



2014 Air Quality Progress Report for South Ayrshire Council



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

April, 2014

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Executive Summary

South Ayrshire Council has carried out a review of air quality within South Ayrshire which fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the report follows technical guidance LAQM.TG(09), (Reference1), issued by the Scottish Executive to assist Local authorities in their Review and Assessment of air quality.

The report forms the Progress Report (PR) of the fifth round of the Review and Assessment process and includes latest available data up to the end of 2013. It also considers the conclusions of the previous rounds of Review and Assessment and any changes that have occurred since then that would have an effect on local air quality.

The PR concludes that concentrations of the various air quality objectives are unlikely to be exceeded.

A detailed assessment is therefore not required for South Ayrshire Council.

An updating and screening assessment report will be submitted to the Scottish Executive by the end of April 2015.

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1 Introduction

1.1 Description of Local Authority Area

South Ayrshire Council is situated to the south-west of Scotland, on the coast of the mouth of the Firth of Clyde and the Irish Sea. The eastern boundary of the council area lies approximately 30 kilometres inland.

South Ayrshire is neighboured by East Ayrshire to the east, North Ayrshire to the north and Dumfries and Galloway Council to the south.

The main commercial and residential centre of South Ayrshire is Ayr, which is situated on the west coast. The other main populated towns of Prestwick, Troon and Girvan are also situated on the west coast. The inland towns and villages are predominantly small communities, with the exception of Maybole which is a busy town.

The main transportation route within South Ayrshire is the A77. The A77 connects the port of Stranraer, which is in the Dumfries and Galloway Council area to Glasgow. The A77 passes through the main west coast towns and villages from Stranraer to Turnberry at which point it heads inland, through Kirkoswald and Maybole, by-passing the outskirts of Ayr and Prestwick before heading north to Glasgow via Kilmarnock.

Glasgow Prestwick International Airport is situated within South Ayrshire to the outskirts of Ayr and Prestwick. Glasgow Prestwick International Airport serves both international and domestic passenger flights as well as a large amount of freight transportation flights.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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.

Progress Reports 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 $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	3.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Table 1.2 summarises previous rounds of R&A and the exceedences identified or predicted. No air quality management areas (AQMA's) have been declared nor are there any locations where exceedences of objective concentrations have previously been identified. Finally no AQMA's have been revoked.

Table 1.2 Summary Of Previous Rounds Of Review And Assessment

Date & Title Of Report Produced By South Ayrshire		Brief Outcome
April 2000	Stage 1 Review and Assessment	No exceedences of air quality objectives
June 2003	2003 Updating and Screening Assessment Report	No exceedences of air quality objectives however PM ₁₀ levels in Dailly village predicted to be high to due to high density of domestic coal burning properties. Requested to proceed with a detailed assessment
June 2004	2004 Detailed Assessment PM ₁₀ levels in Dailly village	No exceedences of PM ₁₀ levels in Dailly village
April 2005	2005 Progress Report	No exceedences of air quality objectives
April 2006	2006 Updating and Screening Assessment report	No exceedences of air quality objectives however PM ₁₀ levels in Ayr town Centre predicted at being near objective limit. Requested to proceed with a detailed assessment.
August 2007	2007 Detailed Assessment PM ₁₀ levels in Ayr town centre	No exceedences of PM ₁₀ levels in Ayr town centre
April 2008	2008 Progress Report	No exceedences of air quality objectives
April 2009	2009 Updating and Screening Assessment Report	No exceedences of air quality objectives
April 2010	2010 Progress Report	No exceedences of air quality objectives
April 2011	2011 Progress report	No exceedences of air quality objectives
April 2012	2012 Updating and Screening Assessment Report	No exceedences of air quality objectives
April 2013	2013 Progress report	No exceedences of air quality objectives

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

South Ayrshire Council currently operate two automatic monitoring sites. These are located at High Street and Taylor St (Harbour), Ayr.

PM₁₀ is measured at both monitoring stations using TEOM FDMS units. Since both units are fitted with FDMS there is no need to apply a correction factor to the recorded results. NO₂ is also measured at both sites utilising chemiluminescent NO_x analysers.

Both monitors are fitted with web logger functionality.

The monitoring station which was previously located at Carrick Academy in Maybole was moved to Ayr Harbour in May 2012 as the levels being recorded at the Carrick site were well within the objective levels. In addition, residents in the vicinity of the harbour had complained of dusty events associated with activities at Ayr harbour (primarily from the handling of scrap metal and the unloading of dusty cargo).

The maintenance of the two monitoring stations is carried out by Air Monitors. This involves two routine services per year and also provision for emergency callouts. Automatic calibration and span checks are carried out daily.

Both stations are part of the Scottish Air Quality network and are audited by Ricardo-AEA. The data is checked to ensure that it is being recorded correctly, the analysers are stable and there are no faults with the analysers. All data is then re-scaled using the results of the auto calibration and span checks which are carried out by the analyser automatically. In addition manual calibration is carried out routinely.

Ricardo-AEA also carry out the data management for both sites and carry out QA/QC on the data before it is ratified.

Figure 2.1: Location Of Automatic Monitoring Site at High Street, Ayr (Ref: AM1)



Figure 2.2: Location Of Automatic Monitoring Site at Taylor Street (Harbour) Ayr (Ref: AM 2)

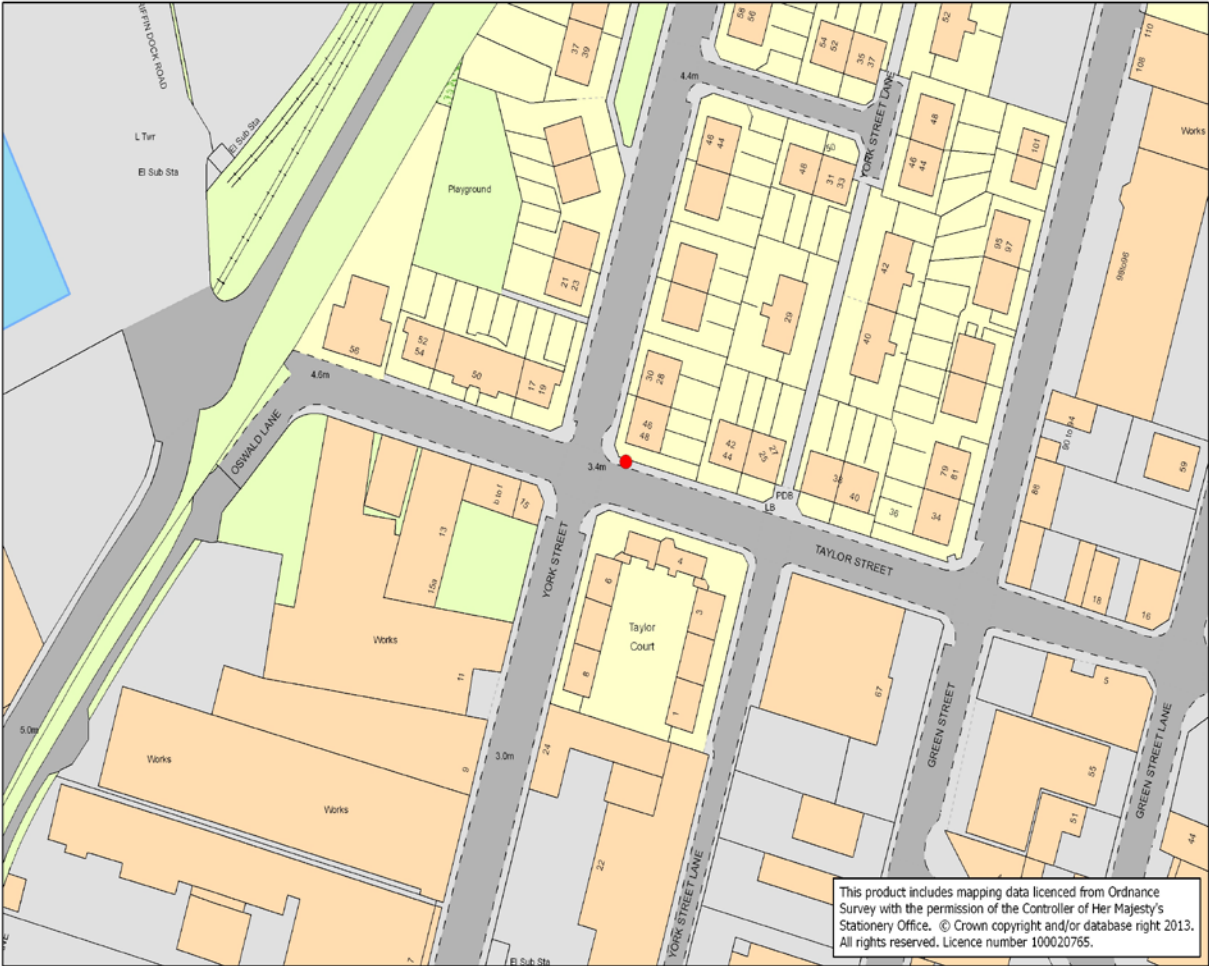


Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
AM1	High St Ayr	Roadside	233701	622114	2.0	NO ₂ & PM ₁₀	N	Chemiluminescent NOX analyser & TEOM with FDMS for PM10	5	2	Y
AM2	Taylor Street Ayr	Roadside	233608	622750	2.0	NO ₂ & PM ₁₀	N	Chemiluminescent NOX analyser & TEOM with FDMS for PM10	10	1	Y

2.1.2 Non-Automatic Monitoring Sites

Monitoring of nitrogen dioxide using passive diffusion tubes was undertaken at 22 separate locations in South Ayrshire during 2013. The diffusion tube locations are described in Table 2.2.

The nitrogen dioxide diffusion tubes are placed at each location by South Ayrshire Council for a period of approximately one month. At the end of each monthly period, the exposed tubes are replaced with new tubes and the exposed tubes are sent to the laboratory for analysis. Laboratory analysis of the passive diffusion tubes is undertaken by Glasgow Scientific Services (GSS) - part of the City of Glasgow Council. The laboratory is UKAS accredited for the analysis.

GSS prepares the diffusion tubes using the technique of 20% TEA in water. The laboratory undertakes the analysis of diffusion tubes from Glasgow City Council, which undertakes an annual co-location study of diffusion tubes from automatic monitoring stations in the city for the purposes of validation.

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical proficiency-testing (PT) scheme, operated by the Health and Safety Laboratory (HSL). WASP offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in workplace and ambient air. One such sample is the WASP NO₂ test sample type that is distributed to participants in a quarterly basis. In the WASP scheme for analysis of NO₂ diffusion tubes GSS scored the following in 2013: Jan – March 50%, April – June 25% and July – December 100%.

The scheme whilst assessing the analytical performance of laboratories, also allows for the performance of the laboratory against chemiluminescence techniques to be determined.

A laboratory bias for GSS was determined using the methodology contained in the LAQM technical guidance document LAQM TG(09) and for 2013 this was calculated at 0.99

Although co-location tubes were fitted to our real time analyser at High St Ayr, due to the fact that valid data capture for 2013 was only 80% it was decided to determine the bias correction factor utilising the excel spreadsheet version no 03/14 from the review and assessment helpdesk website. The bias factor was calculated for GSS in 2013 at 0.99 Cm/Dm and was applied to all sites.

Table 2.2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
DT1	39 Whitletts Rd Ayr	Roadside	234605	622412	2m	NO ₂	N	N	Y (2m)	N/A	N
DT2	Rozelle Park Ayr	Urban back-ground	233763	618944	2m	NO ₂	N	N	Y (10m)	N/A	N
DT3	Town Buildings Ayr	Roadside	233691	622093	2m	NO ₂	N	N	Y (2m)	2m	Y
DT4	12 Craigie Road Ayr	Roadside	234601	622314	2m	NO ₂	N	N	Y (5m)	1m	Y
DT5	King Street Ayr	Roadside	233830	622352	2m	NO ₂	N	N	Y (2m)	1m	Y
DT6	Heathfield Rd/ Prestwick Rd Ayr	Roadside	234641	624159	2m	NO ₂	N	N	Y (2m)	1m	Y

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Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
DT7	60 Queens Drive, Barassie	Roadside	232893	632667	2m	NO ₂	N	N	Y (3m)	2m	Y
DT8	Tesco Whitletts Rd Ayr	Roadside	235150	622528	2m	NO ₂	N	N	Y (10m)	2m	Y
DT9	117 Main St Prestwick	Roadside	235178	625855	2m	NO ₂	N	N	Y (5m)	1m	Y
DT10	Red Lion Main St Prestwick	Roadside	235203	626165	2m	NO ₂	N	N	Y (5m)	1m	Y
DT11	Shaw Farm Gdns Prestwick	Roadside	235622	626548	2m	NO ₂	N	N	Y (5m)	1m	Y
DT12	Pharmacy, Main Street Dundonald	Roadside	236577	634533	2m	NO ₂	N	N	Y (20m)	1m	N

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Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
DT13	1 AQ Station High St Ayr (N)	Roadside	233701	622114	2m	NO ₂	N	Y	Y (5m)	2m	Y
DT14	Church Street Troon	Roadside	232175	631043	2m	NO ₂	N	N	Y (5m)	2m	Y
DT15	Dundonald Road Troon	Roadside	232588	631277	2m	NO ₂	N	N	Y (10m)	2m	N
DT16	Morrisons Ayr	Roadside	232135	621149	2m	NO ₂	N	N	Y (5m)	2m	Y
DT17	Spar, Ayr Rd, Coylton	Roadside	240664	619824	2m	NO ₂	N	N	Y (5m)	1m	Y
DT18	Station Taxi Rank Ayr	Roadside	240194	624754	2m	NO ₂	N	N	Y (5m)	1m	Y
DT19	2 AQ Station High St Ayr (W)	Roadside	233701	622114	2m	NO ₂	N	Y	Y (5m)	2m	Y

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Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
DT20	Bridge St Girvan	Roadside	218549	598064	2m	NO ₂	N	N	Y (5m)	1m	Y
DT21	3 AQ Station High St Ayr (S)	Roadside	233701	622114	2m	NO ₂	N	Y	Y (10m)	2m	Y
DT22	CO-OP, High St, Maybole	Roadside	230099	609965	2m	NO ₂	N	N	Y (15m)	1m	N

2.1 Comparison of Monitoring Results with Air Quality Objectives

2.1.1 Nitrogen Dioxide (NO₂)

Automatic Monitoring Data

Table 2.3 Results of Automatic Monitoring for NO₂: Comparison with Annual Mean Objective

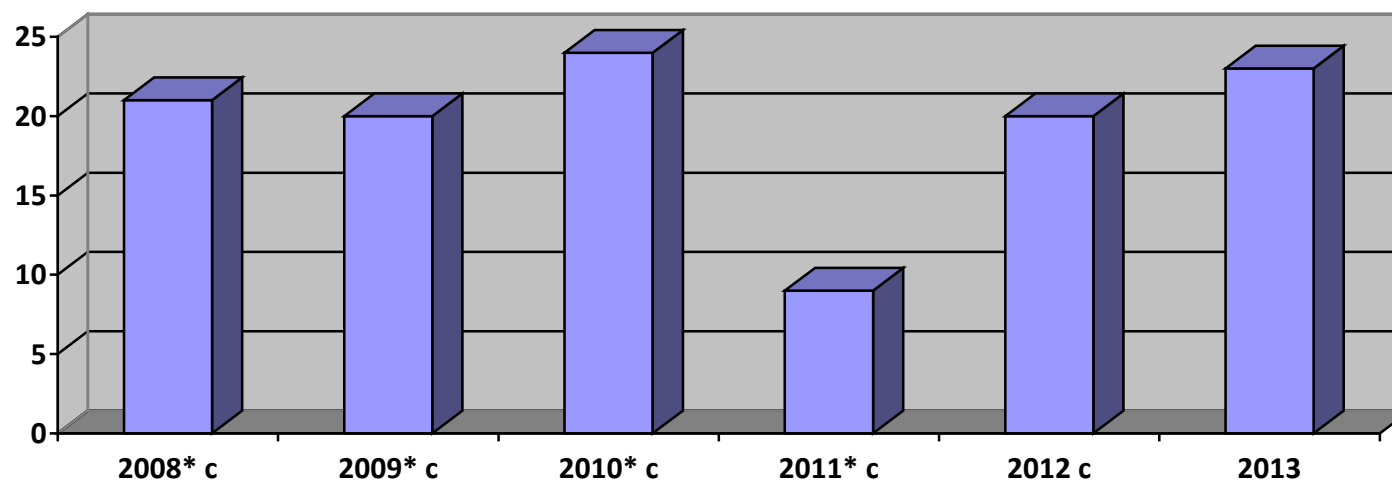
Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2013 % ^b	Annual Mean Concentration (µg/m ³)					2013
					2008* ^c	2009* ^c	2010* ^c	2011* ^c	2012 ^c	
CM 1 (High St, Ayr)	Roadside	N	80%	80%	21	20	24	9	20	23
CM 2 (Ayr Harbour)	Roadside	N	99%	99%	N/A	N/A	N/A	N/A	15*	14

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

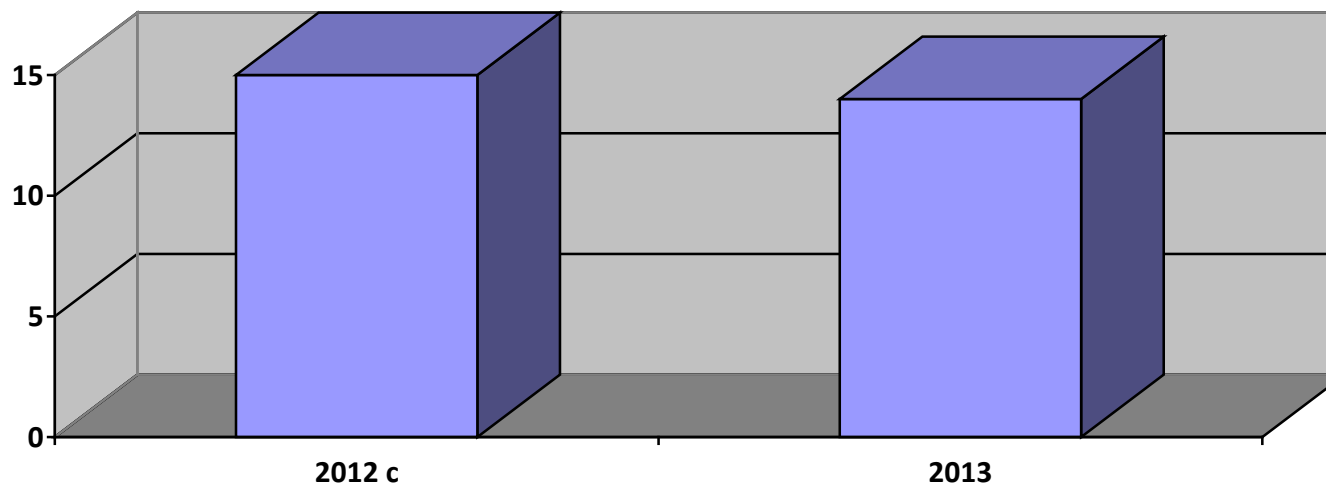
^c Means should be “annualised” [as in Box 3.2 of TG\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

Figure 2.3(a) Trends in Annual Mean NO₂ Concentrations (µg/m³) Measured at High Street Ayr since 2008



The trend in NO₂ measured at High Street Ayr is unclear, there being a slight increase in 2010 but a large drop in 2011 then back to 2009 levels in 2012 and back to 2010 levels in 2013. However on all occasions the levels were well below the permitted annual mean of 40 µg/m³

Figure 2.3(b) Trends in Annual Mean NO₂ Concentrations (µg/m³) Measured at Ayr Harbour since 2012



NO₂ annual mean levels measured at High Street Ayr dropped slightly from 15 µg/m³ in 2012 to 14 µg/m³ in 2013 and on both years was well below the permitted annual mean of 40 µg/m³

Table 2.4 Results of Automatic Monitoring for NO₂: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2013 % ^b	Number of Hourly Means > 200µg/m ³					2013 ^c
					2008* ^c	2009* ^c	2010* ^c	2011* ^c	2012 ^c	
CM 1 (High St, Ayr)	Roadside	N	80%	80%	0	0	0	0	0 (88)	0 (88)
CM 2 (Ayr Harbour)	Roadside	N	99%	99%	N/A	N/A	N/A	N/A	0 (50)	0

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c if the data capture for full calendar year was less than 90%, the 99.8th percentile of hourly means is included in brackets

Diffusion Tube Monitoring Data

The bias adjustment factor of 0.99 was obtained from the spreadsheet located on the Scottish Air Quality website. The 0.99 bias adjustment was applied to all NO₂ diffusion tube results.

All tubes were below the objective limit of 40 µg/m³

Results are displayed in table 2.5.

Table 2.5 Results of NO₂ Diffusion Tubes in 2013

Site ID	Location	Site Type	Within AQMA	Triplicate or Co-located Tube	Full Calendar Year Data Capture (%)	2012 Annual Mean Concentration (µg/m ³) Bias Adjustment factor = 0.99 ^b
N1	39 Whitletts Rd Ayr	Roadside	N	N	84	31
N2	Rozelle Park Ayr	Woodland	N	N	100	5
N3	Town Buildings Ayr	Roadside	N	N	100	36
N4	12 Craigie Road Ayr	Roadside	N	N	58	17
N5	King Street Ayr	Roadside	N	N	92	38
N6	Heathfield Rd/ Prestwick Rd Ayr	Roadside	N	N	83	35
N7	60 Queens Drive, Barassie	Roadside	N	N	100	8
N8	Tesco Whitletts Rd Ayr	Roadside	N	N	100	26
N9	117 Main St Prestwick	Roadside	N	N	100	27
N10	Red Lion Main St Prestwick	Roadside	N	N	100	32
N11	Shaw Farm Gdns, Prestwick	Roadside	N	N	100	15
N12	Pharmacy, Main St, Dundonald	Roadside	N	N	100	15
N13	1 AQ Station High St Ayr (N)	Roadside	N	Y	75	20
N14	Church Street Troon	Roadside	N	N	100	16
N15	Dundonald Road Troon	Roadside	N	N	92	19
N16	Morrisons Ayr	Roadside	N	N	100	25
N17	Spar, Ayr Rd, Coylton	Roadside	N	N	83	15
N18	Station Taxi Rank Ayr	Roadside	N	N	100	24
N19	2 AQ Station High St Ayr (W)	Roadside	N	Y	75	22
N20	Bridge St Girvan	Roadside	N	N	100	38
N21	3 AQ Station High St Ayr (S)	Roadside	N	Y	83	20
N22	CO-OP, High St, Maybole	Roadside	N	N	83	25

Table 2.6 Results of NO₂ Diffusion Tubes (2008 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m ³) - Adjusted for Bias ^a					
			2008 (Bias Adjustment Factor = 0.97)	2009 (Bias Adjustment Factor = 1.23)	2010 (Bias Adjustment Factor = 1.1)	2011 (Bias Adjustment Factor = 0.94)	2012 (Bias Adjustment Factor = 0.95)	2013 (Bias Adjustment Factor = 0.99)
DT1	Roadside	N	4	6	40	39	29	31
DT2	Woodland	N	4	4	7	9	4	5
DT3	Roadside	N	34	39	42	45	33	36
DT4	Roadside	N	12	10	20	21	15	17
DT5	Roadside	N	15	13	53	53	39	38
DT6	Roadside	N	29	38	38	36	31	35
DT7	Roadside	N	*	*	*	*	*	8
DT8	Roadside	N	18	19	32	31	29	26
DT9	Roadside	N	*	*	*	*	*	27
DT10	Roadside	N	*	*	*	*	*	32
DT11	Roadside	N	14	14	21	21	15	15
DT12	Roadside	N	9	8	17	23	14	15
DT13	Roadside	N	14	19	21	24	19	20

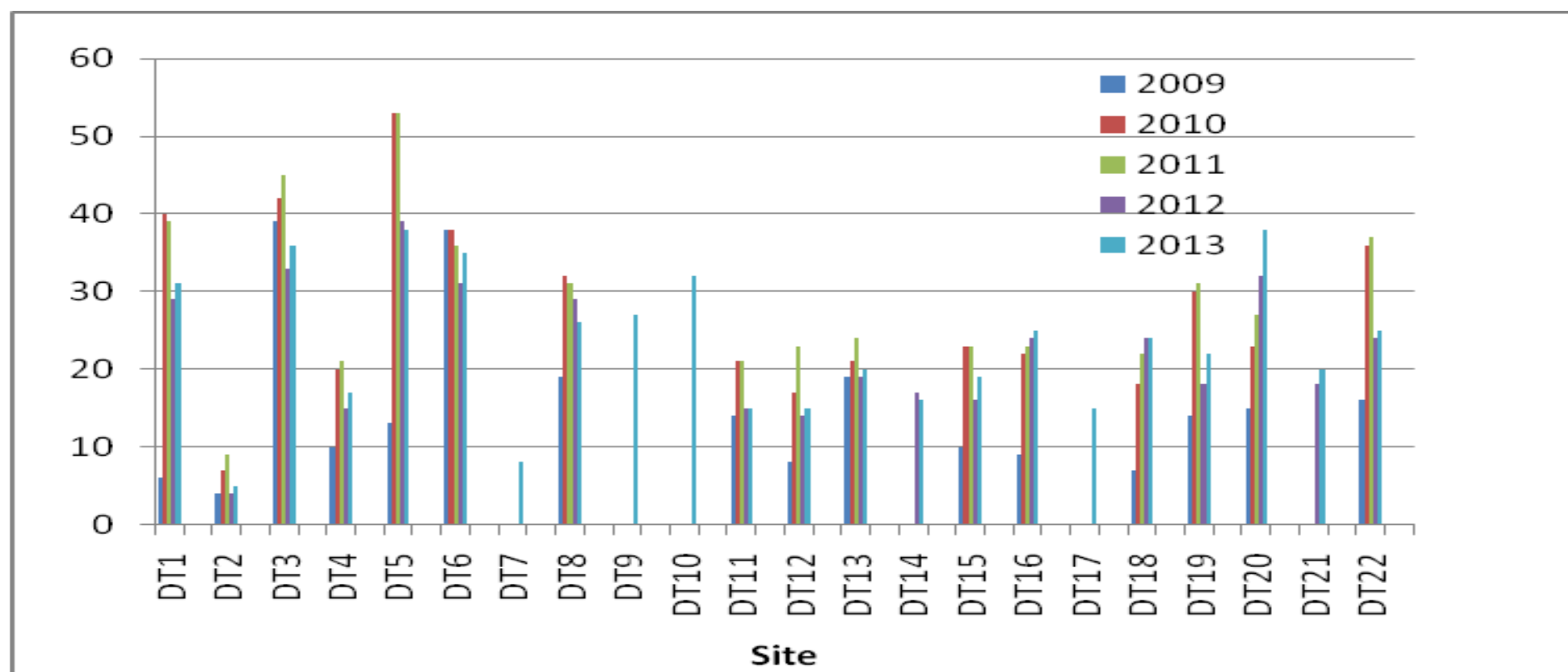
Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias ^a					
			2008 (Bias Adjustment Factor = 0.97)	2009 (Bias Adjustment Factor = 1.23)	2010 (Bias Adjustment Factor = 1.1)	2011 (Bias Adjustment Factor = 0.94)	2012 (Bias Adjustment Factor = 0.95)	2013 (Bias Adjustment Factor = 0.99)
DT14	Roadside	N	*	*	*	*	17	16
DT15	Roadside	N	8	10	23	23	16	19
DT16	Roadside	N	10	9	22	23	24	25
DT17	Roadside	N	*	*	*	*	*	15
DT18	Roadside	N	9	7	18	22	24	24
DT19	Roadside	N	12	14	30	31	18	22
DT20	Roadside	N	15	15	23	27	32	38
DT21	Roadside	N	*	*	*	*	18	20
DT22	Roadside	N	14	16	36	37	24	25
District Average	N/A	N/A	15	16	27	29	22	23

- Monitoring was not carried out at that location during that year

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

A trend chart providing NO₂ annual mean results over the past 5 years is shown below.

There appears to have been a slight increase from 2008 to 2011 followed by a decrease during 2012 and then a slight increase in 2013.



2.1.2 Particulate Matter (PM₁₀)

Results of PM₁₀ Automatic Monitoring obtained from TEOM's fitted with FDMS and web logger functionality at High Street/New Bridge St Ayr and Taylor Street, Ayr (Ayr Harbour) are displayed in Table 2.7 and 2.8. Collected data did not show any exceedences of either annual mean or 24-hour mean PM₁₀ objectives in 2013

Table 2.7 Results of Automatic Monitoring for PM₁₀: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2013 % ^b	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m ³)					
						2008	2009	2010	2011	2012	2013
CM1 (High St Ayr)	Roadside	N	82	82	N/A	15.2	17	16	13	13	15
CM2 (Ayr Harbour)	Roadside	N	62	62	N/A	N/A	N/A	N/A	N/A	13*	17

* This figure has been annualised

Figure 2.5(a) Trends in Annual Mean PM₁₀ Concentrations 2008 - 2013 at High Street Ayr

A trend chart providing PM₁₀ annual mean results in µg/m³ over the past 5 years for High Street Ayr is shown below. Results at High Street peaked in 2009 and showed a gradual decrease until 2012 but then a slight increase in 2013. Monitoring only commenced the harbour site in May 2012 and levels have increased from 13 to 17 in 2013.

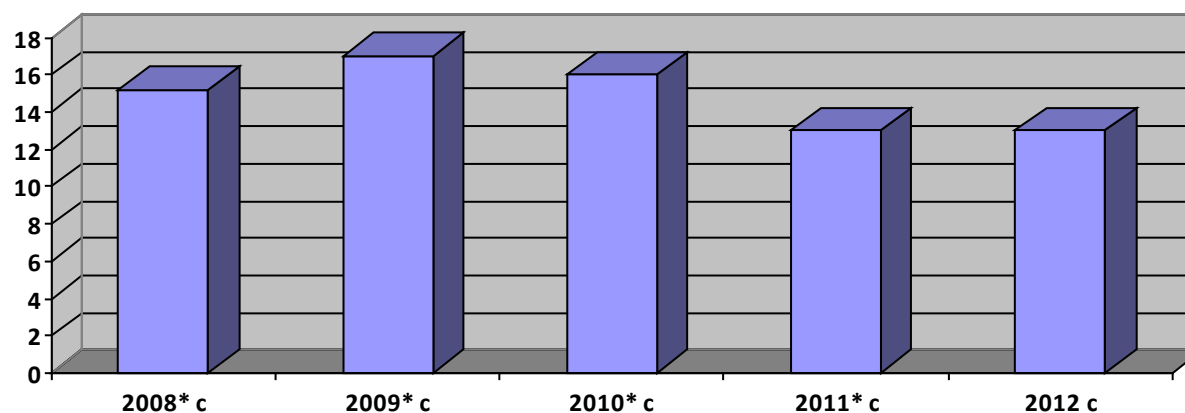


Table 2.8 Results of Automatic Monitoring for PM₁₀: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m ³					
						2008	2009	2010	2011	2012	2013
CM1 (High St Ayr)	Roadside	N	82	82	N/A	0	4	0	0	3 (35)	2 (34)
CM2 (Ayr Harbour)	Roadside	N	62	62	N/A	N/A	N/A	N/A	N/A	0 (29)	1 (38)

^c Where data capture for full calendar year is less than 90%, the 98.1th percentile of 24-hour means is included in brackets

2.1.3 Sulphur Dioxide (SO₂)

No Sulphur Dioxide monitoring was carried out in South Ayrshire in 2013.

Previously monitoring was by means of two eight port bubblers, one at Dundonald Activity Centre and the other at the Road Depot within Grangeston Industrial Estate Girvan. Analysis of the solution took place at Glasgow Scientific Services.

Monitoring ceased at Dundonald at the end of 2006 and at Girvan at the end of 2007.

The results of that monitoring indicated that there would be no exceedences of the objective standard as was reported in South Ayrshire Council's 2008 Progress Report.

2.1.4 Benzene

No Benzene monitoring was carried out in South Ayrshire in 2013.

Monitoring has not been carried out for benzene since 2008. The results of that monitoring indicated that there would be no exceedences of the objective standard as was reported in South Ayrshire Council's 2009 Updating and Screening Assessment.

2.1.5 Other Pollutants Monitored

No other pollutants were monitored during 2013.

However we carried out vehicle emission testing over 20 days at a number of sites throughout South Ayrshire in 2013. We tested 2881 vehicles and issued 17 FPN's.

We aim to repeat that exercise in 2014.

2.1.6 Summary of Compliance with AQS Objectives

South Ayrshire Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

South Ayrshire 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.

South Ayrshire Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Local Transport Plans and Strategies

South Ayrshire Council's transport strategy and associated documents can be accessed under the following link:

<http://www.south-ayrshire.gov.uk/council/transport/>

5 Conclusions and Proposed Actions

South Ayrshire Council's Progress Report 2014 identified no exceedences of the air quality objectives and we will therefore not be proceeding with a detailed assessment.

Monitoring will continue and an updating and screening assessment report will be submitted in 2015.

6 References

1. Defra and the Devolved Administrations, Local Air Quality Management, Technical Guidance LAQM.TG (09), February 2009.
2. Defra and the Devolved Administrations, Spreadsheet of Bias Adjustment Factors, version 03/13, March 2013

Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

PM Monitoring Adjustment

No correction is required as both monitors are equipped with FDMS.

QA/QC of automatic monitoring

Both sites are part of the Scottish Air Quality Programme and are audited twice per year by Ricardo-AEA. Servicing and repair is carried out by Air monitors

QA/QC of diffusion tube monitoring

In the WASP scheme for analysis of NO₂ diffusion tubes GSS scored the following in 2013: Jan – March 50%, April – June 25% and July – December 100%.

Diffusion Tube Bias Adjustment Factors

Diffusion tubes are supplied and analysed by Glasgow Scientific Services which is run by Glasgow City Council. The diffusion tube bias adjustment value of 0.99 was obtained from the LAQM Support website spreadsheet version 03/14 and was applied to all Nox diffusion tubes

QA/QC of Automatic Monitoring

Ricardo – AEA carry out QA/QC on results. Servicing and maintenance is carried out by Air monitors.

Appendix B: Full Set Of Results For Diffusion Tubes 2013 (ug/m3) (Bias correction 0.99)

Site	J	F	M	A	M	J	J	A	S	O	N	D	Total	Data Capture months	Average Annual Mean (ug/m3)	Bias Corrected Figure
39 Whitletts Rd Ayr	34	X	37.9	35.9	29.6	31.2	28.7	29.5	15.1	37	X	32.6	311.5	83.33	31.15	31
Rozelle Park Ayr	9.9	6.9	8.5	4.6	3.2	2.9	3.8	4.4	2	6	6	4	62.2	100	5.18	5
Town Buildings Ayr	38.8	31.8	38	43.8	31.8	42.4	39.6	35.7	28.3	37.1	37	32.9	437.2	100	36.43	36
12 Craigie Road Ayr	19.6	19.4	22.5	14.2	X	X	12.7	X	X	18.3	X	13.3	120	58.33	17.14	17
King Street Ayr	43.9	39.8	43.3	38.4	40.1	39.5	X	36.3	12.4	37.7	53.5	38.5	423.4	91.66	38.49	38
Heathfield Rd/ Prestwick Rd Ayr	45.4	34	46.3	26.5	26.5	26.7	29.9	X	X	41	41.9	33.7	351.9	83.33	35.19	35
60 Queens Drive, Barassie	11.5	8.2	11.5	9.3	7	7.7	7.6	5.2	3.6	9.8	11.2	6.8	99.4	100	8.28	8
Tesco Whitletts Rd Ayr	29.1	27.2	31.9	35	28.4	28.6	1.7	21.9	13	29.7	35.6	34.7	316.8	100	26.4	26
117 Main St Prestwick	36.2	29.5	34.6	20.4	23.3	23	23.5	21.9	10.8	41.3	34.5	26.8	325.8	100	27.15	27
Red Lion Main St Prestwick	39.4	32.6	45.5	38.5	30	33.1	29.2	25.8	17.1	37.9	39.8	13.1	382	100	31.83	32
Shaw Farm Gdns, Prestwick	21.8	20.7	19.7	10.9	15	16.7	13.4	9.9	9	18.1	21.4	1.4	178	100	14.83	15
Pharmacy, Main St, Dundonald	16.2	21.8	17.5	12.9	14.9	15.1	13.8	11.3	8.3	14.1	21.2	17.9	185	100	15.41	15
1 AQ Station High St Ayr (N)	17.4	18.6	21	17.4	21	X	21.4	20.2	X	X	25.8	23.5	186.3	75	20.7	20
Church Street Troon	20.3	18.9	20.4	16.2	13.1	19	17.5	11.9	6.9	18.8	19.6	12.8	195.4	100	16.28	16
Dundonald Road Troon	27.1	22.5	22.5	17.8	13.2	14.4	12.3	11	X	20.9	32.8	15.8	210.3	91.66	19.11	19
Morrisons Ayr	29.1	39.1	30.6	28.8	23.8	24.4	19.9	14.1	11.5	29	30.7	24.3	305.3	100	25.44	25
Spar, Ayr Rd, Coylton	22	X	18	X	12.9	15	11.2	8.5	13.5	13.6	21.7	10.5	146.9	83.33	14.69	15
Station Taxi Rank Ayr	30.2	29.5	31.1	13.8	24.7	24.6	20.5	17.8	22.6	24.3	31.2	20.3	290.6	100	24.21	24
2 AQ Station High St Ayr (W)	22.9	18	22.5	19.8	20.4	X	22.3	20.5	X	X	26.1	23.6	196.1	75	21.78	22
Bridge St Girvan	29.4	37.1	41.2	35.2	32.2	43.2	46.6	37.9	39.8	37.7	40	35	455.3	100	37.94	38
3 AQ Station High St Ayr (S)	22.8	21.8	19.5	19.3	22.8	23.1	1.7	21.5	X	X	24.8	21.1	198.4	83.33	19.84	20
CO-OP, High St, Maybole	22.2	23.3	24	15.7	26.8	27	27.8	28.7	29	25.1	35.2	22.4	307.2	100	25.6	25

Appendix C: Report Of Continuous Monitors Ayr Harbour (Taylor St Ayr) 2013

Produced by RICARDO-AEA on behalf of the Scottish Government

**SOUTH AYRSHIRE AYR HARBOUR
1st January to 31st December 2013**

These data have been fully ratified by RICARDO-AEA

POLLUTANT	PM ₁₀ +	NO ₂	NO _x
Maximum hourly mean	157 µg m ⁻³	157 µg m ⁻³	749 µg m ⁻³
Maximum daily mean	52 µg m ⁻³	61 µg m ⁻³	105 µg m ⁻³
98.08th percentile of daily means	38 µg m ⁻³	-	-
Average	17 µg m ⁻³	14 µg m ⁻³	21 µg m ⁻³
Data capture	61.6 %	98.8 %	98.8 %

+ PM₁₀ instruments: FDMS using a gravimetric factor of 1 from 1st January 2013

All gaseous pollutant mass units are at 20°C and 1013mb. Particulate matter concentrations are reported at ambient temperature and pressure.
NO_x mass units are NO_x as NO₂ µg m⁻³

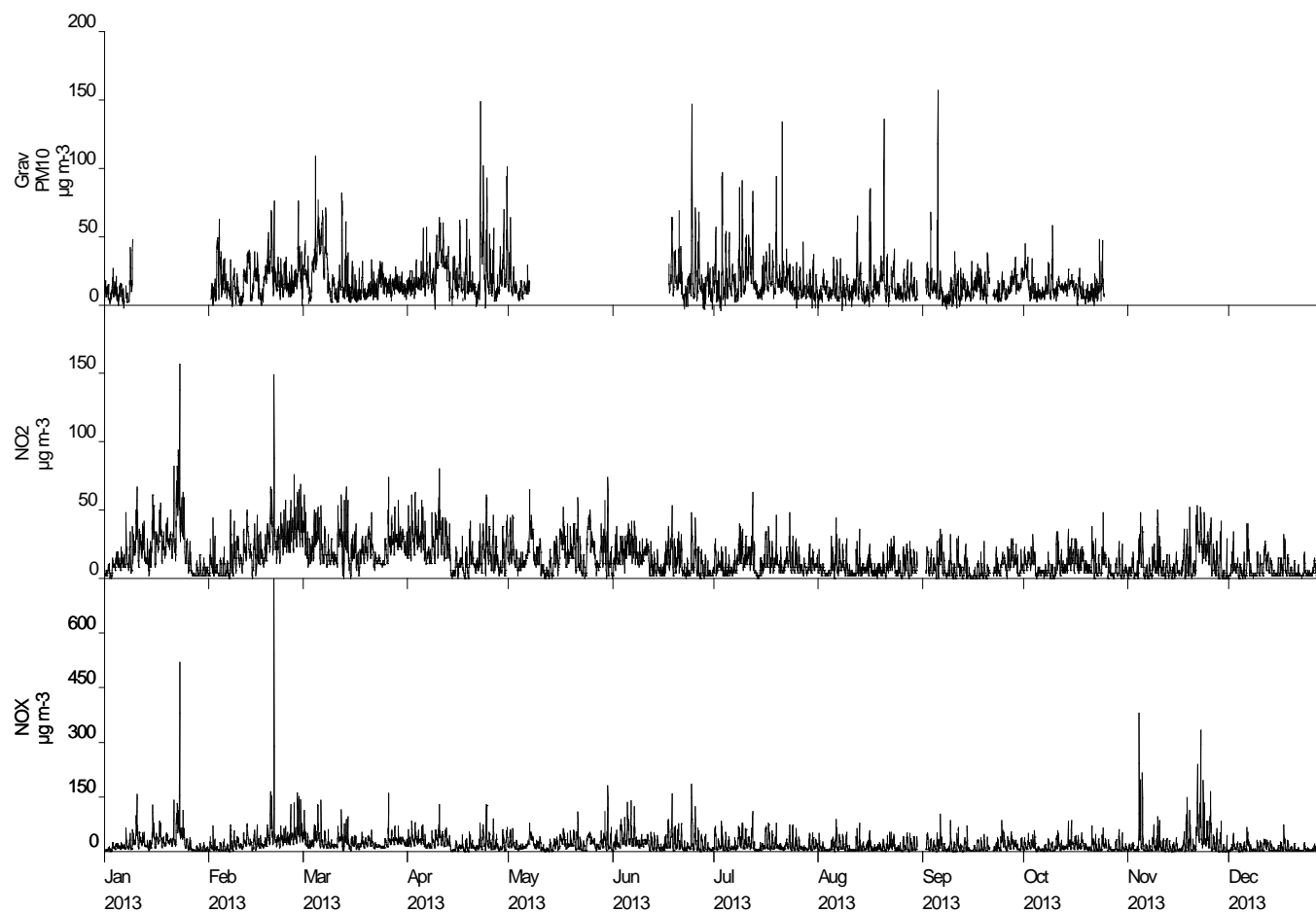
Pollutant	Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	1	1
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 18 µg m ⁻³	0	-
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	0	0

Note: For a strict comparison against the objectives there must be a data capture of >90% throughout the calendar year

SOUTH AYRSHIRE AYR HARBOUR

Hourly Mean Data for 1st January to 31st December 2013

Date Created:
08/04/2014



Appendix D: Report Of Continuous Monitor Ayr High Street 2013
Produced by Ricardo-AEA on behalf of the Scottish Government

SOUTH AYRSHIRE AYR HIGH ST
1st January to 31st December 2013

These data have been fully ratified by RICARDO-AEA

POLLUTANT	PM ₁₀ +	NO ₂	NO _x
Maximum hourly mean	157 µg m ⁻³	120 µg m ⁻³	359 µg m ⁻³
Maximum daily mean	54 µg m ⁻³	55 µg m ⁻³	87 µg m ⁻³
99.8th percentile of hourly means	-	88 µg m ⁻³	189 µg m ⁻³
98.08th percentile of daily means	34 µg m ⁻³	-	-
Average	15 µg m ⁻³	23 µg m ⁻³	39 µg m ⁻³
Data capture	82.1 %	79.5 %	79.5 %

+ PM₁₀ instruments: FDMS using a gravimetric factor of 1 from 1st January 2013

All gaseous pollutant mass units are at 20°C and 1013 mb. Particulate matter concentrations are reported at ambient temperature and pressure. NO_x mass units are NO_x as NO₂ µg m⁻³

Pollutant	Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	2	2
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 18 µg m ⁻³	0	-
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	0	0

Note: For a strict comparison against the objectives there must be a data capture of >90% throughout the calendar year

Produced by RICARDO-AEA on behalf of the Scottish Government

South Ayrshire Ayr High St
Hourly Mean Data for 1st January to 31st December 2013

Date Created:
8/04/2014

