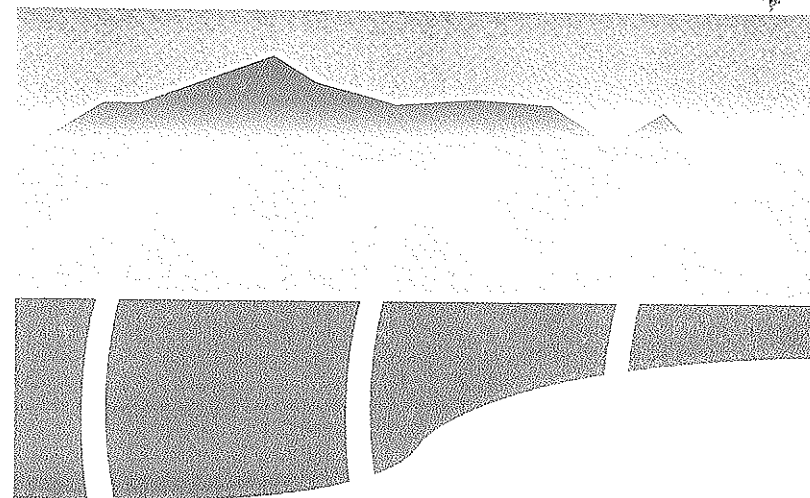


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W22.1 Widner T.E., Flack S.M., Buddenbaum J.E., Shonka J.J.; ChemRisk, Inc., CA, CO, ENSR Corporation, Shonka Research Associates; twidner@chemrisk.com. INTERIM REPORT OF CDC'S EVALUATION OF PAST RELEASES OF RADIONUCLIDES AND CHEMICALS FROM LOS ALAMOS NATIONAL LABORATORY.

Since early 1999, a team of scientists and engineers has been reviewing historical documents at Los Alamos National Laboratory and extracting information relevant to off-site releases and the potential for health effects. For various reasons, document access at Los Alamos has been more challenging than in any comparable study of a DOE site. The Interim Report of the Los Alamos Historical Document Retrieval and Assessment (LAHDRA) project has been issued to support, in part, decisions as to whether the project will continue. Close to 4,500 historical documents or sets of documents have been summarized in a project information database. In addition to photocopying, the most relevant documents were scanned and linked to the database in a way that allows full-text searching. Information collected to date has been used to begin prioritizing past releases of radionuclides and chemicals. Of particular interest are the early years of plutonium processing, when releases were unfiltered and unmonitored. Radionuclide releases were prioritized based on reported releases, after several adjustments were made by the project team. As indicators of the potential magnitude of airborne plutonium releases, historical measurements of plutonium in area soil samples were evaluated, as were measurements in tissue samples from non-worker residents of the Los Alamos area. Indications from evaluation of the soil record are that integrated plutonium releases could have been significantly higher than the 1.2 Ci total reported by LANL. Project-team evaluation of data from the 35-year autopsy program conducted by LANL also suggests that excess plutonium is present in non-worker residents of Los Alamos over what would be expected from global fallout from nuclear weapons testing. This research was performed under contract to CDC's Radiation Studies Branch.

M22.2 Williams R.A., Thompson K.; US Food and Drug Administration; rwilliam@cfsan.fda.gov. HASSLE THEORY: A THEORY OF HEALTH AND SAFETY REGULATION.

Market failures serve as the primary motivation for regulation, and asymmetric information represents the most common justification for health and safety labeling. Asymmetric information means that manufacturers possess knowledge that consumers lack, and thus the obvious remedy is to provide consumers with the information, either through government provision or mandate that forces manufacturers to provide it. The theory suggests that with more information markets will efficiently match demand and supply. Governments provide significant amounts of information to consumers based on this theory. However, a question arises: Is information the desirable remedy and does providing information lead to a well-functioning and healthy market? This paper provides a beginning framework that addresses this question, taking into account recent research in cognitive failures. Specifically, it suggests that if people recognize their cognitive processing difficulties but limitations exist in the amount of time they can allocate to deal with multiple risks in their lives, then providing information may not help and in fact it might hinder their ability to make good decisions. Further, if manufacturers recognize these challenges and the information overload that exists, then the system may create incentives for manipulation of information that take advantage of cognitive difficulties and sustains inefficient markets. In this context of information overload, consumers may rationally prefer to hire agents, such as government regulators, to process data for them and create standards. Thus, consumers may appear to prefer less information and more standards because this approach means less of a "hassle" for them, *ceteris paribus*. More significantly, this perspective also implies that consumers may not want the government, an agent, to act so as to mimic their cognitive failures, which runs counter to prominent proposals by some social psychologists.

M2.4 Williams B.A., Nedoff J.A., Kennedy L.J.; Kennedy/Jenks Consultants, OR, CA; billwilliams@kennedyjenks.com. SHOULD ECOLOGICAL AND HUMAN HEALTH RISK ASSESSMENTS BE BASED ON SIMILAR ENDPOINTS?

The goal of a Human Health Risk Assessment (HHRA) is to estimate the potential risk to humans by exposure to contaminants. While a focus of the HHRA is protection of the maximally exposed individual, an Ecological Risk Assessment (ERA) is designed to protect communities and populations of wildlife species. Under FIFRA and

TSCA, ERAs are designed to characterize chemical-specific risks including potential adverse effects to local populations and communities of plants and animals (e.g., reductions in populations of fish-eating birds, or reductions in survival, reproduction, or species diversity of indigenous benthic communities). HHRA has been of paramount interest in risk assessments at most sites, but ERA has become an increasingly more important element of the risk assessment process for CERCLA sites and for other environmental assessments. While it has been generally accepted that a fundamental principle of the HHRA is to focus on individuals, this concept has often been inappropriately extended to the ERA, where the focus should be at the population level, consistent with wildlife management practices. With the focus on populations, ecological risk characterization must address the relative impact of numerous other complex parameters such as disease, predator-prey interactions, etc. When ecological risks are not presented in the context of the exposed wildlife populations, unrealistic risk estimates may result that drive poor risk management decisions. In this paper we present comparisons of selected risk drivers at sites where both HHRA and ERA were conducted.

W1.3 Willis H.H., Morral A.R., Medby J.J., Kelly T.K.; RAND Corporation; hwillis@rand.org. RISK-BASED ALLOCATION OF COUNTER TERRORISM RESOURCES.

Since its formation, the Department of Homeland Security has been under pressure to improve the nation's terrorism preparedness. In response, the Urban Area Security Initiative (UASI) grant program has distributed about \$3 billion to fund emergency response planning, organization, equipment, training and exercises. UASI funding is allocated based on population density, threat, and location of critical infrastructure assets. Population density is the most important factor in determining these allocations. Uncertainty about terrorism risks is not explicitly addressed and appears to be based on estimates of the most likely terrorist threat. Planning for the most likely threat risks misallocation for resources. This paper proposes an allocation approach that accounts for uncertainty about terrorism risks. The Risk Management Solutions (RMS) terrorism risk model is used to estimate losses from 37 modes of terrorist attack at approximately 3,400 potential targets across the US. Loss estimates account for the relative likelihood of different modes of attack at different classes of targets in different cities. Direct economic losses are calculated for the value of structures, building contents, and business interruptions. Fatalities and injuries are also calculated. Taking risk to be the expected annual terrorism losses, the probability-weighted losses from the RMS model are used as an index for allocating UASI funding. We propose a robust allocation approach that minimizes the differences between the chosen allocation and those based on single perspectives of terrorism risk. Through parametric analysis, we highlight the implications of using this approach across urban areas, the sensitivity of allocations to assumptions of terrorism risk, and the applicability of alternative objective functions for the minimization used in this study.

W25.4 Wilson R.S., Arvai J.L.; The Ohio State University, Decision Research; wilson.1376@osu.edu. TRICK OR TREATMENT? EVALUATING THE QUALITY OF STRUCTURED RISK MANAGEMENT DECISIONS.

Structured decision making (SDM) approaches are intended to help improve the quality of risk management decisions. Past studies have often based evaluations the quality of SDM approaches based on the self-reported behavior of decision makers. The experiment described in this article was designed to test this basis for decision quality by comparing self-reported behavior of decision makers with actual choice behavior across varying affective contexts. The experiment utilizes a previously tested decision structuring approach as a means of encouraging informed judgments that reflect the participants values and objectives. It was hypothesized that this approach would lead participants to make more thoughtful and better informed decisions which accurately reflect their objectives, not based solely on self-reports, but also on internally consistent decision making behavior. A two-treatment experiment was designed to test this hypothesis; two groups of subjects took part in either an unstructured or a structured decision making process. Based on subjects self-reports, the SDM approach outperformed the unstructured condition. However, further analysis of decisions made by individuals in the structured condition revealed a lack of agreement between their self-reported evaluations and actual choice behavior.