

Environment and Regeneration O&SC

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Air Quality Monitoring

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Air Quality Monitoring

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Context

- Part IV of the Environment Act (1995) places a statutory requirement on Cheshire East Council to submit an annual report to Defra on Local Air Quality Management (LAQM)
- In April 2016 the Local Air Quality Management Policy Guidance (PG16) was published.



Department
for Environment
Food & Rural Affairs

Part IV of the Environment Act 1995

Local Air Quality Management Policy Guidance (PG16)

April 2016



Context (2)

Air Quality Standards:

- Nitrogen Dioxide (NO₂): A colourless, odourless corrosive gas. Irritant to airways and cardiovascular system.

Concentration	Averaging Period	Legal Nature	Permitted exceedances each year
200 µg/m ³ (>60µg/m ³ threshold for short term objective)	1 hour	Limit value entered into force 1.1.2010	18
40 µg/m ³	1 year	Limit value entered into force 1.1.2010	N/A

Background

- When preparing the 2015 Annual Status Report (ASR) data errors were identified by the Air Quality Team.
- An internal audit was carried out to:
 - Review all air quality data that had been reported to Defra in 2014 and the data which was due to be reported for 2015 to identify potential inaccuracies, by comparison with original laboratory data.
 - Review the process to determine how these inaccuracies occurred and recommendations to ensure it does not happen again.
 - Report any other area of concern that comes to light during the audit.

Findings of Internal Audit

- High level Findings:
 - Air Quality Management policies, procedures and quality assurance mechanisms are ineffective
 - On the balance of probabilities the errors were not random or as a result of human error
 - Statutory returns to Defra for a number of years are now known to be incorrect
 - Recommendations for service improvement
 - Recommendation for further external investigation

Findings of Internal Audit (2)

● Main Data & Process Findings

- evidence of data alterations in AQ Monitoring spreadsheets for a number of years
- Laboratory data manually entered rather than imported directly on to AQ master sheets.
- Data inputted in batches rather than monthly.
- No log of who inputs data or when.
- No version control for the monitoring sheets.
- There is no consistency in layout or order of working documents.
- No quality control in place for the manual data entry.

External Investigation

- Given the nature of the investigation and the technical subject matter, the investigation was delivered by external agencies in three distinct phases:
 - **Phase 1:** To identify the rationale for the data errors and where responsibility for the errors lies –North West Employers
 - **Phase 2:** To determine the full impact and implications of the data errors and the actions required to ensure that the Council is fulfilling its statutory responsibilities with regards to air quality – Bureau Veritas
 - **Phase 3:** To consider the findings from Phase 1 and Phase 2 and take the investigation to its conclusion –North West Employers
- total cost of the external investigation was £28,000

High Level Findings of External Investigation

- Serious errors have been made in the Council's air quality data for 2012, 2013 and 2014. It is clear that these errors are the result of deliberate and systematic manipulation of data from a number of diffusion tubes.
- The Council has been exposed to unacceptable risks to the security of its air quality data as a result of failings within the service, to ensure that adequate processes, procedures and systems were in place to manage this data effectively.

High Level Findings of External Investigation (2)

- These errors caused a number of serious problems for the Council:
 - Incorrect data has been submitted to Defra in an annual statutory return, which will need to be corrected and published.
 - These errors have resulted in a number of deficiencies in relation to Air Quality Management Areas (AQMA's) requiring adjustments to be made to the number of AQMA's.
 - The errors may have affected the Detailed Assessments (DA) carried out to determine whether an AQMA should be declared.
 - The errors have impacted on some Air Quality Assessments submitted as part of planning applications.

High Level Findings of External Investigation (3)

- The data from diffusion tubes that have been altered are spread over a wide geographical area, which implies that the manipulation was not motivated by a wish to favour specific sites.
- Phase 2 included a review of planning applications for which the publication of revised air quality data may have affected the planning decisions.

Recommendations from External Investigations

- A. The Council introduce quality assurance processes that validate all stages of the air quality monitoring process to ensure initial accuracy, individual sign off of actions, authorised review and amendment.
- B. The Council introduce 'in year' quality assurance processes that audit and validate retained data. This should be an independent process from the Air Quality team until senior managers are assured of the teams' capability to set and maintain standards.
- C. The Council consider the 'failings within the service, to ensure that adequate processes, procedures and systems are in place' within the appropriate staff management procedure(s).

Action Taken

- The draft 2016 Annual Status Report (ASR) has been reviewed and quality assured as part of Phase 2 of the external investigation.
- The base data supporting the draft 2017 Annual Status Report (ASR) has been reviewed and quality assured as part of Phase 2 of the external investigation.
- The Director of Public Health has considered both the 2016 and 2017 ASR prior to submission to Defra. Both reports are based on corrected data and include actions as recommended by the external investigation.

Action Taken

- The 2016 & 2017 ASRs have been submitted to Defra
- Defra has been requested to review both submissions as part of their scrutiny process
- 5 new Air Quality Management Areas have been declared (from 1st October 2017):
 - Chester Road, Middlewich
 - Middlewich Road, Sandbach
 - Broken Cross, Macclesfield
 - Hibel Road, Macclesfield
 - Park Lane, Macclesfield

Action Taken

- The site selection process for the strategic housing sites in the Local Plan Strategy has been considered and there is nothing to indicate that the corrected air quality information would have affected any of the allocations.
- A review of the planning applications identified in the Phase 2 report has concluded that there is nothing to indicate that the corrected air quality information would have affected the outcome of any of the applications.
- The location and number of AQ monitoring tubes has been reviewed and additional tubes have been put out/removed in accordance with the recommendations.

Action Taken

- Appropriate action is being taken in line with HR policies
- Members have been briefed via correspondence
- The planning application review has been published
- The Cheshire East Council website has been updated to include correct data and supporting information.

Action Taken

- The internal processes and procedures have been revised to ensure data integrity and security.
- Additional control measures are in place, including:
 - The laboratory data is now being supplied in a format so that it can be transferred automatically rather than manually
 - Access to the data sheets is now restricted to the Air Quality team only (read only access)
 - Only 1 member of staff is able to amend the data master sheets
 - A senior officer regularly reviews the accuracy of the data sheets as compared to the laboratory data
 - Tenders have been sought for the provision of an annual external quality assurance of the draft ASRs for 2018 onwards.

Next Steps

- From 2018 onwards there will be external quality assurance of the ASRs until such time as there is sufficient confidence in data integrity and security.
- Internal assurance provided by Scrutiny Committee
- Consider the structure and whether the reporting relationships between the Air Quality Team and more senior managers are effective.
- Carry out public engagement sessions in relation to the new AQMAs
- Review the current action plan in light of the new AQMAs
- Continue to be open & transparent about air quality and rebuild public confidence in the service.

