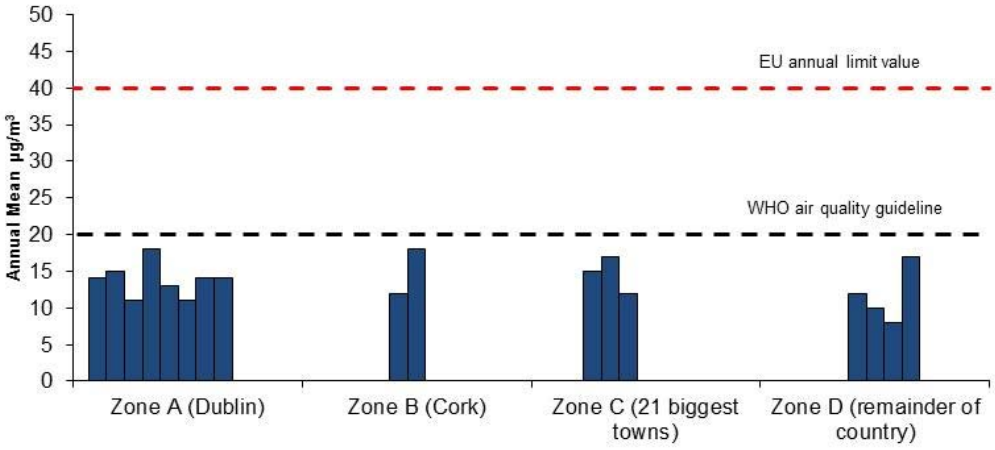


Figure 2.5 Annual mean PM_{10} concentrations at individual stations in 2016

2.6 Particulate matter ($PM_{2.5}$)

$PM_{2.5}$ or 'fine' particulate matter is particle pollution made of a mixture of solids and liquids of size 2.5 µm or less. It is composed of a number of varying components depending on its source. These can include acids such as nitrates and sulphates, VOCs, metals, and soil or dust particles. This $PM_{2.5}$ can be emitted directly into the atmosphere or can be formed secondarily. For example, sulphate particles are formed by the chemical reaction of SO_2 in the atmosphere after its release from power plants or industrial facilities. The dominant source of $PM_{2.5}$ is domestic solid fuel combustion. $PM_{2.5}$ is considered a better indicator of man-made particulate matter than PM_{10}.

$PM_{2.5}$ was monitored at nine sites in 2016. All observed concentrations were below the EU annual limit value of 25 µg/m^3. Concentrations were above the annual WHO air quality guideline value of 10 µg/m^3 at two monitoring stations in 2016. All nine monitoring stations had exceedances of the daily WHO air quality guideline value (which states there should be no daily average value above 25 µg/m^3).

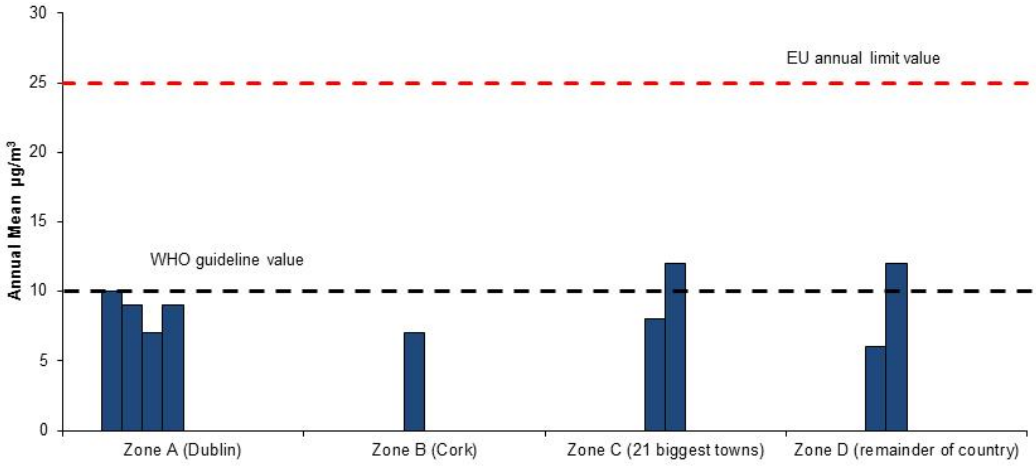


Figure 2.6 Annual mean $PM_{2.5}$ concentrations at individual stations in 2016

2.7 Benzene

Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anaemia, in occupational settings. Increased incidences of disease have been observed in humans occupationally exposed to high levels of benzene, although this level of exposure is unlikely in ambient air.

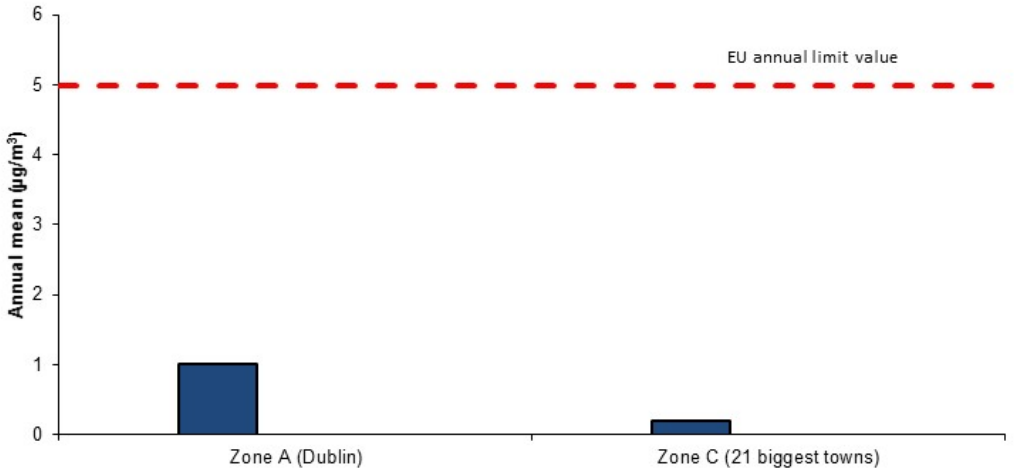


Figure 2.7 Annual mean benzene concentrations at individual stations in 2016

2.8 Heavy metals – Lead (Pb), Cadmium (Cd), Arsenic (As) and Nickel (Ni)

Short-term exposure to these heavy metals can cause irritation of the respiratory system, which can lead to laryngitis, bronchitis or rhinitis. Long-term exposure can cause irritation to

the respiratory tract and cardiovascular and neurological effects, asthma, chronic bronchitis, emphysema, reduced vital capacity, and lung and nasal cancers. Lead interferes with a variety of biological processes and is toxic to many organs and tissues. It is particularly damaging to the brain and causes neurological impairments such as seizures, mental retardation and behavioural disorders. Levels of lead tend to be low in Ireland. Lead, arsenic, cadmium and nickel in PM_{10} were measured at five stations in 2016. The annual mean concentrations measured at all stations were all below the respective target or limit values. Figure 2.8, Figure 2.9, Figure 2.10 and Figure 2.11 show the annual mean lead, arsenic, cadmium and nickel concentrations, respectively, at the five monitoring sites in 2016.

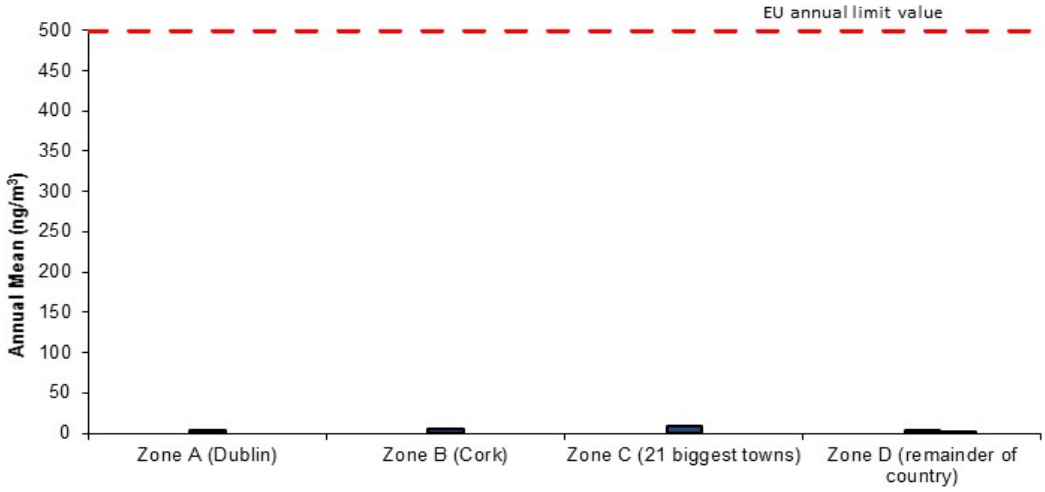


Figure 2.8 Lead concentrations at individual stations in Ireland in 2016

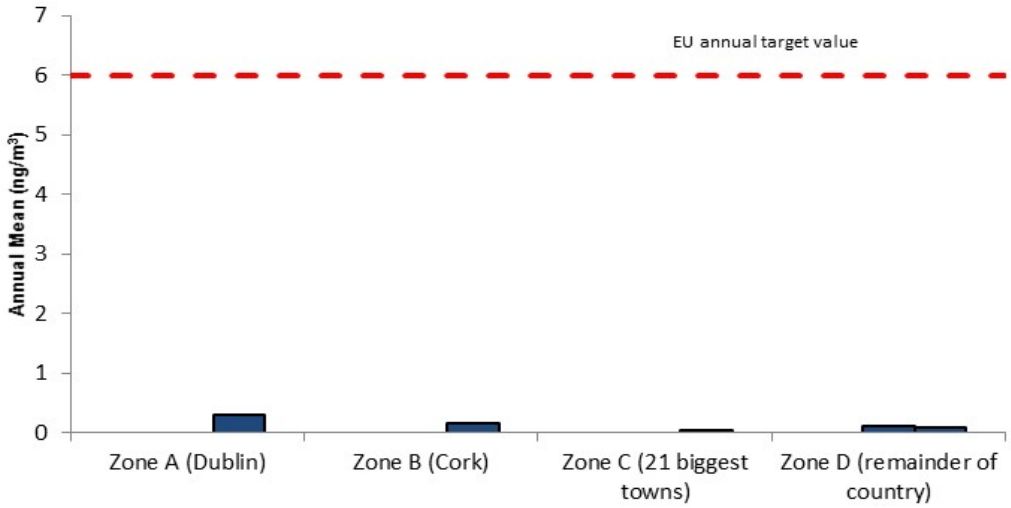


Figure 2.9 Arsenic concentrations at individual stations in Ireland in 2016

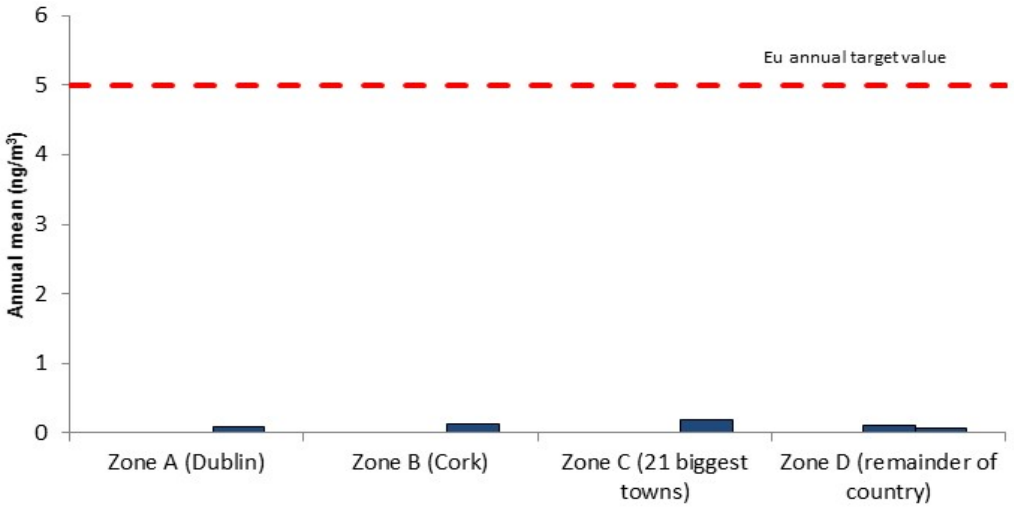


Figure 2.10 Cadmium concentrations at individual stations in Ireland in 2016

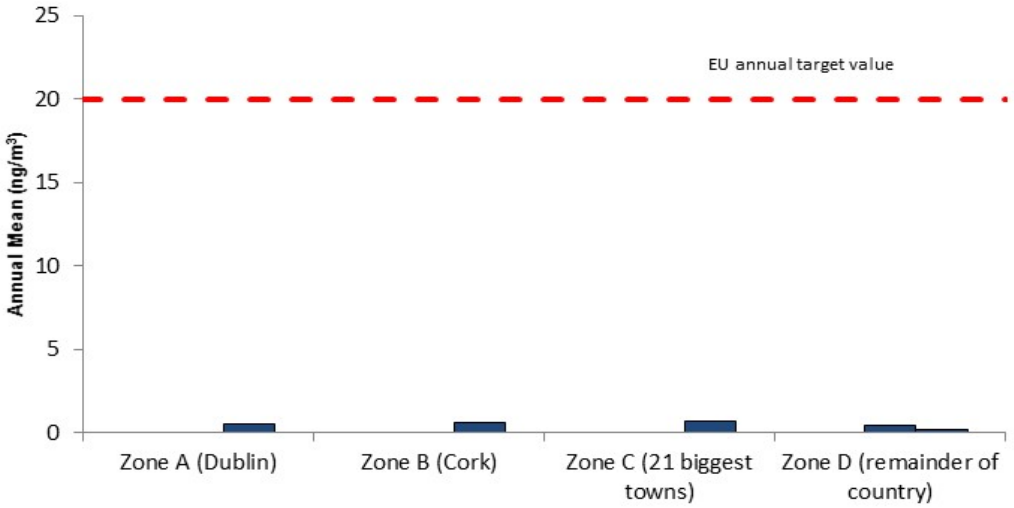


Figure 2.11 Nickel concentrations at individual stations in Ireland in 2016

2.9 Polycyclic aromatic hydrocarbons (PAHs)

Short-term exposure to high levels of PAHs may cause eye irritation, nausea, diarrhoea, vomiting and confusion, although high concentrations are unlikely to be found in ambient air. The chronic or long-term effects of exposure to low levels of PAHs may include cataracts, kidney and liver damage and jaundice. Many PAHs have also been identified as carcinogenic with airborne PAHs most likely to cause lung cancer. PAHs are monitored in Ireland as part of a PM_{10} fraction by using Benzo(a)Pyrene (BaP) as a marker for all PAHs. PAH are emitted domestically from the combustion of solid fuels, such as coal, wood and peat. They can also be emitted from incomplete combustion of fuel in vehicles. Waste burning or 'backyard burning' and bonfires are a source of PAH as is cigarette smoke.

PAHs were monitored at five locations in Ireland in 2016. Annual mean concentrations were below the EU limit value but were above the European Environment Agency (EEA) air quality estimated reference level at four of the five monitoring sites.

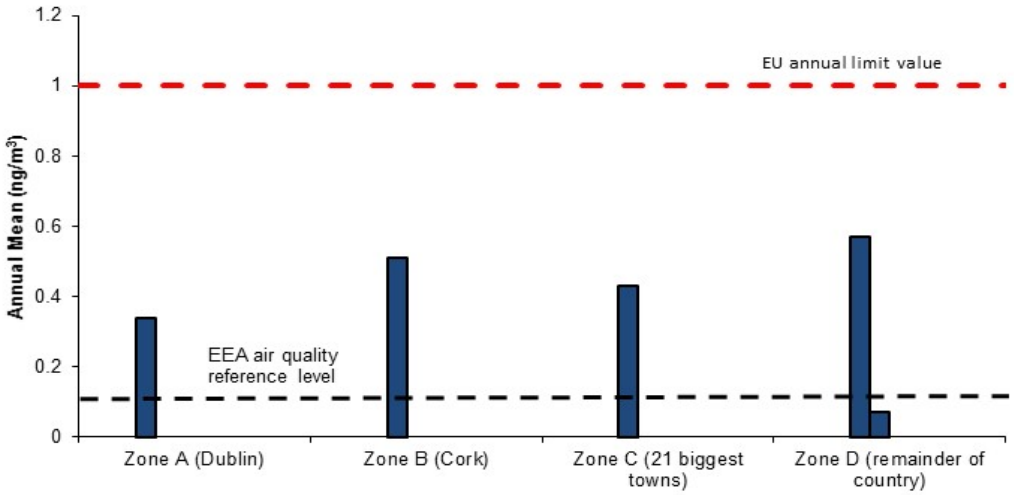


Figure 2.12 Annual mean values for PAH (BaP) at individual stations in Ireland in 2016

2.10 Mercury (Hg)

Mercury exposure at high levels can harm the brain, heart, kidneys, lungs and immune system of people of all ages. It is harmful to the developing nervous system of unborn babies and young children.

Mercury was measured at Mace Head in Galway in 2016. An annual average concentration of 1.25 ng/m^3 was measured.

There is no EU limit value, target value or WHO target value for Mercury in ambient, however this concentration is low and is in line with previous concentrations observed in Ireland.

2.11 Dioxins

"Dioxins" is a collective term for the category of 75 polychlorinated dibenzo-para-dioxin compounds (PCDDs) and 135 polychlorinated dibenzofuran compounds (PCDFs). These compounds or congeners are not formed for specific purposes but arise mainly as unintentional by-products of incomplete or poorly controlled combustion and from certain chemical processes.

Dioxins are highly toxic and can cause reproductive and developmental problems, damage the immune system, interfere with hormones and may also cause cancer. Direct measurement for dioxins in ambient air is extremely difficult and no limits have been set by the EU for levels in air. The most appropriate method for assessing dioxin exposure in the air is to sample dioxin levels in cows' milk samples taken during the grazing season. The levels measured were compared to the EU limit values for dioxin levels in milk and the EU limit value for the combination of dioxins and PCBs.

Results from the Dioxins in milk survey 2016 are presented in Figure 2.13 and Figure 2.14 with a comparison to the mean values for the period 2000 - 2016. As can be seen from these graphs concentrations of dioxins and similar pollutants remain at a consistently low level in the Irish environment. Although sample B2 appears higher, it is only a reflection of the very low values of other samples and sample B2 is well below the limit value. A comparison with unvalidated 2017 results for sample B2 show concentrations at background levels and in line with other survey locations. The locations and location codes for the dioxin survey are presented in Appendix B: Dioxin survey. The full report can be found on our website at www.epa.ie/air/quality/reports/aqsupp.

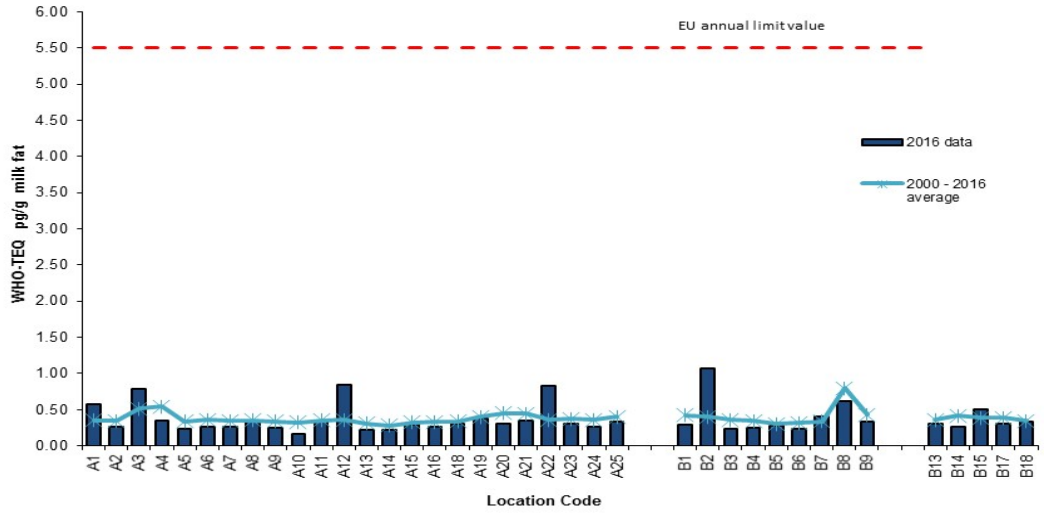


Figure 2.13 Dioxins/Furans and PCBs 2016 data compared with 2000-2016 averages

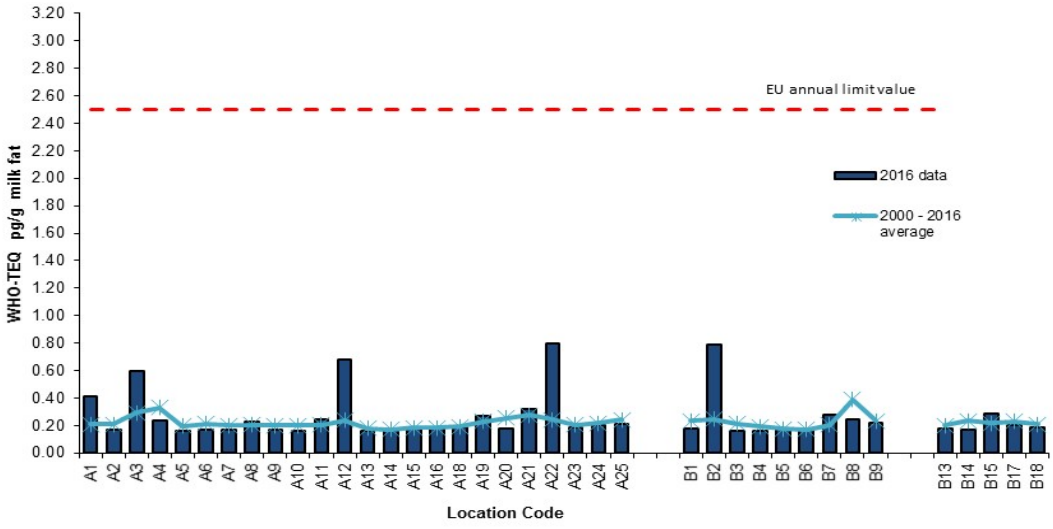


Figure 2.14 Dioxins/Furans 2016 Data Compared with 2000-2016 Averages

2.12 Radon

Radon is a radioactive, colourless, odourless and tasteless gas. The greatest health risk from radiation in Ireland is caused by radon. It accounts for more than half of the total radiation dose received by the Irish population. As a known carcinogen, in the same category as tobacco smoke and asbestos as causes of lung cancer. Up to 250 cases of lung cancer in Ireland every year can be linked to radon. Outside radon is diluted to very low levels. Radon can enter a building from the ground through small cracks in floors and through gaps around pipes or cables. Homes in some parts of the country are more likely to have a radon problem. The estimated 250 lung cancer cases are principally associated with exposure to radon in the home, but exposure in the workplace is also a contributor.

Certain areas of the country are more likely to have a high number of homes with excessive levels of radon and these areas are known as High Radon Areas. They can be found on our radon map of Ireland - www.epa.ie/radiation/radonmap.

3 Air Quality Trends in Ireland

This chapter looks at key trends for air pollutants in the last ten years in Ireland.

3.1 Nitrogen dioxide (NO_2)

Figure 3.1 shows annual mean NO_2 concentrations at monitoring stations from each zone in Ireland from 2006 to 2016. NO_2 has shown a slight downward trend in this period, however it must be noted that concentrations at urban areas in Ireland are close to the EU annual limit value, increases in traffic numbers or certain weather conditions unfavourable to dispersion of pollutants could result in exceedances of the limit value.

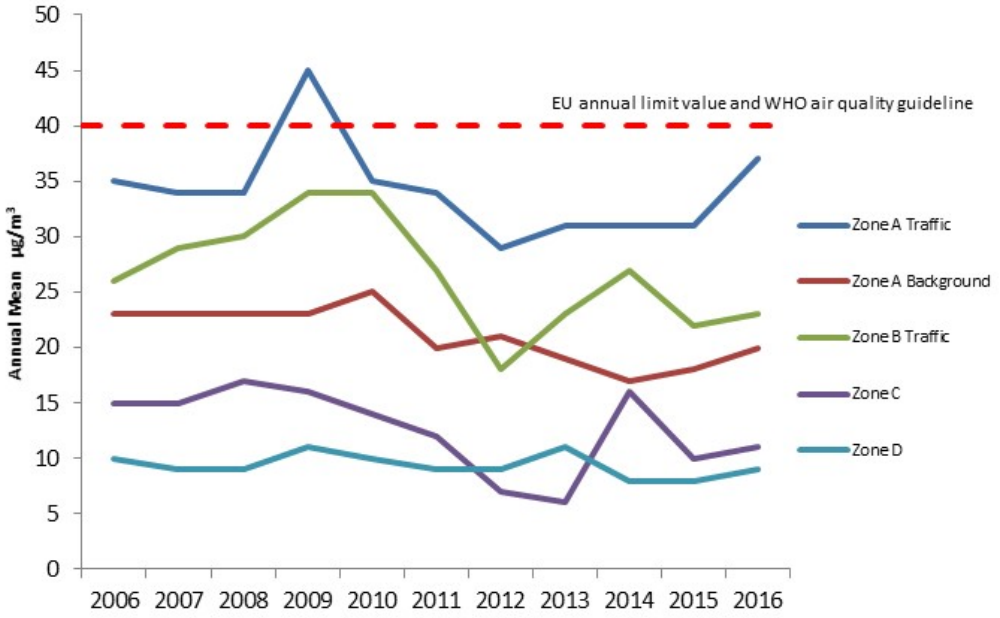


Figure 3.1 Trend in NO_2 concentrations for zones in Ireland 2006 - 2016

3.2 Sulphur dioxide (SO_2)

Figure 3.2 shows annual mean SO_2 concentrations for zones in Ireland from 2006 to 2016. SO_2 concentrations have remained low in this period.

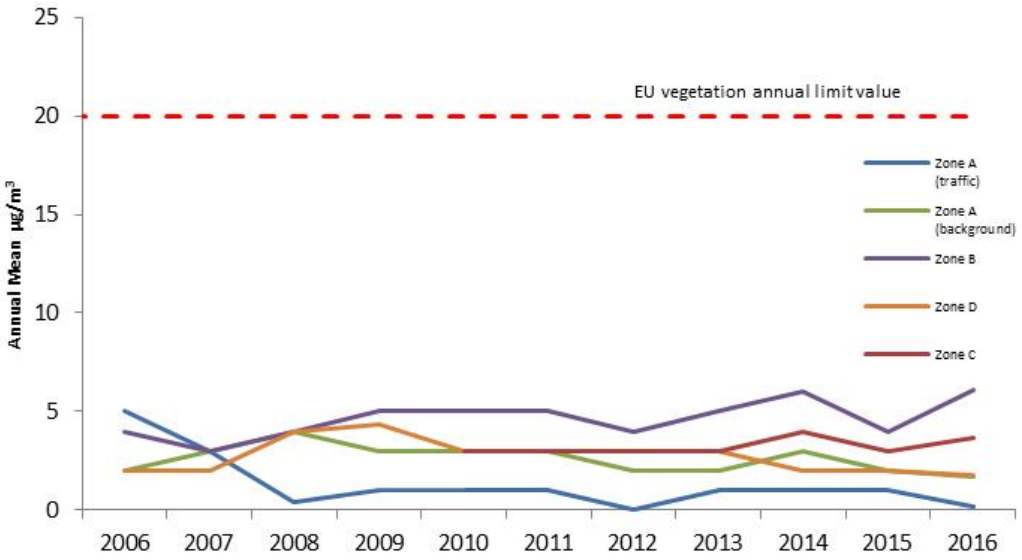


Figure 3.2 Trend in SO_2 concentrations for zones in Ireland 2006 – 2016

3.3 Carbon monoxide (CO)

Figure 3.3 shows maximum daily 8-hour mean values of CO for monitoring stations in Cork and Dublin from 2006 to 2016. CO concentrations have remained low with a slight downwards trend in that period.

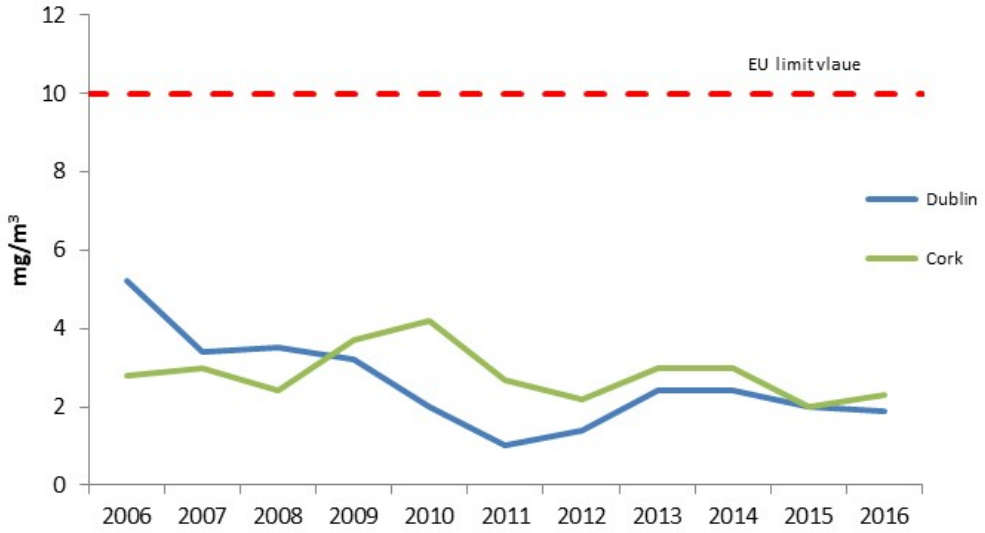


Figure 3.3 Trend in maximum daily 8-hour mean for Dublin and Cork 2006 – 2016

3.4 Ozone (O_3)

The AOT40 is an indicator of exposure of vegetation to ozone during the growing season, when vegetation is more susceptible to damage from pollutants. Figure 3.4 shows the AOT40 for five rural background stations for the years 2005-2015.Rural background stations are

classified as remote, regional or near-city depending on their proximity to urban areas. Ozone levels are higher in remote regions and tend to be highest along the western seaboard (indicated by the Galway and Kerry sites). Ozone is highly influenced by weather and transboundary sources.

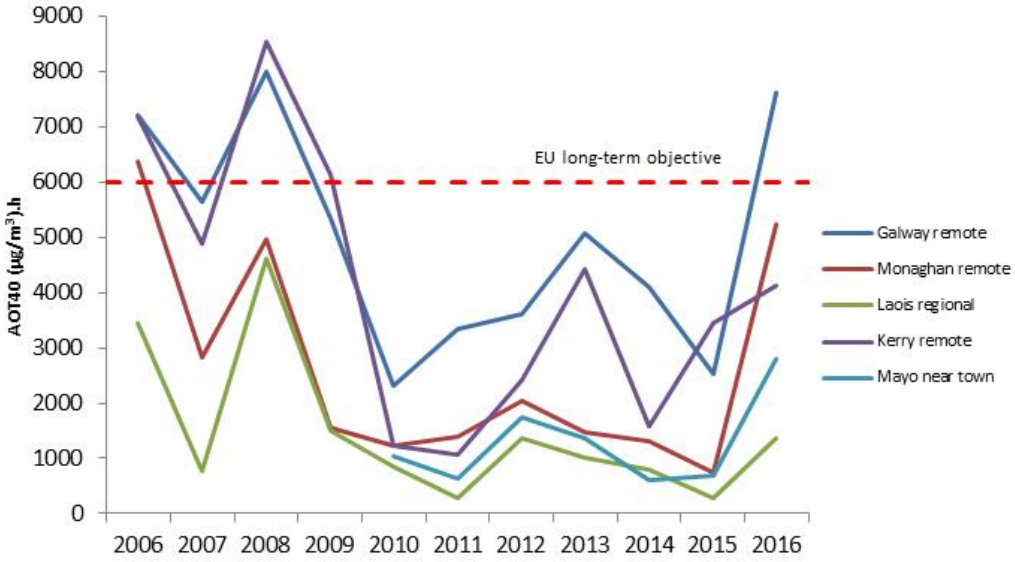


Figure 3.4 Ozone AOT40 at rural background stations in Ireland 2006 – 2016

3.5 Particulate matter (PM_{10})

Figure 3.5 shows the annual mean PM_{10} concentrations at selected stations from 2006 to 2016. Concentrations have consistently been hovering around the WHO air quality guideline value over this period.

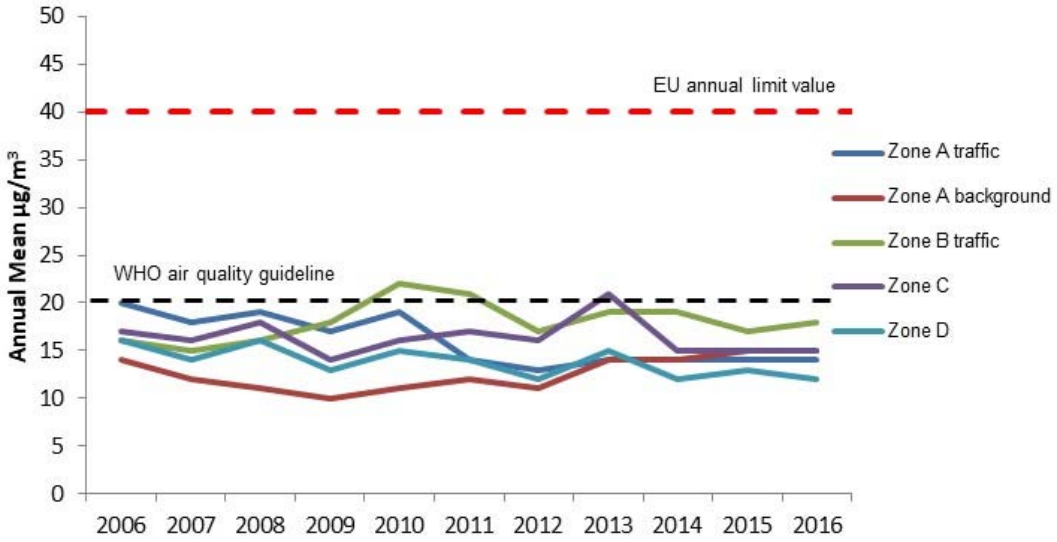


Figure 3.5 Annual mean PM_{10} concentrations in Zone A in Ireland 2006 – 2016

3.6 Particulate matter ($PM_{2.5}$)

Figure 3.6 shows the trend for $PM_{2.5}$ annual mean concentrations at individual stations for the period 2009 to 2016. Concentrations show no overall discernible trend with individual stations showing some slight trends in either direction.

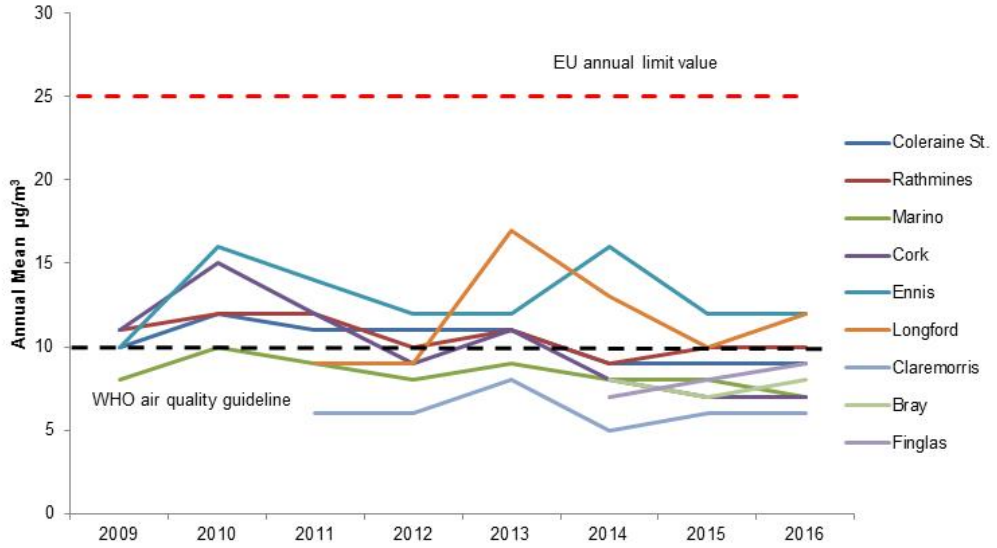


Figure 3.6 Annual mean $PM_{2.5}$ concentrations at individual stations in Ireland 2009 – 2016

3.7 Benzene

Figure 3.7 shows annual mean benzene concentrations at individual monitoring stations in Ireland from 2006 – 2016. Concentrations over this time period have remained low.

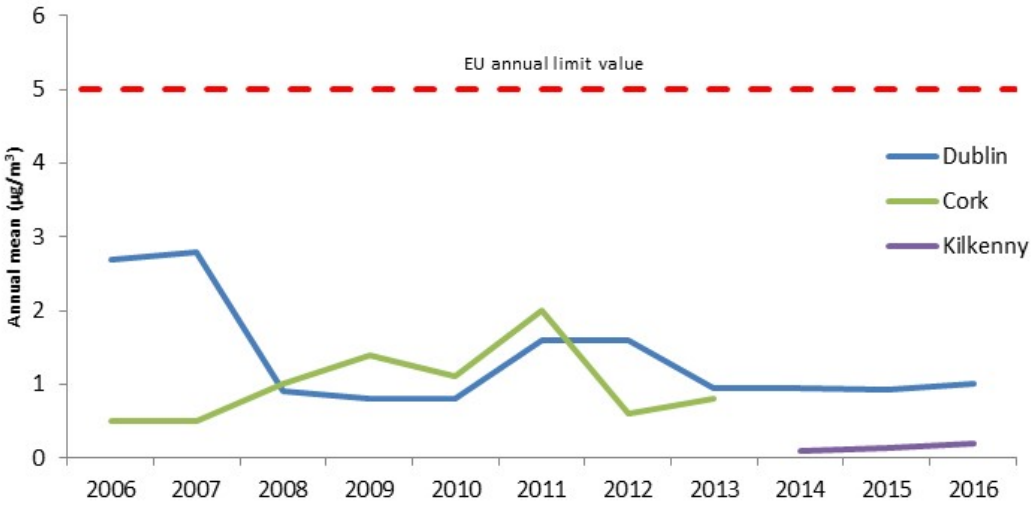


Figure 3.7 Annual mean benzene concentrations at individual stations in Ireland 2006 - 2016

3.8 Heavy metals (As, Cd, Pb and Ni)

Figure 3.8, Figure 3.9, Figure 3.10 and Figure 3.11 show the trends in lead, arsenic, cadmium and nickel respectively over the period 2009 – 2016. Concentrations in this time have remained low.

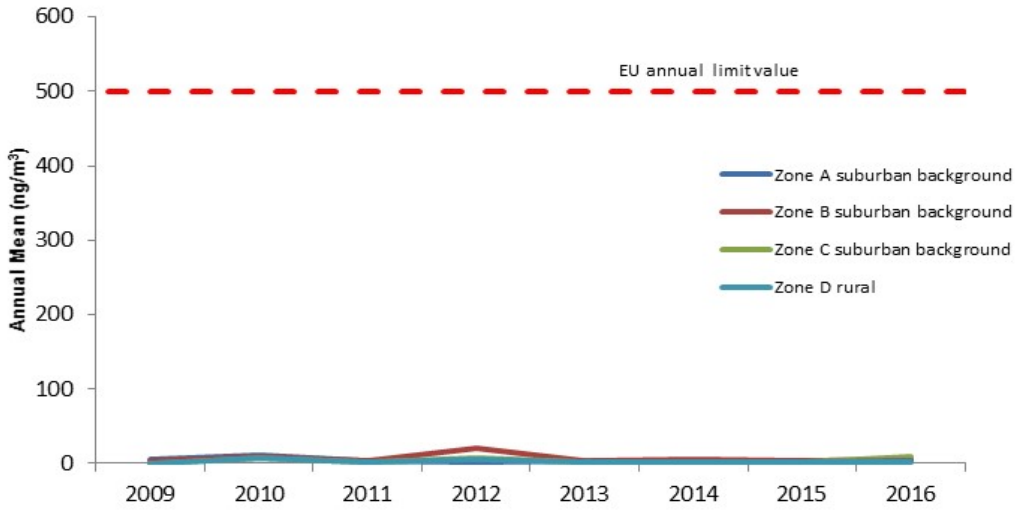


Figure 3.8 Annual mean lead concentrations 2009 - 2016

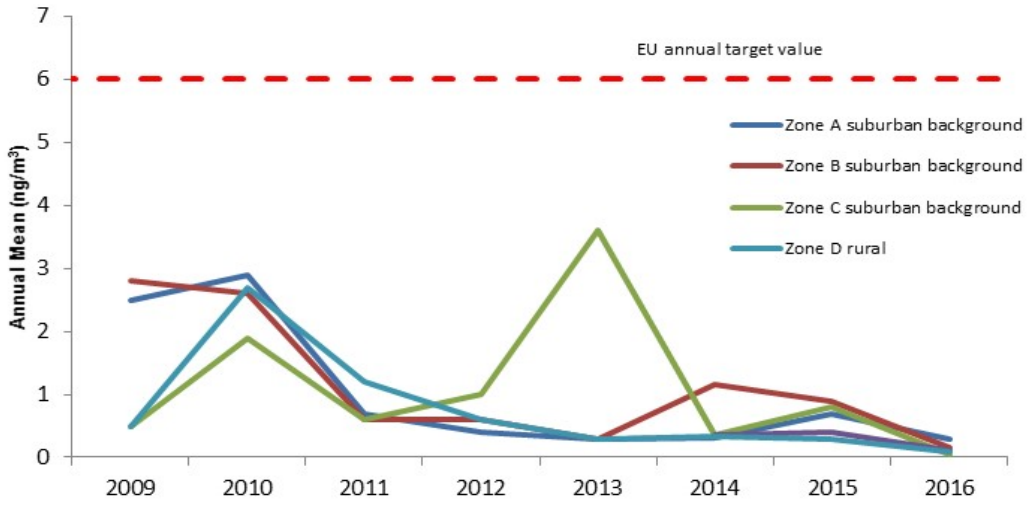


Figure 3.9 Annual mean arsenic concentrations 2009 – 2016

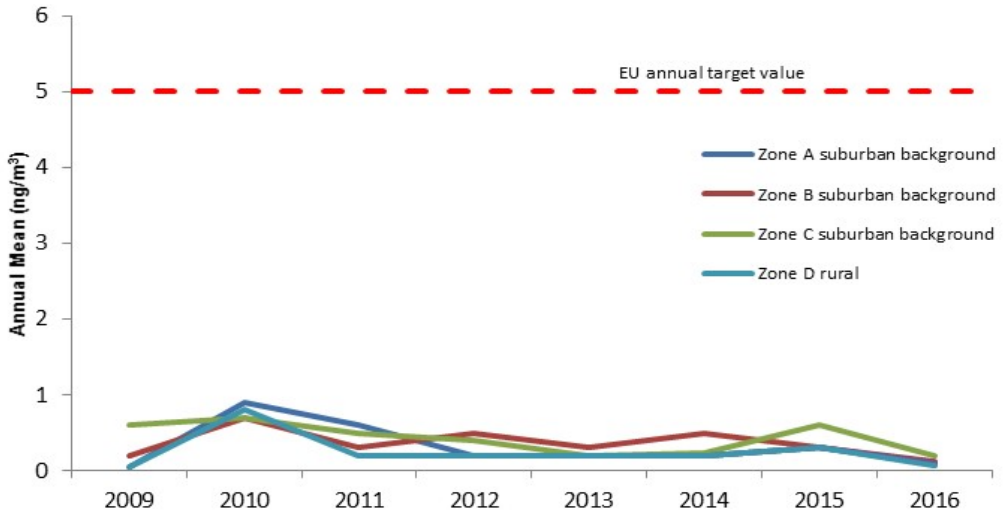


Figure 3.10 Annual mean cadmium concentrations 2009 – 2016

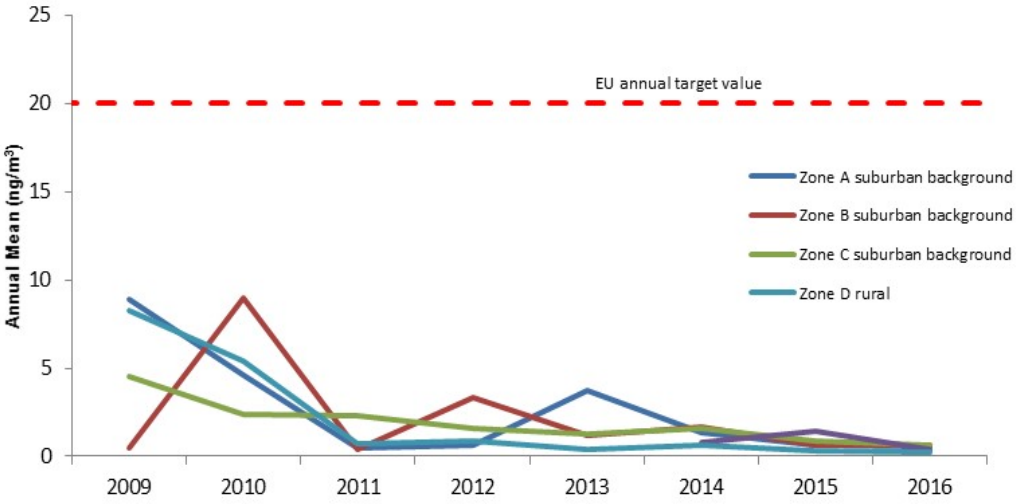


Figure 3.11 Annual mean nickel concentrations 2009 – 2016

3.9 Polycyclic aromatic hydrocarbons (PAHs)

The trend in concentrations of PAHs (using BaP as a marker PAH) across Ireland over the period 2009 – 2016 is shown in Figure 3.12. There are no discernible trends in this period, however it is clear that PAH is a problem pollutant with concentrations at a number of sites close to the annual limit value.

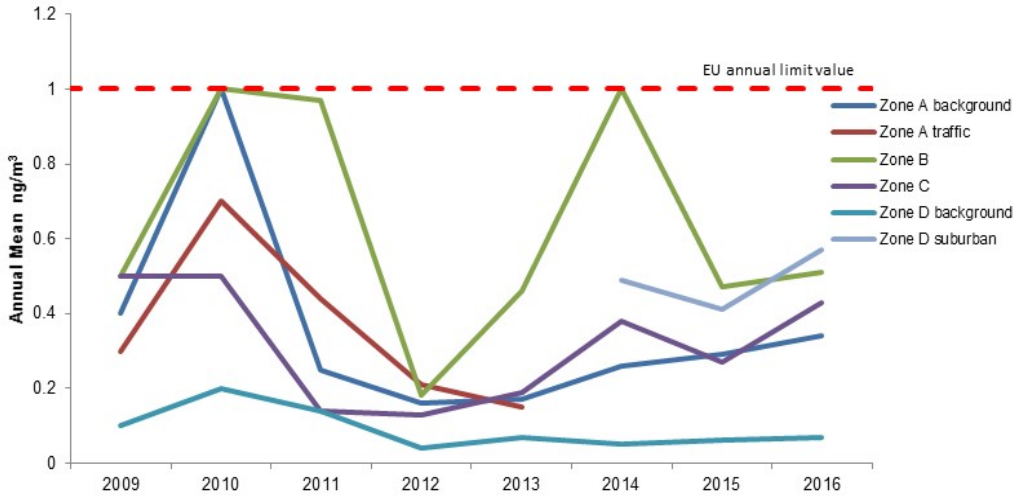


Figure 3.12 Annual mean BaP concentrations at individual stations in Ireland 2009 - 2016

4 Air Quality Information

This Chapter introduces some of the ways in which the public can access air quality data and information.

4.1 EPA air quality website

The best source of air quality information is the EPA's air quality website at www.epa.ie/air/quality/. This site presents real-time air quality data and details air quality legislation. It also links to our monthly air quality bulletins and annual air quality reports.

A summary of some key statistics from work undertaken by EPA in air enforcement is available to view at www.epa.ie/pubs/reports/air/quality

4.2 Air Quality Index for Health

The EPA's Air Quality Index for Health is a web-based index, developed in conjunction with the Health Service Executive, Met Éireann, DCCAE and Local Authorities and shows what the current air quality is across Ireland. The Air Quality Index for Health is a coloured scale of 1 - 10. As shown in Figure 4.1, the scale is divided into four bands:

- good
- fair
- poor
- very poor

with health advice provided for each band.

The Air Quality Index for Health is calculated hourly and is represented on a colour coded map of Ireland, from which the public can easily assess current air quality in their area. The Air Quality Index for Health can be viewed at www.epa.ie/air/quality/.

The Air Quality Index for Health includes health advice for both the general population and those who are more sensitive to air pollution, for example, people with heart or lung problems. The accompanying instructions explain how to determine if you or your child is likely to be at risk from air pollution.

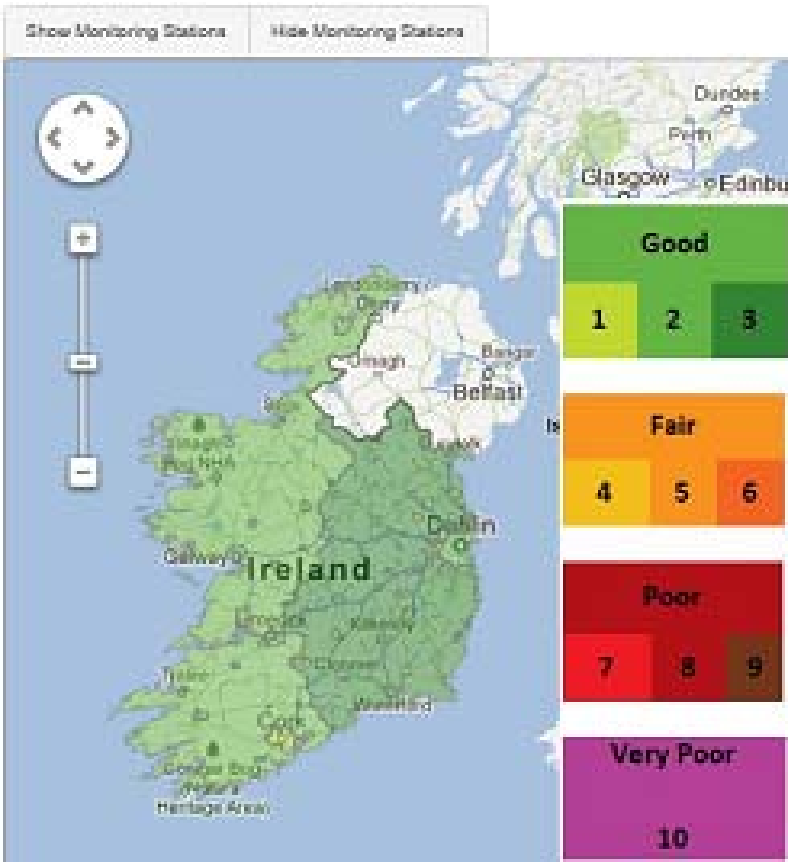


Figure 4.1 The Air Quality Index for Health

4.3 @EPAAirquality

The EPA also has a Twitter channel @EPAAirQuality. Anyone can sign up to this Twitter channel and receive tweets on the status of air quality in their region every day.

5 Conclusions

Air pollution presents one of the biggest environmental threats to public health and ecosystems across Europe. Recently the EEA have estimated that there were 1,510 premature deaths in Ireland in 2014 due to poor air quality, with a figure of 520,400 premature deaths across the wider EU (EEA 2017).

Air pollution is clearly negatively impacting on the environment and on the quality of life of the citizens of Ireland. However, data produced by the EPA on the key sources of these pollutants also indicates that there are opportunities to take action to reduce the levels of pollutants in the atmosphere, in order to provide a cleaner and healthier environment supporting a sustainable society and economy.

While the data from Ireland's air quality monitoring in 2016 shows that we are in compliance with the EU statutory limit and target values, it is clear, that Ireland's air quality fails to meet the tighter WHO guideline values for a number of pollutants, including PM_{10}, $PM_{2.5,}$ ozone, SO_2 and NO_2. Ireland faces a stiff challenge to decrease the levels of these air pollutants to below that of the WHO Air Quality Guideline values, however it is particularly important to tackle $PM_{2.5}$ which the EEA has highlighted as having responsibility for the majority of premature deaths in Ireland.

The key sector in respect of $PM_{2.5}$ concentrations in Ireland is the continued use of solid fuel burning for home heating. Also, there is increasing research in Ireland (UCC Sapphire Project and UCD Ammonia N2K project) beginning to highlight agriculture as a contributor to $PM_{2.5}$ concentrations, particularly ammonia which must be further investigated.

For the pollutants SO_2 and NO_2 there are potential sources in the residential heating, energy, industry and transport sectors.

Emissions from large industrial activities are well regulated through the industrial and waste licensing regimes and further downward pressure on emissions will be realised through ongoing implementation of the European Industrial Emissions Directive (IED) and associated Best Available Techniques requirements of the IED.

In relation to the other activities (residential heating, energy production and transport), it is the transport sector which has the greatest impact on NO_2 concentrations, particularly in our urban areas where we are above the WHO guideline value, approaching the EU limit value and could face exceedances of this EU limit in the future if vehicle numbers continue to rise.

There are solutions to the challenges highlighted above - firstly there should be movement towards adoption of the WHO guideline values across Europe as this would provide a real impetus for improvements in air quality. The continued promotion of the shift from solid fuel

as a method of home heating to cleaner alternatives, is the key issue regarding particulate matter levels in Ireland and the area where there is the greatest scope for improvements in air quality. Priority should be given to public transport or clean transport over fossil fuel powered motor vehicles in all aspects of society. Pollutants such as NO_2, from the transport sector are set to become an issue for Ireland in the coming years, unless we transition from our dependence on fossil fuel combustion powered transport. The Government's proposed 'Clean Air Strategy' for Ireland is expected to highlight these issues, proposing policy solutions to address the major public health and environmental challenges posed by air pollution to Ireland. Together with the 'National Mitigation Plan' which also contains many measures which will have air quality synergies, these documents point the way forward from a policy perspective.

The EPA's development of a national ambient air quality monitoring programme (AAMP) providing enhanced real-time air quality information to the public as well as the forthcoming Clean Air Strategy will both require local authorities to play a central role. However, at present the resources allocated to air quality issues by local authorities are very limited. Sufficient capacity and capability must be developed within the local authority network in relation to air quality.

Increased citizen engagement will be crucial to the successful implementation of the Clean Air Strategy and forms a key pillar of the AAMP. Pivotal to this, is the need to increase public awareness and understanding of the link between air quality and health and how the actions of individuals can have a positive effect on local air quality. The continued implementation of the AAMP by the EPA, supported by the Clean Air Strategy will act to educate, inform and support the public to make clean air choices, particularly in the how we heat our homes and travel in our urban centres, which will lead to cleaner air to breathe in our villages, towns and cities.

Appendix A: Legislation and Policy

Environmental Protection Agency

The EPA is the designated competent authority for the implementation of all Irish and EU ambient air quality legislation. It is assisted in its role by the Local Authorities, carrying out ambient air quality monitoring. This collaborative network of monitoring is known as the 'National Ambient Air Quality Monitoring Network'. The EPA manages this monitoring network and is responsible for all reporting to stakeholders – which include the public and the European Commission (EC). The EPA is also the National Reference Laboratory (NRL) for air quality for Ireland.

EU legislation

The results of air quality monitoring in 2016 presented in this report are compared to the limit and target values in the latest EU legislation, the Clean Air for Europe (CAFE) Directive (EP and CEU, 2008) and the Fourth Daughter Directive (EP and CEU, 2004). The CAFE Directive is an amalgamation of the Air Quality Framework Directive and its subsequent First, Second and Third Daughter Directives. The EU intends to incorporate the Fourth Daughter Directive into the CAFE Directive in the future. The CAFE Directive introduced a limit value for $PM_{2.5}$. It also required Member States to measure an average exposure indicator (AEI) for $PM_{2.5}$, which was an annual concentration, averaged over three years. Based on this value there is a mandatory percentage reduction for each Member State to be achieved by 2020. This reduction target, which is 10% for Ireland is known as the $PM_{2.5}$ National Exposure Reduction Target ($PM_{2.5}$ NERT)

The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). It replaces the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and S.I. No. 33 of 1999. The 4th Daughter Directive was transposed by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).

Specific requirements are set out in relation to providing the public with information on ambient air quality. Up-to-date information on air quality must be made available on a widespread basis through appropriate media including newspapers and the Internet, with more sensitive population groups provided with more specific information. See section 4 of this report for further details on air quality information. Further details on air quality legislation can be found at http://www.epa.ie/air/quality/standards/.

World Health Organisation air quality guidelines

This report makes reference to the World Health Organisation (WHO) air quality guidelines for particulate matter (PM_{10}), ozone, nitrogen dioxide and sulphur dioxide (WHO, 2005); and also the WHO air quality guidelines update, which includes $PM_{2.5}$ (Air Qual Atmos Health, 2008). These guidelines were developed by the WHO, to inform policy makers and provide appropriate air quality targets worldwide, based on the latest health information available. These guideline values for many parameters are stricter than the EU Directives. The results obtained in our monitoring program during 2016 are compared to these guideline values.

Table 1 shows the percentage of the urban population in the EU-28 exposed to air pollutant concentrations above the EU limit and reference levels compared with the percentage exposed to concentrations above the WHO guideline levels.

Pollutant	EU reference level	Exposure estimate (%)	WHO AQG	Exposure estimate (%)
$PM_{2.5}$	Year (25)	8-12	Year (10)	85-91
PM_{10}	Day (50)	16-21	Day (20)	50-63
O_3	8-hour (120)	8-17	8-hour (100)	96-98
NO_2	Year (40)	7-9	Year (40)	7-9
BaP	Year (1)	20-24	Year (0.12)	88-91
SO_2	Day (125)	< 1	Day (20)	35-49
CO	8-hour (10)	< 2	8-hour (10)	< 2
Pb	Year (0.5)	< 1	Year (0.5)	< 1
Benzene	Year (5)	< 1	Year (1.7)	12-13
Colour coding:	< 5%	5-50%	50-75%	> 75%

Table 1 Percentage of the urban population in the EU-28 exposed to air pollutant concentrations above the EU and WHO reference levels (2011-2013) Source: EEA

Appendix B: Dioxin survey

Table A1 Milk fat related PCDD/F and PCB-TEQ values determined in the background samples A1 - A25

Sample No.	Milk supply area	PCBs	Dioxins	Dioxins & PCBs
		WHO-TEQ incl. LOQ	WHO-TEQ incl. LOQ	Total WHO-TEQ incl. LOQ
Unit		*pg/g milk fat*	*pg/g milk fat*	*pg/g milk fat*
A1	Mitchelstown Area	0.41	0.16	0.57
A2	Co. Waterford	0.17	0.09	0.26
A3	Dublin South.Co./North Wicklow Area	0.60	0.19	0.79
A4	North Co. Wexford	0.24	0.10	0.34
A5	Charleville, Co Cork Area	0.16	0.08	0.24
A6	Ballyragget, Co Kilkenny Area	0.17	0.10	0.27
A7	Renmore, Co Galway Area	0.17	0.09	0.26
A8	Moate, Co Westmeath Area	0.23	0.12	0.35
A9	Tipperary Town/Thurles Areas	0.17	0.08	0.25
A10	Nenagh, Co. Tipperary Area	0.16	0.01	0.17
A11	Cavan/Longford/Leitrim	0.25	0.10	0.35
A12	Drinagh, Co Cork	0.68	0.16	0.84
A13	Bandon Area	0.16	0.07	0.23
A14	North Kerry Area	0.16	0.06	0.23
A15	Co Sligo	0.18	0.11	0.29
A16	Roscommon/East Galway	0.18	0.09	0.27

A18	Roscommon/Leitrim	0.19	0.11	0.30
A19	Co Monaghan	0.27	0.10	0.37
A20	Co Louth	0.18	0.12	0.30
A21	North Kildare/West Dublin	0.32	0.03	0.35
A22	So Kerry (Cahirciveen area)	0.80	0.03	0.83
A23	South Wexford	0.19	0.12	0.31
A24	SE Co. Mayo	0.20	0.07	0.27
A25	Co. Donegal	0.21	0.13	0.34

Table A2 Milk fat related PCDD/F and PCB-TEQ values determined in the potential impact samples B1 - B 18

Sample No.	**Milk supply area**	**PCBs**	**Dioxins**	**Dioxins & PCBs**
		WHO-TEQ incl. LOQ	**WHO-TEQ incl. LOQ**	**Total WHO-TEQ incl. LOQ**
Unit		*pg/g milk fat*	*pg/g milk fat*	*pg/g milk fat*
B1	Carrigtwohill/Cobh/Great Island	0.18	0.11	0.29
B2	Aghada/East Cork Harbour	0.79	0.29	1.08
B3	Askeaton area	0.16	0.08	0.24
B4	Tarbert Co. Kerry	0.16	0.09	0.24
B5	Clarecastle, Co.Clare	0.18	0.10	0.28
B6	Cooraclare Co.Clare	0.17	0.07	0.24
B7	Ballydine, So. Tipperary	0.28	0.13	0.41
B8	Swords/Mulhuddart. Co.Dublin	0.25	0.37	0.62
B9	Grannagh, So.Kilkenny	0.22	0.12	0.34
B13	Kinsale(Dunderow) Co.Cork	0.18	0.13	0.31

B14	Ringaskiddy area. Co.Cork	0.17	0.09	0.26
B15	Crossakiel (nr Kells) Co.Meath	0.28	0.22	0.50
B17	Carranstown, Co.Meath	0.20	0.10	0.30
B18	Kinnegad, Co Westmeath	0.19	0.16	0.34

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WHO (World Health Organisation), 2014. *Mortality from Ambient Air Pollution for 2012 – Summary of Results*, WHO Geneva.

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL
Tá an Ghníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaol a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: *Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.*

Eolas: *Soláthraímid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

Tacaíocht: *Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaol atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaol inbhuanaithe.*

Ár bhFreagrachtaí

Ceadúnú
Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola *(m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola)*;
- gníomhaíochtaí tionsclaíocha ar scála mór *(m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta)*;
- an diantalmhaíocht *(m.sh. muca, éanlaith)*;
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe *(OGM)*;
- foinsí radaíochta ianúcháin *(m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha)*;
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil
- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Uisce
- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uiscí idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaol
- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil *(m.sh. tuairisciú tréimhsiúil ar staid Chomhshaol na hÉireann agus Tuarascálacha ar Tháscairí)*.

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn
- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil
- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta
- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn *(m.sh. mórphleananna forbartha)*.

Cosaint Raideolaíoch
- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas
- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaol ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaol *(m.sh. Timpeall an Tí, léarscáileanna radóin)*.
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta
- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil
Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:
• An Oifig um Inmharthanacht Comhshaoil
• An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
• An Oifig um Fianaise is Measúnú
• An Oifig um Cosaint Raideolaíoch
• An Oifig Cumarsáide agus Seirbhísí Corparáideacha
Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Headquarters
PO Box 3000, Johnstown Castle Estate
County Wexford, Y35 W821, Ireland
Bosca Poist 3000, Eastát Chaisleán Bhaile Sheáin
Contae Loch Garman, Y35 W821, Éire

T: +353 53 9160600
F: +353 53 9160699
E: info@epa.ie
W: www.epa.ie
Lo Call: 1890 33 55 99

EPA Regional Inspectorate Dublin
McCumiskey House
Richview
Clonskeagh Road
Dublin 14
D14 YR62
Tel: 01-268 0100
Fax: 01-268 0199

EPA Regional Inspectorate Cork
Inniscarra
Co. Cork
P31 VX59
Tel: 021-4875540
Fax: 021-4875545

EPA Regional Inspectorate Castlebar
John Moore Road
Castlebar
Co. Mayo
F23 KT91
Tel: 094-9048400
Fax: 094-9021934

EPA Regional Inspectorate Kilkenny
Seville Lodge
Callan Road
Kilkenny
R95 ED28
Tel: 056-7796700
Fax: 056-7796798

EPA Regional Inspectorate Monaghan
The Glen
Monaghan
H18 YT02
Tel: 047-77600
Fax: 047-84987

E: info@epa.ie
W: www.epa.ie
LoCall: 1890 33 55 99

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