CRESP

CRESP Update
Savannah River

Volume 3 ■ Number 4 ■ September 1998

Task Group Reports

Other Notes

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As an Experiment, Does CRESP Succeed?

By Bernard D. Goldstein, M.D.
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CRESP is an experiment. If you trace the history of science organizations, it's not likely you'll find anything quite like CRESP.

It brings the expertise, credibility, and independence of university-based research while allowing the research agenda to be established through interaction with stakeholders and integration.

It is different in the way it relates to its funding source and to the people and organizations for whom CRESP does research. It is different in how it is funded and how it distributes the funds it receives. And CRESP is different in how it works with several disciplines to research questions from various angles and then integrate the results into processes that can help shape government's way of working with people and policy.

As an experiment, CRESP was designed to respond to stakeholders and tribal nations by integrating their concerns into the research process and, in doing so, help government better address the needs of its citizens. The results are to be understandable, useful, and effective, as well as occurring more rapidly than usual for an academic organization.

Goals are to: 1) answer basic questions raised about how to characterize and remediate hazards that are the legacy of nuclear weapons production, 2) apply the answers of those questions to evaluating risks, and then 3) identify ways to promote better, safer, and more cost-effective cleanup decisions. And in order to reach those goals, CRESP employs new approaches quite different from the normal science of university research.

In the old model, research was led by the interests of the researcher and specific funding agencies. With CRESP, the research is generated by the problems and the concerns at the sites that no one else is addressing. Accountability ended, in the old

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www.cresp.org

model, when the researcher made final reports to the funding source. For a CRESP researcher, accountability extends beyond the inquiry to the communication of what is learned to those who participate in making decisions about current and long-term risks and resource utilization.

The challenges that this approach creates for both stakeholder and researcher are understandable. For both, it's a new role. Since there aren't any handbooks on how to do this kind of research, CRESP has had to learn by doing. And we have had to learn which university researchers actually want to work in this way.

Whereas agenda-driven research may appeal to some researchers, the CRESP approach may not be conducive to the researcher with more traditional expectations.

CRESP is also different in the way it receives and distributes funds. CRESP was set up and operates under a cooperative agreement (not a grant) with DOE. By design, CRESP is an independent institutional mechanism that develops data and methods which help all types of people understand the dynamics of DOE decision making.

Finally, the new model helps the research continue to move toward issues whose answers can be better applied. Under typical research arrangements, the problem is identified and there is a lengthy proposal-review-award cycle so that the research follows the problem by many years. With CRESP, a management board promptly responds as a shift in the situation, the researchers' approaches, or the stakeholders' concerns occur.

It's also the management board that plays a significant role in CRESP's integration of expertise from different disciplines and universities. In the old model, integration was determined at the funding source. In the CRESP model, it is possible to synthesize research across eight discipline-based task groups not available to any one discipline.

Has the experiment been successful? CRESP success can be measured in terms of the research that has been published in peer reviewed journals, the contributions CRESP has made to DOE cleanup, and how CRESP has responded to stakeholders. CRESP does well on the traditional test — its contributions to the peer review literature are surprisingly large. It is rapidly broadening its impact on cleanup decisions. It believes it is learning better how to develop research from and feed back data to stakeholders and their concerns.

Ecological Health

The Ecological Health Task Group at CRESP-EOHSI is continuing the development of bioindicators of ecosystem functioning, as well as examining how people use and view ecological resources.

The bioindicators work, in

collaboration with K. Gaines and I. L. Brisbin at the Savannah River Ecology Laboratory (SREL), is focusing on developing indicators that can assess both human and ecological health. The past work has involved wood ducks and mourning doves, both species that are extensively hunted throughout the southern United States.

At present, the Task Group is developing raccoons as a bioindicator. Raccoons are particularly useful because they are relatively high on the food chain and so would be expected to accumulate greater amounts of chemicals than other species we have studied. Further, since raccoons sometimes eat fish, they might be expected to have high levels of some heavy metals. They move greater distances than many mammals and they are hunted and eaten by people.

The raccoon work includes examining levels of cesium and heavy metals in the tissues of raccoons from industrialized and nonindustrialized sites on the Savannah River Site (SRS), as well as from off-site hunting areas. The results from the cesium analysis should be completed soon; the work with metals is ongoing. When both analyses are completed, the Task Group will conduct a risk assessment for humans and other consumers.

Additionally, a pilot study of raccoon movements was conducted with radio-transmitters; a full scale study will begin in January. This study will see if raccoons are carrying contaminants away from the site. This is of interest for two reasons: 1) if raccoons can carry contaminants off site, this could affect other organisms; and 2) they are also hunted off site.

Work led by Joel Snodgrass at SREL involves examining several different streams and wetlands on SRS. His goal is to develop amphibians and fish as bioindicators of community and ecosystem health.

Finally, the Task Group continues to examine how people use and value ecological resources such as hunting and fishing. Surveys of fishing behavior and consumption of fish from the Savannah River are complete; reports and papers will follow. In order to understand the potential risk to humans and animals, the task group is examining the contaminants found in several species of fish from the Savannah River.

For more information, contact Joanna Burger at burger@biology.rutgers.edu or 732- 445-4318.

Health Hazard Identification

The focus of this Task Group is to study the effects of environmental contaminants on the health of exposed human populations. The research involves studying the protein known as metallothionein in human cells. Often when specific cells of the body are exposed to specific toxic agents (such as those found at DOE sites), the cells may produce metallothionein. As a result, the toxic effects are reduced. Measuring the amounts of this protein in the cells will determine if the individual has been exposed to certain types of environmental contaminants and if they are likely to experience any adverse health effects due to the exposure. This CRESP Task Group has recently developed a sensitive test to detect metallothionein in human blood cells treated with various toxicants.

These new methods may be used to monitor exposure of humans to heavy metals as well as to other types of environmental agents. They may also determine the sensitivity of individuals to environmental exposure and their susceptibility to environmentally induced diseases. Understanding these aspects of exposure to environmental pollutants can impact decisions regarding acceptable concentrations of toxic agents at DOE sites.

For more information, contact Lynne Fahey McGrath at lmcgrath@eohsi.rutgers.edu or 732- 445-3287.

Outreach and Communication

This Task Group begins a new project and continues analysis of the content analysis related to newspaper coverage at two DOE sites, SRS and Rocky Flats.

The new project of the Outreach and Communication Task Group

will help CRESP assess its mandate to conduct research with stakeholder participation. Lynn Waishwell, CRESP-EOHSI, and Dierdre Grace, CRESP-UW, will interview all CRESP Task Group Leaders over the next several months. They will gather information on the diverse ways researchers have worked with stakeholders. Hopefully, understanding the successes and failures of these relationships from the researchers' perspectives will provide some lessons learned for future projects.

This Task Group continues to evaluate the results of a project done with Karen Lowrie, SLUDGE Task Group, that examined how newspapers report events at two DOE sites, SRS and Rocky Flats, Colorado. Regional and local newspapers from communities adjacent to the sites were reviewed for one year. The researchers identified the sources of information, risks and hazards, and impacts mentioned in each paragraph. There is a heavy reliance on DOE-related sources of information at both sites. Fully 40% of all sources identified in reporting information were site contractors or DOE officials at the local or headquarters level. Individuals or agencies who might provide alternative views such as unions, environmental groups or independent experts were identified in 25% of paragraphs that had identifiable sources.

While 25% of the paragraphs identified the presence of a hazard, only 5% paragraphs identified a risk from an on-site situation or substance. Fully 67% of all paragraphs had no hazard or risk information. Identifying the lack of risk coverage by newspapers is particularly important as most people learn about site activities from newspapers or television. As DOE sets priorities for clean-up based on risk and citizen participation, public understanding of the realistic appraisal of risks is essential. Newspaper coverage provided little information about potential risks at these DOE sites for the general public to consider when evaluating site events. Lynn Waishwell recently reported these results at the 1998 Conference of International Society for Environmental Epidemiology and the International Society for Exposure Assessment.

For more information or a copy of the overall report, contact Lynn Waishwell at lwaishwe@eohsi.rutgers.edu or at 732-445-0920.

Social, Land Use, Demographic, Geographic, and Economic

The Task Group has interviewed local planning and development officials and learned about issues facing stakeholders of Rocky Flats, Colorado, as closure nears. This report is expected later this summer.

Other ongoing work of the Task Group includes: 1) a project to develop a set of leading economic indicators for the Savannah River Site region; 2) an analysis of economic development efforts in the regions around several of the largest DOE sites; 3) an analysis of economic impacts on the SRS region and states of South Carolina and Georgia due to expanded recreation in the SRS area; and 4) an analysis of economic impacts of the DOE's planned Accelerated Cleanup strategy on the SRS region. More details about these projects will be provided in upcoming newsletters.

For more information, contact Michael Greenberg at mrg@rci.rutgers.edu or call 732-932-0387, extension 673.

Worker Safety and Health

Under the leadership of Mary Salazar, Director of the Occupational Health Nursing Program at the University of Washington, both CRESP-EOHSI and CRESP-UW are studying occupational health and safety programs at ten DOE sites. The Task Groups are examining a variety of structural and functional features. Examples of a structural feature could be programs and policies. An example of a functional feature could be an activity designed to protect workers. The analysis will identify the strengths and limitations of various programs.

The Task Group continues to find reasons for concern regarding the protection of subcontract workers at DOE sites. An important task is to gain a better understanding of who these

workers are, whether they have had the required training, and whether there are adequate safety programs in place. As management and integrating contracts become more widespread, it can be expected that prime contractors will exercise a more hands-off policy. Although this could shift some health and safety responsibility to the lower tier subcontractors, the ultimate responsibility for protecting the workforce remains with the prime contractor and DOE.

For more information, contact Michael Gochfeld, gochfeld@eohsi.rutgers.edu or 732- 445-2917.

Other Notes

CRESP holds annual meeting

The Consortium for Risk Evaluators with Stakeholder Participation (CRESP) held its fourth annual meeting June 28 through July 1, 1998, at the Pocono Environmental Education Center (PEEC), in Dingmans Ferry, Pennsylvania.

More than 80 CRESP faculty, staff, and guests heard presentations from various stakeholders and representatives of the Department of Energy (DOE), Environmental Protection Agency (EPA), Savannah River Site management, Argonne National Laboratory, and Oak Ridge National Laboratory.

The theme of the meeting was the role of information in decision making and how to prepare for the future through stewardship. This theme was echoed in presentations on the credibility and effectiveness of stewardship and economics and illustrated with ecological and groundwater case studies.

Invited presenters included Shelley Fidler, recent Chief of Staff, Federal Council on Environmental Quality; Gregory Rudy, DOE Savannah River Site Manager; Renee Wynn, Associate Director, Federal Facilities and Reuse Office, Office of Solid Waste and Emergency Response, EPA; and Mark Gilbertson, Program Director, Office of Science and Risk Policy, DOE.

Interspersed with the presentations were topical cross-cutting CRESP Task Group meetings where stakeholders and researchers from both EOHSI and UW discussed important issues and potential resolutions. Participating guests helped identify issues that are unique to specific sites and how CRESP research helps facilitate safe, cost-effective cleanup.

On exhibit throughout the meeting were more than 125 posters depicting completed and current research by CRESP scientists. Most of the posters on display also appear on a compact disc available from CRESP.

PEEC, site for this year's meeting in the Pocono mountains, is the largest residential center for environmental education in the Western hemisphere with 200,000 acres of classroom. Staff led attendees on night hikes and took them to nearby Grey Towers, once the home of two-term Pennsylvania Governor Gifford Pinchot and founder of what today is the Forest Service of the U.S. Department of Agriculture.

To obtain the compact disc containing posters and other information concerning the work of CRESP, contact Brenna Smith at brensm@eohsi.rutgers.edu or 732-445-0120.

Report from CRESP-University of Washington

Editor's note: With this issue, CRESP Update: Savannah River *will resume highlights of select CRESP-UW work.*

The CRESP-UW Ecological Health Task Group continues analysis of data collected on plants and insects on the Hanford Site last spring. In addition, insects collected during this spring's field season are being counted. Task Group Leader Dr. James Karr presented his paper "Biological Monitoring: An Essential Foundation for Ecological Risk Assessment" at a symposium sponsored by Scientific Engineering and Technical Assistance (SETA) a Department of Defense program, American Society of Testing and Materials (ASTM), and US Environmental Protection Agency (USEPA) entitled "Biological Monitoring: An Essential Foundation for Ecological Risk Assessment." In addition, Dr. Karr coordinated a half-day postmeeting workshop on biological monitoring with 21

participants. Karr has been recently appointed to the Hanford Groundwater/Vadose Zone Technical Committee by DOE-Richland Operations Office.

The Outreach and Communication Task Group at UW is preparing to disseminate the Hanford Openness Workshops (HOW) Final Report this month. The HOW are a collaborative effort among the U.S. Department of Energy-Richland Operations Office, CRESP, the Oregon Office of Energy, the Washington Department of Ecology, and regional Tribal and citizen representatives. The workshop participants examined openness issues including declassification policies and mechanisms, public access to information, technological aids and issues, and the public's role in decision-making. Fact sheets outlining the HOW's accomplishments and products, an executive summary of the report, or the full report can be requested from CRESP-UW by calling 206-616-9133. In addition, the report may be viewed on HOW's web site: <http://www.hanford.gov/boards/openness/index.htm>.

Outreach and Communication is also disseminating the final report of the collaborative event examining Tribal issues, The Risk Roundtable: Evaluating Risk from a Tribal Perspective, co sponsored by CRESP-UW and the Confederated Tribes of the Umatilla Indian Reservation. This event brought together nearly 20 Tribes from across the US, along with state and national regulators. The Risk Roundtable Report will be available electronically at: <http://CRESP.sphcm.washington.edu/roundtable/>.

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 Rsearch 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: Savannah River* is one way to share research plans and programs with Savannah River Site stakeholders.

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