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The Hanford Advisory Board: A Case Study in Democracy, Technology, and Representation

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The Hanford Advisory Board:

A Case Study in Participatory Democracy, Technology, and Representation

Introduction

Highly technical policy decisions present daunting challenges for democratic theory. When faced with such decisions, ordinary citizens' lack of technical expertise often makes it difficult for them to articulate and defend their own interests and to hold decision-makers accountable. This challenge cannot be overcome without, among other things, an epistemic division of labor and institutional mechanisms that reliably connect the interests of ordinary citizens with policies formulated by experts and bureaucrats. One of the major tasks for empirically informed democratic theory is to analyze and evaluate practices and institutions that use public participation to try to render highly technical public decision-making more legitimate.

Over the past several decades, U.S. government agencies engaged in environmental policy have begun to incorporate mechanisms for public participation such as public meetings and comment periods, focus groups, citizen juries, and advisory boards that go beyond the conventional framework of citizen representation through elected officials, media, and public protest (Beierle and Cayford 2002). The Hanford nuclear cleanup site near Richland, Washington provides an ongoing case study of the potential for democratizing high-stakes scientific and technological decision-making.

We contend that the Hanford Advisory Board, a broadly representative, deliberative body that provides formal, policy advice on Department of Energy (DOE) proposals and decisions, provides promising institutional innovations that go some way toward creating normative legitimacy through public involvement. We analyze formal Hanford Advisory Board (HAB) advice and government agency responses and draw on thirteen interviews with participants and

close observers of the HAB to evaluate the board's success in mitigating the dangers of domination by bureaucrats and technocrats. In doing so, we suggest a democratic response to a problem raised by F.N. Laird over twenty years ago: "What are the necessary structural features of a participation program that will overcome technocratic definitions of issues?" (Laird 1990: 58). Laird held that the rise of technocracy has contributed to a decline in engaged citizenship: in a world of increasingly technical policy decisions, citizens without technical expertise have little to contribute even if they have an interest and stake in how issues are addressed (Laird 1990: 53, c.f., Chilvers 2008: 425). The rise of environmental organizations (and other public interest groups) with technical expertise does little to resolve this problem; it simply introduces new groups of technocrats who may or may not serve the public interest.

In the first section, we briefly discuss the history of the Hanford site and the challenges raised by the cleanup. The second section addresses the Hanford Advisory Board in particular and explores its design and operation using a taxonomy developed by Archon Fung. In the third section, we outline a normative framework for evaluating participatory institutions in contexts such as Hanford; we draw attention especially to the danger of bureaucratic domination. The fourth and final section develops our assessment of the Hanford Advisory Board in light of the normative principles we develop in section 3.

1. The Hanford Site: A Brief Introduction

The Hanford site was chosen as part of the Manhattan Project to produce plutonium for nuclear weapons under the War Powers Act. Hanford was selected because of its relative isolation, its proximity to a dependable source of power, and its access to the Columbia River's water to cool the reactors. In 1944, the B Reactor – the world's first full-scale plutonium reactor – began

producing plutonium for the “Fat Man” bomb dropped on Nagasaki. In the next ten years, the Atomic Energy Commission added seven more reactors, including the N-Reactor (which also served as a commercial reactor). For over forty years, Hanford produced most of the plutonium for the US’s nuclear arsenal.

Not until recently did that Hanford site become an object of public scrutiny. The Atomic Energy Commission operated Hanford under a mandate of state secrecy from 1947 until 1977 when the Department of Energy took control. A strict policy of secrecy continued until 1986, when in response to public pressure the Department of Energy released nineteen thousand pages of documents on Hanford (Gerber 2007: 201). The documents revealed the extraordinary environmental damage to soil and groundwater and the negligence of the Atomic Energy Commission in respecting public safety. Until the 1970s, water used to cool single-pass reactors was discharged back into the Columbia River and billions more gallons of contaminated water were dumped into the soil. Many of the 149 single-shell underground tanks had leaked millions of gallons of waste into the soil. Radiation released into the air may have caused thyroid cancer and hypothyroidism in people living in the region. Of particular notoriety is the 1949 “Green Run” in which the Department of Defense intentionally released 7,780 curies of iodine-131 and 4,750 curies of xenon-133 into the atmosphere as an experiment on the effects of airborne radiation (Gerber 2007: 90-92).

In 1989, Hanford officially ceased to produce plutonium and moved to the cleanup and waste disposal phase. With nine decommissioned reactors, the site was immediately recognized as the largest nuclear waste site in the United States, containing millions of gallons of highly radioactive waste, multiple toxic groundwater plumes, large amounts of transuranic elements, and square miles of toxic landfill. The Environmental Protection Agency (EPA) added Hanford

to its Superfund National Priorities list and in May the US Department of Energy, the EPA, and Washington State signed the Tri-Party Agreement (TPA), formerly titled the *Hanford Federal Facility Agreement and Consent Order*. The Tri-Party Agreement defined the agencies' priorities and responsibilities in managing the cleanup effort and bringing the site into full compliance with the relevant environmental laws, notably the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act (RCRA) (1976). Interestingly, both of these laws contain a legal mandate for public participation. To satisfy these mandates, the agencies have pursued several different strategies, but the centerpiece has (arguably) been the Hanford Advisory Board (HAB).

2. The Hanford Advisory Board

The Hanford Advisory Board is only one of several forms of public participation and outreach overseen by the Tri-Party Agencies, and any thorough evaluation of the quality of public participation at the Hanford site would have to assess all of these forms together. Indeed, the HAB should be seen as supplementing other types of formal and informal public participation as well as conventional representative democratic institutions. At the same time, the HAB deserves special attention because it offers certain advantages over other more frequently studied participatory mechanisms and because it has an unusual structure that distinguishes it from other citizen advisory boards.

The HAB is one of eight local DOE advisory boards (called "Site-Specific Advisory Boards," or SSABs) that "were developed to involve stakeholders more directly in DOE EM cleanup decisions" and help the DOE "make cost-efficient and environmentally sound decisions,

which lead to faster, safer cleanups.”¹ Though formerly created in 1994, the Hanford Advisory Board (HAB) stems from a 1991 Office of Technology Assessment report (the FFERDC Interim Report) that identified “public skepticism of the DOE’s decision-making process” (Convening Report 1993: 3) as an obstacle to the cleanup. According to the SSAB Final Guidance, section 1.0:

In 1991, the Office of Technology Assessment published *Complex Cleanup*, which argued that there was a “... need for a decision making process – acceptable to all interested parties – through which public concerns can be addressed and resolved” to ensure public acceptance of cleanup-related activities. Advisory boards were suggested as an answer to this need – a way to develop meaningful roles for affected community members to contribute in site-specific policy and technical decisions.

In response to the report, the DOE formed the “Hanford Future Site Uses Working Group” that included many of the stakeholders that would form the HAB (Gerber 2007: 268).

The Hanford Advisory Board “is an independent, non-partisan, and broadly representative body” that serves “to provide informed recommendations and advice to the U.S. Department of Energy, the US. Environmental Protection Agency, and the Washington Department of Ecology ... on major policy issues related to the cleanup of the Hanford Site.” (Convening Report 1993: 4). The HAB writes letters of advice on all aspects of the cleanup. The HAB also incorporates public involvement; meetings are open to members of the public and comments are on the record. The initial plan for the HAB’s design was drafted by the Keystone Center, a non-profit conflict management group that was asked to convene and oversee discussions among important stakeholders in the Hanford region.

¹ <http://www.em.doe.gov/stakepages/ssababout.aspx>

In this section, we review the specific design features of the HAB, explore the ways in which it differs from other participatory initiatives, and begin to examine the public justifications offered for the HAB's current design. In doing so, we make use of Archon Fung's useful classifications. Fung classifies public participation along three dimensions: scope of participation, mode of communication and decision, and extent of authority (Fung 2006). He asks three corresponding questions of participatory institutions: "Who participates? How do they communicate and make decisions? What is the connection between their conclusion and opinions on one hand and public policy and action on the other?" (67). Each of these questions can be used to clarify important design features of the HAB.

a. Who Participates?

There are currently 37 members of the HAB (and one seat remains vacant).² Five of those members represent the several state and federal bureaucracies involved in the Hanford cleanup: the DOE (two seats), EPA, Washington State Department of Ecology, and Washington State Department of Health. The other participants are citizens who have been chosen to represent different, overlapping local and regional constituencies (see Table 1). These constituencies include: local county and municipal governments (7 seats), local business interests (1 seat), the workforce involved in cleanup at the Hanford site (5 seats), local environmental interests (1 seat), "regional citizen, environmental, and public interests organizations" (5 seats), local and regional public health interests (2 seats), Tribal governments (3 seats, of which 1 remains vacant), the state of Oregon (2 seats), the University of Washington and Washington State University (1 seat each), and the "public at large" (4 seats) (Hanford Advisory Board Membership). With the exception of the "public at large" representatives, each of the members is

² A table outlining HAB membership is available here: http://www.hanford.gov/files.cfm/HAB_mem-org.pdf

supposed to be answerable to the specific constituencies he or she represents and to “consult with these entities and constituencies on a regular basis” (Operating Ground Rules).

Each of the constituencies identified by Keystone’s Convening Report was originally asked to nominate their own candidates for the Board. And when a seat is vacated, the Board is directed to consult with the relevant constituency and invite (no more than three) new nominations. The Tri-Party Agencies reserve the right to interview and vet these nominees, which are then submitted to DOE for final approval—so the agencies retain substantial discretionary control over the selection process (Memorandum of Understanding).³ Our interviews indicate, however, that the DOE does not generally interfere with these appointments.

Fung outlines several different ways of choosing participants for a deliberative process or institution. The first and most obvious is simply *self-selection*: meetings can be open to the public, and anyone interested can participate. Though this method has an obvious intuitive appeal, Fung notes that its limitations are also apparent: participants tend to be highly unrepresentative of the population whose interests are at stake (Fung 2006: 67). The group of participants can be made more representative through either *selective recruitment* or *random selection*. And selective recruitment can be guided by different goals: it can choose *lay participants* or *professional participants* (who work for government agencies or relevant non-profits) (67-68). It can also aim to render the institution more representative or simply more diverse.⁴

The HAB combines these several possibilities. Seats on the board are deliberately allocated to certain groups. Moreover, broader public participation in the HAB’s meetings is fairly limited. Members of the public must sit in the “galley” behind the main discussion table,

³ http://www.hanford.gov/files.cfm/HAB_MOU.pdf

⁴ The goal of (descriptive) representativeness and diversity often pull in different directions, since the affected population may not itself be highly diverse.

and are invited to make comments only during a few brief public comment periods, typically at the end of HAB discussions. A 1999 evaluation of the HAB found, for instance, that HAB meetings “are not structured to facilitate public engagement” and “are generally not well attended by the public” (Bradbury and Branch 1999: 10). Our own observations in 2012 confirmed that these findings still hold.

The Keystone Center’s report outlines the rationale for the HAB’s particular allocation of seats.⁵ After conducting interviews with local citizens and interest groups, Keystone identified these different constituencies as having a “clearly definable stake” in the outcome of the Hanford cleanup (Convening Report 12). Much of the Keystone Center’s analysis is focused on delineating the discrete interests of these several affected constituencies. For instance, the state of Oregon has an interest in the cleanup because the Columbia River is threatened with contamination. The Keystone report does not, however, carefully explain *why* certain groups are allocated more seats than others, and how the numbers of seats were determined.

The decision to recruit participants selectively was clearly motivated by a number of different normative considerations. The Keystone Center invokes the “principle of affected interests” as its broad, guiding normative principle. It also cites the need for “balance and diversity” among the interests represented (Convening Report 1993: 11). Official DOE and EPA documents also cite the need to develop strategies that are “acceptable to all interested parties” (SSAB Final Guidance).

It is worth noting certain normative tensions, however, that remains unaddressed in official reports. The principle of affected interests suggests that groups deserve a say in a certain

⁵ There are some small discrepancies between the Keystone Center’s original proposal and the current design of the HAB. Ex: now only one seat for local business interests instead of 4 (2 local and 2 regional) in original proposal. Ex: some of the organizations currently represented in under workforce and local/regional NGOs are different than the ones on Keystone’s original list.

decision because their interests will be affected by it and in proportion to the normative importance of these interests. The normative importance of their interests is typically determined, moreover, by the size of the constituency and the “intensity” of the interests at stake (together, these two concerns would determine the extent of each constituency’s *normative stake* in the Hanford cleanup). It also suggests that the HAB’s principal function is to enable these constituencies to protect their interests by wielding power that is proportionate to their normative stake.

Certain other features of the HAB, however, suggest that this view of the board’s function is at odds with its current operation. First, the consensus decision rule tends to equalize the relative strength of the groups represented on the Board. Second, the agencies’ discretionary control over the appointment of nominees also stands in some tension with the principle of affected interests, at least in the sense that it allows the agencies to help decide how and by whom each group’s interests will be represented. Third, as we discussed above, the justification often given for the Board in official documents is, at least in part, epistemic. A more epistemic understanding of the Board’s purpose would suggest different criteria for allocating seats – the more epistemic our understanding of the Board’s purpose, the more we might want to encourage diversity (or trained expertise) on the board, rather representation that is proportional to each constituency’s normative stake. We come back to these questions in more detail in our assessment, later in the paper.

b. How do Participants Communicate and Make Decisions?

The Board’s communications and meetings are deliberative and engaged, in the sense that Board members are not merely spectators. Board members set the meeting agendas themselves. Bradbury and Branch note that “As a condition of participation, the initial board members

obtained early commitments from the Tri-Party agencies that the HAB would have the freedom to uncover the issues, set its own agenda, control its own expenditures and have some independent staffing, as well as be listened and responded to by the highest levels of management” (Bradbury and Branch 1999: 5). This condition is reiterated in the Convening Report and in the Operating Rules which insist that Tri-Party agencies “not attempt to control the recommendations of the Board.”⁶

Board members interrogate and deliberate with the agency representatives, and with one another. All members are entitled to speak, and many do. The Board is also divided into five different committees with specific responsibilities,⁷ and these committees each meet separately (in addition to the joint meetings of the HAB) to allow for more detailed and more exploratory conversations. Bradbury and Branch observe that “the committees frame issues, gather information, provide progress reports to the board, and develop draft recommendations, which they bring to the full board” for discussion (6).

Because members of the board typically serve on the board for years at a time, they tend to become familiar with agency jargon and scientific terminology. Also, since many members have experience either as research scientists, as workers at the Hanford facility, or as employees of environmental groups, they bring some policy, scientific, and engineering expertise to the table. As a group, they are therefore unlikely to be intimidated by technical discussions or cowed by bureaucratic specialists. This is significant from a democratic point of view: citizens’ inability to understand technical policy discussions can be substantial barrier to effective participation (Lynn and Kartez 1999: 98).

⁶ <http://www.hanford.gov/?page=449#IV>

⁷ Committees are: Budgets and Contracts; Health, Safety, and Environmental Protection; Public Involvement and Communication; River and Plateau; and Tank Waste.

The board is committed to making its key decisions – concerning “major policy issues” and “major procedural” questions – by consensus. The board’s Operating Ground Rules stipulate, however, that there are several different “levels” of consensus, ranging from full consensus to instances in which some board members dissent from but can still “live with” majority recommendations, to instances in which dissenters, despite their stronger reservations, do not wish to “block” the Board’s decision (Operating Ground Rules).⁸ In cases of still sharper disagreement, the Board is also entitled to write majority and minority opinions, though this practice does not occur in any of the Board’s formal pieces of advice.

Among groups that deliberate actively (rather than passively absorbing information), Fung draws a distinction between two styles of discussion: *aggregation and bargaining* on the one hand, and *deliberation and negotiation* on the other. In the first style, writes Fung, “participants know what they want, and the mode of decision-making aggregates their preferences – often mediated by the influence and power that they bring – into a social choice” (Fung 2006: 68). Deliberation and negotiation, on the other hand, describes a process through which participants shape their own opinions through an exchange of “perspectives, experiences, and reasons” with the ultimate goal of reaching mutual agreement (69). The Board’s commitment to (some form of) consensus, as well as the general culture of the HAB, renders the style of deliberation much closer to deliberation and negotiation. Board members know that they must do more than win over a faction of similarly disposed colleagues; they have to find common ground, and to do so they have to try to understand and engage with all of their colleagues’ points of view.

Finally, Fung distinguishes a third discursive style, which he calls *technical expertise*. This kind of discussion typically aims to solve concrete, technical problems and dominated by

⁸ http://www.hanford.gov/files.cfm/HAB_OpGroundRules.pdf

trained experts. “This mode,” writes Fung, “does not typically involve citizens” (Fung 69). Part of what makes the HAB such an interesting case study is that it seeks to involve citizens in precisely these sorts of technical discussions. Though the board’s purpose is to provide policy-advice, this cannot be accomplished without an in-depth understanding of the technical issues. The Board is routinely called on to assess different cleanup strategies at the Hanford site, to compare different cleanup technologies, and to make judgments about the acceptable levels of risk associated with each. In February 2012, for instance, the Board’s agenda included a detailed review of the DOE’s plan to clean up several contaminated sites near the Columbia River.⁹

The Board’s commitment to decision-making by consensus was not required by the Tri-Party Agencies or stipulated by the Keystone Group, though it has been formally incorporated into the Board’s published Operating Ground Rules. The Board’s commitment to consensus is sometimes framed as a commitment to inclusion and a way of preventing the discussion from becoming too technical (Bradbury and Branch 1999: 8). Nonetheless, democratic theorists have identified serious concerns about consensus. It gives parties a veto that enables them to take proposals off the table and also provides an opportunity for parties to use their veto strategically on issues that do not affect them to extort concessions from others (Barry 1965: 245-49). In our analysis, we suggest that the existence of veto power does make deliberations cumbersome and sometimes enables representatives to block advice, but that the culture of the board—and the deliberative benefits that derive from consensus-oriented discussion—mitigate this danger. In fact, many of our interviewees cite the consensus requirement as a crucial precondition of the Board’s long-term effectiveness. We return to this point in the final section of the paper.

c. What is the connection between their conclusion and opinions on one hand and public policy and action on the other?

⁹ The formal HAB advice appeared in June 2012: http://www.hanford.gov/files.cfm/HABAdv_257.pdf

The most explicit “outcome” of the HAB’s deliberation is the formal advice that it delivers to the Tri-Party Agencies. Each separate “piece” of advice is expressed in a published document, often several pages long and sometimes including up to a dozen specific recommendations. Since 1994, the Board has produced 258 letters of advice covering a broad range of issues from budgets and timetables to technical risk assessments to the adequacy of the agencies’ plans to involve and inform the broader public.¹⁰

The Ground Rules and the Final Guidance stipulate that the agencies should offer the Board “sufficient notice” about impending decisions, so that it has time to review them and offer advice. The agencies are also committed to responding in writing to the Board’s advice. This requirement is stated in the Operating Ground Rules and the SSAB Final Guidance (section 5.2), which also requires senior agency officials to attend HAB meetings.¹¹ The HAB has no formal power, however, to compel the Tri-Party Agencies to follow its advice. Whether, and to what extent, the agencies follow the Board’s advice is mostly at their discretion.

The agencies’ failure to take Board advice into account has been a matter of recurring concern to Board members. Bradbury and Branch emphasize this failure in their 1999 report: “a number [of Board members] expressed serious reservations about DOE’s commitment to take board advice seriously, citing several recent examples of where the board’s advice on major policy and management decisions had not been followed” (11). Our own conversations with Board members suggest that this remains a serious concern. We return to this point below.

Our interviews with Board members and agency officials alike suggest, however, that the formal advice is not in fact the Board’s most consequential “output.” Board members frequently have the opportunity to offer informal advice earlier in the DOE’s decision-making process—

¹⁰ The HAB formal advice letters and agency responses are located here: <http://www.hanford.gov/?page=453>

¹¹ See also Convening Report p. 7-8.

either during exploratory committee meetings or simply over informal conversations around committee meetings. Both sides seem to agree that this informal advice is much more likely to influence the DOE's decisions (in fact, some suggested that formal advice is offered only in areas in which informal conversations have reached an impasse). We return to these questions in the final section of the paper.

Fung outlines a range of possibilities concerning the power and authority that participatory institutions command. In many cases, participatory institutions have no power at over public decisions, but exist largely as a way of allowing citizens to become more informed or to derive other personal benefits from their involvement (Fung 69). In other cases, these institutions are structured to provide some form of "communicative influence" on public officials, either simply by helping officials understand the experiences and interests of participants or by offering formal advice (69). A third type of institution actually empowers participants with some measure of decision-making power, either through a "co-governing partnership" of some kind or through direct authority over public decisions (69). New England town meetings, for instance, serve as an example of direct authority: whatever the assembled citizens decide becomes policy.

It is fairly clear where the HAB falls along this spectrum: it advises state and federal bureaucracies, but commands no share of formal decision-making power. Its influence is "communicative," and is expressed in the form of formal and informal advice. We should add, however, that any full assessment of an institution's power must consider both direct and indirect mechanisms. For instance, the Board might, simply in virtue of the information it gathers about the Hanford cleanup effort and the implicit threat that it could bring any damaging or incendiary information to the media, exercise some indirect power over agency decision-making. This sort

of power depends heavily on the institution's willingness to use it. We return to this question later in our assessment.

3. Public Participation and the Specter of Bureaucratic Domination

In order to assess the adequacy of the participatory institutions at Hanford, we must first take stock of the problems that these institutions are meant to address and explore the normative justification of public participation in highly technical, bureaucratic settings. In this section, we develop a normative framework for evaluating participation at Hanford. We argue that one of the most important normative problems that public participation can help mitigate is bureaucratic domination—a problem that is not well-recognized in the existing literature (or, needless to say, in the official agency documents).

As might be expected, the official public documents at Hanford do not develop any systematic normative justification for public participation. They do, however, outline a handful of general public values that ostensibly justify public involvement. The Hanford Community Relations Plan, for instance, states that public involvement leads to better long-term decisions and that an informed public can maintain support for the cleanup, whereas an uninformed public may “doubt, criticize, or impede cleanup” (Hanford Community Relations Plan 2002: iv).¹² The goals of public involvement include effectively communicating information about the cleanup, ensuring “open and transparent decision-making,” incorporating “public values in the decision-making process,” and preparing “future generations for informed engagement and participation.” (Hanford Public Involvement Plan 2011: 8).¹³

¹² <http://www.hanford.gov/files.cfm/crp.pdf>

¹³ http://www.hanford.gov/files.cfm/Draft_Public_Involvement_Plan100711.pdf This is a draft of a revision of the Community Relations Plan.

Though the Community Relations Plan provides some idea of the goals that animate Hanford public participation, these goals are articulated in very general terms, and they suggest that public participation plays a largely instrumental role in allowing the agencies to improve the quality of their decision-making. Moreover, the Community Relations Plan suggests that participation serves to diffuse opposition to the cleanup based on misunderstanding by providing timely, accurate, and transparent information about the DOE's actions and plans. But the Plan does not explain why there is a need for a formal advisory board to provide continual, detailed oversight of the Hanford cleanup.

For more detailed reflection on the democratic philosophy underlying public participation in technical or bureaucratic decision-making, it is helpful to turn to the theoretical literature that has informed, for instance, the EPA's policy concerning citizen participation. In a seminal 1990 article, Daniel Fiorino outlines three categories of justification for citizen participation.¹⁴ The first he calls "substantive," though we will call it *epistemic* (Fiorino 227). Justifications in this category hold that agency decisions will be more accurate if citizens are allowed to participate in some way in their framing. The central insight here, as we discussed in the previous section, is that citizens can bring important information to the table—especially about local values and interests, and the way they stand to be affected by agency decisions. Such information can help well-intentioned policymakers achieve a more accurate understanding of the costs and benefits associated with particular rules or policies.

Fiorino's calls his second category "normative." Justifications in this category hold that strictly technocratic decision-making, without citizen input, is morally suspect. Fiorino frames this category using democratic criteria: "a technocratic orientation," he suggests, "is

¹⁴ Fiorino's analysis was taken up by the National Research Council in its influential 1996 report, *Understanding Risk*, which subsequently informed the EPA's policy.

incompatible with democratic ideals” (Fiorino 227). We find it more helpful to describe this as the *political* justification for public participation. The central insight here is that agency officials sometimes pursue agendas that conflict with the interests and values of affected citizens. Participation can be a way for citizens to defend their interests and values and try to compel government agencies to be responsive to them. The political justification of participation supposes that agency decisions will often be both more legitimate and more just if citizens are able to defend their interests against government abuse or neglect.

The final category of justification is *instrumental*. In this instance, participation is considered valuable because it enables the agencies to achieve their own goals more efficiently (Fiorino 228). These justifications, which abound in the DOE’s literature, stress the importance of winning over the local population, of making agency decisions *appear* legitimate to those affected by them, and of preempting rancorous opposition and costly lawsuits which prevent government agencies from implementing their programs successfully.

Each of these three categories of justification corresponds to a different kind of problem might afflict technocratic decision-making. First, it might be (relatively) inaccurate—either scientifically or in its grasp of the affected population’s interests—and so impose unnecessary costs on either the government itself or the affected population. Second, it might be oppressive. Third, it might simply be inefficient. As we suggested earlier, the first and third problems are well-recognized in the in the official literature associated with the Hanford cleanup. The second problem—and the corresponding, political category of justification—is, however, substantially underdeveloped. Moreover, such relative neglect renders this literature insufficiently skeptical about justifications that fall in the third category: bureaucracies that use citizen groups to reduce public opposition to their policies may well be accelerating injustice. In the rest of this section,

we suggest one particular way of understanding the normative problem to which citizen participation (in contexts such as Hanford) can function as a response; we call it *bureaucratic domination*.

Bureaucratic domination is a danger in any modern society with a well-institutionalized bureaucracy. The problem arises when bureaucracies amass substantial discretionary power, which is not adequately constrained by the interests of those affected by its decisions. As Henry Richardson has emphasized, such power can arise within otherwise legitimate democracies: “this kind of domination plainly coexists with a democratically elected legislature when that legislature lacks effective legal tools to control what the administrative agencies do” (Richardson 2002: 4). Richardson also argues that legislative oversight is typically not enough to rein in administrative discretion: some measure of participation by affected communities is also often necessary (219-222).

Bureaucracies form an essential part of legitimate, democratic governance in the modern world. They are indispensable to the rule of law, with its demand for “abstract regularity of the execution of authority”¹⁵; they also enable governments to bring important technical expertise to bear on difficult policy questions (10). For these reasons, they are, as Richardson puts it, “necessary means to the legitimate exercise of power” (10). Since bureaucrats are not directly accountable to the public, however, and since they can themselves accumulate tremendous power, any fully adequate democratic theory must address the problem of constraining bureaucratic discretion. Moreover, state and federal agencies’ increasing reliance private contractors to handle key responsibilities only heightens this danger by interposing another layer of powerful agents (in this case, private corporations), with their own incentives, between the public and the work being done on their behalf.

¹⁵ Max Weber, quoted on Richardson 2002: 10.

It is worth pointing out one further complexity here: in some cases, bureaucracies can dominate affected populations not in virtue of their own discretionary power, but as instruments of democratic majorities. Bureaucracies that are (faithfully) accountable to federal officials, for instance, can implement programs that illegitimately damage or sacrifice the interests of local, affected populations. The Three Gorges Dam in China can serve as an example of this more familiar species of democratic domination: even if the dam reflected the informed judgment of the Chinese majority (or of officials acting legitimately on its behalf), it failed to adequately recognize and compensate the millions of refugees that the project has displaced from their homes and land. In these cases, simply empowering national legislatures to exercise effective oversight over the relevant bureaucracies would be an insufficient remedy.

Bureaucratic domination is a central problem that has plagued the Hanford site from the beginning. The DOD was spectacularly delinquent in attending to the interests of the local population (not just in the Tri-Cities area immediately around the Hanford nuclear site, but throughout the Northwest). The litany of negligent decisions is well-known: the release of iodine-131 and other radioactive materials into the air between 1944 and 1957 despite documented knowledge of the risk of thyroid disease (DeJure Wilson 2003), the failure to warn Hanford employees of the risk of exposure to radioactive particles (Gerber 2007: 208), the knowledge of and failure to remedy high-level leakage from tanks into the groundwater (166), the repeated violation of environmental law and suppression of whistleblowers (D'Antonio 1993). For the first forty-plus years of its operation, moreover, the shroud of secrecy that surrounded the nuclear facility prevented any effective oversight by local citizens or officials.¹⁶

¹⁶ Of some alarm is the effect of the Homeland Security Act (2002) in exempting the DOE from releasing some documents under the Freedom of Information Act (1966) by creating a new restrictive category of "Critical Infrastructure Information." (Power 2008: 161)

Even since the ratification of the Tri-Party Agreement in 1989, and the added oversight of both the EPA and the Washington State Department of Ecology, the site has been plagued by scandals involving the safety culture of facilities¹⁷ and the adequacy of the cleanup strategies and technologies. The most recent of these, which broke in early 2012, has raised serious questions about whether the principal subcontractor, Bechtel Corporation, is attending adequately to the long-term safety of several key facilities.¹⁸ Much of the domination illustrated at Hanford involves excessive bureaucratic discretion. The disastrous (and secret) handling of highly toxic waste over the years illustrates this excess all too plainly. Given this history, it seems to us that any effort to redesign the decision-making process at Hanford ought to be formulated with this problem squarely in view.

The focus on the dangers of bureaucratic domination helps clarify the desired role of public participation in context such as the Hanford cleanup. Bureaucracies pose serious obstacles to public oversight that connect directly to the power to dominate. The obstacles are both political and epistemic. First, bureaucracies are not directly answerable to the affected publics or even, in most cases, to their elected representatives. Second, even where channels of accountability exist, asymmetries of information between technocrats, representatives, and the general public can make democratic oversight impossible. Bureaucrats with specialized knowledge can prevent relevant issues from being known to the public or can misrepresent issues through acts of omission and distortion. Too often official discussion of the epistemic benefits of public participation point in one direction: members of the public are thought to provide local information that is not easily accessible to agencies or to identify local values that policy-makers can use to design policies that reflect their interests accurately. This focus on informing policy

¹⁷ http://www.hanford.gov/files.cfm/HABAdv_258.pdf

¹⁸ See for instance Eisler 2012.

makers neglects the important task of providing the public with relevant and accurate information; it also assumes that government agencies are largely benign.

These epistemic obstacles help clarify the importance of normative democratic values such as transparency and accountability. The key point about these values is that they are connected to the public's capacity to recognize when its own interests are in danger and to act to influence decision-making. A democratically adequate form of public participation should give people (1) the capacity to evaluate agency agendas and (2) the ability to change them if they diverge too far from the public's interests. The means of effecting this change can be varied and indirect—it could be accomplished through public protest, interest-group politics, or legal challenge, for instance. Nonetheless, successful participation must give participants some means of influencing decision-making if it is to avoid serving as a rubber stamp for preexisting agency decisions.

To relate this discussion to our earlier justificatory categories: the flow of information from citizens to bureaucrats can help improve the quality of agency decision-making (especially when the relevant agency is *trying* to take affected citizens' interests and values into account adequately). This is what we are calling the strictly *epistemic* justification of public participation, for it presupposes no fundamental conflict of interest between bureaucrats and the affected public and so raises no deep normative controversies. On the other hand, the flow of information from bureaucrats to citizens can enable citizens to understand when (and in what ways) agencies do not have their interests at heart and can enable them to act politically to defend themselves. This is what we are calling the *political* justification of public participation (though it has an obvious epistemic dimension).

Recognizing the normative problem posed by bureaucratic domination can help draw our attention to an important potential flaw in the design and functioning of many participatory institutions funded by state agencies. If agencies' dominant motives are instrumental, and if they design citizen participation largely with these motives in mind, then participatory institutions might simply serve the purpose of lending a veneer of public legitimacy to agency decisions – no matter whether these decisions are normatively sound. Lynn and Kartez argue, in fact, that this has been one of the central functions of citizen advisory committees: “to rationalize established power through some degree shared governance,” or the appearance thereof (Lynn and Kartez 1995: 90). They argue that such committees, because they are commissioned and influenced by agency officials, tend to develop a “bias toward upholding the [agency’s] goals” (90). There is danger, in other words, that such committees can worsen the normative problem by pre-empting popular resistance to unjust or illegitimate agency decisions and thereby exacerbating bureaucratic domination. This potential is (perhaps unsurprisingly) not acknowledged in the official justifications of the HAB or the Community Relations Plan. Our interviews with board members and regulators who have experience at many different DOE sites suggest that many of the DOE-commissioned Site-Specific Advisory Boards fall victim to these dangers.

Before closing this section, it is worth acknowledging a potential objection: it could be argued that, though bureaucratic domination is undoubtedly an enduring normative problem at the Hanford site, it is not one of the problems that participatory institutions were (or should be) designed to address. For instance, other institutions (such as the EPA and Washington Department of Ecology) might be better suited to address the normative problem posed by bureaucratic power. One reason for this response might be the worry that small, participatory institutions such as the HAB are more easily “captured” by organized interests that are ultimately

hostile to the basic interests of the local population (Richardson 2002: 222). Another reason for this response runs as follows: citizens' lack of technical expertise will tend to make them ineffective guardians of local interests. As we argue in section 4., our own view is that the HAB gives reason for guarded optimism on both of these counts.

4. Assessment

We assess the HAB here using the normative resources we have developed in the previous section. In our view, despite the HAB's lack of formal decision-making power, it makes valuable contributions at both the political and the epistemic levels. We leave aside, for the most part, its instrumental role in making the public more receptive to DOE policy, and we emphasize the HAB's political role, since it is especially vital in counteracting bureaucratic domination. To understand how it makes these contributions, we must explore the several ways in which the HAB does actually exert an influence over public decision-making at Hanford. As we do so, we also reflect on the features of the HAB that enable it to exert power in these ways.

a. Formal Advice

As we discussed earlier, the HAB produces formal advice, which often outlines specific policy recommendations for the DOE, throughout the year. This advice is available to the public, as are the formal responses written by the DOE. Our preliminary examination of the Tri-Party responses to HAB advice suggests grounds for pessimism about the HAB's influence on policy (see Appendix B). We coded agency response to individual pieces of advice in HAB letters according to the following categories: *no response*, *disagree*, *disagree (already done)*, *agree*, *agree to change*, *agree (already done)*, *will consider*, *mixed*, and *unclear*. The categories of *no response*, *disagree*, *agree*, and *unclear* are straightforward, but our evaluation suggested the need

for a more nuanced taxonomy to better capture the nature of agency responses. *Disagree (already done)* indicates that HAB advice need not be followed because the DOE has already performed actions that fulfill its legal requirements, making HAB recommendations superfluous. The category of *agree (already done)* was used when the DOE contended that it had already taken action that met the HAB recommendation (notice that this category often indicates a dispute in how to interpret DOE actions). Responses were coded *mixed* when the DOE responded to a point with a combination of willingness to consider its advice and dissention. Finally, *agree to change* indicates a clear intention of the DOE to modify its behavior to comply with board advice.

Our review of several years of agency responses to the Board's advice reveals that, in the vast majority of cases, the agency responses simply explain (a) why the Board's recommendations are not possible, (b) why the agencies disagree with the Board's recommendations, (c) that they are already largely complying with the Board's recommendations, or (d) that the Board's advice will be taken into consideration at some later date. The agencies very rarely express a firm commitment to abide by the HAB's advice.¹⁹

In fact, in our analysis of two years of advice, the *only* instance in which the DOE explicitly agreed to change its behavior corresponded to four points raised by the Board on extending the public comment period and conducting additional outreach.²⁰ In many instances, the DOE failed to respond to specific points raised by the HAB and in many more cases, its response was unclear, vague, or non-committal.²¹ Moreover, our interviews suggest that these

¹⁹ This may have to do with the timing of the agencies' responses: since responses are supposed to be timely, they may be responding before any firm decision can be made concerning the Board's advice.

²⁰ http://www.hanford.gov/files.cfm/HAB_ADV184.pdf DOE response: <http://www.hanford.gov/files.cfm/HAB-Response-adv-184.pdf>

²¹ The recent February 12, 2012 letter expresses HAB frustration at the initial failure of the DOE to respond to advice on the Proposed Plan for PW-1,3,6 and CW-5 Operable Units
http://www.hanford.gov/files.cfm/HAB_2012O-01.pdf

vague or non-committal responses do not typically result in later compliance with the HAB's recommendations. Even when the DOE agrees with the HAB's advice, it often disputes the HAB's interpretation of its actions, claiming to have already implemented its recommendations. In many cases, the DOE disputes the board's technical analysis and asserts that it has already taken the necessary measures to meet its cleanup goals. Sometimes it responds by appealing to legal milestones set by the Tri-Party agreement rather than addressing the underlying disputes over values.

We lack the technical competence to assess the appropriateness of the DOE response to empirical disagreement (though it should be noted that many of these apparently empirical disputes actually involve deep normative questions about acceptable levels of risk, the appropriate level of restoration—e.g., should the land be safe to use as a national park, an industrial sector, a school? —and the timeframe for stewardship). Our concern with the DOE's responses is not that the agency disagrees with the HAB. Fiscal and technical constraints necessarily play a fundamental role in the DOE's policy and it would be surprising if it always shared the HAB's perspective on the cleanup. A deeper concern from reading the formal HAB advice and the formal responses is that they often do not show evidence of engagement and sustained dialogue and exhibit even less evidence of responsiveness to the public's needs and interests.

The DOE does not entirely neglect HAB formal advice, however. In a recent document on the history of Site Specific Advisory Boards, the Department of Energy praised the HAB, for instance, for its development of a "Groundwater Values document and decision flowchart," which was articulated as part of HAB's formal advice and adopted by the agencies.²² Moreover,

²² This letter of advice can be found here: http://www.hanford.gov/files.cfm/HABAdv_197_Groundwater.pdf The flowchart created by the HAB is available here: http://www.hanford.gov/files.cfm/HABAdv_197_attchmnt.pdf

since Board advice is publicly accessible, it can also serve as a vehicle for transmitting vital information to the media and the public, who can then exert pressure on the DOE. In this sense, it can serve a more indirect role in changing DOE policy. We discuss this possibility in more detail in section b., where we address the case of beryllium contamination.

b. Media and constituency pressure

Beryllium is a light metal frequently used in nuclear reactors. In its natural form, it is present in low quantities or trapped in rock and soil and does not pose a risk, but exposure to beryllium dust in industrial settings can lead to chronic beryllium disease. For some people, sensitization to beryllium leads to an allergic reaction which causes scarring of the lung tissue and increases risk of cancer and possibly heart failure. On April 3, 2009, the HAB submitted Consensus Advice #217²³ warning that the extent of beryllium contamination might be greater than realized and that 42% of Hanford workers had been exposed to beryllium. It states that “From a worker safety perspective based on the number of affected workers, beryllium currently rates as a greater hazard than radiation.” The letter noted twenty-seven verified cases of chronic beryllium disease, including an employee who died of lung cancer and another employee who now relies on oxygen twenty-four hours a day. It also noted eighty-eight confirmed cases of beryllium sensitivity. The letter advocated testing of buildings where beryllium was not thought to be present, the application of an “As Low As Reasonably Achievable” philosophy to beryllium, and the education of present and former workers about the risks of beryllium and the areas of potential exposure at Hanford. Consensus Advice #218, submitted the same day identified some of the obstacles that sensitized workers face to receiving treatment, advocated for fair worker compensation, and emphasized the need to evaluate workers over their lifetimes as sensitivity can develop years or decades after initial exposure. The DOE responded five months later with a

²³ http://www.hanford.gov/files.cfm/HABAdv_217.pdf

letter reiterating that its present safety rules “establish more stringent safety and health requirements at Hanford than those applied to work done in the private sector” and lauding the “outstanding safety records at Hanford.”²⁴ The letter responded to the HAB’s points by assuring that it had already met all reasonable concerns about beryllium exposure.

The February 5, 2010 HAB Consensus Advice #228 expressed dismay that the DOE had not followed the recommendations of two prior independent reviews and that it failed to implement an independent review of its beryllium program in which workers would participate in selecting the review team.²⁵ The DOE instead sought to review the Chronic Beryllium Disease Program Plan using personnel from DOE-Headquarters. Finally, after local media began covering the controversy, the DOE relented: in a letter dated November 18, 2010, the DOE returned to the points raised by the earlier HAB advice and provided a detailed response that promised to meet many of the HAB’s concerns.²⁶ At the end of the process, the DOE ended up implementing most of the HAB’s recommendations.²⁷

The HAB’s role in protecting workers from chronic beryllium disease is a mixed success story. As one of our interviewees noted, the process of creating HAB advice is “painfully, frustratingly slow.” Over a year elapsed between the HAB’s initial advice and a productive response by the DOE. The DOE’s initial response was defensive and it may be that no significant change would have occurred if the issue hadn’t been picked up by the local media. Annette Cary, a reporter from the Tri-City Herald who attended the Board meeting in which concerns about beryllium were initially raised wrote a series of articles that kept the issue in the public eye

²⁴ http://www.hanford.gov/files.cfm/HAB_DOEResponse217&218.pdf

²⁵ http://www.hanford.gov/files.cfm/HABAdv_228.pdf

²⁶ http://www.hanford.gov/files.cfm/HAB_DOEResponse217_218_228.pdf

²⁷ See the December 12, 2010 Federal Register entry on changes to the Chronic Beryllium Prevention Program and the HAB comments:

<http://www.gpo.gov/fdsys/pkg/FR-2010-12-23/pdf/2010-32258.pdf>

<http://www.hss.doe.gov/healthsafety/wshp/be/docs/comments/35%20Hanford%20Advisory%20Board.pdf>

(Cary April 6, 2009; May 7, 2010; May 18, 2010; June 3, 2010; September 23, 2010; February 23, 2011; March 13, 2011). The beryllium issue is unusual in that it generated substantial media coverage. Given the local interest in the protection of Hanford workers, the resulting public outcry gave the DOE strong incentive to improve its practices.

Nonetheless, the HAB provided a forum in which people with technical expertise and experience with beryllium were able to raise concerns which were later reiterated in independent scientific reviews. Cary's initial story on beryllium exposure drew heavily on the HAB's formal advice. Even if the DOE does not directly change its policy to take into account of HAB advice, the advice itself provides an informational bulwark that can mitigate bureaucratic domination. The HAB is unique among Site-Specific Advisory Boards in its ability to offer detailed, technical rebuttals to Environmental Impact Statements and other highly technical documents. For example, the Advisory Board plays a central democratic role in its ability to review documents such as the 6,000-page Tank Closure and Waste Management Environmental Impact Statement.²⁸ The HAB is not the only agency capable of this role – e.g., the Oregon Department of Energy also provides expertise²⁹ – but it adds epistemic dimensions not offered by other agencies.

In fact, the HAB provides a good response to what Alvin Goldman terms the “novice-expert problem” (Goldman 2001: 89). Novices who are unable to acquire technical expertise need criteria for identifying trustworthy experts. This problem is particularly vexing when experts (or those identified as experts) disagree. Goldman suggests five sources that novices may

²⁸ The Environmental Impact Statement is available through the Department of Energy's website at <http://www.hanford.gov/page.cfm?page=1118>
http://www.hanford.gov/files.cfm/HABAdv_229.pdf See the independent review that the HAB was involved in:
http://www.hanford.gov/files.cfm/HABAdv_229_attchmnt.pdf

²⁹ http://cms.oregon.gov/energy/NUCSAF/docs/TCWM-EIS-OR_Alternative.pdf
http://cms.oregon.gov/energy/NUCSAF/docs/Oregon-TCWM_EIS_Final_Comments.pdf

be able to access: 1) expert's arguments for their own views and against the views of their rivals; 2) agreement from additional experts; 3) appraisals by "meta-experts" of putative experts' expertise; 4) evidence of experts' interests and biases; and 5) expert's past track record (93).

As a source of expertise, the DOE does relatively poorly on these dimensions. Its past track record is questionable and its goal of cost containment raises concerns about long-term environmental safety and provides *prima facie* grounds for skepticism about its reports. The presence of the EPA and Ecology as regulators helps address this problem by providing independent technical reviews and "meta-expertise" on DOE policy. The function of the regulators is vital, not least because they have the legal authority to compel the DOE to act, but they do not overcome the problem of technocracy: they still leave citizens, by and large, at the mercy of bureaucrats who are (especially in EPA's case) not answerable to them. They function as countervailing technocratic powers that may improve the quality of decision-making, but do so without substantial input from ordinary citizens.

One of HAB's merits is the presence of people with specialized technical backgrounds such as former DOE engineers and academic scientists (the HAB has been fortunate to attract and retain a number of highly trained members). In this respect, it functions like a regulator (albeit without power) in providing epistemic evidence accessible to novices. However, it is the presence of people without an engineering or scientific background that prevents the board becoming simply another technocratic group. Technically-oriented people from the Tri-Party agencies and from the board need to explain their decisions in language comprehensible to people without a background in science and engineering. Furthermore, the HAB's diversity and its commitment to providing consensus advice help it remain relatively unbiased as an institution. Formal advice has gone through a rigorous vetting process and enjoys the support –

or at least not the opposition – of groups representing environmental interests, workers, local businesses, tribes, and others.

The beryllium case offers an example of what we have been calling the *political* function of public participation. Through its formal advice, the HAB generated high-quality, accessible public information about an ongoing injustice at the Hanford site. This information was of use not only to groups represented on the HAB that lack technical expertise, but also to the media and to other public interest groups and members of the public searching for an independent evaluation of DOE policy. The HAB was instrumental, therefore, in mobilizing the affected public to act in defense of its own interests. (The HAB's ability to generate vital public information for media and activists is all the more important now that media companies are devoting far fewer resources to investigative journalism. Annette Cary, for instance, used to devote thirty hours a week to the Hanford site alone; budget cuts at the Tri-City Herald have made this impossible, and in recent years she has relied more heavily on information produced by the HAB.)

Another distinctive feature of the HAB helps it serve this political function: as we mentioned before, HAB members tend to serve long terms on the Board. Several Board members have been active since the Board's creation in the early 1990s, and so have longer-standing experience than most of the agency regulators. In fact, the HAB is the only one of the Site-Specific Advisory Boards that does not have term limits, and many of the members we interviewed cited this as a key precondition of the Board's effectiveness. Several interviewees estimated that it takes new members two to four years for most Board members—even highly educated members—to become fully conversant in the technical vocabularies used by agency officials and scientists or engineers. Longer terms are therefore crucial in enabling the board to

develop and retain the scientific and policy knowledge needed to understand, not only the DOE's decisions, but also the range of alternatives available to it, well enough to convey this information to the broader, affected public and to make competent judgments and recommendations.

Finally, the HAB's ability to serve its political function also depends on its willingness and ability to attract attention to potential injustices, both from media and from broader public constituencies. On this score, we find that the HAB's record is mixed. On the one hand, as we discuss in more detail in the next section, the representative nature of HAB seats facilitates this communication and mobilization substantially. On the other hand, our observations and interviews suggest that the Board's media and public outreach remains underdeveloped. A number of interviewees thought that the Board could do a better job of communicating with media and mobilizing the broader public. One of the impediments here is cultural: many Board members are unwilling to adopt an adversarial relationship to the DOE, largely because the communities they represent are dependent on the DOE and its subcontractors for jobs and economic prospects. In fact, several interviewees described a notable "East-West" culture clash on the Board: members representing the (Eastern) local Tri-City communities and the Hanford workforce are largely pro-nuclear and want to retain nuclear jobs in the area. Members representing environmental agencies and other groups based in Portland and Seattle tend to be anti-nuclear and to mistrust the DOE and its subcontractors deeply. This internal tension can prevent the Board itself from voicing strong public criticisms of the DOE.³⁰ We should add, however, that several of our interviewees argued that the diversity and inclusiveness of the Board, combined with the consensus decision rule, makes the DOE much more likely to take its

³⁰ Even in the beryllium case, one of our interviewees noted that the Board's eventual action was largely the result of the dogged determination of a single member, who simply would not let the issue rest.

recommendations seriously, since they do not simply express the views of environmental activists.

c. Committee consultations and informal discussion

We have argued that the HAB formal advice has an important normative function that can translate into policy changes that track the interests of stakeholders, especially when this advice is used to mobilize media and segments of the broader, affected public. Does the HAB exert a more direct influence on DOE policy?

One way in which the HAB can exercise a more direct influence on agency decision-making is through the DOE's consultations with the five specialized HAB committees. Our informal conversations with several board members and regulators suggested that the HAB's influence is most significant in the early stages of the DOE's decision-making, when DOE officials bring preliminary ideas and proposals to HAB committee meetings and solicit committee feedback. During these committee meetings, and during the informal conversations that happen around the committee meetings (over breaks, for instance), information flows both ways: committee members get an early look at the DOE's plans, and regulators get an early sense of the Board's reaction to its proposals. Several interviewees report that, if the committee response is sharply negative, the DOE commonly adjusts its strategy in response. Indeed, they note sharp contrast between the DOE's willingness to accommodate Board suggestions at the committee level (and early in the decision-making process), and its unwillingness to accommodate formal advice, which is typically offered much later in the process, after the DOE has formulated a concrete plan of action. As we mentioned earlier, some interviewees noted that formal advice is often issued *only* in cases in which no agreement could be reached at the committee level.

There are several ways of understanding the DOE's incentives for accommodating committee suggestions. First, regulators use the HAB as a way of anticipating potential controversies and public outcry. One regulator described the HAB as a "canary in the coal mine," useful in helping regulators anticipate and address important public concerns. Here again we see the HAB serving the *political* function that we have discussed, though here it succeeds in preempting public conflict altogether. Second, committee feedback can serve the *epistemic* function by helping the DOE formulate better policy in two respects: it can help well-intentioned regulators understand the interests and values of the affected populations more clearly, and so to design policies that reflect these interests and values more adequately; it can also (though more rarely) contribute technical and scientific information that improves the DOE's procedures or standards.³¹

What enables the Board to serve these functions? The political function described here is linked to the Board's capacity to mobilize the media and public (which we described in 4.b.). But it is also enabled by another crucial feature of the Board's design: its representative quality. The HAB's composition is unique among Site-Specific Advisory Board in allocating seats to representatives of various stakeholding constituencies (see section 2.a. above and Table 1). In the HAB, the DOE confronts not simply a motley group of individual citizens, but rather a slate of representatives who report to a wide range of constituencies, including local governments, state governments, tribes, unions, and advocacy groups. This fact gives the HAB a certain democratic credibility in the eyes of DOE officials: the DOE has good reason to believe that the HAB's responses to its early proposals will in fact reflect the broader, affected public's interests and values. When committee members react very negatively to an early DOE proposal, DOE

³¹ The "Groundwater Values document and decision flowchart" that we mentioned in 4.a. seems to have been an example of this second kind of epistemic function.

officials have good reason, in other words, to anticipate public controversy if they continue as proposed.

The HAB's representative quality also enables it to serve the first of the two epistemic functions that we just outlined. Precisely because the HAB is broadly representative of the affected public, well-intentioned agency officials have reason to consult with it when they want to better understand the interests and values of affected constituencies. When the DOE is motivated to be responsive to affected citizens' interests and values, these consultations can help them achieve this end. The second, more technical epistemic function is possible largely because of two features that we identified earlier: the expertise the Board members accumulate in virtue of their long terms in office, and the Board's good fortune in recruiting a number of highly skilled members. The HAB represents an impressive repository of technical expertise, and to the extent that DOE officials recognize it as such, they sometimes find themselves disposed to listen to its technical or scientific advice.

Our interviews also suggest that, in order to serve either of these epistemic functions, the Board must not be perceived (by the agencies) as a highly partisan or ideological body. Since the Board's epistemic function depends largely on the DOE's willingness to look to it for help,³² this function requires a certain level of DOE trust and confidence in the Board. It is worth pointing out that this fact brings the epistemic function of the Board in some tension with its political function, which (as we discussed earlier) requires that Board members be willing to take adversarial stances and publicly criticize the DOE in some cases. Sharp public criticism and conflict can, of course, erode the trust that the epistemic function requires. (This, too, might explain why some Board members are hesitant to criticize the DOE publicly; Board members'

³² This willingness can be expressed both in the attitudes of particular, local DOE officials, and in the internal policies of the agency itself.

desire to feel like trusted epistemic partners can therefore compromise their capacity to serve their political function).

A final note on the Board's informal influence: one of our interviewees observed that there is great value in simply ensuring that DOE officials interact regularly with concerned members of the local community in informal and reasonably cordial settings. Repeated, informal interactions can bring familiarity and mutual trust and create channels of communication and subtle negotiation that would not otherwise exist.

d. Agency leverage

The final and most speculative form of HAB influence occurs when agency officials use the Board's recommendations (either formal or informal) to gain leverage in inter- or intra-agency negotiations. First, some interviewees observed that DOE itself is often divided, with local officials resisting some of the imperatives handed down by the Washington office. Local officials can use the HAB's resistance to certain policies, for instance, to make a stronger case for some alternative. Similarly, EPA officials can use the HAB's positions to support its own position when it is trying to impose regulations that DOE officials are resisting. Since these patterns of influence are the most remote from Board members themselves, and since agency officials have seemed hesitant to speak about them in detail (though they have acknowledged them), we have relatively little information at this stage about their significance. We plan to investigate them further.

These possible channels of influence highlight another important way in which the Hanford site is unusual: at Hanford, the DOE must work alongside EPA and the Washington Department of Ecology (all three of which are parties to the Tri-Party Agreement). Officials from all three agencies attend committee and Board meetings and both receive and communicate

information from the Board. In our view, the presence of the other two regulatory agencies makes it much more difficult for DOE to “capture” the HAB. Citizens on the HAB are exposed to a range of agency opinions and styles. EPA and the Washington Department of Ecology can suggest points of view or courses of action or investigation that run counter to DOE’s interests. All in all, this diversity of agencies seems to us to reduce the probability of bureaucratic domination, especially when it is joined with a participatory institution such as the HAB. It may be true, of course, that the involvement of several agencies renders the cleanup effort more cumbersome and inefficient. But where one agency has a history of chronic abuse and mismanagement, it seems to us important that its discretion be constrained by other powerful government agents who operate under different incentives.

Appendix A: Table 1**HANFORD ADVISORY BOARD MEMBERSHIP**

ORGANIZATION/GROUP	PRIMARY MEMBER	ALTERNATE
LOCAL GOVERNMENT INTERESTS (7)		
Benton County	Maynard Plahuta	Larry Lockrem
Benton-Franklin Council of Governments	Rick Jansons	Art Tackett
City of Kennewick	Bob Parks	Dick Smith
City of Pasco	Robert Davis	Vacant
City of Richland	Pam Larsen	Vince Panesko
City of West Richland	Jerry Peltier	Julie Jones
Grant & Franklin Counties	Bob Adler	Jim Wise
LOCAL BUSINESS INTERESTS (1)		
Tri-Cities Industrial Development Council	Harold Heacock	Gary Petersen
HANFORD WORK FORCE (5)		
Central Washington Building Trades Council	David Davis	BC Smith
Hanford Atomic Metal Trades Council	Becky Holland	David Molnaa
"Non-Union, Non-Management" Employees (2)	Jeffrey Luke Vacant	Laura Hanses Lynn Davison
Hanford Challenge	Tom Carpenter	Allyn Boldt Liz Mattson
TRIBAL GOVERNMENT (2)		
Nez Perce Tribe	John Stanfill	Jonathan Matthews David Bernard
Yakama Nation	Russell Jim	Wade Riggsbee David Rowland Jean Vanni John Beckstrom
STATE OF OREGON (2)		
Oregon Hanford Cleanup Board	Lyle Smith	Wayne Lei Robert McFarlane Mecal Samkow
Oregon Department of Energy	Ken Niles	Dirk Dunning Dale Engstrom
UNIVERSITY (2)		

University of Washington
Washington State University

Doug Mercer
Dr. Richard Stout

Mark Oberle
Emmett Moore

PUBLIC AT LARGE (4)

Norma Jean Germond
Keith Smith
Vacant
Bob Suyama

Vacant
Shelley Cimon
Samuel Dechter
Mike Korenko

Appendix B: Analysis of Board Advice

2011	DOE	EPA	Ecology
No Response	20	37	50
Unclear	9	7	7
Disagree	20	4	4
Disagree - already done	11	1	1
Agree	10	1	6
Agree to change	0	0	0
Agree - already done	9	12	4
Will Consider	6	0	0
Mixed	8	2	1
Total	93	64	73

2006	DOE	EPA	Ecology
No Response	47	0	0
Unclear	11	0	0
Disagree	13	1	2
Disagree - already done	0	0	0
Agree	18	0	8
Agree to change	4		
Agree - already done	5	0	3
Will Consider	0	0	0
Mixed	3	0	0
Total	101	0	13

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