

# **Guideline to Questionnaire**

**laying down a questionnaire to be  
used for annual reporting on ambient  
air quality assessment under Council  
Directives 96/62/EC, 1999/30/EC,  
2000/69/EC, 2002/3/EC, 2004/107/EC  
and 2008/50/EC**

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**European Commission  
Pilot template**

## **Summary**

Commission Decision 2004/461/EC provides a questionnaire to be used by the Member States for the annual reporting under the air quality directive Framework Directive 96/62/EC and the related four Daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC. An update has been prepared which includes reporting under 2004/107/EC. It also includes the possibility to communicate information related to the implementation of Directive 2008/50/EC. This document gives a detailed guideline and recommendations to those responsible for filling in the updated questionnaire. The various issues are discussed per questionnaire form to be filled in. The guideline also gives an example of a questionnaire filled in.

# Contents

<b>1. Introduction .....</b>	<b>5</b>
<b>2. General points.....</b>	<b>8</b>
2.1 <i>Changes in the Questionnaire (and this guidance) as compared to 2004/461/EC Decision.....</i>	8
2.2 <i>Notes in the Questionnaire.....</i>	9
2.3 <i>Comments and footnotes .....</i>	9
2.4 <i>Common mistakes.....</i>	9
<b>3. Clarification per form.....</b>	<b>11</b>
<i>Form 0 Contact body and address .....</i>	11
<i>Form 1 Contact body and address.....</i>	11
<i>Form 2 Delimitation of zones and agglomerations.....</i>	12
<i>Form 3 Stations used for assessment and measuring methods .....</i>	14
<i>Form 4 Stations used for assessment of ozone, including nitrogen dioxide and nitrogen oxides in relation to ozone .....</i>	20
<i>Form 5 Other stations used in assessments .....</i>	20
<i>Form 6 Stations and measurement methods used for the assessment of other ozone precursor substances (2002/3/EC Annex VI).....</i>	21
<i>Form 7 Methods used to measure, sample and analyse PM10, PM2,5, ozone precursor substances, arsenic, cadmium, nickel, mercury and benzo(a)pyrene and other relevant PAH: optional additional codes to be defined by the Member State (1999/30/EC Annex IX, 2002/3/EC Annex VI, and 2004/107/EC Annex V).....</i>	21
<i>Form 8 List of zones and agglomerations where levels exceed or do not exceed limit values (LV) or limit values plus margin of tolerance (LV+MOT).....</i>	21
<i>Form 9 List of zones and agglomerations where levels exceed or do not exceed target values or long term objectives.....</i>	21
<i>Form 10 List of zones and agglomerations where levels exceed or do not exceed upper assessment thresholds (UAT) or lower assessment thresholds (LAT), including information on the application of supplementary assessment methods .....</i>	26
<i>Form 11 Individual exceedances of limit values and limit values plus the margin of tolerance.....</i>	27
<i>Form 12 Reasons for individual exceedances: optional additional codes to be defined by the Member State.....</i>	29
<i>Form 13 Individual exceedances of ozone thresholds .....</i>	29
<i>Form 14 Exceedance of target values .....</i>	30
<i>Form 15a Annual statistics of ozone in ambient air .....</i>	31

<i>Form 15b Annual statistics of arsenic, cadmium, nickel and benzo(a)pyrene .....</i>	<i>31</i>
<i>Forms 16a-b Annual average concentrations of ozone precursor substances .....</i>	<i>31</i>
<i>Forms 16c-d. Annual average concentrations and deposition rates for mercury and relevant PAH.....</i>	<i>31</i>
<i>Form 17 Monitoring data on 10 minutes mean SO<sub>2</sub> levels .....</i>	<i>31</i>
<i>Form 18 Monitoring data on 24hr mean PM<sub>2,5</sub> levels .....</i>	<i>31</i>
<i>Form 19 Tabular results of and methods used for supplementary assessment.....</i>	<i>32</i>
<i>Form 21 Exceedance of limit values of SO<sub>2</sub> due to natural sources .....</i>	<i>33</i>
<i>Form 23 Exceedance of limit values of PM<sub>10</sub> due to natural events .....</i>	<i>34</i>
<i>Form 24 Exceedance of limit values of PM<sub>10</sub> due to winter sanding.....</i>	<i>35</i>
<i>Form 26 Exceedances of limit values laid down in Directives 80/779/EEC, 82/884/EEC and 85/203/EEC.....</i>	<i>36</i>
<i>Form 27 Reasons for exceedances of limit values laid down in Directives 80/779/EEC, 82/884/EEC and 85/203/EEC: optional additional codes to be defined by the Member State (1999/30/EC Article 9(6)) .....</i>	<i>36</i>
<b>Annex 1 Reporting to CDR .....</b>	<b>37</b>
<b>Annex 2 Specification of concentration maps in electronic form as referred to in Note 2 to Form 19.....</b>	<b>39</b>
<b>Annex 3 Example of a questionnaire filled in.....</b>	<b>42</b>

## 1. Introduction

The Council Directive 96/62/EC on ambient air quality assessment and management (“Air Quality Framework Directive”) and the related daughter directives require the EU Member States to send reports on various issues related to their air quality to the Commission. The updated Decision 2004/461/EC template (referred to below as the Questionnaire) specifies the questionnaire that Member States shall use for their annual report under the four daughter directives and the new Directive 2008/50/EC:

Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air,

Directive 2000/69/EC relating to limit values of benzene and carbon monoxide in ambient air,

Directive 2002/3/EC relating to ozone in ambient air,

Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air,

Directive 2008/50/EC on ambient air quality and cleaner air for Europe.

This questionnaire is an extension of the previous versions specified by Commission Decision 2001/839/EC and 2004/461/EC, which dealt with reporting under the first three Daughter Directives.

In this document the following references are used for directives and decisions:	
<b><i>Framework Directive</i></b>	Council Directive 96/62/EC on ambient air quality assessment and management
<b><i>First Daughter Directive</i></b>	Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, amended by Commission Decision 2001/744/EC
<b><i>Second Daughter Directive</i></b>	Directive 2000/69/EC relating to limit values of benzene and carbon monoxide in ambient air
<b><i>Third Daughter Directive</i></b>	Directive 2002/3/EC relating to ozone in ambient air
<b><i>Fourth Daughter Directive</i></b>	Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
<b><i>Questionnaire</i></b>	Updated Commission Decision 2004/461/EC template
<b><i>EoI Decision</i></b>	Council Decision 97/101/EC establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States (amended by Commission Decision 2001/752/EC)
<b><i>New AQ Directive</i></b>	Directive 2008/50/EC on ambient air quality and cleaner air for Europe

A new Directive on ambient air quality and cleaner air for Europe 2008/50/EC has been published on 11 June 2008. This guidance now makes reference also to the new AQ Directive as it is necessary to enable the Member States to communicate use of some of its provisions. Reporting obligations under the new Directive will be adopted in the near future by the Committee under the new directive, but there will be a transitional period provided for the Member States to modify their reporting systems. Changes are minimal and are made only to enable communication of information such as application of Article 22 or the designation of monitoring stations for the PM<sub>2.5</sub> Average Exposure Indicator. Several Forms are included as

a pilot to report on the attainment of the PM<sub>2.5</sub> target value in 2010. These will become obligation only after the deadline for transposition (June 2010) and do not need to be used already in the reporting rounds for reporting years 2008 and 2009. However since the transitional period for the Implementing Provisions is 2 years, the reporting year 2010 might still be conducted under the existing reporting provisions.

To enable communication of **application of Art.22 provisions from the new AQ Directive** without the need for major approach to air quality zones or an additional dataflow, a following approach has been employed:

- In Form 2 application of Art.22 in a zone (fulfilling all Art.22 conditions) is declared
- In Form 8 b,c and e Member State uses the columns of ">LV + MOT" and "≤LV + MOT; >LV" to declare the status of the zone with the applicable maximum margin of tolerance. To reduce chance of error the declaration for these zones should be done by "F" (or "Fm" if determined by modelling).
- In Form 11 f, h, i, and k no changes are proposed. The reporting should continue as regards exceedances of LV rather than LV+MOT to ensure there is no need to differentiate between these zones in the preparation of the report.
- In all other Forms such as those related to deduction of natural contributions, winter sanding and salting etc. either the LV or LV+MOT can be applied, as considered more appropriate. It should be however evident from the form which of the two applies.

The current guideline is an extension of the previous guideline on filling in the questionnaire for the first three Daughter Directives. It has been extended to include the report under the Fourth Daughter Directive. A few additional changes have been made, reflecting some small changes in questionnaire elements that relate to the first three Daughter Directives.

This guideline is intended to give assistance to those responsible for the completion of the questionnaire. It clarifies how to fill in the questionnaire, but not how to acquire the information needed. It is assumed that air quality assessment has been carried out in accordance with the directives. Earlier, a working group established by the EU Air Quality Steering Group has drafted the *Guidance on Assessment under the EU Air Quality Directives*. The user of the current document is advised to read this guidance report. Additional relevant guidance is given in the *Guidance to Member States on PM10 monitoring and intercomparisons with the reference method*, which not only discusses the issues referred to in its title, but also recommends how to identify exceedances of PM10 limit values due to natural events. These guidance are currently under revision but still apply before the publication of revised guidance. While drafting the current document it was assumed that the reader is familiar with the air quality directives and the above mentioned documents, which are all available at <http://www.ec.europa.eu/environment/air/>. Parallel to the reporting under the air quality directives specified in the questionnaire, Member States have also to report air quality monitoring data under the EoI Decision. Taking the legal restraints set by the air quality directives into account, duplication of reporting has been minimised in the design of the questionnaire.

In the Questionnaire it has been indicated for which questionnaire items filling in is mandatory and for which items this is voluntary. **In the forms voluntary items are printed in italic.** Most of the mandatory items are required by the air quality directives. Some other items have been rendered mandatory in the comitology procedure in which Questionnaire describing the questionnaire was prepared.

The Commission has made the questionnaire available in electronic format as an Excel workbook, in all Community languages. Member States can download the file from <http://www.ec.europa.eu/environment/air/ambient.htm>. The structure of the vast majority of the Excel tables has been copied from the Decision, and these tables may not be changed by Member States, if the Questionnaire is used for the official reporting. Tables adjoint to cover the reporting under Directive 2004/107/EC and 2008/50/EC are provided as pilot recommendation and Member States are strongly encouraged to use them. There are also minor details added to Form 0 and Form 2 to reflect the continuing progress of submitting zone delimitation information, as endorsed by the Member States at the CAFE Steering Group. See details on changes in chapter below.

To submit this information, the Member States are requested to fill in this file and to upload the file in the appropriate folder in Reportnet CDR, maintained by the European Environment Agency (EEA) and only notifying the Commission via Email to [airinfo@ec.europa.eu](mailto:airinfo@ec.europa.eu). Email reply from the Commission can be treated as an official confirmation of receipt. Member States have to ensure that a person making the upload is authorized for submission of the questionnaire. Further information on the use of CDR is available from: <http://cdr.eionet.europa.eu/help>.

Upload to the Reportnet CDR is strongly encouraged even when the official submission is provided by post, as still formally admissible.

Following this introduction, Chapter 2 of this document gives some general points of guidance. Chapter 3 provides where needed clarification per form to be filled in; for completeness the information (notes, tables) given in the Decision is repeated in this guideline. Annex 3 gives a simple example of a questionnaire, where the first few lines of each form have been filled in.

## 2. General points

Since 2004 reporting under the first three Daughter Directives is mandatory for all Member States. Year 2008 will be the first year on which reporting under all four Daughter Directives is mandatory for all Member States. In addition provisions of the new AQ Directive may also already be applied.

### 2.1 Changes in the Questionnaire (and this guidance) as compared to 2004/461/EC Decision

As a general rule, the existing forms of the previous questionnaire in Decision 2004/461/EC on reporting have been kept unchanged, but a few changes to existing forms were deemed useful or needed to incorporate the 4<sup>th</sup> Daughter Directive:

#### Form 0

- An explicit placeholder to follow the any potential revisions/resubmissions of the Questionnaire
- Two (y/n) questions on changes in zoning have been added in order to facilitate processing

#### Form 2

- Following general agreement on GIS based submission of zone delimitation information 3 rows are included to facilitate submission of zoning information and processing
- Application of Article 22 of the new AQ Directive in the zone can be declared

#### Form 3

- Includes As, Ni, Cd, BaP, regulated pollutants under 4<sup>th</sup> Daughter Directive
- Under 'Function of Station' use for determination of PM<sub>2.5</sub> AEI can be declared

#### Form 8

- Where the margin of tolerance (MOT) is 0, i.e. limit value attainment date has passed (PM<sub>10</sub>, SO<sub>2</sub>, CO), the information has been dimmed and columns that are not appropriate to be filled shaded<sup>1</sup>. Structure has been maintained.
- In case of Form 8b,c and e for the NO<sub>2</sub>, PM<sub>10</sub> and benzene for the zones where Art.22 time extension already apply, the Member State should use the columns of ">LV + MOT" and "≤LV + MOT; >LV" to declare the status of the zone with the applicable maximum margin of tolerance. To reduce chance of error the declaration for these zones should be done by "F" (or "Fm" if determined by modelling) rather than 'y' and 'm'.

#### Form 9

- Form 9c has been added to include PM<sub>2.5</sub> target value. Voluntary as until reporting year 2010.

#### Form 10

- Form 10l has been added to include PM<sub>2.5</sub> assessment thresholds and supplementary assessment information. Voluntary as until reporting year 2010.
- Clarification: There should be no change in applied UAT and LAT as compared to previous reporting. If however Member States wishes to inform on the comparison against new UAT and LAT as defined in Directive 2008/50/EC, it is encouraged to do so as comment in the rightmost column.

#### Form 13

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<sup>1</sup> As for example PM<sub>10</sub> Stage 2 reporting. In case of PM<sub>10</sub> in the zones where Art.22 of Directive 2008/50/EC applies the shaded column is still applicable. See next bullet point.

- Additional guidance provided to include “no exceedances” rather than leaving the form empty.

Form 14

- Additional guidance provided to include “no exceedances” rather than leaving the form empty.
- Form 14d has been added to include information on individual exceedances of PM<sub>2.5</sub> target value. Voluntary as until reporting year 2010.

Form 15 has been renamed to Form 15a

Form 17

- The obligation is no longer there.

Form 19

- Form 19l has been added to include information on supplementary methods used for PM<sub>2.5</sub> assessment. Voluntary as until reporting year 2010.

Following Forms have been added in order to include information required under the 4<sup>th</sup> Daughter Directive and the new AQ Directive:

- Forms 5b-c, Form 9b-c, Forms 10h-l, Form 14c-d, Form 15b Forms 16c-d, Forms 19h-l

Tables with standard sampling and analysis codes has been updated.

Details are provided below.

## **2.2 Notes in the Questionnaire**

The Questionnaire not only lays down the forms that are provided as Excel files for filling in, but it also specifies the forms with notes. These notes have been integrated into the current guideline as the actual upgrade of Decision 2004/461/EC which would include all appropriate notes is not already yet adopted. Please note that notes related to reporting under 1<sup>st</sup>-3<sup>rd</sup> Daughter Directives are merely taken from the Decision 2004/461/EC and are not changed.

## **2.3 Comments and footnotes**

It should be avoided to make comments and footnotes, e.g. invalid data should not be reported together with a comment on the invalidity. Such remarks can generally not be taken into account in overview reports. If it is essential to add a remark, it should not be entered in any field of the form nor in newly inserted empty columns but it should appear in the first unused column at the right of the form. A specific placeholder is put in Form 1 for comments for clarification. If comments are made in any other Form, please indicate that as well in Form 1. It would be helpful to include a translation in English, German or French.

## **2.4 Common mistakes**

The following text box gives a list of common mistakes. Since they caused problems and possibly errors in the processing of the questionnaires, it is important to avoid these.

### Common mistakes

An important reason for providing an unprotected Excel format was to offer flexibility to Member States in filling in the questionnaire. However, to allow automatic processing it is important that Member States *adhere to the format* specified. In particular the following points should be taken into account:

- **In Forms 3 and 4 the EoI station codes used in the report under the EoI Decision must be given.** The current questionnaire avoids duplicate reporting of data submitted under the EoI Decision. This procedure can only be maintained if Member States carefully adhere to specifications of the questionnaire.
- The *exceedance status of zones* with respect to limit values and limit values plus margin of tolerance ***must be filled in for all zones.***
- ***Invalid data***, not complying with the data quality requirements, such as the minimum data capture or the equivalency requirement for PM measuring methods, ***should not be reported.***
- ***Zone codes and station codes should be consistent*** (identical) throughout the questionnaire, to avoid that e.g. the number of stations in a zone appears to be inconsistent with the minimum requirements.
- ***Codes deviating from the ones prescribed are not allowed.*** Reporting must adhere to the codes defined in the decision (e.g. ‘HEV’, ‘y’); if other codes are used (e.g. ‘not available’, ‘urban’), the information will be lost during automatic processing. The pollutant coding in Form 2 should be strictly followed.
- Comment, remarks, footnotes should be avoided, and certainly not be placed inside the cells of a form. Any remarks deemed necessary should appear in the first unused column at the right of the form, and should be referred to on the worksheet of Form 1.
- Reporting must adhere to the formats specified in the Decision. In particular the following points must be respected:
  - separators: if more than one code is given (e.g. several reasons for exceedance), ***“;” shall be used as separator;***
  - **empty cells, separators, codes (e.g. ‘y’), should contain no (invisible) spaces.**

### 3. Clarification per form

#### Form 0 Contact body and address

The form now includes an explicit placeholder to follow the any potential revisions/resubmissions of the Questionnaire. Example:

Revision date	Updated forms	Reason
25/10/2007	Form 2	Correcting zone-definitions, missing information on area and population added
25/10/2007	Forms 11h, 11i	List of PM10 exceedances corrected

In case of resubmission it is always recommended to change the name of the electronic document (for example EL - Questionnaire2007\_v1.xls).

There are also two (y/n) questions on changes in zoning that have been added as a quality control in order to facilitate processing. If the answer to the first question is no, then clarification needs to be provided in the comment for clarification below. Following the provisions of the Directives these zones are expected to cover the whole territory.

#### Form 1 Contact body and address

The Framework Directive states in Article 11(1) states that the Member State should notify to the Commission the competent authorities, bodies and laboratories referred to in Article 3. This should already have been done by 22.04.99. Notification of any changes should not wait until the annual report, but be sent as soon as possible. Consequently, the reporting of the competent authorities, bodies and laboratories under Art. 11(1) has not been included in the Questionnaire.

The purpose of Form 1 is to provide the Commission with a single contact address at the national level that can be approached in case of uncertainties or technical problems with the Questionnaire. In Member States where the competent authorities, bodies and laboratories are at the national level, the contact body referred to in Form 1 can be expected to be one of these, in particular the national body responsible for the assessment of air quality (or for the implementation of the directive). However, for Member States where the competent bodies are at the regional or municipal level, the most suitable contact body might be the body that is responsible for the national co-ordination of the implementation of the directives or for the completion of the Questionnaire. The National Representation, the official contact body of the Member State in Brussels, is not expected to be the best contact body to be approached for operational details such as indicated above.

The Member State is requested to fill in not only the national contact body, but if possible also a contact person that is directly involved in the co-ordination of the work related to the Questionnaire.

Form 1 provides a placeholder to include any further general comments for clarification and to indicate, if necessary, in which forms further comments are being made.

## Form 2 Delimitation of zones and agglomerations

### *Zone names and codes*

Member States have to divide their entire territory into zones. Zones can be regarded as the primary territorial units for assessment and management of air quality under the air quality directives. Consequently, unambiguous definition of all zones is needed. Member States have employed different approaches for the definition of their zones. Some Member States have divided their territory into a single set of zones serving all pollutants. Other Member States have defined a single base set of zones and modified some of the zones for the application to particular pollutants. Where a Member State has distinguished different sets of zones in relation to health protection and ecosystem/vegetation protection respectively, a single location can be situated in several zones, e.g. in a zone defined for all pollutants except lead and in another, larger zone defined for lead.

National naming methods for zones may differ strongly between Member States. Because of this, an additional zone code is needed to unambiguously identify zones. The zone code is defined as CCxxxx, where CC is the abbreviation of the Member State's name as given in Table A of this guideline and xxxx a serial number to be given to each zone by the Member State. Member States are strongly recommended to follow this convention in zone coding. The Member State is entirely free in allocating serial numbers to the zones.

*Example: For SO<sub>2</sub>, NO<sub>2</sub>/NO<sub>x</sub>, PM<sub>10</sub>, benzene, CO and ozone, two zones in country CC have been coded as CC0014 and CC0021. When, for the pollutant lead, these zones are merged and defined as one zone, the serial number xxxx in the code for this zone would not relate to 0014 or 0021, but could be any "unused" number.*

### **Table A Abbreviations for the names of Member States**

Austria: AT; Belgium: BE; Bulgaria: BG; Cyprus: CY; Czech Republic: CZ; Denmark: DK; Estonia: EE; Finland: FI; France: FR; Germany: DE; Greece: EL; Hungary: HU; Ireland: IE; Italy: IT; Lithuania: LT; Luxembourg: LU; Latvia: LV; Malta: MT; Netherlands: NL; Poland: PL; Portugal: PT; Romania: RO; Slovenia: SI; Slovakia: SK; Spain: ES; Sweden: SE; United Kingdom: UK.
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The Member State should also give in Form 2 the full zone name, which is the name (or code) used within the Member State. This name usually gives information on the territory covered by the zone and also allows cross-referencing to national reports in which the zone names are used. If no zone name exists, the zone code can be regarded as the zone name and should be given as the entry for the full zone name.

### *Agglomerations*

Because the monitoring requirements partly depend on whether a zone is an agglomeration (code: ag) or not (code: nonag), the Member State should specify which zone is an agglomeration as defined in Article 2 of the Framework Directive.

### *Pollutant*

The Member State should indicate the pollutant(s) to which the zone applies using the codes given in Table B. If zones have been separately defined for health, ecosystem and vegetation protection, the Member State should use the corresponding codes, otherwise use S for SO<sub>2</sub>, N for NO<sub>2</sub>/NO<sub>x</sub>. If more than one pollutant code is given, a **semicolon** should be used as separator.

code	Pollutant(s)	Protection target
A	SO <sub>2</sub> , NO <sub>2</sub> / NO <sub>x</sub> , PM <sub>10</sub> , lead, benzene, CO, ozone	health, ecosystem, vegetation
SO2	SO <sub>2</sub>	health, ecosystems
SH	SO <sub>2</sub>	health
SE	SO <sub>2</sub>	ecosystems
NH	NO <sub>2</sub>	health
NV	NO <sub>x</sub>	vegetation
P	PM <sub>10</sub>	health
L	lead	health
C	CO	health
B	benzene	health
O	ozone	health, vegetation
M	arsenic, cadmium, nickel, benzo(a)pyrene	health
As	arsenic	health
Cd	cadmium	health
Ni	nickel	health
BaP	Benzo(a)pyrene	health

### ***Zone area***

The zone area should not include the area of sea.

### ***Information on zone borders***

It is mandatory to provide information on the zone borders. The recommended way of providing this information is following the guidance available at the EIONET<sup>2</sup>:

### ***Application of Article 22***

Only those zones which for which a positive decisions by the Commission has actually already been reached should fill this in. It should include the pollutants code ('P' for PM<sub>10</sub>, 'NH' for NO<sub>2</sub>, B for benzene); if two or more apply delimit by semicolon.

Note: the Commission decisions address the zones as notified by the Member State, often applying zoning of 2005 or 2006 which may be different that current zoning. Only zones explicitly addressed in the Decisions (same name, same delimitation) or those for which explicit agreement has been reached by the Commission (for example agreement on the new name, merging of zones with same Art.22 status etc.) can be declared as applying Art.22 in this Form or in any of the later Forms.

### **Option 1. Zone borders coordinates in electronic form**

If the zone coincides with the area of one or more administrative units, the information is provided by listing the selected administrative units from the list supplied by EEA. EEA prepares this list on the basis of informative available by ESTAT and repeats the exercise within 6 months whenever the list or delimitation of administrative units had been changed in the ESTAT dataset. See EIONET CIRCA for details.

If the zone limits do not coincide with administrative borders, then spatial delimitation in a GIS file is submitted, following the coordinate system/datum and resolution specifications, see the description given in Annex 1.

<sup>2</sup>[http://eea.eionet.europa.eu/Members/irc/eionet-circle/airclimate/library?!=/public/collection\\_questionnaire](http://eea.eionet.europa.eu/Members/irc/eionet-circle/airclimate/library?!=/public/collection_questionnaire)

○ ***Zone boundary source (geospatial file/ LAU2 list)***

Should be answered if indicated on Form 0 that there has been a change of boundaries and/or zone codes. It indicates how the zone boundaries are reported. No information required if zone codes and boundaries for the pollutant are unchanged.

○ ***Zone geospatial file name***

If digital boundaries are provided, this is the name of the geospatial file that contains the zone boundary. A single geospatial file can contain all the zones for one pollutant.

○ ***LAU2 code(s)***

If the zone boundary is identified by one or more administrative units, this is the list of LAU2 codes which identify the administrative units. Reporting is on multiple rows on Form 2 as was previously done for coordinate pairs. LAU2 codes must be those provided by Eurostat.

There are further options to provide information, among others the two listed below, however the Option 1 is strongly preferred:

**Option 2. Maps printed on paper**

The main advantage of maps on paper is that they are easy to read. The purpose of such paper maps is not to exactly delineate the zone territory, but to provide an overview of how the Member States' territory has been divided into zones and to show where individual zones are located. Consequently, comprehensive maps are preferred that encompass the entire Member State or a large part of a large Member State, instead of separate maps for each zone. However, a major problem of paper maps sent by different Member States is that they will generally have different formats and consequently cannot be combined to give European overviews.

**Option 3. Bitmaps**

Maps supplied electronically as bitmaps (format BMP, TIF, JPG etc.), showing drawn zone borders on a country or region map, can in principle be electronically processed. However, maps from different countries cannot be combined to give European overviews.

***Zone changes***

If nothing has changed, this should be explicitly indicated on Form 0, and no information needs to be provided. If a change occurs even in a single zone, complete information for all zones should be submitted to preserve consistency.

Changes in administrative borders within a Member State usually do not occur exactly at the turn of the year. However, any changes of the borders of zones should take place at the start or end of the year. Because reporting requirements and, possibly, air quality management actions deriving from the air pollution levels reported need to be addressed under the new administrative structure, it is recommended to change the zone borders already at the beginning of the calendar year in which the administrative border change occurs.

**Form 3 Stations used for assessment and measuring methods**

***EoI station code***

All stations used under the air quality directives must be included in the report under the Exchange of Information Decision (EoI). This is needed to link meta data on stations reported

under the EoI Decision with the station data in the Questionnaire. Decision 2004/461/EC requires that

- **the EoI station codes used in the report under the EoI Decision shall be given. The Member States are urged to carefully check the consistency of the station codes used in the Questionnaire and the EoI report.**

It is considered by default that all listed stations fulfill data quality objectives and siting criteria as stated in the directive for fixed (continuous) measurements. It might occur however that it is the indicative measurement which needs to be included (lower data quality in a fixed station due to prolonged technical error, monitored exceedances in zones with no fixed monitoring, etc.). This has to be clearly indicated in a comment. As mobile stations are not considered to be included in EoI, a case-by-case approach should be employed with the Commission.

#### ***Local station code***

The Member States are requested to report, in addition to the EoI station code, also the local station code, *i.e.* the code (or name) used within the Member State, because these codes allow checking the match of stations with EoI submission and cross-referencing to national reports in which these local codes are used.

#### ***Zone code(s)***

In the first questionnaire on the First Daughter Directive formally agreed by the Committee under Article 12 of 96/62/EC the item “Zone code(s)” was typed in regular font, defining it as a mandatory item for reporting. However, in the Commission Decision 2001/839/EC as corrected by OJ L 12, 15.01.2002, p.70 it was unintentionally printed in italics. In the succeeding 2004/461/Decision the format in italics has been retained. Although this formally renders the item voluntary, it is strongly recommended to fill in the zone code(s), as this directly enables checking compliance with the requirement for minimum number of stations. In the Questionnaire the text is no longer in italics.

#### ***Station situated in more than one zone***

In Member States that have divided their territory in more than one way into zones (see the guideline to Form 2), a station may be in more than one zone. In that case all zone codes, separated by a semicolon, should be given in Column 3.

*Example: a station may be situated in zone CC0019 applying to all pollutants except lead and in zone CC0148, applying to lead; in the third column of Form 3 this is denoted by “CC0019;CC0148”. In this example, both zones would also be denoted when the station would only measure lead.*

#### ***Not all measurements may be used for monitoring under the air quality directives in some cases***

For a multipollutant station, the Member State may have reason to regard the measurement of a particular pollutant as unsuitable for assessment under the air quality directives. A reason may be that the quality of the measurement is insufficient or that the siting does not comply with the siting requirements for that pollutant. To avoid confusion, the Member State is requested to indicate in Form 3 which measurements are used officially under the First, Second and Fourth Daughter Directive. ***This also means that stations that are not used for formal assessment under the directives should not be included in Form 3.***

***Not all stations serve to assess compliance with the limit values for ecosystems or vegetation***

The limit values for health protection apply everywhere in the Member State's territory. However, Annex VI of 1999/30/EC specifies that stations for the protection of ecosystems and vegetation should not be placed in certain areas. The annex also specifies a minimum area of representativeness for such stations. Consequently, only some of the stations can be used for assessment in relation to the limit values for ecosystems or vegetation. To indicate how their stations are used for compliance checking, the Member State needs to specify for each station for which protection target(s) it is used.

It is possible that a station is at a location where the ecosystem and/or vegetation limit values apply, but where the levels are not representative for a surrounding area of at least 1000 km<sup>2</sup> (or less) as described in Annex VI of 1999/30/EC). In that case, the code for the "Function of station" should not refer to ecosystem and/or vegetation protection.

Almost all stations that are used in relation to the protection of ecosystems (SO<sub>2</sub>) are also used in relation to the protection of vegetation (NO<sub>x</sub>); the "Function of station" is then denoted by "HEV". It is, however, possible that a station is only representative of the area around it only for one of the two pollutants. For that case, the codes "HE" and "HV" are available.

For ozone stations (see Form 4) such an indication is not asked, because the ozone station type implies whether a station relates to vegetation protection: stations classified as urban relates to health protection only while stations classified as suburban or rural relates to health and vegetation protection.

***Methods used for measuring PM10 and PM2.5***

The measurement method code for PM<sub>10</sub> and PM<sub>2.5</sub> can be indicated by one of the standard codes provided by the Decision (see Table C) or a code defined by the Member State that refers to a separate list of methods described by the Member State (see Form 7). The code defined by the Member State should differ from the method codes listed in Table C. The description defined by the Member State may also be a reference to a separate document added to the Questionnaire. If the measurement method has been changed during the year, the Member State is requested to fill in both method codes: first the method that was used for the longest time in the year, followed by the other one, separated by a semicolon.

***Correction factor and correction equation for particulate matter***

The correction factor and correction equation for particulate matter has been extensively clarified in the *Guidance on Demonstration of Equivalence of Ambient Air Monitoring Methods*. An example of a correction equation is  $CR = A \cdot CM + B$ , where A and B are empirical constants.

When a correction factor or equation is used, the PM concentrations to be reported in the Questionnaire should be the "equivalent" concentrations that result from the application of the correction factor or equation.

It is strongly recommended that, following the rules to introduce comments (see Chapter 2.4), a reference (CDR link, weblink) to the exercise and a year when the factor has been determined, is included. It should indicate whether the *Guidance on Demonstration of Equivalence of Ambient Air Monitoring Methods* has been employed (e.g. add Following GDE). It should be noted that filling in the form cannot be regarded as the full justification as referred to in Annex IX paragraph IV of the First Daughter Directive. It is recommended that

when new information on demonstration of equivalence is available, it is without delay made available to the Commission.

***Methods used for measuring arsenic, cadmium, nickel and benzo(a)pyrene***

Similar to the case for PM<sub>10</sub>/PM<sub>2.5</sub> the sampling and analysis measurement code for arsenic, cadmium, nickel and benzo(a)pyrene can be indicated by one of the standard codes listed in Table C or a code defined by the Member State that refers to a separate list of methods described by the Member State (see Form 7).

Stations and the sampling and analysis measurement methods used for the assessment of other relevant PAH in air and of metals and PAH in total deposition are reported in Forms 5b and 5c.

**Table C Methods used to measure, sample and analyse PM<sub>10</sub>, PM<sub>2.5</sub>, ozone precursor substances, arsenic, cadmium, nickel, mercury and benzo(a)pyrene and other relevant PAH: standard codes <sup>1)</sup>**

<i>Method code</i>	<i>Description</i>
M1	PM <sub>10</sub> or PM <sub>2.5</sub> : Beta-absorption
M2	PM <sub>10</sub> or PM <sub>2.5</sub> : Gravimetry for PM <sub>10</sub> and/or PM <sub>2.5</sub> – continuous measurement
M2dxxx	PM <sub>10</sub> or PM <sub>2.5</sub> : Gravimetry for PM <sub>10</sub> and/or PM <sub>2.5</sub> – random measurement; xxx should be the number of measured days. Example: random sampling on 180 days of the year is indicated by M2d180.
M3	PM <sub>10</sub> or PM <sub>2.5</sub> : Oscillating microbalance for PM <sub>10</sub> and/or PM <sub>2.5</sub>
M3a	PM <sub>10</sub> or PM <sub>2.5</sub> : Oscillating microbalance for PM <sub>10</sub> and/or PM <sub>2.5</sub> with FDMS
M4	Lumped sum NMHC: automated, semi-continuous monitoring, NMHC calculated from Total HC minus methane; FID
M5	Lumped sum NMHC: automated semi-continuous monitoring, after chromatographic separation of NMHC from methane; FID
M6	Individual VOC: automated sampling and on line analysis; cryogenic sample pre-concentration, GC/FID (MS) detection
M7	Individual VOC: whole air canister sampling; off line analysis by GC/FID (MS)
M8	Individual VOC: active solid adsorbent sampling; off line analysis by GC/FID (MS) after solvent or thermal desorption
M9	Individual VOC: diffusive solid adsorbent sampling; off line analysis by GC/FID(MS) after solvent or thermal desorption
M10subcode <sup>1)</sup>	Formaldehyde: sampling with DNPH; off line analysis of hydrazones by HPLC with UV detection (360 nm).
M11subcode <sup>1)</sup>	Formaldehyde: sampling with HMP; off line analysis of oxazolidine by GC-NPD
M12subcode <sup>1)</sup>	Formaldehyde: sampling with bisulfite and chromotropic acid; off line analysis by spectrometry (580 nm)
M13	sampling method: HVS - manual filter change 30 m <sup>3</sup> /h
M14	sampling method: HVS -automatic filter change 30 m <sup>3</sup> /h
M15	sampling method: MVS - manual filter change 15 m <sup>3</sup> /h
M16	sampling method: LVS- manual filter change 2,3 m <sup>3</sup> /h
M17	sampling method: LVS - automatic filter change 2,3 m <sup>3</sup> /h
M18	GF-AAS - Graphite furnace atomic absorption spectrometry
M19	ICP-MS - Inductively coupled plasma - mass spectrometry
M20	ICP-OES - Inductively coupled plasma optical emission spectroscopy
M21	XRF - X-ray fluorescence spectroscopy
M22	HG ET AAS - Hydride generation electrothermal-atomic absorption spectrometry
M23	HPLC-FLD - High performance liquid chromatography - fluorescence detection
M24	GC-MS - Gas chromatography-mass spectrometry
M25	sampling method deposition : cylindrical deposition gauge
M26	sampling method deposition : wet-only
M27	CVAAS - cold vapour atomic absorption spectrometry
M28	CVAFS - cold vapour atomic fluorescence spectrometry
M29	Zeeman AAS - Zeeman atomic absorption spectrometry

1) DNPH: Dinitrophenylhydrazine; FID: Flame Ionisation Detection; GC: Gas Chromatography; HC: hydrocarbons; HMP: Hydroxy-methyl-piperidine; HPLC: High Pressure Liquid Chromatography; MS: Mass Spectrometer; NMHC: Non-methane hydrocarbons; NPD: Nitrogen and Phosphorus Detector; UV: Ultra Violet; VOC: Volatile Organic Compounds.

2) For sampling with impinger: use subcode 'IM'; active sampling on sorbent: subcode 'AS'; diffusive sampling: subcode 'DI'. Example: 'M10AS'.

***Designation of PM<sub>2.5</sub> station for average exposure indicator***

Under the column 'Function of station' include additional letter 'X' (for eXposure) when the station is used for the determination of the Average Exposure Indicator (AEI) under the new AQ Directive (Annex XIV Section A). Example : 'HX' for the combined code.

Note: if station is designated for AEI it is expected that its metadata description supplied under EoI indicates that it is an 'urban background' station.

## **Form 4 Stations used for assessment of ozone, including nitrogen dioxide and nitrogen oxides in relation to ozone**

The Member State should use the columns headed by 'O<sub>3</sub>', 'NO<sub>2</sub>' and 'NO<sub>x</sub>' for indicating whether the measurement is used for assessment under Directive 2002/3/EC, ticking with 'y' if used and leaving the cell empty if not used. The column headed by 'NO<sub>2</sub>' indicates measurement as mentioned in 2002/3/EC, Article 9(1), the column headed by 'NO<sub>x</sub>' indicates measurement as mentioned in 2002/3/EC, Article 9(3).

### ***The role of NO<sub>2</sub> and NO<sub>x</sub> stations***

NO<sub>2</sub> and NO<sub>x</sub> measurements are reported under the Third Daughter Directive with a purpose that differs from that of the First Daughter Directive. NO<sub>2</sub> measurements under the Third Daughter Directive are done together with ozone in order to provide an indication of the representativeness of the ozone levels. When ozone is converted into NO<sub>2</sub> due to nearby NO<sub>x</sub> sources, the elevated NO<sub>2</sub> is a good indication of this local deviation. These NO<sub>2</sub> measurements must therefore always be co-located with ozone measurements.

NO<sub>x</sub> is measured under the Third Daughter Directive as a precursor to ozone. These NO<sub>x</sub> measurements do not have to be co-located with ozone measurements. Stations that are only used for assessment of NO<sub>2</sub> or NO<sub>x</sub> under the First Daughter Directive should not be reported in Form 4, but in Form 3. Stations that are used for assessment of NO<sub>2</sub> or NO<sub>x</sub> under the First as well as the Third Daughter Directive should be reported both in Form 3 and 4.

### ***Type of station for ozone***

Annex IV of the Third Daughter Directive defines the station types for ozone. These types deviate from the typology used under the EoI Decision. Because the station type for ozone is not reported under EoI, it must be reported in this Questionnaire. The following codes should be used: 'U' for urban, 'S' for suburban, 'R' for rural and 'RB' for rural background.

## **Form 5 Other stations used in assessments**

### ***Form 5a Stations and measuring methods used for the assessment of recommended volatile organic compounds***

For each of the recommended volatile organic compounds (see Annex VI of the Directive 2002/3/EC) the Member State should indicate the measurement method by one of the standard codes provided in the Decision (see also Table C) or a code defined by the Member State in Form 7.

### ***Form 5b Stations and measurement sampling and analysis methods used for the assessment of other relevant PAH in ambient air (2004/107/EC, Art. 4 (8))***

The Member State should indicate the measurement sampling and analysis method of other relevant polycyclic hydrocarbons by one of the standard codes provided in the Decision (see also Table C) or a code defined by the Member State in Form 7. These compounds should at least include the six PAH listed in the 4<sup>th</sup> daughter directive (and repeated in the form). Others PAH may be included at the bottom of the list.

### ***Form 5c Stations and sampling and analysis methods used for the assessment of concentration and deposition of arsenic, cadmium, mercury, nickel, B(a)P and other relevant PAH at background locations (2004/107/EC, Art. 4 (9))***

Member States shall install at least one background sampling point every 100 000 km<sup>2</sup> for indicative measurement in ambient air and total deposition of pollutants mentioned in the fourth daughter directive. Member States should indicate the sampling and analysis method by one of the standard codes (Table C) or a code defined in Form 7. Sampling and analysis methods for measuring in air and deposition should be given separately. The list of pollutants in Form 5c is not exhaustive and can be extended with other relevant polycyclic hydrocarbons.

**Form 6 Stations and measurement methods used for the assessment of other ozone precursor substances (2002/3/EC Annex VI)**

In this form information on the measurement method of ozone precursor substances other than those described in Form 5a is given. For each station and each substance the measurement code should be given by one of the standard codes (Table C) or by a code defined by the Member State in Form 7.

**Form 7 Methods used to measure, sample and analyse PM<sub>10</sub>, PM<sub>2.5</sub>, ozone precursor substances, arsenic, cadmium, nickel, mercury and benzo(a)pyrene and other relevant PAH: optional additional codes to be defined by the Member State (1999/30/EC Annex IX, 2002/3/EC Annex VI, and 2004/107/EC Annex V)**

Method code and description of measurement/sampling/analysis methods not included in the standard list (Table C) should be defined here. The code defined by the Member State should differ from the codes already defined in Table C.

**Form 8 List of zones and agglomerations where levels exceed or do not exceed limit values (LV) or limit values plus margin of tolerance (LV+MOT)**

and

**Form 9 List of zones and agglomerations where levels exceed or do not exceed target values or long term objectives**

The column headings in these forms have the following meaning:

>LV + MOT	Above the limit value plus the margin of tolerance; if the margin of tolerance has decreased to 0% this heading should be read as '>LV'
≤LV + MOT; >LV	below or equal to the limit value plus the margin of tolerance but above the limit value; ; if the margin of tolerance has decreased to 0% this should not be used
≤LV	below or equal to the limit value
>LV	above the limit value;
SS	due to specific sources of lead, see below
Art 3(2)	extension period granted for site-specific conditions of benzene, see below
>TV	above the target value
≤TV	below or equal to the target value
≤TV; >LTO	below or equal to the target value but above the long term objective for ozone;
≤LTO	below or equal to the long term objective for ozone.

If the column heading describes the status of the zone, tick with 'y'. In the case of ozone, the status is to be assessed over 3 years for the health target and over 5 years for the vegetation target value.

If exceedance has been concluded from model calculations solely, tick with 'm' instead of 'y'. For thresholds for ecosystems and vegetation, tick only when exceedance occurred in areas where these limit values apply. For zones in which no areas exist where these limit values apply, tick column '≤LV' by 'n'.

### ***The exceedance status of a zone in relation to threshold exceedance***

As a rule, the exceedance status of a zone is determined by the highest value of the concentration parameter of the limit value (or LV+MOT) that occurs in the zone. There are exceptions to this rule, however:

1. For assessing compliance with the limit values related to ecosystems and vegetation of the First Daughter Directive, only the areas where these limit values apply should be taken into account (see Annex VI (Ib) of the First Daughter Directive).
2. For ozone, the target value and long-term objective for the protection of vegetation should not be applied in urban areas, following the considerations in Annex IV of 2002/3/EC.
3. As the limit value (and LV+MOT) for lead in areas around certain sources are allowed to be higher than elsewhere, the highest level in such an area may not be decisive for the compliance status of the zones encompassing those areas (see below for clarification).

### ***Exceedances calculated by modelling***

The level that determines the compliance status of a zone may have been found by measurements at a fixed station or by modelling techniques. The *Guidance on the Assessment under the EU Air Quality Directives*, in particular Chapter 4.3, gives a detailed discussion and guidance on how to use models in assessing the compliance status of a zone (please note that this guidance is currently under revision).

It is possible that a limit value (or limit value plus margin of tolerance) has not been measured, but determined by modelling solely. The Questionnaire does not include forms for reporting such modelled exceedances in detail, as Form 11 does for measured exceedances. When model calculations are the only basis for concluding that a threshold has been exceeded in a particular zone, the Member State is requested to indicate this in Forms 8 and 9 by ticking with “m” (Note 4 to Form 8 and Note 2 to Form 9 in the Decision). If both measurements and model calculations show that a threshold has been exceeded, the Member State should regard the measurements as the primary basis for the compliance status, so ‘y’ is used. Table D below summarises this.

**Table D Indication in Forms 8 and 9 of how the exceedance of a threshold (LV or LV+MOT) has been established**

<b>Exceedance in the zone measured?</b>	<b>Exceedance in the zone calculated by a computer model?</b>	<b>Then tick with:</b>
Yes	No	y
Yes	Yes	y
No	Yes	m

### ***The values of the limit value plus margin of tolerance***

Table E specifies the values of the limit value plus margin of tolerance for the years in which the margin of tolerance exists, according to Annexes I-IV of the First Daughter Directive and Annexes I and II of the Second Daughter Directive. For the First Daughter Directive the date of introduction of the margin of tolerance was 19/07/99, the date of entry into force of the directive; the first step of reduction was on 01/01/2001.

As indicated by the dimmed text and the shading of column in specific forms, in the year of the attainment date and after the MOT is reduced to zero, therefore LV+MOT equals the LV. Some of the shaded areas may still be used if Article 22 applies (see below).

***The application of the limit value plus margin of tolerance for zones where Article 22 (time extension) applies***

When Article 22 is successfully applied, maximum margin of tolerance applies for the duration of the time extension. The Member State should use the columns of ">LV + MOT" and " $\leq$ LV + MOT; >LV" to declare the status of the zone with the applicable maximum margin of tolerance. To reduce chance of error the declaration for these zones should be done by "F" (or "Fm" if determined by modelling) rather than 'y' and 'm'.

**Table E1 Stepwise reduction of the limit value plus margin of tolerance (taken from the *Guidance on the Assessment under the EU Air Quality Directives*)**

Pollutant	Averaging period	Limit value ( $\mu\text{g}/\text{m}^3$ except CO) <sup>1,2)</sup>	To be met by	Margin of tolerance	Until 31/12/00	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010					
					Limit value + margin of tolerance ( $\mu\text{g}/\text{m}^3$ except CO) <sup>1,2)</sup>															
SO <sub>2</sub>	1 hour	350	01/01/05	150 $\mu\text{g}/\text{m}^3$	500	470	440	410	380	350										
SO <sub>2</sub>	24 hours	125	01/01/05	-																
SO <sub>2</sub>	1 yr, ½ yr <sup>3)</sup>	20	19/07/01	-																
NO <sub>2</sub>	1 hour	200	01/01/10	50%	300	290	280	270	260	250	240	230	220	210	200					
NO <sub>2</sub>	1 year	40	01/01/10	50%	60	58	56	54	52	50	48	46	44	42	40					
NO <sub>x</sub>	1 year	30	19/07/01	-																
PM <sub>10</sub>	24 hours	50	01/01/05	50%	75	70	65	60	55	50										
PM <sub>10</sub>	1 year	40	01/01/05	20%	48	46	45	43	42	40										
PM <sub>10</sub>	1 year	20 <sup>4)</sup>	01/01/10 <sup>4)</sup>	50%	30	30	30	30	30	30	28	26	24	22	20					
Lead	1 year	0.5	01/01/05	100%	1.0	0.9	0.8	0.7	0.6	0.5										
Lead <sup>5)</sup>	1 year	0.5; 1.0 in 2005-2009	01/01/10	100%	1.0	1.0	0.95	0.9	0.85	1.5	1.4	1.3	1.2	1.1	0.5					
Benzene	1 year	5	01/01/10	100%							10	10	10	10	10	9	8	7	6	5
CO	8 hours	10	01/01/05	6 $\text{mg}/\text{m}^3$							16	16	14	12	10					

1) Numerical value of the limit value

2) For CO in  $\text{mg}/\text{m}^3$

3) Calendar year and winter (1 October to 31 March)

4) Indicative limit value

5) Only valid for specific point sources, of which the Commission must be notified (according to Annex IV of the first Daughter Directive); in these cases the intermediate limit value of 1.0  $\mu\text{g}/\text{m}^3$  must be met by 01/01/2005.

**Table E2. Target value and long-term objective**

Pollutant	Averaging period	Limit value (ng/m <sup>3</sup> except ozone) <sup>1),2)</sup>	To be met by
ozone-health TV (3)	8 h	120	2010
ozone- health LTO (4)	8 h	120	2020
ozone-vegetation TV (5)	1h	18000	2010
ozone-vegetation LTO (5)	1h	6000	2020
arsenic	1 year	6	01/01/13
cadmium	1 year	5	01/01/13
nickel	1 year	20	01/01/13
B(a)P	1 year	1	01/01/13

- 1) Numerical value of the limit value
- 2) For ozone in µg/m<sup>3</sup>
- 3) not to be exceeded on more than 25 days
- 4) not to be exceeded
- 5) AOT40 value expressed as (µg/m<sup>3</sup>).h?

**Specific sources of lead**

A somewhat complicated situation exists regarding the specific sources that are referred to in Annex IV of the First Daughter Directive. In the immediate vicinity of specific sources the thresholds for lead are temporarily higher than in other, “normal” areas<sup>3</sup>. These provisions only apply to situations of which the Commission has been notified under certain conditions given in Annex IV of the First Daughter Directive.

So, a zone may be composed of “normal” areas and areas around specific sources. The levels in each of these two area types have to be compared with the appropriate threshold.

*Example: In 2006 in a certain zone the highest level in the areas near specific sources is 0.8 µg/m<sup>3</sup> and the highest level in the other areas of that zone is 0.6 µg/m<sup>3</sup>. The compliance status of the zone is then determined by 0.6 µg/m<sup>3</sup>, because this is above the limit value of 0.5 µg/m<sup>3</sup>, while the (in absolute terms higher) level of 0.8 µg/m<sup>3</sup> is below the local limit value.*

The three cases given in Table F below illustrate how to report the compliance status of such a zone in Form 8. In all cases the zone as a whole is not in compliance, since the limit value is exceeded somewhere. In Cases 1 and 2, where the exceedance occurs irrespective of the specific source areas, the SS (specific sources) column is not ticked. In Case 3, where the non-compliance is solely due to exceedance in the area near specific sources, the SS column is also ticked.

Note that for “normal” areas the margin of tolerance not longer exist. The column indicating that the concentration is above the LV but below LV+MOT is only applicable for special cases.

<sup>3</sup> In Annex IV of 1999/30/EC specific sources are mentioned separately in relation to the limit value and in relation to the margin of tolerance respectively. In practice these specific sources are expected to be the same sources.

**Table F Examples of reporting exceedance of a threshold for a zone in which areas near specific sources exist**

	Exceedance in “normal” area?	Exceedance in area near specific sources?	Exceedance status of the zone reported in Form 8	SS
Case 1	Yes	Yes	y	
Case 2	Yes	No	y	
Case 3	No	Yes	y	y

***Site-specific conditions of benzene***

In Form 8e, ‘LV’ refers to the limit value specified in Directive 2000/69/EC Annex I. For zones for which the Commission has granted an extension period for benzene according to Article 3(2) to Directive 2000/69/EC, the Member State is requested to indicate this by ticking column ‘Art3(2)’ by ‘y’.

***“Old limit values”***

It is noted that the “old” limit values of the directives 80/779/EEC, 82/884/EEC and 85/203/EEC remain in effect until the new limit value takes over in 2005 and 2010 respectively. Forms 26 and 27 provide tables for reporting exceedances of those limit values.

***Form 9c Target value for PM<sub>2.5</sub>***

Form has been added to ensure that there would be no need for further modification of template if still applicable when this reporting will become mandatory for reporting year 2010. Current use is voluntary.

**Form 10 List of zones and agglomerations where levels exceed or do not exceed upper assessment thresholds (UAT) or lower assessment thresholds (LAT), including information on the application of supplementary assessment methods**

***Five-years basis for exceedance of the assessment thresholds***

Section I of Annex V of the First Daughter Directive and the corresponding Annex III of the Second Daughter Directive define the assessment thresholds on the basis of one year. Consequently, the number of exceedances of the numerical value can be determined for each year. *However, Form 10 does not refer to single-year exceedances.* The directives specify in Sections II of the annexes mentioned above that exceedance of the assessment thresholds should be judged on the basis of five consecutive years, to reduce the probability for exceptionally high or low concentrations in a single year to alter the assessment requirements. Art. 7(1) of the First Daughter Directive and 5(1) of the Second Daughter Directive mention in addition that this should be reviewed at least every five years or earlier in the event of significant emission changes. Form 10 should indicate the “multi-year” exceedance status calculated according to Sections II of Annex V of the First Daughter Directive and Annex III of the Second Daughter Directive respectively. In contrast to the previous guidance relating to Decision 2001/839/EC, this information is given every year. It is recommended that a comment is introduced in the first empty column on the right indicating the year of the last review.

During the first years of implementation of the First or Second Daughter Directive, less than five years of data may be available at some stations. In later years this may also be the case when a station has been moved or when no valid data set could be produced at a station for a particular year. A similar situation arises in the event of significant emission changes, when the existing measurement data are no longer representative for the new situation. In that case

the more flexible procedure as described in Article 5 of the First Daughter Directive for the Preliminary Assessment can be employed, in which estimations based on computer models or other techniques can be used to determine whether the assessment thresholds are exceeded anywhere in the zone.

### ***Similarity to Form 8***

Apart from the SA (supplementary assessment) column, Form 10 is similar to Form 8. For clarification on the exceedance status of a zone in relation to threshold exceedance, on exceedances calculated by modelling and on specific sources of lead the reader is referred to the corresponding paragraphs of Form 8.

### ***Upper and Lower Assessment Thresholds near specific sources of lead***

The upper and lower assessment thresholds for lead apply everywhere, irrespective of the presence of specific sources nearby.

### ***Amendment of the calculation of the assessment threshold***

The first paragraph of Section II of Annex V of 1999/30/EC has been amended by Decision 2001/744/EC, replacing the paragraph by the following text:

*“Exceedances of upper and lower assessment thresholds must be determined on the basis of concentrations during the previous five years where sufficient data are available. An assessment threshold will be deemed to have been exceeded if it has been exceeded during at least three separate years out of those previous five years.”*

### ***Ticking the SA column***

The Member State is requested to use “y” in the SA column for indicating that information from fixed measuring stations has been supplemented by information from other sources as referred to in Art. 7(3) of 1999/30/EC.

### ***Form 10I Assessment thresholds for PM<sub>2.5</sub>***

Form 10I has been added to ensure that there would be no need for further modification of template if still applicable when this reporting will become mandatory for reporting year 2010. Current use is voluntary.

### ***Form 11 Individual exceedances of limit values and limit values plus the margin of tolerance<sup>4</sup>***

#### ***Reporting the date of exceedance***

‘Month’ and ‘Day of month’ should be indicated by its number (1-12 and 1-31 respectively). ‘Hour’ should be indicated as ‘1’ for the hour between 00:00h and 01:00h etc.

#### ***Measured exceedances are reported in more detail than modelled exceedances***

Form 11 only applies to measured exceedances. The reporting on modelled exceedances is restricted to notification if exceedances have been concluded from model calculations (Forms 8 and 9).

#### ***Which exceedances should be reported?***

Note 4 to Form 11 states: “All exceedances of the limit value plus the margin of tolerance at a station are reported if the total number of exceedances is above the allowed number. If the

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<sup>4</sup> The phrase ‘limit value plus margin of tolerance’ should be read as ‘limit value’ when the margin of tolerance has decreased to 0%.

total number of exceedances<sup>5</sup> at a station is lower than or equal to the allowed number, no exceedances are reported.” The following example is given to clarify this.

*Example: Reporting on exceedances of the NO<sub>2</sub> hourly limit value plus margin of tolerance in 2003: 270 µg/m<sup>3</sup> not to be exceeded more than 18 times per calendar year:*

<i>Number of hourly concentrations above 270 µg/m<sup>3</sup> observed:</i>	0	17	18	19	20
<i>Number of hourly concentrations exceeding 270 µg/m<sup>3</sup> reported in Form 11e of the Questionnaire:</i>	0	0	0	19	20

Note that in reporting the time of exceedance the month, day of the month and hour (if applicable) should be reported as separate entries in an integer format.

For exceedances of the limit value of benzene in zones for which the Commission has, according to Directive 2000/69/EC Article 3(2), granted a time-limited extension, the Member State is requested to enter ‘y’ in the column headed by ‘Article 3(2)’.

When there are no exceedances to report in one of the form 11 a-l, the entry “no exceedances” must be entered in the as first entry in the “zone code” column instead of leaving the form empty. For automatic processing of the data, the Member States are requested to use the English term “no exceedances” and not an equivalent term in the national language.

#### ***How to report individual exceedances in zones where Article 22 applies***

To minimize any reporting modifications due to application of Article 22 there should be no changes to the current preparation and report in these Forms. Individual exceedances of the limit value should continue to be reported in this Form, eliminating the need to modify report preparation procedures to account for different statuses of individual zones. Declaration of status is provided already in precedent Forms 8 (Form 8c for PM<sub>10</sub>), and individual exceedances of LV+MOT can always be extracted from the LV exceedance tables.

#### ***Reporting of reasons***

The reason of exceedance can be indicated by one or several standard codes provided by the Decision (see Table G) or a code defined by the Member State that refers to a separate list of reasons described by the Member State (Form 12).. If more than one reason is indicated, the codes should be separated by a semicolon. The description given by the Member State could also be a reference to a separate document added to the Questionnaire.

Unfavourable climatological, meteorological or topographical conditions, which exist beyond human control, should not be regarded as a reason for exceedance. Consequently, “reasons of exceedance” in Article 11(1a)ii?) of 96/62/EC should be generally be read as sources or source categories. For natural sources and natural events, the First Daughter Directive gives special provisions and consequently these sources and events are regarded as meaningful reasons for exceedance (1999/30/EC, Art. 3(4) and 5(4)).

#### ***Table G reasons for individual exceedances: standard codes.***

Reason code n	Description
S1	Heavily trafficked urban centre
S2	Proximity to a major road
S3	Local industry including power production
S4	Quarrying or mining activities

<sup>5</sup> Total number of exceedances refers to all assessed exceedances and not the reduced number of exceedances after subtracting for example for winter sanding or natural events.

S5	Domestic heating
S6	Accidental emission from industrial source
S7	Accidental emission from non-industrial source
S8	Natural source(s) or natural event(s)
S9	Winter sanding of roads
S10	Transport of air pollution originating from sources outside the Member State
S11	Local petrol station
S12	Parking facility
S13	Benzene storage

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**Form 12 Reasons for individual exceedances: optional additional codes to be defined by the Member State**

To facilitate further processing, Table G (Table 2 of the Questionnaire) offers standard codes for reasons for individual exceedances. The list of standard codes is intended to include the most common reasons, but the Member State may wish to distinguish one or several other reasons of exceedance. To accommodate this, Form 12 has been included in the questionnaire. For easy processing it is suggested that the Member State uses a code defined as CCxx, where CC is the abbreviation of the Member State's name as given in Table A of this guideline and xx a serial number given by the Member State. The code defined by the Member States should not be the same as one of the standard codes.

**Form 13 Individual exceedances of ozone thresholds**

Form 13 is similar to the forms used for the month and summer reports on ozone threshold exceedances.

For Forms 13a-c: When there are no exceedances to report in one of the form 11 a-l, the entry "no exceedances" must be entered in the as first entry in the "zone code" column instead of leaving the form empty. For automatic processing of the data, the Member States are requested to use the English term "no exceedances" and not an equivalent term in the national language.

***Definition of exceedance period***

Note 2 to Form 13 gives the following definition: "An exceedance period is a continuous period on a single calendar day during which a threshold was continuously exceeded. A period cannot include hours of more than a single calendar day. If more than one exceedance period occurs on a calendar day, each period must be reported separately."

The tables below gives some examples of the meaning of this note: Table H.a gives a succession of hourly ozone concentrations, and Table H.b shows how Form 13a should be filled in.

Example:

**Table H.a Exceedances of the ozone information threshold value**

<i>First hour<sup>1</sup></i>	<i>Last hour<sup>1</sup></i>	<i>Successive hourly ozone concentrations</i>
<i>13h, 12 June</i>	<i>16h, 12 June</i>	<i>181,192, 197,192</i>
<i>18h, 12 June</i>	<i>20h, 12 June</i>	<i>188, 185, 189</i>
<i>15h, 13 June</i>	<i>02h, 14 June</i>	<i>188, 210, 244, 234, 225, 199, 187, 215, 222; 215, 198, 203</i>

<sup>1</sup> 13h indicates the hourly period 13:00-14:00 hour.

**Table H.b Exceedances of Table E.a filled in in Form 13a Exceedance of ozone information threshold value**

<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Maximum 1-hour mean ozone concentration (<math>\mu\text{g}/\text{m}^3</math>) during exceedance period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedance period</i>	<i>Total number of exceedance hours</i>	<i>1-hour mean <math>\text{NO}_2</math> concentration (<math>\mu\text{g}/\text{m}^3</math>) during maximum ozone concentration</i>
...	...	6	12	197	...	13	4	...
...	...	6	12	189	...	18	3	...
...	...	6	13	244	...	15	9	...
...	...	6	14	215	...	0	3	...

#### **Form 14 Exceedance of target values**

For Forms 14a-d: When there are no exceedances to report in one of the form 11 a-l, the entry “no exceedances” must be entered in the as first entry in the “zone code” column instead of leaving the form empty. For automatic processing of the data, the Member States are requested to use the English term “no exceedances” and not an equivalent term in the national language.

#### **Forms 14a and 14b. Exceedance of ozone target values**

The target values for ozone are defined respectively on a 3 and 5 year basis. For the first years of implementation of 2002/3/EC the Member State is requested to take data from previous years, as far as available, into account.

In Form 14a all exceedances of the target value at a station are reported if the total number of exceedances is above the allowed number. If the total number of exceedances at a station is lower than or equal to the allowed number, no exceedances are reported.

#### **Form 14 c. Exceedances of target values of arsenic, cadmium, nickel and benzo(a)pyrene**

##### **Reporting of reasons**

The reason of exceedance can be indicated by one of the standard codes (see Table G) or by a code defined by the Member State in Form 12.

##### **Reporting area of exceedance and the population exposed**

Area: the total area (in km<sup>2</sup>) within a zone where the levels exceed the limit value.

Population exposed: the total number of persons living in the area(s) within a zone where the levels exceed the limit value, see also the guidance to Form 19.

**Form 14 d. Exceedances of target value of PM<sub>2.5</sub>**

Form has been added to ensure that there would be no need for further modification of template if still applicable when this reporting will become mandatory for reporting year 2010. Current use – voluntary.

**Form 15a Annual statistics of ozone in ambient air**

AOT for vegetation and forest protection (in (µg/m<sup>3</sup>).h) and the annual average should be reported here.

Note: Form 15a asks only data that do not have to be reported in parallel under the EoI Decision.

**Form 15b Annual statistics of arsenic, cadmium, nickel and benzo(a)pyrene**

Annual mean concentrations (in ng/m<sup>3</sup>) of arsenic, cadmium, nickel and benzo(a)pyrene should be reported here. The ambient concentrations and deposition rates of the other relevant polycyclic hydrocarbons are reported in Form16c and 16Forms16c-d. It is expected that the raw data is provided through the Exchange of Information (EoI). That enables also the determination of how the data quality objectives (time coverage, data capture) have been fulfilled.

Note: Form 15b asks only data that do not have to be reported in parallel under the EoI Decision.

**Forms 16a-b Annual average concentrations of ozone precursor substances**

The concentrations should be given in µg/m<sup>3</sup>.

**Forms 16c-d. Annual average concentrations and deposition rates for mercury and relevant PAH**

The ambient concentrations should be given in ng/m<sup>3</sup>; the total deposition rates should be given in µg/m<sup>2</sup> per day. The list of PAH presented in this form is not limitative, it covers only the compounds listed in Article 4(8) of the 4<sup>th</sup> Daughter Directive. If available, measurement of other PAH, particulate and divalent gaseous mercury should be included.

**Form 17 Monitoring data on 10 minutes mean SO<sub>2</sub> levels**

It is recommended to report exceedances for all stations that monitor 10 minutes mean levels for the purpose of the First Daughter Directive; this includes stations where no exceedances were observed.

This reporting is no longer required.

**Form 18 Monitoring data on 24hr mean PM<sub>2.5</sub> levels**

Annex I(4) of the EoI Decision describes how to calculate the statistical parameters of Form 18.

## Form 19 Tabular results of and methods used for supplementary assessment

### *Supplementary assessment*

Article 7(3) and Annex VIII(I,II) of the First Daughter Directive give general indications on how to perform and report the assessment by computer modelling, but no detailed prescriptions are given. The reader is referred to the *Guidance on Assessment under the EU Air Quality Directives*, in particular Chapters 2.3, 2.4 and 4.3, for a more extensive discussion of computer modelling and supplementary assessment under the air quality directives<sup>6</sup>.

Three types of information on supplementary assessment can be reported:

- Tabular information on results;
- Maps on results;
- Information on the methods used (not further clarified here).

### *Tabular information on results*

Form 19 provides a framework for reporting the results of the supplementary assessment in tabular form. Some Member States may be able to complete Form 19 entirely, for all pollutants and all zones. If, however, the information needed is only partly available, the Member State may fill in the form partly.

- *Area*: this entry indicates the total area in km<sup>2</sup> of the part of the zone where the levels exceed the limit value. It should be determined consistently with the determination of the total zone area reported in Form 2.
- *Road length*: this entry refers only to roads in built-up areas<sup>7</sup>.
- *Population exposed*: exposure is approximated here as 'potential' exposure, which only takes outdoor concentrations into account. The population exposure above a limit value is calculated as the total number of persons living in houses in an area where the levels are above the limit value. For exposure along roads, houses are taken into account if at least at one side exposed to a level above the limit value. In practice, the calculated number of persons will depend on the spatial resolution of the population data and concentration maps. Ideally, a resolution of the order of 10 m would be needed, but in practice lower resolution could be used as well. As the main purpose of this parameter is to give an indication of exposure, not necessarily a precise number, estimates may also be given, in particular when exceedances in the zone occur only at a few hot spots.

In the case of detailed calculations in which individual dwellings are distinguished, it is recommended to count the residents of a dwelling as exposed above the limit value if the concentration at at least one side is above the limit value. Those wishing to perform more advanced calculations might take the structural presence of non-residents into account, e.g. in holiday resorts where during the holiday season the number of persons present is considerably higher than the number of permanent inhabitants, or in office districts in large cities, where this is the case during working hours. For consistency reasons, it may then be also needed to compensate for the structural absence of these persons elsewhere, to avoid double counting.

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<sup>6</sup> Please note that this guidance is currently under revision.

<sup>7</sup> This definition has been chosen to for simplicity; it does not imply that exceedances along roads outside built-up areas are irrelevant.

### ***Maps***

The First Daughter Directive encourages Member States to make maps of the concentration distributions in zones, using methods such as models, interpolation techniques etc. For local use, the spatial resolution of these maps should preferably be sufficient to depict hot spots such as streets. For use at the Community level, however, this high resolution can hardly be used because of the large files that would have to be exchanged and processed. The maps defined here are suitable for giving large-scale overviews of the air quality in the EU, but have a considerably lower resolution than needed for identifying small hot spot areas. Annex 2 gives a description of the format to be used in maps.

### ***Form 19 I Supplementary assessment of PM<sub>2.5</sub>***

Form has been added to ensure that there would be no need for further modification of template if still applicable when this reporting will become mandatory for reporting year 2010. Current use is voluntary.

### **Form 21 Exceedance of limit values of SO<sub>2</sub> due to natural sources<sup>8</sup>**

The First Daughter Directive, Art. 3(4) gives Member States the possibility for derogation of the requirement to implement action plans if limit values for SO<sub>2</sub> are exceeded owing to concentrations in ambient air due to natural sources. Form 21 has two purposes: identifying the zones for which the Member State claims derogation and summarising the results of the justification.

The guidance given in *Guidance to Member States on PM<sub>10</sub> monitoring and intercomparisons with the reference method*<sup>9</sup> on how to determine the impact of natural events on PM<sub>10</sub> levels can also be useful for determining whether exceedances of the SO<sub>2</sub> limit value are due to natural sources. Once the contributions of natural events to the measured concentrations have been determined, these contributions are subtracted from the observed concentrations. If the resulting concentrations do not exceed the limit value, it is inferred that the measured exceedance was due to natural sources.

Form 21 summarises the results of the analysis and includes the measured concentrations and the concentrations after the subtraction of the contribution of natural events. It should be noted that filling in the form cannot be regarded as the full justification as referred to in Art. 3(4) of the First Daughter Directive. The justification should be given in a separate report that has to be sent to the Commission. The entries in last column of Form 21 provide the reference to that report. This report should describe the methodology used and the results. This separate report does not need to be adapted and sent to the Commission every year. The first year in which a Member State claims derogation for a particular zone or set of zones, the justification report should be sent to the Commission; in subsequent years Form 21 can be used to report the results of the analysis for those years and if only the concentrations have changed, but the methodology has not, the Member State can refer to the justification report that has been used for the first year.

In the case when contribution of the natural event is to be subtracted from the modelled result, the Form can still be used. EoI station code column should be left empty, and others logically

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<sup>8</sup> The clarifications regarding Forms 13, 15 and 16 are very similar, but because there are some differences the clarifications are not given as a single, common text.

<sup>9</sup> Please note that this guidance is currently under revision. Determination of natural contribution will be covered in more detail in dedicated guidance to be published by June 2010.

filled in. It should be clear from the justification document and if appropriate also comment in the rightmost column what is the representativeness of the numbers provided (at place with highest modelled level before or after subtraction etc.) and the spatial applicability of the deduction across the modelled area.

### **Form 23 Exceedance of limit values of PM<sub>10</sub> due to natural events**

The First Daughter Directive, Art. 5(4) gives Member States the possibility for derogation of the requirement to implement action plans if the limit values for PM<sub>10</sub> “are exceeded owing to concentrations of PM<sub>10</sub> in ambient air due to natural events which result in concentrations significantly in excess of normal background levels from natural sources”. Form 23 has two purposes: identifying the zones for which the Member State claims derogation and summarising the results of the justification. Zones where exceedances are due to natural events as referred to above, for which the Member State does not wish to use the derogation possibility, should not be entered in the form.

Chapter 6 of the *Guidance to Member States on PM<sub>10</sub> monitoring and intercomparisons with the reference method*<sup>9</sup> recommends strategies to determine the impact of natural events on PM<sub>10</sub> levels. In the methodology proposed, the contribution of natural events is subtracted from the observed concentrations. If the resulting concentrations do not exceed the limit value it is inferred that the measured exceedance was due to natural events.

Form 23 summarises the results of the analysis and includes the measured concentrations and the concentrations after the subtraction of the contribution of natural events. It should be noted that filling in the form cannot be regarded as the full justification as referred to in Art. 5(4) of the First Daughter Directive. The justification should be given in a separate report that has to be sent to the Commission. The entries in last column of Form 23 provide the reference to that report. This report should describe the methodology used and the results. This separate report does not need to be adapted and sent to the Commission every year. The first year in which a Member State claims derogation for a particular zone or set of zones, the justification report should be sent to the Commission; in subsequent years Form 23 can be used to report the results of the analysis for those years and if only the concentrations have changed, but the methodology has not, the Member State can refer to the justification report that has been used for the first year.

In the case when contribution of the natural event is to be subtracted from the modelled result, the Form can still be used. EoI station code column should be left empty, and others logically filled in. It should be clear from the justification document and if appropriate also comment in the rightmost column what is the representativeness of the numbers provided (at place with highest modelled level before or after subtraction etc.) and the spatial applicability of the deduction across the modelled area.

The Member States may already apply evaluation of natural contributions as covered by the new AQ Directive Article 20. The principal difference is that the provision can be applied also for contributions which could not be considered 'events' under the 1<sup>st</sup> Daughter Directive, such as sea-spray. Same provisions for justification apply. There is currently Guidance on natural contributions in preparation. When published, the information requirements may change.

In case when Article 22 is applied in a specific zone, the Member State might wish to communicate differences due to natural contributions for the days in exceedance of 'LV+MOT' rather than 'LV'. It may do so, but should specifically indicate in the comment which threshold has been applied.

#### **Form 24 Exceedance of limit values of PM<sub>10</sub> due to winter sanding**

The First Daughter Directive, Art. 5(5) gives Member States the possibility for derogation of the requirement to implement action plans if limit values for PM<sub>10</sub> are exceeded owing to concentrations of PM<sub>10</sub> in ambient air due to the resuspension of particulates following the winter sanding of roads. Form 24 has two purposes: identifying the zones for which the Member State claims derogation and summarising the results of the justification. Zones where exceedances are due to winter sanding as referred to above, for which the Member State does not wish to use the derogation possibility should not be entered in the form.

The guidance given in *Guidance to Member States on PM<sub>10</sub> monitoring and intercomparisons with the reference method* on how to determine the impact of natural events on PM<sub>10</sub> levels can also be very useful for determining whether exceedances are due to winter sanding. Once the contributions of winter sanding to the measured concentrations have been determined, these contributions are subtracted from the observed concentrations. If the resulting concentrations do not exceed the limit value, it is inferred that the measured exceedance was due to winter sanding<sup>10</sup>.

Form 24 summarises the results of the analysis and includes the measured concentrations and the concentrations after the subtraction of the contribution of winter sanding. It should be noted that filling in the form cannot be regarded as the full justification as referred to in Art. 5(5) of the First Daughter Directive. The justification should be given in a separate report that has to be sent to the Commission. This report should also demonstrate that reasonable measures have been taken to lower the concentrations. The entries in last column of Form 24 provide the reference to that report. This report should describe the methodology used and the results. This separate report does not need to be adapted and sent to the Commission every year. The first year in which a Member State claims derogation for a particular zone or set of zones, the justification report should be sent to the Commission; in subsequent years Form 24 can be used to report the results of the analysis for those years and if only the concentrations have changed, but the methodology has not, the Member State can refer to the justification report that has been used for the first year.

It should be noted that 'winter sanding' does not include erosion due to spiked tyres.

In the case when contribution of the winter sanding is to be subtracted from the modelled result, the Form can still be used. EoI station code column should be left empty, and others logically filled in. It should be clear from the justification document and if appropriate also comment in the rightmost column what is the representativeness of the numbers provided (at place with highest modelled level before or after subtraction etc.) and the spatial applicability of the deduction across the modelled area.

The Member States may already apply evaluation of contributions of winter sanding and salting as covered by the Article 21 of the new AQ Directive. There is currently Guidance on

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<sup>10</sup> The guidance on determination of contribution of winter sanding and salting is under development. It is expected to be published before June 2010.

contributions from winter sanding and salting in preparation. When published, the information requirements may change.

In case when Article 22 is applied in a specific zone, the Member State might wish to communicate differences due to winter sanding/salting in the determination of days in exceedance of 'LV+MOT' rather than 'LV'. It may do so, but should specifically indicate in the comment which threshold has been applied.

**Form 26 Exceedances of limit values laid down in Directives 80/779/EEC, 82/884/EEC and 85/203/EEC**

The “old” limit values remain in force until the new ones set by the First Daughter Directive take over. The dates on which the old limit values are repealed are specified in Art. 9 of the First Daughter Directive, and summarised in Table E (column “To be met by”) of this guideline. Before the existence of the Questionnaire relating to the daughter directives, Member States had to use the Questionnaire specified in Commission Decision 96/511/EC for reporting exceedances of the old limit values. The role of that Questionnaire has been taken over by Forms 26 and 27 of the current questionnaire.

Since 1 January 2005 until 1 January 2010 this applies only for the ‘old’ limit value of NO<sub>2</sub> set in Directive 85/203/EEC. The ‘old’ NO<sub>2</sub> limit value is given as a 98<sup>th</sup> percentile of hourly averaged values of 200 µg/m<sup>3</sup>. All stations where this value has been exceeded should be reported here.

As the expected number of exceedances is small, no further reporting specifications are added here to those given in the notes to Form 26.

**Form 27 Reasons for exceedances of limit values laid down in Directives 80/779/EEC, 82/884/EEC and 85/203/EEC: optional additional codes to be defined by the Member State (1999/30/EC Article 9(6))**

Some limit values under these old Directives do no longer apply after 2005 (see Form 26).

## Annex 1 Reporting to CDR

### Delivering data for Annual report (Questionnaire) on air quality in Reportnet Central Data Repository (CDR)

#### Who can upload data to CDR?

Only people whose names have been formally given as responsible for uploading the reporting under 2004/461/EC can deliver to the national area on CDR: if you are unsure, you can check whether your EIONET user name is on the list of reporters for this data collection at: [http://cdr.eionet.europa.eu/admin/list\\_reporters/#byperson](http://cdr.eionet.europa.eu/admin/list_reporters/#byperson).

If your EIONET user name is not there and you should upload the data then please contact EIONET helpdesk at [helpdesk@eionet.europa.eu](mailto:helpdesk@eionet.europa.eu). Your request will be granted when it has been verified with your [national focal point](#) or with EEA.

#### What to deliver?

There is a detailed user guidelines document and additional information to help you to prepare your report as required under 2004/461/EC (and pilot Questionnaire) at [http://eea.eionet.europa.eu/Members/irc/eionet-circle/airclimate/library?!=/public/collection\\_questionnaire](http://eea.eionet.europa.eu/Members/irc/eionet-circle/airclimate/library?!=/public/collection_questionnaire)

#### How to deliver?

In order to deliver data you have to log in with your EIONET account and password in the relevant folder for your country in the Reportnet Central Data Repository (see links in table below). You should then follow the steps described in the [help document](#).

If you need any assistance during the delivery process, please contact EIONET helpdesk at [helpdesk@eionet.europa.eu](mailto:helpdesk@eionet.europa.eu).

Country	Url to Annual Questionnaire folder
Austria	<a href="http://cdr.eionet.europa.eu/at/eu/annualair">http://cdr.eionet.europa.eu/at/eu/annualair</a>
Belgium	<a href="http://cdr.eionet.europa.eu/be/eu/annualair">http://cdr.eionet.europa.eu/be/eu/annualair</a>
Bulgaria	<a href="http://cdr.eionet.europa.eu/bg/eu/annualair">http://cdr.eionet.europa.eu/bg/eu/annualair</a>
Cyprus	<a href="http://cdr.eionet.europa.eu/cy/eu/annualair">http://cdr.eionet.europa.eu/cy/eu/annualair</a>
Czech Republic	<a href="http://cdr.eionet.europa.eu/cz/eu/annualair">http://cdr.eionet.europa.eu/cz/eu/annualair</a>
Denmark	<a href="http://cdr.eionet.europa.eu/dk/eu/annualair">http://cdr.eionet.europa.eu/dk/eu/annualair</a>
Estonia	<a href="http://cdr.eionet.europa.eu/ee/eu/annualair">http://cdr.eionet.europa.eu/ee/eu/annualair</a>
Finland	<a href="http://cdr.eionet.europa.eu/fi/eu/annualair">http://cdr.eionet.europa.eu/fi/eu/annualair</a>
France	<a href="http://cdr.eionet.europa.eu/fr/eu/annualair">http://cdr.eionet.europa.eu/fr/eu/annualair</a>
Germany	<a href="http://cdr.eionet.europa.eu/de/eu/annualair">http://cdr.eionet.europa.eu/de/eu/annualair</a>
Greece	<a href="http://cdr.eionet.europa.eu/gr/eu/annualair">http://cdr.eionet.europa.eu/gr/eu/annualair</a>
Hungary	<a href="http://cdr.eionet.europa.eu/hu/eu/annualair">http://cdr.eionet.europa.eu/hu/eu/annualair</a>
Iceland	<a href="http://cdr.eionet.europa.eu/is/eu/annualair">http://cdr.eionet.europa.eu/is/eu/annualair</a>
Ireland	<a href="http://cdr.eionet.europa.eu/ie/eu/annualair">http://cdr.eionet.europa.eu/ie/eu/annualair</a>
Italy	<a href="http://cdr.eionet.europa.eu/it/eu/annualair">http://cdr.eionet.europa.eu/it/eu/annualair</a>
Latvia	<a href="http://cdr.eionet.europa.eu/lv/eu/annualair">http://cdr.eionet.europa.eu/lv/eu/annualair</a>
Liechtenstein	<a href="http://cdr.eionet.europa.eu/li/eu/annualair">http://cdr.eionet.europa.eu/li/eu/annualair</a>
Lithuania	<a href="http://cdr.eionet.europa.eu/lt/eu/annualair">http://cdr.eionet.europa.eu/lt/eu/annualair</a>
Luxembourg	<a href="http://cdr.eionet.europa.eu/lu/eu/annualair">http://cdr.eionet.europa.eu/lu/eu/annualair</a>
Malta	<a href="http://cdr.eionet.europa.eu/mt/eu/annualair">http://cdr.eionet.europa.eu/mt/eu/annualair</a>

Netherlands	<a href="http://cdr.eionet.europa.eu/nl/eu/annualair">http://cdr.eionet.europa.eu/nl/eu/annualair</a>
Norway	<a href="http://cdr.eionet.europa.eu/no/eu/colp0r8w/colquwo3a">http://cdr.eionet.europa.eu/no/eu/colp0r8w/colquwo3a</a>
Poland	<a href="http://cdr.eionet.europa.eu/pl/eu/annualair">http://cdr.eionet.europa.eu/pl/eu/annualair</a>
Portugal	<a href="http://cdr.eionet.europa.eu/pt/eu/annualair">http://cdr.eionet.europa.eu/pt/eu/annualair</a>
Romania	<a href="http://cdr.eionet.europa.eu/ro/eu/annualair">http://cdr.eionet.europa.eu/ro/eu/annualair</a>
Slovenia	<a href="http://cdr.eionet.europa.eu/si/eu/colqba8sg/annualair">http://cdr.eionet.europa.eu/si/eu/colqba8sg/annualair</a>
Slovakia	<a href="http://cdr.eionet.europa.eu/sk/eu/annualair">http://cdr.eionet.europa.eu/sk/eu/annualair</a>
Spain	<a href="http://cdr.eionet.europa.eu/es/eu/annualair">http://cdr.eionet.europa.eu/es/eu/annualair</a>
Sweden	<a href="http://cdr.eionet.europa.eu/se/eu/colqzw7oa">http://cdr.eionet.europa.eu/se/eu/colqzw7oa</a>
Switzerland	<a href="http://cdr.eionet.europa.eu/ch/eu/annualair">http://cdr.eionet.europa.eu/ch/eu/annualair</a>
Turkey	<a href="http://cdr.eionet.europa.eu/tr/eu/annualair">http://cdr.eionet.europa.eu/tr/eu/annualair</a>
United Kingdom	<a href="http://cdr.eionet.europa.eu/gb/eu/annualair">http://cdr.eionet.europa.eu/gb/eu/annualair</a>

### **Zone boundaries**

To effectively aggregate this spatial information on different scales, with minimum cost and administrative burden, two options are available:

If zone coincides with the administrative units, the information is provided by simply listing the selected administrative units from the list supplied by EEA;

otherwise, a GIS file is submitted, following coordinate system/datum and resolution specifications.

## **Annex 2 Specification of concentration maps in electronic form as referred to in Note 2 to Form 19**

### ***General***

The maps are generally the result of model calculations, interpolation of measurement results or other mathematical techniques. Each map should be represented by an appropriate number of locations (hereafter called “receptor points”) and the concentrations at these receptor points.

The data file representing a map consists of a set of rows of locations within the territory encompassed by the map and the numerical value of one of the concentration parameters listed in Table 3 of the questionnaire at these receptor points. A file of map data may contain data of only one map or of several maps of the same territory for several concentration parameters.

The territory encompassed by a concentration map in electronic form can either be a collection of neighbouring zones (this could be the entire country) or a single zone. A map of the entire country is preferred.

The choice of the distances between receptor points is left to the Member States. The Member State may use a grid of receptor points with fixed density or a distribution of receptor points with varying density, where a low density is used for areas with low spatial gradients and a higher density where higher spatial gradients exist. The spatial resolution of the maps would typically be 10-100 km, with locally increased resolution up to about a 1 km. So, small-scale hotspots, *e.g.* streets, are not resolved.

The concentration value of a receptor point should be representative of the area around it, corresponding to the local spacing between the receptor points.

### ***Format description***

The map file consists of a series of records. The first two records are header records.

- The first record describes the territory encompassed by the map. If the map encompasses the entire Member State, the code of the Member State CC as given in the guideline to Form 2 is given. If the map does not contain all zones of the Member State, the zone codes of the zones encompassed by the map are given.
- The second record describes the statistical parameter(s) mapped, given in Table 3 of the Questionnaire, using the codes given in Table A.1.
- All following records contain the coordinates of a receptor point, combined in a single field, followed by the numerical value(s) of concentration parameter(s) mapped in  $\mu\text{g}/\text{m}^3$ .

Specification of the receptor field:

- The receptor point locations are denoted in the same way as the zone border coordinates in Form 2. See also Annex 1.

Specification of the concentration field:

- All concentration values are given in floating notation, giving at least three significant digits.
- Unknown concentrations are coded by “-9999”.

- Concentrations at receptor points where no relevant concentrations exist<sup>11</sup> are coded by “-9998”.

All fields within a record are separated by a semicolon “;”. All records are delimited by a carriage return. For the decimal symbol “.” is used.

**Table A.1 Codes for statistical parameters to be used in concentration maps (Questionnaire Decision, Table 3)**

Pollutant	Parameter	Code
SO <sub>2</sub>	99.7 percentile of 1h means	SO2HOUR
SO <sub>2</sub>	99.2 percentile of 24h means	SO2DAY
SO <sub>2</sub>	Annual mean	SO2YEAR
SO <sub>2</sub>	Winter mean	SO2WINTER
NO <sub>2</sub>	99.8 percentile of 1h means	NO2HOUR
NO <sub>2</sub>	Annual mean	NO2YEAR
NO <sub>x</sub>	Annual mean	NOXYEAR
PM <sub>10</sub>	90.0 percentile of 24h means	PM10DAY90
PM <sub>10</sub>	Annual mean	PM10YEAR
PM <sub>10</sub>	98.1 percentile of 24h means	PM10DAY98
PM <sub>2,5</sub>	90.0 percentile of 24h means	PM2DAY90
PM <sub>2,5</sub>	Annual mean	PM2YEAR
PM <sub>2,5</sub>	98.1 percentile of 24h means	PM2DAY98
Lead	Annual mean	PBYEAR
Benzene	Annual mean	BENZENE
CO	Maximum dialy eight-hour mean	CO
O <sub>3</sub>	92.9 percentile of daily eight-hour means averaged over the last three years	O38H93
O <sub>3</sub>	Maximum daily eight-hour mean in reference year	O38HMAX
O <sub>3</sub>	AOT40 (May to July) averaged over the last five years	O3AOT40
As	Annual mean	AS
Cd	Annual mean	CD
Ni	Annual mean	NI
BaP	Annual mean	BAP

### Examples

Example 1: file containing a map of the 99.7 percentile of 1h mean concentrations of SO<sub>2</sub> in seven zones in Belgium

```
BE0001;BE0002;BE0005;BE0006;BE0008;BE0009;BE0012
SO2HOUR
+510209.12+044411.28;129
+510610.56+044418.48;125
+511012.18+044424.24;145
(...)
```

Example 2: file containing maps of all 13 concentration parameters for the whole of Belgium  
BE

<sup>11</sup> For concentration parameters associated to ecosystem/vegetation limit values, certain areas are not relevant and may be left “empty”, see Annex VI of 1999/30/EC. For proper processing of the map data, it is recommended to fill such empty areas with receptor points with a spatial density that is roughly similar to that of the neighbouring areas.

SO2HOUR;SO2DAY;SO2YEAR;SO2WINTER;NO2HOUR;NO2YEAR;NOXYEAR  
;PM10DAY;PM10YEAR;PM2DAY;PM2YEAR;PM2DAY;PBYEAR  
+510209.12+044411.28;43;21;7;9;83;26;23;67;38;43;24;0.16  
+510610.56+044418.48;47;24;7;9;87;29;26;80;43;44;25;0.18  
+511012.18+044424.24;46;24;7;10;88;32;29;73;40;44;24;0.17  
(...)

### Annex 3 Example of a questionnaire filled in

In this example only a few lines per form have been filled in with hypothetical data. For similar versions of the same form (versions a, b, c etc.) only the first version is given.

<b>MEMBER STATE:</b>	Exampia		
<b>CONTACT ADDRESS:</b>	A. Cegik		
	Clean Street 123		
	1357 AB Airtown		
	Exampia		
<b>REFERENCE YEAR:</b>	2004		
<b>COMPILATION DATE:</b>	17-09-05		
<b>Revision date</b>	<b>Updated forms</b>	<b>Reason</b>	
25/10/2007	Form 2	Correcting zone-definitions, missing information on area and population added	
<b>Zone boundaries</b>			
<i>Do zones established for the purpose of protecting human health cover national territory? (yes/no)</i>			yes
<i>Are both zone codes and boundaries for all pollutants unchanged from previous annual report? (yes/no)</i>			no
<i>Comment for clarification</i>			

Form 1 Contact body and address	
Name of the contact body	Ministry of Environment of Exampolia
Postal address	Clean Street 123, 1357AB Airtown, Exampolia
Name of contact person	A. Cegik
Telephone of contact person	+99 9876543210
Fax of contact person	+99 9876540123
Email address of contact person	<a href="mailto:Cegik@minenv.ex">Cegik@minenv.ex</a>
Comments for clarification if needed	

Form 2 Delimitation of zones and agglomerations (96/62/EC Articles 5 and 11(1b))			
	Zones		
Full zone name	Regionia	Regionia plus Arcadia	Agglotown
Zone code	EX0010	EX0011	EX0012
Pollutant(s), possibly separate protection targets, to which the zone applies	S;N;P;B;C;O	L;M;BaP	A
Type [ag/nonag]	nonag	nonag	ag
Area (km <sup>2</sup> )	2345	7654	345
Population	765321	1234500	456000
<b>Art.22 Application</b>			<b>P</b>
Zone boundary source (geospatial file/ LAU2 list)	Geospatial file	LAU2 list	LAU2 list
Zone geospatial file name	EX0010_2007.shp		
LAU2 code(s)		001001	001004
		001002	
		001003	

**Form 3 Stations and measuring methods used for assessment under 1999/30/EC (Annex IX), 2000/69/EC (Annex VII) and 2004/107/EC (Annex V)**

EoI station code	Local station code	Zone code(s)	Use for Directive							Use for Directive / Measuring method code for PM <sub>10</sub> and PM <sub>2,5</sub>	Correction factor or equation used		Use for Directive / Measuring & analytical method code for arsenic, cadmium, nickel and B(a)P								Function of station	
			SO <sub>2</sub>	NO <sub>2</sub>	NO <sub>x</sub>	Lead	Benzene	CO	PM <sub>10</sub>		PM <sub>2,5</sub>	PM <sub>10</sub>	PM <sub>2,5</sub>	arsenic		cadmium		nickel		B(a)P		
														sampling	analysis	sampling	analysis	sampling	analysis	sampling		analysis
EX0235A	110	EX0010;EX0011	y	y	y	y		y	M1		1.3										HEV	
EX0245A	111	EX0010;EX0011				SS								M13	M18	M13	M18	M13	M18	M13	M23	H
EX0254A	201	EX0011	y	y	y	y	y	y	M2	M2	1	1										H
EX0278A	301	EX0012	y	y	y	y	y	y	M2	M2	1	1										HX

**Form 4 Stations used for assessment of ozone, including nitrogen dioxide and nitrogen oxides in relation to ozone (2002/3/EC Annex III, IV, VI)**

EoI station code	Local station code	Zone code	Type of station	Use in relation to Directive 2002/3/EC		
				O <sub>3</sub>	NO <sub>2</sub>	NO <sub>x</sub>
EX0255A	202	EX0010	U	y	y	
EX0257A	206	EX0010	S	y		
EX0260A	207	EX0012	R			y

**Form 5a Stations and measurement methods used for the assessment of recommended volatile organic compounds (2002/3/EC Annex VI)**

	Stations		
EoI station code	EX0260A	EX0305A	EX0410A
Local station code	207	304	402
Zone code applying to ozone	EX0012	EX0015	EX0017
Ethane	M6	M8	M9

Ethylene	M6		
Acetylene	M6		
Propane	M6		
Propene	M6		
n-Butane	M6		
i-Butane	M6		
1-Butene	M6		
trans-2-Butene	M6		
cis-2-Butene	M6		
1,3-Butadiene	M6		
n-Pentane	M6		
i-Pentane	M6		
1-Pentene			
2-Pentene	M6		
Isoprene	M6		
n-Hexane	M6	M8	M9
i-Hexane			
n-Heptane	M6	M8	M9
n-Octane		M8	M9
i-Octane			
Benzene	M6	M8	M9
Toluene	M6	M8	M9
Ethyl benzene	M6	M8	M9
m+p-Xylene	M6	M8	M9
o-Xylene	M6	M8	M9
1,2,4-Trimeth.benzene		M8	M9
1,2,3-Trimeth.benzene		M8	M9
1,3,5-Trimeth.benzene		M8	M9
Formaldehyde			
Total non-methane hydrocarbons			

**Form 5b Stations and sampling and analysis methods used for the assessment of other relevant PAH in ambient air (2004/107/EC, Art. 4 (8))**

	Station		Station		Station		Station		Station	
	sampling	analysis	sampling	analysis	sampling	analysis	sampling	analysis	sampling	analysis
EoI station code	EX0299A		EX00300A							
Local station code	501		602							
Zone code	EX010		EX017							
benzo(a)anthracene	M13	M23	M13	M23						
benzo(b)fluoranthene,	M13	M23	M13	M23						
benzo(j)fluoranthene,	M13	M23	M13	M23						
benzo(k)fluoranthene	M13	M23	M13	M23						
indeno(1,2,3-cd)pyrene	M13	M23	M13	M23						
dibenz(a,h)anthracene	M13	M23	M13	M23						

**Form 6 Stations and measurement methods used for the assessment of other ozone precursor substances (2002/3/EC Annex VI)**

	Stations		
EoI station code	EX0305A	EX0410A	
Local station code	304	402	
Zone code applying to ozone	EX0015	EX0017	
Cyclohexane	M8	M9	
Methylcyclohexane	M8	M9	

**Form 7 Methods used to sample and measure PM<sub>10</sub>, PM<sub>2.5</sub> and ozone precursor substances: optional additional codes to be defined by the Member State (1999/30/EC Annex IX and 2002/3/EC Annex VI)**

Method code	Description
EX1	[...]

**Form 8 List of zones and agglomerations where levels exceed or do not exceed limit values (LV) or limit values plus margin of tolerance (LV + MOT) (96/62/EC Articles 8, 9 and 11, 1999/30/EC Annexes I, II, III and IV, 2000/69/EC Annexes I and II)**

**- Form 8a List of zones in relation to limit value exceedances for SO<sub>2</sub>**

Zone code	LV for health (1hr mean)			LV for health (24hr mean)		LV for ecosystems (annual mean)		LV for ecosystems (winter mean)	
	>LV+MOT	≤LV+MOT; >LV	≤LV	>LV	≤LV	>LV	≤LV	>LV	≤LV
EX0010	y			y		m		m	
EX0012		y			y		y		y
EX0013			y		y		y		y

**Form 8 List of zones and agglomerations where levels exceed or do not exceed limit values (LV) or limit values plus margin of tolerance (LV + MOT) (96/62/EC Articles 8, 9 and 11, 1999/30/EC Annexes I, II, III and IV, 2000/69/EC Annexes I and II)**

**- Form 8c List of zones in relation to limit value exceedences for PM<sub>10</sub>**

Zone code	LV (24hr mean) Stage 1			LV (annual mean) Stage 1			LV (24hr mean) Stage 2		LV (annual mean) Stage 2		
	>LV + MOT	≤LV + MOT; >LV	≤LV	>LV + MOT	≤LV + MOT; >LV	≤LV	>LV	≤LV	>LV + MOT	≤LV + MOT; >LV	≤LV
EX0010			n			n	y				n
EX0012		F				n	y		y		
EX0014	y			y			y		y		

**Form 9 List of zones and agglomerations where levels exceed or do not exceed target values or long term objectives for ozone (2002/3/EC, Annex I)**

Zone code	Thresholds for health			Thresholds for vegetation		
	>TV	≤TV; >LTO	≤LTO	>TV	≤TV; >LTO	≤LTO
EX0010	y				y	

EX0012	y			y		
EX0013		y				y

**Form 10 List of zones and agglomerations where levels exceed or do not exceed upper assessment thresholds (UAT) or lower assessment thresholds (LAT), including information on the application of supplementary assessment methods (96/62/EC Article 6, 1999/30/EC Article 7(3) and Annex V, 2000/69/EC Article 5(3) and Annex III, 2002/3/EC Article 9(1) and Annex VII)**

**- Form 10a List of zones in relation to threshold exceedances and supplementary assessment for SO<sub>2</sub>**

Zone code	UAT and LAT related to health LV (24h mean)			UAT and LAT related to ecosystems LV (winter mean)			SA
	>UAT	≤UAT; >LAT	≤LAT	>UAT	≤UAT; >LAT	≤LAT	
EX0010	y			y			y
EX0012		y				y	y
EX0013			y			y	y

**Form 11 Individual exceedances of limit values and limit values plus margin of tolerance (MOT) (96/62/EC Article 11(1) (a) (i) and (ii), 1999/30/EC Annexes I, II, IV and V and 2000/69/EC Annexes I and II)**

**- Form 11a Exceedance of SO<sub>2</sub> limit value plus MOT for health (1hr mean)**

Zone code	EoI station code	Month	Day of month	Hour	Level (mg/m <sup>3</sup> )	Reason code(s)
EX0010	EX0235A	1	12	5	387	S3
EX0010	EX0235A	1	12	6	434	S3
EX0010	EX0235A	1	17	11	397	S3

**Form 12 Reasons for individual exceedances: optional additional codes to be defined by the Member State (96/62/EC Article 11(1) (a) (i) and (ii) and 1999/30/EC Annexes I, II, IV and V, 2000/69/EC Annexes I and II)**

Reason code	Description
EX1	Temporary building activities (nearby off-road vehicle emissions)

**Form 13 Individual exceedances of ozone thresholds (2002/3/EC, Article 10(2b) and Annex III)**

**- Form 13a Exceedance of ozone information threshold value**

Zone code	EoI station code	Month	Day of month	Maximum 1-hour mean ozone concentration (mg/m <sup>3</sup> ) during exceedance period	Reason code(s)	Starting time of the exceedance period	Total number of exceedance hours	1-hour mean NO <sub>2</sub> concentration (mg/m <sup>3</sup> ) during maximum ozone concentration
EX0010	EX0055A	6	12	197	S10	13	4	24
EX0010	EX0055A	6	12	189	S10	18	3	37
EX0010	EX0055A	6	13	244	S10	15	9	33

**Form 14 Exceedance of ozone target values (2002/3/EC, Article 10(2b) and Annex III)**

**- Form 14a Stations where the ozone target value for human health is exceeded**

Zone code	EoI station code	Number of exceedance days per calendar year averaged over three years	If a full and consecutive set of data of 3 year was not used:calendar year(s) taken into account
EX0010	EX0255A	31	
EX0010	EX0257A	32	
EX0012	EX0266A	41	2004

**Form 15a Annual statistics of ozone (2002/3/EC, Article 10(2b) and Annex III)**

Zone code	EoI station code	AOT40 for vegetation protection (µg/m <sup>3</sup> .h)		AOT40 for forest protection (µg/m <sup>3</sup> .h)		Annual average
		Value	Number of valid data	Value	Number of valid data	
EX0010	EX0255A	12900	1048	27600	2103	29
EX0010	EX0257A	13200	1055	28000	2108	45
EX0012	EX0270A	11000	1088	20800	2136	42

**Form 15 Annual statistics of ozone, arsenic, nickel, cadmium and benzo(a)pyrene (2002/3/EC, Article 10(2b) and Annex III, 2004/107/EC Article 5)**

**Form 15b Annual statistics for arsenic, nickel, cadmium and benzo(a)pyrene**

Zone code	EoI station code	arsenic	cadmium	nickel	benzo(a)pyrene
		annual average	annual average	annual average	annual average
EX0011	EX0245A	4	6	12	0.7

**Form 16 Annual average concentrations of ozone precursor substances (2002/3/EC Article 10(2b) and Annex VI)  
- Form 16a Annual average concentrations of recommended volatile organic compounds**

EoI station code	Stations		
	EX0260A	EX0305A	EX0410A
Ethane	8.40		
Ethylene	3.75		
Acetylene	6.22		
Propane	6.77		
Propene	3.61		
n-Butane	8.99		
i-Butane	4.01		
1-Butene	0.49		
trans-2-Butene	0.77		
cis-2-Butene	0.42		
1,3-Butadiene	0.50		
n-Pentane	1.86		
i-Pentane	7.02		
1-Pentene			
2-Pentene	0.53		
Isoprene	0.28		
n-Hexane	0.86	1.49	1.7
i-Hexane			
n-Heptane	0.54	0.58	0.6
n-Octane		0.66	1.6
i-Octane			

Benzene	3.32	1.54	3.1
Toluene	7.82	3.64	8.6
Ethyl benzene	2.12	0.88	6.3
M+p-Xylene	6.40	1.86	21.8
o-Xylene	2.12	0.7	6.0
1,2,4-Trimeth.benzene		0.74	1.8
1,2,3-Trimeth.benzene		0.18	0.4
1,3,5-Trimeth.benzene		0.29	0.5
Formaldehyde			
Total non-methane hydrocarbons			

**Form 16 Annual average concentrations of ozone precursor substances (2002/3/EC Article 10(2b) and Annex VI)  
- Form 16b Annual average concentrations of other ozone precursor substances**

EoI station code	Stations	
	EX0305A	EX0410A
Cyclohexane	8.40	5.44
Methylcyclohexane	3.75	1.57

**Form 18 Monitoring data on 24hr mean PM<sub>2.5</sub> levels (1999/30/EC Article 5(2))**

EoI station code	Arithmetic mean ( $\mu\text{g}/\text{m}^3$ )	Median ( $\mu\text{g}/\text{m}^3$ )	98 percentile ( $\mu\text{g}/\text{m}^3$ )	Maximum concentration ( $\mu\text{g}/\text{m}^3$ )
EX0235A	16	14	45	72
EX0254A	19	16	48	68
EX0255A	16	14	46	70

**Form 19 Tabular results of and methods used for supplementary assessment (1999/30/EC Article 7(3) and Annex VIII(II), 2000/69/EC Article 5(3) and Annex VI(II) and 2002/3/EC Article 9(1) and Annex VII(II))**

**- Form 11a Results of and methods used for supplementary assessment for SO<sub>2</sub>**

Zone code	Above LV for health (1hr mean)				Above LV for health (24hr mean)				Above LV for ecosystems (annual mean)				Above LV for ecosystems (winter mean)			
	Area		Population exposed		Area		Population exposed		Area		Ecosystem area exposed		Area		Ecosystem area exposed	
	km <sup>2</sup>	Method	Number	Method	km <sup>2</sup>	Method	Number	Method	km <sup>2</sup>	Method	km <sup>2</sup>	Method	km <sup>2</sup>	Method	km <sup>2</sup>	Method
EX0010	8	A	23000	A	6	A	15000	A	35	A	30	A	37	A	30	A
EX0012	2	A	3500	A	0	A	0	A	0	A	0	A	0	A	0	A
EX0013	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A

**Form 20 List of references to supplementary assessment methods referred to in Form 11 (1999/30/EC Article 7(3) and Annex VIII(II))**

Method	Full reference
A	Combination of measurements and modelling; ref EX-EPA report 342 (1999), Cleantown, Exampolia
B	Modelling; ref EX-EPA report 434 (1999), Cleantown, Exampolia
C	Interpolation; ref EX-EPA report EX-EPA 342 (1999), Cleantown, Exampolia

**Form 21 Exceedance of limit values of SO<sub>2</sub> due to natural sources (1999/30/EC Article 3(4))**

**- Form 13a SO<sub>2</sub> limit value for health (1hr mean)**

Zone	EoI station code	Number of exceedances measured	Natural source code(s)	Estimated number of exceedances after subtraction of natural contribution	Reference to justification
EX0015	EX0340A	46	C1	19	Letter of 12/03/02 ref no AS/DF/123 and annexed report
EX0015	EX0341A	38	C1	20	Letter of 12/03/02 ref no AS/DF/124 and annexed report
EX0015	EX0344A	40	C1	4	Letter of 12/03/02 ref no AS/DF/125 and annexed report

**Form 22 Natural SO<sub>2</sub> sources: optional additional codes to be defined by Member State (1999/30/EC Article 3(4))**

<i>Natural source code</i>	<i>Description</i>
EX1	[...]

**Form 23 Exceedance of limit values of PM<sub>10</sub> due to natural events (1999/30/EC Article 5(4)) or natural contributions (2008/50/EC Article 20)**

**- Form 23a Contribution of natural events to exceedance of the PM<sub>10</sub> limit value (stage 1; 24hr mean)**

<i>Zone</i>	<i>EoI station code</i>	<i>Number of exceedances measured</i>	<i>Natural event code(s)</i>	<i>Estimated number of exceedances after subtraction of natural contribution</i>	<i>Reference to justification</i>	<i>Comment</i>
EX0012	EX0677A	45	E1	34	Letter of 12/03/09 ref no AS/DF/123 and annexed report	Number of days refer to exceedance of LV+MOT (Art 22 applies)
EX0016	EX0678A	53	E1	35	Letter of 12/03/09 ref no AS/DF/124 and annexed report	
EX0016	EX0801A	60	E1	40	Letter of 12/03/09 ref no AS/DF/125 and annexed report	

**Form 24 Exceedance of limit values of PM<sub>10</sub> due to winter sanding or salting (1999/30/EC Article 5(5), 2008/50/EC Article 21)**

**- Form 24a Contribution of winter sanding to exceedance of the PM<sub>10</sub> limit value**

<i>Zone</i>	<i>Station code</i>	<i>Number of exceedances measured</i>	<i>Estimated number of exceedances after subtraction of winter sanding contribution</i>	<i>Reference to justification</i>
EX0020	EX0840A	54	20	Letter of 12/03/02 ref no AS/DF/123 and annexed report
EX0020	EX0841A	62	45	Letter of 12/03/02 ref no AS/DF/124 and annexed report
EX0021	EX0860A	53	43	Letter of 12/03/02 ref no AS/DF/125 and annexed report

**Form 25 Consultations on transboundary pollution (96/62/EC Article 8(6))**

**- Form 25a General**

Has the Member State consulted other Member States on significant air pollution originating in other Member States?  
Please tick with 'y' if yes or 'n' if no:

y

**Form 25 Consultations on transboundary pollution (96/62/EC Article 8(6))**

**- Form 25b Specification per Member State**

<i>If yes, please:</i>	AT	BE	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	SE	SK	SI	UK
– tick the MS or country concerned											y	y													
– tick if the agenda(s) of the consultations has/have been added to this report											y	y													
– tick if the minutes of the consultations have been added to this report																									

**Form 26 Exceedances of limit values laid down in Directives 80/779/EEC, 82/884/EEC and 85/203/EEC to be reported under 1999/30/EC Article 9(6)**

Pollutant	Limit value exceeded	Monitoring method used	EoI station code	Measured value ( $\mu\text{g}/\text{m}^3$ )	Reason code(s)	Measures taken
NO2	200 $\mu\text{g}/\text{m}^3$	Chemiluminescence	EX0067	213	EX1	Chimney height increased from 15 to 25 meter

**Form 27 Reasons for exceedances of limit values laid down in Directives 80/779/EEC, 82/884/EEC and 85/203/EEC: optional additional codes to be defined by the Member State (1999/30/EC Article 9(6))**

Reason code	Description
EX1	Emission from a local combined-energy utility; see the Annex to this questionnaire