

RISK TRAINING

Risk is a key component of environmental activities and underlies many national and regional programs. These range from the U.S. Department of Energy (DOE) Environmental Management (EM) program that addresses the cleanup and long-term management of sites contaminated from decades of energy and weapons research, to natural resource management planning programs for federal and tribal lands, to rehabilitation of industrial properties. Training in the sound application of risk principles is needed to support effective decisions and actions. EAD has emerged as a leader in developing risk training modules that address a number of critical needs for DOE and other customers.

■ PROBLEM/OPPORTUNITY

Over the past decade, activities at many DOE sites across the country have shifted from industrial operations to environmental cleanup and waste management. This shift has resulted in a loss of older workers with extensive knowledge on how to evaluate and manage risks and in a movement of the remaining workers into new positions in which they have environmental responsibilities but no technical preparation. Similar transitions have occurred within the U.S. Department of Defense, some as a result of the downsizing or closure of military bases. In addition, the trend toward direct state and local agency involvement in environmental risk initiatives and community-based risk assessments continues. As a result, many organizations and individuals newly responsible for making, implementing, and communicating risk decisions need current scientific and policy information to carry out their work.

■ APPROACH

Risk training highlights EAD's classic strength, which is synthesizing multiple disciplines to support sound environmental assessment, management, and communication. These disciplines include modeling the environmental fate, transport, and dispersion of contaminants (notably in air and groundwater) and estimating uptake and the effects of radiological and chemical exposure on human and ecological receptors.

EAD's approach for addressing the multiple risk training needs of DOE and others requesting assistance has consisted of these general steps:

- Assess needs by means of surveys of and meetings with personnel in the recently established National Environmental Training Office (NETO) and other DOE Centers of Excellence; DOE program and field staff; other agency employees; and members of academia. Identify key topics and develop proposals, outlines, and content.
- Review state-of-the-art information on various risk topics and evaluate available training (e.g., via the Internet).
- Build from ongoing courses to address specific customer needs.
- Expand key roles in professional societies (e.g., Society for Risk Analysis) to remain aware of emerging issues, so cutting-edge information can be factored into the development of new training materials.
- Conduct risk training courses and workshops and solicit feedback.

■ RESULTS

New and updated training materials have been developed for DOE, the Navy, the U.S. Environmental Protection Agency, and the U.S. Army Corps of Engineers. Topics have

included the management of health and ecological risks under various environmental laws and regulations; natural resource damage assessment; ecological risk assessment; risk assessment for hazardous and mixed waste combustion facilities; transportation risk assessment; radiological risk assessment using recent slope factor refinements and RESRAD; and community-based cumulative assessment. Several different training courses are conducted each year, and feedback has been consistently positive.

EAD has also participated in risk workshops for specific projects. These have included the Depleted Uranium Hexafluoride Storage and Reuse Project, the Hanford Groundwater/Vadose Zone Integration Project, and the public involvement activity of the risk subgroup of the Savannah River Site-Specific Advisory Board.

In addition, EAD develops educational resource materials and teaches environmental risk courses and seminars at universities in the Chicago area and at the Medical University of South Carolina. These interactions have provided education and communication benefits to the involved groups.

■ STATUS

Courses and outreach projects being conducted or under development cover the following topics: basic integrated risk analysis for environmental compliance; applied program-specific risk communication; ecological risk assessment; risk analysis for decontamination and decommissioning projects; programmatic risk and environmental decision making; cumulative risk assessment; risk management and cleanup levels; International

Organization for Standardization (ISO) 14000; risk analysis for site redevelopment; and integrated risk assessment/natural resource management planning for long-term stewardship.

In developing these courses and outreach projects, EAD uses visualization techniques, integrated data management, predictive models, and case studies that integrate project managers from the sponsor group.

■ FUTURE

EAD has continued to expand its capabilities by broadening its risk expertise base through innovative project applications, teaching in universities, and participating in professional society activities. In the future, EAD expects to develop a more extensive menu of integrated training materials that address a variety of customers and needs. EAD will continue to interact with project sponsors to identify and respond to evolving risk training needs. EAD will also continue to interact with universities and other educational institutions to enhance ongoing programs, including sponsoring student interns, and to develop new initiatives. In addition, EAD will enhance the accessibility of training materials by developing Internet-based course work and tools.

■ COMMUNICATION OF RESULTS

Results of the training activities are communicated in the individual workshop course manuals as well as in presentation materials.



EAD trainers address critical risk needs.

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