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## WATCH COMMITTEE

### Towards a modern exposure intelligence strategy

#### Issue

1. Paper to stimulate discussion and development of a new exposure intelligence strategy aligned with modern approaches to risk management.

#### Timing Considerations

2. Advantageous to link with the timescale to be established for development of a collaborative "advanced exposure assessment tool" aligned with implementation of REACH.

#### Recommendation

3. WATCH is invited to consider the issues noted in this cover paper and to respond to the actions in section 9.

#### Background

4. HSE and industry need coherent intelligence about occupational exposure to chemicals yet such intelligence is very limited. There is very little current data about the prevalence of exposure even to substances known to be potentially hazardous to health. One indicator of this is the NEDB which holds a substantial amount of historical exposure data (over 10 years old), but little information on current levels of exposure, **Annex 1**. A major effort commenced in 1986 with the launch of the NEDB and many related initiatives to enhance data including publication of professional standards for presentation of occupational exposure data, encouragement of compatible software, international harmonisation, special surveys, attempts to capture anonymised data from industry etc. Measurements of exposure together with appropriate qualifying information (Beaumont and Dalrymple 1992) remain necessary where qualitative assessment is difficult, and such data are most powerful for use in predicting outcomes of related scenarios. However the issue of data paucity was recognised almost two decades ago when the prototype for EASE was produced, informed by historical exposure data but primarily expert judgement based.

5. The reasons for this reduction in the rate of generation of quantitative exposure data include changes to the COSHH regulations that have shifted the emphasis away from compliance with inhalation exposure limits towards the use of good control practice, mirrored in the reduction in applied, trained, occupational hygiene resources. COSHH Essentials (CE) provides a simplified route for SMEs to achieve compliance with COSHH without direct measurement of exposure, but many of the control schemes are currently not fully validated with data. Validation will be increasingly important as the scope

of CE is extended and as manufacturers seek to use CE to describe exposure scenarios for REACH.

6. Additionally, HSE and industry still need information to help sectors estimate the extent of potential ill health likely to arise from the use of substances. This problem is exacerbated where there is long latency.

7. Procedures are now in place to capture all HSE/HSL generated data relevant to NEDB. Also a new NEDB change specification to increase user-friendliness will be implemented in February 2007. These improvements however will not reverse the declining trends in the volume and quality of occupational exposure data.

### **Argument**

8. The generation of quantitative exposure data is costly, the rate of generation is diminishing and HSE cannot produce enough on its own. Information must be sought through partnership with other bodies to generate a more powerful pool of information. But even if partnerships with industry and academia are successful, we have seen that the rate of generation of exposure data is low and diminishing with time. A new strategy should be developed to capitalise on modern trends in assessment and developments in exposure scenario modelling. That will mean not just collection of exposure data and associated contextual and control information, although they will remain important for benchmarking in any new model. We will also need to capture, and factor in, more of the modern reality of chemical risk assessment. We should therefore take better account of the potentially huge volume of information stemming from risk control strategies delivered through the broader health and safety system. This will involve closer working with a number of partners. Informal discussions have recently been held with the Institute of Occupational Health and Safety (IOSH) that has almost 30,000, predominantly UK based members.

9. The trick will be to secure ongoing capture of a sample of what is actually done, in addition to pursuit of the diminishing volume of quantitative exposure data. The new strategy should include a combination of questionnaires and focus groups, taken from cross sections of target sectors in professional bodies, such as IOSH. Periodic questionnaire surveys would provide a large volume of high-level information on substance use, management and control. The focus groups would consist of cohorts of competent and willing volunteers to be involved in the detailed data collection exercise. This exercise could be linked to COSHH Essentials. By gathering exposure data for the scenarios described in the CE control sheets the work would support the validation and enhance the utility of CE. At the same time, the detailed specification given in the CE control sheets provides the basis for development of simple checklists with which partners can collect the contextual information needed to support interpretation of the exposure data.

10. We should also ensure that this new information is factored into development of the advanced exposure assessment tool, likely to be developed through an international consortium to support REACH. Initially the

NEDB should be developed to become a supplier of modern intelligence, including for contribution to the advanced exposure assessment tool. In time it may be possible to integrate this function with the tool, but such action should be dependent upon risk and cost benefit analyses.

11. Although the NEDB should remain a significant contributor, additional potential sources are mentioned below, and these are just a few of the possibilities.

12. All related intelligence has a value provided that it can be cost effectively translated and weighted into the proposed tool for REACH. Much should be available from the long established European Occupational Exposure Databases as well as from new ones currently being developed. Weighting factors should be applied to enable proper account to be taken of static sampling databases provided that methodologies relating measurements to human exposure and process descriptors are available. Also old data, such as available from the NEDB, should, with appropriate weightings, be factored into any new model, to refine mechanistic predictions.

13. In the longer term we should propose that the NEDB, and other national exposure databases, should be modified to capture qualitative knowledge, attitudes and behaviour information along the lines of those being considered in partnership between HSE and IOSH. These databases should also be expanded to capture standardised risk management and control descriptors.

14. This requires acceptance that there are indicators other than exposure measurements that could be very powerful and which could be linked to health risks. These indicators could substantially be drawn from samples from the immense amount of modern qualitative assessment and monitoring work carried out by health and safety professionals. These indicators could include data such as the quantity of specific hazardous substances used, the presence and type of control measures, process and materials handling information etc. Some early ideas on what could be sought are provided in **Annex 2**. These will be developed in conjunction with HSE social scientists and others.

15. It should be possible to reliably estimate scenario exposure levels using this type of qualitative information when fed with other data into an exposure model. Models are increasingly being used in epidemiological research and in regulatory risk assessment.

16. A list of applications for a new exposure intelligence strategy is provided in **Annex 3**. The improved data collection system, databases and exposure assessment tool should not be compromised or more flabby than the system necessitated to support REACH, despite such potentially wide benefits.

### **Link to HSC Strategy**

17. This is a generic, business enabling issue relevant to HSE's substance specific assessments within both statutory work and the Disease Reduction

Programme. It is relevant to the development of tools to aid implementation of REACH and to the development and validation of COSHH Essentials.

### **Consultation**

18. Beyond HSE there has been consultation with IOSH and informal discussion with officers of BOHS.

### **European Context**

19. The proposals link to work on the advanced exposure assessment tool proposed for the REACH programme.

### **Action**

20. WATCH is asked to encourage the following action:

- (i) A new HSE strategy should be developed with partners to capitalise on the factual and qualitative intelligence potentially available from the large volume of exposure assessment information held under modern risk management methods.
- (ii) Indicators shown to be of value through analysis of the pilot should be converted into a short, standardised set of risk exposure and control descriptors.
- (iii) The NEDB should be modified to capture a rationalised set of the new descriptors arising from the pilot together with a defined set of COSHH risk control factors.
- (iv) The consortium responsible for development of the advanced exposure assessment tool should factor in the new parameters identified through the pilot.
- (v) The established European national occupational exposure databases should be viewed as positive opportunities and should not be excluded from inclusion in modelling tools solely on the basis of sampling type or age without due scientific consideration.
- (vi) WATCH should endorse the utility of the new strategy to the applications listed in Annex 2.

### **Contact:**

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### **References / Attachments**

- Annex 1 Graph of Long-term personal samples and analyses by year
- Annex 2 Draft outline design of survey
- Annex 3 Why An Effective Modern Exposure Intelligence Strategy is needed