



2015 Updating and Screening Assessment for

Shetland Islands Council

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

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Executive Summary

This report considers local air quality management in Shetland, taking into account relevant policy and technical guidance documents.

New industrial developments are now completed and in production, which will increase the number of sources of emissions. However, activities relating to existing installations in these areas will reduce their emissions significantly. As SEPA are regulating these developments no further action is to be take unless operational monitoring results indicate further action is needed.

Commercial biomass boilers have increased in numbers across the islands and have been considered in detail in this assessment.

Fugitive or uncontrolled sources from civil construction projects have also been considered in detail in this assessment.

This updating and screening assessment concludes that detailed assessments are not required for any pollutant at this time.

Table of contents

1	Introduction	5
1.1	Description of Local Authority Area.....	5
1.2	Purpose of Report.....	6
1.3	Air Quality Objectives.....	6
1.4	Summary of Previous Review and Assessments	7
2	New Monitoring Data.....	8
2.1	Summary of Monitoring Undertaken	8
3	Road Traffic Sources	9
4	Other Transport Sources.....	11
4.1	Airports.....	11
4.2	Railways (Diesel and Steam Trains).....	11
4.3	Ports (Shipping)	12
5	Industrial Sources	13
5.1	Industrial Installations.....	13
5.1.1	New/Proposed Installations for which an Air Quality Assessment has been Carried Out	13
5.1.2	Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced	14
5.1.3	New or Significantly Changed Installations with No Previous Air Quality Assessment.....	14
5.2	Major Fuel (Petrol) Storage Depots	14
5.3	Petrol Stations.....	15
5.4	Poultry Farms.....	15
6	Commercial and Domestic Sources	16
6.1	Biomass Combustion – Individual Installations	16
6.2	Biomass Combustion – Combined Impacts.....	16
6.3	Domestic Solid-Fuel Burning	17
7	Fugitive or Uncontrolled Sources.....	18
8	Conclusions and Proposed Actions.....	19
8.1	Conclusions from New Monitoring Data.....	19
8.2	Conclusions from Assessment of Sources.....	19
8.3	Proposed Actions.....	20
9	References.....	21

1 Introduction

1.1 Description of Local Authority Area

Shetland is an archipelago, about 400 miles from the **Arctic Circle**. The 60°N latitude line passes through mainland Shetland. The southern tip of mainland Shetland is about 100 miles from the nearest point on mainland Scotland & almost 400 miles north of Edinburgh.

Including Fair Isle, Shetland stretches about 100 miles north to south. There are over 100 islands in the group, 15 of which are inhabited. The highest point is Ronas Hill, rising to 1,475 feet. Nowhere in Shetland is more than 3 miles from the sea.

1.1.2 Population

After decades of decline, the population of Shetland, which had fallen to nearly 17,000 in the mid-1960s, rose significantly between 1971 and 1981 as a direct result of oil related activity. Based on recent population estimates since the 2001 Census, the population has been relatively stable at around 22,000. Recent oil related activity increased the transient population by up to 3000 at times between 2012 and the end of 2015.

1.1.3 Air Pollution Sources

a) Road Traffic

Traffic density, is very low in comparison to motorway and city traffic. There are very few roads and junctions where traffic is in excess of 5,000 and 10,000 vehicles per day.

b) Other Transport

There are air and seaports but no trains in Shetland. The main airports are Sumburgh & Scatsta and the main seaports are Lerwick, Scalloway and Sullom Voe.

c) Industrial

The key industry sectors in Shetland are Fisheries, Oil Production Operations and Agriculture. A (small) major fuel storage depot is located in Lerwick.

1.2 Purpose of 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

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 µg/m ³	Running annual mean	31.12.2003
	3.25 µg/m ³	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/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 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/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
Particles (PM ₁₀) (gravimetric)	50 µg/m ³ , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m ³	Annual mean	31.12.2010
Sulphur dioxide	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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

Previous rounds of Review and Assessment have determined there is no need for detailed assessment and no air quality management areas have been declared in Shetland Islands Council's area.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

The automatic monitoring station at Staney Hill in Lerwick has been decommissioned. This previously recorded NO_x and SO₂. There is no valid data since the last annual review. With current financial restraints, and the fact that no exceedance of the objectives was recorded when it was working, Shetland Islands Council do not intend to re-instate it.

2.1.2 Non-Automatic Monitoring Sites

No other monitoring has been carried out in relation to LAQM.

2.1.3 Summary of Compliance with AQS Objectives

Shetland Islands Council has previously examined results from earlier monitoring in the Islands. Concentrations were all below the objectives. There is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

There have been no new developments in Shetland in relation to areas of narrow congested streets with residential properties close to the kerb.

Shetland Islands Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

There are no busy streets in Shetland with more than 10,000 vehicles per day, where individuals may be exposed within 5 m of the kerb for one or more hours.

Shetland Islands Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

There are no roads in Shetland with HDV flow greater than 2,500 vehicles per day.

Shetland Islands Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

There are no new/newly identified junctions with more than 10,000 vehicles per day.

Shetland Islands Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

No new roads have been constructed with a traffic flow greater than 10,000.

Shetland Islands Council confirms that there are no new/proposed roads meeting the criteria in Section A.5 of Box 5.3 in TG(09).

3.6 Roads with Significantly Changed Traffic Flows

No roads with more than 10,000 vehicles have experienced large, over 25% increases in traffic flow.

Shetland Islands Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

There has been no change to the Viking Bus Station in Lerwick.

Shetland Islands Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Sumburgh is Shetland's main airport and Scatsta is the other airport serving locations out with Shetland. Tingwall is the main internal airport serving the outer isles.

Airport	Terminal Passengers	Freight (Thousand Tonnes)	Equivalent mppa
Sumburgh	270158	0.316	0.273
Scatsta	253526	0.669	0.260
Tingwall	4858	0	0.005

The figures detailed above indicate the both Scatsta and Tingwall airports have remained at a similar level of through put as detailed in the 2012 USA, however it can also be seen that Sumburgh has increased its throughput by 91% from the figures detailed in the 2012 USA.

As the total equivalent passenger throughput is less than 10 mppa and the existing background NOX concentration is below 25µg/m³, the airports in Shetland do not meet the specified criteria and no detailed assessment is necessary.

Shetland Islands Council confirms that there are no airports that meet the specified criteria in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

There are no railways in Shetland.

Shetland Islands Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

Shetland Islands Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

The port of Lerwick is a fishing port and a centre of marine support for the offshore oil, gas & decommissioning industries. It is a ferry port, including roll-on roll-off services for passengers and freight on Scottish and internal routes and is a freight facility for general cargo. It is a popular port-of-call for cruise ships.

The available statistics available do not categorise ship movements in terms of large ships in comparison to small ships. Lerwick Port Authority published 2015 port arrivals detailing a total of **4,970** ships having visited Lerwick harbour in 2015 which is down 2% compared to 2014, including a 20% fall in oil-related shipping. This number doubled equates to **9940** movements. A small proportion of these will be large ships. The majority will be small vessels including a significant number of yachts.

The numbers of large ships will not exceed 5,000 movements. There is relevant exposure within 250m. No other ports in Shetland have movements approaching 5,000 per year in total.

Shetland Islands Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New/Proposed Installations for which an Air Quality Assessment has been Carried Out

The Laggan Tormore gas plan sited next to the Sullom Voe terminal is complete and entering its first production stages together with the completion of the Sullom Voe terminal Aurora project.

During the planning process predictive modelling was conducted which estimated the predicted combined effects of the two sites on the local air quality and concluded that there would not be any exceedences unless of fugitive emissions.

As both sites are regulated by SEPA they will be operating to strict licence conditions and employing best technological practice to control emission effecting local air quality and thus no further action is required at his time.

The plan for a new power station in Lerwick has been delayed. As yet no detailed plans or timescales are available as to when this development will progress further. Although there is a delay the new power station will replace the existing oil fired power station in Lerwick. With the new station using more up-to-date technology it will be expected to reduce the level of emissions from the existing power station.

The three-turbine wind farm developed to supplement the Lerwick is new on stream but it uses a larger single turbine to meet the energy demands rather than the 3 smaller turbines planned, thus further reduce emissions in this area.

There are currently a further 3 large scale wind farms in the PPC process but no detailed plans or timescales are available at this time however plans are likely to be developed in the next 5 years

Shetland Islands Council does not have any neighbouring authorities and therefore has not investigated whether any industrial installations are new or have significantly changed in any other area.

Shetland Islands Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

There are no existing industrial installations in Shetland, where emissions have increased substantially or new relevant exposure has been introduced.

Shetland Islands Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure within its area.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

There are no existing industrial installations, which have changed significantly or have increased substantially or where new relevant exposure has been introduced.

Shetland Islands Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.2 Major Fuel (Petrol) Storage Depots

There has been no change to the Major Fuel Storage Depot at North Ness, Lerwick.

There is one small major fuel (petrol) storage depot in Lerwick, which has been considered in previous reports.

5.3 Petrol Stations

There are no new petrol stations that have been built since the last assessment in 2012.

Shetland Islands Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

No industrial poultry production is carried out in Shetland.

Shetland Islands Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Planning permission has been granted for a further 6 individual biomass combustion Installations since the 2012 Update and Screening Assessment (USA). Two in the north mainland, one in the south mainland, one in the west mainland, one in central mainland and one in the outer isle of Whalsay. All of these installations have been commissioned.

All these installations have been developed and commissioned as individual combustion appliances and are unlikely to result in relevant increases in average exposure over widespread areas. As the emission rate is less than the target, no detailed assessment is required for PM₁₀.

Shetland Islands Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

Lerwick has the highest density housing in Shetland however this is still at a very low density compared to cities and larger towns on mainland Scotland. Very few properties in Lerwick use biomass fuel as a heating source, the Lerwick community district heating scheme supplies approximately 1,000 properties which is around 1/3 of the properties in Lerwick. The main areas not covered by the district heating scheme are some 1970-80s schemes which are all electrically heated.

As no significant biomass burning takes place in areas where there are actually more than 50 houses in a 500m x 500m area no areas meet the specified criteria and therefore no detailed assessment is necessary.

6.3 Domestic Solid-Fuel Burning

Lerwick has the highest density housing in Shetland however this is still at a very low density compared to cities and larger towns on mainland Scotland.

Very few properties in Lerwick use solid fuel as a heating source, the Lerwick community district heating supplies approximately 1,000 properties which is around 1/3 of the properties in Lerwick. The main areas not covered by the district-heating scheme are some 1970-80s schemes which are all electrically heated.

As no significant coal burning takes place in areas where there are actually more than 50 houses in a 500m x 500m area no areas meet the specified criteria and therefore no detailed assessment is necessary.

Shetland Islands Council confirms that there are no areas of significant domestic biomass solid fuel use in the Local Authority area

7 Fugitive or Uncontrolled Sources

There are major construction works being carried out in respect of the groundwork preparation for the new Anderson High School in Lerwick. The planning permission included specific conditions relating to the minimisation of dust generation from the site during construction. The site road is nearly complete and has been partially surfaced. No dust complaints associated with the facility have been received.

As detailed in the previous 2012 USA consent has been given for the Viking Energy wind farm in the central mainland. This development will include the construction of a number of access roads and new quarries. Specific conditions relating to the minimisation of dust generation from the site have been included. Should the development progress further the department will be assessing the efficacy of the controls and if necessary the development will be considered in annual progress report.

Further to the major developments that are in progress or planning stages there have been planning applications received for the upgrading of the local road networks, these have been considered and have received specific mention regarding the control of Fugitive or Uncontrolled Sources.

Shetland Islands Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

No new monitoring data has been used in this assessment.

8.2 Conclusions from Assessment of Sources

Shetland has over the past number of year experience a significant increase in industrial activity in the north of the mainland due to the planning construction in commissioning of national infrastructure projects connected to the oil industry.

Both of the developments have passed through a rigorous planning application appraisal and approval process to ensure national air quality levels will not be in exceedance. Both sites are in operation and as such are regulated by SEPA they will be operating to strict licence conditions and employing best technological practice to control emission effecting local air quality and thus no further action is required at his time

A further six biomass boilers have been commissioned in order to reduce reliance on ever increasing energy charges and a reliance on the burning of fossil fuels to meet energy needs. They have been through the planning process and have been assessed as not exceeding the national air quality objectives.

The Anderson High development in Lerwick is well underway with the majority of the major ground works completed including road network changes, all of these work having been through the planning process with specific mention of the control of air quality namely fugitive emissions.

8.3 Proposed Actions

The next course of action will be to submit the 2016 Progress Report.

No Detailed Assessment for any pollutant is required and no monitoring further monitoring will be carried out.

9 References

Lerwick Port Authority - Traffic on forecast at Lerwick Harbour in 2015

<http://www.lerwick-harbour.co.uk/traffic-on-forecast>

Civil Aviation Authority – Airport Data and Analysis portal;

<https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-Airport-data/Airport-data-2015-01/>

Scottish Air Quality Website

<http://www.scottishairquality.co.uk/>