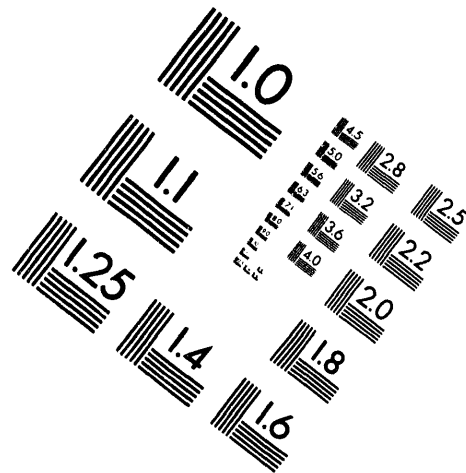
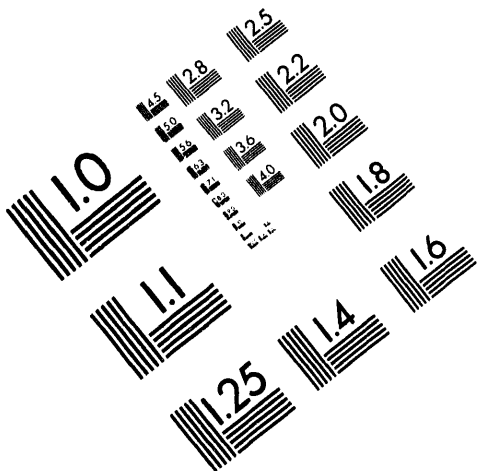




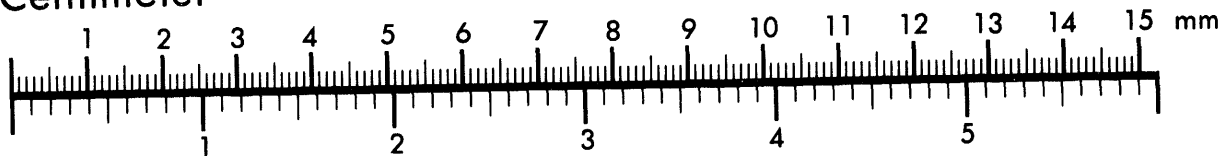
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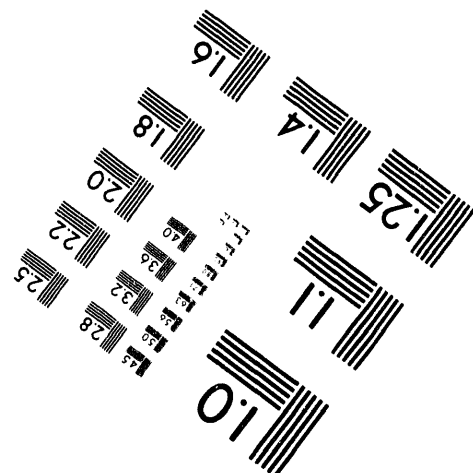
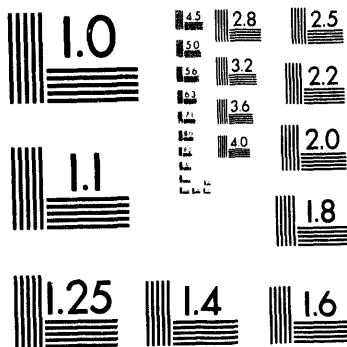
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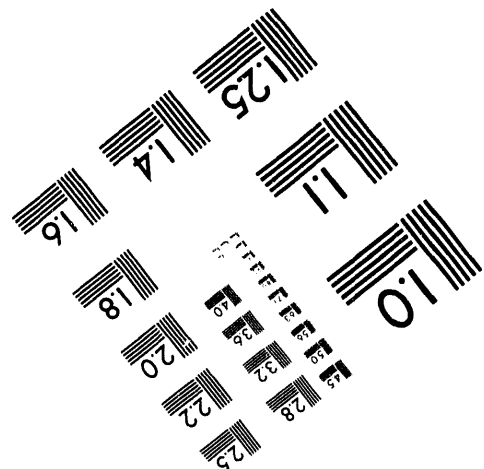
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Voluntary vs. Directed Siting—Or Somewhere In Between?

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VOLUNTARY vs. DIRECTED SITING -
OR SOMEWHERE IN-BETWEEN?

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ABSTRACT

Waste siting gridlock in the United States and Canada has led to experimentation with voluntary and hybrid or "mixed mode" siting. We review nuclear and hazardous waste voluntary siting (VS) results for selected cases in the U.S. and Canada. Findings indicate that VS is not a panacea, but that current siting efforts are inadequate tests of its potential. We suggest trials of improved VS protocols and more effort on hybrid approaches in which the developer chooses the site but is required to reach agreement on conditions with local stakeholders. Mixed mode siting may be better suited to the U.S. context and its three-tiered governmental system.

I. INTRODUCTION AND SCOPE

Most prior siting of nuclear and hazardous waste facilities in the world^a has, until recently, generally proceeded by decree without much public involvement. The stiffening of widespread public opposition to such sitings has led to experimentation with various forms of voluntary siting (VS). The first U.S. Nuclear Waste Negotiator was firmly convinced of the merits of voluntary siting "This process, if carefully developed, will be the only way to successfully site controversial facilities in the 21st century."¹

While there is general (but not unanimous) agreement that the decide, announce, defend (DAD) strategy of directed^b or imposed siting of controversial facilities is not working, no clear demonstration of successful alternative siting processes has yet emerged from the welter of trials

^a Notable exceptions to this generalization are Japan and Sweden where actual or *de facto* local veto has always been part of the siting process. The recent exception of two Canadian provinces which sited hazardous waste facilities by voluntary processes in the last decade will be discussed further in this paper.

^b We use "directed siting" to refer to any form of directed, imposed, decreed or forced siting.

now underway. In principle, voluntary strategies *should* produce higher levels of public acceptance by avoiding some of the negative reactions produced by directed siting. Whether VS does actually enable durable siting decisions is not answerable yet for the United States.

It is the **thesis of this paper** that the current U.S. siting volatility is a transitional phase between directed siting and possibly more legitimated processes such as voluntary or mixed mode siting. We may be testing the suitability for VS of two major features of North American governance: 1) whether the minimal powers of local governments in the U.S. three-tiered governmental system are sufficient to permit them to be successful initiators of VS process, and 2) whether siting agencies and proponents are willing to pay the considerable price(s) required for successful voluntary siting, or whether they view it as easier to revert back to the familiar route of directed siting.

As with directed siting, the large variety of semi- or partially voluntary siting efforts in the U.S. also exhibit high levels of conflict along many fronts, with no final site decisions and no clear direction yet evident. Voluntary siting arrangements have involved every kind of waste (nuclear high-level [HLW] and low-level wastes [LLW], hazardous wastes and municipal solid wastes) and every kind of jurisdiction and proponent - federal, state and local governments; Indian tribes and private developers. To add to the uncertainty and confusion, many "willing" communities, landowners, and/or local officials have been reversed or blocked from participating in both directed and VS activities.

Because the failures of directed or decide-announce-defend (DAD) siting attempts are so numerous and well known, this paper will concentrate upon alternatives to directed siting. We will review outcomes of selected VS efforts in the U.S. and Canada and assess the successes and failures of each. We will consider the evidence about the feasibility of compromise or hybrid modes of siting which combine features of the polar cases of agency/proponent

directed decisions and local control of the decision process. Reviewing mixed mode siting primarily means reviewing the successful cases of U.S. municipal solid waste siting. Though the task is hampered by incomplete trials and inadequate documentation of most of the U.S. trials, we will review the meaning of the evidence and results so far.

To further explore the thesis above as well as other aspects of the volatile waste siting situation, several issues need further examination:

- 1) What are the reasons for this continuing difficulty in developing workable siting processes?
- 2) Are the blockages of "willing" officials or communities by other stakeholders or governors also a rejection of voluntarism in siting, or only a measure of the complexity of current siting efforts which involve multiple clients, multiple actors and multiple trustees?
- 3) Have recent and ongoing VS efforts provided adequate tests of VS processes?
- 4) Do local jurisdictions lack the political power to overcome the influence of anti-nuclear politics at the state level?
- 5) Can large bureaucracies surmount their internal constraints to meet VS requirements for responsiveness as well as implementation?
- 6) What are the significant differences between Canadian successes using VS and U.S. VS efforts?
- 7) Does mixed mode siting (directed siting with required negotiation with host area) offer an option more suited to the present siting situation in the U.S. and the limitations of large bureaucracies responsible for implementation?

II. DIRECTED AND VOLUNTARY SITING

To understand voluntary siting, we must first consider directed siting, the most common form of siting process used in the U.S. for unwanted facilities. Directed facility siting is attempted decision-making by outside authorities without necessarily consulting or seeking agreement from local host communities. This form of siting is associated with the DAD strategy.

Unlike directed siting which relies upon nonconsent or hypothetical consent^c from those affected by siting

^c Using the definitions developed by Mary English (see reference 2 above), both the "best site" and the "fair play" approaches to siting rely upon indirect consent of those affected. The justification in either nonconsent or hypothetical consent instances is that by being a member of society, one has consented to decisions such as siting decisions taken for the greater good of society. In the "fair play" approach to siting where hypothetical consent is involved, the consent of those affected is taken for granted,

decisions, VS processes require the **direct consent** of potential host jurisdiction(s). Directed siting appeals to notions of justice via the "best site" or "fairplay (due process)" strategies.² These strategies work only if the siting authority possesses enough legitimacy or social capital in the form of trust to enable it to proceed without mortal challenge.

Voluntary siting is defined as a process of joint evaluation and negotiation involving a proponent and local jurisdiction in which the final agreement to accept the proposed facility is made willingly by the local host jurisdiction. The agreement may be conditional, i.e., contingent upon the granting of certain rights and benefits for the host as well as demonstration that the site meets specific technical criteria.

The varieties of voluntarism range from the volunteerism-incentives approach² to the invitational-partnership approach developed in the Canadian LLW siting effort now underway.³ In the volunteerism-incentives approach, the host area receives benefits in *exchange* for various incentives. Because host areas are interested in more than economic compensation, this approach has been modified (as in the Office of Nuclear Waste Negotiator's (ONWN) program to include local input on technical choices and other non-material incentives.) In the invitational-partnership approach, the community is invited to join in partnership with the proponent in planning, deciding, and implementing all aspects of the proposed siting. Both VS approaches include the right to opt out at any time with no further obligation or penalty.

Because power sharing is an obvious component of any voluntary approach, voluntarism is seldom adopted willingly by proponents and siting authorities. It has been increasingly considered, however, as a possible way out of the siting gridlock and near-universal public rejection of directed siting efforts.

The basis for considering VS rests on both empirical evidence and theoretical considerations. People accept higher levels of risk if they have voluntarily undertaken the risky activities.⁴ Local control of siting has also been shown to increase actual and hypothetical public acceptance. For instance, certain limited but specific local controls were a condition of acceptance for the Oak Ridge-Roane County task force (TF) which reviewed local impacts and concerns about hosting a monitored retrievable storage (MRS) facility for spent nuclear fuel in Tennessee in 1985.⁵ Attitude surveys have shown significant

either because they voluntarily joined the program involved or because they enjoy its benefits.

increases in public acceptance of siting when local control is added.⁶ Numerous communities have expressed interest when VS options are offered (e.g., 20 in Illinois in 1985, dozens in the Canadian LLW process and 60 in the Manitoba hazardous waste process.) There are inherent merits to local assessments of risks and benefits for projects that serve the common good but entail local risks and burdens. Voluntary siting appeals to notions of justice and equity

because it provides host areas with direct access to the process and enables host areas to make their own decisions on these matters.

Mixed mode siting is defined here as any directed siting process that also requires negotiation with the host area. These hybrid or compromise forms combine features of both directed and VS processes as detailed in Table 1.

Table 1. Local authority in various waste siting processes

LOCAL AUTHORITY	VOLUNTARY*	MIXED MODE**	DIRECTED
DECISION ON WHETHER TO SITE	Total - negotiate to acceptance	None - proponent decides	None-proponent decides
CONDITIONS FOR SITING	Total - negotiate to acceptance or rejection	Extensive as defined by statute. Arbitration if negotiation fails	None except at proponent discretion
RANGE OF SUBJECTS FOR NEGOTIATION OR CONSULTATION	Very broad and at community discretion	Defined by statute Wis.-considerable. Mass. HazW- limited	None except as chosen by proponent
TERMINATION OF SITING PROCESS	Total - exit at any time.	None**	None
TIMING OF NEGOTIATION OR CONSULTATION	Throughout	Early	None except at proponent discretion

* Both voluntary and directed siting examples are theoretically polar cases.

** Mixed mode example taken from Wisconsin Solid Waste Siting Process except as otherwise noted.

In order to compare local authority in various waste siting processes, Table 1 uses polar examples of voluntary and directed siting. The Canadian invitational siting cases are used for the VS end of the continuum, but few examples of pure directed siting with no local negotiation currently exist. Because of the many failures of the latter, most directed siting nowadays includes at least some effort at consultation with local stakeholders, moving it toward the mixed mode case. We use the Wisconsin Solid Waste Siting Act as the model for mixed mode siting.

III. SELECTED CASES OF WASTE SITING IN THE U.S. & CANADA

This brief survey covers selected developments in waste siting in the U.S. and reveals some of the ferment and continuing conflict. Before reviewing several specific cases, we consider some of the many volunteers that have been turned down or blocked in their efforts to become hosts to a waste facility.

The "volunteers" have included "willing communities"

such as Oak Ridge and Roane County, TN and Martinsville, IL and "willing landowners" in Wayne County, IL, New York State and Maine (all LLW). "Willing local officials" were initiators of volunteer processes in Wayne County (LLW) and Grant County, ND (MRS). Several willing tribes were located by the ONWN in the search for volunteer hosts for an MRS. All but one of these trials came to a halt, some temporarily but most permanently. In each case, the initial voluntary process or single voluntary component was not supported or extended by other complementary components and the process was stopped or aborted. The blockages included the governor's veto, recall referenda of local officials, withdrawal by the volunteer, threats of violence, and legislative action by Congress or states to prohibit next steps or to force reconsideration. 7,8,9,10

A. U.S. Nuclear Waste Negotiator's Efforts

Though the 1987 Nuclear Waste Policy Act Amendments authorized the appointment of a negotiator to seek willing hosts for either an MRS or the HLW reposi-

ory, the appointment was not made until more than 2 years later. The VS process developed by the ONWN was designed to enable local jurisdictions to learn about the implications of becoming a host site for above-ground storage of commercial spent fuel rods and to proceed to serious negotiations if they chose. Dozens of jurisdictions had expressed interest and of 30 serious hosting inquiries, 21 volunteered for the Phase I \$100,000 information grants.¹¹

The lack of defined structure for public participation (PP) process led in part to confusion and intense conflict at the local level as in Fremont County, WY and Grant Co, ND.⁷ In both counties zealous local initiators organized PP that omitted certain stakeholders. The Negotiator experienced continuing difficulty in defining his role as independent of DOE. Many local stakeholders saw ONWN as being part of DOE. In the first two years, all county applicants withdrew or had been vetoed by their governors. By mid-1993, three Indian tribes remained in the process and applied for the \$2.8 million ready-to-negotiate-agreement Phase IIB grants.

Change of national administrations and a long pause between negotiators caused a hiatus for the process and the applicants in 1993. In addition, the entire voluntary process was threatened by the opposition of 12 national or regional environmental and anti-nuclear groups to appointment of a new negotiator. These groups disagreed with current nuclear policy and opposed the temporary MRS facility which Congress had designated.¹² Further, by broadly soliciting applicants from 49 states and 567 Indian tribes, the fulfillment of the siting process by one or more current prospects will likely pose a constitutional conflict between sovereign Indian tribes and adjacent sovereign states. All states have so far vetoed VS applicants over whom they had any control. Indian tribes are sovereign nations by treaty and are not normally subject to state veto. The conflict between the Mescalero Apache tribe and the state of New Mexico has already resulted in elimination of the voluntary process Phase IIB funding for continuation grants via amendment to the 1994 federal budget.¹³

With a new Negotiator in office and a change in funding mechanism forced upon the effort, the focus of the voluntary program changed to a two-tiered approach emphasizing directed facilitation in finding agreeable host areas and interagency agreements allowing continuing negotiations with the serious tribal volunteers produced by the first Negotiator. The Mescalero Apache tribe in New Mexico has become frustrated with the delay and the state's blocking of continued funding for the original voluntary process. The tribe has explored private negotiations with selected utilities to house a spent fuel storage facility¹⁴

The new ONWN approach also relieves local entities of the responsibility for gaining acceptance by other stakeholders and their state government. A different approach to dealing with benefits for host areas may include promises of collocation of federal research facilities in such possible areas as base-closing locations. Only a year remains in the authorized term for the negotiated MRS siting effort. About half the time since 1987, the Negotiator's office was empty because of presidential inaction.

B. Illinois LLW Voluntary Siting Process

After extended controversy at two sites and throughout the state, the Illinois Department of Nuclear Safety's (IDNS) choice of the site volunteered by the small City of Martinsville was rejected in 1992 by an *ad hoc* siting board created by the legislature. According to one of the technical consultants, "the (siting) commission required an "especially high level of scientific proof" because it was a volunteer site and had not been uniquely chosen on the basis of objective scientific criteria."¹⁵ He and others claim that the commission went far beyond regulatory requirements in demands for scientific proof. After \$85 million spent on assessments and siting, seven years of effort and five months of hearings, the legislature revised its LLW siting law in 1993. The "Illinois Process" and its claims for technical excellence and public participation¹⁶ had failed to achieve a legitimated LLW siting.

A new start has been made with a nine-member committee of citizen experts and state agency heads who will define siting criteria for a "objective scientific process." Ten prospective sites will be selected by the state water and geological surveys. After site narrowing to three by IDNS contractor has been reviewed by the committee, site characterizations will be conducted and final site selection will be made by IDNS contractors.¹⁷

Just what role voluntarism will play in this second round of siting is unclear, since the legislature made no changes to the public participation requirement in the law.¹⁸ In rejecting the results of the original siting process, the specially appointed siting board accepted the claims of opponents that the Martinsville choice was based on flawed scientific and technical analysis. The board did not rule on additional claims that a conspiracy between IDNS and its contractors to suppress or overlook certain data was the cause of the inadequacy of data and analysis.^{15,2,8}

C. Canadian LLW Invitational Siting Process

After confronting widespread public opposition to LLW disposal facility siting in the mid-1980s, the Canadian federal government decided to start again and design and implement a more workable process. The citizen task force charged with this task began by inviting stakeholders, both local and national, to help devise a publicly acceptable process. After two years of intensive consultation involving many iterations and reviews, local communities throughout Ontario were invited to consider whether they would like to participate in the Cooperative Siting Process that resulted. The process was based on "voluntary participation of local communities in a collaborative, joint decision-making manner."¹⁹ The principles of the voluntary process are supported by both structural and process guarantees that local participation is and remains voluntary, with the right to opt out at any time. The national task force (TF) appointed by the government continues to oversee and support the implementation of the plan.

Two dozen volunteer communities demonstrated interest and three to four serious contenders remained at the end of stage three when serious negotiations were to commence. At this point four years into the process, the appointments of the second TF expired. The federal ministry spent two years reviewing the TF progress reports before deciding to continue the process by appointing a new task force with no carryover personnel. After further delays and some community protest on the TF carryover issue, one prior TF member was reappointed. The process has resumed somewhat shakily, its future clouded because of uncertainty about government resolve to continue the process as designed.

D. Canadian Voluntary Hazardous Waste Sitings.

The Canadian provinces of Alberta and Manitoba have successfully sited hazardous waste disposal facilities through VS processes in the last decade. Using the invitational process, volunteers were recruited, conditions specified, negotiations held, and by favorable community votes in excess of 75% in Alberta.^{20,21} legal and regulatory agreements were ratified. More than 60 municipalities expressed interest in the Manitoba process. All 20 Manitoba Hazardous waste Management Corporation staff were involved in the extensive "co-management process," implementing the seven voluntary siting principles and conducting joint research with the volunteer communities. The entire process including selection and licensing of one site was completed in four years.²²

E. Solid Waste Siting Processes

With so little progress evident in siting nuclear waste, it may be pertinent to examine the municipal solid waste siting situation. Like nuclear waste siting, there is ferment and conflict with various stakeholders. Unlike nuclear waste siting, there are sites being approved and developed for municipal solid waste. More than 300 landfills were sited in the period 1986 to 1991.²³

Wisconsin solid waste siting law is a mixed mode process that allows waste management companies to choose landfill sites but requires the proponent to negotiate acceptance conditions with a locally appointed representative stakeholder committee. Arbitration is required if agreement between the parties cannot be worked out. Since 1981, 46 negotiated agreements and successful sitings have occurred. Only 3 cases have gone to arbitration. Conditions of acceptance usually include special conditions about transportation routes and times as well as economic benefits and other matters of concern to the host area.^{24,25} This combination of directed-imposed siting with required negotiation with local jurisdictions can be called mixed mode siting.

F. Mixed Mode Nuclear Waste Siting Efforts

Another partly decreed, partly negotiated siting effort can be found in the attempted Tennessee MRS siting of 1985. The decision about location was made by the federal government without input or consultation with the state or locale but with promises of benefits to accompany the siting. At the initiative of local government, extensive conditions of acceptance were being informally negotiated by a city-county task force⁵ when widespread opposition to the siting elsewhere in the state resulted in veto by the governor.⁷

In some respects the Yucca Mountain HLW project *could become* a mixed mode example. Though clearly a directed decision by the Congress to impose repository site characterization upon Nevada, the 1987 NWPA amendments allowed negotiation, within certain constraints, with the state about details and benefits. To date, Nevada has spent its federal grants to criticize DOE's efforts and to oppose what is seen as a political rather than a technical choice. State interest as well as local efforts in Nye and Clark counties to enter into benefit negotiations with DOE have all been rejected by the legislature to date.

G. Changes to Enabling Legislation

While some authorities have rejected their prior directed siting process (e.g., Connecticut legislature as regards the Connecticut LLW siting agency²⁶ in favor of voluntary

approaches, they explicitly reserved the right to revert back to directed siting if there are no results from VS "within a reasonable time."

At least three states (Connecticut, Illinois and New York) and the ONWN have revised and redirected their siting approaches since 1990. The enabling legislation for both nuclear high level and LLW disposal has been revised twice in the first decade. The Nuclear Waste Policy Act of 1982 (NWPA) was significantly revised in 1987 after major public outcry by citizens in the several states being examined for possible HLW repository sites by the Department of Energy. The 1987 NWPA amendments added the VS possibility via the Negotiator to the directed siting by DOE authorized in 1982, establishing a dual siting track for both the MRS and the repository.

The Low Level Radioactive Waste Act of 1980 was revised and strengthened in 1985 after states made little progress toward siting. Legal challenge by New York State, Connecticut and other states resulted in the Supreme Court striking down the "take title" ^d provision in 1992 but leaving the remainder of the act intact.

IV. DISCUSSION

Even this brief overview of the status of siting controversial waste facilities reveals the wide range of responses among U.S. siting efforts. Where VS efforts for hazardous or nuclear waste facilities are underway, interim results reveal problems and dead ends. Revisions of enabling legislation and implementation procedures are occurring regularly in attempts to rectify problems and avoid pitfalls identified through experience. Whether any of these revisions will succeed in creating a more viable process that produces legitimated decisions and public acceptance remains to be seen. In addition, special problems have been encountered in trying to design and implement VS processes in both the U.S. and Canada. We consider some of these as problems internal to the voluntary siting process, problems occurring in interaction with other siting elements, problems of implementation, problems within the implementing bureaucracies, and those due to external intervention in the siting process. For siting successes we discuss the two VS examples from Canadian provincial hazardous waste siting and the Wisconsin success in mixed mode siting of municipal solid waste.

^d The "take title" provision of the LLRWA of 1980 obligated states without disposal facilities by 1996 to take title and possession of the generators' waste. Following the Supreme Court decision, generators remain responsible for management and storage of the waste.

A. Problems of Voluntary Siting Processes

The voluntary process designed by the first U.S. Nuclear Waste Negotiator was long on the ideals and values of voluntarism and thorough in soliciting and informing all likely candidate entities, e.g., governors, counties and tribes,¹¹ but short on implementation guidance or structure. Once a county or tribe expressed interest and applied for the Phase I information grant, it was expected to devise a satisfactory public participation (PP) program despite few requirements and almost no guidance. The resulting variety of *ad hoc* local PP plans were seldom representative and some made no attempt to be so.⁹ Without a credible effort to create a representative local task force (TF) to examine the issues and concerns about a possible MRS siting, local officials and citizen TFs were immediately subject to withering attack by other local interests as well as outside anti-nuclear opponents. In the absence of appropriate PP guidelines, the VS process was driven by an unfortunate mix of zealous local proponents and opponents. Very little balanced local stakeholder consideration of issues and impacts can take place in this atmosphere.

Though conflict did occur in the Canadian VS processes, these more elaborately planned and structured processes directed the discussion and were not derailed by it. In the Canadian LLW process, principles of VS and criteria for VS were decided in advance by stakeholders and the national siting process task force.

The extended local and state protest which has accompanied the voluntary siting process for the MRS, as well as the political intervention described below suggest further problems for VS. Are local residents who volunteer the only stakeholders or the primary stakeholders to be considered? What role should non-local stakeholders such as national anti-nuclear and pro-nuclear organizations have? And how should the boundaries for a volunteer area be determined?

The MRS voluntary process requirement that local volunteer entities involve and inform other interested parties as well as their state sought to address this equity need by requiring wider participation. This "solution" was an unrealistic requirement beyond the capabilities of most local entities. Local governments involved in a demanding information gathering and PP mode with their own constituencies on such a controversial issue have neither the resources nor the time to mount and execute information and consultation efforts with outside interests in the region and state.

With the focus upon the "voluntarism" in VS in the U.S., the timing of consultation and negotiation with local officials and other stakeholders may have been neglected. Whereas local consultation was a major emphasis of the Canadian LLW process before communities made their decision on whether to proceed, extensive consultation was left to later stages in both the Illinois LLW siting and OBNW approaches. Much of the intense frustration and loss of trust of the Wayne County citizens' advisory group resulted from the rebuffs and delays they encountered from IDNS over their requests to discuss benefit packages and other concerns during their first year of operation. Even in the more positive Martinsville case, the final consultation and negotiation upon local conditions/concerns was not concluded until the siting commission hearings were underway in the final year of the multi-year process.

The role of compensation in voluntary siting remains in dispute. Offering specific amounts up front as in Illinois seems to have attracted only small, rural, economically-strapped counties, leading to equity concerns and charges of bribery. Offering specific compensation amounts seems to be counterproductive in some cases. One emerging rule of thumb suggests that compensation is a useful tool in siting but one that works best when communities are initiators of such negotiations.⁶ It is worth noting that in the successful hazardous waste facility siting in Manitoba, neither of the two agreements negotiated with the local government involved economic compensation.²²

B. Interaction of VS with Other Siting Components

Other unresolved problems in a siting process may cause difficulties. These may include both the structure of the managing agency as well as its ability to manage and integrate all components of an increasingly complex siting process.

One persistent complaint of opponents to the Illinois LLW siting process was the dual responsibility of the IDNS in the process. Unlike other state LLW agencies, IDNS had complete authority over the siting process, its development, its implementation and the regulation of the completed facility. Though the legislature removed the siting decision authority from IDNS in the Martinsville case, the structural problem was not fully addressed by the legislature in its recent revisions to the siting law. Despite creation of a citizen-expert committee to develop siting criteria and approve the first cut site screening by the state surveys, IDNS still retains authority through its contractor to make the final siting decision. This situation leaves

open the prospect of similar challenges to IDNS's legitimacy and authority in future siting efforts.

Another question raised about VS in the final Illinois siting hearings is the effect of VS upon technical aspects of siting (e.g., hydrogeological aspects of site characterization and analysis.) Does VS undermine excellent technical analysis? While attempts to limit the siting focus to technical matters have undermined social aspects of siting, in my experience, it is not clear that the reverse has occurred. There is no obvious reason why VS **needs to** interfere with proper and thorough evaluation of scientific and technical components of siting (or vice versa). Lack of integration of the pieces of a complex siting process can be damaging, it is true. But that integration can only occur with proper management. Its absence is not a flaw due to nor an effect of VS.

The Illinois case raises the issue of how a poorly managed PP process can undermine confidence in the technical analysis required for eventual siting. IDNS implementation of the VS led to loss of trust in the IDNS by participants, environmental groups, the media and the legislature.² Opponents succeeded in convincing the siting commission that data collection and analysis were flawed and incomplete.¹⁵ The "extraordinary level of proof" required may have arisen because of the heated social and political context in which the process was conducted and subsequent damage to IDNS' legitimacy and reputation as technical manager in the eyes of the ad hoc siting commission.

C. Problems with Bureaucracies

Both U.S. and Canadian VS efforts had similar implementation problems because of the actions or inaction of the relevant bureaucracies and/or with authorization by executive or legislative authorities. Though the U.S. Negotiator regularly articulated his policy and organizational independence from the DOE, local perceptions saw the two as linked or the same. Thus the VS effort inevitably carried the burden of distrust of DOE and the federal government. All of the paper work of VS applications and grants, determining grant time frames for volunteer entities, their processing and approval were the domain of DOE.

Despite generally prompt approval of Phase I funding grants by DOE, considerable polarization in the local community or tribe had often occurred by the time grant authorization was received. Combined with the lack of structure of the program, this polarization often undermined the local voluntary effort which was forced to start from a

weakened and defensive position. Delays by the new administration in appointing a successor Negotiator stalled the program and caused great concern to the three tribes which had declared their intent to proceed with the next phase of the process.²⁷

Implementation of the Illinois VS program was undermined by internal bureaucratic concerns at the IDNS. Agency budget constraints led to explicit decisions by the director of IDNS to delay certain site characterization data-gathering activities which were later challenged in the Martinsville hearings; and to conduct PP activities at the secondary site at a much reduced level.²⁸ Not treating both sites equally damaged the legitimacy of the entire effort in Wayne County and elsewhere, leading to charges that the selection of Martinsville had been pre-decided on "political grounds" before adequate technical data had been collected.

In the Canadian LLW VS process, internal ministry concerns led to major delays in proceeding to the next stage in the process after potential volunteer communities were identified and ready to proceed with detailed site investigations and serious negotiations. When the ministry was ready to resume the process after its two-year delay, technical managers urged the TF to "speed things up." These delays and subsequent replacement of the initial task force with a whole new TF led to serious doubts among the potential volunteer communities about the viability of the process and intent of the government. One of the finalists withdrew. While others have continued with the new TF, it is too soon to assess the extent of damage, if any, to the process or its ultimate outcomes.

D. Intervention in Siting by Outside Authorities or Interests

Political intervention by legislators and executives to prevent siting in specific jurisdictions continues to affect voluntary as well as directed siting efforts. Canadian researchers report that "voluntary siting is particularly vulnerable to changes in political regimes....or political will."⁴ Examples in the U.S. include the 1986 decision of the Secretary of Energy to cancel the second repository HLW characterization efforts; intervention by certain Massachusetts legislators to exempt or remove their areas from consideration when selected in the state's hazardous waste site screening process; the 1994 removal of DOE funding for the voluntary MRS process Phase IIB; and the explicit removal of Tennessee from future consideration as an MRS site by Tennessee senators in the 1987 NWPA amendments.

In Canada, the VS process became sidetracked for some months when a pipeline company involved the LLW siting task force in a legal proceeding concerning a municipal annexation proposal. The pipeline right-of-way lay within an area designated by local authorities and the TF for detailed site characterization.²⁹

E. Are the Few Siting Successes More Generally Applicable?

1. Canadian provincial hazardous waste sitings. The size and autonomy of the agency bureaucracy involved may also be important. In the Canadian hazardous waste siting in Manitoba, the process went much more smoothly. All 20 staff members were directly involved in the cooperative siting process. The relative autonomy of their small agency enabled the flexible, direct and timely responses to local stakeholders as the process went forward.

The same successful proponents of co-management report that "...the most significant problem may well be the apparent unwillingness of proponents to change their own attitudes. Not only must the siting process fit the community and other stakeholders, but proponents (or at least its project management team) must also fit the process and the community."²²

2. Mixed mode siting. The Wisconsin solid waste siting process is impressive with its record of actual agreements reached in the past decade (46 with only 3 sitings going to mandatory arbitration). In this process, the developer rather than the state is responsible for choosing a site. Local governments are not asked to volunteer and do not have the right to refuse. But the requirement that developers negotiate agreements with a representative local stakeholder committee (or face outside arbitration) gives local interests considerable leverage. Some other mixed mode siting processes *without* this feature have been totally unsuccessful (e.g., the Massachusetts Hazardous Waste Facility Siting Act.)

However, it must be acknowledged that siting solid waste landfills may not be comparable to siting hazardous or radioactive waste. Municipal garbage is not a desired neighbor, but it does not inspire the same degree of fear and loathing as do hazardous or radioactive wastes. Nor can the argument be made for radioactive waste that every household and locale directly generates it and should take care of its own waste.

Nonetheless, mixed mode siting offers potential as another avenue leading to legitimated siting arrangements. It is an idea deserving further study. The Wisconsin

experience involves state authority and state permitting processes as do several LLW siting efforts involving single states or two-party compact arrangements such as that involving Illinois and Kentucky. The mixed mode siting process can remove the political liability of volunteering and can provide major incentives to the proponent to listen carefully and negotiate acceptable arrangements responsive to local concerns.

Being responsive to local concerns is a major component of local public acceptability, perhaps the primary component (another major one being whether the decision is voluntary or imposed). Consultation should not therefore be under-rated, overlooked or left to last in designing acceptable VS processes. Host area residents now demand that their concerns be addressed. Not to do so clearly invites serious challenge under any scenario. On the other hand, choice in controversial matters, especially **publicly accountable choice** such as local officials must make in VS processes, is often not desired by local officials because of their vulnerability to organized opposition efforts.

F. Siting Process Problems in the Larger Context

The checkered results of siting approaches to date could have several causes. First is the great difficulty of designing workable siting procedures in a highly controversial area where public fears feed upon the legacy of inadequate past management of hazardous and radioactive wastes. Moreover, previous directed siting failures have delayed action; technical managers seek to make up lost time in siting the facilities they see as needed for proper management and disposal.

Second, legislatures and/or technical managers may decide upon a different siting approach without recognizing special new requirements for public participation, particularly VS requirements. They may assume that a new siting approach can be "plugged in" while all other aspects of siting and licensing remain the same. Thus, the major changes in attitude and procedure required of technically directed institutions for serious "partnering" in decision-making with volunteer host communities appear to have been seriously addressed by the two Canadian provincial authorities, but not by either the U.S. or Canadian nuclear waste management authorities. If serious public consultation is the *sine qua non* of any siting process, then priority needs to be given to developing skills within relevant agencies in this area. Without training, practice and procedural guidance, most technical managers find it difficult to interact constructively with skeptical publics, let alone conduct serious consultation with stakeholders.

Third, even with a well-designed PP plan, it takes extraordinary perseverance and management focus to fully implement a complicated PP plan within a lengthy siting process. This may particularly be the case for a siting involving a volunteer community. The full PP plan may require years of consistent policy and active implementation.

Fourth, now that the decline of trust in managing agencies such as the DOE has become a public issue³⁰ siting is a principal arena in which the full complexity of integrating diverse institutional, technical and regulatory factors comes into play. Under directed siting, it was possible to ignore many of these public and institutional components. That is not possible in the current era of stakeholder awareness. Getting one, two or three of the pieces right, unfortunately, does not mean overall success in such long-term, complex arrangements and processes.

V. SUMMARY, OBSERVATIONS AND RECOMMENDATIONS

Far from being a panacea for siting efforts, voluntary siting offers a new set of problems and requires very different resources and approaches for implementation.

Few firm conclusions are warranted so far from our evaluation and discussion of the questions posed at the beginning of the paper. U.S. radioactive and hazardous waste siting efforts produce a mixed picture of ferment, confrontation and change, but few sitings. While it is premature to offer conclusions, we summarize what has been reviewed here, offer interim answers where they seem warranted, and make observations and recommendations to enable resolution of the issues raised. Comments are offered on each initial question from Section I identified by their original order: Q1, Q2, etc.

Q1. Continuing VS and directed siting difficulties have several likely causes. Problems apparent in the cases reviewed here included problems in the VS process itself; with integration of different siting elements; with and within the implementing bureaucracy; lack of structure and guidance for local VS and PP programs; and significant intervention by Congress, governors and the federal; executive branch in local siting process.

Q2. Inconclusive. Potential volunteer counties for VS have been blocked from proceeding by governors who declared their support of VS but expressed other concerns.

Q3. Recent and on-going VS efforts in the U.S. have *not* adequately tested the concept of voluntarism. Both

internal and external factors have prevented a full and fair evaluation. While VS rationale remains attractive as a possible means of limiting opposition and developing legitimated arrangements, problems in implementation have resulted in failure in Illinois LLW VS and change in direction for the ONWN siting effort. It is therefore premature to judge the utility of the VS option.

Q4. Local jurisdictions appear to have little ability to direct or conclude a course of inquiry and investigation of the possibilities of volunteering as host for any nuclear waste facility. In the U.S, none has been able to overcome anti-nuclear politics at the state and national levels relative to a possible local siting. Local governments are not sovereign and have little power in relation to either states or the federal government.

Q5. While only three relevant cases were reviewed, it appears to be very difficult for large bureaucracies to surmount internal constraints and technically-oriented norms and goals to meet VS requirements for responsiveness and adequate implementation. Even the early successes of the carefully designed, jointly structured Canadian LLW invitational process can be sidetracked by a reluctant, large bureaucracy which fails to act or changes course in mid-stream.

Q6. The three Canadian VS processes reviewed illuminate some significant differences with U.S. VS processes. The only successful VS efforts were implemented by two small, relatively autonomous provincial agencies in which co-management norms and values were fully adopted by the small, directly involved staff.

Q7. Mixed mode siting may offer an option more suited to the present volatile waste siting situation in the U.S. by 1) removing local initiation now required in VS, 2) putting the emphasis on early, required consultation and agreement with local stakeholders, and 3) presenting tasks more likely to fit within the limitations of large bureaucracies. It is not clear, however, that the Wisconsin municipal solid waste example is transferable to nuclear waste management on either the state or federal level.

Devising a bottoms-up voluntary siting process that will be satisfactory to most stakeholders requires time, different resources than most bureaucracies currently possess, and long-term commitment to implementation by managers. In addition, the process must be nested within supporting institutional structures in order to be viable. It is difficult to create and test viable new processes and institutions with the policy stops and starts characteristic of bureaucracies and legislative bodies.

B. Observations

- The lack of process definition and institutional structure in *ad hoc* VS processes creates two problems for local stakeholders. First, it makes delays dangerous to those who do volunteer. Any volunteer for a controversial and potentially risky waste management facility is highly vulnerable to delays, zigzags, or possible reversals in either the waste policy or the process implementation. Second, in the absence of structured discussion and other process guidelines, local zealots for and against are free to direct the process toward polarized debates and confrontations. Such an atmosphere defeats the intended opportunity for thorough community consideration of the options and potential impacts of a proposed siting that VS should offer.
- Voluntary or invitational siting allows redefinitions and new approaches to the problem through a partnership approach and redefinition of expertise (recognizing non-technical and local expertise).
- Voluntary siting allows (but does not assure) construction of legitimated and more durable arrangements.
- Bureaucracies are threatened by several elements of a voluntary siting process:
 - power must be shared with local jurisdictions
 - new skills must be learned in order to implement VS
 - flexibility becomes a high priority when dealing with a potential host area as partner in decisions.
 - coordinating public involvement requirements and incompressible new time requirements with other management, regulatory, technical requirements means more complexity and requires tough management skills.
 - outcomes are unpredictable.
- We are testing whether enough patience, resources and will can be generated by technical people and organizations to revise old modes of authority and control and move to new approaches. Voluntary siting is a means to gain public consent through power sharing with host areas. I see voluntary siting efforts worldwide as an attempt to recover the legitimacy of nuclear waste management. This perspective suggests different approaches and strategies for dealing with the siting conundrum.
- Our siting trials (LLW in Illinois and ONWN) suggest the considerable difficulties of trying to construct legitimated arrangements along new and untried paths.
- It is not clear that VS of nuclear waste can succeed in the three-tiered governmental structure of the U.S. Current VS initiation is left to the least powerful governmental entity - local governments - while most decision-making power resides in the states and federal government which often intervene to prevent completion of locally initiated VS

efforts. Mixed mode siting may be a more suitable mechanism for this intergovernmental structure.

- The weak position of local governments relative to state and federal governments may explain why only Indian tribes remain in the VS process organized by ONWN. It remains to be seen whether the power of sovereign Indian tribes can be overridden by the power of sovereign states.
- Our open-ended nuclear policy (unlike that of Sweden or Switzerland where there are plans to phase out nuclear power) means that each nuclear facility siting becomes a battleground for anti-nuclear policy struggles. Would VS be as difficult to implement if we had a closed-end nuclear policy?

C. Recommendations

- Because of inherent advantages, VS options deserve more thorough testing and evaluation. If we are serious about capturing these advantages, we could give attention to the process and results to date of the Canadian LLW and hazardous waste siting efforts.
- Adequate time should be allowed to evaluate VS processes and options, particularly those being developed by the Office of the Nuclear Waste Negotiator. Because of Presidential delays in filling the post, it has been occupied for only about half of its authorized term of seven years since 1987.
- Mixed mode siting gives mixed results but is an idea deserving further study and analysis, given the results of Wisconsin solid waste siting and some partial successes in nuclear waste siting.
- The vital role of early and active consultation with affected stakeholders in siting should receive more attention. Both consultation and negotiation are required for the success of VS and mixed mode siting.
- More attention should be given to developing siting processes that fit current U.S. institutional and governmental structures. In the interim, legitimated siting decisions will continue to be rare and problematic.

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REFERENCES

1. David Leroy and Scott Nadler, "Negotiate Way Out of Siting Dilemmas," *Forum for Applied Research and Public Policy* 8: no. 1, 102-107, 1993.
2. Mary English, *Siting Low-Level Radioactive Waste Disposal Facilities: A Public Policy Dilemma*, Quorum Books, New York, Westport, Connecticut, 1992.
3. Audrey Armour, Kathleen Reil and Don Gorber, "Canadian Invitational Siting Process for LLW," *Proc. Conference on Nuclear as a Large-Scale Global Energy Source*, Oak Ridge National Laboratory, 1994, in press.
4. Paul Slovic, "Perception of Risk," *Science* 236: 280-285, 1987.
5. Clinch River MRS Task Force, "Position on the Proposed Monitored Retrievable Storage Facility," Oak Ridge, TN, October, 1985.
6. Richard Bord, "Judgments of Policies Designed to Elicit Local Cooperation on LLRW Disposal Siting: Comparing the Public and Decision Makers," *Nucl. and Chem. Waste Management* 7: 99-105, 1987.
7. Elizabeth Peelle, "The MRS Task Force: Economic and Non-Economic Incentives for Local Public Acceptance of a Proposed Nuclear Waste Packaging and Storage Facility," in *Waste Isolation in the U.S.: Technical Programs and Public Participation, Proc. of Symposium on Waste Management 1987*, v.2, 117-121, Roy Post and Morton Wacks, eds, University of Arizona, Tucson, AZ, 1987.
8. Elizabeth Peelle, "Two Citizen Task Forces and the Challenge of the Evolving Nuclear Waste Siting Process," *Proc. Int. High Level Rad. Waste Management Conf.*, 952-960, 1990.
9. Cathy Roche, "Mangling the Models: Real-Life Experiences with Voluntary Siting," *Proc. Fourth Int. High Level Rad. Waste Management Conf.*, v. 2, 1459-1467, Las Vegas, NV, 1993.
10. Independent Citizens' Investigative Committee on Phase I Feasibility Studies, "MRS Facility," Grant County, ND, March, 1992.
11. Office of the U.S. Nuclear Waste Negotiator, "1992 Report to Congress," Boise, ID, 1993.
12. *Nuclear Waste News*, August, 1993.
13. *Nuclear Waste News*, September, 1993.
14. *Nuclear Waste News*, January, 1994.
15. John Gibbons, Rahe Junge and James Stratton, "Central States Compact Site Approval Proceedings,

Martinsville, Illinois - Lessons Learned," *Proc. of Waste Management* 93, 95-99, University of Arizona, Tucson, AZ, 1993.

16. Illinois Department of Nuclear Safety, *The Illinois Process - Technical Excellence, Political Acceptability and Public Participation*, 1, no. 1, 1988.

17. Office of the Governor, State of Illinois, "Governor Names LLW Task Group," press release, Dec. 30, 1993.

18. Illinois Low-Level Radioactive Waste Management Act, as amended October, 1993, Illinois Code. 1993.

19. Ministry of Energy, Mines and Resources, "Opting for Cooperation," Report of the Low-Level Radioactive Waste Facility Siting Task Force, Ottawa, Canada, 1990, 1991.

20. Jennifer McQuaid-Cook and Kenneth Simpson, "Siting a Fully Integrated Waste Management Facility in Alberta," *J. Air Pollution Control Association* 36: no. 9, 1031-1036, 1986.

21. Public Affairs International, Ltd., "Report on Alberta and Ontario Waste Management Site Selection Process," Toronto, Canada, 1985.

22. Alun Richards, "Using Co-Management in a Voluntary Hazardous Waste Facility Siting Process," *Proceedings 4th International HLRWM Conference*, v. 2, 1476-1481, Las Vegas, 1993.

23. R. Lifset, Yale Solid Waste Program, as quoted in English, Barkenbus and Wilt, p. 1350.

24. Mary English, Jack Barkenbus, Catherine Wilt, "Solid Waste Facility Siting: Issues and Trends," *Air and Waste Management* 43: 1345-1350, Oct. 1993.

25. Leslie Nieves, Jeffery Himmelberger, Samuel Ratick and Allen White, "Negotiated Compensation for Solid-Waste Disposal Facility Siting: An Analysis of the Wisconsin Experience," *Risk Analysis* 12: 4, 505-511, 1992.

26. Domenic Forcella and Ronald Gingerich, "The Volunteer Approach: A Siting Partnership," *Rad. Waste* 1, no. 1, 30-35, 1994.

27. *Nuclear Waste News*, July, October, November, 1993.

28. Personal Communication from Terry Lash, IDNS Director, May and July, 1989.

29. Personal Communication from Audrey Armour, September 15, 1993.

30. U.S. Department of Energy, Secretary of Energy Advisory Board Task Force on Radioactive Waste Management, "Earning Public Trust and Confidence: Requisites for Managing Radioactive Waste," final report, November, 1993.

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