

CORTLAND COUNTY'S PERSPECTIVE ON THE NEW YORK STATE LOW-LEVEL RADIOACTIVE WASTE SITING PROCESS

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ABSTRACT

After being designated as a potential low-level radioactive waste (LLRW) disposal site, Cortland County coordinated an extensive multifaceted effort against the state's proposal. Opposition from county and local governments and from the citizenry resulted due to the New York State LLRW Siting Commission's technically deficient plans; its deviations from specified procedures; and its attempt to site the facility by force.

The Siting Commission's approach, which resulted in numerous confrontations with citizens, created a political climate conducive to legislative change. While the 1990 legislative amendments to the 1986 LLRW Management Act afford sited communities greater control over the siting process, they do not provide sited communities with local veto power. Despite the improvements to the process provided by the 1990 amendments, the Siting Commission's lack of credibility and its continued pursuit of unwilling hosts have doomed the siting effort to failure.

INTRODUCTION

In December 1988 the New York State LLRW Siting Commission ("Commission") chose ten candidate areas for the state's proposed LLRW disposal facility (1). For most of the sited counties, this was their first contact with the Commission and the LLRW disposal facility siting process. The sited areas worked together in opposition to the state's attempt to forcefully site the proposed facility.

In September 1989, the Commission identified five potential sites from among the ten candidate areas; two of the sites are located in Cortland County in the Town of Taylor, and the other three sites are in Allegany County (2). After this announcement, the confrontations between the Commission and the sited areas intensified, reaching epic proportions through the early part of 1990. Opposition to the Commission's forced siting attempt took the form of challenges in the legal, technical, and political arenas; massive protests; and civil disobedience.

The volatile situations which erupted due to the Commission's actions prompted the Governor to intervene in the Spring of 1990. Governor Cuomo ordered the Commission to halt its attempts to gain site access for precharacterization. In the ensuing months, legislative amendments were formulated to attempt to address some of the pervasive administrative and technical ills of the process.

The recently adopted legislative amendments significantly improve the process by providing for a higher degree of institutionalization of procedures and greater accountability by the Commission to the public. However, in the currently sited areas, these changes will not overcome local opposition. Such opposition remains firmly entrenched due to the inequities inherent in the state's forceful siting approach and the Commission's lack of credibility resulting from its poorly designed and implemented process.

THE NEW YORK STATE LLRW SITING PROCESS

The New York State Department of Environmental Conservation (DEC) is the regulatory body which will permit the state LLRW disposal facility. Upon approval by the DEC of the site and method recommended by the Commission, the Commission will be dissolved.

In 1987 DEC promulgated regulations providing general guidelines for the Commission's site and method selection activities (3). Being performance-based and not prescriptive, the regulations afforded the Commission much latitude in developing its approach to site and method selection.

The Commission's process was designed neither to locate sites with technically superior qualities nor to address concerns of equity. Moreover, the actual process implemented by the Commission deviated significantly from that specified in its own site and method selection plans (4,5), destroying any semblance of credibility in the process.

The Commission's Approach

In response to the DEC's directive to "develop and follow a systematic procedure" for site and method selection (3), the Commission developed plans intended to describe the step-by-step processes through which this would be accomplished. Method selection and site selection were to occur concurrently, with the method selection process being "integrated with the site selection process to ensure the facility design enhances the natural features of the selected site" (5).

Site selection was to be accomplished via a two-phased approach. Phase I, candidate site identification, consisted of a four-step process involving statewide exclusionary screening; further screening to identify ten candidate areas; detailed screening of candidate areas, limited onsite investigations, and comparative evaluations to identify potential sites; and onsite studies or "fatal flaw" analysis (precharacterization) to select candidate sites. Phase II of the process involved detailed site characterization of candidate sites, with the objective of selecting a preferred site for the disposal facility (4).

Local government opposition to the siting effort arose early in the process after a review of Commission documentation revealed that the process was not designed to find sites that would maximize facility performance. Rather, the process was geared toward "quickly and efficiently" eliminating large portions of the state from consideration (1). Lack of emphasis on performance was demonstrated in the manner in which the geographic information system (GIS) was applied; lack of consideration of performance-based criteria in selecting potential mine disposal candidate areas; premature elimination of deep mine disposal; and in the Commission's insistence that engineering could surmount a site's natural deficiencies.

Regarding the GIS screening, the Commission weighed demographic criteria very heavily in selecting candidate areas. In the initial phases of statewide screening, population density criteria (which are non-performance based) were applied and were weighted as heavily as any single performance-related criterion (1). Moreover, the scaling system further skewed the selection process toward very sparsely populated regions (1). No sensitivity studies were conducted to determine the effect of population density criteria on the selection of candidate areas (1). Not surprisingly, all the candidate areas chosen by the Commission displayed remarkably similar demographics.

While valid reasons may exist for considering some demographic factors in site selection, the reality is that a siting process which emphasizes such factors will be perceived as lacking credibility. New York State's siting process is a case in point; sited areas rejected a process which was viewed as being politically rather than technically motivated. Interestingly, other states and compacts, such as Maine and the Appalachian Compact, have avoided relying on population density criteria in site selection for precisely this reason.

Potential new mine candidate areas were evaluated without considering performance of the potential host rock. The Commission's Candidate Area Identification Report (CAIR) states: "It should be recognized that the basis for identification of these potential candidate areas did not include evaluation of any of the bedrock geologic conditions necessary for a deep mine" (1). The state was never subsequently screened to identify potential new (vertical shaft) mine candidate areas based on performance-related criteria.

Soon thereafter, the Commission eliminated new deep vertical shaft mines from consideration citing "technical constraints" (6). Yet, no such performance-based constraints were identified; moreover, DEC modeling and dose assessment showed deep vertical shaft mines to outperform nearsurface technologies by far (7).

The Commission also indicated that it eliminated vertical shaft mines from consideration due to licensability concerns. Yet, it pursued consideration of (and later chose as one of the proposed technologies) drift mine in shale disposal. This *decision* raised serious questions given that DEC regulations specifically addressed deep vertical shaft mines and nearsurface methods (3). Since drift mine disposal as it was originally described by the Commission fell into neither category, licensing a drift mine seemed much more precarious than licensing a deep mine. In addition, the DEC was unfamiliar with the drift mine concept and had not considered it during the preparation of its regulations. The State Department of Health, charged with administering the LLRW public information program, was unfamiliar with the method as well and indicated it would research the concept and revise its

public information literature. References to constructing a drift mine in shale are virtually non-existent in Commission literature prior to the Disposal Method Screening Report (6).

Early in the site selection process, all existing mine sites were eliminated from consideration due to time and budget constraints (8) and political considerations (9). This decision was premature and technically unfounded. In rating existing mine sites, the Commission first established a high GIS cutoff score, which contained no consideration of performance data relevant to mine disposal. It then eliminated all mineral mines by unilaterally declaring them to be "geologically complex." One Commissioner in a staff meeting urged that further evaluation of existing deep mines be abandoned "given ... the needless public concern that would be created by reopening the siting process" (9).

Regarding technical criteria employed in the selection process, the GIS screening of the candidate areas was not discriminative enough regarding the evaluation of the potential of host formations to provide a natural barrier against radionuclide migration (10). Application of geologic and hydrologic criteria of partial character resulted in diluting impacts from individual criteria and produced a preference for sites with "grey" geology, rather than sites with "good" geology (10).

One indication of this inadequacy is provided by the selection of the five potential sites, all of which lie in the same shale bedrock formation. The formation consists of repeated sequences of fractured mudstone and siltstone of variable thickness and lateral extent. The hydrologic and engineering behavior of the material is extremely variable and likely to be found difficult to characterize and model. Prudence would have dictated selecting potential sites in different host rocks and geologic settings (10). [Indeed, the Commission had initially excluded sandstone and shale formations from consideration as deep mine sites (greater than 30 meters) "because of their generally unfavorable isolation characteristics in the State" (1). Yet, it later chose the Cortland County sites primarily as drift mine disposal sites, citing the shale formation as an "advantage" for waste disposal (2).]

The Commission's site selection process did succeed in quickly eliminating large portions of the State from consideration. It is instructive to note, however, the marked difference between these selection procedures and those recommended by the DEC for solid waste facilities (11). DEC emphasizes the importance of selecting technically superior sites which have the natural characteristics to contain the waste. It recommends avoiding arbitrary criteria that can cause premature site exclusion; emphasizing positive site characteristics rather than attempting to eliminate sites as rapidly as possible; and exercising caution when using complicated matrices since they may actually lessen the importance of key performance-based site selection criteria (11). The LLRW site selection process violates each of these principles.

The Commission's Deviations from Its Adopted Plans

Within less than one year of releasing its site and method selection plans, the Commission had ignored major portions of those documents. Most notable among the deviations were: a) the site and method selection processes being out of phase; b) selective use of exclusionary criteria in evaluating "offered" sites; and c) unresponsiveness to affected communities.

The Commission's site and method selection plans recognize the need to implement site and method selection concurrently (4,5). In actuality, the site selection process was far ahead of the method selection. Conceptual engineering designs of proposed disposal technologies were to have been used in the selection of potential sites and in the selection of sites for characterization. Yet, potential sites were announced in September 1989 prior to the development of conceptual facility designs.

The Commission altered the site evaluation process specified in its plan to justify including an offered parcel as a finalist site. The site selection plan states that the process is designed to identify sites that can satisfy all regulatory requirements, and it also prescribes the evaluation process for offered sites or communities (4). The plan further states that volunteer sites "will be subject to the same technical and regulatory requirements applicable to other areas and sites," and that "Recommended sites without community support must be obviously superior compared to other potential sites in order to continue evaluation beyond the initial steps" (4). Commission meeting minutes also specify that "volunteer sites will be subject to the same scrutiny under the site selection procedures as any other potential site. Potential sites will undergo the full process from statewide exclusionary screening to full characterization without regard to their volunteer status" (12).

Composite favorability maps for both nearsurface and mine disposal show that the offered Cortland County site (Taylor North) appears in an excluded area (13). Exclusionary criterion 44, which limits the use of certain mineral soil groups, is primarily responsible for the exclusion. The Commission decided to eliminate consideration of this criterion for offered sites, despite the facts that this criterion represents a regulatory requirement (3) and that the site selection plan makes absolutely no provision for selective application of exclusionary criteria based on the volunteer versus non-volunteer status of a site.

In the face of this controversy, the Commission recently claimed that it had amended its site selection plan by resolution adopted at an earlier Commission meeting (14). Curiously, this resolution was adopted at approximately the same time that Taylor North was offered by its owner. The resolution does not prescribe an evaluation process for offered sites; it merely states that such sites will be assessed by performing an in-house review against technical criteria and that technical evaluations on these parcels will be performed as per the site selection plan. The site selection plan, in fact, lists the mineral soil groups criterion as technical and directs application of it in the screening for potential sites. Thus, this alleged amendment does not support the Commission's decision to ignore this exclusionary screening criterion. (It is noteworthy that the resolution in question contains other procedures violated by the Commission, namely notifying county and town officials that a site had been offered; determining that the offer was made in good faith; and publicly voting to accept the parcel for consideration.)

Upon removing the mineral soil groups criterion, the offered site received the lowest GIS score of the 55 sites being considered at that time for drift mine disposal (2). Regarding nearsurface technologies, the site ranked third from the lowest of those 55 sites (2). The Commission claims that a reevaluation procedure, which did not include the qualitative assessments done for non-offered sites, elevated the site to

"among the top-scoring sites." During its September 1991 general meeting, the Commission for the first time publicly admitted that, for policy reasons, it had decided to evaluate offered parcels differently from non-offered sites.

Credibility in the siting process was suffering severely due to deficiencies in the process, deviations from adopted plans, and policy decisions made without the benefit of public input. The Commission's unresponsiveness to the public further exacerbated the situation.

State law mandates that the Commission "keep the public informed of its activities" and "encourage the public to participate in providing views, comments, information, and analysis" regarding the process (15). The Commission's documents proclaim, to the point of redundancy, the Commission's "strong commitment to meaningful public participation in all phases of its mission" (4,5). In reality, the public participation program was a miserable failure.

From December 1988, when the candidate areas were announced, through August 1990, when legislative amendments to the state siting law were enacted, the Commission's responses to the county and the public were usually incomplete, inaccurate, or non-existent. Draft documents were generally not made available for public review and comment. Stringent time constraints were placed on submitting comments on reports that had already been finalized. Availability of reports was extremely limited, and Commission responses to public requests for information were characterized by excessively long delays.

The Commission ignored the county's technical questions and concerns. There has been no response to questions raised more than two years ago at a public hearing attended by more than 5,000 county residents (16). Issues raised by the county regarding the overall process (17); site selection plan procedures (18); and the Commission's evaluation of geology and mines (19) have not been adequately addressed.

On several occasions, the Commission had to be sued for public information. The Commission was sued under the Freedom of Information Law (FOIL) to release a mine feasibility report (20) prepared by the Commission's contractor. Although the document was cited as a reference numerous times in its disposal methods report (6), the Commission refused to release the study on the grounds that it contained only opinions and was devoid of factual information. The Commission was ordered to release the entire document.

The Commission's unresponsiveness contributed to direct confrontations with county citizens. Despite its lack of response to substantive issues raised at the public hearing in November 1989, the Commission attempted to gain access to the potential sites in December 1989 and January 1990. At that time the county had not yet had an opportunity to review the precharacterization or characterization plans. The county had requested that information repeatedly since having been named as a candidate area, but the Commission had refused to provide these documents.

After having site access blocked by citizens, the Commission consented in February 1990 to providing the county with the requested information. The county commented on the inadequacy of the proposed precharacterization plans, recommending additional testing (21). The Commission's response to these comments was to scale down rather than to expand the proposed onsite work. This decision was based, not on technical considerations, but, rather, on what the

Commission believed would be logistical problems and its inability to adequately secure the sites.

By April 1990 confrontations between the Commission and local citizens had escalated at a local information office, creating the likelihood of violence. Large-scale protests and arrests occurred on an daily basis. These incidents and a violent confrontation in Allegany County prompted the Governor to close the office, halt onsite activities, and begin negotiating legislative amendments to the process.

LEGISLATIVE AMENDMENTS

Cortland County proposed major changes to the site and method selection procedures. These concepts and many additional changes were later proposed by the Governor and were eventually enacted into law (22). The amendments require a separate environmental impact statement, an adjudicatory hearing procedure, and approval by the DEC of the preferred method prior to onsite studies. The amendments mandate a full evaluation of deep mine disposal and above-ground waste management methods. The legislative changes also provide for independent technical review of the work done to date and independent review of subsequent Commission decisions.

The legislative changes do not alter the status of the existing five sites, nor do they provide sited communities with local veto power. However, they force the Commission to be more accountable for its decisions, and they virtually ensure that the site selection process will have to be revisited. The question remains as to what impact, if any, these changes will have on public attitudes about the Commission's attempt to site an LLRW facility.

ISSUES OF EQUITY

While siting a negative impact facility is difficult under any circumstances, without serious consideration of issues of equity as well as technical issues, such a process will not come to fruition. Some perceptive observers recognize that local communities have the ability to obstruct unwanted projects and thus defeat siting efforts (23); states do not have the power to legislate effectively to overcome well-organized local opposition (24). Even with perfect technical solutions, lack of consideration of equity in facility siting will inevitably result in conflict, confrontation, and, in all likelihood, an aborted process (25).

The New York State siting process is a prime example of a process doomed on all counts. The process is viewed as being bereft of technical integrity; the resulting loss of credibility suffered by the Commission presents a significant obstacle to the siting effort. Numerous studies suggest that credibility, once lost, is difficult if not impossible to recover (23,26).

Beyond the technical inadequacies of the process and the communication blunders, however, lies an equally fundamental problem - a major part of the dispute between the Commission and the sited areas is simply unresolvable because it concerns values. Public information, risk communication, and process changes will not resolve a dispute which concerns issues of fairness or a community's right of self-determination (27). Rural communities are unwilling to accept being forced to bear the full burden of risk, while affluent, populous communities (which for political reasons are exempt from consideration as waste disposal sites) enjoy the vast

majority of the benefits. New York State must face the reality that the days of siting by force are over.

CONCLUSIONS

The New York State siting process did not place primary emphasis on maximizing site performance. In addition, technically unwarranted decisions concerning disposal technologies severely weakened credibility in the process. The Commission's deviations from specified procedures resulted in vehement opposition by affected localities. The Commission's actions created the proper political climate for legislative changes to be enacted, offering significant improvements to the process. However, given the pervasive problems that affected communities have experienced to date, it is unlikely that the legislative changes will restore public trust in the process.

Beyond the technical and implementation inadequacies in the process, opposition to the siting effort remains firmly entrenched because of the attempt to site the facility by force. This inequitable approach to LLRW management has set the stage for a protracted battle. In the interests of all concerned, the Commission should learn from past mistakes and adopt a socially sound approach which affords a community the right of self-determination. Effective waste management demands that technical issues and issues of equity be incorporated into a siting effort. This is the only reasonable option.

REFERENCES

1. NYS LLRW SITING COMMISSION, Candidate Area Identification Report (Dec. 1988).
2. NYS LLRW SITING COMMISSION, Report on Potential Sites Identification (Sept. 1989).
3. NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, Final Environmental Impact Statement for Promulgation of 6 NYCRR Part 382: Regulations for Low-Level Radioactive Waste Disposal Facilities, Vol. I & II (Dec. 1987).
4. NYS LLRW SITING COMMISSION, Plan for Selecting Sites for Disposal of Low-Level Radioactive Wastes (Nov. 1988).
5. NYS LLRW SITING COMMISSION, Plan for Selecting Methods for Disposal of Low-Level Radioactive Wastes (Nov. 1988).
6. NYS LLRW SITING COMMISSION, Disposal Method Screening Report (July 1989).
7. NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, Supplement to the July 1987 Draft Environmental Impact Statement for Promulgation of 6 NYCRR Part 382: Regulations for Low-Level Radioactive Waste Disposal Facilities - Modeling and Dose Assessment of Alternative Low-Level Radioactive Waste Disposal Methods in New York State (Aug. 1988).
8. Letter from J. Dunkelberger, Executive Director of NYS LLRW Siting Commission to Dr. P. Merges, Chief - Bureau of Radiation, NYS DEC (Jan. 4, 1989).
9. WESTON, March 17, 1989 Meeting Minutes, W.O. 3835-01-01- 1310, NYS-MM-89-G-WSEA-3081 (Mar. 23, 1989).

10. CORTLAND COUNTY LLRW OFFICE, Preliminary Comments on "Report on Potential Sites Identification" (A. Michalski, Sept. 1989).
11. NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, Solid Waste Management Facility Siting (April 1990).
12. NYS LLRW SITING COMMISSION, May 10, 1988 Meeting Minutes.
13. NYS LLRW SITING COMMISSION, Appendix F - Cortland Candidate Area Report on Potential Sites Identification (Sept. 1989).
14. NYS LLRW SITING COMMISSION, Procedures for Responding to Offers of Parcels for LLRW Disposal Facilities (Jan. 26, 1989).
15. Chapter 673 of the 1986 Laws of New York State.
16. CORTLAND COUNTY LLRW OFFICE, Comments and Considerations Regarding the Low-Level Radioactive Waste Disposal Facility Siting Process (C. Monaco, Nov. 1989).
17. CORTLAND COUNTY LLRW OFFICE, New York State's Low-Level Radioactive Waste Program - The Cortland County Experience (C. Monaco & P. Snyder, Sept. 1990).
18. CORTLAND COUNTY LLRW OFFICE, Presentation to the New York State LLRW Siting Commission Regarding its Site Selection Plan Procedures (C. Monaco, July 17, 1991).
19. CORTLAND COUNTY LLRW OFFICE, The Siting Commission Evaluation of Geology and Mines, (P. Snyder, C. Monaco, & J. Harrington, Nov. 14, 1991).
20. NYS LLRW SITING COMMISSION, Evaluation of the Feasibility of the Mined Repository Option (Draft), #883-1456.011 (June 1989).
21. CORTLAND COUNTY LLRW OFFICE, Comments on Precharacterization (A. Michalski & J. Harrington, Jan. 1990).
22. Chapter 913 of the 1990 Laws of New York State.
23. K. VISOCKI, Incentives, Compensation and Other Magic Tricks: Will They Help in Establishing New Waste Disposal Sites?, Southeast Compact Commission for Low-Level Radioactive Waste Management, Raleigh, NC, 1989.
24. D. MORELL & C. MAGORIAN, Siting Hazardous Waste Facilities, Mass: Balinger Publ. Co. 1982.
25. DEPARTMENT OF ENERGY, MINES, and RESOURCES CANADA, Opting for Cooperation, Catalogue No. M39-51/1-1E.
26. P. SLOVIC, J. H. FLYNN, and M. LYMAN, "Perceived Risk, Trust, and the Politics of Nuclear Waste," Science 254, 1603 (Dec. 1991).
27. J. F. AHEARNE, "Risk Communication," Proc. Symp. Waste Management, Vol. I, Tucson, AZ, Feb.24-28 1991, Amer. Nucl. Soc. & Univ. AZ (1991).