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PROFESSIONALISM AND POLITICS IN RADIOACTIVE WASTE MANAGEMENT: AN ANALYSIS OF THE MIDWEST INTERSTATE AND MIDWEST CENTRAL INTERSTATE LOW-LEVEL RADIOACTIVE WASTE COMPACTS

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PROFESSIONALISM AND POLITICS IN RADIOACTIVE WASTE MANAGEMENT: AN ANALYSIS OF THE MIDWEST INTERSTATE AND MIDWEST CENTRAL INTERSTATE LOW-LEVEL RADIOACTIVE WASTE COMPACTS

By

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ABSTRACT

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This study examines the development and implementation of policies in two Low-Level Radioactive Waste Compacts and assesses their viability and constitutionality for such matters as siting, management and maintenance of LLRW disposal facilities. The purpose of this policy analysis is to determine (1) if the federal policy concerning these matters is workable and meets the legislative intent in these two compacts (i.e. can the policies produced and partially implemented provide a viable waste disposal process for these States) and (2) whether the current array of both compacts and go-it-alone States is a viable policy option and, if not, what alternatives can be taken.

This study focuses on the policies for compact formation and operation, and documents their activities up until the January 1, 1988 milestone (with some limited coverage of follow-up activities). It shows how compliance initiatives were constructed within the federal laws, and provides some generalized comparisons of LLRW management compacts within the national experience. In particular, it looks at the role of "professionalization" of LLRW management at the state level as a potential element in the effective organization and operation of a compact. Illinois more effectively moved the decisionmaking process outside the realm of politics and was able earlier to apply science to the questions of safe and appropriate disposal.

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LOW-LEVEL RADIOACTIVE WASTE POLICY ISSUES

This study examines the development and implementation of policies in two Low-Level Radioactive Waste Compacts and assesses their viability and constitutionality for such matters as siting, management and maintenance of LLRW disposal facilities. The purpose of this policy analysis is to determine (1) if the federal policy concerning these matters is workable and meets the legislative intent in these two compacts (i.e. can the policies produced and partially implemented provide a viable waste disposal process for these states) and (2) whether the current array of both compacts and go-it-alone states is a viable policy option and, if not, what alternatives can be taken.

This study focuses on the policies for compact formation and operation, and documents their activities up until the January 1, 1988 milestone (with some limited coverage of follow-up activities). It shows how compliance initiatives were constructed within the federal laws, and provides some generalized comparisons of LLRW management compacts within the national experience. In particular, it looks at the role of "professionalization" of LLRW management at the state level as a potential element in the effective organization and operation of a compact. One fundamental question is whether professionalization was essential in the organization and operation of a compact. Illinois was considerably more successful in following the NRC guidelines and

implementing the provisions of the 1980 act as amended. Illinois more effectively moved the decisionmaking process outside the realm of politics and was able earlier to apply science to the questions of safe and appropriate disposal.

Information was collected through literature searches, review of federal, state and compact records, review of pertinent case law and through confirmation with expert subjects through informal interviews.

The law and policy of Low-Level Radioactive Waste (LLRW) management in the United States presents a new direction in federal regulation of hazardous and toxic waste management. The federal government has not only set up regulatory guidelines for the management of these materials, but also has devised a policy through which states are encouraged to handle these materials on a regional basis, as opposed to state-by-state. The Congress placed within the Low-Level Radioactive Waste Policy Act of 1980 provisions encouraging the formation of compacts (mutual agreements for economic benefit or development: U.S. Constitution, Art. I, Sect. 10, Cl. 3).

This adoption of a compact model is a significant departure from previous policies on several levels. First, previous federal hazardous and toxics policies have concentrated upon federal-state interaction. Federal/compact interaction has taken place only at the request of states wishing to create compacts, and as an extension of the individual authority of the state. Prior to 1980, states were not encouraged to join into compacts by any federal waste management policy. Second, this is the first time that a nation-wide system of compacts has been adopted for any purpose.

This study also examined compacts' viability as alternatives for LLRW management.

Introduction to the Issues

Following the Second World War, the United States Federal Government sought to utilize the knowledge and technologies developed through the Manhattan Project for peacetime civilian purposes. In 1946, Congress passed the first Atomic Energy Act creating the Atomic Energy Commission and authorizing civilian uses of nuclear power. The 1954 Atomic Energy Act further expanded the scope of civilian involvement. In the same year, Congress passed the Price-Anderson Act limiting commercial operator liability for nuclear accidents. With government support, encouragement and protection, the first commercial nuclear power facility was brought on line in 1957. [1]

In the late 1960's and early 1970's, interest in the environment in general and pollution in particular increased dramatically. Many people were concerned about what was getting into their environment, what it was doing to them and what government was doing about it. One of the results was that operations of the Atomic Energy Commission (AEC) were given serious examination by the federal government. It was found that the AEC had done an excellent job of promoting nuclear power and its applications; but as far as regulating waste disposal and limiting pollution, the results were not encouraging.[2]

In 1974, two new agencies were created to handle the roles of the old AEC: the Nuclear Regulatory Commission (NRC) to oversee civilian applications and the Energy Research and Development Administration (ERDA) to continue to promote the use of nuclear technology. This took place under the Energy Reorganization Act of 1974. ERDA was subsequently made part of the U.S. Department of Energy in 1977.

For a new agency, the NRC had a formidable job ahead of it. It had to set standards, inspect all existing facilities and bring all substandard facilities into compliance. At the same time, it had to continue to study all aspects of radioactive materials usage in this country and remain on the cutting edge of technology.[3]

A conclusion that was reached early on by the NRC was that waste disposal in the radioactive materials cycle had been neglected. In layman's terms, the materials cycle refers to the path that can be traced from mining, through processing nuclear fuel and its use to the disposal of wastes. Regulatory attention had been focused on processing and use. Dealing with waste had been so neglected that, as early as the late 1960's, temporary storage facilities were rapidly filling up at many utilities and other places where radioactive materials were used. Disposal facilities were closing down as they reached capacity and/or experienced difficulties.[4]

The NRC's response to these problems was to take remedial action and to plan for the future. Some tasks the commission undertook were to establish a classification system for wastes and to study technologies for appropriate disposal of the various categories of wastes. As part of its work, the NRC studied not only what would be the appropriate technologies, but also the correct administrative/ governmental level for the management of wastes.

Congress determined that the federal government should be responsible for managing High-Level Wastes and military wastes. It was the NRC's judgement that, with sufficient technical input and regulatory oversight from federal agencies, low-level radioactive wastes could be managed by state level agencies. The Congress agreed upon and passed legislation confirming this judgement. The passage of the 1980 LLRW

Management Act was deemed consistent with the principles of federalism upon which power and responsibility has been shared between national and state governments since the beginning of the Republic.[5]

Initiatives for action on low-level radioactive waste issues did not come exclusively from the federal government. During the last twenty to thirty years, three disposal sites have handled the majority of commercial low-level radioactive wastes for the whole country. These sites are located in South Carolina, Washington State and Nevada. Several other sites operated during this time frame, but were closed due to technical difficulties. The governors of the three states with active sites indicated that they would stop access to these sites in the near future, as was claimed to be their right. This accelerated movement within the federal government to continue access to disposal sites and to more equitably share the burdens of that disposal.[6]

In 1980, the federal government passed the Low-Level Radioactive Waste Policy Act, which required all states to manage the disposal of low-level radioactive wastes generated within their boundaries. The Low-Level Radioactive Waste Policy Act was amended in 1985. The deadline for having the capacity to take title and dispose of wastes was extended until Jan. 1, 1993. A timetable with compliance milestones was established pursuant to the 1985 amendments. On January 1, 1993, each state was to receive ownership of the wastes and be responsible for disposing of them in manners acceptable under federal and state/regional regulations.

The LLRW Policy Act (amended) gives states the option of managing their wastes on an individual state-by-state basis, or of joining into compacts. A compact is an arrangement whereby a number of states join together to manage a situation and/or share

resources for their mutual benefit. Compacts can only be created with the express permission of the federal government and for limited and clearly defined purposes.[7]

Problem Statement

This research addresses the issue of whether the current federal-state policy for management of Low-Level Radioactive Waste (LLRW) is a practical option for implementing a viable program for permanent disposal of these wastes. This study has one primary objective: to examine and document the impact of professionalization on LLRW policy development and implementation in the United States, with special emphasis on the Midwest and Midwest Central Interstate LLRW Compacts. The secondary objective is to examine the viability of present policies for implementing a system for safe, permanent disposal of LLRW.

Role of Professionalization

A critical element in the success of LLRW Policy implementation has been the roles played by political process and professional staff. Considering the fact that the federal government imposed timelines on the states to establish and have operating LLRW facilities by 1993, the degree of professionalism and organizational responsiveness significantly affected states' reactions. Illinois had significant experience in radioactive materials regulation and had a professionally staffed, free standing agency in place from the beginning of the LLRW management process. Michigan did not have the same type of professional program in place and relied on the political process to make LLRW management decisions for a much longer period. A key question is whether

this difference was critical in Illinois' success in moving the LLRW management process forward.[8]

CHAPTER II

LITERATURE REVIEW

Low-Level Radioactive Waste Policy

Only a few comprehensive works have been written regarding Low-Level Radioactive Waste Policy. The overwhelming volume of material on radioactive waste policy has focused on the subject of high-level radioactive waste disposal. Except for Colglazier The Politics of Nuclear Waste and the Office of Technology Assessment's Partnerships Under Pressure, none of the works attempt to perform a comprehensive analysis of Low-Level Radioactive Waste policy. Instead, the focus of these works is upon introducing the uninitiated into the policies and politics of LLRW management, e.g. Gershey et al Low-Level Radioactive Waste: From Cradle to Grave.

The bulk of the research in Low-Level Radioactive Waste Policy falls into four categories:

(1) Legal case analyses and statutory review studies with focus primarily upon the Constitutionality of Federal and State statutes and regulations;

(2) Technical works with focus on the engineering aspects of waste disposal;

(3) Implementation reviews which focus upon the problems that have arisen in reaching the federal deadlines, and

(4) Public information and education documents.

None of these present a strong model for comprehensive policy analysis.

The legal case analyses present information on how scholars interpret the constitutionality of federal and state actions. By nature, these types of review are reactive, responding to precedent and subsequent interpretation of Constitutional application. However, a number of these went beyond single case analysis and moved into more generalized critiques of the subject legal regulation of low-level radioactive waste management as a whole.[1]

The technical works focused upon engineering aspects and only comment upon legal and policy issues as they pertain to authorization and implementation. The overwhelming majority of these works accept the statutes and regulations as given, offering critical analysis only when such aspects as deadlines should prove technically infeasible.[2]

Implementation reviews focus primarily upon the status of compliance by the states and regions with the 1985 LLRW Act. These works do offer some insight into failures of the legal/regulatory structure. The approach taken within these works, however, is almost always incremental in nature, focusing on how to adjust the statute or the regulations. None of these analyses advocate radical change in the legal/regulatory approaches.[3]

Public information and education materials and articles are among the least useful of the literature sources for purposes of this review. These documents generally provide

information on the status quo and do not attempt to move the debate forward into areas of contention.[4]

Support for the current research is generally lacking in the existing literature. There are no standardized models within the current low-level radioactive waste policy literature upon which to build critique and analysis, except for those found within the legal case analyses. It is upon these analyses that this research shall in part be modeled.

Several key questions are brought forth in the case and statute analysis literature. Conrad, Seiberling, Satter and Berkovitz focus on the interaction of states rights with the federal Low-Level Radioactive Waste Policy Act. They point out the tightrope that the federal government has been walking since the beginning of the Atomic Age. Early emphasis on promotion of Nuclear Power and the concentration of authority to manage those wastes at the federal level created significant problems. Since physical disposal of the wastes must occur within the boundary of a state (discounting off-shore disposal as an option), state interests have by necessity come into play.[5]

With increasing politicization of the waste disposal policy process in the 1970s, questions arose regarding the authority of the federal government to maintain exclusive control of the process. Appeals to the Supremacy and Commerce Clauses of the Constitution effectively stifled this debate until the later part of that decade. At the urging of the National Governors Conference in 1979, and faced with increasing pressures from various parts of the electorate, Congress passed and the President signed an act that for the first time in U.S. history gave states significant power in the management of wastes. The problems that subsequently arose in the management of these wastes came about primarily because the federal government required the states, at a

future date, to provide for disposal of these wastes, take title to the wastes and meet federally mandated deadlines and disposal guidelines. And states are to do all of this while dealing with publics that are generally adamantly opposed to disposal of these wastes "in their backyard".[6]

Almost all of the works reviewed criticize the politicization of the issue, some question the constitutionality of the acts, but none propose radical modification of the status quo. Fundamentally, two options are cited: (1) continue forward with the current statutory structure and rely on the coercive power of the federal government to assure states meet the disposal deadlines or (2) repeal the act and make the responsibility once again federal in nature. This research explored these options and delineated some intermediate options, moving forward from where the literature leaves off.[7]

Professionalism in Organization and Operation of Compacts

The literature on the role of professionalism in public administration and public policy is varied and wide. Scholars from Woodrow Wilson to Vincent Ostrom and Amati Etzioni have spoken about its effects on public administration.[8] The major recurring themes are that (1) professional staffing is essential to the operation of the modern bureaucratic state, (2) an overreliance on staff can distance decisions from clients (for good or ill), (3) political action without professional staff input can lead to negative consequences, and (4) an optimum balance between professional staff input and political input is difficult to achieve and maintain.[9]

There is no evidence in the literature that the specific question of the impact of professionalism on LLRW management has ever been addressed. The impact of

professionalism on the public sector has been explored in a variety of areas from the Forest Service[10] to prison management[11] to garbage service[12]. In all of them, the general consensus is that professionalization is beneficial for the public administration. The primary caveat is that a professional bureaucracy must be balanced by an active electorate and an active legislature to ensure that democracy is maintained.[13]

The closest correlation in the professionalism literature is in the natural resources fields. Herbert Kaufman's work The Forest Ranger: A Study in Administrative Behavior broke ground in the area of natural resources public administration.[14] In Chapter VI of this work, "Developing the Will and Capacity to Conform", Kaufman analyzes how necessary it is to recruit, train and retain skilled personnel into the Forest Service. This type of analysis has been continued in all branches of forest management and related areas, such as parks. It should be noted that the research on professionalism as a whole in natural resources management has never been as intensive as in other areas, such as police forces.[15]

CHAPTER III

RESEARCH METHODS

Three types of research methods are used in this research project. All focus on different dimensions of the same issue: whether the current federal-state policy for management of Low-Level Radioactive Waste (LLRW) is a practical option for implementing a viable program for permanent disposal of these wastes. The three methods are historical review, legal case review and policy review.

The historical review method is used to examine and document LLRW policy development and implementation in the United States, with special emphasis on the Midwest Interstate LLRW Compact. This review examines the primary documents of the process (Hearings and Proceeding of Federal and State Legislatures, Court Documents, Agency Documents, and Notes of the Compact Commission) as well as secondary source materials generated by participants, observers and researchers. Extensive historical review of the process, especially in the critical period of 1978 through 1985 has not been done up to this point in time.

External criticism of the documents will not be a major consideration since the documents are relatively recent in origin. Primary focus will be on internal criticism to determine viewpoint and bias in the documents. Much of the controversy that has arisen since passage of the Low-Level Radioactive Waste Policy Act of 1980 has been focused

upon the intents of Congress and the various States in the passage and implementation of this act.

Legal case review, that is examination of cases involving radioactive waste management and compact clause application to natural resource and environmental management problems, is the second technique used in this research. This method will be used to examine the viability of present policies for achieving the key objective of safe, permanent disposal of LLRW and (3) examine the possibility of use of the Compact model (found within federal LLRW law and state implementation plans) as a framework for addressing other hazardous and toxic waste concerns.

Policy review in this study will involve qualitative-descriptive analysis of the issues and implementation framework for Low-level Radioactive Waste disposal. It will focus on the subject of implementation of the 1980 LLRW Policy Act in the Midwest Interstate and Midwest Central Interstate Compacts. There are 11 key points that any policy review may focus upon. These points are: 1. Perception/definition, 2. Aggregation, 3. Organization, 4. Representation, 5. Agenda Setting, 6. Formulation, 7. Legitimization, 8. Budgeting, 9. Implementation, 10. Evaluation and 11. Adjustment/termination.[1] Discussion of this research will touch upon the other areas, but the primary focus will be on examining the question of professional impact on the implementation of the national and regional agendas.[2]

CHAPTER IV

BACKGROUND

Definition of some technical subjects of this research is necessary before moving into analysis of the statutory and regulatory options. This chapter contains background information on three subjects: The Nature of Low-Level Radioactive Waste, the History of Federal and State Organizations, and Compact Organization Processes.

Low-Level Radioactive Waste

For the purposes of this research, low-level waste has the same meaning as in the Low-Level Waste Policy Act, that is radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in section 11e (2) of the Atomic Energy Act of 1946 (uranium or thorium tailings and waste).

Low-level means that the materials in these categories produce low-levels of radioactivity. The NRC has set up a classification system based on the half-lives of these materials. Class A wastes decay to safe levels within approximately 50 years. They are also the largest amount by volume of the wastes produced. Class B wastes decay within approximately 100 years. They require more containment than class A. They are the second largest fraction by volume of the wastes. Class C wastes complete the series requiring greater containment and a storage period of 500 years. They constitute the

smallest amount by volume of the wastes. Contrast this with a requirement for the federal high-level waste repository, which states that the material must be stored under heavy containment conditions for 10,000 years.[1]

It is important when describing what low-level radioactive waste is to note what it is not. **IT IS NOT:**

1. spent fuel from nuclear power plants;
2. nuclear fuel reprocessing waste;
3. defense weapons production waste; or
4. uranium mining and milling residues.

Low-Level Radioactive Waste is:

1. secondary products of nuclear power plant operation (e.g. filters and resins that come into contact with radioactive materials);
2. radioactive materials and secondary products from medical diagnosis and treatment (e.g. lab clothing and equipment that come into contact with radioactive isotopes used in examination, therapy, etc.);
3. radioactive materials and secondary products used in medical and scientific research (e.g. tracers used to explore chemical pathways in living organisms, basic research into the structure of matter, etc.); and
4. radioactive materials and secondary products used in industrial and commercial processes (e.g. examine structural supports).[2]

Approximately 1.4 million cubic feet of commercial, low-level radioactive waste is presently disposed of in the United States annually (1988 figure).[3]

History of Federal and State Organizations

Radioactive waste disposal emerged as a critical national policy issue in the late 1970s. Significant use of radionuclides in commercial reactors, medical and research activities and other civilian purposes did not begin until the 1960s. Disposal of low-level radioactive waste was done at federally owned and operated sites, and through ocean disposal (this practice was discontinued in the 1960s). In 1959, an amendment was made to the Atomic Energy Act entitled "Cooperation With the States". This was the first time states were granted any authorization to regulate radioactive materials. This created the opportunity for states to regulate certain aspects of radioactive materials usage within their borders. If states became "agreement states", they had the right to have state agencies oversee radioactive materials use in their borders. The NRC had responsibility for overseeing the state programs.[4]

The first commercially operated low-level radioactive waste disposal facility was opened at Beatty, Nevada in 1962. It was AEC licensed, operated by a private firm, and located on state owned land leased to the firm. Subsequent to this, five other commercially operated facilities were opened:

- Maxey Flats, Kentucky (1963)
- West Valley, New York (1963)
- Hanford, Washington (1965)
- Sheffield, Illinois (1967) and
- Barnwell, South Carolina (1971).

In addition, the federal government also operated 14 disposal sites around the nation. These sites are exclusively for low-level radioactive wastes produced by activities at federal installations.[5]

By the mid-1970s, problems began to emerge. At the West Valley facility radioactive wastes were found migrating into the groundwater. It was closed in 1975 for additional study and review. Waste was found to be seeping from the Maxey Flats site in 1972. In 1975, the NRC found that this did not constitute a sufficient reason to close the facility, but public pressure forced its closure in 1977. The Sheffield site closed in 1979 after the licensed trench disposal space was used up. [6]

By the middle of 1979, only three commercial sites remained open. The federal government stopped shipping the relatively small amounts of materials it was sending to the sites to reserve capacity. All three host states were agreement states and had responsibility for direct regulation of the facilities. Transportation mishaps in mid-1979 prompted Nevada Governor Robert List to temporarily close the Beatty facility. The governors of Nevada, Washington and South Carolina met and demanded that the federal government enforce standing transportation and packaging regulations. Additional problems led to temporary closings of both the Washington and Nevada facilities in the later part of the year. Governor Richard Riley of South Carolina ordered the Barnwell facility to reduce by half the amount of waste materials it was accepting on an annual basis.[7]

In 1979, prompted by the actions of the Governors of South Carolina, Nevada and Washington, two major national state advisory bodies, the National Conference of State Legislatures and the National Governors' Association, called for a change in national policy. The policy recommendations focused on the creation of an integrated national policy that would provide for greater levels of state control.[8]

President Carter responded to the call and directed the NRC to address these issues. In 1979, a draft of new LLRW regulations was released. It was subsequently modified and adopted as 10 CFR 61. If February 1980, President Carter organized the President's State Planning Council on Radioactive Waste Management to help draft a plan to more effectively address the low-level radioactive waste disposal problem. This group, more than any other, pushed for a plan that would grant states control over the wastes generated in their borders.[9]

All three of the state level advisory groups indicated in 1979 and 1980 that there were several issues that needed to be addressed by new federal and state action. The state groups indicated that there was a need to determine long term disposal capacity needs. If LLRW disposal needs were to be addressed, waste generation, radionuclide content, packaging methods, interim storage, perpetual care and costs all had to be projected into the future. A regional siting process needed to be created. Site selection criteria would need to be ascertained. Incentives for disposal and questions of liability would have to be agreed upon between the states and the federal government. Public involvement and state preemption were called for as critical for success of any plan.[10]

In 1980, the United States Congress enacted the Low-Level Radioactive Waste Policy Act (PL 96-573 - Dec. 22, 1980: 42 USC 2021 f-j), amending the Atomic Energy Act and giving responsibility for disposal of commercially generated low-level radioactive wastes to the states. Federal law-makers realized that development of a disposal facility could be a financial burden on individual states. The Constitution prevents states from joining into compacts (mutual agreements for economic benefit or development) without the express permission of the Congress (U.S. Constitution, Art. I, Sect. 10, Cl. 3). This

is one case in which compacts are not only allowed, but encouraged. States could opt to "go it alone", but this is not an option that most states found attractive. [11]

There were five major constituent components of the 1980 legislation. First, each state was to be responsible for disposal of wastes within its borders. Second, a regional basis for the disposal of wastes is the most efficient and safe method. Third, States may enter into compacts to establish regional disposal facilities. Fourth, Congress must approve these compacts. Fifth, after January 1, 1986, all regional compacts would only dispose of the wastes generated in their borders. It was intended that after January 1986, the three operating facilities would close down.[12]

Most states opted to enter into compacts. There were obvious economic advantages for many of the states (especially those that produce relatively small volumes of waste) to share resources to site, develop, manage and maintain a disposal facility. Due to the construction of the legislation, it is clear that compacts would be able to restrict disposal of wastes from outside the borders of the compact in their facilities. It was not clear whether or not individual states would be allowed to prevent other states from disposing their wastes in an established facility.[13]

During 1980-1983, states in the midwestern region of the United States examined their options in regard to LLRW disposal. Seventeen states held discussions with regard to these options in the Midwest. Nine of the states opted by 1983 to form into two compacts: the Midwest Interstate Low-level Radioactive Waste Compact (Michigan, Ohio, Minnesota, Wisconsin, Iowa, Indiana and Missouri) and the Midwest Central Interstate Low-level Radioactive Waste Compact (Illinois and Kentucky). There were specific reasons closely associated with (1) experience in the management of LLRW and

(2) the volume and activity of materials produced that did much to determine these policy choices. This process took longer than anticipated.[14]

In 1985, the Congress amended the LLRW Act, extended the deadlines and added new conditions. To ensure that the states would be ready to meet their responsibilities for waste disposal by 1993, the NRC established a series of regulatory milestones that Compacts/Host states needed to meet to be in compliance with the federal law. At this time, the three states accepting low-level radioactive wastes for disposal could refuse to accept additional waste. Some of the key milestones were:

July 1986:	Federal deadline for states to join a compact or go-it-alone.
January 1988 :	Federal deadline for selection of host state and completion of siting plan.
January 1990 :	Federal deadline for submission of license application to the NRC.
January 1993 :	Final federal deadline for operating site.

Limitations were placed upon the allowable waste generation volume and the type of facilities to be served. Conditions were added to allow open sites to add surcharges for wastes from outside their region. Penalty provisions were established for non-compliance with the federal deadlines.[15]

CHAPTER V

HISTORY OF SITING EFFORTS IN ILLINOIS AND MICHIGAN

Starting in 1980, Illinois, Michigan and the other states had to develop a response to the new federal Low-level Radioactive Waste Policy Act. In 1980 and 1981, this response primarily was to discuss at the state level the relative merits of "go-it-alone" status versus joining into a compact. There was general agreement in both states that, under the provisions of the 1980 LLRW Policy Act, joining into a compact or compacts was the sensible thing to do. Beginning in 1982, states in the Midwestern region of the country engaged in discussions on as to which states would join together and under what conditions. As many as 16 Midwestern states were involved in these discussions. The group narrowed down to nine states: Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. For the first part of the decade (1980-1984), Michigan and Illinois were joined in their efforts to deal with the issue of low-level radioactive waste. It was in the second half of the decade that their efforts diverged with varying levels of politicization and success.

Illinois and the Midwest Central Interstate Low-level Radioactive Waste Compact

Illinois and the Midwest Central Interstate Low-level Radioactive Waste Compact took a significantly different approach to the low-level radioactive waste issue. Illinois

had a long history of dealing with radioactive waste issues, arguably the longest in the nation. The University of Chicago hosted some of the top secret nuclear research of the Manhattan project. After World War II, Illinois was a key state in civilian research and commercial uses of nuclear energy. As the country moved into the " Atomic Age" of the late 1950s and early 1960s, Illinois capitalized on emerging nuclear power technologies. By the 1970s, Illinois was the largest generator of nuclear electricity in the Midwest; and therefore its largest low-level radioactive waste generator. Illinois by itself annually generated more LLRW than the seven states of the Midwest compact combined. [1]

Because of its early experience and need, Illinois professionalized its radioactive materials regulation process much earlier than Michigan. In 1955, the Illinois Department of Public Health (IDPH) created the Bureau of Radiological Health. In 1957,the Illinois General Assembly passed the Radiation Installation Registration Act; and in 1959, it passed the Radiation Protection Act. These acts authorized both equipment and facility inspection. In 1973, IDPH began licensing of some radioactive materials under state authority. In 1975, IDPH created the Division of Nuclear Safety, enlarging the staff, responsibility and authority for radioactive management.[2]

Illinois had, relative to other states, a long and unpleasant history of dealing with commercial low-level radioactive waste management. One of only six U.S. commercial LLRW facilities had been operated in the state. The Illinois legislature passed a bill in 1963 that created authority for disposal of LLRW in Illinois. At that time, the IDPH Bureau of Radiological Health was instructed to find a firm to manage low-level radioactive waste disposal in Illinois. California Nuclear (later called Nuclear Engineering and currently U.S. Ecology) was contracted to build and operate a LLRW

facility. California Nuclear built a facility near Sheffield, Illinois. It applied for and received licenses from state and federal authorities. The facility began accepting commercial LLRW for shallow land disposal in 1967.

The facility was operated from August 1967 to April 1978. The site accepted 3.2 million cubic feet of waste. In 1976, tritium was detected migrating from the site. In 1978, the Sheffield disposal site was closed when the NRC and the State of Illinois refused to extend the site license. In 1979, Nuclear Engineering attempted to discontinue its licenses and abandon the site. Via court injunction, Illinois blocked this action and forced Nuclear Engineering to maintain the site. An out-of-court settlement in 1988 resulted in U.S. Ecology taking responsibility for the site, its remediation, monitoring and closure. [3]

Illinois had significant experience in LLRW issues by the time the 1980 LLRW Policy Act was passed. Illinois' first major response to the growing low-level radioactive waste problem presented by the events of 1978 and 1979 was administrative. In 1980, Governor James R. Thompson, recognizing the growing problems associated with radioactive materials management, created the Illinois Department of Nuclear Safety (IDNS) by executive order. The Illinois General Assembly later passed enabling legislation. A staff of 43, moved primarily from the Department of Public Health, began operation as an independent Department on October 1, 1980. The first year operating budget of this cabinet level agency was $7 million. This unit was recognized and independent, and was the lead unit on any state matter dealing with radioactive materials.

Illinois' consolidation of all radiation protection programs into a central, cabinet level agency, the Illinois Department of Nuclear Safety (IDNS), served several purposes.

Up until this time, even though the state had more experience than any other at dealing with radioactive materials regulation, the existing program was understaffed, underfunded and underempowered to deal with the emerging realities of radioactive materials management. The core staff of this new agency focused all of its efforts on radioactives management. [4]

Before anyone places too great a presumption of wisdom and insight on the governor's brow in creating IDNS, it is important to review the facts of the day. In 1979, the entire nation's awareness and perception of risk from radioactive materials usage was raised by the Three Mile Island nuclear power station accident (March 28, 1979). Governor Thompson was witness to the confusion and lack of preparation that were evident in Pennsylvania's response to the crisis. In 1979, Illinois had 7 nuclear power facilities on line; the largest number of any state. Ten more reactors were scheduled to be brought on line in the near future (seven were built). Illinois also had to deal with the fact that at least one facility was not all that many years away from decommissioning. Add to all this the actions of South Carolina, Washington and Nevada with regard to disposal access and Illinois would have been foolish not to take bold action.

Compact Activities

Following on statements of the National Governors Conference, the National Conference of State Legislators and the 1980 LLRW Policy Act, Illinois entered into discussion with other states in the Midwest on the possibility of forming a compact. By 1982, it became clear that joining into any multistate compact in the Midwest would

result in becoming that compact's host state. Illinois entered into discussion with Kentucky on the possibility of forming a two state compact.[5]

By 1982, Illinois was loathe to repeat its on-going experience with U.S. Ecology and the Sheffield site. Illinois' staff, however, recognized the merits of the compact arrangement. Illinois' staff also pointed out the relative merits of joining into a compact; shared cost, shared liability, and the ability to exclude out-of-region wastes once the facility was up and operating.

By 1983, the general conditions for merger into a compact had been discussed and decided upon. The state which generated the most waste by volume and activity would be the host state for the compact. Illinois was the clear choice, generating a greater volume of waste than the rest of the compact members put together. Illinois was amenable to the proposition as long as certain conditions were to be met. Liability and cost had to be shared appropriately. The locus of the facility's regulatory control had to be within Illinois.

In 1983, the Illinois General Assembly passed the Illinois Low-Level Radioactive Waste Management Act in anticipation of joining the emerging Midwest Interstate Low-Level Radioactive Waste Compact. This act vested IDNS with responsibility for selecting a site and choosing an operator. The most important point to note here is that, until 1990, this strong central responsibility and authority was not changed.

In 1984, Compact discussions broke down with the nine-state group. Illinois and the other compact states could not come to agreement on appropriate levels of cost and risk sharing. In late 1984, Illinois broke with the Midwest Interstate group and convinced Kentucky to join with it in a two state compact, the Central Midwest Interstate LLRW

Compact. Kentucky was the only other state in the proposed Midwest Interstate compact that had experience in regulating low-level radioactive waste. It's experience with the Maxey Flats site was even worse than Illinois' with Sheffield. Illinois agreed up front to be the host state since it generated over 90% of the waste. Compact and host state status were confirmed by the U.S. Congress in 1986 and 1987 respectively. In 1987, Illinois becomes an Agreement State with the U.S. NRC.

Illinois' agreement with Kentucky varied significantly from that of Michigan and its compact partners. In agreeing to be the host state, Illinois set several conditions. First, in no year could the volume of waste generated from Kentucky equal more than 10% of total disposed in the facility. Second, the Compact Commission would consist of three members, two appointed by Illinois and one appointed by Kentucky. This is unlike the Midwest Compact Commission in which each state has one commissioner. Third, there would be one facility sited and constructed - no rotation among the compact members will necessary - also significantly different from Michigan.[6]

In the Illinois/Central Midwest framework, the Compact has oversight by a three member commission. The Commission has three representatives, two from Illinois and one from Kentucky. Illinois' representation was always drawn in whole or part from the IDNS. IDNS formed two advisory groups: the Technical Advisory Group and the Citizens' Advisory Group. The Technical Advisory Group had responsibility for assisting in the development of design criteria for the disposal facility. The Citizens' Advisory Committee was composed of 16 members representing generators, environmental groups and local citizens.

In 1986 and 1987, public information meetings were held and public comments on the siting criteria were gathered by mail. An incentives and compensation package was constructed. Communities were encouraged to volunteer to host the facility. It should be noted that IDNS moved the process forward synchronously with its ability to move to the next step in a timely manner. In 1987, Illinois contracted with Battelle Memorial Institute to conduct the site selection work.

In 1988, Illinois chose Westinghouse to construct and operate the LLRW disposal facility. Problems arose between IDNS and Westinghouse, and in 1989 Westinghouse withdrew. By July 1989, IDNS had hired Chem-Nuclear Systems as the replacement contractor. Chem-Nuclear met with IDNS and the advisory committees to be sure that the "overdesigned" safety system called for was met.

Parallel to the process for choosing a facility contractor, the siting study was going forward. Illinois developed more flexible criteria than Michigan, with little if any loss of scientific credibility. The Illinois siting study found one-fourth of 102 counties in Illinois had suitable sites for low-level radioactive waste disposal.[7]

By 1987, 17 counties had "not expressed unwillingness to host the facility". Eight potential sites were identified. (Even the type of zero-community willingness expressed in Michigan would not necessarily have stopped the site selection process as local agreement was not explicitly necessary for siting the facility.) Technical efforts were focused initially on finding a site that was hydrologically suitable. During the winter of 1987-88, four sites were chosen for intensive study. This was pared to the two most appropriate sites: Martinsville, Clark County and Fairfield, Wayne County.

In 1990, the Fairfield site was moved off active consideration at the request of local government. The Martinsville site continued to be studied and continued to receive the support of Martinsville municipal government. (Note: Clark County government voted to reject participation, but the jurisdictional authority for the site rested with the municipal government.) In 1990, the Illinois General Assembly passed the Radiation Protection Act of 1990 and entered its siting plan with the NRC.[8] At this point, Illinois was in compliance with all the federal milestones and regulatory criteria.

During the legislative session of 1990, the first significant move was made within state government to remove any siting or permitting activity from IDNS. Public pressure had been increasing on the legislature and the governor to include more outside input and decisionmaking into the process. IDNS director Terry Lash (November 1984 - April 1990) resigned and was replaced by Thomas Ortciger. Ortciger met with state Senate President Phil Rock, state Senator Jerome Joyce and the governor's staff to develop a process to meet the rising demands for out-of-agency input. S.B. 1761 passed during the 1990 session and was enacted. The bill stripped IDNS of its siting authority, and placed it in the hands of the Low-Level Radioactive Waste Disposal Facility Siting Commission.

The Siting Commission was made up of three members, appointed by the governor and confirmed by the state Senate. Former state Supreme Court Justice Seymour Simon was appointed commission chair. The commission was required to hold at least one public hearing in the proposed host community. The Commission could only approve a site with a two-thirds majority and the local community government would have veto power on the site.

Despite all the progress Illinois has had in siting a LLRW disposal facility, its current story is not all that different from Michigan's. On October 9, 1992, the state siting commission rejected the Martinsville site. Concern had been raised about off-site migration of radionuclides into groundwater. IDNS is currently seeking a new site and is working with out-of-state facilities and in-compact generators to assure adequate disposal opportunities and on-site storage capacities for the interim.[9]

Michigan and the Midwest Interstate Low-level Radioactive Waste Compact

After Illinois' and Kentucky's withdrawal from the Midwest Interstate Low-level Radioactive Waste Compact in 1984, it was composed of Michigan, Ohio, Minnesota, Wisconsin, Iowa, Indiana and Missouri. Out of earlier discussions, it was decided that these states would continue with plans to join together to site and provide for the construction and operation of a low-level radioactive waste disposal facility. When Illinois opted out of the process and joined with Kentucky the process of choosing a host state started over.

It was apparent from early negotiations that Michigan was the likely host state of the seven remaining Midwest Compact members. This was because of the compact states, Michigan generated the largest volumes and highest activity levels of wastes. Michigan was the first state to formally agree to enter the compact (Act 460 PA 1982). The Midwest Interstate Low-level Radioactive Waste Compact was formally recognized by federal law on January 15, 1986 (42 U.S.C.A. 2021d). The Midwest Interstate Low-level Radioactive Waste Compact Commission (MILLRWCC) was created under the authority of this act. Initial responsibility for staffing the Michigan effort was placed in the

Michigan Department of Public Health (Division of Radiological Health, Bureau of Environmental and Occupational Health) prior to the passage of federal authorization.

The MILLRWCC was composed of a representative from each of the seven member states. The Compact Commission put together a plan that relied first on voluntary compliance. It was hoped that a Compact member state would step forward to host the facility. Significant incentives and compensations were placed in a package by the Commission.

The Commission made a policy decision that no one state would be required to shoulder the burden for all the states. Waste disposal responsibility would rotate among the seven states on a 20 year basis, with no state hosting a disposal facility for a second time unless all other members had shouldered their responsibilities. Because the Commission wanted states to have time to volunteer, the first official compact deadline did not come until February 1986. At that time, the Compact Commission would choose the four finalist states. Three months later in May, the host state and the first alternate would be chosen. Michigan encouraged this behavior by the Compact Commission. The thinking was that a delay such as this gave the state more time to prepare for the inevitable.[10]

Instead of turning the siting responsibility entirely over to the state bureaucracy, as did Illinois, Michigan chose to appoint "civilian" oversight. In December 1985, Governor Blanchard signed legislation creating the Radioactive Waste Control Committee; an appointed body which was to advise the state's leadership on LLRW policy.[11]

The Michigan Radioactive Waste Control Committee (RWCC) was established by state law (Public Act 190 of 1985) to:

1. Advise the Governor, Legislature, the state's Commissioner (representative to the Compact), and the Department of Public Health (MPDH) on all radioactive waste management issues.

2. Review Midwest Compact activities, especially as they pertain to Michigan.

3. Establish policies to ensure adequate public involvement in the low-level radioactive waste management process.

The committee was composed of 7 appointed members: 4 experts and 1 public representative appointed by the governor, 1 public representative appointed by the speaker of the Michigan house and 1 public representative appointed by the Majority Leader of the Michigan Senate.

From this early stage, even though the majority of the committees members were technical experts, Michigan characterized its decision process by emphasizing political as opposed to professional considerations in determining LLRW policy. This advisory board, in conjunction with MDPH, handled much of the state's responsibilities for interacting with the Compact and Federal authorities through mid-1987.[12]

To meet its responsibilities as a Compact member and to meet federal requirements, Michigan enacted laws to deal with the potential siting of a low-level radioactive waste disposal facility in the state. The legislation specifically dealt with:

(1) identifying criteria for designating a site and establishing a facility to dispose of LLRW;

(2) establishing criteria and standards for operation, monitoring and closure of a disposal facility in accordance with both federal and state requirements; and

(3) establishing the proper regulatory and administrative channels for oversight of all aspects of development, operation and closure of such a facility. [13]

Coordination between and among state level agencies, federal regulatory authorities and local community groups was also a key objective of this legislation. Although a single licensing process was considered to be optimal for development of a facility from siting to closure, no existing health or environmental protection standard was to be disregarded.[14]

The MDPH staff had multiple levels of oversight. At least one of the Governor's chief environmental aides was always involved in procedural decisionmaking. This often was in parallel with the RWCC. The RWCC was not chaired by a technical expert, but by a former mayor and official of the Michigan League of Women Voters. Key activities such as Public Information and Education and the Technical Siting Study were contracted out to Michigan State University. The reason for this was the nominal objectivity of the University, but also to rely on multiple sources for decisionmaking. These decisions had some weakening effect on having an effort centralized in the state bureaucracy. It should be noted that when an official of Michigan State University would not "tow the party line" in public testimony, MSU was dropped from the siting study.[15]

By mid-1986, the RWCC decided that the public should be informed and involved early in the siting process. The MSU Department of Resource Development was contracted to provide public information and education programming. These tasks started

in August 1986, and in January 1987, public meetings were held at six sites throughout Michigan. Public and media attention were raised with the express intention of involving them in the later decision processes. MSU's involvement continued on through 1988 in the provision of technical support for the facility siting study. It is important to note that both the public information and facility siting studies were internalized in state government in Illinois.

In 1987, legislation was enacted creating a LLRW Authority, the formation of a Disposal Facility Siting board and the dissolution of the Radioactive Waste Control Commission. The LLRW Authority was created by Executive Order in mid-1987 and was confirmed by legislation in December 1987. The Authority dealt with all aspects of facility siting, construction, operation and closure. The Michigan Department of Public Health (MDPH) continued to act in a technical advisory role to both the Authority and the Facility Siting Board. It was to act as an independent regulatory body during facility construction, operation and closure. The Authority took the lead role among state agencies in the implementation of LLRW policy in Michigan. The director of the Authority was a political appointee.[16]

Through 1987, the LLRW Authority worked with the Siting Board, Department of Public Health and the Department of Natural Resources (DNR) to establish siting criteria (in compliance with federal and Compact guidelines) to evaluate possible sites in Michigan. Michigan acted under obligation by federal law to have access to a disposal site by the 1993 date, and made this very clear in all its documents. It was recognized that failure to comply with the law would cause the state to incur financial penalties by not meeting the milestones. By January 1, 1988, Michigan and the MILLRWCC had met

the milestone obligation, had chosen Michigan as the host state and put into place a site selection process. This was the last major milestone that Michigan was to successfully complete.[17]

Michigan hit its first major set of problems in 1988 and 1989. Michigan, in these two years, was compelled by federal law to complete a siting study and submit a license application for its candidate site by January 1, 1990. Failure to do so would result in fines being levied by NRC on the compact and the state. Michigan's siting criteria and the access to the process resulted in more than 99% of the land area of Michigan being excluded from consideration. The three proposed sites were all eliminated by utilization of the siting criteria during on site inspection. This resulted in Michigan failing to meet the deadline for siting the facility and ultimately being expelled from the compact on July 24, 1991 (See Appendix C for a more detailed chronology of the siting period). Michigan nominally has pursued a go-it-alone strategy since that time, while making inquires about access to out of state facilities. Ohio has been selected as the replacement host state of the Midwest Interstate Low-Level Radioactive Waste Compact.[18]

Epilogue

On June 19, 1992, the Supreme Court of the United States passed a ruling that may have long term impacts on the entire subject of LLRW management in the United States. New York, a go-it-alone state, challenged the constitutionality of the federal Low-level Radioactive Waste Policy Act of 1980 and the Low-level Radioactive Waste Policy Act Amendments of 1985. New York challenged the constitutionality of the monetary incentive provisions, the access incentives and the take title provision. The

monetary incentives revolved around the authority granted by the Congress to the states to levy surcharges on generators, have the money held in escrow by the Energy Department and turned over to host states as they achieve the federal milestones. The access incentives revolve around the authority granted by the Congress to increase costs to out state generators and to ultimately deny access. The third provision was to require states to take title to wastes generated in their borders after the 1993 federal milestone, including the liability for those wastes.

The Court upheld the constitutionality of all but the take title provisions. The Court held that "a "choice" between the unconstitutionally coercive alternatives -- either accepting ownership of waste or regulating according to Congress' instructions -- the provision lies outside the Congress' enumerated powers and is inconsistent with the Tenth Amendment. On the one hand, either forcing the transfer of waste from generators to the States or requiring the States to become liable for the generators' damages would "commandeer" States into the service of federal regulatory purposes. On the other hand, requiring the States to regulate pursuant to Congress' direction would present a simple unconstitutional command to implement legislation enacted by Congress." Thus, the Court invalidated part but not all of the federal statute. In fact, the Court made the specific point that it was not rejecting the act as a whole but simply this take title section. Retained are the provisions that allow states and compacts to reject out-state importation of LLRW. Justice O'Connor wrote the opinion, which was joined in by Rehnquist, Scalia, Kennedy, Souter and Thomas and in part by White, Blackmun and Stevens. [19] As it stands today, the Low-level Radioactive Waste Policy Act conditions continue to apply and states are still compelled to come up with LLRW solutions, if not so strongly

as when the take title provisions held. Also, the states are still compelled by the monetary provisions which is of special concern to states already committed to the process.

As it stands today, none of the involved states or compacts have a sited, much less operational, disposal facility. The Supreme Court's decision has not made going forward with the process any easier. One of the primary concerns of the states, that they would be required to "take title" of the wastes, is gone. Nevertheless, Illinois, Michigan and Ohio are all proceeding with efforts at siting their facilities.

CHAPTER VI

POLICY AND MANAGEMENT ISSUES

Citizens in our modern society have expectations about various things in life. Some of these expectations revolve around the services managed and/or provided by the public sector. Many of these services involve things of which we have little direct awareness, but still want done in a manner convenient to us. When change comes upon us, it is often not immediately accepted. It is part of the American tradition of action to look at the reasons for a change. Publics accept and adapt to change more easily if it is perceived to be more efficient and fairer than the prior condition. We need this ability in society because our growth in numbers, in production of materials for human use, and in knowledge are changing many of the assumptions on which we built our previous ways of behaving.

The Federal Policy Context

Since the dawn of the nuclear age, management of nuclear waste has been under the control of the federal government (Atomic Energy Act of 1946). This was necessary when we had to maintain secrecy for the Manhattan Project (the weapons development program in WW II). Even through these times, there was a certain amount of waste generated in the private sector. At least since Becquerel and the Curies in the 1890's,

applications of radioactive materials have been explored. Medical applications were some of the earliest, and continue to be significant waste generating processes. Commercial applications, such as radium paint for luminous watch dials, have long been around. Perhaps because of inadequate consideration of environmental consequences, disposal of wastes from these activities prior to the 1940's was done by landfilling and other standard disposal techniques.

After WWII, the Atomic Energy Commission (AEC) was founded to promote and regulate civilian use of this "new" material. Through the 1950's and 1960's, new applications were made at a rapid pace and the growth in products and wastes expanded at a similar speed. There was a certain amount of modification of the role of the federal government during this period. State and civilian roles were expanded in certain areas, including aspects of waste management. For example, licensing authority for waste disposal facilities was transferred to the states in which they operated.

The AEC's successor agency, the Nuclear Regulatory Commission, continued this relationship with the states. Throughout the 1970s and 1980s, the NRC increased the level of delegated authority to the states for on-site nuclear regulation. In some areas, the relationship progressed to the point where the NRC's primary responsibility became oversight of the state programs and not the facilities themselves. NRC continued to have ultimate authority for the granting of major licenses and approval of aspects such as available technologies.

By the late 1970s, the NRC was being confronted on all sides by problems related to civilian nuclear energy and radioactive materials usage. Problems were coming to the public's attention on reactor safety, on-site storage of waste, and public exposure to

radionuclides. Programs for the creation of a high level waste repository were stalled. Public interest groups such as Greenpeace provided ever increasing pressure by highlighting in the media "agency failures". By the time of the Three Mile Island nuclear accident, NRC was nearly at overload with regard to its responsibilities. Low-level Radioactive Waste management was only one problem in the array. With the states calling for higher levels of control, a solution that seemed ideal presented itself in the compact proposal.

Compact Mechanism

During the discussions between the states and the federal government during the late 1970s on the issue of radioactive waste, the legal/organizational mechanism of Compacts was proposed as a way to develop regional disposal capacity. Interstate compacts and their usefulness in dealing with interstate issues have a history of more than 200 years in American government. During colonial times, conflicts between colonies were often settled through negotiated agreements, with oversight from the King. The Articles of Confederation recognized compacts as a mechanism to settle interstate disputes. The states used compacts during the pre-Constitutional period to establish trade agreements between and among states.

In the writing of the Constitution, provision was made to continue this practice of ensuring trade among the states while limiting the scope of exclusive agreements. The Interstate Commerce clause (Article I, Section 8-3) of the Constitution prevented the creation of trade barriers between the States. The Compact Clause (Article I, Section 10-3) was added to ensure that certain types of trade and commercial arrangements between

the states would be allowed, but only with the consent of Congress (Compact Clause: Art. I, Section 10, Cl. 3 of the U.S. Constitution: "No State shall, without the consent of Congress ... enter into any Agreement or Compact with another State, or with a foreign Power....).

Compacts are constructed through a three level process: (1) an agreement is drawn up by two or more states and placed into the statutory law of those states, (2) once those states confirm the agreement by statute, then a contract exists which can only take effect if (3) the U.S. Congress confirms the compact within Federal law. Supremacy of Federal Authority drives the process and parties are held to the contract under force of Federal law. Like similar agreements among individuals, disputes are resolved by examining the intent of parties entering into these agreements (as demonstrated at least in the legislative history in each state). Compact agreements are superior in authority to state law in each agreement state, if conflicts should arise.

Throughout U.S. history, compacts have arisen primarily to manage resources on state borders, settle disputes and to enhance commerce where it can be demonstrated that such enhancement does not provide undue competitive advantage. Compacts by nature must arise from the states and not from the Federal government. This is not to say that the Federal government is prevented from suggesting a compact as mechanism to resolve a problem. There are many examples in U.S. history in which the Federal government and its agencies have recommended compacts to manage common natural resource areas (e.g. watersheds, estuaries, etc.) Prior consent of Congress is not necessary for states to explore the compact mechanism as a way to resolve problems.[1]

Congressional recognition of the compact mechanism as a viable option for multi-state management of LLRW represents a rarity in the history of the Compact Clause. Here Congress not only gives prior approval for the creation of interstate compacts, but also creates incentives for adoption of the mechanism. This action by Congress is unprecedented in the history of the Compact as a method of problem-solving or dispute resolution.[2]

It should be noted that the move to the compact mechanism as a way of addressing the LLRW problem was not something that came about simply as a federal initiative. The states had a desire to have greater control over the activities in their borders with regard to environmental management. Part of this movement by the states was to gain greater control over radioactive waste management.

State Policy Context

The states had significant incentives for becoming active partners in low-level radioactive waste management. By 1979, problems had arisen at all six commercial low-level radioactive waste disposal facilities. Three had been closed and were presenting environmental problems. The three open facilities had been experiencing problems related to transportation of wastes, off site migration of materials, and ever increasing demands by out of state producers for access. Parallelling many of the waste disposal problems of the 1970s and 1980s, there was growing resistance in Washington, Nevada and South Carolina to the idea of being the nuclear dumping grounds for the country. As conditions existed in the late 1970s, states had very little ability to control their circumstances with regard to LLRW. All of the regulatory authority was vested in the federal government.[3]

Development of compacts, with the assurances proposed by the National Governors Association and adopted by the Congress, provided states with some assurances that they would have some control over the waste disposal process. It would not be as great as the type of delegated authority found under the NPDES program of the Clean Water Act, but it was greater than before.

The downside for the states developed when the federal government not only proposed transfer of some control over disposal, but also for responsibility for it. As part of the process of transferring responsibility for disposal of the wastes to the states, the federal government also proposed to shift title of the wastes to the states. In this way, the NRC would only have oversight responsibility for major permit approval and approval of state programs and plans. Many of the states argued effectively that they could do a better job of assuring site and facility safety. The federal authorities were viewed as being too far removed from any local environmental problems to effectively address them. [4]

In the late 1970s and early 1980s, the problems for states seemed to be surmountable. Under the Carter Administration, there was a recognition of states' needs to have a greater voice in waste management. It was during this time period that the LLRW Policy Act was formulated and enacted. Under the Reagan Administration, there was movement on a variety of levels through the New Federalism to shift authority to the states.

During the first part of the decade (1980-1983), most states accepted the provisions of the 1980 legislation and proceeded to either join compacts or provide for their own disposal needs as go-it-alone states. The two major problems arose during this

time. First, the NRC projected that the needs of the nation for LLRW disposal could be met by 3 to 4 facilities. As states made compact alliances or decided to go-it-alone, the number of facilities expanded to 15 or more. Second, the process of negotiations between states as to which would form compacts took much longer than anticipated. The first formal multistate agreements were only put in place in late 1982-1983. This precluded any state from going through the entire process and meeting the original 1986 deadline. This problem was addressed by the 1985 amendments. The extension of the timeline and the federal milestones effectively dealt with each of these concerns. At the national and regional levels, the question of LLRW seemed to be effectively addressed. It was at the state level that the real problems of implementation arose.[5]

Midwest Interstate Compact and Michigan

By the mid-1980s, the focus of action on LLRW disposal shifted to the state and compact level. Implementation of the federal statutory goals had been operationalized into state led activities. Functionally, Michigan began to address the goals for LLRW disposal in 1985. Discussions between and among the Midwest Compact members all indicated that Michigan would be the first host state.[6]

Michigan from the start had several liabilities in meeting the goals. First, there was an inherent institutional/organizational liability. Michigan had no agency whose primary mission it was to address radioactive materials questions, much less the detailed problems of radioactive waste management. Michigan had the Department of Public Health (MDPH) as its lead agency. MDPH is typical for as state agency of its type. Its responsibilities range from hospital oversight to immunization programs to well water

testing. The agency head is an appointed officer, usually picked from some health profession. The Division of Radiological Health, Bureau of Environmental and Occupational Health is two levels removed from agency leadership and the team working upon the LLRW issues a tier below this. The professionals involved with decisionmaking thus were third tier bureaucrats, far from the policymakers.

Second, a considerable amount of authority was vested in the hands of persons outside of the professional agency. The governor's two staff environmental advisors had a considerable amount of power in the decisionmaking process, and acted as intermediaries between the agency personnel and the decisionmakers. The governor appointed a civilian board in 1985, the Michigan Radioactive Waste Control Committee, to advise on state policy and implementation plans for LLRW management in Michigan. Although this committee was composed of technical experts and public members, its scope and authority were never made explicit. At certain times in the process, its recommendations were taken whole cloth and enacted. At other times, its recommendations were completely disregarded. Certain key functions were vested outside the agency. Public information and education programming was done under subcontract to Michigan State University. Later, the same was done for the siting study. What this all amounted to was a very politicized and confusing chain of command and control.

The third liability was the fact that state's commitment to the process was always conditional. Michigan agreed to be the host state, as long as a suitable site could be found. This proved to be a major problem. Because of the degree of political involvement and non-professional input, siting criteria were established that were so stringent as to functionally preclude siting a facility in well over 95% of the state.

The fourth liability was that the state government of Michigan chose in mid-process to create a new agency to manage the waste disposal process; the Michigan Low-Level Radioactive Waste Authority. This body, headed by a political appointee, was created at a time where it was critical for the state to be actively engaged in facility siting. The Authority was initially staffed by employees transferred from MDPH. The move separated these employees from the staff and resources of MDPH and consumed time and effort in moving and staffing the new agency. Support resources were particularly lacking in the early days. This move was made in part to focus Michigan's approach to LLRW management and to replicate the success of IDNS. The trouble with this logic however is that IDNS was not created in the midst of process.

All of these factors combined produced a situation that led to the failure of Michigan to site and develop a facility. Michigan allowed considerable more political and public access to the process of siting a facility than did Illinois. The focus of decisionmaking was not on professional staff advice, but on a mixture of it and a variety of political and public inputs. Criteria that were established for the facility far exceeded NRC recommendations in many areas. Michigan ultimately failed to site because of the vulnerability of politics to input from non-experts.

Midwest Central Interstate Compact and Illinois

Like Michigan for its compact, Illinois is where the activity of the Midwest Central Interstate Compact was vested. Here is where the similarity functionally ends. Unlike Michigan, its acceptance of the responsibility for disposal was not conditional. True, it did limit Kentucky to a certain volume of generation and disposal. This

limitation of 10% is somewhat of a screen; the limitation is far below Kentucky's current or projected ability to generate. Instead of being viewed as a burden, Illinois' responsibility was a shield against out-of-state wastes.

As stated earlier, Illinois' interest in safe management of radioactive materials began relatively early as did its experience with radioactive waste. As well as the holdover expertise the state had access to through the Manhattan Project, the state continues to have access to ongoing federal research through the Argonne National Energy Labs. By 1955, Illinois created its own Bureau of Radiological Health in its Department of Public Health, a level of organization and institutionalization that Michigan was still at in the mid-1980s. Illinois fostered the growth of nuclear power and by the late 1970s had 7 commercial power plants on line and plans for 10 more. Nuclear operations regulation was relatively a high priority and the Bureau was elevated in 1975 to the Division of Nuclear Safety in IDPH. Parallel functions were established in eight other state agencies.

Although the institutions seemed to be in place for sound nuclear regulation, the Illinois approach did suffer from underfunding and a degree of decentralization. With the galvanizing event of Three Mile Island, Governor Thompson with the advice and later affirmation of the state legislature, centralized and elevated the institutional position of nuclear regulation. He created by executive order the Illinois Department of Nuclear Safety. Its sole mission was to deal with issues of radiation and radioactive material use.

For its time, the creation of the Illinois Department of Nuclear Safety was a departure from the approach of most states. Other states, including Michigan, generally had their nuclear material regulation functions housed within state agencies with a

broader mission; e.g. Public Health, Environment and Natural Resources. Spurred on by public sentiment following Three Mile Island and recognizing the special needs Illinois had because of its extensive commitment to nuclear power, Illinois chose to create an agency focused on these particular regulatory concerns. IDNS has three programmatic priorities; monitoring and emergency response at nuclear power facilities, regulating the possession and use of nuclear materials and radiation producing devices, and detecting and mitigating the impact of natural and humanmade radioactive materials in the environment. By creating a centrally focused agency, Illinois was well prepared to confront the issues thrust upon it with the passage of the Low-Level Radioactive Waste Policy Act of 1980.

Leadership for compact activities was clearly vested in the agency. The Illinois Compact Commissioners always included at least one member of IDNS. Access to the governor and other state leaders was not a major problem as the Department's head had both expertise and lead authority on all matters dealing with radioactive materials management in the state. Illinois did not labor under the same type of staffing and reorganization problems as Michigan.

IDNS was in its current form by 1980 and was able to add staff and resources as needed into an existing infrastructure. This is not to say that there were not resource constraints; just not to the levels experienced in Michigan. Staff had ongoing professional relationships with most of the generators in their service area. Public participation was sought in an advisory capacity from separate technical and citizen boards, but no decisionmaking power was placed within these boards. Ultimately, decisionmaking was

vested with the Department on all implementation matters. The politicization was restricted to the appropriate legislative and policymaking arenas.

The federal legislation specified interstate compacts as one mechanism for the policy management of LLRW. The Illinois and Michigan experiences demonstrate that this was not a strongly limiting factor in the formation of policies and procedures. Michigan choose a path that maximized public input. Illinois emphasized professional input to the process. In the end, the Illinois process relied more upon technical and scientific criteria and came closer to meeting the stated goals of the federal and state legislation.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Professional and Organizational Context

Since almost the beginning of the study of Public Administration, the role of the professional in administration has been a subject of study. Woodrow Wilson in his 1887 work "The Study of Administration" and Frank Goodnow in his 1900 work "Politics and Administration" began the process of separating the professional from the political.[1] Max Weber in his 1922 work "Bureaucracy" defined the vocation of the bureaucrat and Leonard White in 1926 elaborated on the scope and nature of administration.[2] It is from these early roots and the following works of public administration the we base our understanding of the proper roles of public administration in a representative democracy. What is clear from the overwhelming majority of these works is that the fundamental role of elected representatives is to set policy; the broad outlines of action. The role of administration/ bureaucracy is to carry out those policies. Life is not always as clear as this, but it is the foundational theory.

There are appropriate points in the policy formation/policy implementation cycle for both politicians and bureaucrats to be involved. In the case of LLRW management, there is a clear case of difference between the Michigan process and the Illinois process of implementation and the roles both these groups played. The Michigan process was

much more deeply politicized. Illinois relied upon the state agency and its staff to move the process forward.

In Illinois, organization and staffing gave the state a clear advantage in implementing the federal and state policies. IDNS was organized in the early days of the LLRW policy process. As was observed in Michigan during field work, a separation of two to three years from the federal siting deadline was sufficient to provide for public and political disinterest.

Illinois had the luxury of having the professional staff provide advice to state policymakers (the governor and the legislature) prior to the issues becoming "hot". Illinois vested its siting activities most strongly with the IDNS, with sufficient lead time for communities to consider incentives prior to the onset of public outrage. Advisory groups, up until the current siting board, were just that. IDNS had a considerably stronger hand to play by its uncontested lead agency status. Radioactive material management is the entire mission of the IDNS. Its staff professionals all have expertise in materials management. When the agency goes to the legislature for funding, the scope of internal agency contests for funding are in a small array. The actions and decisions of the LLRW staff in IDNS touch on the regulatory responsibilities of all agency personnel. It is fairly clear that IDNS had a cleaner line of contact with the governor and the legislature than its opposite number in Michigan.

In contrast, Michigan can trace many of its problems in implementation to exactly the mirror of conditions in Illinois. In Michigan until 1987, staffing for LLRW management was located in a multi-faceted state agency. Its regulatory activities were disconnected from the overall activities of other agency personnel. The majority of the

agency personnel had little or no contact on a working basis with other sections or divisions in the Department. The Director was never a professional in the field of radioactive materials management. Outside advisory boards, because of their access to executive and legislative staff, were able to play a much stronger hand in the implementation process in Michigan. Governor's staff played a much stronger role than apparently occurred in Illinois. All in all, the situation in Michigan was much more politicized than in Illinois.

Illinois consistently through the process had both a larger and more highly educated staff focusing on LLRW issues than did Michigan (see Table 1). Until 1987, Michigan devoted only a portion of that staff of the Department of Health's Bureau of Environmental and Occupational Health (4 technical staff and clerical support). At any given time, no more than 2 in-house staff with master's degree were working with the problems. After creation of the LLRW Authority, the situation did not improve appreciably. The LLRW staff were almost all credentialed at the bachelor's degree level or lower. Illinois, on the other hand, has consistently had more highly educated staff available. At the peak siting periods of 1990 to present, IDNS had available to the siting effort 26 staff with B.S./B.A.s, 12 staff with M.S./M.A.s and 5 staff with Ph.D.s. (These staff were a mix of personnel assigned to the unit on a full or part-time basis.)

Table 1: Personnel Comparisons between Illinois Department of Nuclear Safety and Michigan Low Level Radioactive Waste Authority.

Illinois Dept of Nuclear Safety			Michigan Low Level Radioactive Waste Authority
	Personnel		Personnel
	Total	LLRW Section	Total
1980	50	0	
1981	61	0	
1982	73	4	
1983	102	6	
1984	125	8	
1985	158	8	
1986	172	9	
1987	186	9	4
1988	195	11	12*
1989	208	12	15*
1990	210	12	17
1991	210	11	12*
1992	212	10	4
1993	212	10	2

* = estimates based on personnel records

The most important difference between Michigan and Illinois as related to staffing however is the question of timeliness. Illinois effectively began its process of siting a facility in 1983. Field work was begun in 1985 through 1987. By 1988, a site was selected. In Michigan, effective implementation of the federal legislation only began in 1986. An agency similar in scope and purpose to IDNS was never established. Even after creation of the LLRW Authority, responsibility for other radioactive materials management remained in MDPH. Staffing was effectively begun in 1987 for the Authority. Political decisionmaking shifted the academic support for the program away from Michigan State to the University of Michigan in 1988. Throughout the process, political decisions trumped professional support.

In delaying implementation of the stages of the LLRW process, Michigan opened itself to increased public participation and public outrage. Illinois was able to conclude most of its siting study and focus upon two sites. By doing this expeditiously, Illinois avoided some of the problems and delays that Michigan experienced. In Michigan by delaying, allowing multiple groups to have direct implementation impacts, and by allowing time for interest groups to organize opposition, it became effectively impossible to site a facility. Fundamentally, this can be traced to not organizing the functions in state government effectively, to politicizing the process and not allowing the professional staff to do their jobs.

This study focused on the operation of two low-level radioactive waste compacts and their implementation of the 1980 Low-level Radioactive Waste Policy Act. It shows how compliance initiatives were constructed within the federal laws, and provides some generalized comparisons of LLRW management compacts within the national experience.

In particular, it looks at the role of "professionalization" of LLRW management at the state level as a potential element in the effective organization and operation of a compact.

The law and policy of Low-Level Radioactive Waste (LLRW) management in the United States presents a new direction in federal regulation of hazardous and toxic waste management. The federal government has not only set up regulatory guidelines for the management of these materials, but has also devised a policy through which states are encouraged to handle these materials on a regional basis, as opposed to state-by-state. The Congress placed within the Low-Level Radioactive Waste Policy Act of 1980 provisions encouraging the formation of compacts (mutual agreements for economic benefit or development: U.S. Constitution, Art. I, Sect. 10, Cl. 3).

This adoption of a compact model was a significant departure from previous policies on several levels. First, previous federal hazardous and toxics policies had concentrated upon federal-state interaction. Federal/compact interaction has taken place only at the request of states wishing to create compacts, and as an extension of the individual authority of the state. Prior to 1980, states were not encouraged to join into compacts by any federal waste management policy. Second, this is the first time that a nation-wide system of compacts has been adopted for any purpose.

The key conclusion of this study is that professionalization is fundamental in the organization and operation of a compact. Illinois/Midwest Central Interstate Low-level Radioactive Waste Compact was considerably more successful in following the NRC guidelines and implementing the provisions of the 1980 act amended. Illinois more effectively moved the decisionmaking process outside the realm of politics and was able earlier to apply science to the questions of safe and appropriate disposal.

The jury is still out on whether or not compacts represent a viable alternative for LLRW management. There is some consensus among policy makers that it would serve the nation to adopt a strategy that would (1) reduce overall LLRW management costs, (2) allow placement of the facilities in more appropriate locations (geologically and hydrologically), (3) streamline the regulatory process and (4) reduce the range and likelihood of impact from catastrophic events by reducing the number of facilities. All of these conclusions come out of the work of professional staff. States and compacts are having an increasingly difficult time in moving the LLRW disposal process forward. It may be worthwhile to examine the organizational structure of our processes and at what levels we vest decisionmaking authority.

There are several alternatives to the current federal policy available, all of which will require amendment of the 1980 and 1985 acts. An amendment to the Low-Level Radioactive Waste Policy Act requiring consolidation of the current compact/independent state alignment into several "Supercompacts" is one option. The primary negative impact from this strategy would be to reduce the input of the states, a key condition of the LLRW act. A second option would be to increase the role of the NRC is site designation and empower it to consolidate compact and non-compact states into larger compact groups. A third option would be to increase the incentives for and disincentives against go-it-alone strategies. This shows little promise, in that many states have indicated that there is noting that the federal government could do to persuade them to go along with a compact strategy. The final option would be to establish a totally new option by legislation, perhaps through empowering the Department of Energy to develop disposal

sites in a fashion similar to the High-Level Radioactive Waste Disposal process now in place.

Regardless of what solution(s) are chosen, one thing is clear from this study. If the program allows itself to be captured by political as opposed to professional staff, the outcome will not be a sited facility. In a representative democracy, elected officials are supposed to work in the public interest. If Illinois and Michigan are representative of compacts in operation, as this researcher believes they are, the only hope from a process standpoint is for policymakers to make policy, and professional bureaucrats to implement it. This did not happen, and neither compact now has a disposal facility.

ENDNOTES

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3. Example: Berkovitz 1987
4. Example: League of Women Voters Education Fund 1985
5. Conrad 1985; Seiberling 1979; Satter 1982; Berkovitz 1987

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7. Ibid

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10. Michigan Radioactive Waste Control Committee December 1986
11. Ibid
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3. State Planning Council on Radioactive Waste Management 1981
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6. Ibid
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1. Wilson 1990, Goodnow 1992

2. Weber 1992

APPENDICIES

APPENDIX A

FEDERAL STATUTES: APPLICATIONS FOR LLRW

Atomic Energy Act (Ch. 1073, 68 Stat. 919): The Atomic Energy Act is the basic statute under which all use of radioactive materials is administered. With regard to LLRW facility siting, all federal requirements will be met by observing sections of the regulatory code which correspond to LLRW sections of the Atomic Energy Act. Conformity with provisions of "Licensing Requirements for Land Disposal of Radioactive Waste" (10 CFR 61) will bring the siting process into compliance with provisions of the Atomic Energy Act. These federal regulations were taken into consideration when the siting criteria were drafted, so the siting process will be in correspondence with the Atomic Energy Act by following these state level criteria.

Water Pollution Control Act (Ch. 758, 62 Stat. 1155): The objective of this act is to prevent (or at least limit) the discharge of pollutants into the nation's navigable waters. The act contains a great number of provisions limiting discharge from facilities and activities, but only a few provisions on the siting of facilities (i.e. it defines what can or can not be done with regard to the discharge of wastes; but not generally where such potentially polluting activities can take place). The provisions that are listed for facility siting and construction deal primarily with water supply, control and processing facilities (e.g. dams, reservoirs, municipal water treatment plants, etc.).

Specifically regarding LLRW facility siting, the act appears to defer to the Atomic Energy Act and its companion regulations for low-level radioactive waste. No mention of LLRW is made within the act (which has been amended several times since the

passage of the Low-Level Radioactive Waste Act of 1980). The Congress could have chosen to include specific provisions with regard to LLRW as evidenced by its inclusion of conditions regarding high-level radioactive waste management. The act specifically deals with high-level radioactive waste in Subchapter III--Standards and Enforcement, Sect. 1311f: Illegality of discharge of radiological, chemical, or biological warfare agents or high-level radioactive waste.

Notwithstanding any other provisions of this chapter it shall be unlawful to discharge any radiological, chemical, or biological warfare agent or high-level radioactive waste into the navigable waters.

It would seem that if the Congress wanted LLRW regulated under this statute, they would have placed into the act stipulations when this revision was made. As it stands, compliance with 10 CFR 61 siting concerns would seem to be all that is necessary at the siting stage of the process. Further attention to the Water Pollution Control Act will need to be made during the impact assessment, facility design and construction phases of the process.

Coastal Zone Management Act (16 U.S.C. 1451): The Coastal Zone Management Act was passed by the Congress with the intent of providing protection to the environment and natural resources in the coastal waters surrounding the United States. These coastal waters include all the territorial sea areas, the Continental Shelf plus the Great Lakes. In the Great Lakes region, the zone extends outward to the international boundary between the United States and Canada, and includes connecting waters, harbors, roadsteads, and estuary-type areas such as bays, shallows and marshes. The

zone extends inland from the shorelines only to the extent necessary to control shorelands. The waters under these shorelands are regulated under this statute as well.

Certain types of energy development operations are given special exemption under provisions of the act. Certain activities in the nuclear fuels stream are allowed, specifically uranium processing and fuel enrichment. Like the situation with the Water Pollution Control Act, no specific provision is stated LLRW disposal. It can be assumed from the language of the act that disposal of LLRW that would discharge into the Great Lakes would potentially be a violation of this act as well as the Water Pollution Control Act.

The only disposal sites under the current state criteria that could allow for conflict under this act would be ones at nuclear power facility sites (Objective III: Criterion H.). All of these are adjacent to the Great Lakes, and could be challenged as unworkable over the long term for coastal water quality and environmental protection.

Endangered Species Act (87 Stat. 884): The purposes of this act are to provide for protection of endangered and threatened species, conservation of habitats/ecosystems necessary for their continued existence/recovery and to provide programs to foster these ends. Michigan has within its borders individuals and communities of a number of species that are listed as endangered or threatened. There are few locations known to be prime or critical habitat (or at least clearly enough delineated to be evaluated) in the siting phase of the process. Except for consideration of areas designated as habitat for the Kirtland's Warbler, compliance with the Endangered Species Act must take place during the environmental impact assessment phase. Kirtland Warbler (Dendroica kirtlandi) habitat is found in the upper Lower Peninsula of Michigan (sections of

Crawford, Oscoda, Ogemaw, Alcona, Iosco and Montmorency Counties), and were taken into account during the siting process.

Wild and Scenic Rivers Act (16 U.S.C. 1271): The Wild and Scenic Rivers Act was passed to provide for protection of certain key natural river courses throughout the United States. These rivers are chosen for preservation in their free flowing condition on the basis of their "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural and other similar values". Two such rivers have been designated and one has been listed as a potential within Michigan. Their adjacent regions should be avoided when siting the LLRW facility. These rivers are the **Pere Marquette**, the **Au Sable** and the **Manistee**.

The section of the Pere Marquette that is protected is: "the segment downstream from the junction of the Middle and Little South Branches to its junction with United States Highway 31" (depicted on the boundary map 'Per Marquette Wild and Scenic River': U.S.D.A. map). The section of the Au Sable that is protected is: "the main stem from the project boundary of the Mio Pond project downstream to the project boundary at Alcona Pond" (depicted on 'Au Sable River' map; U.S. Forest Service: U.S.D.A.). The section of the Manistee that is protected is: "the entire river from its source to Mansitee Lake, including its principal tributaries and excluding Tippy and Hodenpyl Reservoirs" (no map: potential addition to the list).

Following state siting criteria for locating the site away from rivercourses (e.g. Objective II: Criterion C) should be sufficient to keep the process in compliance with this act.

Wilderness Act (16 U.S.C. 1131): The Wilderness Act was passed to create a system for the preservation of wilderness areas and to designate such areas. The act

defines a wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain....an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions". Fourteen such areas are set aside in Michigan for preservation. They are:

1. **Huron Islands Wilderness,** Huron Islands National Wildlife Refuge
2. **Isle Royale Wilderness,** Isle Royale National Park
3. **Michigan Islands Wilderness,** Michigan Islands National Wildlife Refuge
4. **Seney Wilderness,** Seney National Wildlife Refuge
5. **Big Island Lake Wilderness,** Hiawatha National Forest
6. **Delerium Wilderness,** Hiawatha National Forest
7. **Horseshoe Bay Wilderness,** Hiawatha National Forest
8. **Mackinac Wilderness,** Hiawatha National Forest
9. **McCormick Wilderness,** Hiawatha National Forest
10. **Nordhouse Dunes Wilderness,** Manistee National Forest
11. **Rock River Canyon Wilderness,** Hiawatha National Forest
12. **Round Island Wilderness,** Hiawatha National Forest
13. **Sturgeon River Gorge Wilderness,** Ottawa National Forest
14. **Sylvania Wilderness,** Ottawa National Forest.

All of these areas are designated on National Forest Service maps. These areas are to be avoided in the siting study.

National Wildlife Refuge System Administration Act (16 U.S.C. 668dd, 668ee): The National Wildlife Refuge System was established to give special designation to lands administered by the Dept. of the Interior for the conservation of fish and wildlife, including threatened and endangered species. The purpose of the act is to empower the Dept. to set aside areas for protection and conservation of wildlife habitat. The duties imposed under this act partially overlap those under the Migratory Bird Act, the Endangered Species Act and the Wilderness Act.

There is only one area in Michigan that is specifically designated under this act: The Wyandotte National Wildlife Refuge (PL 87-119; August 3, 1961). The refuge is composed of lands "in township 3 south, range 11 east, Michigan meridian, those federally owned islands in the Detroit River known as Grassy and Mammy Juda (or Mammajuda) Islands, together with all accretion and reliction and all soil of the bed of the Detroit River bordering on the meander lines of said islands and appurtenant thereto any reason of riparian ownership". This area is already excluded under several state siting criteria.

Historic Sites, Buildings, Objects and Antiquities Act (16 U.S.C. 461):

This act states that it is the policy of the federal government to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the United States. No such sites have been designated in Michigan at this time. One federal listing indicates that the Illinois and Michigan Canal National Heritage Corridor extends into Michigan, but the entire site is in Illinois. Further attention to the

Historic Sites, Buildings, Objects and Antiquities Act will need to be made during the impact assessment, facility design and construction phases of the process.

National Historic Preservation Act (16 U.S.C. 470): This act was created to facilitate protection of historic districts, sites, buildings, structures and objects through (1) official recognition of their significance through placement on a national registry, (2) provide grants to states to do surveys to identify potential Registry candidates, (3) provide matching grants-in-aid to states for projects to preserve properties for the public benefit and (4) to aid the National Trust for Historic Preservation in the United States in their work in this area. No area is currently listed in Michigan on the National Registry. Also, some of the state exclusionary criteria will protect potential Registry sites and areas from being picked in the siting process. Further attention to this act will need to be made during the impact assessment, facility design and construction phases of the process.

National Environmental Policy Act (42 U.S.C.A. 4321): The National Environmental Policy Act (NEPA) was enacted to state on a national level commitment to environmental protection and provide means by which environmental quality can be protected. NEPA requirements primarily apply to the environmental impact assessment, facility design and construction phases of the LLRW facility process. The work done during the siting phase has taken environmental impacts into consideration by following the siting criteria.

APPENDIX B

CASE SUMMARIES

State of New York v. United States 757 F. Supp. 10 (N.D.N.Y. 1990)

State and counties challenged constitutionality of Low-Level Radioactive Waste Policy Act. U.S. moved to dismiss. Motion granted.

District Court found that construction of the LLRW Policy Act :

- Complies with Tenth Amendment (Reserved or residual state powers: The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

- Complies with the Eleventh Amendment (The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State.

- Complies with the Guarantee Clause of the Constitution (Article IV: Section 4. The United States shall guarantee to every State in the Union a Republican Form of Government, and shall protect each of them against Invasion; and on Application of the Legislature, or of the Executive (when the Legislature can not be convened) against domestic Violence.

- Complies with the Due Process Clause [sections of the 5th (personal) and 14th (procedural) amendments].

The court dismissed the State of New York's contention that there was a defect in the political process and that there remained the possibility for political challenge to the LLRW act.

Washington States Building and Construction Trades Council v. Spellman, 684 F. 2d 627 (9th Cir 1982) [on appeal of 518 F. Supp. 928 (E.D. Wash 1981) which struck down as unconstitutional the Washington statute.]].

United States and users of the Hanford Reservation/Richland, Washington low-level radioactive waste disposal facility challenged the constitutionality of a Washington state statute prohibiting transportation into the state of LLRW. Prior to the passage of the

LLRW Policy Act, Washington voters passed an initiative authorizing a statute banning entry into the state of wastes generated outside its borders.

The Court of Appeals (9th Circuit) ruled that the Washington act was unconstitutional in that it violated:

- The Supremacy clause of the Constitution (Article VI; Section 2: This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the in the Constitution or Laws of any State to the contrary notwithstanding). Regulation of radioactive waste is covered under provisions of the Atomic Energy Act, and preempts conflicting state statutes from being enacted. Exclusion from importation of low-level radioactive wastes is allowed under federal law, but only under the compact provisions of the LLRW Policy Act.

- The Commerce Clause of the Constitution (Art. I, Section 8, Clause 3: The Congress shall have Power...To regulate Commerce with foreign Nations, among the several States, and with the Indian Tribes.) A prohibition of importation of LLRW would be in direct violation of this section of the Constitution.

Illinois v. General Electric, 683 F. 2d 206 (7th Cir. 1982)

In December of 1980, Illinois enacted the Spent Fuel Act which prohibited importation of spent nuclear fuel to the only operational away-from-facility storage site in the nation (General Electric Company, Morris, IL). This act did not prohibit spent fuel from facilities in Illinois being deposited at the GE plant. General Electric and Southern California Edison (a user of the GE facility) brought suit challenging the constitutionality of the Spent Fuel Act. The court struck down the law as violating both the Commerce and Supremacy Clauses of the Constitution.

Pennsylvania v. Union Gas, 491 U.S. 1 (1989)

States can be held liable for environmental damages under CERCLA/SARA (and presumably under LLRW Policy Act). It was the ruling of the Court that under the Commerce Clause, the Federal government has the right to waive states' 11th amendment sovereign immunity for environmental liability.

Seattle Master Builders Assoc. v. Pacific Northwest Elec. Power and Conservation Planning Council, 786 F.2d 1359 (9th Cir. 1986)

Case involved a challenge to the constitutionality of the Pacific Northwest Electric Power and Conservation Planning Council and its actions. Basis for challenge was that compact was in actuality a federal agency due to the manner in which it was legally constructed and that its officers were improperly empowered under the Appointments clause of the Constitution. The court held that the construction and empowerment of this compact was proper under the constitution. Relevance for LLRW lies in that there were significant objections raised toward the compacts decisions by citizens of the states. These decisions were based in part on federal/national needs, and not exclusively on the needs of the region.

Pacific Gas and Electric Co. v. State Energy Resources Conservation and Development Commission, 461 U.S. 190 (1983); affirming Pac. Legal Found. v. State Energy Resources etc. 659 F.2d 903 (1981)

Under the Atomic Energy Act of 1946, and subsequent revisions and decisions, it has been established that the responsibility for regulation of nuclear power plant siting primarily rests with that states, while nuclear issues such as radiological safety and waste disposal are to be handled at the federal level. California established as part of its Public Resources Code a moritorium on new nuclear power plant licenses until the federal government approved a technologically appropriate means of permanently disposing of high-level radioactive wastes. Since the rationale for the moritorium was based on the economics of nuclear power plant construction and operation, and particularly on the tradeoffs between cost of operation of nuclear vs. fossil fuel, the court let it stand.

Philadelphia v. New Jersey, 437 U.S. 617 (1978)

New Jersey enacted a statute that prohibited the importation of any solid or liquid wastes generated outside the borders of the state. The Supreme Court struck this down as a violation of the Commerce Clause of the Constitution.

Northern States Power Co. v. Minnesota, 447 F.2d 1143 (8th Cir. 1971)

Court confirmed that federal government has exclusive authority to regulate effluent emissions from nuclear power plants under the doctrine of preemption (Const. Art. 6, cl. 2; Amend. 10).

Train v. Colorado Public Interest Research Group, 426 U.S. 1 (1976)

Confirmed the exclusive authority of the AEC to regulate radioactive discharges to the environment.

Vermont Yankee Nuclear Power Corp. v. NRDC, Inc., 435 U.S. 519 (1978)

Court ruled that Atomic Safety and Licensing Board was in compliance with proper administrative procedures in that it did not take into account energy conservation as a significant consideration in granting the license; issue since energy conservation had been subsequently added as a consideration to such proceedings.

Minnesota v. NRC, 602 F.2d 412 (1979)

Court ruled that it is within the authority of NRC to engage in comprehensive rulemaking, but remanded this case back to NRC because it was conducting hearing on the whole issue of radioactive waste disposal and the outcome of the hearings could significantly affect the direction of NRC rulemaking.

Duke Power Co. v. Carolina Environmental Study Group, Inc., 438 U.S. 59 (1978)

Upheld constitutionality of the Price-Anderson Act.

Natural Resources Defense Council v. NRC, 582 F.2d 166 (1978)

Court refused NRDC petition to require NRC to determine procedures and plans for disposal of high level nuclear wastes before granting new nuclear power plant operating licenses.

GLOSSARY OF TERMS

Authority: body set up under state law to oversee the process of choosing a site, and regulating the development, construction, operation and closure of a low-level radioactive waste disposal facility (if Michigan is chosen as the first host state).

Candidate Site: a site recommended by the authority as a possible host site.

Carrier: a person engaged in the transportation of waste by air, rail, highway or water.

Collector: a person licensed to receive prepackaged waste from a generator and who does not treat or repackage that waste.

Commission: short for the Midwest Interstate Low-Level Radioactive Waste Commission, a body composed of representatives of each state established to handle the affairs of the Compact.

Compact: an interstate agreement that states can join to manage their low-level wastes. Both here and in the state legislation "compact" refers to the Midwest Interstate Low-Level Radioactive Waste Compact. Members are Michigan and six other Midwestern states.

Disposal: the isolation of waste from the biosphere (inhabited by human beings and other living things and containing the food chain) by emplacement in a land disposal unit.

Disposal Site: a geographic location upon which a disposal unit is located and includes the disposal unit, the property upon which the monitoring equipment is placed and the buffer zone surrounding the disposal unit.

Disposal Unit: the portion of the disposal site into which the waste is placed for disposal.

Generator: any person whose act or process results in the production of waste (as defined under these statutes).

Host Site: the candidate site that is designated by the authority as the site of a waste disposal facility in the state.

Host Site Community: the municipality that is designated by the authority as the host site.

Host State: the state belonging to the compact that is selected by the commission or that volunteers to be the site of the regional waste disposal site.

Institutional Control: the continued surveillance, monitoring, and care of a disposal site after the site is closed.

Local Monitoring Committee: a committee established to provide for the participation of the residents of a candidate site community.

Low-Level Radioactive Waste (or Waste): radioactive material which is not high-level radioactive waste, spent nuclear fuel, or by-product material and which the U.S. Nuclear Regulatory Commission has classified as such.

Management: the collection, storage, packaging, processing, transportation or disposal of low-level radioactive waste.

Manifest: a form provided or approved that is used for identifying the quantity, composition (including class, curie count and radioactive nuclides), origin, routing and destination of waste from the point of generation to the point of processing, collection or disposal.

Municipality: means city, village, township or Indian tribe.

Operation: control, supervision or implementation of the actual physical activities involved in the acceptance, storage, disposal or monitoring of waste at a disposal unit in a disposal site, the maintenance of the disposal site , and any other responsibilities pertaining to the disposal unit and the disposal site.

Operator: the person responsible for the operation of a licensed waste disposal facility.

Performance Assessment: an analysis of the potential pathways for a low-level radioactive waste release to the environment and the potential impacts of these releases from the transportation of radioactive materials to the disposal site, the handling and disposal of waste at the site including (but not limited to):

A) a description of the potential pathways for radioactive material escape and migration beyond the boundaries of the disposal site during the normal operation of the site and in the event there is a release;

B) a description of the potential pathways for radioactive materials migration beyond the packaging boundaries in the event a release occurs during transportation;

C) an analysis of the safety factors pertaining to the transportation of waste;

D) identification of the potential impacts to air, surface water, and groundwater quality, and vegetation, animals, and humans, or other living thing beyond the boundaries of the disposal site;

E) a description of the potential pathways for radioactive release including (but not limited to) mechanical failure, structural failure, and human error.

Person: means an individual or a group considered as an individual under the law. Under this legislation, a person could be a partnership, cooperative, association, private corporation, personal representative, receiver, trustee, assignee and the authority. It does not include other governmental entities, unless specifically designated by the legislature.

Postclosure Observation and Maintenance: the surveillance, monitoring, and maintenance of a disposal site which has been closed.

Processing: any method, technique, or process (including storage for radioactive decay) designed to change the physical, chemical, or biological characteristics or composition of the waste in order to render the waste safer for transport, storage, or disposal, amenable to recovery, convertible to another usable material, or reduced in volume.

Processor: a person licensed to treat or repackage waste.

Release: any intentional or unintentional spilling, leaking, pumping, emitting, emptying, discharging, injecting, escaping, leaching, dumping, disposing, or placing of waste into the environment, except in compliance with this act, the rules developed to implement it and any license issued under this part.

Remedial Actions: those actions taken in the event of a radioactive release or threatened release into the environment to prevent or minimize the radioactive release so that it does not migrate to cause substantial danger to public health or environment (at the present or into the future). Remedial action includes (but is not limited to) actions at the location of the release such as storage, confinement, perimeter protection using dikes, trenches, or ditches, clay cover, neutralization, dredging or excavation, repair or replacement of leaking containers, collection of leachate or runoff, on-site processing or incineration, provision of alternative

water supplies, and any required monitoring to assure that the actions taken are sufficient to protect human health and the environment.

Site Characterization: the site specific investigation of a candidate site.

Site Closure and Stabilization: the actions taken at a site during the time period after the closure of a disposal unit during which on-site low-level radioactive waste is disposed, equipment is dismantled, decontaminated, removed for reuse or disposed of, and radioactive residues are removed from, or properly isolated on the site in preparation for transfer of ownership of the disposal site to the state or federal government.

Storage: the temporary holding of low-level radioactive waste prior to processing or disposal.

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