



## **Consortium for Risk Evaluation with Stakeholder Participation II**

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### A Summary of CRESPII Productivity and Successes

Throughout its six year existence, CRESPII has repeatedly demonstrated its ability to provide new multi-disciplinary technical insights into contentious and complex restoration and waste management issues, and, to use these new insights as a vehicle to break down barriers between DOE and other federal, state and local stakeholders. CRESPII has been able to accomplish this because of its credibility, which derives from its visible, independent, non-governmental role, senior technical expertise, transparency and emphasis on communication. The CRESPII accomplishments and roles cannot be provided by national laboratories, regulatory agencies or advocacy NGOs because of their perceived lack of independence, defined roles and/or limited breadth of expertise. In summary, CRESPII is essential to DOE and its stakeholders because it provides

- Recognized, credible and independent technical assessment and research that forms a basis for disparate entities and stakeholders to improve understanding and reach consensus on complex issues.
- Ability to move across, and thus transcend, traditional “stove piping” within and beyond DOE, between sites and between agencies and sub-agencies because of CRESPII’s independence, multi-disciplinary expertise, and non-governmental role.
- Accessible and comprehensive analysis from practical and experienced academics to address complex challenges with innovative thinking that is not constrained by, but, fully cognizant of, current regulatory and organizational structures.
- A premier academically-based organization educating the next generation of professionals focused on nuclear waste management and remediation issues. CRESPII can serve not only a needed training ground but also as a center from which to reshape narrower academic conceptions that address slivers of the waste management task, so that they address the broader integrated management challenges of the future. These professionals are the human capital that is essential to enabling safe and efficient restoration of the DOE nuclear complex, and also to achieving sustainable safe management of government and civilian nuclear waste from past, current and future nuclear activities.

CRESP successes have almost invariably been in situations where some form of controversy about technical issues has arisen within affected publics, among regulators or other decision makers or among DOE officials themselves (between offices, between field and headquarters, between staff and operations, etc.). The process leading to CRESP engagement has typically involved agreement among the parties in contention that CRESP work might help resolve differences. Since CRESP operates under a grant from DOE, the actual request for involvement has come from a wide variety of these sources. We describe below several successful CRESP involvements and indicate in bold type who first asked CRESP to become involved. Productive work by CRESP usually involves explicit efforts by CRESP to link its technical work to a process it develops or supports for holding together the three key elements in the eternal triangle (Figure 3).

**State officials:** Following very significant conflict between many parties in Alaska and the Nevada off sites office responsible for DOE's work at Amchitka, criticism from the Alaska congressional delegation and the executive branch evolved into a request from the Alaska executive branch, specifically the Governor, for CRESP's involvement in assessing the island substructure and marine environment at Amchitka. This island had served as the site for three underground nuclear tests. Agreement by the Assistant Secretary of EM, and ultimately the Secretary of Energy himself that CRESP could and should be involved, then led to CRESP involvement augmented by the regional Alaskan university (University of Alaska-Fairbanks) and CRESP leadership and execution of the very diverse set of activities (strategic analysis, major research and reviews) that are described on the CRESP website. But engagement of many affected Alaskans in the development of the technical plan, and even the research expedition itself, was needed to pave the way for acceptance of the CRESP's peer reviewed research results by the Alaskan publics, media and regulatory officials. And, in fact, these results and the monitoring plan they enabled CRESP to develop, has become the primary technical basis for conditional closure and a clear path to the transition of the site to Long Term Surveillance and Maintenance. It is noteworthy that Alaskan officials asked that CRESP first undertake this independent assessment assignment because of its work and success on a similar issue at SRS. In that case, CRESP was asked to help resolve an evolving technical controversy by conducting an evaluation of fish contamination and human consumption in the riverine environment along SRS. Once this technical basis was accepted, CRESP could readily facilitate a consensus risk management strategy among EPA, state officials in both Georgia and South Carolina and the DOE.

**DOE Headquarters:** CRESP was asked by DOE EM headquarters personnel to develop a preliminary risk assessment of the remedial options to address the complex and controverted remedial options for both the buried transuranic waste and the calcined high level waste at the Idaho Site following disagreement between the local regulators and DOE field and headquarters personnel about such an assessment. (CRESP had for the previous two years already been conducting complex-wide research on issues associated with remedial choice for buried waste.) Working extensively with the field office, CRESP developed such a study and as it was doing so, the Idaho National Laboratory Site Environmental Management Citizens Advisory Board in September, 2004 requested an opportunity to review the study before developing its own final recommendations on these remedial problems. In the summer of 2005, CRESP made the major presentation of its work to the relevant CAB subcommittees and ultimately to the CAB Board itself. Strong endorsement of substance and form of the CRESP technical analyses by the CAB are found as formal July 20, 2005 recommendations on its website: <http://www.inlemcab.org/recommendations.html>) and on CRESP's (<http://www.cresp.org/>) and they both include advice to site managers that they use similar evaluative and risk communication processes in subsequent reports to the CAB. The senior EM manager at Idaho has just recently requested that CRESP conduct a similar review of the site's plans to use steam reforming technology to convert the sodium bearing waste in its HLW tanks into a new waste form for final disposition.

**DOE Headquarters and Field Office:** Concern was expressed by the Defense Nuclear Facility Safety Board (DNFSB) about the relative priority being given to nuclear materials waste management as compared to remedial restoration work as those priorities were calculated

through the use of the Integrated Priority List (IPL) system at SRS. CRESP was asked by both the Assistant Secretary for EM and the SRS Site Manager to evaluate the IPL process, a system whose values had been shaped by a participative procedure organized by the SRS CAB five years earlier. A senior CRESP team worked with site and HQ personnel to develop an evaluative approach and the resulting report, peer reviewed by the CRESP Independent Peer Review Board, was, in fact, very critical of the IPL process at SRS. Site management was informed as the report went to peer review, carefully analyzed the report and announced its unqualified acceptance of and agreement with the CRESP review. It then started a significant initiative involving the CAB and CRESP to radically change the IPL process. The CRESP results were twice shared with the SRS CAB as a part of the process of revising the old system.

**State Officials and a DOE Contractor:** A senior CRESP researcher was selected by the Department of Ecology and the ORP Contractor overseeing the Waste Management Area C at ORP (single shell HLW tank farm C) Closure to convene a technical review group to evaluate the preliminary draft of the performance assessment (PA). The researcher requested CRESP support of the work to help assure his independence in leading the review group. The group began by gathering public input about the PA approach and methodology, conducted its analysis and publicly reported back its findings – findings quite critical of the draft PA but findings, said by senior DOE-EM headquarters personnel ultimately to have led to the development of a model PA for this important closure evaluation.

**DOE Field Office and EPA:** A significant disagreement between SRS and its regulators [EPA and South Carolina Department of Health and Environmental Conservation (DHEC)] developed about how to evaluate the site conditions that were “outside” the operating units (OU’s) where CERCLA cleanups were occurring. DOE feared approaches which would explode the number of separate cleanups required; the regulators were concerned that they would be unable ever to declare the site remediated unless some way was found to characterize the broader geographical areas at the site. CRESP was asked, first by site managers and then EPA officials, to devise a workable alternative system for defining restoration requirements for this very large (300 sq mi) site. CRESP developed a distinctive approach (the Integrator Operable Unit) that used existing concepts to divide the site into seven large areas and proposed methods for their evaluation. CRESP first proposed its results to the site and then to EPA, and then EPA joined CRESP researchers in taking the proposal to South Carolina state officials, who then accepted the proposed approach. The IOU, with CRESP playing an active role in the evolution of the concept, became and is today the basis for the major restoration cleanup endpoint definition at SRS.

Similar examples could be given about 1) how CRESP came to develop important citizen survey instruments (see “Land Use Controls, Public Health Surveillance, and the Public’s Peace of Mind at the United States Major Nuclear Weapons Legacy Sites” at [www.cresp.org](http://www.cresp.org)); 2) how and why it undertook the evaluation of initial and life-cycle costing estimates on alternative reprocessing options following the decision to abandon the in-tank precipitation process at SRS; 3) how CRESP’s work with PNNL on the efficacy and durability of low temperature solidification options for the secondary waste stream at ORP are now informing the collaborative work with Savannah River National Laboratory (SRNL) to assure that the SRS saltstone will meet the Nuclear Regulatory Commission’s recommendations as it follows up the DOE Secretary’s determination under Section Department’s 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 concerning waste incidental to reprocessing– work that will likely become central to evaluating waste form alternatives should the nation decide to reprocess spent nuclear fuel, and, 4) how CRESP’s work, involving unique stakeholder surveys on ecological services has informed ways to integrate the definition of residual waste buffer zones with ecosystem preservation.

CRESP views the work it has done to generate multi-party consensus around its technical findings in these various contexts – generated by requests from the full range of sources – as precursor to the work the nation needs to do to work on resolving broader controversies at key sites and proposed facilities, and to develop collaborative national processes to build consensus

and possibly acceptance, of certain better understood approaches to nuclear waste management. But there is an additional element here that should be emphasized: CRESPI has a proven track record of identifying areas where major technical uncertainties and knowledge gaps are likely to give rise to future major problems. As one senior DOE official once said: "You folks at CRESPI consistently see and go to work on the technical underpinnings of the issues that, typically about a year later, we at DOE discover we simply have to understand or resolve." Hence, we believe that CRESPI's value added goes beyond an ability to respond technically and hold together the factors that make up the "eternal triangle" when it is asked to become involved in a major problem. Additionally, CRESPI is often able to move through those technical issues quickly because it not only has ready capacity, but in fact has "already begun" to work on the problem through its research projects.