

Current Position:	Principal Consultant with Air Quality Consultants Ltd.
Year of Birth:	1983
Nationality:	British
Qualifications:	MEarthSci – Environmental Earth Sciences (2005)
Positions Held:	Chartered Scientist (CSci) Member of the Institute of Air Quality Management (MIAQM) Member of the Institution of Environmental Sciences (MIEnvSc)

Key Experience:

Laurence has ten years' experience in the field of air quality and odour management and assessment, including the completion of air quality and odour assessments for commercial and residential developments, airports, industry, road schemes and energy from waste installations throughout the UK and abroad. Laurence has experience in ambient air quality monitoring for numerous pollutants using a wide range of techniques and is also competent in the monitoring and assessment of nuisance odours and construction dust. Laurence was a contributory author to the Institute of Air Quality Management's guidance on the assessment of odour for planning. He has worked with a variety of clients to provide expert air quality services and advice, including local authorities, planners, developers and process operators.

Main areas of expertise:

- Ø Dispersion modelling and assessment of emissions from road traffic;
- Ø Compilation of emissions inventories and dispersion modelling of emissions from airports;
- Ø Odour monitoring and assessment;
- Ø Dispersion modelling and assessment of energy from waste installations.

Employment Record:

2012-date	Principal Consultant <i>Air Quality Consultants Ltd</i>
2010-2012	Senior Consultant <i>Air Quality Consultants Ltd</i>
2008-2010	Air Quality Consultant <i>Bureau Veritas UK Ltd</i>
2005-2008	Assistant Air Quality Consultant <i>Bureau Veritas UK Ltd</i>

Residential Developments

Laurence has carried out a great many air quality assessments for residential and residential-led mixed use developments in recent years. These have included large-scale urban extension schemes, large and small-scale greenfield and brownfield housing developments, low-rise and high-rise apartment block schemes, and student accommodation developments. The assessments have covered a range of air quality issues, principally related to road traffic and heating and energy plant emissions. Details of key project examples are provided below:

West Worcester Urban Extension (2013-2015)

Responsible for the completion of an air quality assessment for a residential-led urban extension scheme to the west of Worcester. The assessment focussed upon the impacts of emissions from road traffic on an AQMA in the centre of Worcester.

Ashton Park, Trowbridge (2014)

Responsible for the completion of an air quality assessment for a proposed large-scale urban-edge residential scheme in Trowbridge in Wiltshire. The assessment focused upon the air quality impacts associated with road traffic emissions, including a proposed realignment of the A350 road. The assessment utilised dispersion modelling to identify the impacts on both human health and at a number of nearby sensitive ecosystems.

Kirkby-in-Ashfield Urban Extension (2014)

Completed an air quality assessment for a proposed urban extension scheme in Kirkby-in-Ashfield in Nottinghamshire. The assessment identified the impacts associated with road traffic emissions affecting the centre of Kirkby-in-Ashfield.

Broadoak Park, Salford (2014)

Responsible for carrying out an air quality assessment for a proposed residential development on land at Broadoak Park in Salford. The assessment examined the air quality impacts associated with road traffic emissions and construction activities.

Charles Street Residential, Retail and Hotel Development, Dorchester (2010-2014)

Completed an air quality assessment to identify the impacts associated with a proposed mixed-use residential, retail and hotel development at Charles Street in Dorchester. The assessment examined the air quality impacts of road traffic emissions using dispersion modelling.

Buckton Fields Residential and Park & Ride, Northampton (2010-2012)

Responsible for the completion of an air quality assessment for a proposed mixed-use scheme north of Northampton, including residential accommodation, a new school, retail uses and a park and ride facility. The assessment focused upon the impacts of emissions from development-generated road traffic affecting air quality in an AQMA in central Northampton.

Huntingdon Industrial Estate & Fleet Street Hill, Tower Hamlets (2010)

Completed an air quality assessment for a large two-site residential development in Shoreditch, Central London. The development comprises a 20-storey luxury apartment block and four blocks of affordable housing. The assessment involved the use of ADMS dispersion models to assess the impacts of road traffic, biomass boiler and CHP plant emissions.

Tipner Regeneration Project, Portsmouth (2010)

Completed an assessment of air quality impacts associated with road traffic, CHP plant and land remediation at a mixed-use commercial and residential development on the site of a former marine scrap yard in Portsmouth. The assessment utilised ADMS dispersion models and nitrogen dioxide diffusion tube monitoring to assess the potential air quality impacts to human health and sensitive ecosystems.

Trafford Quays, Manchester (2010)

Completed an air quality assessment for the proposed Trafford Quays mixed-use residential and office development in Trafford Park, Manchester.

Limassol Tower, Cyprus (2010)

Assisted in the completion of an air quality assessment for a proposed mixed-use tower development in Cyprus. The assessment included road traffic emissions, car park emissions and a biomass boiler.

Parsonage Way Residential Scheme, Leigh (2009)

Responsible for the completion of an air quality assessment and ES chapter to support an application for a large mixed-use residential and commercial development on the site of a former landfill in Leigh, Lancashire.

Large Apartment Block Development, Gypsy Corner, Ealing (2006)

Responsible for the completion of an air quality assessment for a proposed high-rise apartment block development at Gypsy Corner in Ealing.

Commercial Developments

Laurence has undertaken air quality assessments for a wide variety of commercial developments, including food retail stores, shopping centres and city centre retail developments, petrol filling stations, offices, hospitals, schools and hotels. Details of key project examples are provided below:

Slough, Brunel Way (2013-2015)

Completed an air quality assessment for a proposed office redevelopment in the centre of Slough. The assessment focussed upon the air quality impacts associated with road traffic generated by the proposed development within the Slough A4 AQMA.

Great Ormond Street Hospital, Centre for Research into Rare Disease in Children (2014)

Carried out an air quality assessment for a proposed new children's disease research facility at Great Ormond Street Hospital, including both operational and construction-period air quality impacts.

Stroud Morrisons (2014)

Responsible for the completion of an air quality assessment to support the application for a new Morrisons food store in Stroud. The assessment focussed upon emissions from road traffic, including a proposed petrol filling station.

iCity, Queen Elizabeth Olympic Park (2013)

Completed an air quality assessment for a proposed redevelopment of the 2012 Olympic Games media broadcast centre, to house a data centre and broadcasting and office uses. The assessment examined the potential air quality impacts associated with road traffic emissions, as well as emissions from a number of large diesel generators, installed to provide emergency backup power to the data centre.

Smithfield Market Redevelopment (2013)

Completed an air quality assessment for the proposed office-led redevelopment of Smithfield Markets in the City of London.

Newport Town Centre Redevelopment (2012)

Completed an air quality assessment to for the proposed retail-led town centre redevelopment scheme in Newport, South Wales. The scheme included a large area of retail redevelopment, as well as redevelopment of the main town centre bus station.

ASDA, Newmarket (2012)

Completed an air quality assessment focusing upon emissions from road traffic generated by a proposed ASDA superstore in Newmarket.

Tolworth Tesco, Kingston-upon-Thames (2011-2012)

Completed an air quality impact assessment for a proposed Tesco food retail store in Kingston-upon-Thames. The application also included a hotel and a number of residential units.

WM Morrison, Croydon (2011)

Completed an air quality assessment to support the application for a new WM Morrison food store including petrol filling station, offices and retail units, in Croydon.

WM Morrison, Wrexham (2010)

Completed a dispersion modelling assessment to identify the impacts on air quality of a proposed WM Morrison food-retail development in Wrexham.

Travelodge Hotel, Cambridge (2010)

Completed an assessment of road traffic emissions from a proposed new Travelodge hotel development in Cambridge. The assessment identified the air quality impacts associated with road traffic generated by the proposed hotel, and also examined the impacts associated with road traffic emissions from the A14 trunk road affecting the hotel development itself.

ASDA, Dundee (2009)

Responsible for the completion of an air quality assessment for a proposed ASDA food retail store in Dundee. The assessment focussed upon the potential impacts associated with road traffic emissions generated by the proposed supermarket affecting a nearby nursery, as well as neighbouring residential areas.

Tesco Food Store and Petrol Filling Station, Prescot (2008)

Responsible for the completion of an air quality assessment for a proposed new Tesco store and petrol filling station in Prescot, Merseyside.

Tesco, Preston (2008)

Responsible for the completion of an air quality assessment for a proposed new Tesco food retail store, hotel and car park in central Preston.

Airports

Laurence has extensive experience of dispersion modelling of emissions from airports, having completed assessments for a number of major UK airports in recent years. These assessments have examined emissions from all airport activities including aircraft movements, road traffic and car parks, airport support equipment and vehicles, aircraft engine testing, airport fire training, and heating and energy plant. Details of key project examples are provided below:

London New Runway, Air Quality Modelling (2015)

Completed a detailed dispersion modelling study on behalf of the Airports Commission, using ADMS-Airport, for three proposed new runway schemes at London Heathrow and London Gatwick airports. The study examined all aspects of airport operations and included predictive modelling, based on a 2030 assessment year, to determine the potential air quality impacts associated with the operation of each of the proposed new runway schemes.

London City Airport, Eastern Stand Development (2011-2015)

Completed dispersion modelling of airport operations at London City Airport using ADMS-Airport software in support of the airport operator's planning application for new aircraft stands and a new parallel taxiway.

London Luton Airport, Modelling (2012)

Carried out an air quality assessment to support a planning application for a terminal redevelopment and air traffic capacity increase at London Luton Airport. The assessment was carried out using the ADMS-Airport dispersion model.

Norwich Airport, Aircraft Ground Running (2011)

Conducted an air quality assessment for an aircraft maintenance facility based at Norwich International Airport. The assessment focused on dispersion modelling of emissions from the ground running of aircraft during testing following maintenance work. The assessment was completed using the ADMS-4 dispersion model.

Redhill Aerodrome Expansion (2011)

Completed an air quality assessment of aircraft emissions using the Federal Aviation Agency EDMS model and the Breeze AERMOD dispersion model to support a planning application for the construction of a tarmac runway at Redhill Aerodrome in Surrey.

Transport Infrastructure

Laurence has carried out air quality assessments for a number of major transport infrastructure proposals, including road and rail infrastructure. Details of key project examples are provided below:

HS2 Technical Study, Brent (2014)

Completed an assessment to determine the air quality impacts associated with the construction and operation of a section of the HS2 railway line between Euston and Old Oak Common in Brent. The assessment primarily focused on the impacts of construction traffic and tunnel and vent shaft construction at two potential vent shaft sites in Queens Park, using detailed dispersion modelling.

Portsmouth City Centre New Road (2014)

Completed an air quality assessment for a new layout of the A3 road in the centre of Portsmouth. The assessment utilised the ADMS-Roads dispersion model to assess the operational air quality impacts on human health and the Portsmouth Harbour Special Protection Area.

Mottram Bypass, Cheshire (2008-2009)

Carried out an air quality assessment, using the ADMS-Roads dispersion model to support proposals for Mottram Bypass in Cheshire. The assessment involved the modelling of a very large road network incorporating many of the roads linking the M60 Manchester orbital road to the M1 across the Peak District.

Multi-Storey Car Park, Preston (2009)

Responsible for the completion of an air quality assessment for a proposed 2-block multi-storey car park in Preston, utilising dispersion modelling.

Daventry Rail-Freight Interchange (2008)

Assisted in the completion of an air quality assessment for a proposed rail to freight transport interchange in Daventry, Northamptonshire. The assessment involved an assessment of road transport emissions across a region-wide road network using the DMRB model.

Industry

Laurence has completed air quality assessments for a wide range of industrial processes including intensive farming, energy from waste, large-scale combustion plant, oil refineries and numerous other processes. He has completed assessments, using a number of different dispersion model software packages, in support of both planning applications and environmental permit applications. Details of key project examples are provided below:

Houghton Main Biomass Gasifier, Barnsley (2014)

Completed an air quality and odour assessment for a proposed biomass gasification facility near Barnsley. The assessment examined emissions from the gasifier main stack, including all pollutants with emissions limits set out in the Industrial Emissions Directive.

Spelthorne EcoPark Municipal Solid Waste Gasifier (2013)

Undertook an independent technical review and appraisal of air quality assessment reports submitted in support of planning and environmental permit applications for a proposed MSW gasifier in Surrey.

Aircraft Refinishing Facility, Norwich Airport (2013)

Carried out an air quality assessment of the operation of an aircraft refinishing facility based at Norwich Airport. The assessment principally focussed upon emissions of VOCs from the use of paints and solvents.

Birdseye Lowestoft CHP Plant (2013)

Carried out an air quality impact assessment using the ADMS-4 dispersion model for a proposed gas-fired CHP energy centre at a Birdseye foods manufacturing facility in Lowestoft.

Pyrolysis and Anaerobic Digestion Facilities, Northern and Southern England (2012)

Oversaw the completion of air quality assessments for two proposed Energy from Waste facilities utilising pyrolysis and anaerobic digestion technologies at sites in the north and south of England. The assessments focused upon emissions of pollutants outlined in the Industrial Emissions Directive and their impacts on human health and sensitive ecosystems.

Biomass Boiler Emissions, Snape Maltings, Suffolk (2012)

Completed an air quality assessment for an existing biomass boiler system at Snape Maltings in Suffolk. The study utilised ADMS-4 software to model the dispersion of emissions from the boiler.

Alton Waste Transfer Station (2011)

Completed an air quality assessment for proposals to construct a new waste transfer station in Alton, Hampshire.

Poultry Farm Expansion, Somerset (2011)

Completed an assessment of emissions of ammonia and PM₁₀ from a poultry farm in Somerset as part of an application to expand the operations at the site. The assessment was carried out using the ADMS-4 dispersion model.

CHP Plant Emissions, Runcorn (2010)

Responsible for the completion of a detailed dispersion modelling study of NO_x emissions from a proposed large-scale gas-fired CHP plant at a Guinness bottling and distribution facility in Runcorn.

Dispersion Modelling of VOC Emissions from Vehicle Re-Spray Booths, Wandsworth (2010)

Carried out dispersion modelling of VOC emissions from a proposed road vehicle service centre to demonstrate compliance with short and long-term environmental assessment levels.

Edible Oil Refinery, Yanbu, Saudi Arabia (2010)

Responsible for the completion of an assessment of emissions from a proposed cooking oil refinery in Yanbu, Saudi Arabia, using the AERMOD dispersion model.

Free-Range Poultry Farm, North Dorset (2010)

Responsible for the completion of an assessment of the potential impact of a proposed free-range poultry farm to a nearby Special Area of Conservation. The study focused upon ammonia concentrations and nitrogen deposition rates.

Stack Height Assessment, Exmouth (2010)

Responsible for assessing expected emissions from a proposed industrial facility in Exmouth to identify an acceptable stack height for the process.

Wood Sawmill, Fife (2008)

Responsible for the completion of an air quality and nuisance dust assessment for a proposed sawmill in Fife.

G&J Greenall Gin Distillery, Warrington (2006)

Responsible for the completion of an air quality assessment to ascertain the most suitable site for location of a gin distillery based on lowest likelihood of tainting of gin during the distilling process through the existence of ambient air pollution.

Odour

Laurence has considerable experience of carrying out odour assessment for a wide range of odour sources including waste water treatment, waste management such as composting and waste transfer sites, energy from waste including anaerobic digestion and municipal waste gasification, commercial kitchens including take-away outlets, restaurants and bakeries, and various other odourous sources. He is accomplished in the application of a number of odour assessment methods including desk-based odour risk assessments, sniff testing and dispersion modelling. Laurence is a contributory author to the Institute of Air Quality Management's guidance on the assessment of odours for planning. Details of some key project examples are presented below:

Hortonwood Anaerobic Digestion Plant, Telford (2014)

Completed an odour impact assessment for a proposed anaerobic digestion plant at Hortonwood abattoir in Telford. The assessment included consideration to the potential cumulative impacts of odour emissions from the anaerobic digestion plant and from the abattoir itself.

Institute of Air Quality Management Odour Guidance (2013-2014)

A member of a small team tasked with drafting a new odour guidance document aimed at providing guidance on the approach to odour assessment for new planning applications. The document will provide guidance on assessment for development adjacent to existing odour sources, as well as the assessment of new potentially odourous sources.

Retford Anaerobic Digestion Plant (2013-2014)

Carried out an odour impact assessment to support an environmental permit application for a proposed anaerobic digestion facility in Retford, Nottinghamshire. The assessment included an odour risk assessment as well as odour dispersion modelling of a proposed biofilter odour control system at the facility.

Environment Agency Odour Perception Market Research (2013)

Assisted in the design and analysis of a market research survey, to better understand public perception to mal-odours, the extent of odour nuisance, and the drivers behind odour complaints. The study was based in Wisbech, Lincolnshire, where there is a long history of odour issues associated with a Nestle Purina Petcare facility.

Anaerobic Digester Odours, Fenland (2013)

Oversaw the completion of a desk-based odour study for a proposed anaerobic digestion facility in Fenland.

Greggs Bakery, Camden (2013)

Carried out odour impact assessments provided odour abatement advice for two Greggs bakery outlets in Camden. The assessments involved site surveys at an existing Greggs outlet, which was used as a surrogate for the proposed stores.

KFC Restaurant, Southampton (2012)

Completed an odour assessment and provided odour abatement design advice to KFC for a restaurant in Southampton following an odour abatement notice from the local authority.

Newport Waste Water Treatment Works, Shropshire (2011)

Completed an odour impact assessment using a sniff testing protocol to support the application for new homes near to Newport waste water treatment works in Shropshire.

Fisherman's Beach, Hythe, Kent (2010)

Responsible for conducting an assessment of potential for odour nuisance from Hythe waste water pumping station on a proposed residential development at Fisherman's Beach. The assessment utilised a series of field odour sensory tests (sniff tests), on-site odour measurements and odour dispersion modelling.

Chadderton Waste Water Treatment Works, Oldham (2008)

Responsible for conducting a long-term study based on odour sniff testing at a proposed residential development site adjacent to a waste water treatment works in Chadderton, Oldham. Sniff testing was undertaken weekly for a number of months to build up a robust picture of the potential odour impacts.

Composting Facility, Cotswolds (2007)

Assisted in the assessment of nuisance odours from a large-scale composting facility in the Cotswolds. The assessment included sniff testing, and a long-term community odour survey.

Odour Investigation in a Central London Office Building (2007)

Assisted in the investigation of nuisance odours detected in an office building in Central London. The assessment involved the identification of odour sources and pathways, using odour sampling and compositional chemical analysis, together with sniff testing.

Local Air Quality Management

Laurence has provided support to numerous local authorities undertaking their duties under the Local Air Quality Management Review and Assessment regime since 2006. This has involved the completion of Updating and Screening Assessments, Detailed and Further Assessments, Annual Progress Reports, and Air Quality Action Planning. Details of some key project examples are presented below:

North Hertfordshire District Council Detailed Assessment (2011)

Assisted North Hertfordshire District Council in the completion of their 2011 Detailed Assessment by conduction dispersion modelling using ADMS-Roads to inform the assessment.

Bromsgrove District Council Detailed Assessment (2010)

Completed a detailed assessment of nitrogen dioxide from road traffic emissions for a section of the A38 in Bromsgrove town centre.

Updating and Screening Assessments (2006, 2009)

Completed Updating and Screening Assessments for over 40 UK local authorities during the third and fourth rounds of the Local Air Quality Management Review and Assessment regime in 2006 and 2009.

Newport City Council Detailed Assessment (2009)

Responsible for the completion of a Detailed Assessment for nitrogen dioxide in three areas within the city of Newport in South Wales.

Bournemouth Borough Council Detailed Assessment (2009)

Responsible for the completion of a Detailed Assessment at Wimborne Road in Bournemouth following measured roadside exceedences of the nitrogen dioxide annual mean objective.

Caradon Council Further Assessment (2009)

Responsible for completion of detailed dispersion modeling and source apportionment calculations for the A38 in Tideford, Cornwall.

North East Lincolnshire Detailed Assessment (2009)

Responsible for the completion of a Detailed Assessment on Cleethorpes Road in North East Lincolnshire.

London Borough of Camden Dispersion Modelling (2007)

Responsible for the set-up of an ADMS-Roads model covering a large portion of the London Borough of Camden to assist the local authority in identifying worst-case areas with respect to local air quality.

Kent County-Wide Dispersion Modelling (2007)

Assisted in the setup of a county-wide ADMS-Urban model to assist the Kent local authorities in identifying air quality 'hotspots' in the county.

Action Plan Progress Report Appraisal (2006-2007)

Responsible for the appraisal and review of local authority Air Quality Action Plan Progress Reports for 2006 and 2007.

Monitoring

Laurence has designed and conducted a number of air monitoring surveys in recent years. These surveys have involved monitoring for a wide range of pollutants from a variety of emission sources using single or multiple monitoring methods. Details of some key project examples are presented below:

Construction Dust Monitoring, Newton Abbot Hospital (2012-2015)

Designed and set up a programme for monitoring of dust and PM₁₀ from demolition and construction at the former Newton Abbot Hospital site in Devon. PM₁₀ monitoring was carried out using DM-11 indicative particle monitors, supplemented with glass slide dust deposit gauges.

A20 Nitrogen Dioxide Monitoring, Dover (2014-2015)

Designed, commissioned and operated nitrogen dioxide monitoring at a proposed residential development site adjacent to the A20 in Dover. Monitoring was carried out using diffusion tubes.

Construction Dust Monitoring, Lemon Grove, Newton Abbot (2012-2014)

Set up and managed a programme for monitoring of dust construction at the Lemon Grove residential development in Newton Abbot, Devon. Monitoring was carried out using DustDisc deposit gauges and sticky pad directional gauges.

Nitrogen Dioxide Monitoring, Salford (2012)

Set up and managed a nitrogen dioxide monitoring survey at 30 sites at roadside locations in Salford. Monitoring was carried out using diffusion tubes.

Hartlepool Docks, Dust and PM₁₀ Monitoring (2011-2012)

Set up and managed a baseline monitoring study for dust and PM₁₀ at Hartlepool Docks. PM₁₀ monitoring was carried using an Osiris monitor, supplemented with glass slide dust deposit gauges.

Scunthorpe Dust and PM₁₀ Monitoring (2010)

Set up and managed a PM₁₀ and dust monitoring survey at a proposed residential development site in an industrial area of Scunthorpe. PM₁₀ monitoring was carried out using a BAM analyser, supplemented with glass slide dust deposit gauges.

Blackpool Tram Route Monitoring (2010)

Designed and set up a nitrogen dioxide diffusion tube monitoring study at major road junctions along the proposed Blackpool Tram route.

Glass Factory Dust Monitoring (2009)

Carried out dust monitoring using the glass slide deposition method at a former glass works in St Helens, Lancashire. The study was designed to identify the suitability of the site for residential development.

Immingham Docks Coal Dust Monitoring (2009)

Set up and carried out monitoring of fugitive coal dust at Immingham Docks. Monitoring was carried out using Osiris monitors, Frisbee gauges and sticky pad deposit gauges.

Ambient Air Monitoring at Abraham Moss School, Crumpsall (2008)

Assisted in the monitoring of a range of air pollutants produced by ground excavation works at Abraham Moss High School in Crumpsall, Greater Manchester.

Centrica HRL Air Quality Monitoring, Barrow-in-Furness, (2008)

Assisted in the completion of air quality monitoring for nitrogen dioxide, sulphur dioxide and BTEX, using passive diffusion tubes around the HRL gas terminal in Barrow-in-Furness.

Ambient Air Monitoring at the former Avenue Coking Works, Wingerworth (2005-2010)

Involved in the operation of a 13-location, continuous ambient air monitoring programme as part of the remediation work on one of Europe's most contaminated sites, the former Avenue coking works in Wingerworth, Derbyshire. The programme involved monitoring for numerous pollutants including heavy metals, cyanide, PAHs and VOCs using a range of monitoring techniques.

Miscellaneous

Former Landfill Golf Course Proposals (2012)

Completed an air quality assessment to support the application for a new golf course on a former landfill site in the South East.

Background NO₂ Adjustment Calculator (2010)

Assisted in the design and testing of a tool for calculating adjusted background NO₂ concentrations from national background pollution map NO_x concentrations where one or more source sectors has been removed by the user. The tool is currently published by Defra.

Modelling the Effects of Railway Level Crossing Congestion in a Street Canyon, Canterbury (2010)

Carried out an air quality assessment for a proposed residential development in Canterbury. The proposed development would create a street canyon, on a road which was affected by intermittent traffic queuing caused by a railway level crossing. The assessment utilised dispersion modelling, based on a detailed survey of traffic queuing from the level crossing, to identify the potential air quality impacts associated with creation of a street canyon.

Fire Service Hazmat Technical Support (2008-2010)

Provided emergency hazardous material technical advice and support to the Manchester, Merseyside and Cheshire Fire Services, including air sampling and testing, and chemical analysis. The support included 24/7 emergency response to attend fire service incidents and assist the services. Incidents included fly tipping of unknown chemical substances, seizure of unlicensed/unidentified chemicals by police, and major fires at industrial facilities.

MEarthSci Thesis (2005)

An investigation into the morphology of airborne particles in the urban environment. The study, which was submitted to the University of Manchester under the supervision of Prof. David Vaughan and Dr. Paul Wincott, concluded that the size and shape of particles emitted from diesel vehicle exhausts changes over time in the atmosphere, due to agglomeration of particles.