Abstract

An evaluation of the potential cost benefit in employing Environmental Data Management for contaminated sites in a UK regulatory context..

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Background

Industrial activity in the UK has left a legacy of contaminated or potentially contaminated sites, many of which pose a threat to human health or the environment. The Government is committed to the remediation and redevelopment of these sites. Many sites will need to be redeveloped to provide scarce land for future industrial, commercial or residential use. The Environment Agency has specific regulatory duties and powers in respect of such sites. All of these can involve the Agency in the receipt, comprehension and intelligent use of site specific data.

Many government and private organisations have developed or are developing site specific information management and display systems to enable expert judgements. Such systems can enable a more thorough conceptual understanding of the site and the risks involved than the traditional written reports.

Systems must therefore be able to hold, display and manipulate diverse data such as:

- geology and hydrogeology
- the location, nature and extent of contaminant(s) source and plume
- site specific groundwater chemistry both within and outside the plume
- potential contaminant pathways to receptor(s) of concern

This role of regulator presents data management challenges and the requirement for additional tools to support the decision making process and to facilitate the on-going evaluation of site conditions is recognised.

Objective of the Study

A review and assessment of contaminated site data management and visualisation tools focussed on the potential benefits available from adoption of such computer systems.

Approach

The paper will review the results of an assessment carried out to identify appropriate processes, tools and current best practise for the management of contaminated site data.

This initial assessment has been carried out to evaluate current practise and provides an overview of the status of available systems.

The next stage is to evaluate the potential efficiencies of the environmental data management approach. This is to include the identification of potential cost savings and other benefits of the implementation of a data management system.

Cost benefit evaluation will include:

- Potential time savings in data capture, report review and production
- Identified improvements in the quality of service delivered
- Potential time savings in data processing and visualisation
- Cost of user training and familiarisation
- Cost of system implementation (local / corporate)
- Cost of update and maintenance of software and systems
- Costs of data capture and processing
- Cost of purchasing and maintaining base data sets

Results

Site data is currently handled on a project specific basis. Relevant data may be generated within the Environment Agency, from site inspections, or provided by consultants or land owners. There is an opportunity for land owners or consultants to provide electronic deliverables or datasets in support of their work. However, it is acknowledged that some risks could be associated with data transfer and processing. Further work will establish whether the error trapping available in some systems will counter this risk.

It is anticipated that all projects will demand an initial data review and data capture effort. This may be significant if a landowner or consultant is unable to provide an electronic deliverable. This effort will use a proportion of the time allocated to the particular determination or assessment. Further work will identify whether this initial stage will place a burden on Agency resources, and whether parties without access to the proposed electronic tools would be penalised in any way.

It is anticipated that there will be a requirement to standardise activities to achieve optimum cost savings. Further work will establish whether this is appropriate or feasible.

A large variety of systems (GIS and database management systems) are available for the management of site data, alternatively bespoke implementations are a possibility. The review will identify the potential savings associated with the use of an off-the-shelf package versus the cost of development of a bespoke system.

It is expected that an additional benefit would be to share information more easily with the public, land owners and stakeholders. The use of GIS and data management for visualisation is invaluable in these circumstances and potential delivery mechanisms, and the costs or savings associated with these will be identified.