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Report to Environment Committee
from Perry Davy, Air Quality Scientist

Revised National Air Quality Guidelines

1. Purpose

To present the recently released National Ambient Air Quality Guidelines to the Committee, highlight any changes that have been made and discuss the implications for the Council.

2. Background

Ambient air quality is the general quality of the air that surrounds us. Ambient air quality reflects the cumulative effects of discharges to the atmosphere from both human activities and natural sources. Certain contaminants are known to adversely affect human health and therefore it is desirable to ensure that such pollutants in the atmosphere are kept at minimum concentrations or below concentrations at which human health effects become a concern.

National Ambient Air Quality Guidelines were originally published by the Ministry for the Environment (MfE) in 1994. MfE has recently updated those guidelines in line with the latest medical research relating to the effects of air pollutants on human health. A number of new contaminants have also been included in the new guidelines.

The primary purpose of the National Ambient Air Quality Guidelines is to promote sustainable management of the air resource in New Zealand. Guideline values are the minimum requirements that outdoor air quality should meet in order to protect human health and the environment. Where air pollution levels breach guideline values, emission reduction strategies should be implemented to improve air quality. Where levels do not breach the values, efforts should be made to maintain air quality and, if possible, reduce emissions.

3. Wellington Regional Air Quality Management Plan and Regional Policy Statement

Objectives set out for air quality management in the Regional Policy Statement (RPS) and the Regional Air Quality Management Plan (the Air Plan) state that high air quality in the Region will be maintained and protected, and that degraded air will be enhanced. The RPS and the Air Plan also state that discharges to air will be managed in a manner so that any adverse effects on human health are avoided, remedied, or mitigated.

The Air Plan incorporated the original MfE guidelines as Appendix 2. The guidelines in Appendix 2 of the Air Plan provide the 'bottom line' for managing air quality in the Region. The Plan also went further and identified Maximum Desirable Levels (MDL) for air contaminants.

Maximum Desirable Levels define the levels that will provide maximum protection for the environment, (including soil, water, flora, fauna, structures, and amenity values), taking into account existing air quality, community expectations, economic implications, and the purpose and principles of the Resource Management Act 1991. Desirable levels are appropriate guidelines or targets in rural or residential areas, and in other areas where good air quality is considered a priority.

3.1 Changes to the National Ambient Air Quality Guidelines

Several changes have been made in the new guidelines. Most of these involve the adoption of more conservative guideline values.

The new National Guidelines also contain more guidance about how the Guidelines should or should not be used. In particular they state that 'guideline values should not be used as limits to pollute up to. If pollution approaches the guideline value, then air quality is comparatively poor and has been degraded from its background state.'

The new Guidelines include criteria for several hazardous air contaminants (e.g. benzene, formaldehyde, mercury, chromium, arsenic). These contaminants may be of concern in urban areas and the Council should look at a screening investigation programme

The new guidelines also provide guidance on assessing the potential impacts of air pollution on ecosystems.

3.2 Implications for Regional Air Quality Management

To some extent we have been able to anticipate the revision of the National Guidelines and, as part of the current Plan change process, have proposed changes to Appendix 2 of the Air Plan. This should ensure that the Regional Guidelines are not inconsistent with the National Guidelines.

Of particular significance to air quality management in the Wellington Region is the new National Guideline for fine, or inhalable, particles (known as PM_{10}). The Guideline concentration has been reduced to 50 $\mu g/m^3$ from 120 $\mu g/m^3$ and is now

below the MDL of 70 $\mu g/m^3$ set in the Air Plan. PM_{10} is our biggest pollution concern, mainly during the winter due to emissions from domestic fires and motor vehicles.

Air quality monitoring at a number of locations within the Region has found that the PM_{10} 50 $\mu g/m^3$ guideline is breached regularly during the winter. By definition, breaches of the ambient air quality guidelines pose a direct health threat to the community. The Council will need to decide how we are going to manage our air quality so that exceedences of the guidelines do not occur. We have yet to monitor a number of locations in the Region that have been identified as being susceptible to air pollution episodes. Proposals to redress this lack of information are being prepared for consideration in developing the Long Term Council Community Plan.

The Ministry for the Environment is also investigating a guideline value for $PM_{2.5}$ particles which are a smaller size than PM_{10} and are mostly generated by combustion sources such as motor vehicles and domestic fires. Recent medical research has suggested that $PM_{2.5}$ is responsible for most of the health effects associated with PM_{10}. We only have limited data on $PM_{2.5}$ concentrations at a couple of monitoring locations within the Region. Indications are that a significant proportion of the PM_{10} is composed of $PM_{2.5}$ during winter pollution episodes, and research has shown that motor vehicle emissions of particles are predominantly in the $PM_{2.5}$ size range. We will need to include $PM_{2.5}$ monitoring as part of our air quality monitoring programme and to extend the network to include those locations heavily impacted by motor vehicle emissions (e.g. central Wellington streets).

4. Conclusion

The new National Guidelines impose lower health protection thresholds for some air pollutants The implications for air quality management in the Region are that, for certain pollutants such as particulate matter, some locations will not meet these minimum standards for the protection of human health. The Council will need to formulate strategies to ensure that our air quality meets acceptable standards and that we have the monitoring data to demonstrate the effectiveness of our air quality management.

In order to be consistent with the National Guidelines, changes will be required to Appendix 2 of the Regional Air Quality Management Plan for the Wellington Region. Provision has already been made for the necessary changes through the plan change process that is currently underway.

5. Regional Policy Implementation

Chapter 8 of the Regional Policy Statement contains policies and methods for air quality management within the Wellington Region. Changes to the ambient air quality guidelines have implications for the implementation of Policies 1-4, relating to air quality management.

6. Communication

The Regional Council has promoted the changes to the guidelines through proposed plan variations.

7. Recommendation

That the report be received and its contents noted.

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