THE CHALLENGE OF BUILDING TECHNICAL AND STAKEHOLDER CREDIBILITY: LESSONS LEARNED FROM THE COLUMBIA RIVER COMPREHENSIVE IMPACT ASSESSMENT

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ABSTRACT

"Born of fire" is how one tribal member described the origins of the Columbia River Comprehensive Impact Assessment (CRCIA) Management Team. The Washington State Department of Ecology's Nuclear Waste Program (Ecology) has led efforts to bring together stakeholders (i.e., tribal nations, state and federal agencies, and public interest groups) to seek a better understanding of present and potential future impacts from contamination in the Columbia River attributable to the U.S. Department of Energy's Hanford Site. Addressing Columbia River issues is considered by some to be the yardstick that measures commitment by federal and state governments to protect the areas surrounding Hanford from continued degradation.

It has been Ecology's aim to ensure that CRCIA is conducted in a technically sound way and that interested stakeholders have the opportunity to be meaningfully involved. Success of CRCIA, if defined as establishing both technical and stakeholder credibility of project results, seemed unlikely in the often emotionally-charged atmosphere surrounding the project. Initial attempts at using scientific credibility to gain stakeholder acceptance failed due to lack of trust. It was only when the CRCIA project increased stakeholder involvement that acceptance was achieved. There were concerns that the degree of stakeholder involvement necessary to achieve stakeholder acceptance of the project results would detract from its scientific credibility. This has not been the case.

Ecology's experience with CRCIA has demonstrated that, when given proper opportunity, stakeholders can understand and enhance efforts involving impact assessment methodologies and innovative scientific approaches to problems of a complex ecosystem. Ecology has seen that, through meaningful involvement, severe deficits in stakeholder trust can be overcome. The CRCIA project demonstrates that increased levels of stakeholder involvement can not only achieve tribal and public acceptance, but can enhance, rather than detract, from scientific credibility. The converse, enhancing scientific credibility as a means of achieving stakeholder acceptance, had only limited success. Also observed was that trust and credibility, once regained, must be carefully managed if it is to be retained.

BACKGROUND

The Columbia River is a valuable natural and cultural resource for residents of the Pacific Northwest. It provides for basic needs and is interrelated with the lifestyle and quality of life for Columbia Basin's many human and ecological residents. This resource drew the Manhattan Project's planners to the site now called Hanford to produce nuclear weapon materials. The Hanford Site occupies 560 square miles (1456 square kilometers) in the south central portion of the State of Washington. The Hanford Reach, the last free-flowing stretch of the Columbia River in the U.S., is approximately 51 miles long, almost all of which flows through the Hanford Site.

For 43 years (1944-1987), the U.S. Department of Energy (DOE) and its predecessors conducted nuclear production operations which resulted in a considerable amount of waste material. These past nuclear operations have left a legacy of hazardous chemical and radioactive contaminants that have impacted and will continue to impact the Columbia River for the foreseeable future. In addition to contamination resulting from past and present Hanford operations, there is the potential for more contamination because the Hanford Site is being used for storage and disposal of both radioactive and chemically hazardous waste. The permanent disposal of these wastes at Hanford could potentially contribute to contamination of the Columbia River for thousands of years. The purpose of CRCIA is to assess the effect of Hanford-derived materials and contaminants on the Columbia River environment, river-dependent life, and users of river resources.

The cleanup activities at Hanford are directed at eliminating or reducing the current or future potential for release of contaminants to the environment. To address the cleanup needs and the requirements for handling generated and stored wastes, DOE entered into a Federal Facility Agreement and Compliance Order, known as the Tri-Party Agreement (TPA), in 1989 with the Environmental Protection Agency (EPA) and the State of Washington (1).

STORMY BEGINNINGS

The CRCIA project began in an atmosphere fraught with controversy, distrust, and even outrage from several stakeholders. Previous efforts by DOE to allay stakeholder and regulator concerns about Hanford impacts on the Columbia River began in May 1991 and resulted in the issuance of the Columbia River Impact Evaluation Plan in June 1993 (2). The results of the Columbia River Impact Evaluation Plan were not satisfactory to regulators, national and state resource agencies, tribal nations, or most Hanford public interest groups.

With this background of intense public interest and skepticism, Ecology, EPA, and DOE initiated the Columbia River Comprehensive Impact Assessment through a negotiation process in January 1993 which resulted in a TPA milestone agreement (3). The goal was to conduct a river study that would have both technical credibility and stakeholder acceptance. Ecology's position was that a successful assessment would have no disconnect between technical issues, and regulatory and stakeholder concerns.

Some examples of stakeholder concerns that relate to technical issues include:

- The definition of "comprehensive"
- The selection of the study contractor
- Data quality and availability
- Bias resulting from methodology and approach
- The inclusion of cultural impacts
- The use and selection of independent scientific peer reviewers

EARLY ATTEMPTS AT TRIBAL AND PUBLIC INVOLVEMENT

CRCIA project manager representatives from Ecology, EPA, and DOE initially implemented several tribal and public involvement activities to address stakeholder concerns over technical issues. These activities (i.e., public workshops, document review periods, newsletter articles and

one-on-one visits) gave stakeholders occasional opportunities to provide input and express concerns, but did not succeed in overcoming distrust and skepticism. Stakeholders, especially tribal nations, did not yet feel they were meaningfully involved.

During the first two years of the CRCIA effort, the basic approach DOE used in relating to both regulators and stakeholders was typically the “Decide/Announce/Defend” approach. Public involvement activities were geared mostly toward convincing the tribes and other stakeholders to accept DOE proposals for conducting the assessment. Regulators and stakeholders typically found themselves in a protagonist/antagonist type of interaction with DOE, rather than being able to collaborate with DOE on a common path forward. Ecology and EPA project managers for CRCIA continued to advocate meaningful pre-decisional involvement by tribes and stakeholders in the assessment. The regulators believed that unless CRCIA achieved some degree of tribal and stakeholder acceptance, as well as scientific credibility, it would be a wasted effort.

Some changes were made that brought limited success. The CRCIA project began to address stakeholder concerns about study bias and data credibility by attempting to identify all documents containing pertinent data. That effort resulted in the publication of two reports that listed over 4500 documents and 13 major databases with information potentially relevant to the study (4,5). Next, an effort to release all classified documents relevant to the study was successfully undertaken. Both of these efforts helped alleviate stakeholder concerns that DOE was withholding relevant data from the public.

Consultation meetings were initiated with the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Yakama Indian Nation to clarify issues and address tribal concerns. The purpose of these consultations was to hear the tribal concerns and then to incorporate changes into the study to address these concerns. These efforts, while appreciated by the tribes, were largely unsuccessful in resolving tribal concerns.

Innovative public involvement meetings were attempted in an effort to inform stakeholders of the study and to obtain input on what would adequately address their concerns. In order to establish a positive working relationship with the stakeholders, workshops were held in Richland, WA; Hood River, OR; and Portland, OR. Rather than a traditional formal public meeting, the format was changed to an informal interactive workshop. Although this project was breaking the mold for Hanford public meetings and was well received by the stakeholders, the goal of establishing both public and scientific credibility was still largely not met. There was a definite improvement in stakeholder acceptance of CRCIA, but it was not adequate to bridge skepticism and build trust.

These tribal and public involvement efforts were innovative by Hanford standards, but tribes, state agencies, and concerned public interest groups were still viewed as stakeholders rather than shareholders -- the key difference being that stakeholders provide input toward a decision whereas shareholders participate in the making of a decision.

THE CRCIA MANAGEMENT TEAM

The uniqueness of CRCIA is its evolution toward a new method of tribal and public involvement that allowed stakeholders to become decision-making partners. The process of incorporating

stakeholders into the management team developed over time as the project struggled through ongoing controversy.

The first major breakthrough occurred when DOE, which initially refused to accept independent technical review, agreed to allow six technical reviewers to be selected for the project by a neutral party and to allow the three tribal nations to each appoint an additional technical reviewer they knew and trusted. One lesson learned was that, while a peer review effort may enhance credibility among scientific peers, it achieves little stakeholder acceptability unless the reviewers themselves are accepted and trusted by the stakeholders. The public specter of different interests, each with their own scientists postulating opposing views, has been too common. The stakeholders at Hanford, especially the tribal nations, were concerned with potential conflicts of interest and DOE's lack of willingness to attempt innovative approaches for assessing impacts to humans, ecosystems, and cultures.

The most significant breakthrough occurred during the summer and fall of 1995. Soon after a new DOE project manager was assigned to the project, he proposed involving the tribes and stakeholders in project management meetings. This CRCIA Management Team concept proposed by DOE was agreed to by Ecology and EPA and began in August 1995. The newly formed Team consisted of representatives from the Ecology, EPA, DOE, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Yakama Indian Nation, Hanford Advisory Board, and Oregon State Department of Energy. The CRCIA Management Team met weekly for two years to address concerns about the scope and direction of CRCIA. Because there was no charter, the Team experienced some initial difficulty clarifying memberships, roles, and responsibilities. However, these difficulties were resolved and the project began to progress at a slow but steady pace.

Due to this new attitude of openness on the part of DOE, a spirit of acceptance and cooperation began to develop. The stakeholders eventually developed a better understanding and appreciation for the challenges faced by DOE. It seemed DOE also began to recognize the help stakeholders could provide in resolving both technical and policy issues. More effort began to be spent in understanding the issues and addressing technical challenges than in defending positions.

The initial workscope DOE had planned for CRCIA proved to be inadequate to address the concerns of tribes, regulators, and the public. As a result, in October 1995, the planned workscope was redefined as an initial screening assessment of impact based on current condition of the Columbia River through and immediately below the Hanford Site. In addition to guidance on the technical aspects of the screening assessment, the Team defined stakeholder "requirements" for a comprehensive assessment of Hanford-related contaminants in the Columbia River. This was accomplished after two years of weekly meetings. Each week the Team met to address issues relating to the screening assessment, and then held a second meeting to develop a document defining stakeholder requirements for a comprehensive assessment.

The primary document from the CRCIA effort was released in March 1998 as the Screening Assessment and Requirements for a Comprehensive Assessment (6). The Team wrote the Requirements section of the document in an effort to provided a definition of their requirements for a comprehensive impact assessment. Composed of four sections, the Requirements part of the

document describes: 1) what the assessment must include, 2) how good the impact assessment results must be, 3) analytical approach and methods, and 4) conducting and managing the assessment.

The purpose of CRCIA, as defined by the Team, is “To assess the effects of Hanford-derived materials and contaminants on the Columbia River environment, river-dependent life, and users of river resources for as long as these contaminants remain hazardous”(6). The assessment has a site-wide scope; that is, it addresses the cumulative effect of the various contaminants and sources at Hanford. It assesses both human and ecological health, sustainability of the river ecosystem, cultural quality of life, and socio-economic viability. By insisting on a site-wide cumulative assessment of impacts to the Columbia River, the tribes and stakeholders have assisted regulators in overcoming barriers to a holistic approach in defining and determining the related impacts of multiple remedial decisions at a complex site.

TECHNICAL CHALLENGES

Initially Tri-Party project managers were concerned that the Team would not be able to deal effectively with technical issues. This was not the case. There was a learning curve for the Team that slowed the process, but once technical issues were understood and resolved, the controversy over acceptance was ended. This effectively front-loaded the challenges of getting stakeholder acceptance. Time lost in the learning curve for the Team was, to an extent, recouped in the public acceptance process for the document at the end of the project.

Several technical challenges in the screening assessment were addressed and resolved by the Team. Six such challenges were re-defining the scope, selecting contaminants of concern, determining species of concern, defining human health scenarios, data acceptance criteria, and assessment methodology.

The scope of the screening assessment was defined to include both human health and ecological impacts to the Columbia River and associated riparian zone along the Hanford Reach and the area along the river immediately downstream of Hanford. Current condition was defined by including only data from January 1990 to June 1994.

From a candidate set of 326 radiological and chemical entries for substances either used or released on site, the Team worked with contractors to select a study set of 12 radionuclides and 16 toxic or carcinogenic chemicals as the contaminants of concern.

A major challenge involved selecting the floral and faunal species of interest. From a list of 368 species known to exist in the Hanford Reach area, the screening assessment contractor, Pacific Northwest National Laboratory (PNNL), used ranking criteria to narrow the field to a list of 93 species. To this list the Team added another 88 additional species of interest. The Team worked with PNNL to develop criteria that resulted in the selection of a study set of 43 species to be included in the screening assessment. This study set provided for a balance across taxonomic groups and exposure pathways.

An area in which the Team contributed most significantly was in developing the human health scenarios of interest. The assessment contains a total of 12 scenarios, seven of which were developed by the contractor, but adapted and approved by the Team. These include two industrial/commercial scenarios, three wildlife refuge and recreational scenarios, and two residential scenarios. Included in the assessment are five Native American scenarios, developed by the tribal representatives on the Team, that reflect a range of lifestyles unique to Native Americans.

The Team also contributed to data quality and usage decisions. They developed data acceptance criteria, an outlier test, rules for use of surrogate data, and criteria for segmentation of the river into 27 data units.

Concerning screening assessment methodology, the Team was consulted on the development of both ecological and human health risk models. At the Team's request, for the human health assessment, both stochastic and deterministic calculations were performed for all contaminants, all scenarios, and in all river segments. For the ecological assessment, while deterministic calculations were done for all specie/contaminant/segment combinations, stochastic calculations were performed only on those combinations that resulted in a value of adequate significance to warrant further effort.

POSTSCRIPT

After the CRCIA Team finished its work on the screening assessment and requirements for a comprehensive assessment, DOE was required by the TPA to provide a recommendation for future milestones. This recommendation for follow-on work was to be based on Team recommendations, funding considerations, site-wide objectives, and TPA authority (3).

DOE's response to the TPA requirement contained the following major points:

- DOE agreed "… with the need to assess current and future cumulative impacts to the Columbia River from Hanford derived contaminants." This effort was to be assigned "…as part of the Hanford Groundwater Project."
- DOE decided to "…utilize the [Hanford Advisory Board] for stakeholder participation" and continue tribal consultation.
- DOE believed that applying resources toward continuing the CRCIA effort as recommended by the Team was premature, not efficient, and conflicted with other site priorities.
- DOE would do some follow-on work, but would "… not propose new Tri-Party Agreement milestones for these activities." (7)

In effect, DOE did not agree with the CRCIA Team's recommendation for future work and would pursue an alternative assessment effort with DOE as the sole decision-maker. This alternative assessment is currently part of the site-wide Hanford Groundwater/Vadose Zone Integration. While this new site-wide effort does not address many of the "requirements" from the CRCIA Requirements document (6), it does incorporate some of the CRCIA concepts.

The response from most Team members was a willingness to work with reasonable funding constraints, but they did not agree with DOE's concerns about authority and responsibility to manage Hanford. These concerns are perceived as a misinterpretation and/or misapplication of the

CRCIA requirements. Most, if not all, CRCIA Team members would characterize DOE's reasons for not completing the CRCIA as convenient but shortsighted. The trust that took two years to establish with regulators, tribes, and other stakeholders was shattered within two months.

Over the last year, the CRCIA Team and DOE have gone in different directions. The Team continues its effort to find financial and technical support, both inside and outside of DOE, for an impact assessment it believes is necessary. Ecology continues to work with both the Team and with DOE. Attempts at reconciliation have been made, but a willingness to trust DOE will be difficult for some members. One tribal member expressed his perspective by saying, "What's new with the U.S. government breaking its trust with our people."

CRCIA LESSONS ON BUILDING CREDIBILITY WITH STAKEHOLDERS

Some conclusions that can be drawn from the CRCIA are:

- Investing in early stakeholder participation is worth the effort. To not make this investment can cost a project significantly in both time and money.
- Trust can be built given genuine openness by all parties and opportunity for pre-decisional involvement.
- It is important to clearly define team members' roles and their relationships to regulatory and site management responsibilities early. Preferably an acceptable charter should be developed as a first action.
- Stakeholders really can add value to a project. They often see aspects project staff overlook or take for granted. In CRCIA, the tribal nations' contributions became very influential in improving scenario development and in developing a systems approach to the assessment.
- Stakeholders can be valuable resources to assist regulators in accomplishing their goals and visa versa.
- With the "Decide/Announce/Defend" approach even a good proposal is likely to be rejected when there is no trust.
- Stakeholders can understand and accept legitimate limitations if time is taken to educate and to understand their related concerns.
- While trust can be re-established, at first it is fragile and needs to be carefully managed.
- Trust is easier to maintain than to rebuild.

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