South Holland District Council LAQM Progress Report 2014

Bureau Veritas

July 2014

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Document Control Sheet

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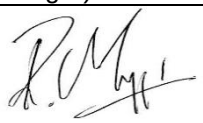
Submitted to	Jeanette Reith	Jeanette Reith
Prepared by	Anna Czerska (Assistant Consultant)	Anna Czerska (Assistant Consultant)
Signature	A.C.	A.C.
Approved by	Ben Warren (Senior Consultant – Project Manager)	Richard Maggs (Consulting Group Manager – Project Manager)
Signature		
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Bureau Veritas UK Limited
Brandon House
180 Borough High Street
London, SE1 1LB

Telephone: +44 (0) 207 902 6100
Fax: +44 (0) 207 902 6149
Registered in England 1758622
www.bureauveritas.co.uk

Registered Office:
Suite 308 Fort Dunlop
Fort Parkway
Birmingham, B24 9FD

Local Authority Officer	Jeanette Reith
	Team Leader Environmental Protection
Department	Environmental Protection
Address	Council Offices, Priory Road, Spalding, Lincolnshire PE11 2XE
Telephone	01775 764534
e-mail	jreith@sholland.gov.uk
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Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work. This Annual Progress Report is a requirement of the Fifth Round of Review and Assessment and is a requirement for all local authorities. The Report has been undertaken in accordance with Technical Guidance LAQM.TG (09) and associated tools (as updated in 2010).

This Annual Progress Report considers all new monitoring data and assesses the data against the Air Quality Strategy (AQS) objectives. It also considers any changes that may have an impact on air quality.

Updated monitoring showed that there were no exceedences of the AQS objectives at any of the monitoring locations within South Holland District Council.

Results from diffusion tube sites showed that NO_2 concentrations in 2013 increased from 2012 but still were below 2011 levels at all sites. Continuous monitoring results for 2013 indicate that both the annual mean objective and the 1-hour objective for nitrogen dioxide were met at both monitoring locations, showing a decrease in 2013.

The 2013 results for PM_{10} show that the annual mean and the 24-hour mean also continue to be met at both monitoring locations. Both monitoring sites showed a decrease in annual mean in 2012, to increase again in 2013.

Proposed actions arising from the 2014 Annual Progress Report are as follows:

- Continue NO_2 diffusion tube and continous monitoring in the district to identify future changes in pollutant concentrations;
- Continue to monitor the biomass installations at Lambs Flowers Ltd and Oppermans Plants Ltd to ensure they remain within the permitted limits;
- Continue to gather emission and stack information for the identified biomass installations to determine their potential impact upon air quality; and
- Proceed to an Updating and Screening Assessment in 2015.

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1 Introduction

1.1 Description of Local Authority Area

The district of South Holland comprises the principal town of Spalding surrounded by the small towns of Holbeach, Long Sutton, Sutton Bridge and Crowland. The rest of the district is rural in character.

The main source of air pollution in the district is road traffic emissions from major roads, notably the A16, A17 and A151 which connect South Holland with North Lincolnshire and the Humber estuary, and south west Lincolnshire. There are currently no Air Quality Management Areas (AQMAs) declared in South Holland.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy (AQS) 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 AQMA and prepare an 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 LAQM 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 AQS 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 England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre µg/m^3 (milligrams 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 Objective included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 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
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
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

South Holland District Council undertook the First Round of Review and Assessment of air quality between 1998 and 2001 (Stages 1, 2 and 3). The Stage 2 report recommended further assessment of NO_2 and PM_{10} emissions in the Port Sutton Bridge Area and NO_2 emissions along the A17 at Holbeach and Sutton Bridge. The Stage 3 report concluded that predicted concentrations of NO_2 and PM_{10} would be met at these locations and no AQMA was required. The conclusions of the First Round were that all AQS objectives were expected to be met by the target dates based on the available information at that time.

The first phase of the Second Round of Review and Assessment, the USA, was completed in August 2003 and this provided an update with respect to air quality issues in the District. The USA 2003 concluded that no Detailed Assessment of air quality was required. The Progress

Reports 2004 and 2005 similarly concluded that all AQS objectives were expected to be met. A new continuous monitoring site was established in 2003 at Monkhouse School in Spalding to monitor PM_{10} and NO_2 concentrations, and assess emissions from Spalding Power Station.

The first phase of the Third Round of Review and Assessment, the USA, was completed in June 2006 and this provided a further update with respect to air quality issues in the District. The USA 2006 concluded that all objectives were expected to be met and no Detailed Assessment was required. In 2007 and 2008 the Council submitted annual Progress Reports for air quality. The reports considered the latest monitoring data and concluded that no significant changes in pollutant concentrations had occurred and there were no predicted exceedences of the AQS objectives.

The Fourth Round 2009 USA provided a further update on local air quality and concluded that the objectives for benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide and sulphur dioxide would be met and that there was no requirement to undertake a Detailed Assessment for these pollutants. However, the Council confirmed that there were two poultry farms in Spalding that met the relevant assessment criteria and had nearby relevant exposure with respect to the PM_{10} objectives. It was therefore proposed that the Council progress to a Detailed Assessment for PM_{10} at these two poultry farm locations (Fleet Fen Farm Poultry Unit and Chapel Road Poultry Unit) in addition to the 2010 Annual Progress Report.

The Detailed Assessment, which was completed in May 2011, focused on Fleet Fen Farm, near Holbeach, which was considered to be the worst-case scenario due to the farm capacity and proximity of sensitive properties downwind. The report concluded that emissions of PM_{10} from the turkey-rearing units at Fleet Fen Farm did not present a significant risk of breaching the PM_{10} AQS objectives, and that there was no need to declare an AQMA.

The Progress Reports 2010 and 2011 concluded that results at all monitoring sites still complied with the AQS objectives, apart from one kerbside site which, in 2009, exceeded the annual mean NO_2 objective. However, there was no relevant exposure near the site to warrant further consideration and this site met the objective in 2010. Both LAQM Progress Reports recommended the continued monitoring at existing sites.

The 2012 Updating and Screening Assessment (USA) concluded that all monitoring sites complied with the AQS objectives. The USA detailed the new Spalding to Eye link road and the Wygate Park to Bourne End link road and recommended that a new diffusion tube monitoring location be installed along the Spalding to Eye link road to monitor the impact that the new road is having upon local air quality. The 2013 Progress Report recommended continued monitoring at existing sites and ensuring that the emissions from the biomass

installations at Lambs Flowers Ltd and Oppermans Plants Ltd remain within the permitted limits.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

South Holland District Council operates two automatic monitoring stations measuring nitrogen dioxide (using chemiluminescence analysers) and particulate matter PM_{10} (using a Tapered Element Oscillating Microbalance (TEOM)) at the following locations:

- Spalding Monkhouse; and
- Westmere School.

There is also additional monitoring of ozone (O_3) measured by ultra violet absorption at the Westmere School site. Ozone is a trans-boundary pollutant; the sources of ozone are frequently spatially distant from the measured site of the concentrations. Ozone is not prescribed in the Regulations for LAQM and is therefore reported here for information only.

Further details of these monitoring stations are provided in Table 2-1 and the locations are shown in Figure 2-1.

Figure 2-1 Map of Continuous Monitoring Sites

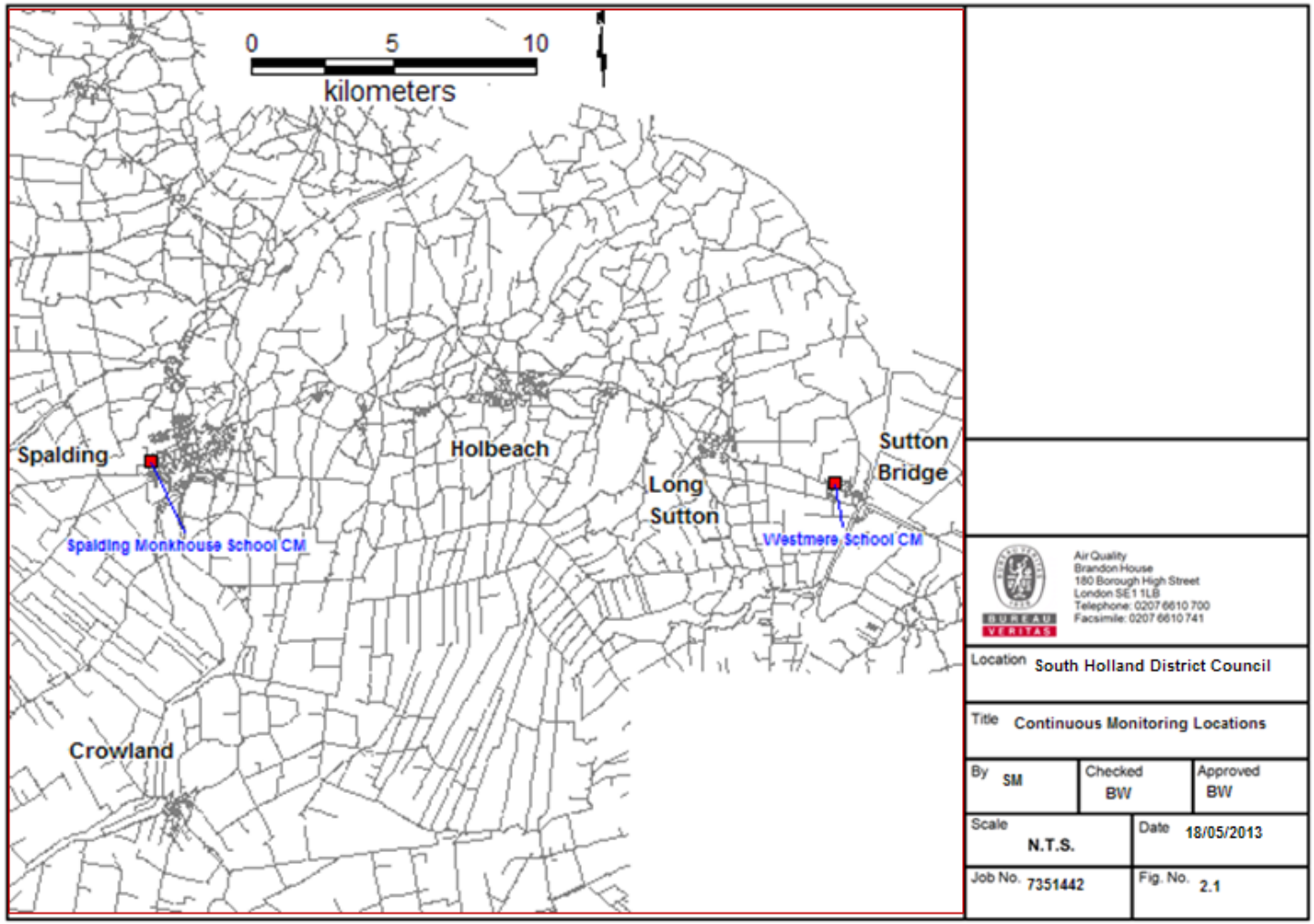


Table 2-1 Details of Automatic Monitoring Sites

Site ID	Site Type	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
SH1 - Spalding Monkhouse School	Urban Background	523168	322454	NO_2, PM_{10}	No	Chemiluminescence, TEOM	Y (1m)	25m	N
SH2 - Westmere School	Urban Background	547264	321709	NO_2, O_3, PM_{10}	No	Chemiluminescence, UV Absorption, TEOM	Y (14m)	190	N

2.1.2 Non-Automatic Monitoring Sites

South Holland District Council undertook monitoring using passive NO_2 diffusion tubes at 15 sites in 2013. This includes a set of triplicate tubes SH 8/9/10 co-located with the continuous monitoring analyser at Westmere School.

There has been no change in diffusion tube locations from monitoring in previous years.

The details of the NO_2 monitoring network are shown in Table 2.2 and Figure 2.2.

Figure 2-2 Map of Non-Automatic Monitoring Sites

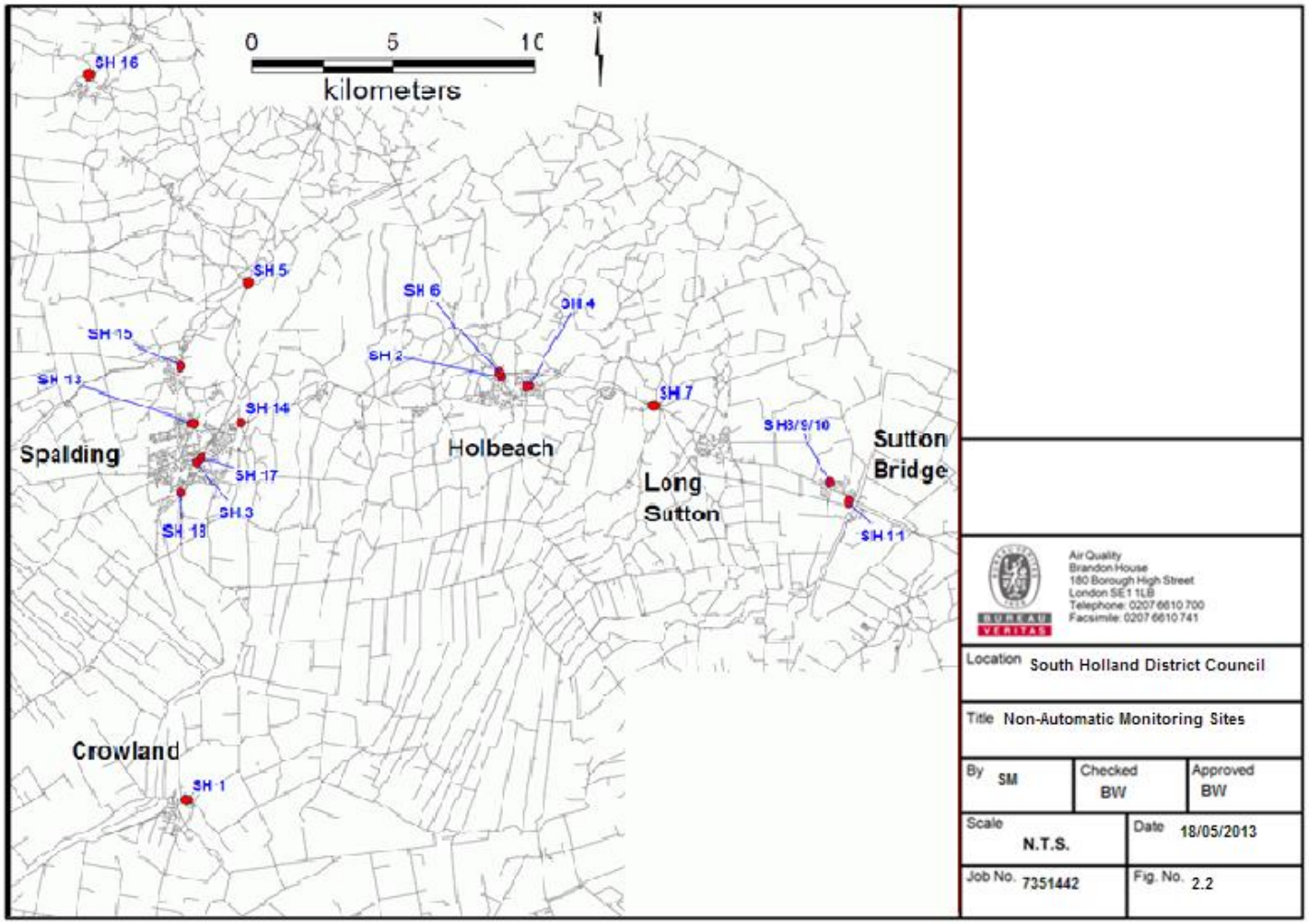


Table 2-2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type*	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
SH 1	21 Millfield Gardens	UB	524388	310520	NO_2	N	N	Y (6.8m)	2.9m	N
SH 2	Nutten Stoven	UB	535595	325453	NO_2	N	N	Y (5.6m)	21.8m	Y
SH 3	Priory Road	UB	524734	322403	NO_2	N	N	N (38.4m)	80m	N
SH 4	46 The Hollies	UB	536523	325078	NO_2	N	N	Y (8.4m)	0.2m	N
SH 5	Station Road	R	526585	328726	NO_2	N	N	Y (24.9m)	1.5m	Y
SH 6	103 Boston Road	NR	535525	325589	NO_2	N	Y	Y (25.7m)	9.5m	Y
SH 7	Field End	R	541013	324393	NO_2	N	N	Y (5.9m)	<2m	Y
SH8/9/10	Westmere (Triplicate)	UB	547264	321709	NO_2	N	Y	N (69.4m)	61.2m	N
SH 11	Metalair Site	R	547957	321013	NO_2	N	N	N	<2m	Y
SH 13	Pinchbeck Road	K	524595	323793	NO_2	N	N	Y (20.7m)	0.7m	Y
SH 14	Springfields Roundabout	K	526309	323820	NO_2	N	N	N (54.2m)	0.5m	Y
SH 15	Church Street, Pinchbeck	R	524182	325804	NO_2	N	N	Y (0m)	1.5m	Y
SH 16	Bicker Road, Donington	NR	520917	336064	NO_2	N	N	Y (7.5m)	16.5m	Y
SH 17	High Road, Spalding	R	524892	322571	NO_2	N	N	Y (0m)	1.5m	Y
SH 18	Hawthorn Bank, Spalding	R	524191	321328	NO_2	N	N	Y (1.5m)	3m	Y

* K – Kerbside, NR – Near-Road, R – Roadside, UB – Urban Background

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

There are two Air Quality Objectives for NO_2, namely:

- the annual mean of 40µg/m^3, and
- the 1-hour mean of 200µg/m^3 not to be exceeded more than 18 times a year.

Automatic Monitoring Data

The Council monitored NO_2 at two locations during 2013. These were the background sites, Spalding Monkhouse School and Westmere School.

The monitoring data can be seen in Table 2-3 and Table 2-4 below. Full details of the QA/QC procedure are provided in Appendix A.

As data capture was good during 2013 annualisation was not required. However, data capture was below 90% at the SH1 Spalding Monkhouse School during 2013; as such the 99.8th percentile has also been reported for the hourly objective for this site.

Results for 2013 indicate that both the annual mean objective and the 1-hour objective were met at both monitoring locations.

Figure 2.3 shows the trend in NO_2 concentration from 2008 through to 2013 at both monitoring locations. This shows that whilst both sites have remained below the annual mean objective across the monitoring period, they have shown very different trends. There have been two peaks in concentrations for Site SH1 (Spalding Monkhouse School): in 2008 and 2012; this increasing trend has not continued as concentrations dropped in 2013. The Westmere School site showed an increasing trend from 2008 to 2010. From 2010 onwards annual mean concentrations have shown a decreasing trend. Concentrations in 2013 decreased from 2012 at both sites.

Table 2-3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID/Name	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Annual Mean Concentration (µg/m^3)					
					2008	2009	2010	2011	2012	2013
SH1 / Spalding Monkhouse School	Background	N	88.6	88.6	15.7	9.9	11.3	11.9	15.3	11.3
SH2 / Westmere School	Background	N	94.5	94.5	16.2	18.0	18.6	16.2	13.9	12.7

Figure 2-3 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites

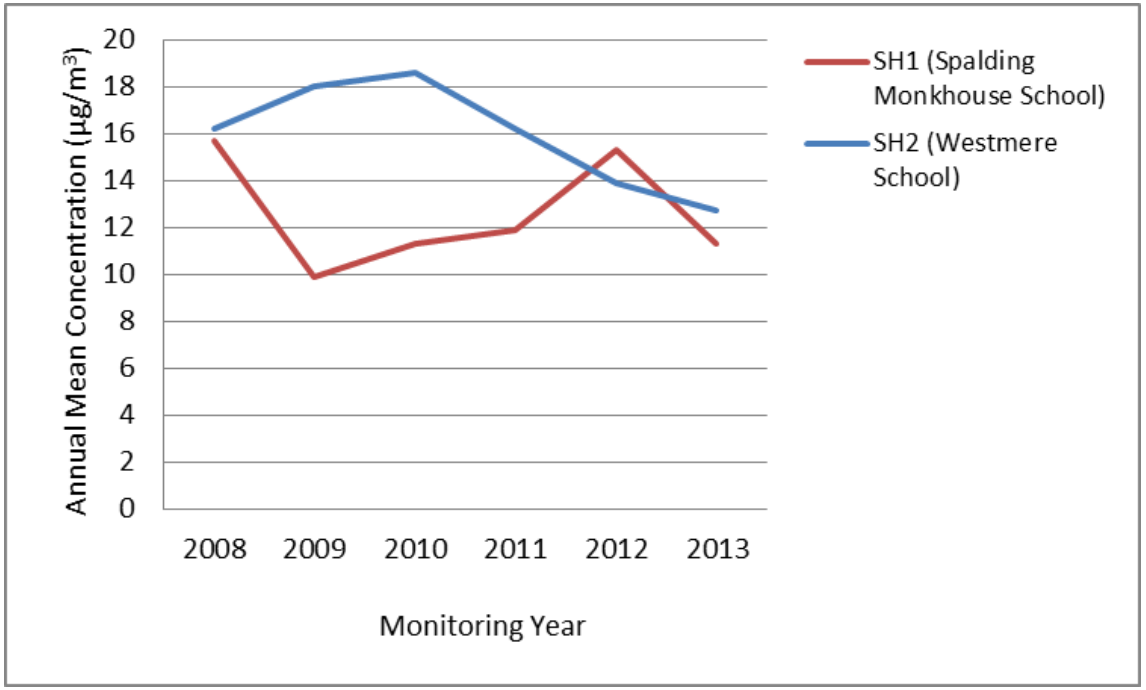


Table 2-4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Number of Hourly Means > 200µg/m^3					
					2008	2009	2010	2011	2012	2013
SH1 / Spalding Monkhouse School	Background	N	80.3	80.3	0	0	0 (63)	0	0 (84)	0 (55)
SH2 / Westmere School	Background	N	81.7	81.7	0	0	0 (156.5)	0	0 (67)	0

If the period of valid data is less than 90%, the 99.8th percentile of hourly means is included in brackets

Diffusion Tube Monitoring Data

The NO_2 diffusion tube data are summarised in Table 2.5. The full dataset (monthly mean values) are included in Appendix A.

Results for year 2013 have been bias adjusted using the local bias adjustment factor. Data capture for 2013 was very good at all sites, so annualisation was not required. Full details of the, bias adjustment and QA/QC procedure are provided in Appendix A.

Similar to previous years, there were no sites in 2013 where the annual mean AQS objective was exceeded. Concentrations in 2013 increased from 2012 but still were below 2011 levels at all sites.

Table 2-5 Results of NO_2 Diffusion Tubes 2013

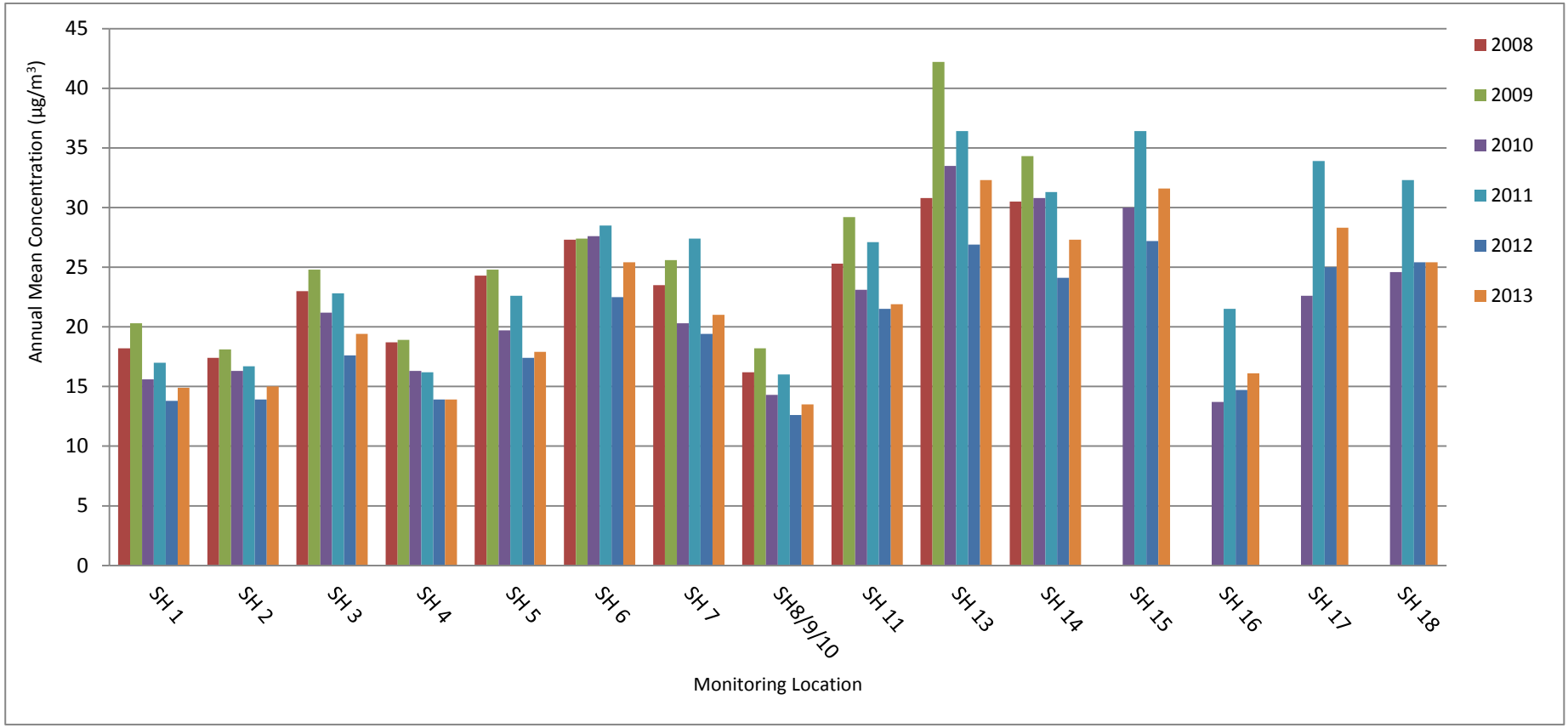
Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months)	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 1.08
SH 1	21 Millfield Gardens	Background	N	N	12	14.9
SH 2	Nutten Stoven	Kerbside	N	N	10	15.0
SH 3	Priory Road	Background	N	N	12	19.4
SH 4	46 The Hollies	Background	N	N	12	13.9
SH 5	Station Road	Roadside	N	N	12	17.9
SH 6	103 Boston Road	Kerbside	N	N	12	25.4
SH 7	Field End	Roadside	N	N	11	21.0
SH8/9/10	Westmere (Triplicate)	Background	N	Triplicate and Co-located	12	13.5
SH 11	Metalair Site	Roadside	N	N	12	21.9
SH 13	Pinchbeck Road	Kerbside	N	N	12	32.3
SH 14	Springfields Roundabout	Kerbside	N	N	12	27.3
SH 15	Church Street, Pinchbeck	Roadside	N	N	12	31.6
SH 16	Bicker Road, Donington	Roadside	N	N	12	16.1
SH 17	High Road, Spalding	Roadside	N	N	12	28.3
SH 18	Hawthorn Bank, Spalding	Roadside	N	N	12	25.4

Table 2-6 Results of NO_2 Diffusion Tubes (2008 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias					
			2008 (Bias Adjustment Factor = 1.13)	2009 (Bias Adjustment Factor = 1.33)	2010 (Bias Adjustment Factor = 0.99)	2011 (Bias Adjustment Factor = 1.28)	2012 (Bias Adjustment Factor =1.01)	2013 (Bias Adjustment Factor =1.08)
SH 1	21 Millfield Gardens	N	18.2	20.3	15.6	17.0	13.8	14.9
SH 2	Nutten Stoven	N	17.4	18.1	16.3	16.7	13.9	15.0
SH 3	Priory Road	N	23	24.8	21.2	22.8	17.6	19.4
SH 4	46 The Hollies	N	18.7	18.9	16.3	16.2	13.9	13.9
SH 5	Station Road	N	24.3	24.8	19.7	22.6	17.4	17.9
SH 6	103 Boston Road	N	27.3	27.4	27.6	28.5	22.5	25.4
SH 7	Field End	N	23.5	25.6	20.3	27.4	19.4	21.0
SH8/9/10	Westmere (Triplicate)	N	16.2	18.2	14.3	16.0	12.6	13.5
SH 11	Metalair Site	N	25.3	29.2	23.1	27.1	21.5	21.9
SH 13	Pinchbeck Road	N	30.8	**42.2**	33.5	36.4	26.9	32.3
SH 14	Springfields Roundabout	N	30.5	34.3	30.8	31.3	24.1	27.3
SH 15	Church Street, Pinchbeck	N	-	-	30.0	36.4	27.2	31.6
SH 16	Bicker Road, Donington	N	-	-	13.7	21.5	14.7	16.1
SH 17	High Road, Spalding	N	-	-	22.6	33.9	25.0	28.3
SH 18	Hawthorn Bank, Spalding	N	-	-	24.6	32.3	25.4	25.4

In **bold**, exceedence of the NO_2 annual mean AQS objective of 40 µg/m^3

Figure 2-4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



The above figure shows the trend in NO_2 concentration for those sites located in South Holland District Council. Concentrations in 2013 increased from 2012 but still were below 2011 levels at all sites. There were no monitoring locations where the annual mean objective was exceeded in 2013.

2.2.2 Particulate Matter (PM_{10})

There are two Air Quality Objectives for PM_{10}, namely:

- the annual mean of 40µg/m^3; and
- the 24-hour mean of 50µg/m^3 not to be exceeded more than 35 times a year.

The Council undertook monitoring of PM_{10} using TEOM analysers at two locations during 2013. These were the background sites, Spalding Monkhouse School and Westmere School.

The monitoring data are presented in Table 2-7 and Table 2-8 below. Results for the TEOMs have been VCM[1] corrected by Ricardo-AEA who undertake the AQ/QC and data management for the Council. Full details of the QA/QC procedure are provided in Appendix A.

As data capture was good during 2013 annualisation was not required. However, as data capture was slightly below 90% at the SH2 / Westmere School during 2013 the 90.4th percentile has also been reported for the 24-hour objective for this site.

The 2013 results show that the annual mean and the 24-hour mean continue to be met at both monitoring locations within the district. Both sites continued to show very similar concentrations of annual mean PM_{10} and similar concentration trends are observed at both locations. Both sites showed a decrease in annual mean between 2008 and 2009, before beginning an increasing trend to 2011. The concentrations then reduced in 2012 to increase again in 2013.

[1] Volatile Correction Model – Used to correct TEOM measurements for the loss of volatile components of particulate matter that occur due to the high sampling temperatures employed by this instrument

Table 2-7 Results of Automatic Monitoring for PM_{10}: Comparison with Annual 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)	Annual Mean Concentration (µg/m^3)					
						2008	2009	2010	2011	2012	2013
SH1 / Spalding Monkhouse School	Background	N	98.8	98.8	Y	19.0	16.5	17.3	20.4	16.9	19.0
SH2 / Westmere School	Background	N	89.8	89.8	Y	16.8	16.0	16.9	19.7	16.4	18.0

Figure 2-5 Trends in Annual Mean PM_{10} Concentrations

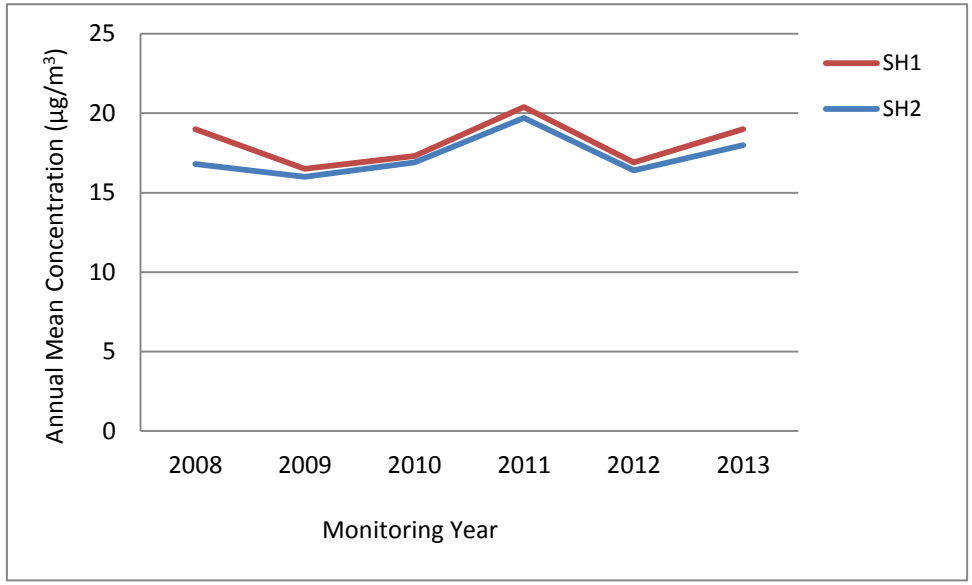


Table 2-8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

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
SH1 / Spalding Monkhouse School	Background	N	98.8	98.8	Y	1	1 (22.4)	0	7	1	0
SH2 / Westmere School	Background	N	89.8	89.8	Y	1	0	0 (39.4)	8	0	0 (27.1)

If data capture is less than 90%, include the 90th percentile of 24-hour means in brackets

2.2.3 Sulphur Dioxide (SO_2)

There is currently no sulphur dioxide monitoring undertaken by South Holland District Council.

2.2.4 Benzene

There is currently no benzene monitoring undertaken by South Holland District Council.

2.2.5 Other Pollutants Monitored

In addition to the PM_{10} and NO_2 automatic analysers, South Holland District Council also monitors ozone at the Westmere School monitoring site.

Ozone is a trans-boundary pollutant; the sources of ozone are frequently spatially distant from the measured site of the concentrations. This pollutant is not a prescribed air quality objective for LAQM and therefore results are provided for information only.

The results from 2013 indicate the AQS objective for O_3, of 10 8-hour running mean exceedences of 100µg/m^3 per year was exceeded.

The number of exceedences in 2013 increased significantly when compared to 2012 results, however the full number of potential exceedences in 2012 may have been higher as there was only 85% data capture for O_3 in 2012.

Table 2-9 Results of Automatic Ozone Monitoring

Location	Within AQMA?	Description	% Data capture 2013	Number of Exceedences in 2012	Number of Exceedences in 2013
SH2 / Westmere School	No	Maximum 8-hour running mean > 100 µg/m^3	97.4	**7**	**55**
Exceedence of the ozone AQS objective: 8 hour meanof 100µg/m^3 - 10 exceedences allowed per year.					

2.2.6 Summary of Compliance with AQS Objectives

South Holland District 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

3.1 Road Traffic Sources

LAQM requires local authorities to consider the following:

- Narrow congested streets with residential properties close to the kerb;
- Busy streets where people may spend one hour or more close to traffic;
- Roads with a high flow of buses and/or HGVs;
- Junctions;
- New roads constructed since the last Updating and Screening Assessment;
- Roads with significantly changed traffic flows; and
- Bus or coach stations.

South Holland District Council confirms that of the above categories there have been no new or newly identified which have not previously been considered in previous rounds of review and assessment.

3.2 Other Transport Sources

LAQM requires local authorities to consider the following:

- Airports;
- Locations where diesel or stream trains are regularly stationary for periods of 15 minutes or more, with relevant exposure within 15m;
- Locations with a large number of movements of diesel locomotives and long term relevant exposure within 30m; and
- Shipping ports.

South Holland District Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.3 Industrial Sources

LAQM requires local authorities to consider the following:

- Industrial Installations: new or proposed;
- Industrial installations: existing where emissions have increased substantially or relevant exposure introduced;
- Major fuel storage depots;
- Petrol stations; and
- Poultry farms.

Planning permission has been granted for a new Crematorium on the land at Gosberton Road, Spalding. The land was previously agricultural land. The development consists of 475m^2 of crematorium development with 60 associated on-site parking spaces and associated vehicle access routes.

The Highways team have assessed the application and found that the development was not expected to have any material impact upon the traffic volume on the road network. The crematorium was granted a Pollution Prevention and Control Permit by the Environmental Health team at South Holland District Council and started operation in November 2013.

3.4 Commercial and Domestic Sources

LAQM requires local authorities to consider the following:

- Biomass combustion plant – individual installations;
- Areas where the combined impact of several biomass combustion sources may be relevant; and
- Areas where domestic solid fuel burning may be relevant.

Individual Installations

South Holland District Council have identified the following biomass installations which have not previously been assessed. These will be taken into consideration in the next Updating and Screening Assessment when full emissions data is available.

- **Bernard Matthews Applications (Ref. H19-0595-13)**

  Erection of 8 biomass heating packaged plant rooms

  Approved on 10/09/13

  Gedney Hill Farm
  Luttongate Road
  Gedney Hill
  Spalding
  PE12 0QH

- **Erection of 9 biomass heating packaged plant rooms (Ref. H01-0591-13)**

  Approved on 10/09/13

  Paradise Farm
  Mill Drove North
  Cowbit
  Spalding
  PE12 6AS

- **Siting of 8 Biomass Heating Packaged Plant Rooms and Associated Works (Ref. H09-0135-14)**

  Under consideration Decision due 14/04/14

  Bernard Matthews
  Holbeach Farm
  East Side of New River Gate
  Holbeach St John
  Spalding Lincolnshire
  PE12 0RY

- **Siting of 10 biomass heating packaged plant rooms and associated works (Ref. H19-0163-14)**

  Under consideration Decision due 14/04/14

  Luttongate Farm
  West side of Luttongate Road
  Sutton St Edmund
  Spalding
  Lincs
  PE12 0LJ

- **Redford Flowers Ltd (Ref. H16-0866-13)**

  Installation of biomass boiler, including energy cabin, fuel store, accumulator tank and pumps and controls

  Approved on 02/12/14

  Sycamore Farm
  Holbeach Road
  Spalding
  Lincs
  PE12 6JP

3.5 New Developments with Fugitive or Uncontrolled Sources

LAQM requires local authorities to consider the following:

- Landfill sites;
- Quarries;
- Unmade haulage roads on industrial sites;
- Waste transfer stations; and
- Any other potential sources of fugitive particulate emissions.

South Holland District Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

South Holland District Council has identified the following local developments which may impact on air quality in the Local Authority area.

Five biomass Installations:

- 8 biomass heating packaged plant rooms at Gedney Hill Farm, Spalding;
- 9 biomass heating packaged plant rooms at Paradise Farm, Spalding;
- 8 Biomass Heating Packaged Plant Rooms at Holbeach Farm, Spalding;
- 10 biomass heating packaged plant rooms at Luttongate Farm, Spalding;
- 1 biomass boiler at Sycamore Farm, Spalding.

South Holland District Council will consider these installations in the next Updating and Screening Assessment when full emissions data is available.

4 Local / Regional Air Quality Strategy

South Holland District Council has not produced a local air quality strategy. Details of the East Midlands Regional Strategy were discussed in the Progress Report 2010. The core objectives with regards to air quality is Policy 36 which requires Local Development Framework and strategic public bodies to:

- Contribute to the reduction of air pollution;
- Consider the potential impacts of development and increased traffic levels on air quality; and
- Consider the impacts of developments and increased traffic levels on nature conservation sites in the region and adopt mitigation measures to address these impacts.

The East Midlands Regional Plan was formally revoked by the Regional Strategy for the East Midlands (Revocation) Order on the 12th April 2013.

South Holland District Council are working to produce a joint Local Plan for South East Lincolnshire with Boston Borough Council, which was informed by the contents of the East Midlands Regional Plan. The Local Plan for South East Lincolnshire is discussed in further detail in Section 6.

5 Planning Applications

South Holland District Council has identified the following planning application which may impact upon air quality.

Planning Application H18-0001-06 – Gas Turbine Power Station

A planning application was received to construct a gas turbine power station in Sutton Bridge. The applicant proposed a number of mitigation measures for the construction phase of the development including dust monitoring, operating a aerosol monitoring system and visual and odour checks to ensure that Pm_{10} levels or dust deposits do not cause a health hazard or nuisance to staff working on the site and nearby residents.

Regarding plant operation, the following mitigation measures have been proposed:

- The use of Dry Low NO_x burners to ensure NO_x levels are in accordance with Large Combustion Plant Directive requirements;
- The use of low sulphur fuel;
- A stack of sufficient height and process specification adequate to ensure good dispersion.

The applicant concluded in the (amended) Environmental Statement that these measures, in combination, will result in limited increases in background concentrations of NO_x, no emissions of particulates and negligible emissions of sulphur dioxide.

Summary of Applications:

Planning Reference /Decision	Location	Description	Additional Information
H18-0001-06 No decision	Sutton Bridge B Adjacent to Wingland Industrial Estate Sutton Bridge	Construction of a f a 1.28 GW combined cycle gas turbine power station (Sutton Bridge B)	An amended Environmental Statement submitted in June 2012.

6 Air Quality Planning Policies

The South Holland District Council Local Plan (adopted July 2006) set out the planning policies to guide and control new development in the District until 2021. The Local Plan contains the following policy in relation to air pollution.

Policy SG13 - Pollution and Contamination

"Planning permission will only be permitted for development proposals which:

1) do not cause unacceptable levels of pollution of the surrounding area by noise, light, toxic or offensive odour, airborne pollutants or by the release of waste products;

2) provide, as necessary, appropriate treatment of land to clean up pollution and contamination."

Over the past years there have been revisions to the planning process and approach to development plans. South Holland District Council are currently progressing with the Local Plan under transitional arrangements and plan to re-deposit the entire plan. Re-depositing the plan in its entirety provides opportunities for representations to be made on all aspects of the plan which would then be considered at inquiry.

In addition to the South Holland District Council Local Plan, the council are participating in producing the South East Lincolnshire Local Plan in conjunction with Boston Borough and Lincolnshire County Councils. The aim is to produce a single Local Plan for the area of South Holland and Boston Borough.

The Local Plan will guide development in South East Lincolnshire over the next twenty years, and will assist in shaping how the area changes over this period. It will identify opportunities for growth and will set out clear guidance on what planning applications will be permitted, and where.

The South East Lincolnshire Local Plan currently has 12 Strategic Priorities for South East Lincolnshire, including:

- Sustainable Development;
- Housing;
- Economy;
- Communities, Health and Well-Being;

- Environment;
- Transport; and
- Delivery

The document assesses each option from the strategic priorities against fourteen criteria including air quality, climate change, housing and transport.

The Preferred Options and the Sustainability Appraisal for the first part of the Local Plan are currently open for consultation until the end of June 2013.

7 Local Transport Plans and Strategies

South Holland District Council works together with Lincolnshire County Council on local transport issues including the implementation of Local Transport Plan (LTP) measures in the district.

The 4th LTP (2013/14 to 2022/23) was adopted in April 2013. The 4th LTP builds on the strategies and policies adopted during the first 3 LTPs with the implementation plan covering the period 2013/14 and 2014/15 for which firm funding allocations have been received from the Department for Transport. It is planned that the implementation plan will be updated once the impact of future funding is known.

The 4th LTP Objectives are as follows:

- To assist the sustainable economic growth of Lincolnshire, and the wider region, through improvements to the transport network;
- To improve access to employment and key services by widening travel choices, especially for those without access to a car;
- To make travel for all modes safer and, in particular, reduce the number and severity of road casualties;
- To maintain the transport system to standards which allow safe and efficient movement of people and goods;
- To protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs;
- To improve the quality of public spaces for residents, workers and visitors by creating a safe, attractive and accessible environment;
- To improve the quality of life and health of residents and visitors by encouraging active travel and tackling air quality and noise problems; and
- To minimise carbon emissions from transport across the county.

To tackle congestion and to support growth the Council has identified the following schemes:

Major Transport Schemes – Lincoln Eastern Bypass, Lincoln East-West Link, Grantham East-West Relief Road and the Spalding Western Relief Road

Traffic Management – implementation of the CONFIRM integrated highways management system, reviewing of speed limits, establishment of the new Highways Alliance between Lincolnshire County Council and traffic contractors to improve delivery of highway services

Public Transport – Into Town bus services for larger urban areas, bus stop improvements

Walking and Cycling – working with Sustrans Links2School and Connect2 for schemes to improve facilities for cyclists and pedestrians

Travel Planning – large developments developing framework travel plans, allowing Section 106 funds for capital works and car sharing initiatives

Sustainable Travel to School – 100% of schools in Lincolnshire having a nationally accredited School Travel Plan in place, investment during the LTP3 allowed for increased cycle storage facilities, footpath enhancements and parent waiting shelters.

Parking – Implementation of Civil Parking Enforcement in December 2012, it is anticipated that this will reduce congestion in urban areas.

Intelligent Transport Systems – updating signal control systems and real time passenger information

8 Climate Change Strategies

Lincolnshire County Council is working in collaboration with other local authorities in the east Midlands on the 'Planning to Adapt Project'. This project followed the guidelines set out by National Indicator 188 and all local authorities have been working towards level 3.

Lincolnshire County Council declared that it had reached level 3 March 2011. The continuous process of embedding and monitor and review will continue into 2012. The Project has 3 distinct steps that it has taken to reach level 3, these are;

1. Produced a Local Climate Impacts Profile;
2. Carried out comprehensive risk assessments across council services. A report was produced outlining the results of these risk assessments; and
3. Production of an Adaptation Action Plan, prioritising risks that the council need to embed within current work streams.

The 4th Local Transport Plan has a section addressing Transport and the Environment. The following measures are being pursued in Lincolnshire to address CO_2 emissions.

Encouraging sustainable travel – greater use of walking, cycling and public transport through initiative such as Community Travel Zones and the 'Smarter choices' initiatives such as travel information, travel planning and marketing and promotion.

Alternative Fuels – promotion of alternative fuels such as bio-diesel and ethanol under the Carbon Management Plan, with the use of natural gas and biomethane either as a dual fuel or dedicated basis being the most appropriate technology at the current time. During LTP3 in partnership with Stagecoach East Midlands a pilot scheme was run for biomethane/diesel buses which proved to be successful for bus operations

Reducing Energy Use – more efficient technologies in street lighting, low energy LED signal heads at new traffic light installations, solar powered LED lights at rural bus stops

9 Implementation of Action Plans

South Holland District Council has not declared any AQMAs; therefore no action plans have been required.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Similar to previous years, the review of 2013 monitoring data has identified no exceedences of the AQS Objectives at any of the South Holland District Council's diffusion tube or continuous monitoring locations.

Results from diffusion tube sites showed that NO_2 concentrations in 2013 increased from 2012 but still were below 2011 levels at all sites.

Continuous monitoring results for 2013 indicate that both the annual mean objective and the 1-hour objective for nitrogen dioxide were met at both monitoring locations. The Spalding Monkhouse site had generally shown an increase in annual mean concentrations, however the concentrations dropped in 2013. The concentrations at Westmere School site has continually decreased from 2010.

The 2013 results for PM_{10} show that the annual mean and the 24-hour mean continue to be met at both monitoring locations within the district. Both sites continued to show very similar concentrations of annual mean PM_{10} over the monitoring years. Both sites showed a decrease in annual mean in 2012, to increase again in 2013.

On the basis of the 2013 monitoring data there is no requirement to proceed to a Detailed Assessment.

10.2 Conclusions relating to New Local Developments

South Holland District Council have identified five biomass applications which for which full emissions and stack information were unavailable at that time. These installations will also be assessed in the next Updating and Screening Assessment.

Proposed actions arising from the 2014 Annual Progress Report are as follows:

- Continue NO_2 diffusion tube and continous monitoring in the district to identify future changes in pollutant concentrations;
- Continue to monitor the biomass installations at Lambs Flowers Ltd and Oppermans Plants Ltd to ensure they remain within the permitted limits;

- Continue to gather emission and stack information for the identified biomass installations to determine their potential impact upon air quality; and
- Proceed to an Updating and Screening Assessment in 2015.

11 References

- Local Air Quality Management Technical Guidance LAQM.TG(09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
- South Holland District Council 2012 Updating and Screening Assessment
- South Holland District Council 2013 Annual Progress Report
- Design, Access and Planning Statement for Development of Land at Pinchbeck Farm, Spalding on Behalf of Bernard Matthews Ltd, Lumicity Ltd, 2013
- Lambs Flowers Ltd Biomass Application, eco-link power, 2012
- Oppermans Plants Ltd Biomass Application, eco-link power, 2012
- South Holland District Counicl. Application for Planning Permission, South Lincolnshire Crematorium 2011
- Air Quality Assessment for Energypark – Sutton Bridge, GF Environmental Ltd
- Dust and Odour Assessment for Energypark – Sutton Bridge, AECOM
- 4th Lincolnshire Local Transport Plan 2013/14 – 2022/23, Lincolnshire County Council, April 2013
- Strategy and Policies DPD, South East Lincolnshire Local Plan, South East Lincolnshire Joint Strategic Planning Committee, May 2013

12 Appendices

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

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

Factor from Local Co-location Studies

There is a co-located triplicate of diffusion tubes SH 8/9/10 installed at the urban background Westmere School monitoring site. The local bias correction factor is presented below.

Location	Diffusion Tube Data capture	Continuous Monitor Data Capture	Diffusion Tube Annual Mean ($\mu g/m^3$)	Continuous Monitor Annual Mean ($\mu g/m^3$)	Ratio
Westmere	97.2%	99%	12	13	1.08

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Gradko International Limited utilising the 50% Triethanolamine (TEA) in acetone preparation method. The bias adjustment factor for 2013 is 1.00 (based on 17 studies, version 03_14) as obtained from the national bias adjustment calculator.

Discussion of Choice of Factor to Use

Data have been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The technical guidance LAQM.TG (09) provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NO_x / NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (09) and LAQM Helpdesk[2] recommends use of a local bias adjustment factor where available and relevant to diffusion tube sites.

The local bias adjustment factor is 1.08. The monitoring site had two periods where data capture from the continuous monitor was less than 75%, however it was still over 70%. This shows an improvement from 2012 where there were three periods with low data capture (all

[2] laqm.defra.gocv.uk

below 70%). Diffusion tubes showed good precision throughout. Therefore, it was decided to use the local bias adjustment factor for the year 2013.

For comparison, the national bias adjustment factor for the laboratory and tube preparation method for 2013 was 1.00 based on 17 studies (March 2014).

For previous year's data 2008 to 2012, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 1.13 (2008), 1.33 (2009), 0.99 (2010), 1.28 (2011) and 1.01 (2012).

PM Monitoring Adjustment

The PM_{10} results have been gravimetrically corrected by Ricardo-AEA who undertake the data management of the two continuous monitoring locations.

QA/QC of Automatic Monitoring

South Holland District Council contracts data management for their continuous analysers to Ricardo-AEA. The Quality Assurance/Quality Control (QA/QC) procedures employed by Ricardo-AEA are equivalent to the UK Automatic Urban and Rural Network (AURN) procedures.

QA/QC of Diffusion Tube Monitoring

Gradko International Ltd is a UKAS accredited laboratory and participates in the Workplace Analysis Scheme for Proficiency (WASP) for NO_2 diffusion tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. In the latest available WASP results, rounds 120 through to 123 (January to December 2013) Gradko International have scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$. Based on 17 studies, 94% of all local Authority co-location studies in 2013 were rated as 'good' (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%).

Bureau Veritas **South Holland District Council**

Monthly Diffusion Tube Results

Site Ref	NO_2 Concentrations µg/m^3													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	COUNT	AVERAGE
SH1	24.9	13.4	16.4	7.5	8.4	7.5	7.2	8.7	12.5	20.8	20.5	18.4	12	13.8
SH2	23.0	13.6	14.8	8.7	9.7		18.1	8.6		11.4	18.4	13.0	10	13.9
SH3	28.1	20.4	19.6	12.0	14.4	12.2	14.6	14.5	11.5	17.6	27.8	23.0	12	18.0
SH4	25.3	11.9	14.0	6.7	8.7	8.8	7.0	8.9	12.1	12.9	21.5	16.4	12	12.8
SH5	24.0	16.2	13.2	10.2	16.1	11.6	14.1	15.3	15.6	16.6	26.6	19.5	12	16.6
SH6	29.7	30.5	34.1	8.2	17.2	26.8	25.9	17.1	23.5	17.3	33.9	17.7	12	23.5
SH7	21.5	17.0	13.8	10.5	18.4		26.0	18.5	17.8	22.1	24.6	23.4	11	19.4
SH8	22.7	12.0	12.5	8.1	7.9	6.8	7.8	9.5	13.0	11.5	18.1	19.1	12	12.4
SH9	22.8	15.3	15.2	7.3	8.0	6.6	8.2	9.1	12.9	12.5	18.3	17.3	12	12.8
SH10	22.0	12.3	12.8	7.1	8.4	7.5	7.3		11.2	11.7	17.6	18.0	11	12.3
SH11	27.9	21.7	21.9	14.1	16.5	17.4	19.5	17.6	22.8	19.5	25.0	20.1	12	20.3
SH13	39.7	27.5	22.7	16.8	24.0	22.0	25.9	30.0	31.8	36.5	44.6	37.4	12	29.9
SH14	23.1	26.3	27.8	24.5	22.1	21.2	26.5	21.5	25.4	26.6	31.1	26.6	12	25.2
SH15	36.2	33.3	34.3	23.9	21.8	24.0	22.8	25.2	32.1	31.2	38.8	27.4	12	29.2
SH16	25.4	17.6	13.1	10.2	11.4	9.7	9.7	11.6	13.4	17.3	21.2	18.5	12	14.9
SH17	34.8	23.7	27.0	16.7	18.8	18.8	20.5	22.2	28.5	28.7	37.0	38.2	12	26.2
SH18	31.1	27.6	23.0	16.2	19.9	16.7	17.1	21.2	21.4	24.7	36.1	27.0	12	23.5