Director General for Regulation

Ken Roy
Head of Profession for Statistics
Department for Environment, Food and Rural Affairs group

22 July 2020

Dear Ken

CONFIRMATION OF NATIONAL STATISTICS DESIGNATION FOR DEFRA STATISTICS ON AIR QUALITY AND EMISSIONS OF AIR POLLUTANTS

We have reviewed the actions that your team has taken to address the requirements in Assessment Report number 344: Statistics on Air Quality and Emissions of Air Pollutants.

On behalf of the Board of the UK Statistics Authority, I am pleased to confirm the continued designation of National Statistics for the air quality and emissions of air pollutants statistics.

These statistics are valuable because they support understanding of air pollution – a major environmental threat to human health in the UK. They inform the development of policies that aim to improve air quality by reducing emissions of air pollutants. The statistics provide a good overview of trends over time in the concentration of air pollutants and the relative contribution of different sources of emissions of air pollutants.

The team responsible for producing the statistics has responded very positively to the Requirements of our report. The team has made changes that enhance the coherence, accessibility and clarity and insight of the statistics and data for a wide range of users. We are particularly pleased with the more joined-up presentation of the two sets of statistics, and with the progress made on developing a local air quality data warehouse, which will maximise access to, and the value of, these data for specialist users. In some areas, the team went beyond the Requirements and implemented additional changes, such as converting the statistics bulletins to HTML format. We welcome the team's commitment to continuous improvement.

We have included more detail about our judgement in an annex to this letter. I, or my team, would be happy to talk you or your colleagues through any aspects of this letter or Code compliance more generally.

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and value and is something to be celebrated. We welcome that you already publish a statement alongside the statistics which reflects the National Statistics status, and we encourage you to update this on an ongoing basis as you continue to develop the statistics.

I am copying this letter to Philip Taylor, the responsible statistician.

Your sincerely

Ed Humpherson
Director General for Regulation

Review of actions taken in response to Assessment Report 344: Assessment of Statistics on Air Quality and Emissions of Air Pollutants, produced by the Department for Environment, Food and Rural Affairs (Defra)

Requirement	Actions taken by Defra to meet the Requirement	OSR's evaluation of evidence
1. Defra should enhance the value of the air quality and emissions data and statistics by engaging more effectively with users. Defra should: a) develop a greater understanding of the different types of users and their needs b) initiate an ongoing dialogue with users, tailoring its engagement to different types of users as appropriate The statistics team might find it useful as part of enhancing its engagement to publish a user engagement plan.	Defra's air quality team commissioned exploratory research to better understand the range of different audiences for air quality data and information, their differing needs and requirements, and how air quality data and information need to be provided to ensure they meet the audiences' needs. It considered the provision of air quality information through the National Statistics bulletins and the gov.uk, UK-AIR and National Atmospheric Emissions Inventory (NAEI) websites. The team found that specialist user types (such as the Expert Analyst and Technical User personas) largely access air quality data through the UK-AIR website rather than using the National Statistics bulletins. The team told us it knows that the needs of these users are largely met, but it recognises that some data tools could be improved and that it needs to work towards making wider air quality data sets more accessible, for example, by signposting the granular data tools in the statistics bulletins. The team also found that the two National Statistics bulletins best serve two user personas – Policy Influencers and Information Foragers – and that the content of the bulletin and the accompanying spreadsheet tables are key outputs for their needs. The team has already made changes to previous editions of the statistics bulletins based on the needs of policy influencers, for example, by adding commentary on domestic wood burning as a source of emissions. The team said it will make a conscious effort to make the statistics a focal point of broader stakeholder engagement – as a way of promoting the statistics, inviting feedback and discussing demands for new data. The team has launched two short user surveys via Google Forms, one for each set of statistics, which are collecting feedback on the content and format of the bulletins, and information on the type of	The exploratory user research provided the team with useful insight into the types of users of the air quality and emissions statistics, how they use the statistics and data, and their needs. It gave the team a starting point for thinking about engaging with different types of users and the range of approaches needed to achieve this. We commend the team for taking a more proactive approach to user engagement since our assessment report was published, for instance, by launching surveys to gather user views on the statistics bulletins and identifying potential users. We also welcome that the team intends to work closely with policy colleagues and policy influencers to promote the statistics and invite feedback. This seems like a resource-effficient way of engaging with the main user group of the statistics. The air quality statistics bulletin contains a brief summary of the team's approach to user engagement. We encourage the team to continue to publish information about user engagement activities, including the outcome of

		users, on a continuous basis. The team is also planning to release and promote a short survey later in the year which will identify new users and promote the release to a variety of stakeholders. The team will continue to raise awareness of the statistics through the @DefraStats Twitter account and use the statistics homepages to make any announcements of future changes to the content or structure of the bulletins. As the statistics bulletins are now published in HTML format (see actions in response to Requirement 3), the team also intends to make greater use of web analytics as source of information on patterns of use of the statistics.	existing activities like the user surveys, and planned activities, like engaging through policy channels. The team might like to consider publishing the findings of the user research, to demonstrate publicly its understanding of the types of users and their needs.
2.	To provide a coherent view of the air quality and emissions statistics, and generate greater insight for users, Defra should integrate the statistics as far as possible. It should: a) explain the purpose of each set of statistics and how they differ, and cross-reference the statistics to provide a coherent narrative b) highlight other available estimates of emissions of air pollutants, and explain how they differ from the Defra estimates c) regularly update and signpost users to existing air quality resources d) work quickly to develop and implement a portal that brings together local	The air quality and emissions statistics are now presented in a more joined-up way. The team has: • added a section to both statistics bulletins that describes the linkages between air quality and emissions. • provided multiple references to each set of statistics in the relevant bulletin – for example, links to the emissions statistics and the NAEI website in the air quality statistics bulletin; and links to the air quality statistics and UK-AIR In the emissions statistics bulletin. • provided examples of other emissions inventories in the emissions of air pollutants statistics bulletin. • expanded the range of air quality data the bulletins link to, including data repositories such as London Air and Air Quality England. • revamped the air quality and emissions statisics collection landing page on gov.uk to be more consistent with the greenhouse gas emissions statistics collection and to provide a comprehensive list of resources for users to draw on. The team has been working with contractors to make an air quality data warehouse available on the UK-AIR website. This will make hourly air quality monitoring data collected by other authorities (including local authorities and airports) available	The team has significantly enhanced the coherence of the statistics by explaining clearly the relationship between the air quality and emissions statistics, and signposting relevant and related information across the statistics bulletins and the websites. The gov.uk landing page in particular is now a helpful repository of information for all users. We are pleased with the progress made on developing the local air quality data warehouse. Although coverage will not be complete, the warehouse will capture data from most local authority and airport monitoring stations and make them easily accessible via UK-AIR, which will enhance their value for specialist users. We welcome that the API will make it straightforward for authorities to link their data to the warehouse.

and national air quality data e) consider how it can incorporate local data when producing the air quality statistics	alongside the Defra-managed networks. These data are linked to the various data tools available on UK-AIR, and, dependant on the quality of data provided, these tools can used for bespoke analysis of the data. The coverage of this network is around 80 per cent of automatic air quality monitoring sites operated by local authorities. The remainder are either on a small online portal that would be cost-prohibitive to harvest data from, or the local authority chooses not to disseminate information from that site. The contractors have developed an Application Progamming Interface (API) that makes it easier for authorities to link their monitoring data to the data warehouse, and the team plans to encourage these data providers to allow their portal to harvest their monitoring data. As of June 2020, an alpha version of this product has been developed, and Defra expects the live service to be launched within the next two months. Resource limitations both within Defra and at the service contractor due to the COVID-19 response have been a factor in the delay in developing this product. The team anticipates it will need to do further analysis of the local monitoring data before it can make decisions about whether it is suitable data source for the annual statistics. The team said data quality is a key concern for use of local data, and it will need to consider conherence with other data sources.	We recognise that the team will need to review the quality of these data and assess their suitability for use in the statistics bulletin. We encourage the team to be ambitious about using local data to generate insight into trends in air quality, and to update users as this work progresses (see Requirement 6).
3. To improve the accessibility of the data and statistics, Defra should: a) make previous bulletins available on gov.uk b) explain and reference the UK-AIR and NAEI websites in the bulletins, and promote the bulletins on their respective websites	The team has enhanced the accessibility of the statistics in several ways: • Links to previous versions of both bulletins (back to 2008) have been added to each release's landing page. • The UK-AIR and NAEI websites are explained and referenced in each bulletin's 'Background' section. The respective websites have been updated with clear links to the statistics bulletins on each website's home page. • Both statistics bulletins have been converted to HTML format so that users can more easily navigate to the	We are impressed by the team's continued focus on improving the accessibility of the statistics and the user-friendliness of the websites. Converting both bulletins to HTML format was not a Requirement of the Assessment Report, but it has transformed the way the air quality and emissions information is presented and has widened the scope for linking to, and accessing, related information across the

c) act on the UK-AIR user needs project feedback, and in collaboration with BEIS, continue to review the NAEI website, to enhance the accessibility and navigability of the websites	relevant section and the format is standardised to that of GOV.UK for consistency. The team has also carried out an accessibility audit on the statistics bulletins, which revealed that certain aspects of the bulletins do not fully meet accessibility criteria, such as the colour contrast of the visualisations. The team will make the necessary changes and re-upload the bulletins before September. The user research for the UK-AIR website will help the team to form a set of requirements for the next tender for running the website, in line with Government Digital Service requirements. This tender will look to improve on the current structure of the website to make it easier to navigate and to make the tools easier to use. Some small improvements have been made since the assessment report was published, such as making bulk downloads of air quality modelling data available. The data warehouse for local authority data (see actions in response to Requirement 2) will serve a major need for specialist users.	statistics bulletins and the UK-AIR and NAEI websites. The accessibility audit ensures that the statistics bulletins will meet the government accessibility standards, which must be implemented before September 2020. We welcome that the plans for developing UK-AIR will be based on user research and insight. While Defra does not manage the NAEI website, we encourage the team to give equal attention to enhancing the accessibility of the emissions data, to ensure that the needs of those users continue to be met.
4. To enhance the clarity and insight of the statistics bulletins, Defra should: a) present the pollutants with the most policy importance and relevance first in the emissions bulletin b) improve commentary and visualisations to help users understand short-term trends in emissions and the extent to which Defra is meeting emissions ceilings c) where possible, add explanations and provide	The team has changed the order of the pollutants appearing in both statistics bulletins so that those with the greatest policy importance appear first. The summary section of the emissions statistics bulletin now contains additional information on recent trends in emissions. This includes a visualisation of how the trend in emissions compares over the last ten years (from 2008 values), accompanied by the appropriate narrative. The air quality statistics bulletin now contains an explanation of how air quality is measured as well as how measured concentrations should be interpreted in terms of health impacts (i.e. information about the Daily Air Quality Index). In the pollutant section in each statistics bulletin, additional information on the typical sources of the pollutant of interest has been provided, alongside a brief summary of the health impacts of high exposure to that pollutant. Contextual information on what might be influencing changes in concentrations over time of the	The expanded commentary and contextual information add insight for users by explaining how and why pollutant concentrations and emissions have changed over time. The new information also ensures that users are clear on the reasons for measuring ambient air quality concentrations and annual emissions of air pollutants. As a result, both statistics bulletins now have a clearer and more coherent narrative and better support user interpretation of trends in the statistics. We commend the air quality statistics team and others across

context to help users better understand differences in air pollutant concentrations	pollutant of concern has also been added. Some of these changes are complex and require further analysis. The [Air Pollution in the UK report](), which has been referenced throughout the air quality statistics bulletin, provides more detailed contextual information and source apportionment. The team is working with analysts at the Office for National Statistics, Public Health England, the Air Quality Expert Group and the Committee on the Medical Effects of Air Pollutants on a study looking at the relationship between COVID-19 death rates and air pollution. There will be some outputs from this work which will fill an existing evidence gap. The team expects COVID-19 to form a large part of the next release of the air quality statistics bulletin (April 2021).	government for their ongoing efforts to analyse and understand the relationship between COVID-19, air pollution and human health. We look forward to reading the outputs from this work.
5. To help users understand the quality and methods of the air quality and emissions and statistics, Defra should: a) publish information about the emissions inventory data sources, methods and quality assurance at the same time as the statistics, for example, through a summary methods and quality document b) provide additional information on the air quality monitoring network, including on the positioning of sites c) signpost relevant methods information and quality assurance documents in the statistics bulletins	The team has produced a summary methods and quality document ([Methods and quality processes for UK air pollutant emissions statistics' (PDF)]()) which is published alongside the emissions statistics bulletin and is signposted throughout the release. This is a more accessible version of the annual Informative Inventory Report (IIR) that the UK publishes as part of data submission to the UN. It contains a high-level summary of the uncertainty in the emissions statistics. The methods and quality information in the air quality statistics release has been expanded to include a summary of the air quality monitoring networks, which covers how air quality is measured and the monitoring data quality assurance and quality control (QAQC) procedures, and a summary of the main limitations of the air quality statistics. Relevant methods information and quality assurance documents have been signposted in both statistics releases.	The additional methods and quality information about methods and quality is clear and accessible. It helps users better understand why and how the data are collected and processed, and gives them confidence in the quality of the statistics. We particularly welcome the new summary methods and quality document for the emissions statistics. Publishing this information alongside the statistics ensures equal access for all users, including non-experts. Summaries of the limitations of the air quality data and uncertainty of emissions estimates aid interpretation of the statistics by drawing attention to variation in the data.

d) publish a summary of the main limitations alongside the air quality statistics and a summary of uncertainty alongside the emissions statistics		
6. To enhance the trustworthiness of the statistics, Defra should: a) should explain how it is meeting the Defra Group's quality principles for the air quality and emissions statistics b) consider publishing a formal development plan for the data and statistics Ricardo should publish a summary of its approaches to aggregating data and disclosure control for sensitive emissions data.	A summary of how each set of statistics meets Defra Group's quality principles has been included in the Statement of compliance with Code of Practice in the air quality statistics bulletin. The team considered the merits of publishing a formal development plan, but decided that this will not be practical. For the emissions statistics, there is an annual improvement cycle with an attached budget but the choice of improvements is commercially sensitive information. Changes to methods and activity data aim to either improve the accuracy of emissions data from an uncertain source or for a source of particular importance to national emissions totals. Changes will be explained in the methods and quality processes document which will be updated annually. For the air quality statistics, the team told us the current set of statistics largely meets the needs of users (see actions in response to Requirement 1), pending the further analysis of air quality monitoring operated by local authorities and airports. A detailed summary of Ricardo's approaches to aggregating data and disclosure control for sensitive emissions data is included in the 'Methods and quality processes for UK air pollutant emissions statistics' document, which is published alongside the statistics.	The Statement of Compliance lists the main recent improvements to the statistics, including the actions taken in response to the Requirements of our Assessment Report. It states that the air quality statistics gov.uk homepage will be used to make any announcements of future changes to the content or structure of the bulletins. In lieu of a formal development plan for these statistics, we encourage the team to use the homepage to announce wider changes and developments to the statistics and data as well, such as the development of the local air quality data warehouse and analysis of local data. The quality and methods information for the emissions statistics already provides a detailed account of existing and planned developments to the data.