

## Technical Note

### Response to HSE's Concerns over Lanrick Road QRA

#### 1. Background

Atkins has produced a Quantified Risk Assessment (QRA) to consider the risk to human health of redeveloping the site at 60 Portree Street and Lanrick Road with residential development within proximity of the nearby Leven Road, Poplar, gas holder site. This Technical Note addresses some of the concerns raised by the Health and Safety Executive (HSE) relating to the use and interpretation of the results from such a QRA. The QRA concludes that there is a low level of residual risk when considered against the HSE's 2001 'Reducing Risks, Protecting People' (R2P2) document.

#### 2. LTGDC Decision-Making

In determining the planning application, a key issue for LTGDC is the weight to be attached to the PADHI recommendation against granting planning permission in the context of other planning objectives and issues. It is recognised that the HSE's advice should always be given the most careful consideration, and the fact that LTGDC has commissioned a QRA from Atkins indicates the careful consideration which has been given. However, by its very nature, the binary outcome (Advise Against or Don't Advise Against) from the PADHI system does not provide any information in respect of the level of significance of the risks. This is particularly the case where zones have been set on a protection basis (i.e. considering the consequences only of one Representative Worst Case Major Accident (RWCMA) event), and the situation is even less clear when there is uncertainty over the frequency and consequences of the RWCMA. The Atkins QRA actually provides additional information on these issues, giving detailed explanations and justifications where necessary, and hence provides LTGDC with a sufficient understanding of the risks to human health against which to determine the planning application. It is emphasised, however, that the QRA results represent Atkins' professional opinion as to the risks in this case.

#### 3. Interpreting the Atkins QRA results

This section sets out responses against the specific points a) - e) raised in Section 5 of HSE's letter of 4<sup>th</sup> August 2009.

- a) The QRA, which is a technical report, describes the PADHI system in technically accurate detail, and nowhere suggests that the QRA results should be used to modify the PADHI response.
- b) The QRA report clearly sets out the differences between its assumptions and those of HSE, with justifications provided where necessary as indicated in Section 2 above.
- c) Although there is currently no agreed benchmark against which societal risk can be assessed, this does not invalidate the comparisons provided. However, the QRA report has suggested a framework which appears to be consistent with HSE's overall position as expressed in R2P2, which may therefore be useful to the decision-maker. See also the final paragraph of e) below.
- d) The examples given for individual risk comparison are similar to those in Appendix 4 of R2P2. The fact that they are 'everyday' risks makes it relatively easy for the decision-maker to use them as a comparison to assist his understanding of the significance of the residual risks at the proposed development.
- e) Paragraph 137 of R2P2, after discussing risk tolerability limits in the context of the COMAH legislation (which covers the safe operation of sites such as the Poplar gas holder site), goes on to indicate that "a different situation arises altogether when giving advice to planning

authorities in connection with proposed developments in the vicinity of major hazard chemical plants". Whilst criteria are set out for the former (COMAH) case, they have not been so clearly defined in the latter. It is noted, however, that HSE would not advise against significant residential developments where the individual risk of fatality is less than one in a million per year, as indicated in para 138 of R2P2:

*"Thus in the case of most housing developments, for example, HSE advises against granting planning permission for any significant development where individual risk of death for the hypothetical person is more than 10 in a million per year, and does not advise against granting planning permission on safety grounds for developments where such individual risk is less than 1 in a million per year. (Somewhat different criteria are applied to sensitive developments where those exposed to the risk are more vulnerable, e.g. schools, hospitals or old people's homes, or to industrial or leisure developments, reflecting the different characteristics of the hypothetical person used to assess individual risk."*

This is consistent with the "Broadly Acceptable" level identified in para. 130 in relation to COMAH compliance. However, it is noted that para 139 of R2P2 refers to an earlier (1989) Risk Criteria Document in which it is suggested that the 1cpm "Broadly Acceptable" level should relate to the risk of Dangerous Dose. The Atkins QRA provides risk estimates for both fatality and Dangerous Dose; the risk of fatality, estimated at 0.3 chances in a million per year (cpm), is less than the 1 in a million per year criterion indicated in para 138 of R2P2.

The main uncertainty in the current regime then seems to arise when considering societal risk issues. The comparison lines which Atkins has used to help illustrate the significance of the FN curve results are the same as those implied in para. 136 of R2P2 for COMAH compliance. Although these have not been generally agreed as a basis for societal risk comparisons, they would seem, in Atkins' opinion, to be an appropriate starting point, given that the individual risk criterion has been read across directly from COMAH to Land Use Planning in the R2P2 document.