

DOE'S POLICY OF CONSENSUS SEEKING VERSUS TRUTH SEEKING IN TRADITIONAL AMERICAN DEMOCRACY

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ABSTRACT

This paper reprises the post-modernist argument that giving voice to all citizens by forcibly seeking a consensus single view of philosophy, vision, and values under cooperative relationships (where good relationships are egalitarian and socialist) improves social welfare more effectively than the competitive relationships (where bad relationships are free and combative) traditionally found in democracy when seeking the truth among differing visions with common sense and scientific evidence. Specifically, Department of Energy Environmental Management's (DOE-EM) policy for its Citizen Site Specific Advisory Boards encourages its Boards "to work toward consensus" in order to be "fair". The recent DOE Evaluation Team leader (Bradbury) justified the use of consensus decision-making as an improvement in the majority-rule decision-making used in American democracy. But although she described the Citizen Boards across the DOE complex as a "grand field experiment", no empirical evidence was collected from the field by the DOE Evaluation Team to validate its belief that consensus seeking produces more effective and fairer decisions. Nor is there field data to indicate that consensus decisions accelerate the cleanup of DOE sites. In contrast, experimental evidence in the social science literature and available field data contradict DOE's policy on consensus decision-making—consensus seeking retards the cleanup; the cooperative ("good") relationships necessary to seek consensus require coercion, reducing trust; and the competition of ideas driven by majority-rule markedly improves decisions. Thus, if citizens in any way contribute to the cleanup across the DOE complex, DOE ought to use independent scientific peer review (ISPR) to validate its policy to optimize the contributions of citizens working to accelerate the DOE cleanup. Otherwise, DOE's policy serves to promote antiscientific views, misperceptions of risk, and an uneducated citizenry regarding its nuclear mission and the DOE cleanup.

INTRODUCTION

The goal of the DOE-EM's recent evaluation of its public participation programs [3] was to "conduct a process that is fair, open, and genuinely seeks public partners in "coming to understanding" " ([3], p. 141). The stated objective of DOE-EM's Evaluation Team was to create "a framework for evaluating public participation programs" ([3], p. 143). As their framework, the DOE Evaluation Team used an "Acceptability Diamond" as the "basis for evaluating the performance of DOE-EM and its public participation program in meeting community needs" ([3], p. 59; prominent among "needs" are community "values" like "risk communication"; less prominent is risk reduction). This Acceptability Diamond has four dimensions—substantive issues (i.e., issues framed by non-technical citizens are better, [3], p. 22-23), decision-making process (i.e., consensus is best, [3], p. 31), relationships (i.e., cooperative relationships are "good", [3], p. 41), and accountability (i.e., effective accountability occurs when environmental activists are members of Boards, or when DOE is threatened with litigation; [3], pp. 48-49, 62; however, how accountability produces effective or efficient environmental cleanup is unclear).

Across its complex, DOE has formed eleven Citizen Advisory Boards (CAB's; herein addressed as Boards; these Boards are also known as Site Specific Advisory Boards or SSAB's; total membership was about 250 in 2003; see [6]); seven of these boards seek consensus for recommendations, and four seek majorities; [27]). My study considers the scientific merits of DOE-EM's policy of seeking consensus for environmental cleanup decisions based on a series of untested assertions made by the DOE Evaluation Team. Next the DOE Evaluation Team's philosophy of consensus will be tested for bias with interview data collected and selected by the DOE Evaluation Team (Tables I to VI) then contrasted against

available operational results from Hanford and its Hanford Advisory Board (HAB) with the Savannah River Site (SRS) and its Advisory Board (SAB), the two sites with the largest DOE-EM budgets (Tables VII to X). Admittedly, an independent scientific peer review (ISPR) of data from all of the sites is preferable to these two sites [20], but unfortunately, the data although requested are not readily available, even for Hanford.

As the first author [2] of DOE-EM's Evaluation Team has stated informally to me on more than one occasion, by allowing each Board to determine how it makes decisions and approaches problems at its own site, DOE has constructed a grand field experiment. In the interests of science and democracy, differences from this quasi-field experiment should serve as a tool to evaluate Board performance and to help the Boards accelerate the cleanup of their respective DOE sites. However, by collecting only interviews without supporting evidence or field results, not surprisingly, DOE-EM's Evaluation Team—funded by DOE-EM—draws conclusions that support DOE's public participation process but, surprisingly, whether there is any scientific validity to their philosophical claims or whether there is any effect on cleanup decisions remains not only unknown but of little interest to the DOE Evaluation Team [2]. The DOE Evaluation Team claims that its Acceptability Diamond has been “empirically derived” ([3], p. 7) from their past research with the U.S. Army's plans to destroy chemical weapon stockpiles, but without explaining whether by “empirical” the DOE Evaluation Team only meant they went into the field to collect what remains as subjective data (“structured interviews”). Yet there is ample experimental evidence that biases can distort data collection, that questions can be structured to achieve any desired outcome [9], and that these biases, if unchecked by empirical data, can infect public anxiety with misperception and misjudgment [25], e.g., risk perceptions [23]. By considering both process and operational results, Boards, like States in the U.S., can learn from other Boards which decisions accelerate cleanup and which do not.

The heart of this argument may be better understood with common examples. The DOE Evaluation Team's method is similar to evaluating a Bank with interviews but without financial audits; to evaluating different experimental airplanes by interviewing the aeronautical designers but without flying their aircraft; or to being a detective by interviewing suspects while ignoring physical evidence. It is similar to philosophically judging whether Einstein or Bohr was correct about the quantum theory by reading interviews from them but overlooking the experimental evidence ([10]; based on empirical results, Zeilinger [48] concludes that Einstein was wrong). Thus arises a bias to favor risk perception instead of actual risk that can lead to embarrassment, even for scientists. For example, a study of risk perception by Slovik and colleagues in 1991 with questionnaires led to his prediction that the negative images associated with a nuclear waste repository at Yucca Mountain would harm the Las Vegas economy by reducing tourism; however, ten years later Slovik admitted that tourism continued to make Las Vegas the fastest growing community in the U.S. ([32], pp. 102-3).

Why this is relevant relates to how the Boards arose in the first place. But this history is not discussed in the DOE Evaluation Team's report [3] and only cryptically on the DOE-EM homepage [6] where DOE-EM states that Boards arose as a “response to the public's increasing demand to participate in DOE decisions”. For years, DOE had perpetrated misperceptions of low risk arising from its supposed safe management of nuclear wastes and protection of the environment [19]. However, in the mid-1980's, DOE released an unprecedented amount of information in response to public and political outrage over its cover-up of nuclear waste mismanagement across the DOE complex. This information showed unexpected releases of contamination on and from DOE sites that caused significant environmental degradation despite assurances to the U.S. Congress and public over many years that DOE had been protective of public health and the environment. Early on DOE estimated as much as \$100 billion to cleanup its sites to meet existing drinking water and other Federal, State, and local standards [20], roughly the current estimates to cleanup SRS and Hanford alone (e.g., [8, 38]). This information led to a collapse of public trust in DOE and to the establishment of the Boards [21]. But today, by not rigorously considering how these Boards have contributed to a renewed public trust in DOE and to the acceleration of its cleanup, DOE may be in the process of repeating its earlier mistakes; e.g., DOE's National Nuclear

Security Administration has no plans for Boards (e.g., [28]); further, the DOE Inspector General has already cited problems between NNSA and DOE-EM that SAB and Congress are working to correct [7, 29, 51].

DOE Evaluation Team's philosophy-based approach. General Comments

Historically, from the DOE-EM web site, the originator of consensus ideas in DOE was the Keystone Center [11], a non-profit environmental conflict management group, hired to establish a working dialogue among representatives of the Federal government, Native American groups, and local citizen groups. Their goal was to develop consensus policy recommendations that improved the process by which Federal facility environmental cleanup decisions were made to reflect the priorities and concerns of all stakeholders. They recommended that Federal agencies establish advisory boards to provide independent policy and technical advice to DOE and its regulating agencies with respect to cleanup decisions. Since 1994, DOE-EM claims that local SSABs have provided the Department with hundreds of specific recommendations relating to DOE-EM's cleanup efforts in ways that have saved taxpayers hundred of millions of dollars. But without a rigorous evaluation based on independent scientific peer review (ISPR) and not based exclusively on interviews [19, 20, 22], DOE-EM's claims amount to assertions.

The philosophy behind the DOE Evaluation Team's approach is primarily based on the contemporary German philosopher Habermas ([13]; for a list of the DOE Evaluation Team's primary sources on Habermas, see [3], p. 144). This approach evaluates decision processes against Habermas' philosophy of communicative action with data derived solely from standardized interview questions of stakeholders, including Board members ([3], pp. 149-151). Presumably, by favoring consensus, Habermas understates the competitive contributions from checks and balances, compromise, representative democracy, and self-interested decisions, some of the key ideas in the U.S. Constitution from Madison [14]. Accordingly, instead of checks and balances to offset the potential threats to democracy from government, Habermas [13] encourages citizens to participate in decision-making at the grass roots to build a consensus.

From Habermas as interpreted by the DOE Evaluation Team, the Team derived a collaboration-based approach in "working toward a rational consensus"([3], p. 137) through acts of communication oriented solely toward the goal of "understanding", not instrumental "action" ([3], p. 137). Under consensus seeking, all elements in a group, especially the weakest, need to be treated as "egalitarian" ([3], p. 138) in order to become "public partners in management of [DOE] sites" ([3], p. 132). This requires that "domination" ([3], p. 134) by using "objective knowledge" ([3], p.136; implicitly, science and engineering) be controlled to create a unity "where legality was to issue from morality" ([3], p. 135, citing Habermas). Also, *ad hominem* attacks or arrogance are considered in the DOE Evaluation Team's report to be examples of harmful actions that must be curtailed to let "participants reach an agreement that recognizes the validity of what the speakers say" ([3], p. 138).

According to the DOE Evaluation Team, legality emerges when objective knowledge (viz., science) is questioned by the public to produce "critical knowledge" ([3], p. 136). Critical knowledge cannot arise unless the "community [is able to] articulate its own viewpoints and critique the organization that is supporting the program" ([3], p. 136). Objective knowledge (from science) belongs to the system of power to control citizens with moral claims. Even though the DOE Evaluation Team is careful to say that "we need to understand the science of the problem" ([3, p. 137), how this can occur is never reviewed in a context where opinions no matter how far fetched are not to be governed or controlled or dominated by scientific facts. Such control is considered "harmful" and a threat to "fairness". On its website, DOE-EM specifically warns individuals against dominating board discussions with technical knowledge ([6]; DOE-EM's web page on Evaluation was written by Bradbury & Branch, 1999).

However, it is easy to take Habermas out of context. His original goal was to help a German people defeated in WW II to cultivate a democracy like the one that exists in the U.S. For example, Habermas recently recognized the value of a free and combative political culture ([13], p. 163); compared the

egalitarianism he liked with the integration of cultures achieved in the U.S. ([13], p. 173); and has come to de-emphasize consensus in favor of majority rule ([13], p. 181). From a theoretical perspective, it is only the competitive argument from majority rule that can help an ill-informed public sift through the technical uncertainties involved in nuclear waste management [22, 23]. Supporting this conclusion, a recent study of political campaign finance by Coleman [4] found that polarizing attack ads do not diminish trust, efficacy and involvement by the public but instead produce significantly better-informed citizens with greater recall and a stronger grasp of the issues even when attack ads are unilateral.

Finally, the DOE Evaluation Team describes “critical knowledge” ([3], p. 136) as the means of critiquing or judging DOE and its objective knowledge in order to gain an understanding to evaluate claims regarding safety, contamination, and cleanup. In the literature, critical knowledge or philosophy is often code used by Marxists to justify their claim that only elites can facilitate a consensus to determine what is “good” for the public, prefiguring 20th century totalitarianism [47]. Similarly, the DOE-EM Evaluation Team stressed the value of arriving at an egalitarian point so that all voices are heard. This egalitarian-socialist model contrasts sharply with the American model of using free and open debate to seek truth where the best ideas to solve a problem often must survive verbal combat before becoming championed and adopted by the public. Justice Oliver Wendell Holmes [55] wrote in a 1919 dissent that became the modern interpretation of the First Amendment: “The best test of truth is the power of the thought to get itself accepted in the competition of the market.”

To generalize the untested thesis of the DOE-EM Evaluation Team from its perspective, given the example of environmental contamination, the greatest good occurs when DOE is confronted by a consensus that amounts to the least common denominator of the needs and values of citizens, but how DOE managers and scientists are then coerced with this unscientific mandate into instrumentally cleaning the environment remains a mystery. To gain a broader perspective of this magical interaction between philosophy and action, Feynman [10] concluded that philosophy (vision and values) had not contributed to the advancement of science in the 20th Century, nor was it capable of contributing. Instead of invoking “moral claims”, Feynman believed that the greater good was derived from a fiercely competitive application of the scientific method to solve scientific problems [10]; specifically, May [52] concluded that a nation’s scientific wealth follows by breeding the most competitive graduate students in the world who freely and openly challenge prevailing views. To achieve this competitive edge American scientists should not have to worry about whether their statements reflect a “moral correctness and sincerity” ([3], p. 137) to achieve a “coming to an understanding” ([3], p. 138).

In sum, even with Habermas favoring argument from opposing sides and thus contradicting the DOE Evaluation Team’s interpretation of him, if his desire is for mediation between “experts” like scientists and the non-technical public to act as their translator, then Habermas’s ideas weaken decisions and social welfare. However, if Habermas’s idea of mediation functions like a judge or facilitator to assure that both sides of a technical argument before the public are more equal in technical competency, then Habermas’s ideas improve social welfare; e.g., Freer and Purdue [12] have concluded that justice (“fairness”) in the courtroom is more likely to occur when two equally competent experts (prosecutor and defense attorney) compete as openly as possible before a neutral jury—this model of equally competent experts randomly driving an exploration of what amounts to an infinity of alternative solutions in the courtroom works equally well in politics, art and science (the classic arguments of Einstein and Bohr from 1935 resonate productively today [48]), forming a driving force exploring the “fitness landscape” in the model of social evolution and innovation proposed by Lawless and his colleagues over the past few years [22, 23, 24]. In fact, DOE’s decision to contaminate the environment followed by its decision to cover it up arose because the department was self-regulated [19], precluding competition; ironically, SAB’s majority-rule process has brought back the use of independent scientific peer review (ISPR) at SRS [20, 21] at the same time that DOE’s policy of consensus seeking dampens the spontaneous truth-seeking of the public.

Consider consensus on its own terms. Problems with consensus seeking have been recognized for many years, in psychology by Janis [17] as well as Madison’s decision to prevent consensus with checks and

balances in the U.S. Constitution [14]. Janis used as his model the failed Bay of Pigs invasion into Cuba under the Kennedy Administration in 1961. During planning for that invasion, President Kennedy led his followers to engage in an insidious form of decision-making famously known ever since as groupthink (consensus). Research indicates that groupthink occurs when a group is dominated by a single vision, single set of values, or the single “understanding” promoted by DOE-EM’s policy [6]. During groupthink, much like what occurs with command decisions (e.g., dictators), dissidents are criticized whenever they do not conform to a group’s vision or values [18]. According to Janis, the danger with groupthink is that seeking unanimity overrides the motivation to realistically appraise alternative choices. In an extreme form, consensus seeking becomes mob rule. Ironically, consensus seeking significantly reduces transparency and the information available to decision-makers [10, 23]; in contrast to DOE-EM’s reliance on its policy to facilitate “transparency” from moral communication, truth claims and open relationships ([3], p. 9, 29, 140), only competitive arguments can produce the transparency sought by the DOE Evaluation Team [22]. For example, Lawless and Grayson [24] reported that the more competitive was a nation, the less corruption that was associated with it. Janis [17] concluded that groupthink is the triumph of consensus over good sense, especially scientific expertise. Numerous other examples in the literature have been attributed to groupthink; e.g., Watergate; NASA’s Challenger failure; the U.S.S. Vincennes shoot-down of an Iranian Airbus; and DOE’s cover-up of its nuclear waste mismanagement [19]. The danger posed by DOE-EM’s policy of consensus seeking is that its policy replaces the spontaneous creativity from the competition to seek truth prevalent in democracies with the acceptance of failure common with consensus under dictatorships; e.g., compare Israel with Palestine, respectively.

Groupthink can be avoided or moderated by not seeking consensus decisions, by increasing group diversity (see Table III below), by not being *self-regulated* like DOE was before 1985, and by a competition of ideas characterized by Janis as a devil’s advocate approach to questioning decisions. Checks and balances avoid groupthink. Seeking the best solution to a problem avoids groupthink. Independent scientific peer review (ISPR) avoids groupthink. And compromise between two strongly defended alternatives avoids groupthink. Schlesinger [40] called compromise “the vital center” that steered the U.S. Congress past many of the problems experienced by Europeans. As a theoretical perspective of transparency, competing alternatives drive neutrals to explore the infinity of alternative solutions available to solve ill-defined problems, such as environmental remediation [24], not only avoiding the groupthink like the U.S.S. Vincennes shoot-down or the DOE cover-up, but also providing the driving force behind social evolution. For example, Von Neumann [34] wanted mathematicians to act more like physicists: they signal the limits of rational thought with conflict, they never avoid conflict, and their resolution of conflict creates the greatest advances in rational thinking. The foundation of consensus requires cooperation to achieve “fairness”; but as Axelrod [1] and Hardin [15] have acknowledged, cooperation for the common good requires coercion. This coercion is necessary to dampen the spontaneous competing visions that are so important to self-organizing processes in a democracy, but as a consequence, giving a weaker minority undue advantage in their control of the majority, the fundamental path to dictatorship and the impoverishment of a people [16].

Following the advice of Habermas and others, the new European Union until now has been making its decisions based on consensus. Recently, however, Europe has decided that: “The requirement for consensus in the European Council often holds policy-making hostage to national interests in areas which Council should decide by a qualified majority” ([37], p. 29). According to Hans Tietmeyer [33], former president of Bundesbank, the German Central Bank, “what we need are majority decisions ... [not] consensus ... which cannot happen among differing views without argument and the resolution of conflict.” On the importance of trust noted by the DOE Evaluation Team ([3], p. 140), Wendt [35] points out that, paradoxically, trust does not arise from cooperation or consensus processes; e.g., supporting Wendt, data from the World Economic Forum (2003; www.weforum.org) indicate that not only is the U.S. significantly more innovative than Europe (the U.S. is number 1), but also there is less trust in politicians among Europeans than among North Americans (49% of Europeans do not trust their European Parliament, contrasted with 22% of citizens in North America); Europeans also report less influence over government decisions than in the U.S. (33% in Europe, 43% in North America).

Based on the above arguments and evidence, by encouraging the consensus approach, the DOE Evaluation Team supports a decision-making process that is scientifically ineffective at marshalling public support to accelerate the cleanup of DOE sites. However, the DOE Evaluation Team reached the opposite conclusion; let us follow their chain of logic by considering the merits of consensus at HAB versus majority rule at SAB based on stakeholder quotes collected and selected by the DOE Evaluation Team. Afterwards, these two incommensurable decision processes will be compared with available operational data.

DOE Evaluation Team report. Specific comments

Table I Substantive issues (quotes selected by the DOE Evaluation Team [3]):

Board	Page	Quote
HAB	p. 82	"The advisory board, its committees, and other mechanisms such as working groups were generally recognized by the respondents as influential and effective in enabling the public to identify and participate in the framing of issues."
SAB	p. 127	"Site critics ... viewed the board as being captive to DOE"; and, "Ninety percent of what the board does is irrelevant."

Table II Decision-making (quotes selected by the DOE Evaluation Team [3]).

HAB	p. 83	"Most advisory board members interviewed believe that they played an <i>important</i> role in decision-making at the site." (emphasis added)
SAB	p. 127	"Most advisory board respondents believe that they played a role in decision-making at the site."

Table III Relationships and Board compositional data (quotes selected by the DOE Evaluation Team [3]):

HAB	p. 83	"... a number of respondents commented that the participation process had succeeded in developing a sense of shared interests."
SAB	p. 128	"... there was some skepticism about relationships with downriver communities and concern that the CAB retain its independence ..."

HAB	p. 83	"[the working relationship between stakeholders at Hanford had become] a forum in which constructive dialogue among the diverse stakeholders could occur."
SAB	p. 128	"Many African Americans have historically been unrepresented and not involved in site issues (p. 126); and "the site established and has adhered to strict membership rules to ensure diversity of race." [This is a factual error; membership rules have always been set by the Board from its beginning, not the site; for Board Compositional data, see the next table.]

Board Composition [5]	White	Minority	Female	College graduates
HAB (N=32)	91%	9%	28%	63%
SAB (N=25)	60%	40%	48%	68%

Table IV Accountability (quotes selected by the DOE Evaluation Team [3]):

HAB	p. 84	"Most respondents gave considerable emphasis to public participation's role in ensuring and enhancing accountability at the site."
SAB	p. 128	"As compared with other sites, accountability was not a priority issue for most stakeholders."

Table V Other (quotes selected by the DOE Evaluation Team [3]):

HAB	p. 40	“There is a sense among some respondents at Hanford that DOE’s commitment to rigorous cleanup of the site may be wavering.”
SAB	p. 32	“[Savannah River] ... respondents [have not] expressed concern about the declining influence of site personnel in decision-making.”

DOE Performance Management Plan. Specific comments

Table VI DOE Performance Management Plan:

HAB	p. 83 [3]	“Many respondents expressed alarm that the activities of DOE-EM Headquarters regarding the Top-to-Bottom Review, Performance Management Plans, and the FY04 budget were jeopardizing the progress that had been made in building an effective working relationship with the stakeholders at Hanford ... leading them ... to adopt a more suspicious perspective regarding DOE’s actions and statements ... [This is] seen as a significant set back.” (quotes selected by the DOE Evaluation Team [3])
SAB	Matrix of SAB responses [49]	“I like the proposed End State Vision very much”; and, “I applaud DOE’s beginning recognition of this need and initiation of the process to achieve an end state vision.” (quotes from #1 and #5 in [49]).

Should the reader draw from the above quotes collected and selected by the DOE Evaluation Team the conclusion that HAB is more effective than SAB at making decisions to accelerate cleanup of their respective sites, or even that HAB is more interested in accountability than SAB in seeing that its site is cleaned up, those conclusions would be wrong. Consider selected field results.

Selected field results (SRS and SAB versus Hanford and HAB)

The DOE Evaluation Team used their Acceptability Diamond to determine whether communication actions toward understanding reflect a rational consensus ([3], p. 137). All communication acts are evaluated against this narrow goal. Thus, in their opinion, consensus seeking is the means to achieve “a sense of shared interests” (as at Hanford, per the DOE Evaluation Team, [3], p. 83). This tight equation might explain why the bias inherent in the interviews selected by DOE Evaluation Team devalued public contributions to a site’s effectiveness at environmental remediation and disposing of legacy wastes, or even to a Board’s “understanding”, if achieved with a process other than consensus. The Diamond is used to evaluate decisions that are “fair” ([3], p. 59). But the DOE Evaluation Team presumed that decisions based on risk perceptions mysteriously lead to actual risk reductions ([3], p. 8). Yet protecting physical health remains part of site accountability criteria ([3], p. 8). Whether this criteria is met or not is strictly determined by the DOE Evaluation Team with interviews; thus, overemphasizing consensus seeking and risk perception may force a site to abdicate its physical responsibilities in favor of popular public misperceived risks rather than having the public take seriously its own responsibility to weigh scientific decisions that may reduce actual risks to the public and the environment.

To illustrate this point with DOE-EM waste management, consider transuranic (Tru) waste shipments to WIPP, and High-Level Wastes (HLW) tank closures and HLW vitrification:

Table VII Board Statements on Tru wastes:

HAB	HAB Recommendation 142; February 7, 2002 [41]	“The recent shipments of transuranic (TRU) wastes from Battelle Columbus (BCK) and Energy Technology Engineering Center (ETEC) to Hanford caused grave concern to the Hanford Advisory Board (Board).”
SAB	SAB Recommendation 130; September 26, 2000 [42]	“Due to the considerable taxpayer savings, the relatively low risk, and the use of funding external to SRS for the activity, the SRS CAB recommends that DOE-SR accept the [offsite] TRU waste shipments from Mound as long as the following conditions are met: 1. DOE receives approval to ship more TRU waste volume from SRS than received from Mound. The SRS CAB preference is to see at least twice the volume ...”

Table VIII Actual Transuranic waste shipment results:

HAB	Email, March 7, 2003; Yvonne T. Sherman@RL.gov	551 Tru waste drums, generally decreasing
SAB	Slides, Paul Hunt, WSRC, March 3, 2003	2500 Tru waste drums, rapidly increasing

Table IX High-Level Waste comparisons.

HAB	DOE/RL 2002-47 Rev. D [8]	Hanford plans to close its first HLW tank no sooner than 2004, nor later than 5 years; Hanford plans to initiate vitrification by 2010.
SAB	WSRC-RP-2002-00245 Rev 6 [38]	SRS has closed 2 HLW tanks (Numbers 20 and 17, in 1997) under supervision of South Carolina’s Department of Health and Environmental Control (SC-DHEC), the first two regulated closures in the world, and two more are ready for closure (Tanks 18 and 19); SRS has vitrified 1200 canisters of HLW.

Table X. ER comparisons in progress (complete data is available from SRS, but not at this time from Hanford).

DISCUSSION

To promote DOE-EM’s guidance to seek consensus [6], the DOE Evaluation Team was apparently determined to show that majority rule is ineffective. For example, the DOE Evaluation Team noted the importance of the Consolidated Incineration Facility (CIF) to SAB: “Board members frequently cited as an example of their influence the board’s recommendation to work with the State on the potential shutdown of the [CIF]” ([3], p. 127). However, the DOE Evaluation Team did not offer to the reader the means to understand why CIF closure was important to SRS stakeholder accountability. The end result of the CIF closure decision was forged by SAB members and other SRS stakeholders working with the State (SC-DHEC) and SRS to dispose of wastes destined to be treated in CIF almost a decade faster, safer, and with less cost [45]. In addition, SAB members and SRS stakeholders generalized what they had learned

with CIF to accelerate disposition of SRS reprocessing canyon Purex wastes [30]. Yet the DOE Evaluation Team asserted that “As compared with other sites, accountability was not a priority issue for most [SRS] stakeholders” ([3], p. 128), when in fact, SRS stakeholders are obsessed with cleaning up SRS faster, smarter, and at less cost to taxpayers (e.g., [31] in SAB Motion Number 164, “WIPP non-compliant item WAC”, SAB recommended that DOE reduce all unnecessary costs, improve worker safety and further accelerate Tru waste shipments from SRS—this recommendation has been cited as a precedent by the U.S. Senate). But because SAB does not use consensus decision techniques, the DOE Evaluation Team was either unable or determined not to see it.

Finally, two other reasons given to use consensus decision-making are first, to reduce interpersonal conflict ([3], p. 138); and second, to be inclusive to provide a broader spectrum of opinions to DOE ([3], p.138). First, ironically, it is the narrowness of ideas from conforming to a consensus worldview which may generate more open-ended conflict than competitive decision-making. For example, a short time after the chair of HAB had noted that the DOE Manager of Hanford had credited the Board with "extraordinary contributions to (DOE) decision-making" [26], the DOE Manager of Hanford wrote that discussions on releases from the Hanford tanks by the HAB "have become increasingly contentious and do not provide a supportive environment where individuals and organizations can work together to effectively address these issues" ([36]; for data that also supports a higher level of internal conflict at HAB than SAB, see [5]). Second, Table III indicates that HAB represents a narrower set of interests and less diversity than SAB. To make this point clearly, Roy Schepens and Keith Klein, the managers of the two DOE offices that run Hanford, recently wrote: “The HAB should strengthen its representation of the views of the broader Pacific Northwestern public. The views of organized special interest groups appears to be dominating much of the board’s actions.”

As Benardete [54] has written, attempts to improve democracy are historic and can be traced to Plato. However, despite this long history, no evidence exists to support either that belief or DOE-EM’s policy of consensus-seeking. Thus, DOE-EM’s policy of consensus-seeking is a misguided attempt to improve American democracy by supplanting the truth seeking inherent in its competitive society with the groupthink of consensus seeking.

GENERAL CONCLUSIONS

1. DOE’s evaluation was a superficial review that did not list the number of persons interviewed, the number interviewed by categories (board members, stakeholders, critics, gender, minority, downstream resident, etc.), or the total number of interview comments collected. Despite claims by the DOE Evaluation Team of using an empirically derived framework, the judgment about what interview data was to be collected, or how the interviews were to be published or interpreted, was left to the discretion of the DOE Evaluation Team, making empirical claims problematic. Claims that cannot be verified are not empirical, but normative and non-scientific [24, 50].
2. DOE-EM’s Evaluation Team failed to contrast interview data with actual Board decisions and operational results from their respective sites. By failing as scientists to address rigorously the cleanup at each site, DOE’s evaluation provides no added value to taxpayers, Congressional oversight committees, other scientists, or the managers in DOE-EM who are concerned about the effectiveness of site cleanup.
3. The “competition of ideas” among SAB members and SRS stakeholders has made a significant difference in accelerating the cleanup of SRS compared to the consensus approach favored by HAB members and Hanford stakeholders [21]. This significant acceleration was not recognized by the DOE Evaluation Team; as a result, the claims of the DOE Evaluation Team could not have been validated, and remain subjective.

4. Based on my review, as foreseen by Madison [14], and Janis [17], compared to majority rule along with minority rights, consensus seeking among stakeholders and Board members during decision-making significantly impedes citizen contributions to site cleanup [23]. There is nothing wrong with arriving at a consensus; however, the groupthink derived from *consensus-seeking* precludes stakeholders from marshalling either the best scientific evidence for or against an argument as part of a competition of ideas to choose decisions by fully exploring all of the alternatives available to reduce actual risks to humans and the environment [24]. Consensus decision-making is unable to explore different alternatives in a spontaneous search for the “fittest” or optimal solution to a problem [23]. For example, HAB’s decisions are narrowly based on a consensus of its Board member deliberations, whereas SAB’s decisions include input from any citizen willing to participate during the development of its advice to DOE [27]. Unexpectedly, consensus seeking actually appears to increase unproductive social conflict rather than decrease it as predicted [21]; decrease trust [23]; and not only produces inferior decisions with regional waste management decisions, but also inferior governance between nations in Europe, and inferior trade decisions among trade negotiators for the World Trade Organization (e.g., [46]). Part of the problem can be attributed to the cooperative (“good”) relationships needed to achieve consensus ([3], p. 41); as Axelrod [1] and Hardin [15] have warned, cooperation requires coercion. But while this coercion to abide by the single-minded vision and values of consensus is apparently worth it to DOE to gain a wider range of voices, in practice, the cost of consensus restricts participation (HAB has significantly more white and male members with an overall slightly lower rate of higher education than SAB [5]; see also Table III and [53]), requires lengthy decision times [24], generally forces a Board to make ever more simple and less effective contributions to cleanup decisions, and, worse, makes it less likely that ordinary citizens can gain a fuller understanding of the complex issues associated with the DOE cleanup. Despite the weighty philosophical claims made by the DOE Evaluation Team, there is no physical evidence for DOE-EM’s policy that consensus seeking produces decisions more effective than majority rule.
5. As a general matter, DOE-EM’s assertions that consensus leads to better decisions is not as egregious as ignoring the field data that may prove or disprove its claims. Based on this review, DOE-EM’s policy of consensus seeking promotes anti-science, risk misperceptions, and an uneducated public. But while the evidence indicates that the DOE Evaluation Team intentionally ignored physical evidence, they may have truly believed it was in the interest of public welfare. That said, instead of improving democracy [2], DOE-EM’s policy is a step towards demagoguery that makes the cleanup vulnerable to exploitation by any minority with a grievance however far fetched. Indeed, this policy can only be justified by ignoring physical evidence; as has been recognized [24], the rigid social control used by dictators to achieve consensus is unstable unless the free flow of information is impeded (viz., censorship), one of the results of DOE self-regulation [19].
6. Not surprisingly, the DOE Evaluation Team’s weak justification of seeking consensus simply recapitulates much of what was already on the DOE-EM website [6]. To avoid this appearance of a conflict of interest, future reviews of Boards and public participation processes should be conducted with independent scientific peer review to the extent possible, with scientists independent of Hanford, SRS, other DOE Sites, or DOE-EM Headquarters (the DOE Evaluation Team works for Pacific Northwest National Laboratory; I am a founding, past and current member of SAB).
7. My review was based on selected field results. Future comparisons should include a broader array of field results, including the results of environmental remediation and low-level waste management (LLW). Further, these more extensive comparisons should also control for site and operational differences.

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