2011 Air Quality Progress Report for *Isle of Wight Council*

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

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Executive Summary

Monitoring for NO2 continued at 2 sites throughout 2010. Results are reported in this report.

Environmental Health continues to provide advice relevant to air quality issues, to the Local Planning Authority. A list of such applications is listed in this report.

The conclusion of this report is that the Air Quality Standards are unlikely to be exceeded on the Isle of Wight, and there is therefore no requirement to proceed to a Detailed Assessment, neither is there any justification for declaring an Air Quality Action Area.

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1 Introduction

1.1 Description of Local Authority Area

The Isle of Wight has well-defined boundaries, formed by the coastline. Roughly diamond shaped, the Island has a population in the region of 140,000, is largely rural, with the main areas of population concentrated within a number of small towns predominately located within the eastern half.

The two largest towns are Newport and Ryde. Newport, the County Town is located in the centre with Ryde situated on the north east coast. The remaining settlements of Sandown, Shanklin, Lake and Ventnor are located along north eastern and south eastern coast, with Cowes and East Cowes at the northern most point

The western part of the island is more thinly populated, with the main urban centres at Yarmouth, Totland and Freshwater.

The Island is linked to the mainland by a number of cross Solent links. These operate between the Ryde area and Portsmouth, Cowes and East Cowes to Southampton and Yarmouth to Lymington. The Island's 8 mile rail line links the pier head at Ryde through stations at Ryde to the coastal towns of Ryde, Sandown and Shanklin

Industry is concentrated along the river Medina, at Newport, Cowes and East Cowes.

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 Local Air Quality Management (LAQM) **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu g/m^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1.1. includes the number of permitted exceedences in any given year (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

The following text is taken from the Isle of Wight Council's Air Quality web page:

First Round Air Quality Review

The first round of the review in 2000 gave results that indicated that it was not necessary to proceed to a Detailed Assessment, as the specified pollutants were predicted to be below the Air Quality Objectives.

The report of the 2000 review is not available on-line.

Second Round Updating and Screening Assessment 2004

During the second round, the Updating and Screening report 2004 (www.iwight.com/living_here/environment/environmental_health/images/Isle_of_Wight_USA.pdf) identified that there was a possibility that, for two of the pollutants, concentrations may exceed the Objectives in specific areas.

A Detailed Assessment (www.iwight.com/living_here/environment/environmental_health/images/isleofwightfinalreport.pdf) was carried out in 2004, examining two pollutants. Since the first round of assessment, a new housing estate had been built close to the petrol storage depot at Kingston, East Cowes. Computer modelling was therefore carried out, to predict benzene concentrations in the area. This was supplemented by diffusion tube monitoring for a short period. The results of the monitoring were reported in an Air Quality Progress Report (www.iwight.com/living_here/environment/environmental_health/images/AQProgressReport2005.pdf) in 2005. The modelling, together with the diffusion tube results, showed that the benzene concentration in air close to the site was very unlikely to exceed the Objective. There was therefore no need to declare an Air Quality Management Area for Benzene.

In addition, the modelling for sulphur dioxide emissions from the three cross-Solent ferry terminals also showed that there would be no exceedance of the short-term Objective for SO2.

Third Round Updating and Screening Assessment 2006

During the third round (www.iwight.com/living_here/environment/environmental_health/images/IoWUSA2006.pdf), in 2006, it was identified that, at two of the sites (Fairlee Road and Lake Hill) there is a possibility that the Air Quality Objective for Nitrogen dioxide may be exceeded.

It was therefore decided to increase the number of diffusion tubes placed at the two sites, to monitor nitrogen oxides. Diffusion tubes are not as exact as they could be, so there was some doubt about the actual concentrations measured. Using three tubes at each site gives a more reliable result.

Detailed Assessment for Nitrogen Dioxide

This was carried out using additional monitoring, using diffusion tubes. The 2007 Detailed Assessment Report (www.iwight.com/living_here/environment/environmental_health/images/2007DetailedNO2.pdf) concluded that there were unlikely to be exceedances of the guideline standard for Nitrogen dioxide at either of the two sites referred to above.
A Progress report was submitted in 2008.

Fourth Round Updating and Screening Assessment 2009
Before the fourth round Updating and Screening Assessment was carried out, Defra issued revised guidance.

The 2009 Updating and Screening Assessment is available.

An Air Quality Progress Report was submitted in 2010.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites on the Isle of Wight.

2.1.2 Non-Automatic Monitoring

There are 2 monitoring sites on the Isle of Wight. These have been adequately described in previous reports.

The tubes are supplied and analysed by Bureau Veritas. They prepare the tubes using 50% TEA in acetone.

They report:

Laboratory: ESGLtd
Preparation Method: 50% TEA v/v in Acetone
Analytical Method: U.V.Spectrophotometry
Analysis carried out in accordance with documented in-house Laboratory Method GLM6
Uncertainty of measurement - 1.40%+/-
Limit of Detection - 2.89µg/m3

They are UKAS accredited.

Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		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?
Example 1	Urban backgrd.	X111222	Y222111	NO_2	Y	Y (1m)	3m	Y
IOW4	Kerbside	450377	089557	NO_2	N	Y (11m)	0m	Y
IOW10	Roadside	459101	083717	NO_2	N	Y	2m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

Location IOW4 – Fairlee Road

This location is the same as reported in previous years. Triplicate tubes are exposed on a lamp-post at about 0.5 m from the kerb.

The nearest relevant exposure is the façade of a house, which is 11 m from the kerbside.

In only one month were there results from fewer than 3 tubes. In that month, there was a result from one of the tubes, but not from the other 2.

Location IOW10

This location is as reported in previous years.

2.2.1 Nitrogen Dioxide

IOW4

The results of all tubes were averaged, then multiplied by the national correction factor appropriate for Gradco 50% TEA in acetone, which is 0.93.

This gave a result of 53 µg/m^3 as the corrected annual mean.

Using the spreadsheet at http://laqm.defra.gov.uk/documents/NO2withDistancefromRoadsCalculatorIssue4.xls, a correction was then applied for the fall-off in NO_2 with distance from the road. The nearest relevant exposure is the façade of a house at 11m.

The background NO_2 was found from the background maps at laqm1.defra.gov.uk. The figure for that map square for 2010 is given as 7.588953. This gives a final result of 28 µg/m^3 NO_2.

This is well below the limit of 40.

IOW10

Results at this site continue to show results well below the limit of 40. The fall-off with distance has not been calculated for this site.

Diffusion Tube Monitoring Data

The laboratory used in Bureau Veritas, using the Gradko 50% TEA in acetone method. For 2010, the Bias Adjustment Factor given in the spreadsheet is 0.93.

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for monitoring period %	Data Capture for full calendar year 2010 %	Annual mean concentrations (µg/m^3)		
						2008	2009	2010
IOW4	Fairlee Road	N	Y			42.8	43.85	55
IOW1(	Lake Hill	N	Y			24.1	23.71	29.79

2.2.2 PM_{10}

There is no monitoring of PM10 on the island.

2.2.3 Sulphur Dioxide

There is no monitoring of Sulphur dioxide on the Island.

2.2.4 Benzene

There is no monitoring of benzene on the Island.

2.2.5 Other pollutants monitored

No pollutants other than nitrogen dioxide are monitored.

2.2.6 Summary of Compliance with AQS Objectives

Isle of Wight Council has examined the results from monitoring in the island. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments and Planning Applications

3.1 Road Traffic Sources

There are no new sources for 2010.

3.2 Other Transport Sources

There are no new sources for 2010.

3.3 Industrial and Commercial Sources

3.3.1 Cheverton Chalk & Gravel, Cheverton Shute, Shorewell.

This was an application for two containerised biofuel generators. The site is Permitted by the Environment Agency to handle wastes. This application was for a total generation capacity of 100kW, fired by virgin wood chip. It is in a very remote rural location, and was assessed as being unlikely to have a significant impact on air quality.

3.3.2 Isle of Wight Hunt Kennels

This was a pre-application discussion on a proposal to install an incinerator for fallen stock. Advice was given to the Local Planning Authority on what would be required from an air quality standpoint. To date, no application has resulted.

3.3.3 Re-development of Sandown Bay Holiday centre

This was an application that had been determined by the LPA as requiring an ES. The response from Environmental Health to the LPA highlighted the need for a consideration of air quality matters, if the proposal was include CHP. To date, no application has resulted.

3.3.4 New concrete batching facility at East Cowes

This, if approved, would have been subject to conditions on an Environmental Permit. This would have resulted in controls designed to prevent significant adverse impacts on air quality. Environmental Health therefore had no concerns about potential air quality issues from dust. Planning Committee nevertheless decided to refuse this application.

3.3.5 Biomass centre, Waitrose, East Cowes

This application was accompanied by a Dispersion Modelling Assessment (http://www.iwight.com/council/departments/planning/appsDIP/temptifpdf/iutsof55erly4n45skarhg45110201040716.pdf). This assessment concluded that the design proposal would not result breach any of the air quality standard for England and Wales.

3.3.6 Redevelopment of Cowes High School

This includes the proposal to heat the school with a biomass boiler. This was accompanied by a calculation of chimney height (Clean Air Act 1993) and details of grit arrestment. However, I had to persuade the developer to carry out a screening assessment in accordance with the recommendations of a recent AEA report. The result was a modelling assessment carried out by AEA. It demonstrated that the proposal will not result in breaches of the air quality standards.

3.3.7 Temporary biomass boiler, Pan Extension

The Pan Extension is a large development on the outskirts of Newport. The application for a biomass CHP plant was approved by Committee, in spite of advice from the EHO that the proposal included insufficient detail to enable proper consideration of air quality issues.

This proposal is for a temporary plant to supply the first phase of the development, pending construction of the final CHP unit to serve the whole development. This will consist of two small boilers, one fuelled by gas, the other being a dual-fuel oil and gas boiler

An air quality assessment for this temporary plant has not been completed. However, it is sufficiently small that exceedences of the Air Quality Standards are unlikely.

3.4 New Developments with Fugitive or Uncontrolled Sources

3.4.1 Bardon Vectis quarry extension, St Georges Down, Newport

This was accompanied by a proposal to minimise emissions of particulates from quarrying operations. As a geographical extension to an existing quarry, this does not involve an intensification of use. Changes to potential emissions will be minimal.
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Isle of Wight 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.

Isle of Wight 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 Air Quality Planning Policies

4.1 Sustainable Community Strategy

The Sustainable Community Strategy (http://www.eco-island.org.uk/documents/eco%20island%20booklet.pdf) is branded "EcoIsland". The Local Planning Authority has referred to it in the development phase of the Island Plan.

4.2 Island Plan

The Core Strategy of the Island Plan is still in draft form only, and the draft documents are available at http://www.iwight.com/living_here/planning/Planning_Policy/Island_Plan/Core_Strategy/

The Vision for the Core Strategy is:

We want the Isle of Wight to become a world renowned Eco-Island, with a thriving economy and a real sense of pride, where residents and visitors enjoy healthy lives, feel safe and are treated with respect.

Under this Vision are a number of priority themes, including:

We will:
Create wealth whilst reducing our carbon footprint;
Produce as much of our energy as possible from renewable sources;

Among the Core Strategy Objectives are the following:

2) To ensure that all development supports the principles of sustainable development.
9) To provide renewable sources of energy that contribute to the Island being self-sufficient in renewable electricity production.
10) To reduce the need to travel, to improve accessibility across the Island and maintain functional transport links with the mainland.
11) To manage the Island's waste in a sustainable and environmentally sensitive way.
12) To manage the Island's minerals supply in a sustainable and environmentally sensitive way.

The Sustainability Appraisal of the draft Island Plan was undertaken between May and October 2010. This Appraisal examined 6 possible Spatial Strategy Options, and appraised them against a number of environmental impacts, including the effect on air quality.

After progressing through various consultation and assessment stages, it is anticipated that the final version of the Core Strategy will be adopted in December 2011.

5 Local Transport Plans and Strategies

5.1 Isle of Wight Council Local Transport Plan

The current Local Transport Plan (LTP2) covers the years 2006- 2011 and can be found at www.iwight.com/ transport

The council is currently preparing the next local transport plan, the delivery of which will be reliant on the agreed roads maintenance 25 year Private Finance Initiative (PFI). Details of this plan, the Strategic Environmental; Assessment (SEA) and Habitats Regulation Assessment (HRA) can be found at www.iwight.com/transport

Details of the roads maintenance PFI can be found at www.iwight.com/highways-pfi/project.asp

5.2 Isle of Wight Council Speed Limit Policy

This may be found at http://www.iwight.com/council/committees/cabinet/1-10-09/PAPER%20C%20-%20APPENDIX.pdf. It includes the text:

> ***Emissions & environment*** – Vehicle emissions and vehicle noise are greatest at very low and very high speeds. Due to the potential impact on air quality and noise pollution, 20mph limits will not be considered on high volume roads.

5.3 Isle of Wight Council Sustainable Travel to School Strategy

This is available here:
http://www.iwight.com/living_here/environment/Transport_Strategies/images/2SustainableTraveltoSchoolStrategy.pdf

5.4 School Travel Plans

All schools now have adopted plans in place; copies of which can be found on the Eduwight site:
http://eduwight.iow.gov.uk/the_lea/policies_plans/School_Travel_Plan/School_Travel_Options/default.asp

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

The monitoring data for 2010 demonstrate that air quality within the Isle of Wight Council's area will not exceed the AQ Objectives. It will, therefore, not be necessary to proceed to a Detailed assessment.

6.2 Conclusions relating to New Local Developments

Planning applications received, where relevant, have been assessed for their potential impact on air quality. None of them individually or in total will result in exceedences of the Air Quality Standards.

6.3 Proposed Actions

The monitoring data demonstrate that the air quality at sites of relevant exposure is unlikely to exceed the Air Quality Standards, and there is therefore no need to proceed to a Detailed Assessment.

The reason why the monitored values for 2010 on Fairlee Road are significantly higher than in previous years in not known. However, there have been various road closures for road works during the year, which may have resulted in some traffic being diverted from other routes onto Fairlee Road.

Monitoring will be continued.

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The laboratory used in Bureau Veritas, using the Gradko 50% TEA in acetone method. For 2010, the Bias Adjustment Factor given in the spreadsheet is 0.93.

Factor from Local Co-location Studies (if available)

There are no continuous monitors on the Isle of Wight, and therefore no co-location studies.

Discussion of Choice of Factor to Use

As there are no co-location studies on the Isle of Wight, the national figures were used.

Raw diffusion tube data

	IOW4	IOW4	IOW4	IOW10
Jan	62.34	59.12	61.53	35.79
Feb	57.92	64.85	60.63	36.66
Mar	54.12	58.81	65.38	40.04
Apr	57.75	61.54	48.71	36.4
May	49.35	52.48	54.17	28.27
June	63.38	58.68	62.13	30.58
July	C	C	51.76	19.41
Aug	44.71	50.45	52.87	21.45
Sep	41.82	48.75	47.13	23.28
Oct	54.55	57.29	60.03	30.22
Nov	59.6	61.3	57.3	30.7
Dec	59.7	62.1	66.1	35.8
Annual average		56.716		30.71644
Bias correction		52.74		28.56
After distance correction		28		