THE SOIL AND GROUNDWATER TECHNOLOGY ASSOCIATION

SAGTA REPORT 1 - RISK ASSESSMENT FOR CONTAMINATED LAND

SAGTA explored the issues arising from the use of Risk Assessment on 8 March '95. Invited speakers were Ms J Denner, DoE, on regulatory policy and research, and Professor C Ferguson, Nottingham Trent University, on development of guideline values (the CLEA model) for the UK.

Subjects covered included the role of Risk Assessment in contaminated site assessment, the assessment of health and of ecological risks, risk models and modelling methods, protocols and methodologies for risk management, and a number of case studies of member company's experiences.

Hazard and Risk Assessment is a fundamental and integral part of assessing and managing the technical and commercial issues arising from potentially contaminated land. It enables prioritisation of resource and expenditure allocation, it allows site-specific considerations to be addressed in a systematic way, and it should provide a rational basis for obtaining agreement that a proposed course of action is appropriate and acceptable. Assessment of risk is implicit in the definition of contaminated land in the Environment Act 1995 and in the derivation of new guideline values for contaminants.

Hazard and Risk Assessment requires a multi-disciplinary approach often needing input from a range of specialists including toxicologists, occupational health professionals, civil and chemical engineers, hydrogeologists, chemists, soil scientists and ecologists. Individual companies have produced their own in-house guidance as have the Petroleum Industries Association, and the USEPA. SAGTA supports the current intention of the DoE to produce a framework guidance document, which will direct users to specialist methodologies and best practice as appropriate.

The following key issues were identified for further action:

1 Quality of Toxicological Data

Toxicological data is used to set the acceptable daily intake of the particular contaminants involved. This is then compared with the daily intake, which is derived from exposure models (site specific or generic). The availability and interpretation of toxicological data on specific contaminants often introduces serious questions about the accuracy of risk assessments. In particular, further work is necessary on the following:

- the relevant toxicological end-point;
- the existence of a dose threshold for some substances;
- extrapolation from high to low dose;
- extrapolation from animal data to man.

SAGTA is aware that NERC (Environmental Diagnostics Programme) and MRC are considering supporting work in this area, and that the government is doing some work on Risk Assessment on an interdepartmental basis (as reported in 'Forward Look 1995').

We shall bring our views and experience on the issue of quality of toxicological data to the attention of the appropriate Research Councils.

2 Sampling and Analysis of Low Levels of Contaminants

It is a SAGTA members' experience that laboratory and sampling methodologies can have a significant and unexpected effect on the analytical results which can cause variations in reported contaminant levels of orders of magnitude.

SAGTA intends to devote more time to a focused examination of this topic in 1996 and will involve other interested parties.

3 Exposure Models

Exposure assessment is concerned with identifying potential contaminant - target routes and estimating the intake of a contaminant. It may involve consideration of past, present, and future exposures and necessitates estimating the frequency, duration, timescale and magnitude of exposure. Where appropriate, acceptable remediation levels can be calculated on a site-specific basis.

There are a plethora of exposure risk assessment models in Europe (including HESP, SOIL-R, CLEA, USEPA-RAGS, API-DSS, others) and the diversity of approach leads to confusion and sometimes the inappropriate use of a particular model. The European Oil Industry (represented by CONCAWE) is considering adopting a standard approach but this may not be sufficiently comprehensive for other non-oil industry applications. There is a need to understand the relative merits and appropriate applications of the different models and further investigation is required. SAGTA intends to maintain contact with CONCAWE on this topic.

4 Risk Communication

Hazard and Risk Assessment reports may be scrutinised and discussed by third parties and the public. Reports should therefore by concise, non-emotive and unambiguous. However, communication of risk to the non-expert will become increasingly necessary and a robust and consistent approach needs to be derived based on best practice guidance. It is recognised that Risk Communication is a generic issue not limited to contaminated land and a substantial body of advice is available.

SAGTA members will continue to monitor current initiatives and liaise with their Trade Associations on this matter.

For further information on SAGTA please contact the Secretary of the Association Doug Laidler at douglas.laidler@atkinsglobal.com or Tel +44 01372 726140

PREVIOUS