

Case Study 2007/002 – ADMS Odour Dispersion Modelling **Fibreglass tank manufacturer, Northern Ireland**

This work was carried out for a major manufacturer of fibreglass water treatment tanks. The company is particularly well known and respected, has a number of firsts to its credit and throughout its history it has developed a number of innovative products, some of which have revolutionised methods of dealing with the treatment of sewage on sites where mains drainage is not available.

As part of the construction of a new factory for the manufacture of fibreglass equipment in Northern Ireland, the Northern Ireland Environment and Heritage Service (EHSNI) asked the company to assess the potential for odour nuisance of styrene releases from the factory vents. Styrene odour is unpleasant and perceptible at very low levels. Installation of an abatement system for the factory would have been very costly.

Key issues for client and regulator

Key business issues for the manufacturer included:

- Short timescale – the factory was already under construction
- Additional delays - if an abatement system had to be installed
- Additional costs - installation and operating costs for the abatement system

It was very important to satisfy the EHSNI that there would be no odour complaints caused by releases from the factory vents. They requested that the assessment considered some unusually stringent worst case assumptions and conditions which exceeded the guidance on odour modelling under the PPC Regulations (IPPC H4, Horizontal Guidance for Odour Part 1 – Regulation and Permitting):

- A very low styrene odour detection level identified by the World Health Organisation.
- Use of the 100th percentile to identify the peak concentrations rather than the 98th percentile.

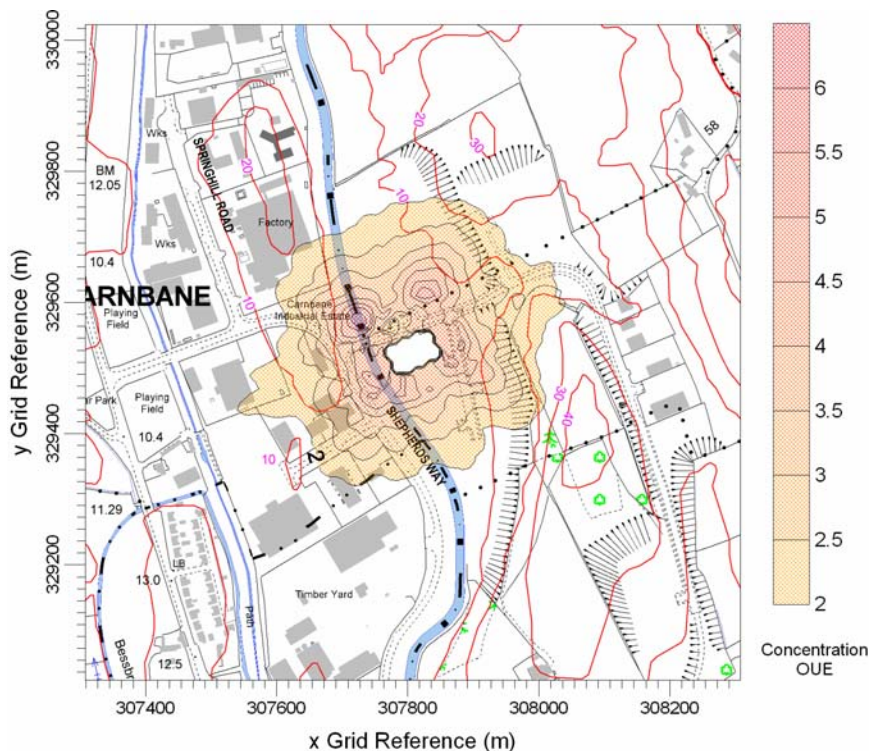
Solutions provided to client

TT Environmental Ltd produced a model of the releases from the seven factory vents using the ADMS-3 dispersion modelling software. The modelling was based on the requirements of the IPPC H4 Guidance and the EHSNI's additional requirements.

Results from the model showed that the predicted worst case concentrations for releases from the vents during normal operations were well below any levels at which odour complaints could be a problem.

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It was also shown that there would only be a concentration which could produce a mild odour in extreme worst case conditions, and that the odour would occur in an area of open land. In all cases, the concentrations at sensitive receptors such as schools, housing or playing fields were found to be trivial.



An example of the type of results produced during odour modelling using ADMS-3.

The contours show the worst case peak odour concentrations (100th percentile), expressed in terms of odour units (OUE).

The EHSNI accepted the assessment results and did not request any further information about the modelling methodology and any assumptions that had been made.

Manufacturers comments:

“When it became apparent that the company would have to provide more detailed studies beyond our expertise we looked around for suitable consultants. Of those contacted, TT Environmental Ltd were extremely helpful and receptive from the beginning, demonstrating a practical as well as professional understanding of regulations that applied to us. Our confidence in using them was justified when the first report was produced to a very high standard. Whilst this was later amended to incorporate additional requirements from the regulatory authorities the quality of the work was never in doubt.”