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East Dunbartonshire Council

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2011 Air Quality Progress Report for EAST DUNBARTONSHIRE COUNCIL

In fulfillment of Part IV of the Environment Act 1995 Local Air Quality Management

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Executive Summary

This report considers up to date monitoring data and new information on industrial, commercial and retail developments to determine if air quality in the East Dunbartonshire Council area is in compliance with the United Kingdom air quality objectives.

The installation of a new automatic monitoring site in Milngavie is expected to be operational by August 2011. There have been predicted and measured exceedences of the NO_2 annual mean objective in Milngavie therefore continuous monitoring should provide accurate data to give an indication as to what action may be warranted.

Monitoring of PM_{10} and NO_2 continues within the Bishopbriggs Air Quality Management Area. A review of monitoring data from the Bishopbriggs monitoring sites indicates that measured concentrations of PM_{10} continue to exceed the annual mean objective at 19 µg/m3. Measured concentrations of NO_2 at this site are well below the annual mean objective at 33 µg/m3

Measured concentrations of both NO₂ and PM₁₀ at Kirkintilloch are in excess of the relevant annual mean objectives at 45 μ g/m3 and 26 μ g/m3 respectively. The construction of the Kirkintilloch Link Road was completed in November 2010. It is the Council's intention to proceed to a Detailed Assessment for both pollutants in this area.

A review of monitoring data for both NO_2 and PM_{10} within the Bearsden AQMA in 2010 indicates that the annual mean objective for both PM_{10} and NO_2 and the 1 hour mean NO_2 objective were exceeded during 2010. These results indicate that the Council's decision to declare an AQMA for both pollutants within Bearsden remains valid.

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1 Introduction

1.1 Description of Local Authority Area

The East Dunbartonshire Council area covers approximately 200 square kilometres located to the north of Glasgow and is bordered by Glasgow City Council to the south, West Dunbartonshire Council to the west, Stirling Council to the north and North Lanarkshire Council to the east. The local authority area is landlocked and contains a mixture of both urban and rural areas. A map of East Dunbartonshire is provided in Figure 1 in Appendix A.

The population of East Dunbartonshire is approximately 105,000 with the majority of residents based in the urban areas to the south, which are contiguous with Glasgow. The main urban centres are Kirkintilloch, Bishopbriggs, Lenzie, Bearsden and Milngavie. The northern part of East Dunbartonshire is largely rural with a few small population centres in Torrance, Lennoxtown, Twechar and Milton of Campsie. There are relatively low levels of industrial activity within the local authority area.

1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in Scotland are set out in the Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97), the Air Quality (Scotland) (Amendment) Regulations 2002 (Scottish SI 2002 No 297), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre, μ g/m3 (milligrammes per cubic metre, mg/m3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

| Pollutant | | Date to be | |
|------------------|---|---------------------|-------------|
| | Concentration | Measured as | achieved by |
| Benzene | 16.25 μg/m ³ | Running annual mean | 31.12.2003 |
| | 3.25 <i>µ</i> g/m ³ | Running annual mean | 31.12.2010 |
| 1,3-Butadiene | 2.25 <i>µ</i> g/m ³ | Running annual mean | 31.12.2003 |
| Carbon monoxide | 10.0 mg/m ³ | Running 8-hour mean | 31.12.2003 |
| Lead | 0.5 μg/m ³ | Annual mean | 31.12.2004 |
| | 0.25 <i>µ</i> g/m ³ | Annual mean | 31.12.2008 |
| Nitrogen dioxide | 200 μ g/m ³ not to be exceeded more than 18 times a year | 1-hour mean | 31.12.2005 |
| | 40 μg/m ³ | Annual mean | 31.12.2005 |

 Table 1.1: Air Quality Objectives included in Regulations for the purpose of Local Air Quality

 Management in Scotland

| Pollutant | Concentration | Measured as | Date to be achieved by |
|--|---|----------------|---------------------------|
| Particles (PM ₁₀) (gravimetric) | 50 μ g/m ³ , not to be exceeded more than 35 times a year | 24-hour mean | 31.12.2004 |
| | 50 μ g/m ³ , not to be exceeded more than 7 times a year | | 31.12.2010 |
| | 40 μg/m ³ | Annual mean | 31.12.2004 |
| | 18 μg/m ³ | Annual mean | 31.12.2010 |
| Sulphur dioxide | 350 μ g/m ³ , not to be exceeded more than 24 times a year | 1-hour mean | 31.12.2004 |
| | 125 μ g/m ³ , not to be exceeded more than 3 times a year | 24-hour mean | 31.12.2004 |
| | 266 μ g/m ³ , not to be exceeded more than 35 times a year | 15-minute mean | 31.12.2005 |

1.4 Summary of Previous Review and Assessments

A brief summary of all previous reviews and assessments of local air quality since 2003 in East Dunbartonshire are presented in Table 1.2 and described further in the following texts.

The locations of both AQMA's are presented in Figures 2 and 3.

| Table 1.2: | Details of local air | quality reviews | submitted by Ea | st Dunbartonshire | Council |
|------------|----------------------|-------------------|-----------------|-------------------|---------|
| | | quality i cricita | | | ocunon |

| Date submitted | Assessment / Report | Conclusions |
|-------------------|---|--|
| May 2003 | Updating and Screening Assessment (2003 U&SA) | The risk of exceeding NO_2 and PM_{10} objectives at several busy roads and junctions was identified in Bishopbriggs, Bearsden and Milngavie. |
| September 2004 | Detailed Assessment of NO_2 and PM_{10} (2004 DA) | The assessment considered NO_2 and PM_{10} concentrations resulting from road traffic emissions along the A803 in Bishopbriggs, and the A81 and A809 in Bearsden and Milngavie. The assessment concluded that annual mean NO_2 and PM_{10} objectives would be exceeded and that an Air Quality Management |
| April 2005 | Addendum to Detailed Assessment of NO_2 and PM_{10} (2004 DA- Addendum) | Area (AQMA) should be declared in Bishopbriggs. The study also identified potential exceedences of the 2010 annual mean PM ₁₀ air quality objective within Bearsden and Milngavie. However, further action was deferred until the modelling results could be verified with monitored data |
| May 2005 | Progress Report | No new areas were identified where exceedences of NAQS objectives were predicted |
| | (2005 PR) | The intention to declare an AQMA in Bishopbriggs was confirmed. |
| | | Following the results of the DA it was noted that the Council intended to install automatic monitoring for PM_{10} and NO_2 in Bearsden |
| October 2005 | Bishopbriggs AQMA declaration | An AQMA covering a 60m corridor along the A803 Kirkintilloch Road between Colston Road and a point 30m north of Cadder Roundabout was declared on 23rd October 2005 and implemented on 23rd December 2005. |
| June 2006 | Updating and Screening Assessment (2006 U&SA) | The risk of NO_2 and PM_{10} objectives being exceeded at Bearsden Cross was identified. Due to a low data capture rate at automatic monitoring site it was recommended that further monitoring was carried out prior to proceeding to a Detailed Assessment. |
| May 2007 | Bishopbriggs AQMA Further Assessment (2007 FA) | The Further Assessment confirmed the requirement for an AQMA, for both NO ₂ and PM ₁₀ , in Bishopbriggs. The Further Assessment considered two proposed future road traffic emission scenarios: the implementation of a quality bus corridor on the A803; and completion of the Bishopbriggs Relief Road. The assessment concluded that both options would generally improve air quality within the AQMA but that there may be a marginal increase in pollutant concentrations at the junction between Colston Road and Kirkintilloch Road at the south of the AQMA as a result of both schemes. The assessment concluded that the completion of the Bishopbriggs Relief Road in addition to the implementation of the quality bus corridor would achieve the highest improvement in air quality within the AQMA, although concentrations of both pollutants were still predicted to exceed the NAQS objectives in 2010. |

| Date submitted | Assessment / Report | Conclusions |
|-------------------|---|---|
| June 2007 | Progress Report (2007 PR) | The report identified that measured NO ₂ concentrations at four sites in Bearsden and one in Milngavie exceeded the annual mean NO ₂ objective. Potential exceedences of the PM_{10} annual mean and 24 hour mean objectives were identified in Bearsden and Milngavie. It was concluded that a Detailed Assessment of NO ₂ and PM_{10} was required for busy junctions in Bearsden and Milngavie. |
| October 2007 | Bishopbriggs AQMA Further Assessment (2007 FA-Addendum) | The Addendum report included additional information on source apportionment within the AQMA. It was identified that transboundary sources accounted for the greatest proportion of both PM_{10} and NO_X concentrations. The greatest contributions from local sources were from road traffic and commercial and domestic sources. It was shown that particulate emissions from tyre, break wear and re-suspension contributed significantly to road traffic emissions of PM_{10} and HGVs were the greatest contributor to road traffic emissions of NO_x . |
| January 2008 | Bishopbriggs AQMA Draft Action Plan (2008 AP-draft) | Following the a series of consultations with the local community and stakeholders, including a citizens panel questionnaire, a short-life working group and 2 workshops; the Draft Action Plan was issued in conjunction with the Local Transport Strategy (LTS). A joint Strategic Environmental Assessment (SEA) was undertaken separately which assessed the wider impacts of both the LTS and AP. |
| April 2008 | Detailed Assessment Bearsden & Milngavie (2008 DA) | The assessment of NO_2 and PM_{10} concentrations in Bearsden and Milngavie concluded that there were some areas within Bearsden and Milngavie where predicted NO_2 and PM_{10} concentrations were above the respective air quality objectives; however, the locations were not classified as locations of relevant public exposure. Furthermore, there were several areas along Drymen Road at which predicted concentrations were close to, but not exceeding, the 2010 annual mean PM_{10} objective. Based on the results of the Detailed Assessment it was concluded that an AQMA in Bearsden or Milngavie was not required; however, further monitoring was recommended. |
| August 2008 | Progress Report (2008 PR) | No identified or predicted exceedences of NAQS objectives. |
| March 2009 | Bishopbriggs AQMA Final Action Plan (2009 AP) | Following consultation with SEPA, neighbouring local authorities, all Council departments and the Scottish Government the final version Action Plan was issued. |
| July 2009 | Bishopbriggs AQMA – Progress Report 2009 | Measured NO ₂ concentrations within the AQMA indicate two exceedences during 2008. Measured concentrations of PM_{10} are in compliance with the 2010 NAQS objectives. |

| Date submitted | Assessment / Report | Conclusions |
|-------------------|---|--|
| September 2009 | Updating and Screening Assessment 2009 | The review of monitoring data identified exceedences of the annual mean NAQS objective for NO_2 and predicted exceedences of the 2010 annual mean NAQS objective for PM_{10} at locations of relevant exposure along Drymen Road in Bearsden. |
| | | East Dunbartonshire Council intend to declare an AQMA along Drymen Road in Bearsden in respect to measured and predicted exceedences of the annual mean NAQS objectives for NO ₂ and PM ₁₀ . |
| | | An Automatic Air Quality Analyser is being installed in Milngavie to ensure that the annual mean objective is not exceeded. |
| | | The PM_{10} monitoring data for Bishopbriggs indicate that concentrations within the AQMA have reduced such that the 2010 annual mean objective for PM_{10} is not being exceeded. NO ₂ concentrations continue to exceed the annual mean NAQS objective at some locations within the AQMA. |
| May 2010 | Progress Report | The measured PM_{10} concentration at Kirkintilloch exceeds the 2010 annual mean objective, giving a level of 22.5 \Box g/m ³ however; the construction of the Kirkintilloch Link Road is taking place very close by. It is anticipated that the PM_{10} level will decrease once the Kirkintilloch Link Road is complete in the summer of 2010. An Automatic Air Quality Analyser is being installed in Milngavie to ensure that the annual mean objective is not exceeded. |

2 New Monitoring Data

During 2010 East Dunbartonshire Council monitored both PM_{10} and NO_2 at several locations throughout the council area using both automatic and passive sampling methods.

All automatic monitoring NO_2 and PM_{10} data have been fully ratified by AEA Technology on behalf of the Scottish Government. Diffusion tube data have been corrected using a local bias correction. Details of the quality control and data correction processes carried out are reported in Appendix B.

2.1 Summary of Monitoring Undertaken

East Dunbartonshire monitor NO_2 and PM_{10} using a combination of automatic analysers and passive diffusion tubes (PDT). The automatic monitoring sites are presented in Table 2.1 and the details of non-automatic monitoring sites are presented in Table 2.2.

2.1.1 Automatic Monitoring Sites

East Dunbartonshire Council operate three automatic NOx analysers and four automatic PM10 monitors. The analysers are located at three sites:

- the junction of Drymen Road (A809) and Roman Road in Bearsden;
- the junction of Kirkintilloch Road (A803) with Springfield Road and Kenmure Avenue in Bishopbriggs; and
- the Townhead junction in Kirkintilloch.

There is a NOx and PM10 analyser at each monitoring location. A gravimetric partisol PM10 analyser is also collocated at the Bishopbriggs monitoring site.

The locations of the automatic monitoring sites are annotated in Figures 3, 4 and 5.

Table 2.1: Details of Automatic Monitoring Sites

| Site Name | Site Type | OS Grid Ref | Pollutants Monitored | Monitoring Technique | In AQMA? | Relevant Exposure? (Y/N with distance (m) to relevant exposure) | Distance to kerb of nearest road (N/A if not applicable) | Does this location represent worst-case exposure? |
|------------------|-----------|---------------|-------------------------|--|-------------|--|--|---|
| Bearsden 16 | Kerbside | 254269 672067 | $NO_2 PM_{10}$ | APNA 360,BAM (heated inlet) | Y | Y<2m | 1m | Y |
| Bishopbriggs 14 | Roadside | 260995 670130 | $NO_2 PM_{10}$ | APNA 360, BAM (heated inlet), Partisol | Y | Y 5m | 2 m to nearest road 10m to junction with main road | Ν |
| Kirkintilloch 17 | Kerbside | 265700 673500 | $NO_2 PM_{10}$ | Thermo 42i TEOM (FDMS) | Ν | Y <2m | 1m | Υ |

2.1.2 Non-Automatic Monitoring

East Dunbartonshire Council maintain a network of thirty two NO2 diffusion tube sites located across the council area. The monitoring sites represent public exposure and areas of high pollution concentrations at a variety of kerbside, roadside and urban background locations. The locations of the non-automatic monitoring sites are annotated in Figures 6, 7, 8 and 9.

| Site Name | Site Type | OS Grid Reference | Pollutants Monitored | In AQMA? | Relevant Exposure? (Y/N with distance (m) to relevant exposure) | Distance to kerb of nearest road (N/A if not applicable) | Worst case Location? |
|---------------------|--------------|----------------------|-------------------------|-------------|--|--|----------------------------|
| Bearsden 7 | К | 254269 672069 | NO2 | Y | Y (<2m) | 1m | Y |
| Bearsden 8 | К | 254275 672047 | NO2 | Y | N (18m) | 1m | Y |
| Bearsden 9 | R | 254751 670621 | NO2 | N | N (30m) | 2m | Y |
| Bearsden 10 | R | 255394 670683 | NO2 | N | N (24m) | 2m | Y |
| Bearsden 13 | К | 254809 671057 | NO2 | Y | Y (26m) | 1m | Y |
| Bearsden 14 | к | 254877 671000 | NO2 | Y | Y (8m) | 1m | N |
| Bearsden 15 | К | 254898 671023 | NO2 | Y | Y (2m) | 1m | Y |
| Bearsden 16 | к | 254269 672067 | NO2 | Y | Y (2m) | 1m | Y |
| Bearsden 16B | к | 254269 672067 | NO2 | Y | Y (2m) | 1m | Y |
| Bearsden 16C | к | 254269 672067 | NO2 | Y | Y (2m) | 1m | Y |
| Bishopbriggs 5 | UB | 260948 669610 | NO2 | N | N (44m) | 5m | N |
| Bearsden 17 | к | 254258 672077 | NO2 | Y | Y(<2m) | 1m | Y |
| Bearsden 18 | К | 254275 672069 | NO2 | Y | Y(<2m) | 1m | Y |
| Bishopbriggs 6 | к | 261016 670198 | NO2 | Y | Y (<2m) | 1m | Y |
| Bishopbriggs 8 | UB | 260842 670278 | NO2 | N | N (<2m) | 5m | N |
| Bishopbriggs 12 | к | 260581 669527 | NO2 | Y | N (4m) | 1m | Y |
| Bishopbriggs 13 | К | 260549 669312 | NO2 | Y | N (5m) | 1m | Y |
| Bishopbriggs 14 | R | 260995 670130 | NO2 | Y | N (42m) | 2m | N |
| Bishopbriggs 14B | R | 260995 670130 | NO2 | Y | N (42m) | 2m | N |
| Bishopbriggs 14C | R | 260995 670130 | NO2 | Y | N (42m) | 2m | N |
| Bishopbriggs 16 | к | 260580 69533 | NO2 | Y | Y (<2m) | 2m | Y |
| Bishopbriggs 17 | К | 260552 69320 | NO2 | Y | Y (<2m) | 2m | Y |
| Kirkintilloch 15 | R | 265640 673501 | NO2 | N | Y (2m) | 2m | Y |
| Kirkintilloch 16 | R | 265695 673521 | NO2 | Ν | N (3m) | 2m | Y |
| Kirkintilloch 17 | R | 265700 673500 | NO2 | N | Y (3m) | 2m | Y |

 Table 2.2: Details of Non- Automatic Monitoring Sites

| Site Name | Site Type | OS Grid Reference | Pollutants Monitored | In AQMA? | Relevant Exposure? (Y/N with distance (m) to relevant exposure) | Distance to kerb of nearest road (N/A if not applicable) | Worst case Location? |
|----------------------|--------------|----------------------|-------------------------|-------------|--|--|----------------------------|
| Kirkintilloch 17B | R | 265700 673500 | NO2 | N | Y (3m) | 2m | Y |
| Kirkintilloch 17C | R | 265700 673500 | NO2 | N | Y (3m) | 2m | Y |
| Kirkintilloch 18 | К | 265667 673532 | NO2 | N | Y (<2m) | 2m | Y |
| Milngavie 4 | R | 255728 674486 | NO2 | N | N (5m) | 2m | Y |
| Milngavie 5 | R | 255327 674137 | NO2 | N | N (50m) | 2m | Y |
| Milngavie 6 | R | 255288 674121 | NO2 | N | N (10m) | 2m | Y |
| Milngavie 7 | R | 255279 674124 | NO2 | N | N (<2m) | 9m | Y |
| Milngavie 8 | R | 255251 674198 | NO2 | N | N (3m) | 1m | Y |
| Milngavie 9 | R | 255331 674214 | NO2 | N | Y (7m) | 2m | Y |
| 118 Drymen Road | R | 254218 672193 | NO2 | Y | Y (3m) | 2m | Y |
| 5 Ravelston Road | UB | 254655 670158 | NO2 | Ν | N (8m) | 5m | Y |
| 8 Lowther Ave | UB | 253075 673382 | NO2 | N | N (6m) | 5m | Y |

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

The annual mean and 1-hour mean NO_2 automatic monitoring data for 2010 and previous years are presented in Tables 2.3 and 2.4 respectively. Measured exceedences of NAQS objectives are highlighted in bold.

The data capture rate of all the NOx analysers was good, with a data capture rate of greater than 90% achieved at all three sites.

Measured NO₂ concentrations at the Bishopbriggs Cross site during 2010 were below both the annual mean and 1-hour mean NAQS objectives for NO₂. Measured concentrations indicate that the NAQS objectives for NO₂ are being met at Bishopbriggs Cross.

The measured annual mean NO₂ concentration at Kirkintilloch in 2010 was 45 μ g/m3 which is above the annual mean objective level of 40 μ g/m3. There were also four measured exceedences of the 1-hour objective for NO₂.

The measured annual mean NO₂ concentration at Bearsden Cross in 2010 was 47 μ g/m3 which is above the annual mean objective level of 40 μ g/m3. There were thirty seven recorded exceedences of the 1-hour objective for NO₂ at the Bearsden monitoring site. This site is within the recently declared Bearsden AQMA.

| Site ID | Location | Within AQMA? | Data Capture for monitoring period ^a % | Data Capture for full calendar year 2009 ^b % | Annual mean concentrations (μg/i | | m³) | |
|---------------|-----------------------|-----------------|---|---|-------------------------------------|-------------------|------|------|
| | | | | | 2007 ^c | 2008 ^c | 2009 | 2010 |
| Bearsden | Bearsden Cross | Y | 99.5 | 99.5 | 39.4 | 44.1 | 39.6 | 47 |
| Bishopbriggs | Bishopbrigg: Cross | Y | 90.9 | 90.9 | 34.1 | 31.5 | 33.4 | 33 |
| Kirkintilloch | Townhead | N | 93.9 | 93.9 | 39.2 | 35.6 | 42.8 | 45 |

| Table | 2.3: | Results of | Automatic | Monitoring fo | r Nitrogen | Dioxide: | Comparison | with Ann | ual |
|-------|------|-------------------|-----------|---------------|------------|----------|------------|----------|-----|
| Mean | Obje | ective | | - | _ | | - | | |

Table 2.4: Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

| Site ID | Location | Within AQMA? | Data Capture for monitoring period ^a % | Data Capture for full calendar year 2009 ^b % | Number of Exceedences hourly mean (200 μg/m³) | | | es of |
|---------------|----------------------|-----------------|---|---|---|-------------------|------|-------|
| | | | | | 2007 [°] | 2008 ^c | 2009 | 2010 |
| Bearsden | Bearsden Cross | N | 99.5 | 99.5 | 0 | 10 | 1 | 37 |
| Bishopbriggs | Bishopbrigg Cross | Y | 90.9 | 90.9 | 0 | 1 | 0 | 0 |
| Kirkintilloch | Townhead | N | 93.9 | 93.9 | 0 | 0 | 0 | 4 |

Diffusion Tube Monitoring Data

The NO₂ diffusion tube monitoring data for 2010 and previous years are presented in Table 2.5. As the data capture for all sites was above 75% there has been no need to annualise the data. The diffusion tube monitoring results have been adjusted for laboratory bias using a local bias adjustment factor. Further detail of the annualisation and laboratory bias adjustment is provided in Appendix A. Trend charts of historic diffusion tube data at urban background, roadside and kerbside sites are presented in Charts 2.1, 2.2 and 2.3 respectively.

Table 2.5: Results of Nitrogen Dioxide Diffusion Tubes

| | | | Data canture | Data Capture | | Annual mean con | centrations (µg/m ³ | [']) |
|------------------|---------------------------------------|-----------------|-------------------------------|--|------|-----------------|--------------------------------|----------------|
| Site ID | Location | Within AQMA? | for monitoring period % | for full calendar year 2010 % | 2007 | 2008 | 2009 | 2010 |
| 118 Drymen Road | Drymen Road | Y | 100 | 100 | 30 | 33 | 32 | 42.5 |
| 5 Ravelstun Road | Ravelstoun Road | N | 92 | 92 | 19 | 17 | 23 | 22.7 |
| 8 Lowther Ave | Lowther Avenue | N | 100 | 100 | 10 | 14 | 15 | 15.9 |
| Bearsden 7 | Bearsden Cross Traffic lights | Y | 92 | 92 | 43 | 48 | 42 | 46.6 |
| Bearsden 8 | Bearsden Cross Hanging basket | Y | 100 | 100 | 38 | 38 | 40 | 40.4 |
| Bearsden 9 | Switchback | Ν | 100 | 100 | 27 | 29 | 31 | 33.0 |
| Bearsden 10 | Maryhill Road/ Rannoch Drive | Ν | 100 | 100 | 34 | 33 | 31 | 35.6 |
| Bearsden 13 | Canniesburn Toll | Y | 100 | 100 | 37 | 39 | 38 | 43.7 |
| Bearsden 14 | Milngavie Road at Canniesburn Toll | Y | 100 | 100 | 39 | 38 | 39 | 43.5 |
| Bearsden 15 | Milngavie Road | Y | 100 | 100 | 34 | 40 | 38 | 39.8 |
| Bearsden 16 | 102 Drymen Rd | Y | 100 | 100 | 40 | 46 | 40 | 45.5 |
| Bearsden 16B | 102 Drymen Rd | Y | 92 | 92 | 41 | 45 | 39 | 46.0 |
| Bearsden 16C | 102 Drymen Rd | Y | 100 | 100 | 39 | 43 | 40 | 48.3 |

| | | | Data canture | Data Capture | | Annual mean con | centrations (μg/m ³ | 3) |
|------------------|--|-----------------|-------------------------------|--|------|-----------------|--------------------------------|------|
| Site ID | Location | Within AQMA? | for monitoring period % | for full calendar year 2010 % | 2007 | 2008 | 2009 | 2010 |
| Bearsden 17 | 106 Drymen Road | Y | 100 | 75 | / | / | / | 42.2 |
| Bearsden 18 | 3 Roman Road | Y | 100 | 75 | / | / | / | 38.6 |
| Bishopbriggs 5 | Huntershill House | N | 83 | 83 | 14 | 15 | 21 | 17.1 |
| Bishopbriggs 6 | 145 Kirkintilloch Road | Y | 100 | 100 | 37 | 37 | 36 | 42.7 |
| Bishopbriggs 8 | 77 Brackenbrae Avenue | Ν | 100 | 100 | 15 | 17 | 21 | 22.2 |
| Bishopbriggs 12 | 24 Kirkintilloch Road | Y | 92 | 92 | 34 | 40 | 40 | 46.0 |
| Bishopbriggs 13 | 1495 Springburn Road | Y | 100 | 100 | 51 | 51 | 47 | 52.1 |
| Bishopbriggs 14 | 128 Kirkintilloch Road | Y | 100 | 100 | 30 | 31 | 33 | 34.4 |
| Bishopbriggs 14B | 128 Kirkintilloch Road | Y | 100 | 100 | 32 | 33 | 37 | 38.1 |
| Bishopbriggs 14C | 128 Kirkintilloch Road | Y | 100 | 100 | 29 | 32 | 33 | 38.2 |
| Bishopbriggs 16 | 24 Kirkintilloch Road (Building Facade) | Y | 100 | 75 | / | / | / | 31.5 |
| Bishopbriggs 17 | 1495 Springburn Road (Building Facade) | Y | 100 | 75 | / | / | / | 37.8 |
| Kirkintilloch 15 | Lamp post R2 Townhead Lights | Ν | 100 | 100 | 35 | 32 | 44 | 38.5 |

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| | | | Data canture | Data Capture | | Annual mean con | centrations (μg/m ³ | ⁽) |
|-----------------------|----------------------------|-----------------|-------------------------------|--|------|-----------------|--------------------------------|----------------|
| Site ID | Location | Within AQMA? | for monitoring period % | for full calendar year 2010 % | 2007 | 2008 | 2009 | 2010 |
| Kirkintilloch 16 | Parliament Rd | Ν | 83 | 83 | 38 | 33 | 48 | 37.1 |
| Kirkintilloch 17 | 1 Broomfield Walk | N | 100 | 100 | / | 36 | 44 | 42.9 |
| Kirkintilloch 17B | 1 Broomfield Walk | N | 100 | 100 | / | 35 | 41 | 42.5 |
| Kirkintilloch 17C | 1 Broomfield Walk | Ν | 100 | 100 | / | 34 | 42 | 41.8 |
| Kirkintilloch 18 | Belmont Court | N | 67 | 67 | / | / | / | 36.4* |
| Milngavie 4 | Station Road | N | 100 | 100 | 26 | 29 | 30 | 31.5 |
| Milngavie 5 | Woodburn Way/ Park Road | N | 100 | 100 | 24 | 26 | 25 | 30.3 |
| Milngavie 6 | Park Road | N | 92 | 92 | 40 | 42 | 36 | 41.0 |
| Milngavie 7 | 29 Southgate | N | 100 | 100 | / | / | 34* | 40.2 |
| Milngavie 8 | 6-12 Park Road | N | 100 | 100 | / | / | 27* | 30.3 |
| Milngavie 9 | Fairview Court | N | 92 | 92 | / | / | 28* | 33.6 |
| * Annualised where da | ata capture <75% | • | | | | | | |













Measured concentrations at all locations, with the exception of the Kirkintilloch monitoring sites, appear to show an upward trend in annual mean concentrations from 2007 to 2010.

The measured annual mean concentrations at all of the Kirkintilloch diffusion tube sites have shown a decrease from 2009 to 2010. This peak in 2009 may be due to the increased congestion due to the construction of the Kirkintilloch Relief Road.

There were a total of thirteen diffusion tubes sites where the measured annual mean concentrations were in excess of the objective.

Measured concentrations at diffusion tubes Bearsden 7, 8, 13, 14, 16 and 17 were all above the annual mean NO_2 objective.

Measured concentrations at diffusion tubes Bishopbriggs 6, 12 and 13 were also above the annual mean NO_2 objective.

Measured concentrations at the diffusion tubes collocated with the automatic analyser at Kirkintilloch were in excess of the annual mean objective although concentrations have decreased since 2009.

Measured concentrations at Milngavie 6 and 7 continue to be above the annual mean objective for $\ensuremath{\mathsf{NO}_2}\xspace$

2.2.2 PM₁₀

The measured annual mean and 24-hour mean PM_{10} concentrations for 2010 and previous years are presented in Tables 2.6 and 2.7 respectively. Measured and predicted exceedences of NAQS objectives are highlighted in bold. The data capture rate of all the PM_{10} analysers was good, with greater than 95% capture rate at Bearsden and Bishopbriggs and 79.5% at Kirkintilloch.

| ₽ | G | 5MA? | r monitoring % | full calenda 10 % | Annua | oncentration | ıs (μg/m³) | |
|----------------------------|-----------------------|-----------|----------------------------|------------------------------|-------|--------------|------------|------|
| Site | Locati | Within AC | Data capture for period | Data Capture for year 201 | 2007 | 2008 | 2009 | 2010 |
| Bearsden | Bearsden Cross | Y | 95.8 | 95.8 | 20.6 | 22.8 | 20.5 | 25 |
| Bishopbriggs (BAM) | Bishopbriggs Cross | Y | 99.3 | 99.3 | 21.1 | 17.8 | 18.9 | 19 |
| Bishopbriggs (PARTISOL) | Bishopbriggs Cross | Y | 95.6 | 95.6 | 18.5 | 17.7 | 17.4 | 19 |
| Kirkintilloch | Townhead | Ν | 79.5 | 79.5 | 23.7 | 22.0 | 22.5 | 26 |

Table 2.6: Results of PM₁₀ Automatic Monitoring: Comparison with Annual Mean Objective

| | | A? | for eriod | or full ar | Numbe | Number of Exceedences of daily mean objective (50 μg/m ³) | | | | |
|----------------------------|-----------------------|------------|--|---------------|-------|--|------|------|--|--|
| Site ID | Location | Within AQI | Within AQI Data capture monitoring pe % Data Capture fe calendar ye 2010 % | | 2007 | 2008 | 2009 | 2010 | | |
| Bearsden | Bearsden Cross | Y | 95.8 | 95.8 | 3 | 5 | 5 | 20 | | |
| Bishopbriggs (BAM) | Bishopbriggs Cross | Y | 99.3 | 99.3 | 6 | 4 | 5 | 11 | | |
| Bishopbriggs (PARTISOL) | Bishopbriggs Cross | Y | 95.6 | 95.6 | 7 | 6 | 8 | 9 | | |
| Kirkintilloch | Townhead | Ν | 79.5 | 79.5 | 3 | 6 | 15 | 21 | | |

Table 2.7: Results of PM₁₀ Automatic Monitoring: Comparison with 24-hour Mean Objective

The measured annual mean PM_{10} concentrations during 2010 indicate that PM_{10} concentrations at all automatic monitoring sites were above the annual mean objective.

The number of measured exceedences of the daily mean objective for PM_{10} at all monitoring sites has also breached the number of permitted exceedences.

Elevated levels of PM_{10} measured at Kirkintilloch have continued throughout 2010 with 21 exceedences of the daily mean objective.

2.2.3 Sulphur Dioxide

East Dunbartonshire Council does not currently monitor SO_2 . Historical monitoring data indicated a decline in concentration in line with those experienced across the UK. Concentrations measured from 1992 to 2005 were significantly below objective levels for SO_2 .

2.2.3 Benzene

East Dunbartonshire Council does not currently monitor Benzene.

2.2.4 Other pollutants monitored

East Dunbartonshire Council does not undertake monitoring of any other pollutants.

2.2.5 Summary of Compliance with AQS Objectives

Measured concentrations of NO_2 continued to exceed the annual mean objective at automatic monitoring sites in Bearsden and Kirkintilloch. The hourly mean objective was also exceeded at the automatic monitoring site at Bearsden.

There were three diffusion tube locations, outwith an AQMA, where the measured annual mean concentration was above the objective. These sites were located in Kirkintilloch and Milngavie. It is the Council's intention to proceed to a Detailed Assessment for NO2 at Kirkintilloch.

Measured PM_{10} concentrations exceeded the annual mean objective at each of the sites in 2010 with an observed increase in measured concentrations from 2009 to 2010. The automatic monitoring site at Bearsden recorded the greatest increase in the annual mean concentration of 5 μ g/m3.

Measured concentrations at all monitoring sites also breached the 24 hour mean PM_{10} objective. It is the council's intention to proceed to a Detailed Assessment for PM_{10} at Kirkintilloch.

East Dunbartonshire Council has measured concentrations of NO_2 and PM_{10} above the annual mean and 24-hour objectives, respectively at relevant locations outside of the AQMA, and **will need to proceed to a Detailed Assessment**, for Kirkintilloch.

3 New Local Developments

3.1 Road Traffic Sources

The Council Roads Services have advised that there were no new or significantly changed road traffic sources, as per the screening criteria, that have not been previously assessed. It was therefore concluded that there have been no significant changes to emissions from traffic sources within the Council area since the 2010 Progress Report.

3.2 Other Transport Sources

There have been no newly identified emissions from rail, shipping or aircraft operations within the Council area since the 2010 Progress Report.

3.3 Industrial Sources

The Scottish Environment Protection Agency (SEPA) were contacted to determine if there have been any new or significantly changed industrial processes in the area which may impact on air quality.

The register of Pollution Prevention and Control (PPC) processes included 3 new Part A PPC processes and six Part B processes that are operated in the East Dunbartonshire Council area. The installation details are presented in Table 3.1

| Company | Authorized Activity | Location | Date of last permit and/or variation |
|------------------------------|---------------------------------|--|--|
| Carrickstone Rock Co. Ltd | 3.5.c # 3.5.d | Mobile Plant | 12/11/2010 |
| The Dry Cleaning Company | Chapter 7: SED Activities | The Dry Cleaning Company Block 17c, Unit 2 Old Mill Park Industrial Estate Kirkintilloch G66 1ss | 11/03/2011 |
| Dry Clean Depot Ltd | Chapter 7: SED Activities | Unit 12 Baljafray Shopping Centre Grampian Way Bearsden G61 4RN | 07/03/2011 |

Table 3.1: New PPC installations identified in East Dunbartonshire

3.4 Commercial and Domestic Sources

East Dunbartonshire Council Planning Services were consulted with regards to any new or changed commercial and domestic sources. No new commercial biomass combustion sources were identified. No new areas of domestic fuel burning were identified.

3.5 New Developments with Fugitive or Uncontrolled Sources

SEPA were consulted in relation to any changed waste, landfill or quarry processes identified in the public registers. There have been no significant changes to existing process emissions and no new fugitive sources identified.

East Dunbartonshire Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Local / Regional Air Quality Strategy

Development of an Air Quality Strategy for the East Dunbartonshire Council area is underway and completion is anticipated late 2011.

5 Planning Applications

East Dunbartonshire Council have reviewed all planning applications received since the 2010 Progress Report and conclude that there have been no newly identified planning applications which may affect air quality.

6 Air Quality Planning Policies

East Dunbartonshire Council Planning Service request air quality impact assessments where it is considered that there is likely to be a significant impact on the environment e.g. traffic generation (Local Policy DQ 3) and with regard to the Air Quality Management Area in Bishopbriggs.

The Finalised Draft East Dunbartonshire Local Plan 2 (September 2009) gives clear advice on how the environmental impact of proposed developments, including air quality, will be assessed through the planning process for the benefit of developers and communities.

7 Local Transport Plans and Strategies

The new Local Transport Strategy takes into account the expanding influence of transportation policy. This presents an opportunity for other services within the Council and the Community Planning partners to become involved in the Local Transport Strategy. This Local Transport Strategy has been developed and will be implemented using techniques outlined in the Scottish Transport Appraisal Guidance (STAG) and Strategic Environmental Assessment (SEA). The Council acknowledges the Scottish Government climate change declaration and is committed to policies that tackle climate change. The Local Transport Strategy will reflect this commitment through the SEA process and by developing actions for the Air Quality Action Plan.

There are seven principal objectives of the Local Transport Strategy:

- 1) Develop safer travel for all.
- 2) Manage the transport network effectively with a focus on reducing congestion.
- Improve air quality in line with national air quality objectives for NO₂ and PM₁₀ and limit other forms of pollution.
- 4) Increase accessibility and inclusion.
- 5) Increase travel choices to and develop interchange links between different modes.
- 6) Support and enable future development through sustainable transport.
- 7) Promote active travel to develop the health and environmental agenda.

8 Implementation of Action Plans

Table 8.1 indicates the progress of certain measures put in place, or initiatives which are underway to improve air quality within the East Dunbartonshire area.

Table 8.2 is not yet complete and further details will follow in a separate document.

Table 8.1: Action Plan Progress – for East Dunbartonshire Area

| No. | Measure | Focus | Lead authority | Planning phase | Implemen- tation phase | Indicator | Target annual emission reduction in the AQMA | Progress to date | Progress in last 12 months | Estimated completion date | Comments relating to emission reductions |
|-----|--|--|----------------------------------|-------------------|---------------------------|--|--|---|--|---------------------------------|---|
| 1 | Complete and implement Air Quality Strategy | Aid Planning & Development of EDC area by setting out the Council's stance on Air Quality | EDC | 2009/2010 | 2010/2011 | Implementation & adoption of strategy | N/A | Initial draft and accompanying SEA underway | | Autumn 2010 | The AQS will consider only air quality & sources of atmospheric emissions within EDC area. Strategy will highlight any local boundary issues. |
| 2 | Integration with Planning system | Avoid worsening air quality by adopting local planning policies. | EDC | 2009/2010 | 2010/2011 | New developments must demonstrate accessibility by walking, cycling & public transport. (p66 Local Plan) | | Still in draft | Progress from Draft to Final Draft | Final adoption due 2011 | Planning authority will not normally support development proposals for significant travel generating uses in locations which encourage private car use. |
| 3 | Strategic management of travel demands | Selection of sustainable locations for development, town centre transport action plans, parking policies including parking control zones, park& ride facilities. | EDC Transport and Planning | 2009/2010 | 2011 onwards | Reduce reliance on private cars | | | | | Parking controls within AQMA are useful but lack of Park & Ride facilities does not encourage use of public transport. |
| 4 | Manage bus emissions | Spotchecks at bus terminus adjacent to AQMA – regular inspections of fleet by SPT inspectors | EDC & SPT | 2009 | 2009 | Reduction in bus engine idling on stationary buses at termini | | Number of drivers warned re engine idling. Penalised by SPT | | | Successful campaign in getting message across to drivers. Regular spot checks and idling patrols. |
| 5 | Alternative travel information campaign | Awareness raising campaign – "Healthy Habits" to highlight cycle paths, walking, access to countryside paths etc | EDC Transport | 2009 | 2009 | Funded by government for 2 years. Maps & routes available from Council buildings & on internet to reduce car use | | | | Possibly when funding ends | |

| No. | Measure | Focus | Lead authority | Planning phase | Implemen- tation phase | Indicator | Target annual emission reduction in the AQMA | Progress to date | Progress in last 12 months | Estimated completion date | Comments relating to emission reductions |
|-----|---|---|----------------------------------|-------------------|---------------------------|---|--|---------------------|---|---------------------------------|--|
| 6 | Manage private car use/engine idling in vicinity of schools | Vehicle engine idling patrols to be undertaken regularly to target vehicles around schools at drop off/collection times | EDC Transport & Env Health | 2010 | 2011 onwards | Initially issue warnings during publicity phase – elevate to fixed penalties if no improvement | | | | | Signage around schools will have to be provided prior to publicity campaign. Encourage "switch off" via schools info to parents |
| 7 | Develop & integrate policy on biomass & boiler plant developments | Require a method for assessing no of installations within EDC | EDC Planning & Env Health | 2010 | 2011 | Installations all to require planning permission. Above a certain size (>50kW) require Air Quality Impact Assessment. | | | Register available with all applications. | | Biomass developments require to be monitored & controlled to prevent impact on air quality. |
| 8 | Develop a method for monitoring installation of wood burning stoves and/or opening up/installing open fireplaces in smoke control areas. | No of telephone enquiries has increased re installing wood burning appliances or opening up fireplaces within smoke control areas. Need to know how many people go ahead and whether they install an "approved appliance." | EDC Planning & Env Health | 2010 | 2011 | No's of installations. | | | | | Need to assess and control any increase of unauthorised fuels or appliances being used in smoke control areas. |

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Table 8.2: Details to follow

| No. | Measure | Focus | Lead authority | Planning phase | Implemen- tation phase | Indicator | Target annual emission reduction in the AQMA | Progress to date | Progress in last 12 months | Estimated completion date | Comments relating to emission reductions |
|-----|---------|-------|-------------------|-------------------|------------------------------|-----------|---|---------------------|----------------------------------|---------------------------------|---|
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

Measured concentrations of NO_2 in 2010 continued to exceed the annual mean objective at automatic monitoring sites in Bearsden and Kirkintilloch. The hourly mean objective was also exceeded at the automatic monitoring site at Bearsden.

There were three diffusion tube locations, outwith an AQMA, where the measured annual mean concentration was above the objective. These sites were located in Kirkintilloch and Milngavie. It is the Council's intention to proceed to a Detailed Assessment for NO_2 at Kirkintilloch.

It is the Council's intention to locate a new automatic monitoring station in Milngavie before deciding whether it is necessary to declare an AQMA.

Measured concentrations of PM_{10} continue to exceed the annual mean objective at all locations and concentrations are observed to have increased from 2009 to 2010. An increase of 5μ g/m3 in the annual mean PM_{10} concentration was observed at Bearsden between 2009 and 2010

Measured concentrations at each of the three monitoring sites also breached the 24 hour mean PM_{10} objective. It is the council's intention to proceed to a Detailed Assessment for PM_{10} at Kirkintilloch.

9.2 Conclusions relating to New Local Developments

No new local developments were identified for which there was a need to proceed to a Detailed Assessment

9.3 Proposed Actions

A new automatic monitoring station measuring both NOx and PM₁₀ will be located in Milngavie.

The Council will be proceeding to a Detailed Assessment for both NO₂ and PM₁₀ at Kirkintilloch.

The next LAQM requirement for the Council will be to submit a Further Assessment of NO_2 and PM_{10} at Bearsden.

APPENDICES

APPENDIX A

FIGURES

Progress Report



LEGEND

East Dunbartonshire Council Boundary



Project

Clien

Progress Report 2011

Council Area

 Created by
 JS
 Project Manager
 BS
 Reviewer
 Date

 File No.
 Project No.
 10514880039

 Size
 Scale
 Status
 Final

 Drawing No.
 Figure 1
 Sirius Building

Golder South Gyle Crescent Edinburgh EH12 9LB UK +44(0)131 314 5900







LEGEND

East Dunbartonshire Council Boundary

Bishopbriggs AQMA Boundary

Automatic Monitor

Diffusion Tube Monitoring



Progress Report 2011

Project

| Title | | Monitoring Bishop | Locati briggs | ons | | |
|-------------|--------------------------|---|--------------------|--|---|--|
| Created by | JS | Project Manager BS | Reviewer | Date July | 2011 | |
| File No. | | | Project No. 105 | 514880039 | | |
| Size | Scale Status Final Issue | | | | | |
| Drawing No. | F | Figure 4 | | | | |
| 0 | East | able thriving achieving Dunbartonshire | Council | Sirius B The Cloc South Gyle Cr Edir EH ⁷ | uilding ktower escent nburgh 12 9LB | |

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APPENDIX B

QA: QC DATA

The laboratory analysis of the passive diffusion tubes used by the Council is undertaken by Glasgow Scientific Services. Glasgow Scientific Services is a UKAS accredited laboratory with documented Quality Assurance/Quality Control (QA/QC) procedures for diffusion tube analysis. The laboratory prepares the diffusion tubes using the 20% triethanolamine (TEA) in water method.

Glasgow Scientific Services public analyst participates in the AEA inter-comparison scheme, with bias correction factors calculated and applied annually. The laboratory analyses results from co-location studies at various locations.

The laboratory co-location factors are presented in Table A.1.

| Site Name | Study duration | Tube precision | Bias correction factor |
|--|-------------------|----------------|---------------------------|
| Marylebone Road Intercomparison | 12 | G | 1.10 |
| Glasgow City Council | 9 | Р | 1.10 |
| Glasgow City Council | 10 | Р | 0.97 |
| Glasgow City Council | 12 | Р | 1.12 |
| Glasgow City Council | 11 | G | 1.20 |
| Overall factor from Glasgow Scientific Ser | 1.1 | | |

Factor from Local Co-location Studies (if available)

The results for the three co-location studies carried out by East Dunbartonshire Council are presented in Table B2.

| Site Name | Study duration | Tube precision | Bias correction Factor | | | |
|---|----------------|----------------|---------------------------|--|--|--|
| Bearsden automatic analyser | 11 | Good | 1.03 | | | |
| Bishopbriggs automatic analyser | 10 | Poor | 0.8 | | | |
| Kirkintilloch automatic analyser | 12 | Good | 1.09 | | | |
| Factor from Bearsden and Kirkintilloch co-location studies 1.06 | | | | | | |

Due to the Bishopbriggs having a poor precision it was felt more appropriate to only use the results of Bearsden and Kirkintilloch to calculate the local bias correction factor.

Discussion of Choice of Factor to Use

The Council have chosen to use the local bias adjustment factor. The laboratory bias adjustment factor is mainly made up of results from monitoring undertaken by Glasgow City Council. Three of the five co-location studies had poor precisions whilst both of the Council's studies showed good precision. It was felt that using the local adjustment factor would prevent any over-estimate of the NO₂ concentrations within the Council area.

PM Monitoring Adjustment

East Dunbartonshire Council monitor PM_{10} using three types of analyser:

• Beta-attenuation monitor (BAM);

- Tapered Element Oscillating Microbalance (TEOM) with a Filter Dynamics Measurement System(FDMS); and
- Partisol gravimetric analyser

The beta attenuation analysers are maintained by Horiba and undergo regular calibration. The TEOM (FDMS) is maintained by Air Monitors Ltd. The gravimetric analyser was provided by Casella ETI and the filters are analysed by Glasgow Scientific Services which is a UKAS accredited laboratory.

The beta-attenuation monitors (BAMs) used by East Dunbartonshire Council have a heated inlet which has been found to cause evaporation of some semi-volatile particles thereby reducing the measured PM_{10} concentration. All data have been provided ratified and gravimetric equivalent by AEA technology

The TEOM FDMS is equivalent to the European Reference Sampler and the results are therefore fully comparable to the AQS objectives, with no need for adjustment.

Short-term to Long-term Data adjustment

East Dunbartonshire Council has not undertaken any short-term monitoring of pollutants which require adjustment to calculate long-term mean concentrations.

QA/QC of automatic monitoring

Quality Assurance/Quality Control (QA/QC) audits are carried out by AEA Technology Ltd twice a year at all three sites.