

EVALUATING PUBLIC PARTICIPATION IN ENVIRONMENTAL DECISIONS

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INTRODUCTION AND OVERVIEW OF THE CASE STUDIES

Introduction

This study evaluates the outcomes and processes of advisory boards established by the Department of Energy (DOE) and the Department of Defense (DOD) to promote public participation in their environmental restoration programs. The study focuses on a re-examination of data gathered in a series of studies of DOE boards conducted between 1996 and 2002. Preliminary data recently gathered on some of the military boards are used to compare findings on the outcomes and explanatory factors outlined by the NRC Panel in its *Guidelines for Reviews of Case Families*.

Characterization of the Case Family

Both agencies' advisory board programs, initiated in the early to mid-1990's, grew out of a national interest in public participation and the results of the Federal Facilities Environmental Restoration Dialogue Committee (also known as the Keystone Committee). The Committee, chartered by the Environmental Protection Agency (EPA) to develop consensus policy recommendations for improving environmental restoration at Federal facilities, recommended establishment of advisory boards as a way of involving stakeholders more directly in agency cleanup decisions. The Committee, which had developed from an informal dialogue among governmental and stakeholder representatives, including DOE and DOD, viewed such boards as a means of providing a consistent opportunity for involvement; regular, early, and effective participation in federal cleanup programs; and consolidation of the many public involvement initiatives in addressing cleanup.¹

The board processes evaluated in this study shared a common background and stated purpose. In addition, both shared a history of secrecy about the activities at their sites—and in some cases, continuing secrecy when national security was involved. Both agencies dealt with issues requiring technical expertise, where managers had little or no previous training and experience in public participation. For both agencies, the boards were intended to be advisory processes by which members of the public could receive information and provide advice on remediation of contaminated sites in their communities—frequently issues of controversy involving “wicked” problems. Both extended beyond stand-alone decisions to involve an on-going relationship between agency and public. And both involved a tri-party relationship that included the agencies responsible for regulating cleanup (EPA and the State regulators). However, as discussed under agency context, below, differences between the agencies in implementing the recommendations of the Committee affected board operations and the associated processes and outcomes.

Selection and Description of the Case Studies

The case studies included in this paper are selected from data gathered in four studies of the individual DOE/EM boards conducted by the Pacific Northwest National Laboratory

(PNNL)ⁱⁱ and from preliminary data gathered on military boards. Of these studies, the 1996 and 1997 DOE/EM studies were quantitative studies which gathered survey data from board participants; the remaining three studies were qualitative and included some data from non-board members.

The author re-examined data from eight DOE cases and four military cases. The selection was based on a) availability of data (some DOE boards had been included in only two studies) and b) inclusion of boards that demonstrated differences in outcomes and processes.

Agency Context/Guidance

As noted previously, the boards examined in this study shared a common background and stated purpose. Some differences, both in context and guidance, however, affected board operations. One important difference between the two agencies was the number of boards. DOE had only a limited number of boards (12), could keep abreast of activities at each site, adopt a more “hands-on” approach and provide on-going informal encouragement and guidance. DOD, with approximately 300 boards, was necessarily more formal in approach—issuing for example, specific direction on establishing boards and selecting board members—and unable to provide a similar level of attention as at DOE boards.

In addition, differences between the two agencies in the policies and guidance they developed for implementing the committee’s recommendations, affected processes and outcomes.ⁱⁱⁱ A key difference was that, although both agencies emphasized the importance of developing a membership that included a diversity of views and interests, they chose a different approach to the way in which members could provide their advice:

- DOE Office of Environmental Management (DOE/EM) established its boards under the Federal Advisory Committee Act (FACA) and DOD did not. For DOE, one overall EM board was chartered that included all board members from each local EM board and a Deputy Designated Federal Officer (DDFO) appointed at each site to be responsible for ensuring that FACA requirements were met.
- The three participating agencies (DOE/DOD, EPA, and the responsible State regulatory official) were assigned different roles on the DOE and DOD boards. On DOE boards, the regulators were included as ex-officio members to whom other members gave advice. On DOD boards, the regulators were included as regular members, albeit with particular responsibilities assigned to them.

As a result of this difference in approach, each DOE/EM local board was given authority, as stated in the *Guidance*, to “meet and provide direct advice to local DOE officials, in compliance with the FACA.” In addition, DOE encouraged the boards to assist DOE’s ability to make decisions that could be implemented: included in its expectations for field office managers was the statement that he/she should encourage the board to “make every attempt to reach consensus” DOD boards were not required to give group advice. Rather, as stated in the *Implementation Guidelines*, “RAB community members will

provide advice as individuals to the decision makers on restoration issues,” although, “while consensus is not required or asked of board members, in the normal course of discussions, consensus may evolve.”

There were other, more subtle differences affecting board operations in addition to the greater focus on reaching consensus in recommendations made to the agencies. In its guidance, DOE/EM articulated the basic principles for establishing an advisory board. The Department also encouraged boards to focus on major policy issues and emphasized broad expectations: that “what DOE needs from the boards is a clear articulation of stakeholder principles, priorities and values;” that managers should review board recommendations “within a predetermined amount of time and explain the rationale for DOE’s decisions and how the recommendations would be implemented;” and committed Headquarters to “establish a methodology for Board members to obtain information about experiences of other sites’ boards.” As part of this latter commitment, meetings of representatives of all boards were scheduled bi-annually. These meetings developed into an important means of training and cross-site discussion on interests of common concern (e.g., transportation or groundwater). They also provided an opportunity for informal sharing of lessons and development of a national network of contacts on which individual boards could draw for assistance.

By comparison, DOD guidance was more focused on providing direction for specific activities related to developing and implementing the boards. Following a brief statement that boards would enable “the early and continued flow of information” and that members would review environmental restoration documents, the guidance primarily provided directions for implementation such as preparing for meetings; developing a fact sheet, public notices, agendas and press releases; as well as recruiting and selecting members and appointing Co-Chairs. No provision was made for personal interaction among boards, although some interviewees in the study of military boards reported that one meeting occurred in Phoenix several years ago.

OUTCOMES

Overview

This section presents the data from the four DOE studies and the one military study in turn. Discussion of the data follows. Appendix A includes more detailed board profiles for each of the eight DOE boards and four military boards.^{iv}

DOE Advisory Boards

DOE surveys: The DOE surveys were conducted in 1996 and 1997 after most of the boards had been in operation for at least one, and in many cases two years. Overall response rates were 66% in 1996 and 61% in 1997. Data collected on the characteristics of the respondents overall show that they are relatively highly educated (over half hold advanced degrees in both survey years), predominantly white (86% in 1996 and 84% in 1996) and almost two thirds are male (65% and 67%). In 1997, board members

comprised over half of respondents, followed by DOE staff (17%), regulators (14%) and contractors and board support staff (9%) (comparable data are not available for 1996). On average, participants in the 1997 survey reported attending 29 meetings, compared with 21 reported by 1996 survey participants.

Tables 1-3 present data from the 1996 and 1997 surveys for the eight selected DOE boards on each outcome variable. The table shows the percentage of respondents agreeing with each item, using the survey questions most closely related to the outcome indicators selected by the panel. The actual questions posed in the survey are listed in the footnotes under the table. Clearly, these data should be interpreted with caution, since, when taken out of context, they may not be tapping the same dimensions. In addition, some of the items are not clearly distinguishable as outcome as opposed to process variables. However, they do provide some broad relative rankings that indicate which boards are operating well and which boards are experiencing problems—and these rankings were confirmed in the subsequent qualitative studies that sought to clarify the sources of problems.

DOE Qualitative Studies: The studies, conducted in 1998 and 2002, focused on different aspects of public participation. The former study was designed to identify factors that contributed to board effectiveness. The latter study focused on the overall DOE-EM public participation program, although with a strong emphasis on the boards, which are a primary feature of DOE-EM's public participation program. Both studies included observation of board meetings and interviews with board members, DOE, regulators, public participation support staff and members of the public. Appendix A includes summaries for each of the eight boards of the explanatory factors and outcome categories selected by the panel.

Table 7 presents the author's evaluation of the outcomes from these same boards, based on qualitative data collected in 1998 and 2002. Outcomes are graded as high, medium and low. Overall rankings on the three categories are comparable.

Military Boards

The study of military boards adopted a similar methodology as for the DOE qualitative studies: review of available information, observation of meetings, and interviews with a range of stakeholders. Tables 7 -9 present the author's evaluation of the outcomes of the four cases selected for study. Because these data are preliminary, they are identified only by number. The data will be re-evaluated and revised prior to finalization of this paper.

Discussion

Data were not available for all categories suggested by the panel. In addition, the author has included several additional categories not originally included in the panel's list on the tables presented in this section. These are as follows:

- Competence (Outcome One) includes an indicator which adds to the indicator suggested by the panel, “information from the process is used by decision makers.” The author’s added indicator (“information from the process is used by DOE-Headquarters”) shows that respondents clearly distinguish between local and headquarters’ use of the product of the board’s deliberations. When this item is added to the competence outcome, ratings are lower across all eight sites.
- Legitimacy (Outcome Two) includes several additional indicators which the author viewed as important. First, an indicator is added that rates the boards in attempts to reach out to the broader public. The author believes that this is a very important indicator to use in evaluating the legitimacy of an advisory board. Since there were no comparable questions in the survey, this indicator is added only for the qualitative studies. Second, the indicator “trust” is subdivided into trust in sponsors and trust in other members. Finally, an additional item concerning respect for others is included. As shown in Table 1, survey responses on questions using the word trust varied greatly from those using the word respect. Some interviewees in our qualitative studies were reluctant to use the word trust (as one person said, “there can never be 100% trust, we always have to be vigilant.”). Effective relationships based on respect for the contributions of others may therefore be a more valid measure of a successful outcome. It is interesting to note that the survey ratings on the legitimacy outcome would have been higher in all cases if respect had been used in place of trust.
- Capacity (Outcome Three) interprets the “creation of new institutional forms” broadly to include a) creation by the board of new ways to involve the public and b) providing a first and/or only opportunity for the public to learn about the agency’s activities. This indicator is included only for the qualitative studies, where data are available.
- An overall rating is included on each table to allow a broad summary evaluation across the different types of data in terms of high (H), medium (M) or low (L) scores.

A review of the evaluations provided across all outcome variables (competence, legitimacy and capacity) and across all cases (both DOE and military) indicates that cases tended to receive a similar ranking across all three outcomes—some are consistently high or medium-high while others are consistently low. For the DOE cases, Fernald (F) and Hanford (H) score high or medium high on all indicators; Los Alamos (L), Paducah (P1) and Pantex (P2) have the lowest ratings. Of the low scoring boards, two (Los Alamos and Paducah) showed improvement between 1998 and 2002; Pantex received low ratings throughout and the board was no longer operational by the time of the 2002 study. Similarly, across the military cases, #1 scored high throughout, while the remaining three were rated lower.

With the exception of case #1, the military cases were rated lower on competence than the DOE boards: two of the military boards were focused on provision of information rather than involvement. Ratings on capacity outcomes reflected the fact that three of the boards represented both the sole opportunity available for public participation in military cleanup and also the first. Thus, even though their competence ratings tended to be low, and members were not as involved as at the DOE boards, all parties to the process (DOE, regulators and citizen members) had gained from the experience. For the first time, citizen members had been able to learn what was happening in their communities.

Similarly, the military staff had gained experience in interacting closely with and hearing the views and concerns of citizens—and simply having to explain their installation’s cleanup decisions and activities to the public necessitated their thinking about and including in their decisions consideration of the impact on communities.

EXPLANATORY FACTORS

This section examines the explanatory variables suggested by the panel in explaining the variation in outcome among board experiences. The analysis is based on more detailed information that is provided in the site summaries included in Appendix A

Representation of interested and affected parties

Ensuring representation of interested and affected parties was an important consideration for all of the boards. The boards were initially established with the intent of achieving balance and selecting members in an open manner—this was emphasized by both agencies in their policy statements and guidance and followed through at the local level.

Initial Selection: Directions for establishing military boards were clearly stated in the DOD 1994 guidance. These included paid public notices, press releases and initial, public information meetings to introduce the advisory board concept and begin the member solicitation process. Responsibility for candidate selection was assigned to the Installation Commander. Some of these boards, as in Case #1, grew out of the previously established Technical Review Committees in which citizen members were added to the existing membership (typically installation staff, regulators and local officials). Others were created afresh at the initiative of the Installation Commander, as in Case #2. Provisions were also specified in the guidance for boards to be established on the basis of a citizens’ petitions; case #3 was an example of such a board.

DOE adopted a more flexible approach in which the site offices were free to follow methods of their own choosing, provided the guidelines were followed. In compliance with FACA requirements, all members were officially selected by DOE-EM Headquarters; in reality, this process confirmed candidates provided by the local sites. As noted in the summaries included in the Appendix, the DOE boards followed a variety of approaches in identifying and screening candidates—using recommendations from an independent university representative, based on a series of interviews with members of the community (Fernald); a public working group of citizens to select a formation committee (Savannah River Site and Los Alamos); by the Keystone Center, following public meetings held in response to a citizens request (Pantex); a working group of citizens, recruited largely through advertisements and a mailing list, and a paid facilitator (Paducah); an independent convener, assisted by a screening panel who screened applicants for diversity in backgrounds and demographics in a “blind” process (Oak Ridge); and recruitment and nomination by organizations representing regional interest groups, plus at-large members recruited by the regulators in a process designed by the Keystone Group to ensure geographic and interest-based representation (Hanford).

Achieving and Maintaining Representation of Interested and Affected Parties: Most boards, both DOE and military, faced two primary problems in ensuring broad representation: 1) difficulty in obtaining agreement from representatives of a full range of interests to participate as members and 2) maintaining representation over time.

Several boards experienced difficulty in achieving representation for all interested and affected parties. Some persevered and were successful; others were less successful. Issues that were especially problematic included:

- Achieving and maintaining balance between activist groups who had typically opposed DOE or DOD and business development and other groups who were typically supportive of DOE or DOD
- Establishing and maintaining ethnic diversity
- Ensuring representation and engagement of affected parties with a non-technical background.

Diversity in membership (both demographic diversity and diversity of interests), including members who are both supportive of and critical of agency policies, was important both to enrich the deliberations of the board and their value to the agencies, but also to enhance the credibility of the board to the public. The inability of some boards to provide representation for all parties directly affected all board outcomes identified by the panel. Competence was particularly affected through the resulting difficulty in reflecting the values and interest of all parties, being responsive to concerns and clarifying the degree of consensus which would form the basis for the ability of the agency to implement policy. Legitimacy was also directly affected through an inability—or perceived inability—of the advisory board to take into account relevant facts and values of differing interests and viewpoints, reach reasonable conclusions and be taken seriously by the agency or the affected communities, as well as addressing and resolving differences of opinion that could continue to cause conflict. Capacity was particularly affected through lack of an opportunity for participants to gain an understanding of the values, beliefs and perspectives of other parties, particularly of those with whom they were often in conflict; and to establish smooth acceptable procedures that could serve as a model for future interactions and enhance the potential for resolving conflicts between differing perspectives.

Boards that were most effective in providing representation for both supporting and opposing groups and also for ethnic diversity included those where the site context posed less of a challenge. These were sites where the population was relatively homogeneous or where residents were generally supportive of the DOE or military presence and had not had a previous history of conflict between pro and anti groups that continued after establishment of the board (Fernald and Savannah River for DOE and Cases #1, 2 and #4 for DOD). They were also effective when they recognized the challenge and actively sought in their recruitment efforts and board procedures to address the need for diverse representation. Among the DOE boards, two were especially active in establishing and maintaining a membership that included a diversity of interests and viewpoints (Hanford and Fernald) and two actively sought to ensure ethnic diversity (Hanford and Savannah

River). Hanford, for example, worked with the three affected Indian Tribes to ensure representation of the viewpoints of Tribes who wished to retain their sovereign status and did not wish to be considered a stakeholder. Savannah River adopted and maintained very strict procedures to ensure demographic representation of African Americans who comprised a high percentage of the surrounding population and had historically lacked representation (this did not, however, ensure diversity of interest and perspective). Other board efforts were less successful: Oak Ridge and Savannah River, for example, were unable to maintain representation by activist groups who resigned from the board after the first two years. The lack of an activist perspective, combined with a high proportion of members who were employed by DOE contractors or were former employees, contributed to a perception that the boards were captive to DOE. At the time of the studies, Paducah was able to recruit and maintain participation by activist groups but experienced difficulty in recruiting representatives from the business and local government community. The board was perceived as an activist board and was unable to effectively address the longstanding differences in viewpoint between the pro-business development orientation of the community and those who were affected by or concerned about contamination.

Among the military boards, three were located in areas traditionally very supportive of the military presence. None of the boards included African Americans, although only one board was located in a relatively homogeneous area. Members from three boards reported that the board had tried, but not persevered, in trying to recruit and maintain representation for African Americans.

Attracting and maintaining representation of members with a non-technical background was a particular challenge for all boards in view of the highly technical subject matter and the complexity of both the scientific issues and the associated regulatory process. Again, board procedures, combined with a high level of commitment and hard work by non-technical members, provided an opportunity to address the problem, although this continued to be one of the primary board challenges and not all boards were successful. This issue is discussed further under the subsection/explanatory variable “procedural quality of deliberation.”

Pre-Existing Level of Trust/Conflict among the Parties

Many of the boards began in an atmosphere of concern about contamination and distrust of the agency. Indeed, for some boards such as Fernald and Case #1, the heightened level of conflict, including litigation, had been the primary driver for establishing a citizens’ board, even before initiation of the DOE and DOD advisory board programs. In these cases, conflict among the parties contributed to a sense of urgency and recognition of the need for drastic changes in the usual way of doing business in order to address community concerns and also achieve the agency’s mission.

In some cases, however, the conflict was more deep-seated and reflected a longer-term history of activist opposition to the agency’s mission, which continued after the boards were in existence. This was not the situation at either Fernald or Case #1. Cases where

such opposition had occurred and where related activities such as weapons production and other nuclear or security activities continued to be an important part of the agency's mission faced a particular challenge. Several aspects of such cases directly impacted outcomes. In the first place, it was more difficult to recruit and maintain a representative board that included the viewpoints of those who supported and those who opposed the agency—with the resulting impacts on the three outcome categories as discussed above. It also spilled over into board deliberations in a variety of ways. First, a boards' scope and agenda (which were limited to environmental remediation) were more likely to be disputed and community controversy over the continuing DOE or DOD mission was more likely to spill over into board discussions and relationships. Second, it was more difficult for the agency to overcome a history of secrecy and earn trust when there was a continuing need for high levels of security that made access to the site and disclosure of information more difficult than at sites that were either closing or focused solely on environmental remediation activities. Skeptical members of the public questioned whether there was a genuine need to restrict information access.

Of the military cases included in this study, high levels of distrust did not pose a problem in three cases (#1, #2, and #4) and in one case (#3) had only recently emerged. In the first case, where many activities including highly secret activities continued, the installation played an important role in the area economy and the priority for the board and community was to clean up past and prevent future contamination rather than oppose the military presence. The installation in case #2 was similarly supported by the community and pre-existing levels of trust were high. In case #3, however, the previously congenial and cohesive relationships among board members were being affected by the introduction of a peace activist perspective and, at the time of the study, the issue had not been resolved.

Several of the DOE cases were impacted by pre-existing levels of trust or conflict. The performance of boards at sites where production activities continued and site remediation was not the sole mission were especially likely to be affected by pre-existing conflicts. In combination, the two variables affected outcomes both directly and through their interaction with other explanatory factors, in particular board procedures such as the ability of the board to reach agreement on the scope and agenda for their activities (see also the discussion under “procedural quality of deliberation”). Problems were most evident at Pantex, Los Alamos, and Paducah where the long-term conflict between the local business community and peace/environmental activists affected board deliberations about remediation. These problems are reflected in the data presented in Tables 1-6. By contrast, the past and continuing production of nuclear materials at the Savannah River Site has not been the subject of conflict in the community at large. The site is important to the regional economy and residents are unwilling to question site operations. The early resignation of two activists, though affecting the ability of the board to include representation of diverse perspectives, did not spill over into the ability of the board to develop its scope and agenda.

Intensiveness of Deliberation

The cases studied in this paper were all advisory boards that continued deliberations over a long time period. The DOE boards had been established between 1994 and 1996; the DOD boards had been established between 1994 and 1998. However, the intensiveness of the deliberation varied. Within each agency, the boards that had the least intensive deliberations did not perform so well in terms of the competence, legitimacy and capacity outcomes

Among DOE boards, the most intensive deliberations were by the Hanford and Savannah River boards which met for 2 days, bi-monthly. These boards had a large membership (25 for Savannah River and 31 for Hanford, with an equal or greater number of alternates) and covered a large geographical area which required an overnight stay for many members when meetings were held. Other boards met for between 3 and 4 hours each month, either in the evenings or on a Saturday morning. In addition, with the exception of Paducah and Pantex, the DOE boards had created an Executive Committee and also standing technical committees which met monthly. The committee deliberations provided the forum for intensive deliberation on the scientific and policy issues: They were responsible for doing most of the detailed work on areas of interest to the board and performed tasks such as gathering information, framing and deliberating on issues, reviewing documents and developing recommendations to submit to the entire board for discussion.

In general, the DOD board meetings were less intensive than those of DOE. Case #1, which was rated as high on all outcomes, provided for the most intensive deliberation. Originally, all of the DOD boards held monthly meetings; however, at the time of the study in 2004, only Case #1 continued to meet monthly, for about 3 hours. The other boards now meet for between 1 ½ and two hours, either quarterly (Cases #2 and #3) or bi-monthly (Case #4). Only two boards had committees: Case #3 had a standing technical committee and Case #1 appoints ad hoc committees when needed (and has done so frequently). Committee members do not meet in person in Case #3, but review documents and submit comments individually to DOD and brief the entire board following their submissions. In case #1, the committee meets to deliberate more broadly on the particular issue of importance to the board. In addition to board meetings, citizen members in Case #1 meet prior to the board meetings to discussing the issues related to the area of discussion planned for the meeting. Members also participate in budget meetings and in technical review meetings with the regulators and Army.

Procedural Quality of Deliberation

A number of functions/procedures need to be fulfilled to enable good quality deliberation. The DOE and DOD boards are typically faced with a large number of complex, interrelated scientific, policy and regulatory issues. In many cases, and particularly for the larger, multi-program sites (Hanford, Savannah River Site and Oak Ridge for DOE and Case #1 and, to a lesser extent, Case #3 for DOD) the issues are so huge as to be overwhelming. Establishing an effective organizational structure and

procedures were essential prerequisites for deliberation. As demonstrated in the following discussion, the boards that were unable to do this effectively were also less likely to perform well on competence, legitimacy and capacity outcomes.

There are various ways to ensure performance of the functions that facilitate effective deliberation. The specific approach does not seem to be as important as ensuring that the functions are performed and, in particular, that they are designed to enhance the quality of the board's deliberative process. A variety of procedures were developed by the effective boards, including:

- Good quality administrative support

Support included staff to take care of meeting logistics, including timely distribution of meeting notices and agendas; identifying and distributing review and other documents; maintaining accurate and comprehensive meeting minutes that kept a record of issues raised and agency responses; and establishing and maintaining a current web site.

Most DOE boards were relatively well funded, with good administrative support, and able to fulfill these basic needs. Three of the four DOD boards were also able to do so, although only two had current web sites (#1 and #4). One board (#3) had problems with prompt distribution of documents; overly brief, and not very comprehensive meeting minutes; and also lack of a current web site. Case #1 had especially good information on its web site about the installation remediation areas, as well as detailed meeting minutes and contact information for all activities. Because the DOD boards do not provide written group advice to the agency, the meeting minutes at these boards are an especially important tool for keeping track of members' questions and the agency's commitments, a feature of both Case #1 and Case #4.

- Leadership and Organizational Structure

The leadership and organizational structure included appointment of a Chair (or Co-Chair) and establishment of committees, as needed to assist in coordination and performance of the board's work.

Some differences were apparent in the organization of the DOE and DOD boards. For example, all military boards had two Co-Chairs, one to represent the military and one to represent the citizen members. The military or government Co-Chair was appointed by the Installation Commander—typically, he or she was the manager of the Installation Restoration Program. The military boards did not have an Executive Committee and the Co-Chair was responsible for coordinating board activities and for conducting the meeting, with assistance from the Community Co-Chair. The Community Co-Chair was elected by the board. In addition, as noted in the previous section, two of the boards (#1 and #3) used an ad hoc or standing committee to help perform the work of the board.

DOE boards differed in their approach. All except two boards (Paducah and Pantex) appointed a Chair and Vice Chair and established committees, including an Executive

Committee to help the Chair in coordinating and integrating the board's work. The Paducah and Pantex boards did not have an Executive Committee and appointed Co-Chairs rather than a Chair and Vice-Chair. For both boards, the intent was to provide representation for two divergent interests on the board. For example, at Pantex, board members were organized into caucuses commonly referred to as "boosters" and "critics," with Co-Chairs to represent each caucus. At Paducah, the board was not formally divided into factions opposing and supportive of DOE, however each Co-Chair represented a particular faction. The net result at both boards was to accentuate rather than reconcile the differences and promote a sense of unity.

- Agenda Setting and Prioritization of Issues

One of the foremost challenges faced by board members was to develop a comprehensive, "big picture" understanding of the site's cleanup issues, to be able to identify and prioritize the issues on which to focus, and to prevent issues that were not considered part of their designated scope to affect deliberation on remediation.

DOE board members played a lead role in agenda setting and issue prioritization. At military boards, this role was played by the Government (military) Co-Chair. The DOE Board Executive Committee and Committee Chairs took the lead in developing the agenda and prioritizing issues. In addition, most boards established a process for developing a work plan for the year, with input from the regulators and DOE—sometimes this involved an annual workshop or additional meeting. At Fernald, a committee of the board, involving also members of the community, developed the *Fernald Citizens Task Force Recommendations on Remediation Levels, Waste Disposition, Priorities and Future Use* (1995) which provided a comprehensive blueprint and recommendations for the site (and were adopted in their entirety by subsequent decisions by DOE and regulators). Paducah and Pantex did not adopt this approach until several years into their existence but relied on developing an agenda at the end of the preceding meeting.

The military boards relied on the Government Co-Chair to develop an agenda, with input from the community Co-Chair. Members could add issues if they wished. Issues for presentation were decided according to the progress of work on site. At Case #1, the meetings were organized so that each of the major cleanup areas was discussed in turn on an annual basis. This approach was developed with prior discussion and agreement by board members as a way to enable the board to focus in depth on each area. At that installation, also, citizen members met immediately before the board meeting to identify, discuss and prioritize among themselves issues related to the area of discussion planned for the meeting.

Both DOE and military and boards experienced problems in limiting the agenda and scope of their discussion to environmental remediation, especially when no other forum was in place for addressing out of scope issues of importance to their community and community levels of trust in the agency were low. To narrow and obtain agreement on the scope and focus of the board's work required a two-step process of first forging

agreement among the very diverse interest on the board and subsequently coming to an agreement with the agency. For DOE boards, the primary out of scope issue that affected the ability of the boards to do this was the continued production of weapons and nuclear materials. For the military boards, problems were caused by the DOD guidance that the board's deliberation be limited to remediation issues that were funded under the Installation Restoration Program.

As discussed under “pre-existing level of trust/conflict,” the scope and nature of the DOE mission was a key factor affecting board functioning. Sites where remediation was the sole or primary mission (e.g., Fernald and Hanford) could focus their deliberation accordingly. Sites where other DOE missions—particularly those related to weapons production—competed for the attention of the community were more likely to experience problems in focusing deliberation on remediation issues. The problem was exacerbated at sites where the board provided the only public participation mechanism for expression of community concerns

The experience of the Los Alamos board provides an illustration of the impact on the board's performance when the board was unable to effectively pursue the two-step process cited above. When the board was first formed in 1995, multiple issues of concern to the community spilled over into board deliberations on remediation issues and, in the absence of alternative forums, the board became a primary mechanism for expression of these concerns. In part, these issues were related directly to the site's defense mission and the longstanding conflict over weapons production; in part, they were related to broader community concerns about DOE and the Laboratory's operations; and in part, they were reflections of community concerns about social and economic conditions. This placed a heavy load on the board—and a load for which citizens, DOE and Lab management were unprepared. As one interviewee noted in the 1998 study, “This was the first real public involvement opportunity [here] and everyone tried to get through the door at once with their community concerns.” Conflict among both board members and between DOE and the board was addressed by the Secretary of Energy's decision to terminate the service of members whose two-year terms of office were expiring in 1997. Amid considerable controversy, meetings were discontinued, pending selection of replacement board members. DOE assumed responsibility for this process and a newly reconstituted board began operations six months later. These events significantly disrupted board activities for over a year and left residual issues that continued to affect board operations, despite the commitment of local DOE environmental staff to be open in providing information, reach out to the broader community and put in place an organizational structure and effective procedures to enhance the quality of deliberation.

Other DOE boards faced similar problems of agreeing on scope and agenda. Paducah and Pantex continued to struggle. Pantex was later dissolved while, at Paducah, a short-term improvement was seen in the 2002 study after the site made a determined effort to increase its support for the board and make changes in access to information and the organizational structure of the board. At the Savannah River Site, pre-existing levels of trust, combined with the commitment of local site staff to provide assistance to the board

in enhancing their procedures and a very active policy of being open in providing information to the broader community (including opponents) resulted in the ability of the board to forge the necessary agreements on the scope and focus of the board's activities.

For the military boards, several issues affected the board's ability to forge agreement among members and between members and the military on the legitimate scope of the issues for deliberation. As with the DOE boards, the severity of the impact was increased when the advisory board was the sole mechanism for the expression of public concern and where preexisting levels of trust were low. A first issue was that some remediation projects, which were funded under other programs than the Installation Restoration Program, were deemed as being of scope, even though clearly linked to the in-scope remediation issues. This "color of money" issue was addressed by some boards by the flexibility of the installation's interpretation, including the willingness of the Government Co-Chair to actively help members pursue such issues via other channels (Case #1) and/or to provide time on the agenda for their discussion, even though they were not part of the official deliberation and included in the meeting record (Cases #2, #3 and #4). Second, some issues of concern to the community were either not under EPA's jurisdiction (e.g., issues related to nuclear contamination) or were related to re-use of the property which were broader than the board's scope (Cases #3 and #4). Again, these issues were addressed by the willingness of the Co-Chair to set aside time for their discussion and help members pursue other official channels to seek resolution. These approaches did not always fully address members' concerns, especially for Cases #3 and #4, although the willingness of the Co-Chair to acknowledge the concerns and seek alternative channels for their resolution did prevent the breakdown of trust that occurred at some DOE boards, discussed above.

- Tracking Board Advice

As discussed in the introduction to this paper, the differing approaches taken by DOE and DOD to establishing their boards affected subsequent board operations. DOE boards, established under FACA, were authorized to provide advice to DOE and the regulators. DOD boards could only give advice that reflected their individual viewpoints and the advice thus tended to be given informally as part of a discussion or a question and answer process. The meeting minutes served as the only record and in cases where the minutes did not provide a very detailed record, the ability of the members to follow up was reduced (Case #2 and #3).

All of the DOE boards provided written recommendations and maintained a record of both the recommendation and DOE's response. Although DOE's *Guidance* encouraged managers to provide feedback to the boards, written responses (including an explanation of how the recommendation will be implemented or the rationale for not accepting a recommendation) were not required until the guidance document was revised in 2000. Meanwhile, several boards (Fernald, Hanford, Oak Ridge and Savannah River) had established a formal system to track recommendations and responses. Paducah and Pantex had not.

Quality of Deliberation about the Scientific Analysis

The studies of DOE and DOD boards revealed several factors that enhanced the quality of deliberation and in turn, the outcomes of the board process. It is important to note that the boards were intended to focus members' attention on the policy issues and not the details of the science. Factors that affected the quality of the deliberation included:

- Access to information.

Access to timely and accurate information is a prerequisite for community members' ability to participate effectively. Although members of the public have legal access to cleanup documents, not all information pertaining to site decisions is covered by legal requirements and DOE and DOD retain discretion over what additional information is made available, as well as how much information they are willing to share with board members as the decisions are framed. Many board members relied heavily on information and presentations provided at the board meetings and used the meetings as the primary opportunity for soliciting information in a detailed question and response process.

Boards were more likely to score high on the outcome categories, in particular on competence, when a number of conditions were met. These included active involvement by citizen members in questioning and following up and in helping frame the issues. Also important were the actions of the agency: open in providing responses, willing to share budgeting and planning information, provide draft documents for board members review and seek input before decisions were made. Among DOE boards, these conditions were met, or largely met, at Fernald, Hanford, Nevada, Oak Ridge and Savannah River. At Paducah, information access was constrained—and indeed, media revelations in 2000 revealed that negative information had apparently been deliberately hidden from the public. As shown in the 2002 study, board operations improved when a new manager was appointed who made access to information and openness a key priority (this situation subsequently deteriorated when new management changes were made). For DOD boards, Case #1 was clearly the most open and citizens most involved in active questioning and follow up. All members attended semi-annual or annual budget meetings to discuss and give input on budget priorities. In addition, a board citizen representative was invited to attend semi-annual or annual project team meetings between the Army and regulators, typically to participate in review of the data and decision about whether additional data were needed before issuing a study (e.g., a feasibility study) to the public.

- Balance between citizen and agency resources

Although citizens clearly can not be expected to achieve equality with agencies in terms of resources such as time and scientific expertise, the deliberation is likely to be improved when a situation of relative balance is achieved such that citizens are sufficiently knowledgeable about the scientific, regulatory and policy-related issues to

know when decisions (and pre-decisions) are made, to be able to assist in framing the issues and how best to questions agencies.

Attaining this level of knowledge was difficult, especially for non-technical members who had no previous experience of cleanup issues. DOE boards that achieved this evidenced several characteristics: intensive deliberation in standing committees with the help of support staff to obtain information, facilitate the meetings and provide technical assistance as needed; discussion with the DOE technical staff who were assigned to assist the committees in their deliberations; very active questioning of DOE and the regulatory agencies in board meetings; inclusion of all members in the discussion of issues and recommendations brought be the various committees to the board; board members' institutional knowledge and familiarity with the site; the ability of members to devote time to researching issues and following up; and funding to provide for a technical assistant to help mentor and enable non-technical members come up to speed.

Some sites, such as Hanford were at an advantage. In part this derived from the knowledge and experience of some members, which had been had gained in working on site collaborative problem-solving efforts prior to establishment of the board. These same efforts had also established a set of principles and values for the overall cleanup at Hanford that had widespread support and which the board subsequently adopted and used as the basis for deliberations. In part, also, Hanford benefited from the organizational representation on its board which resulted in members who were technically competent and had the time to keep current on the multiple, complex issues as part of their daily employment. Oak Ridge and Savannah River benefited from the participation of former DOE and contractor employees who were retired and had both knowledge and time to devote to deliberation (although this had the associated disadvantage of possible bias in representation). Fernald and Nevada both benefited from having a technical assistant who monitored and helped non-technical members get up to speed.

Among military boards, Cases #1 and #3 were more able to engage in deliberation about the scientific analysis. Most citizen members in Case #1, did not have a technical background. However, the help provided by the Technical Assistant Grant consultant was invaluable in helping equalize the balance. The consultant assisted with issue identification, document review, agenda setting and mentoring of members and took a lead in active questioning of the military, as well as working with the leadership to enhance the procedural quality of the meetings. In Case #3, the technical expertise of some of the members enabled them to deliberate with the military and participate as equals in meetings, including comment resolution meetings with the regulators. However, the performance of this board in terms of the outcome measures of competence, legitimacy and capacity was affected by problems in obtaining prompt access to information. In addition, although the technical members were able to participate, they failed to take steps to ensure that the non-technical members were not excluded. By focusing individually on the provision of comments on technical documents, they had omitted the need to include the latter and to help them understand the issues, express their concerns, and draw on their own knowledge of the community to participate in the deliberation.

Organizational Culture and Structure of the Participating Organizations

Two important aspects of the organizational culture that affected outcome and process were the role of Headquarters and the complexities of the organization at the local level.

As discussed in the first section, the operation of the boards was subject to DOE and DOD guidance which affected the outcome and processes of board deliberations. Of particular note was the DOE decision to establish the boards under FACA, which affected procedures for providing advice and also tracking agency commitments. The more flexible approach of DOE, in which the sites were afforded latitude in implementing a program in accordance with general principles, was consistent with the agency's culture in which the sites had historically been delegated a more independent role than in the military. By comparison, the DOD guidance was more directive in nature. It was designed to provide guidance on the specifics of implementation for a much larger number of boards.

DOE also put in place at Headquarters an effective organizational structure for providing informal advice and encouragement, which was particularly needed in the early, formative years. The public participation staff at Headquarters coordinated regular conference calls among representatives of local boards; initiated a public participation training program for technical managers at all levels; provided for program evaluation; and initiated national-level annual and bi-annual meetings.

Both types of boards, however, shared a need to follow agency directives and decisions with which they might not agree and/or which were not influenced by their written or informal advice. All had to work through their respective bureaucracies, although DOE boards had an advantage of smaller numbers and could more easily speak with one voice. Even when effective and working relationships, based on personal interactions and knowledge were established at the local level, the information, analysis and advice provided by the boards comprised only one part of the decision-making process at Headquarters where many decisions affecting the sites and boards were made.

Members of all boards expressed skepticism about the commitment of Headquarters decision makers to the concept of meaningful involvement and their willingness to heed board advice. This was a continuing theme both in interviews with DOE and military board members in 2002 and 2004 respectively, and clearly demonstrated in responses to the early DOE surveys shown in Table 1. Some members were accepting of the situation, recognizing that Headquarters' decision makers were subject to competing pressures, including political pressures, and that working closely with their sites' staff remained their best opportunity to influence decisions—particularly if combined with direct political action on their part, as individuals. Others expressed concern that board processes sponsored by an agency could not provide a truly independent voice and were subject to changes in direction at the Headquarters level that could affect board outcomes.

An additional factor that affected boards was the degree of complexity at the local level and the number of institutional actors whose authority needed to be considered. One of the most complex was at the Hanford site where the separation of site management into two components, each responsible for cleanup decisions, created coordination and consistency challenges for DOE and the regulators, and coverage challenges for the stakeholders. At Paducah, the site manager did not report directly to Headquarters but through the Oak Ridge Office located approximately two hundred miles away. This complication added to the other problems faced by the board.

Resource Constraints

In general, the military boards were not able to draw on the same level of staff and funding resources as the DOE boards. Resource constraints affected board performance in a variety of ways. As indicated in the preceding discussion, board processes are enhanced by funding and staff resources that permit, at a minimum:

- Open access to information, including keeping comprehensive records of meetings; providing access to the information, including web access; and tracking and making available documents concerning cleanup
- Deliberation between board members and agency staff, including the technical staff responsible for the various projects
- Funding for facilitation and technical assistance
- Holding a sufficient number of meetings to enhance members' understanding and afford opportunity for deliberation

The impact of resource constraints was especially evident at military installations where staff had been reduced and efforts were concentrated on excessing property (#3 and #4). Limitations on both administrative and technical staff resources hindered the provision of more than a minimum amount of information—web access was unavailable or limited and money for copying and distributing documents was limited. There was also a limited number of on-site staff to talk with members of the public and certainly an insufficient number to participate in additional meetings of either the board or its committees. By contrast, the DOE boards and Case #1 were able to provide access, including web access to information; keep and use mailing list of interested persons; copy and distribute reports; and have efficient means of distributing meeting notices and agendas. They also had the staff resources to ensure that technical project managers attended board meetings, were known to board members and were available for participation in committee meetings. DOE technical staff, in particular, played an active role in the committee meetings which were often the focal point for deliberation.

Although facilitations and technical assistance is authorized under the DOD regulations, funding for facilitation and technical assistance was also more limited at the small military installations. In Case #1, technical assistance was provided under an EPA grant. The boards at the other three installations would also have been helped by technical assistance. In addition, a facilitator may have been helpful in Case #3 to assist with problems that were occurring among board processes and relationships.

In part, also, the level of resources may reflect the degree of commitment to public participation by site/installation and Headquarters staff. At DOE sites, sufficient resources were made available during the 1990's when public participation was strongly encouraged by Headquarters. At two sites that encountered problems (Los Alamos and Paducah), increased commitments in 1998 and 2000 to enhance the board's procedures and availability of information were reflected in improved outcomes that were identified in the 2002 study.

Dynamics of the Process

This section focuses primarily on the dynamics of the DOE boards which were studied over a period of time. Only brief reference is made to the military board processes. In these boards, several factors can be identified that affect the unfolding of participatory processes over time:

- Strong and continued support for advisory boards

When first initiated, the boards indicated a new way of doing business by an agency whose culture had historically been secretive. Nationally, as evidenced by the Keystone report and by Congressional action,^v there was strong support for public participation in general and for advisory boards in particular. Strong DOE support continued throughout the 1990's: DOE/EM was a growing organization; cleanup reflected a new, positive mission for DOE; and policies for ensuring openness and public participation that were strongly encouraged by Headquarters provided a sound foundation for the program. The commitment to the boards was demonstrated by Headquarters' encouragement and assistance in the early, sometimes difficult phase of establishing a board.

Conversely, at the time of the 2002 study, many interviewees expressed concern that DOE support for public participation was not as strong as formerly. They were critical of a perceived reversal to the stance of Decide-Announce-Defend on the part of Headquarters and concerned about what this foretold for the future of public participation and the boards.

- Citizen initiatives

Even with training and support, changing from a secretive to an open environment was a challenge for DOE. The public played an important role in helping DOE interpret what public participation meant. Active and persistent questioning by citizens, hard work in getting up to speed and commitment to the process were features of the boards that facilitated this process. The citizens' actions helped push DOE into allowing them to help frame the issues, comment on draft rather than final documents and be taken seriously as valuable contributors to the deliberation. In addition, the extent to which board members were able to agree on a common purpose and agenda strengthened their position in deliberations. These were features of the DOE boards that were able to

participate effectively (Fernald, Hanford, Nevada, Oak Ridge and Savannah River; also Case #1).

- Salience and commitment

When issues of contamination and remediation are highly salient, both community and agency personnel are more likely to be committed to finding a resolution. Recruitment, and retention of citizens and their willingness to devote volunteer hours is increased. At the same time, an agency is more likely to commit funding and ensure that the staff and other resources are available when the issues are highly visible and seen as affecting their ability to achieving their mission. Agency commitment included regular upper management attendance at board meetings and the expectation that technical project managers will participate (Fernald, Hanford, Oak Ridge and Savannah River and also Case #1 for the military boards.) Media publicity, such as the publicity at Fernald in the late 80's and early 90's, may play a role in highlighting problems that need to be addressed. For example at Paducah, where establishing a board was not a priority for the community or the agency in the mid 90's, widespread media coverage in 2000 concerning previously undisclosed issues of contamination and exposure, resulted in a greater degree of agency commitment to open disclosure and improving board processes.

- The potential for out-of scope issues to affect board deliberations

As discussed previously, an advisory board cannot carry the load for the entire public participation needs of a community, particularly if the non-remediation issues are of high salience. The experience of the Los Alamos board showed the problems that can occur and affect the dynamics of board operations. Similar, though less dramatic examples occurred in the early days of the Oak Ridge board, when activist members were unable to get health issues on the agenda, as well as at Paducah and Cases #3 and #4. In the latter cases, there were no other military provisions for addressing community issues related to property transfer and potential health impacts from nuclear materials.

- The engagement of regulators

The role of regulatory agencies is an important dynamic in board processes and outcomes. Among the DOE sites, participation at Hanford was driven to a greater degree than at other DOE sites by agreements with the regulators—specifically by the Hanford Tri Party Agreement and the Tri-Party Community Relations Plan. The regulators played an important role in recruitment and were identified by Hanford interviewees in the study conducted in 2002 as important to their ability to obtain information and frame issues. Interviewees at all of the military boards also emphasized the importance of the regulators in being an important source of independent information, asking questions and helping their own understanding of pertinent issues and providing support to them in board operations. In addition, in Cases #1 and #3, EPA was reported to have held meetings at the request of members to help them address issues which the agency was unable to resolve.

- Using additional sources of support and leverage

By providing leverage, a network of supportive contacts can enhance the legitimacy of the board and its ability to be taken seriously by an agency. Important networks include links to federal, State and local officials; local and regional interest groups and others with power to effect change. At Fernald, for example, the synergism among members of the board, the activist group FRESH and the site labor unions facilitated the process of getting the community's issues on the agenda. At Hanford, strong networks among regional groups enabled members obtain information independently of DOE and identify and prioritize the issues of importance to the community. And at Case #1, a supportive network, including assistance from a local activist citizen group and elected officials, helped ensure protection of the community's interests when decisions were made.

- The effects of working together

Almost all participants interviewed for the 2002 study agreed that the process of working together over a long time period had helped forge a sense of common purpose—that they were able to work productively together, understand one another's viewpoints and have a constructive dialogue among diverse stakeholders (albeit with some ongoing tensions)

- Reaching out to the broader public

All of the boards sought to expand their activities to include the broader public—efforts that helped build credibility at the same time as bringing a fresh perspective and fresh ideas. The Nevada board, which met in Las Vegas where the DOE offices were located, made special efforts to inform and interact with members of the rural communities near the Test Site where remediation was being conducted. Two boards which lacked activist members were active in reaching out to all segments of the public. At Los Alamos, for example, the DOE DDFOs provided commitment and leadership in focusing on reaching out to the community by creating “Constituency Seats” for four Accord Pueblos and extending outreach to groups historically critical of the site. Recommendations to DOE included several public involvement recommendations. At Savannah River, the open Board and committee meetings over time became a means for interested, and especially activist members of the public who did not participate as board members, to keep updated on site activities, ask questions and get their issues on the agenda.

ⁱ *Interim Report of the Federal Facilities Environmental Restoration Dialogue Committee: Recommendations for Improving the Federal Facilities Environmental Restoration Decision-Making and Priority-Setting Processes*, The Keystone Center, 1993.

ⁱⁱ The DOE studies were 1) *An Evaluation of DOE-EM Public Participation Programs*, PNNL-14200. Judith A. Bradbury, Kristi M. Branch and Elizabeth Malone. Pacific Northwest National Laboratory. Prepared for the U.S. Department of Energy, Office of Environmental Management, Office of Intergovernmental and Public Accountability, February 2003. 2) *An Evaluation of the Effectiveness of Local Site-Specific Advisory Boards for U.S. Department of Energy Environmental Restoration Programs*. Judith A. Bradbury and Kristi M. Branch, Pacific Northwest National Laboratory. Prepared for the U.S. Department of Energy, Office of Environmental Management, Office of Intergovernmental and Public Accountability, February 1999.

3) *Site Specific Advisory Board Initiative 1997 Evaluation Survey Results*, Judith Bradbury, Kristi Branch, and Mary Zalesny. Second report prepared for the U.S. Department of Energy, Office of Environmental Management, Office of Intergovernmental and Public Accountability, 1997. 4) *Site Specific Advisory Board Initiative 1996 Evaluation Survey Results*. Report prepared by Judith Bradbury, Kristi Branch, and Mary Zalesny for the U.S. Department of Energy, Office of Environmental Management, Office of Intergovernmental and Public Accountability, September 1996.

ⁱⁱⁱ *EPA Federal Facilities Implementation Guidelines* (issued jointly by EPA and DOD) 1994; US Department of Energy, Office of Environmental Management, *Site-Specific Advisory Board Guidance*, Final, December 1995.

^{iv} The Appendix has been withheld, ending confirmation of the data included on each board.

^v Section 3132 of the National Defense Authorization Act for Fiscal Year 1993 required DOE to assess the effectiveness of existing advisory groups, the desirability of establishing new or replacement advisory groups and methods of improving public participation in the agency's environmental and waste management activities.