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MEMORANDUM FOR:

Hubert J. Miller, Chief
Repository Projects Branch
Division of Waste Management

FROM:

Wayne Walker
Repository Projects Branch
Division of Waste Management

SUBJECT:

TRIP REPORT

The workshop I attended was entitled "Site Characterization for Risk Analysis of Hazardous and Toxic Waste Sites," this was held at the Army Engineering Waterways Experiment Station, in Vicksburg, Mississippi. The format for the day consisted of each attendee giving a 5 to 15 minute talk on risk analysis as it related to their particular experience, followed by discussion at the end of the day.

I presented a paper on the long-term performance criteria to be considered in the siting of a high level radioactive geologic repository and a brief description of what a geologic repository will look like. The key point of my presentation was that, as the time nears for DOE's license application fewer and fewer uncertainties should exist concerning these performance criteria. This reduction in uncertainties will allow NRC to have reasonable assurance of the safety level of any high level radioactive repository presented for licensing by DOE.

The workshop was useful in the fact that it gave me experience both as a participant and a observer. Some of the candid comments made about the task before NRC and DOE were interesting to note i.e., how can anyone seriously predict risk of something happening 10,000 years from now, is it realistic to look at that long of a time frame, what has EPA really said in establishing such a long time frame, no one was envious of the position DOE has in trying to prove to the public that disposal of radioactive wastes in the ground is safe and right for our society or that NRC has in making a licensing decision.

In general my impression was that to do risk analysis for site characterization by some type of objective test will be very difficult. In order to reach a decision about a project with as much uncertainty as a long term geologic repository containing high-level radioactive waste will require many subjective data points. These data points concerning high uncertainties have to be established by a consensus of opinion (subjective) developed through the experts in the technical community.

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The point, which I believe the NRC is trying to impress upon DOE was presented very eloquently by David Pentz. He went through a long exposition concerning the siting of a HLW repository. His conclusions were that there will be a building of confidence in relation to the uncertainties (risk) surrounding HLW repositories. We will never know all the answers, but some cumulative figure for the probability of success or failure will be established through both objective and subjective information. In the final analysis both of these will probably have equal weight in any licensing decision made. Some other key points of David's presentation were; since the public is involved in the decision process any subjective opinion used in probabilistic methods will have to be defensible in court, acceptance of the audit trail established during this time period before licence application will be critical to the acceptance of the probability methods. Finally, technical professionals will have to be trained in the judicial process so that the eliciting of subjective opinion will support quantitative data.

The definition of what risk analysis really means caused quite a problem. It seems each person brings certain preconceived idea's with them about risk analysis. Many times during the day it was obvious that one person's definition was different from another's. This seminar gave me a good opportunity to learn about the many different uses of risk analysis in site characterization and how it might apply to the siting of a geologic HLW repository

Wayne Walker
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