PROCEEDINGS

HAZARDOUS WASTE MANAGEMENT: POLICIES FOR THE FUTURE

June 27-28, 1980

The Institute of Urban and Regional Research

The University of Iowa
Iowa City, Iowa

Final Report 26

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT

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Hazardous Waste Management: Policies for the Future

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A conference sponsored by the
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Iowa Memorial Union
Iowa City, Iowa

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Moderator's Opening Remarks: John W. Fuller, Director, Institute of Urban and Regional Research, The University of Iowa

9:00 EPA and the Siting of Hazardous Waste Facilities: Curtis Haymore, Office of Solid Waste, U.S. EPA

Respondents: Ron Kolpa, Chief, Hazardous Waste Division, Iowa Department of Environmental Quality.

M. W. Gauss, Senior Engineer--Occupation Health Coordinator, E.I. duPont de Nemours & Co., Inc.

Chet McLaughlin, Chief, Hazardous Waste Section, Region VII, U.S. EPA

11:00 Economic Implications of Regulating Hazardous Waste Management: Vincent G. Munley, Council on Wage and Price Stability

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PREFACE

William J. Farrell*

This study of hazardous waste facility siting in Iowa grows out of two important efforts in the state, and neither its purpose nor its final impact can be understood without considering these efforts. The first is a now concluded program known as Iowa: 2000. This was a statewide citizens' effort over the last six years, dedicated to identifying the major problems Iowans will face in the near future and the principal goals they may wish to achieve. Approximately 47,000 citizens participated in local, regional, and statewide conferences, hearing and responding to background papers on key issues. Four umbrella topics were emphasized: (1) economic development, (2) energy, (3) natural resources, and (4) life enhancement.

In Phase II of this effort, Iowa: 2000 focused on a few selected issues. In 1978, for example, the Iowa: 2000 conference concentrated on policy issues related to land, water, and energy. Those who attended articulated key environmental recommendations for Iowa's future, but, even at this stage of concentration, the goals and objectives expressed were too general for specific action by governmental policymakers.

There was still a need to translate these broad goals and actions into particular suggestions for lawmakers and state administrators. There was still a need for in-depth technical assistance for those who would take action in the legislative arena. Iowa: 2000 had accomplished its task of bringing citizens together in a thoughtful and decisive commentary on future concerns, but other forums, other dialogues would be necessary before its conclusions

The Citizens Future Study on hazardous waste facility siting in Iowa is an attempt to bridge this gap between thought and action in one particular area. While concerned with the future, it focuses on the more near-at-hand problems of achieving an Iowa environment that is both safe and economical in its treatment of hazardous waste. Many steps remain to be taken even in this case before the thoughts of the conference are converted into state practices, of course, but the emphasis of the conference is less on goal articulation and more on a description of practical needs.

No Citizens Future Study--broad or specific--can influence public policy, however, unless it has serious consideration by public policy makers. From the very first, therefore, this conference on hazardous waste siting was viewed as one that should be integrally tied to the policy information needs of the Iowa State Legislature. This brings us to the second effort with which this conference has been closely tied. That effort is LEAG, the Legislative Environmental Advisory Group.

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*Dr. Farrell is co-project director of the Conference and Associate Vice President for Educational Development and Research at The University of Iowa.

For the past several years, this group of legislators, state agency representatives and university researchers has worked in concert to provide the General Assembly with the policy studies it needs to respond effectively to the complex environmental issues the Legislature faces today. Funded as a model program by the Ford Foundation and the Northwest Area Foundation and staffed by the Institute of Urban and Regional Research at the University of Iowa, this committee of policymakers and analysts meets regularly: a) to identify the critical environmental issues for the legislative year and b) to commission study efforts to aid legislative committees in their actions.

While all universities and four-year colleges in Iowa are eligible to participate, the degree of citizen participation in this effort is extremely limited. Technical assistance is provided by those academically expert in an appropriate field. On the issue of hazardous waste, however, those involved in LEAG were of the view that the opinions of experts were not sufficient to provide a full consideration of the problems present and the options available. The views of the experts were needed, all agreed, but they had to be refined in a crucible of informed discussion, involving representatives from many constituencies. It was not enough to know what professor "A" or consultant "X" had to say. It was critical that policymakers also knew what industrialists, environmentalists, city managers, state agency officers, etc. thought of these views, since any effective action would have to be politically as well as technologically viable.

In the end, then, the conference itself rather than simply the papers should constitute the final product for the assistance of state policymakers. From the very beginning it was assumed that verbal responses to the speakers and discussions following their papers was an integral part of this technical assistance effort.

Those invited to the conference deliberately represented many different and often contrary points of view. Advocacy and debate were seen as likely ingredients in the discussions. The purpose of the conference was never intended, however, as a forum for one constituency or one course of action. In presenting different points of view, it was regarded rather as a comprehensive articulation of the full range of problems and possible solutions Iowa has in this important area. It was even the hope that the dialogue among participants in small groups could lead to specific conclusions and recommendations for policymakers, and it was a hope that was realized in the course of the conference.

Iowa has a long way to go before it realizes the goals of Iowa: 2000, and its General Assembly needs more than the resources that LEAG has supplied to date to meet the complex environmental issues this state faces in the future. Nonetheless, this conference is one step toward meeting those goals and needs. Those involved in its development greatly appreciate the resources and cooperation of the Environmental Protection Agency and the Iowa Department of Environmental Quality in helping us to take that step.

MODERATOR'S SUMMARY AND ASSESSMENT*

John W. Fuller

Introduction

This paper briefly summarizes the major points emphasized by conference speakers and presented in the recommendations developed by the discussion groups . In this sense, it represents an executive summary of the conference proceedings. In addition, however, the summary is developed around what was perceived as a consistent theme addressed by the major speakers and conference participants.

Although dozens of sometimes unrelated and incongruous perspectives were aired on numerous aspects of hazardous waste over the course of the two-day conference, I believe our participants never lost sight of our purpose for gathering. That purpose--the theme of the conference--was to review the intent of the Environmental Protection Agency's (EPA) Hazardous Waste Management Program and consider its impact on Iowa from the perspectives of affected parties. As several speakers pointed out so clearly, all of us as Iowa citizens find ourselves concerned with hazardous waste issues. Because the management of these wastes will have such a pervasive impact on our society, it is imperative that EPA's program be effective in protecting public health and environmental quality, economically efficient, and equitable in the allocation of responsibility among all segments of society.

It is doubtful that anyone would debate the need to consider these criteria. On the other hand, in order to accomplish effectiveness, efficiency and equity in program development it is necessary to have a good deal of information, developed from a wide range of interested parties. Given the scope of impact inherent in the regulations already promulgated under the Resource Conservation and Recovery Act (RCRA), this represents no small task.

One example of an effort to achieve more comprehensive participation in policy-making has been the Iowa: 2000 program. Over the past four years this program has offered both a forum and a format for the state's citizens to deliberate possible future courses in such matters as energy production and conservation, land use planning, the preservation of agricultural land and environmental protection. One of the difficulties arising from this process is the manner in which outcomes from the deliberations are translated into legislation and programs. Unless the focus of debate and interaction among participants are both clearly directed and informed and comprehensive in coverage, outcomes may not be readily translated into new legislation and programs.

This shortcoming has been recognized, and over the past several years an attempt has been made to more clearly define the legislative and programmatic focus associated with issues identified in the Iowa: 2000 program. Through LEAG--the Legislative Environmental Advisory Group--a body of legislators,

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*Comments on an earlier draft of this paper by Jim Strathman are gratefully acknowledged.

agency administrators, academicians and other public officials supported by the Ford and Northwest Area Foundations, the state's legislative and programmatic research needs have been given clearer definition. Following the identification of particular needs, faculty members at the state's four-year universities and colleges have been commissioned to investigate various alternative resolutions.

Thus, when one considers the strengths of both LEAG and the Iowa: 2000 program, it is evident that they are complementary in their treatment of issues of importance to the state. This becomes clear regarding the development of a state-level program to manage hazardous wastes. Proper consideration requires both the expertise which LEAG has come to offer, as well as the scope of participation associated with past efforts of the Iowa: 2000 program.

In the format of this conference, we recognized the necessity of achieving coordination between what can be considered the strengths of the above two programs. It became clear early on that the success of the conference would depend first on the ability of the major speakers to articulate relevant hazardous waste issues to the attendees, and second, on the ability of the attendees to develop clear recommendations in light of the information presented by "the experts."

The text of these Proceedings evidences a large measure of success in coordinating expertise on the issues with the diverse perspectives of the state's citizenry. In this sense, confidence can be placed in the final recommendations as being both articulate in their treatment of the subject matter areas and representative of how Iowans feel these matters should be resolved.

Summary of White Papers and Other Major Topics

Beginning with the first speaker, Dr. Spriestersbach, and continuing with the first white paper by Curtis Haymore and the responses by Ron Kolpa, Mel Gauss and Chet McLaughlin, an emphasis was placed on the multiplicity of roles and institutions involved with the hazardous waste problem.

These wastes are generated on behalf of consumers, as the price we pay for the goods and services we as a society demand. Each speaker was in agreement in stating that this price has yet to be properly reflected in what we as consumers pay in the market place. In other words, the market price we have historically paid for goods and services has failed to take into account the total social costs associated with proper management of the hazardous by-products of these commodities.

However, production processes can be changed. The generation and management of hazardous wastes can be effectively constrained. Through price signals and by regulation, externalities can be reduced. We have the opportunity and necessity, as a society, of controlling hazards at their production source. As citizens, as businessmen, and at each level of government we have roles to play in changing those production processes.

Yet change does take time, and zero production of hazardous wastes is neither practical nor possible.

What, then, are our opportunities? In listening to the speakers and observing the discussion groups, I discerned two major themes. The first, and strongest, is that we need protection for our citizens--for each of us--from the known hazards of chemical, biological and nuclear wastes, as well as a range of unknown hazards that may arise in association with how these materials are treated. As several of the speakers noted, protection comes through proper siting of facilities designed to treat or contain these wastes. Protection comes from adequate and safe transportation of wastes. Protection comes from reducing the levels of wastes generated, and from converting hazardous materials into reusable products. We simply can no longer afford the statistic cited in the EPA-sponsored film viewed by the participants--that for each auto produced in this country, two truckloads of wasteful and hazardous by-products result.

Protection implies legislative action, local knowledge and involvement, and the cooperation of the numerous economic sectors involved in producing, handling, transporting, treating and storing hazardous wastes.

The white paper by Curtis Haymore pointed out how the federal government has established legislation under RCRA, how EPA has produced detailed and voluminous regulations to make the Act work, and how the states are to play a role in the final application of hazardous waste management programs. Mr. Haymore's presentation made special note of the need for new disposal sites, the widespread opposition that has arisen in the siting process, and the need for states to assume final responsibility for ensuring that adequate land disposal capacity exists in the near future. Speakers from the Iowa Department of Environmental Quality, Ron Kolpa, and later, Charles Miller, presented information on how Iowa was adapting to its role within the comprehensive regulatory process--and called for public support in making that process work.

M. W. Gauss, who spoke in response to Mr. Haymore, pointed out the need for regulations which are both cost effective and recognize industry's need for additional facilities. In addition, Mr. Gauss made it evident that waste generators are bearing a new, uncertain and difficult burden which should be recognized by the public and those in government.

The presentation by Kevin Tritz gave additional perspective on the current difficulties facing waste generating firms, as viewed by the waste transportation and disposal industry. Mr. Tritz stressed the need for uniformity in the application of hazardous waste regulation across generators as well as states, and suggested that one way to ensure greater public confidence in the regulations--and government in general--would be to devote greater emphasis on efforts to inform and involve the public in a problem they might otherwise prefer to ignore.

This brings us to the second theme that appeared to stand out in the conference. Not only must there be protection from potential hazards associated with the materials on EPA's list, but we as a society must also

accept responsibility for their ultimate disposition, be it recovery, incineration, neutralization or land disposal. This means there is a social responsibility, and it is in the public interest to ensure that an acceptable process and procedure for waste disposal is developed. Acceptance of responsibility led those attending the conference to attempt to devise recommendations to the Iowa General Assembly under the pervasive belief that we are responsible to our businesses and our fellow citizens to offer a solution to some of the state's hazardous waste problems.

As we proceeded to consider possible solutions, the white paper by Vincent Munley recommended that we take certain economic principles into account. For example, we should realize that government involvement in regulating hazardous wastes can include market incentives. In this manner, prices can conceivably reflect social values as well as act responsibly in allocating resources. Too, from an economic standpoint, the methods we choose to attack hazardous waste problems should be cost effective. Mr. Munley counseled efficiency, the use of economic incentives in regulatory programs, and the full consideration of associated costs and benefits.

Another of the speakers, Chet McLaughlin, likewise indicated how society can accept responsibility and provide effective protection. Through reference to his observations on several recent site permit application hearings, he recommend a series of conditions which residents of localities where hazardous waste facilities had proposed locating deemed important. These included requiring such safeguards as the establishment of a local oversight authority with on-site inspection provisions, "open books" and frequent reporting with regard to monitoring requirements, clear guarantees on the types of wastes accepted, and comprehensive cleanup, emergency response and post-closure assurances. Mr. McLaughlin noted that these conditions, considered as a whole, implied the general requirement that activities related to these facilities are fully understood by the local residents.

In the final white paper Steven Sklar reviewed a cross-section of state siting legislation representative of the range of alternatives available to Iowa on this issue. Mr. Sklar assessed these programs in terms of both their potential for meeting the demand for additional capacity and their representation of the interests of all affected constituencies, stressing that these considerations need not come into conflict in a properly designed program. As an example of such coordination, Mr. Sklar reviewed the Maryland siting program in both its development and implementation and highlighted the elements he considered necessary to achieving effective control.

In his concluding presentation, Senator John Culver developed both an historical and a legislative perspective on the need to ensure protection of our human and natural assets from improper treatment of hazardous wastes in all forms. As Senator Culver so vividly pointed out, once lost these resources cannot be replaced. Given the magnitude of impact (both to personal health and to economic stability) attributable to a hazardous-waste-related contamination of the environment, Senator Culver argued that it is in society's best interest to manage hazardous wastes comprehensively in the future and to expedite our assessment of the effects of past practices.

Small Group Recommendations

The review of recommendations from small group discussions among the particpants will be presented topically as opposed to group title. This recognizes that in most cases two or more groups addressed an issue from different perspectives. This "duplication of effort" may be considered wasteful and inefficient in other contexts. In the course of the discussions, however, it added noticeably to a more complete treatment of the unresolved hazardous-waste issues.

In several instances the term "should be considered" summarizes the outcome of the group deliberations on a given topic. In these cases, lack of specificity can be viewed in several ways: a) In the judgment of the group, a number of methods might serve the same ends. Rather than propose any one approach, the group preferred to suggest adherence to a "principle" which, when applied in any number of ways, could yield a desired result. b) In some cases the group recognized that action could not be taken until uncertainties were addressed and resolved. However, in these cases it was deemed important to give some definition as to the nature of each uncertainty and possible means of resolution.

Of the many issues discussed by the groups, none was considered more critical to overall success than the establishment of a siting review process providing effective protection of health and the environment and equitable representation of diverse interests within the state. To achieve these principles, the establishment of a non-elected siting board with state-level jurisdictional authority, and with representation of those affected by siting decisions, was recommended. It was generally agreed that the board should possess authority to override local vetoes of siting applications. Such authority, however, carried with it a burden of responsibility which the participants felt should be vested in a non-partisan body. In principle then, the group supported the general form under which current siting decisions are to be made in Iowa, while suggesting a new format--shifting decision-making authority from the executive council to a newly created siting board.

Another recommendation concerned Iowa's role within the regional collective of Midwestern states. It suggests that the state enter into formal agreements with its neighbors to coordinate siting and transportation functions of hazardous waste programs. It recognized that because Iowa is not a large producer of hazardous materials, it may not be economically feasible to treat and dispose of the entire waste stream within its bounds. Given the growing degree of protectionism exhibited elsewhere, it was thought that a regional cooperative may become increasingly necessary in the future.

One prerequisite to site and transportation planning at the state or regional level, in the minds of many, was the need to develop a data base containing the quantities, types, sources and destinations of hazardous waste shipments. Much of this information may be taken from either the notification requirements of EPA or the soon-to-be-implemented hazardous waste manifest system. These data could be utilized in such applications as the design of a disposal facility network which, among other things, seeks to minimize the distance over which wastes are transported. Alternatively, the data could be

used in the development of a routing scheme capable of identifying links between generation and disposal points over which wastes could be shipped at minimum risk to the public.

The participants recommended a more clear allocation of liability between generators, transporters and disposal facility owner/operators. In addition, the question was raised as to the state's long term-liability under the current siting format, which permits state ownership of land used for disposal sites. Further study on these questions was suggested.

A number of participants felt that the EPA classification scheme, which groups all defined hazardous materials into a single category, failed to recognize the variable potential for contamination. A classification based on degree of hazard was offered as an alternative, with the implication that any program developed in concert with such a scheme similarly vary in its degree of restrictiveness. Thus, for highly toxic hazardous materials, controls more strict than those already developed by EPA might be necessary. Michigan's current efforts on this subject were offered as an example deserving of further consideration.

One topic of discussion which actually developed beyond the scope of hazardous waste regulatory programs focused on a manner in which EPA has developed technology-based requirements (e.g., BACT) in its efforts to preserve environmental quality. Many individuals strongly argued against the application of this principle in hazardous waste programs. It was noted that technology-based standards could, in the long run, inhibit the development of improved control mechanisms. Since current hazardous waste control processes are generally considered to be in their infancy, any constraints to the development of more effective processes should not be imposed, if at all possible. The use of performance-based standards was considered preferable wherever feasible.

An issue to which much discussion was devoted without clear resolution concerned the possible use of incentives in encouraging desired changes in the state's economic processes associated with the use of hazardous materials. Such incentives could be directed toward volume reduction or toward greater use of non-hazardous substitute materials in production. The economics discussion group argued against the use of incentives, pointing out that the hazardous waste program itself will tend to act as an incentive if properly administered. That is, if the program results in better reflection of the social costs associated with hazardous materials, the market place will offer sufficient incentive toward accomplishing desired ends, eliminating any need for an artifically imposed set of incentives.

The legislative discussion group, on the other hand, recommended consideration of economic incentives as a means for accomplishing desired goals. Group members noted that a majority of firms in the state utilizing hazardous materials are quite small and thus potentially unable economically to adjust their behavior, regardless of the long-term gains to be achieved.

Obviously, both perspectives have merit in light of our current state of knowledge regarding the flexibility of Iowa's economy with respect to the use of hazardous substances. Because of the mutually exclusive nature of these perspectives, careful study should precede application of the principle of economic incentives through legislation.

On a related subject, a general consensus was reached on the need to provide technical and informational assistance to small businesses. Though most are excluded from complying with current program elements, the prospect of coverage at some time in the future was considered likely.

Finally, the participants recommended that the state embark on a program to bring the public more directly into the processes under which the hazardous waste program will operate in the state. Such an effort could take the form of a public education program. The activities of both the Department of Environmental Quality and the State Department of Health in this regard were commended. A continuance and broadening of these activities were viewed as a key element in public understanding and acceptance of whatever program is eventually adopted.

A more developed form of public involvement and education may be required in conjunction with the siting of hazardous waste facilities. Iowa has no experience in this process to date, as no treatment or disposal sites have been licensed. However, it was felt that the state should at the very least be prepared for public involvement, and should allow for its consideration as one condition in the licensing process.

Conclusions

A summary of the major themes developed in the citizens conference was presented in the first three sections. The reader is directed to the main body of the Proceedings for further elaboration of the points discussed here.

One of the main intents of this review has been to illustrate the continuity of the conference with regard to the progression from information presented by the major speakers to the final recommendations offered by the participants. The scope and variety of the recommendations indicates that the purpose of the conference was not lost upon the participants. The white papers were not viewed as an end in themselves. Rather, they served to set a format for subsequent discussion. Thus, one of the primary goals of the conference planners was satisfied. Expertise was coordinated with public involvement to produce an informed set of ideas as to how Iowa should address the management of hazardous wastes.

MODERATOR'S WELCOMING ADDRESS

John W. Fuller*

Welcome to The University of Iowa.

This Conference will address one of the key problems facing Iowa and the nation--developing hazardous waste siting and management programs which are environmentally compatible and yet allow us to continue to function in society as we know it today. Satisfying these objectives represents no small task. How we confront and manage issues associated with hazardous waste management at this Conference and beyond will affect all of us for years to come.

On May 19, 1980, the U.S. Environmental Protection Agency promulgated regulations covering the identification, generation, transportation, treatment and storage of hazardous wastes. These reulations represent the outgrowth of two and a half years of effort devoted to defining the hazardous waste problem in terms which allow for its resolution.

It came as little surprise to many that so much time elapsed between the passage of the Resource Conservation and Recovery Act (RCRA) and the promulgation of these regulations. The magnitude of the hazardous waste problem has been exceeded only by the previous lack of attention society has devoted to it.

And yet, few of those who are closely associated with these regulations, as regulators, generators, transporters, disposers--or as citizens affected by these activities--will claim that their concerns have been alleviated. Such is the magnitude of the problem we are facing. The more we learn about this issue, the more we come to realize how pervasive an effect it has had and will continue to have on our lives. There is so much that we do not yet know, in spite of the efforts of the past several years.

It is with this uncertainty in mind that the format of the Conference was developed. During the next two days, you will hear from experts in government and industry, defining hazardous waste problems, exploring the current status of hazardous waste management in Iowa and the Midwest, and assessing alternative approaches for managing hazardous wastes. More appropriately, I believe we can expect these individuals to describe the extent of progress in these areas. I suspect that a good deal of their time will also be devoted to to the presentation of issues which yet need to be addressed. Foremost among these is the as yet unresolved issue of siting. Responsibility for the development of site selection procedures has been delegated to the states. Given the weight of potential repercussions from siting decisions, this responsibility has not been taken lightly.

About half our efforts in the next two days will be devoted to small discussion groups. There will be five such groups, covering issues in hazardous waste legislation at the state level, transportation, economics, siting

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Dr. Fuller, who served as co-director and moderator of the Conference, is the Director of The University of Iowa's Institute of Urban and Regional Research.

and local impacts. In these small group discussions, Conference participants will discuss numerous issues and options and produce policy recommendations. The purpose of these recommendations is to provide citizen input to the Iowa General Assembly to aid in formulating Iowa's hazardous waste policies. The recommendations, plus the white papers listed in the agenda, will be presented in a Conference Proceedings to the appropriate legislative committees when the General Assesmbly meets in its next session. The Proceedings will also be made available to other interested states for their use as well.

We consider the small group discussions to be the heart of this Conference. Your input in these discussions will determine the impact and the effectiveness of the Conference recommendations on the development of state hazardous waste management programs. Conference planners have made every effort to solicit the participation of a wide cross-section of interests within the state. You will observe in your discussions that some are involved in hazardous waste problems at the working level, some at the academic level, and others have only a layman's contact. It is the function of the Conference to bring these disparate groups into a working relationship. Those with a citizen's interest should not let the presence of experts inhibit their discussions. Hazardous waste management is a new and emerging field of concern. We have few, if any, standardized solutions to problems presented by hazardous waste and must bring a variety of talents to bear in order to sort out the better alternatives for our state to pursue. Moreover, as I mentioned earlier, in a number of instances the expertise of even the individuals listed as major presenters on the agenda may be limited to describing problem areas, not resolving them.

Everyone should take part actively in the group discussions. However, we see this process as not one of debate, which seeks to win its point; rather, it is discussion, which makes its point but also seeks to get things done. The aim is not to highlight difference, but to reach agreements in written recommendations that will be produced by each group and presented at the Conference Summary on Saturday at the conclusion of our meeting.

To guide your discussions, each group will have an appointed discussion leader, plus one or more resource persons. Because members of a group work together best once they become acquainted, the discussion groups should remain intact throughout their sessions; there should be no "table hopping." This will provide for better continuity between the two scheduled sessions.

Each discussion group will be given an agenda with discussion questions to guide their efforts. Some of the questions will be the same for several groups. However, to more fully cover a range of topics, each group will be asked to take up topical discussion questions in one specific field. To aid their deliberations, a topical resource person will be available to the group. The topical areas are: 1) siting alternatives; 2) local impacts; 3) transportation; 4) legislative aspects; and 5) economics. You will be given the opportunity to choose which topical field you wish to discuss before the small group meetings begin on Friday afternoon.

In developing the topical questions for each of the discussion groups, the conference planners sought out suggestions from a number of parties who, for whatever reason, are closely associated with these areas. In this sense,

the questions you will address represent unresolved issues typically stated. The focus of these questions is generally non-technical, to better facilitate the involvement of all those in attendance.

This Conference is supported in part by a grant from the U.S. Environmental Protection Agency, with the assistance of the Iowa Department of Environmental Quality. The assistance of these agencies, and of the interested citizens who comprised our Conference Committee, is gratefully acknowledged. Of course, none of these agencies, nor The University of Iowa, take a position on the policy questions addressed. The results of the Conference are the responsibility and the product of its participants.

I hope your visit with us will be pleasant, intellectually profitable, and of importance in giving citizen input to public policy formulation.

KEYNOTE WELCOMING ADDRESS

D. C. Spriestersbach*

It is a very special pleasure for me to welcome you this morning to the University campus as participants in this important Conference on Hazardous Waste Management. The Conference has great significance for all of us as the challenge of hazardous waste management continues to be the number one environmental problem facing the State of Iowa, indeed the entire country.

Significant also is the timeliness of the Conference, coming as it does on the heels of two major developments on the hazardous waste scene locally and nationally. On May 22nd Governor Ray signed into law Senate File 205 which grants the authority of eminent domain to the State Executive Council to approve the siting of hazardous waste facilities where there is local opposition. A second recent event of great importance is the Environmental Protection Agency's issuance of comprehensive regulations concerning hazardous waste management including guidelines for site locations. In essence the necessary legal and procedural mechanisms are now in place for the development of disposal sites in Iowa.

It is also significant that your efforts over the next two days will represent an important follow-through in three important areas. The Iowa 2000 project, for example, was primarily concerned with the setting of future goals for the State in a number of areas. This Conference represents a continuing effort to find specific ways of implementing the goals relating to hazardous waste management. (In this connection I urge you to ask all those hard questions that need to be asked when goals are being translated into programs.) Secondly, the EPA grant which helped make this Conference possible is the result of Senator John Culver's initiative in creating the appropriate legislative authorization for the grant. Finally, this Conference follows up on some important concerns expressed at the ad hoc Meeting on Hazardous Waste Disposal sponsored last October by the University. As those of you who were there will recall, the meeting was a wide-ranging discussion among representatives from the Iowa DEQ, the Univerisity of Iowa, Iowa State University, and the Iowa Geological Survey. Our purpose then was not to produce quick answers, but rather to consider the nature of the problem, identify current efforts within the State, and consider some possible actions which might contribute to future solutions. The meeting closed with expressions of commitment to seek ways of involving not only those present but all sectors of our population in the State's development of a hazardous waste policy. This Conference is a manifestation of that commitment. More importantly it is a manifestation of your commitment.

The cooperation and coordination of federal, state, and local agencies which have made this Conference possible also deserve mention. Financial assistance was provided by both EPA and IDEQ, while planning involved the orchestration of efforts by the Region VII EPA, IDEQ, the League of Women

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*Dr. Spriestersbach is Vice President for Educational Development and Research at the University of Iowa.

Voters, and various University agencies. Among the latter were the Institute of Urban and Regional Research, recipient of the EPA grant and the hub of the coordination efforts; LEAG (Legislative Environmental Advisory Group), which provided general planning input and which will forward the results of your deliberations to the State Legislature; and the Institute of Public Affairs, which assisted in the logistics of the Conference and in developing the format of group discussion. A word of congratulations is in order for all these groups as well as for Bill Farrell and John Fuller, Conference co-directors, who have worked very hard to assure the success of the Conference.

Although the Iowa regents institutions produce only about 2% of the State's total annual hazardous waste, the University's interest in the problem as well as in its solution is one of long standing. As a university we are in a unique position. We are part of the problem as a waste producer, yet we have the resources to be an important part of the solution as well. For example, we produce a significant amount of low-level radioactive waste as a by-product of faculty research efforts and of clinical services at our health center--the current yearly average being somewhere in the neighborhood of 800 barrels or 80 tons. Our chemical waste amounts to several hundred pounds annually, which is relatively insignificant when compared to the industrial sector, yet its complexity is enormous. The University presently must deal with almost every hazardous chemical conceivable. Incidentally, because of the volume of production, the skyrocketing costs of waste transportation, and the recent uncertainty regarding the availability of disposal sites, the University received approval from the State Board of Regents this past month for the construction of a facility on our Oakdale campus for processing and storing low-level radwaste and other hazardous materials until more acceptable solutions to the problem may be found.

In addition to its role as a catalyst or facilitator, the University can contribute--and in some instances has already contributed--to the solution of hazardous waste management in the following ways:

1) Preparing appropriately educated persons to cope with the problem

2) Lending technical assistance to those generating hazardous waste as well as to others involved in other aspects of the problem

3) Assisting in the education of the public

This last contribution seems to me to have increased significance at this juncture, since most of the technical standards for hazardous waste management have now been established and site development is about to become a reality. Thus a major aspect of the problem which will take on new importance is the current societal attitudes. No one wants a disposal site in his back yard, be it a state site on local property or a federal site on state property.

Public concern about overexposure to radioactive materials has been with us since the atom bomb. More recent is the concern over chemical exposure. One need only mention the words "Love Canal" in order to observe first hand the current sensitivity to hazardous chemicals. My purpose here is not to minimize the actual hazard, but to point to the extent of reaction to that hazard. It is obviously possible, of course, that the <u>perceived</u> impact of

hazardous waste can be a greater problem than the actual impact. Through education, and with the cooperation of the news media, appropriate public response to this issue can be anticipated.

Other misperceptions can also be addressed more effectively than they have been in the past. As a society we must come to realize that the solution is not to stop producing hazardous waste altogether, but rather to become more sensitive to its creation and more prudent in its disposal. The EPA estimates that annual disposal of hazardous chemicals in this country has now reached the 60 million ton mark. A whopping 90 per cent of that amount is sitting around in abandoned factories, buried in unprotected landfills, or otherwise disposed of improperly.

The simple fact is that we can't have it both ways. We can't continue to receive the benefits of the goods and services which generate hazardous waste on the one hand and carelessly dispose of that waste or insist that its production be halted on the other. It all comes down to a matter of costs versus benefits. In terms of significant medical advances and many other life-style choices our society has made, we know what the benefits of the processes are which produce hazardous by-products. We are now in a position to do more about decreasing the costs of those choices with regard to danger and damage to ourselves and the environment.

Compromises will have to be made on several fronts. Everyone will have to give a little. Cooperation among the various sectors of society will really become the key to effective hazardous waste management. I am pleased to observe that this Conference represents a giant stride in achieving that goal.

Again, welcome to The University of Iowa. I wish you an intellectually stimulating and profitable conference--for your personal benefit and for the general good of the larger society as well.

EPA AND THE SITING OF HAZARDOUS WASTE FACILITIES*

Curtis Haymore†

Our nation is now seriously addressing the task of establishing a national system for the safe management of hazardous waste. EPA has promulgated regulations for managing hazardous waste under the Resource Conservation and Recovery Act (RCRA) and, with the states, will soon implement them. This summer, generators, transporters, treaters, and disposers must notify EPA of their activities. By fall, the manifest system that tracks the movement of hazardous waste from the point of generation to the point of ultimate disposal will begin operation. Many states will also begin to operate the hazardous waste program this fall, as they qualify first for interim, and then final authorization.

Sites Are Needed

The regulatory framework that RCRA provides is silent on the issue of siting. RCRA assumes that adequate treatment and disposal capacity will become available to handle the nation's waste. We must, however, examine both the quantity of waste generated and the amount of available capacity to assess the extent of the potential problem.

The Demand for Off-Site Capacity Could Be Very Large. EPA is now completing a study on the amount of hazardous waste generated by industry. The data are still preliminary, but can be used to define the general magnitude of the problem.

EPA's preliminary estimates show that between 28 and 55 million metric tons of hazardous waste will be produced this year. The approximate percentage of the total for each of the major contributing industry groups is as follows:

Industry Group	1980 Percent of Total Hazardous Waste Generation
Chemical and Allied Products	62%
Primary Metals	10
Petroleum and Coal	5
Fabricated Metal Products	5
Other	18
Total	100%

*I gratefully acknowledge the extensive contributions of Eileen Claussen, Director, Office of Management, Information, and Analysis, Office of Solid Waste, EPA, to this paper.

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The portion of waste that goes to commercial off-site facilities is most important in terms of siting. On-site disposal facilities seldom generate as intense opposition as off-site facilities. Most waste (at least 73 percent) is treated or disposed on-site; approximately 15 percent is known to go to off-site facilities, and the remaining 12 percent of hazardous waste is divided between on-site and off-site disposal, but the exact proportions are unknown. The stability of the division between on-site and off-site disposal is one of the driving forces that will determine the severity of a capacity shortage.

EPA expects that 1985 waste generation rates will not be drastically different from current rates. We estimate a possible range of between a 5 percent decrease and a 20 percent increase in the total amount of waste generated.

Estimates of Demand for Off-Site Capacity Are Very Tentative. The estimates for off-site volumes are potentially even more volatile. The estimates are subject to several very strong influences that may radically alter our projections. Specifically, the portion of waste going off-site depends to a great extent on the stability of on-site disposal. For example, only a 10 percent decrease in on-site disposal would increase off-site disposal needs by almost 50 percent.

A second important factor is the cleanup of abandoned sites. EPA intends to treat and dispose of the waste on the sites and not tie up existing capacity with "old" waste. The technology for on-site treatment and disposal has not yet been demonstrated for the size and range of wastes we now face. If much of this waste must eventually be treated in off-site commercial facilities, the Environmental Protection Agency will become one of the largest single generators of hazardous waste in the country and will quickly overburden existing facilities.

Finally, there is a possibility that we have underestimated how much waste is now being disposed of illegally. As RCRA begins to bring all generators into the system, we may find that there is a greater demand for off-site facilities than we had anticipated.

The world is rarely entirely bleak, however, and there are forces that will work to reduce demand for off-site capacity. We expect higher disposal costs and new technological innovations to favor increased recovery of resources from hazardous waste streams. We also expect generators to begin to alter production processes to lessen the total amount of waste they generate.

Cost is not the only consideration. Now that waste stream information will become more public, many firms may decide their image is best protected by generating less, and less hazardous, waste.

Capacity Will Expand Mostly for Chemical Treatment and Incineration. There are now about 120 commercial facilities in the country using six major options for waste management, with chemical treatment and landfills being the dominant ones. Chemical treatment accounts for about 36 percent of the 1980 volume and landfills for about a quarter of the total. Landfarming represents a very significant portion at 15 percent. Injection into deep wells accounts

for about 12 percent. Incineration and resource recovery represent about 6 percent each. Resource recovery here is only those facilities associated with existing hazardous waste management facilities. There are hundreds of other operations throughout the country that were not a part of this study.

To estimate the need for new sites, however, we need to examine how much existing capacity remains unused. For most options, available capacity is roughly double the current usage rates. Landfills, the most difficult type of facility to site, are the most heavily utilized, running at almost full capacity. At current rates, all existing landfill capacity will be used in about eight years.

The landfarm and deep well injection options seem to have tremendous excess capacities. However, in both cases, the capacity is chimerical. It is geographically limited and waste specific. Landfarms can only process certain organic waste and deep wells can only handle fluid waste that will not clog the porous geologic formations.

Future Capacity Is Very Difficult to Estimate. Our very misty crystal ball indicates that available capacity for incineration may approximately double by 1985. Chemical treatment capacity is also expected to approximately double in the next five years. Landfarm capacity will probably increase only slightly, while deep well injection capacity is expected to remain relatively constant between now and 1985. Landfill capacity, based on expansion plans of off-site waste management firms and current utlization rates, may actually decrease by as much as one-half over the next five years.

The Number of Facilities May Have to Double by 1985. In general, the future is uncertain. It appears the country may need between 50 and 120 new off-site facilities in the next five years. In other words, we may have to double the number of commercial off-site facilities that we now have.

Again, this assumes that most waste from abandoned sites can be treated on-site. It assumes that most newly generated waste will continue to be treated and disposed of on the generator's property. And it assumes that there will not be massive amounts of waste entering the system that no one was previously aware of.

Capacity is Critical to the Regulatory Program. There is another reason that capacity is important. The regulatory approach of RCRA hinges on the assumption that adequate and safe treatment and disposal capacity will be available. If there are not enough approved facilities to take wastes, manifest systems may become meaningless and enforcement actions can become counter-productive. The need for new off-site facilities is real.

Public Opposition is a Main Barrier to New Sites

During our survey, the waste management industry mentioned some problems in their effort to establish new sites: a need for strong enforcement of the hazardous waste regulations, the potential availability of capital, and the

probable availability of non-sudden, non-accident insurance. These concerns, however, pale beside the universal report that public opposition to new sites is the most critical factor affecting capacity expansion. The public clearly desires that safe facilities exist to prevent future tragedies. No one, however, wants the "dead cat" in his or her backyard.

Public opposition has thwarted many attempts to site new facilities, has prevented existing facilities from expanding, and in some cases, has closed active facilities. I am not here today to pass judgement on the appropriateness of these actions. It is helpful, though, to identify some of the generic concerns of citizens to see how local perspectives can be accommodated while ensuring that there are adequate increases in treatment and disposal capacity.

Opposition is Based on Fear and Distrust. Public opposition to siting is based on fear and distrust, and is generally characterized by extremely strong emotions, broad participation and a willingness to commit time and resources in an effort to forestall or close a site. The concerned public perceives each site as a potential public health threat--a future Love Canal--and does not understand or trust newer technologies that will minimize public health risks.

Opposition is usually motivated by four considerations. First, people fear the effects of an accident or other mismanagement of a facility. They want to protect their health, and lack confidence in government and industry's capability to manage waste safely. Second, people are sometimes unwilling to accept the expected stigma of being a community that has a hazardous waste facility. A third concern is economic--the expectation that property values, in particular, will be lowered. Finally, there is a belief that other locations would be safer or more appropriate, especially if the waste was generated there.

The Structure of Public Participation Has Been Poor. Our studies have shown that part of the reason for the intensity of public opposition is that procedures for citizen participation have not been well thought out nor carefully applied. The standard mechanism--the public hearing--has proved to be expensive, divisive, and ineffective. The news media tend to emphasize dangers rather than constructive solutions. The result has been that facilities have not been sited, and there has been no significant increase in hazardous waste capacity over the past several years.

Based on our studies of past siting attempts, future successful siting efforts are likely to be characterized by the following:

- a direct link of the waste generating industries to the local economies,
- a solid reputation of the waste management firm,
- other safely operating firms in the area,
- active state encouragement,

- early involvement of citizens and local officials,
- locations away from residential centers,
- exclusion of "political" wastes, such as PCBs, and
- complete technical evaluations.

In effect, a completely new and more sophisticated, thoughtful, and honest approach to the public is needed.

The Role of the States

EPA believes that private sector solutions are likely to be the most effective. In cases where government involvement is necessary, EPA has often expressed the view that the states, either separately or in groups, should assume prime responsibility for assuring that adequate capacity becomes available.

There are a number of reasons why the states should play a key role in siting hazardous waste facilities. First, Congress intended that the states assume responsibility for implementing hazardous waste management programs, whenever possible. Creating adequate treatment and disposal capacity is a key element of an effective program.

Second, the states have broad police powers, including land use authorities and the right of eminent domain. Third, the states can more easily tailor programs to local needs and situations.

A number of states have already acted, reflecting their understanding of the importance of the problem. It is still too early to judge the effectiveness of their actions, but these state efforts are encouraging.

Regulation and Advocacy Should Be Separated. There are several issues that should be carefully considered as we move forward to address the siting problem. There are inherent difficulties in placing within a single agency the responsibility for being both a regulator of hazardous waste facilities and an advocate of the establishment of sites. While there are no easy answers to this dilemma, establishing separate organizations to act on site selection issues, rather than combining both functions within the regulatory agency, is one approach that should be considered.

A second issue is related to cases where states will need to work closely with each other to determine locations for facilities that will handle waste from more than one state. States also must avoid playing "old maid," waiting for other states to accept the first facility.

A final concern is the involvement of local officials at early stages in the planning process. States need to be aggressive and especially sensitive to improving the quality of the public consultation process.

EPA Will Provide Assistance

EPA sees its role primarily as providing assistance to those involved in insuring that adequate capacity is available. EPA is working with the states through a grant to the National Governors' Association to assist them in exchanging information, analyses, and experience in siting.

EPA will also provide assistance toward improving the siting process. A series of handbooks will address recurrent weaknesses in the siting process and be targeted to state agencies and facility developers. Two handbooks will discuss techniques for consulting with the public. Another handbook will discuss the use of environmental mediators, and when to use them. Two more handbooks will discuss the use of incentives and compensation, using appropriate case studies. One handbook will help local officials and citizens identify areas of potential risk. A final handbook will identify criteria and alternative processes for selecting sites.

Beyond these new handbooks, we intend to use our technical assistance program to assist in developing public participation programs and for other activities relating to siting. EPA is also funding innovative approaches towards siting, as exemplified by a grant to the New England Regional Commission.

Finally, EPA will maintain a continuing Agency review of hazardous waste siting issues, including analyzing the extent of the siting problem and examining a wide range of alternative roles for the Federal government and the states.

We Must Address Siting Now

RCRA provides the regulatory framework for managing hazardous waste. The siting of new facilities is a difficult and sensitive task that only the states can adequately accomplish. EPA is attempting to help in this process by analyzing the problem and providing information, awarding grants for innovative siting efforts, and by working with the states. But our work is just beginning.

Response To The Haymore White Paper

Ron Kolpa*

One of the first things I want to point out is, as Mr. Haymore mentioned in his speech, one of the main points of opposition against hazardous waste treatment and disposal facilities. That is the perception of fear and concern on behalf of the public in general, and a lack of confidence in the generators as well as regulatory agencies at both the state and federal levels. I would like to address these points.

I believe that this a correct assessment of the problem and I think that in some cases the fears and concerns are justified, while in other cases they are simply the nature of the beast. We have a stigma attached to hazardous waste that in many cases is unrealistic. IDEQ can speak from experience on that point. We have been involved in the past in some very controversial issues. I assure you the Department has done everything that it could in terms of identifying and addressing the environmental factors involved, and that the solutions represent the best attainable with respect to environmental protection.

But yet we are, to a very large extent, prisoners of the technology and complexity of the materials that we are regulating. In fact, the policy makers in the regulatory agencies have their own share of fear and concern. This is primarily based on the fact that, at this time, the "experts" in the field of hazardous waste technology appear to disagree on what the public and non-experts view as the most fundamental of issues. That causes one to step back and say, "My God, are we in trouble." But there is another way to look at it. The current situation can be viewed as a science in its infancy. This is how a science develops, and that is what I believe is now happening. This is how consensus of opinion comes about. It is, in fact, a "butting of heads" of the experts regarding a hypothesis or a theory that has yet to be proven.

This is happening on all fronts in the area of hazardous waste technology development. Our responsibility as regulatory agencies is to make sure that it continues to happen and that it goes in the right direction and addresses the most critical problems. Your responsibility as members of the public, and ours as well--individuals each of us--is to recognize that we have a tremendous imbalance right now in our chemical society. We know a lot about the good aspects of chemicals. Now, all of a sudden, we come to the startling realization that there is a bad aspect, an associated waste problem, that no one has said anything about. Until now, it has gone out the back door. Now, all of a sudden, are we ready to throw in the towel on the same technology that developed the good attributes of chemicals, resulting in the life-style that we are enjoying? Are we ready to say that there is no way of handling it or, if there is a way, make sure you don't handle it near me?

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So, these are points of confusion and laymen feel that they are out of the game. We, as regulators, can very quickly go outside our immediate area of expertise and feel that same level of discomfort--not understanding what is being said and why disagreements are arising. But these are growing pains. Our responsibility is to insure that the environment exists for growth to take place. Otherwise, programs would be "black box" in terms of the management of hazardous waste and we would continue to be reactionary. We would not be able to anticipate or predict a problem. We would be forced to react to problems as they arise. If we let the technology develop at least we have some predictability. I don't suggest that anyone is offering you any promises that technology will develop in a predictable way or on a predictable schedule. I suggest only that the technology is ready to be developed and that it needs the environment in which to grow.

I would like to point out several other things with respect to Mr. Haymore's statement. One is to point out how we perceive RCRA, or rather any state program that we might develop in concert with RCRA. RCRA is, in fact, a closed-loop system. It shuffles liability around between all people that come in contact with a hazardous waste. Liability primarily rests with the generator. However, anyone who agrees to transport that waste from the generation point to some storage, treatment or disposal facility must share in that liability. The transporter is absolved of liability once the waste has been properly dealt with.

The system is, when fully operational, self-regulating. There are tremendous claims of joint and separable liabilities throughout the regulations. The liabilities are shared jointly by those who come into contact with the waste through its management, storage, or disposal. The generator is also liable throughout the history of the management of that waste. But, this is still a closed-loop system and must be totally in place to be self-regulating. The part that is currently missing is the ultimate disposal link. In many cases the reason that it is missing is the local opposition to the establishment of a site.

Industry is to be credited for its efforts to comply with RCRA. As Mr. Haymore noted, there is a notification requirement out among all generators now. In early June EPA mailed notification packets to the industries, the generators, the transporters, storers, treaters and disposers of what EPA defines as a hazardous waste. They must identify their activities with regard to those hazardous wastes and submit the notification back to the regional offices by August 19. The industry at large is totally confused in trying to work through this notification packet, and over the last two or three weeks we have fielded numerous calls. In all cases they specifically pointed out that they were having problems with the notification form, but have full intentions of staying in compliance with the regulation. Now, I have to admit to the fact that those who call in asking for help on a notification form represent a biased sample. But I would like to believe this is the case for every single generator, transporter, treater or disposer of hazardous waste in this state. They want the regulation as much as anyone else. But, again the issue of the political and the social environment that allows that regulation to function arises. This issue is not in their control. It is not in DEQ's or EPA's control. It is in the control of all of us. And that is what we are addressing at this conference today and tomorrow.

Finally, with respect to hazardous waste itself, let me point out to all of you that there is no magic formula that allows one to determine if a chemical is hazardous or not hazardous. The regulations, and the focus of the regulations--that is, what is defined as hazardous waste--will undergo massive change in the next decade or two. To this point, unfortunately, the majority of the adverse impacts that we know in a scientific sense about the chemicals in our society today are empirically derived. There was no way to predict them, nor was there, in general, any effort to predict the adverse impacts. All of a sudden--Love Canal. All of a sudden we realize that, of course, those chemicals could do that. Well, let us hope we are learning to predict the hazardous properties. There is a parallel law to RCRA that industry is currently grappling with. It is called the Toxic Substances Control Act. It mandates anticipatory control and identification of adverse impacts. It requires the industries that generate the compounds of certain generic types to test and identify the adverse impact of each compound before it hits the market place.

We must get away from the reactionary control that we have now on hazardous waste and move into a predictive type of control. We must know exactly what we have, be able to justify its production in the first place, and know exactly how to put it away. Our problem is that we are at the turn-around point. There is a hill to be climbed right now and there isn't an expert in this country who will stand up and tell you that hazardous waste facilities are risk-free. There isn't anyone who will tell you that in the large sense a hazardous waste facility is designed to treat and ultimately dispose of a hazardous waste. It is, instead, a long-term, secure storage facility. That is the best that can be hoped for. It is, in fact, the mechanism that will get us over the hump. We can't shut the waste spigot off while we try to figure it out. So, as we begin figuring it out now, let us also figure out what we can do in the short term to manage the wastes that are being generated now. Let's put them in land-fills if we have to. But here again, the technology is emerging and the fears that you have are based on the fact that the answers simply aren't there yet. Whether any one particular agency or industry should be held fully accountable for this circumstance and predicament, I'm not here to say. But I do want to make you aware of the fact that the answers simply aren't there. If you perceive the regulatory agencies and industries giving you vague answers, it is simply because of that. And, it also is because of the fact that, as hazardous waste management evolves, every step of the way must be justifiable, must be scientifically acceptable. In the interim, we can't jump to conclusions. We can't continue to run this program in a reactionary sense.

RESPONSE TO THE HAYMORE WHITE PAPER

M. W. Gauss*

I wish to thank Dr. Fuller for his invitation to join my fellow speakers today in the discussion of this important subject. Also, my thanks to Mr. Haugaard for his assistance in preparing this meeting. It is my pleasure to meet with you, the citizens of Iowa, and present my views on the perspective that business and industry have on hazardous waste management, in accordance with the Resource Conservation and Recovery Act rules and regulations.

To start with, there is no way to discuss the RCRA rules and regulations in ten minutes, but let's try.

The business and industrial community is vitally interested in the availability of safe disposal facilities for hazardous waste. We are also in favor of equitable regulations to control these wastes. I know of no major conflicts between the business community and the Resource Conservation and Recovery Act's intent. In fact, we look forward to the resolution of past problems and cooperation with both the EPA and DEQ in finding adequate disposal solutions.

Our responsiblity is to present the concerns of business and industry to you as citizens and consumers of our products and to the EPA and DEQ as the regulating agencies. In the eyes of the law, a corporation is a person with legal rights to maintain its existence and welfare. As our friends in the EPA and DEQ are aware, we have been known to exercise these rights. The ultimate health of a business, however, lies in your hands as the consumers of our products. As the U.S. automotive industry realizes, your decisions can be clear and very effective. Your concerns and decisions on pocketbook issues versus environmental issues matter greatly to us, for we must choose the proper balance or risk a similar fate.

First and foremost, RCRA is the law of the land and as such, we will comply with it. Our concerns are more related to the enforcement procedures as they affect our competitive and economic position. Let me review the rules and regulations with this in mind.

The Section 3010 on Preliminary Notification will cause no problems to most larger undustries, since normally they will have personnel and resources to properly file. The smaller companies will require assistance to assure proper filing, as exclusions could be a problem. Although trade groups and business organizations may assist, EPA and DEQ efforts could be very helpful. The one part of this Section that concerns us all is the one on confidentiality. Competition is the lifeblood of the free enterprise system. What separates the successful from the marginal company may be the ingenuity

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of one versus the other. The note on FR12753 states: "If you fail to include substantiation of your claim of confidentiality at the time you submit your notification form, you waive your claim and the information on the form will be available to the public." The decision as to the proof of substantiation is in the hands of the regulating agency. There must be strict control of proprietary information by many industries to allow survival in a highly competitive world.

There is no doubt that the RCRA rules will add costs to the prices of goods. This is shown in the General Section, Part 260, under "Economic Analysis." The benefits section states: "It would be more equitable for the costs of adequate hazardous waste management to fall on the consumers and producers of the products which generate the hazardous wastes." Further along is the statement that: "Thus, the price of goods often did not reflect the full social cost of production." These two statements frame the points that you as the consumer and we as the producer must struggle with. What will your decision be as to the equitable cost for adequate management, and what is the full social cost of production? There is a clue in a subsequent statement that: "Most of this cost will be passed on to consumers, while some may be borne by the generator, particularly where price increases are held down in some way (e.g., by foreign competition of competition with other products)." Will the social cost be the loss of jobs to other countries or the dislocation of employment from one state to another? The EPA will lay the framework by the extent of future rules, but you as the consumer will have the final say by your selection of products. Based on the present economic climate, there may be some question as to why they called this the "Benefit" section.

The Cost and Impact section tells a further tale. There is a projected cost of an additional 510 million dollars annually for disposal of 13.7 million metric tons of hazardous waste. The total estimated quantity of wastes is 41 million metric tons. This relates only to the Phase I standards. This data is followed by a statement that "While the regulations have not been written, it is conceivable that the added costs of the Phase II regulations could double the total costs for the affected industries." This could be as high as three billion dollars per year. If you were in the affected industries, would you be concerned with the pass-through of these costs to your customers?

A great concern is further listed in Part 261 FR33089 that states "There is no explicit requirement in the Act directing EPA to consider cost in the development of its initial regulations. The singular focus of protecting human health and the environment distinguishes RCRA from the other major pollution control statutes." This statement relates to Subtitle C of the act which is the Hazardous Waste Management Section. If ever Economic Health was on a collision course with Environmental Health, this act has set the stage for some industries. The principal of cost effectiveness is used in most other environmental regulations.

The collision course I mentioned is spelled out in the Economic Impact Analysis. In six major industries studied, the EPA estimated that 86 plants may close with as many as 5,300 jobs lost. This works out to be 62 jobs per plant. This would indicate an impact on small business. Is this also the social cost mentioned before? Parts 262 and 263 on Standards for Generators

and Standards for Transporters respectively could be covered in a seminar by itself. The subject would be over-regulation in the eyes of business and industry. Suffice it to say that the number of trees harvested every year to comply with the paperwork would make several scenic parks. And to think that this is part of a law to solve solid waste disposal problems is confusing.

Part 264 lists the standards for Treatment, Storage and Disposal Facilities. Mr. Kevin Tritz will more expertly discuss this subject this evening. Let me, however, discuss some of the problems industry is concerned about. It is acknowledged by EPA that the technology for hazardous waste disposal sites is lacking. It is stated that "Specific permit requirements will then be based on the engineering judgment of the permitting officials, supplemented by technical reference manuals." Will the best engineering judgments of today be the inadequate design of tomorrow, with no reflection on the permit official? Will this lead to retrofitting of existing facilities with the subsequent pass-on of costs in an ascending spiral? The basis for good business decisions is the projected cost of tomorrow.

The case of disposal site availability within reasonable transportation distance adds to the uncertainty of the future for industry.

The last one is the best. How will the siting of hazardous waste disposal sites be dealt with? Your back yard or mine? Perhaps Mr. Tritz will resolve this one tonight.

As you can see, business and industry do have a few concerns. We have only started on the path of solutions. Difficult decisions must be made by EPA, DEQ and industry to find practical methods to deal with hazardous waste. There is one item that we feel is imperative. To maintain the best control, we must make sure the wastes are truly hazardous, and that reasonable disposal is called for. Consideration must be given to two philosophies which are: hazard classification and risk analysis.

It is illogical to treat all wastes for the same degree of hazard. This will produce larger quantities of mixtures of extremely hazardous wastes with low hazardous waste. This in itself leads to problems of risk in the more sites are required and more exposure to releases are probable.

Risk analysis is another area we need to pursue. Zero risk is impossible. If we try to pursue this approach, the cost will be prohibitive. Carcinogens, teratagens and mutagens are horrifying words. Automobiles, firearms and alcohol can also be horrible words. All of these together do not equal a risk found by Bernard L. Cohen and I-Sing Lee of the University of Pittsburgh that costs a person 3,500 days or 9-1/2 years of life. That is being an unmarried male. Some eligible ladies might consider this hazardous and to be a waste; however, the alternative to this may be considered by these males to be a unwarranted risk.

I have not touched on the superfund proposal, degree of liability and its extension to generators, the growth restriction to new capital or a host of other items that time does not permit.

Let us end by saying: There is a problem, solutions are available, and all of us working together will solve them.

RESPONSE TO THE HAYMORE WHITE PAPER

Chet McLaughlin*

I have listened this morning to the three speakers, Mr. Haymore, Mr. Kolpa and Mr. Gauss, and I must refute some of the things that Mr. Gauss has said. He claimed that the hazardous waste management program will cost industry between one and three billion dollars a year. I don't know how many people here are aware of it, but in Love Canal we now have $5 billion in liability suits; we have a $136 million price tag for cleaning up one of nine sites. The other eight have not even been investigated yet. We also have nine hundred damaged lives.

If one to three billion dollars out of a trillion-dollar economy is the price we must pay to prevent this, I don't think that it's too expensive. To go a bit further, EPA usually puts out five billion dollars worth of construction grants per year to prevent water pollution. We are talking about a price tag for the whole hazardous waste management/regulatory scheme of, in EPA's estimate, slightly over one billion dollars a year. I don't feel that this is too much to pay.

Mr. Haymore spoke of having excess capacity in land disposal sites. At the present time we are hoping for adequate capacity. Here in Region VII , which covers Kansas, Nebraska, Iowa and Missouri, we will be losing two of the four facilities that are currently available. Presently there are three facilities in Missouri and one in Kansas. Missouri's hazardous waste regulations go into effect on July 1, and it is clear that one of the facilities cannot meet those regulations and they have agreed to close on July 1. Another facility has applied for a permit and a decision must soon be made whether to allow them to operate. But there are strong indications that it cannot be allowed to operate under the new regulations. So, in Region 7 we will be down to two facilities very quickly.

There are currently three proposed sites in the state of Missouri and a proposed expansion of the site in Kansas. All of these potential sites are going through an elaborate public participation process, and I would like to share with you some of the things that have been suggested by the people in public meetings in Missouri on the proposed sites there. I think that you should hear the questions these people are asking before you go into your discussion groups.

They have looked at the regulatory officials, and they have looked at the industry being regulated, and they have said: "That facility is going to end up in my back yard, not your back yard. I want somebody standing there watching it all the time. I want a full-time on-site inspector." Now you be the judge. Is that a reasonable request? Second, I've heard them say: "I don't care whether you inspect it or not. I want to inspect the facility. I

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want to see that it is safe." What are they asking for? They are asking that a facility have some kind of local citizen oversight group that periodically inspects the site. These people would be the fact-finders for the local community. Is that reasonable? Local government officials are asking for independent monitoring. Should there be independent monitoring groups, paid for by some party, so that the local people have their own independent authority?

Another thing they are requesting is thorough monitoring of the air, water and soil, with results quickly available and explained. Ordinary citizens have a difficult time interpreting monitoring data. They want someone to help them interpret it. They want open books by the facility, with frequent reporting at a level of detail necessary for local and state governments, and for citizens, to gain an understanding of what's going on at that facility. They are asking for regular meetings with the operators and, at a separate location, regular meetings with the regulatory officials to explain data and answer questions about the operation of the facility. They want health checks on people in the neighborhood of a facility and on the workers, to assure that they aren't carrying things out the door and taking them home, infecting their families in some way. They would like the health checks performed by their own doctors.

Local government officials are asking questions like: "You're going to be spilling hazardous wastes on my streets, are you going to clean it up? How fast and how thoroughly?" Surely, people are going to undergo a certain amount of stress. The local officials are saying: "For enduring this stress and for enduring the inconvenience, we deserve some compensation." What form should that compensation take? Should we be able to tax, at some rate, the material coming into a hazardous waste facility to provide funds to alleviate some of that stress? If not, what is the appropriate mechanism for compensating that community?

In the new Missouri hazardous waste regulations, guarantees have been included that provide assurances to people on what materials are to be going into the facilities. The Missouri Hazardous Waste Commission felt that this issue was extremely important, and prohibitions were placed on certain wastes to prevent their presence in land disposal facilities. They based this decision on the premise that until we know more about particular wastes, they should not be allowed in land disposal facilities. Is that reasonable? Another point concerns health effect data on materials coming into a facility. Is it reasonable to require that applicants provide detailed health data to the public on each of the waste streams that will be coming into that facility?

Above all, I'm hearing that industry must dedicate itself to recovering the maximum amount that they possibly, economically can. And for the remaining wastes, facilities must be built in such a manner that not only can we go back in and get the waste if it is necessary in the future, but that the containers will still contain it. There must be a grid system and sufficient maintenance to insure that this is possible.

People are concerned about the long-term care of a facility. Under EPA's regulations, as well as those for Missouri and Kansas, there will be two types of funds available to take care of a facility. One type is a closure fund.

It mandates that money be put aside as a facility receives waste and, therefore, a fund is available to close the facility if the operator ever walks away. The second type is a post-closure fund for long-term care, maintenance, and monitoring of a site. Are these funds a reasonable way to approach this problem? Another thing that people are asking is that states consider the possibility of owning the land after the site is closed. They are asking this for two reasons. First, they want someone to be absolutely responsible for the site. And second, they want someone who is liable if something goes wrong.

These are some of the things that I have heard as I have attended these meetings. A lot of you will shake your heads and say that many of these suggestions are impossible. But <u>are</u> they impossible? I'm not sure, but I hope that you will consider some of these ideas from people who two months ago didn't know what a hazardous waste was. I think that their reasoning is pretty astute.

ECONOMIC IMPLICATIONS OF REGULATING HAZARDOUS WASTE MANAGEMENT

Vincent G. Munley*

Introduction

Hazardous waste management is clearly the foremost environmental issue facing society at this time. Almost daily, newspaper accounts report additional incidents of severe damage to human health and the environment as a result of improper past practices. In almost every instance it appears unquestionable that the cost to society of remedial action will far outweigh what it would have cost the responsible party to properly manage the waste in the first place. The need for government action to ensure that hazardous wastes are managed in an environmentally sound manner seems apparent. At the same time, few individuals can doubt the ability of real world governments to produce overkill while earnestly pursuing worthwhile social goals. The obvious question before us, then, is how can we design and implement a sensible hazardous waste management program without unnecessarily obstructing the production and consumption activities--and there can be no doubt that these activities pervade our economy--that generate hazardous wastes.

This question is particularly difficult because hazardous waste management is a relatively new issue in environmental policy. Few programs can claim long term operation at any level of government, and hard data upon which to base sound judgments are practically nonexistent. It is nonetheless useful to examine what insights economic theory can provide to the formulation of an environmentally sound hazardous waste management program.

Economic Rationale for Government Intervention

An extensive literature exists describing how a freely functioning economy will efficiently allocate society's scarce resources in the absence of various types of market failure. In this situation competitively determined prices will reflect the relative value that consumers place on goods and services, and that producers place on factors of production. These prices in turn serve as signals to direct resources to their most highly valued use.

One type of market failure that will cause this process to break down occurs when economic agents cannot be held strictly accountable for all the costs (or benefits) generated by their actions. Generally referred to as an externality, this condition characterizes the way in which many consumption and production activities can affect the environment in a freely functioning economy. Improper hazardous waste management is clearly one example. Firms that indiscriminately dispose of hazardous wastes in essence view environmental degradation as a costless input to their production process. They are able to competitively sell their output at a price that is less than

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the total cost to society of producing that good. Because the price is artificially low relative to goods and services where production requires that all inputs are acquired at full social cost, individuals in turn will purchase a superoptimal quantity.

In the presence of externalities prices become distorted reflections of the value that society truly attaches to goods and services, but still serve as signals directing the allocation of scarce resources. In order to promote efficient resource allocation, some mechanism must be introduced to the economic system that will internalize this type of externality by requiring that producers and consumers are held accountable for all the costs associated with their activities. Governmental intervention into the market place is the usual means of correcting environmental externalities.

Structuring Government Intervention

Having accepted the premise that some type of governmental intervention into the market place is necessary to correct the externality that arises when the full social cost of hazardous waste disposal is not borne by the parties responsible for its generation, the next question to be answered is: "What form should this intervention take?"

Economists have argued that market incentives such as taxes on pollution can provide the most sensible means of internalizing all the environmental costs of production and consumption activities. In theory this tax should equal the difference between the total costs to society of the pollution generated and the private cost to the generator. The foremost advantage of market incentives is that they ensure that prices accurately reflect the value that society places on goods and services, so that they provide correct signals for allocating resources. A primary deterrent to using market incentives is the difficulty involved in actually computing this tax. For example, the environemntal damage resulting from improper hazardous waste management is in general a complex function of several distinctive characteristics of the waste itself, specific features of the disposal site and the time period over which the damage can occur. The administrative difficulties involved in developing a tax scheme to capture all these factors are readily apparent.

Another means of internalizing all the environmental costs of the production and consumption activities that generate hazardous waste is to statutorily establish strict liability for the damage resulting from improper waste management, and allow the courts to determine settlements on a case-by-case basis. While providing a minimum of direct governmental intervention into the market place, this method provides a direct incentive to irresponsible parties to properly manage their wastes. Unfortunately this approach also has several drawbacks. Proving liability and calculating just compensation is itself a costly and time consuming process. This is especially true if sufficient time might elapse so that the responsible party may not be identifiable at the time of damage, or if the damage is irreversible making just compensation difficult to establish. Moreover, a direct cost to society must be associated with the uncertainty that can exist when strict liability is enforced without the introduction of an explicit standard by which "proper management" is defined.

This brings us to a final form of government intervention--the direct regulation of hazardous waste management. By enacting the Resource Conservation and Recovery Act in 1976, Congress selected this as the primary means by which society would attempt to correct the market failure that had resulted in environmentally unsound waste disposal. It is consistent with the approach already in place for dealing with environmental externalities arising from air and water pollution. A major advantage of direct regulation is that it provides immediate action in response to the problem. It also reduces uncertainty for affected parties by establishing an explicit set of rules defining acceptable hazardous waste management practices. However, if not properly designed, direct regulation can eliminate the role that prices should have in providing signals for allocating resources. Government bureaucrats must assume the responsibility for making some decisions that will eventually determine how firms manage their production processes. Since consumers and producers are forced to base their actions upon the information contained in Federal Register notices as well as market signals, it is most important that regulations be structured in a way that allows society's resources to be used efficiently.

Cost Effective Hazardous Waste Regulation

In order to examine how direct regulation of hazardous waste management can affect the efficiency of resource allocation, it is useful to consider incentives that regulation introduces to the economic system where hazardous wastes are generated. Immediately apparent is the potential incentive to disregard established rules and dispose of waste improperly. To avoid such an outcome and ensure that intended benefits are actually derived, it is necessary to establish and enforce appropriate penalties for violations. Some considerations of liability mentioned earlier are thus relevant even when direct regulation is used as the primary means of government intervention. And once we recognize the need for enforcement through the judicial system as part of any comprehensive hazardous waste program, we must acknowledge that tradeoffs can sometimes be made between increases in liability provisions on the one hand, and increases in regulatory specificity on the other, as a means of accomplishing program goals.

Direct regulation will affect not only the way in which hazardous wastes are managed, but also how much and in what mix they are generated. Regulations requiring proper management practices will increase the cost of generating hazardous wastes. The more stringent the rules, the greater the cost increase. This provides an incentive to reduce the amount of waste generated by reducing the amount of waste per unit of output and/or reducing output. The strength of these forces will depend, respectively, upon the ability of generators to adjust their production process, and the responsiveness of consumer demand to increases in product price. As long as the regulatory program is designed so that, at the margin, the cost of more stringent management requirements is justified by the environmental benefits derived, social welfare can be increased by both of these effects.

Confronting firms with the true social cost of hazardous waste management will induce them to combine all input factors--where proper environmental management of hazardous residuals is looked upon as a necessary input to production activities--in a manner that produces output at least cost. Since environmental degradation will no longer be costless, firms will not have any incentives to overuse it as a factor of production. By requiring environmentally sound management practices to the point where the incremental cost of more stringent performance standards is equal to the incremental environmental benefits derived, direct regulation can effectively internalize the externality responsible for the original market failure.

Regulation of hazardous waste management will certainly lead to price increases for goods and services that generate hazardous wastes. Even after production processes are adjusted to the post-regulation least cost combination of inputs, output prices must in general rise because costless waste disposal can no longer be used to artificially lower the total cost of producing each unit. At higher output prices consumers will demand lesser quantities of these goods and services. As long as the benefits of direct regulation justify the cost at the margin, society's welfare will be enhanced at lower levels of output, since the initial superoptimal provision of these goods and servies resulted through the implicit subsidy of environmental degradation.

A critical issue underlying this discussion is: "How can we judge the point where the environmental benefits derived cease to justify the costs of increasingly more stringent direct regulation of hazardous waste management practices?" This is most important, because complying with regulations requires scarce resources, and overly stringent regulation can reduce society's welfare in much the same way as insufficient stringency. Unfortunately, as was noted earlier, hard data upon which to base sound judgments in this area are practically nonexistent. Some general statements can, however, be made.

First of all, whatever degree of regulation is decided upon should be accomplished in a least cost manner. To illustrate how this can be relevant, consider the nature of hazardous wastes. Any waste can typically be hazardous on several different counts. For example, a highly combustible substance may also be chronically toxic, but not acutely toxic, and somewhat corrosive, but not at all radioactive. The degree of hazard that it poses to human health and the environment will depend upon both the attributes that characterize the waste itself, and the way in which it is managed. A uniform scale by which the degree of hazard can be cardinally measured is not obvious. Some wastes, however, clearly pose a greater threat of damage than others. Dioxin is generally more hazardous than the overburden produced by mining nonradioactive minerals, and PCB contaminated waste oil is generally more hazardous than the sludge produced by municipal wastewater treatment plants.

It make both economic and environmental sense to require management expenditures to be concentrated most heavily on those wastes that present the greatest threat of danger to human health and the environment. Even if a precise classification by degree of hazard is not possible, the establishment of rough measures can facilitate efficient utilization of society's hazardous waste management capabilities. This is especially important given the lack of

existing capacity for waste management, and the difficulties involved in siting new facilities. Moreover, establishing differentially more stringent requirements according to the degree of hazard presented provides incentives for generators not only to reduce waste output, but also to adjust production processes where possible so that less hazardous wastes will be generated.

In reviewing the Environemntal Protection Agency's proposed hazardous waste guidelines and regulations, which made no distinction according to degree of hazard, the President's Regulatory Analysis Review Group noted:

> We understand that one of the reasons why a refined classification scheme was not pursued further was that the costs of developing a tailored set of facility technical standards (necessary to achieve the efficiency gains afforded by such a scheme) were estimated by EPA to be minimum of $20 million and two years time. It is not clear that such an investment should be considered prohibitive in view of the fact that the proposed regulations are expected to cost society about $900 million annually. Put in perspective, this means that an efficiency gain from a more refined classification scheme of five percent--hardly an implausible estimate--could result in a 100 percent return on such a public investment in only one year. Prudent policy decisions can only be realized when all costs--public and private--enter a regulator's decision calculus.

This brings out a final set of incentives to be considered in establishing a hazardous waste management program--those facing government officials. Regulators frequently must make tradeoffs between the increased administrative costs required to design an efficient regulatory framework, and the private cost to the regulated community of foregoing the potential compliance savings that could be achieved by such a program. It is painfully obvious that both public and private costs draw upon society's scarce resources. In the day-to-day operation of government, however, where agencies face a very real budget constraint for administrative expenditures, yet are not held explicitly accountable for the regulatory costs that they impose on the private sector, it is hardly surprising that regulators might weigh administrative costs more heavily than private costs in their decisions.

Even if final rules are promulgated that can provide efficient direct regulation of waste management, some effort may be necessary to ensure that all potential efficiency gains are realized. If permit writers who must certify hazardous waste management facilities are risk averse, they will have little incentive to approve reasonable variations from established guidelines in facility standards that might be used to take advantage of particular features of the disposal site and/or waste stream being managed. For this reason, strong guidance to regional offices endorsing the objective of cost-effective implementaion practices may be a vital component to any well-designed program.

Conclusion

What policy recommendations can we draw from this discussion? First, it is clear that efficiency considerations are important to the design of any policy for hazardous waste management. It makes both economic and

environmental sense to develop regulations that will provide correct incentives to the producers and consumers of those goods and services responsible for the generation of hazardous wastes. Second, we should consider all the costs to society--public and private--required to implement this program. Finally, as data become available regarding the costs and benefits involved, we should be willing to make adjustments to ensure that the level of stringency required in management practices is consistent with maximizing society's welfare.

RCRA: THE WASTES MANAGEMENT INDUSTRY PERSPECTIVE

Jim Greco and Kevin Tritz*

Browning-Ferris Industries, or "BFI" as many refer to the Company, is the largest publicly-held stock company in the world engaged in providing solid and liquid waste collection, processing, and disposal services to residences, businesses and industries. We collect and dispose of garbage in approximately 150 locations throughout North America and some foreign countries. In the U.S., we provided these services in 39 states last year. In Iowa, we operate in Des Moines, Dubuque and Council Bluffs. Regarding hazardous wastes, our company has treatment and disposal facilities located in Missouri, Illinois, Texas, Louisiana, Oklahoma and Maryland.

The long term implications of EPA's hazardous waste management regulatory program will be significant upon our industry and the public-at-large. Proper control and management of hazardous wastes as specified by the regulations are needed. Though it is often reported that there are thousands of companies which provide garbage collection and disposal services in America, the number of firms which will be providing proper liquid and hazardous waste management services will likely be less than a hundred, perhaps only a few dozen. This is because the safe management of hazardous waste in compliance with strict federal and state regulations will necessarily require companies with strong financial capability, highly professional management and the technical wherewithal to carefully analyze, treat and dispose of materials of various chemical characteristics.

In February the U.S. EPA promulgated some of its waste regulations. The regulations published at that time included:

(1) regulations which generators of hazardous waste will have to comply with;

(2) regulations which transporters or haulers of hazardous waste will have to comply with; and

(3) regulations requiring anyone who generates, transports, treats, stores or disposes of hazardous waste to notify the U.S. EPA or the appropriate state agency.

Many within the industry referred to these regulations as the 3002, 3003 and 3010 requirements--the numbers pertaining to that section of the Resource Conservation and Recovery Act (RCRA), passed in October of 1976, which gave the EPA the necessary authority to promulgate such regulations.

Though EPA's publishing these regulations was significant, their full impact could not be determined until EPA promulgated its regulations for

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determining which wastes would be considered hazardous. Then and only then, would a generator know that he is a generator, a transporter, etc. On May 19, 1980 EPA published its regulations identifying and listing wastes which would be determined to be hazardous (RCRA Section 3001 criteria). At the same time EPA published regulations applicable to:

(1) owners and operators of treatment, storage and disposal facilities;

(2) facility permit application and approval procedures;

(3) the manner in which states will be given approval to run their own hazardous waste management regulatory program in lieu of the Federal government (U.S. EPA) regulating such activities in their state.

These regulations have been referred to as the 3004, 3005 and 3006 requirements of RCRA. Though certain important parts of these regulations, particularly the 3004 set, were withheld pending further study by EPA, the May 19th regulatory package established the bulk and primary philosophy of the Federal program. Furthermore, promulgation of the 3001 hazardous wastes criteria set the "reference or trigger date" which will be used to establish compliance deadline dates. For example:

(1) any person who generates, transports, treats, stores or disposes of hazardous waste must notify EPA of that activity by August 18th;

(2) existing state-permitted hazardous waste management facilities must submit information to EPA by November 19th to qualify for "interim status" and thus be allowed to continue operating. If this information for existing facilities is not submitted, the law requires such facilities to cease operations;

(3) generators, transporters and "interim status" facilities must begin using and complying with the manifest system by November 19th - the "manifest" being a formal shipping document originated and signed by the generator and accompanying any hazardous wastes shipped off-site;

(4) states desiring to be granted "interim authorization" by EPA to continue managing segments of their own regulatory program, must submit evidence of their existing program to the EPA by August 18th. EPA will be carefully scrutinizing such state programs before allowing any to carry out their own program for two years;

(5) developers of new facilities, not now "in existence", will be able to know how and where new facilities can be located only after the "facility technical requirements" are promulgated - which is expected to be done this Fall. Once published, new facilities will commence their path to "permit approval" which is expected to take at least a year, and likely more.

It is interesting that the EPA has announced that its enforcement emphasis will be upon finding "non-notifiers" as a first priority, and then identifying "manifest system and recordkeeping" violators. Supposedly, the generator

segment of the regulated community will experience early emphasis along with transporters and disposers who continue to function without permits or without compliance with notification requirements. RCRA criminal penalties can result in a fine of not more than $25,000 for each day of violation, or imprisonment not to exceed one year, or both.

As can be expected, it is difficult to determine to what extent this national program will be effective in protecting the environment--and at what cost or benefit to society. It is ironic that when the regulations were formally released, the Agency (EPA) was criticized both by segments of the generating industry and sectors of the environmental organizations. The former accused EPA for "over-reacting" to the general problem, wheras the latter charged that EPA was commencing its regulatory program on too narrow a scope of hazardous wastes and allowing poorly-managed facilities to continue in operation. Furthermore, many groups continually drew attention to the fact that EPA was more than 2 years late in promulgating these regulations--they were to have been published by April of 1978 according to RCRA. Exaggerations from every conceivable interest group will likely prevail and law suits challenging the validity of the regulations will likely be filed. Nevertheless, many Agency personnel should be commended for the package brought forth--for it represents a start toward implementing a regulatory program needed throughout the country, which hopefully will be fairly, equitably, and reasonably carried out so that we can safely manage our hazardous wastes.

Though BFI is a large and well-capitalized company, our experience in locating hazardous waste management facilities is not unlike the responsible disposal industry as a whole. We have developed such facilities from existing company-owned and operated facilities used for municipal waste disposal, should the geology and technology be appropriate and proper; by acquisition and upgrading of other facilities; or by development from scratch, which would entail the conducting of a market survey, general site area search, a technical site assessment with surface and subsurface geologic investigations, test borings and review of site requirements with appropriate regulatory agencies.

We have become sensitized and intimately familiar with public concern regarding hazardous wastes management. Some public hearings on the proposed issuance of a hazardous waste management facility permit which we have participated in, have been reduced to nightmarish name-calling marathons lasting into the early morning hours. There have been threats of physical violence and property damage if the permits were to be issued. The display of public emotion has become so severe that state hearing officers holding these hearings have found it difficult to maintain order and determine the truth and accuracy of statements made.

As a result, the siting and establishment of new permitted hazardous waste management facilities is coming to a standstill. Furthermore, it is anticipated that when the hazardous waste management regulations published on May 19th by EPA are put into effect, the problem of hazardous waste disposal site availability will be heightened, because the demand for properly designed sites will be dramatically increased, and also because a number of marginal sites will be closed.

The irony of this effect is that regulated disposal facilities are the only alternative to unregulated "Love Canals".

Reflective of prevalent public misunderstanding of the hazardous wastes problem is an editorial entitled "Not Seeing Hazardous Waste Won't Work" by Lee Gray of the October 12th Excelcior Spring, Missouri Daily Standard. The following was noted by the editor:

> "...this writer was led to believe that just running off hazardous waste secure landfills, doesn't solve the problem --only removes it from the immediate area's concern. But this can backlash, since industrial waste will still be produced regardless of whether there is a suitable, properly managed site for its disposal. What many of us fail to realize...is that we are all responsible for industrial waste because we benefit from the technology that produces it. What we want and get...carries a price...a price greater than just the item we purchase. It reminds me of the day in Vietnam when I was at a Vietnamese friend's home and saw a rat at least eight inches long sit up on its haunches. "LOOK AT THAT RAT" I exclaimed. "I no see him. He not there." came my friend's reply in her broken English accent. Today we seem to be suffering from the same kind of mentality. If we don't acknowledge hazardous waste... if we don't have to be made aware of it because it's not being buried in our neighborhood...then it's not there. The only problem with that kind of thinking is that it is still there...only better hidden from us.. under less controlled circumstances.. and we may end up drinking poison anyway."

EPA estimates that nearly 35-50 million metric tons of hazardous wastes are generated annually in the United States, 90 percent of which is currently handled in a manner which EPA estimates will not meet new federal standards. A recent General Accounting Office (GAO) report, published in January of this year, estimates that approximately 57 million metric tons of hazardous wastes will be generated in the United States in 1980.

These wastes must be managed properly if we are to reduce the overall risk of harm to public health and our environment. Where these wastes can be reduced at the source, perhaps by modification of industrial and chemical manufacturing processes, they should be. Where these wastes can be practicably recycled, they should be. Where such wastes can be treated and rendered non-hazardous or less hazardous within reasonable economic impacts, they should be. Where such wastes are disposed into or upon the land--whether trapped in deep geologic formations, secured within surface containment/disposal facilities, or mixed into soils, certain land naturally lends itself for the location of these facilities. Additionally, such facilities can and should incorporate design and operating safeguards engineered and constructed for environmental protection. But the fact remains--realistically--that there is a need--dire need--for a sufficient number of environmentally-sound and publicly-safe hazardous waste management facilities.

To facilitate the development of enough hazardous waste management facilities--properly located, designed, operated and monitored--certain factors can enhance immeasurably the establishment of these facilities, namely:

(1) Industry needs to better interact with the general public about the need for, and safety of, hazardous waste management technology and practices; and

(2) State and federal governments need to move with reasonable haste to effect and enforce reasonable regulations; uniformity and consistency among states are of paramount importance and RCRA provides the proper vehicle to do this.

The federal regulations are to estabish the levels of environmental protection that hazardous waste treatment, storage and disposal facilities must achieve; they also are the criteria against which EPA officials will measure applications for permits. Hence we feel it important that the general public be made aware that these proposed standards can ensure the safe management of hazardous wastes. Such public awareness and recognition is a necessary prerequisite and building block for any hazardous waste control program to be effective. However, the public may not be convinced unless the technical standards are sound, enforceable and enforced. In this vein, we feel it imperative that EPA, state and local governments and industry increase their efforts to enhance public participation in the rulemaking/permitting process and public education and awareness of the needs for and feasibility of hazardous waste management technology.

We are very conscious of our role and the responsibilities expected of BFI and other responsible firms for any control program to be effective, and that is to manage safely and properly hazardous wastes generated by industry, commerce, institutions and others, under the auspices of regulatory agencies. We view ourselves as a service organization which, when needed and desired, handles wastes generated by others for disposal according to applicable laws and regulations for protection of public health and our environment.

Frequently, the question arises as to what guarantees can be made regarding the ultimate management of hazardous wastes. Legitimately, the public, becoming alarmed when hearing of hazardous waste disposal problems, becomes more skeptical of government and industry initiatives to properly manage these wastes. We have observed the public becoming less and less confident of government and industry initiatives to properly manage hazardous waste materials. It is important that government and industry both regain credibility and the public's confidence. In an effort to accomplish this, we feel that not only are sound regulations and thorough policing required, but that the regulations be applied equally to all hazardous waste disposal facilities.

Chemical wastes are a by-product of our society--the products and services which characterize our standard of living and the dependence of this "standard of living" upon chemicals. Though they have been determined to be hazardous, these wastes can be managed safely.

STATE HAZARDOUS WASTE LEGISLATION: A COMPARATIVE REVIEW

Steven Sklar*

The first thing I'd like to do is cover, very briefly, some other states' approaches to the problems that you are now struggling with in Iowa, for no other reason than that other states and jurisdictions have struggled just as hard and long as you will or have. The NCSL has made a comparative study of hazardous waste management by the different states. What they've also done is update through June 1980 the 1980 Legislative session developments throughout the states. We now have a full chart of each state and what it has done in the various areas of hazardous waste management. I am going to review, very briefly, some of it and then get on to what I think are the crucial issues in hazardous waste management.

This chart and study will indicate to you that, for instance, in the area of identification of hazardous waste, some states, particularly Maine and North Carolina, have expressly conformed their definition of hazardous waste to RCRA. Other states have come up with their own definitions that may or may not ultimately be approved by EPA. Louisiana and Tennessee have passed legislation that set up study programs to develop the standards and criteria for identifying wastes. California and Wisconsin go even further; they have an extra-special category called Extremely Hazardous Wastes, and these demand special treatment by virtue of their definition, toxicity and so forth. Washington is unique in that their legislation says that this kind of hazardous waste has to be put in a specific place, on federal property, at the Hanford Reservation in Washington. It can't go anywhere else and their administrators have to work out a way to get it there.

Now, in the area of transportation and the regulation of the manifest systems, we have a number of states that have enacted legislation which in some way regulates the transport of hazardous waste in, out, or through the state. We even have the instance of local subdivisions, like the City of Nashville, which have banned the transport of hazardous waste. Now I think that this is really counterproductive and is probably being counteracted by DOT's regulations, which in effect preempt all local subdivisions, even states, from prohibiting or regulating the transport of hazardous waste in their jurisdictions. The State of Connecticut has set standards for transporters to follow in case of an accidental spill, and Minnesota requires placard markings on vehicles that contain hazardous waste. Some states leave this regulatory discretion to their departments of transportation, while others require fees or liability insurance of transporters before they permit the hauling of hazardous waste in their jurisdictions. We see that at least 17 states have passed legislation either instructing their state agencies to promulgate regulations establishing these manifest systems or actually setting specific standards and criteria for the manifest within the law itself. Some states, at least 10, have laws specifying that containers carrying hazardous waste be properly labeled, stating their contents, so that if there is a spill we know exactly what it is. New York requires all carriers to classify, package, and label all hazardous waste to be transported.

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In the areas of recycling and resource recovery, few states mandate other than Arkansas, California, Mississippi, and Oklahoma. This has to be done; it is not an option.

The cost to state, federal, and local governments for proper management of hazardous waste is going to be a major burden. They'll not just be the costs of emergency response, clean-up, and containment of abandoned or inactive waste disposal sites, but in fact the whole range of waste management activities will have to be paid for. How do you fund that kind of expense? Some states have dealt with specific problems through specific legislative appropriations. Other states have their own funding mechanisms. California and Maryland levy funds for the management of the hazardous waste programs on certain generators, and at least five states have established more than one type of fund to cope with the problems of emergency response, site reclamation, and perpetual care. There are different ways to provide sources for these funds. In some cases a fee or assessment is made on the owner or operator of disposal facilities. Other states have funds generated from penalties imposed on those who are responsible for the spills themselves. Kansas assesses a fee on licensees operating the hazardous waste storage areas. Some states get it from forfeited surety bonds. There is a whole range of creative approaches to where they get the funds and how they are expended.

Now, to the use of study commissions or policy bodies. I don't think that many states really come to grips with the problems associated with hazardous waste management by authorizing the formation of so-called advisory groups to make recommendations to the legislature. That is one way to do it. But really, in the state of urgency and immediacy that we find in hazardous waste problems, these kinds of dilatory approaches are not very helpful. At least eight states have authorized various studies to examine current waste disposal techniques, transportation techniques, siting procedures and other waste management problems. Sixteen states have set up advisory bodies to help determine the extent of the hazardous waste question within their jurisdiction. That just gives you an indication of what the states are doing.

What, then, is really the heart of this whole matter? I firmly believe that the linch pin of the whole hazardous waste management problem is how you decide which authority determines what facility goes where. That is the primary question involved here. It is the most difficult obstacle to achieving successful management of hazardous waste and it is also the most difficult issue facing the states. You have to resolve the conflict in the siting question between the need for facilities on the one hand and the public's opposition to what they perceive as a nearby danger on the other. RCRA is not much help to the states on this issue of siting. It is a state's responsibility to decide between the authorities at the county/municipal level versus the state level on where and how to site.

In fact, RCRA is actually silent on the whole question of siting. It doesn't tell a state how to do it; it just tells them to get it done. If you look at the historical approach that states have used, two facts dominate. The law authorizes a state agency, usually the Health Department or some Division of Environmental Quality, to establish siting standards for the facilities. Second, they depend on the private sector to make the application and

conform its application to the standards established by that agency. Then the agency can either grant or deny the permit based on a case-by-case basis. Some agencies are given an overall comprehensive planning responsibility as well as the permit responsibility. It is not an easy job. In the past you did get some facilities approved, but very few have been approved in the last five or six years.

It is a tough job for the agencies that are faced with the traditional approach of establishing the standards and letting the private sector applicants come forth and try to work it out. The problem is that you have opposition from the local subdivisions that also have their prerogatives of zoning and control within the community through its own ordinances and authority. The veto by the county and municipality (the locals) just has not worked and it can't work. Why can't the local veto be allowed in any overall state siting approach? You have to first understand that the main function of the hazardous waste program is to get the necessary facilities on line in an expeditious manner so that the wastes are taken care of as they are generated. It is not hard to see why the veto won't work. First of all, consider the nature of the facility itself. The hazardous waste facility is a different kind of industrial facility. This is not an attractive facility that localities compete for. A hazardous waste facility is more like a prison. I think that it is really preposterous for us to analyze the working of the local veto and assume that in a state of 99 counties the counties, acting individually and in their self-interest, will accept in a simultaneous manner a plan or series of decisions that are going to be in the state's overall interest, but not their own.

There is more at work here than a consideration of the state's needs. You have political forces at work which are more parochial and more pragmatic. In other words, the political process at the local level cannot be reasonably expected to approve or to concur with the siting of a hazardous waste facility within its jurisdiction. I'm going to make that a categorical statement. The private sector has everything stacked against it if it's going to make an application through the traditional system of permit granting that operates in most of the country today. You have to look at the political process and the elected officials at the local level, because this is where the siting question is ultimately dealt with. The local governments have the zoning power and, if the zoning does not change to permit this kind of facility, it won't be sited. If the zoning does presently permit that kind of industrial use, they can always change it to exclude that kind of use. So, you have to deal ultimately with the elected officials who have the power to approve or disapprove that facility. The county executive is not going to say "sure, put it here," because that person wants to get re-elected. You cannot politically afford to say that. Because if you come to that conclusion you can be sure that your county councilors or county commissioners are going to veto your approval, because they are running for reelection. There is no way that they are going to justify that to their voters. In the final analysis every elected official has one main duty: to anticipate and respond to the perversity and uncertain ways of human beings, i.e. the voters. If they don't, they are forced out of their profession. You don't want to be right about the facility in the state sense and wrong about it in the local sense.

Underlying all the public opinion that elected officials are supposedly responding to is the ultimate question of the people's voice in the political process through the referendum initiative. They have that right to put it on the ballot in the county. Referenda are the final word. If the chief executive says "I'll take it," and the county council approves, somebody is going to put that on the ballot. The phrasing of the referendum is important. It will likely be worded very negatively.

That is the reality of the process of siting in 1980 America. It is all based on public opinion and how the public perceives these facilities. Now, the public has good reason, not only because of the phrasing and the way it is going to be campaigned for by the opponents of the facility, but in a major part based on the poor management practices and experiences in the industry that are now coming to light across the country. Combine that with the innate fear of the substances and their capabilities for producing environmental risks. They want no risk and no risk is not a promisable item. And on top of this you have a fairly low belief that there are technical solutions to the confinement of these wastes. On the other hand you have a high regard for property values. The bottom line in all this is that people today feel that there are really few benefits to be derived from having the facility sited in a community. There might be a modest number of jobs or a small increase in the tax base, but you'll have risks and many years of uncertainty regarding whether that facility will be kept safe. Then you have the politicization of all these fears and uncertainties in the public anyway, highly fanned by politicians, or by opponents who want to take those politicians' seats at the the next election. You have community organizers for whom the issue at stake doesn't really matter. This is an opportunity for political recognition and political advancement within the community. I am not talking about political office. Then you have what I call anti-business idealogues; people who can't be convinced of the necessity of the facility because it has an attachment with corruption and big business insensitivity and capitalist intrigue. They have highly philosophical motives involved, and not just those of the community.

That's the problem as I see it with why the veto won't work. The bottom line is that if the subdivision can say no, it won't work. It won't work because the political process won't allow it to work. There is just no way that responsible and survival-interested politicians will let it work, even if the referendum doesn't come about.

Now, how have states started to approach this problem? This is the interesting part. I'm going to cite some examples of how some states have handled the siting question. These developments have all taken place in the last three or four years. I'm going to rank them from worst to best. The first worst, or last best, is Massachusetts. They've done it all wrong every which way. First of all, they established in their law a study commission to investigate siting procedures. In the meantime, the Department (the relevant agency) is told to license facilities. This is while the study commission is still coming to grips with the process for the purpose of making recommendations. Also, the local health department must affirmatively approve the site. Not much chance of anything happening there. First of all, everybody knows that the final siting procedure is yet to be determined.

Kentucky is a little bit better. They told their Department to license, but then they say that the local governments have complete discretion to approve or disapprove. They state that right out front. In Louisiana the Department licenses, but no application can be approved "if the parish or municipal land use or zoning ordinance would be violated." Now that may be a little better because it may be the case that there is not a zoning prohibition of the facility in that parish. And it might just happen that enough of the people who sit on the parish board of supervisors don't pass something to prohibit it. Then we have Oklahoma. The Department again issues permits but there are no further provisions. This means that the traditional prerogative of zoning must still be in effect, because they didn't say expressly in the legislation what happens after permit approval by the Department. This is the case for a number of states. The implication is that if they did not supercede it with express language, the local zoning ordinance must still hold.

The state of North Carolina has a task force to study the need for siting legislation. Well, I think we all know there is a need. Then they say that local government must be involved in the siting of new facilities. Not much direction, but it is still better than some of those mentioned above. In Maine, the Department submits its plan on a number of potential locations to the governor and the legislature, and they ultimately decide where to site the facility. That's a bad situation. You don't want to give the legislature a list to choose from. The facility would not likely be sited in the districts of majority party members, committee chairmen, the president of the Senate, or the Speaker of the House.

In Arizona they have done it a bit differently. They actually let the Department make the site selection and then the Legislature approves or disapproves. They have to say yes or no to one particular site. In New York there is a siting board. Now this is a big change. The siting board is something whose time has come. The siting board is an independent group that is appointed to do nothing else but make siting decisions. What they are designed to do is take the place of local government in that function. In New York the siting board issues a "Certificate of Environmental Safety and Public Necessity." The composition of the board is important. The New York board is composed of 5 state department heads and 3 ad hoc appointed members, 2 being from the judicial district of the proposed site. So, you have 5 government types who obviously are answerable to the governor who appoints them, and 3 locals. But after all these good intentions, New York fails in the end, and says that approval cannot be contrary to local zoning. Connecticut has just passed a bill on the subject. They also have the board that issues the certificate. But this is the interesting thing: local zoning can restrict the location, but the board can overrule local zoning by a two-thirds majority vote. The main question then involves the make-up of the board. The bill states that the composition of the board will be determined by a legislative study commission by 1981. Michigan also has the board that approves the site. Their board is composed of 5 permanent members: 3 from the departments in the state, a geologist and a chemical engineer. Then there are 4 temporary members, two to be appointed by the county affected by the facility in question and 2 to be appointed by the municipality. So now you have a 5 to 4 situation, but still you have the 3 state people and you have the 4 locals who will band together. So essentially the two scientists are the swing votes.

The best, I think, is the State of Maryland. We've been able to learn from the experiences, mistakes and shortcomings of our sister states. The bill that passed even went through with the support of the Association of Counties. We have used the board concept, and the board is composed of 2 scientists, 2 from the general public, 1 from a list of nominations provided by the Association of Counties, 1 from a list of nominations from the municipalities, and 1 from a list provided by the Chamber of Commerce. First of all note that there is no state official, elected or appointed, on the board; it is politically insulated. It is really an independent group. Local ordinances are superceded by the decisions of the board. There are other important things to note. The Department is told to create and compile an inventory of sites within the state. This is to be done irrespective of private sector applications. Also, there is a state agency called the Maryland Environmental Service. It is not a regulator; it's a quasi-independent group that is able to do what the private sector does as an applicant under the same requirements and standards. This becomes our backup to a paucity of applicants from the private sector. The Board can order the Maryland Environmental Service to make an application for a site. That is very important because when you have to move, when you need 50-120 landfills in the next 5 years nationally, you can't wait while people struggle with all the legislative and political problems. This is the vehicle to get the job done; a state applicant that does not have conflicting responsibilities of regulation or promotion can be ordered, by the board, to make an application in those circumstances.

The trick to the Maryland-type approach is selling it to the locals. The first thing to do is bring in your most likely opponents, the counties, and make them proponents. How do you do that? First there is the high road; you can appeal to their reason. You explain that the political process just won't work if the locals have veto power: "Our industry is backing up here and if we don't have sites soon the factories in your area are going to close." That will have an impact on jobs, the economy and the health of the state. It is an economic issue. Also, environmentally, if we let this thing continue with local veto power there are going to be abandoned sites, poor sites, dumping, and all kinds of illegal handling of this material. The environmental risks to the citizens are going to be immense.

Then there is the middle road. You point out to the counties that they don't need the political pressures involved in approving or disapproving the zoning for sites. "We'll take that pressure off of you. You also don't need all the time-consuming and detailed work at the county level to process applications and conduct hearings. You can also use this state preemption to transfer the blame."

Finally there is the low road. Point out that federal law is soon coming out. "Trends among the states are clear now. We have to preempt. We don't have time. This is an emergency situation. If I were you I'd support this bill now before it's too late. Because now, by supporting it, we can make some concessions to you, the locals. Two years from now we won't be able to make concessions. There is no way that you will be able to get a better deal in the future. Here are some of the things we will do. We'll talk about your local representation on our siting board. We will guarantee consultation throughout all approval processes. We will insure that there will be regional distribution of sites on an equitable basis. We'll let you tell us what your

best candidate sites are and we will compile the inventory and give preference to your candidate sites. We will guarantee you an absolute right of inspection and monitoring at all times without prior permission from the state. We will also allow you to challenge any decision of the Siting Board in the court; not in any court but in the court of the jurisdiction where the proposed site rests." In Maryland the locals chose to go along with the bill, with the concession. The counties were extremely responsive.

Let me mention several of the related legislative concerns here. I think that this will highlight some of the advantages of the siting board. The most important thing is to keep the board's membership as isolated from the political process as you can. You do not want to defer the decision to any body that contains elected officials. This approach will avoid possible intimidation and retribution by the voters to those who gain their position through the political process. Also you might wind up with the tenth best site technically as being the first best site politically. I don't think that's fair to the people who live in that community.

I think that we should also consider the case in which you have a reluctant applicant from the private sector. The experiences of the past could easily discourage potential applicants. That's why I think that you need a state agency as a back-up applicant. In the case where there is no private sector applicant this provision gives you an alternative in the event of an emergency situation.

Who should be the affected parties in these kinds of siting hearings? Well obviously the host jurisdiction is a party. But you also have to consider corridor jurisdictions. Counties in the transportation routes have a right to be recognized in the process. Also those counties who are environmentally "down stream," either hydrologically or in the air, ought to be heard in the proceedings. The Maryland bill also considers the very considerable impact of denying a facility on the generators of waste. Shouldn't the generators in the state have the right to appeal a negative decision of the Board?

I think we will have to consider the problem of a lack of sites being available. A scarcity in the technical sense, maybe, but more so in a political sense. Every time a siting board is going to make an affirmative decision it is going to be a wrenching situation. It must go through a very time-consuming fight with communities involved and their political leaders at the state or local level. So you have to expend a considerable amount of political muscle and mileage in getting any one site approved. And that's why you have a scarcity in a political sense of sites available in the state; because of the political expense of getting those approved.

So, what do you have to do? I think that on the one hand you have to minimize, if possible, the number of sites that you need within the state. That is why your plan must insist on recycling, neutralization, incineration and other measures that compact and compress the waste, thereby reducing the number of facilities needed. This move is more for political than for technical reasons.

Regionalism is also a factor that we must consider. We need legislation to recognize and encourage the legality and wisdom of agreements with our sister states. This is particularly relevant in Iowa where you might not have enough of certain kinds of waste generated that would substantiate, in economic terms, a site in the state. You'll have to recognize that possibility in the law. I am also very much interested in co-location of sites. I think that in many cases low-level nuclear waste sites can be located, not in the same trench, but in the same general area.

Overall, there exists what I call a "weak link dynamic." Facilities will tend to gravitate to areas that are easiest to get into in a political sense or easiest to get into with respect to the requirements or criteria that are set by regulations. On the other hand you want to beware of another development that I call the "squeeze play"; that is, when you do get a site, it discriminates against waste coming from outside the state or outside the county. This kind of insularity and protectionism will not work well.

Finally, let's look at some other considerations. I think that there is a definite need for federal siting legislation. One approach is to mandate a siting procedure for states. A minimum requirement in this case would be the preemption of the local veto. Second, you can take the approach that some of the proposed legislation in the area of low-level nuclear waste has taken today in the Congress, and that is that a state must provide for the disposal of its own generated waste within its own boundaries or in agreements with other states. I think that this kind of approach will actually help states do what they should already be doing. It helps them bite the bullet politically with the locals in enacting the kinds of laws that are needed. You need that push from up high, and then you can say that it is not we that are preempting you, the federal government made us do it. The other part of the point is that if the federal government doesn't do anything, but is only thinking about it, the states will be hesitant to enact any law until they are sure of the federal government's position.

On the topic of public participation in the process of siting, I believe that you can reduce opposition, but you can't eliminate it. You can bring credibility to the decision-making process, but not necessarily to the result of that process. If people are convinced that the siting board considered their complaints, comments and objections, and that they really came to an honest conclusion, they may more readily accept the decision. So you have to set up a procedure, and I think that insulation from the political process is the way to go. It gives the image of allocating the misery of the facilities on an equitable basis, and it is allocation of misery that we are dealing with. That is not a very popular duty. But if the people feel that the state is really going to do the job, with tough criteria for establishing the facility, as well as tough standards and enforcement procedures in keeping it operating adequately and safely, you mute some of the opposition. On the other hand, by introducing public participation into the process you don't want to "due process" the decision to death. This is a potential problem. The best that you can do with public participation and the prospect of public acceptance is to discourage or to remedy only the most blatant defect or shortcomings of the applicant's proposal.

The bottom line in all of this is that, if the applicants and the siting board cannot guarantee "no risks", there is no reason for people to believe that those affected in the community will be reasonable. There will be emotion and passion, but not reason. We cannot rely on public acceptance; it will never be there. You will have to use the hammer and come down and say that we've done the best that we can and it cannot be done any better, but the risks are acceptable risks.

SITING DISCUSSION GROUP: SUMMARY AND RECOMMENDATIONS

Graham Tobin*

General Assessment

The resolutions formulated by the siting discussion group were supported by the majority of those present, although different viewpoints were aired on each topic. Since the group included persons from various backgrounds, including public works and plant engineers, generators, legislators, civil defense workers, academics and representatives from voluntary organizations, it was not really surprising that quite frequently a long and wide-ranging debate ensued on particular details. However, despite the variety of interests represented, there was a very strong feeling that something should be done as soon as possible regarding site selection in hazardous waste management. It was the consensus of the group that in order to develop a successful management program, new and progressive legislation would be essential. It is interesting to note that all the points outlined were supported by all factions within the group.

It was the charge of the group to examine many of the wider issues associated with site selection in hazardous waste management, and it was only after fairly lengthy discussion that certain ideas were formulated and an agreement reached. A review of this discussion, therefore, illustrates the decision-making processes of the group and hence the reasons for adopting the final strategy described above. The limitations of the group, especially in terms of technical expertise, were recognized from the outset. But it was still felt that such a broad-based group could make a valuable contribution to the debate on future policies.

Summary of Recommendations

The group suggested that, given the serious limitations of current legislation, significant amendments are required in Iowa (see Senate File 205, Section 59, Acquisition and Lease of Sites). It recommended further that an investigation should be made immediately into the state-of-the-art of siting techniques, including those plans and procedures already adopted in other states. Particular attention, it was felt, should be devoted to the following two concepts:

1. The establishment of a non-elected siting board which would incorporate not only scientists and technically qualified personnel, but also representatives of the generators and environmentalists.

2. The creation of a state-operated agency, independent of the present regulatory system, which would provide for the treatment, storage and disposal of hazardous wastes. This would be a self-financing organization and would be provided only wherever or whenever the private sector was unwilling or unable to supply such services.

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In addition to these general principles, it was suggested that more detailed consideration be given to the following factors before any site selection process is adopted:

1. Long-term planning. Long-term planning was viewed as essential in effective waste management. Within this, an assessment should be made of long-term land uses, potential land-use changes and future requirements. Some evaluation should also be made of the needs of the generators.

2. Public involvement and education. Public involvement and education was considered an important element to the success of hazardous waste management schemes. Public involvement should be encouraged at all levels, whilst attempts should be made to broaden the public outlook.

3. Safeguards. Safeguards should be automatically enforced and there should be contingency plans to account for any emergency. Full record-keeping, local monitoring of wastes and public availability of records should be mandatory.

4. Economic criteria. Economic factors should be examined to assess the economic feasibility of any site; this should take into account the long-term liability of the company and local compensation payments.

5. Locational criteria. The selection of locations which minimize aggregate distance between generators and points of handling and disposal was considered important, but not an overriding factor.

Topics of Discussion

The group was initially concerned with three main questions of site selection:

1. What types of facilities should be sited?

2. Where should these facilities be located?

3. Who should be responsible for ultimate site selection?

What Types of Facilities Should Be Sited? It was recognized that hazardous waste facilities cannot simply be grouped together and discussed as one issue. Each facility serves a different purpose and thus presents different environmental problems. For instance, hazardous materials can be handled in various ways depending on their physical characteristics and chemical constituents. They may be treated to reduce the toxicity and/or volume, disposed of (e.g., underground) or stored for long-term periods. This was considered to be a most important aspect of hazardous waste management, but it was felt that certain aspects could be resolved only by a site-specific scientific survey. However, to a large extent much of the discussion focused on a long-term planning strategy towards hazardous waste management.

Where Should Hazardous Waste Facilities Be Sited? Quite clearly this is the most important and hence the most controversial of all hazardous waste issues. The group was unanimous in its conclusion that additional sites will soon be required. But there was also a general recognition that few would actually want one in their own neighborhood or vicinity. For the most part, however, these questions were not resolved, primarily because the very site-specific nature of such an undertaking was beyond the scope of the discussion. However, there was a consensus that technical feasibility and site suitability should be overriding factors in ultimate site selection. Thus, the final decision-making process should be contingent upon detailed scientific study.

Who Should Be Responsible for Ultimate Site Selection? In any siting problem a final decision must be made as to where the facility should be located. It was to this issue that the group almost exclusively devoted its attention. In conjunction with this, the discussion centered on further considerations, beyond technical ones, which should be incorporated in site selection decision-making. This decision was the original seeding ground for the final resolutions. The rest of the report describes in detail the resolutions which were agreed upon by the siting discussion group.

Siting Authority

Resolution #1 A non-elected siting board should be authorized to conduct formal environmental review of all siting permit applications.

One of the prime concerns of the group was how a final decision could be reached in site selection given the vested authority under present Iowa law. There appear to be several significant factors which work against final site selection which are not accounted for in current legislation. First, the bad publicity which hazardous waste sites have recently received by the news media has motivated public opinion against these facilities. Quite clearly, such events as those associated with Love Canal or the "valley of the drums", or chemical spills associated with train derailments (leading to the evacuation of whole communities) have had a detrimental effect on the hazardous waste siting process. Public disenchantment geared to inherent fears of inadequate safety precautions is a major issue at present. A second factor working against final site selection is the elected public official. Any local official elected by the populace will naturally attempt to support the views of the electorate, and can be expected to campaign vigorously against any proposed hazardous waste project within his jurisdiction. If the official does not, his reelection may be affected. Thus, there is a need for a higher level of decision-making; an authority which is apolitical and not aligned with other vested interests.

The group was sympathetic to persons on all sides of the issue, but was also of the opinion that a decision would have to be made, no matter how unpopular. It was agreed that hazardous waste sites would have to be located in the state at some time. The current projection for toxic waste generation

in Iowa is nearly 600,000 tons for the year 1980 (EPA estimate). While this is nowhere near the figure for some states (e.g., the New Jersey estimate is 6,000,000 tons), it is beginning to pose a sizable problem. In addition, two of the four hazardous waste disposal sites in the Midwest (three in Missouri, one in Kansas) to which large quantities of Iowa waste are transferred will be closed for failure to comply with EPA standards. It was generally agreed, therefore, that Iowa would soon have to face the problem of mounting waste or locate a safe disposal site. It was felt that a site should be located in the near future to avoid indiscriminate dumping, as has occurred in the past.

A solution to this problem, as perceived by the group, was the formation of a site selection board which would have the power to override the local government regulations. This board was envisaged as a permanent feature consisting of only non-elected officials (possibly appointed by the Governor) selected from a variety of fields. It was suggested that such a board should be composed of permanent, technically qualified scientists and temporary lay members representing the views of each local community under investigation. In this way the problem facing local elected officials would be minimized and a final decision would rest with the board. While this may still not be entirely satisfactory, given that non-elected persons would be involved in important decision-making, it was considered to be an improvement over the present situation. The group stressed that the actual makeup and authority of this board should not be finalized until some assessmesnt had been made of similar boards operating in other states. The group proposed that a full research program be implemented to study the state-of-the-art of hazardous waste management siting review and permitting, and suggested that particular attention be devoted to those schemes already operating in such states as Michigan and Maryland.

State Ownership and Operation

Resolution #2 The state should consider enacting legislation to create an autonomous agency to operate state-owned sites in the event that the private sector is unable to provide hazardous waste management services.

This resolution was introduced because it was felt that hazardous waste sites must be located in Iowa. It was the general consensus of the group that Iowa would, sooner or later, have to face up to its own waste problems. It was further recognized that the need for in-state disposal capacity may be accelerated by the growing isolationism exhibited by states which are currently accepting hazardous waste shipments from Iowa.

Certainly, the first resolution, if implemented, would overcome a major siting problem and in particular would give greater scope to companies trying to locate sites in the state. Companies in the past have had severe problems finding new sites in many parts of the country. However, even the proposed structural change in the decision-making process does not guarantee that a site will be available to generators. It is quite feasible that private companies will find it uneconomic to locate in Iowa or, alternatively, refuse to handle types of waste generated in the state.

Resolution 2 seeks to address this possibility. It suggests that action be taken by the state if the private sector is unable to provide such services, for whatever reason. Inherent in this statement is the firm belief that a hazardous waste site must be available in the state--an argument supported by nearly all those present at the meeting. The only viable alternative to the private sector would appear to be state intervention. However, it was recommended that the agency should be self-supported, through charges for collection, treatment, storage and disposal of hazardous wastes.

Additional Siting Considerations

Resolutions 1 and 2 were considered to be of direct importance to the establishment of an effective siting program in Iowa. A number of additional issues were discussed in terms of their potential effects on the functioning of the siting process. As opposed to the issues addressed in Resolutions 1 and 2, these topics were considered to be of either lesser or indirect importance. Taken together, however, they could have a significant impact upon the success of the siting program. The following resolutions, which resulted from the discussion of these issues, will be listed in descending order according to the priority assigned by the group. It should be remembered that the technical feasibility of the site was still considered to be the overriding concern in the site selection process.

Long-Term Planning

Resolution #3 Long-run compatibility between hazardous waste facilities and area land use must be ensured.

Long-term planning with respect to hazardous waste was regarded as essential by the majority if an effective waste management program is to be developed. Clearly, certain hazardous wastes could present very long-term problems. It was recommended, therefore, that an assessment be made of current land uses, long-term plans and potential land-use changes, and that these should be investigated before any finalized siting decisions are made. This would avoid locating sites in possibly sensitive districts, or areas where potential future conflicts exist. In other words, a hazardous waste program should be so formulated that it is cognizant of longer term state or local plans.

It was further proposed that a long-term plan be developed for the site itself, giving consideration to its life cycle and the ultimate use of the property. This issue was stressed by many, with the Love Canal incident cited on several occasions. Long-term planning was seen as a way to prevent similar problems from developing in the future. Finally, it was agreed that a forecast should be made of the demands for hazardous waste sites in Iowa. Information on the quantity and quality of wastes generated, as well as future trends, would be invaluable to long-term planning. This information is not readily available at present, although it has been mandated and should be available from January 1980.

Public Involvement and Education

Resolution #4 A program to disseminate information to citizens regarding hazardous waste technology and state and federal regulations/plans in these areas should be established.

Public involvement and education was high on the list of prime concerns for the site selection of hazardous waste facilities. It was believed by many, notably the generators, that sites would be more acceptable to the public if a more accurate image of the industry was created. Education was seen as playing a key role here in broadening the public outlook on the safety and reliability of such facilities. A new public relations program, or concerted effort by the hazardous waste companies, was called for to offset the attention devoted by the news media to some of the recent less favorable events. This view was not supported by all members of the group. A further suggestion, which was not fully discussed, proposed the intervention of an "Environmental Mediation Group", something along the lines of a third party to bring the two sides together. These have been used with some success in Wisconsin, Boston, Minneapolis, New York City, and Washington, D.C.

As far as public involvement in the decision-making process is concerned, once again there was very strong support. To a certain extent, this was covered in the first resolution, but the group also envisaged getting more of the local community involved from the very beginning. Public awareness was completely absent in Wilsonville, Illinois. Its absence has been cited as a prime reason for the subsequent closure of that facility.

Safeguards

Resolution #5 Comprehensive record-keeping, monitoring and emergency response procedures should be prepared.

While technical aspects were not regarded within this group's brief, the relative safety of hazardous waste facility sites did warrant attention. As a result, several recommendations were suggested to guarantee high standards in terms of safety precautions to satisfy the demands of local communities. For example, mandating comprehensive record-keeping of all waste materials was strongly recommended, so that there would be no future problems of knowing where different wastes were stored. To assist such regulations, it was felt that proper labeling was necessary, not only of those materials at these facilities, but also for toxic wastes in transit. Many thought that these records should be open to the public and a few supported the concept of a "community overview committee" to act as a local watch-dog organization. Constant monitoring and sampling of wastes was considered desirable, while some felt that local water supplies and community health should also be monitored. Finally, strict safety procedures should be introduced and equipment made available for emergency services. In general, therefore,

safety aspects were regarded as technical problems. But it was felt that the local communities should be given these additional safeguards. This aspect was considered in greater detail by the group discussing local impacts of hazardous waste sites.

Economic Criteria

Resolution #6 Both a fund to guarantee long-term financial liability and a plan to compensate local communities should be established.

Economic factors were considered by some members of the groups to be a significant issue. Suggestions were made that unless sites were selected in Iowa which had a high benefit-to-cost ratio, then companies would probably not locate in the state. However, this issue is resolved if Resolution 2 is accepted, since government authorities would undertake responsibility to provide a site.

Other aspects of economics were regarded in greater detail. There was, for instance, support to make individual waste companies financially responsible for their undertakings over a long period. This long-term liability plan would then be supported by a special fund to guard against bankruptcy of such companies. It was also proposed that compensation to the local community be accepted as part of the siting (front end) costs of these facilities.

A more contrived form of "community compensation" was suggested, but it could be argued that this takes the form of a financial inducement rather than compensation in the true sense. For example, toxic waste facilities could be taxed at a given rate (such as a percentage of revenue or volume of waste) and the money would go to the local county. In this way counties may actually compete for hazardous waste facilities, given that the inherent fears associated with such sites could be eliminated. A recent case shows that North Andover (Massachusetts) underbid six other communities for the rights to such a facility. However, the group did not discuss this aspect fully.

Locational Criteria

Resolution #7 Accessibility, in both an aggregate and narrow sense, should be considered in the site selection process.

The locational factor was the final aspect considered by the group, and although this was not actively supported by a majority of the group, very few actually condemned this as being unimportant. Certainly, these aspects were more site specific than previous factors, but several thought that detailed studies should be made of:

1. distance of proposed sites from the points of generation/urban areas;

2. distances from the other disposal sites; and

3. accessibility of the site to highway and railway linkages.

These would seem to be important aspects in specific site selection and in the comparison of different potential sites. However, the previous factors were all given a higher priority than these locational criteria.

Conclusion

The group discussing site selection in hazardous waste management had a long and wide-ranging debate. It was from this debate that the written resolutions were formulated. It was perhaps interesting that all factions of the group supported the call for a hazardous waste facility to be located in Iowa. However, few considered this even remotely possible under present legislation. It was for this reason that the first two proposals were made. Following this decision, some broader aspects of siting were discussed. This led to the formation of Resolutions 3 through 7. A call for further research was unanimous, and it was hoped that at least some of the recommendations would be acted upon before Iowa faces serious environmental problems from indiscriminate dumping of hazardous wastes.

LEGISLATION DISCUSSION GROUP: SUMMARY AND RECOMMENDATIONS

Patt Cain*

Composition of the Group

The legislation group was the largest of the discussion groups. Approximately thirty-five persons attended the session on Friday and attendance on Saturday numbered in the high twenties. The group included several state legislators, staff members of state and local public agencies, representatives of several of Iowa's largest industries and utilities, and interested citizens.

General Assessment

The title "legislation" does not adequately represent the nature of the topic to which this group was assigned. The group was asked to consider, among other things, the amount of centralization or decentralization appropriate for administering the various functions of a hazardous waste program in Iowa. Because the Environmental Protection Agency (EPA) had stated that authority for the siting of hazardous waste disposal facilities should be delegated to the states, discussion rapidly centered on this element of hazardous waste management, and on existing Iowa legislation that affected siting.

The group broadly construed its "legislation" title to include any policy or program that might require legislative approval. Thus, recommendations encompassed the specific (establishment of a siting board) as well as the general (public education) within the purview of the State.

Discussion within the group included contrasting viewpoints on most topics discussed, and although the recommendations adopted had clear and substantial majorities, the votes were not unanimous. Nor was there a consistent "minority" group (i.e., majority votes were accomplished through the fusion of interests of various groups and the composition of this fusion changed with the topic).

By the end of the allotted time, the group had adopted six resolutions, three which directly address the siting issue and three which address more general aspects of a hazardous waste management program. Each resolution and a brief discussion of considerations which led to it follow.

Site Selection and Review

Resolution #1 The State of Iowa should set up a process by which hazardous waste disposal sites can be established.

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*Ms. Cain is the administrative assistant for the Legislative Environmental Advisory Group (LEAG).

This was the first area of agreement among group participants, and only one person did not vote for the resolution. At this point in the discussion, the nature of the "process" was not defined and there was considerable disagreement about which sector (state or private) should identify a site, should be responsible for the adequacy of a site (assuming state and federal guidelines are met but later prove to be inadequate), and could reasonably be expected to obtain a site in light of almost universal citizen opposition.

The role of the Iowa Department of Environmental Quality (IDEQ) in finding disposal sites was discussed. There was some sentiment that IDEQ had a degree of responsibility in identifying potential sites or areas that would likely meet regulatory criteria, and should not take only the passive stance of waiting for the private sector to propose sites and then decide on their suitability. Existing legislation in Iowa was discussed, and it was pointed out that IDEQ's role at present was defined as strictly regulatory.

State Ownership

Resolution #2 The State has a responsibility to ensure that a waste disposal facility is established within Iowa. Preferably such sites would be provided by generators and private disposers, but, as a last resort, the State should establish a site and charge users to make the facility self-supporting.

Further discussion addressed the difficulties encountered in establishing a hazardous waste disposal site and the possible impacts if the private sector was unable to obtain a suitable site. Difficulties discussed included identifying areas with appropriate geological and hydrological characteristics and actually obtaining a site for use as a disposal facility in the likely circumstance of local public and political opposition. Several members felt that only a public body with the power of condemnation would be able to obtain a disposal site over local objections.

There was concern that large businesses in Iowa, if they are able to establish sites at all, might operate the facilities only for themselves and not be willing to take the responsibility for others' wastes. Thus, smaller businesses would presumably be at a disadvantage.

Some group members thought that the private sector--the waste generators--should be solely responsible for establishing and operating disposal sites and that the State should be involved only in regulatory activities. These members argued that rising transportation costs and disposal charges coupled with consistent direction from state and federal agencies would make establishing disposal sites more economical and more technically feasible for private businesses. Thus, generators should be relied on to perform the function of establishing and operating disposal sites in a hazardous waste management program.

Senate File 205, with its provision prohibiting state ownership and operation of a disposal facility, was discussed. Several members of the group cautioned against having the State as both the regulator and owner/operator of

a facility. Examples were given of arrangements in the past wherein various functions were performed and regulated by the same entity, and such arrangements had generally been discontinued. Further objections to state involvement in specifics of waste management concerned possible liability incurred by IDEQ for requiring certain sites or technologies which subsequently might prove to be inadequate.

Siting Board

Resolution #3 The State of Iowa should establish a "Hazardous Waste Disposal Siting Board" to select disposal sites within Iowa. This Board should include experts in hazardous waste disposal and representatives from local communities in which sites are proposed and should exclude elected officials. To be effective, this Board must be given the power to supercede local ordinances.

This resolution was adopted after participants had heard the presentation by Steven Sklar (NCSL). This approach to achieving hazardous waste siting decisions was seen by a majority of the group participants as an extension of Resolution #1 (calling for a "process") and as a practical procedure for answering many of the concerns expressed during the discussion of Resolution #2. As envisioned, the Hazardous Waste Disposal Siting Board would be insulated from the political process and would have the power to supercede local ordinances, a condition seen as necessary for establishing any facility at all. Although local communities would have representation on the siting board, decisions of the board were not considered subject to approval by local governments. The siting board would decide on applications from private parties (or possibly from a government agency); it would not be involved in the operation or regulation of facilities.

The group did not delineate the specific composition of the board, leaving that task for future study and consideration of what representation on the board would be most appropriate in Iowa.

Regional Coordination

Resolution #4 The State of Iowa should encourage and pursue a multistate approach in developing a hazardous waste management program.

The group discussed the advantages and disadvantages of multistate programs. The greater opportunities of finding geologically appropriate sites for waste disposal facilities and the possibilities of sharing different types of facilities were considered the main advantages of the regional approach. For example, one part of a region (or one state) may provide an incinerator, another part may be more suitable for hazardous chemical storage. From an economic standpoint, it was pointed out that providing the entire hazardous waste management techonology at the state level may not prove feasible. Economies of scale are likely to be involved in treatment, storage and disposal. Since Iowa is not one of the larger waste generating states, it may be necessary to "share" certain types of sites (e.g. incinerators) with other states.

A regional approach was not seen as a ruse for avoiding the siting of disposal facilities within Iowa, but was considered an environmentally sound method of ensuring that a range of hazardous waste disposal facilities and techniques would be available within the region to allow the most efficient and effective means of disposal for various kinds of waste. Some members suggested that federal laws could help encourage regional systems and that Iowa's congressional representatives could be asked to support such legislation.

Two areas of difficulty involved in a regional approach were mentioned. The first included political and administrative problems in establishing and implementing a regional network. Cooperative agreements were said to have been difficult to achieve in the past and difficult to administer once they were established. The second involved safety considerations in the transportation of hazardous wastes. To the extent that a regional system might entail increased waste transport, there would be greater risk of accidents.

The group voted to recommend a regional approach, at least as a long-range goal, with the implicit understanding based on previous discussion that the pursuit of regional coordination would not prevent Iowa from proceeding to expedite hazardous waste management within the state. Less than one-fourth of those present voted against this recommendation.

Economic Incentives

Resolution #5 The State of Iowa should encourage reduction of the amount of waste being produced in the state by providing economic incentives to reduce generation of hazardous waste and to promote recycling and re-use of all waste, hazardous and non-hazardous.

There was wide recognition within the discussion group that no "easy solutions" to hazardous waste disposal were available, and that preventing the accumulation of waste was much preferable to treatment or disposal. The nature and magnitude of the economic incentives were not discussed and could be interpreted to include both positive and negative "incentives," although during the discussion participants appeared to be thinking primarily of positive ones.

It was also pointed out that the hazardous waste regulations by themselves would act as a form of economic inducement, in that the added costs incurred in compliance would encourage reductions in waste generation and the use of non-hazardous substitutes.

Public Awareness

Resolution #6 The State of Iowa is urged to accept an obligation to increase public awareness of the relationship between the consumption of goods and services and the production of hazardous wastes and to conduct a public education and awareness program through relevant state agencies.

Group participants were concerned that hazardous waste had not been clearly linked to goods or product consumption in the minds of most citizens--each citizen, as a consumer, was seen to have some involvement in waste generation and, thus, should recognize some responsibility for waste disposal. In this resolution, as in the previous one, the group was looking to the State to provide leadership in devising programs to direct private decisions toward solving public problems.

To fund the education/awareness program, suggestions ranged from using available agency funds to appropriating additional funds specifically for an education program. No specific funding mechanism was recommended, however.

Conclusion

This discussion section included representatives of major groups involved in hazardous waste management--legislators, regulators, generators and citizens--and the conflicting and shared concerns of these groups were expressed. Yet the diversity of opinion did not prevent the formulation of recommendations, for although not always agreeing on specific details, all groups did agree that action should be taken in Iowa to control and handle disposal of hazardous wastes. And all recognized that no single "solution"--site, regulation or techonological innovation--would be equally acceptable to everyone.

TRANSPORTATION DISCUSSION GROUP: SUMMARY AND RECOMMENDATIONS

John Haugaard*

Composition of the Discussion Group

The Transportation Discussion Group attendance was limited, with approximately eight members at each session. The discussants represented a range of backgrounds that included state government (Iowa Senate and Iowa DOT), industry (a chemical company), research (University Hygienic Lab), as well as interested and concerned citizens from smaller communities in Iowa. The discussion leader was a member of the faculty of the Urban and Regional Planning Program, The University of Iowa.

General Assessment

The Transportation Discussion Group produced five resolutions. The topics that generated the most interest during the discussions concerned safety and assignment of responsibilities. The emphasis on these topics is reflected in four of the five resolutions. Clearly safety and responsibility are not problems related solely to transportation. The group recognized this, but believed that certain elements of the safety and responsibility issues applied in unique ways to the transportation of hazardous wastes. Transported hazardous wastes are, by definition, mobile and therefore the location or types of mishaps can vary widely. Plans for response to such mishaps must accommodate the special characteristics of transported hazardous wastes.

Data Collection

Resolution #1 More data must be collected to aid in addressing the following important questions:

1) What types of materials, and in what quantities, are transported in and through Iowa?

2) What are the sources and destinations of these materials?

The data collection activities called for in this resolution are prerequisites for a range of related considerations. For example, a sound and current data base is essential if a safe and efficient routing system for hazardous waste transporters is to be developed. Data concerning the highway and road system in Iowa, its quality, state of repair and other safety-related aspects is undoubtedly already maintained. Other data, particularly the generation source points within and outside of Iowa, and destinations will

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*Mr. Haugaard, who served as conference coordinator, is a research assistant in the University of Iowa's Institute of Urban and Regional Research. The efforts of Dr. Michael Sheehan of the Urban and Regional Planning Program, who served as discussion leader, are gratefully acknowledged.

have to be collected. As new sources are developed and as disposal and treatment facilities are sited, the data base must be updated and appropriate route changes made.

Data on types and quantities of materials transported in and through Iowa will have to be compiled. This data is particularly important in determining the appropriateness of routing shipments through or near populated areas. This type of data will also prove useful in planning emergency response procedures.

Routing Considerations

Resolution #2 Any routing system for transporting hazardous wastes should be subjected to careful benefit-cost analysis before implementation.

One of the most notable factors of hazardous waste transportation is the risk involved. The presence of risk of property damage, health effects, and loss of life force new considerations into the planning of a routing system. It is not sufficient to consider only source and destination and plan routes along the shortest path of adequate roads. It is necessary that levels of risk be estimated and applied to the analysis of potential routes.

The consideration of risk brings into view a problem that pervades the entire hazardous waste issue. What levels of estimated risk are acceptable? It is essential that this question be studied and some form of resolution reached before benefit-cost calculations can be realistically used. This question is not an easy one, but as more data becomes available on the effects of particular hazardous substances as well as methods for dealing with the effects, an answer may be within the grasp of policy makers.

Liability and Responsibility

Resolution #3 Liability during hazardous waste transporting should be clearly established, especially with respect to the carriers and generators. Once liability is established, responsible parties should be required to obtain appropriate levels of insurance or bonding.

If a mishap involving hazardous waste shipments should occur litigation would undoubtedly follow. If a clear allocation of responsibility and liability has been established and appropriate financial responsibility mandated, the process of settling claims will be a smoother, more efficient one.

Resolution #4 Road construction, maintenance, and emergency clean-up responsibility for a hazardous waste disposal or treatment site or transportation routes should be determined at the time the site or route is chosen. The responsibility among the generator, carrier, local community and state should be specifically determined.

The importance of a definite assignment of responsibility in these areas is particularly clear. The question that is a frequent topic of discussion concerns emergency clean-up responsibility. The response to a mishap involving hazardous wastes must be rapid and the processes involved in dealing with a mishap may be expensive. The clear assignment of responsibility and liability will facilitate a rapid response and sufficient funds to perform the job properly.

It is clear that the areas of responsibility and liability are key to consideration of the entire hazardous waste situation. A successful and satisfactory resolution of the questions involved will reduce much of the tension that topics of siting and transporting spawn.

Penalties

Resolution #5 A concerted effort must be made by the Legislature to establish penalties that are sufficient to deter violators, and support must be provided for the enforcement of the regulations. The courts must exert a like effort in enforcing the penalties.

The issue of penalties is one that applies to the entire subject of hazardous waste management. The need for sufficient and enforceable penalties is particularly important to the achievement of a safe and workable transportation system. Because of the need to insure safety, some of the designated routes may not be the shortest link between sources and destinations. If the penalties are minor or the enforcement lax there may be an incentive to violate the transportation regulations in the interest of cost savings. The possible social cost of a mishap would far exceed any reduction in private cost to a shipper.

The support mentioned in the Resolution must be given to the enforcement agencies. It would be a ludicrous exercise to develop a body of regulations and penalties but to withhold adequate wherewithal to enforce them.

ECONOMICS DISCUSSION GROUP: SUMMARY AND RECOMMENDATIONS

James B. Lindberg*

Composition of the Discussion Group

The discussion group concerned with Economics was of modest size on both Friday afternoon and Saturday morning, generally no more than 10-12 persons. It consisted of representatives from several medium-sized industries in the state of Iowa, a staff member of the Iowa Development Commission, several academic economists, a member of a county Board of Supervisors, and a member of the State Legislature. The moderator of the group was a member of the Geography faculty, The University of Iowa.

General Assessment

The group produced seven resolutions relating to economic issues in hazardous waste management. The seven are listed below. Obviously economics pervades most all questions dealing with hazardous waste and thus several of the resolutions deal with issues that were dealt with in other groups as well. No particular attempt was made to constrain the group discussion. However, several topics that were discussed were not developed into resolutions, partly because they were seen as falling more appropriately in another group.

There was surprising agreement on the topics discussed and the resolutions adopted. Most of the discussion time was devoted to clarification of the meaning of particular points and the rephrasing of resolutions. There was little or no disagreement on matters of substance and all resolutions were adopted unanimously.

This should not be taken as indicative of the lack of controversy in the state regarding the economic aspects of properly managing hazardous wastes. The persons did not represent all components of the state's economy. Few of the people were at top decision-making levels in their respective organizations. Moreover, the full implications of each recommendation could not have been known or fully discussed. It may be that further reflection and study would reveal some strongly divergent opinions. Yet, the absence of sharp disagreement may well be a signal that effective hazardous waste management legislation can be achieved without serious political controversy.

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* Dr. Lindberg, who served as the discussion leader, is Professor and Chairman of the Department of Geography at The University of Iowa.

Cost Internalization

Resolution #1 The costs of proper hazardous waste management should be borne by the generator of the waste.

This is perhaps the most significant resolution. It espouses the general philosophy that the costs of hazardous waste management should be borne by the waste generator with those costs recovered in the price of their product. This strategy is seen by many economists as the most effective and equitable way of handling hazardous waste costs. It is the users of those products, that by their production or manufacture result in the generation of hazardous materials, who bear the costs of proper management. Both generators and users, therefore, are under direct monetary incentives to utilize resources efficiently. This may involve a shift to the use of materials that generate less waste, and especially less hazardous waste. It undoubtedly means incentives to use efficient, low-cost procedures of waste handling.

The likely impact and acceptance of a policy of cost internalization depends in part on what costs are included. Many undoubtedly think only of "direct" costs; those costs directly and immediately associated with waste management practices. Less easy, perhaps, to incorporate and less often considered are a variety of indirect costs, ranging, for example, from the costs of decommissioning a treatment facility to the costs of enforcement. These costs are often difficult to assign to particular generators and have frequently been borne by the general public. The group had some discussion of this issue and was not unmindful of the difficulties of framing legislation or of fashioning administrative procedures to deal with other than direct costs. It was generally felt that details of implementation were beyond the scope of this particular forum, although several of the resolutions (see below) do address items of indirect cost.

Resolution #2 Wherever possible Iowa should use performance standards rather than design standards in regulations pertaining to hazardous waste management.

The use of performance standards is seen as a companion policy to the internalization of costs. It represents a general philosophy of placing the full responsibility for managing waste on the waste generator and allowing for flexibility in achieving desired goals. It is seen as being potentially less costly and cumbersome administratively.

It seems particularly necessary in hazardous waste management to use performance standards. Procedures that utilize design standards, or that specify "best available" technology would likely have a dampening effect on the development of new technologies and the incorporation of useful innovations. Much of hazardous waste technology is in its infancy and procedures that prove to be a disincentive to innovation are unwise.

State Initiatives

Although expressing stong support for a reliance on the private sector to achieve hazardous waste management goals and on the market mechanism to allocate the cost burden, the Economics discussion group adopted several resolutions that propose a significant governmental role. Perhaps this apparent contradiction arises not so much from inconsistency, but rather from the nature of the charge to the discussion groups. This charge was to develop a series of resolutions to be submitted to the Iowa Legislature. That seems to imply suggestions of things that government can do. There are three resolutions in this area.

Resolution #3 Iowa should encourage the private development of proper hazardous waste management facilities, including licensing of operators. In the absence of a private developer, the state should consider becoming the owner/operator of a hazardous waste facility. A state regulatory agency should not be the owner/operator.

Resolution #4 Iowa should initiate a program to identify small hazardous waste generators and to provide them with information, education, and coordination.

Resolution #5 The state should direct funds to Iowa's educational institutions for the purposes of undertaking an active research, technical assistance, and educational role in hazardous waste management.

The first of these resolutions recognizes that the absence of proper hazardous waste treatment facilities can undermine otherwise effective programs. It proposes that the state take steps to encourage private development of the needed facilities. These steps are mainly to insure that licensing and regulatory procedures are effective and non-cumbersome. The state should become a facility owner/operator only in the absence of private initiative. Some of this concern for the state of Iowa being ready to step in as a "facility provider of last resort" grew out of the awareness that an attitude of state autarky in managing hazardous waste is becoming stronger. Citizens of one state are reluctant to accept waste generated elsewhere. Because of its generally smaller volumes of hazardous waste materials, certain kinds of facilities may not be forthcoming from the private sector in Iowa. This point is addressed in the next section in Resolution #7.

Resolution #4 reflects the feeling expressed above that small waste generators may need some state help in the form of information and technical assistance in order to comply effectively with current or anticipated regulatory directives. Resolution #5 foresees a traditional state governmental role in education, research and technical development. The group felt that the three state universities should be given direct financial encouragement to undertake research and development activities in the hazardous waste management area. They felt that public institutions at all

levels--universities, community colleges, Department of Public Instruction--could perform a useful educational role; offering short courses for generators, or specialized training for enforcement officials, for example.

Interstate Cooperation

Resolution #6 The state of Iowa should work with other states and the E.P.A. to develop a classification of hazardous wastes by degree of hazard.

Resolution #7 The state should continue to explore possibilities for interstate agreements for purposes of making available more effective waste management technologies and achieving scale economies.

The intent in Resolution #6 is to seek state involvement, both individually and collectively in the speedy development of an effective system of categorizing waste materials by degree of hazard. The Environmental Protection Agency is in the process of developing such a system, but discussants felt its non-availability currently was impairing the development of effective procedures at the state level. A categorization by degree of hazard was seen as essential in the effective implementation of performance standards (see Resolution #2)

Resolution #7 proposes that neighboring states in the Midwest should seek interstate agreements in a variety of circumstances where joint activities would be beneficial. The group had in mind: joint operation of specialized treatment or handling facilities, agreements on transport of hazardous waste, reciprocal processing arrangements, sharing of technical information, and other kinds of arrangements where interstate cooperation would produce greater effectiveness and lower cost.

Regional disposal facilities established under interstate agreements would result in much-needed expansion of disposal capacity in the Midwest, which would dampen the economic pressures to dispose of hazardous materials illegally.

LOCAL IMPACTS DISCUSSION GROUP: SUMMARY AND RECOMMENDATIONS

James G. Strathman*

Composition of the Discussion Group

The discussion group concerned with local impacts from siting and operation of hazardous waste facilities consisted of approximately thirty people. A diverse range of backgrounds and interests were represented. For example, among those present were representatives from the Izaak Walton League, the Wapello County Board of Health, Free Environment, Proctor and Gamble, Inc., The University of Iowa Radiation Protection Office, Citizens United For Responsible Energy, the Iowa Public Interest Research Group and several city engineers responsible for solid waste disposal. These individuals comprised nearly half the attendance. The remainder represented those without direct experience in hazardous waste management, but who shared a common concern about the impact of hazardous waste facilities on the well-being of Iowa's communities.

General Assessment

Over the two day period of discussions four resolutions were agreed upon. Taken together, these resolutions reflect a concern regarding decisions made without local input having potentially severe local repercussions. This was exacerbated by a general perception of uncertainty pertaining to the actions of legislators, generators and regulators alike. One individual spoke of this feeling, stating: "No one here has told me that these facilities are 100% safe. Now I hear that there's legislation† in this state giving someone else the responsibility for possibly deciding my fate." Given that risks were involved, however small, the group believed that there was a need for continuing involvement of local representatives in insuring the safe siting and operation of hazardous waste facilities.

The group recognized the current dilemma in alternative formal siting review procedures. Local jurisdictions would best serve their interests by marshalling all available growth management authority in opposition to proposed hazardous waste facilities on the one hand. This would result in no new sites licensed within the state. On the other hand, allowing a state-level body to take responsibility for formal site review would ensure that needed capacity is brought on line. But these decisions, and their impacts, would then be removed from direct local accountability, which was considered to be essential.

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*Mr. Strathman, who served as a resource person to the discussion group, is a project coordinator in the University of Iowa's Institute of Urban and Regional Research.

†Senate File 205

The discussions and recommendations addressed the resolution of potential conflicts which the participants felt would be associated with siting hazardous waste facilities under the state's current legislated format. This entailed consideration of the composition of a siting authority which could redress the dilemma mentioned above. In addition, it was recognized that hazardous waste facilities might also pose fiscal, socioeconomic and institutional problems in the host communities. Consideration of how these factors might be formally incorporated within the siting process, and how they could best be resolved, was seen as a cornerstone in any effort to mitigate the adverse impacts of hazardous waste facilities on the host area.

In general, the group focused its attention on four topics:

1. The composition of a "siting board" which would guarantee representation of local interests.

2. The consideration of local impacts as a siting factor.

3. The establishment of a formal mechanism to mitigate adverse local impacts from construction and operation of hazardous waste facilities.

4. Monitoring and reporting requirements to host communities beyond those to be contained in the state program.

Formal Site Review

Resolution #1 Lead authority in siting review should be vested in a board which is directly representative of all affected interests.

The participants recognized the need for state-level siting authority in bringing needed hazardous waste treatment, storage and disposal capacity on line. It was pointed out, however, that while the authority vested in the Executive Council under current legislation would meet this end, the same concerns (i.e. significant political pressure) which would have worked to inhibit the decision making process at the local level might still come into play at the state level. Most people argued that public officials, elected or appointed, should not serve as "siting board" members.

In place of the current format, the participants recommended the establishment of a siting board with the same eminent domain authority vested in the Executive Council, composed of individuals representative of those interests potentially affected by siting decisions. These interests may include (but may not be limited to) the representaion of:

- the scientific community
- the general public
- the Iowa Chamber of Commerce Executives
- the Iowa Manufacturers Association

- the Iowa State Association of Counties
- the League of Iowa Municipalities
- the locale under consideration

The final interest mentioned was viewed as a "revolving" position, to be filled during the early site review period prior to formal application. The board would draw upon the resources of the state (e.g., IDEQ's assessment of environmental compatibility, among other factors) in making its decision.

Siting Criteria

Resolution #2 Formal siting review should consider the fiscal and socioeconomic effects of a hazardous waste facility on surrounding communities in addition to health and environmental effects.

The participants unanimously agreed that public health and environmental protection should be given overriding consideration in siting decisions. It was pointed out, however, that while a proposed site may be determined to be environmentally sound, it may also pose a disruptive threat to the socioeconomic functions of the area. If these disruptions were significant, it was felt, site approval should not be granted.

The consideration of socioeconomic impacts as a siting criterion has been seriously investigated only recently. For the most part, much of the attention has focused on effects related to power plant siting.* This is largely due to subsequent interpretations of the intent of the National Environmental Policy Act of 1969 (PL 91-190). NEPA requires the preparation of an environmental impact statement prior to any federal decision potentially affecting the environment (e.g., the granting of a discharge permit). The scope of review required under NEPA goes beyond the consideration of environmental impacts. For example, section 102(A) requires a "systematic, interdisciplinary approach (to) insure integrated use of the natural and social sciences... in planning or decision making."

Since it is anticipated that siting hazardous waste facilities will be a state level responsibility, NEPA requirements in the area of socioeconomic impacts need not apply. Some states (Iowa not included) have adopted legislation equivalent to NEPA, but most have not. Regardless of its applicability to Iowa in hazardous waste facility siting, the participants felt that the NEPA requirements pertaining to socioeconomic impacts should be adhered to.

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*Though a number of individuals have contributed to the study of socioeconomic impacts, the bulk of empirical research in this area is attributable to the Social Impact Assessments Group at the Oak Ridge National Laboratory and the Socioeconomic Analysis Section at the Tennessee Valley Authority.

The group suggested a multi-leveled format for the review of hazardous waste siting applications. The suggested procedure is composed of three steps:

I. Applications to the siting board should include assessment of several sites in terms of health and environmental criteria.

II. Among all sites which satisfy health and environmental criteria, an assessment of the relative socioeconomic impacts of each site should be conducted.

III. The final siting decision should be based upon compliance with health and environmental criteria and minimization of socioeconomic impacts.

The procedure outlined above clearly indicates the overriding importance placed on health and environmental considerations by the participants. Less clear, however, was a specification of decision-making criteria applicable to the assessment of socioeconomic impacts. Though it was agreed that these impacts should be assessed and minimized, no conclusions were reached regarding the case where such considerations may still not be acceptable (i.e. where socioeconomic impacts, though minimized among the list of environmentally acceptable candidate sites, are yet severe enough to warrant denial of the application). This possibility, and its suggested resolution, are addressed in Resolution #3.

Socioeconomic Impact Mitigation

Resolution #3 As a condition of formal site approval, the siting board may require payment to mitigate the adverse fiscal and economic effects associated with the construction and operation of a hazardous waste facility.

Interpretations of authority granted under NEPA served also as the basis for the adoption of this resolution. Both federal courts and regulatory agencies (e.g., NRC, TVA, FPC) have interpreted the act as granting authority to require compensation to mitigate adverse socioeconomic impacts from energy production. Though power plants pose an entirely different set of environmental impacts compared to hazardous waste facilities, the two are consistent in many respects with regard to socioeconomic impacts (e.g., remote locations are generally favored in the siting of both types of facilities). As a result, severe strains may be placed on an underdeveloped infrastructure to provide necessary services (e.g., transportation, emergency response, education, health care, and general public administration). Iowa law does define hazardous waste facilities to be real property, subject to local taxation; but the concern of the group was twofold:

1. That increased service demands would arise prior to the associated increase in tax receipts.

2. That the increases in tax revenues would not adequately cover the increases in service costs.

Regarding the first concern it was felt that some method of financing service expansion would be required apart from normal procedures. Suggestions included prepayment of taxes, loan guarantees and direct payments to local impacted jurisdictions. The second concern was of a longer term nature and posed problems both in estimation and administration. The assumption underpinning this concern was that, at the margin, increased public expenditures would not be offset by increased tax revenues. Such an outcome would require an increase in tax rates. The reasoning was straightforward, but difficult to document. Public administration and service provision in rural areas is often both less diverse and dependent on significant amounts of voluntary effort (e.g., fire protection, planning and administration). If the construction of a hazardous waste facility were to be accompanied by the need for permanent professional staffing in place of what had been previously provided voluntarily, it is possible that the addition of the facility to the tax base would result in a net reduction in the host jurisdiction's fiscal balance.

One solution which has been utilized in such cases requires the formation of a body to monitor fiscal impacts and allocate payments to compensate for facility-related drains on the public fisc. These bodies are typically composed of three representative elements: 1) The agency granting site approval. 2) The host jurisdiction. 3) The owner of the facility. The responsibility of the body is to periodically monitor the fiscal requirements associated with the licensed facility and assess whether the tax revenues generated by the facility are sufficient to cover associated public sector costs. If a deficit balance is estimated, the body is empowered to authorize payment by the facility owner to the host jurisdiction. The aim of this procedure is to internalize all costs associated with the operation of the facility such that no undue burden is placed on the host jurisdiction.

Monitoring and Reporting

Resolution #4 Special provisions for regular reporting of monitoring data to local residents should be required as a condition for site approval.

The participants felt that it was essential for local residents to have comprehensive first-hand knowledge of the ongoing status of health and environmental impacts associated with a hazardous waste facility. The procedures by which this would be accomplished, however, could not be agreed upon to everyone's satisfaction. This was due primarily to the consideration that local interpretation of the monitoring data would usually require some form of outside assistance. Some people felt that a DEQ employee should be stationed in the community and be available at all times to respond to the inquiries of local residents. Others felt that a local oversight group would suffice. Whatever the reporting mechanism chosen, the group considered frequent and understandable reporting to be a prerequisite to public acceptance of hazardous waste facilities.

Conclusion

As noted in the opening section, the discussion group was composed of factions which could have been expected to conflict rather than consent on many topics of discussion. To a large extent this was not the case. This may be due in part to the effectiveness of the group discussion leader,* who served as a constant "regulator," ensuring that discussion addressed the agenda, and not a particular individual's philosophical opponent. This effort produced a clarity on many issues which the author feels led to a more comprehensive understanding by all parties.

It must be noted that agreement is more readily achievable at the conceptual stage as opposed to when formal siting review is actually conducted. But by establishing procedures which are representative and legitimate in the conceptual phase, a greater security in the validity of later siting decisions may be achieved.

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*Our thanks to Rex Honey in this regard.

CONCLUDING REMARKS

Senator John Culver

For many years I have had two abiding interests that are closely related. One is in the study of the future and the attempt to develop foresight capability that will enable us to steer around avoidable crises in years to come. The other is in history--particularly that of our own country and state.

These two interests intersect in this important and timely conference on hazardous waste disposal siting.

As I said in the recent state convention of the Izaak Walton League, the problem of toxic chemical wastes and spills is "certain to become the single most important environmental issue of this new decade." It is clearly a problem that must be faced squarely by citizens and by government at all levels. It is necessary to draw from the experience of the past in order to assure a safer and more healthful environment in the future.

One of the first notable historians in this part of our country was an Indian--the legendary Chief Blackhawk of the Sauk tribe. He is known in history as the leader of the Black Hawk War of 1832--not really a war but an act of final, desperate resistance of the Indians in this area against the westward movement of the whites. From the front yard of our home in McGregor, you can see across the Mississippi River the spot in Wisconsin where Blackhawk was overtaken by the U.S. Army and placed in chains.

In dictating his autobiography, following his defeat and capture, Chief Blackhawk spoke these words of wisdom to the people who had taken possession of the traditional Indian lands that he loved.

"My reason teaches me that land cannot be sold. The Great Spirit gave it to his children to live upon and cultivate as far as it is necessary for their subsistence... Nothing can be sold but such things as can be carried away."

This is a classic statement of our role as stewards of our heritage. We own the land, but in a larger sense it owns us. It is not ours to despoil or degrade or contaminate. It is ours to enjoy and make fruitful but only with the understanding that we hold it in trust for generations to come.

We as a nation for too long paid little attention to the generation, distribution and disposal of toxic materials. We dismissed these wastes as the inevitable consequence of a modern, industrial society. We thought that they could be safely buried and forgotten about. If a problem were to arise from the accidental release of dangerous chemicals into the environment, we were confident that we had the technology to deal with it.

Recent events have shocked the nation out of this complacency. Names like "Love Canal" and "The Valley of the Drums" have become household terms symbolizing the public dread of unseen poisons getting out of control to pollute rivers, threaten ground water and harm human health in ways that are still only imperfectly understood.

Just consider the dimensions of the problem:

--Each year 34 million tons of hazardous wastes are disposed of, 90 percent improperly.

--There are more than 275,000 sources of hazardous wastes in the country.

--The Environmental Protection Agency estimates as many as 50,000 potentially dangerous chemical dump sites in the nation. The cost for cleaning them up properly is estimated as high as $50 billion.

It would be folly for Iowans to assume that toxic chemicals pose problems only for large, industrial states. The great food-producing states like ours have a paramount interest in preserving the quality of our precious soil, controlling runoff and preventing leaks from dump sites.

In the first six months of 1979, the Iowa Department of Environmental Quality has reported 174 hazardous substance releases in our state. Fortunately, most of them have been minor. But the warning of potential danger is nonetheless unmistakable.

As you know, the LaBounty dumpsite in Charles City has leaked toxic and hazardous chemical wastes--including the known carcinogens, arsenic and benzene--into the Cedar River. Fortunately this was discovered before any chemicals seeped through the bedrock into the underlying Cedar Valley acquifer--the primary water supply for 300,000 Iowans.

I worked with EPA officials in the past year to have LaBounty designated as a demonstration site for developing the best methods to contain and isolate leaks. Containment work is now underway, and contamination of the acquifer remains a blessedly remote and unlikely possiblity.

The public policy challenge facing all of us is to assure that such sites are identified, closely monitored, and promptly cleaned up at the first sign of leakage.

As Chairman of the Senate Resource Protection Subcommittee, my major work during the 96th Congress has been to devise effective solutions to the mushrooming hazardous waste problem. It is not generally realized that dumpsites, like bridges and highways, wear out, particularly if poorly constructed. An important part of our task is to assure that modern waste disposal sites incorporate the most rigorous design standrds to minimize the possibility of leaks or accidents.

Last year, my subcommittee reauthorized the Resource Conservation and Recovery Act (RCRA) which requires that "state of the art" technology be used to design and construct waste disposal sites and to monitor them for 20 years after they are filled and closed. Equally important, the bill calls for a "tracking" system which traces wastes from their inception through their ultimate disposal. This tracking system will help eliminate danger posed by the so-called "midnight dumpers" who drop chemical wastes in rivers or streams or deposit them at night along the side of a road.

But again, we must not delude ourselves into believing that with these safeguards the problem is solved. We can never be certain that the technology we have today--even the best we have--will be sufficient to contain chemical wastes for 30, 50, or 100 years.

Ultimately, the most effective way to solve the waste problem is by reducing the ever-expanding stream of wastes through conservation, recycling, and through the incineration of those wastes that can be destroyed at high temperatures. In the meantime, we still have to come to grips with the problems of releases from old or abandoned dumpsites and respond quickly to chemical poison spills resulting from accidents or improper handling.

In the past two years, my subcommittee, along with the Environmental Pollution Subcommittee, chaired a series of extensive hearings, in Washington and in other cities across the country, including Charles City and Niagara Falls, site of Love Canal.

Following the hearings, I introduced S. 1480, "The Environmental Emergency Response Act." After months of comprehensive consideration and modification, the Environment and Public Works Committee reported this bill yesterday, and floor action in the Senate is scheduled for August.

S.1480 rests on two basic principles:

First, the federal government should have the authority to move in where toxic poisons are creating problems and clean up the pollution, restore natural resources and provide some compensation to innocent third-party victims.

Second, those who reap the economic benefits of producing these toxic chemicals should pay the costs of damage and clean-up resulting from the spread of these substances and their wastes.

This is not a regulatory bill. It does not mandate new government-established standards. It requires no big new bureaucracy to implement it.

Instead, the bill encourages personal responsability. Those who handle dangerous materials will have an incentive to be more careful in order to avoid liability for harm to the environment.

It is a complex bill but an extremely important one. I believe that you will be interested in some of its important provisions and their impact on Iowa.

The main component of the bill is the establishment of a fund--financed through a combination of fees on the raw chemicals and oils used to make hazardous substances and general appropriation--which can be used to respond to a variety of chemical accidents.

The fund, which will be phased in up to an annual level of $800 million, can be used to clean up a chemical spill, such as an overturned tank truck; or to contain leaking at a waste disposal site, through building a collection

system to avoid contamination of drinking water supplies. The fund could also be used to physically remove the waste from the site, if it were necessary to protect the population and surrounding resources.

This provides a rapid response mechanism so that the damage can be minimized. While those responsible for causing the problem are not removed from liability, the fund is available to assure that the incident will be quickly and completely cleaned up.

In addition to responding to environmental emergencies, the fund can also be used to compensate third parties who have been injured as a result of these incidents. People who suffer from exposure can be reimbursed for their out-of-pocket medical expenses for up to six years. And if the chemical release is serious enough to force the evacuation of citizens from their homes --as has happened at Love Canal--the fund would be available for relocation costs.

Agricultural states like Iowa are highly vulnerable to poisonous accidents. Waste products can easily pollute fertile soils or contaminate feed, livestock and crops.

For example, in Montana last year highly toxic PCBs accidentally leaked from a transformer in a feed-processing plant. Before this was discovered, the contaminated feed ahd been sold in 19 states. Almost $2 million worth of hogs, chickens, turkeys and eggs were destroyed.

While the number of such chemical incidents affecting agricultural loss may be small, individual situations can cause devastating economic losses on innocent parties.

S. 1480 offers protection for our vital agricultural sector. It contains a provision I offered during committee markup to compensate farmers, cooperatives and food processors for income or capital losses resulting from chemical spills.

Iowa farmers will benefit from this legislation because it will cover losses for livestock, poultry and eggs, and other agricultural commodities that are contaminated or destroyed because of contact with poisonous chemicals. I would also compensate individuals if their productive lands were destroyed or their value substantially reduced as a result of a chemical incident.

This provision recognizes the unique situation of farmers and processors. Often, the loss of a livestock herd or grains can cause devastating economc loss for individual farmers. Similarly, the economic collapse of a processing plant or cooperative can deprive the surrounding agricultural community of its primary outlet for its produce. Farmers have enough to worry about from the uncertainty of the weather and natural forces without also risking economic ruin because of poisonous chemical contamination. As a result of this provision, they will be able to avoid economic ruin and assure the rapid replacement of agricultural commodities to minimize livestock and produce shortages.

Lastly, it should be emphasized that this legislation exempts the use of registered pesticides and normal field applications of fertilizers from its liability provisions, leaving these matters to the jurisdiction of exisitng laws.

Enactment of S. 1480 is my highest environmental priority for the 96th Congress. Every day we delay means more hazardous waste spreading into our precious groundwater, poison spills that go unattended, and innocent victims uncompensated.

Considering the urgent need for this legislation, I would like to be able to tell you that enactment of S. 1480 will be easy. But as in the case of most landmark environmental legislation in the past two decades, the battle will be hard-fought.

One is reminded of the familiar observation of Santayana--that those who ignore history are doomed to repeat it. Quite obviously, a society that ignores the environmental and health effects of its chemical wastes is doomed to pay an enormous price later--enormous in terms of human suffering and disease, enormous in terms of polluted resources, and enormous in terms of the economic cost of trying to correct the problem later--if it can be corrected at all.

Last year, the director of Michigan's environmental quality department commented on the extensive chemical pollution in his state. He said: "Chemical contamination may be so widespread and pervasive... that it is to the point where we may find it cheaper to simply write off the goundwater supplies of large portions of southern Michigan."

Think of the implications of this statement. How do you "write off" goundwater? What alternatives are there?

One of the most moving experiences I have had in Congress was hearing testimony before our subcommittee by residents of the Love Canal area.

Mrs. Ann Hillis, one of the witnesses, recounted this incident at a meeting between Love Canal residents and New York state health officials.

"A nine-year-old child asked... 'Will I grow up to be a normal man?' The state told his parents not to let him sleep in his bedroom for chemicals were found there. The boy has asthma. His father has asthma. His mother and his brother have epilepsy. They remain in that home for they do not have the financial means to get out--like almost everyone else."

Currently the state of New York has spent $24 million to try to control further leaking from Love Canal. The total containment bill may reach $50 million. Lawsuits resulting from the tragedy aproach $2 billion ($5 billion estimated earlier in your workshop).

The next witness at that hearing was a representative of EPA. I asked him what the cost would have been to design Love Canal correctly so that the leakage wouldn't have occurred. The answer was $4 million. With the wisdom of hindsight, we can see that this would have been a bargain.

I want to thank all of you who are participating in this important conference. As Chief Blackhawk suggested so vividly, we do not own our God-given environment; we are only its stewards. By being faithful to that stewardship, we are keeping faith not only with our own generation but with generations to come.

Appendix I

Hazardous Waste Management: A Matter of Local, Regional and State Cooperation and Planning

Joann Muldoon

HAZARDOUS WASTE MANAGEMENT: A MATTER OF LOCAL, REGIONAL AND STATE COOPERATION AND PLANNING

Joann Muldoon*

On July 7, 1979, The New York Times printed the article, "Keeping Love Canal Out Of Our Backyard," from which the following quote is taken. The author is Eckhardt Beck.

> The games we play under the laws of nature--particularly those that pertain to the disposal of hazardous wastes--seem riddled with mistakes, ignorances, and ultimately catastrophic excesses.
>
> Our country recently has endured an unprecedented spate of toxic-related episodes, all of which bear some resemblance to New York State's Love Canal where 300 families had to be evacuated after their homes became dangerously contaminated by poisons from a leaking chemical burial site.
>
> The Love Canal, like other such disasters, involved chemical by-products placed in the ground in ways that are destined to remain an object lesson of how not to dispose of hazardous wastes. Furthermore, there is not even the smallest consolation to be had in the fact that these faulty disposal operations were active decades ago. The Environmental Protection Agency estimates that a significant amount of today's hazardous wastes (about 90 percent) are being disposed of improperly.
>
> The great irony emerging is that both mistakes of the past and those of the present are leading us to the brink of perpetuating a whole new set of equally serious miscalculations.
>
> It works this way. The typical reaction to a tragedy like Love Canal is to assume that all chemical waste disposal methods are inherently unsafe, which leads people to say, "I don't want them dumping it my backyard."
>
> No one wants it dumped in his (or her) backyard, of course. So what we are left with is the five million metric tons . . . of hazardous wastes generated in the United States yearly.
>
> The hazardous wastes generated in this country are not going to go away.

The failure to date to manage hazardous wastes in Iowa threatens the quality of our natural resources--particularly our drinking water--and our health.

In Iowa now, run-off and seepage from the dumping of hazardous wastes are investigated only as citizens complain or inquire about possible problems. In the investigation of such complaints, the Iowa Department of Environmental Quality and the Environmental Protection Agency have found that:

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- Fifteen pounds of arsenic and 25 pounds of orthonitroaniline seep into the Cedar River each year from the La Bounty dump near Charles City.

- Pesticide wastes of unknown amounts are seeping from lagoons at the Helena Chemical Company near the Des Moines River.

- Kepone, PCBs, and other banned pesticides are stored throughout Iowa. The amounts and sites of stored pesticides are not known.

- Mercury, lead, chromium, cadmium, and arsenic have been found downstream in various open dumps of hazardous wastes throughout the state.

The lack of systematic monitoring of the generators and disposers of hazardous wastes, as well as the lack of systematic monitoring of surface and ground water below dump sites, makes pinpointing the effects of drinking water contamination on health impossible in most cases. However, one study published in the Journal of the Iowa Medical Society by Dr. DeKracy (1979) shows that Iowans in the communities of Pella, Hamburg, and Ottumwa, which take their drinking water largely from the Des Moines River or other Iowa rivers with elevated levels of PCBs (source of PCBs unknown), have had unexpectedly high rates of lymphoma, compared to the communities of Keosauqua and Oskaloosa which take their drinking water from deep wells or rivers with lower levels of PCBs.

Known illnesses from prolonged exposure to toxic agents which are now disposed of in Iowa include:

arsenic	poorly differentiated epidermoid, skin cancer, scrotal cancer
cadmium	lung cancer, prostate cancer
chromium	bronchogenic cancer
kepone	weakness, memory loss, blurred vision, tremors
mercury	neurological and behavioral disorders
PCBs	lymphatic cancer--Hodgkins and non-Hodgkins

(Source: Healthy People, DHEW, 1979)

As a result of a nationwide concern about hazardous wastes, federal and state legislation has been passed to set up programs to manage--that is to plan for and regulate--hazardous waste. Citizens and their community leaders in Iowa are at a juncture. They will, within the next couple of years, face hard decisions about:

- what kinds of facilities for the treatment, storage, or recycling of hazardous wastes will they want for their community or region based on the kinds of wastes a community produces, the industries which the community wishes to attract, and the effects on the health of the community;

- where in Iowa, in their region, or in their community, will the hazardous wastes which each county or region generates be treated, recycled or stored;

- who at the local and regional level will provide input to the State for hazardous waste management--what role will counties and regional associations of government play, and what role will private industry play; and

- how will local, regional and state hazardous waste management be funded.

The remainder of this paper presents each of these four issues in some detail. They are offered as background for citizens and particularly for their elected representatives who plan to participate in the Conference on Iowa Hazardous Waste Management, "CITIZENS FUTURE STUDY: HAZARDOUS WASTE FACILITY SITING IN IOWA," on June 26-28 in Iowa City, or who otherwise want to know of the issues regarding hazardous waste management in their communities. Decisions and public recommendations to the state legislature and to DEQ from local elected officials and other citizens on the management of hazardous wastes in Iowa will be the outcome of the June conference in Iowa City. So it is vital that as many county and regional associations of local governments as possible are represented.

WHAT KINDS OF FACILITIES WILL A COMMUNITY WANT?

For a community to decide about the kinds of facilities for hazardous wastes it wants, citizens need to know the amounts and toxicity of the hazardous wastes generated in our communities and something of the safety of the current methods of treating, recycling and storing those wastes.

The quantities of hazardous waste which industry generates in Iowa are staggering. A Department of Environmental Quality (DEQ) study entitled, "Hazardous Waste Generated in Iowa" states that the annual quantity of liquid and solid hazardous wastes generated in Iowa amounts to:

- 35 million gallons of liquid; and

- 600,000 tons of solid wastes.

This amounts to 531 pounds per person per year. If placed in fifty-five gallon drums side by side, each year these wastes would line the entire state once, with the northern border lined twice. This count of wastes does not include the waste generated by individuals as they use and dispose of toxic chemicals.

In another Department of Environmental Quality report, "Hazardous Wastes Management: The IDEQ Experience," Charles Miller, director of DEQ's Air and Land Quality Division writes: "The magnitude of the hazardous waste problem . . . forced DEQ to examine the management of hazardous wastes, not simply disposal." 'Management' implies that the first element of any program dealing with solid wastes, and particularly hazardous wastes, must be the reduction of the volume that is generated. Reductions in the volume of wastes generated will require decisions to reduce either the volume of the resources Iowans use or a change in the way we use these resources.

The characteristics of hazardous wastes generated in Iowa are given in the chart which follows.

AMOUNT OF TOXIC WASTES GENERATED
BY CHARACTERISTIC, BY PERCENT EACH YEAR

CHARACTERISTIC	AMOUNT IN MILLIONS OF POUNDS	PERCENT
Flammable	216	14
Pathological	--	--
Toxic	32	2
Corrosive	1,182	76
Reactive	--	--
Unclassified	71	5

These classifications are by primary characteristic, so wastes which are characterized as flammable or corrosive may also be toxic and vice versa. The 2% of primarily toxic wastes amounts to 15 pounds per person per year.

Toxic substances include certain herbicides, pesticides, low-level radiation wastes, heavy metals, and salts. Flammable substances produce burns and fumes. Corrosive and reactive substances cause changes in skin or other matter through chemical processes.

HAZARDOUS WASTES GENERATED,
BY AREA EDUCATION AGENCY QUADRANTS,
BY PERCENT OF COMPANIES WHICH GENERATE

QUADRANT	PERCENT BY WEIGHT	PERCENT BY FIRMS GENERATING
I	9.3	22
II	.3	19
III	2.9	21
IV	81.4	38

Quadrant IV, the southeastern portion of Iowa, contains an inordinately high proportion, 81.4%, of the hazardous wastes generated in Iowa. The fourth quadrant also has more than its share of firms generating hazardous wastes--38%.

What is our technical ability to dispose, treat, and recycle hazardous wastes? For some hazardous wastes, storage, recycling, or treatment technologies which will work are unknown, unapplied, or simply not available. For other hazardous wastes, technologies are known and believed safe. The two charts which follow show the methods of disposal and the methods of treatment now used in Iowa. The percentages of these charts do not reflect what is technically achievable with regard to recycling and treatment.

CURRENT DISPOSITION OF GENERATED HAZARDOUS WASTES IN IOWA

METHOD OF DISPOSAL	PERCENT
On Site of Company	65
In Sanitary Landfill	1
Sent Out of State	11
Recycled/Reused	14
Sewered	9

Ninety-six percent of all hazardous wastes are generated by firms employing more than 100 persons.

METHODS OF TREATING HAZARDOUS WASTES IN IOWA

TREATMENT	PERCENT
Chemical	13.3
Incineration	--
Solidification	--
Neutralization	1.7
Other	.8
None	84.0

Eighty-four percent of the hazardous wastes generated in Iowa receive no treatment.

The technically ideal way, when there is such a way, to detoxify a hazardous waste varies with the substance. For some, spreading them out on relatively impermeable land--clay or consolidated deposits--to decompose through exposure to the sun's ultraviolet light may be the safest method of managing their disposal. For others, long term storage is the only answer. In the DEQ report already mentioned, Charles Miller explains three of the methods of managing hazardous, besides recycling.

Incineration

Organic solvent process wastes may be hazardous due to flammability, toxicity or other properties. Incineration of simple organics (composed only of carbon and hydrogen) will yield harmless carbon

dioxide and water vapor. Incineration in such cases is a suitable disposal route. The temperature required for thermal degradation depends on the product to be incinerated.

More complex organics also may be candidates for incineration, but other factors may affect the decision to incinerate the waste. Incineration yields carbon dioxide and water but with some substances may also lead to harmful products. DDT falls into this class. However, incineration is still the preferred disposal method for DDT since the harmful by-product, hydrogen chloride, can be easily recovered from the exhaust stream and neutralized.

For even more complicated organics, incineration can lead to harmful gases as well as harmful residues or ash. Incineration still may be used, but here it should be considered only the first step in disposal. The key concern is the ability to capture the air contaminants, residues, or solids that are generated.

Chemical Neutralization

Strong acids and bases as well as many toxic mineral salts can be handled by such procedures. While this method can also be applied to many organic pesticides, it should be done with reservation. Chemical neutralization, while destroying the pesticide's original toxicity, can lead to other compounds which could be more or less toxic.

Secure Landfilling, Encapsulation, and Long-Term Storage

These methods are sometimes viewed as a circumvention of the problem rather than a solution. In fact, however, for many wastes these are the only alternatives currently available. As an example, consider a toxic organo-arsenic compound. Incineration, thermal decomposition or chemical or biological decomposition may destroy the compound, but it will not destroy the arsenic that is present.

In fact, no existing method will eliminate the arsenic. Available methods either store the arsenic as it is in the waste stream or place it in a different chemical state. Efforts toward disposal of such types of special wastes should be multi-stepped: first, reduce the element to its least toxic form; second, reduce its volume for purposes of economics; third, isolate the resulting material from the environment.

Under state legislation passed in 1978 to manage hazardous wastes, the Department of Environmental Quality will permit companies to generate hazardous wastes and will permit treatment and storage facilities to dispose of hazardous wastes.

In deciding whether a region, county or community wants to have certain wastes generated in its locale, citizen input from the beginning on the

issuing of permits to generate wastes is essential. Once a community and its leaders have agreed to the generation of a waste, the responsibility for where those wastes will be dealt with also becomes a community, county or regional responsibility.

PLANNING FOR FACILITY LOCATION

The first major issue facing a community being what kinds of treatment facilities it wants based on the health of its members and the local economy, the second major issue for local input becomes where these facilities will be located. Where in the Midwest, in Iowa, in the 16 planning regions, in each county will the hazardous wastes which Iowans choose to generate be stored or treated?

The Department of Environmental Quality will no doubt receive regional and community input as it authorizes facilities to treat or store hazardous wastes in particular locations. However, if citizens and their community leaders first let their concerns be heard at the point of issuing a permit for a particular treatment or storage facility in their community, then they are acting too late. Through the June Conference in Iowa City, citizens can shape the criteria which DEQ uses to permit such facilities.

Beyond shaping the criteria used to regulate the construction of treatment and storage facilities, citizens who want to influence both the kinds and locations of treatment and storage facilities can be a part of developing state and regional plans for solid waste. Such plans are authorized and funded by the federal Resource Conservation and Recovery Act (RCRA) and will set out the scope and structure of hazardous waste management in Iowa. Unfortunately, Iowa will begin approving facilities for hazardous waste treatment and storage before the state and regional plans for solid waste are developed. Federal rules result in the implementation of the regulatory provisions of RCRA before the planning provision. In the case of both permission and planning, for citizens to make informed decisions about the location of facilities they will want to know:

- geology and hydrology of their region--are they suited to the methods which are proposed; and

- costs of treatment and recycling facilities, including whether the volume of wastes will support a certain kind of facility or site.

Regarding the storage of hazardous wastes, a preliminary study by Ray Anderson, Chief of the Iowa Geological Survey's Division of Stratigraphy and Economic Geology, shows that while Iowa has no place geologically suited to high-level radioactive waste storage, strata of shale deposited in Iowa during the Pennsylvania Period are suited to the long-term storage of most other hazardous wastes (which cannot otherwise be treated or recycled). These strata of shale are deposited primarily in southwest and south-central Iowa. According to Anderson, the shale in the southeastern part of these Pennsylvania Period deposits are best suited to hazardous waste storage because, among other reasons, they are in the parts of Iowa where the most hazardous waste is generated. The shale deposits are 1,600 feet thick in places and

form a relatively impervious shield between themselves and aquifers below. In northern and eastern Iowa, geologic deposits tend to allow seepage into ground water supplies and are more likely to be contaminated in the case of an accident. Aquifers close to the surface in south-central and southeastern Iowa tend to be brackish and naturally unpotable.

While parts of Iowa may be geologically suited to a storage area for hazardous wastes which are not otherwise treatable, no specific decisions have been made at this time on the location of any storage facilities. Storage could take the form of sealed containers in trenches, in holes bored in the shale, or in abandoned coal mines.

Geology plays an important role in the decision of where to store untreatable wastes, but a less important role in treatment or recycling waste facilities. Nevertheless, the siting of treatment and recycling centers for hazardous wastes is as important an issue for local communities as the issue of where to site storage of untreatable wastes. For industry, the costs of transportation and the volume of wastes needed to make such plants financially attractive will be factors which influence the choice of location. For communities both cost issues and safety issues will be of concern. No one in Iowa government has yet studied the cost of storage, recycling or treatment facilities in detail.

Drawn by Murray Miller of DEQ staff, a flow chart of one possible blueprint for the flow of various hazardous wastes from generation to treatment, recycling or storage is attached. Under this plan, wastes for which landfill is not available within the state are transported to other states. However, for this to happen, planning with other states and gaining their commitment to such will be needed. In exchange for such committment Iowa may need to agree to store some of the waste for which neighboring states have no adequate method of storage or treatment. Currently DEQ is talking with private industry and environmental protection agencies in other states to determine the feasibility of plannng for inter-state agreements on the construction of treatment facilities and the location of storage sites.

ROLE OF LOCAL GOVERNMENTS

The third issue which requires local input to DEQ is the defining of the role which counties, regional associations of government, and private industry will play in hazardous waste management in Iowa.

DEQ's role has been in part mentioned earlier. State legislation HF 719 established a state hazardous waste management program to:

- develop a plan and program for state management of hazardous waste, including in the plan a description of: current sources of wastes, methods of treatment, and alternatives to land storage; establishment of geologic criteria and identification of areas which meet those criteria; estimated private, public and capital costs of implementing the plan; and addition to or changes in current state legislation;

- adopt rules to implement the act--identifying hazardous waste; and

- adopt rules on permitting generators, transporters, owners or operators of hazardous waste storage or treatment facilities.

HF 719 was passed by the State Legislature as a result of the passage by Congress of the Resource Conservation and Recovery Act, which requires EPA to set up in each state, or delegate, pursuant to the authorization of the governor of that state to a state agency, a hazardous waste management program. Governor Ray delegated DEQ as that state agency.

Other provisions in RCRA allow governors to authorize regional agencies to develop regional solid waste plans. Governor Ray has designated the 17 Regional Planning Commissions in Iowa as these regional planning agencies for hazardous waste. Funding and federal rules on the content of both state and regional plans have yet to be released. However, final rules have been published by EPA for citizen participation which require that the development of solid waste plans involve public input.

With a role for local planning commissions assured, but not specifically defined, now is the time for such commissions to keep abreast of the draft rules on regional and state plans. These drafts are to be released this fall.

While county boards of supervisors have final authority over the location of sanitary landfills within their boundaries, their role, if any, in hazardous waste treatment and storage facilities siting has yet to be defined by the legislature.

FUNDING OF HAZARDOUS WASTE MANAGEMENT

The fourth issue--how hazardous waste management will be funded--is only partially answerable now. The Resource Conservation and Recovery Act allots federal monies for state regulation and planning for hazardous wastes as well as for regional planning for hazardous wastes. It has yet to be decided how the costs will be shared by the state, by private industry, and by regional agencies and local governments.

SUMMARY

Many important decisions are left to be made that will shape Iowa's Hazardous Waste Management Program. Among them are:

- What kinds of facilities for the treatment, storage, or recycling of hazardous wastes will communities or regions want, based on the kinds of wastes a community produces, the industries which the community wishes to attract, and the effects on the health of the community?

- Where in Iowa will the hazardous wastes which each county or region generates be treated, recycled or stored?

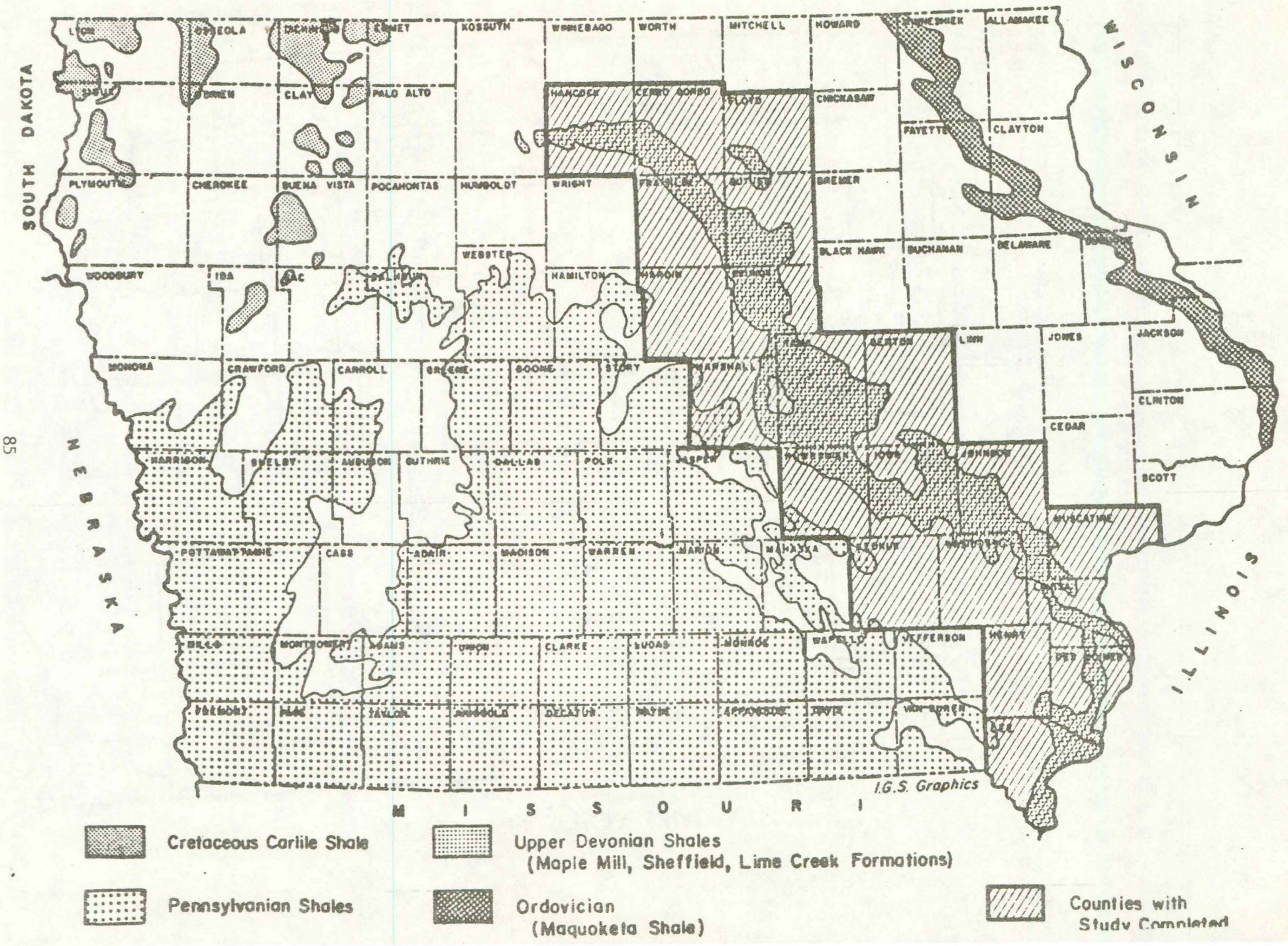
- What roles will community groups, county government and regional associations of local governments have in deciding the issuance of permits, and how will regional plans for hazardous waste interface with state plans in deciding the issuance of permits?

- Who in Iowa will fund the management of hazardous wastes?

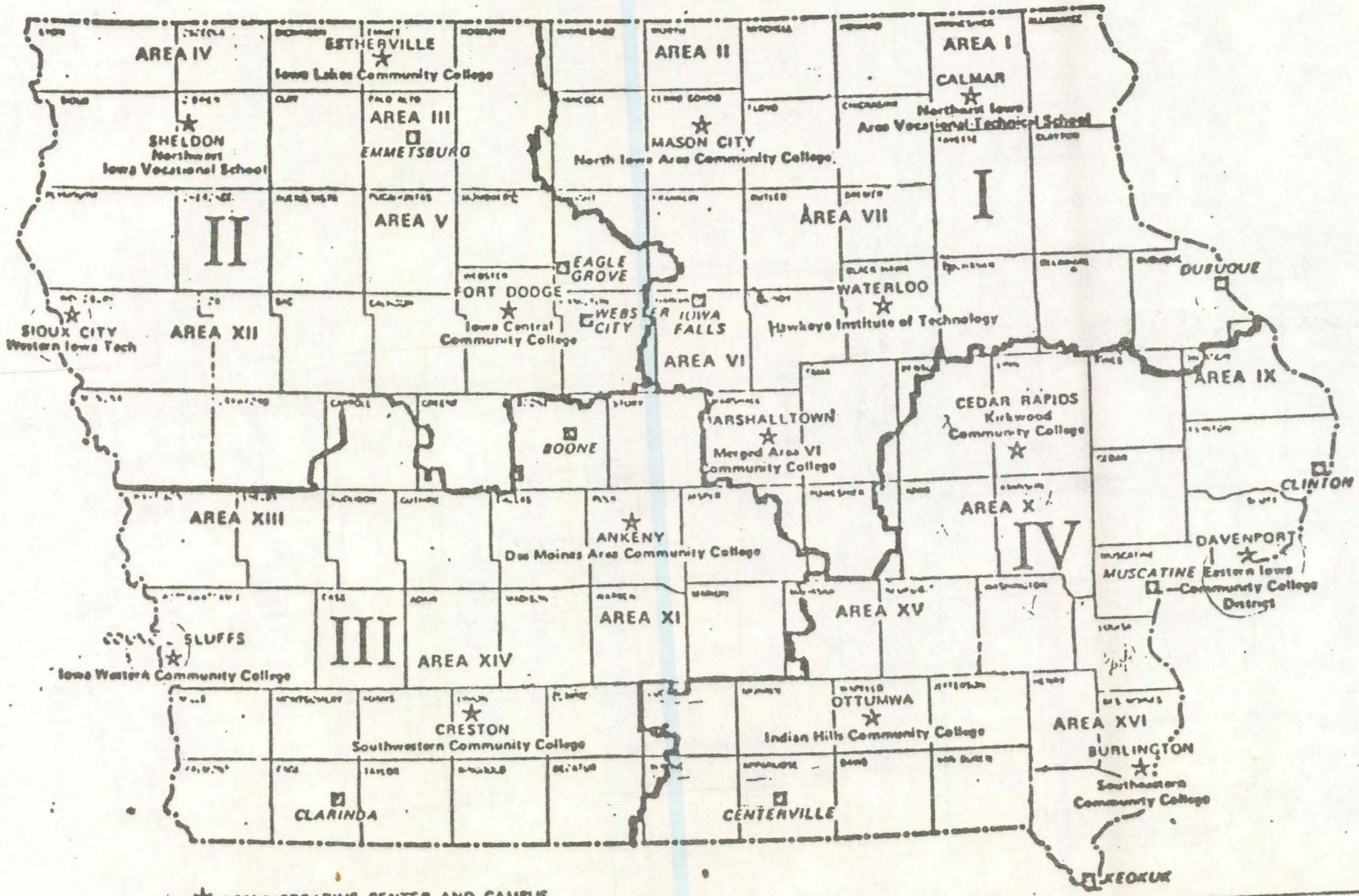
Emotions run high when a hazardous waste disposal site will possibly be located near one's community. The mistakes which have caused contaminated drinking water and ruined health are frightening. In Minnesota, as a result of citizen distrust of government and industry's ability to handle hazardous waste disposal, storage sites of hazardous wastes have been banned altogether. However, dumping hazardous wastes into other states will not work in Iowa, and not for long in Minnesota. Other states will not tolerate it. As Eckhardt Beck said in The New York Times article quoted at the beginning of this paper, "The hazardous wastes generated in this country are not going to go away."

Iowans are setting in motion now a way of managing hazardous wastes which requires the education, voice, and cooperation of state and local government officials, citizens groups and private industry. Decisions on the generation of hazardous wastes, the siting of treatment and storage facilities for wastes, and the role of citizens groups and local government in Iowa's hazardous waste management programs will be made in the next year to year-and-a-half by the legislature and DEQ. Your voice at the Conference in Iowa City on June 26-28 will direct these decisions. Local elected officials have the responsibility to assure the people they represent that they, as citizens, have a voice in shaping Iowa's hazardous waste management program, or Iowa leaders may find themselves part of an emotional outcry which in Minnesota has only delayed the solution to this problem which will not go away.

Figure 1. Hazardous Waste Storage Study
- Possible Geologic Containers -

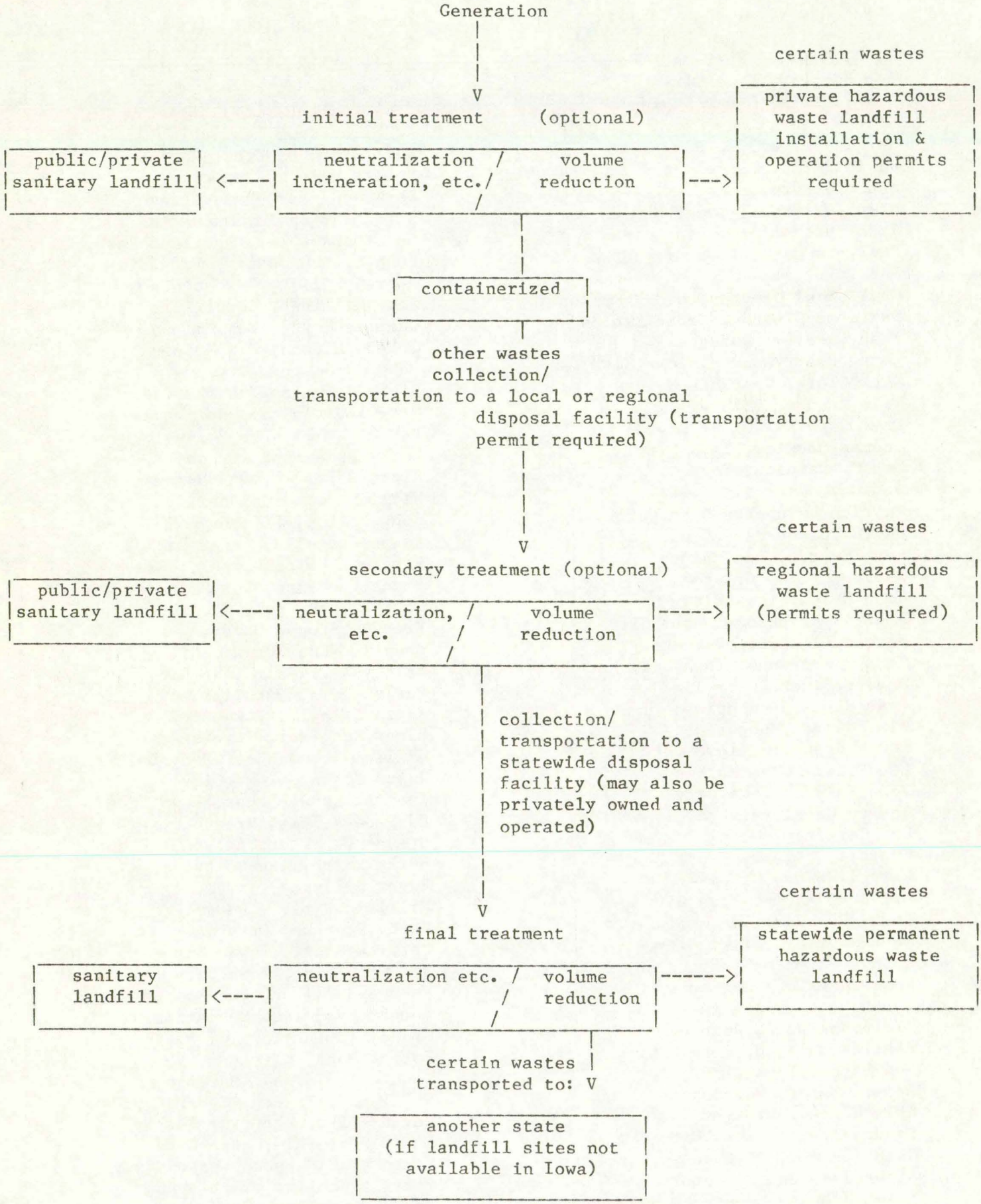


AREA SCHOOL QUADRANTS



★ ADMINISTRATIVE CENTER AND CAMPUS

■ OTHER CAMPUS (AREA SCHOOLS WITH MORE THAN ONE MAIN


Generation
certain wastes
initial treatment (optional)
private hazardous waste landfill installation & operation permits required
public/private sanitary landfill
neutralization / incineration, etc./ volume reduction
containerized
other wastes collection/ transportation to a local or regional disposal facility (transportation permit required)
certain wastes
secondary treatment (optional)
regional hazardous waste landfill (permits required)
public/private sanitary landfill
neutralization, / etc. / volume reduction
collection/ transportation to a statewide disposal facility (may also be privately owned and operated)
certain wastes
final treatment
statewide permanent hazardous waste landfill
sanitary landfill
neutralization etc. / volume reduction
certain wastes transported to:
another state (if landfill sites not available in Iowa)

APPENDIX II
ATTENDANCE ROSTER

David Anderson, Fort Madison
Larry Bailey, West Branch
W. D. Barnum, Fort Madison
Ben Barnett, Iowa City
D. L. Barta, Cedar Rapids
Victor Beat, Iowa City
Marvin Berger, Toledo
David Birks, Rock Island, IL
Ann Bovbjerg, Iowa City
Glenn A. Brock, Cedar Rapids
John Butterfield, Des Moines
Patricia Cain, Iowa City
Pat Cain, Ames
Cecil Paul Cameron, Cedar Rapids
Marianne Cameron, Cedar Rapids
Jean Cheever, Dubuque
Keith Cherryholmes, Iowa City
Jack Clark, West Des Moines
Mike Clouse, Ottumwa
Fred Cordray, Cedar Rapids
Thomas Crowley, Iowa City
Lee G. Dameron, Iowa City
Bob Day, Carroll
Patrick Deluhery, Davenport
David Dockstader, Cedar Falls
Ray Edwards, Des Moines
David Effert, Creston
Jean Epley, Iowa City
John A. Erickson, Mason City
Harold Flaherty, Dubuque
Craig Fernandez, Iowa City
Donald Finch, Carroll
Fran Fleck, Des Moines
Jim Fowler, Muscatine
Karin Franklin, Iowa City
Lee Friell, Des Moines
John Fuller, Iowa City
Andres Garcia-Rivera, Iowa City
Don Gettings, Ottumwa
Everett Greiner, Keota
Cary J. Hahn, Ottumwa
Dr. Rolf Hahne, Iowa City
Dennis V. Hart, Des Moines
John Haugaard, Iowa City
Curtis Haymore, Washington, D.C.
Roger Henkle, Montezuma
Marty Hock, Des Moines
Eldon Hoeppner, Reinbeck
Charles Holland, Forest City
Rex Honey, Iowa City
Robert Huber, Washington
Kyle Hummel, Vinton
Sandra Irvine, Iowa City
Glen Jackson, Ottumwa
Steve Johnson, Davenport
Susan Johnson, West Des Moines
Rich Kammerdiner, Cedar Falls
Brian Kindness, Ames
Phil Kloster, Forest City
Donald Koch, Iowa City
Ron Kolpa, Des Moines
Miriam Landsman, Iowa City
Thomas Lemons, Bettendorf
Jim Lindberg, Iowa City
K. N. Madden, Indianola
Barb Mahroun, Cedar Rapids
Robert Main, Davenport
Park McCalley, Des Moines
Robert McDonald, Muscatine
Chet McLaughlin, Overland Park, KS
John C. McLaughlin, Iowa City
Murray Miller, Des Moines
John Milligan, Coralville
Charles Morse, Des Moines
Joann Muldoon, Des Moines
Doug D. Nestor, Ottumwa
Richard Norland, Des Moines
Mervyl Olsen, Des Moines
Pat O'Malley, Des Moines
Larry Padavich, Ottumwa
Richard Paxson, Des Moines
William Peak, Grinnell
John Pelton, Clinton
Jesse Petrella, Cedar Rapids
Virginia Poffenberger, Perry
Diane Pontisso, Des Moines
Donald Gene Pool, Keosauqua
Fred D. Propp, Ottumwa
Doug Ritsema, Orange City
Melody Rockwell, Iowa City
Carl Rogers, Waterloo
Anita Salazar, Iowa City
Elmer Scheider, Riverside
William Schumacher, Madison, WI
James Schwab, Iowa City
Ivan A. Schwabbauer, Iowa City
Ed Siders, West Branch
Steven V. Sklar, Baltimore, MD
Harry Smith, Iowa City
Roger Splinter, Iowa City
William Staples, Osseo, MN
Kathy Steinke, Ottumwa
Patrick Stoll, Iowa City
Jim Strathman, Iowa City
George Sullivan, Des Moines
Robert Sypowicz, Muscatine
Graham Tobin, Iowa City
Robert Tonn, Clinton
Donald A. Torney, Marengo
William F. Tracey, Cedar Rapids
Kevin Tritz, Browning-Ferris
Scott B. Turkle, Iowa City
Margo L. Underwood, Mason City
Merritt Vanlier, Washington
James C. Walker, Iowa City
Tim Weyenberg, Muscatine
Charles W. Wiggins, Lenexa, KS
Donald Woenisk, Cedar Rapids