NEWS

CRESP UPDATE: SAVANNAH RIVER

LETTER

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CRESP At A Glance

by Lynn Waishwell, Ph.D.

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As CRESP enters its third year, it is timely to be reacquainted with its unique structure, abilities, and mission. CRESP began as a cooperative agreement with the Department of Energy after a national competition in March, 1995. A cooperative agreement is distinctly different from a designation as a contractor. CRESP's beneficiaries are the public. By providing independent research and review of risks, CRESP is designed to help government better address the needs of citizens.

The major purpose of CRESP is to provide the public, including the U.S. Department of Energy, with a broader and deeper understanding of risk-related issues that concern waste clean up. CRESP focuses on developing information that will assist in decision making about clean-up of nuclear weapons production facilities. As less money becomes available for clean up of sites, it in increasingly important to have a framework for making decisions that will allow comparisons of alternatives and prioritizing of clean up projects. CRESP's mission is to provide information that facilitates decision makers, including the public, to make these comparisons based on risk.

CRESP utilizes innovative approaches to conducting research and establishing its research agenda. It is a university-based consortium led by the Environmental and Occupational Health Sciences Institute (EOHSI) in New Jersey and the School of Public Health and Community Medicine of the University of Washington (UW). These institutions are well placed to conduct research and respond to risk-based questions. Their senior researchers are nationally recognized leaders in the fields of risk assessment and risk evaluation have much experience in responding to stakeholder concerns. CRESP is organized into eight separate task groups. While each of these task groups has many distinct projects, many opportunities exist to ask questions that are interdisciplinary in nature and draw upon expertise from a wide variety of fields. For example, the September 10 and 11th meeting entitled, " Integrating Risk, Restoration and Future Use of SRS," described in this newsletter has been coordinated by researchers in the Remediation and Exposure Assessment Task Groups, and draws upon CRESP researchers with expertise in land use, ecology, and occupational health.

Central to CRESP's is its commitment to draw upon stakeholders from all sectors of the community to identify and clarify research priorities and resulting technical data. It is CRESP's mission to conduct research that will facilitate decision-making, and that requires understanding the concerns and priorities of all who have a stake in the strategies used for remediation and restoration of the DOE-complex sites. These concerns are related to human and environmental health impacts, and also include consideration of social, cultural and economic values. CRESP encourages active dialog with all stakeholders.

Ecological Hazard Identification Task Group

The Ecological Hazard Identification Task Group is proceeding with its three main objectives: 1) developing bioindicators of ecological health that can also be used to assess human health risk, 2) developing ecosystem bioindicators, such as the Index of Biotic Integrity, and 3) assessing the importance of ecological services. As always, we welcome any comments on our projects or on other concerns about ecological risk.

Bioindicators of Ecological Health. Our work with bioindicators examines the use of wood ducks, mourning doves, and raccoons for both ecological and human health risk assessment. The wood duck work indicates that eggs and eggshells can be used to assess health risk, but as the levels of mercury are sufficiently low, the eggs do not pose a problem to either the ducks themselves, or to human consumers. The work with mourning doves indicates that there would be human health concerns with respect to cesium if hunters consumed large quantities of doves that lived on drawn-down Par Pond. Otherwise levels of cesium and heavy metals are sufficiently low and do not pose a problem to either the doves themselves or to human consumers. The results of the mourning dove work were presented in June at the Cooper Ornithological meetings, and other aspects will be presented at the National Wildlife meetings in Colorado in September 1997.

The work with raccoons is proceeding on schedule. Tissues from raccoons have been collected from fly ash and control sites on SRS, and from road kills outside of SRS. The tissues will be brought back to CRESP for analysis of mercury, and cesium levels will be determined at Savannah River Ecology Lab (SREL) in collaboration

with I. L. Brisbin and K. Ganes. Since raccoons feed on a wide variety of foods, and move over large distances, we expect them to be useful bioindicators. Further, raccoons are distributed widely over the DOE-complex.

Ecosystem Bioindicators. The work with the Index of Biotic Integrity is progressing, and we are currently collecting fish and frog samples from a number of streams and wetlands on SRS. This risk method evaluates population and ecosystem structure and health. This is a time-consuming project, and is being led at SREL by Dr. Joel Snodgrass. Some of this work was presented in June at the Society for Ichthyologists and Herpetologists in Seattle. A more general paper on methods for evaluating susceptibility of ecological systems to hazardous chemicals was just published in Environmental Health Perspectives, a professional journal read by risk assessors and environmental scientists.

Ecological Services. Our third area of research involves evaluating the local perceptions of ecological services, and is done in collaboration with W. Gibbons at SREL. We have interviewed the general public, hunters and fishermen, residents of Aiken, and hunters who actually hunt on SRS. Our objective was to determine recreational rates, and how ecological services relate to future land use of SRS. The results from interviewing the two groups of hunters and fishermen were just published in the June issue of Risk Analysis. All three groups engage in recreational activities more than the 14 days a year DOE assumes in their future land use report. These three groups indicate that their most preferred land use at SRS is for a National Environmental Research Park. Hiking, camping, hunting and fishing received the next highest rankings as preferred land use. (A comparison study is being conducted at Idaho National Engineering and Environmental Laboratory in cooperation with D. Roush.) Currently we are interviewing people who are fishing along the Savannah River to understand fishing and consumption patterns. A preliminary study conducted in the fall of 1996 was used to develop the current protocol for fish collection for analysis of cesium, mercury and other contaminants. As a result of the current protocol, we hope to have a better understanding of fishing behavior, consumption patterns, and cooking methods by the late fall.

We welcome any comments or questions regarding this research.

Occupational Health & Safety Task Group

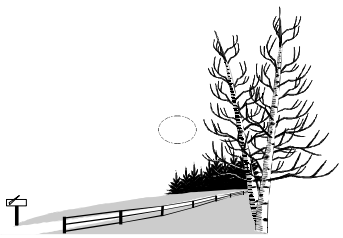
With the cooperation of the Procurement Department a plan is being developed to create a registry of hazardous waste remediation workers at SRS. This will allow the dissemination of information as well as future epidemiologic studies. It will also facilitate the documentation of worker training and will reveal the nature of this new and expanding workforce, Michael Gochfeld, Occupational Safety and Health Task Group leader, spent two days at SRS pilot-testing a data base format making use of the payroll certification sheets which construction contractors are required to file under the Davis Bacon Act. The certifications provide the names, addresses, job category, and hours worked for all employees. This is one source of several that will be used for the registry.

Predicting Long-term Contaminant

Remediation Task Group

Release and Remediation in the Subsurface

A new modeling approach has been developed for predicting the effects of contamination time intervals (or contaminant "aging") on contaminant mobility in soils and groundwater. This modeling approach will provide significantly improved predictive capability for design of in-situ remediation processes, assessment of contaminant mobility in the sub-surface, and development of risk-based remediation endpoints. The new modeling approach incorporates effects of contaminant distribution between solid, water, vapor and solvent phases and diffusion into micropores within the soil solid phase. These micropores may be associated with either clay minerals or naturally occurring organic matter and may be of the same size range as the contaminants themselves (e.g., 5-30 angstroms). Thus, these pores appear to be responsible for very slow release of residual contamination, often referred to as "tailing effects." These processes also may be responsible for field observations of increased groundwater contaminant concentrations after pump-and-treat groundwater remediation or in-situ soil vapor extraction operations are shut off for long intervals.



Social, Land Use, Demographic,

CRESP Web Site

If you are interesting in learning more about CRESP, its researchers, and the kinds of research and products that are available, please contact us at http://www.cresp.org. There is a comment section available, and we woulde greatly appreciate to get

Geographic and Economic Task Group

CRESP-EOHSI has just disseminated three reports resulting from research conducted by the SLUDGE Task Group to other CRESP Task group leaders. The reports are: (1) "A modeling framework for analyzing the economy impacts of the DOE's Environmental Management program"; (2) "Fostering cooperation at DOE's nuclear weapon sites: A role for a university-based group"; and (3) "Off-site impacts, consultation and trust: A survey of planners near major nuclear weapons facilities."

Stakeholder Communication Task Group

Currently this Task Group continues to examine the data from the Risk Communication Profile Instrument survey, a telephone interview conducted with 1,674 residents in counties adjacent to SRS. An overview of selected results relating to perceived credibility of information sources was presented to the CDC Health Effects Subcommittee in Charleston, South Carolina in August by Lynn Waishwell.

In conjunction with the SLUDGE Task Group, Lynn Waishwell is initiating a study examining the way events and concerns of SRS are characterized in local, regional, and selected national papers. She is also working with the Environmental Educators of South Carolina to develop a survey which will assess environmental education needs of K-8 teachers. The survey is planned for this fall.

Other Notes

Workshop on Integrating Risk, Restoration and Future Use of SRS

An interdisciplinary technical workshop entitled "Integrating Risk, Restoration and Future Use Of SRS" will be held on September 10-11. The goal of the workshop is to exchange perspectives on how to achieve an integrated scientific framework for SRS restoration. Specific questions to be discussed include:

- What type of scientific information and framework development is essential to achieve the restoration of the individual components within the different spatial scales at SRS? For example, what information is required for individual disposal areas (e.g., seepage basins)vs. Watersheds, flood plains, or geographic areas?
- How do we encourage the application of new science to fill data gaps and achieve restoration goals?
- How to prioritize remediation strategies to account for both sources and receptors? For exa mple, how should individual, localized sources (e.g., burning/rubble pits) be considered vs. Diffuse sources (e.g., sediments in streams and flood plains)?

The workshop is being jointly sponsored by the Department of Energy, Savannah Rive Site, Consortium for Risk Evaluation with Stakeholder Participation (CRESP), University of Georgia Savannah River Ecology Laboratory (SREL), and Westinghouse Savannah River Corporation (WSRC).

feedback on our newsletter and any other activities of CRESP.

CRESP

The Consortium for Risk Evaluation with Stakeholder Participation (CRESP) is a university-based national organization created specifically to develop a credible strategy for providing information needed for risk-based cleanup of complex contaminated environments, especially those for which the Department of Energy is responsible. The Consortium specifically responds to the request by the Department of Energy and the National Research Council for the creation of an independent institutional mechanism capable of integrating risk evaluation work. As a result of a national competition, a five-year cooperative agreement was awarded to CRESP in March of 1995. "CRESP UPDATE" is one approach that we are using to share research plans and programs with SRS stakeholders.

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CRESP UPDATE

If you would like to be added to the mailing list for this publication, please send your name, address and telephone number to:

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CRESP INFORMATION

If you would like information about CRESP or any of the activities described, contact Lynn Waishwell, Director of Outreach and Communication at 732-445-0220. She would be happy to facilitate your dialogue with Task Group Leaders.